

The CGI logo is positioned in the top right corner. It consists of the letters 'CGI' in a bold, red, sans-serif font. The background of the entire page is a light blue and white architectural rendering of a modern airport terminal with a glass facade and a central walkway. A dark blue airplane is shown in flight, viewed from above, in the center-right area. The top left and bottom right corners feature a network diagram with red and orange nodes connected by thin grey lines. A solid red vertical bar is on the far right edge.

**CGI**

Experience the commitment®

# **SimpliFLY the experience**

Applying emerging technologies to  
improve passenger well-being



The air travel industry is faced with a complex paradox. On one hand, the demand for air travel is growing at a very rapid pace, and is expected to double over the next two decades. According to the International Trade Transport Association (IATA), the trade body for the world's airlines, a staggering 7.8 billion people worldwide will travel by air by 2036. On the other hand, air travel is constantly challenged by safety, infrastructure, airspace and sustainability concerns, as well as the pressures of fierce competition. Burgeoning passenger numbers combined with stretched facilities and infrastructure are affecting the overall travel experience. Long queues at touch points, delays and cancelled flights are a constant source of passenger discomfort. Where once, air travel was perceived as luxurious and exciting, it has now become a journey where finding your way and dealing with unexpected impediments can cause a certain level of anxiety<sup>1</sup>.

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<sup>1</sup> <http://www.latimes.com/business/la-fi-air-travel-less-stressful-20150619-story.html>



Investments and innovation in the aviation industry have been largely focused on efficiency and safety improvements. New terminals are being designed around positive customer experience, but what about passenger comfort? For instance, the safety of passengers and crew has increased manifold, with the percentage of incidents in air travel now close to zero<sup>2</sup>; while aircraft turnaround time has reduced by half in the last 20 years. In addition, passenger services have adopted modern technology in a truly disruptive way—one that does not change the process, but changes the way touch points support travelers. Mobile services have largely replaced paper tickets and boarding passes, and biometrics is set to assist human judgment even more. Moreover, the aviation industry is continuously evolving to accommodate rising passenger numbers, intense competition, declining spend per passenger, innovation and customer retention—all with the aim of ultimately providing the best value, be it via better services, low prices, or both. In fact, airlines and airports are estimated to have spent nearly U.S. \$33 billion on digitization in 2017<sup>3</sup>. In 2016, passenger, baggage and cargo handling systems made up the largest segment of the aviation market, with a 39.6% share<sup>4</sup>.

From a passenger's perspective, most of these investments have not resulted in an improved passenger experience, as many aspects of air travel have remained unchanged in the past decade. The reasons for the status quo are evident. For example, the process of going to the airport, checking in baggage, and passing border control and security checks is even more vigorous now than it was 30 years ago, due to increased air travel and terrorist threats<sup>5</sup>. Better safety measures have led to more bottlenecks in already crowded airports. Modern aircrafts offer better fuel efficiency, but less space per passenger, and the frequency of flights has decreased in relation to the

number of times a passenger travels<sup>6</sup>. In addition, prices of flag carriers have risen and passengers now need to pay for services that were once included in the overall price of a ticket. In short, while the aviation industry has gained a lot in efficiency and safety, passengers have been left with little room to find true value from their air travel.

In order to really transform aviation, it is imperative to collectively change gears and switch focus from efficiency and operational excellence, to maintaining service quality and the passenger's peace of mind, while at the same time handling more and more passengers and flights. If executed correctly, this new mindset will have far-reaching positive outcomes, including improved efficiency and operational excellence, and favorable environmental impact.

**At CGI, we believe that a smooth and stress-free passenger experience is beneficial to the entire industry and all the processes that drive it.**

With worldwide digital transformation underway, businesses are experiencing the true advantages of providing added value to the customer, which is driving them to become more agile. This focus is reshaping the organizations that deliver modern customer services. However, in the airline industry, providing a consistent, excellent passenger experience can be quite challenging. As air travel is a sequence of many passenger experiences, provided by various stakeholders in the air travel process, it is a huge task for airlines and airports, in collaboration with law enforcement, retail services and travel companies to focus on the one variable they have in common—the passenger. Or, in this context, passenger well-being.

