The following document is supplemental to *ACRP WebResource 16: Playbook for Developing a Culture of Innovation at Airports* (ACRP Project 01-47, "A Guide to Developing a Culture of Innovation at Airports"). The full WebResource can be found at https://crp.trb.org/acrpwebresource16/.

The Airport Cooperative Research Program (ACRP) is sponsored by the Federal Aviation Administration. ACRP is administered by the Transportation Research Board (TRB), part of the National Academies of Sciences, Engineering, and Medicine. Any opinions and conclusions expressed or implied in resulting research products are those of the individuals and organizations who performed the research and are not necessarily those of TRB; the National Academies of Sciences, Engineering, and Medicine; or ACRP sponsors.

# Conduct of Research Report for ACRP 01-47, A Guide to Developing a Culture of Innovation at Airports

Prepared for ACRP Transportation Research Board of

The National Academies of Sciences, Engineering, and Medicine

> Barich, Inc. Chandler, AZ July 2022

Permission to use any unoriginal material has been obtained from all copyright holders as needed

# **Table of Contents**

Table of Contents	2
Section 1: Introduction	3
Section 2: Literature Review Methodology and Findings	4
Literature Collection and Review	4
Literature Findings	5
The Meaning of Culture of Innovation	12
Section 3: Case Study Initiative & Findings	13
Case Study Purpose	13
Engagement Roadmap	13
Airport Case Studies	13
Airline Case Studies	17
Other Public Sector Organization Case Studies	20
Private Organization Case Studies	21
Multi-Organizational Case Studies	21
Section 4: Case Study Analyses & Application	23
Literature Review Validation	23
New Objectives or Focus Areas	23
Application to the Guide's Design Concept and Framework	24
Section 5: Guide Draft Overview	33
Key Introductory Points	33
Guide Draft Design Concepts and Framework	34
Section 6: Validation Plan and Results	36
Validation Plan	36
Validation Results	36
Section 7: Appendices	37
Appendix A: Literature Tracking Table	37
Appendix B: Case Study Data Collection Tools	47
Appendix C: Early Character Trait/Key Theme Assessment Tool	52

#### Section 1: Introduction

The Airport Cooperative Research Program (ACRP) initiated **Project 01-47**, "A Guide to **Developing a Culture of Innovation at Airports**" (Project) to develop a useful guide (referred to as the "Guide," "Guidebook," or "WebResource") to assist airports with the pragmatic steps and artful shaping of a culture of innovation. This Conduct of Research Report captures the Research Team's (Team) findings in the following overall sections:

- Section 2: Literature Review Methodology and Findings this section also
  includes a succinct explanation, suitable for a broad audience, of the meaning of "culture
  of innovation" as it may be experienced within an airport.
- Section 3: **Case Study Initiative & Findings** this section reminds the reader of the case study purpose and locations, and it includes highlights and conclusions from each of the following 5 study areas: airports; airlines; public sector organizations; private organizations; and multi-organizational groups.
- Section 4: **Case Study Analyses & Application** this section explores early analyses of case study results and shares concepts we are considering for the final Guide as we evaluate the best ways to engage and connect with the intended audiences at US airports.
- Section 5: **Guide Draft Overview** this section provides a detailed presentation on flow, process, and modules being proposed for inclusion in the WebResource and provides the Panel with an opportunity to provide insight, recommendations, and guidance to the Team as we embark on the construction of the WebResource.
- Section 6: Validation Plan and Results this section describes the implementation
  plan to validate the Team's research work with various stakeholders and the feedback
  provided.

# Section 2: Literature Review Methodology and Findings

At the start of the project, we initiated a comprehensive literature review informed by resources covering key organizational aspects including culture, governance structure, and risk tolerance. The review also covered a variety of industries to provide a multi-disciplinary picture of the trends and challenges characterizing innovation and the culture that enables it. See Appendix A for a copy of the Literature Tracking Table containing all documents researched to this point. The following summarizes our approach and key findings.

### Literature Collection and Review

The Team **collected literature** through internet searches and from our personal collections as consultants and professionals in the aviation industry. Our search yielded various types of literature to help us build a solid research foundation, as well as identify areas that fell short of providing sufficient results. We reviewed **61 publications** and included our analysis in a robust online database using a product named <u>Airtable</u>. This tool supported a collaborative, consistent process of capturing relevant information, and it enabled Team members to sort and cross-connect literature to show influences not readily seen. For example, we included a drop-down field to sort entries by type of literature, which included the following:

- Book
- Web Article
- White Paper
- Brochure
- Industry Publication
- Industry Presentation
- Internal Report
- Research Publication

We also created fields for key areas such as "Industry Association" and "Project Applicability." Industry Association captured the following:

Aviation

- Nonprofit
- Public Agency
- Private/Corporate
- All

Project Applicability noted the following areas:

• Culture of innovation

• Other Transportation

- Innovation influencers
- Innovation lab
- Structure and governance
- Risk tolerance

- External impacts (e.g., airline mix, progressive region)
- HR role/impact
- Procurement role/impact
- Lessons learned from failures

Early findings greatly expanded our Team's knowledge and confirmed several attributes of a culture of innovation. Our review process continued throughout the course of the Project. We continued to:

- Acquire additional material as needed to fill gaps in areas that lack current information or new areas that are revealed through the Team's continued research; and
- Strengthen the value of the collected information to establish a more solid foundation of the existing body of knowledge in the study area.

We **continually incorporated** valuable information into Project deliverables, and in particular, the final Guidebook.

#### Conduct of Research Report | ACRP 01-47

A Guide to Developing a Culture of Innovation at Airports

### **Literature Findings**

#### **Key Themes**

Note: as the research progressed, we moved away from the "Key Theme" approach, breaking out these concepts into two areas called the "Organizational Elements that Affect Culture" and the "Mindset of Innovation."

As the research unfolded, the Team deemed the following common attributes or elements as necessary in support of a culture of innovation.



Leadership/ Champion of Innovation



Strategic Vision / Organizational Effectiveness



Ability to Embrace Change Management Initiatives



Discipline & Corporate/Individual Accountability



Resisting a Mindset of Failing



Adaptability / Flexibility



**Empowerment of the Organization** 



Sustainability and Guidance Tools

We gathered insight from all literature materials reviewed; however, we found the books noted in Table 1 (some suggested by the Panel) to be particularly applicable, succinctly substantiating the key themes that arose through the entire literature review.

Table 1: Key Resources and Themes

***Themes								
Book Title	Leadership	Strategic Vision/ Organizational Effectiveness	Embrace Change Mgmt. Ideas	Corporate/ Individual Accountability	Resisting Mindset of Failing	Adaptability/ Flexibility	Empowerment of the Organization	Sustainability & Guidance Tools
Good to Great	Х	Х	Х	Х	Х	Х		
Great By Choice		Х		Х			Х	Х
Overcoming the 5 Dysfunctions of a Team	Х	Х		Х	Х			Х
Leadershift	Х	Х	Х	Х		Х		Х
Creativity, Inc.	Х	Х			Х		Х	Х
Delivering Happiness	Х	Х					Х	Х
QBQ! The Question Behind the Question		Х		Х				Х
Start with Why		Х						Х
Switch			Х	Х		Х		Х
Team of Teams	Х	Х		Х	Х	Х	Х	Х
The Catalyst Leader	Х		Х					
The Disruption Mindset	Х	Х	Х			Х		Х
The Invisible Advantage	Х	Х	Х	Х		Х	Х	Х
The Tipping Point		Х	Х				Х	Х
Upstream		Х	Х		Х	Х		Х
Blue Ocean Shift	Х	Х	Х		Х	Х		Х
Innovation Nation	Х	Х	Х					Х
The Spark	Х	Х	Х	Х	Х	Х	Х	
The Innovation Handbook	Х	Х	Х	Χ	Х	Х	Х	Х

**Themes								
Book Title	Leadership	Strategic Vision/ Organizational Effectiveness	Embrace Change Mgmt. Ideas	Corporate/ Individual Accountability	Resisting Mindset of Failing	Adaptability/ Flexibility	Empowerment of the Organization	Sustainability & Guidance Tools
Demystifying Innovation Culture Efforts	Х	Х	Х	Х	Х	Х		Х
The Innovators Handbook	Х	Х	Х	Х		Х	Х	
Competing Against Luck - The Story of	Х	Х	х	Х				
Innovation								
The Adaptation Advantage	Х	Х	Х	Х				
The 4 Lenses of Innovation	Х	Х	Х	Х	Х		Х	Х
The innovation Maze	Х	Х			Х			
24/7 Innovation								Х
Game Storming	Х	Х	Х	Х	Х	Х	Х	Х
Innovation at the Speed of Laughter							Х	Х
Making Ideas Happen	Х	Х	Х					Х
The Innovation Expedition	Х							Х
Making Innovation Work	Х	Х	Х	Х	Х	Х		Х
The Innovation Killer	Х	Х	Х		Х			

Table 2 following provides further insight into each key theme.

Table 2: Further Insight

<sup>*</sup> ≭ Key Theme	(i) Definition	🦆 Result	
Leadership/ Champion of Innovation	Top level directors or managers (or influencers) that can create change beneath them. Culture is an outcome of leadership through development, not implementation. These people must be in place before trying to implement organization-wide changes. HR and Procurement policies can be supportive or destructive forces.	Employee passion for job/ organization/industry and opportunities to inspire others. Strong alignment with organizational strategic business planning success factors. Excitement and energy about today and future initiatives.	
Strategic Vision / Organizational Effectiveness	Organizational structure embracing a team-based concept instead of solely a hierarchical structure. Governance structure, ability to change, rigor, and communication can impact effectiveness.	Creates optimized organizational alignment leading to adaptability. Organizational resources can quickly adjust to changed conditions supporting agility.	

<sup>*</sup> ≭ Key Theme	(i) Definition	<b>ਊ</b> Result			
Ability to Embrace Change Management Initiatives	The ability to fail, change, respond, and move on quickly has an impact on the success of collaborative innovation within the culture. The ability and willingness for individuals to adapt their routines and business processes is essential to ongoing organizational improvement.	The ability for the employee to trust they are supported by the organizational leadership enables quick response and the ability to abandon poor ideas in favor of successful ones without fear of retribution.			
Discipline & Corporate/ Individual Accountability	Corporate and individual responsibility for one's action. It represents a sense of ownership and willingness to accept responsibility for one's actions.	This is not fear driven or a place to blame; rather, it demonstrates a call to excellence and ownership in the work to be carried forward.			
Resisting a Mindset of Failing	New thinking vs. the old normal. It involves the expectation that leadership desires individuals to take ownership of their area of influence and try new things to create improvements.	Removal of the fear to fail and thereby freeing the individual to explore the best opportunity or innovation for the issue at hand.			
Adaptability/ Flexibility	A mindset of being able to change and do something a new way. To be creative and not held back.	Organizational resources can quickly adjust to changed conditions and can respond to the needs of the organization while maintaining a course heading in alignment with the organization's vision and mission.			
Empowerment of the Organization	Provides freedom and creativity to promote independent thinking. Understands that lasting change requires buy-in throughout the organization.	Independent thinking reveals new and fresh ideas; and paths not yet taken in pursuit of innovation and creativity.			
Sustainability & Guidance Tools	Championing the effort to ensure the culture of innovation thrives. Requires program-level maintenance to ensure supporting efforts continue to grow and inhibitors do not erode the progress already achieved.	Providing tools and guidance to support the creative and innovative concepts considered by the organization. It nurtures future generations of great ideas and promotes a thriving culture.			

Our early findings from the literature review were both exciting and energizing as we considered the prospects for sharing tangible methods, approaches, and techniques with airports seeking to develop a culture of innovation within their organizations.

#### What is Innovation?

Innovation as noted by Merriam-Webster is "1: a new idea, method or device: novelty. 2: the introduction of something new." It is the process of developing and applying ideas to improve the way things are accomplished or achieved. And while it is important to recognize the *outcome* of innovation, the focus of this project is to consider how the underlying *culture* contributes to innovation and—most importantly—what attributes can be associated with developing and sustaining such a culture.

