

October 2021

Airline Retailing

An industry vision for Offers and Orders



Disclaimer

The information contained in this document is subject to regular review in the light of changing business needs of the industry, government requirements and regulations. The views expressed in this guide are based on the views and opinions of the IATA Distribution team and with feedback from across the value chain, including airlines, IT providers and sellers. This document is designed as a thought piece about what the future state of airline distribution may look like. Any strategy to transition to airline retailing will vary by airline, subject to each airline's individual commercial decision-making.

Contents

Executive Summary	4
--------------------------	----------

Introduction	6
---------------------	----------

1. Retailing end vision	7
1.1 Introduction to Airline Retailing and its value	7
1.1.1 Current distribution workflow and case for change	7
1.1.2 Limitations in the current distribution workflow	8
1.1.3 The value of airline retailing	9
1.1.4 Airline retailing: A world of Offers and Orders	9
1.2 End state retailing platform frameworks	10
1.2.1 The future of the Passenger Service System	10
1.2.2 End state: Key functionalities of the Offer and Order management	11
1.2.3 Changing some core industry processes	13
1.2.4 Customer as a reference	15

2. Individual airline transition	16
2.1 Possible business paths	16
2.1.1 Airline Retailing Strategy matrix	16
2.1.2 Analysis of potential paths	17
2.1.3 Setting up the key roles	17
2.2 Technology roadmap	18
2.2.1 Evolution of the PSS modules	18
2.2.2 Removing legacy standards (ET, EMD, etc.)	18
2.2.3 Evolution of other supporting systems	18

3. Industry transition	19
3.1 Value creation	19
3.1.1 Overall value for the industry	19
3.1.2 Transition costs	19
3.2 Transitioning a full eco system	19
3.2.1 Onboarding industry players	19
3.2.2 Change management and mindset shift	20
3.2.3 Operating dual processes	20
3.2.4 High level timeline	20
3.2.5 A move towards widespread adoption	22

Conclusion	23
-------------------	-----------

Acknowledgements	24
-------------------------	-----------

Glossary	25
-----------------	-----------

Executive Summary

Adapting the airline industry to the retailing world is possibly the most important transformational project of the next decade. Since the adoption of the Internet at the end of the 90's, most industries quickly transformed and benefitted substantially from e-commerce. While the aviation industry did modernize, it did so only by digitizing paper-based processes rather than creating more effective processes. Therefore, it is still largely operating with concepts and flows that date back many decades.

Retailing aims to bring the customer at the centre of the ecosystem. Any aspect of the journey, from dreaming of the next trip, to exploring, planning booking, paying, and enjoying the flight and associated products and services, needs to incorporate customer's needs. The customer wants personalization, efficiency and seamless engagement.

Several years ago, IATA with the support of the industry, embarked on a journey towards the modernization of airline distribution, by developing new standards, workflows, architectures, business cases, implementation paths, etc. All these elements combined should help and assist the airlines in driving their own transformation projects.

However, this raises many questions: Why do this? How long will it take? What are the main decisions to be taken and who should be involved?

This white paper aims at addressing these questions. There are seven key findings:

1. **The value at stake is significant:** In an exhaustive independent study performed at the end of 2019, McKinsey estimated that airlines could generate up to \$7 of additional value per passenger (industry average) by the end of this decade. This would come from the sales of extra ancillaries, optimising payment and aggregation costs, and changing many internal processes such as how to do pricing or utilize data. It can also come from new partnerships, such as intermodal flows that are currently favoured by many governments.
2. **The future customer experience will be seamless and more contextualized:** Tailored fares and products (on the ground and inflight), adjusted payment methods, targeted airport connecting times, etc. All components of the customer journey will be stored in a central order, single source of truth within the airline ecosystem allowing seamless access and updates for voluntary and involuntary (disruption) scenarios. This personalization will come from contextualising the request as travellers have different expectations while on a business trip or a leisure trip.
3. **New platforms will be required to accommodate these needs:** They will be order-based and built to facilitate interactions between the different modules (offer management, order management, operations) with the highest degree of interoperability and flexibility. Airlines, IT providers and sellers will decide based upon their individual needs.
4. **Transitioning to these platforms is expected to be gradual.** Ultimately the PSS – Passenger Service System – is replaced by an IT infrastructure that creates offers and orders, stores them, and distributes them to many other systems for processing: operations management in the operational window, financial accounting to materialize the revenue in the accounting books, seller interfaces to process the sales, etc.
5. **At the end of the transition, airlines will operate more efficiently:** They will remove booking classes, fare filing, they will merge ET, EMD and PNR into one single record (the order) and they will operate within a simplified and more agile IT environment. They may also replace code sharing and manage air and non-air partners under modernized retailer / supplier schemes. They will easily use existing forms of payments and be much more agile to adopt any other efficient forms or evolve innovative industry settlement plans.
6. **Airlines will build their retailing strategy based on their individual value creation goals,** but also their capacity to drive the change, both from a commercial and technical perspective. It will require strong alignment between key stakeholders (Distribution, Revenue Management, Finance, E-commerce, IT, Sales) and a buy-in from the top management.
7. **Ultimately the order may be based on the customer's digital identity:** The customer becomes the unique reference.

As a matter of fact, LCCs and new start-up airlines already operate with similar architectures.

To support the industry driving this transformation the IATA's Distribution Advisory Council (DAC¹) is considering an aspirational goal of 100% Offers and Orders by 2030, with the possible sunset of legacy standards (based on the industry's requirements). This is an ambitious challenge and it will be reviewed as we continue to understand the industry dependencies as well as the speed at which the industry re-starts and recovers from the COVID-19 crisis.

It will require an industry mindset shift and strong cooperation well beyond the current scope of any classic distribution project. Indeed, besides airlines, travel agencies, technology providers, other players will also need to come on board: airports, ground handlers and even governments.

¹ DAC consists of 15 airlines from all size and regions

Introduction

The modernisation of airline distribution started in 2012 when IATA initiated the NDC – New Distribution Capability – program. There were two significant milestones that enabled NDC to pick up. First, in 2014, the US DOT – Department of Transport – approved Resolution 787, the enabling standard. Then, in 2015, IATA released the first data exchange messaging version of the official standard.

Following further revisions and enhancements to the data exchange standard, the standard is now stable and mature. Many airlines are similarly maturing and moving forward with their NDC implementations despite the crisis related to COVID-19. Indeed, more than 66 airlines have adopted the standard with several of them having already processed millions of transactions.

The distribution value chain is equally engaged. GDSs are rolling out NDC solutions both for travel agencies (aggregation platforms) and for airlines (IT solutions called Offer and Order Management). Travel Sellers and Metasearch have either built their own solutions, partnered with new aggregators, or are in the process of adopting GDS solutions.

IATA is now pivoting its engagement strategy, from a focus on NDC to a focus on enhanced retailing. Retailing is the process of selling consumer goods or services to customers through multiple channels of distribution to create benefits for airlines and their customers. This can be through personalization by creating and offering a range of products and services (flight, ancillaries such as extra bags, special seats, Wi-Fi on board and other non-air services) and selling to their customer either via their direct channel (call-centre, web) or via intermediaries (metasearch, travel agents, content aggregators, new type of sellers, etc.).

Embarking on a retailing journey requires airlines to think across the entire customer journey from shopping to booking, payment, delivery, and financial back-office processes. From a business perspective, we look at how the customer interaction works and how it is impacted by the underlying systems. For example, can a booking easily be changed, refunded, or partially refunded? Can a voucher be issued? Analysing a multitude of use cases enables us to identify the industry's needs for technology change and which accompanying business processes could benefit from simplification and efficiencies. This covers the way the offer is constructed (including with third-party air or non-air partners), its distribution and display on the intermediary shelves, payment, and accounting / settlement.

