

Contents

PART I – INTRODUCTION TO COLLABORATION.....	1
PART II – FIELD RESEARCH ON OPERATIONS AND MAINTENANCE COLLABORATION	6
Introduction: Defining Collaboration.....	7
Chapter I: Literature Review.....	8
Chapter II: Online Survey and Interviews	14
Chapter III: Focus Groups	17
Chapter IV: Case Studies	21
PART III – RESEARCH FINDINGS AND ANALYSIS.....	27
Chapter I: Survey Findings	28
Chapter II: Major Findings	34
Chapter III: Impacts and Influences.....	44
Chapter IV: Other Considerations.....	49
ENDNOTES	Error! Bookmark not defined.
APPENDIX A: DEFINITIONS AND GLOSSARY OF ACRONYMS.....	60
Appendix B: ONLINE SURVEY QUESTIONS AND INTERVIEW SUMMARY.....	65
Appendix C: FOCUS GROUPS	97
Focus Group #1.....	97
Focus Group #2.....	99
Focus Group #3.....	101
Focus Group #4.....	103
Focus Group #5.....	104
Appendix D: CASE STUDIES	106
Case Study - Columbus Regional Airport Authority	106
Case Study - Reno-Tahoe Airport.....	109
Case Study - Denver International Airport	113
Case Study - Gulfport Biloxi International Airport	115
Cast Study – Portland International Airport	116
Case Study - Southwest Airlines.....	117
APPENDIX E: COMMUNICATION MANAGEMENT PLAN TEMPLATE	122

PART I – INTRODUCTION TO COLLABORATION

- 2 Introduction to the Final Report
- 2 Purpose of the Final Report
- 2 Applicable Context for the Final Report
- 3 Intended Audience for the Final Report
- 3 Final Report Organization

Introduction to the Final Report

Chapter 1 of this report is intended to describe the organization, flow and usefulness of the report as it pertains to end users. This chapter introduces the user to the purpose, context, intended audience, organization, and relevant media that will be referenced throughout the report.

According to the Merriam-Webster dictionary, the definition of the word “collaborate” is “to work jointly with others or together especially in an intellectual endeavor” or “to cooperate with an [...] instrumentality with which one is not immediately connected.” Essentially, collaboration is nothing more than individuals working together towards a common goal.

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 organization collaboration is considerably heightened. The Operations and Maintenance divisions must execute tasks round 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.

The research team was tasked with 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.

Purpose of the Final Report

The purpose of this report is to summarize the research efforts and findings used to deliver a thoughtful, user-friendly guidance manual to help bring about change in airport Operations and Maintenance collaborative practices, improving the efficiency of an airport’s critical path to success. The Collaboration Toolbox within the Guidebook has been created so that airports may identify various warning signs within their organization. By diagnosing these points of conflict and inefficiency, these departments can work to understand possible causes of barriers to collaboration. Based on the identified warning signs and possible causes, this report suggests viable strategies to inspire and instill collaborative practices organizationally through a variety of methods and strategies.

Applicable Context for the Final Report

In many respects airports are unique unto themselves. Besides the obvious differences of size (large, medium, small, etc.) their 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 both 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.

This report includes research from literature review along with case studies, focus groups and surveys that were conducted at airports of varying sizes, governance structures, geography, weather conditions, funding constraints and so forth. While many warning signs, possible causes and collaborative techniques can be universally applied, this report and the Collaboration Toolbox will also provide demographic-specific considerations when applicable. Please refer to the legend on page 5 for the icon that represents Airport Size; this icon will be used throughout the report to address airport demographic considerations on a case-by-case basis.

Intended Audience for the Final Report

The report and the Guidebook offer dynamic tools for all levels of airport employees by providing a basis on which to identify existing issues in order to initiate and carry out a successful program for fostering collaboration. The audience for this product will be 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 so. 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 report and the suggested strategies for improvement may be most impactful to staff at both junior and senior levels.

The report and Collaboration Toolbox within the Guidebook are 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 the document.

Final Report Organization

This report is organized to be a practical and user-friendly tool that can assist users in better understanding the conditions and factors that impact a collaborative work environment between

Operations and Maintenance departments, including identifying existing warning signs, understanding possible causes and implementation of collaborative techniques. The Guidebook provides information appropriate to specific steps in the process and provides standalone methodologies and techniques for establishing varying components of a positive work environment. The report is organized into three parts, each with insight, analysis and recommendations for implementing techniques for fostering collaboration for airports of types and sizes.

Part I, “Introduction to Collaborative Airport Work Environments,” provides a general introduction to the report, introducing the problem statement and the overall strategy for this tool.

Part II, “Field Research on Operations and Maintenance Collaboration” describes the approach and methodology that was utilized to compile data and research to develop the report. This includes four focus groups from five airports, six case studies analyzing best practices for airports and industry, and a survey tool along with extensive literature review. Part II is divided into an introduction and four chapters:

- Chapter I: Literature Review
- Chapter II: Online Survey and Interviews
- Chapter III: Focus Groups
- Chapter IV: Case Studies

Part III, “Research Findings and Analysis,” references the research findings from Part II. Summaries are provided including key learning related to organizational design and development, operations management, business management and other resources that provide insight into work relationship influencers. Key factors that impact airport collaboration are discussed, along with impacts, influences, risks and challenges. Part III is comprised of four chapters:

- Chapter I: Survey Findings
- Chapter II: Major Findings
- Chapter III: Impacts and Influences
- Chapter IV: Risks and Challenges
- Chapter V: Other Considerations

“The Collaboration Toolbox,” is the product of the aforementioned research and analysis, and is provided separately within the Guidebook. Based on these findings, the Toolbox contains a list of warning signs, possible causes of the warning signs, and finally a robust and diverse set of strategies for fostering collaboration. Strategies include leadership techniques, human resources procedures, technological upgrades, communication tactics, organizational changes, and other suggestions for collaborative success organizationally.

In addition to guiding readers through relevant charts, tools and other materials, the report 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 a six different airports across the United States. Relevant excerpts from cases have been cited to aid readers as they seek strategies for fostering collaboration.



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.

PART II – FIELD RESEARCH ON OPERATIONS AND MAINTENANCE COLLABORATION

7	Introduction: Defining Collaboration
8	Chapter I: Literature Review
8	General Workforce Collaboration
11	Technology
12	Conflict Resolution
12	Industry-Specific Literature
14	Chapter II: Online Survey and Interviews
16	A Subset of Survey Questions
17	Chapter III: Focus Groups
17	Focus Group #1
18	Focus Group #2
18	Focus Group #3
19	Focus Group #4
20	Focus Group #5
21	Chapter IV: Case Studies
21	Columbus Regional Airport Authority
22	Reno-Tahoe Airport
22	Denver International Airport
23	Gulfport Biloxi International Airport
24	Portland International Airport
25	Southwest Airlines

Introduction: Defining Collaboration

As stated in the introduction of this final report, the Merriam-Webster dictionary defines the word collaborate as “to work jointly with others or together especially in an intellectual endeavor” or “to cooperate with an [...] instrumentality with which one is not immediately connected.” Essentially, collaboration is nothing more than individuals working together towards a common goal. Other sources define collaboration in similar but varying ways:

- Collaboration is all about communication and is dependent on a holistic point of view of technologies, process and people.¹
- 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 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 co-operative 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.

These definitions, along with additional definitions provided by focus group participants and survey respondents, are the basis for this report’s exploration of the dynamics between Operations and Maintenance divisions. Research and data collection for this report was compiled from a variety of resources, including a literature review, an online survey tool, one-on-one interviews, five focus groups and six case studies. The first step of the research approach was the literature review, findings which were used to populate the content of the online survey and interview questions. Subsequently, discoveries from the aforementioned methods were built upon by the more in-depth focus groups and case studies. These materials provide a multi-faceted understanding of issues of collaboration, both from the experience of airport staff and from the findings of academics.

Chapter I: Literature Review

The collection of background materials on existing Operations and Maintenance relationships was a key starting point to developing an understanding of the current culture and state of the industry. This understanding helped inform the possibilities for successful airport operations where maximum efficiency and a collaborative approach exist. The literature review included a thorough study of all relevant literature on Operations and Maintenance, including publications, regulatory requirements, organizational behavioral traits and styles, etc. The scope of capabilities at survey airports to determine the minimum and maximum competencies required for collaborative success was also a point of inquiry. The literature review was the first building block in the construction of user-friendly guidance and other results-focused resources and tools.

Below is a subset of the materials studied in the literature review:

- Airport Cooperative Research Program (ACRP) past studies, such as ACRP study 01-09, Airport Performance Indicators, 10-10, Airport Irregular Operations (IROPS) and Contingency Planning, 03-09, Strategic Planning in the Airport Industry, ACRP Report 49, Collaborative Airport Capital Planning, and 03-18, Business Continuity Planning.
- Collection of current, significant literature in the field of Operations and Maintenance
- Accreditation airport management thesis documents, from AAAE Library, pertaining to Operations and Maintenance activities that require collaborative activities for success
- FAA Part 139, Airport Certification, and associated FAA Advisory Circulars
- Collection of behavioral styles and associated definitions and attributes
- Literature applicable to organizational conflicts – their causes and remedies
- Technology review for tools that can improve workflow and communications
- Literature, training guides and programs from other industries that share significant parallels with the airport industry

A full list of literature can be found in the Endnotes (page 55).

General Workforce Collaboration

Before embarking on the expounding of strategies for collaboration, it was a crucial step to reach a definition of collaboration applicable to the airport industry or any workforce. Literature on workforce collaboration also provided insight on the long list of benefits of collaboration, including increased efficiency, financial advantages and innovation.

According to *Lifetime Hire: Chief Executive Guide: The War for Talent*, hiring is where organizational success begins. The importance of targeted hiring practices is a major theme echoed throughout not only the selected literature but also the focus groups and case studies. However, in order to ensure candidates are appropriate long-term selections for a company, that company must first establish a unified vision for their organization and emphasize their company's culture.



Case Study: The Reno-Tahoe International Airport attributes the fruitful collaboration between their Operations and Maintenance teams almost entirely to their unique approach to hiring. Emergenetics, a psychometric profiling instrument, is not only the main consideration for hiring candidates but is also referred to company-wide for teambuilding and daily communication. The Emergenetics instrument is 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. The organization hires behavioral consultants to screen and interview candidates based on their “colors” and the attributes best suited for the position in question. The Human Resources department also strives to hire individuals with a diversity of thinking patterns as well as cultural, gender and ethnic diversity. Employees are also leveraged in interviews to assure that the candidates will be beneficial to that team’s unique culture and skillset. The process is not standardized, but customized for every position.

The concept of culture is particularly important when attempting to manage organization-wide change. The *Field Guide to Leadership and Supervision* provides a particularly enlightening perspective on company culture and assessment guidelines for culture discovery. This article defines four major culture categories as follows:

- Academy Culture: employees are highly skilled and tend to stay in the organization while working their way up the ranks
- Baseball Team Culture: employees are “free agents” who have highly prized, high demand skills and can easily find jobs elsewhere
- Club Culture: the most important requirement for employees in this culture is to fit into the group
- Fortress Culture: employees don’t know if they’ll be laid off or not because they organization undergoes massive and relatively frequent reorganization

Several different sources in the literature review examined Southwest Airlines as an exemplary model of positive company culture and cohesiveness. These studies of Southwest Airlines, along with the company case study, helped inform many of this report’s recommendations in the Toolbox and Strategies sections of the Guidebook.



“Above all, employees will be provided the same concern, respect, and caring attitude within the organization that they are expected to share externally with every Southwest customer.”

– Jim Wimberly, former Executive Vice President of Southwest Airlines

Discussions of leadership include recommendations for mentoring programs and the individual and organizational benefits of such programs. In one resource, Author Randy Newton explains the process and vision behind the Corporate University (CU) concept as a strategic tool for organizational and

leadership development (Newton, 2009). The CU method includes course topics for employees such as effective communication, managing conflict and change, performance measurement, risk management, team building and strategic planning and recommendations for CU implementation.

Other general workplace themes presented by the literature review include:

- Office design
- Generational considerations
- Organizational hierarchy and structure
- Other beneficial tactics in lieu of collaboration
 - Accommodation
 - Avoidance
 - Compromise
- Aligned incentives and participative management
- Strategic planning

This final report will provide the most applicable tools and recommendations from the literature review in the Strategies chapter. For a full list of literature references, please refer to the Endnotes (page 55).

Technology

As many industries have become increasingly reliant on technology, automated tools and methods of communication have exhibited significant impacts on workplace collaboration and efficiency, both positive and negative. A major portion of the literature review was dedicated to researching the known influence of technology on daily procedures and employee relationships as well as to technology recommendations beneficial to fostering collaboration.

The major role of technology, according to *Information Technology for Management: Transforming Organizations in the Digital Economy*, is to provide organizations with “strategic advantage by facilitating problem solving, increasing productivity and quality, increasing speed, improving customer service, enhancing communication and collaboration, and enabling business process restructuring.”³¹

Collaboration in complex and dynamic environments such as hospitals, airlines and disaster response teams is challenging; high performance requires smooth coordination across multiple groups whose incentives, culture and routines can conflict. A careful examination of the sources, coping mechanisms and consequences of coordination breakdowns suggests three factors whose absence may impede effective responses to unexpected interruptions:

1. Trajectory awareness of what is going on beyond a person’s immediate workplace
2. Information systems integration
3. Information pooling and learning at an organizational level

Technology can positively influence each of these three factors, as it enables employees to quickly and succinctly gather and disseminate information about and to the rest of the organization.