People have always strived to improve the processes that surround us. We change things up and throw caution to the wind in pursuit of a new way to accomplish our everyday tasks. For example, just over 100 years ago, Orville and Wilbur Wright embraced the vision for man to fly. But what propelled them in this pursuit? Why was it so important to find a way to fly when, at the time, we had barely advanced beyond the horse and buggy? It is this very spirit that we are seeking to harness in our research: the answer to "why" when no one is asking, and the flame that keeps burning long after the first spark.

#### The Connection Between Culture and Innovation

In our research we encountered many attributes like the *perseverance* of Orville and Wilbur Wright and the need for *leadership* to champion such an innovative approach. When applied in the business setting, the importance of organizational leadership and the ability to clearly articulate a vision are crucial elements in establishing a destination upon which the entire team is laser focused. What would have happened if the Wright brothers had not been so clear about the outcome that momentous day in December 1903? Would they have given up after a few failed attempts? Challenging the status quo will always prove difficult and complex, requiring perseverance and a clear vision.

The Team's literature review revealed many key components in pursuit of developing a culture of innovation. And while we identified eight themes in support of a culture of innovation, the following three emerged as early indicators to developing such a culture: (1) leadership and the ability to engage team members; (2) the organization's strategic vision; and (3) the ability to move past failures in pursuit of innovation.



### Leadership

Through our literature review, we found that leadership and team member engagement was by far the single best successful contributor to the culture of innovation. Without leadership and engagement, innovative projects may occur, but they are one-off occurrences. Leadership and championing of innovation is what enables a culture of innovation to be sustainable and longlasting. Even leadership at lower levels in the organization revealed small pockets of innovation in the organization that could be successful for many years. However, when considering the entire organization, thus considering the entire culture, it was key to have a champion in the highest levels. Organizational team members need to know that the CEO or Executive Director is on board with their approach to innovation and that there is no retribution for embracing new ways of resolving problems and blazing a new path.



When many think of innovation, they think of creativity—which is correct. Innovation utilizes creativity. But it is not the abstract-artist-throwing-paint-on-the-canvas type of creativity. There is a strategic nature required. The organization's strategic vision plays an essential role in developing a culture of innovation. It enables team members to rally behind common goals instead of operating in silos. A clear vision outlining the road ahead will help engage the creative concepts of the team and promote the dynamic thinking required to challenge norms and consider alternate paths.



# Moving Past Failures (Rut vs. Risk, No Regret)

The final key attribute revealed in our research is the ability for an organization to move past the day-to-day ruts and embrace risk. The literature review uncovered an interesting relationship between succeeding and failing: without failure, one cannot gain the perspective of triumph. Further, we learned the one component missing from the pursuit of innovation is the action of regret. When your team puts it all on the field each day, striving for a cohesive culture in the quest for innovation, there are no regrets—you merely keep pursuing a better way. Team members within this type of culture know that regret only lies in not trying or pressing on. The organization that is agile and unafraid to take risks is the organization that has embraced a strong culture of innovation. A reporter once asked Thomas Edison, "How did it feel to fail 1,000 times in pursuit of the light bulb?" Edison replied, "I didn't fail 1,000 times. The light bulb was an invention with 1,000 steps."

#### Weaving Together Culture and Innovation – 5 Generations

The Team's literature review proposed several key aspects for successfully developing a culture of innovation, highlighting both corporate and individual attributes to be considered. The Team previously noted key components from what can be classified as the corporate environment – leadership, strategic vision, and the ability to embrace a component of risk. The pursuit of individual excellence, integrity, and accountability are among the most sought-after traits identified in the Team's review. These traits are necessary for the successful implementation of innovation within an organization, as they ground the employee in being a team player for the betterment of the organization and the pursuit of improvement.

As the Team studied these individual traits, one key shaping influence was that of the five generations working side-by-side. Much literature has been dedicated to the phenomenon of the workplace culture now containing five different generations working alongside one another. Each generation has been shaped by the commonality of their respective experiences, available technology (or lack thereof), societal expectations and ambitions, and the influence of other generations either through a parenting role, or through a manager-employee relationship. Each brings their own set of values, expected behaviors, and ambitions that, when combined, provide the underpinning for the organizational culture that supports the ultimate bond between culture and innovation.

The Team found many interesting—and sometimes humorous—aspects about the five generations. The Team was excited to delve into this aspect as we approached our work with the case studies. We hoped to see first-hand how they complemented and or challenged one another. This will be a significant consideration as airports work to recover from the impacts of COVID-19; how will they contemplate staffing their organizations to meet this challenging financial period in aviation history? The opportunity for part-time individuals from older

generations that may already be retired from their primary career will open the door to even more generational diversity in the workplace. The key will be establishing foundational success and deploying elements of the Guidebook as they embrace a culture of innovation.

#### **COVID-19 Impact & Response**

We would be remiss if we did not discuss the literary findings highlighting the impacts and response by airports resulting from the COVID-19 pandemic. The single largest impact revealed in our research was the overwhelming loss of commercial passenger activity and resultant financial implications. It came close to replicating the early days after the September 11 tragedy. Yet, because the pandemic disruption continued for more than two years, it had a much longer disruption period.

Our research revealed many initiatives occurring within US airports to promote confidence with the traveling public to return to their airport. Table 3 provides a sampling of airport initiatives in response to the pandemic. While these initiatives do not, in and of themselves, reflect the development of innovations, they do show how some airports as exhibiting a key characteristic of a Culture of Innovation in their ability to embrace adaptability and flexibility to enable the implementation of these solutions.



Table 3: Airports Pivot During the Pandemic – Current Innovations

Airport	Hub	Year	Result of Airport's Willingness to be Adaptable
LAX - Los Angeles International Airport	L	2020	Part of a pilot program to test thermal cameras scan for elevated temperatures.
DEN - Denver International Airport	L	2021	Introduced an app to limit contact amid COVID-19 to allow passengers to make socially distant reservations to pass through screening and use train cars.
JFK - John F. Kennedy International Airport	L	2021	Installed camera-enabled technology to monitor social distancing from curbside to security.
SEA - Seattle-Tacoma International Airport	L	2021	Trialing AI technology that automates the capture of turnaround process video footage and compares it with the planned schedule to inform decisionmaking.
MCO - Orlando International Airport	L	2020	Part of a pilot program to monitor crowd density at gate areas and delivers that information vis digital signs and custom lights throughout the facility, enabling travelers to decide when to proceed to the gate.

Airport	Hub	Year	Result of Airport's Willingness to be Adaptable
FLL - Fort Lauderdale- Hollywood International Airport	L	2021	Installed touchless technology in Terminal 4 using biometrics instead of paperwork.
SLC - Salt Lake City International Airport	L	2020	Opened a Covid-19 testing center. Started new airport-wide innovation committee.
TPA - Tampa International Airport	L	2020	Installed robot software to sanitize handrails on escalators, testing touchless cleaning of restroom floors and large surfaces.
PDX - Portland International Airport	L	2021	Opened a drive through vaccination site.
OAK - Oakland International Airport	M	2021	First U.S. airport to sell Covid-19 tests in a vending machine.
PIT - Pittsburgh International Airport	M	2021	First airport to install a healthy buildings dashboard and air quality sensing technology.
CVG - Cincinnati / Northern Kentucky International Airport	M	2021	Testing autonomous robot to clean floors freeing up staff to provide other sanitation services.
SDF - Louisville Muhammad Ali International Airport	S	2020	Deploying virtual customer help-desk utilizing "zoom-like" virtual meeting scenarios allowing passengers to talk with a real person using cameras and computer screens. Utilizing autonomous robot to clean floors freeing up staff to provide other sanitation services.
CID - Eastern Iowa Airport	S	2021	Contracted with a local hospital system to implement a "travel well" COVID-19 screening program.
ATW - Appleton International Airport	S	2021	Installed new credential authentication technology to improve checkpoint screening.
Various GA Airports Across the Nation	GA	2020- 2021	Enabling humanitarian groups to transport PPE and medical supplies to medical centers and enabling volunteer pilots to fly COVID-19 test samples from rural areas to larger cities for expedited results.

Looking beyond the COVID-19 pandemic, the U.S. and global economies continue to show signs of worsening, which is affecting the aviation industry. For example, there are tremendous workforce needs in all areas—pilots, flight attendants, ground crews, TSA, concessionaires, and airport staff. The value of innovation will only grow with these challenges.

### **Achieving Long-Term Success**

For an organization to achieve long-term success, it must have a clear vision *and* leadership who champion the effort. Leadership provides the framework or structure to support the culture, and clarity provides the spark to ignite the fires of innovation. See Appendix A for a copy of the Literature Tracking Table.

### The Meaning of Culture of Innovation

A **Culture of Innovation** is a holistic workplace culture that encourages free thinking, an experimental approach to creating solutions that eliminates the sense of risk, and a willingness to learn in order to generate new or improved products, services, or processes.

It promotes and fosters a work environment where everyone knows his or her unique role in changing the organization for the better, no matter what their job function is.

It requires understanding the things that shape norms, values, and behaviors and developing leadership behavior, organizational structure, business processes, metrics, incentives, rewards, recognition, and symbols that reinforce innovation.

## Section 3: Case Study Initiative & Findings

In this section, we summarize the purpose, preparations, and results of our case studies.

### Case Study Purpose

Case studies provide an in-depth, multi-faceted understanding of complex issues in a real-life context and help to generate new ideas that can be translated into solutions for guidance. The case studies served the following two main functions:

**Literature Review Validation**: Case studies enable the Team to validate findings resulting from the literature review process and ensure that future guidance proposed in the Guide will be based upon concepts and practices applicable to airports of varying sizes.

**Identification of New Objectives or Focus Areas**: Case studies enable the Team to collect direct accounts and perspectives from airport leaders regarding their implementation of innovation and the required nurturing to support the associated culture. The sharing of these everyday experiences demonstrates the value of strategies in place and identifies gaps that may inform the content of the Guide.

The Team identified the following 5 case study areas or partner subjects for our focus as we gathered insights about the successes and failures of developing a culture of innovation: (1) airports; (2) airlines; (3) public sector organizations; (4) private organizations; and (5) multi-organizational groups.

### Engagement Roadmap

In Interim Report 1 (IR1), the Team presented a *Case Study Implementation Plan* identifying our case study candidates for each study area. Many of the candidates listed in the plan were confirmed ahead of placing them on the plan. We then used a specific invitation and questionnaire, as described here.

**Case Study Participant Invitation:** Before the case studies, we prepped participants by sending an invitation that included background information including our Key Themes. This helped us hit the ground running more quickly during the interviews. See Appendix B for these invitations.

Case Study Participant Questionnaire/Interview Template: We prepared two interview templates that captured the 8 Key Themes and enabled the Team to cross connect the Character Traits from the Maturity Model to explore the journey and experiences of each participant. We used one or both of the templates for most studies, helping us dive into the details provided participants in an organized manner. See Appendix B for these materials.

### | Airport Case Studies

This study area focused on US airports and one international airport who shared their successes in developing a culture of innovation, along with lessons learned from previous failures. Table 4 presents these airports.

#### Planned activities

- 3 full-scale on-site case studies
- At least 2 virtual case studies
- Diversity in size (large, medium, and small), governance structure (city, authority, etc.), and innovation model

Table 4: Completed Case Study Airports

Airport Name	FAA Rank	Non-US	Large	Medium	Small	Non-Hub	City / County	Authority
Toronto (YYZ)		•						
Las Vegas (LAS)	9		•				•	
Salt Lake City (SLC) <sup>1</sup>	23		•				•	
San Diego (SAN) 1	24		•					•
Cincinnati/NKY (CVG)	49			•				•
Louisville (SDF)	68				•			•
Madison (MSN)	91				•		•	
Cedar Rapids (CID)	116				•		•	

<sup>&</sup>lt;sup>1</sup> We added SLC and SAN since submission of the IR1

We also planned to conduct a case study with the Minneapolis (MSP) Region; however, we determined it would provide more value to save that engagement for the validation phase of the project.

