Airlines need to gain traction from a digital perspective to keep pace with today’s savvy air travelers. Like many successful retailers, such as Amazon, Airbnb and Uber, there are many reasons and opportunities for airlines to make the digital-transformation shift.
airline industry has changed significantly during the last several decades. More than 1.2 billion tourists traveled abroad in 2016, an increase of 46 million tourists during the previous year (and a staggering increase of about 1 billion travelers annually since 1950). The year 2016 represents the seventh consecutive year of sustained growth and is the longest sequence of uninterrupted growth for the aviation industry since the 1960s, according to The United Nations World Tourism Organization.

While this growth is certainly positive for airlines, their investors and global economies in general, potential headwinds and competitive threats now face airlines looking to keep their streak of success alive. Surging customer expectations, evolving distribution models, the penetration of low-cost carriers (LCCs) globally and increasing operational complexity are challenging airlines’ abilities to thrive. They must be willing to embrace new technology to innovate and reinvent themselves in the eyes of the passenger.

**Competition On The Horizon**

From an operational perspective, more travelers in the air mean increasingly crowded routes and constrained airport infrastructure. World load factors remain at record levels (nearly 80 percent globally), and air traffic, measured in revenue passenger kilometers, is expected to double in the next 15 years, according to the Airbus Global Market Forecast. To stay competitive, airlines will be challenged to think about how best to expand their network and optimize both their aircraft and airport connectivity given the dense conditions.

This is further complicated by the traction and success ultra-low-cost carriers and LCCs are achieving in most major global markets today. Ten out of the 30 largest airlines now have an LCC in their group, and Airbus predicts a continued increase in LCC penetration during the next decade, particularly in markets such as Asia/Pacific and Europe where intra-region routes are especially popular. Traditional network and hybrid carriers must consider how best to retain their base while capturing their share of price sensitive, domestic travelers.

Growth in passengers globally will primarily come from the middle class, which is expected to double over the next 20 years. This demographic poses an interesting challenge for airlines as their appetite for high-tech, personalized experiences is greater than ever. Thanks to global brands such as Amazon, Google and Apple that have seamlessly integrated personalized experiences into their core products, these travelers not only expect, but demand, more control over the actual travel experience. They crave individualism and want to be inspired and delighted from the moment they begin researching their next trip.

Because of these changing market conditions and traveler expectations, there are massive changes in the distribution landscape for the first time in many years. Technological advances and consumer expectations have been the biggest accelerators in causing airlines to rethink how they sell. IATA contends that by 2021, direct distribution will account for 45 percent of reservations (up 12 percent from today).

While airlines know they must become more digitally savvy in how they retail and sell, IATA standards such as New Distribution Capability (NDC) and ONE Order are also pushing the agenda forward by standardizing the messaging schemas and order-management standards across the industry. Digitally mature airlines will not only embrace these new standards, but they will go beyond them in imagining how best to reach today’s connected traveler across all phases of their journey.

**Tech Trends Create New Opportunities**

The good news for airlines is that emerging technologies present untapped opportunity that can lead to new levels of profitable growth while positively impacting the customer experience.

Technologies such as artificial intelligence (AI) and machine learning will help airlines become smarter in decision-making, such as which flights are the most relevant for a given passenger and how best to present offers for increased conversion. These predictive models will eventually become embedded within traditional technology systems, returning new, measurable value (by way of increased revenue and loyalty) for airlines that embrace them. A 2017 report by Sabre Labs unpacks the opportunity that AI could provide throughout the travel industry, even going so far as to say the question of AI adoption in travel is not “if,” but “when.”

From an architecture and deployment perspective, cloud computing and microservice enablement will be two huge levers for future innovation. In Forrester’s “Cloud Predictions for 2018,” the research firm estimates that the total public cloud market will exceed US$177 billion in 2018 and will continue to grow at a 22 percent compound annual growth rate (CAGR). Cloud deployment will be significant for airlines, as it allows for global proximity, on-demand scalability and new cost efficiencies.

