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Introduction from Atmosphere Research

Atmosphere Research Group is honored to have once again been selected by IATA to prepare this report on the future of airline distribution. We believe that the five-year timeframe this report covers – 2016 to 2021 – will see the successful introduction of true retailing among the world’s airlines and their distribution partners.

This report reflects Atmosphere Research’s independent and objective analysis based on our extensive industry and consumer research (for more information about how the research was conducted, please refer to the “Research Methodology” section).

Airlines that want to become true retailers are well-positioned to do so. Carriers have an abundance of technologies, including cloud computing, artificial intelligence, and mobility, that they can use to help them bring their products to market in more meaningful ways. IATA’s NDC, One Order, and NGISS initiatives are being brought to market to help airlines be more successful businesses. As each airline independently contemplates its distribution strategies and tactics, we hope this report will serve as a helpful resource.
Introduction from IATA

In 2012 IATA commissioned Atmosphere Research to conduct a survey on the Future of Airline Distribution. The report was widely distributed and commented on across the industry. Four years on, IATA thought it was time to publish a new report, which takes another look at the near future. IATA is keen to understand what could shape or influence airline distribution, and to share those findings with the industry. Although the future has become less and less predictable, some key trends can certainly be identified.

The pace of innovation and change is accelerating, prompted by worldwide access to Internet and the rapid development of mobile, amongst many others factors. And all this is strongly impacting airline distribution, opening opportunities for new models, new players etc. Concepts or wordings such as open API, XML, big data, JSON are now widely used well beyond the developer’s sphere; and Hackathons are proving that agile solutions can be built in a period of 40 hours, competing with a 40-year old technology.

Game changes are prompted by consumer needs, or by the ability to offer new solutions. Also, the payment landscape will evolve very significantly with the rise of new payment instruments provided by new players as well as the changes in payment architecture.

This report aims to play back industry views on distribution trends based on interviews with many players across the value chain. It also entails two IATA initiatives (NDC and One Order) as they are mentioned by interviewees as structural game changers.

The views gathered in this report are not IATA’s views but those expressed by industry experts and we welcome any feedback or comments that will help us better anticipate future needs of the industry and its airline members.

Whether you work for an airline, a distributor or an IT provider, we hope you will enjoy the reading!

Yanik Hoyles, Director NDC Program
The analysis in this report is based on extensive independent research conducted by Atmosphere Research. We:

- **Fielded on online study with 49 airline participants.**
  In collaboration with IATA, Atmosphere Research developed a 24-question, English-language online study. The study was fielded in March and April 2016, and targeted airline distribution professionals at both network airlines and LCCs worldwide. Participants who took the study were promised complete anonymity; no personally identifiable information was collected or kept.

  The majority of participants (42%) hold Director/Managing Director roles, 34% are Vice Presidents or SVPs, 22% Supervisors or Managers, and 2% “C-level” roles. Sixty-three percent work in Distribution, 17% in Digital Commerce, 10% in Marketing, and 10% in Executive roles. Ninety-one percent work for carriers whose 2015 gross passenger revenues were US$1 billion or more. Seventy-one percent work for network carriers, 27% work for LCCs/ULCCs, and two percent at regional airlines. The audience was geographically diverse: 34% work for European-based airlines, 22% for Asia-Pacific airlines, 20% for airlines in North America, and 12% each at airlines based in Latin America and in India/Middle East/Africa.

  A majority, 63%, of participants work for carriers that belong to one of the three major airline alliances (Oneworld, SkyTeam, Star Alliance). A substantial number, 44%, work for airlines that have a joint venture with at least one other carrier.

- **Conducted 21 telephone interviews with airline executives and managers.**
  After the online study was completed, Atmosphere Research conducted telephone interviews with airline managers and executives at 21 network airlines and LCCs around the world. The phone interviews, which were conducted in April, May, June, and early September 2016, generally lasted between 40 and 50 minutes. In keeping with research best practices, the airline participants were promised confidentiality and anonymity.

- **Interviewed 17 technology vendors and industry consultants.**
  Between April and September, 2016, Atmosphere Research interviewed or was briefed by 17 technology firms, including both general technology vendors and airline-focused providers, and consultants to obtain their perspectives. Two of the 17 firms required their interviews be considered anonymous and “off the record,” not for attribution. The companies that we interviewed or were briefed by for this report, and are allowed to name, are:

  - Air Black Box
  - Amadeus
  - Concur
  - Datalex
  - Edgar Dunn
  - Farelogix
  - IBS Software
  - Infosys
  - Lufthansa Systems
  - OpenJaw
  - Sabre
  - SAP Hybris
  - Travelport
  - Triporati
  - Wayblazer

RESEARCH METHODOLOGY
• Leveraged Atmosphere Research’s global traveler research.
Throughout this report you will see data from Atmosphere Research extensive research studies of airline travelers. Research sources include both the seven-country Q3 2015 study of airline passengers that Atmosphere Research conducted on behalf of IATA as well as data from Atmosphere Research’s proprietary traveler research. Data sources are cited in the Endnotes section of this report.

As is typical of a report like this, extensive desk research was also conducted. Citations for all third-party data and information can be found in the Endnotes section.

• Disclaimer
IATA funded this report and provided administrative and editorial feedback and support during its development. The views and opinions expressed in this document are those of Atmosphere Research based on its research and analysis, and do not necessarily reflect the views of IATA or its member airlines.
The future of airline distribution is, to a great degree, the commercial future of the airline industry itself. Airlines want to be dramatically more effective in how they sell, so that travelers find the value they seek and airlines can be more successful businesses. We believe that, by 2021, airline distribution will evolve from its current passive, rigid, and technology-centric state to a more flexible, dynamic, and passenger-centric environment which we call Active Distribution.

Between 2016 and 2021, the airline distribution community and their colleagues in closely-related roles such as Marketing, Sales, Product, Pricing/Revenue Management, and IT should anticipate a multitude of changes among their passengers, the technology landscape, and within the airline commercial environment. These include:

- **Serving a dramatically different base of passengers.**
  By 2021, airlines will serve a more geographically diverse base of passengers. This includes so-called “Emerging Markets and Developing Economies” (EMDE), such as Indonesia, Iran, Mexico, and Turkey. A growing number of consumers age 65 and older in several dozen countries means that airline distribution systems and the channels they power must be designed to accommodate a divergent nature of users. Both airline direct and third-party retailer channels must distinguish airlines and their product offerings from one another through engaging, intuitive shopping experiences that tap into traveler’s “second wallet”, the wallet that controls discretionary purchases. Passengers will also be entering a “post-mobile” world, a world in which mobile is not viewed as “a” channel but “the” channel.

- **The need to incorporate and interact with scores of new technologies.**
  By 2021, Active Distribution will require systems that are either based on, or compliant with, numerous new technologies. Mobile alone will introduce the need for distribution systems to interact with speech and voice recognition software – both of which contribute to the emerging conversational commerce trend –haptics, and more. Artificial intelligence, which also encompasses numerous technologies and processes, will play a central role in enabling the dynamic pricing and personalization that airlines will need to become authentic and effective retailers. Distribution systems will need to interface with virtual reality software to help airlines effectively merchandise their products in a compelling, captivating manner.
• Accepting that Active Distribution will be both a catalyst of and reaction to change. Active Distribution will itself both cause and result in an extensive mix of actions and reactions across the airline distribution community. What should the airline distribution community expect to see by 2021, when we should be in the period of Active Distribution?

• Third-party retailers remain in the distribution mix. By 2021, airlines expect their direct channels to account for 45% of reservations, up from approximately one-third in 2016. TMCs will grow, though slightly, while retail agencies and OTAs will see significant declines.

• More flexible Distribution processes. The rigid flight shopping processes the industry relies upon date back 50 years or more, and reflect a very different way in which airlines sold their products. These processes, and the flight shopping experiences that stem from them, are technology-centric rather than passenger-centric. These same outmoded processes inhibit the GDSs from always being able to incorporate product attributes in the same way airlines’ IT environment can do.

• Outmoded Distribution components replaced. Active Distribution will sweep archaic business processes and practices aside. Active Distribution will allow airlines to reduce their need to pre-file volumes of defined fares through third-parties and relying on inventory buckets to manage selling capacity.

• A shift from PSSs to Full Retailing Platforms (FRPs). It won’t be enough for third-party distribution to be improved in order for Active Distribution to be successful. Airlines must recognize the need to invest in new internal selling systems. The PSSs of today also lack the flexibility that airlines will require, and really are no longer adequate for the more flexible and dynamic sales environments that airlines will develop. Replacing PSSs will be modular systems that we call Full Retailing Platforms (FRPs). FRPs will be what allows airlines to take back the control they require to be better retailers through any distribution channel an airline chooses to use.

• Google playing a much larger role in airline Distribution. Of the countless airline and external technology firms that could participate in, and possibly disrupt, Active Distribution, none matter more than Google. Google has the cash, talent, and assets to play a larger role in airline distribution – including, should it so choose, to become an OTA, whether through acquisition or by launching a product of its own.

• Payments assuming a greater area of focus. The growth in locally-friendly payments can contribute to making transactions “frictionless” for a larger number of passengers around the world. Payment providers like M-Pesa, Alipay, and PayPal will all become more important by 2021.
Once an isolated function, distribution is increasingly integrated within airline sales and marketing departments and activities. As a result, airline distribution professionals know they must be much more familiar with who their passengers are, so they can design relevant and helpful flight shopping experiences. Airline passengers’ behaviors are constantly changing, and of course they will continue to do so during the next five years. The airline distribution community will be better positioned to serve travelers by keeping the following changes in mind.
• Passengers Be More Geographically Diverse.

Led by China, numerous emerging markets will contribute to passenger growth during the next five years.

The World Bank currently estimates modest global GDP growth between 2016 and 2018, when GDP growth will reach 3.0%.

Figure 1: Anticipated GDP Growth, 2014-2018

Notes: e: Estimate; f: Forecast

World Travel and Tourism Council (WTTC) data suggests that countries such as Colombia, Indonesia, Iran, Malaysia, Saudi Arabia, and Vietnam will see their leisure and business tourism spending grow close to or more than the BRIC countries.
Airbus estimates that EMDE countries – with a combined population of 6.2 billion – will see their annual revenue passenger kilometers (RPKs) grow 5.6% between 2016 and 2035, versus the advanced markets of the US, Western Europe, and Japan (population 1 billion), where annual RPK growth is estimated to be 3.7% a year during the same timeframe.2

During the next five years, many EMDE countries will see a growing number of consumers take their first-ever flights. This will pose a series of challenges within distribution. For example, how must airlines and their partners prepare to serve unbanked consumers – that is, people who don’t have “traditional” bank accounts and who may thus need to use different forms of payments? Will these passengers prefer to book directly from the airline, use a third-party retailer, or both? Will they prefer mobile – and, within that, voice, text, or digital – laptops, or offline channels? How will airlines sell to customers who may have no idea about what an airplane trip is like? What forms of payment will these new travelers want to use to pay for their journeys? Some portion of these travelers will have no pre-conceived ideas of how to shop for and purchase airline tickets. They won’t be wed to long-standing processes, and likely will
want, and appreciate, simpler processes. Airlines don’t always do “simple” well. To serve this new group of travelers from emerging markets, though, “simple” flight shopping and purchase experiences will become necessities.

• There Will Be More Older Passengers Than There Are Today

Although it is trendy for airline marketers to focus on Millennial travelers, World Bank data indicates that during the next five years, airlines will serve a growing number of older travelers. Between 2016 and 2021, worldwide there will be 2% fewer people age 20 to 24.

Figure 3: Airlines Will Need To Prepare To Serve More Older Passengers

Atmosphere Research analysis of World Bank data
Yes, passengers ages 25 to 54 will increase 4.8%, but there will be 12% more people worldwide age 55 to 64, and 18.9% more people age 65 and older. By 2021, the UK, Cuba, South Korea, Singapore, and Slovakia will have joined France, Italy, Japan, Germany, Spain and 25 other countries that will have more people age 65 and older than children age 15 and younger.

There are several reasons why this matters to airline distribution. Technology solutions like online conferencing, tightening budgets, and the desire to avoid business travel whenever possible have already caused the number of business travelers to decline. An aging population will exacerbate this trend. If we see business travel decline meaningfully, we will also likely see a decline in reservations booked through TMCs.

A larger population of older travelers will likely translate into more leisure passengers. Just don’t mistake this group for being homogenous. Although people’s buying behaviors may change as they age, many preferences remain constant through life. Certainly, there are senior travelers for whom price, and price alone, will be their primary focus. In 2016, 52% of leisure passengers age 60 – who will turn 65 in 2021 – allow their budget to determine which airline they fly. But not all seniors are penny-pinchers. Nearly 44% of leisure passengers age 60 view travel as an opportunity to treat themselves to nicer experiences. Would they find products like priority airport screening, premium economy or airport lounges appealing?

Some additional challenges unique to serving older passengers may arise as well. Will those who require them be able to find and request a wheelchair or transfer cart – whether for free or at a charge – and be confident that will be delivered? How should distribution channels further personalize the offerings they present to an older traveler? For example, should flights that have short connections at large hubs be suppressed – or shown, but integrated with transfer assistance?

- We Must Reverse Passengers’ Negative Opinions About Flight Shopping

During the next five years, the world’s airlines will need to use their distribution technologies, their direct channels, and authorized third-party retailers to help address a variety of marketing and other commercial challenges. And, as airline distribution professionals and their IT and other colleagues consider these challenges, they must bear in mind these two simple truths: First, distribution isn’t about the technology, but how the business – whether an airline or a third-party retailer – uses it to achieve its commercial objectives. Second, no airline or third-party retailer can ever allow its technology to be so “visible” that the technology obstructs the traveler from accomplishing his or her goals.

Against this background, research conducted by Atmosphere Research for IATA shows there are two key areas where passenger frustrations with digital flight shopping experiences risk undermining an airline’s commercial success.
1. Convince passengers that airlines are not equally substitutable commodities.

Airline distribution systems do a terrible job of supporting carrier brand propositions. Even within an airline’s direct channels, aircraft that may offer better passenger experiences – for example, in-seat power or in-flight Wi-Fi – are rarely adequately distinguished from aircraft that lack these amenities. Within the GDS “native” or “cryptic” displays, (the so-called “green screens”), all airlines look alike. In spite of investing billions of dollars in their corporate identities, cabins, staff uniforms, and other elements to distinguish themselves, a critical mass of passengers view airlines as alike.