#### Airport Case Study Highlights - Large Hub & International

McCarran International Airport (Las Vegas) (LAS) - city/county governance

Over the years, LAS has established itself as an innovation leader among US airports through **initiatives** such as the following:

- In 1997, LAS implemented the first large hub, airport-wide Common Use Terminal Equipment (CUTE) system in the country. The implementation of such technology maximized the efficiency of the airport's resources by enabling multiple airlines to use the same check-in and gate counter facilities.
- This innovation was followed by the implementation of an airport operational database (AODB) in 1998 that provided data to all types of airport information displays (e.g., flight, baggage, gate, ramp) while storing all information for the baggage tracking system along with most other airport operational systems. To put it into perspective, the AODB processes 15 30 million transactions daily.
- In 2003, LAS implemented the Common Use Self-Service (CUSS) kiosks as well as complimentary Wi-Fi, and by 2005, a radio-frequency identification (RFID) baggage handling system was in place.

Today, LAS maintains **partnering relationships** with the Transportation Security Administration (TSA), Customs and Border Protection (CBP), and airlines to facilitate a cohesive unit to solve operational challenges, improve day-to-day processes, and implement new innovative solutions to put as many "heads in beds" as possible. LAS cites innovative **leadership** as a key to embracing a culture that is open to change, willing to learn from its failures, and provide phenomenal customer experiences.

#### Salt Lake City International Airport (SLC) - city/county governance

Innovation at SLC is in its infancy, with SLC leaders beginning to drive innovation into the culture through the advent of an "Innovation Committee" to help the airport become smarter in the way it operates. Established by a former Airport Director of Operations, this committee is setting the tone for future hiring processes by updating job descriptions to attract openminded staff and by influencing ongoing capital improvement projects that are completely transforming the airport from the ground up. The airport leadership is further setting the stage for innovation by talking with peer airports to gather intelligence on innovative processes, and by partnering with agencies and airlines to implement new technologies.

#### San Diego International Airport (SAN) - airport authority

Innovation at SAN has stemmed from a culture of **collaboration** and is guided by and interwoven with the **customer experience**. SAN has developed an **Innovation Lab** (Lab) that is led by the VP of Revenue, Marketing, and Innovation. The Lab benefits from new revenue generating possibilities mainly due to its location in an innovative city with so many start-up companies. However, while the Lab has been successful in creating innovations for both internal airport departments and external companies, an innovative culture at SAN is not necessarily pervasive throughout all airport departments. The organization is using the customer experience as the driving force behind innovation, working to "ideate solutions" to **bridge an innovative mindset** to other airport departments.

#### Toronto Pearson International Airport (YYZ) - non-US Airport

YYZ's vision is to transition from a global hub to a mega hub by 2035, and they are using Airport Collaborative Decision Making (A-CDM) as one means to support its innovative vision. To become a mega hub, YYZ believes it will require the continuous execution of precise operations under all types of disruptions and situations. A-CDM at YYZ involves an A-CDM Trial Plan—a working method supported by IT solutions to deliver shared information in ways that promote common situational awareness. The A-CDM Trial Plan is expected to ensure complex operations run smoothly and facilities are managed efficiently. YYZ is utilizing an innovative technical platform to share information throughout the organization to help promote innovation.

### Airport Case Study Highlights - Medium Hub

### Cincinnati/Northern Kentucky International Airport (CVG) - airport authority

Since 2018, a four-member "Innovation Team" at CVG has been working to change the corporate culture to become more innovative in the following ways:

- Driving and incorporating innovation into the airport's strategic plan and department policies
- Partnering with the University of Miami to establish an Innovation Lab (LAB) at Oxford Airport
- Working with startups to test new technologies to support government agencies and create efficiencies
- Learning from European and peer airports on innovation initiatives
- Developing innovation supportive talent for the region
- Keeping an eye on **product improvement trends** to future-proof the airport.

CVG has a long history of **re-inventing itself** since it had to do so after losing a hub airline and through managing various cargo changes over the years. It is driven to be innovative as it **competes for passengers** with five surrounding airports. CVG's innovative focus stems from understanding of the **customer experience** and the importance of diversifying its **revenue streams**. The CVG Innovation Team is led by a Chief Innovation Officer and includes connections to other CVG departments to **foster a culture of innovation** for the organization. CVG believes it has distinguished itself as a model airport for innovation.

#### **Airports Case Study Highlights - Small Hub**

#### Louisville Muhammad Ali International Airport (SDF) - airport authority

SDF recently launched its innovation program by creating a **leadership position** to lead their innovation efforts: the VP of Strategy and Innovation. Additionally, SDF has initiated a partnering arrangement with the University of Louisville to create an **Innovation Lab** to test and implement process improvements for their organization. SDF believes that **leadership support** was the first step needed to begin its innovation journey, while the new partnering agreement with the local university will guide and direct them regarding organizational structure. SDF would say that while they have had success in implementing technology initiatives, they are anxious to make greater strides through their academic partnering agreement to realize new **revenue streams**, **reduce operational costs** and **overcome barriers** to implementing an innovative culture.

### Dane County Regional Airport (Madison, WI) (MSN) - city/county governance

MSN secured a new Airport Director approximately three years ago. This new director is an innovation champion working to transition the airport from a hierarchical structure to a flatter, more open, supportive, collaborative, and learning culture. The director is actively engaged in equipping the staff through training opportunities and by providing them with dedicated time to share innovative ideas. Both initiatives have resulted in several innovations such as a new snowplow plan and a more efficient way to upkeep flooring in the terminal. In her three years with MSP, the Airport Director has focused her time on helping staff recover from an environment that was unforgiving and did not allow for failure. She has been working with division leaders and staff members to build trust and give each person a voice to share ideas while reshaping their perspective by saying things like, "this did not go as planned and we are still working on it." New leadership and the acceptance of embracing a mindset to fail have been key to MSN's transformation with innovation.

### The Eastern Iowa Airport (Cedar Rapids) (CID) - city/county governance

CID's Airport Director is the airports' primary driver and **champion of innovation**. He has been establishing a strong foundation of innovation by **hiring** new people who are committed to innovation and to the values that support an innovative culture and environment. The Airport Director has focused on **key principles** including humility, courage, opening doors for communication, an open mindset to try things (and fail if necessary), and the freedom to challenge one another to further their innovation journey. The airport has developed a **Strategic Business Plan** and the director is focused on **flattening the organization** by hosting regular team and staff meetings to promote new ideas and giving staff autonomy to make decisions. The airport tries to **promote from within** and cultivate staff for future roles (e.g., try to make sure

everyone can fill various roles), using a personality trait test to better understand one another to ensure better outcomes. The airport is focused on diversity, equity, and inclusion and is working to expand the number of commissioners so that this group can become more diverse. The director has pushed through new innovative ideas that benefit passengers by partnering with organizations that are experts in their field to manage the innovation initiatives.

#### **Airport Case Study Conclusions**

The Team found the airport case studies enlightening, coming to the following conclusions:

- The Team was able to quickly validate many of our earlier **Key Themes** through each of these studies. In each case, the need for leadership and or a champion for innovation came across very strongly. It appears that when this champion can be at the highest or near the highest levels in the organization, the staff is more likely to embrace an innovation journey.
- Additionally, the inclusion of innovation within the organization's strategic business plan was also found to be key by facilitating a clear sense of direction for the organization.
- It was also clear that many of the airport case studies began their journey by naming a key leader of innovation such as a Chief Innovation Officer or Strategy Officer to get things started. The inclusion of an Innovation Officer or even leadership from the Airport Director enabled the airport to take on projects to test the innovation waters and provide tangible proof of the value of an innovation program.
- The Team also saw the benefit of the theme centered on *Sustainability* as we learned about the impacts to an innovation program when its leadership retired.
- Additionally, the *Character Traits* of the individuals involved in these innovation programs were key to the success of each. It was clear to the Team that character traits such as Catalyst, Enabler, and Accelerator were key attributes for individuals in these leadership roles. In one case study where the Airport Director was "helping staff recover from an environment that was unforgiving and did not allow for failure," we saw how character traits like *Inhibitor* or *Destroyer* can be detrimental to the growth of a culture of innovation.
- We also gathered several examples of tactics that airports can directly put into action to help foster a culture of innovation—something we envision meriting a specific section in the Guide.

### Airline Case Studies

This study area focused on the strategies and perspectives of one of the key airport partners —the airlines. The Team utilized its connections with airlines to secure insights about developing a culture of innovation. IR1 considered an array of airlines for consideration including the following:

- Delta
- American

Southwest

- United
- Alaska
- **JetBlue**

#### Planned activities

- 1 full-scale on-site case study with US airline
- Small-scale case studies when on location for airport case studies
- At least 1 virtual case study



- Spirit
- Hawaiian
- WestJet

The Team successfully secured interviews with the following airline entities:

Air Canada

- Delta <sup>2</sup>
- American
- Frontier 3

- JetBlue
- Spirit
- Hawaiian

• TBITEC Baggage Consortium (LAX)

- <sup>2</sup> Case study in process and not available for IR2 write-up
- <sup>3</sup> Case study included in multi-organizational write-up

Note that the case study write-ups included here do not outwardly use the names of the airlines. While the airlines represent one of the single largest partners for the nation's airports, it is important to note that each operate as private businesses; therefore, much of what they shared with us must be safeguarded. We were granted liberty to learn about their vision relative to innovation and even work with the knowledge to understand the benefits with the nation's airports; however, we have redacted their names from the specific write-ups. The following are summaries prepared for each of the airlines interviewed:

#### Airline #1 Highlights

Airline #1 has developed an innovation vision and process, but it has found difficulty in driving innovation into the entire organization's culture, mainly because it is such a large airline. It has been difficult to push innovation to the rank-and-file—a challenge that has been compounded by the effects of the pandemic which have shifted the airline's focus primarily to survival mode. The airline's executive team remains committed to spurring an organizational wide innovation initiative throughout the business, but for now, innovation is being left to individual contributors dispersed throughout the network.

#### Airline #2 Highlights

Airline #2 was founded on innovation, but it has discovered that **driving innovation to its front-line employees has been difficult** mainly because it has grown into such a large airline with a lot of layers between the organization's executives and the rank-and-file employees. The airline is concerned about maintaining its culture of innovation as the pandemic has not only resulted in an exodus of employees with critical knowledge, but also is making their workforce averse to change (they have been in a state of continual change resulting from the pandemic). Like many other airlines, the pandemic has shifted this airline's focus to returning to prepandemic conditions. Airline employees across the network have been left to their own devices to implement innovation as they see necessary to enhance the customer experience and improve the confidence of the flying public.

### Airline #3 Highlights

The culture of innovation at airline #3 is rooted in the company's strong sense of **social responsibility**. While there is evidence of technological innovation throughout this airline's destination cities, these advancements are **driven by business cases** that support their greater purpose. Initiatives with a strong return on investment are prioritized for implementation.

### Airline #4 Highlights

Due to the unique culture and size of airline #4, they consider themselves to be like an old start-up that has nearly a century of experience but can pivot quickly. During the COVID downturn, this airline was making bets on the market and started up new service quickly to test for a short period to see if it worked. They are actively seeking "tech with touch" opportunities and common use capabilities with their airport partners. Airline #4 values the ability to consider changes with

airport partners and air service opportunities in search of providing value to their customers while improving their bottom line. The airline **employees are encouraged** to bring forth initiatives in pursuit of enhanced customer experience and added revenue opportunities.

#### Tom Bradley International Terminal Equipment Co. (TBITEC) (LAX)

The final component of this study area is an organizational structure comprised of numerous airlines that operate at LAX in both the Tom Bradley International Terminal (TBIT) and Terminal 5.

TBITEC is considered innovative because it is one of the largest consortiums of airlines that focuses on managing critical airport assets. TBITEC coordinates airline needs with airports and other aviation agencies and utilizes innovative ideas to **improve efficiency and effectiveness** (e.g., test centers for parking). And while TBITEC is actively engaging in executing on innovation initiatives, innovation is unfortunately not part of its culture because it **lacks an innovation champion** and a **clear organizational vision**. TBITEC is challenged by competing priorities amongst the consortium that obscures the formation of a common unifying vision to successfully gain traction in cultivating a culture of innovation. The lack of vision has also led to challenges managing assets and technology, capital projects, and ensuring accountability. The organization is also challenged because it **lacks a governance entity capable** of providing the structure and collaborative processes that could help it become more agile and innovative. It also lacks an innovation champion to create buy-in and drive change. In addition, TBITEC does not have a system in place that ensures the right people are engaged with making decisions or are provided with the authority and empowerment to drive creative decisions.