The airport industry is a complex environment experiencing continuous change in systems, technologies, and regulations. It is the duty of the airport management team to ensure that its employees are given

sufficient equipment to maintain the safety and security of this critical transportation system— to invest in the safety of its airport. It is essential to provide these same employees with the means for directly accessing accurate data in order to maximize their situational awareness. It is also vital that an airport’s Operations personnel are equipped with the technology it requires to inspect, respond, and adapt to the environment we place them in. Computer-Based Vehicle Technology gives Operations the resources to confidently respond to a myriad of incidents and alert responses, complete inspections, or provide emergency management with real-time data.

In certain circumstances it was found that technology upgrades aided in diffusing conflict between Operations and Maintenance groups, particularly in regards to work orders and task prioritization. One case study performed at Watertown Regional Airport reported that the implementation of a computer program for enhanced communication and data integrity diffused tension between departments.⁸ This diffusion is attributed to the fact that the program made more of the difficult decisions in regard to how inspections were conducted and how Maintenance should respond, thereby reducing the chances of employees feeling personally attacked or singled out.

Using Technology to Improve Workforce Collaboration 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 technological improvements. However, it is notable that at least 20 percent and as much as 50 percent 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-intensive industries.¹² This statistic emphasizes the importance of carefully targeted collaborative strategies to decrease inefficiencies rather than increase them.

A subset of technology tools pulled from the literature review:

- Video conferencing
- Email
- Fax
- Instant messenger clients
- Social media
- Blogs and RSS
- Podcasts
- Web meetings
- Wikis
- VoIP
- Text messaging
- Automated work order systems

Conflict Resolution

Researcher Jeannie Trudel of Indiana Wesleyan University-Marion discovered in a poll of 1000 individuals that 43% of Americans say they experienced incivility in the work place, this being defined as a form of organizational deviance. This can be noted as “low-intensity behaviors that violate respectful workplace norms or in other words rudeness, insults and plain old bad manners.”³¹

Co-presenter Paul Fairlie suggests “There are higher work demands, longer hours, lower pay, more fluid job descriptions, less role clarity and longer work hours,” all of which translate for some people into a workplace that is more toxic.³¹

Understandably a significant amount of research was conducted on the topic of conflict resolution as a foundation for both instilling and maintaining a collaborative environment. It's safe to say that all industries deal with conflict resulting from generational, cultural and educational differences among employees, therefore the literature covering conflict resolution comes from a variety of resources. In response to the root question posed in the introduction of this report, "Why does there seem to be less collaboration between Operations and Maintenance in comparison to other departments and divisions within airport organizations?" The literature review sought to address the sources of conflict between these two divisions and find effective strategies for conflict resolution.

The Conflict over Conflict Management addresses the traditional and progressive views of conflict management systems. Those in the traditional camp, which includes some managers and business leaders, believe that conflict management systems help legitimize workplace conflict and inevitably lead to higher levels of employee participation in decision-making than is desirable. Those in the progressive camp, which includes some unions, civil rights groups, and plaintiff's lawyers, oppose attempts by management to control the workplace and the workforce without taking account of the interest of other stakeholders. Ultimately, the level of fit between an organization's conflict management philosophy and its strategic goals and objectives dictates whether the conflict management system will enhance or hinder key stakeholder outcomes.³³

One case study examined during the literature review includes the Maimonides Medical Center Model of alternate dispute resolution (ADR). The Maimonides Medical Center model demonstrates how a collaborative culture can not only reduce conflict, but also address it effectively when it arises. The challenge of transforming labor strife into positive labor management relations, changing the hospital culture to emphasize respect over hierarchy and power, training staff to communicate better, and designing and implementing an informal ADR process to address interpersonal conflict, are complex but worthwhile endeavors.³⁴

The Collaboration Toolbox within the Guidebook more specifically addresses potential causes of conflict and strategies for resolution and fostering collaboration. This includes analysis of conflicts due to generational differences, miscommunication, technology tools and more.

Industry-Specific Literature

The collected literature for collaboration research spans a variety of different industries, including studies and articles specific to airports and airlines. These industries are:

- Technology
- Fire and Emergency Medical Services
- Hotel/Hospitality

Findings from the fields of technology, emergency services and hospitality are applicable to this report primarily because of the aviation industry's direct affiliation with each field, but also because of their dynamic and fast-paced environments.

An article delving into the culture of innovation at IBM sheds light on the impacts of technology on collaboration and recommendations for empowering individuals with collaborative skillsets. One of these

recommendations, which is discussed in further depth later in this report, is the need for a “sales process” to take place within industry leadership to loosen the grasp on information and data that can fuel innovation and encourage workforce growth. Rather than the data concept of protecting one’s knowledge, IBM leverages technology and training toolsets to foster a collaborative environment of shared knowledge and incentives.³⁵

An applied research project submitted to the National Fire Academy as a part of their 2003 Executive Fire Officer Program explores the organizational culture of Chesterfield Fire and Emergency Medical Services (EMS). Because the organization was very passionate about preserving their rich history, they sought an effective training method to communicate and instill their culture into their new hires. Much like airport Operations and Maintenance groups, EMS workers are tasked with the important mission of customer safety. This mission requires that team members are unified in their vision and collaborate for continued success.

Literature specific to the aviation industry exhibits a broad array of strategies for fostering collaboration in a variety of scenarios including common use, Irregular Operations and Contingency Planning (IROPS), inspections, staff organization, small airport settings, training, air traffic management and maintenance procedures. Applicable findings and recommendations for this report are included in the Strategies chapter of this report.

Chapter II: Online Survey and Interviews

Based on the discoveries from the literature review, a number of open-ended, one-on-one interviews were conducted with personnel from 33 airport organizations across the United States. The goal of the selected questions was to gather more industry-specific, day-to-day causes of conflict and poor collaboration as well as what works well and how the airport implements those strategies. A recurring theme in the interview responses was the need for better training programs, both for skill development and for communication. Interviewees also helped clarify potential explanations for observed issues between Operations and Maintenance groups; participants pointed out differences in education, generation, salary, work experience, and airport size. Also provided was an assortment of opinions and recommendations regarding organizational and reporting structure. Whether or not the Operations and Maintenance departments directly report to the same individual, interviewees agree that continuity in leadership is a crucial element of a collaborative workplace.



“Managers of the two divisions must work together and demonstrate this level of cooperation so that all can see it.”

–Interview Response

In the next step to the Supplemental Analysis, the Research Team consolidated data from one-on-one interviews into a Survey Monkey format that was easier to analyze and compare and contrast against online survey and focus group findings.

The benefits of conducting such a survey are three-fold. First, this effort enabled data collection with a much broader reach and more specific audience than that of the focus groups or case studies. The survey participants were carefully selected to represent a mixture of responses from small, medium and large-sized airports, as well as a wide range of geographic location, operational types and governance structures. Selecting participants from a variety of organizational roles, junior and senior, was also a goal of the electronic survey.

Survey Scope

The intent of the research was to interview in person, telephonically or electronically at least 100 airports in a ratio of 80% Large and Medium Hub and 20% Small or Non Hub.

Employment role classes are broken out as follows:

- CEOs
- Managers of Operations or Maintenance
- Employees

Finally, airports are also classified as to how they are overseen:

- State, County or City Governments
- Independent Authorities

- Port Authorities

The electronic delivery of the survey also afforded participants individuality and anonymity. Unlike the focus groups, where teams were gathered to produce collective feedback, the survey tool enabled participants to respond without the influence of their peers and superiors. Questions regarding training, budgetary restrictions, company vision and conflict, due to the somewhat sensitive nature, can be uncomfortable for some employees to answer candidly in a group setting. Similar questions and topics were also posed and studied in the group settings; however the survey tool ensured anonymity for respondents in order to collect the most accurate data possible.

Finally, the Survey Monkey tool enabled the standardization of collected data. Whereas focus group and case study findings were more open-ended and general by nature, the rigidity of the survey results enabled a statistical analysis of data that could be analyzed in a variety of ways. For example, the responses to one question, “Is your organization more reactive than proactive?” can be deconstructed and viewed by key variables such as airport size or position in organization. The variations of variable pairings afforded by the standardized survey tool enable fascinating perspectives and interpretation of data to supplement other research methods.

All survey questions are included in Appendix B (page 65).

A Subset of Survey Questions

4. Please indicate the extent to which you agree or disagree with each of the following statements:							
	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	N/A	Response Count
I understand the process for a work order system, from entering the first request through repair/replacement and close-out.	3.3% (7)	3.3% (7)	9.3% (20)	31.2% (67)	48.4% (104)	4.7% (10)	215
I use checklists for routine work such as inspections, terminal tours, etc.	1.4% (3)	9.3% (20)	14.9% (32)	37.2% (80)	30.2% (65)	7.0% (15)	215
I consider the physical work environment efficient for completing my work and collaborating with others	0.5% (1)	0.5% (1)	14.4% (31)	52.6% (113)	22.8% (49)	3.3% (7)	215
I clearly understand the "Vision" of my organization.	1.9% (4)	8.4% (18)	12.1% (26)	47.0% (101)	30.2% (65)	0.5% (1)	215
This "Vision" helps my organization work together.	2.3% (5)	12.1% (26)	24.7% (53)	39.1% (84)	20.8% (45)	0.9% (2)	215
The culture of my department enables collaboration.	1.0% (4)	15.3% (33)	20.5% (44)	42.8% (92)	18.6% (40)	0.9% (2)	215
My organization is more reactive than proactive.	3.7% (8)	24.7% (53)	26.8% (58)	31.2% (67)	14.4% (31)	0.5% (1)	215
We use planners to schedule our daily work.	9.3% (20)	31.2% (67)	15.8% (34)	31.6% (68)	5.0% (12)	0.5% (1)	215
I am allowed a certain amount of flexibility in the way I complete my work.	0.5% (1)	1.0% (4)	0.3% (2)	53.5% (115)	34.0% (73)	0.0% (2)	215
My department is "customer" focused (note: customer can indicate either internal customers or external customers).	0.0% (0)	8.0% (13)	10.2% (22)	41.4% (80)	42.3% (91)	0.0% (0)	215
My department follows strict rules and regulations.	0.8% (2)	5.1% (11)	21.4% (48)	46.5% (100)	25.6% (55)	0.5% (1)	215
My department has a mentoring program.	11.2% (24)	34.4% (74)	23.7% (51)	19.1% (41)	5.8% (12)	8.0% (13)	215

Chapter III: Focus Groups

In an effort to recognize the specific areas in need of improvement, from Operations and Maintenance standpoints, five different focus groups were gathered. The goal of these sessions was to gather information directly from airport workers, allowing them to brainstorm about effective collaborative techniques in practice within their organizations and in turn shed light on particularly helpful guidance to include in this final report. In order to understand the current conditions at each airport, the focus group participants were asked to define collaboration in the workplace and the enablers, obstacles and risks associated with it.

Information from the focus groups can be found in Appendix C (page 97).

Focus Group #1

During a focus group session the group agreed that successful collaboration comes from an equal focus on individual traits and group effort. Collaboration was best achieved when the group engaged in open communication in order to align expectations on priorities. They expressed that understanding systems, an atmosphere of trust and taking pride in one's job are all crucial elements of fostering collaboration.

The group recognized several obstacles to collaboration in their department; the overwhelming theme was disconnect between leadership and employees and between Operations and Maintenance. Because the two divisions at this airport often have different perspectives on the priorities of tasks, Maintenance may not be motivated to fix issues that they do not see as critical. The group noted that discussions did happen often, but because the consensus was not effectively communicated to leadership, action items would lose momentum or be neglected completely.

A brainstorming session about barriers to trust and methods for building trust revealed issues with negativity and grudges held between team members and departments. Many agreed that a bad incident could cause significant damage to working relationships between staff members, creating a ripple effect of animosity throughout the division. The focus group participants did note that certification inspections and other important events helped employees at least partially lay-aside trust issues to collaborate and ensure a successful result.

After discussing all the details of collaboration, including current department and process shortcomings, group members were asked to recommend what they believed to be the most critical issues at hand that can enhance collaboration between Operations and Maintenance. Answers included:

- Training to instill more robust institutional knowledge for all employees
- Changing out roles and responsibilities between divisions
- Change reporting structure so that both divisions report to the same manager
- Overlapping goals in employee reviews process
- Equitable titles and compensation between divisions

Focus Group #2

Another focus group also expressed that the most important element of collaborative workplaces is trust. Tactics for building trust between employees include communication, respect, and empathy, willingness to compromise, listening and following established procedures.

The group provided the following thoughts about their definition of collaboration:

“Collaboration is trust, coordination, respect and understanding. When there is no collaboration, you hear things like ‘they can’t tell me what to do,’ or ‘they don’t work in this department.’” One way we try to promote collaboration is by having conversations face-to-face.”

Because employees all have different roles and responsibilities, it is likely that they will have contradictory opinions on occasion. The employees at this airport know that they are more effective when they work together, so they focus on conversations and collaborative approaches to problem solving. They understand that conflict is healthy and even useful when exhibited in a trusting and respectful environment.

