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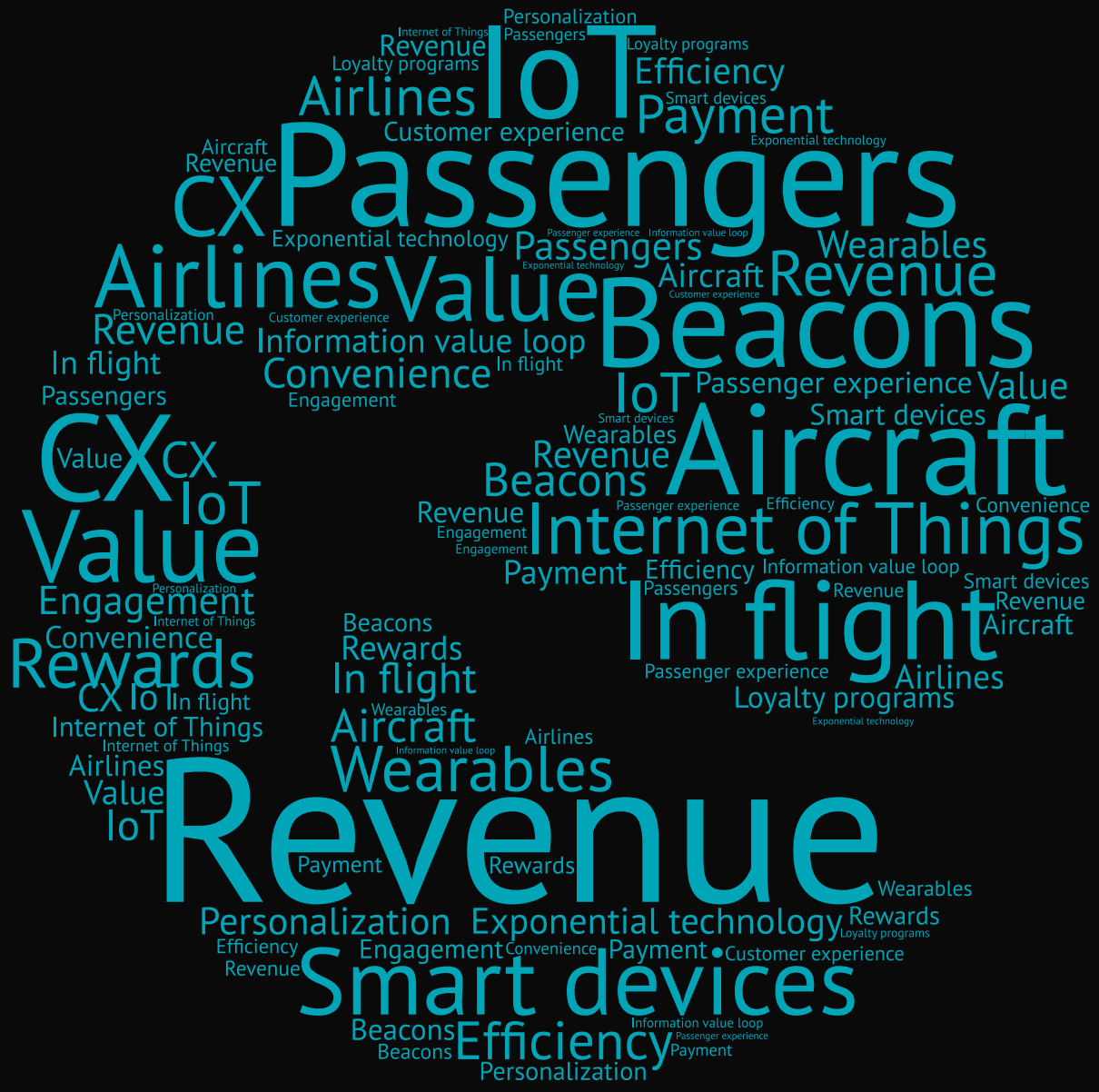


Traveling at the speed of knowledge

Exploring operation and profit benefits of deploying the Internet of Things

Part 2 of 2

In an earlier paper, Deloitte explored the potential of the Internet of Things (IoT) to drive unit costs improvement through operational efficiencies. This is a complementary exploration of the ways IoT can propel value on the other side of the ledger—unit revenue.