#### **Airline Case Study Conclusions**

The case study interviews with airlines were intriguing, leading us to the following conclusions:

- There is a natural challenge for any large organization to promote initiatives when their employees are dispersed across many different locations.
- One of the most important factors in developing a culture of innovation is a leader or champion for the effort. However, there is a difference between airlines and airports; a single leader at an airport could be sufficient to drive the culture change, whereas airlines exhibit the need for more leaders—perhaps at a regional level—to help connect individuals together toward a common vision, mission, and purpose centered on innovation. The regional leader would then be more effective working with the rank-and-file of the organization, which was a common challenge shared by the airlines.
- The case studies also revealed the airlines' largest challenge this past year was to simply survive the business impacts of the pandemic, which we believe aligns with earlier Key Themes associated with Change Management and Adaptability/Flexibility. However, the simple fact that the airlines did adapt during such uncertain times demonstrates that while they may not have claimed they had a culture of innovation, they did have some level of this culture.
- The final case study with TBITEC also demonstrated the validity of many of the Key Themes, including the need for *Leadership, Strategic Vision, Empowerment and Accountability*.

### Other Public Sector Organization Case Studies

The literature review uncovered insights from public sector organizations that shaped and informed our early findings. We also noted the importance of connecting with other entities that may offer culture of innovation perspectives, identified the following entities, and successfully secured interviews with each.

Up to 3 case studies, on-site or virtual TBD by organization preference

- Louisville MSD (wastewater)
- Transportation Security Agency (TSA) Innovation Task Force
- University of North Dakota (UND) Unmanned Aerial Systems (UAS) Innovation

#### Louisville MSD (wastewater utility)

Louisville MSD launched its innovation program in 2019 by creating a **C-level position** for the organization: the Chief Innovation Officer (CINO). The Executive Director for Louisville MSD— a seasoned veteran in the wastewater industry—recognized the need to explore and incorporate innovation into the organization. The CINO position reports directly to the Executive Director. Louisville MSD is in the process of formalizing their innovation program by **identifying internal resources** for redeployment to the effort. Two resources have already been aligned with the innovation initiative. They include a Program Manager and a dedicated staff member focused on research. Both are new to the innovation team, working to formalize structure to the program.

The innovation program has embraced many of the 8 Key Themes, most notably that of the inclusion and effectiveness of a **Strategic Plan and Vision**. In 2018, Louisville MSD embarked on the journey to update their then ending Strategic Business Plan. The collaborative process utilized to cultivate a new Strategic Plan enabled Louisville MSD to accentuate the importance of innovation by including a strategic objective (or critical success factor as they have termed it) dedicated to innovation. This move clarified the role of innovation across the organization and encouraged the organization to embrace the resultant opportunities.

#### TSA Innovation Task Force

TSA Strategy 2018-2026 proposes the following:

"Twenty-five years after its founding [2002], TSA will remain the recognized global leader of transportation security, enabled by our focus on capability innovation and threat-informed, information-driven operations. Over the next seven years, TSA will make strides to outpace and outmatch the threat. We will be agile in addressing the dynamic threats posed to the transportation system. By working to incorporate and complement industry advances, TSA will enhance security and create a seamless experience for passengers of all modes of transportation."

The nation's transportation system is a fundamental underpinning of the U.S. economy and the American spirit; protecting the freedom of movement for people and commerce through this system is TSA's core mission. TSA will continue to operate in a fast-pace and dynamic environment, employing this strategy to meet its mission and lead the global community in transportation security. By focusing on a culture of innovation and action, while placing a premium on partnerships, they will drive continuous improvement. In committing to the development of its people, they will ensure each TSA professional is prepared and equipped to contribute fully to their mission.

This strategy will be accompanied by the Administrator's Intent to provide the workforce with specific objectives and detailed guidance to accomplish the strategic priorities. They understand that this future scenario is ambitious. It requires **accountable leadership**. It requires the unique contributions of all members of the dedicated TSA workforce and close collaboration with its partners to transform transportation security together on behalf of the American people. They are prepared to rise to that challenge, and they look forward to the journey.

#### University of North Dakota (UND) Unmanned Aerial Systems (UAS) Innovation

The UND Grand Forks campus has been called "the Silicon Valley of unmanned aircraft systems" by the New York Times. UND was the first university to develop a UAS degree and is training the first workforce that will be able to operate and manage UAS in various fields and applications. UND's Aviation Department has a strong innovative culture that involves **trust at its core**, which empowers faculty to explore new areas of study and develop new curricula in emerging areas. UND students are given the opportunity to interact with small and large UAS companies such as Northrop Grumman, General Atomics, and Customs Border Protection. Flights are conducted regularly where UND flight students are jointly flying next to Unmanned Aircraft in the National Airspace System. Students who are not majoring in aviation or who are not already obtaining a four-year degree in UAS operations have the unique opportunity to obtain a minor in UAS Operations.

#### Other Public Sector Organization Case Study Conclusions

Each case study validated the *Key Themes* from the Team's earlier research work. The Team also noted the correlation between the two themes of *Accountability* and *Empowerment* because of these case studies. Both the TSA and Louisville MSD's case studies demonstrated the connection between the accountability of employees and their ability to be empowered in their positions.

### Private Organization Case Studies

The Team included engagement opportunities with several private organizations to assist the Team with identifying barriers that may be lurking in the publicsector environment that do not exist in the private market.

#### Planned activities

Up to 2 case studies, on-site or virtual TBD by organization preference



The private market proved to be the most challenging to coordinate with and engage in the discussion about a culture of innovation. The Team noted a sense of confidentiality with many private organizations we approached and we were unable to complete these case studies.

### **Multi-Organizational Case Studies**

For this category, the Team sought to highlight initiatives in which organizations have collaborated to achieve innovation, such as airport + airport; airline + airport; or regulatory agency + airport + airline. Our Team expertise and literature research uncovered several opportunities in this arena. Table 5 presents our list of initial candidates alongside our status with each.

#### Planned activities

- 1 full-scale on-site case study
- At least 1 virtual case study



Table 5: Status of Multi-Organizational Case Studies

Initial Case Study Entities	Status
LAS + TSA + CBP + Spirit + Frontier	Completed
ACI-NA Young Professionals	Completed
ACI-NA Small Airports Committee	Completed

McCarran International Airport (LAS), Transportation Security Administration (TSA), Customs and Border Protection (CBP), Spirit Airlines (NK), Frontier Airlines (F9)

The Team secured this multi-organizational perspective which turned out to be better than originally planned since it included multiple organizations from the airlines and regulatory agencies and their interconnectivity with LAS. The case study resulting from this engagement is rich with opportunities, having included every division of the LAS airport, CBP, TSA, and Frontier and Spirit Airlines.

The mission of LAS is to drive the efficiency and adaptability of the airport property and resources by maximizing flexibility through innovation. To accomplish this, LAS takes a proactive approach to collaborate with its regulatory and airline stakeholders as true partners. LAS is widely known among US airports for its early adoption of innovative technology systems. This is largely due to its airport leaders' active participation in industry associations, including ACI and IATA. In particular, the former Assistant Director of Information Systems was one of the first airport executives to join IATA (the airlines' trade association). He attended passenger experience working groups in Geneva, Switzerland specifically to collaborate with airline partners to solve passenger processing challenges. LAS maintains an active partnership with the CBP and TSA—so much so that LAS hosts a TSA Innovation Checkpoint which is used to evaluate new innovations for the TSA before deployment to other US airports.

This case study demonstrated that the perspectives of innovation at LAS are largely driven by their decision to become an early adopter of airport-wide common use, a move that necessitated strong **stakeholder collaboration**. It addresses the setbacks/challenges, and advancements/opportunities of multiple airport partners including airlines and regulatory agencies and the airport departments that interact with each of these organizations.

### **Multi-Organizational Case Study Conclusions**

The long-term collaborative nature of this multi-organizational group demonstrates the opportunity to pursue innovation does not need to be contained to just one organization. The entities connected to this group have utilized LAS as an innovation lab to test and prove innovative initiatives to enhance the customer experience while driving efficiency, effectiveness, and adaptability through the property. It is clear from the case study results that each entity has a clear vision for their respective contributions to efficient and effective movement of passengers, planes, and bags, and they share a common mission to ensure a seamless environment for the flying public. The advent of a multi-organizational group comprised of multiple partners is an excellent example of one of the **Key Themes**: Sustainability & Guidance Tools. It demonstrates a clear path for airports to connect with key stakeholders at their airports to improve operational elements for the airport and the entire airport campus.

# Section 4: Case Study Analyses & Application

The Team's case study areas uncovered insights in the aviation industry and across other lines of business, and the engagement with stakeholders enabled the Team to probe areas not readily seen on the surface of the literature review. In IR1, we summarized the intent of the case studies which was to provide an in-depth, multi-faceted understanding of complex issues in a real-life context and help to generate new ideas that could be translated into solutions for guidance. The Team also suggested the case studies would serve two main functions for the project: (1) literature review validation, and (2) identification of new objectives or focus areas.

#### **Literature Review Validation**

The case studies clearly validated the Team's previous literature review task; we heard repeatedly about experiences that characterized the *Key Themes*, especially in the following three areas that IR1 identified as the most important:

- **Leadership** entities across all 5 study areas conveyed leadership as an essential role. Further, leadership at the highest levels in their respective organizations was absolutely the catalyst for initiating the organization's move toward innovation and the culture that would sustain it.
- **Strategic Vision** the case studies affirmed the need for these leaders to set forth a strategic vision to provide clear direction on the path forward for their organizations. They further confirmed that a clear vision outlining the road ahead is not just nice to have: it is required to engage the creative concepts of the team and promote the dynamic thinking required to challenge the norms and consider alternate paths.
- **Moving Past Failures** (Rut vs. Risk, No Regret) the ability of an organization to move past the day-to-day ruts and embrace risk was also hailed as a necessary factor of a culture of innovation. Insights from our case studies confirmed an earlier finding that, without failure, one cannot gain the perspective of triumph.

### **New Objectives or Focus Areas**

The case studies revealed the need to add or change the following areas:

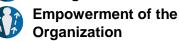
• **Key Theme Consolidation**: It became evident that the associated results and behaviors of the following Key Themes are closely enough aligned to merit consolidation:

Adaptability/Flexibility merged with

\$

Ability to Embrace Change Management Initiatives





• New Character Trait: The Team found the need to add "Challenger" to the list of Character Traits. This is different from the existing trait of "Inhibitor" which entails behaviors of passivity of an individual who simply will not participate in the culture. The Challenger is an individual that ensures the team has not missed something in the process of innovating and, in parallel, checks for "blind spots." A Challenger may *appear* as if they are not on board when they really are; they merely ensure no stone has been left unturned in the efforts as the team moves forward. One may consider the Challenger as the adage "playing devil's advocate."

• Evolution of the Maturity Model: Part of the Team's early vision was to include a simple assessment tool we called the Maturity Model. However, instead of terming this a "Maturity Model," we are considering making it part of the assessment toolkit that includes a rating system relative to the Character Traits alongside the Key Themes. Continue reading into the next section for more information.

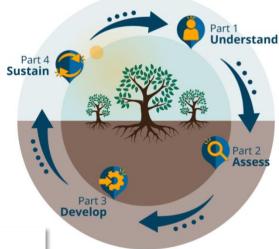
### Application to the Guide's Design Concept and Framework

The combination of the literature review and case studies—all in alignment with the original RFP objectives—has revealed a potential 4-part framework as we considered an approach to developing the Guide. Figure 1 introduces a concept that invites the reader to *engage in the process* of developing and sustaining a culture of innovation, while also *leading them through the parts* in the Guide.

This preliminary Guide framework was the product of Team analysis and dialogue of research results, collaboration with our subject matter experts (SMEs), and the simple concepts shown in Figure 2. Though the Team was already thinking down this path, when we uncovered Figure 2 through literature research, we realized it succinctly captured what we desired the Guide to portray. It presents a simple way for airports to characterize the difference between *innovation* projects and programs and a culture of innovation by utilizing components of fruit, trees, and soil to represent projects, programs, and culture, respectively.