<sup>2</sup> <https://www.iata.org/pressroom/pr/Pages/2018-02-22-01.aspx>

<sup>3</sup> [https://www.sita.aero/pressroom/news-releases/airlines-and-airports-to-invest-us\\$33-billion-in-it-this-year](https://www.sita.aero/pressroom/news-releases/airlines-and-airports-to-invest-us$33-billion-in-it-this-year)

<sup>4</sup> <https://www.prnewswire.com/news-releases/advanced-airport-technologies-global-markets-to-2022-300562966.html>

<sup>5</sup> <https://www.cfr.org/backgrounder/targets-terrorists-post-911-aviation-security>

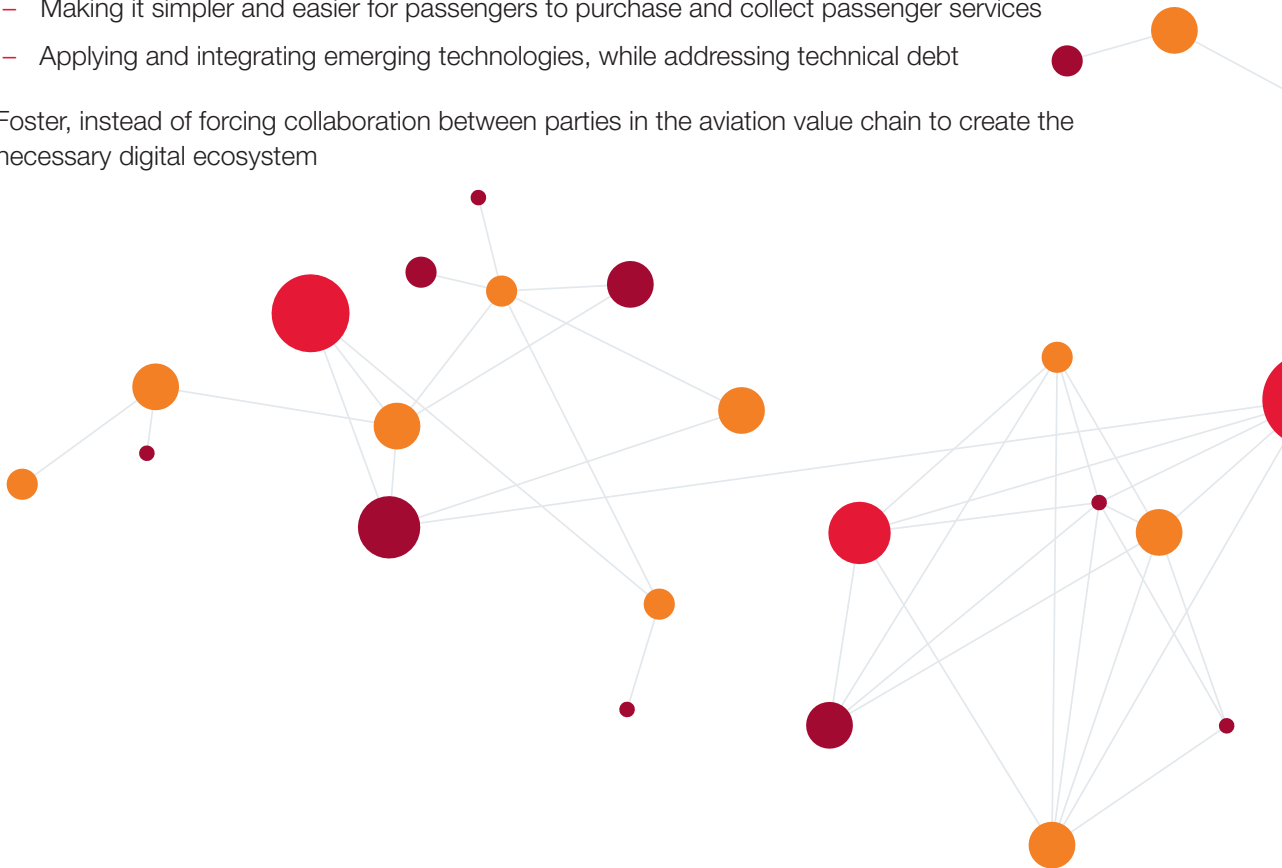
<sup>6</sup> <https://qz.com/quartz/1324754/airline-seats-are-getting-narrower-and-passengers-dont-like-it/>

## Looking beyond leg space to focus on head space

Research reveals that for both airlines and airports, the CIO agenda is led by investments in cybersecurity and cloud services<sup>7</sup>. In addition, they are prioritizing investments in passenger self-service initiatives. Aaldert Hofman, Lead Enterprise Architect for the Schiphol Group states, “In kind of an ultimate dream we would say, when you enter our airport there’s only one flight and only one plane, and that’s your flight and your plane. Nothing else matters.”<sup>8</sup>

Enabling passengers to reclaim their comfort and peace of mind, while simultaneously increasing opportunities for passenger services requires a multi-step process.