To complement the introduction of NDC, IATA has put in place new programs, such as ONE Order, Dynamic Offer Creation,

Settlement with Orders, and the Future of Interline. All these programs are interrelated and contribute to building the retailing storyline. It should be one journey with a start and an end. The starting point is the willingness at top management level to change the airline commercial model and unlock greater value. The aim is to better serve the customer through an effective personalization across all distribution channels and including efficient servicing. The end point is the complete transformation of many processes around the customer, that can only be achieved by adopting modern retailing techniques and platforms.

This paper intends to describe this journey and is split into three parts:

- 1. The first part presents views on the end state of the transition, from a business and technology perspective.**
- 2. The second part describes the transition use case for a generic individual airline, including possible implementation paths and the changes needed in IT platforms.**
- 3. The third part looks at it from an industry perspective: what is the value for all involved stakeholders, and how to drive the value chain transition.**

This document is designed for senior management (not necessarily experts in airline distribution) who would like to understand where airline distribution and retailing are heading and how they can build their own roadmap to get there. It also aims at describing relevant industry decisions that will need to be made, regarding the eventual sunsetting of certain legacy standards and business processes. Readers who want to understand the current landscape and the need to evolve it, will focus on the first part. Readers who want to understand the drivers across the value chain are advised to focus on the third part. Some graphical vision of the industry's key business functions are there to facilitate conversations between Distribution and IT people.

As always, we welcome feedback to enrich the analysis and contribute to this major industry initiative.



Olivier Hours
Head, Distribution Strategy

1. Retailing end vision

1.1 Introduction to Airline Retailing and its value

In this chapter we intend to define the world of Offers and Orders and how it differs from today's legacy technology. We will highlight the case for change, what airline retailing entails and the reason and value to transition.

1.1.1 Current distribution workflow and case for change

When customers want to purchase air travel, after the initial inspiration phase, they traditionally go through three phases:

1. **Shopping:** The customer searches for specific airline content, using an airline website or an intermediary (travel agency, metasearch, etc.). Particular attention is paid to the speed of display of offers especially online, the quality of the offer (base fare, extra products and services), the range of dates, the richness of the offer (does it include other air or non-air providers). The richer and the more relevant the offer, the more likely it is to be accepted by the customer, i.e. driving higher conversion rate; however, today's offers are often based on price comparison alone.
2. **Booking:** The customer picks a specific offer and blocks specific capacity, that is guaranteed for a certain period. In general, a record materialises the booking. Customers are generally looking here at a simplified process, one-click experience.
3. **Payment and ticketing:** The customer pays the airline directly or the intermediary in charge of the booking, and in exchange for this gets a ticket, that is a proof of payment but also a legally binding contract. Customers appreciate to find their preferred methods of payment and a simplified user experience.

Following these phases, products will be delivered and serviced.

To operate this, airlines have traditionally relied on two systems:

1. **The PSS – Passenger Service System** – that is the core IT, which is comprised of an inventory, a shopping and pricing module, a database of reservations (PNR) and tickets, and a final one for the delivery of the service at the airport (DCS).
2. **The GDS – Global Distribution System** – that enables 3rd party sellers – mainly travel agencies – to interact with the airline content held in the PSS and manages the bookings and tickets.

In addition, airlines have developed websites to sell directly to the end consumer (commonly referred to as e-commerce). Sellers have also developed systems, booking tools, on top of the GDSs to be able to sell multiple airlines content to the end consumer.

Interacting with these core systems are satellite applications such as revenue management, payment solutions, revenue accounting, data analytics and client relationship management (frequent flyer programs).

This has worked well for decades and continues to serve the industry. However, many processes and tools have limitations and there is a clear case for change.

A key driver for the change is the customer expectation driven by technology. Customers are increasingly shopping online, using their mobile phones, and looking for optimised user experiences. When shopping for air travel, customers expect similar interfaces and services they are used to for their online shopping experience (e.g., Amazon, Apple, etc.). They also expect a similar user experience between leisure and corporate interfaces.

Airlines find it increasingly difficult to achieve many of their distribution ambitions. To become true retailers, they would need to:

- Dynamically create offers based upon dimensions such as competitive and comparison pricing, shopping context, customer's needs, etc.
- Easily be able to add new products and services or bundle them into the initial offer.
- Personalize and /or contextualise offers, which requires the ability to identify the customer and know their preferences and situation.
- Offer an efficient portfolio of payment solutions both for the base offer and the ancillaries: payment instruments, payment time (instalments, at time of booking, ticketing, check in, etc.) for the end customer or for its distribution partners.
- Issue a single reference for the offer (flight and associated ancillaries services).
- Service the order in any kind of change scenario and enable an engaging and simplified customer experience for all services and across all sales channels.
- Track service consumption – i.e. plane boarding, service delivery (lounge access, Wi-Fi, etc.) real time.
- Simply account for sales and payment – as any provider of service.
- Perform advanced analytics to better understand customer needs.

Airlines have been struggling to do this with the current technology infrastructure, however they have been able to find workarounds. They have also leveraged historical standards. One could claim that things work, however it is far from being optimal. The main challenges faced by the airlines are:

- Inability to know who the customers are, and their needs.
- Difficulty to create and distribute specific products, as they need to have an ATPCO filed fare, ancillaries, charges, etc, followed by distribution by the different GDSs.
- Price points limited to only ranges based on the 26 letters of the alphabet.
- Processes still driven by the paper initial logic.
- Complexity of fulfilment of ancillaries (EMDs mimic ET processes) and separate servicing of the reservations record, ticket and miscellaneous document.
- Inability to track in real time product consumption as the information does not flow immediately back into the PSS.

- Requirement to implement revenue integrity checks as fares quoted to the end customer are created by a 3rd party.
- Lack of alternatives to card payment in indirect distribution when airlines are paid directly by customers.
- Difficulty to cross-sell ancillaries between carriers as well as set up and manage interline agreements.

1.1.2 Limitations in the current distribution workflow

Airline content is largely distributed to travel agencies by GDSs, that operate a significant number of functionalities, e.g.:

1. Collect airline schedules filed with schedule aggregators, fares filed with fare distributors and availability maintained and distributed by airlines.
2. Quote fare including all extra information needed (e.g.: government and airport taxes, surcharges, etc.).
3. Create the agency PNR.
4. Check airline card payment acceptance and create the authorization request.
5. Authenticate the seller and check its status (authorized to sell on behalf of the airline).
6. Request the issuance of accountable documents upon successful completion of the payment initialization.
7. Report the sales to the relevant settlement plan (e.g. BSP) for the airline to request the fund transfer and to create the internal sales record in the revenue accounting system.

In this legacy workflow operated by the GDS, airlines provide availability per booking class and per flight. This means that airlines operate in a "blind" environment where they cannot estimate demand in real time, beyond total volumes (full polling only partially addresses this). Airlines also do not "know the customer," including the context in which the request is being made and is thus unable to tailor the response based on the customer's specific needs. Availability requests are generally not stored (unlike web searches), and as a result this information gets lost.

The objective driving airline retailing is to bring back control to the airlines. It is also the opportunity to better know the customer and offer a better service.

Travel agencies also expect to have access to more airline products and to be able to compare them. Today, most of what they see is a schedule, and even booking classes in legacy cryptic screens (also called "green screens").

There is an appetite to move forward and many players are looking for answers.

1.1.3 The value of airline retailing

Why would an airline invest time and money to implement retailing and the associated organisational re-design it would require?

The model is modern online retailing, which is common amongst many retailers that personalize Offers, and create Orders to store all customers records and where user interfaces and experiences are simplified.

Retailing can produce value for airlines in five main ways:

1. **Development of new Offers:** Airlines can develop and commercialize new products and services.
2. **Enhanced revenue management:** Airlines can modernize their revenue management, implementing more dynamic pricing, adding price points, creating bundles, and optimizing the complete offer.
3. **Optimized distribution mix:** Airlines can benefit from new technology intermediaries and diversify their sourcing.
4. **Better targeting of and engagement with customers:** Airlines can personalize and contextualize Offers.
5. **Optimized payment and fulfillment, including servicing:** Support alternative payment instruments focusing on main metrics (customer preference, acceptance costs, cash flow, risk of fraud, etc.).

