The aviation industry has long been in the vanguard of digital disruption. The end-to-end travel experience—from booking a flight to passing through security, and from in-flight entertainment to arranging onward travel from the airport—have all been digitally transformed. However, we believe this is just the beginning. The changes that lie ahead will have impacts at every level of airline operations. Perhaps the most profound will be the way in which technology changes how people experience travel.

As connected devices and artificial intelligence become more pervasive, there are boundless opportunities for learning about passenger preferences and behaviors and using this intelligence to create new experiences. At the same time, airlines’ operations need to be transformed with intelligent assets to customize experiences and provide real-time information. Simultaneously, within the organization, digital technology will radically transform how employees work. It will also change how business functions operate and orchestrate with partners’ activities in business and technology ecosystems.

Analysis by the World Economic Forum and Accenture points to the huge scale of change ahead. Over the next decade through to 2025, digitalization in aviation, travel and tourism is predicted to create up to US$305 billion of value for the industry through increased profitability.\(^1\) One hundred billion dollars of that figure is expected to migrate from traditional players to new competitors. This will only increase the pressure on existing players to innovate. Airlines executives agree, with over 88 percent saying they need to innovate at an ever-faster pace to remain competitive.\(^2\) What’s more, customers and wider society are in line for benefits of US$700 billion through technology’s ability to deliver cost and time savings for travelers.\(^3\)

These are game-changing numbers. And they are all driven by trends centered around digital technology. Below, we highlight five key trends that Accenture believes will transform how we work, live, and travel over the next three to five years. Drawn from the Accenture Technology Vision 2017, these trends share a common theme: instead of people adapting to the technology they use, technology will adapt to people. In the airline industry, this theme will play out in some surprising ways.

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1. The Travel & Tourism Competitiveness Report 2017, World Economic Forum, April 5, 2017
2. Accenture Technology Vision 2017 – Airlines Survey Results
3. The Travel & Tourism Competitiveness Report 2017, World Economic Forum, April 5, 2017
2017 **TECH VISION TRENDS**

**Trend 1:**
**AI IS THE NEW UI:**
Experience Above All

Artificial intelligence (AI) is about to become a digital spokesperson for companies. Moving beyond a back-end tool for the enterprise, AI is taking on more sophisticated roles within technology interfaces. From autonomous driving vehicles that use computer vision, to live translations made possible by artificial neural networks, AI is making every interface both simple and smart—and setting a high bar for how future interactions will work. It will act as the face of a company’s digital brand and a key differentiator—and become a core competency demanding C-level investment and strategy.

**Trend 2:**
**ECOSYSTEM POWER PLAYS:**
Beyond Platforms

Companies are increasingly integrating their core business functionalities with third parties and their platforms. But rather than treat them like partnerships of old, forward-thinking leaders leverage these relationships to build their role in new digital ecosystems—instrumental to unlocking their next waves of strategic growth. As they do, they’re designing future value chains that will transform their businesses, products, and even the market itself.

**Trend 3:**
**WORKFORCE MARKETPLACE:**
Invent Your Future

Driven by a surge of on-demand labor platforms and online work management solutions, legacy models and hierarchies are being dissolved and replaced with open talent marketplaces. This resulting on-demand enterprise will be key to the rapid innovation and organizational changes that companies need to transform themselves into truly digital businesses.

**Trend 4:**
**DESIGN FOR HUMANS:**
Inspire New Behaviors

We shape technologies so it adapts to us. The new frontier of digital experiences is technology designed specifically for individual human behavior. Business leaders recognize that as technology shrinks the gap between effective human and machine cooperation, accounting for unique human behavior expands not only the quality of experience, but also the effectiveness of technology solutions. This shift is transforming traditional personalized relationships into something much more valuable: partnerships.

**Trend 5:**
**THE UNCHARTED:**
Invent New Industries, Set New Standards

Businesses are not just creating new products and services; they’re shaping new digital industries. From technology standards, to ethical norms, to government mandates, in an ecosystem-driven digital economy, one thing is clear: a wide scope of rules still needs to be defined. To fulfill their digital ambitions, companies must take on a leadership role to help shape the new rules of the game. Those who take the lead will find a place at or near the center of their new ecosystem, while those that don’t risk being left behind.
AI IS THE NEW UI

For airlines, the potential of AI is not so much to find new ways and channels to interact. Rather, it’s to reduce the number of actions and decisions passengers need to take throughout their journeys. In other words, AI offers the possibility of making travel genuinely seamless and faster from door-to-door. How? By using super-smart, frictionless, context-aware and predictive capabilities.
Increasingly, we’ll see AI becoming invisible, working in the background of every environment passengers pass through. Rather than having to use a smartphone to interact via an app, services and information will be made available according to context and relevance. With the development of advanced sensors used in Internet of Things (IoT) applications, it becomes possible to gather information, understand it and then take an intelligent action. All of this has one aim: to deliver a differentiated travel experience.