- Step 1** Shift the organizational strategy from a focus only on operational excellence and efficiency, to “relax the passenger” by ensuring consistent quality standards
- Step 2** Improve the passenger experience by:
- Providing transparency about bottlenecks through real-time information, including the number, duration and location of disruptions that lie ahead
  - Making it simpler and easier for passengers to purchase and collect passenger services
  - Applying and integrating emerging technologies, while addressing technical debt
- Step 3** Foster, instead of forcing collaboration between parties in the aviation value chain to create the necessary digital ecosystem



<sup>7</sup> <http://www.airport-world.com/features/it/6390-investing-in-technology.html>

<sup>8</sup> <https://blog.opengroup.org/2017/10/17/digital-transformation-at-amsterdams-schiphol-airport-a-conversation-with-aaldert-hofman/>

# 1. Shift the strategy: “Relax the pax”

The aviation industry has made significant progress in the last 50 years—graduating from turboprop aircrafts in the early 1950s to present day composite-bodied airliners, as well as in the application of technologies to offer conveniences such as automated check-in kiosks, and satellite-based internet and in-flight entertainment. These changes demonstrate an industry-wide shift in the streamlining of processes and focus on customer experience. The main driving force behind these advances has been technical innovations<sup>9</sup>, which has led to shorter travel time, lower unit control costs, better customer experience, larger flying capacities, more efficient aircraft engines (less noise and less CO<sub>2</sub> emissions), cleaner ground operations and more environmentally aware processes in designing, constructing and maintaining terminal buildings, among other benefits.

Is there a case to be made for a passenger-centric point of view that moves away from a single-minded focus on efficiency and cost savings to passenger well-being?

Do passengers perceive these high-tech innovations, ranging from embedded technology within aircrafts, all the way to border control self-service with biometrics, as valuable? If so, how do we monetize the value of “relaxing” the passenger?

The hypothesis that a relaxed passenger is, indeed, beneficial for the air travel industry is based on the following assumptions.

A relaxed passenger:

- Knows where to go and knows how to get there, including all the means of transportation at his/her disposal, and any unforeseen obstacles that might arise along the way. This passenger arrives at the airport on time based on his/her needs—not too early, causing congestion to the passenger flow at the airport, nor too late, causing delays for the airline.
- Is aware of the amount, location, duration and purpose of each waiting line and each procedure he/she will be subject to
- Is more open to offerings that will further improve his/her experience
- Has the time, means and “headspace” to be a more receptive consumer

Research supports many of these assumptions. For instance, evidence shows<sup>10</sup> that the perceived leisure time at an airport lasts an average of 28 minutes, which is usually used to visit shops, restaurants and restrooms. There’s also compelling research to demonstrate how stressful air travel can be for passengers. In a survey of 2000 British respondents commissioned by life assistance company CPP<sup>11</sup>, a third found the airport experience more stressful than the work week; and a quarter believed it to be even more stressful than moving. To address this pain point, some airports are employing animals to help calm anxious passengers. This is one example of the diverse nature of potential opportunities that exist at various touch points to solve the problems at hand.

<sup>9</sup> <https://www.iata.org/about/Pages/history-growth-and-development.aspx>

<sup>10</sup> <https://amadeus.com/en/insights/blog/happy-airports-make-money-satisfied-passengers-spend-45-airport-retail-purchases>

<sup>11</sup> <http://www.latimes.com/business/la-fi-air-travel-less-stressful-20150619-story.html>

So, the question is, how can passengers get from their house or hotel to and from the airport in the fastest, most economically viable and safe way? And, most importantly, without an increase in stress levels and cost?

