




# TSA Innovation Doctrine

October 2022





**Forged on an anvil of cruel necessity and blood shed innocently, TSA was built urgently in a time of war, to preserve peace. From all walks of life, we came forward to serve at an agency built of innovation, patriotism and steady virtue. We are firm in our resolve to not yield to terror. Driven by a noble and critical mission I proudly serve with integrity and professionalism to protect my family, community and fellow citizens. Today, I recommit myself to my role in safeguarding my country and reaffirm my promise to the American people:**

## **NOT ON MY WATCH.**

These words are inspired by the Cornerstone, a gift from the Secretary of Transportation Norman Mineta commemorating TSA's creation and the transition in 2003 to the newly formed Department of Homeland Security.

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# Executive Summary

This is a call to our inventors. Our disruptors. Our creators. Our leaders. Anyone with a problem to solve, an idea to explore, or hypothesis to test. To anyone who looks to solve challenges, seize opportunities and enable ambidexterity.

TSA has a history of innovation. In 2016, we created an Innovation Task Force and established the Chief Innovation Officer in 2018. TSA's 2018-2026 strategy commits to building a "culture of innovation that anticipates and rapidly counters changing threats across the transportation system."

Innovation is vital to TSA's continued success. As an agile security agency, embodied by a professional workforce that engages its partners and the American people to outmatch a dynamic threat, we must continue to think outside of convention and beyond expected outcomes.

The TSA Innovation Doctrine is the first publication of its kind in the federal government; it is a living document that outlines the fundamental principles we want to guide the actions of our officers, staff and leaders as they carry out TSA's mission but does not dictate how those actions must be taken. The Innovation Doctrine seeks to prepare TSA for future uncertainties and to give our employees common terminology on which to base decisions in the face of disruption and opportunity.

As you read this doctrine, please view it as a framework and not a set of hard and fast rules. The framework provides a set of guiding principles, which summarize TSA's approach to innovation as the result of a disciplined approach undertaken by an empowered workforce.

We believe our approach will accomplish four vital building blocks. First, it will create an enterprise-level system for innovation; second, it will identify problems and test solutions through small bets; third, it will rapidly implement innovative ideas that are viable; and fourth, it will build a comprehensive ecosystem composed of employees, private industry, academics, government and non-government organizations. To ensure we succeed in this approach, TSA leadership will empower our workforce to proactively seek and present ideas, foster a culture of innovation by providing platforms to submit ideas in new, unconventional ways, be transparent by tracking and assessing ideas that are submitted, and acknowledge that failure is part of the innovative process.

TSA's greatest innovation capacity starts with our workforce. Taking the time to harness that capacity will continue to benefit the security of our nation for decades to come.

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*TSA was built urgently in a time of war, to preserve peace. This vital agency was made not of steel and stone but of innovation, quiet patriotism, steady virtue and the firm resolve of a Nation that would not yield to terror.*

– The TSA Cornerstone



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*There are risks and considerations to any action, but they are far less than the long term risk of comfortable inaction. Innovation is a key part of our organization and critical to how we lead a solution-forward, highly capable agency. We must never fear the possibility of failure in exploring new endeavors over the certain failure a lack of progress brings.*

*– David P. Pekoske*

# Administrator's Message

In 2018, we published the TSA Strategy, which highlights “Accelerate Action” as a key strategic priority necessary for TSA to fulfill its vital mission of protecting the nation’s transportation systems to ensure freedom of movement of people and commerce. Innovation and agility are deeply embedded in TSA’s DNA, and they will continue to enable TSA to stay ahead of complex and evolving threats.

As we reflect on the past 20 years of TSA, I call upon our people and partners, to harness our agility, speed and resolve to meet the opportunities and challenges of the future.

Together, we can cultivate innovation that will help us rapidly deploy new technology, processes and policies to position TSA more strongly for the next 20 years. The Innovation Doctrine serves as a guidepost for the future and sets out our shared innovation values and vision across TSA while also reinforcing the TSA Strategy.