Fig 4: Airlines Will Need To Prepare To Serve More Older Passengers

« All airlines are pretty much the same. »

Future generations of passengers are more likely than older travelers to consider airlines to be alike. 35% of leisure passengers ages 18-49 agree with this statement, vs. 26% of passengers age 50 and older.

Business passengers under 50 are considerably more likely than passengers age 50 and older to view airlines to be alike — 42% to 28%

Of great concern is that two key constituents, business passengers and passengers under age 50, are the most likely to believe this. Distribution alone can’t solve this problem, of course. The potential to combine distribution technologies with other relevant solutions – marketing insights, loyalty data, etc. – offers potential by improving flight shopping results’ relevancy and quality, presenting richer content in those results, and helping passenger better understand carriers’ differing value propositions.
2. Rethink flight shopping so passengers don’t view it as drudgery.

Air travel adds value to passengers’ lives. Yet, far too many passengers view flight shopping as laborious. Thirty-nine percent of leisure passengers and 45% of business passengers believe they use too many websites and apps to find flights. And, they’re right. In 2012, when the first “Future of Airline Distribution” report was published, Google estimated travelers used 22 websites, apps, and social networks to plan and book their trips. In 2015, Expedia estimated travelers used 38 digital channels, a 73% increase. Google research shows a traveler can use hundreds of digital touchpoints, including search engines, OTAs, airline channels, and more as they plan their trips. No wonder 43% of leisure passengers and 51% of business passengers want to spend less time researching flights – with younger passengers and business passengers more likely to believe this.

Figure 5: Future Generations of Business Passengers Most Frustrated With Current Flight Shopping

“I have to go to too many websites to find and book the best flights for a trip.”

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Leisure Passengers</th>
<th>Business Passengers</th>
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<tbody>
<tr>
<td>18-24</td>
<td>16% 34% 30% 15%</td>
<td>16% 33% 36% 15%</td>
</tr>
<tr>
<td>25-34</td>
<td>7% 16% 31% 32% 13%</td>
<td>6% 12% 30% 37% 15%</td>
</tr>
<tr>
<td>35-49</td>
<td>11% 16% 30% 30% 13%</td>
<td>12% 15% 26% 33% 14%</td>
</tr>
<tr>
<td>50-64</td>
<td>16% 22% 28% 23% 12%</td>
<td>15% 22% 26% 24% 12%</td>
</tr>
<tr>
<td>65+</td>
<td>22% 22% 26% 20% 10%</td>
<td>24% 31% 22% 14% 9%</td>
</tr>
</tbody>
</table>

Numbers may not total 100 due to rounding
Base: Online airline passengers age 18+ in Australia, Canada, Brazil, Germany, Mexico, Singapore, the United Kingdom, and USA
Source: IATA NDC Airline Passenger Online Study Q3 2015, conducted by Atmosphere Research
It Is Also Critical To Deliver The Smart Retailing Experiences Passengers Expect And Want

When you think of your favorite retailer, you think of a business that has the right mix of product and price, which they make easy for you to find and which it presents well across every channel it uses – its stores, website, mobile app, and so on. If it’s a brick-and-mortar retailer, there may be a salesperson who knows you and your preferences – and may even be able to discern your mood when you enter the store. If it’s a digital retailer, it may present items it believes you like on your home page, and recommend products based on what you or your friends have previously explored or purchased. That retailer’s emails will be similarly personalized. Descriptive content will be well-written and include extensive photography and video. You may be able to “zoom in,” without losing clarity, for a closer view of the item and its details. Depending on the item, you may be able to customize it, adjust color, and more.

In other words, you’re able to dream, learn, and purchase.

This is the objective for what flight shopping must become, or at least start to resemble, during the next five years.

Current user experiences on both airlines’ direct digital channels as well as metasearch engines, OTAs, and other digital third-parties are poor. The legacy technology systems in use force carriers and third-parties alike to impose inflexible, cumbersome processes on travelers and travel agents. Meanwhile, retailers, entertainment and gaming brands, banks, and others constantly work to improve their digital experiences, leaving airlines more visibly further behind. As airlines contemplate new products and experiences to offer – whether on an a la carte basis, or bundled within a fare – they will need to consider how they will sell them in their various distribution channels. Airlines and their distribution partners must become true retailers to achieve their desired levels of success.

The unbundling of the airline journey has produced an unintended consequence: As airlines work to give travelers more control over what they buy, whether to stay within budget or to find the indulgences they want, flight shopping has become more complex. In the meantime, passengers consider shopping for other seemingly complex product categories may be easier – at least in their minds. Consider this: Thirty-eight percent of global business airline passengers and 41% of leisure passengers want flight shopping to be as easy as shopping for a mobile phone online – a comparably complex process. Younger passenger in both groups are more likely to agree with this.
Figure 6: Airline Digital Retailing Needs To Be As Straightforward As Mobile Phone Digital Retailing To Please Younger Passengers

"I wish it were as easy for me to buy a trip online as it is to buy a mobile phone online."

Whether you’re an airline or a third-party retailer, how in the next five years will you make your flight shopping experiences as “simple” as those for the latest mobile device?

Another consumer-related challenge that airlines and their distribution partners will face during the next five years is learning how to successfully tap the two wallets nearly every passenger has. Passengers’ “first wallet” is the “rational” wallet. The first wallet reflects passengers’ desires to save money and adhere to their budgets. Nearly nine in ten leisure airline passengers in the US and UK, and more than nine in ten leisure passengers in France and Germany, establish budgets for their personal trips. Forty-two percent of leisure passengers worldwide will change where they go on a vacation to stay within their budget, with passengers between the ages of 25 and 49 far more likely than travelers age 50 and older to feel this way.
Far more passengers – 56% – say they will change airlines to stay within budget. Business passengers aren’t immune to budget pressures, either. More than three in four business passengers say they face more pressure from their employers to stay within their business travel budgets versus a year ago.
Sixty-three percent of business passengers anticipate they will face the same cost focus during the next 12 months; 32% anticipate they will face greater budget pressures. Air travel will remain a product category under intense pressure to show and deliver value to its customers via whatever distribution channels and touchpoints a carrier opts to use.

“Do you agree or disagree with the following statement: ‘I feel more pressure from my employer to stay within my business travel budget than I did a year ago.’”

- Do not agree at all: 1%
- Somewhat disagree: 4%
- Neither agree nor disagree: 28%
- Somewhat agree: 19%
- Agree completely: 48%

“Do you expect your employer’s focus regarding staying within your business travel budget will change in the next 12 months?”

- Less focus: 5%
- No change: 32%
- More focus: 63%

Numbers may not total 100 due to rounding.

Base: Online business airline passengers in Australia, Brazil, China, France, Germany, Japan, India, Mexico, Spain, the United Kingdom, and USA

Source: Atmosphere Research Group’s Travel Online Studies, Q1 2016 (USA) and Q3 2016 (all other countries)
But airline passengers’ behaviors aren’t entirely rational and logical, a factor that simultaneously complicates matters and opens additional selling opportunities for airlines. In spite of passengers’ seemingly intense focus on budgets, distribution teams should remember that many passengers have what Atmosphere Research calls a “second wallet” that they use mostly for discretionary purchases. Passengers’ emotions tend to drive purchases that promise reduced hassle, better service, or more comfort.

Figure 9: Effective Airline Retailing Can Connect With Passengers’ Emotions To “Trade Up” For Better Experiences

<table>
<thead>
<tr>
<th>Statement</th>
<th>Leisure</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>I tend to treat myself to nicer things when I travel compared to what I do at home</td>
<td>50%</td>
<td>55%</td>
</tr>
<tr>
<td>I’ll pay a reasonable premium for noticeably more comfort when I travel by air</td>
<td>43%</td>
<td>52%</td>
</tr>
<tr>
<td>I’ll pay a reasonable premium to save time/reduce hassle when I travel by air</td>
<td>41%</td>
<td>51%</td>
</tr>
<tr>
<td>I’ll pay a reasonable premium to get better service from airlines</td>
<td>39%</td>
<td>49%</td>
</tr>
</tbody>
</table>

Base: Online airline passengers age 18+ in Australia, Canada, Brazil, Germany, Mexico, Singapore, the United Kingdom, and USA
Source: IATA NDC Airline Passenger Online Study Q3 2015, conducted by Atmosphere Research

Certainly, economic and other factors will affect passengers’ interests in what they buy, and how much, over the next five years. What matters is this: Between 2016 and 2021, the airline distribution community will need to invest adequate attention on product merchandising, because ancillary products and “in the moment” selling opportunities will increasingly be sources of airline profits.
As airlines evaluate their retailing strategies and options for the next five years, they will serve themselves, their partners, and their customers by embracing the “story arc” that spans each traveler’s journey.\textsuperscript{13}

As applied to airline retailing, the story arc is a construct that airlines and their distribution partners can use to leverage the extensive sales opportunities within each passenger’s journey. To fully benefit from the story arc, Atmosphere Research suggests airlines should use the “three i” construct – Immediacy, Individualism, and Inspiration – to organize their various strategies and tactics.\textsuperscript{14}
• Prepare To Serve A Post-Mobile World

By 2021, we will have begun to enter a post-mobile world. By then, mobile will no longer be “a” channel, it will be “the” channel passengers, travel agents, and others use to connect with airlines.

Atmosphere Research’s forecasts for US and UK airline passengers’ adoption of mobile devices shows near ubiquity of smartphones.

Figure 11-1: US Mobile Device Forecast, 2015-2021

(f): Forecast
Source: Atmosphere Research Group forecast
Tablets (or their successors) will also be owned by a substantial majority of passengers – replacing, for some, their laptops. Though they will be owned by a critical mass of US and UK passengers by 2021, Atmosphere Research predicts smartwatches will remain niche devices even by 2021, unless and until smartwatches are redesigned to be more aesthetically pleasing, more affordable, and provide more practical use to their wearers.

A trend that will significantly impact airline distribution is the “mobile only” passenger – people who have abandoned desktop and laptop computers and use only smartphones or tablets for work or personal use. Worldwide, nearly 17% of business passengers and more than 23% of leisure passengers have already abandoned using desktop or laptop computers in favor of mobile phones and tablet devices exclusively.¹⁵
Figure 12: Approximately One In Five Passengers Worldwide Is “Mobile Only”

“Mobile only” passengers own smartphones and tablets, but not desktop/laptop computers

<table>
<thead>
<tr>
<th>Country</th>
<th>Leisure</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>21%</td>
<td>30%</td>
</tr>
<tr>
<td>Australia</td>
<td>21%</td>
<td>27%</td>
</tr>
<tr>
<td>Singapore</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>USA</td>
<td>14%</td>
<td>23%</td>
</tr>
<tr>
<td>Canada</td>
<td>15%</td>
<td>22%</td>
</tr>
<tr>
<td>Brazil</td>
<td>17%</td>
<td>20%</td>
</tr>
<tr>
<td>Germany</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>Mexico</td>
<td>13%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Base: Online airline passengers age 18+ in Australia, Canada, Brazil, Germany, Mexico, Singapore, the United Kingdom, and USA
Source: IATA NDC Airline Passenger Online Study Q3 2015, conducted by Atmosphere Research

Atmosphere Research currently expects airline passengers’ ownership of tablets to exceed laptops in 2018 in the US and 2019 in the UK. By 2021, we believe that one in five business passengers and more than 26% of leisure passengers will be “mobile only.”
We have reached the point where airlines must be fully mobile-centric in their digital retailing strategies, regardless of distribution channel. One implication of this is the need for visually-based flight shopping. In the mobile era, visual is the new verbal. Visual shifts from being supporting content to primary. Social network Pinterest has launched a visually-based shopping feature that allows consumers to shop for things they have “pinned” on the app.16 Uber, the mobile-based car-sharing service, uses maps to show customers the locations of nearby vehicles. The SnipSnap app allows consumers to take a picture of a product and then find all the promotional offers and coupons for that item.17 The airline distribution community needs to prepare to serve consumers who will want to shop using primarily images – pictures, video, diagrams, maps and even emoji’s – in addition to, and at some point in lieu of, text.

But what will a “post-mobile” world look like for airlines and their distribution partners? By 2021, mobile devices will have expanded beyond our current “Holy Trilogy” of smartphones, tablets, and smartwatches to incorporate a vast number affordable and practical wearable and hearable devices. These devices will make it easier for consumers to connect with airlines and third-party retailers, which will increase the opportunities for interactions between carriers, retailers, and passengers. The “Internet of Things” (IoT) – Internet-connected vehicles, machines, and other products – is contributing more to wireless growth in the US than phones and other similar consumer devices.18 During the next five years, it will become increasingly common to see IoT devices in passenger-facing functions at airports and aboard aircraft.

As a result, technology research firm Gartner believes we will see a “device mesh” emerge.19 Gartner describes the “device mesh” as a framework that will wrap the growing variety of endpoints people and businesses use, including mobile devices, social communities, businesses and, as necessary, government organizations (for example, security and border control agencies). In airline distribution, the device mesh could result in higher-quality shopping experiences across devices – critical, because in the US, 94% of leisure travelers switch between devices when planning or booking their trips.20
Broader technology advancements and evolution will influence airline distribution and enable it to be more useful to airlines, third-party retailers, and travelers. Among the technologies that Atmosphere Research believes will play key roles are:

• **Artificial intelligence.**

The growing universe of artificial intelligence (AI) applications and capabilities offer substantial potential to improving the relevancy of flight shopping and booking through more personalized content. Cognitive intelligence and predictive analytics are at the core of AI-based technology such as IBM Watson (in use by travel start-up Wayblazer). Cognitive analytics solutions are being developed by Sabre. Soundly-developed AI tools will build on themselves, amassing and integrating interactions at both the individual passenger level and aggregated insights from all travelers.
• Massive enhancements to mobile technologies.

As discussed in the Part 1, the global airline community will do business with passengers who are increasingly mobile-centric. A number of mobile technology developments will affect airline distribution during the next five years. These developments will impact both how consumers (and, in some instances, employees as well) use their mobile devices, as well as the mobile technology infrastructure that the airline distribution community uses. Among the key changes are:

• Speech and voice recognition. Siri, Google Assistant, and Amazon’s Alexa voice service are examples of existing voice and speech recognition tools, rendered usable through virtual personal assistants incorporated into a mobile device, and made useful to consumers in part by these systems’ incorporation of artificial intelligence components. We expect these platforms will use the Internet to interact with airline distribution systems and channels. **Impact:** Airline Distribution systems will have to be configured to interact with natural language interactions.