The answer does not lie with any one stakeholder, but involves every stakeholder in the value chain, each of whom needs to maintain a single-minded focus—ensuring that the passenger travels from point A to B in as comfortable and relaxed a manner as possible.

This requires redesigning the passenger journey to and from the airport. Every single touch point needs to be scrutinized for increased customer stress. For example, handling multiple, heavy luggage items can cause longer lines at check-in, and the unpredictability of the duration and procedure of security checks can lead to increased stress levels for passengers. To identify the right approach to rethinking the passenger journey, let's take a closer look at some of the successful strategies that digital natives apply.







## 2. Improve the passenger experience: what would a disruptor do?

The last time the air travel industry was truly disrupted, consumer prices were reduced, along with leg space and inflight services. Today, “unicorns”—as startups that have reached the \$1 billion valuation milestone are called—demonstrate a different strategy. These disruptors in the marketplace, like Netflix, Airbnb and Deliveroo, steer clear of owning assets. Instead, they focus on advanced data and analytics platforms that enable next-level customer experiences and create high volumes of demand and supply. Also, disruptors fully understand the importance of data as being scalable, defensible and reinforcable.<sup>12</sup> Simply put, companies can build the same platforms and algorithms as their competitors, but without the petabytes of data to draw on, these platforms will be of little value.

Disruptors and digital natives understand that interfaces must be built with the end user in mind, and not for administrative purposes. For instance, entering personal payment settings is a one-time activity; with the next use, the user pays automatically for selected services, or with just a biometric token. A digital native eliminates unnecessary and potentially frustrating steps, such as repeatedly providing name and address information, or lengthy online search efforts that lead to irrelevant results.

**Disruptors look at existing businesses and tap into undiscovered value, rather than focusing efforts on efficiency, price or alternative market strategies as the traditionalists do.**

It is also safe to assume that digital natives have the advantage of zero legacy and no technical debt when they start their ventures. For companies with a long history and massive operations (as is the case for most airlines and airports), there’s a slim chance of becoming, for example, the next JetSmarter. JetSmarter,

one of the rare unicorns<sup>13</sup> in the travel market is a mobile community for shared and private flights. The company sells seats on private jets, allowing customers to join a private flight, or charter a full flight at commercial rates.

There are numerous learnings to be applied from the tactical use of new digital possibilities, which CGI digital transformation and aviation experts have summarized into three important steps:

- 1. Provide transparency** through information sharing on what is happening or where it is available, at what cost, and in which context. Products, services and experiences are not limited to assets owned by a company, such as a hotel chain, but are integrated and joined over the value chain into one consistent experience. This includes consumers who share their own assets, such as allowing others to use or rent their private homes.
- 2. Create large-scale platforms** that enable digital ecosystems and facilitate the necessary “ease of doing business,” such as location-based services and payment options.
- 3. Innovate continuously** by applying emerging technologies that users can embrace easily.

