Turbulence ahead: plotting a course through digital disruption
Technology Vision for Airlines 2016
5 trends disrupting the Airlines industry

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Airlines have reached a defining moment. They know that digital will transform their industry. But having lagged behind in technology uptake, they’re still taxiing on the digital runway. And crucially, while implementing the right technology is vital, it’s only one component. As Accenture’s Technology Vision 2016 emphasizes, it’s how technology and people (employees, business partners, customers and competitors) work together that will be the wind beneath a digital business’s wings.

‘People First’ is the rallying cry in this year’s Technology Vision. In essence, developing an organizational and corporate culture to fully take advantage of what digital technologies can offer is a prerequisite for leaders. But, for now at least, airlines are falling short. And their leaders know it. In a recent Accenture survey of airline executives, talent represented the biggest challenge to implementing their vision.

And it’s not just people inside the business that have a pivotal role to play. Airlines also need to learn different, more agile ways of working across ecosystems composed of looser, partner-based collaboration with passengers, suppliers, partners and competitors.

For example, Virgin America is a front-runner that has learned to think like the disruptive tech businesses that surround it in Silicon Valley. Virgin has experimented with everything from in-flight social networks to rethinking how to buy tickets. It went as far as collaborating with its frequent flyers to secure two gates at Dallas Love Field: 30,000 people signed a Change.org petition to allocate these gates to the airline. In return, the airline offered pre-IPO stock options to frequent flyers. The collaboration may have been virtual, but the rewards have been very real: revenues of almost US$1.5 billion in 2014 and a US$306 million initial public offering (IPO).

Looking ahead, there’s no question that the next few years will see unprecedented disruption in the airline industry. Over 85 percent of airline executives agree that technology-driven change will increase rapidly over the next three years. And the choices these executives make today about their people, their technology and their platform strategies, will determine whether they reach their destinations – not just on time, but at all. In the following pages, we’ll be looking at the five key trends that together make up this year’s Technology Vision, and drawing out the most relevant implications and manifestations for the global airline industry.

“In the competitive environment, with tight margins and increasing regulatory and environmental pressures, airlines have for many years looked to technology to deliver greater operational efficiency. Now digital has ushered in opportunities for creating and delivering differentiated customer experiences that can build loyalty. And in a marketplace where it’s harder than ever to stand out, that’s absolutely critical.”

European Premium Carrier
It’s no surprise that the airline industry has already been an enthusiastic adopter of automation (our research shows that over half of all airlines have realized savings through intelligent automation). From offering passengers online self-check in to providing automated passport control and customs clearance, airlines and airports have harnessed technology to boost efficiency and effectiveness.
Intelligent automation provides an opportunity to dramatically transform the passenger experience. The arrival of web, mobile and kiosk check-in means automation is already commonplace for many passengers. IATA’s 2015 introduction of an auto check-in messaging standard has helped to universalize this technology, streamlining pre-flight experiences while reducing costs for airlines. According to some reports, mobile will be the most widely used form of self-service check-in at most airports within two years. Automation is also making inroads into other stages of the passenger journey, from baggage drop and departure lounge admittance through to in-flight, arrival, transfer and baggage claim, there are multiple interactions between airlines and their customers. At each one of these touchpoints, digital can maximize the likelihood of a re-booking by adding to the quality of service that passengers receive.

Data and automation can support an integrated and seamless digital experience from end to end. That’s key. The goal for every airline is to deliver a service that’s more informed and more personalized than its competitors’. Automation can streamline interactions with airline call-centers, supporting agents during calls by upselling tailored packages to passengers based on information ‘learned’ throughout the conversation. Harnessing GPS data can warn passengers en route to the airport of traffic conditions that could cause delays, with information sent direct to smartphones via airlines’ apps (which ‘piggyback’ on the devices themselves, saving airlines the expense of creating their own hardware). In other words, right from the start of the passenger journey, airlines can use intelligent automation to help reorient the workforce from its current focus on managing processes, to an emphasis on delivering customer experiences.