• Haptics. Haptics is the science of applying touch (or tactile) sensation and control to interactions with computer applications. Apple, for example, incorporates haptics into some of its newest iPhone and iPad models. **Impact:** During the next five years, we expect that haptics technology and user experience design improvements will allow users to press (e.g., touch), rather than click, a button on a screen for navigation or as a command.

• Eye tracking interfaces. Beyond offering consumers a hands-free way to navigate an app or website, eye tracking interfaces offer the possibility to incorporate an optical scan as a biometric security component, which may help reduce potential fraud. Eye tracking can also be applied to navigation, scrolling an app or web page, and scanning a map. **Impact:** Greater user security and confidence, and new user interfaces compatible with eye tracking. This should enable travelers on the move to navigate her or his way through a purchase in a relatively effortless manner, which should increase engagement and conversion.

• Gesture recognition. With gesture recognition, a mobile device can be programmed to recognize and interpret various hand gestures to allow “hands-free” operation of the device or an app. **Impact:** Within the next five years, the airline distribution community will need to program apps to understand various gestures for “hands free” navigation or commands, such as advance to a subsequent page, reorder the list of flight results, or purchase.

Both eye tracking and gesture recognition should make it easier for a consumer to interact with various airline apps. These may, of course, lead to more shopping sessions which, admittedly, may further strain distribution infrastructure and exacerbate look-to-book ratios, but which may also result in more people using mobile for both initial and post-booking purchases.
• **Wearables.** Wearables is the term used to describe mobile devices that are worn, such as smartwatches. By 2021, a critical mass of travelers will own at least one wearable. Like mobile phones and tablets, wearables are generally equipped with GPS, which can aid in mapping and wayfinding. Airline distribution systems will, as a result, need to evolve their user interfaces and commands to accommodate interacting with wearables – for example, shaking or tapping a wearable device to accept or decline an offer. Will hearables (in-ear Internet-connected devices) play a role in airline distribution during the next five years? In a limited way. Within airline Distribution, hearables’ value will probably be greatest in providing real-time language translation for spoken interactions.

• **Conversational commerce.**

Conversational commerce describes natural language interactions enabled by platforms such as email, chat, SMS/text, and voice-to-text. Current airline distribution platforms require users, whether a consumer or a travel agent, to enter defined terms in a proscribed manner. Conversational commerce interactions will be free form, be conducted using multiple languages (not just English), and will require systems to understand and interpret non-traditional terms (including colloquial terms and slang), uncover unstated information, and remember assumed knowledge.

• **Augmented Reality and Virtual Reality.**

Augmented Reality (AR) supplements one’s real-world view with additional computer-generated sensory inputs, such as GPS location information, sound, or graphics. The swift and massive adoption of Pokémon Go, which, at its peak in summer 2016 attracted more than 40 million daily users, illustrates that consumers will embrace a new technology application when it is easy to use and compelling. How might AR play a role in airline distribution? Imagine showing someone shopping for flights on a crowded commuter train how much legroom they’d have in a premium economy seat.

Virtual reality (VR) is immersive, computer-simulated multimedia software that can create or replicate an environment. VR allows users to simulate being in the featured location, venue, or object. As VR headsets become more affordable and less bulky, and better VR applications become available, consumer adoption of VR headsets will increase. Forrester Research estimates that between 2016 and 2020, US demand for VR headsets will increase from 3.3 million units to 52.3 million. VR will play a role in airline distribution during the next five years (and, of course, beyond that). We’ve already seen some airlines develop VR applications for their sales activities. By 2021, travelers will expect “VR-friendly” digital travel. Creative airlines will combine NDC with VR to create captivating flight shopping experiences to distinguish their products, such as immersive experiences for their premium products (airport lounges, business class), holiday package destinations, and more.
Starting an airline used to be so easy. Find a wealthy person with a fondness for aviation to bankroll the operation, lease cheap older planes, cram them with seats, give the plane a snazzy livery (preferably using a three-year old child’s favorite crayon color) and the airline a “zippy” name, serve underused airports, get a PSS and a website, mount a cheeky advertising and PR campaign, sell tickets, and off you go. Simplistic, but you get the idea.

The airline of 2021 will be a technology, data, and retailing company that happens to fly airplanes. It will have more in common with Google and Amazon than Pan Am and TWA. Nearly every commercial strategy will be based on leveraging relevant data so products can be sold in compelling manners across platforms and channels. New strides in technology and distribution will enable connected travelers and connected airlines to interact with one another in more meaningful and productive ways.

That’s not to say that by 2021 the airline distribution landscape will be entirely new – or, for that matter, that it will have reached a nirvana-like state of perfection. Many of the systems and technologies needed for more effective airline distribution will still be in development -- but a critical mass of components should be in the market by 2021. As previously noted, Atmosphere Research recommends that airline distribution should incorporate the “three I” construct – Immediacy, Individualism, and Inspiration – discussed in the October 2015 IATA report, “NDC: How Consumers View The Future.”
• The Evolving Airline Landscape

Airline distribution in the five-year span between 2016 and 2021 will be poised for monumental change. As Lufthansa Systems said in a phone interview for this report, the next wave of change will create a “big opportunity for airlines to move to a new world” in how they sell. Two catalysts for this are IATA’s XML-based New Distribution Capability (NDC) shopping standards and IATA’s One Order single customer order record. One Order will provide the capability to hold all the data elements associated with a traveler’s purchase, including base and ancillary products, across channels, touchpoints, and purchase sessions, so the airline can track and fulfill what the traveler buys.

NDC and One Order won’t be the only changes that will impact airline distribution between 2016 and 2021, of course. Among the numerous airline industry developments that may occur, Atmosphere Research believes these will be particularly pertinent to distribution:

• **Alliances diminish in importance as joint ventures and cross-carrier investment become prominent.**

Atmosphere Research believes we are at the peak of airline alliance participation. In 2016, the three major airline alliances (Oneworld, SkyTeam, and Star Alliance) account for 57.5% of global airline capacity. Airline executives believe these alliances will become less important during the next five years.

Figure 13: Airline Executives Anticipate Shifting Focus From Alliances To Joint Ventures

“In your opinion, how likely is it that the following airline scenarios will take place by year-end 2021?”
(5-point scale)

- Airline joint ventures replace airline alliances: 3.9
- Network/flag airlines will rely on independent low-cost carriers for a meaningful amount of traffic feed: 3.1
- There will be significantly reduced reliance on interlining, as we know it today: 2.8
- There will be significantly reduced emphasis on code-sharing, as we know it today: 2.5

Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research
Between 2016 and 2021, Atmosphere Research believes several of the world’s largest airlines will reduce their alliance participation – and a few will exit alliances altogether. Airlines will instead focus their collaboration efforts on carriers with whom they have the opportunity for closer, more beneficial commercial relationship – mostly carriers with whom they have an anti-trust immunized joint venture (JV), such as the JV between American Airlines and Japan Air Lines, or where one airline has a meaningful investment in another, such as Etihad Airways’ investment in Alitalia.

Why this shift? Alliances were good “first steps,” when airlines sought to expand their market presence through code-share “proxy flying.” Alliances’ benefits, though, are limited to surface-level marketing activities. Airlines, however, want more than alliances can legally provide. Enter anti-trust immunized JVs and cross-carrier investment, which both permit an almost intimate level of operational and commercial cooperation and coordination between participating airlines that alliances legally cannot. The result: Airlines can legally work together to become more successful, profitable enterprises – and better serve their customers and communities.

- **Low-cost carriers continue to grow, become feeder partners to network airlines.**

Just because alliances may fade in importance doesn’t mean network airlines won’t need feed at their hubs. This is where the industry’s proverbial “oil” and “water” may come together.

Low-cost carriers (LCCs) and network airlines used to operate from different airports and offer vastly different passenger experiences. LCCs tended to offer simpler pricing structures – in part due to LCCs’ business strategies and in part due to their revenue management systems. LCCs also generally avoided third-party distribution, to save money and build up their customer databases for marketing efforts.

During the past 15 years, many network airlines pared amenities (especially in their economy cabins), invested in direct distribution tools like websites and mobile apps, and embraced the unbundled product strategy favored by LCCs. Conversely, LCCs have entered mainline airports, embraced GDS distribution and, in some cases, elevated their passenger experiences. As a result, more than one in four airplane seats is on an LCC. CAPA reports that, for the first nine months of 2016, LCCs comprise 25.5% of global airline capacity, up from 23.4% in 2012.\(^2\) By 2021, Atmosphere Research estimates LCCs will represent more than 28% of global capacity.

Short-haul flying is not necessarily profitable for many network airlines. Network carriers generally fly shorter routes from their hubs to provide feed for their longer flights. To improve the financial performance of short-haul flying, by 2021 Atmosphere Research believes we will see network airlines shift some, perhaps all, of their short-haul flying to LCCs, who would operate as a network airline’s code-share partner. There has already been one example of this: In the US, American Airlines and JetBlue code-shared from March 2010 through April 2014. In 2015, Ryanair stated it was exploring the possibility of providing feed to several European network airlines “within the next 10 years.”\(^2\)
• **Long-haul LCC service expands.**
  At least six LCCs currently operate long-haul flights: AirAsiaX, NokScoot, Norwegian, Scoot, WestJet, and WOW. Availability of relatively low-priced aircraft, both widebody and single-aisle, to operate long-haul routes make it increasingly practical for LCCs to operate more long-haul service. JetBlue Airways, which expects to receive A321LR aircraft in 2019, has stated it may evaluate US-Europe service. **27** Southwest Airlines in the US has aircraft in its fleet and on order that would allow it to fly nonstop between the northeast US and northern Europe. The expansion of long-haul LCC flights will increase competition, force all airlines to think more about how they distinguish themselves – and also require airlines to ensure their distribution platforms and channels can distinguish them from competing airlines as travelers shop.

• **The expansion of the unbundled product environment.**
  Airlines’ primary source of profits are their non-core ancillary product sales. IdeaWorks Company states that the sale of loyalty program credits to banks and other third-parties is the largest category, but other optional products, including checked baggage fees, upgrades, and seat reservations are also popular. **28** As NDC and One Order are introduced into airline retailing and carriers become smarter and more creative in how they extend optional product offers to passengers, ancillary product sales will increase further. And though the economy-class passenger will remain the primary target customer for ancillary product sales, airlines will increasingly begin to both unbundle their premium product experiences – Emirates and Qatar Airways already sell a discounted business class experience that doesn’t include airport lounge access – and introduce “super premium” options to generate additional revenue (American and Delta offer extra-cost “white glove” service, which provide an elevated level of “super VIP” service, at certain airports).

• **Diminished loyalty.**
  Expect passengers to become more mercenary in their airline use at the expense of carrier loyalty and engagement with their loyalty programs – a trend that increases the need for better airline retailing. Expanding LCCs will likely become “preferred” airlines among corporate accounts. Passenger loyalty to airlines has reached an all-time low. In the US, just 24% of airline passengers are loyal to at least one airline. **29**
In the UK, 28% feel this way. In Japan, it’s higher, 36%, reflecting the country’s more limited choice of carriers. Airline loyalty program members say these programs are less valuable to them.
Figure 15: Passengers’ Disenchantment With Loyalty Programs Increases Need For Effective Airline Retailing

There’s good news for airlines here: Passengers want airlines to use the data they have about their purchases to provide more relevant offers and better service, but don’t feel airlines do this well today.
Airlines must improve how they earn and sustain passenger preference – and, ideally, loyalty – outside a formal loyalty program. Comprehensive omnichannel retailing experiences can assist. Personalization, explored in more detail later, will also contribute to improving passenger preference – provided it is planned and executed correctly, isn’t perceived as “creepy,” and respects each country’s consumer cultural norms.
• Three Harsh Truths About Airline Distribution

Before we dive into how airline distribution will evolve during the next five years, we need to acknowledge three tough points.

1. **Airlines created their current distribution mess.**

When airlines sold their stakes in their “CRS” (predecessors to today’s GDSs) business units – for example, American’s ownership of Sabre – they neglected to change the legacy business model of paying travel agencies to use these systems. The moment airlines spun off their CRS stakes, what was once a profit center immediately became an expense. Airlines had the chance to change the business model, but didn’t.

2. **Airlines lack the will to shift costs to travel agencies.**

Potential cost shift is a concern to travel agencies. To address this legitimate issue, in the 2012 “Future of Airline Distribution” report, Atmosphere Research hypothesized airlines would offer agencies that booked via GDSs the equivalent of a discounted “wholesale” fare, which the agency could mark-up to the “retail” fare the airline would charge on its direct sales channels, with the agency using that mark-up to cover any GDS expenses. Thus, airlines would not have to bear GDS costs and agencies would not be at a price disadvantage against airlines. According to Atmosphere Research, this didn’t happen because airline executives independently told Atmosphere Research they felt it was more important to preserve yields.

3. **Airlines put GDSs in control through technology outsourcing.**

Airlines asserted that by allowing the GDSs to operate much of their distribution technology, they were able to reduce their IT investment and keep relatively small IT departments. In 2005-2006, preferring lower segment fees to control over how and where they published and sold their product, many airlines signed “full content agreements” with GDSs, which obligated carriers to publish all of their public inventory and fares in the GDSs – and removed airlines’ distribution leverage with the GDSs. Along the way, airlines also outsourced their PSSs to three major GDS operators: Amadeus, Sabre, and Travelsky, which increased those companies’ power over airlines. The end result: In 2016, airlines have become the tail and GDSs the dog. Atmosphere Research predicts the five year span between 2016 and 2021 will witness a steady effort by airlines to take back control of their distribution destinies.

• Third-Party Retailers To Remain Part Of Airlines’ Distribution Mix.