Introduction

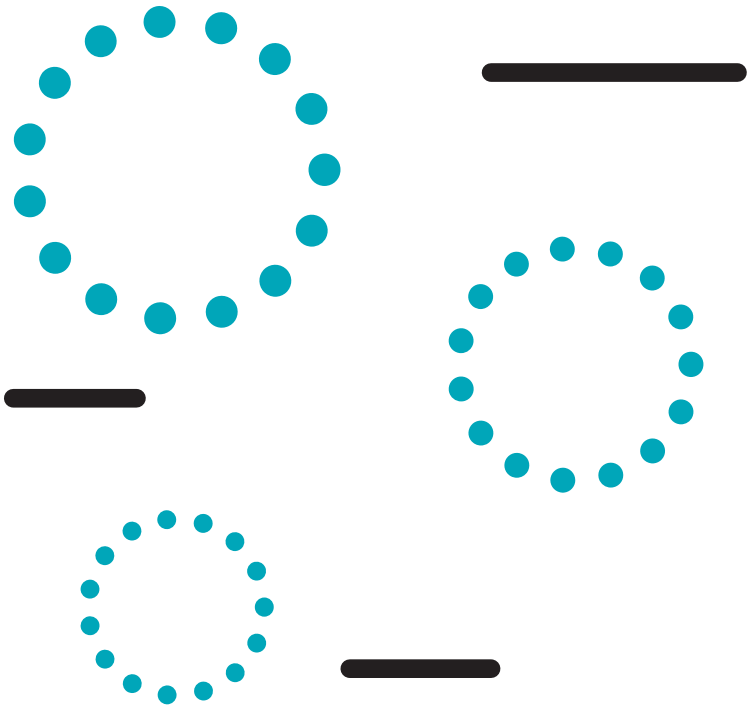
The next frontier in the race for share of wallet is the IoT—networks of sensor-equipped, intelligent, exponential technologies that can gather data, interpret it, and take action. Actions that can increase revenue while simultaneously improving the passenger's overall experience.

The IoT has the power to transform the curb-to-gate-to-destination experience and create valuable new revenue streams for airlines, but how? Let's look at the numbers:

Per SITA's May 2016 airline passenger report:[1]

Over 95 % of passengers in the US are carrying at least one mobile device which creates opportunities for utilizing iBeacon™

Self-service technologies were preferred by 58 % of US passengers for check in and 14 % would use a bag drop station. Consider how combining biometric sensing could simplify checking baggage and security.