An initial observation was made that there was a lack of communication after shift changes about what was going on each day in Maintenance versus the experience of the Operations team. This prompted changes in Maintenance communication as well as organization changes such as new personnel and shifts.

Because their previous work environment was not collaborative, a consultant was called in 15 years ago to provide insight and tactics for fostering collaboration. 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 and is still used today.

The airport is implementing a paperless, tablet computer Computerize Maintenance Management System (CMMS) system to automate most maintenance activities. The goal of this system is to push work order to preventative initiatives 75% of the time and corrective procedures only 25%.

The group noted that upgrades in equipment means Maintenance needs more technical understanding. This can impact staffing, training needs, the warehousing of spare parts and senior management often did not understand the ramifications accordingly when new budgets were requested taking these issues into account.

Focus Group #3

A third focus group remarked that an over-abundance of procedures and boundaries is a significant barrier to collaboration in their organization. Because the chain of command is very rigid, junior-level employees are unable to provide input and senior-level staff suffers inefficiencies from battling egos. This includes failure to align priorities, particularly during critical weather situations, and failure to fulfill requirements. Flaws in the organization’s training process were also attributed to issues with collaboration.

These issues with chain-of-command inspired the group to brainstorm about important aspects of collaborative leadership, including trust, participation, mutual respect, information/knowledge sharing,

empowering employees and responsibility and accountability. The group also compiled a long list of ideas and tactics to positively impact the planning process and leadership structure.

After discussing all the details of collaboration, including current department and process shortcomings, group members were asked to choose what they believed to be the most improvement between Operations and Maintenance. Answers included:

- Increasing the level of trust between employees
- Increase employee willingness and proactivity
- Improve information sharing at all levels of the organization
- Granting some authority to employees at all levels of the hierarchy
- Clear vision from employees in leadership roles

Focus Group #4

Three out of five airports where the focus groups were conducted are in locations that typically experience moderate to heavy annual snowfalls, yet one group spoke primarily about their experiences with collaboration related to weather-related topics. This organization hired a consultant to identify gaps in equipment and personnel and to recommend strategies for success. This included a more detailed snow plan that was created using input from the entire team. Leadership has invested in extensive training for all team members, focusing on skill development and emphasizes the importance of personal accountability and ownership.

Bi-weekly Operations and Maintenance meetings foster collaboration and provide solutions to issues. The introduction of post-storm metrics reviews, despite hesitations due to fears of finger pointing, has been very positive. These reviews allow team members to analyze their performance, celebrate successes and make process changes as appropriate.

Tools and ideas for collaboration from the participants were largely suggestions for increasing efficiency as a stepping-stone to collaboration. Tactics include additional planning, cross-departmental training, standardization of processes and solution-focused approaches to problem solving.

After discussing all the details of collaboration, including current department and process shortcomings, group members were asked to choose what they believed to be the biggest improvements in the relationship between Operations and Maintenance. Answers included:

- Understanding and acceptance of department dependencies on one another
- Building trust and respect
- Increasing effective communication practices
- Establishing common goals and vision
- Personal accountability
- Better listening skills
- Willingness to compromise and disagree respectfully
- Have confidence in and respect for employees decisions
- Remember the ultimate goal is to create a safe and positive experience for passengers

Focus Group #5

The final focus group was at a small non-hub airport. Those involved felt that the critical elements relating to collaboration are “tactful communications, people skills, education of all employees and creating a culture of continuous improvement”. A few years ago it was recognized that a stronger skill set was needed in the operations area that included an ability to effectively communicate and to lead a team. With upper management support, past problems were fixed by the selective hiring of a skilled individual from another airport, and by creating the “right structure”.

The new Operations Director was placed in charge of maintenance, but he took an enlightened leadership approach by introducing regular employee meetings related to tenant issues, construction, snow removal, security and assigned work activities. He also developed a unique Computerized Maintenance Management System (CMMS) program that allowed the maintenance workers and management to track the flow of assignments and to clearly identify the priorities.

In addition, the maintenance employees were given specific training related to FAA Part 139 requirements, and they all gained a better understanding of the issues related to FAA’s certification of the airport and the “why” behind many of the work requests. It was also noted that in today’s communication world (email, text messages etc.) special care needed to be placed on common courtesy and in many cases face to face communication was a focus...especially in an area where misunderstandings might exist or easily grow.

Chapter IV: Case Studies

The ACRP Research team conducted five airport and one industry case study to gather additional firsthand information and specific scenarios exemplifying successful or ineffective collaboration in the field. The selected airport organizations include the Columbus Regional Airport Authority, Reno-Tahoe Airport, Denver International Airport, Gulfport Biloxi International Airport and Portland International Airport as well as one airline example, Southwest Airlines. Although Southwest does not have Operations and Maintenance departments in the same capacity as an airport, the company is famous for their extraordinary customer service and united company vision. This case study is useful in that it provides applicable anecdotes and strategies to foster collaboration in any field.

The five airport case studies exhibit five very unique workplace settings. Aside from the obvious differences in size, governance structure and location, each airport has been subjected to unique challenges that have been driving forces of change in their organization's collaborative landscape. What is interesting however is despite their major and minor differences, each case study reveals similar strategies and tactics that have been effective for fostering organizational collaboration.

The full text of each case study can be found in Appendix D (page 106).

Columbus Regional Airport Authority

The Columbus Regional Airport Authority (CRAA) provides strategic operation and management of Port Columbus International Airport (CMH), cargo-dedicated Rickenbacker International Airport, and general aviation airport Bolton Field.

The CRAA exhibits a high level of collaboration due to their leadership's focus on both individual and organizational growth through their eight-step Strategic Business Plan. This case study focused on the first two steps of the plan, "Build a Productive and Engaged Workforce" and "Accomplish Organizational Effectiveness."

Most notable is the CRAA's heavy emphasis on shaping healthy employee relations by fostering open and frequent communication. This is accomplished through hiring and training practices to secure a workforce capable of both the technical and soft skills necessary to complete tasks and work effectively with others from within and outside of their division. Top importance is placed on aligning resources that encourage and support individual professional development; this, along with competitive compensation structures, helps the CRAA to empower their employees on a daily basis. The feedback loop between employees and management helps identify and address issues before they become exacerbated, provide clear direction about expectations and continually build healthy staff communication practices. A challenging, yet fulfilling work environment instills employees with accountability and fulfillment from their jobs.

On a more tactical level, the CRAA has embraced proven management practices by establishing repeatable and scalable standard operating procedures. This includes the continued development, refinement and promotion of process improvement tools and techniques to ensure 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.

This case study provides evidence of the CRAA's effective collaboration through three relatable scenarios including the FAA Part 139 Internal Compliance Inspections and routine airfield maintenance procedures, as well as an itemized list of successful initiatives and techniques implemented by the organization.

Reno-Tahoe Airport

The Reno-Tahoe Airport Authority 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 Cities of Reno and Sparks, Washoe County and the Reno-Sparks Convention and Visitors Authority. Reno-Tahoe International Airport is located 5 minutes from downtown Reno and is currently the 60 busiest airports nationally, serving approximately 4 million passengers each year.

Hire for Attitude, Teach Skills

The Reno-Tahoe International Airport attributes the fruitful collaboration between their Operations and Maintenance teams almost entirely to their unique approach to hiring. Emergenetics, a psychometric profiling instrument, is not only the main consideration for hiring candidates but is also referred to company-wide for teambuilding and daily communication. The Emergenetics instrument is 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. The organization hires behavioral consultants to screen and interview candidates based on their "colors" and the attributes best suited for the position in question. One employee stated that Emergenetics is so integrated into the company culture that statements like "we need to have someone involved in this meeting that is more blue-green."

The Human Resources department also strives to hire individuals with a diversity of thinking patterns as well as cultural, gender and ethnic diversity. Employees are also leveraged in interviews to assure that the candidates will be beneficial to that team's unique culture and skillset. The process is not standardized, but customized for every position.

Weekly meetings and cross training programs are key internal processes that are also responsible for the airport's commendable collaborative environment. The Operations and Maintenance departments understand their role in the greater organization and therefore work hard to show appreciation for other teams and accommodate their needs. Personnel also show commendable levels of personal accountability. Operations personnel are not afraid of getting their hands dirty and will often take care of small matters themselves rather than calling Maintenance to do so. The organization also makes a point to celebrate their successes together.

Denver International Airport

Denver International Airport (DEN) is governed by the City and County of Denver, with the Manager of Aviation reporting to the Mayor's cabinet. The airport is financed by airport operations revenue and is financially independent from the city. DEN is the 5th busiest airport nationally, the largest airport in Colorado and owner of the largest airport property in the nation with an area of 53 square miles. The

airport is currently in the midst of a major project including terminal expansion, a new hotel and the addition of a rail station.

Delegation, not Collaboration

This 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 Operations, Maintenance and Engineering 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.

Impacts

Though the overall consensus is that the decision to defer collaboration was justified and even necessary, the impacts have had a number of negative effects, some of which continue to plague the organization to this day. Below are some examples of the side effects of not collaborating:

- The chosen floor material in the main terminal, originally opposed by Maintenance, has become an ongoing and expensive repair project for the Maintenance team.
- Runway lighting vaults occasionally fill with water and Maintenance must extract the water.
- Relations between Engineering and Maintenance continued to be strained for a prolonged period of time even after the airport opened. Engineering employees felt the need to defend their decisions to the Maintenance team constantly.

After extensive training, changes to management structure and the passing of several years, the relationship between the two departments has improved. Engineering established periodic meetings with Operations and Maintenance departments to provide information on upcoming projects and solicits Operations and Maintenance input into Engineering projects.

Gulfport Biloxi International Airport

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

Crisis Scenario: Hurricane Katrina

This 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 auto 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 or

associated airports. The intervention from SEADOG brought in needed supplies and added workers that helped allow GPT employees to take the necessary time off to attend to their own family's recovery needs during this regional catastrophe.

Does Crisis Foster Long-term Collaboration?

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. Any formerly territorial and uncommunicative tendencies of Operations and Maintenance employees were absolutely set aside due to the shared goal of restoring airport operations during the wake of the crisis.

Interviews were conducted with the Director of Operations and Maintenance and the Director of Planning and Business Development in October of 2012 to reflect on the state of collaboration seven years after Katrina.

Conclusions

The interviewee's agreed that GPT's model of collaboration was strengthened by the Katrina experiences but the improvements are better attributed to the intentional work of the staff in developing and maintaining a positive work culture. Long-term impacts from the SEADOG regional cooperation model are unknown, though it is speculated to have engendered a stronger feeling of teamwork and accomplishment in the staff.

Portland International Airport

The Port of Portland owns and operates three airports including Portland International Airport, and two general aviation airports, Troutdale and Hillsboro, 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 four 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 13 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 Department. First, combining Operations and Management 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 also led the Department 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 Department 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.

Southwest Airlines

Southwest Airlines Co., operating as Southwest Airlines, is the largest low-cost carrier in the United States, and is headquartered at Love Field in Dallas, Texas. Southwest Airlines employees are consistently recognized for their positive attitudes and dedication to the company. Their workforce productivity is consistently rated the highest in the industry and customer service scores are one of the best in the airline industry.

Company Vision

Employee empowerment and the perpetuation of the company’s values and culture are often attributed to Southwest’s distinguished team of officials. Herb Kelleher, co-founder, Chairman Emeritus and former CEO, is credited with the creation of Southwest’s defined culture. Kelleher’s values include:

- Determination
- A flair for the outrageous
- The courage to be different
- The ability to love
- Creativity and resourcefulness
- Service as a way of life
- The desire to have fun
- Sincere interest regarding the concerns of the individual employee

This culture is strongly ingrained in the company and all of its employees; employees feel a personal attachment to the core values and strive to uphold them in everything they do. Soft skills that are in alignment with the core values are essential in the hiring process.

Common Goals

Southwest employees describe a company with a set of aligned incentives that motivates both crew members and Maintenance personnel to work together towards common goals. There are no silos or competing tribes in the organization, instead different teams who respect the skills and abilities of their

coworkers and strive to support them. There is a company-wide understanding that everyone is working together towards common goals.

Celebrating Success

The case study provides the story of a Southwest airport station manager who overspent her budget and went the extra mile to help a cancer-ridden passenger and her daughter make it in time for a doctor's appointment when their flight was grounded due to mechanical issues. Rather than being scolded by her supervisor, the station manager was not only praised, but later honored at a company event for her superior service. The organization makes sure to celebrate success and recognize and reward the individuals who uphold the company vision and contribute to Southwest's reputation for superior customer service.