More than 400 airlines worldwide rely on third-party retailers, including retail travel agencies, TMCs, metasearch engines, and OTAs to reach travelers. Airlines know third-party retailers will remain a part of their distribution mix for the next five years – and, likely, for many decades afterward. Airlines also know that many third-party retailers will continue to need airline content. Unsurprisingly, though, airlines anticipate third-party retailers will account for fewer reservations between 2016 and 2021, as carriers admit they will place more focus on direct distribution.
“In your opinion, how likely is it that the following airline distribution scenarios will take place by year-end 2021?” (5-point scale)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased use of “direct connect” distribution</td>
<td>4.2</td>
</tr>
<tr>
<td>New generation of revenue management systems are introduced</td>
<td>4.1</td>
</tr>
<tr>
<td>Inventory booking classes will become progressively irrelevant</td>
<td>3.7</td>
</tr>
<tr>
<td>New generations of PSS are implemented</td>
<td>3.2</td>
</tr>
<tr>
<td>GDSs introduce a different commercial model than the one currently in use</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research

Given the current economics of GDS-based distribution and airlines’ desires to maximize the volume of passengers who book directly, we understand why airlines believe they can shift retail agencies’ leisure passengers to their direct channels. We’d encourage airlines to remember that as NDC and One Order are introduced, well-run retail agencies may become effective ancillary product sellers, boosting their value to carriers – provided the third-party retailers feel there is acceptable commercial value to sell these products.
When asked to forecast their anticipated channel shares for 2016 and 2021, airlines informed us they:

- **Intend to grow their digital direct share.** The airlines in our survey expect to generate nearly one-third of their bookings from their websites in 2016, and slightly less than two percent from their mobile apps and mobile-optimized websites (see Figure 18). Another 12% of their bookings come through their other offline direct channels, such as call centers and ticketing offices. By 2021, airlines expect their digital direct channels — their websites and mobile channels — will produce 45% of their bookings. Airlines’ websites will remain the largest channel, but mobile is expected to surge, growing 3.2 times from 1.7% in 2016 to more than 7% by 2021. One airline distribution executive told Atmosphere Research “we may be grossly underestimating mobile’s share five years from now.”

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**Figure 18: Airlines’ Anticipated Channel Shares, 2016 And 2021**

<table>
<thead>
<tr>
<th>Channel</th>
<th>2016</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airline website</td>
<td>33%</td>
<td>37%</td>
</tr>
<tr>
<td>Airline mobile app</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>Other direct channel</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>OTA</td>
<td>20%</td>
<td>16%</td>
</tr>
<tr>
<td>TMC</td>
<td>20%</td>
<td>21%</td>
</tr>
<tr>
<td>Offline/retail agencies</td>
<td>2%</td>
<td>9%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>11%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research
• **TMCs to grow 6%, retail agencies' share to fall 16%.**

Airlines will continue to rely on third-party retailers that contribute value. As was the case in 2012, TMCs produce airlines’ highest yields, surpassing both airlines’ own channels and other third-party retailers – although their premium in 2016 is lower than in 2012, suggesting airlines are experiencing fare compression and more competition from LCCs (see Figure 19). TMC’s 16% yield premium versus airline websites helps explain why airlines anticipate TMCs’ share to increase – though just two percentage points, or 6% – during the next five years. Retail agencies’ share is expected to contract a more considerable 16%.

Figure 19: OTA Yields, Though Slightly Better Than In 2012, Continue To Lag

Average Yields Indexed Against Airlines’ Direct Digital Channels
(Airline Direct Digital Channel Yield = 100)

- **TMCs**
  - 2016: 116
  - 2012: 118
- **Retail agency locations**
  - 2016: 104
  - 2012: 102
- **Airline call centers**
  - 2016: 103
  - 2012: 105
- **Airline digital channels**
  - 2016: 100
  - 2012: 100
- **OTAs**
  - 2016: 93
  - 2012: 91
- **Consolidators**
  - 2016: 88
  - 2012: 89
- **Wholesalers**
  - 2016: 85
  - 2012: 86

*Base: 21 airline Distribution and Commercial executives
Source: IATA Airline Distribution Executive Telephone Study, Q3 2016, conducted by Atmosphere Research*
• **OTAs will see their channel share fall the most.** Today, OTAs account for one in five bookings, impressive for a channel just 20 years old. Airlines’ working relationships with OTAs can be difficult. Carriers say OTAs sell them as commodities, emphasizing price above all, and don’t adequately support airlines desires to sell using branded fares or offer ancillary products to the OTAs’ customers (a possible result of airlines’ unwillingness thus far to compensate OTAs for ancillary sales).

Negative sentiments like these may explain airlines’ negative outlook for OTAs. By 2021, airlines anticipate OTAs will account for just 16% of their reservations, a 20% plunge from their current share.

Looking beyond anticipated channel shares, we see airlines view various channels’ importance changing – in some cases, quite substantially – during the next five years.

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Figure 20-1: Distribution Channel Importance, 2015

“Please rate the importance of the following channels to your airline today.” (5-point scale)

<table>
<thead>
<tr>
<th>Channel</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airline mobile app</td>
<td>4,9</td>
</tr>
<tr>
<td>Airline websites</td>
<td>4</td>
</tr>
<tr>
<td>Partner airline...</td>
<td>3,6</td>
</tr>
<tr>
<td>Other new channel</td>
<td>3,5</td>
</tr>
<tr>
<td>TMC</td>
<td>3,5</td>
</tr>
<tr>
<td>Metasearch</td>
<td>3,5</td>
</tr>
<tr>
<td>Offline/ Retail agencies</td>
<td>2,4</td>
</tr>
</tbody>
</table>

Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research
Airlines rate their mobile apps as their fifth most-important channel in 2016, but anticipate mobile will be their most-important channel by 2021, ahead of their own websites. What’s noteworthy about this is that mobile will remain far smaller, in terms of channel share than websites. So why rank mobile most important? Because airlines recognize that mobile will become passengers’ “first screen” for connecting with airlines – and everyone and everything else in their lives. Airlines also anticipate they will rely more on their partner airlines as a distribution channel. Except for metasearch sites, airlines say TMCs, retail agencies, and OTAs will become less important. Airline executives shared additional insight with us:

“Our Distribution focus is, and will remain, on growing our digital digital share, even though we know our annual growth in this channel will slow.”
– US network airline

“Let me put it to you this way. If I were an apartment block landlord, I’d find a flat for travel agencies in my block. It just wouldn’t be as large as the flat they currently occupy.”
– European network airline

“Our third-party distribution focus will be on offline agencies, such as TMCs and high-street agencies. They produce a significantly higher yield compared to their online counterparts.”
– European network airline

Figure 20-2: Mobile Anticipated To Surge In Importance By 2021

“How do you expect the importance of the following channels will change between now and 2021?” (5-point scale)

<table>
<thead>
<tr>
<th>Channel</th>
<th>Importance Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airline mobile app</td>
<td>4,9</td>
</tr>
<tr>
<td>Airline websites</td>
<td>4,2</td>
</tr>
<tr>
<td>Partner airline (codeshare, JV, alliance, etc.)</td>
<td>4,6</td>
</tr>
<tr>
<td>Other new channel</td>
<td>3,7</td>
</tr>
<tr>
<td>TMC</td>
<td>3,5</td>
</tr>
<tr>
<td>Metasearch</td>
<td>3,5</td>
</tr>
<tr>
<td>Offline/ Retail agencies</td>
<td>2,6</td>
</tr>
<tr>
<td>OTA</td>
<td>2,3</td>
</tr>
</tbody>
</table>

Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research
• **GDSs Face New Challenges As First-Generation “Value Creation Hubs” Emerge**

Airlines serve millions of passengers each year, yet want to be able to sell to a customer of one. Third-party retailers also want to offer this same level of personalization. Airlines require distribution platforms that allow them to actively and nimbly retail their products with the same control, flexibility, and detail as any other online retailer.

Existing GDS workflows and processes cannot currently support this. Airlines, as a result, are increasingly frustrated with the lack of spend and innovation.

“When we wanted to introduce a new cabin product, it was going to take roughly five months of IT development to get it ready to sell in our direct channels, but more than 12 months for the GDSs. We couldn’t sell the product only in our channels and not via third-parties. The GDSs cost us at least six months of revenue.”

– Asian network airline

“We believe bypassing GDSs and connecting directly with travel agencies and their customers offer us a greater ability to configure and publish offers, and to present our content in the way we want it presented.”

– European network airline

“We recently introduced a new state-of-the-art aircraft, with many features and amenities we believe passengers will enjoy – lie-flat business class seats, on-demand entertainment, things like that. Yet in the GDS, our new plane looks the 20 year-old aircraft it is replacing.”

– Latin American network airline

Emirates Airlines CEO Tim Clark also decried the GDSs as “not fit for purpose” in a September 2016 speech at the Aviation Festival in London.

Let’s acknowledge this important fact: To their credit, the three major Western GDS operators (Amadeus, Sabre, and Travelport) have each improved how they help airlines sell their products. Among the improvements GDSs have made are enhancements to their abilities to sell airline ancillary products, upgrading their agency desktop tools, and investing in mobile-compatible tools. Farelogix’s Jim Davidson acknowledged GDSs progress, stating “You can’t argue that GDSs are enhancing their technologies.” The GDSs are also active participants in IATA’s NDC and One Order work groups. This includes Travelsky, who have also been one of the leaders in embracing NDC.

One also cannot deny that the GDS business has remained strong. In 2015, Amadeus reported an 8.3% increase in its GDS airline passenger reservations from 2014. Sabre recorded 19.4% growth in its travel agency airline bookings between 2014 and 2015, although Sabre’s results are skewed somewhat from its 2015 acquisition of Abacus. For both firms, year-over-year booking growth for their GDS units exceeded that of their PSS operations. Amadeus told Atmosphere Research that “Intermediaries’ traffic has not fallen off.”

Airlines must realize that there is a clear functional advantage for distribution tools that third-party retailers can use via the GDSs that may not exist at present in airlines’ various direct channels. Likewise, GDSs must realize that these tools cannot be used in a commercially “unfair” manner against the airlines. This, combined with the current GDS commercial model and the GDSs’ need to become nimbler in their technology development, contribute to longstanding airline-GDS tensions. Technology, as it does so often, is opening new

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doors in airline distribution that will during the next five years provide airlines with the economic value, control, and retailing platforms they desire. Inexpensive and stable high-speed connectivity, cloud computing, artificial intelligence, increasingly robust and affordable databases, and NDC standards collectively enable airlines to develop new distribution platforms. In independent conversations with airlines, Atmosphere Research heard airlines consistently state they believed that during the next five years it would be possible for them to reduce the volume of GDS bookings (which does not take into consideration how GDSs may evolve into the role of an aggregator).

“In the near future, we expect we will be able to start moving 10% or more of our agency bookings to a non-GDS platform.”
– European network airline

“We work with several agencies through Farelogix. We and the agencies see it as a proverbial ‘win-win’. The agencies get more access to all of our content, including both fares and ancillaries. The ability to sell more ancillaries and reduce our selling costs can improve both our top-line revenue and bottom-line margin.”
– US network airline

“We are well aware that we risk trading one set of problems for another with direct connect. That’s why our direct connect strategy is focused on our largest agencies and corporate accounts. We also acknowledge there remain thousands of agencies and millions of passengers whom we will serve via GDSs.”
– European network airline

In 2012, Atmosphere Research described how airlines would create “value creation hubs” (VCH) as an alternate distribution option to the traditional GDSs. In 2016, the first versions of these appear to be emerging.

Atmosphere Research initially believed the three major airline alliances would each create their own VCH, with a fourth VCH brought to market by independent carriers – a mix of LCCs and airlines that did not participate in joint ventures or a major alliance. This may yet happen. Thus far, a handful of airlines have chosen to develop their own portals, which appear to be similar to what a VCH would do. Lufthansa has created a “direct connect” platform, allowing third-party retailers to connect to the airline and bypass the €16 surcharge it applies to GDS bookings. As of September 2016, 17 technology providers have connected to Lufthansa’s platform.35 British Airways and other IAG carriers have APIs which third-party retailers can use to receive flight offers and orders constructed by the airlines outside the GDSs. Atmosphere Research believes these are the first of what during the next five years may be many airline-operated VCHs that will connect carriers, either directly or through aggregators, with their authorized third-party retail partners, reducing carriers’ reliance on today’s GDSs process.

Technology doesn’t empower only airlines, of course. Technology also empowers third-party retailers. GDSs remain third-party retailers’ primary channel to connect with airlines, because the GDSs are easy and efficient for the retailers to use – and because the GDSs pay the agencies to use them. Even so, third-party retailers book, on average, 26% of their air reservations outside of GDSs.36 Third-party retailers are frustrated by the difficulty to book branded fares in the GDSs and by the limited amount of ancillary content currently in the GDSs.37 Content aggregators such as TravelFusion and Kiwi (formerly Skypicker) make it possible for third-party retailers to search and book airlines’ branded fares and entire mix of inventory and ancillary products, and Air Black Box and Farelogix allow third-parties to ticket. So, from the third-party retailers’ perspective, who needs a GDS?
Airline Retailing Won’t Be Fully Developed in Five Years. But We’ll Be Well On Our Way.

Airline distribution is poised to make great progress by 2021. The initial VCHs are in the market. Cloud computing has begun to reach levels of reliability, cost, and security where airlines and their distribution partners can incorporate it into their technology stacks. The first series of NDC standards are published, and airline retailing functionality is being developed to these schemas. Distribution systems have begun to be certified as NDC-compatible. A few airlines and GDSs have deployed NDC-enabled shopping processes into production. Airlines pay more attention to how they “retail,” versus simply “sell” their products.

But, a reality check is required. Though it will improve during the next five years, full-fledged airline retailing will not be fully developed by 2021. In all likelihood, it will be at least 2026 when we reach that point. Airline retailing involve extensive, complex, and costly development and testing. Like all technology development, the ongoing progression of airline distribution and associated improvements in airline retailing will be iterative, with ongoing adjustments – possibly massive changes – occurring along the way as business requirements evolve and technological opportunities emerge. Let’s also not underestimate the power struggle that exists, and will likely increase, between airlines and the GDSs.

An airline flight is, aptly, a good analogy to use here. The journey to reach true airline retailing is a very long one, and it won’t be reached in a single nonstop flight. Instead, there will be multiple intermediate stops, representing where airline distribution reaches various milestones – publishing various NDC standards, merchandising capabilities, adoption levels, and so on.

During The Next Five Years, Distribution Will Evolve From “Passive” And “Rigid” to “Active”.

The current state of airline distribution is passive and rigid. This is, in great part, due to airlines being forced to use 50 year-old selling processes. Distribution system requirements require the use of rigid content, and equally inflexible system capabilities. This contributes to why flight shopping experiences frustrate and disappoint passengers.

This isn’t sustainable. By 2021, we will see the current era of rigid distribution replaced by what we call “Active Distribution.” Active Distribution will be focused, purposeful, and frictionless. Though passengers, travel agents, and travel managers will still have to follow certain processes, Active Distribution means they will enjoy richer, more flexible flight shopping experiences and receive more personalized results.