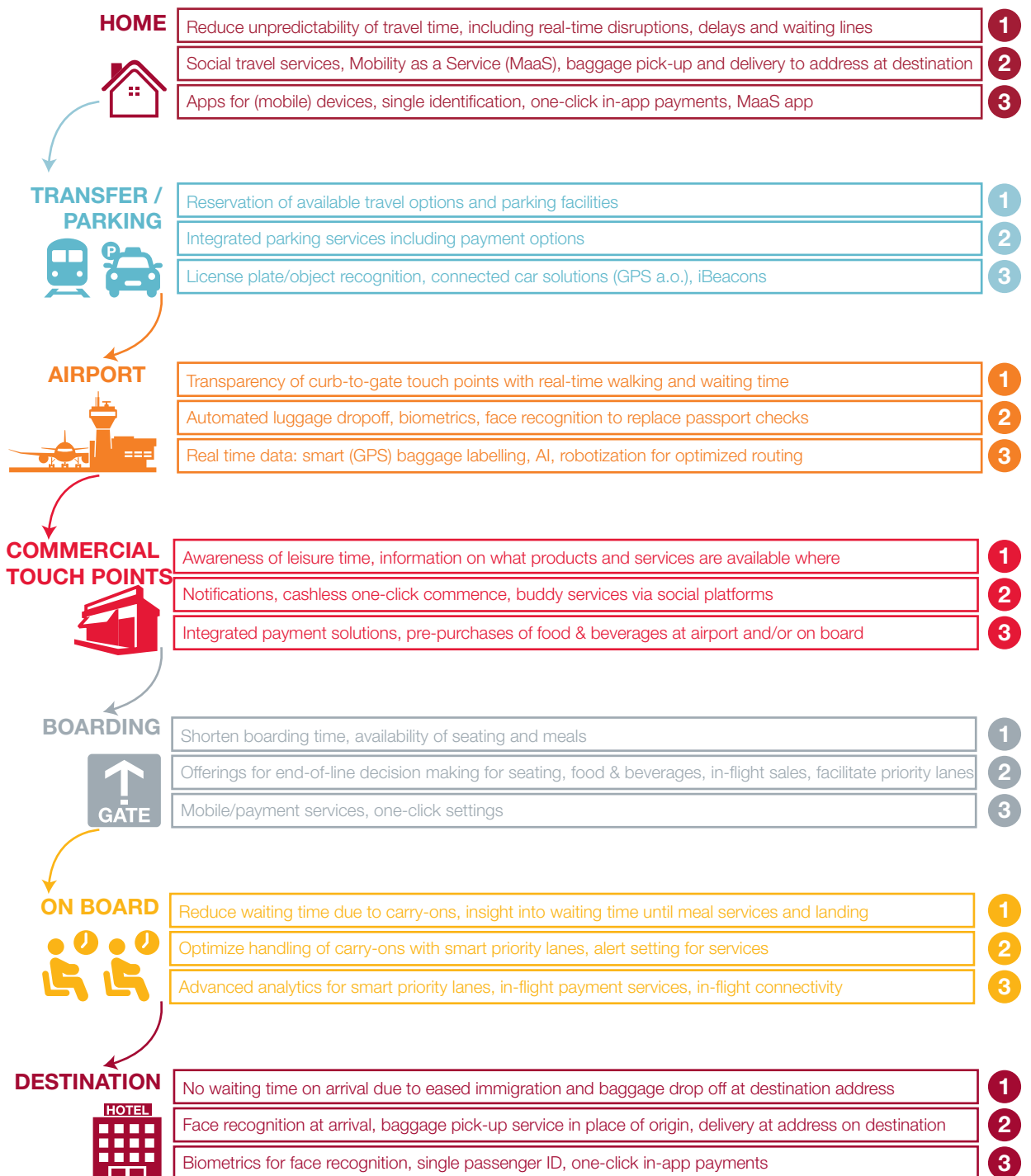
Many innovations in the airline industry check at least one of these boxes, but there is a world of opportunity that lies ahead for airlines and airports that tick all three.