PART III – RESEARCH FINDINGS AND ANALYSIS

28	Chapter I: Survey Findings
28	Select Survey Opinion Statements
34	Chapter II: Major Findings
34	Broader Participation
35	Work Culture
36	Trust
36	Impacts of Technology
38	Training and Team Building
39	Performance under Pressure
41	Commonalities among Successful Collaborators
44	Chapter III: Impacts and Influences
44	Airport Structure
44	Airport Size
45	Organizational Structure
46	Team Composition
46	Age Discussion
47	Gender discussion
47	Education Discussion

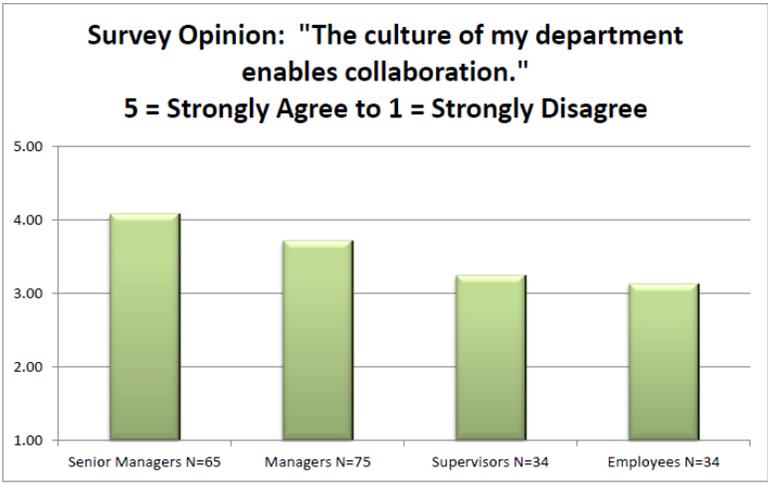
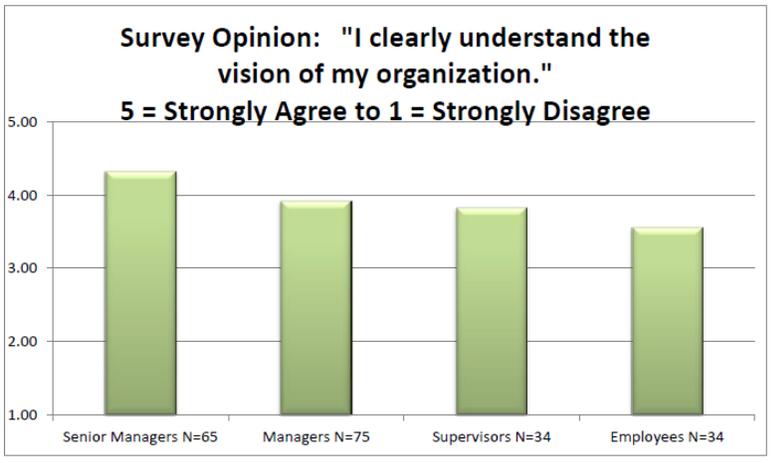
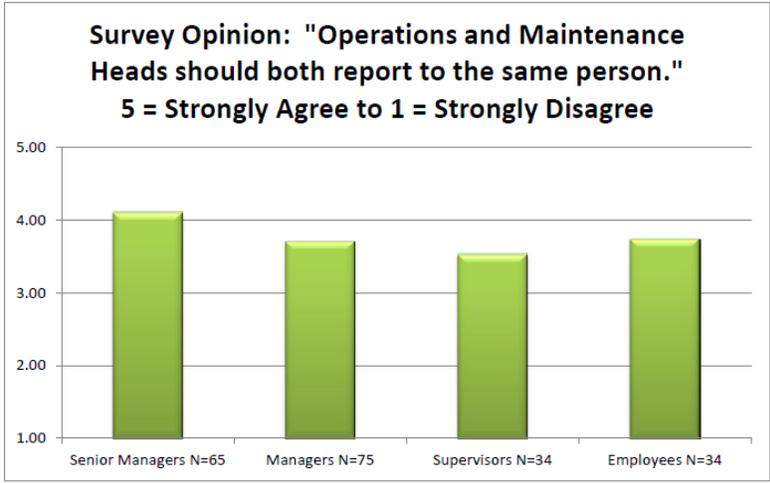
Chapter I: Survey Findings

Select Survey Opinion Statements

Following are select survey opinion statements sorted by key variables – Organizational Role, Airport Size, and Airport Governance Structure – with corresponding analysis. The opinion statements address how well Operations and Maintenance work together, quality of communication between Operations and Maintenance, reporting structure, understanding of organizational vision, and organizational culture.

Select Survey Opinion Statements by Position in Organization





Results of Statistical Comparisons (t-tests comparing means)

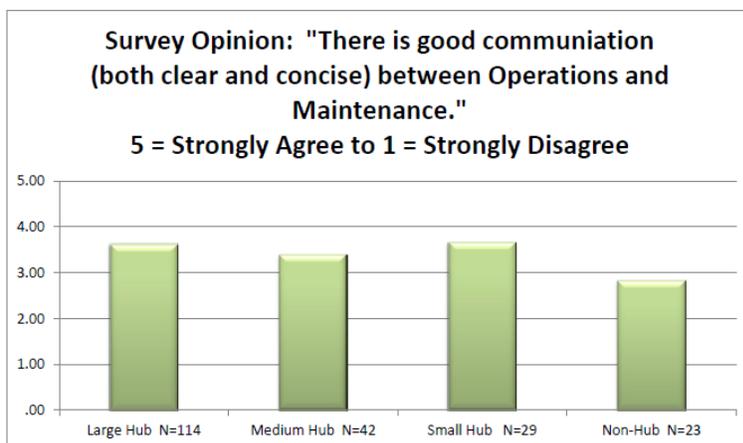
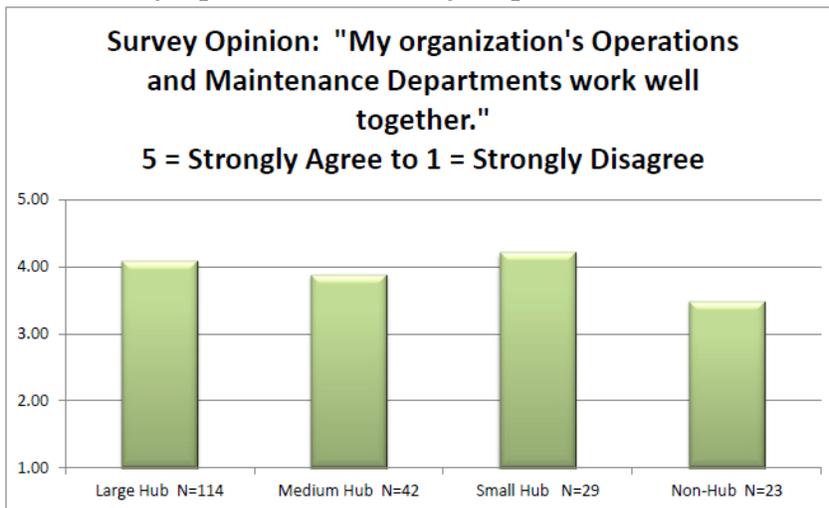
For all of the selected statements graphically depicted above (except one), the mean responses for each group were higher for senior management than managers, than supervisors, than employees. In other words, the means were in descending order. Additionally, the high and low means were significantly

different ($p > .01$) for all statements except "Operations and Maintenance Heads should report to the same person." For that statement, there was no statistical difference in responses between each position (senior manager, manager, supervisor, and employee).

When two groups were created (Senior Managers/Managers and Supervisors/Employees), the results are the same: The means were significantly different for the two groups in all items except the statement: "Operations and Maintenance heads should report to the same person" where both group means are not significantly different" where there was no statistical difference.

In summary, Senior Managers and Managers agreed more with the following statements than supervisors and employees: "My organization's Operations and Maintenance Departments work well together," "There is good communication (both clear and concise) between Operations and Maintenance," "I clearly understand the vision of my organization," and "The culture of my department enables communication." It should be noted, however, that all group means were above 3.0 indicating some level of agreement with each of the statements.

Select Survey Opinion Statements by Airport Size

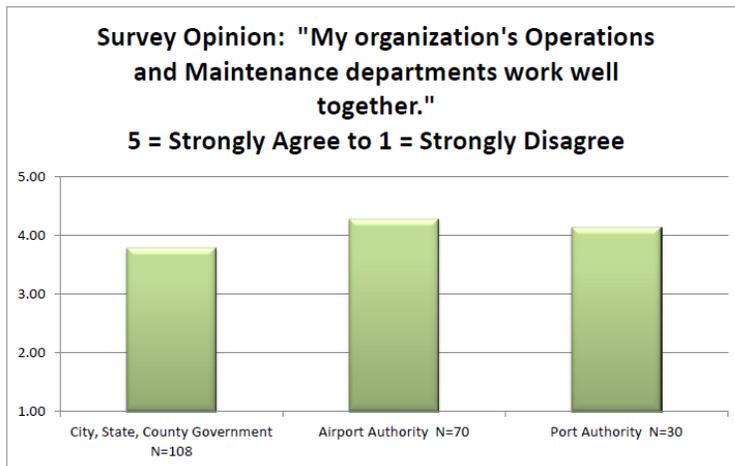


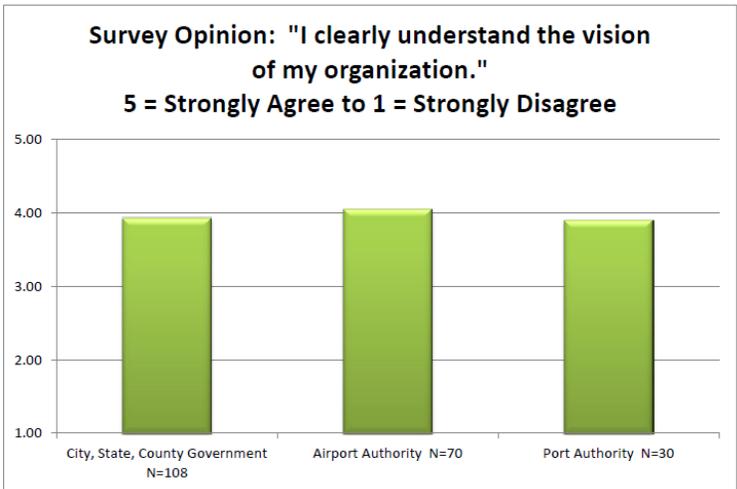
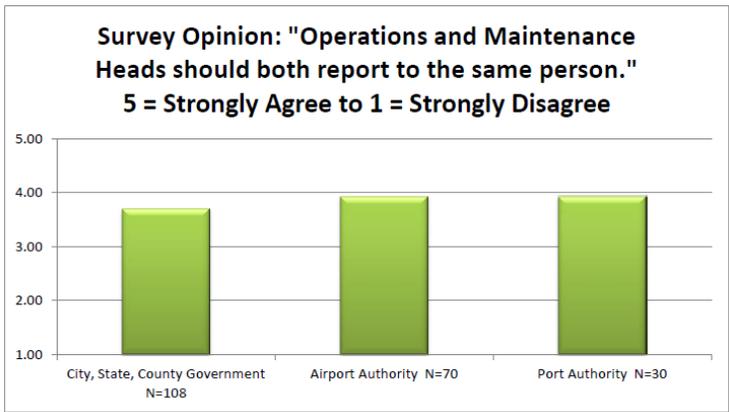
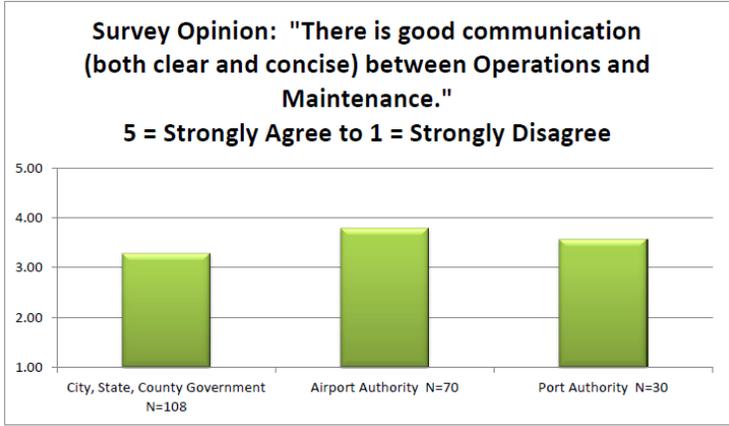
Results of Statistical Comparisons (t-tests comparing means)

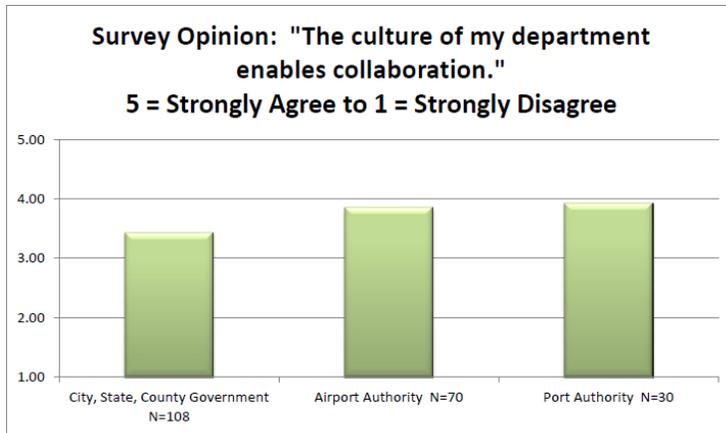
The high and low means across airport size were significantly different ($p > .01$) for the first three items: “My organization’s Operations and Maintenance departments work well together,” “There is good communication (both clear and concise) between Operations and Maintenance,” and “Operations and Maintenance heads should report to the same person.” For the statement “My organization’s Operations and Maintenance departments work well together,” the small hub airport respondents had the highest mean (4.11) and the non-hub airport respondents had the lowest mean (3.48). There was the same result for or the statement: “There is good communication between Operations and Maintenance,” with small hub respondents reporting a mean of 3.66 and non-hub airport respondents reporting a mean of 2.83. The means across all airport sizes were not significantly different for the statements: “I clearly understand vision of my organization,” and “The culture of my department enables collaboration.”