This Innovation Doctrine is designed to empower our workforce to engage in creative problem solving in collaboration with industry, academia and government partners.

It is my hope and belief that the innovation programs outlined in this doctrine and stewarded by TSA’s Chief Innovation Officer (CInO) will help to further connect and enable innovators across the agency. Only by working together and pushing the boundaries of conventional thinking can we continue to ensure the security of our nation’s transportation systems.



A handwritten signature in black ink that reads "David P. Pekoske". The signature is written in a cursive, flowing style.

**David P. Pekoske**  
TSA Administrator

# Guiding Principles

TSA has a history of rapidly reacting and applying innovative processes and technology to outmatch threats to our nation's transportation systems. As the threat landscape continues to evolve, our culture and people must adapt to the reality that processes, systems and technologies must change quickly to stay ahead of emerging threats. The reality of TSA is that we cannot continue to rely on what has worked in the past to guarantee future success. That is why innovation, creativity and agility are vital to our mission of securing the transportation system now and into the future.

Outlined here, the guiding principles of the TSA Innovation Doctrine should influence, not dictate, action when applied to emerging challenges and opportunities. Separated into two sections, the **disciplined approach** reinforces innovation not as a hero-led, sporadic outcome, but rather a sustainable, repeatable system. Our **empowered workforce** uses judgement to apply the disciplined approach and enable innovation across the enterprise. The TSA Innovation Doctrine is an opportunity to educate, empower and enlist collective participation to develop new, creative ideas that result in effective game-changing technologies, processes and policies to address security challenges. We must all be a part of the innovation process and help TSA outpace evolving threats to transportation.

The goal of this Innovation Doctrine is to encourage everyone in the agency to raise their hand to solve a challenge, push new solutions, and hold each other accountable.

Innovation at TSA won't just come about through prescribed actions..





## Disciplined Approach

**Enterprise-level System for Innovation** | TSA will build and employ a repeatable, scalable system – an “Innovation Pipeline®” – for solving hard problems across the entire agency. Pressing challenges will be evaluated in a systematic approach to generate a steady flow of actionable, mission-focused solution ideas for testing and implementation.

**Small Bets** | TSA will engage in a high number of small bets by identifying problems and discovering, developing and testing low-risk but scalable solutions to find ones that work. Incorporating these small bets into the Pipeline ensures output is high-quality, and rapidly testable and scalable.

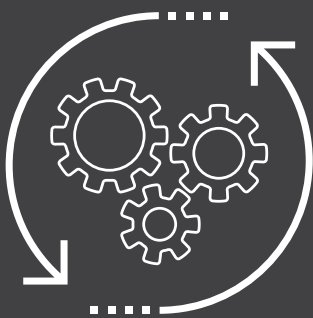
**Rapid Implementation** | TSA will rapidly scale viable innovative ideas to keep pace with the constantly changing threat landscape. The agency will leverage a host of acquisition and procurement mechanisms to get solutions into the hands of the workforce as quickly as possible to meet the ever-evolving threats from adversaries and rapid pace of technological advancement.

**Comprehensive Ecosystem** | TSA will facilitate the growth of ecosystems comprising interconnected networks of private industry, international partners, associations, universities and colleges, government and non-government organizations, and the investment community to co-evolve capabilities around a shared set of technologies and principles. TSA is one of many components in the greater ecosystem, therefore partnership is not only beneficial but required to advance.



*The secret of change is to focus all of your energy not on fighting the old, but on building the new.*

– Socrates  
Philosopher



### Principles In Action

**Digital Services Team** | The TSA DST brings engineers, software developers, security experts, and customer experience advisors together to solve problems with digital capabilities, while cutting through the red tape to field them faster. The multi-disciplinary team follows practices used by the U.S. Digital Services team, including user-centered design, iterative development, and customer engagement models.