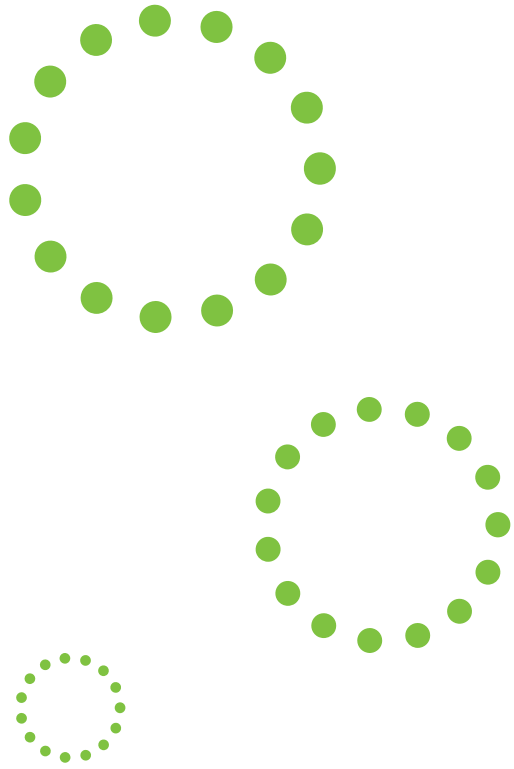


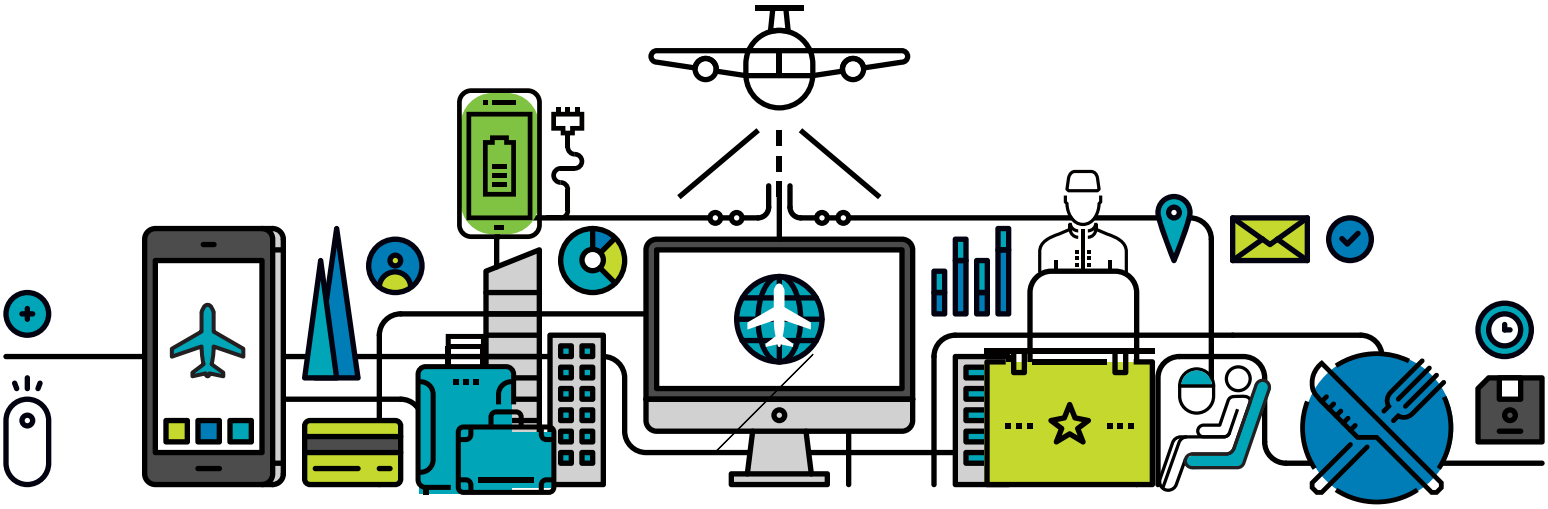
When paying for products or services, 52% of US passengers view contactless payments as secure. Think about opportunities for on the spot offers for parking, shoe shines, food and drinks, and even premium upgrades.

1 out of every 4 US passengers falls into two specific groups: the "hyper-connected" traveler who values efficiency and control; or "pampered" traveler who is a frequent user of status based services.

If the "old" internet was for pushing information out, and the modern internet permits personalized, two-way engagement, IoT steps beyond those modalities by equipping the airlines', and their ecosystem partners', operational assets to transition from sunk costs into drivers of incremental revenue.

Now you begin to see not only how IoT can transform the way we interact with the world around us, but the opportunities to open up new sources of revenue.