Turnaround time, one of the most vital KPIs for airline operations, can be optimized through automation. There are multiple examples. It could alert ground staff to parents traveling with children and enable them to smooth their path through check-in and customs. Baggage handlers could be automatically updated (via wearables) through automated video recognition technologies about late check-ins and adjustments made to accommodate last-minute baggage in the hold.

Intelligent automation is transforming the efficiency and effectiveness of the aircraft manufacturing industry, and similar techniques could soon extend to aircraft maintenance in airlines themselves. For example, drones could soon be used to fly over planes, supplementing engineers’ assessments of airworthiness with a 360-degree viewpoint, with data being transmitted automatically to maintenance operations.

Meanwhile, inside planes, embedded sensors could send continuous reports on airworthiness, stability and fuel efficiency to airlines’ central control systems, with automated transfers of key in-flight data being re-routed to pilots so adjustments can be made in real time and maintenance pre-booked to correct issues before they occur.

These are just two examples of the power of automation for airlines. It’s the collaboration between people and automated technologies that enables people to do things differently. And do different things.
of airline executives believe that in three years time their workforce will need to include more flexible employees, who can draw on a range of skills. It's a perfect example of how, in today's world, it takes more than tools and technologies to keep pace with constant change. Organizations in all industries need a change-ready workforce.
This liquid workforce requirement reflects the rise in digital ways of working at airlines.

63% of executives in this industry expect the majority of roles to have a digital component within three years. That’s why 90 percent say that training has become much more important today.

There are limits to their workforces’ willingness to embrace digital change. These stem from concerns about job security. In a cutthroat marketplace, airlines have no choice but to seek cost reduction wherever possible. However, the choice between jobs and machines should not be perceived as an either/or decision.

Digital technologies are changing the workforce, and what it can achieve, in unexpected ways. Manufacturers like Airbus use virtual reality headsets to engineer components with zero defects. In the future, we’ll see increasingly sophisticated augmented reality (AR) technologies being used by engineers to “look through” airplanes and inspect individual parts for wear and tear.

For another example of the power that people and technology, working together, can provide, look at in-flight wifi access. Having recognized that it’s far quicker and more efficient to enable wifi through a carry-on box stowed in an overhead luggage locker (instead of installing permanent wifi technology in each aircraft), some companies are now relying on this route to enable wifi. Once the plane’s wifi-enabled, passengers can order in-flight service through their smartphones, with cabin crew receiving alerts on their own devices. The impact of all this? Inflight wifi that’s relatively easy and inexpensive to install. A workforce that’s more flexible and responsive. Better service for passengers. And thanks to BYOD policies, lower equipment costs for the airline.

Airlines recognize the need to re-evaluate their skills requirement and make themselves ready to continuously reskill and retool the workforce in response to a fast-changing digital business environment. As they do so, one of the key barriers they’ll need to overcome will be resistance to change among today’s employees. This is particularly strongly embedded amongst older, technically skilled employees who may have been working on the same, highly customized systems for the past 20 years. As these employees reach the end of their careers, airlines struggle to replace them. This, in turn, is helping to drive the shift towards more standardized systems, where limited specialized skills are required. With this trend underway, airlines will acquire far greater agility, while creating significant new opportunities for more value-adding and fulfilling jobs.

Embracing the shift in workforce dynamics, younger airlines are building flexibility into their operations that more traditional airlines (with more rigid workforces) will struggle to match. For example, one European start-up airline has tailored its entire staff recruitment approach to target young people who are keen to travel, will stay with the workforce for a couple of years, and then move on. The benefits (including lower salaries and limited need for pensions funds) outweigh the cost of continuous churn.
Airlines have experienced the disruptive impact of platforms – perhaps more than most other industries. Booking sites like Expedia and Opodo are now an established presence in the industry. Indeed, in many ways, they’ve reshaped consumers’ expectations of airlines in terms of ease of access, pricing and flexibility. Meanwhile, as airlines become increasingly commoditized “buses”, transporting passengers at the lowest possible price, they’re becoming increasingly vulnerable to competition from digital-born platforms like Google.
These show the power of platforms to disrupt and transform. And airline executives agree. In our survey, 77 percent (ahead of the global average for all industries) agreed that platforms will serve as the glue bringing organizations together in the digital economy. And what’s more, platform-based business models will be central to their growth strategies over the next three years.

