DIGITAL TRANSFORMATION IN THE AIRLINE INDUSTRY
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The digital revolution has changed the ways in which commerce is conducted and customers are engaged, which is causing entire industries to undergo digital transformation, including the airline industry.

Airlines are under siege as innovative new services place themselves between the airlines and their customers. Digital intermediaries like Kayak, Priceline, Expedia, Hotwire, Travelocity, Orbitz, CheapOair, and many others are making it more difficult for airlines to stay close to customers.

The intermediaries have gained a foothold in an online world in which the customer journey is no longer a simple path. Customers today use a variety of sites and services to conduct research, find recommendations, search for deals, and perform transactions.

In the highly competitive online market, traditional and low-cost airline carriers must develop new approaches and compelling customer experiences to differentiate themselves and avoid being disenfranchised.

Airlines recognize the need to transform and are moving in that direction. Surveys show that senior airline executives consider digital transformation their top business challenge, while at the same time the executives say their airline’s efforts at transformation are lagging.1

Like many industries, airlines have taken baby steps towards becoming digital businesses. To truly transform themselves, airlines must move beyond digitizing existing processes and devise radically new ways to reach and serve customers.

At the heart of digital transformation is the customer experience. With the mobile phone rapidly becoming the main portal through which customers engage with airlines, creating optimized mobile customer experiences is imperative.

As omnichannel searches, purchases, and app-based services become the norm in customer buying behavior, airlines must reinvent their digital strategies to ensure that a consistent and personalized buying experience is available to customers across all devices. The user experience must be optimized across all touch-points—web, mobile, social media, in-store kiosks, and onsecondary channels and affiliate venues.

Coincident with the digital revolution has been a quantum leap in analytical capability made possible by increased computing power, inexpensive storage, and cloud-based services. Harnessing advanced analytics to understand customers and personalize their experiences is key to airlines’ ability to transform their businesses.

By taking advantage of opportunities to leverage analytics and customer data in new ways, airlines can offer new services and more diverse, granular, and personalized deals to individual customers.

The future will bring even greater change. The emergence of new digital technologies and services over the next five years will present airlines with a host of new challenges and opportunities. Many exciting new services can be envisioned, including virtual reality (VR) experiences, in-flight tutorials, theme flights, connections to Internet of Things (IoT) grids, and customized adventures.

In offering new services, the quality of the user experience is critical. Airlines must ensure that options are presented in the clearest and most compelling manner, that users can easily select options, and that response times are rapid.

User interfaces and experiences must be optimized for the entire spectrum of users, including internal, customer, and partner interfaces. With so much riding on the user experience, tools that help airlines optimize customer experiences

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will be critical to their success. Fortunately, tools have emerged to enable airlines to optimize user interfaces for every touchpoint and type of user. Airlines can gain an advantage by employing state-of-the-art tools that capture and replay user interactions and enable design teams to identify and fix weaknesses in user interface designs. Key factors to consider in choosing a user experience optimization solution are its openness, ability to import and export data, ease of search and retrieval, ability to compress data, comprehensive reporting capabilities, maintenance requirements, and ability to accommodate changes in real time.
The Internet has changed the dynamics of customer engagement, bringing new channels, services, and devices through which customers engage businesses. The customer journey is no longer linear and involves numerous touch-points, including websites, mobile phones, social media services, airport kiosks, and in-store kiosks at travel agencies and other outlets. Touch-points continue to proliferate in the form of TVs, watches, goggles, and an emerging generation of IoT devices.

Customer buying journeys have been redefined by an array of online resources for gathering reviews, peer recommendations, product information, comparative deals, as well as numerous sites for conducting e-commerce. In this new digital landscape, the traditional sales funnel and rules of engagement have been upended as customers have become empowered by the wealth of information and buying options available to them online.

The average household owns more than five Internet-connected devices, and an Innerscope Research study found that users switch between their devices up to 27 times per hour.

2 The result has been a drastic increase in omni-channel consumer brand engagement that often happens across multiple channels at the same time.
Digital transformation requires more than automating individual business processes. Many airlines are taking digital steps and digitizing processes, such as equipping ground crews with tablets, growing their social media presence, moving data to the cloud, and providing mobile access to travel documents.