Human agents can only know and assimilate so much. And they’re unable to offer a truly personalized response across thousands of customer interactions. Augmented by AI, however, it’s a different story. Whether that’s anticipating a frequent flyer’s seating preference across multiple flight legs or alerting them to factors such as traffic and security queues that may add to travel time. It could be their favorite coffee stop in an airport, and preparing their latte just as they’re arriving, or ensuring a taxi or rideshare is ready and waiting as soon as they exit Arrivals. It will all be part of the AI-enabled service.

Airlines recognize the urgent need for upping investment into AI technologies. Research for the Accenture Technology Vision 2017 shows that 84 percent of airline executives expect to make moderate to extensive investments in embedded AI solutions over the next three years. That’s amongst the highest level of commitment of any industry. Even more emphatic is the main reason why they’ll be making these investments: more than any other industry, airlines value the ability of AI to provide consistency across all customer interactions.

Significant investments are being made now. Take Lufthansa’s Mildred, for example: based on AI and natural language processing, she’s a personalized chatbot agent. Accessing her via Facebook Messenger, users can search for flights by date and booking class, as well as including details like airports or home city. Mildred knows the nearest airport that Lufthansa flies from and redirects passengers to Lufthansa’s mobile website to make a booking. She understands English and German, and recognizes place names and dates as well.

Meanwhile Carla, Avianca’s chatbot, enhances the digital customer experience by providing travelers with a range of travel-related services and real-time information. The Facebook Messenger chatbot opens an intuitive new channel for customers to interact with the airline, enabling them to confirm itineraries and flight status, locate luggage and, for domestic flights in Colombia, actually check-in through Carla, all using a mobile device. Customers can also consult Carla for ticket refunds and use it to provide real-time feedback to customer service.

Chatbots like Carla and Mildred represent important first steps toward the kind of intuitive personalization that makes the passenger experience seamless, and as stress-free as possible. The point of all this? Recognizing that one-size-fits-all actually means everyone’s less than completely satisfied with their travel experience. And in an incredibly competitive marketplace, that’s something airlines simply can’t afford to contemplate.

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4 Accenture Technology Vision 2017 – Airlines Survey Results
5 “Lufthansa brings Mildred to the chat table,” tnooz, November 11, 2016
6 “Avianca Airlines: New Chatbot is Reducing Travel Stress, One Passenger at a Time,” Accenture, February 2017
ECOSYSTEM
POWER PLAYS

Coinciding with AI’s promise to enable seamless travel experiences, airlines recognize that delivering those seamless experiences depends on their participation in a broader travel ecosystem. It’s significant that, above all other industries, airlines view platform-based models and ecosystem engagement as critical to the success of their business (almost 40 percent of executives see this as “critical”). That awareness is crucial. They can’t fly solo and, if they attempt to do so, they risk being relegated to little more than seat providers.

China’s HNA Group, for example, is investing in a broad portfolio of travel-related businesses across airlines, hospitality and travel services such as currency exchange. With a target to become one of the 50 largest companies in the world by 2030, HNA is focused on creating a platform of global operations that spans the whole spectrum of the aviation, travel and tourism ecosystem.

To make their platform ambitions reality, and contend with this surging competitive threat, airlines need to take collaboration to another level. That will demand a significant cultural change. That means airlines will need to embrace collaboration with ecosystem partners, within and beyond their traditional industry, to orchestrate, not self-create, differentiation as a part of their corporate culture. But it also requires investment in the tools and technologies that can support a more open, modular and interoperable approach. This will support the ability to innovate and develop solutions that deliver outcomes, rather than standalone products and services.

Using APIs as the enablers, along with access to standardized, real-time data sharing, all platform participants can benefit from previously unreachable, and even unknowable, ecosystem value. This will arise from the orchestration of outcomes developed around customer needs. It’s a natural extension of the “Platform Economy” trend in the 2016 Airlines Technology Vision.