So what does this mean? There have already been initiatives to consolidate passenger and other services onto common platforms (like Altéa Departure Control, the common airline passenger reservations platform operated by Amadeus since 1992)\(^3\). However, there are huge opportunities for standardizing other areas of operations. Most airlines have extremely complex proprietary application landscapes. Maintaining and interfacing them is time-intensive and eats up the majority of their IT spend. The goal must be to open up previously closed application environments to other partners. This will not just lead to greater efficiency, but will also spur innovation of new services and customer propositions. Of course, data privacy concerns will have to be addressed. The uniquely sensitive nature of passenger information represents a trust that airlines cannot breach.

To enable “innovation from the outside in”, airlines will create interfaces on their proprietary platforms via APIs, extending connections to other participants in the travel economy (at a technical level, this will demand the rationalization of individual airline systems). Faced with disruptive competitors, airlines need agility. That means having connections “ready to go”. Take one example. With the right APIs, an airline could link with Uber, creating a seamless pick-up service for passengers – without giving away their core data. Crucially, airlines can use platforms to get inside the customer mindset. If a consumer is planning to attend a conference in San Francisco, for example, the first place they visit is the organizer’s website. That’s where the airline needs to be. Google knows this already. Airlines need to catch up fast.
With companies across industries making big investments in digital platforms, they’re not only fundamentally changing how they create and deliver products and services. They’re also providing fertile soil in which whole new digital ecosystems can take root and grow. This opens the way to unparalleled disruption from expected, and unexpected, sources.
The priority for airlines? Use their market positions to keep track of these new ecosystems, get ready for their impacts and benefit from the opportunities they create. Look into other industries to see where airlines themselves can drive disruption. How are industry platforms elsewhere creating opportunities for them to secure new business and/or access new business intelligence, cost savings or other benefits?

Airline executives are well aware of the threat that disruption poses to their businesses. However, to a significant degree, they’re still looking inwards. They tend (more than their counterparts in other industries: 39 percent of airlines vs 37 percent of all companies) to view the sources of disruption as likely to emerge from within their industry. Other airlines are seen as the primary threat, not disruptive digital players from other sectors. And that could prove to be a serious mistake.

To make sure they’re ready for the next wave of disruption, they need to develop greater predictive analytics capabilities that can harness developments outside their industry and map the potential impacts. For example, there are new transport links, and even new forms of transport (such as the Hyperloop) that could significantly eat into established airline routes. With predictive analytics, it will be possible to model the likely impact of these new travel links on airlines’ existing flight rosters. Or what about Siri? More and more iPhone users now rely on this digital personal assistant to organize their lives. Part of that can be booking airline tickets. Indeed, some industry sources suggest that within three years, up to 50 percent fewer passengers will be making bookings through airline websites.

In the past, airlines were able to rely on the so-called “Seven degrees of freedom” to protect them from disruption. Governing which airports planes can fly into/out of, the minimum size for carrying paying passengers, and so on, these rules used to present barriers to entry. No longer. In a digital world, any reliance on them to prevent disruption would be misplaced. New start-ups are emerging all the time. In the Middle East, for example, we’re seeing airlines being created “on the fly”, as entrants take advantage of low fuel costs to buy aircraft, find available routes, and start offering services. Like this, they can create a new market from a standing start and, from that vantage point, extend operations that rival incumbents on other, more established routes.