## Empowered Workforce

**Permissive Environment** | TSA cultivates a highly effective innovation culture by encouraging entrepreneurship across the agency. TSA will promote open innovation to allow collaboration and fluid interaction. Leadership can solicit ideas from the workforce and the workforce can proactively find and present ideas and best practices to leadership. We train and educate our workforce and promote an environment of continuous learning.

**Centralized Intent with Decentralized Execution** | TSA fosters a culture of innovation and entrepreneurship by connecting and enabling people and programs throughout TSA. We promote leading with intent not a rigid execution hierarchy. Leveraged from commercial best practices, reversible decisions should be made quickly by those closest to the problem or opportunity.

**Transparency** | TSA expresses support and commitment for innovation efforts at every level of the organization by raising awareness of initiatives and increasing knowledge of the pathways or mechanisms for ideas, processes and technologies to be assessed for mission viability. We ensure that ideas submitted are tracked and the tools, applications, support, and appendix processes are available to all who need them to scale ideas.

**Acceptance of Failure** | TSA acknowledges that in the innovation process some projects will fail when addressing difficult challenges. Failure amidst the ambition to try new, creative solutions should never be criticized. We learn from failure and continue to progress forward collectively.



### Principles In Action

#### Innovation Task Force |

Part of Requirements and Capabilities Analysis, ITF is an important partner within the TSA Innovation ecosystem. The ITF addresses the critical capability gaps in collaboration with internal and external stakeholders. ITF identifies and demonstrates emerging solutions that increase security effectiveness and efficiency, aimed to deliver transformational solutions that align to bold and specific goals sponsored by TSA Senior Leadership.



*Innovation is mostly discussed in terms of new technology, but innovation ultimately rests on people. Buying all the advanced machines, software, and data in the world does not guarantee that people will rethink old strategies and develop new ones. Our ability to anticipate our adversaries' moves and avoid falling behind depends on a culture of innovation, values and norms that support the generation and successful implementation of creative ideas.*