These five ways are either contributing to value creation, or cost reduction, or a mix of both. Managing data brings further value across most of these dimensions. Data feed improvement in revenue management systems, enables to better understand channels and customers. A real time data flow enables faster decision making, that is key to pricing or schedule adjustments.

Ultimately this will contribute to a better customer experience. Customers will benefit from lower fares, greater transparency, more personalization and greater product choice. The value chain players will modernize their capabilities and be able to better serve their customers.

Working with Orders will bring very specific value to the airlines:

- A simplification of their IT, as they do not need to reconcile different records.
- Savings thanks to removal of processes and tools (ET server, cost of auditing, etc.).
- Real time data flows that add value for decision making (pricing, schedule).
- Efficient servicing of all the order components.
- Facilitated intermodality, using one record for the air and train journey.
- Facilitated partnerships for air and non-air using orders in the same way as modern retailers.

Overall, these changes are pro-consumer as they provide simplification and will enable to adapt faster to more industry changes. During the COVID-19 crisis there were expectations of simplified refunds, or issuance of vouchers, discussion on new payment deadlines (Pay as You Fly, etc.). All these trends can be accommodated in the world of retailing.

1.1.4 Airline retailing: A world of Offers and Orders

The critical facilitators to this journey to value creation are the IATA standards that support the implementation of Offers & Orders and drive capabilities that are critical to retailing. These standards were and are designed in different programs (New Distribution Capability, Dynamic Offer Creation, ONE Order, Settlement with Orders, Future of Interline) that all concur to the same goal of retailing. They aim to ensure interoperability between systems, whoever the provider is.

If we go back to the customer retailing journey and its four main phases Shopping – Booking – Payment and Ticketing, here is what the introduction of modern retailing standards will bring:

- **Creation of Dynamic Offers:** Will allow airlines to move from static to tailored and dynamically priced offers. As a result, the customer will have access to more relevant Offers.
- **Enhanced Distribution:** New Distribution Capability standard is a data exchange format to connect and provide a rich airline offer to the customer regardless of the distribution channel.
- **Fulfillment with Orders:** The ONE Order standard creates a single integrated customer record to streamline distribution, delivery and accounting processes without the need for PNRs, and separate ticket records.
- **Interline with Offers and Orders:** Will modernize and simplify interlining and support airlines to connect with new partners.
- **Settlement with Orders:** Will simplify the money collection process with a simple message between travel sellers and airlines to trigger the payment.

The implementation of industry standards will bring benefits as it shortens and simplifies overall implementation processes and stimulates competition.

1.2 End state retailing platform frameworks

Understanding the current distribution architecture and how it will alter in the end state architecture is key to recognizing the impact of the planned changes. This will enable an informative and clear communication to internal departments and senior management. It will also help identify where resources should be allocated.

1.2.1 The future of the Passenger Service System

The airline retailing journey is about how to move from a current legacy channel and process-centric driven architecture to one that is omnichannel and customer centric, relying on centralised capabilities – i.e. Offer and Order management capabilities and data. In the end-state the airline will have its own retailing platform from which all its sales channels will be managed (direct and indirect), via a single source of truth.

The overall architecture (see figure 1 below) foresees an Offer Management component and an Order Management component that may be delivered from a single provider, or from different providers using industry standards when needed.

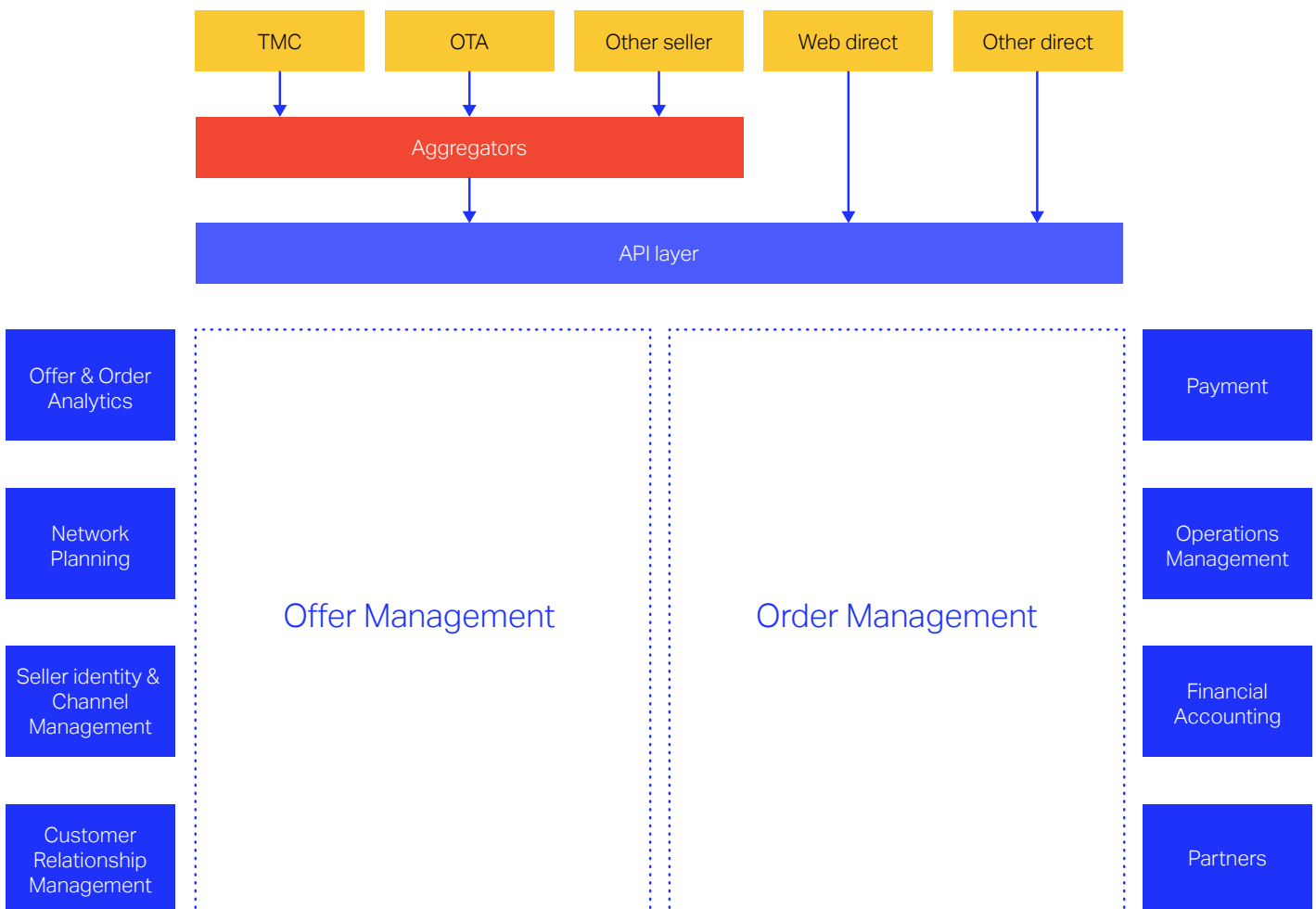
This is not about re-engineering or making changes to the PSS, but about transitioning over time to a new environment. It connects to the outside world (the seller world) via an API, accessible directly or via intermediaries. The offer management is the unique source of content, not only to 3rd party sellers (TMCs, OTAs, or metasearch operating in a facilitated booking approach), but also direct sales (web, call centre, physical sales offices).

This architecture is highly flexible and modular, enabling interoperability between players. The Offer Management system creates the offer, which includes the price the airline offers to the customer, ancillaries, bundles. The Order Management fulfils the accepted offer, includes payment, tracks delivery status, and is the single source of truth for the customer order data.

Analytics are a key component of the architecture as a lot of data is generated and needs to be stored to be able to offer a better service to customers.

Non-air Orders (e.g. taxi, baggage, pick-up services, etc.) will benefit from the data feed from the Order Management to trigger service delivery.