Figure 1: Proposed 4-Part Framework for the Guide



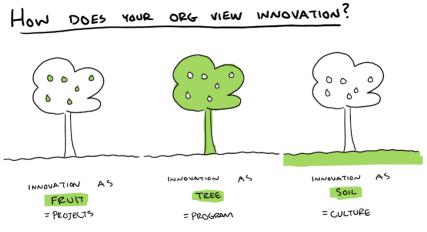


Figure 2: Organizational View of Innovation (by Ed Essey, who we engaged for permission to cite)

On the pages that follow, we present the results of our research and analysis using the 4 parts introduced in Figure 1.



### Part 1: Understanding Innovation and a Culture of Innovation

Using the case study interview template, the Team aligned the Key Themes that make up a culture of innovation with the experiential aspect of each case study entity. In this way, we were able to delve in and learn about *Drivers/Triggers* in developing a culture of innovation. At this stage of the research, we are considering the possible difference between a driver and a trigger. Drivers were consistently characterized in our interviews as "why we need innovation," whereas triggers focused more on "what starts innovation." This basic premise of drivers and triggers resulting from our case studies revealed the need to set the stage for airports to assist them with understanding the concept of innovation as they then embrace a culture of innovation. Figure 3 highlights example drivers and triggers captured through the research.

**Drivers** Triggers Why Innovate The Spark Operational efficiency Customer Experience New leadership Competition Space optimization Customer health New strategic plan or Lack of customer direction confidence Revenue generation Customer safety Successful innovative Urgent need (such as project implementation response to a pandemic)

Figure 3: Example Drivers and Triggers

The case studies revealed a common path routinely experienced by the entities driving innovation in their organizations, and, simultaneously, a maturation for the organization. Many started with *innovation projects* that represent the eye appealing "fruit" in Figure 2. These projects tangibly demonstrated to both internal and external stakeholders *why* innovation is needed, and in many cases, they were *what sparked the need* for innovation—and thus a culture to sustain it.

For example, one of our airport case study participants noted their first step with innovation was targeted at addressing long lines experienced by their customers at the TSA checkpoint. By implementing an innovative technological application (project/fruit), they were able to reduce the wait times and improve the customer experience. The experience with demonstrating a tangible innovation enabled them to pursue additional innovative initiatives.

As our case study partners matured, many found a natural progression toward starting an *innovation program* or as Figure 2 would elude, "plant a tree." The programs usually got their start with the advent of executive positions (such as VPs of Strategy or Chief Innovation Officers) being added to the organization chart. The programs focused on special teams of people in the organization to help with ideating and carrying out innovation projects to address the earlier *Drivers/Triggers*. But as the entities matured, they saw—and in some cases, are *now* seeing—the need for the innovation program to expand to include everyone in the organization, thus nurturing the soil (culture) to support the tree (program) to bear the fruit (projects).

For an airport using this Guide, it will be important that they understand the need for *a culture of innovation* (soil) and not just projects (fruit) or even a program (tree). And while the journey may need to include *some* of these elements first, at least the vision for a culture change should be shared as the very first step.

"while the journey may need to include some of these elements first, at least the vision for a culture change should be shared as the very first step."

The *Key Themes* learned through the Team's literature review positioned the Team to consider a progression or course of action for future airports to facilitate a culture of innovation. However, they do not signify a step-by-step process; they are a collection of areas in which the airport leadership can focus upon as they embark on their journey towards a culture of innovation. They show what makes up a culture of innovation, characterizing the resultant behaviors that can be seen in the organization. Including the consolidation noted earlier, Table 6 presents the 6 Key Themes for consideration in the Guide.

Table 6: Consolidated Key Themes, Definition & Resultant Behavior

<sup>*</sup> ★ Key Theme	(i) Definition	PResultant Behavior
Leadership/ Champion of Innovation	Culture is an outcome of leadership through development, not implementation.	Employee/team passion for job/organization/industry and opportunities to inspire others.
Strategic Vision / Organizational Effectiveness	Organizational structure embracing a team-based concept instead of solely a hierarchical structure; embracing purpose, vision and why.	Creates optimized organizational alignment leading to adaptability.
Ability to Embrace Change Management	Ability and willingness to adapt routines and processes to support ongoing organizational improvement. Embracing a mindset of being able to change and do something in a new way.	The employee believes they are supported by the organizational leadership; enables adaptability and flexibility.
Resisting a Mindset of Failing	New thinking vs. the old norms. Try new things to create improvements and continuous learning.	Removal of the fear to fail and freeing the individual to explore innovation.
Empowerment of the Organization	Freedom and creativity to promote independent thinking while maintaining accountability and responsibility for one's actions.	Independent thinking and paths in pursuit of innovation and creativity with a call towards excellence.
Sustainability & Guidance Tools	Championing efforts to support growth while reducing inhibitors	Providing tools and guidance to support the innovative concepts considered by the organization.

Part 1 of the Guide will address each of these concepts (i.e., Drivers/Triggers, culture of innovation, etc.) in a structured, yet natural flow of ideas with examples given from our research as appropriate.



# 🞑 Part 2: Assessing the Innovation Progression

The research collected from the case studies and literature review has demonstrated to the Team the need for the Guide's readers to perform a self-assessment. The Maturity Model resulting from our earlier work was the Team's initial consideration for an assessment tool. As the case studies have been compiled, the Team has categorized three key areas for assessment as airports are considering developing a culture of innovation: **personas**, **organizational culture**, and **innovation progress**.

#### Personas

Personas is a reference to the *Character Traits* identified earlier in the initial Maturity Model. The Team initially identified 6 traits to assist airports with understanding team or cultural dynamics within their organizations. As we carried out the case studies, a seventh type emerged: that of a "Challenger." Table 7 names each of these traits and the resultant behaviors of each.

Table 7: Consolidated Key Themes, Definition & Resultant Behavior

More Positive Traits Things you want	More Negative Traits Things you do not want
Passionate individual always on the look-out for how to engage people, promote new initiatives, and make lasting and sustaining changes in the organization.	Inhibitor  Passive traits, refuses to try new ideas and discourages others from participating in organizational initiatives supporting innovation
Supportive of the organization and its people to pursue innovation. Actively promotes initiatives to see transformation.	Destroyer  Actively seeks opportunities to discourage innovation initiatives, may even consider low levels of sabotage
Anxious to get initiatives underway and see results. Works to tear down barriers hindering progress.	
Carries out necessary roles and responsibilities to sustain innovation initiatives. Does not actively promote, but also does not discourage others.	
Challenger  May appear as if they are not on board when they really are; careful and conservative, wanting to ensure success.	

Table 8 presents the use of a draft assessment tool generated by the Team that cross-connects the Key Themes and the Character Traits. The tool includes a numerical rating from 1-5, with 1 not exhibiting the character trait and 5 demonstrating strong tendencies toward the behaviors. The sample in Table 8 capture specific staff traits related to the key theme of *Leadership/Champion*. See Appendix C for the full in-progress assessment tool.

Table 8: Innovation Character Trait Assessment Tool (Sample)

	** Character Traits										
** Key Themes	Catalyst	Enabler	Accelerator	Sustainer	Challenger	Inhibitor	Destroyer				
Leadership/ Champion	1-5	1-5	1-5	1-5	1-5	1-5	1-5				
Airport Manager, Executive Director	2	3	2	4	1	1	1				
Airport Chief Operations Officer	5	3	5	5	1	1	1				
Airport Director of Operations	1	1	1	5	3	1	1				

In this example, the airport can readily see that the Airport Manager/ Executive Director is not going to be the catalyst, enabler, or accelerator that the organization might need to spur on a culture of innovation. However, the Chief Operations Officer (COO) does have these attributes and, as "Chief" in the organization, will carry sufficient leadership to rally the organization on their innovation journey. Equally, while the Airport Manager is neutral (at best) on the top three categories, a lower score for challenger, inhibitor and destroyer are welcome and helpful. This can be interpreted that the Airport Manager will not try to undermine the work of the COO; and the high score of "4" on sustainer can mean the Airport Manager will direct necessary resources to assist with the efforts.

The airport can also note the low scores for the top three categories for the Airport Director of Operations which will mean the COO will likely have to carry much of the effort to champion a culture of innovation. However, the Airport Director of Operations has high scores for the category of sustainer which can equate to support for the program, but equally a higher score for challenger may mean some extra work for the COO as they work with their organization to implement a culture of innovation.

The use of this tool by an airport organization as they set out on their innovation journey will help identify weaknesses and strengths position them to strategize ways to overcome any perceived deficiencies. As we continued to develop this tool, our goal was to make it clear where the assessment was focused on *individuals* vs. an *overall airport perspective*. Appendix C shows the breakout of these perspectives.

Note: as the research progressed, we transitioned away from a very detailed assessment approach to a quicker check-in and check-out process at the beginning and end of each part.

#### Organizational Culture

Leadership and Strategic Vision: The Team previously noted the top 3 key themes in support of a culture of innovation were: *Leadership*, *Strategic Vision*, and *Moving Past Failures* (Rut vs. Risk, No Regret). This category of organizational culture considers the relationship of leadership with the organization's strategic vision. Through the case study process, the Team specifically captured information about the entities' strategic plan. Did they have one? How old was the plan? Was the plan known by the members of the organization? Was the plan utilized daily by the organization to make decisions? The Team discovered the more the organization can say "yes" to these key questions, the more successful they were with implementing a culture of innovation. Organizations that lacked a strategic plan or failed to effectively implement it with their employees failed to provide a clear vision and direction to their organization. Without this clarity, the organizational culture will not unify, and innovation will not be attainable.

**Organizational Values**: In addition to a clear strategic plan, our research revealed a clear link to organizational values. Organizations that embraced a set of values and held each other accountable to those values were positioned to successfully develop a culture of innovation. The Team learned that accountability to the organizational values had to occur at all levels of the organization. Any level seen as "getting away with anything" undermined the entire organization and no one was interested in being part of the innovation movement.

**Assessment Question Samples**: The Team has considered the following simple questions to help assess this category through a simple survey tool to engage the entire organization and capture insights on organizational culture:

- 1. Are you aware the airport has a strategic plan?
- 2. Do you know and understand how your job contributes to the airport vision/mission?
- 3. Are you aware the airport has a set of organizational values?
- 4. Have you been trained on these values?
- 5. Do you know the behaviors expected of you in your role as they relate to the values?

Airport leadership should consider the following to ensure validity of the strategic plan:

- 6. Is your strategic plan less than five years of age?
- 7. We make daily decisions about business practices using our strategic plan. Yes or No.
- 8. Job descriptions in our organization include the employee's contribution to the airport's vision and mission. Yes or No.

The Team's research demonstrated that answers from the organizational questions (#1-5) about the strategic direction of the airport position the airport favorably for implementing a culture of innovation. Any question from the last set (#6-8) for which the answer is "No" means work must be done before the airport embarks on its journey in promoting a culture of innovation.

#### Innovation Progress

Through our case studies, the Team was able to observe entities that were in varying stages of progression—from infancy to full maturity on the road to developing a culture of innovation. As we shared earlier about an organization's view on innovation (fruit, tree, soil), it is important for an airport to recognize where they are on their journey. Whereas the previous two sections on personas and organizational culture are meant to gauge readiness towards developing a culture of innovation, this final segment assesses what specific items they have already put in place to point them to additional items in Part 3: Develop.



### Part 3: Developing a Culture of Innovation

Moving forward on the journey toward a culture of innovation, the case study research results have steered the Team toward providing **tangible ways to developing the culture**. This will build on the Key Themes, identifying both *strategic* and *tactical* initiatives that an airport organization can consider to foster the behaviors resulting from the themes. Through the literature review, case studies, and engagement with our SMEs, we have started compiling many tangible strategies and tactics that will make up this section. We also uncovered the need to understand these opportunities on a scale of difficulty (from very easy to more difficult initiatives) and monetary investment (low-cost opportunities to more expensive initiatives). We envision the Guide offering a menu of actionable items that meet an airport where they are on their journey with respect to people and monetary resources.