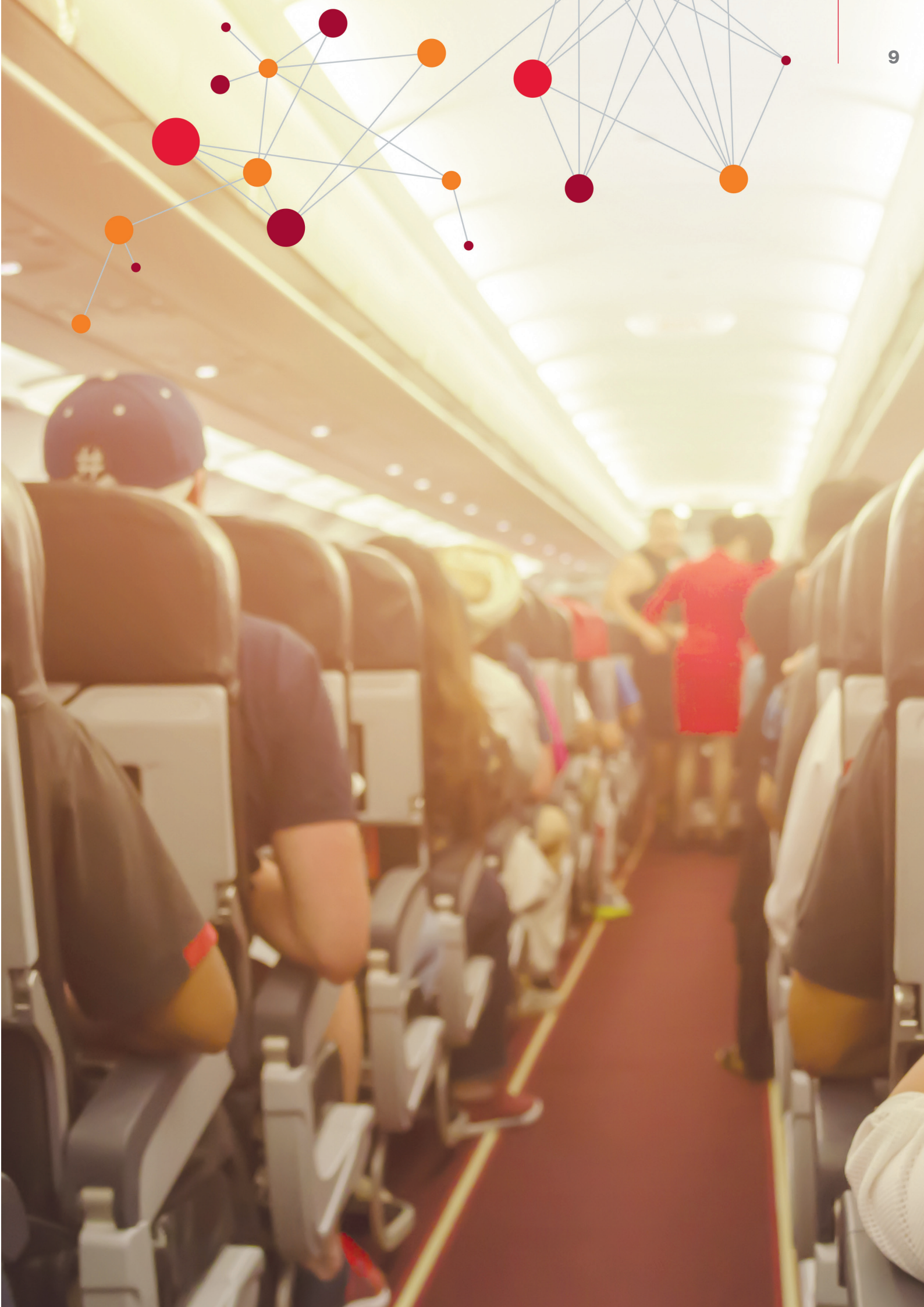
<sup>12</sup> <https://hbr.org/2016/11/the-problem-with-legacy-ecosystems>

<sup>13</sup> <https://www.cbinsights.com/research-unicorn-companies>

## “Relax the pax” with a three-step approach

In general, a passenger encounters six major touch points when travelling by air. This example is based on an origin-destination trip, excluding transfer and transit: home > transfer/parking > airport (including borders, immigration and customs safety and security checks) > commercial touch points > boarding > on board > transfer to address at destination > hotel/home. When the three steps are mapped to each touch point, opportunities for improvement become evident.





## 1. Provide transparency to “relax the pax”

Providing transparency by offering aggregated information, including location and contextual data is the key first step. Passengers feel empowered and gain comfort from possessing relevant information about potential bottlenecks and challenges that they may encounter during their trip. Information starts with providing options for the preferred way to get to the airport, and with the best guarantees to arrive according to plan. This includes real-time updates from the airport and airlines, aggregated, detailed information on routes and delays, parking availability, public transportation and remote parking options. When facilitated by either airline or airport (or both), valuable information can be collected on how many groups of people are travelling to the airport and at what speed. This, in turn, enables the airport/airline to plan for the predicted arrivals with personalized facilities, such as dedicated lanes and efficient routing through the remaining touchpoints. This concept, known as Mobility as a Service, or MaaS, serves multiple purposes, from providing travel and transit services options to passengers, to achieving environmental goals by reducing CO<sub>2</sub> emissions.

Even more transparency can be gained with the use of social platforms where passengers can aggregate their collective needs. This includes multiple touch point needs such as: home (Can I carpool to the airport?), airport (Where are the other people on my flight currently?), and at boarding (Can I switch seats with another person?). “Social travel” is a unique concept, and while monetizing it may have its share of challenges, it will contribute to reducing passenger stress levels, while generating tremendous amounts of valuable data.

The devil, in this case, is in the details. For instance, passenger experience can be enhanced by offering in-flight beverage and meal discount options even before boarding, which will drive increased demand and lower food wastage. In addition, organizations can increase margins when the combination of data, options and communication are translated into personalized offerings, such as collective taxi services, priority services during touch points, and end-of-lane decisions.