– Adam Grant  
Organizational Psychologist

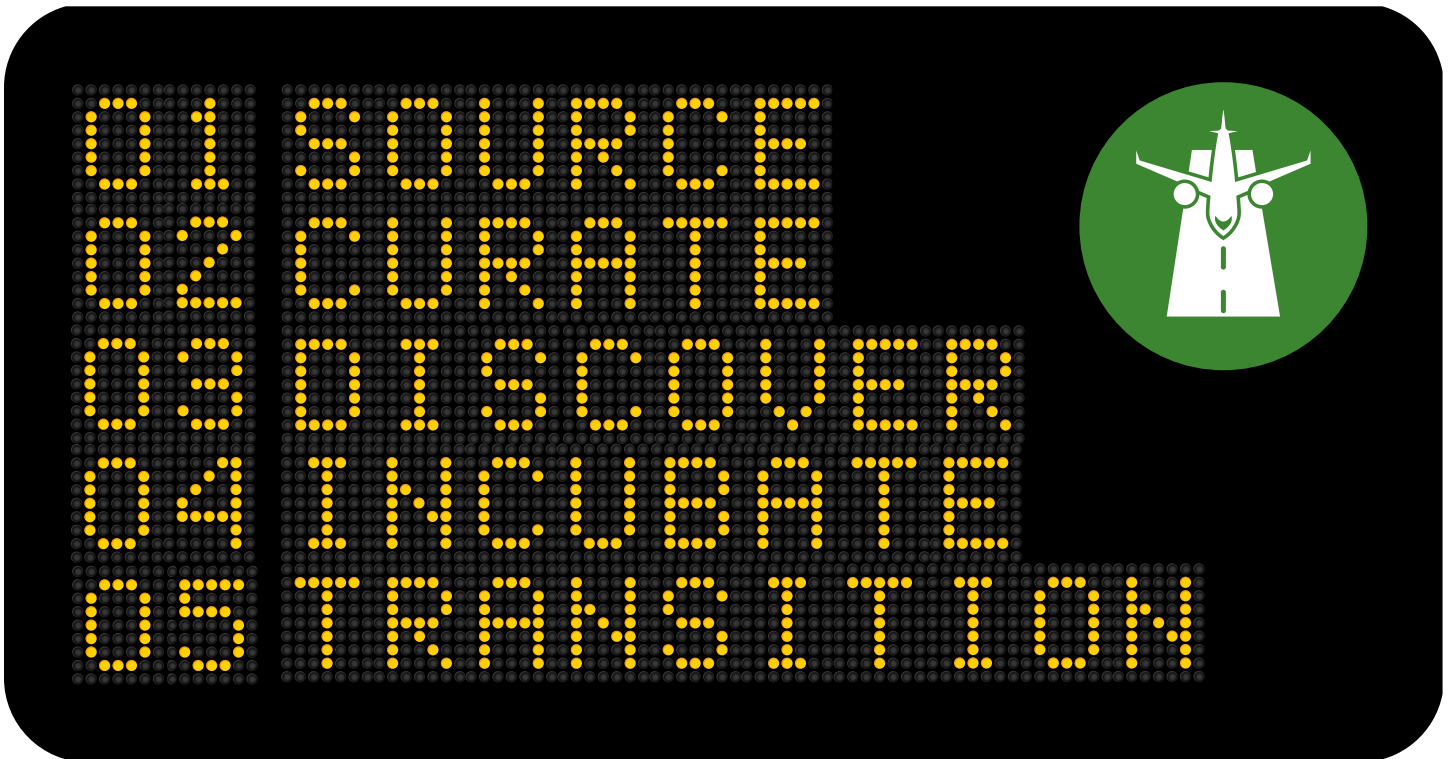
# TSA Innovation Pipeline

Most organizations engage in sporadic and disconnected approaches to problem-solving. TSA will view these activities as an end-to-end process – TSA’s Innovation Pipeline, to enable the creative ingenuity of our workforce and engage our partners to solve complex problems through innovation. The TSA Innovation Pipeline will give TSA a way to connect innovation activities into an accountable and evidence-based system that will rapidly deliver solutions to hard problems. The Pipeline’s guided process is designed to be adaptable to the size and scope of any challenge or opportunity so that it can be leveraged at the local or national level. This phased process uses a common language and framework to serve as a guide.

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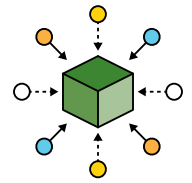
*The most damaging phrase in the language is: “it’s always been done that way.”*

– Grace Hopper  
Rear Admiral,  
U.S. Navy



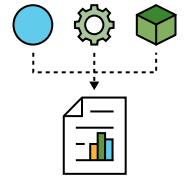
## Source

**Collecting innovation opportunities.** TSA will actively collect problem statements and ideas from every level of the workforce and industry, government and non-government partners.



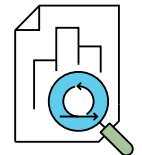
## Curate

**Rigorously assessing and prioritizing opportunities.** All problem statements and ideas collected will be organized and categorized by mission focus area. During curation, problems and ideas will be validated for technical feasibility, organizational viability, and end-user desirability. This involves connecting potential stakeholders that may have an interest in the problem or its potentially resulting new policy, process or technology.



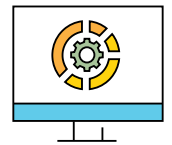
## Discover

**Testing and validating critical hypotheses.** In this phase, ideas and solutions are tested for application against the TSA mission model. Sometimes, this phase will include exploring how industry is solving the same or similar problems, and building a coalition or ecosystem of partners and experts to pursue the right solution for the agency. Solutions may be identified through an agile design process and result in a minimum viable product, or MVP, and an associated test plan. Finally, this phase tailors an action plan to gain leadership support moving forward.