One vision, multiple paths to more revenue

Because airlines and airports are so intensively capitalized, there is no shortage of "things" to link in an IoT framework. Opportunities to enhance an airline's loyalty and customer experience (CX) combined with passengers' willingness to pay for convenience are often top-of-mind ideas. However, do not overlook operational ways IoT can create new revenue.

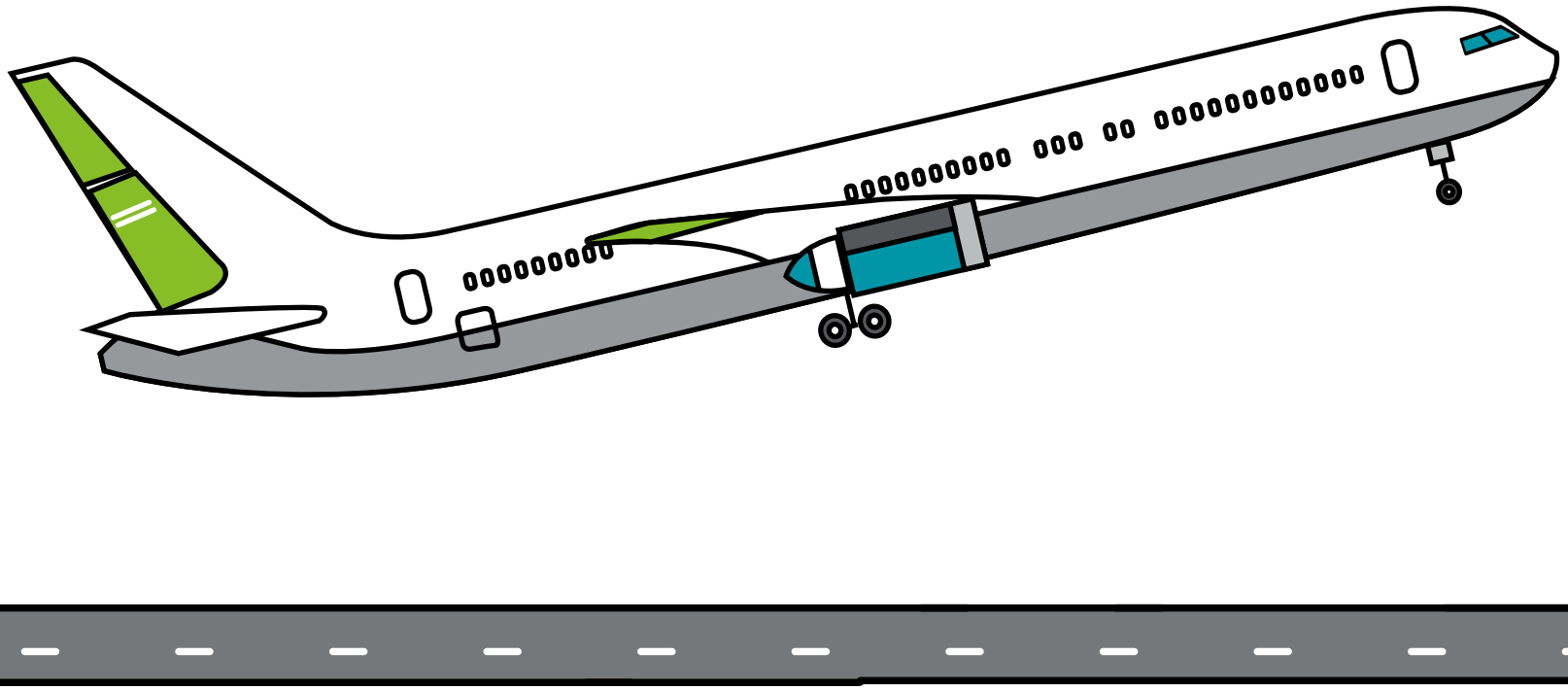
Envision the following revenue opportunities enhanced by IoT:

Personalized airport navigation, custom offers and "almost there!" notifications: By integrating your airline's mobile app with an airport's beacons, Near Field Communication (NFC), or Wi-Fi, the passenger's smartphone or smart glasses provide directions to the gate. As they walk through the terminal, a system checks and notices the club is currently only at 50 percent occupancy and sends the passenger a time sensitive offer for discounted lounge access. With a click or blink of an eye, the airline charges the passenger's digital payment account or allows them to use frequent flier miles. They are greeted by the club agent as an expected guest as they walk in.