Active Distribution Will Demand More Flexible Distribution Platforms.

In today’s world, GDSs, airlines’ primary distribution connection to third-party retailers, don’t currently offer the flexibility airlines need to sell the way passengers want to buy via third-parties. Such limitations include:

Outmoded flight shopping processes. The GDSs rely on the flight shopping processes that were in place 50 years ago when the first generation of computerized reservations systems (CRSs) were launched. These processes are “linear” in nature and viewed as inflexible by airlines and travel agents. The selling processes were designed when all seats within
a cabin were viewed as equal, when a flight was an “all-inclusive” experience, and when customer value didn’t matter. Even though GDSs have invested in various solutions, including “agent desktop” tools to help airlines merchandise their products, Atmosphere Research does not feel the progress is good enough.

• **Not putting the passenger at the center of the flight shopping experience.**

In the “Age of the Consumer,” businesses in all industries are being forced to rethink how they go to market. Airline distribution is no different.

For decades, technology and processes have been more visible than the passenger within airline distribution. Passengers and travel agents alike have had to navigate their way through uninspired, and sometimes overly complex, user interfaces to research and book flights. Active Distribution will be based on passenger-centric processes that, like all good technology experiences, put the user and her or his objectives at the forefront, with the technology operating in the background.

Active Distribution will require the airline distribution community to keep four passenger-centric factors at the forefront of their user experience scenario planning and user interface designs during the next five years:

• **The connected consumer.**

“Connected” isn’t just about mobile. Mobile matters, of course, but in this case “connected consumer” refers to the need for airline distribution systems and actors to connect and interact non-traditional channels, such as social media, games, and business productivity applications, and using new communications technologies, such as conversational commerce.

• **Information clarity.**

As airlines introduce new branded fares, especially those that are “de-contented” (stripped of amenities and privileges), neither partner airline systems (and their users) nor third-party retailers are always able to display the products and communicate product benefits or restrictions. The result is an information gap that may result in the passenger buying the wrong product – a situation that benefits no one.

• **Relevancy.**

Travelers’ digital commerce expectations are established by the non-travel brands they use every day. The airline distribution community must anticipate that during the next five years, passengers will view an improved flight shopping experience based not on the number of choices they receive, but by their usefulness. Personalization will play a crucial role in achieving this. Emerging technology concepts like artificial neural networks, part of the growing universe of “artificial intelligence” computing technologies may have a role here. These networks can help a business gather, organize, and classify non-linear data from multiple sources, improving airlines’ abilities to recognize customer behavior and purchase patterns. When combined with NDC and other pertinent standards or applications, airlines can provide more relevant flight shopping content to passengers and travel agents across their distribution channels.

• **Passenger-centric shopping processes.**

We haven’t done enough to evolve the shopping process to help travelers discover their flight and destination options. The current practice of requiring origin and destination airports and travel dates – even using calendar shopping – is too limiting. Active Distribution will be based on more flexible passenger-centric shopping processes. Kayak, Google, and Amadeus have shopping paths or tools that
are good “first starts.” Five years from now, though, Active Distribution will require airlines to use customer and other data that allow the carrier and third-party retailer to anticipate customer requests.

- Not providing true real-time availability and pricing to subscribers.
Through today’s practices, GDSs’ availability searches limit their subscribers’ effectiveness, due in great part to the variety of complex processes in how they obtain airline availability. The industry has also been confronted with an exponential increase in look to book ratios (as high as 10,000 to 1 by some estimates), forcing airlines and third parties to implement processes to protect access to their inventory. Generally, these processes require caching which sometimes results in the data being out of sync, resulting in a discrepancy between search and final booking results. Active Distribution will require airlines to become the sole source of fare and availability content. A key benefit of this will be providing accurate fares to an airline’s distribution partners in real time.

- The inability to support attribute-based selling.
Some airline ancillary products, especially seats, have attributes whose appeal and value (or lack thereof) can be leveraged, whether for lower or higher price points. Airlines build business rules and revenue management algorithms around those attributes to sell the product at the optimum price. Airline PSSs, either on their own or in partnership with ancillary product merchandising software, can generally support attribute-based selling through direct channels. GDSs, however, may not be able to support attribute-based selling with the same agility due to the current business processes.

- Airlines Want To Take Back Control. Active Distribution Will Enable This.

During the next five years, airlines will need the ability to distribute and sell their products in more flexible ways. As Lufthansa Systems observed, “Airlines want the ability to identify the passenger and match the product or service bundle they extend to that traveler. That is not something they are able to do in third-party distribution systems today. GDSs will continue to have an important role for the next ten to fifteen years. They will support NDC. But the world is more complex. Does it make sense to bring the control into this complex world, or should we open a ‘parallel channel’ that is more agile and flexible?”

Airlines told Atmosphere Research:

“Our success relies on our ability to price in new ways beyond advance purchase, load factor, and inventory or cabin classes. This will require the development of more robust revenue management and pricing systems, and distribution platforms that allow us to create and extend value whether we are selling directly to the consumer or via a third-party.”

– US network airline

“Aside from cost, a core reason why we minimize using third-party distribution channels is the inflexibility associated with the current GDS platforms. Whatever we end up using, whether it is from a GDS, ‘direct connect,’ or something else, will be based on allowing us to have as much or more flexibility, creativity, and revenue potential selling through third-parties as we enjoy in our own channels.”

– European-based LCC
“We will need systems that will support calculating volumes of prices that may be several magnitudes larger than today. These prices will be dynamic, they won’t be based on ATPCO-filed fares. They will need to be personalized. They will need to be converted into many currencies. And we won’t let things like EMDs bog us down.”
– European network airline

“Our marketing people have some creative ideas of how they want to evolve our on-board experience. Some of their product ideas don’t involve what we now consider ‘seats.’ The concepts are much more than that. How can we sell these through a GDS to a corporate account? Today, at least, we could not.”
– Middle East network airline

Datalex described airlines’ challenge of limited control well: “Airlines need to create and control their own gateways. Each airline should have sole control to sell the way it wants.” Airlines have ceded selling control to the GDS operators and, to a lesser extent, PSS vendors for decades. The selling processes used in 2016 are disappointingly similar to how airlines sold in 1966. Airlines have also had to use outmoded items, like Electronic Miscellaneous Documents (EMDs) to sell ancillary products, because they can’t create a hotel-like “folio” account for a traveler’s journey.

For more than four decades, airlines have been in a position where third-party distribution systems construct the itinerary’s actual price on their behalf. In some instances, the consequence can be that the GDSs find themselves constructing an offer that is incorrect. GDSs don’t deliberately misprice itineraries, of course; they use the content they have. But only an airline knows the correct fare for any given itinerary and for any given point in time. The main reason is the limitations of current distribution, whereby fares have to be filed in a specific database. While this static system was once efficient, today, it lacks the agility of most other industries.

Another area where airlines have ceded control is in how third-party retailers are provided access to airlines’ inventory and fares, due to GDS “Full Content Agreements” (FCAs). FCAs limit airlines’ flexibility to control how carriers give third-party retailers access to their products. Though airlines can provide a third-party retailer with a private or net fare, FCAs prevent airlines from freely giving their best content to their best partners, resulting in less competitive offers for consumers. After all, the GDSs benefit through the “network effect” of having more airlines and more of their content in their systems.

Active Distribution will support airlines to take back this control. According to Atmosphere Research, airlines’ needs for new, flexible selling processes, and the equally important requirement that airlines have and present more accurate and consistent content (namely fares) across selling channels mandates that control for these processes and content creation return to the airlines that want it.
• Core Airline Distribution Components Approach

The core components of what constitutes an airfare didn’t change much until 2005. Until then, especially on network airlines, all airfares within a cabin class generally included the same amenities. Regardless of fare paid, everyone within a cabin generally received the same things, including a checked baggage allowance, the ability to pre-reserve any available seat (if the airline itself offered pre-allocated seating), a meal, and so on. Fares didn’t vary by distribution channel or form of payment used.

Around 2005, airlines began to embrace “fare families.” Fare families clustered various inventory classes within larger groups, or “families.” Air Canada was the first network airline to associate fare families with product content, such as advance seat selection and checked baggage. In 2007-2008, more network airlines began to emulate LCCs’ unbundled, a la carte model. Further changes have occurred since then, of course. According to IdeaWorks Company, ancillary products generated 8.7% of worldwide airline revenues in 2015 (latest data available), versus 6.8% in 2012. More recently, airlines have introduced special fares for loyalty program members and, where legally allowed, may offer either incentives or impose surcharges to use various forms of payment.

Active Distribution renders a number of existing distribution methodologies and practices unnecessary – and, in some cases, possibly even counterproductive. The future of airline distribution depends on carriers’ willingness to tackle decades-old practices that inhibit their progress, among them:

• Defined fares, inventory buckets, and fare codes.

Airlines have sold airfares defined by rigid factors such as cabin class, advance purchase periods, refundability, and flexibility because they have lacked other viable ways to price and distribute their products. To sell their fares, airlines have relied on inventory allocations within finite, alphabetically-defined sub-groups – “inventory buckets” – and codes for each fare sold. Evolving business models, changing consumer needs, and more flexible shopping and booking technology standards like NDC will free airlines from their reliance on these factors. Airlines believe booking classes will become less relevant during the next five years, rating the likelihood that they will decrease their reliance on inventory buckets during the next five years 3.7 out of five points. Airlines believe more fluid tools are needed to support the forthcoming era of Active Distribution.

“As we get further into planning for what we’ll be able to do with NDC, we have begun to realize that we will have the ability to be more flexible and responsive to market demands and opportunities in how we price.”
– Asian network carrier

“We may be more precise in how we price, but the core fundamentals of what we do date back decades. They’re obsolete. Current processes and limitations are a stranglehold on our business.”
– European network airline

“We want to be a disruptor, yet are held back in part by rigid, outdated pricing processes and technologies.”
– Latin American LCC
ATPCO.
More than 450 airlines publish in excess of more than 100 million airfares through the airline-owned airfare data base Airline Tariff Publishing Company (ATPCO) for onward distribution to GDSs and third-party retailers. ATPCO has been a critical component in airline distribution for more than 50 years, but some airlines see its role shrinking in the future.
Airlines score their intentions to significantly reduce publishing fares via ATPCO at 3.6 out of five. Why? Filing fares via ATPCO works with the defined, pre-filed fares used today. But pre-filing fares is not the most flexible and dynamic of processes, and it will be even less useful in the future.

Active Distribution and dynamic pricing informs the industry to rethink current practices, not extend them. To manage dynamic pricing, ATPCO has proposed that airlines use double-letter inventory codes (e.g., in addition to fare codes such as Y, B, M, etc., airlines would use inventory codes starting with YA, YB, BA, BB, MA, MB, and so on). This could suit some airlines, while others may well choose a totally different path.

Third-party fare-filing exists today because the processes in place make it a necessity. In the world of Active Distribution, airlines will have the ability to dynamically price an offer in real-time. As airlines reduce the number of pre-filed fares they publish, they also reduce their need for such tools.

Dynamic, unaffiliated carrier itinerary creation.
Technology from firms like Air Black Box will make it increasingly possible for airlines to sell itineraries that include both flights and optional services, even if the carriers do not have ticketing agreements.
Technology like this, when coupled with NDC-based solutions, will further enable airlines to create more appealing itineraries to travelers, whether or not formal interline agreements exist between the airlines.
Figure 21: New Technology Allows Unaffiliated Airlines To Sell Base And Ancillary Products Via their Websites

New fare family dynamically created to support this transaction.
Airlines view dynamic pricing as a major component of how they will improve flight shopping experiences and create better value for travelers in the future. Dynamic pricing will be one of the pillars of Active Distribution, enabling airlines to incorporate factors beyond load factors and booking curves in creating a price. Dynamic pricing will also allow airlines to validate a selling price at the time of booking, because the airline will have just created it – its PSS or a GDS won’t have to go back to a clearinghouse to obtain a fare. Airlines cite dynamic pricing as the top influencer of their future distribution strategies, ahead of predictive analytics, de-commoditization, and even NDC itself.

“By 2021, what three elements listed below will have the most impact on your airline’s distribution strategies?”

- Dynamic pricing: 69%
- Predictive analytics: 62%
- De-commoditization: 60%
- NDC: 52%
- Cognitive intelligence: 33%
- New forms of...: 21%
- Fraud prevention: 2%
The majority of airlines – two-thirds—believe they’ll have dynamic pricing capabilities within five years.\(^39\)

As admirable as carriers’ confidence in their abilities may be, wanting to offer dynamic pricing and implementing it, especially during the next five years, are very different. Several foundational components will need to exist for airlines to offer true dynamic pricing, starting with pricing and revenue management systems. Airlines will also require rich and actionable business and customer data, and personalization capabilities to create massive volumes of offers in real time. Reaching this point won’t be easy.

Existing pricing systems are inadequate. They’re designed to work in the current environment of defined, pre-filed airfares, not the new dynamic pricing airlines say is so important to them.

“We hear all this talk of dynamic pricing, but it is difficult to manage our existing pricing and revenue management systems given current headcount and competition. The existing systems and mindset are too reactive. We need to become more forward-looking. This is easier said than done.”
– Latin American network airline

“We’ve been discussing dynamic pricing ever since NDC became ‘real.’ Yet we struggle to cope with our own existing airfare database. There have been times where we’ve priced domestic first class below coach. If we struggle now, how will we perform when we’re in the world of dynamic pricing?”
– US network airline

“If we choose to offer dynamic pricing and our competitors do not, what will do? What will be the ‘fare’ we use to advertise?”
– European LCC

New dynamic pricing systems will need to be frictionless and able to create, price, and publish offers in nanoseconds, with no noticeable lag time. They will need to interface with databases beyond just airfares, and capable of calculating the price for an offer based on an extensive roster of business rules. The business rules will have to consider corporate agreements (including negotiated fares, discount percentages, value-added benefits, and more), elite-tier loyalty program status benefits, such as free checked baggage allowance or the ability to reserve certain seats at a discounted price, and more. All of this will have to be executed so that passengers and travel agents receive the information they require to sell and book an offer, and that travel agent workflows remain productive.