While these moves are crucial for any airline’s modernization, winners will go much further in becoming digitally transformed businesses. Digital transformation in the airline industry requires new business, technology, and operating models.

Despite its being a multi-trillion dollar industry, the airline industry has been slow to personalize their products. In fact, the Boston Consulting Group warned that, “If airlines fail to act, deep-pocketed tech giants—which have already established strong footholds in travel—or well-funded startups may do so instead.”

As the Boston Consulting Group notes, only by understanding the customer’s traveling mindset is it possible for airlines to provide personalized experiences.

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2 https://www.mercator.com/blog/why-airlines-need-to-get-personal
Creating compelling user experiences on mobile devices is a top priority, as mobile phones increasingly will become the portal through which customers are engaged. Studies by comScore, Radicati, and Zenith found that mobile now represents at least 65 percent of digital media time, with the desktop becoming a secondary touch-point for an increasing number of digital users.\(^4\)

Forrester Research found that consumers pick up their mobile phones 150 to 200 times a day, concluding that “mobile will act as a catalyst to transform businesses in the Age of the Customer.”\(^5\) An IIC Partners study supported those findings, with the largest percentage (84%) of executives saying that creating a mobile website was a very important element in their digital transformation strategy.\(^6\)

Airlines can gain advantages by creating mobile device customer service portals with easy-to-use interfaces and rapid response times, including customer service and transactional interfaces. Flight searches, bookings, amenities, deals, promotions, special offers, and in-flight services must be presented in a simple, clear, and tantalizing manner optimized for mobile devices.

Next-generation mobile portals will enable customers to find, book, and track flights, including options and amenities like luggage, meals, entertainment, extra space, and services. Testing will ensure that the user experience is optimized for each step in the customer journey.

In designing mobile interfaces, airlines can gain advantages in their use of color, images, video, audio, and layout. Studies show that images and videos attract higher levels of user engagement. Enabling customers to visualize elements of their flights, such as meals, seating, and other amenities, for example, will win their attention and business.

Processes and interfaces can be developed to give customers control over their flight activities and eliminate problems that cause frustration. Delta Airlines, for example, is using RFID technology to keep customers updated on their luggage, providing transparency and minimal losses.

Airlines can gain an abundance of good will by giving travelers advance and real-time information about delays and cancelations, as well as helpful assistance in resolving problems and making alternative flight plans.


\(^5\) http://blogs.forrester.com/julie_ask/15-11-10-2016_predictions_key_trends_will_transform_mobile_engagement

According to McKinsey research, two-thirds of the decisions customers make are informed by the quality of their experiences all along their journey. Customers are demanding more personalized messages, customized promotions, and are picky about the messages to which they respond.

To engage these users, airlines must reinvent their digital strategies to ensure that a seamless and personalized buying experience is available to customers across all devices. End-to-end service must be modernized to minimize headaches and create optimal experiences, including booking flights, choosing options, check-ins, handling cancelations and delays, in-flight service, luggage tracking, and customer service queries and complaints.

The guiding principle is personalized care delivered within each channel and at each stage of the customer journey. Providing an effective omni-channel approach requires a deep understanding of how different customers engage with different channels at different stages of the purchasing process.

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The ability to optimize those 50% and the 50% that fly more frequently requires segmentation and personalization.

To personalize customer experiences, airlines must be able to create 360-degree customer profile views, which are comprehensive profiles based on aggregated information and personal data. Optimized customer experiences can be delivered in real time based on 360-degree customer profiles that are based on the customer’s age, sex, profession, geography, political leaning, hobbies, personality traits, as well as their buying history, social media behavior, and intelligence gathered from activities across the venues they visit.

Airlines can supplement the data they collect with demographic and psychographic data available from companies like TowerData, Experian, and Melissa Data. Third-party data brokers like Acxiom, Datalogix, Epsilon, and BlueKai also make data available to marketers, including user data from Facebook, Google, and other major services.