Increased asset utilization: Instead of having congestion at the boarding gate, passengers stay seated or continue to enjoy a final beverage in the lounge or airport restaurant until receiving their personalized boarding notification via text

telling them it's time to board.[2] This individualized boarding time is calculated based on more than seat location, but rather factors including carry-on bag, premium status, fare class, and load factor. When an early group is smaller than expected, push notifications are sent allowing passengers to purchase earlier boarding times. By speeding up boarding, this allows an airline to generate faster gate turns, increases aircraft utilization, and potentially allows for more turns on each gate.

Customized in-flight: The creation of a "travel token" allows airlines to track preferences, purchases, and other details of their passengers over time. Using advanced analytics, you can identify the passenger's tendency to purchase upgrades and during their flight an offer is presented to their tablet for an upgrade to premium economy or first class on their connecting flight. After accepting this offer, the passenger puts on their virtual reality headset and is presented with curated entertainment options based on pre-selected preferences. All charged seamlessly to the digital payment account on the travel token.



Connecting the ends of the information value loop

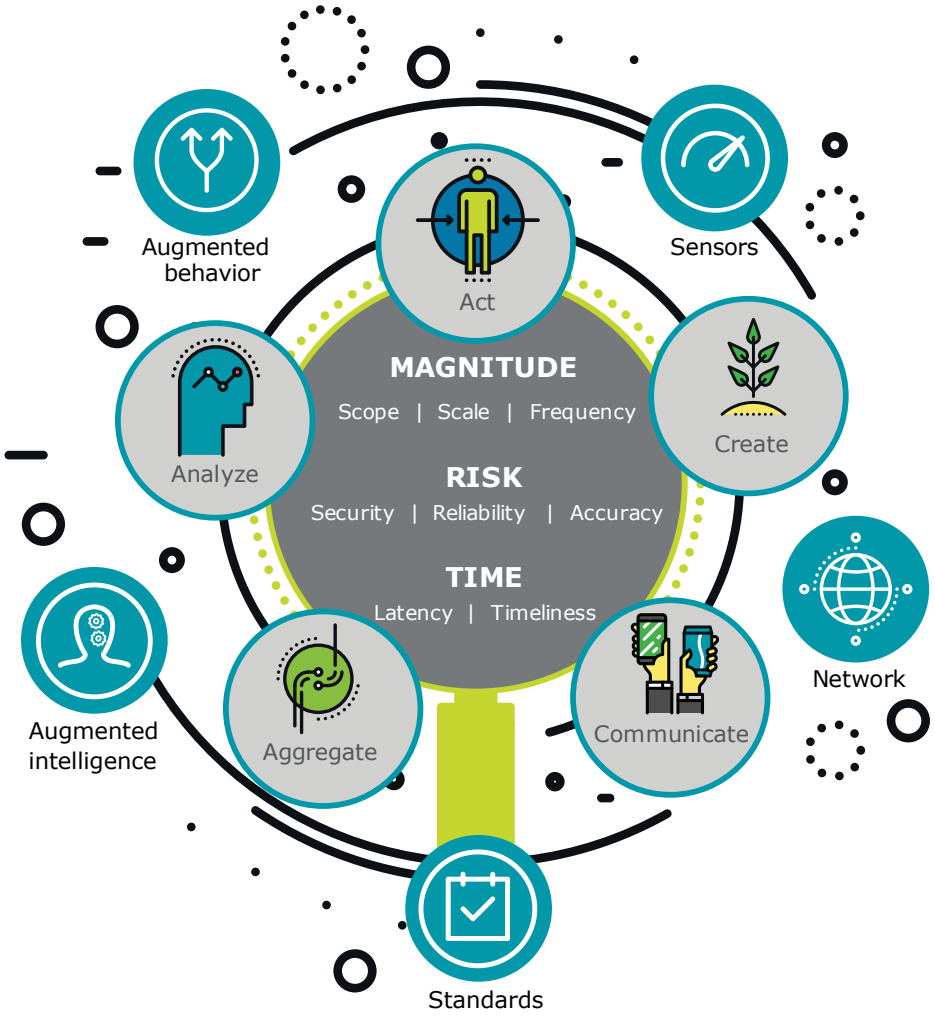
To make these revenue opportunities possible, it isn't enough just to wire all of an airline's physical and IT assets and connect them to a network. There must be an architecture and a logic to how the assets communicate. The information value loop is that architecture—a flow that translates the right questions into the right answers and then the right actions, then back again.