## Incubate

**Building early versions of the solution.** Projects moving into the incubation phase have gathered enough initial support to develop a prototype that is subsequently refined and tested to validate its proof of concept. Further, the processes and resources for scaling only the most successful prototypes are defined to scale their implementation.



## Transition

**Integrating and scaling the mature solution.** The CInO and solution owners will partner with relevant TSA components to receive the new process or technology in order to rapidly transition it into operational environments for achieved mission impact. This “valley of death” is commonly the most challenging phase of the TSA Innovation Pipeline as end-user value delivery through agile development outpaces the traditional solution development processes.



# Workforce Driven Innovation

Safeguarding our nation's transportation systems is a complex mission that requires focus on the real-time dynamic operational environment while preparing for the evolving future threat landscape. To that end, we welcome the innovative ideas and solutions from the TSA workforce, academia, private industry and non-traditional partners. There are innovators across TSA accomplishing phenomenal work. The future of TSA requires the agency as a whole to understand that they have an important role to play in innovation – it is not an elective.

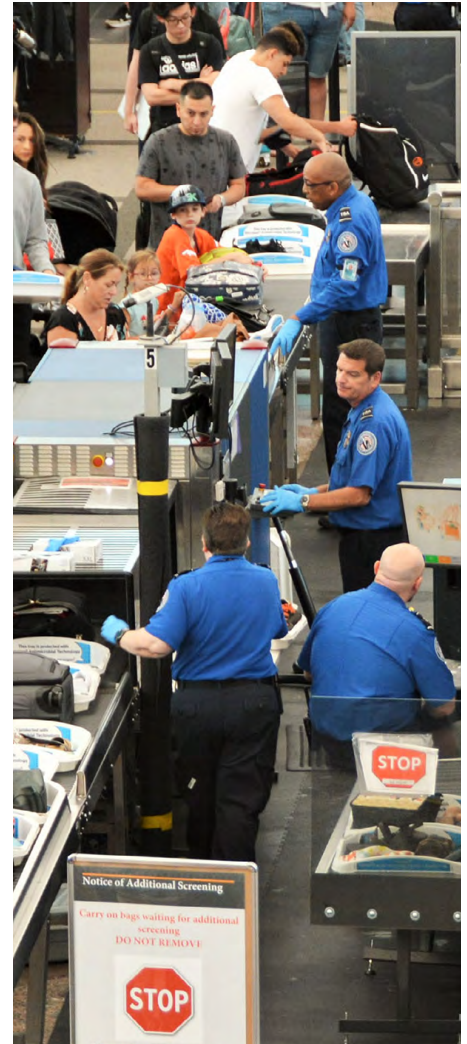
TSA currently has many leaders at work across the agency: some doing innovation part-time and others full-time; all are important. The Chief Innovation Officer has a dedicated team committed to connecting, advising, and enabling innovation across TSA and the greater ecosystem. Through the Local Innovation for TSA (LIFT) Cells, TSA Xplore (TSA X), TSA Ventures, and TSA Launchpad, the CInO will ensure TSA is set up to be a collaborative and enticing partner for innovators and thought leaders. We will position TSA to effectively engage with government, academic and industry stakeholders to drive mutually beneficial priorities, develop emerging capabilities and deploy existing commercial solutions within our operating environment.

## Local Innovation for TSA (LIFT) Cells

LIFT Cells are about empowering innovation at the operational edge. By leveraging the ingenuity of the TSA entrepreneurs and non-traditional partners, LIFT creates unique opportunities for cross-functional collaboration by connecting TSA operational experts with the top problem solvers in industry and the government. LIFT provides TSA components with the training and tools to solve tactical-level pain points locally, or in partnership with CInO and industry.

## TSA Xplore (TSA X)

TSA Xplore provides the structure for building and employing the enterprise-level system for innovation, and co-evolving capabilities with our innovation partners. TSA X operates and maintains the Innovation Pipeline and supports expansion of the broader innovation ecosystem. TSA X connects problems to external partners committed to expanding the transportation security marketplace with viable solutions through Hacking for Homeland Security, prize challenges, and facilitated innovation trainings.