When Non-Hub, Small Hub and Medium Hub responses were combined then compared to the Large Hub responses Large Hub respondents differed significantly on the statement ($p > .05$): “There is good communication between Operations and Maintenance” with large hub respondents demonstrating stronger agreement (mean = 3.62) with the statement. There was also a statistically significant difference ($p > .01$) between these groups on the statement: “Operations and Maintenance department heads should report to the same person” with large hub respondents demonstrating weaker agreement with the statement. Responses were not significantly different for the other three items (departments work well together, I understand our vision, and my culture enables collaboration).

Select Survey Opinion Statements by Airport Governance Structure







Results of Statistical Comparisons (t-tests comparing means)

There were no statistical differences in any of the responses to the five statements between Airport Authority respondents and Port Authority respondents. It should be noted that all groups reported a mean score of above 3.0 for all five statements, which indicates a level of agreement to each statement.

When City, State, and County responses were compared to Airport Authority responses, Airport Authority respondents indicated lower levels of agreement on the following statements ($p > .01$): “My organization’s Operations and Maintenance departments work well together,” “There is good communication (both clear and concise) between Operations and Maintenance,” and “The culture of my department enables collaboration.” There were no statistical differences in responses between these groups on the other two statements (clear understanding of the vision and Operations and Maintenance department heads should report to the same person).

When City, State and County responses were compared to Port Authority responses, City, State and County governed airport respondents indicated lower levels of agreement on the following statements ($p > .10$): “My organization’s Operations and Maintenance departments work well together,” and “The culture of my department enables collaboration.” There were no statistical differences in responses between these two groups on the other three statements (good communication between Operations and Maintenance, clear understanding of the vision, and Operations and Maintenance department heads should report to the same person).

Chapter II: Major Findings

The findings from the 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**, which all employees are dedicated to the ongoing efforts required to maintain. 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 which 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 use of shared resources (for instance, the TSA might be contributing dollars towards 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 within 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. We assert the possibility 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 a poor operational or hard to maintain facilities.

For more insight on the relationship between Operations, Maintenance and Engineering please refer to Chapter IV: Other Considerations (page 49).

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.² 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."

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)⁶ 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.¹ As emphasized in an individual CEO interview conducted, 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 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.

Fifteen tips to instill trust:³

1. Acknowledge the need to address issues.
2. Move quickly to take personal responsibility for your role.
3. Emphatically listen to all involved.
4. Apologize sincerely.
5. Act on a solution or restitution.
6. The more trust has been broken, the larger the rebranding effort.
7. Consider changing the company name-only if you have made real organizational change.
8. If ethical or judgment trust was broken, change leadership.
9. Clarify and share a new trusted vision.
10. Emphasize your commitment to the relationship over the issue.
11. Make and keep promises to customers, stakeholders, and the public.
12. Set up accountability to assure promises and rebuilding efforts are completed.
13. Deliver extraordinary and consistent customer service.
14. Make sure systems support rebuilding efforts.
15. Move on.

Impacts of Technology

A common theme from our research 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 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 has a heavy reliance on technology tools such as:

- Email
- Mobile devices in a wide range of styles/types
- Radios
- Voice/Web conferencing tools such as GoToMeeting

- Web driven, shared information systems such as SharePoint
- Automated Work Order Systems such as Computerized Maintenance Management Systems (CMMS)

A markedly lower percentage of overall survey respondents indicated a reliance on technology tools such as text messaging. While these responses could represent a disproportionate number of users who leverage more internet based communications tools (after all, the survey was delivered via email), it is important to note changing trends in technology and that communications gaps can occur when varying work centers are relying on disparate communications tools in the course of their everyday job. For example, one online survey respondent pointed out, “Email only works if the other department opens their email as well.”

An example of the power of an automated work order system is demonstrated by the implementation of Maximo 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 orders notification, 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.

Training and Team Building

Additionally, training and team building stood out within our research process as a critical activity in supporting and building a collaborative environment between Operations and Maintenance. About 44% of our 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.

The 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 collaboration. 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.

As identified by Heathfield, the following questions are designed to evaluate the state of team collaboration:⁴

- **Clear Expectations:** Has executive leadership clearly communicated its expectations for the team's performance and expected outcomes? Do team members understand why the team was created? Is the organization demonstrating constancy of purpose in supporting the team with resources of people, time and money?
- **Context:** Do team members understand why they are participating on the team? Do they understand how the strategy of using teams will help the organization attain its communicated business goals?
- **Commitment:** Do team members want to participate on the team? Do team members feel the team mission is important?
- **Competence:** Does the team feel that it has the appropriate people participating?
- **Charter:** Has the team taken its assigned area of responsibility and designed its own mission, vision and strategies to accomplish the mission? Has the team defined and communicated its goals?
- **Control:** Does the team have enough freedom and empowerment to feel the ownership necessary to accomplish its charter? At the same time, do team members clearly understand their boundaries?
- **Collaboration:** Does the team understand team and group process? Are team members working together effectively interpersonally?
- **Communication:** Are team members clear about the priority of their tasks? Is there an established method for the teams to give feedback and receive honest performance feedback?
- **Creative Innovation:** Is the organization really interested in change? Does it value creative thinking, unique solutions, and new ideas? Does it reward people who take reasonable risks to make improvements? Does it provide the training, education, access to books and films, and conference attendance necessary to stimulate new thinking?
- **Consequences:** Do team members feel responsible and accountable for team achievements? Are rewards and recognition supplied when teams are successful?
- **Coordination:** Are teams coordinated by a central leadership team that assists the groups to obtain what they need for success? Have priorities and resource allocation been planned across departments?
- **Cultural Change:** Does the organization recognize that the team-based, collaborative, empowering, enabling organizational culture of the future is different than the traditional, hierarchical organization it may currently be?

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 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.

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 publically 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 as 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 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 twenty 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 the 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 which 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.

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 baked-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 they either 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 which 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 Gulfport-Biloxi International Airport 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 long after the storm that continue to foster a collaborative workplace.

Chapter III: 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, 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, it serves the readers of this report to clarify that not all small airports collaborate well and that 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 of operational issues.
- Employees and managers at smaller airports 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 tend to be more tied to their 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 above, 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, 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.

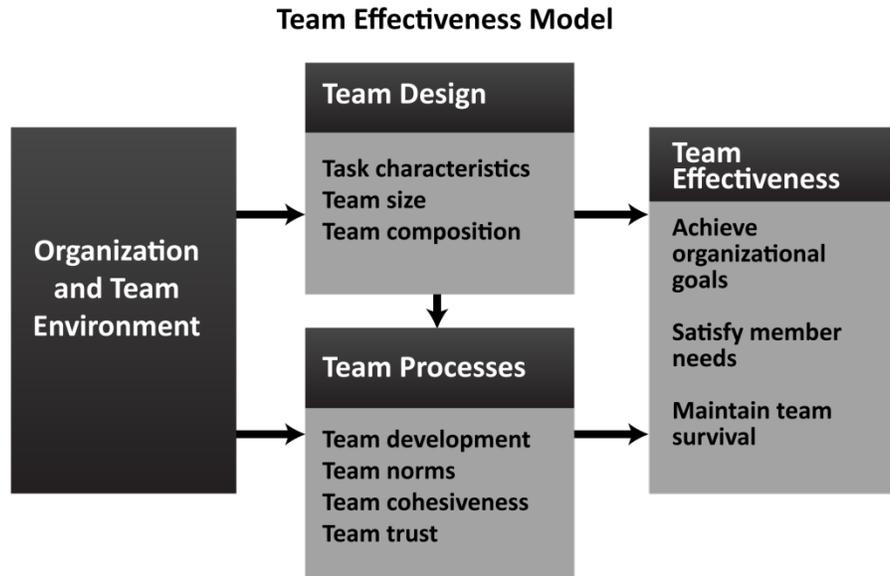
As always, leadership has critical need for collaboration and to try this approach with an individual who lacks cross-competence and effective work experience could prove quite challenging. Thus, a good argument exists for first setting the stage through cross-training and cross-work experience between 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 one responsibility, while the other division reports, for example, directly to the CEO, e.g. Engineering and Maintenance, 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 could under this organizational scenario 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.



The above team effectiveness model from Essentials of Organizational Behavior shows that in order to be effective; teams must pay attention to both processes and team design.⁵ 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:⁶

- Traditional (born up to 1946)
- Baby Boomers (born 1946 - 1964)
- Generation Xers (born 1965 – 1980)

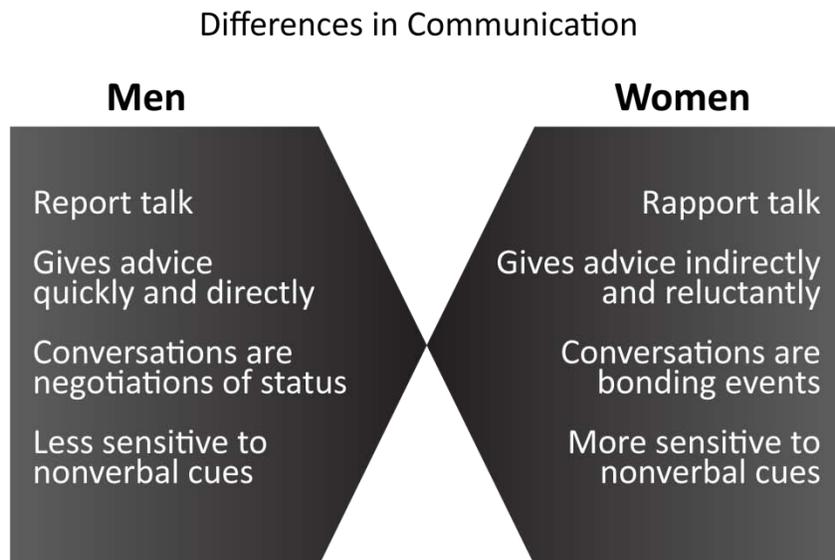
- Generation Yers (born 1981 - 1995)
- Linksters (born after 1995)

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 provide for it in the effort to foster collaboration. Acknowledging the differences will help to build better relationships between generations a work.

Gender discussion

When considering gender and teams, we must understand the differences in the way men and women communicate with one another. The diagram below points out some of the major differences in the way that men and women communicate:⁵



Source: McShane and VonGlinow, 2009

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. 41 indicated that they had some college, 19 indicated that they had an Associate’s degree. 80 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 that 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.

Chapter IV: 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 so as to accommodate group five and six aircrafts, problems with soil erosion and damaged lighting from engine exhaust are inevitable. 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 thus 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

Nevertheless, 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, 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 myriad 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, 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 which 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 so as 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 above 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 that are under governmental ownership or management face similar issues and challenges and in some cases even more so given that they have civil servant cultures, low salaries, 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 being 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, Cancun, Lima, and Dubai. 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 of 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 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 as 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 (Lima, Cancun, Costa Rica), 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 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:⁷⁹

- **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, 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 can 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 in email notifications from the CMMS system itself 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 who knows...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 respect. Sometimes an embedded culture of reactive vs. 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, and restrict the influx of new viewpoints and reinforce their own commonly held beliefs. As the 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 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 today 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 US 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 people’s 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. BIM (Building Management System – 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.

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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	Is 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, activity which 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 one achievements publically, 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 co-operative 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 & 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: ONLINE SURVEY QUESTIONS AND INTERVIEW SUMMARY

Survey Questions

1. 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:							
	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	N/A	Response Count
It is important for Operations and Maintenance to coordinate their work.	0.9% (2)	0.0% (0)	0.9% (2)	9.2% (21)	89.0% (203)	0.0% (0)	228
My organization’s Operations and Maintenance departments work well together.	3.1% (7)	6.1% (14)	12.3% (28)	47.8% (109)	30.3% (69)	0.4% (1)	228
Operations and Maintenance departments have no conflict.	11.4% (26)	54.4% (124)	17.5% (40)	11.0% (25)	5.7% (13)	0.0% (0)	228
Operations and Maintenance departments only collaborate when there is an emergency.	28.1% (64)	52.2% (119)	8.8% (20)	7.5% (17)	3.5% (8)	0.0% (0)	228
There is good communication (both clear and concise) between Operations and Maintenance.	3.5% (8)	16.7% (38)	20.6% (47)	47.8% (109)	11.4% (26)	0.0% (0)	228
Work order request categories have been defined and prioritized and are understood and accepted by both Operations and Maintenance departments.	3.1% (7)	19.7% (45)	17.5% (40)	43.0% (98)	14.0% (32)	2.6% (6)	228
The poor economy has impacted the relations between Operations and Maintenance in a negative way.	15.8% (36)	47.8% (109)	21.1% (48)	10.5% (24)	3.1% (7)	1.8% (4)	228
Operations and Maintenance department heads should both report to the same person.	6.1% (14)	11.0% (25)	21.1% (48)	23.2% (53)	38.2% (87)	0.4% (1)	228

The privatization of certain airport services has impacted my department.	11.0% (25)	22.8% (52)	24.1% (55)	11.8% (27)	4.8% (11)	25.4% (58)	228
Email, cell phones, text messaging, etc. have a positive impact on collaboration between Operations and Maintenance.	2.6% (6)	6.1% (14)	15.4% (35)	44.3% (101)	29.8% (68)	1.8% (4)	228
I am given the latitude to prioritize my work efforts.	1.3% (3)	4.4% (10)	11.4% (26)	50.9% (116)	29.8% (68)	2.2% (5)	228
Others set my work assignments.	8.3% (19)	36.8% (84)	29.4% (67)	19.3% (44)	2.2% (5)	3.9% (9)	228
When there is a backlog of work, the Operations department sets priorities.	7.0% (16)	28.9% (66)	26.8% (61)	26.8% (61)	9.2% (21)	1.3% (3)	228
Work priorities are established jointly by Operations and Maintenance.	4.4% (10)	21.1% (48)	21.9% (50)	43.9% (100)	7.9% (18)	0.9% (2)	228
Our automated work order/request system helps Operations and Maintenance work together.	4.8% (11)	11.4% (26)	22.4% (51)	38.6% (88)	13.2% (30)	9.6% (22)	228
I consider my group successful in meeting our goals.	1.3% (3)	5.7% (13)	9.2% (21)	53.1% (121)	30.3% (69)	0.4% (1)	228
answered question							228
skipped question							0

2. Please describe your experience (if any) with ineffective strategies that you have attempted to implement to improve collaboration.