Figure 1: End state vision



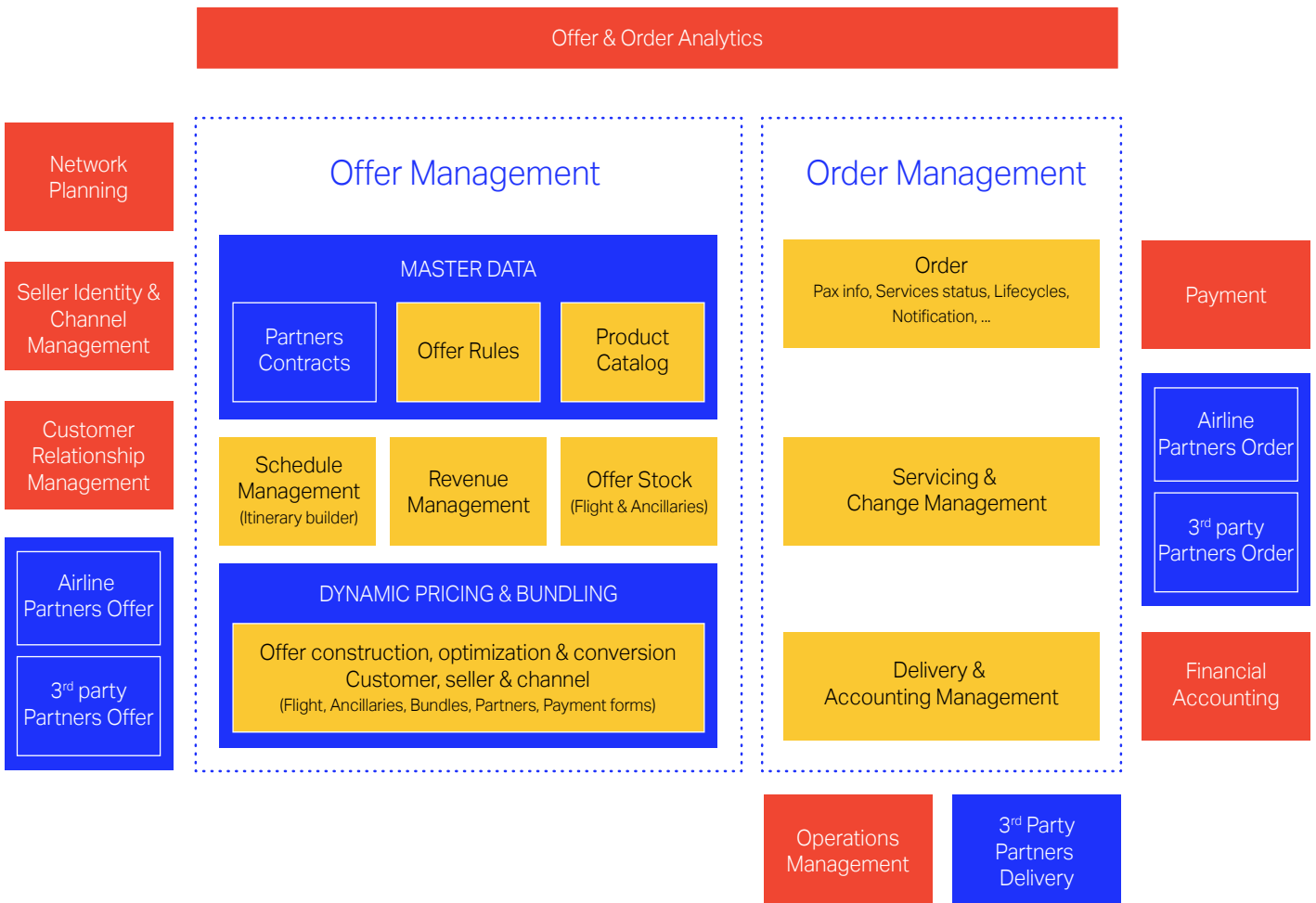
1.2.2 End state: Key functionalities of the Offer and Order management

The current core of an airline’s system landscape lies in its Passenger Service System (PSS), typically consisting of an inventory system and a reservation system as well as sometimes a departure control system (DCS). If an airline wants to implement an architecture based on Offers and Orders, the question arises as to how the PSS needs to be enhanced to work in this new retailing world.

The industry is starting to look beyond today’s PSS solutions and limitations. Airlines are starting more and more to consider the PSS as a set of capabilities, that can be unbundled.

The following diagram (see figure 2) details views of the core functionalities of the Offer and Order management. It provides a lower granularity to enable us to understand the main workflows driving the creation of an offer and then its distribution.

Figure 2: Key functionalities of the Offer and Order management



Below is a description of the key business functionalities, from top to bottom and left to right. This supports an overall process to create more complex offers, service them, and then deliver and account for them. Processes need to be simple, real time, and fully automated whenever possible.

Although there is a clear split between the shopping, booking and paying flow and the operations, airlines will want to be able to sell products in an efficient manner until the boarding and even during the flight, using the same background technology.

Offer & Order Analytics

Improved data will support offer and order construction. All transactions can be stored. A much more efficient science-based approach can be implemented. Enhanced analytics are therefore a key building box of the future framework.

Network Planning

This is the scheduling of all the airline flights. It feeds the Schedule Management module that will provide relevant routings at O/D level, including specific elapse time, minimum connecting times, minimum grounding times, etc. The need to get airport slots, build a schedule of destinations, allocate aircraft and capacities, remains in the end state. The need to be much more agile and flexible exists already, to be able to capture short term opportunities. The main change will be in the ability to provide tailor-made solutions to end customers.

Seller Identity & Channel Management

The identity management enables to manage sellers. It contains a list of the different Travel Sellers, their sales status (e.g. IATA BSP or ARC) and key statistics about their sales performance. For an airline, it is important to know the seller's capacity to sell ancillaries as this is important for corporate traffic; for an OTA it is important to track its look to book ratio as they often generate high volumes. The Offer will be adjusted depending on the customer touchpoint and seller. This will determine how to route the shopping request (e.g.: use of cache or not, etc.) and provide the right content for the intermediary to display. Airlines also may want to have the technology intermediary identity (GDS, aggregator, etc.).

Customer Relationship Management

Customer relationship management is a process in which a business or other organization administers its interactions with customers, typically using data analysis to study large amounts of information. Data relevant to creating new Offers range from consumer credentials, to preferred options (ancillaries, payment) and flight history.

Partners

Partners will be both airlines (e.g. for interline), and 3rd parties (e.g. intermodal), delivering either reservations (other airlines, other transport operators, etc.) or products and services – that may or may not require an inventory. To manage these partners, the key modules are:

1. Partners contracts: a list of all partners and the commercial conditions.
2. Partners Offers: an interaction with the partner's Offer Management to get the offer for the relevant product (flight, etc.)

3. Partners Orders: an interaction with the partner's Order Management to synchronize the order.
4. Partners Delivery: for the players who deliver a service (lounge access, airport fast track, rail, etc.).

Partner Contracts

Partner contracts provide all background information and data needed to operate an efficient interlining for the sale of 3rd party products and services.

Offer Rules

Conditions attached to the offer are stored, i.e. specific applications, change and refund policy, etc.

Product Catalogue

The list of products and services includes scope, specific T&Cs, application.

Schedule Management

There is a real time schedule and connection builder based upon customer request and information that can be collected to offer most relevant elapse time, connections, etc.

Revenue Management

Revenue Management optimizes product availability by leveraging analytics to predict consumer demand. There is a need to generate a relevant bid price for a specific flight. While current complexity resides in the forecasting at booking class level as a proxy of bid price to overcome current RBD distribution paradigm, one of the challenges of future systems is to have a more sophisticated total demand forecast.

Offer Stock

Offer Stock is the inventory that does not need to rely on booking classes. It reflects the capacity available for sale.