And that’s just disruption within the industry. Disruption also flows from many other sources. Where is the next SARS or Zika virus likely to come from, and what impact will that have on air travel to and from the affected area? Fewer people will fly, flight crew will be affected, and possibilities for onward transmission will have to be minimized. That could mean developing platforms that share data with global healthcare agencies to limit the likelihood of onward transmission and track infection rates.

Disruption may also result from the latest advances in virtual reality technologies, which may ring the death knell for many business meetings (and the airline travel that makes them happen). Of course virtual reality has been around for years. What’s changed is the arrival of affordable, high-quality VR headsets (like the US$600 ‘Rift’ headset now being shipped by Facebook subsidiary Oculus). Think how quickly mobile phones became commoditized and extrapolate that to VR technologies. The likely uptake for these is enormous. A recent analyst note from Goldman Sachs predicted the VR market could exceed TV (in annual revenue) by 2025, reaching US$110 billion dollars within 10 years. Once devices become truly mobile (dependent on advanced battery and cellular technologies that dispense with the need for cables and computers), they’ll be as wearable (and almost as prevalent) as sunglasses. At that point, how many companies will be willing to pay for executives to fly to business meetings when the experience will be almost indistinguishable with VR?

Meanwhile, digital giants like Google are busy amassing vast quantities of data (including location-specific information) from users. This means they’ll soon know more about airline passengers than the airlines themselves. Combined with the increasing availability of aircrew and planes ‘for hire’, the barriers to entry for disruptive ‘born digital’ players like Google are obviously getting lower all the time.
Fundamentally, passengers provide airlines with their personal data because they understand the need for this information in terms of security and safety (they also have no choice but to provide this information as part of the airline/passenger contract). But while this means airlines have little trouble in gathering customer data, they are also somewhat restricted in how they can use it beyond its immediate purpose.
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However, in order to create and offer personalized services that will differentiate them against competitors, effective and imaginative use of customer data will only become more important.

It’s something of a dilemma. How can airlines expand the commercial opportunities presented by customer data while, at the same time, building a more trusted relationship with their customers?

The answer is, very carefully. Customers’ implicit consent to the use of their data hinges on the perceived benefits they receive (i.e. safety). Extending that consent to other less essential services (possibly in combination with other partners) depends on the careful stewardship of customer relationships. Crucially, it’s going to depend on airlines identifying, developing and delivering new services that benefit customers and their own businesses alike. There has to be a win/win.

Security is always going to be a key consideration, particularly where any plans are being made to use customer data in new ways. Sixty-three percent of executives report twice as many privacy or security breaches as two years ago; 20 percent say breaches have tripled or more over the same period. With airlines becoming increasingly digitalized, and therefore more vulnerable to cyber attack, the ability to safeguard these precious customer relationships will grow ever more challenging.

Leaders are collaborating with ecosystem partners to limit the cyber risks they face. For example, Boeing has been working with the airline industry to develop and deliver cyber security solutions that will benefit airlines worldwide. This includes establishing a center of excellence for cyber-secure-network-based solutions — including methods, standards, technology, training, and performance — for Boeing commercial airplane systems. The center is available to conduct cyber threat and vulnerability assessments of airborne systems, design cyber protection for Boeing commercial airplanes, and support the development of industry standards for aviation security.

This collaboration extends to passengers. To take another example, United Airlines has launched a ‘bug hunting’ program, offering air miles to hackers that can identify weaknesses in the airline’s security systems (including its online authentication, mobile apps and remote code executions).
For more information, visit:
accenture.com/airlinetechvision
References:

Trend One

1  https://www.iata.org/publications/Pages/pscrm.aspx

Trend Four

4  http://www.wsj.com/articles/for-oculus-2016-is-the-year-virtual-reality-gets-real-1456110336
5  http://uk.businessinsider.com/goldman-sachs-predicts-vr-will-be-bigger-than-tv-in-10-years-2016-1?r=US&IR=T

Trend Five

6  http://www.engadget.com/2015/05/15/united-airlines-bug-hunt-program/
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