As we saw in the earlier study, for a piece of information to create value, it must move through all five stages of the loop:

- Sensors **create** information about a physical event or state.
- The originating object **communicates** the information to others over a network.
- The network **aggregates** different pieces of information from different sources and times.
- The network applies standards to **analyze** phenomena for patterns, relationships, or anomalies.
- The resulting analysis is a basis on which augmented intelligence can decide to **act**—to start, keep, or change a physical state.

This relationship among the discrete steps of sensing, deciding, and acting is what turns the IoT's connectedness into a source of value. What airlines should consider next is to make intentional choices about how, when, and where to engage, understanding what passengers actually value and where revenue can be generated.

IoT information value loop



IoT in action: "Passenger first" CX framework

This framework,[3] presented in an earlier Deloitte paper, may be familiar to those who have worked on CX and loyalty initiatives and centers naturally on verbs: Knowledge and intentions don't make a difference until action happens. Here are actions that can channel the technical power of the IoT into revenue-enhancing changes in the customer relationship.

Engage me.
Interact with me in a friendly, authentic way. Be hospitable and genuine with me, and treat me as a person. For example: Using beacons, NFC, or Wi-Fi airlines can greet passengers when they arrive at the terminal and offer special incentives for purchasing upgrades or early boarding based on real-time, situational data with customized messaging at via text or push notifications.

Empower me.
Give me real-time and accurate information so I can make decisions. Value my feedback and respond in an appropriate way. For example: Instead of a text message announcing a delayed flight, offer one click options for rebooking via a different city, an upgrade for taking a later flight, or continuing to share updates if elect not to change plans.

Hear me.
Demonstrate awareness of the situation and acknowledge my needs. Listen to my unique situation. For example: Using RFID tracking you notify the passenger upon landing that their checked baggage is delayed and provide the itinerary of its delivery. Offer them options for services they need and let them communicate and feel in control.

Delight me.
Create moments beyond my expectations that I will remember and share. For example: With the wealth of data about travelers' locations, tendencies, and preferences, airline loyalty programs can use apps to reward customers with surprises such as a discounted ride home or concert tickets at a destination.

Know me.
Remember me and my preferences. Anticipate my changing needs. For example: Customer data can help fine-tune ancillary products so they're customized for each passenger and even that passenger's reason for traveling that day.

How to make IoT a reality

With a "flight test" mindset driving continuous IoT innovation, the actual work of creating value can be divided into manageable steps.

1. **Ideation and strategy.** What is the art of the possible? Use your business strategy to identify improvement targets, but use ideation workshops and ecosystem contacts to reach beyond the mundane to the truly innovative.

2. **Pilot and roadmap.** Ideas don't get off the drawing board without a plan for governance, structure, risks, and an analysis of capabilities. But don't let planning slow you down; this is the iterative "learn fast" part of the process.