Behavioral science shows that human behavior is predictable. Behavioral insights can be used during interactions with customers to guide their experience to a positive conclusion that increases loyalty. As McKinsey notes, this is a powerful insight for any service business, yet relatively few of them take advantage of behavioral science in designing their interactions with customers.

Creating 360-degree customer profiles will require a focused effort. Airline’s booking information, loyalty program data, customer service system data, social media data, purchase history, and other customer-related data tend to reside in separate systems. Airlines must break down silos to share, integrate, and leverage data.

The effort put into understanding customers at a deep level will pay dividends. By coordinating their loyalty programs, customer purchase histories, social data, and leveraging Internet channels and e-mail marketing, airlines can reach customers at an unprecedented level of personalization.

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50% of airline customers fly only once per year.

Advanced analytics can help airlines generate valuable intelligence that can be used in creating customer profiles and leveraged in customer experiences. Airlines can learn from innovators like Apple and Amazon, which have harnessed the power of customer intelligence and data capture to create personalized experiences for their customers.

Advanced analytics can play a big role in understanding customers, as well as the timing, context, and content of offers. Context filtering and other techniques that have been proven in the retail sector, along with other types of analysis, such as A/B and multivariate testing, can be used to measure and improve performance. Machine learning algorithms have been developed for building extended comprehensive customer profiles, while event processing systems can analyze a visitor’s clickstream to determine whether a concrete action should be invoked once a particular interest was detected.

Airlines have an opportunity to analyze the large stores of customer data they collect and use insights gleaned from analyses to create personalized offers at each phase of the customer journey. Real-time data analysis can be performed to present deals on-the-fly and in the right context at specific touch-points. Rather than receiving a generic pitch, travelers are presented with offers that are in line with their interests, budget, and needs.

Embedded analytics are being incorporated in applications to make analytics accessible to non-technical business users. Nucleus predicts that in the next seven years, 90 percent of business users will interact with analytics at least once per day but only 15 percent will realize they are doing so. Airlines can gain advantages by employing leading-edge tools to embed analytics in their strategic tools and user interfaces.
INTERNAL AND EXTERNAL INTERFACES

Airlines can gain advantages by optimizing experiences for internal as well as external users. User touch-points include internal users such as airline booking agents, customer service reps, marketers, and digital strategists.

Giving customer service representative dashboards that provide well-rounded customer profiles and histories will enable reps to better serve customers and meet their needs, which in turn will pay dividends for airlines in reputation, loyalty, and revenues. Airlines also can benefit from optimizing user interfaces such as dashboards and apps for managing partner and affiliate programs.

Every user in the customer experience ecosystem will benefit from optimized tools and user interfaces, including analytics interfaces for customer-experience strategists and user interface developers. As we move into the future, video can be incorporated into user interfaces as part of customer service calls, to visualize flight operations, and for training.
A major customer touch-point that airlines own and control is the in-flight experience. The seat touch-panel interfaces, arm controls that are positioned in the customer seating area, and the new generation of mobile and wearable devices are an exclusive channel through which airlines can deliver engaging customer experiences.

In-flight dashboards that sit in front of customers and mobile controls tethered to arm rests can be optimized to provide information, services, and visuals that engage and delight customers. These can include full Internet access, connections to specialized networks, and custom services.

Removable panel screens can be placed on passengers’ laps or trays, and can be navigated via finger, pen, or mouse controls. Airlines can take advantage of analytics to offer in-flight personal assistants that use artificial intelligence and user interfaces with visually appealing graphics.
It is often difficult for customers to find flight information and obtain assistance. Airlines can gain an advantage by providing exceptional customer service, including apps that provide helpful information and links to live personal assistance quickly and easily.

Searching and sifting through online flight data can be time-consuming and tedious. Customers who call often are subjected to a maze of automated telephone menus and put on hold without being able to speak with a helpful representative.

The airline industry, Ogilvy digital strategists point out, has had a habit of giving customers dead-end phone numbers or the runaround when their flights are cancelled. However, social media has made it possible for customers to complain publicly in ways that can impact an airline’s reputation and bottom line.