There’s growing momentum in this space. We’re seeing more and more airlines turning to platforms as a means of differentiation. Take Transavia, for example. Its declared aim is to become the leading low-cost digital airline. To support that goal, it recently launched the Transavia Interaction Platform. This connects customers, partners and employees in a single platform to offer best-in-class proactive and personal digital services to customers, while enabling employees and partners to work collaboratively. By bringing other participants such as handlers and airports onto the platform, it’s easy to see how this could expand into a broader ecosystem play.

Participating in platform-based ecosystems will give airlines access to potential new customers, along with greater understanding of travelers’ fast-changing requirements. That’s never been more important.

• Conduct workshops with leaders in the organization to re-envision and redefine the future customer experience.
• Look at the project portfolio and determine which items can be implemented quicker by orchestration, rather than integration.
• Identify your API needs.
• Start discussions with your product vendors to see how they can support modular orchestration.

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7 Accenture Technology Vision 2017 – Airlines Survey Results
8 “Chinese Travel Conglomerate HNA Group Now Wants to Buy a Major Cruise Line,” Skift, May 3, 2017
10 “Transavia: E-Commerce Platform Takes Off,” Accenture
Leveraging on-demand talent pools will be one key to the rapid innovation and organizational changes companies need to transform themselves into truly digital businesses. This is certainly true for airlines, though the use of on-demand platforms will be more specialized than in other industries. Sourcing the right digital experts and data scientists they’ll require to build out new capabilities will be a tough challenge through traditional hiring processes. It’s where on-demand labor platforms will play a critical role. However, we don’t anticipate use of on-demand talent pools for sourcing of key pilot and flight crew roles as these are less easy to swap in and out on a project-by-project basis, and highly regulated. This is likely why in research for the Technology Vision 2017 airlines’ responses to questions about using more freelance workers places them in the lowest quartile compared with other industries.11

On-demand resourcing in the digital technology space is what Lufthansa has been doing in its work with Accenture. Through its “Extended Workbench”, Lufthansa can request people with specific skills for specific tasks that are then matched against relevant profiles.12 This gives the airline ready access to capabilities they would otherwise find it difficult to locate within the time frames needed for urgent new projects. By accessing skilled people, on demand, Lufthansa was able to accelerate multiple initiatives and projects across its portfolio.

For the moment, research for the Accenture Technology Vision 2017 indicates that airlines see the greatest potential benefits from using independent workers in the support they provide for rapid up-scaling and/or geographical expansion.13 However, our research shows an additional upside for airlines for making that same connection between the digital skills they need (but often lack) and the online labor marketplace’s ability to fill those roles.

11 Accenture Technology Vision 2017 – Airlines Survey Results
12 “Extended Workbench,” Accenture
13 Accenture Technology Vision 2017 – Airlines Survey Results
DESIGN FOR HUMANS

For airlines, creating human-centered experiences needs to go beyond the narrow focus on specific services. It means thinking about much more than simply designing the aircraft seats that passengers will occupy. The travel experience starts way before they enter the aircraft. And it finishes long after they disembark. Airlines grasp this. Of all industries surveyed for the Accenture Technology Vision 2017, airline executives were the most likely to strongly agree (48.5 percent) that organizations “need to understand not just where people are today, but where they want to be tomorrow, and shape the technology to act as their guide.”

What about, for example, if when a passenger takes their seat in the plane, all the apps and media content they have on their home devices are available from the screen in front of them? Or how about knowing in advance what and when regular passengers taking a new route for the first time like to eat? Technologies that make all of this, and more, possible are now available. And we’re seeing companies in some industries take advantage of them. To be designed for humans, technology must embed preferences into the communication channels people naturally want to use rather than forcing them to adapt to travel-specific environments.

An example of what can be achieved with a “service design” approach comes from the cruise operator Carnival. Its passengers, on selected liners, will be given a smart “Ocean Medallion.” Along with a portal called the “Ocean Compass,” machine learning and an Internet of Things network, this new platform will gather information and learn about guests, using this intelligence to elevate service and personalization to new levels. For example, the company will learn that a certain passenger likes to have the same pre-dinner cocktail in one of the ship’s bars at a certain time each evening. With that intelligence, the company makes sure the cocktail’s being mixed the minute the guest walks in. And with seamless payment taking place in the background, passengers are likely to spend more. Think of this captive experience being applied in the context of an airport, and you can begin to see the kind of customer experience that airlines should be able to deliver.