Although we are still analyzing the research results, as well as conducting additional case studies, below we provide a few examples of ways to develop a culture of innovation. We also provided these examples under the general groupings of the 3 areas noted above in the assessment section.

#### Personas

We uncovered many tangible ideas to address gaps associated with the personas or character traits; and while the Team does not anticipate the ability of an airport to change personalities of individuals, we are uncovering ways to help develop their skills and understanding.

Build innovation teams with a diverse set of character traits: One tangible and meaningful way we learned to address any perceived gaps in this area was to ensure you had a diverse cross section of the character traits on any innovative project. This represented one of the quickest and easiest win themes resulting from the case study feedback. It enables teams to self-support through the implementation of an initiative, teaches team building skills, and naturally promotes collaboration. Where larger gaps exist in the character traits in the organization, future hires could be directed to address these deficiencies. Recognition of the gap is the first step toward resolving the issue, as noted by one of our case study participants.

**Utilization of outside resources**: As an airport embarks on the journey, it can be helpful to utilize outside resources such as local universities or consulting teams. This can provide structure to the innovation focus and help align employees to better understand their potential role in the organization's pursuit of innovation and the overall strategic target. This may provide opportunities to establish leadership coaching sessions for individuals to help them realize and recognize their own character traits and those of other team members.

**Training initiatives**: Conducting training initiatives with employees centered on activities associated with the Key Themes can be very enriching. These activities may include thinking through day-to-day activities to identify areas where there is opportunity to take small low-level risks, experience failure, and discuss lessons learned.

### Organizational Culture

Clear Strategic Priorities Promoted to the Organization: Organizational culture represents a relationship between the leadership of the airport and the airport's strategic business plan and initiatives. The vision and mission of the airport must be crystal clear to the entire organization to be successful with developing a culture of innovation. Many of the Team's case study conversations noted the need for a clear and concise strategic business plan. For those that did

not have one, or if their plan was older than five years, they promptly set out to update it. Some also noted that this does not have to be an expensive affair. Hiring a local business consultant may provide the expertise necessary to provide an airport with a sound vision and mission that can be shared with the organization through already planned communication sessions. Business services like these can also assist with ongoing training for the airport staff to embrace the airport's set of values and to demonstrate the appropriate behaviors that align with these values.

Change management training was another tactic utilized by the Team's case study partners. The feedback the Team received noted this type of training also assisted the organization with how to embrace change and be open to new endeavors while working within a prescribed set of boundaries. The governance structure of the airport can sometimes be a barrier to effectively cultivating a culture of innovation. The use of change management training may assist with how to work within the boundaries provided without stifling innovation. Many discovered this type and style of employee training helped foster a sense of innovation for their team members.

#### Innovation Progress

**Measure and celebrate progress**: Case study entities recommend planning initiatives to both support and chart the progress of the innovation journey. A culture of innovation strives to not only improve, but also to *excel*; people in this culture are they are eager to check in on their progress and ensure weak areas are gaining strength. Celebrating wins and evaluating losses enable the airport staff to band together, which is, after all, what a culture is all about.

Job descriptions and incentives: Case study results revealed the opportunity to modify job descriptions to include a focus on innovation for every position at the airport. They also noted that rewards and incentives (naturally) excite the staff in the identification of innovative ideas.

**Innovation lab implementation**: Many airports have considered or implemented specific programs or physical spaces through which to run innovative ideas. For an airport who has high level of resources available, this can be a great way to support innovation initiatives *and* foster a culture of innovation. However, as with any effort, specific care must be taken to ensure the lab does not become a silo. It will also need to proactively embrace an inclusive approach to staff throughout the organization.



## Part 4: Sustaining a Culture of Innovation

Developing a culture of innovation is no small task; if an organization does not put into practice the tools to maintain the culture, it will not last. The research resulted in the following key areas in sustaining a culture of innovation: nurturing, potholes and pitfalls, and bright ideas. Similar to the previous section, we plan to provide actionable items for readers to consider, including criteria to help them decide which pieces will work for their unique place in their journey.

### Nurturing a Culture of Innovation

Merriam-Webster's dictionary defines the word "sustain" as a transitive verb that means to "keep up, prolong" or "to give support or relief to." We believe this aligns well with our case study results, as many of our case study entities touted the need to nurture the culture of innovation. "Nurture" is defined from the same source as a verb that means "to further the development of," which is exactly the point when caring for *your* culture of innovation. Nurturing requires the caregiver's *awareness* of the needs "to further the development of," a *watchfulness* of what is happening with the culture, and a *proactive approach* to curb anything that could thwart the organizations efforts.

According to our case study participants, **continual monitoring** of the culture is vital. Many liken it to caring for and nurturing one's own body, making necessary adjustments to nutrition, healing, and exercise to increase strength. Many of our collaborators cited tangible ways to accomplish these actions through **regular small-group communications** enabling participants to contribute at the individual level. Other ways to nurture a culture of innovation included **building up multiple leaders in the organization** who would regularly connect the people with the strategic vision and mission of the airport and who are in the position of working directly with the staff on day-to-day initiatives.

#### Potholes & Pitfalls

The case study partners were quick to point out potential potholes and pitfalls. One of the single largest issues was what they characterized as the "single leader." The single leader is the catalyst, accelerator, and/or enabler of the innovation movement that can become a single point of failure when they depart the organization; no one is there to fill the gap. The culture immediately suffers since the presence of strong leadership or a champion is critical to the success of a culture of innovation. Some case study collaborators noted that another leader or champion *may* be positioned to step in; but if they are not, the amount of progress made can *quickly* meet its demise.

Another common pitfall is bringing on new talent that turns out to be an inhibitor or, worse, a destroyer. The Team's research noted that **without probing potential talent** at the interview stage to ensure a good fit with the organization, it is quite possible new these employees will internally sabotage the culture. The case study partners noted the importance of preparing interview questions that address the skillset *and* character of the individual to ensure a good match with the organization.

#### Bright Ideas

Through its research, the Team inquired of its case study collaborators and SMEs that make up the Team to share inspiring initiatives in sustaining a culture of innovation. Overwhelmingly, the sentiment of the ideas centered on **enabling people in the organization** to feel like they have been included and that what they had to offer to the organization mattered. Because when belonging and value intersected, everything was attainable.

### Section 5: Guide Draft Overview

The Guide Draft served as the second-to-last opportunity for the Team to gather Panel feedback in the development of the Guide. The final opportunity being the Draft Final Deliverables which will include the fully developed WebResource product.

#### Key Introductory Points

### =

#### **PDF Format**

Though we developed the final product as a WebResource, we produced the Guide Draft in PDF format to be able to get Panel feedback that is more focused on the content itself. However, we tried to simulate the look of a website by using images of the WebResource header and navigation.

### ▶ Fast Track vs. Deep Dive

As the Team developed the Guide Draft, we came to the realization that we should provide 2 main paths through the guidance: a Fast Track and a Deep Dive. The Fast Track includes what would equate to about 60-90 minutes' worth of time for the reader to engage on the key points of the tool. The Deep Dive goes one level deeper for each key point, effectively representing the full set of guidance, as shown below:

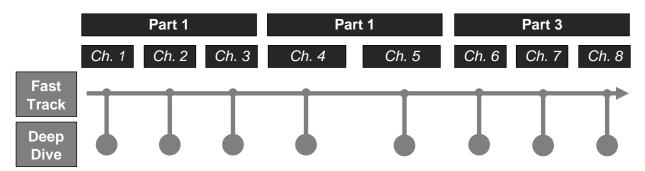


Figure 2: Fast Track vs. Deep Dive

The Guide Draft was generally *more* detailed than the eventual Fast Track, but less detailed than the Deep Dive.

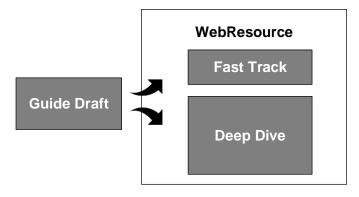


Figure 3: Guide Draft

# "Playbook" vs. "Guide"

We recommended that the terminology of "Guide" be replaced with "Playbook." Since the research has borne out that there is not a clear, standard "recipe" to develop a culture of innovation, the title should very clearly reflect this concept.

### **Guide Draft Design Concepts and Framework**

Interim Report 2 presented a 4-part framework utilizing the following figure to invite the reader to engage in the process of *Understanding*, *Assessing*, *Developing*, and *Sustaining* a culture of innovation.

The preliminary Guide framework shown in Figure 4 was the product of Team analysis and dialogue of research results, and collaboration with our subject matter experts (SMEs). However, as the Team approached the details for each part, it became apparent that we needed to incorporate the assessment component as a function of the entire process rather than just one structured component as depicted in this scenario.

Figure 5 depicts three major parts to the WebResource tool: **Understand, Develop,** and **Sustain**. Throughout these sections, we have woven elements of assessment that tie back to earlier elements shared with the Panel (such as the concepts presented as the "Key Themes" and "Character Traits).

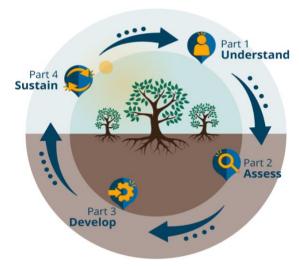


Figure 4: Proposed 4-Part Framework from IR2



Figure 5: Proposed
WebResource Framework

Instead of the dedicated section for "Assess," the WebResource tool promotes a concept of "Check-in" and "Check-out" throughout that enables the reader to correlate their individual perspective in the organization and offer unique questions to each reader type. Figure 6 provides a quick glimpse of this "Check-in" feature for Part 1 - Understand. Additionally, the WebResource tool provides a check-in/check-out worksheet to document your answers throughout the engagement activities of the tool.

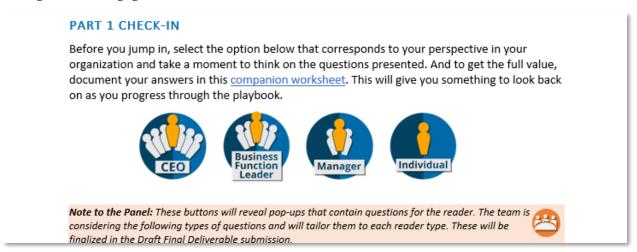


Figure 6: Example Check-In

The WebResource tool graphically tracks the reader's progress through the tool by illuminating your progression through the various segments. Figure 7 highlights this tracking process.



Figure 7: Progression Through the WebResource

Each of these examples represent just a sample of the entire WebResource tool model.

#### Section 6: Validation Plan and Results

#### Validation Plan

With the Guide Draft completed as part of the IR3, we developed the WebResource site and began preparations for conducting two validation sessions. Our original intent was to perform validation sessions at airports only, however we determined through the course of the research that we needed to validate both the WebResource tool and the content from two diverse perspectives: young professionals and seasoned professionals. As such, we selected the ACI-NA Young Professionals group and the Salt Lake City International Airport Innovation Committee as our validation sources.

In preparation for the validation sessions, we sent the WebResource link to the session participants a few weeks before the session so they could review it early and formulate their suggestions for improvement. For convenience, we planned to conduct the validation sessions remotely via Zoom.

#### **Validation Results**

Ahead of the session, the participants used the web link provided to directly access the WebResource Tool and try it out for themselves. As they engaged with the tool, the research team was seeking feedback in two broad categories:

<u>Tool Format</u>: How did the tool flow? Was it easy to navigate and when they tried to go to a certain place in the tool, do they end up where they expected they would? They made note of any challenges they experienced.

<u>Content</u>: Because there is a tremendous amount of content in this tool, we were interested in learning if the content addressed the topic of "developing a culture of innovation at airports" for them as representatives of the airport environment or ecosystem.

The Team conducted a virtual tour of the tool and received valuable feedback in both of the categories desired and developed a list of action items to address these within the WebResource. The validation session participants had extremely **positive feedback** to share with regard to the value that this WebResource will provide to the industry. They confirmed that the content aligned with their experiences, and they looked forward to implementing the pieces that made most sense for them. They also provided **constructive feedback** on how to improve the navigation and other format related items within the WebResource. The Team then incorporated most of the feedback, leaving off items that were out of scope.