Progressive airlines are putting systems in place that take complaints within social media channels and link to operational teams that respond immediately by sending representatives right to the gates of customers whose flights have been canceled.

Airlines will gain further advantages by creating customer service apps with complaint interfaces that are easy to use and produce rapid responses. Airline call centers can be a competitive advantage when agents are equipped with dashboards that provide useful customer profiles and intelligence.
OPTIMIZE EMAIL CAMPAIGNS

Surveys show that email is the highest customer engagement and revenue producing channel.\(^9\) Radicati reports that the number of worldwide mobile email users is expected to grow at an annual rate of 12% over the next four years.\(^10\)

Airlines can gain an advantage by optimizing email user interfaces and conducting highly organized, focused, and detailed email campaigns. Business can be won by crafting engaging user experiences within a variety of email categories, including promotions, special offers, seasonal campaigns, lotteries, games, newsletters, and transactional emails.

Research shows that an average 50% of all emails are read on mobile devices throughout the world, which makes optimization for mobile devices imperative.\(^11\) Care should be taken in the design of mobile emails, including simple and clear layouts and the most compelling colors and visuals.

Transactional emails are opened more than two times as much as other messages, according to benchmark studies, and top-quartile performers see nearly 43% of transactional messages clicked on after being opened. Airlines should take full advantage of their transactional emails, incorporating attractive promotions and conducting testing to optimize results.

Top-performing brands add a call to action to transactional messages, giving recipients a chance to interact while they’re highly engaged. Suggested calls to action include offers for product usage guides, acting on customized recommendations, or joining an email program.

Continual hygiene, testing, and benchmarking can be performed to determine where email programs outperform peers and competitors and where improvement is needed. User experiences and overall email campaign success can be optimized using user experience optimization tools and employing analytics to monitor and improve performance.

By using analytics and marketing automation systems, personalized emails can be triggered in response to user activities, including website and transactional abandonment. Premature customer exits can be tracked and sales losses minimized through retargeting methods and via the new breed of personalization, recommendation, and negotiating engines like Personali, Dynamic Yield, Segmentsify, Chaordic, and Nosto.

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\(^9\) [https://www.emarketer.com/Article/How-Much-Revenue-Email-Drive/1013001](https://www.emarketer.com/Article/How-Much-Revenue-Email-Drive/1013001)


\(^11\) Silverpop2016 Email Marketing Metrics Benchmark Study.
Looking ahead five years, the airline industry will continue to undergo radical transformation in line with the rapidly changing digital world. While robot stewardesses may not be welcome by travelers, other services will win their business and loyalty.

Airlines can gain advantages through the continuing refinement of travelers’ personal spaces and their user interfaces, including the personal pods seen in today’s business and first class sections. Airlines can gain a competitive advantage by optimizing in-flight user interfaces for temperature, lighting, entertainment, information, amenities, and in-flight service.

The quality of airline food has been an issue with travelers for decades, and optimizing in-flight meal service is a way for airlines to gain advantages. Budgeting and planning systems can enable airlines to manage their resources to fund exceptional meal service. Airlines can use customer interfaces linked to internal processes and communications to enable customers to order personalized meals and ensure that the meals are available during flights.

Mobile interfaces will continue to advance, including fingerprint, eye, voice, and other modes of bio-security. Voice-controlled interfaces, including digital personal assistants are being incorporated in mobile devices, and new interfaces are emerging, such as geo-spatial and gesture controls. All of these features can be incorporated into in-flight interface designs.
ALL THE AMENITIES

For in-flight experiences, airlines can look to the real estate market for inspiration in providing the types of amenities that attract buyers to modern apartment buildings. With jumbo and double-decker airliners in service, flights of the future can offer ever more varieties of amenities, such as:

- Onboard salons and spas.
- Workout rooms and exercise spaces.
- Dedicated work areas with computers and office equipment.
- Onboard tutorials—fishing, golfing, diving, skiing, home improvement, cooking, gardening, landscaping, history, literature, art, music, science, astronomy, marketing, business coaching, etc.
- Arts and crafts—painting, sculpting, pottery, sewing, knitting, 3D printing, etc.
THEME FLIGHTS

Airlines can gain advantages by offering theme flights, such as cuisine tours, art and architecture tours, rock-and-roll tours, ballet tours, stream fishing tours, golf tours, and wine tasting tours. Flights can be organized around the interests of like-minded travelers with itineraries that include activities, attractions, events, and tutorials led by expert guides and celebrities. Theme tours can include single cities and countries or multiple hops to assorted destinations.