Within underlying architectures, chief technology officers globally are embracing microservices as way to loosely couple applications and services, while rapidly evolving the pieces of the surrounding technology stack. Companies such as Uber, Comcast Cable Communications, Amazon, eBay, Capital One and Walmart are all leveraging microservices to scale and innovate on top of their traditional technology. Ultimately, microservices will bring multiple benefits to airlines including application resiliency, enhanced monitoring and scalability.

**Digital Transformation: Helping The Industry Soar**

Where does this leave the industry today? Many are calling for an industry-wide digital transformation — a disruption redefining core competencies and focusing on the interconnectivity of technology, people and processes to deliver a superior customer experience.

This realignment will unlock new value in key areas of an airline’s operation, allowing it to engage with customers in more personalized ways, while optimizing the products sold and the service experience of individual travelers.

The airline industry is not the first to benefit from a digital transformation. Companies such as Tesla, Nike, Boeing and Airbnb have all benefited from a rethink of how technology could transform their products, while engaging with their customers in a completely new way.

For example, within 48 hours of launching its new Tesla Model 3, Tesla experienced 276,000 preorders for the vehicle, totaling US$1 billion in potential sales and US$276 million in deposits. It took consumers only two minutes to preorder the car, and the deposits were substantial enough to partially crowdfund the manufacturing of the new vehicle, which would take about 18 months to deliver. In doing so, Tesla successfully disrupted the automobile ecosystem.

The biggest question is: How can airlines achieve this same level of success? It starts with embracing connected, intelligent and relevant platforms across the airline enterprise. Platforms can provide unique advantages to airlines, allowing them to use a common technology framework to integrate applications, share data and unify workflows. Platforms are enablers of innovation because they can provide a consistent layer of communication to channels and allow for faster time to market.
Technology As Fuel For Digital Transformation

A recent study by the Economist Intelligence Unit found that both IT and non-IT executives believe that the IT department should take a more active role in digital transformation. The same study concludes that only 7 percent of executives say that IT is leading the organization's attempts to identify opportunities to innovate, while 35 percent believe they should. Perhaps this is because many companies lack the right underlying technology stacks to truly incite change.

For airlines, it's not enough to have a huge data lake or even a cutting-edge application. Airlines need a "total-stack" mentality when it comes to enabling new levels of optimization and customer engagement.

Data

This starts with not only having the right data, but having access to the right data underlying the airline enterprise. Today, airline data often lives within "silos," or separate databases, that might be disconnected or isolated from other databases across the airline. An airline’s ability to connect, or integrate, these databases is critical to develop a common understanding of what’s happening in real-time across the operation. It is estimated that as many as 70 individual systems are required for airlines to operate every day – that’s not only a lot of data, but it’s a lot of opportunity for data to become out of sync and inaccurate.

The types of data within an airline are diversified as well. While airlines have traditionally managed more structured, transactional data, airlines are being met with a new challenge: how to “glue” multiple types of structured and unstructured data (such as social-media data) together to truly gain a full picture of the customer. Without a common, cohesive picture of every customer, analysts are blind to the insights and opportunities for personalization that remain hidden within the data. Digital airlines will not only understand how to harness structured and unstructured data, but they will leverage smart tools and platforms to help them gain control of real-time insights to make better decisions.

Middleware

Airlines today use a variety of methods to update, store and send this complex data back-and-forth to front-end applications. Over time, the proliferation and evolution of messaging languages has left a tangled and complex reality for many airlines when it comes to communication between the layers. Fortunately, the rise of standard software developer kits (SDKs) and intelligent middleware are beginning to make it easier for digital airlines to simply connect their back-end data to their front-end applications and customer touchpoints.

Applications And Channels

When it comes to analyst tools, front-line employee interfaces and channel touchpoints, airlines should weigh their ability to deliver the right data to the right customer or application at the right time. Ability to execute on a relevant, intelligent omni-channel experience is perhaps the most important piece of bringing digital transformation to life.

Digitally mature organizations will have focused efforts across each of these layers, further amplifying the impact of their enterprise technology. Without the right underlying technology, airlines will struggle to realize their vision of digital transformation. On the other hand, putting the right technology components in place will unlock new opportunities, resulting in new levels of customer acquisition and retention, game-changing innovation and bottom-line growth.
Numerous companies have undergone a digital transformation and reaped significant benefits. Tesla, for instance, experienced more than 275,000 preorders for its new Tesla Model 3 in less than two days after its launch, taking only two minutes for consumers to preorder the vehicle, the US$276 million deposits were substantial enough to partially crowdfund the manufacturing of the new car, with potential sales reaching US$10 billion.

