Imagine a carefree travel experience, where passengers traverse all airports at warp speed, knowing they’ll make their connections and arrive on time, every time — safely and hassle-free. To make this a reality across the nation, airports are turning to newer technology.

Evolving airport technology is complex and demands real-time efficiency with a vision for the future.

From California to Texas and Florida to New York, airports across the U.S. are developing a vision and creating strategies for the future while designing and building world-class terminals that deliver the ultimate passenger experience.

“Our help in setting those visions draws not only upon our diverse experience across the breadth of the airport campus but also our experience across a wide range of global business sectors,” says Stuart Garrett, a project manager for the Aviation & Federal Group at Burns & McDonnell.

The global push for enhanced security and technology is driving major changes in airport travel.

NEW TECHNOLOGY IS TAKING OFF

The global push for enhanced security and technology is driving major changes in airport travel.

PASSENGER EXPERIENCES ARE ALL TIED TO TECHNOLOGY

Behind the scenes of every airport are complex, interconnected systems of hardware and software running on miles of copper and fiber-optic networks. These systems aren’t visible to the traveler, yet they are tightly interwoven with links to the passenger experience at the ground level through self-service kiosks, bag drops and digital wayfinding signage.
“It’s a rat’s nest to the untrained eye,” Garrett says. “It takes technology to make all the physical, logical and mechanical components of an airport work efficiently and successfully. Our ability to integrate that technology is key.”

By applying the rigors of engineering culture to technology integration, airports can get what they need — systems that are safe, secure, convenient, consistent and resilient. For example, Burns & McDonnell has applied principles of industrial engineering to help clients design technologies for optimal layout of passenger flow and facilities.

“Integrating all of these data pockets allows our clients to make better, more informed decisions,” Garrett says. “Having access to this shared data in real time also helps operators take preemptive measures and minimize issues when things go wrong, which goes back to the passenger experience.”

While integrating special systems and data, airports are primed to develop strategies for improving their aeronautical and non-aeronautical revenues through technology.

“Our team identifies how airports can maximize revenue through digital content systems, efficient use of self-service technology and retail space while lowering operating costs,” Garrett says. “We help our clients see and understand the big picture from every possible angle.”

TECHNOLOGY IS SHAPING THE FUTURE OF AIR TRAVEL

Airports are trying to develop the right mix of efficient technologies, including some that are not widespread while at the same time meeting mandates set by the Department of Homeland Security and Congress for increased security. Those mandates, administered by the Transportation Security Administration (TSA), are part of incremental improvement and capital investment programs designed to innovate overall airport security and ensure travelers a safe and secure journey from curb to plane. This includes improving passenger and baggage screenings.

Among the latest technologies is an approach to screening that divides passengers into risk categories based on personal information. Smart Security, a joint program of the International Air Transport Association and Airports Council International, designed the system to respond to growth in air travel, continuously evolving security threats, and passengers being increasingly dissatisfied with queues.

Airports also are considering detector corridors that use biometric and biomedical data to screen passengers for liquids, explosives and other TSA requirements. Meanwhile, some airports are already operating with one-stop shop kiosk check-ins and bag drops that use microchips to track passengers’ belongings.

With innovative technology and enhanced security systems, air travel continues to evolve. And while security remains a major factor worldwide, airports are increasingly focused on providing the ultimate passenger experience by using Internet of Things (IoT) technologies.

The IoT is a colossal network of things — including people — connected to the internet with the ability to share data. Those devices can range from your exercise watch to your mobile phone and home security system, down to your light dimmers and washing machine.

From sensors tracking pets to microchipped baggage tags — as well as mobile apps guiding travelers through terminals — airports, operators, airlines and aviation manufacturers already are better serving passengers.

Additionally, IoT devices that monitor environmental conditions are boosting operational efficiency and saving money, while sensors on baggage equipment and building systems are flagging potential mechanical issues before they create problems.

The downside? The potential for cybersecurity threats.

“This generation of devices can put a strain on airports to design networks that support the IoT and the tsunami of data it generates,” Stuart Garrett says. “This makes it even more important for airports to have strong cybersecurity policies, safe and secure practices, and heightened awareness.”

To learn more about how the IoT is impacting the aviation industry, join the “Internet of Airport Things,” a LinkedIn discussion group moderated by Garrett.