	Response Count
	49
	answered question 49
	skipped question 179

3. Please indicate the degree to which you feel each of the following factors encourages collaboration between Maintenance and Operations in your organization:

	None of the time	Some of the time	About half of the time	Most of the time	All of the time	N/A	Response Count
Leadership	4.0% (9)	11.2% (25)	12.6% (28)	36.3% (81)	35.4% (79)	0.4% (1)	223
Communication	2.7% (6)	8.5% (19)	5.8% (13)	38.1% (85)	44.4% (99)	0.4% (1)	223
Similar work priorities	2.7% (6)	16.6% (37)	15.7% (35)	49.3% (110)	14.3% (32)	1.3% (3)	223
Shared Values	4.0% (9)	11.7% (26)	12.1% (27)	46.6% (104)	23.8% (53)	1.8% (4)	223
Similar work styles	9.0% (20)	26.0% (58)	29.1% (65)	25.6% (57)	6.7% (15)	3.6% (8)	223
Similar backgrounds	11.2% (25)	39.0% (87)	22.9% (51)	21.1% (47)	2.7% (6)	3.1% (7)	223
Celebrations	17.5% (39)	29.1% (65)	21.1% (47)	18.4% (41)	8.1% (18)	5.8% (13)	223
Periodic Meetings	3.6% (8)	21.1% (47)	21.5% (48)	29.6% (66)	21.1% (47)	3.1% (7)	223
Cross Training	21.5% (48)	30.5% (68)	12.1% (27)	21.5% (48)	7.6% (17)	6.7% (15)	223
Shared work experiences	10.3% (23)	26.5% (59)	24.7% (55)	28.3% (63)	8.1% (18)	2.2% (5)	223
Similar personalities	13.5% (30)	39.9% (89)	22.4% (50)	18.4% (41)	3.1% (7)	2.7% (6)	223
Similar pay structures	22.0% (49)	27.4% (61)	22.4% (50)	14.3% (32)	4.9% (11)	9.0% (20)	223
Adequate resources	7.6% (17)	17.5% (39)	12.6% (28)	39.0% (87)	22.0% (49)	1.3% (3)	223
Similar ages	20.6% (46)	35.9% (80)	20.2% (45)	13.0% (29)	2.2% (5)	8.1% (18)	223

Same Gender	28.7% (64)	29.1% (65)	13.5% (30)	12.6% (28)	5.4% (12)	10.8% (24)	223	
Training in Team Building	18.8% (42)	25.6% (57)	21.1% (47)	18.4% (41)	11.7% (26)	4.5% (10)	223	
Exercises (e.g. snow removal, aircraft emergencies, etc...)	4.0% (9)	16.1% (36)	14.8% (33)	31.4% (70)	30.9% (69)	2.7% (6)	223	
					Other (please list)		12	
							answered question	223
							skipped question	5

4. Please indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	N/A	Response Count
I understand the process for a work order system, from entering the first request through repair/replacement and close-out.	3.3% (7)	3.3% (7)	9.3% (20)	31.2% (67)	48.4% (104)	4.7% (10)	215
I use checklists for routine work such as inspections, terminal tours, etc.	1.4% (3)	9.3% (20)	14.9% (32)	37.2% (80)	30.2% (65)	7.0% (15)	215
I consider the physical work environment efficient for completing my work and collaborating with others	0.5% (1)	6.5% (14)	14.4% (31)	52.6% (113)	22.8% (49)	3.3% (7)	215
I clearly understand the "Vision" of my organization.	1.9% (4)	8.4% (18)	12.1% (26)	47.0% (101)	30.2% (65)	0.5% (1)	215
This "Vision" helps my organization work together.	2.3% (5)	12.1% (26)	24.7% (53)	39.1% (84)	20.9% (45)	0.9% (2)	215
The culture of my department enables collaboration.	1.9% (4)	15.3% (33)	20.5% (44)	42.8% (92)	18.6% (40)	0.9% (2)	215
My organization is more reactive than proactive.	3.7% (8)	24.7% (53)	25.6% (55)	31.2% (67)	14.4% (31)	0.5% (1)	215
We use planners to schedule our daily work.	9.3% (20)	31.2% (67)	15.8% (34)	31.6% (68)	5.6% (12)	6.5% (14)	215
I am allowed a certain amount of flexibility in the way I complete my work.	0.5% (1)	1.9% (4)	9.3% (20)	53.5% (115)	34.0% (73)	0.9% (2)	215
My department is "customer" focused (note: customer can indicate either internal customers or external customers).	0.0% (0)	6.0% (13)	10.2% (22)	41.4% (89)	42.3% (91)	0.0% (0)	215
My department follows strict rules and regulations.	0.9% (2)	5.1% (11)	21.4% (46)	46.5% (100)	25.6% (55)	0.5% (1)	215
My department has a mentoring program.	11.2% (24)	34.4% (74)	23.7% (51)	19.1% (41)	5.6% (12)	6.0% (13)	215

I received formal training for my current position.	7.9% (17)	19.1% (41)	17.2% (37)	36.3% (78)	18.6% (40)	0.9% (2)	215
This training is paid for by my organization.	5.1% (11)	8.8% (19)	16.7% (36)	37.7% (81)	20.0% (43)	11.6% (25)	215
I receive recurrent training for my current position.	7.9% (17)	16.7% (36)	20.5% (44)	32.6% (70)	19.1% (41)	3.3% (7)	215
This training is paid for by my organization.	4.7% (10)	7.0% (15)	18.1% (39)	34.4% (74)	21.4% (46)	14.4% (31)	215
Budgetary constraints affect my ability to collaborate with my fellow employees to achieve common goals.	14.0% (30)	26.0% (56)	25.1% (54)	21.9% (47)	9.8% (21)	3.3% (7)	215
My operating budget is sufficient to enable me to do my job.	3.7% (8)	18.6% (40)	20.0% (43)	40.5% (87)	14.4% (31)	2.8% (6)	215
answered question							215
skipped question							13

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

	Not at all	Some of the time	About half the time	Most of the time	All of the time	N/A	Response Count
Email	0.5% (1)	5.1% (11)	7.0% (15)	27.0% (58)	60.5% (130)	0.0% (0)	215
Cell Phone	1.9% (4)	12.1% (26)	11.6% (25)	22.3% (48)	52.1% (112)	0.0% (0)	215
Text Messages	22.8% (49)	43.3% (93)	9.3% (20)	10.7% (23)	11.6% (25)	2.3% (5)	215
Pager	75.8% (163)	7.9% (17)	2.8% (6)	1.9% (4)	1.4% (3)	10.2% (22)	215
Radios	8.4% (18)	25.1% (54)	12.1% (26)	20.9% (45)	33.5% (72)	0.0% (0)	215
Automated work order system (CMMS) (please describe below)	20.9% (45)	17.2% (37)	8.4% (18)	16.3% (35)	23.3% (50)	14.0% (30)	215
Information System (such as SharePoint, Backpack, etc.)	44.2% (95)	18.6% (40)	6.5% (14)	11.2% (24)	7.9% (17)	11.6% (25)	215
Social Media (such as Facebook, LinkedIn, etc.)	67.9% (146)	18.1% (39)	0.9% (2)	3.7% (8)	0.9% (2)	8.4% (18)	215
Friends in my department	7.0% (15)	29.3% (63)	17.7% (38)	28.8% (62)	11.6% (25)	5.6% (12)	215
Friends outside of my department	13.5% (29)	34.9% (75)	16.3% (35)	21.4% (46)	7.9% (17)	6.0% (13)	215
Automated work order system (CMMS) (please describe)							85
answered question							215
skipped question							13

6. Have you ever personally experienced an airport crisis situation, such as a major snowstorm, aircraft incident/accident or other similar situation?

		Response Percent	Response Count
Yes		97.7%	209
No		2.3%	5
answered question			214
skipped question			14

7. If yes, how many crises per year?

		Response Percent	Response Count
1		21.0%	45
2		20.1%	43
3		15.0%	32
4 or more		40.7%	87
N/A		3.3%	7
answered question			214
skipped question			14

8. Does your airport use an individual or section that may estimate, schedule, assign work or assist in collaboration between or among departments?

		Response Percent	Response Count
Yes		50.9%	109
No		49.1%	105
answered question			214
skipped question			14

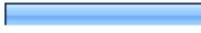
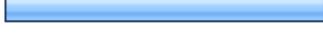
9. Are engineering services provided in-house or through out-sourcing (Mechanical, electrical, or any other services)?

		Response Percent	Response Count
In-House		61.2%	131
Out-Sourcing		32.7%	70
N/A		6.1%	13
If yes, what services have been Out-Sourced?			71
answered question			214
skipped question			14

10. If your airport is a "joint use facility" please answer the following. Does the military provide maintenance services?

		Response Percent	Response Count
Yes		2.3%	5
No		37.9%	81
N/A		59.8%	128
answered question			214
skipped question			14

11. Does the military provide operations services?

		Response Percent	Response Count
Yes		2.8%	6
No		36.9%	79
N/A		60.3%	129
answered question			214
skipped question			14

12. Does the military and the airport work well together to accomplish common goals?

		Response Percent	Response Count
Strongly Agree		6.1%	13
Agree		8.4%	18
Neither Agree or Disagree		7.9%	17
Disagree		0.5%	1
Strongly Disagree		0.9%	2
N/A		76.2%	163
answered question			214
skipped question			14

13. Demographic Questions What department best classifies your work?

		Response Percent	Response Count
Operations		53.4%	111
Maintenance		32.2%	67
Other (please specify)		14.4%	30
		answered question	208
		skipped question	20

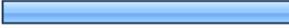
14. Which best describes your position:

		Response Percent	Response Count
Senior Management		31.3%	65
Manager		36.1%	75
Supervisor		16.3%	34
Employee		16.3%	34
		answered question	208
		skipped question	20

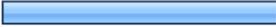
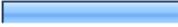
15. Airport Name (Three Letter Airport Code):

	Response Count
	208
answered question	208
skipped question	20

16. Which best classifies your airport size?

		Response Percent	Response Count
Large Hub Airports – enplanes at least 2.3% of total passengers		54.8%	114
Medium Hub Airports – enplanes between .9% and 2.3% of total passengers		20.2%	42
Small Hub Airports – enplanes less than .9% of total passengers but meets minimum requirements		13.9%	29
Non Hub Airports – Certificated Air Carrier but not meeting minimum passenger requirements		11.1%	23
		answered question	208
		skipped question	20

17. Which best classifies your airport's governance?

		Response Percent	Response Count
State, County or City Governments		51.9%	108
Airport Authorities		33.7%	70
Port Authorities		14.4%	30
		answered question	208
		skipped question	20

18. Are you part of a union?

		Response Percent	Response Count
Yes		19.7%	41
No		80.3%	167
answered question			208
skipped question			20

19. Are there unions in Operations at your airport?

		Response Percent	Response Count
Yes		57.7%	120
No		42.3%	88
answered question			208
skipped question			20

20. Are there unions in Maintenance at your airport?

		Response Percent	Response Count
Yes		70.7%	147
No		29.3%	61
answered question			208
skipped question			20

21. Gender

		Response Percent	Response Count
Male		81.3%	169
Female		14.9%	31
Prefer Not to Respond		3.8%	8
answered question			208
skipped question			20

22. Age Range:

		Response Percent	Response Count
18-25		1.4%	3
26-35		9.6%	20
36-45		27.4%	57
46-55		38.5%	80
56-65		18.3%	38
65+		1.0%	2
Prefer Not to Respond		3.8%	8
answered question			208
skipped question			20

23. Ethnicity:

		Response Percent	Response Count
White		78.4%	163
Hispanic		6.3%	13
African American		3.4%	7
Native American		0.5%	1
Prefer Not to Respond		8.2%	17
Other (please specify)		3.4%	7
		answered question	208
		skipped question	20

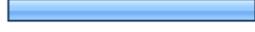
24. Education:

		Response Percent	Response Count
High School		8.2%	17
Some College		19.7%	41
Associate's Degree		9.1%	19
Bachelor's Degree		38.5%	80
Graduate Degree		24.5%	51
		answered question	208
		skipped question	20

25. Accreditations:

		Response Percent	Response Count
AAAE-AAE		13.0%	27
CM		17.3%	36
ACE		10.1%	21
N/A		59.6%	124
answered question			208
skipped question			20

26. Number of years at current job:

		Response Percent	Response Count
Less than 1		5.3%	11
1 - 3		14.9%	31
4 - 5		14.9%	31
5 - 10		16.3%	34
10+		48.6%	101
answered question			208
skipped question			20

27. Please enter your cell or home phone number here if you would like a chance to win a \$50 Visa Gift card:

	Response Count
	128
answered question	128
skipped question	100

28. Please provide any additional comments you might have that could aid us in developing a useful guidance handbook on collaboration between Operations and Maintenance at airports.