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*There are no facts  
inside your building,  
so get outside.*

*– Steve Blank  
The Father of Modern  
Entrepreneurship*

## TSA Ventures

TSA Ventures is about stimulating the global technology ecosystems using TSA ideas and problems to accelerate commercial technologies and expand the security technology marketplace. TSA Ventures broadens the TSA ecosystem through early-stage investments that leverage private capital, accelerate commercialization of dual-use innovations, and proactively adapts TSA mission sets to leverage soon-to-be available commercial solutions.

There are several pathways that TSA Ventures uses to explore innovative solutions that may be rapidly fielded such as Public-Private Partnerships, the Small Business Innovation Research program, Commercial Solutions Opening Program, and partnership with In-Q-Tel.

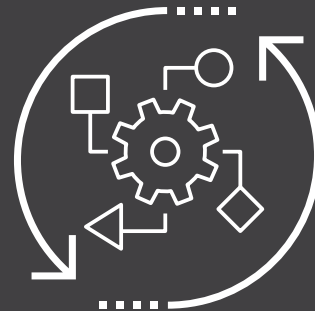
## TSA Launchpad

TSA Launchpad engages with emerging ideas and markets developing novel, disruptive innovations with the potential to transform the transportation security system. Launchpad leverages unique TSA resources and authorities to explore new solutions and early adoption of disruptive innovations. Teams are structured around unique opportunities, problem statements, and research areas.

### Innovative Projects at TSA

**One Stop Security** | An example initiative exploring a new service and security model. Passengers and their accessible property arriving from participating foreign airports will continue onto additional flights or segments originating in the United States without security re-screening completed by TSA officers. This program not only requires international partnership, but also integration with industry and airports authorities.

**Open Architecture** | This example of international cooperation establishes a new baseline for security coordination improving data sharing, vendor choice, procurement costs, and partnership development. The program opens TSA's market to cross-sector, high-capability technologies and incentivizes traditional vendors to partner with emerging technology groups.



# Conclusion

In an era of evolving technology and shifting threat landscapes, our workforce, more than ever, is the heartbeat of TSA.

From the early days following the tragic events of September 11th through the COVID-19 pandemic, TSA has met the needs of the American people through our commitment to innovation and adaptation in times of disruption. The agency has realized the only unwavering advantage we can maintain is agility. Whether it is a new threat from an adversary seeking to bring us harm or a global pandemic reshaping transportation, it is only through our commitment to resilient innovation that we persevere.

The principles and pathways outlined here in TSA's Innovation Doctrine must matriculate into all aspects of our organization to uphold our obligation to accelerate action for the good of the American public. This keystone document to our agency is not a mandate but a call to action, recommitment to our ideals, and compass to how we must lead. Doctrine is a building block to strategy; it guides the explicit actions and goals we aim to accomplish. The Innovation Doctrine provides a blueprint for how TSA can organize, govern, and build a culture of innovation.

For our organization to remain relevant with the speed of change and be prepared for future threats and challenges, innovation cannot be a hero-led activity. The principles and pipeline here illustrate how TSA remains committed to unwavering agility for the years to come.

TSA, with an empowered professional workforce, leading partnerships with industry, allies, academia and government, possess the imaginative and innovative ingenuity to shape our present and transform the future of the transportation security system.



*The very systems and guidelines that keep government organizations humming effectively actually strangle all other activities unintentionally. What the Nation really needs is for government organizations to implement a disciplined system designed to innovate and a workforce trained to use it. That system is the Innovation Pipeline. It starts with having the right team and extends to consciously and intentionally changing human and organizational capabilities at scale.*

*– Peter Newell,  
Director, US Army  
Rapid Equipping  
Force CEO, BMNT*



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