• Inadequate Customer Data Inhibits Successful Personalization

Active Distribution will be intensely reliant on data – in particular, customer data – and organizing and using those insights to sell to a customer of one. This, unfortunately, is where airlines find themselves weaker than Superman surrounded by Kryptonite. Personalization is not an important part of current distribution efforts – in part because airlines executives know it cannot be - but by 2021, 88% of airline executives say personalization will matter.
Customer data plays a crucial function in all aspects of airline retailing, particularly dynamic pricing and offer management. As Sabre observed, “Analytics will be more and more important to create the offer management tool of the future.” Airlines know this. Amadeus told Atmosphere Research that in its conversations about distribution strategies and technologies with airlines, “We spend fifty percent of our time talking about data,” continuing “We haven’t heard one airline say they don’t want to do more with data.” Yet airlines admit that today it’s a struggle to find and use the data they need.

It’s not as though airlines lack data. In a 2015 study of 56 airlines around the world, Atmosphere Research learned that airlines have passenger data stored on 35 databases and data warehouses, housed both within the carrier and at vendors, located in 14 countries. Though passengers may presume the airlines they fly have good quality data about them – after all, the other businesses they regularly interact with seem to have this – airline executives admit their customer data is far from ideal. Asked to rate the quality of their customer data on a 10-point scale, where 10 equals “Excellent/World Class”, airlines scored their customer data an average of 5.2 – a sad reflection of this mission-critical asset.40
If airlines want Active Distribution to help them be more successful retailers, they will need to integrate all of their customer data. According to Sabre, airlines may establish a customer ID number and provide their loyalty members with an account number, but these identifiers are often different and are not associated with one another. This gap, in Atmosphere Research’s opinion, is a blinding glimpse of an obvious problem that airlines must address in order to fulfill the potential of true end-to-end airline retailing for a traveler’s journey.

The inadequate nature in which many airlines are equipped to manage and leverage their customer data is painful – and airlines know they must improve in this area.

“Our loyalty program data is phenomenal. We know we need to do more to integrate other customer data insights with this, and work to capture data from passengers who aren’t [loyalty program] members.”
– US-based network airline

“To offer dynamic pricing and personalized offers in a few years, we must enrich the breadth and depth of our data so that we can be more proactive. We’re optimistic about the benefits that predictive analytics and cognitive intelligence may offer, but these tools are still expensive for an airline like ours. Hiring and retaining the people we need to work on our data is also a struggle.”
– European-based LCC

“At least once a week I read an article which lauds the great data that telecom and wireless companies have. At least once a week, I’m insanely jealous of my counterparts at those companies.”
– European network airline

Airline executives acknowledge that personalization is an important objective. Seventy-nine percent of the airline executives surveyed believe it is somewhat or very likely their carriers will be able to implement personalized offers by 2021. Active Distribution will be based on airlines knowing their customers, and yet airlines show, at present, a lack of cohesive, consistent customer insights. Different departments with a carrier may have very different views of their passengers. As we heard from Amadeus: “If we’re in a meeting with five different departments of airline and ask ‘how do you segment your customers?’, we get five different answers.”

Airlines must also consider that passengers want what they want. Jim Hornthal, CEO of trip-planning site Triporati, says that 55% of the people who visit its home page customize its search engine to help them receive more precise and worthwhile recommendations. A majority of both business and leisure passengers want to track the products they buy, their interests, and more so they receive more pertinent offers.
Figure 24: Passengers Want Airlines To Use Customer Data To Improve Flight Shopping

Percent who somewhat/completely agree that the following would be helpful when shopping for flights.

<table>
<thead>
<tr>
<th>Service</th>
<th>Leisure passengers</th>
<th>Business passengers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letting you customize the promotions or special offers you want to receive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracking the optional airline products you buy and letting you know when they are available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emailing or texting you promotional offers to use at your destination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letting you store your favorite interests or travel-related activities in your travel profile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommending travel products and services based on your previous purchases from the airline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letting you store your favorite destinations on the airline’s website/mobile app</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Showing you destinations where your friends have visited</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Base: Online airline passengers age 18+ in Australia, Canada, Brazil, Germany, Mexico, Singapore, the United Kingdom, and USA
Source: IATA NDC Airline Passenger Online Study Q3 2015, conducted by Atmosphere Research
Passenger service systems (PSSs) help airlines define themselves in the market, functioning as an airline’s brain, heart, and cash register. PSSs initially had an operational focus. Airlines have since morphed them from neat holistic systems into massive constellations of software and applications covering almost every part of an airline’s operational and commercial activities. Functions that weren’t native to the PSS were bolted on. Airlines connect their PSSs to their own direct channels and, if they wish, to third-party retailers via distribution channels such as GDSs, alternative connectivity platforms or their own gateway portals/VCHs.

Figure 25-1: Existing PSS Infrastructure Must Support Multiple Gateways
Active Distribution and true retailing require that airlines have at their core not “passenger service systems” but instead “Full Retailing Platforms” (FRPs). As its name implies, FRPs are intended to support airlines’ desires to become true retailers. FRPs will be modular by design. Airlines will be able to assemble, add, and replace an FRP’s various components as needed to achieve their retailing objectives. Among an FRP’s components will be a new-generation inventory module, scheduling, offer and order management systems, dynamic pricing and revenue management software, and more – many of which will incorporate artificial intelligence applications. FRPs will also be tied to customer and loyalty member databases to support personalization. As PSSs do now, FRPs will connect with relevant flight service functions, such as flight check-in.

FRPs will benefit the airline and the passenger, regardless of booking channel, with rule-based functions that allow for differentiation down to a customer of one. Existing distribution channels, such as GDSs, and new forms of communications, such as unstructured, natural language text (the basis for conversational commerce) will all have to be supported, though each airline will individually configure its FRP to connect with its choices of channels and communications platforms.

A few functions within the FRP warrant further examination, since by 2021 they will change in substantial and meaningful ways from what they do today.

- **Inventory.**
  The era of Active Distribution will force airlines to examine their inventory along two dimensions: what they sell, and how they organize that content.

  Ask an airline manager or executive about inventory, and you’ll hear a discussion about “seats.” The answer really should be “space.” For many network airlines and LCCs, cabin inventory is not associated with a specific seat. A flight reservation is, thus, a virtual product – simply a “ticket to ride,” to quote the Beatles. Today, ancillary products are often stored in separate product databases, and may have different characteristics, some of which may overlap. Ancillary products can be tangible (a specific seat), attribute-based (an aisle seat), itinerary-based (checked baggage), and flight-based (in-flight Wi-Fi). As if that wasn’t enough, some ancillaries have physical inventories (aisle seats) while others do not (Wi-Fi). FRPs will need to store and manage both cabin inventory and ancillary products in one integrated inventory module, and understand the various characteristics associated with each product.

  The second task that FRPs’ inventory module will need to support is a new way to organize and manage the inventory available for sale. For decades, airlines have managed their inventory using a series of alphabetical codes for cabin classes and fare booking classes (also known as “fare buckets”). By 2021, only cabin classes will be essential. Why? NDC and dynamic pricing make “fare buckets” obsolete. When a shopping request is received, the FRP will assess available seat and product inventory and, through an NDC-compliant offer management application, dynamically create the offer, connecting with a dynamic pricing and revenue management tool to generate the price. Doing away with fare buckets isn’t fanciful thinking. Airline executives believe doing away with fare buckets is likely to happen, scoring their intentions to do this 3.7 out of 5 points. As a result, by 2021 it may be possible for airline to use retail inventory management systems, which may be less expensive, more flexible, and easier to manage than airline-specific inventory software.
• **Scheduling.**

Even though an airline’s schedule is a core product component, airlines have traditionally never viewed a key aspect of their schedules—their hubs—as “products.” Historically, airlines have routed passengers based primarily on a combination of time of day, the shortest flight time and lowest available fare. Looking ahead, airlines will need scheduling software designed to access and consider a traveler’s and channel’s values, and route passengers accordingly. For example, if a low-margin traveler is shopping for a flight using a low-margin third-party retailer, airline-created business rules can instruct its scheduling module to create routings through a secondary hub. Current systems don’t allow this. Active Distribution will require it.

• **Selling capabilities.**

Active Distribution will require FRPs equipped with sales platforms that can create, compile and publish offers in a frictionless manner, something not possible today. The combination of dynamic pricing and FRP sales modules will help provide airlines with complete control over the sale. The airline will be the sole publisher of all content—including, importantly, the price. This new environment will place enormous burdens on FRP sales modules. They will need to perform flawlessly, with no noticeable lag time and near-perfect “up time.” This isn’t trivial, given the technology problems that recently affected several large carriers and European Commission Regulation 261/2004, which penalizes carriers heavily if they do not perform.

Airlines will assemble their FRPs by integrating the necessary software systems from qualified vendors. These vendors will include a mix of established PSS providers, such as Amadeus, Hewlett-Packard Enterprise, Radixx, Sabre, SITA, and Travelsky, newer-generation airline software providers (examples include Air Black Box, Datalex, Farelogix, JR Technologies, IBS, OpenJaw), and “general purpose” technology vendors, such as Adobe, Oracle, Salesforce, and SAP Hybris. With FRPs able to use new types of inventory software, airlines may see retail software vendors, such as IBM and NCR enter the sector as well.

• **Distribution Channel Managers And Distribution Clouds Link FRPs To Airlines’Partners**

The era of Active Distribution means that during the next five years, FRPs will need to work with a larger mix of distribution channels that will include GDSs, alternative distribution platforms, direct connections to some third-party retailers and, inevitably, channels that do not yet exist. To manage this, airlines will add a “Distribution Channel Manager” (DCM) — essentially an artificial intelligence-based smart switch — which sits above the PSS.
The DCM will be a programmatic application that will, at the airline’s control, instantly and dynamically route an airline’s responses to shopping requests using the distribution channel that best meets the shared needs of the airline and passenger. Larger, more technologically advanced third-party retailers would also be given the option to connect to the DCM, via an API link established by the travel agency.

Between the distribution channels and third-party retailers will sit a “distribution cloud.” The distribution cloud will allow airlines to set up their own individual secure, private networks to dynamically distribute their products to third-party retailers. Third-party retailers connecting with the airline via a distribution cloud would use that as the airline’s guest, and would be required to follow whatever rules the airline establishes. The distribution cloud would provide third-party retailers with access to whatever public content the airline would choose to share, plus any private or negotiated content that the retailer and airline have negotiated. To receive that private content, all the retailer would have to do is tick a box.
• Countless Non-Airline Technology Providers Will Participate In Airline Distribution. Only Google Matters.

In our 2012 report about the future of airline distribution, we discussed how five non-traditional, new-generation technology firms would play major roles in airline distribution: Concur, Apple, Facebook, Google, and Amazon (we nicknamed the group ‘CAFGA’). Several of these firms have, indeed, become quite active in travel distribution – and, we believe, will become further involved during the next five years.

Concur, now owned by SAP, remains one of the most important travel technology firms. Concur’s primary value, and its resulting strength and influence, stems from the firm’s extensive traveler data – travel dates, origin and destination, carriers flown, spend, forms of payment, and more. Among Concur’s assets relevant to airline distribution are the Indian OTA ClearTrip, itinerary aggregator TripIt and, as of September 13, 2016, metasearch engine Hipmunk. Concur TripLink allows its clients’ employees to book their company fares through authorized third-party websites (such as airline websites or OTAs), with reservations integrated into Concur. Parent SAP offers extensive industry-specific software solutions for airlines and travel agencies, including “Big Data” analytics, and its SAP Hybris division recently launched a focused effort to provide technology solutions to the airline industry, including a PSS. Concur isn’t perfect, of course. Though strong in expense software, Concur’s corporate booking tool is not as well-regarded. In August 2016, American Express Global Business Travel, which uses the Concur online booking tool, bought Concur competitor KDS, in part to leverage its Neo corporate booking tool as part of a comprehensive booking platform for the TMC’s clients. As a result of Concur’s legacy strengths – in particular its data – its track record in acquiring distribution businesses (and financial ability to acquire more), its Perfect Trip venture fund, and parent SAP’s commitment to airline distribution and technology, Atmosphere Research believes that within the next five years, Concur will emerge as one of the three most powerful, most important non-GDS travel technology firms.

The second company of the original five that will be increasingly important by 2021 is Facebook. Facebook has evolved far beyond its social network roots. The company’s acquisitions, such as photo-sharing site Instagram, messaging app WhatsApp, and virtual reality set manufacturer Oculus, as well as Facebook’s own products such as Facebook Messenger (which includes a payment tool) and advertising platform have helped make the company essential to travel distribution and marketing. How else may Facebook participate in airline distribution? Atmosphere Research believes Facebook may enter metasearch, either by developing its own product or via acquisition. Why would Facebook do this? To further increase its utility to its users and have them spend even more time on its properties (imagine a user looking at a friend’s travel photo on Instagram and wanting to fly that airline or visit that destination), increase advertising revenue and, of course, bolster its already extensive customer data.

But the company that will play the largest and more important role – which will include both positive and negative aspects to airlines and existing travel distribution firms – is Google.

Google has based its business on three things: developing tools that learn consumer intentions, aggregating that data, and creating businesses that leverage this data via advertising, referrals, or other means.
If you think of the travel “story arc” that spans every journey – business or leisure – Google has properties that can participate in almost every situation. Google’s search engine is, obviously, its largest and most visible asset. Google Search is used by more than 90% of US and UK airline travelers when they plan trips. Destinations on Google is a full-fledged vacation planner. Google owns ITA Software, whose products include an airfare pricing engine and an airfare dynamic cache tool. Google Flight Search (which uses ITA), the company’s metasearch engine, allows travelers to shop by interests (e.g. outdoor recreation, ecotourism, or honeymoon) and regions, such as South America or Africa. And, of course, there are other Google assets: Google Maps, Google Street View, Zagat (restaurant reviews), and more. The company had developed a PSS, but shelved it even though it was in service with airlines. Among the many other companies Google owns is Apigee, a cloud-based API management solution whose clients include travel technology firm Datalex. On September 19, 2016, Google launched a new trip planning tool, Google Trips. On October 4, Google introduced a suite of new consumer devices, including a voice-based home management tool, virtual reality headsets, and more, providing Google with more ways to knit its products and the traveler together. And, of course, there are Google’s various advertising products.

Very few airlines do no business with Google. This will become increasingly difficult, because Google has what airlines need: Travelers. Google knows more about passengers’ intentions than any GDS, any PSS – and possibly the traveler himself.

Eighty-five percent of airlines expect Google will become more involved in airline distribution during the next five years.

Figure 26: Airlines Consider Google Highly Likely To Increase Its Air Distribution Involvement By 2021

“By 2021, how do you expect the following technology companies’ involvement in airline distribution will change from current levels?”