Dynamic Pricing & Bundling

To create an offer, the pricing engine needs the following primary elements:

1. A flight connection builder (Schedule Management) that provides a list of connectable flights with connection builders from origin to destination, subject to routing and availability constraints such as direct or / and via connecting point(s) with associated and real-time stock information, i.e., physical capacity in the aircraft.
2. A bid-price from the RMS, i.e., the outcome of the revenue optimization.
3. A list of extra products that can be sold: Product Catalogue.
4. Stock that reflects the capacity available for sell.

In terms of workflow, there are three steps supported by airlines individual business processes:

1. Assemble the different elements to create the offer.
2. Adjust that offer dynamically depending on the customer segmentation, the shopping context, the competition, etc., thanks to algorithms such as willingness to pay analysis (i.e. leveraging data to optimize supply and demand).
3. Fine-tune the content depending on the identity of the seller.

During steps 2 and 3 there is a clear focus on the seller and the customer touchpoint. Understanding the customer intermediary (TMC, OTA) is important, and when possible, also the touchpoint (desktop, mobile, etc.). Customer-facing platforms need to get when possible tailor-made content depending on the touchpoint. Scalability is an important focus, especially in view of continued increase in look-to-book ratios. One of the goals is to maximize the sales conversion.

Order

The order is stored and managed throughout its lifecycle, and this includes payment, changes, etc. The status of each service is also tracked. This includes any modification done either by the customer or by the airline, in case of disruption of flight.

Servicing and Change Management

Servicing and Change management orchestrates the changes required in the order for various voluntary or involuntary change scenario. Events from the schedule management module trigger changes on the original order, may it be timing change or alternate flights in case of flight cancelation, flight renumbering, etc. For all change scenarios, this module ensures the protection and notification of the passenger as well as the coherence and reconciliation with the stock and external partners. It reflects events impacting the life cycle of the booked flight.

Delivery and Accounting Management

The objective is to potentially insource in the Order Management some of the business functions of the DCS and the Revenue Accounting. Depending on the size and shape of the Order Management, airlines and IT providers may want to have some functionalities that can facilitate interaction with different types of DCS and Revenue Accounting. This business function serves to highlight some of the processes that could be done by the Order Management.

Payment

The airline needs to integrate with all acquirers and payment providers supporting the payment instruments that it accepts. This platform can either be internal to the airline or fully delegated usually through a bridge in the hosted payment page of the presentation layer that connects to a 3rd party payment platform / gateway.

Airlines want to be able to differentiate payment forms from the offer creation stage, adjusting to the customer's choice.

Financial Accounting

Many activities are currently achieved in Revenue Accounting, like coupon valuation, preparation for collection of moneys (settlement), auditing, aggregation, and reporting (for example: taxes). In the end state, many of these processes are transformed or moved upstream (Offer Management, Order Management) or downstream (Financial Accounting). For example, the interline settlement terms (value, etc.) are provided in the offer at time of shopping, this may eliminate the proration process of the interline services. There is major value in real time data, for example revenue from a flight ready to depart.

Although we are not showing explicitly a revenue integrity function, some checks will disappear (for example integrity of the offer) while others will need to be strengthened (for example risk management / fraud detection).

Operations Management

This is currently called the DCS – Departure Control System. It is likely to evolve as processing orders will be simpler. Current systems consist of customer management workflows (check in, boarding, baggage handling) and flight related workflows (load and balance). The DCS is critical for operations and has very specific SLAs (concerning downtime, etc.). In the future some processes will evolve or disappear. For example, we could expect the check in process to be removed. If the airline has received all relevant customer data (passports, etc.), it does not add value. Therefore, the next generation DCS will be different.

3rd Party Partners Delivery

All delivery partners get orders, so that they can provide the service, and then feedback the Order Management with the delivery status.

1.2.3 Changing some core industry processes

There is a need to revisit many processes that have existed for decades. The focus here is on fare filing, booking classes, interlining and code sharing.

Fare Filing

The future of fare filing has been debated for several years. It enables the efficient distribution of fares into GDSs. In the retailing world, however, the airline creates the offer and it does not need to rely on fare filing, which limits pricing freedom. The offer should be based on the ability to quote a price dynamically and not have to rely on a published fixed amount distributed from a database to 3rd parties.

In the end state there should be no need for fare filing. There is a need for business rules, that are tied to a dynamically generated price. There is also a need for an extended global database to manage, for example taxes, fees and charges, similar to how it is managed today. However, the removal of fare filing also requires engaging regulators, as some governments still require fares to be filed.

Until the end state is reached, it is likely that many airlines will continue to rely on fare filing capabilities, albeit in a more efficient way. Airlines may adjust real time the output from the fare filing before distributing the offer to the customer.

Booking Classes

The physical aircraft capacity, i.e., the number of total seats to sell, is distributed among a number of booking classes. This is the inventory.

The challenge is to determine whether booking classes are relevant in the end state. There are two main perspectives to analyse this issue:

- Booking classes are primarily used to host specific fares with a value; each booking class corresponds to a revenue range. Booking classes feed in real time the seat availability to pricing engines (GDS, IBEs – Internet Booking Engines). In a retailing state based on dynamic pricing, booking classes in a traditional way no longer make sense. During the transition, a two-step process is possible (though other options could be considered, either on its own or in combination). Initially, legacy processes are retained, creating fares with the fare filing vendor, and adjusting the output depending on other data feeds e.g., bid price, willingness to pay. This phase is based upon booking classes. In the second step, Offers are created in real time from the Offer Management System (and will not be retrofitted into existing workflows).
- Booking classes are used to feed internal systems that need a specific value. There are up to one hundred systems in very large airlines, across the full scope of the commercial activity (e.g., corporate sales management, disruption management, Frequent Flyer Programs, etc.). The data elements associated with booking classes may not be actively used but kept in downstream systems during the transition.

In the end state, booking classes should not be necessary. However, it is not a priority to remove them in the short to medium term as this would create too many IT challenges, since they feed many airline systems. A new start-up airline may wish to consider operating its revenue management without booking classes (like many LCCs do today). The initial step should be to remove booking classes from the price creation flow. Travel agencies also use booking classes to feed their systems and will be impacted as well. It is a major project to remove booking classes and requires a detailed assessment.

In the future, the notion of inventory will not be based on booking classes: it will be a stock counter monitoring the physical capacity to sell (i.e., total number of seats in the aircraft plus potential overbooking for the sales process).

Interline

Interline is the action of selling a combined journey with at least two different carriers with one contract, one price and one currency and ensuring that the passenger and her / his baggage is managed seamlessly during her / his journey. This includes the end-to-end transfer of the passenger and baggage, as well as protection in case of disruption, etc. The Interline partnerships are managed via the Multilateral Interline Traffic Agreement (MITA) Framework. In the context of the modernization of airline distribution, a new framework is put in place: SRSIA, the Standard Retailer and Supplier Interline Agreement. The framework introduces the concept of a

Retailer and a Supplier and relies on the concepts of Offers and Orders. The Retailer initiates a relationship with a customer at the time the customer makes a shopping request and provides products and services either directly or by engaging Suppliers.

The aim of this framework is to support airlines in connecting and interacting with different suppliers and unlock the new opportunities such as accessing and selling any content from these 3rd party suppliers (i.e. transport operators).

Traditionally, interline was based on GDSs constructing the offer. Airlines would negotiate interline agreements with partners, then setup the agreement in ATPCO to ensure a display of the O/D fare and auto pricing using the right booking classes (as well as points of transfer, authorized mileage or specific routing, etc.).

Although the MITA arrangement mechanism has served the industry well over many decades, e.g., ensuring smooth interlining between ticketing carriers, it has shown its limits for new types of partnerships, like ticketing-to-ticketless carrier. This shortcoming has been filled by new players who introduced “virtual interlining”, aggregating content from two different carriers and building a solution for the end-customer. However, these workarounds are complex to implement and not always customer friendly, and airlines have lost control of the end-to-end offer.

Different interline models are likely to co-exist. GDS-based interline is likely to remain until late in the transition to Offers and Orders; airlines and their technology providers are expected to implement the new SRSIA framework; 3rd parties may try to further develop solutions like they do today, although this may face resistance from airlines due to their lack of control.