Airlines can distinguish themselves by enabling customers to create on-the-fly adventures such as family celebrations, exotic weekend parties, and corporate getaways. Airlines also can provide a type of crowdsourcing service in which customers are able to "seed" a flight concept and then assemble and fund the flights. Creating, coordinating, and delivering specialized flights and tours will require sophisticated back-end systems and well-designed user interfaces.
Virtual Reality (VR) and Augmented Reality (AR) will enable airlines to offer new “out of cabin” experiences to entertain, inform, and reduce the tedium of flights. On-demand content will be available in new VR and AR formats, including books, magazines, newspapers, movies, games, and TV shows.

VR can be employed as pure entertainment and in novel ways such as previewing tourist attractions, museums, historical tours, and reenactments in accord with customer destinations. Immersive tutorials for cooking, painting, golfing, sailing, home repair, and many other hobbies and crafts can be offered.

Immersive experiences can take customers to an endless assortment of worlds and experiences, such as climbing Mount Everest, rafting down the Amazon River, safaris in Africa, and visiting the Taj Mahal. VR can be used for vacation and tour promos with enticing storytelling and visuals, including immersive narratives and histories interwoven to captivate the viewer.

VR and AR can be incorporated into customer service sessions as well as online self-service resources. In-flight videoconferencing systems (think next-generation Skype) can enable travelers to participate in meetings as well as concerts, lectures, and family events.

Prior to flying, VR can be used to enable customers to visualize flights, seating, meals, and other service elements. Customers could view their flight seating and potential in-flight experiences, for example, in a more engaging manner than a bland seating chart.
The Internet of Things (IoT) opens up a host of potential customer experience scenarios for airlines. Airlines can offer customers in-flight connections to IoT grids on the user’s mobile device or via network connections built into in-flight panels. Travelers will be able to monitor and manage their homes, businesses, and travel activities through IoT connections.

As their landing approaches, for example, customers can remotely adjust the lighting and heating of their homes, check their refrigerator, order meals, and confirm or reserve an airport limo. IoT connections can enable a business manager to tap into corporate systems to check the status of production processes, manage supply chains, and access IoT data as part of decision making.
To combat intermediaries, airlines can provide “best deal” guidance that is faster, easier, and delivers better results than the cheap flight hunting process available today, which often is time consuming and tedious.

Airlines can offer customers best deals directly, in real time, based on customer searches, including loss leaders to win loyalty. Like app stores and the Airbnb business model, airlines can provide online exchanges where customers can choose flights and tours as well as buy and exchange tickets directly.

**NEW DEALS**

**AIRLINES CAN ATTRACT CUSTOMERS TO THEIR PORTALS BY OFFERING A VARIETY OF INNOVATIVE OFFERINGS AND DEALS, SUCH AS:**

- **“BOOK DIRECT”** deals to customers who book flights directly from the airline, consisting of perks, miles, upgrades, amenities, hotel discounts, etc.
- **“PREFERRED CUSTOMER”** deals to loyal and repeat airline customers who book directly.
- **“SPECIAL DESTINATION DEALS”** to unusual destinations.
- **“SEASONAL SPECIALS”** for high-traffic and low-traffic seasons.
- **“SPECIAL RATE”** deals on flights that are not fully booked or take off and land at off-peak hours.

Customers searching for flights to particular locations, or during particular seasons, can be given individualized information such as seasonal temperatures, local events and attractions, shopping tips, distances from airports, transportation options, and other relevant information.
Cancelations and overbooked flights frustrate and alienate customers. Airlines can distinguish their service by offering no-passenger-left-behind programs.