<table>
<thead>
<tr>
<th>Company</th>
<th>Become less involved</th>
<th>No change</th>
<th>Become more involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>15%</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>Concur</td>
<td>56%</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>Baidu</td>
<td>68%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>SAP (incl. SAP/Hana)</td>
<td>76%</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Oracle</td>
<td>2%</td>
<td>78%</td>
<td>20%</td>
</tr>
<tr>
<td>IBM</td>
<td>20%</td>
<td>49%</td>
<td>2%</td>
</tr>
<tr>
<td>Hewlett-Packard</td>
<td>49%</td>
<td>49%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research
And the next five years will indeed be interesting, because the five-year US Department of Justice consent decree that Google agreed to in 2011 to acquire ITA Software will expire in October 2016. That decree, in part, required Google to make ITA’s products available to third-parties. Atmosphere Research believes the expiration of the DOJ’s restrictions may give Google the ability to restrict third-parties’ access to ITA’s products. If that occurs, GDSs and third-party retailers, especially metasearch engines and OTAs, may find themselves with reduced access to ITA’s software, which could put them at a competitive disadvantage to airlines’ direct channels. This may not be as devastating as it sounds. If, during the next five years, as airlines implement Active Distribution strategies, including NDC-enabled initiatives like dynamic pricing, carriers could publish their prices directly to third-parties.

If this wasn’t enough, consider this additional possibility: Google becomes an OTA within the next five years. One could argue that it’s already taken its first steps down this path, supporting facilitated booking for Lufthansa via Google Flight Search. And, if the economics are reasonable, more airlines may want to follow in Lufthansa’s footsteps. Why would Google want to become an OTA? Google may see opportunities to collect more data and monetize these insights about consumer intentions – and increase its competitive position in the market. Would Google buy an existing OTA or build its own? It doesn’t matter. Because when you’re Google, all that matters if that you’ve decided to enter travel retailing. As VaultPAD’s Timothy O’Neil-Dunne observed, “Who is the bigger enemy, Google or the GDSs?”

Concur, Facebook, and Google aren’t the only technology companies that airlines believe may play larger roles in airline distribution. Airlines also anticipate that Amazon, Uber, and Tencent will impact airline distribution during the next five years.
“By 2021, how likely is it that any of these technology companies will play active roles in airline distribution?”

<table>
<thead>
<tr>
<th>Company</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon</td>
<td>3.9</td>
</tr>
<tr>
<td>Uber</td>
<td>3.4</td>
</tr>
<tr>
<td>Tencent (China)</td>
<td>3.4</td>
</tr>
<tr>
<td>Facebook</td>
<td>3.2</td>
</tr>
<tr>
<td>Apple</td>
<td>3.1</td>
</tr>
<tr>
<td>Microsoft</td>
<td>2.9</td>
</tr>
<tr>
<td>Wal-mart</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Base: 49 airline Distribution and Commercial executives  
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research

- **Payments Will Assume Greater Importance**

While much of the attention in airline distribution is on reservations and channel share, payments have become an increasingly important area of focus.

Airlines cite payments’ potential to serve more customers as payments’ most important role to their distribution strategies during the next five years, followed by exploring ways to reduce payment costs, and improving passenger convenience.
“When thinking about the role(s) payments play in your airline’s future distribution strategy, how important are the following?”

- Expanding your ability to serve more customers: 3.3
- Reducing costs: 2.7
- Improving passenger convenience: 2.5
- Improving brand image / passenger appeal: 1.4

Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research

“No good business ever says ‘no, I can’t take your money.’”
– Middle Eastern network airline

“We’ve been surcharging on certain forms of payments for a while, without much of a fuss from the public. We’re concerned government regulations may infringe on what we are able to do in this area.”
– European LCC

“The [credit] card issuers get far too much of our money. Shaving even a small amount off my interchange rates translates into considerable savings.”
– US network airline

There are more payment cards in circulation than there are people on Earth. At the time of this report’s publication, global population is estimated to be 7.45 billion people. According to The Nilson Report, there were nearly 9.5 billion credit, debit, and prepaid cards in circulation in 2014 – or approximately 1.3 cards for every person on the planet. Clearly, “plastic” is popular, although US consumer data suggests Millennials are less likely to use credit cards.
Active distribution demands that airlines extend their customer focus into the payments area. Credit cards, as we will see, will continue to play an important role. But as the airline distribution community look ahead to the next five years, they should anticipate the following:

- **Airlines focus on locally-friendly, frictionless payments.**
  No well-run airline or third-party retailer wants unnecessary obstacles to exist between a customer and the products they want to buy, whether that's an awkward payment process or the inability to accept a customer's preferred form of payment. Credit cards, BSPs, and online banking transfers are airlines' three leading forms of payment in 2016.

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Figure 29-1: Credit Cards, BSP, EBT Most Important Forms Of Payment Today

"How important are the following forms of payments to your airline and its distribution efforts now?"

<table>
<thead>
<tr>
<th>Form of Payment</th>
<th>1 Not at all important</th>
<th>2</th>
<th>3 neither important nor unimportant</th>
<th>4</th>
<th>5 Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit cards</td>
<td>32%</td>
<td></td>
<td>68%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSP</td>
<td>5%</td>
<td>2%</td>
<td>15%</td>
<td>22%</td>
<td>56%</td>
</tr>
<tr>
<td>Cash/cheques</td>
<td>2%</td>
<td>22%</td>
<td>20%</td>
<td>15%</td>
<td>42%</td>
</tr>
<tr>
<td>Online Banking</td>
<td>5%</td>
<td>5%</td>
<td>22%</td>
<td>54%</td>
<td>15%</td>
</tr>
<tr>
<td>Alipay</td>
<td>27%</td>
<td>12%</td>
<td>17%</td>
<td>7%</td>
<td>24%</td>
</tr>
<tr>
<td>Installment payments</td>
<td>42%</td>
<td></td>
<td>22%</td>
<td>7%</td>
<td>24%</td>
</tr>
<tr>
<td>Virtual credit cards</td>
<td>20%</td>
<td>29%</td>
<td>34%</td>
<td></td>
<td>12%</td>
</tr>
<tr>
<td>Mobile money</td>
<td>49%</td>
<td></td>
<td>32%</td>
<td></td>
<td>15%</td>
</tr>
<tr>
<td>UATP</td>
<td>15%</td>
<td>12%</td>
<td>49%</td>
<td></td>
<td>22%</td>
</tr>
<tr>
<td>Paypal</td>
<td>29%</td>
<td>22%</td>
<td>24%</td>
<td></td>
<td>24%</td>
</tr>
<tr>
<td>Bitcoin</td>
<td>80%</td>
<td></td>
<td>10%</td>
<td></td>
<td>10%</td>
</tr>
</tbody>
</table>

Numbers may not total 100 due to rounding.
Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research
Of these three, airlines expect only online banking transfers to become more important by 2021 (BSPs and credit cards are expected to retain their existing level of importance).

Figure 29-2: By 2021, Airlines Expect “Emerging” Forms Of Payments Such As Installments And Mobile Money To Become More Important

“How do you expect the importance of the following forms of payments will change to your airline and its distribution efforts between today and 2021?”

<table>
<thead>
<tr>
<th>Form of Payment</th>
<th>1 Become much less important</th>
<th>2</th>
<th>3 No meaningful change</th>
<th>4</th>
<th>5 Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online banking</td>
<td>2%</td>
<td>7%</td>
<td>27%</td>
<td>63%</td>
<td>32%</td>
</tr>
<tr>
<td>Virtual Credit Card</td>
<td>2%</td>
<td>5%</td>
<td>61%</td>
<td>32%</td>
<td>24%</td>
</tr>
<tr>
<td>Mobile Money</td>
<td>10%</td>
<td>66%</td>
<td>24%</td>
<td>63%</td>
<td>24%</td>
</tr>
<tr>
<td>Installment Payments</td>
<td>24%</td>
<td>54%</td>
<td>22%</td>
<td>54%</td>
<td>22%</td>
</tr>
<tr>
<td>Alipay</td>
<td>12%</td>
<td>71%</td>
<td>17%</td>
<td>71%</td>
<td>17%</td>
</tr>
<tr>
<td>Paypal</td>
<td>27%</td>
<td>71%</td>
<td>2%</td>
<td>71%</td>
<td>2%</td>
</tr>
<tr>
<td>Bitcoin</td>
<td>5%</td>
<td>42%</td>
<td>51%</td>
<td>42%</td>
<td>51%</td>
</tr>
<tr>
<td>BSP</td>
<td>20%</td>
<td>71%</td>
<td>7%</td>
<td>71%</td>
<td>7%</td>
</tr>
<tr>
<td>Credit Cards</td>
<td>12%</td>
<td>66%</td>
<td>22%</td>
<td>66%</td>
<td>22%</td>
</tr>
<tr>
<td>UATP</td>
<td>17%</td>
<td>78%</td>
<td>5%</td>
<td>78%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Numbers may not total 100 due to rounding.
Base: 49 airline Distribution and Commercial executives
Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research
The forms of payments that airlines anticipate becoming more important, which include mobile money and installment payments, share two traits. Each addresses local preferences to be relevant. In the Netherlands, this may mean accepting IDEAL. In China, it’s UnionPay and Alipay. In Brazil, it’s Crediário. During the next five years, as online retailers, local cafes, and others accept the payments consumers want to use, airlines and third-party retailers will be judged by whether they are equally consumer-focused. The second trait is “frictionless” commerce – removing hassles from the check-out process. Touch ID, mobile payments, and “one click” payments make it easier for consumers to purchase. As airlines sell more ancillary products, frictionless payment processes may contribute to higher sales and greater revenues.

- **Payment-related regulatory changes that benefit airlines.**
  Pascal Burg, Director at Edgar, Dunn & Company and a leading consultant in travel industry payments, sees several regulatory changes in payments which should benefit airlines during the next five years. The first is a reduction in the interchange fees in regions such as Europe (e.g. interchange cap of 0.3% for consumer credit cards), which should result in lower costs for airlines. Mr. Burg also believes some airlines might consider to become their own “acquirer” or route transactions dynamically (e.g. directly to large card issuers). Playing a larger role in the card acceptance/acquiring value chain may allow airlines to achieve higher levels of successful card authorization rates, be paid faster and help them cut costs. Finally, some countries now legally permit airlines to impose surcharges on certain forms of payment, which allows airline to recoup the associated expense, and direct passengers to use preferred forms of payments, which may aid commercial objectives, reduce costs, or both.

- **New payment providers emerge.**
  Technology has enabled payment start-ups to emerge around the world which will expand the universe of payment options available to carriers to serve their customers. Atmosphere Research believes three types of payments will assume much larger roles by 2021: M-Pesa, Alipay, and Paypal.
  - M-Pesa is a “mobile money” provider that serves consumers Africa, India, Afghanistan, and Eastern Europe. M-Pesa makes it easier for consumers without bank accounts – about two billion people worldwide – to make purchases, since the consumer can deposit funds into their M-Pesa account at an authorized local merchant. Mobile money providers like M-Pesa offer airlines the potential to support trans-border purchases, further expanding an airline’s potential market. M-Pesa doesn’t have the Kenyan market to itself, of course. Airtel, a key competitor, could grow during the next five years to further challenge M-Pesa.
  - Alipay, a unit of China-based Alibaba Group, is a mobile-centric, digital payment platform that accounts for 50% of China’s RMB3.9 trillion online payments, and 68% of the country’s mobile payments. Alibaba, with 450 million active users, generates more than three times the volume of mobile payments as Tencent’s WeChatPay app. Alipay isn’t a credit card, which is important for China. It’s estimated that slightly more than one-fourth of Chinese consumers have credit cards – and credit card adoption among Chinese consumers is declining. In contrast, more than nine in 10 Chinese airline passengers have smartphones. And there’s this: Buying air tickets is the fourth most popular category on Alipay – meaning that a generation of
Chinese travelers are growing up using Alipay as a primary payment tool. That behavior will stay with them – and undoubtedly expand to additional consumers in China by 2021. As successful as Alipay is, airlines should keep an eye on WeChat Pay. WeChat Pay is working with international retailers, is a creative marketer, and almost doubled its market share from 2014 to 2015.55

- PayPal, the US-based payment platform, accounts for a diminutive share of payments today. Consider this: In the US, Millennials are less likely to have credit cards, and show little interest in getting them. Yet, this well-educated base of consumers also loves to travel. Enter payment platform PayPal, which allows consumers to pay merchants directly from their bank accounts, or with debit or credit cards. In 2016, more than 14% of US leisure airline passengers used PayPal to buy airline tickets.56 Among travelers age 18 to 23, nearly one in five did so. PayPal also owns Venmo, a peer-to-peer, mobile-centric digital wallet that allows people to pay friends or businesses, and receive money as well. Like PayPal, Venmo supports bank transfers and credit and debit cards. The company already processes $1 billion of payments a month.57 PayPal’s collective ability to help consumers pay directly from their bank accounts – which helps them manage their budgets – strong mobile focus, and consumer credibility positions it to take a larger role in airline payments during the next five years.

M-Pesa, Alipay, and PayPal aren’t the only payment providers that will impact airline distribution during the next five years. There are additional players. Alternative Payments (yes, that’s really its name; the company allows companies to accept locally-preferred payments on their websites), Square Cash, UpLift, and Zelle are just four start-ups to watch. Pascal Burg shared that countries like Turkey, India, Bulgaria, and Russia are creating their own domestic payment cards, designed to compete with the major Western credit card brands. Presuming these cards are developed and launched in ways that consumers in those countries find appealing, it’s possible that by 2021 they should be established and working with airlines. Real-time bank transfers are also being introduced in the UK and elsewhere, which allow airlines to collect their funds far faster than the present timeframe of one to three days. IATA itself is introducing a new generation IATA Settlement Systems (NGISS) intended to improve how airlines and third-party retailers settle funds with one another, enhancing the value, utility, and reliability of the trusted BSP program. Among the benefits to airlines: The new “EasyPay” payment method within the NGISS should cost less than existing credit card processing.