	Response Count
	36
answered question	36
skipped question	192

Interview Questions

ACRP 10-11: Interview Questions



1. Person's Name and Current Position:

	Response Count
	35
answered question	35
skipped question	0

2. Any former related positions?

	Response Count
	23
answered question	23
skipped question	12

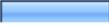
3. Current airport Name (Three Letter Airport Code):

	Response Count
	33
answered question	33
skipped question	2

4. Address/Telephone Number/ Email Address:

	Response Count
	28
answered question	28
skipped question	7

5. Airport Classification:

		Response Percent	Response Count
Large Hub Airports – enplanes at least 2.3% of total passengers		50.0%	17
Medium Hub Airports – enplanes between .9% and 2.3% of total passengers		20.6%	7
Small Hub Airports – enplanes less than .9% of total passengers but meets minimum requirements		11.8%	4
Non Hub Airports – Certificated Air Carrier but not meeting minimum passenger requirements		17.6%	6
	answered question		34
	skipped question		1

6. Airport's Governance:

		Response Percent	Response Count
State, County or City Governments		55.9%	19
Independent Authorities		29.4%	10
Independent Port Authorities		14.7%	5
		answered question	34
		skipped question	1

7. Division Interviewed (Check all that apply):

		Response Percent	Response Count
Operations		26.5%	9
Maintenance		17.6%	6
Senior Management		82.4%	28
Engineering		0.0%	0
		Other (please specify)	0
		answered question	34
		skipped question	1

8. Does this airport have an Employee Union?

		Response Percent	Response Count
Maintenance Yes		84.8%	28
Maintenance No		15.2%	5
Operations Yes		36.4%	12
Operations No		54.5%	18
answered question			33
skipped question			2

9. Nature of Interview

		Response Percent	Response Count
Individual		100.0%	34
Focus Group		0.0%	0
answered question			34
skipped question			1

10. Organization Chart

		Response Percent	Response Count
Yes		58.1%	18
No		41.9%	13
answered question			31
skipped question			4

11. Interviewer's Relationship with Interviewee:

	Response Count
	33
answered question	33
skipped question	2

12. Is there someone we can contact to get a copy of both your organization (Ops or Maintenance) as well as for the entire airport?

	Response Count
	33
answered question	33
skipped question	2

13. The objective of this study is to develop guidance for airports to create a collaborative environment between operations and maintenance departments. What are your thoughts regarding the objectives of the study?

	Response Count
	26
answered question	26
skipped question	9

14. In your opinion, what are some of the key elements that can bring about cooperation and collaboration between Operations and Maintenance?

Response
Count

31

answered question 31

skipped question 4

15. What are some of the key inhibitors which might deter collaboration? Give examples.

Response
Count

29

answered question 29

skipped question 6

16. Describe your experience (if any) with ineffective strategies that you have attempted to implement to improve collaboration.

Response
Count

23

answered question 23

skipped question 12

17. Is it normal to find experience disparities between Operations and Maintenance personnel? If so how does this impact the attitudes of the two divisions?

		Response Percent	Response Count
Yes		66.7%	18
No		7.4%	2
NA		25.9%	7
	Additional Comments		6
	answered question		27
	skipped question		8

18. What other differences exist that might affect (either in a good way or a bad way) collaboration between Operations and Maintenance? Examples: Union vs. non-union workers, pay disparities, management issues, different departmental work priorities, gender diversity, ethnic diversity, age diversity, non-traditional family situations (i.e. single parents), etc.

	Response Count
	20
answered question	20
skipped question	15

19. Do you prioritize work requests? If you do, how is it prioritized?

		Response Percent	Response Count
Yes		90.0%	27
No		0.0%	0
NA		10.0%	3

Additional Comments 13

answered question 30

skipped question 5

20. Does your airport utilize planners to schedule any operations or maintenance work?

		Response Percent	Response Count
Yes		26.9%	7
No		61.5%	16
NA		11.5%	3

Additional Comments 5

answered question 26

skipped question 9

21. Are the above work priorities communicated to both divisions? How? If a backlog of work orders occurs, how is the work triaged? Does Operations have input in this process? Does Maintenance have input into the process?

		Response Percent	Response Count
Yes		81.5%	22
No		0.0%	0
NA		18.5%	5
	Additional Comments		10
	answered question		27
	skipped question		8

22. How do you balance resource availability (i.e. budgets, personnel) with demand for services?

	Response Count
	19
answered question	19
skipped question	16

23. Do you feel that your resource allocation process works?

		Response Percent	Response Count
Yes		85.2%	23
No		3.7%	1
NA		11.1%	3
	Additional Comments		1
	answered question		27
	skipped question		8

24. Do you have an automated (computerized) work request/work order system? If so, does it facilitate collaboration?

		Response Percent	Response Count
Yes		56.7%	17
No		40.0%	12
NA		3.3%	1
	Additional Comments		11
	answered question		30
	skipped question		5

25. How do such technological system like cell phones, email, texting, and radios affect your two organizations?

	Response Count
	22
answered question	22
skipped question	13

26. On a scale of 1 to 10, how successful is your organization? Explain.

	1 - Least	2	3	4	5 - Average	6	7	8	9	10 - Most	N
	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.7% (1)	11.1% (3)	48.1% (13)	29.6% (8)	7.4% (2)	0.0% (0)

Additional Comments	6
answered question	22
skipped question	13

27. Has the recent poor economy impacted collaboration between the two divisions? If so has it had a positive or negative effect?

	Response Percent	Response Count
Yes	22.2%	6
No	14.8%	4
NA	63.0%	17

Additional Comments	6
answered question	27
skipped question	8

28. Does your airport see the Operations Officer as the official representative of senior management after hours and during weekends? If so, how is defined and executed? In your mind what does this really mean?

		Response Percent	Response Count
Yes		74.1%	20
No		0.0%	0
NA		25.9%	7

Additional Comments 8

answered question 27

skipped question 8

29. In your opinion should Operations and Maintenance report to the same senior manager/director? Discuss.

		Response Percent	Response Count
Yes		69.0%	20
No		10.3%	3
NA		20.7%	6

Additional Comments 13

answered question 29

skipped question 6

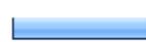
30. What in your opinion would represent an optimum organization?

	Response Count
	18
answered question	18
skipped question	17

31. Do you believe that there is some correlation in degree of collaboration when comparing different size airports? If so, please explain why this might be.

		Response Percent	Response Count
Yes		55.6%	15
No		0.0%	0
NA		44.4%	12
	Additional Comments		16
	answered question		27
	skipped question		8

32. Has the introduction of privatization of certain services adversely affected either organization?

		Response Percent	Response Count
Yes		25.9%	7
No		33.3%	9
NA		40.7%	11
	Additional Comments		6
	answered question		27
	skipped question		8

33. What are your thoughts regarding both the format and content of the proposed guidebook? Should the guidance have an academic bent, more of a “nuts and bolts” theme, or a combination of the two?

	Response Count
	21
answered question	21
skipped question	14

34. What else would you like to see incorporated in a guide book?

	Response Count
	14
answered question	14
skipped question	21

35. Are there any other factors or considerations we should be considering as we move forward with this study?

	Response Count
	17
answered question	17
skipped question	18

36. Are there any other people that you think I should speak to about this project? Could you provide an introduction for me or one of my team members?

	Response Count
	14
answered question	14
skipped question	21

37. Name:

	Response Count
	12
answered question	12
skipped question	23

38. Phone Number:

	Response Count
	7
answered question	7
skipped question	28

Appendix C: FOCUS GROUPS

Focus Group #1

What is Collaboration?

In order to understand the current conditions at this large hub airport, the focus group participants were asked to define collaboration in the workplace and the enablers, obstacles and risks associated with it.

Collaboration is...

- Open communication and discussions
- Aligning expectations on priorities
- Taking pride in one's job
- Cooperation and support
- Relationship-based work order process
- Understanding the system and trusting the relationship
- Educating others and oneself
- Building credibility for oneself and as a team
- Trust

Obstacles

- Shifting from reactive to proactive processes is difficult
- Don't always know the answers
- Disconnect is where Operations doesn't see something as broken, it doesn't get fixed
- Discussions happen often, but they are not always communicated upward
- Priorities are based on changing information so expectations aren't always clear
- Anecdotal suggestions from senior management becomes complicated and confusing-sometimes become a priority when they shouldn't
- Ignorance, lack of clarity, unwillingness
- Technical misunderstandings

- Issues aren't brought up until the last minute
- Escalating issues that shouldn't be escalated
- Airfield, landside and terminal all have needs that are often in conflict
- Maintenance Planners aren't a strong enough link back to Operations
- Work orders need a point person so that department head/others aren't getting hit by the whole division
- Holding grudges/losing trust after incidents
- Negativity in feedback rather than constructive

Building Trust

- It only takes one bad incident to break trust
- It's important to address past issues, then let go of them and start anew
- Trust is a two-way street
- Find common ground to build trust
- Any incident management strategy requires collaboration
- Certification inspections lead to more collaboration
- All airports have maintenance issues, even without snow
- Safety issues on the airfield

Specific Examples and Areas for Improvement

- Things run more smoothly when there is a discussion about a work order rather than shifting priorities to accommodate a work order that can wait
- Not all customers want a status email back

- Need to make sure everyone understands priorities
- Tribal knowledge: process is enhanced by conversation
- Ex: Call the painter to complete a project and explained *why* it needs to be done
- Scheduled Maintenance planning session would be good for Operations to attend for education
- Maintenance feels that when someone makes a commitment to a tenant there are ramifications that aren't addressed appropriately

Disconnects in Communication

- Problem solving discussions that occur between lower level employees don't always make it to the 5th floor (Executive offices)
- Multiple answers and solutions to problems need to be de-conflicted
- Issues and solutions aren't always explained well enough to get approvals when needed
- Employees know how to get it done, but they don't always go through the social lubrication that is needed to do so because they feel that the solution is self-evident
- Reactive approaches to problems take less time, but aren't always the best solutions. Proactive approaches are time consuming but more effective in the long run
- Operations is not always engaged in the Maintenance priority system, and if Operations isn't on board they don't always fix it

- Different levels and teams have different expectations and priorities
- Suggestions from management should be documented and a process for addressing them implemented so they don't get lost in the shuffle or become too confusing
- Need to make sure that all employees understand the system and trust one another
- Operations and Maintenance personnel should attend each other's planning sessions to ensure that they understand priorities, expectations and processes
- Each division should have a point person for work orders
- Some groups are harder than others to get involved in processes, and often don't raise issues until the last minute

Discovery Question: If you could change one thing between Operations and Maintenance, what would it be?

After discussing all the details of collaboration, including current department and process shortcomings, group members were asked to choose one improvement between Operations and Maintenance. Some of the answers included:

- Institutional knowledge at a higher level
- Change-out jobs between divisions
- Same reporting manager for both divisions
- Employee reviews should have at least one overlapping goal
- Titles between divisions should be equitable

Focus Group #2

What is Collaboration?

In order to understand the current conditions at this large hub airport, the focus group participants were asked to define collaboration in the workplace and the enablers, obstacles and risks associated with it.

Collaborative Culture

- Enhancements are made overtime
- Continued improvement
- Trust built through performance and efficiency
- Trust is also generated through performance
- ATC + MAC + Delta: everyone has the same goal – moving planes and air travelers through safely and efficiently
- Shared expectations
- Trust

Building Trust

- Communication
- Staying in touch
- Consistency
- Proving and demonstrating trustworthiness
- Respect
- Empathy
- Open-mindedness
- Willingness to disagree initially in order to eventually find a solution
- Listening
- Understanding that mistakes happen but it shouldn't erase trust
- Creating a culture of openness
- Meeting performance control
- Following established procedures

Fostering Collaboration

Because employees all have different roles and responsibilities, they are going to clash. Employees all know that they are better when they work together, so they focus on conversations and collaborative approaches to problem solving. Conflict is healthy in these scenarios in trusting and respectful environments.

Aspects of Collaborative Leadership

- Great communication
- Training
- Meeting attendance

Conditions

Collaboration is trust, coordination, respect and understanding. When there is no collaboration, you hear things like “they can't tell me what to do,” or “they don't work in this department.” One way that they try to promote collaboration is by having conversations face-to-face instead of on the radio when possible.