## Section 7: **Appendices**

## Appendix A: Literature Tracking Table

Title	Project Applicability	Industry	Туре	URL
Accelerate: Building Strategic Agility for a Faster-Moving World (book and discussion guide)	Culture of Innovation	ALL	Book	https://hbr.org/2012/11/accelerate
Art of Leadership	Culture of Innovation, Innovation influencers, "External Impacts (ex. Airline mix, progressive region)", HR Role	ALL	Book	www.rockwoodleadership.org
Blue Ocean Shift	Culture of Innovation, Innovation influencers, Structure and Governance, HR Role	ALL	Book	
Building a Culture of Innovation: A practical framework for placing innovation at the core of your business	Culture of Innovation	ALL	Book	https://crisbeswick.com/wp- content/uploads/2019/01/Building-a- Culture-of-Innovation-Cris-Beswick- Executive-Summary-2018.pdf
Creative Construction: The DNA of Sustained Innovation	Culture of Innovation	nnovation ALL Bo		https://gpisano.com/book/creative- construction/
Creativity, Inc.	Culture of Innovation, Innovation influencers, Structure and Governance, Risk Tolerance, Innovation Lab, HR Role, Lessons Learned from failures	ALL	Book	

Title	Project Applicability	Industry	Туре	URL
Delivering Happiness	Culture of Innovation, Innovation influencers	ALL	Book	
DEMYSTIFYING INNOVATION CULTURE EFFORTS 12 Strategies for Organizational Change Practitioners & Executive Leadership	Culture of Innovation, Innovation Lab, Structure and Governance, HR Role	ALL	Book	https://newandimproved.com/demyst ifying-innovation-pdf/
Design Thinking: Business Innovation	Culture of Innovation	ALL	Book	https://www.designthinkingbook.com
Developing Innovation: Innovation Management in IT Companies	Culture of Innovation, Innovation influencers	Private/Co rporate	Book	https://www.degruyter.com/view/titl e/565482
Good to Great: Why Some Companies Make the Leap and Others Don't	Culture of Innovation	ALL	Book	https://www.amazon.com/Good- Great-Some-Companies- Others/dp/0066620996
Great by Choice	Culture of Innovation, Innovation influencers, Risk Tolerance, Lessons Learned from failures	ALL	Book	
Innovation Accounting	Culture of Innovation	ALL	Book	https://innovationaccountingbook.co m/
Innovation Nation	Culture of Innovation, Innovation influencers, Lessons Learned from failures	ALL	Book	
Leadershift	Culture of Innovation, Innovation influencers, Structure and Governance, Lessons Learned from failures	ALL	Book	
Overcoming the Five Dysfunctions of a Team	Culture of Innovation, Structure and Governance, Lessons Learned from failures	ALL	Book	

Title	Project Applicability	Industry	Туре	URL
QBQ! The Question Behind the Question	Culture of Innovation	ALL	Book	
Start with Why	Culture of Innovation	ALL	Book	
Switch	Culture of Innovation, Innovation influencers, HR Role, Lessons Learned from failures	ALL	Book	
Team of Teams	Culture of Innovation, Structure and Governance, Lessons Learned from failures	ALL	Book	
The Disruption Mindset	Culture of Innovation, Risk Tolerance, Structure and Governance	ALL	Book	
The Invisible Advantage	Culture of Innovation, Innovation influencers, Innovation Lab, Structure and Governance, Risk Tolerance, HR Role, Lessons Learned from failures	ALL	Book	
The Tipping Point	Culture of Innovation, Innovation influencers	ALL	Book	
The Catalyst Leader	Culture of Innovation, Structure and Governance, Risk Tolerance	ALL	Book	
The Critical Few Energize Your Company's Culture by Choosing What Really Matters	Culture of Innovation	ALL	Book	https://www2.mvcc.edu/demo/values/resources/The-Critical-Few-online.pdf
The Healthy Business Innovation Playbook	Culture of Innovation	ALL	Book	https://healthybusiness.bsr.org/files/ Healthy Business Innovation Playboo k.pdf
The Innovator's DNA	Culture of Innovation	ALL	Book	https://knowledge.insead.edu/node/1 020/pdf

Title	Project Applicability	Industry	Туре	URL
Think Again: The Power of Knowing What You Don't Know	Culture of Innovation	ALL	Book	https://www.adamgrant.net/book/think-again/
Upstream	Culture of Innovation, Lessons Learned from failures	ALL	Book	
C-Suite: Cincinnati/Northern Kentucky International Airport CEO Candace McGraw	Innovation influencers	Aviation Web Article		https://apex.aero/articles/2020-11- 17-c-suite-cincinnati-northern- kentucky-international-airport-ceo- candace-mcgraw/
CITY OF CALGARY 2016 INNOVATION MANAGEMENT AWARD BEST ENGAGEMENT STRATEGY	Culture of Innovation	Public Agency	Web Article	https://ideascale.com/resource/innovation-award-winner-city-of-calgary/
CREATING AN INNOVATION STRATEGY IS A TEAM EFFORT!	Culture of Innovation	ALL	Web Article	https://weareoutcome.co/index.php/ 2020/09/28/creating-an-innovation- strategy-is-a-team-effort/
Embracing Disruption with Innovation	Culture of Innovation, Innovation Lab, Risk Tolerance	Private/Co rporate	Web Article	
How COVID-19 has helped accelerate Winnipeg Airports Authority's innovation programme	Culture of Innovation, "External Impacts (ex. Airline mix, progressive region)"	Aviation	Web Article	https://www.futuretravelexperience.c om/2020/08/how-covid-19-has- helped-accelerate-winnipeg-airports- authoritys-innovation-programme/
How Do Your Employees Feel about Your Innovation Strategies?	Culture of Innovation, Innovation influencers	ALL	Web Article	https://ideascale.com/how-do-your- employees-feel-about-your- innovation-strategies/
Innovation expansion at Edmonton International Airport continues	Culture of Innovation, "External Impacts (ex. Airline mix, progressive region)"	Aviation	Web Article	https://www.internationalairportreview.com/article/114342/covid19-edmonton-international-innovation-programme/
Innovation Governance: Why Should Top Management Care?	Culture of Innovation	ALL	Web Article	http://www.innovationmanagement.s e/2014/04/14/innovation-governance- why-should-top-management-care/

Title	Project Applicability	Industry	Туре	URL
Planned Opportunism: Using Weak Signals to spur innovation	Culture of Innovation	ALL	Web Article	https://hbr.org/2016/05/planned- opportunism
The Hard Truth About Innovative Cultures	Culture of Innovation, Innovation influencers, Risk Tolerance	ALL	Web Article	https://hbr.org/2019/01/the-hard- truth-about-innovative-cultures
The Skills and Mindsets Innovators Need to Suceed	Culture of Innovation, Lessons Learned from failures	ALL	Web Article	https://community.innov8rs.co/c/innov8rs.kills-mindsets-leadership
Transforming traditional businesses doesn't have to be an elusive goal	Culture of Innovation	Private/Co rporate	Web Article	https://blogs.lse.ac.uk/businessreview/2020/07/31/transforming-traditional-businesses-doesnt-have-to-be-an-elusive-goal/
Why your customers should be central to your innovation efforts	Structure and Governance	ALL	Web Article	https://www.strategy- business.com/blog/Why-your- customers-should-be-central-to-your- innovation- efforts?gko=9eb19&utm_source=itw& utm_medium
8 Design Thinking Problems and How to Fix Them	Culture of Innovation, Lessons Learned from failures, Innovation Lab	ALL	White Paper	
Accelerating or Inhibiting Innovation: Understanding Your Role for Innovation Success	Culture of Innovation, Innovation influencers	ALL	White Paper	
After the Crisis	Culture of Innovation	ALL	White Paper	https://www.strategyand.pwc.com/
Creating and Cultivating a Culture of Innovation	Culture of Innovation, Innovation Lab, Risk Tolerance	Aviation	White Paper	

Title	Project Applicability	Industry	Туре	URL
Culture as a Management System: How CEOs Who Lead High-Purpose Organizational Cultures Deliver Remarkable Business Performance	Culture of Innovation	ALL	White Paper	
DISTRIBUTION, DISRUPTION AND FAILURE: BUILDING A CULTURE OF INNOVATION IN THE CANADIAN ARMED FORCES	Culture of Innovation, Innovation influencers, Structure and Governance, Risk Tolerance, Lessons Learned from failures	Public Agency	White Paper	https://www.cfc.forces.gc.ca/259/290 /299/286/mchardy.pdf
Innovation in a crisis: Why it is more critical than ever	Culture of Innovation, Risk Tolerance, "External Impacts (ex. Airline mix, progressive region)"	ALL	White Paper	
Innovation Leadership How to use innovation to lead effectively, work collaboratively, and drive results	Culture of Innovation, Innovation influencers	ALL	White Paper	https://www.ccl.org/wp- content/uploads/2015/04/InnovationL eadership.pdf
Innovation Management: Realizing the Value of Innovation	Culture of Innovation, Innovation influencers, Risk Tolerance	ALL	White Paper	
Innovations at Airports in North America: A study of airport innovation enablers and barriers	Culture of Innovation, Innovation Lab, Structure and Governance, "External Impacts (ex. Airline mix, progressive region)"	Aviation	White Paper	https://newandimproved.com/demyst ifying-innovation-pdf/
Moving from best to better and better: Business practice redesign is an untapped opportunity	Culture of Innovation	ALL	White Paper	https://testbacblog.files.wordpress.co m/2018/02/click-here-to-access- deloittes-detailed-study.pdf

Title	Project Applicability	Industry	Туре	URL
NCHRP RESEARCH REPORT 885: Guide to Creating and Sustaining a Culture of Innovation for Departments of Transportation	Culture of Innovation, Structure and Governance, HR Role	Other Transport ation	White Paper	https://www.nap.edu/download/2530 7#
Re-think! Turbulence, Black Swans, Disruption and Change. Ready to rethink everything?	Culture of Innovation	ALL	White Paper	https://www.enricsegarra.com/wp- content/uploads/ENGLISH-VERSION- Rethink-ESEGARRA.pdf
Seven Keys to Unlock and Lead Innovation Strategy	Innovation Lab, Innovation influencers, Culture of Innovation	Private/Co rporate	White Paper	
Seven Stages to a Design Based Innovation Culture	Culture of Innovation, Structure and Governance	ALL	White Paper	
The COVID Silver Linings Playbook	Innovation influencers, "External Impacts (ex. Airline mix, progressive region)", Lessons Learned from failures	ALL	White Paper	
The Organization of the Future: A New Model for a Faster-Moving World	Culture of Innovation, Innovation influencers	ALL	White Paper	https://www.bbvaopenmind.com/en/articles/the-organization-of-the-future-a-new-model-for-a-faster-moving-world/
What's in the CEO's Innovation Playbook?	Culture of Innovation	ALL	White Paper	https://bradenkelley.com/2020/01/w hats-inside-the-ceos-innovation- playbook/
DESIGN YOUR INNOVATION BLUEPRINT: LEVERAGING SYSTEMATIC INVENTIVE THINKING	Culture of Innovation, Innovation influencers	ALL	Brochure	
The Art of Innovation Workshop: How to Integrate Creativity in Organizations	Culture of Innovation	ALL	Brochure	

Title	Project Applicability	Industry	Туре	URL
Chief Innovation Officer Primer: Key Elements for Success	Innovation influencers, Culture of Innovation	Private/Co rporate	Industry Publication	
The Culture of Innovation What Makes San Francisco Bay Area Companies Different?	Culture of Innovation, Structure and Governance, "External Impacts (ex. Airline mix, progressive region)"	Private/Co rporate	Industry Publication	http://www.bayareaeconomy.org/files/pdf/CultureOfInnovationFullWeb.pdf
A Look Inside the Virginia Department of Transportation's Innovation Lab	Innovation Lab	Public Agency,Ot her Transport ation	Industry Presentation	https://ideascale.zoom.us/webinar/register/WN_yLpZ1igzRK2XtuV_rnrI7A
ACI-NA OPS/TECH STRATEGIC PLAN PREPARATION INVOLVING DESIGN THINKING:	Culture of Innovation, Innovation Lab	Aviation	Industry Presentation	www.innovationmanagement.se
CONFERENCE PROCEEDINGS ON THE WEB 26 Public—Private Partnerships What Are the Lessons Learned? Proceedings of an ACRP Insight Event	Procurement Role	Aviation	Industry Presentation	https://www.nap.edu/read/25718/ch apter/1
Innovation starts with culture	Culture of Innovation, Lessons Learned from failures	ALL	Industry Presentation	
PLAYBOOK Innov8rs Connect Business Design & Venture Building Summaries of all talks from our online event	Culture of Innovation	ALL	Industry Presentation	https://innov8rs.co/content/connect- business-design-venture-building/
The Changing Face of Innovation: Next Challenges for Practice	Culture of Innovation	ALL	Industry Presentation	https://mackinstitute.wharton.upenn. edu/wp- content/uploads/2012/12/The- Changing-Face-of-Innovation-Full- Conference-Summary.pdf