## 2. Develop “ease of doing business” with in-app settings and context-aware services

Most businesses in the air travel industry offer apps or mobile web services, but not all of them provide personalized options. This is critical to optimize the “ease of doing business,” especially if one-click settings for delivering services and in-app payment solutions can be integrated. Take the example of Uber, where taxi drivers went from being uncertain if customers would show up and pay their fare to guaranteed payments with in-app credit card options. A move that has made Uber extremely popular among both customers and drivers.

Research indicates that passengers will greatly value improved “ease of doing business”. In fact, the results of IATA’s 2017 Global Passenger Survey (GPS) reveal that 82% of travelers would like to be able to use a mobile digital passport for as many activities as possible, from booking flights to passing through the various airport checkpoints. Exploring emerging technologies to facilitate passenger convenience is rife with opportunities. However, this will necessitate some important architectural decisions, as described in the next step.

### 3. Explore and apply emerging technology on a continuous basis

Each year, CGI meets face-to-face with business and IT leaders to determine the trends affecting their organizations and the implications for their business. In 2018, we spoke with more than 1,400 leaders across 10 industries. The resulting [CGI Client Global Insights](#) reveal that becoming digital to serve customers and citizens is globally still the number one industry trend<sup>14</sup>. The top five digital priorities include leveraging mobile solutions, data strategies and advanced analytics. To apply emerging technologies, it is critical for an organization to be able to rely on a digital ecosystem, one in which a wide range of data from multiple sources can be integrated and leveraged for an improved passenger experience. Furthermore, dedicated agile DevOps teams can support the continuous exploration and delivery of emerging technology-based improvements, while accelerating the speed, efficiency and quality of delivering new services.

Driven by a sense of urgency, many companies form DevOps teams and shape agile structures around them, enabling employees to become self-organizing. But, here's the catch—the longer a company has existed, the more likely that it has acquired technical debt. How can an organization bring legacy and digital together to drive enterprise-wide transformation? This is especially challenging as there is a tendency among developers to create appealing functionality and features first, placing lesser emphasis on integration, or the phasing out of legacy systems. To balance both requires a specific type of architecture approach—one that focuses on an enterprise-wide IT foundation, while simultaneously addressing technical debt.

It's equally important not to overlook the importance of proven technology, security and collaboration. Safety and security lie at the heart of every air travel-related activity and can limit ambitions to continuously explore emerging technologies. Organizations need to strengthen ecosystem partnerships with companies that devise, support and deliver services to the various stakeholders in the aviation value chain. At the speed and agility with which technology is evolving, simple and single-supplier relationships will not suffice. A company that selects the right partners and creates a meaningful collaborative network will prove most successful. Agility and adaptability to new insights and emerging technologies will become a reality when organizations collaborate to create a true digital ecosystem for the aviation industry.

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<sup>14</sup> 2018 CGI Client Global Insights

### 3. Foster collaboration in the aviation value chain

Embracing the focus on passenger well-being will help to foster collaboration across the aviation value chain. When the passenger starts generating data through in-app purchases, location and movement data, as well as decisions, payments and social interactions, the first question to arise will be around data ownership. The next will be how to find ways to harness the data to ensure continuous improvement of services.

Sharing data across organizations is a challenging prospect, given the concerns of confidentiality, privacy and competitive advantage. But, what if passengers consent to data sharing, in order to receive more relevant information, personalized offerings, and a stress-free experience? Research already indicates that there is a need to improve the

passenger journey while regulations, such as the EU General Data Protection Regulation (GDPR) stipulate the importance of handling data that will help to create the services aimed at enhancing the passenger experience.

True collaboration will require embracing a common vision to “relax the pax”; ambition to become the most preferred airline or airport; and a strategy that integrates all three steps: transparency, ease of doing business, and the responsible use of emerging technologies.

Learn more about the CGI Client Global Insights by visiting <https://www.cgi.com/en/client-global-insights>.

Are you interested in discussing how emerging technologies can help bring your ideas to life? For more information or to set up a meeting, please contact Joost van der Burg, Vice President Consulting Services (Aviation) at [info.nl@cgi.com](mailto:info.nl@cgi.com) or +31 (0)88 564 0000.





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