Skills, Competencies and Capacities Associated with Collaboration

Collaboration is partially about ownership. Employees must be responsible and accountable and understand that sometimes responsibilities overlap with one another. The solution comes from communication and accountability.

It is also important to choose words wisely. Saying something like “I'm going on break and then I'll head over that way,” the other person might understand it as “my break is more important so I'm going to do that first.”

Collaborative Mechanisms

An initial observation was made that there was a lack of communication after shift changes about what was going on that day in Maintenance versus the experience of the Operations team. This prompted changes in Maintenance communication as well as organization changes such as new personnel and shifts.

Employees must be able to work together. Company events such as barbeques provide an opportunity for people to get to know each other, therefore forming relationships and facilitating tasks.

Becoming Collaborative

The previous work environment was not collaborative until a consultant was called in 15 years ago. The consultant developed a 15-step process that fit on one sheet of 8.5 x 11" paper. The process was called "MAC Surface Closure Process," and defined the roles and responsibilities of Operations and Maintenance. This process is still used today.

It took about three years to build trust using the document. For new hires it is now part of the culture and routine. Initially there were concerns about a "power play" with the senior leadership. Ground level employees were more open to the new process. Unfortunately field maintenance is stuck in their ways, so staff departures help the transition.

Leadership Development Strategies

A sports analogy was given: when a head coach creates a new play, he needs people on his team to run the play. In this situation, a change in management needed to be made to make the system operational.

DISC personality training has helped employees learn how to communicate with each other.

Technology

CMMS – Have a goal of automating all of their work within 5 years. The goal is to transition so work is 75 percent preventative and 25 percent corrective. They are currently using a tablet system and are paperless. Assets are entered (25000 so far) along with monthly and quarterly maintenance requirements associated with said asset.

GIS log system – Developed an FAA Part 139 discrepancy log to prioritize maintenance

1 = a real and urgent issue that will be addressed immediately

2 = a work order has been issues and will be investigated soon

3 = It doesn't need to be addressed right now but will be monitored and addressed later

So far everyone understands the system and accepts that issues categorized as delayed or deferred does not mean that they will be forgotten.

Current information overload; there is a need for a process to enhance the use of tools. Need to be able to understand tactical and strategic approaches in the same picture.

Upgrades in equipment means Maintenance needs more technical understanding. This is a longer, complicated process that requires training. This ties back to a "manning model" that considers the staffing levels required for maintenance of a facility. This concept is hardest for senior management.

Budget Impacts

Following a request for a shift in process, emphasis was placed on life cycle costs rather than just construction costs. Additionally,

consideration was made for maintenance

resources.

Focus Group #3

What is Collaboration?

In order to understand the current conditions at this small hub airport, the focus group participants were asked to define collaboration in the workplace and the enablers, obstacles and risks associated with it.

Collaboration is...

- Working together and cooperating in groups
- Sharing goals and working together to achieve them
- Educating others and engaging in collective input
- Teamwork

Obstacles

- Too many procedures and boundaries
- Overly structured chain-of-command, not enough input from lower level employees, battling egos
- Rigid policies and regulations from government and FAA
- Weather conditions can drive priorities and effect productivity
- Staff battles financial issues because needs and requirements are not met
- Aging equipment
- Cannot keep up with demand
- Heavy workload and inability to do work
- Example of bureaucracy: need for additional chemicals during snow storm; management staff is responsible for use of chemicals but has no authority to purchase them

Aspects of Collaborative Leadership

- **Trust** - Integrity is gained through work experience; employees need to have the authority to handle responsibility.
- **Participative Style** - Maintenance and Operations should participate in budgeting. This will lead lower level employees to take authority and for all employees to understand each other's goals.
- **Mutual Respect**
- **Information and Knowledge Sharing** - All must understand the process of communication and understand limitations. "Lead, follow, or get out of the way."
- **Empowering Lower Level Employees** - A hierarchy and management style that has democratic aspects helps build trust in the company, empowering lower level employees and helping them know that their input and ideas matter.
- **Responsibility and Accountability**

Training

- Airport Safety and Operations Specialist Schools (ASOS) training is only available to Operations employees
- Most of Operations knowledge is acquired through work experience
- Cross training is needed between Operations and Maintenance, as well as other departments like Finance, in order to avoid "tunnel vision"
- There is a lack of detailed Operational knowledge by top managers

Planning

- Implement 3 different systems for work orders
 - Operations – work orders are used strictly for airfield FAA Part 139
 - Maintenance – work orders are completely separated from Ops
 - Other – also separate from Ops and Maintenance
 - NPT for rates and charges
 - Priority decisions based on safety first
 - Secondary priorities set by the chiefs of Operations and Maintenance
 - Weather does change priorities
 - Snow removal priorities are set by collaboration between Operations and Maintenance leads
 - Constant communication and exchange of information
 - Field Maintenance supervisor must be trained in and have an understanding of Operations
 - Ensures shared responsibility and redundancy in skills and abilities
 - Operations and Maintenance personnel must understand design aspects of all plans during review
- Plan reviews will be done at 30, 60, 90 and 100% of plan design process
 - Request for maintenance to set up a program to capture and report on data for decision making purposes
 - Helps other employees to understand the big pictures
 - Operations and Maintenance do not have an opportunity to see the overall budget or participate in collective budget decision making
 - Budget is controlled by Finance
 - Maintenance and Operations only see their own budget sections in isolation from the overall budget
 - Increases in overall costs and utility costs are cutting into budget
 - Collective budget decision making can prevent this problem in the future
 - Old equipment needs more upkeep but the current budget does not have room for it
 - There is a need for streamlining requests for funding
 - Due to budget restrictions, some needed repairs will be on hold

Focus Group #4

What is Collaboration?

In order to understand the current conditions at this large hub airport DEN, the focus group participants were asked to define collaboration in the workplace and the enablers, obstacles and risks associated with it.

Collaboration is...

- Working through problems and saying what needs to be said
- Furthering honest communication
- Cooperation and support

Obstacles

- No brainstorming sessions for Operations team members
- Lack of fleet interaction
- Differences in opinion, unwillingness to compromise
- Prior to 2007 were denied access to proper equipment and personnel
- No specific ownership for plan writing or other responsibilities before meeting with consultant in 2007

Current Collaborative Efforts

- After major blizzard in 2006, a consultant was hired for an intervention to identify gaps in equipment and personnel
- Created a detailed snow plan based on input from entire team
- Accountability and ownership are important
- All employees' input is important
- Plan standardization
- Lots of training
- Celebrate successes

- Post-storm metrics review, despite hesitations due to fears of finger-pointing, this has been very positive
- Bi-weekly meetings with Operations and Maintenance to fix problems or change processes

How would an airport without snow be able to collaborate?

- Any incident management strategy requires collaboration
- Certification inspections lead to more collaboration
- All airports have maintenance issues, even without snow
- Safety issues on the airfield

Tools and Ideas for Collaboration

- Collect metrics during snow storms
- No more "Monday morning quarterbacking"
- Maintenance took additional planning steps (i.e. Landside, de-ice pads, centerlines, etc.)
- Focus on safety before time savings
- Focus on efficiency
- Be preemptive about certifications, emergency, budget and project issues
- Operations and Maintenance personnel should have an understanding of both
- During crisis, focus on finding a solution rather than placing blame
- Build trust between Operations and Maintenance teams by establishing common goals
- Standardization of processes

- Emphasize the benefits of cooperation, negotiation, and compromise between teams and individuals

Shifting Plateaus

- “We are all in this together” attitude
- Still experience old silo issues on a micro level, although macro level issues have been solved
 - Inclusive keeps the silos intact, supervisors want to keep the old way
- Figure out how to get to the next level
- Mentorship program with the Communications Center
 - Entry-level, lots of turnover
 - Participants may not have worked in an airport before
- Operations mentorship program – Assistant Airport Operations Manager ride along
 - Very valuable program, increases understanding of operational pressures
 - Not necessarily for training, just for observation
- Operations ride-along program with Maintenance personnel
- Electricians ride-along program with Operations personnel

- Paint crew is requesting similar programs so Operations can understand the process
- Request for maintenance to set up a program to capture and report on data for decision making purposes
- Must be careful when selling these programs to employees
 - Common objections: indifference about other team’s responsibilities, “Maintenance just fixes stuff,” “Ops just tells us what to do”
- New FAA procedures regarding FAA Part 139 training will result in better collaboration between Operations and Maintenance
- Minor issue: how do you get rid of people who aren’t changeable?
- Airport Operations Managers should work with the Assistant Airport Operations Managers that are causing problems or aren’t working as envisioned
- Ride-alongs or constructive discussions with problem employees can be helpful
- For hiring include a member from each team on interview panel

Focus Group #5

Thoughts on Collaboration

- Need to develop a communication framework that is streamlined with clarity of structure and priorities
- One leader focusing on FAA Part 139 inspection and security compliance
- Need to establish a “culture of Operations” – work with the team to establish both sides of the framework

- Listening and inclusion are keys to success – good tactical communication and understanding of team member roles keep collaboration strong

Tactics

- Communications meetings

- Regular meetings every Monday for airlines, FBO, ATO, Federal Express, TSA
- Construction meetings
- Snow removal meetings
- Electronic record keeping via CMMS: established a notification process with the tenants that can be done online.

What is one thing you wish you could change between Operations and Maintenance?

- Open communications
- People skills: caution with overuse of email
- Share desired outcomes
- A culture of continuous learning and shared success
- Educating all parties

Appendix D: 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 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.

CMH 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	<ul style="list-style-type: none"> • Succession planning • Supervisor Academy <ul style="list-style-type: none"> ○ Cross-department skill development

	<ul style="list-style-type: none"> ○ Leadership styles ○ Collaborative project assignments ● Emerging Leader Program
Communication and Personal Accountability	<ul style="list-style-type: none"> ● Department staff meetings ● Monthly direct-report staff meetings ● Survey tools for employee feedback ● Semiweekly electronic newsletter ● Monthly employee newsletter <ul style="list-style-type: none"> ○ Includes one page CEO brief to Directors and VPs briefings
Communication/Feedback Organizationally	<ul style="list-style-type: none"> ● Semiannual “Chat’s with the CEO” for year in review and aligning focus ● Employee survey
Communication and Accountability for Senior Staff	<ul style="list-style-type: none"> ● Monthly director meetings with VP to share information among divisions ● Monthly one-on-one meetings with CEO and direct reports
Performance Management	<ul style="list-style-type: none"> ● Scorecard ● Dashboard containing top six priorities ● Accountability for directors

Examples

Parking Lot Rehabilitation

Operations and Airfield Maintenance Divisions (AFM) were tasked with the repair, 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 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 Airfield Maintenance personnel. Program design has Operations and Airfield Maintenance personnel inspecting each airport other than the one that they normally/primarily are assigned to (i.e. a team of CMH Airport Operations and Airfield Maintenance 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 Airfield Maintenance (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 Airfield Maintenance (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 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. It is 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 passenger.

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 which 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 Reno-Tahoe Airport Authority (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 1930's. 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 US 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 Denver International Airport (DEN) began in 1987, this 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 regarding 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 million 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 Denver International Airport 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 that of 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. ACRP 10-11 research member Steve Wareham 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 a disaster situation as found in the aftermath of 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 fact 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. Mr. 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. Mr. Frallic’s personal leadership example (worked non-stop 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 Regional 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 in effected work groups in the hiring process.

Cast Study – Portland International Airport

Airport Profile

The Port of Portland owns and operates three airports including 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 also 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

Oftentimes 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 percent 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, an essential characteristic 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.

Mr. 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 where in Chicago 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 by developing close and supporting relationships with the operators of the airport, it 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 a Ms. Cindy Kimbrel a supervisor on duty in El Paso, Texas. She somewhat hesitantly 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 six thousand dollars, and arranged for the couple to reach Houston on time. Mr. 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 Ms. 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. Mr. 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 above four vignettes are several essential concepts and approaches which 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. Please note that an organization, be it airline or airport, can't be completely comfortable with the empowerment granted in example 1 above 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 Mr. 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 insuring "soft skills" were present in all employee ranks thus ensuring perpetuation of these same traits. With the presents of these qualities 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 E: 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>	<i>Sharing of information among divisions</i>	<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>	<i>Focus on broader strategic topics</i>	<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>	<i>Red/green/yellow. Talk yellow and reds</i>	<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>	<ul style="list-style-type: none"> • <i>Big picture</i> • <i>Focus</i> • <i>Business challenges</i> • <i>Splits year and second meeting</i> 	<Weekly>	<Joe Smith>	<Internal>	<comments>

	<i>includes:</i> <ul style="list-style-type: none"> • <i>Year in review</i> • <i>Projects/info for coming year</i> 				

Employee Survey

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	<i>General and targeted topics</i>	<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>	<i>Every other Monday</i>	<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>	<i>Monthly</i>	<Joe Smith>	<Internal>	<comments>

One-page Briefing Sheet

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

<i>Report></i>	<i>in a consistent manner</i>				

Document Templates

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

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
<i><Status Report></i>	<i><Communication of project progress and deliverable status></i>	<i><Weekly></i>	<i><Joe Smith></i>	<i><Internal></i>	<i><comments></i>

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: _____

Appendix 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
<i><Document Name and Version Number></i>	<i>[Provide description of the document]</i>	<i><URL or Network path where document is located></i>

Appendix 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.]

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