Opportunity 1: End-to-End Revenue Maximization

While airline profitability remains at an all-time high, digging underneath those numbers reveals a different trend: airlines are getting less revenue per available seat mile than they were one year ago, and according to an analysis by Forbes, the revenue made from ancillary sales is not enough to offset the decline in seat revenues.

This means that it’s no longer sufficient for airlines to simply revenue manage every seat. Airlines must embrace intelligent technologies to become creative about how— and where— they can capture additional revenue.

By digitally transforming traditional commercial planning and retailing practices, airlines can infuse intelligent decision support to become smarter about:

• How they configure cabins and improve network connectivity,
• How to optimally price seats and ancillaries closer to the shopping session,
• How they package and display personalized offers across all sales channels.

Each of these represents an area where, with the right technology and processes, airlines can squeeze additional income to help close the revenue gap.

Opportunity 2: Connecting The Enterprise For Operational Excellence

On the operational side, there remains intense effort to improve fuel efficiency— IATA currently estimates that airspace and airport inefficiencies alone waste approximately 5 percent of excess fuel burn each year. Fuel and labor remain the top two cost drivers for airlines globally, with 2018 total employment estimated to exceed 2.7 million people, an increase of 2.6 percent compared to 2017. Together, these trends signify additional upward pressure on unit costs and additional squeezing on airline profit margins.

Clearly, the opportunity for digital transformation is abundant in the operational space as well. By connecting and integrating key operations functions— flight planning, as well as operations, airport and crew management— airlines can use digital technologies to enhance decision-making, leading to optimal operational plans that reduce fuel waste and efficiently utilize crewmembers. Connecting the operation also facilitates a deeper level of collaboration between operational teams, allowing each team to consume and provide inputs to each other faster and more cohesively than ever before.

Imagine a future where the operations functions are pulled more tightly together with unified technology and business processes. A common, connected platform would not only increase situational awareness across functions, but result in more confident decision-making that takes into consideration what’s best for the holistic operation.

Opportunity 3: Leveraging Big Data And Analytics

For decades, airlines have been awash in data. Consultancy Oliver Wyman predicts that annual data generation could reach 98 billion terabytes by the year 2026. The same article also claims that the airline industry has reached an inflection point and that traditional tools can no longer meet the needs of digital airlines, stating that, “With hundreds of planes, thousands of flights and millions of employees and passengers, there is now too much data and too many variables for humans to sort through fast enough to fix problems or even prioritize potential threats.”

Infusing the connected, intelligent and relevant digital-transformation tenants into data and analytics practices is necessary to begin to harness and act on this vast amount of data. For airlines, future-ready data platforms will begin to close the divide within the airline enterprise. Through real-time data integration, big-data platforms will not only consume structured and unstructured data, but they will be sophisticated enough to take action on business rules across all channels and touchpoints. These types of big-data platforms should not only be smart, but they should be further linked and integrated with other big-data appliances, data warehouses and various analytical tools and applications. Together, these data tools and platforms will form a sophisticated decision-making system, able to trigger the experiences that matter most to each individual customer.

Digital Transformation: A Test Of Collaboration And Innovation

While technology is arguably the most important aspect of digital transformation, culture, collaboration and change management, all have a role in achieving success. McKinsey & Company advises that even senior-management commitment is not enough. The consultancy outlines that it takes clear, ambitious management, all have a role in achieving success. McKinsey & Company advises that even senior-management commitment is not enough. The consultancy outlines that it takes clear, ambitious management, all have a role in achieving success. McKinsey & Company advises that even senior-management commitment is not enough. The consultancy outlines that it takes clear, ambitious management, all have a role in achieving success.

It will be up to every airline to define what digital transformation means for them. While opportunities abound, digital transformation is not an exact science, and the methods that are successful in one region may not be replicable globally. It will ultimately be up to airline leaders to lay out a roadmap and embark on a digital-transformation journey to determine whether their carriers prosper or fade.

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