Title	Project Applicability	Industry	Туре	URL
TRB Webinar: Greener in two ways  - Innovative sustainability solutions for airports		Aviation	Industry Presentation	http://onlinepubs.trb.org/onlinepubs/ webinars/200302.pdf
FAA and Its Partner Agencies Have Begun Work on the Aviation Cyber Initiative and Are Implementing Priorities	Structure and Governance, "External Impacts (ex. Airline mix, progressive region)"	Aviation Internal Report		
Creating the Conditions for Sustainable Innovation	Innovation influencers, Culture of Innovation	ALL	Research Publication	
Culture and innovation: The moderating effect of cultural values on corporate entrepreneurship	Culture of Innovation, Innovation influencers, "External Impacts (ex. Airline mix, progressive region)"	Private/Co rporate	Research Publication	https://www.sciencedirect.com/science/article/abs/pii/S004016251300262X
Eleven lessons: managing design in eleven global brands	Culture of Innovation, Innovation influencers, Innovation Lab	ALL	Research Publication	www.designcouncil.org.uk
Guide to Creating and Sustaining a Culture of Innovation for Departments of Transportation	Culture of Innovation, Risk Tolerance	Aviation,O ther Transport ation	Research Publication	
How does culture influence innovation? A systematic literature review	Culture of Innovation	ALL	Research Publication	https://www.emerald.com/insight/content/doi/10.1108/MD-05-2017-0462/full/html
Improving the Potential for Innovation through Design Thinking	Culture of Innovation, Innovation influencers, Innovation Lab, Structure and Governance	ALL Research Publication		www.hypeinnovation.com
Issues with Airport Organization and Reorganization	Structure and Governance	Aviation	Research Publication	http://www.trb.org/Publications/Blur bs/169008.aspx

Title	Project Applicability	Industry	Туре	URL
Organizational culture and	Culture of Innovation, Structure	Private/Co	Research	https://www.emerald.com/insight/co
innovation culture: exploring the	and Governance	rporate	Publication	ntent/doi/10.1108/014377312112412
relationships between constructs				74/full/html
Organizational Culture and	Culture of Innovation,	ALL	Research	https://onlinelibrary.wiley.com/doi/ful
Innovation: A Meta-Analytic	Innovation influencers,		Publication	<u>l/10.1111/jpim.12021</u>
Review	Structure and Governance			
THE IMPORTANCE Of	Culture of Innovation, Structure	Private/Co	Research	http://ojs.wsb.edu.pl/index.php/fso/a
ORGANIZATIONAL CULTURE FOR	and Governance, Risk Tolerance	rporate	Publication	rticle/view/121/84
INNOVATION IN THE COMPANY				

## Appendix B: Case Study Data Collection Tools

Case Study Invitation Flyer (see next page)

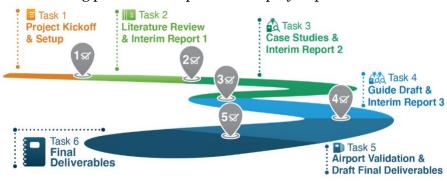


## **ACRP** Project 01-47

# A Guide to Developing a Culture of Innovation at Airports

#### **Case Study Invitation**

The Transportation Research Board's Airport Cooperative Research Program (ACRP) <u>Project 01-47</u> is developing a practical Guidebook to support developing a culture of innovation at airports. The Guidebook will be applicable to airports of all sizes and governance structures. The following provides a snapshot of the project process.



#### Key Project Team Members

Justin Phy, *Principal Investigator* 

Karen Scott, Co-Principal Investigator

Rose Agnew, Stakeholder Engagement Lead

#### **Request for Participation**

We are inviting case study candidates to share experiences, lessons learned, and organizational context and structure surrounding innovation. Participation will be facilitated through 90-minute group interviews with approximately 3-5 stakeholders to discuss the following key areas:



Leadership/ Champion of Innovation



Resisting a Mindset of Failing



Strategic Vision / Organizational Effectiveness



Adaptability / Flexibility



Ability to Embrace Change Management



**Empowerment of the Organization** 



Discipline & Corporate/Individual Accountability



Sustainability and Guidance Tools

We would also like to spend time understanding how you have managed organizational changes over the past year due to COVID-19 (e.g., work-from-home, alternative financing, and turnover).

Rest assured that any information gathered through this process will be <u>kept confidential</u> and any information used in the production of the research documents will not reference specific aviation personnel. In the event a specific reference to an entity, staff member, or stakeholder is desired, the research team will request written confirmation from the data source.

#### **Case Study Interview Template**

# ACRP Project 01-47: A Guide to Developing A Culture of Innovation at Airports Introduction

Case studies provide an in-depth, multi-faceted understanding of complex issues in a real-life context and help to generate new ideas that can be translated into solutions for guidance. The case studies proposed for this Project serve two main functions:

<u>Literature Review Validation:</u> Case studies enable the Team to validate findings resulting from the literature review process and ensure that future guidance proposed in the Guidebook will be based upon concepts and practices applicable to airports of varying sizes.

<u>Identify New Objectives or Focus Areas:</u> Case studies enable the Team to collect direct accounts and perspectives from airport leaders regarding their implementation of innovation and the nurturing of the supporting culture. The sharing of these everyday experiences demonstrates the value of strategies in place and identifies gaps that may inform the content of the Guidebook.

The Research Team is seeking input from you to assist us with understanding the following:

- Provide a practical understanding of what a culture of innovation is and demonstrate why it may be important to your organization
- Enable airports to assess effective means of collaborating with stakeholders and to discover other opportunities for information sharing
- Consider implementable operational strategies for identifying and surmounting barriers across different aviation organizations
- Provide specific examples and tools for staff and leaders to use to assess and report the benefits realized through innovation both within an airport and throughout its region
- Provide real world examples of processes that facilitate innovation and the impacts these have upon airports

**The Case Study Process:** The Research Team believes the most effective way to understand an airport's culture of innovation is to interview individuals within the airport environment who have 'changed the narrative' on developing an innovation culture that affects stakeholders locally, regionally, and nationally. We estimate that the discussion will take approximately 90 minutes, and this interactive discussion will specifically focus on the following areas:

- Leadership/Champion of Innovation
- Strategic Vision/Organizational Effectiveness
- Ability to Embrace Change Management Initiatives
- Discipline & Corporate/Individual Accountability
- Resisting a Mindset of Failing
- Adaptability/Flexibility
- Empowerment of the Organization
- Sustainability and Guidance Tools

**Case Study Questions:** The following questions reflect key focus areas and sample questions that may be used to facilitate the group interview with the case study participant representatives. Finalized interview questions will be tailored based on the participating case study candidate's background and experience with this topic.

- 1. Describe the Organizational Leadership of your entity.
  - Denote what category you are evaluating: airport, airline, other public-sector, private, multi-organizational
  - Would you provide an org chart of your organization?
  - o What is the longevity of various key members in the organization?
    - CEO/Executive Director
    - C-suite
    - Directors
    - Managers
  - What is the governance structure of your entity?
  - o Do you consider your organization innovative? And why, or why not?
  - o Do you have a designated Champion of Innovation? Are there de-facto Champions?
- 2. Strategic Vision/Organizational Effectiveness
  - Do you have a strategic plan in place; does it include a Vision, Mission and Strategic Objectives?
  - How easily understood is the plan? And is it used on a daily basis to make critical decisions about the organization?
  - o How old is the plan?
  - Do you accomplish regular communication on the plan? Do you show the organization how they are accomplishing the plan through key performance indicators (KPIs)?
- 3. Ability to Embrace Change Management Initiatives
  - o How readily is your organization able to embrace change?
  - Does your organization get excited about changes being deployed? Or is there resistance?
  - o How strong is the resistance and at what levels does it occur? CEO, C-suite, Directors, Managers, Supervisors, Front-line.
- 4. Discipline & Corporate/Individual Accountability
  - o Does your organization maintain a set of Values?
  - Are the Values shared on a regular, routine basis? Are employees celebrated when they embrace them; and are they held accountable when they fall short?
- 5. Resisting a Mindset of Failing
  - Is your organization fearful of failing?
  - Give an example of the last time the organization or even part of the organization failed, what happened?
  - o How do you balance risk and innovation?
- 6. Adaptability/Flexibility
  - Provide an example (or more) of something where your organizational demonstrated adaptability and/or flexibility. What was the outcome?
  - Did the organization feel like they could tackle another issue, or was this one too tasking for them?
- 7. Empowerment of the Organization
  - o Is the organization empowered to make decisions within their work areas? Describe how this is carried out.
  - What tools are you in place to ensure empowerment? (for example, budget reporting tools providing flexibility to the manager to initiate changes that are budget neutral).

- Has your organization utilized Human-Center Design Thinking as a problem solving tool during your innovation activities?
- 8. Sustainability and Guidance Tools
  - What tools do you have in place to encourage innovation?
  - o How do you ensure that innovation is not just a passing fad?
  - On a scale of 1-10, 10 being the best, how would you rate your organization's culture in support of innovation?
- 9. COIVD-19 Impact & Response
  - How has the impact and maybe even you response to COVID-19 changed your perspective about innovation?
  - List some of the most significant impacts resulting from COVID-19.

#### **Maturity Model Validation**

	Key Themes	<b>t</b> Catalyst	Enabler	Accelerator	Sustainer	<b>O</b> Inhibitor	 Destroyer
	Leadership / Champion of Innovation						
	Strategic Vision / Organizational Effectiveness						
<b>\$</b>	Ability to Embrace Change Management Initiatives						
	Discipline & Corporate/ Individual Accountability						
	Resisting a Mindset of Failing						
	Adaptability/ Flexibility						
	Empowerment of the Organization						
	Sustainability & Guidance Tools						

How would you rate or gauge each of these areas using the characteristics across the top? For example, as you think through the leadership of the organization, first identify a position, like CEO/Executive Director. Which category best describes this person: are they a catalyst for change, or more of an enabler, helping it happen without being out in front "storming the gate?" Perhaps they are a sustainer, making sure it keeps going. They do not get folks rallied or may not even come up with a particular innovation, but once the innovation is identified, they sustain resources to bring it to fruition.

### Appendix C: Early Character Trait/Key Theme Assessment Tool

Character Traits								
*★ Key Theme	Catalyst	Enabler	Accelerator	Sustainer	Challenger	Inhibitor	Destroyer	
Leadership/ Champion	<i>(</i> 71	<i>(</i> 71	C/1	<i>(</i> 71	671	C/1	C/1	
Consider Specific Staff	1-5	1-5	1-5	1-5	1-5	1-5	1-5	
Strategic Vision Organizational Effectiveness	<i>(</i> 71	<i>(</i> 71	CA	C/1	C/1	C/1	C/1	
Overall Airport Perspective	1-5	1-5	1-5	1-5	1-5	1-5	1-5	
Ability to Embrace Change Management Overall Airport Perspective	1-5	1-5	1-5	1-5	1-5	1-5	1-5	
Resisting a Mindset of Failing	671	671	CA	C/1	C/1	C/1	C/1	
Overall Airport Perspective	1-5	1-5	1-5	1-5	1-5	1-5	1-5	
Empowerment of the Organization Leadership	1-5	1-5	1-5	1-5	1-5	1-5	1-5	
Team Perspective	- <b>3</b>	- <b>J</b>	- <b>U</b>	- <b>U</b>	- <b>U</b>	- <b>U</b>	- 0	