The future of interline is especially relevant for new types of flows, such as air and rail combined, as well as full service and LCCs.

There is currently a growing focus on interline, as it is crucial to corporate traffic, and in the context of smaller networks operated by many carriers, who are relying on partners.

Code Share

Code share is a commercial arrangement whereby an airline sells seats on a flight operated by another airline. This mechanism was introduced to enable airlines to expand the range of destinations they can offer or maximise the number of frequencies on a given route.

It provides two advantages for airlines:

- Historically, this increases the number of flights displayed in the GDS green screens.
- It provides bigger reach, by increasing the commercial coverage, leveraging the partner’s brand, especially in non-home markets.

These objectives are less relevant in a retailing world. Offers are now displayed in user interfaces and are ranked following a set of criteria (elapse time, fare level, departing time, etc.) that can often be specified by the traveller. It is straightforward to display a group of carriers in a user interface. On top of this, as airlines create Offers, they may choose to create full itineraries on their interline partners and would not need airline codes for this. Lastly, airlines have the ability not only to create, but also to fulfil Offers with different operating airlines, using an order. In the end state, traditional code shares appear less relevant and may not add much if any additional value. They also trigger massive complexity in the systems. Airlines recreate artificial codes and tickets with players that do not use them (e.g.: train). Airlines need to ensure their ticket stocks are connected and must develop complex processes, like real time bid price cascading. An evolution of traditional code shares is foreseen in the retail-supplier interlining framework using Offers and Orders. Legal aspects need to be further analysed, for instance in the framework of the evolving CRS Code of Conduct.

In the environment of Offers and Orders, moving away from code sharing to concentrate on an efficient interlining is certainly appealing. However, transitioning away from code shares is a project that goes well beyond the retailing scope of this paper.

1.2.4 Customer as a reference

We have described an offer- and order-based end state. The order is a reference attached to a customer and its flight as well as products and services. One industry vision is to use the customer identity as reference. The great added value is that this goes beyond the sales process. The same identification can be used during the entire customer journey, i.e. in the airport (security, etc.), possibly during the flight. There is no contradiction between an ambition to process Orders and an ambition to use the customer as a reference, they complement each other. There will always be an Order to reflect the customer purchase, this is central to operating airline commercial IT. The industry is expected to allocate more time on this concept in the future and address some of the challenges raised, for example on data privacy and security.

2. Individual airline transition

2.1 Possible business paths

In this chapter, we will cover the main possible technology and business options based on the Airline Retailing Strategy Matrix and some possible transition paths inspired from examples of early adopters in the industry.

It is not easy to build common paths, as airlines, business models, commercial models are very different. A minimum common ground could be based upon focusing on the offer first (create offer, enhance them with dynamic pricing, new products, etc.), then Orders (create Orders, process them) and towards an omni channel approach.

2.1.1 Airline Retailing Strategy matrix

The full transition to Offer and Order management for an airline should be considered as a transversal project. It involves high cooperation and appetite to change from both the business side and the IT side.

There are two main dimensions in this transformation that need to be jointly considered:

1. Business dimension: appetite and capability of an airline to make its business model evolve towards greater freedom to distribute content.
2. Technology dimension: appetite and capability of an airline to improve and simplify its IT systems and platforms.

The appetite for business model change is expected to vary greatly between airlines. Some may want to keep existing models as they are, while others may pursue ways to get more freedom in the way they manage content.

The same applies to technology. Some airlines may have a high reliance on the PSS and distribution via the indirect channel using legacy technology. Others may have much stronger IT capabilities, including in-sourcing of core systems.

Technology dimension

The airline should assess its capacity to drive significant IT projects. Does it have the expertise, the resources, the willingness? Does it have experience of large IT projects? Can it build solutions in-house or manage integrations with its own tools? Does it prefer to rely mostly on IT supplier, or is it ready to handle several suppliers that bring interoperable systems?

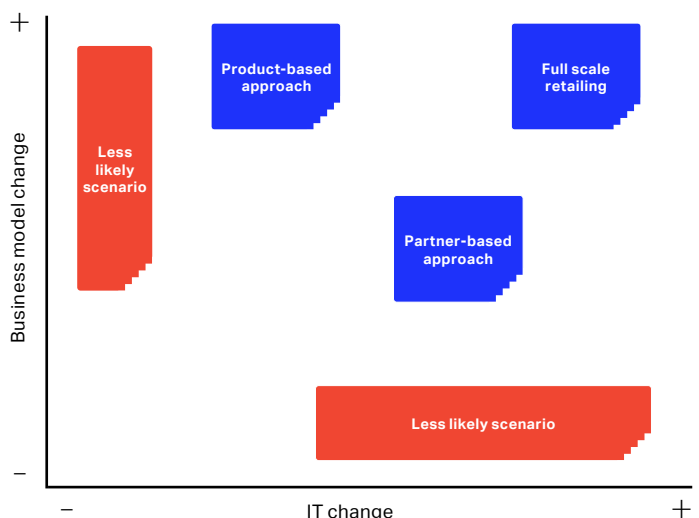
These key questions concern relationships between Offer / Order Management and PSS, RMS, shopping / merchandising engine, etc. There are naturally pros and cons in operating with one supplier vs several, in in-sourcing vs outsourcing. They depend both on the supplier and the airline capacity to steer.

Business dimension

The airline should assess its capacity to implement business transformation. Is it ready to embark into changes of its business model? Is it willing to negotiate different types of commercial deals with its suppliers?

The Airline Retailing Strategy matrix is thought as a collaboration tool to inspire airlines and trigger discussions internally between their departments. We invite all airlines to position themselves on the matrix based on their current capabilities and to think where they would like to be at the end of the transformation journey. The transition paths inspired from the industry will provide further guidance of the main considerations and source of value creation throughout the journey.

Chart 1: Airline Retailing Strategy Matrix



2.1.2 Analysis of potential paths

Where to start? – is the question most airline executives ask themselves. The strategy matrix can help determine possible paths.

A common theme to most – if not all – implementations, is the desire by the airline to create and control the offer. This enables value creation (e.g., from enhanced sales, ancillary sales in the indirect channel and overall upsell via richer content or better customer segmentation). Implementing NDC can take several forms. The starting point is to have a pricing engine and create the Offers in the airline environment (like for direct sales). Airlines may also wish to have a merchandizing platform to offer specific ancillaries, as well as optimize the choice of payment instruments in order to maximize the sales conversion.

A key differentiator between strategies is expected to be the management of interline. How much is it in the critical path for the airline? Interline adds substantial complexity but is equally a significant selling-point for many customers (who wish to combine full service, LCCs, rail, bus, etc.).

Possible transition considerations

In general, an airline's approach to retailing is expected to consist in a mix of focus on IT change and on business model evolution. The airline is expected to implement new functionalities, while ensuring business continuity. PSS and OMS need to coexist for that purpose.

Potential paths identified are:

- **Product-based approach:** Focus is on creating new Offers with enriched content and by implementing dynamic pricing and dynamic bundles. The airline will maximise short term value creation opportunities. It will also seek to expand new distribution channels. To be able to achieve this, it will use workarounds for some of the flows (example: fulfilment and servicing). In this scenario the IT focus is on the Offer Management and the quality of the pricing engine.
- **Partner-based approach:** Focus is on a smooth integration with partners such as air and non-air interline. The airline will focus on achieving value creation by selling efficiently through 3rd parties but also by significantly simplifying all accounting and settlement processes. In this scenario the focus is on Offer and Order Management and the efficient interaction with 3rd party systems.
- **Full scale retailing:** It will consist in removing platforms duplication, maximizing business and IT flexibility with optimized data analytics. This is likely the end-state for many airlines. It already corresponds to the situation of most LCCs.

These are not necessarily mutually exclusive.

Some airlines may also take into account their Joint Venture (JV) partners and / or their Alliance partners – and focus on their interline strategy.