Reserve planes can be ready on-demand for popular seasons and holidays when overbooking occurs, rates skyrocket, seats are unavailable, and passengers get bumped. To ensure that passengers have a seat to their destination of choice, airlines can pool their planes and booking resources.

Partnering with other digital entities in the travel ecosystem will enable airlines to get close to customers earlier in the process of travel selection. Airlines can form alliances with online travel agencies, high-traffic services like Amazon, Google, Apple, and eBay, and a host of special interest communities. By making these connections, airlines will be positioned in places in which customers will see the personalized offers they want them to see.
Because the customer experience is at the heart of digital transformation, user experiences must be optimized to yield the best results. A number of key user experience factors must be optimized, including ease of use, performance, visual appeal, and overall enjoyment of the experience.

Top-performing companies like Amazon, Google, and Apple are well-known for relentlessly testing their user interfaces to achieve the best results. These companies test a number of design elements, including colors, images, layouts, type fonts, user navigation schemes, call to action buttons, messages, and placement of particular elements on a screen.

Besides customer interfaces, internal user and partner interfaces must be optimized to achieve the best results. Fortunately, digital customer experience optimization solutions are available from companies like Glassbox. These solutions will enable airlines to capture user sessions and pinpoint design flaws, bottlenecks, and difficulties users are having with an interface.

The best interface optimization tools enable interface design teams to record, automatically index, replay, and analyze every web and mobile app sessions in real-time—including every click, tap, and swipe—to understand what does and doesn’t work. Designers can see the paths users are taking and understand why abandonment is occurring at any particular points.

In choosing a customer experience optimization tool, airlines should look for a solution that can handle the ever-growing amount of touchpoints and data involved in customer journeys. Key factors to consider in choosing a tool include:

- Openness (can be used as digital hubs supporting bi-directional data flows to import and export of data).
- Ability to easily search and retrieve data.
- Ability to compress high volumes of data efficiently.
- Ability to accommodate content changes in real-time.
- Ability to easily create reports based on free text.

**TESTING IS CRITICAL TO SUCCESS**

Armed with the right strategy, organization, and analytical tools, airlines will be able to reinvent their businesses, future-proof their operations, and flourish in the ever-changing digital economy as it continues to evolve.
A confluence of forces is causing businesses to fundamentally change their traditional business practices through digital technologies. Gartner calls this convergence The Nexus of Forces, which includes mobile computing, cloud computing, social media, and Big Data.

Interconnectedness of data, applications, and analytics are defining the architecture of the network and IT future. A mesh app and service architecture (MASA) is being created in which mobile apps, web apps, desktop apps and Internet of Things (IoT) apps link to a broad mesh of back-end services to create what users view as an “application.”

At the same time, a major disruption is occurring in the realm of business analytics, predictive forecasting, and machine learning. Gartner calls the advanced analytics revolution The Smart Machine Age, in which analytics embedded in every application and platform.

The Big Bang that is creating the Smart Machine Age, says Gartner, is a combination of radical new hardware, massive amounts of data, and unprecedented advances in deep neural networks. The journey through the Smart Machine Age will be as transformative (and disruptive) as travelling through the industrial revolution:

- By 2018, says Gartner, more than one-half of large organizations globally will compete using advanced analytics and proprietary algorithms, causing the disruption of entire industries.
- By 2020, Gartner analysts predict that, through the use of intelligent business analytics, information will be used to reinvent, digitalize, or eliminate 80% of business processes and products from a decade earlier.
- Algorithm marketplaces, says Gartner, will disrupt the analytics ecosystem and likely even the whole software ecosystem.

At the heart of digital transformation is the customer experience. The emergence of Internet channels, services, and the wealth of information available to customers online has changed the nature of commerce. As consumers are exposed to innovative services with user-friendly interfaces, the bar is being raised for all companies. As Altimeter Group notes, “Expectations are reshaping engagement and, ultimately, the way their relationships with companies unfold.”

Businesses will reap advantages by optimizing user interfaces for internal and external customers. Analytical tools like Glassbox will be key enablers for optimizing user interfaces and experiences.

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12 Gartner, “Smart Machines See Major Breakthroughs After Decades of Failure,” Tom Austin, September 8, 2015.