What about mobile wallets? We believe that, in spite of extensive consumer smartphone adoption, mobile wallets will remain niche forms of payment, even five years from now, unless and until paying with a mobile wallet becomes tangibly easier than using contactless cards or traditional plastic credit/debit cards for everyday non-airline purchases. But what about people booking on their smartphones, tablets, or other mobile devices? The majority of those passengers will probably have stored one or more forms of payments with the airline or third-party retailer, making a mobile wallet unnecessary for the initial purchase. Where mobile wallets may be useful within air travel are for in-person transactions, such as paying checked baggage fees at a check-in counter, to pay for an airport lounge pass, and for onboard purchases. However, the consumer will have to believe using their mobile wallet provides them with meaningful benefits.
benefits, especially faster service, a higher degree of payment accuracy or security, or some kind of reward (e.g., a discount or bonus item).

Airlines generally serve as the merchant of record (MOR) for ticket purchases. A third-party, such as a travel agency or tour operator, acts as the merchant of record primarily when it is advantageous or necessary for the third-party to do so. If a third-party is able to accept forms of payments that an airline cannot, passengers will prefer to have the third-party, rather than the carrier, act as MOR – a move that may negatively impact an airline’s cash flow, costs and, possibly, fraud. During the next five years, airlines should take steps to accept all widely-used forms of payment in each country the carrier serves, so that the airline is viewed as customer-friendly and positioned to always function as MOR for its transactions, delegating that role to third-parties exclusively at its discretion.

Atmosphere Research expects that fraud prevention will become a larger part of airlines’ focus within their payments function. As forms of payments proliferate, and as airlines accept more forms payment, the opportunities for fraudulent activity will increase. Criminals, including hackers, will undoubtedly try to defraud airlines through false purchases using stolen or hacked forms of payments, breaking into airline databases to steal customer data, and more. Technologies such as AI, blockchain, and biometrics may help airlines combat fraud. AI can help airlines analyze and detect potentially criminal patterns of behavior. Blockchain can work on connected computers to record every transaction in a traceable manner, and doesn’t require a clearinghouse to work. Biometrics – for example, touch ID – may provide a useful additional layer of security to reduce the likelihood of fraudulent transactions occurring by authenticating the purchaser at time of transaction.

Finally, payments is a function that will reflect the roles of individualism within Active Distribution. Ideally, once an airline knows a passenger’s country of residence, it can proactively suggest the relevant forms of payment, guiding the passenger (where allowed) to forms of payment that favor the airline (such as a lowest-cost option or a co-branded credit or debit card). If a passenger has transacted with an airline, its personalization efforts should present the passenger’s preferred form of payment at the appropriate point within the booking process and, again where allowed, offering the traveler an incentive to use a form of payment that is somehow advantageous to the airline. Finally, by 2021 airlines should configure their distribution systems to accept multiple forms of payment for a single transaction, such as cash and miles, cash and installments, credit card and bank transfer, etc.
CONCLUSION

The next five years may see more change within airline distribution than the previous 50. The change may be stimulated by external macro factors that impact the industry, such as politics and trade, global and national economies, technology innovation and access, and airline industry conditions (e.g., airline start-ups and mergers, airport access, and fuel costs).

But much of airline distribution’s evolution, and possible revolution, will stem from events much closer to this function. Airline distribution is no longer insular or isolated. Technology, ancillary products, and the embrace of retailing by smart carriers are three disruptive factors that have affected airline distribution between 2012, when we wrote our first report, and today. These actions have helped destroy the silos between Distribution and other airline functions, particularly Marketing, Digital Commerce, and Sales, and contributed to many carriers’ decisions to move Distribution into their Marketing departments.

Airline distribution has ceased to be solely about GDS connectivity. Distribution is, and will continue to be, about building and sustaining a highly efficient marketplace for each airline, so that each airline has the best possible “shelves” on which to sell its products. This perspective won’t change in the next five years, or in the decades beyond. What will change is how these marketplaces function, the technologies they use, the capabilities they offer and the third-parties with whom they connect.

Disruption will be prominent in airline distribution during the next five years. Disruptive technology, social events, and commercial behavior outside the airline industry will inspire and serve as catalysts within our industry. An example is Apple’s rumored interest in UK supercar maker McLaren Technology Group. What does this have to do with airline distribution? Apple’s interest in McLaren illustrates how a software company with an audacious objective (developing a driverless car) could choose to acquire the expertise it needs (car design and manufacturing), rather than develop it internally in order to get to market faster – and, ideally with a better product. What would happen to the airline industry if a cruise line or hotel group were to enter the scheduled airline business, contracting with a third-party carrier to provide the aircraft, pilots, maintenance, and insurance?

Disruption requires both creativity and money. The creativity exists, both within established airlines and airline- and travel-technology firms and in start-ups around the world. The money exists as well. Travel technology remains popular with investors, with multiple venture capital firms investing in airline- and travel-related distribution businesses. Investment isn’t limited to venture capital firms, either. JetBlue has its own venture fund, as do travel technology firms such as Amadeus and Concur, a trend we expect to see grow. Non-travel technology firms also have their own “in-house” venture funds as well – think of Google Ventures (and its sister division for later-stage firms, Google Capital), among others.
Atmosphere Research believes that the greatest disruption will stem from firms that aren’t in airline distribution but which have the interest, means, and credibility to enter the space. Who might do this?

- Niche private air service operators, such as WheelzUp and JetSuite, could license Uber’s software to make it easier for consumers to enjoy “on-demand” airline service.

- Airbnb, already used by Lufthansa to sell its long-haul premium economy product, could develop or acquire a metasearch engine or OTA. Likewise, Facebook could also develop or acquire a metasearch engine or OTA.

- Well-funded technology firms like Google, Alibaba, or Tencent. All have the cash and existing assets which would provide possible motivation to play larger and more dominant roles in airline distribution. The firms could disrupt through organic efforts – Google, for example, has a dormant PSS – or they could acquire an existing travel technology firm.

Airline distribution professionals cannot, and should not, avoid the opportunity to disrupt, simply because it may be inconvenient, difficult or even scary to do so. Companies that deliberately avoid disruption risk becoming the companies that are disrupted (look at Yahoo). The better retailing experiences that airline distribution professionals need to introduce during the next five years will not be based solely on initiatives such as NDC and One Order, on constructs such as “the three I’s”, or by Full Retailing Platforms, but by thinking and executing in bold, audacious ways that intentionally overturn decades of outdated, calcified distribution practices. The airline distribution community can choose to innovate and disrupt, or allow others to be the disruptors and innovators, and force their ideas on us.
ENDNOTES

1 The World Bank estimates global GDP will grow 2.4% in 2016, 2.8% in 2017, and 3.0% in 2018.

2 Source: Airbus Global Market Forecast, 2016-2035.


4 In 30 countries, there are more people age 65 and older than children age 14 and younger. The total number of countries where this is expected to occur will nearly double by 2030, and will include China and the United States. For airlines, the implications are fewer potential passengers.
http://www.ipsnews.net/2016/08/the-historic-reversal-of-populations/

5 Base: Online leisure passengers who are age 60.
Source: IATA NDC Airline Passenger Online Study, Q3 2015, conducted by Atmosphere Research.

6 Base: Online leisure passengers who are age 60.
Source: IATA NDC Airline Passenger Online Study, Q3 2015, conducted by Atmosphere Research.

7 Source: IATA NDC Airline Passenger Online Study, Q3 2015, conducted by Atmosphere Research.

8 In the Expedia Media Solutions 2015 Traveler Attribution Study, consumers stated they visit an average of 38 websites prior to booking their trip. Clickstream data in the report indicates consumers start to plan their trips 45 days before booking.


10 Base: Online leisure airline passengers from France, Germany, the UK, and USA.
Source: Atmosphere Research Group’s Travel Online Study, Q1 2016 (USA) and Q3 2016 (all other countries).

11 Base: Online leisure passengers age 18+ in Australia, Brazil, Germany, Mexico, Singapore, the UK, and USA.
Source: IATA NDC Airline Passenger Online Study, Q3 2015, conducted by Atmosphere Research

12 Base: Online business airline passengers from Australia, Brazil, China, France, Germany, India, Japan, Mexico, Spain, the UK, and USA
Source: Atmosphere Research Group’s Travel Online Study, Q1 2016 (USA) and Q3 2016 (all other countries).

13 A story arc spans each traveler’s journey, similar to the story arcs that span a television series. Within each trip are various segments, such as dreaming, planning, and booking, and within them, individual sales opportunities.

14 Atmosphere created the construct of the “three I’s,” – immediacy, individualism, and inspiration – to help travel Distribution, Marketing, and Product professionals think about how to develop their business strategies and tactics. Immediacy is a function of how travelers are increasingly mobile focused, and their resulting expectations for immediate engagement with travel organizations. Individualism reflects
travelers’ expectations for highly personalized product offers and experiences. Inspiration reflects the need to provide travelers with immersive, retail-like shopping experiences that include rich media, such as photos and video, and detailed and well-written content.


15 Source: IATA NDC Airline Passenger Online Study, Q3 2015, conducted by Atmosphere Research.

16 Pinterest has introduced a visual search shopping tool, to help consumers find the products they see pinned on the site. Source: Anthony Thurston, “Pinterest Makes It Easier For You To Buy What You See,” Digital Trends, June 29, 2016

17 As big-name retailers incorporate mobile visual search in their apps, it’s believed they will soon integrate conversational commerce-based tools such as chatbots and mobile concierges to help shoppers find products.

18 In the US, Internet-connected vehicles and other everyday products added more new wireless subscribers than mobile phones and tablets in Q2 2016.

19 The device mesh refers to an expanding set of Internet-enabled endpoints people use to access software, applications, and information, or to interact with other people or organizations and businesses as part of the emerging Internet of Things universe.
https://www.gartner.com/newsroom/id/3143521

20 Source: “Travel Booking trends Revealed In Let’s-Book-It Moments,” Think With Google, July 2016

21 Source: Chris Messina, “Conversational Commerce: Messaging apps bring the point of sale to you,” January 15, 2015
https://medium.com/chris-messina/conversational-commerce-92e0bccc3ff#h3:7ul5ew


24 Data for week of September 19 – 26, 2016. Source: CAPA
http://centreforaviation.com/profiles/alliances/

25 Source: Global LCC seat share as a percentage of worldwide capacity, CAPA.
http://centreforaviation.com/profiles/hot-issues/low-cost-carriers-lccs#lcc

26 Source: Bloomberg, “Ryanair looks to team up with long-haul carriers,” The Telegraph, September 17, 2015
http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/leisure/11871399/Ryanair-looks-to-team-up-with-long-haul-carriers.html


28 In 2014, the sale of frequent flier points produced 38% of airlines’ ancillary revenues, based on the 63 carriers included in IdeaWorks Company research (US$22.5 billion in frequent flier point sales, out of US$59.2 billion in total ancillary revenues). Source: 2015 CarTrawler Worldwide Estimate of Ancillary Revenue, published by IdeaWorks Company.
29 Base: US online airline passengers.
Source: Atmosphere Research Group’s US Travel Online Study, Q1 2016

30 Base: UK online airline passengers.
Source: Atmosphere Research Group’s European Travel Online Study, Q3 2016
Sabre processed 384.3 million travel agency airline reservations in 2015 and 322.0 million in 2014.

31 Base: Japanese online airline passengers.
Source: Atmosphere Research Group’s Asia-Pacific Travel Online Study, Q3 2016
Amadeus reported processing 505.0 million airline bookings in 2015 and 466.5 million in 2014.

32 Sabre processed 384.3 million travel agency airline reservations in 2015 and 322.0 million in 2014.

33 Amadeus recorded 747.3 million passengers boarded by airlines that used its Altea PSS in 2015, up from 695.4 million in 2014. (Source: Amadeus Management Review, Full Year 2015).

34 Source: Kevin May, “Lufthansa distribution goal at least two years away,” Tnooz, September 12, 2016
https://www.tnooz.com/article/lufthansa-Distribution-goal-at-least-two-years-away/

35 Source: “NDC: Travel Agents’ Enabler To Success”, October 2015, written by Atmosphere Research for IATA

36 Source: “NDC: Travel Agents’ Enabler To Success”, October 2015, written by Atmosphere Research for IATA

37 Data based on airlines disclosing ancillary product revenue.

38 Airlines were asked to use a five-point scale to answer the question
“How likely is it that your airline will have implemented dynamic pricing by year-end 2021?" In this question, 1 equaled “Not at all likely” and 5 equaled “Extremely likely”. No airline answered “1,” 2% answered “2,” 31% answered “3,” 38% answered “4,” and 29% answered “5”.

40 Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research

41 Source: IATA Airline Distribution Online Study, Q2 2016, conducted by Atmosphere Research

42 Air Canada, American Airlines, Etihad, Lufthansa, and United participate in the Concur TripLink program.
http://www.thecompanydime.com/aa-triplink/

43 American Express Global Business Travel chief commercial and technology officer, Philippe Chereque, stated that the company wanted to offer “the first seamless end-to-end experience” for business travelers.
http://www.travelweekly.com/Travel-News/Corporate-Travel/Amex-Global-Business-Travel-acquires-KDS
https://www.tnooz.com/article/datalex-api-partnership-google/  

Source: “Justice Department Requires Google Inc. to Develop and License Travel Software in Order to Proceed with Its Acquisition Of ITA Software Inc.,” US Department of Justice, April 8, 2011

Source: Worldometers Current World Population
http://www.worldometers.info/world-population/  


Thirty-seven percent of US households headed by a person age 35 or younger have credit card debt, the lowest since 1989.

An acquiring bank, or acquirer, is a bank or financial institution that processes credit or debit card payments on behalf of a merchant.

 Consumers who do not have bank accounts are known as “unbanked” consumers.
Source: “Which Way Will The Unbanked Pendulum Swing?”, PYMNTS, August 2, 2016

2015 data. Source: China National Bureau of Statistics  

http://www.wsj.com/articles/china-mobile-payment-battle-becomes-a-free-for-all-1463945404  

https://www.ft.com/content/2588b356-1e97-11e6-b286-cddde55ca122  

Base: Chinese online airline passengers. Source: Atmosphere Research’s China Travel Online Study, Q3 2015  

http://www.wsj.com/articles/china-mobile-payment-battle-becomes-a-free-for-all-1463945404  


http://adage.com/article/cmo-strategy/venmo-strives-maintain-market-share-campaign/305793/  

Apple is believed to be interested in either buying McLaren outright or making a strategic investment in the firm.
https://www.ft.com/content/523422ba-7ff6-11e6-8e50-8ac15fb462f4  

Building a car is “exponentially harder” than creating consumer electronics, which may explain why Apple would want to buy a carmaker.
https://www.wired.com/2016/09/apple-mclaren-deal/