2.1.3 Setting up the key roles

One of the first steps is to set up the right organisation. The airline needs to determine the skillset needed from their teams. This industry transformation breaks the traditional airline silos. Here are possible points to consider:

- **Distribution:** Sets the vision, the timeline, and the overall project management. It may create a position of leader of the Transition.
- **Revenue Management:** Is a major stakeholder as it will look at the impact on the revenue management system and prepare dynamic pricing; interlining teams are expected to look at new partnerships.
- **IT:** Will orchestrate future platforms and suppliers RFIs / RFPs.
- **Finance:** Is involved to help determine payment strategy, supporting the most efficient mix of payment alternatives; it will look at payment costs, cash flow but also conversion challenges. It will also investigate the impact on the Revenue accounting and ERP. It should work hand in hand with Distribution teams.
- **Sales:** Will negotiate enhanced deals with travel agencies and corporates, based on content, money collection forms, etc.
- **C-level suite** should understand and support.

This transition requires a change of mindset: be ready to review organisation, processes.

2.2 Technology roadmap

The end state has been clarified in the previous chapter. The objective now is to determine how to get there from an individual airline perspective. Considering the 'strategic' focus has been clarified, what are the main technology developments to be made. It is important to have in mind that the airline will need to onboard several processes that were originally carried out by the GDSs.

2.2.1 Evolution of the PSS modules

The end state is about transitioning PSS modules to modern Offer / Order retailing platform. This will not happen overnight. For many airlines, the PSS is likely to remain in place until the end of the transition. Other airlines may manage to do it faster, but it is likely to take several years.

The general logic is to start by building new workflows on top of the PSS. The target should be to address some of the identified pain points and reap the benefits of having Offers and Orders. At one stage, the number of processes still needing the PSS will be so reduced that the final phase out process can start. This aspect is one of the main focus of the airlines. Operating dual systems adds costs and complexity and this phase should not last too long.

2.2.2 Removing legacy standards (ET, EMD, etc.)

When should the airline remove its legacy standards, and what should be the priority? IATA believes that things need to be looked at in sequence. A prerequisite will be to create Orders. As soon as this is done, airlines have a base upon which to operate. They can leverage these Orders but still retrofit into existing legacy technology, and this is a core principle to facilitate the transition. In the end state an airline will no longer retrofit, and legacy standards will become obsolete. The industry will need to identify if current standards are sufficient to operate the "old" and the "new" worlds in parallel.

E-Tickets (ET) and Electronic Miscellaneous Documents (EMD) are no longer required

E-tickets are the contracts between the airline and the customer. They are also the customer's receipts for their payment of a flight and facilitate the delivery tracking and revenue recognition. The same receipt exists for ancillaries and is called an EMD. They date back from the early stage of aviation and the need to have paper tickets. Airlines would provide travel agencies with paper documents so that they can issue airline tickets. As soon as the agency was going to run out of documents, it would request new ones from the airlines. This was an efficient way to prevent fraud, as airlines could monitor and restrict sales by agencies until they safely collected the funds.

When the industry moved to E-ticket, it did not change the underlying processes, i.e. E-tickets are in fact E-paper ticket. However, 15 years later, it is wise to raise the question: do we still need E-tickets? The answer is no, and the same applies to EMDs. In a retailing industry, payment information is not

separated from the booking itself, it is just a matter of status. EMDs serve to issue payment receipt for ancillaries. Many airlines find the cost rather expensive and they have not been widely accepted when they replaced vMCOs. On top of this, interline EMDs has not been implemented by many carriers. Removing EMDs should be possible as soon as airlines process Orders: ancillaries would be booked into the order.

In a world of retailing, with Offers and Orders, the airline will simply need to update the order statuses to record the fact that it has been paid and then delivered for revenue recognition. No more ET and EMD will be required. Concretely, the information is flagged in the order and kept in the order history.

PNRs to evolve into Orders which will include the legacy ticketing information

PNRs play a core role in the distribution process acting as the source of truth for reservation information. Additionally, PNRs can be regarded as the gate keeper of an airline's seat and / or ancillary inventory, decrementing the number of available units based on the booking status. Information available in a PNR can be mapped into an order, thus the path of PNR evolution into Orders has commenced. Only when the inventory management function of a PSS can be decoupled from PNRs, and the source of truth of booking, payment and inventory information (or stock management) resides in the Order, the full retailing benefits can be achieved.

2.2.3 Evolution of other supporting systems

The end state diagram presents several supporting systems that enable retailing. Most of them will be impacted at some stage by the transition.

We list three important principles to evolve these systems:

- Modularity is essential to ensure systems adapt to each other's.
- Full interoperability must be ensured, and this may require specific standards to be included.
- Data ownership needs to be clarified – both for privacy but also economic reasons.

The most likely scenario is to implement the Offer and Order Management in the initial setup, and to have detailed business requirements for the different modules. Afterwards, the airline can decide on how to transition the supporting systems. Some flows and possibly systems will be removed, some will change; detailed business requirements will be needed for each of them.

3. Industry transition

3.1 Value creation

3.1.1 Overall value for the industry

According to a study performed by McKinsey & Company (McKinsey) end of 2019², the value of airline retailing for the industry can be significant. McKinsey estimated that the industry could create approximately 40B USD in additional annual value by 2030. This represents up to an extra 4% of the total industry revenue or \$7 per passengers at the end of the decade (it is important to point out that customers gain value as well by greater choice, innovative new products and services tailored to their specific needs, greater pricing flexibility, etc.). McKinsey estimated that 70% of the value creation would be driven by additional revenues and 30% by reducing costs. This would come from the sale of extra ancillaries, optimising payment, and aggregation costs, and changing many internal processes such as how to do pricing or exploit data. They also concluded that 40-50% of the value created would likely be sustainable in the long term through broad adoption of retailing capabilities.

There is no major industry transformation without value for all players. Travel sellers will be more competitive with airline websites as they get richer content and more products. They will be able to better serve their customers, enrich reporting with more data, improve duty-of-care by having access to real time information. They will be able to better compare products from airlines and advise their customers. Aggregators and Intermediaries will benefit as well through enhanced competition. Aggregators in their capacity of interface between airlines and the wider landscape of sales partners, will be able to monetize technology, software development, data analytics capabilities and implementation experience. Finally, more partnerships may be implemented, involving a large scale of transportation modes.

This transformation is for the benefit of the end customer, gaining an efficient access to new products and services, and being able to compare much easily than in the legacy environment.

3.1.2 Transition costs

How much will this cost? McKinsey's 2019 study estimated that the industry will have to invest between 3 to 15 billion USD over the next decade. If we take a median estimate, this is about 1 billion USD per year, i.e., about 0,15% of expected

industry turnover post-COVID. Industry commercial systems IT costs are approximately 10 billion USD³; hence this specific transition would require around 10% of current airline IT costs and in some cases could be all or partly financed by reallocating resources and priorities.

3.2 Transitioning a full eco system

A full eco system consists of several hundred airlines, more than a hundred IT providers and then thousands of airports and Travel Sellers.

3.2.1 Onboarding industry players

Implementing Offers (NDC) required a good cooperation between airlines, technology providers, and sellers. It started mostly with pilots involving a limited number of players. An airline could sign a deal with a specific aggregator and target a small number of travel sellers to start with.

A full industry transformation will require many more players to get on board, as practically anyone handling PNRs or ETs will have to adjust to the new environment.

Airlines

Airlines are expected to drive the transformation. By enabling new workflows, airlines will support and facilitate the rest of the industry to transition. They will be the most impacted as they have to change their platforms and processes.

Travel sellers

Travel sellers who have implemented NDC have gone through a significant transformation. They have adjusted user interfaces to include new products, they have adjusted internal workflows (data feed to mid and back office), etc. The transition to processing Orders appear to be much simpler by comparison. They will gain substantially from the simplification of the selling process, as well as the accounting part. Early adopters who have tested using Orders report massive time and resourcing savings.

Technology providers

Technology providers are likely to be among the early adopters⁴. We have seen with NDC that many start-ups embraced the change at an early stage. There is little doubt that more innovation will come, especially in the space of Offer and Order Management, to gradually phase out the PSS, and in optimization (Next Gen RM system, channel management, etc.).