3. **Capture, store, and process.** The information flow of the IoT relies on a data architecture that is robust enough to handle it. Breaking down silos and building the capacity to secure the necessary data, process and store it both on the edge and in the cloud, and analyze it are all complementary parts of the IoT evolution.

4. **Scale and deploy.** After your proof of concepts have proven value and delivered the insights needed, privacy rules, global capabilities and a keen eye towards security are critical for a successful scaling from a targeted concept to a global rollout.

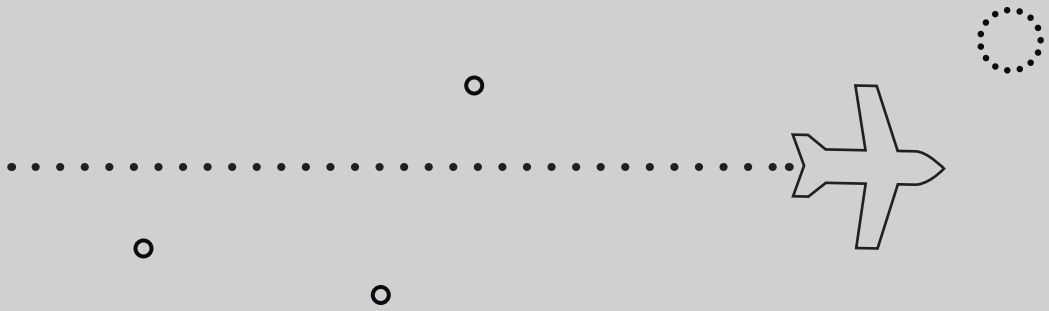
5. **Operate.** Now that it's here, how can you make it really hum? Measure not only the way the solution performs, but also the way it contributes to business metrics. Then improve it, and measure again.

Dare to imagine

The potential of IoT is more than theoretical and while a few of these ideas might seem a bit far-fetched, some of them are already happening. The enabling technologies are well within your grasp and there is real business value to be gained from connecting people, parts, and processes. The challenge now is not merely to imagine what IoT can do, but to make hard decisions about what your airline wants it to do, and what investments it will take to get there.

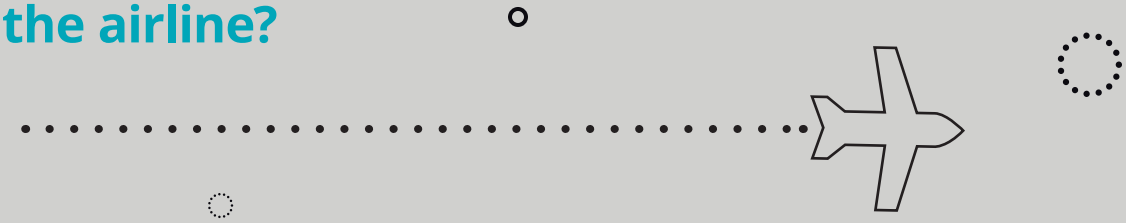
Questions to consider

How can the deployment of IoT increase your share of wallet with passengers?



Where can you beta test IoT to measure customer acceptance and engagement?

How can you accelerate the adoption of IoT across the airline?



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Endnotes

1. *Passenger IT trends survey 2016*, SITA, 2016, http://www.sita.aero/resources/type/surveys-reports/passenger-it-trends-survey-2016, accessed April 24, 2017.
2. Steffen, J. and Hotchkiss, J., "Experimental test of airplane boarding methods," Journal of Air Transport Management 18 (2012): 64-67; Nyquist, D.C., McFadden, K.L. "A study of the airline boarding problem," Journal of Air Transport Management 14 (2008), 197-204.
3. *Through passengers' eyes: Delivering the "right" airline customer experience*, Deloitte Consulting LLP, 2016, p.6, https://www2.deloitte.com/us/en/pages/consumer-business/articles/airline-customer-experience.html, accessed April 24, 2017.

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