Just like Carnival, airlines are actively exploring how new technologies like predictive analytics and Internet of Things can transform their interactions with customers by creating frictionless travel experiences. Shifting to look at how designing for human interaction can enhance airline employee productivity is a further area where exciting opportunities will arise.

Take the potential of virtual reality (VR) and augmented reality (AR) technologies, for example. By making data more accessible and easier to understand, the immersive experiences these technologies provide create new ways for people to access intelligence, collaborate and work. From training and field-service solutions to digital dashboards and interactive design labs, AR and VR can support digitally-enabled workforces.

14 Accenture Technology Vision 2017 – Airlines Survey Results
15 Carnival Ocean Medallion: 5 takeaways from one of 2017’s premier IoT projects,” ZDNet, January 13, 2017
16 “Introducing the Next Wave of Vacation Travel,” Carnival - Princess Cruises
THE UNCHARTED

Businesses today aren’t just creating new products and services; they’re shaping new digital industries. From technology standards to ethical norms to government mandates, in an ecosystem-driven digital economy, one thing’s clear: a wide scope of rules still needs to be defined. To fulfill their digital ambitions, companies must take on a leadership role to help shape the new rules of the digital game. Those who take the lead may find a place at or near the center of their new ecosystem, while those that do not risk being left behind.
Airlines, in many ways, find themselves in the vortex of a gathering storm of volatility, with change coming toward them from all angles: regulatory, market, geo-political, environmental and more. As they think about their current situation, they also need to start contemplating the unthinkable: the threats and challenges to their business models that could totally transform the rules of the game for them.

On a less dramatic, but no less influential level is the development of technologies that could challenge the need for travel in the first place. Constantly falling prices for AR and VR equipment will make highly immersive experiences widely available. While long predicted, we may now see these technologies begin to eat into the business travel market.

So, it’s by no means out of the question for today’s airlines to develop innovative business models that allow them to own that space—or at least play a prominent role in an ecosystem of providers that does. Conversely, we’re seeing virtual reality being used in marketing to provide brief immersive experiences of travel destinations as an enticement for potential travelers to experience the real thing.

Airlines will also be able to create whole new businesses in areas that are being reimagined through digital technologies. Border control and identity is one. Every year, there are 1.2 billion outbound passengers. In 10 to 20 years, that’s predicted to double, according to a recent report by the World Economic Forum.17 Managing the transit of that many people across borders—safely, securely and accurately—will be impossible without close collaboration between airlines, border agencies and security services.

Trusted digital identity will be foundational to achieving that goal. On a daily basis, airlines are already entrusted with vast amounts of sensitive personal data. The unique data, privacy and security capabilities that they’ve developed as a result could feed into their active participation in developing and refining digital identities.

If airlines can position themselves as leaders in this area, they’ll have outstanding opportunities to cement their position at the heart of another growing and valuable ecosystem. That’s why it should be no surprise to learn that executives in the airline industry are more likely than those in any other to cite the distributed ledger technology blockchain as high up on their technology agenda. Blockchain has the potential to provide a secure and tamper-proof register of identity which could revolutionize travel security, including potentially how baggage is handled. Airline executives say that blockchain and smart contracts will be critical to their organization over the next three years (over 30 percent of them, the highest of any industry).18 One potential application is the ability to securely and easily transfer travel reward points for use in other areas, such as retail. This could help to spur new levels of interest in airlines’ loyalty schemes.

17 The Travel & Tourism Competitiveness Report 2017, World Economic Forum, April 5, 2017
18 Accenture Technology Vision 2017 – Airlines Survey Results
Digital technologies create outstanding opportunities for airlines to design and deliver new, differentiated customer experiences that build loyalty and trust. In a hyper-competitive industry, where it’s harder than ever for airlines to stand out, that’s never been more important. Each of the five trends in the Accenture Technology Vision 2017 point to the new sources of value that digital technologies bring to this industry. And nowhere is this value more pronounced than in the opportunities that are being created for learning about passenger preferences and behaviors and using this intelligence to create new, customized experiences. Of course, technology on its own, will not make the difference. From now on, the airlines that truly take off in this space will be the ones that take control of technology and shape it to fit the needs of their people and their customers.
For more information

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