² **Airline retailing: The value at stake**, McKinsey & Company, [mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/airline-retailing-the-value-at-stake](https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/airline-retailing-the-value-at-stake)

³ Source: IATA ACMG, 2020

⁴ List of players available on IATA website: [iata.org/ndc](https://www.iata.org/ndc)

Airports and ground handlers

Airports and ground handlers will process Orders. Some adaptations are required from the DCS, but current insights suggest they are not massive. A great added value will be the information flow going both ways, i.e. the capacity to update the order with all changes happening in the operational window.

Governments, regulators

Several processes are currently based on PNRs or ETs. Examples range from APIs, PNR Gov, tax collection (in some countries, etc.). As this is essentially a flow of information, the transition should not be complex, as the challenge is mostly reformatting the data. It may however require close coordination and some advocacy effort.

3.2.2 Change management and mindset shift

The transition requires efficient change management. Each player will handle its specific roadmap. IATA's role could be to maintain an industry roadmap, with a vision, KPIs, concrete deliverables.

The main motivation for change is to gain competitive advantage in the airline industry and survive in the marketplace. The key steps for the industry are to:

- Understand the case for change.
- Embrace the long-term vision.
- Build relevant business case.
- Focus investment on the right technology.
- Break internal silos.
- Get C-leadership buy-in.

The transition will require a change in culture, mindset, and skills for many impacted departments within an airline to enable retail-like sales and servicing practices. Retailing champions will need to be identified to help with education as to how and why the new workflows will help airlines. A common issue is that people generally tend to get very attached to existing, well known processes and systems. Thus, those champions will need to consider how Offer and Order Management can be implemented into an airline without being adversely impacted by internal resistance.

The same applies to other players across the value chain. For example, many sellers are insourcing new technologies and need to train their staff.

3.2.3 Operating dual processes

Transitioning will take many years as there will be a gradual phase out of legacy technology. However, a few guiding principles can be established.

The PSS has been core to the airline IT. It will progressively be replaced by Offer and Order management. During the transition, it stays in the back, i.e., legacy processes remain

but behind the scene. Modern processes are implemented, and they use Offers and Orders. Any new process, workflows, etc. are built around Offer and Order Management. These are processes that were not possible or too cumbersome with legacy technology and that add value thanks to the new capabilities.

Behind the scene, things may be different: there is an analysis needed of all the processes that still rely on legacy. They have to be looked at one by one and changed to be able to run with Offers and Orders. During the transition phase, all these processes are therefore reviewed and adjusted. The approach to transitioning is dependent on each airline's internal system architecture. "On top" or "encapsulation" are the two most likely approaches to be followed.

There is a need for a simple way to interact between the new world and the old world. It can be a translation API, that recreates what is needed for back-office processes to function correctly and ensure proper synchronization.

The ambition is to gradually remove the need for this translation API, until the moment when no back-office system or process needs it. Ultimately the traditional PSS will be replaced by processes and modern standards, and its functions are moved to a modular retailing architecture as described in the first part of this document. Airlines and IT providers will build processes based upon their individual cases.

3.2.4 High level timeline

How long will this take? This seems to be the burning question for many people within the industry. The shorter the transition, the higher the pressure on the airlines (while they lack financial resources to invest) and the longer the transition, the higher the risk of lost opportunities and added costs due to the maintenance of dual processes. The COVID-19 crisis has opened up some opportunities, as appetite for change is higher and the industry wants to rebuild better.

Looking at the NDC example: some of the NDC Leaderboard carriers (23 airlines, early adopters of NDC) have experienced a very strong growth of their bookings from 2018 to 2020 and they collectively surpassed the 20% industry target during the summer of 2020, amid the pandemic – albeit on low volumes.

However, many other carriers are also live, but have limited volumes. IATA has identified over 200 airlines that could benefit from an airline retailing strategy.

To achieve transition at scale, the industry needs a combination of:

- Airline readiness to distribute more content.
- Aggregator readiness to process the content.
- Travel seller readiness to consume the content.
- Corporates asking for new content.

The final industry performance will be dependent on these four types of players being ready, together.

To support the industry driving this transformation, an aspirational goal of 100% Offers and Orders is being considered, with the sunset of legacy standards. In the end state, legacy standards will be decommissioned.

This is an ambitious and complex challenge and it will be reviewed as we continue to understand the industry dependencies as well as the speed at which the industry re-starts and recovers from the COVID-19 crisis. However the DAC believes this sets a tangible goal. Technology providers are already fully on board regarding the end vision of Offers and Orders and such an ambition will only reassure them in their strategy and investments.

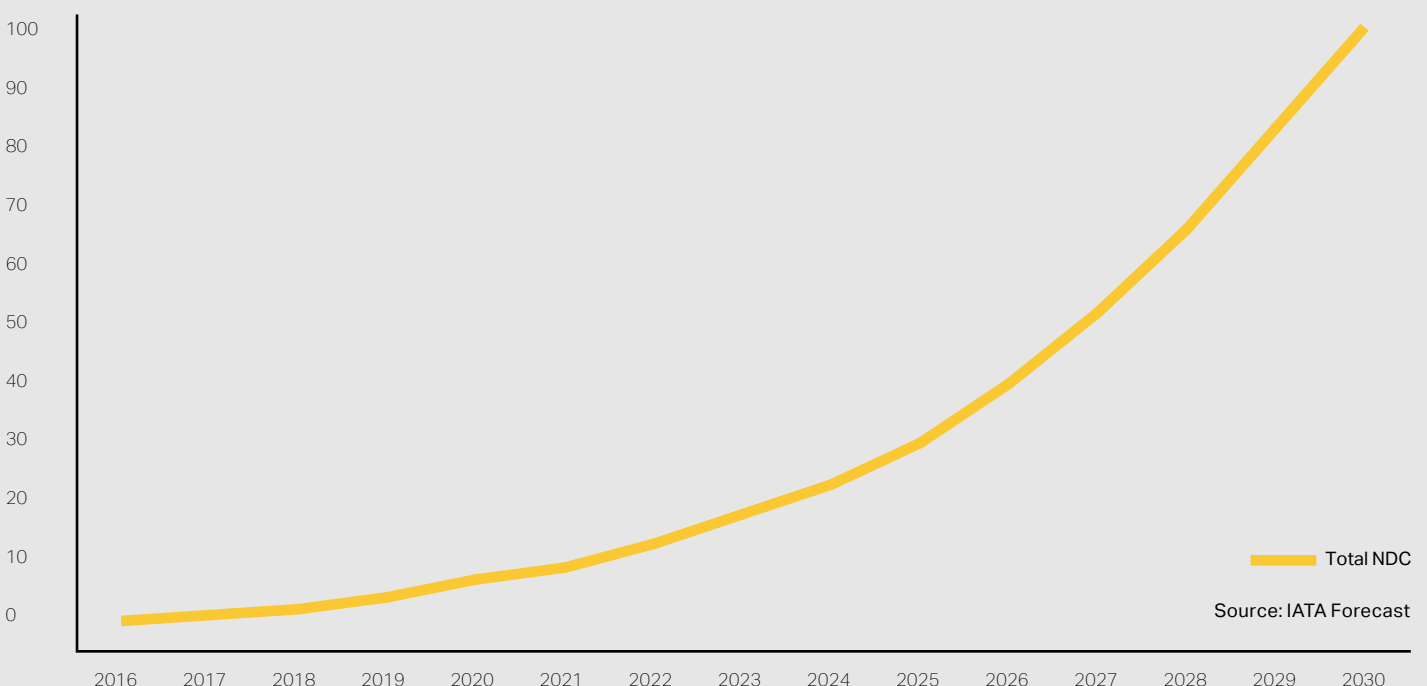
It will require cooperation well beyond the current scope of any classic distribution project. Indeed, besides airlines, travel agencies, technology providers, other players will also need to come onboard: airports, ground handlers and even governments.

The chart below is a projection of NDC volume growth over the coming years. Of course, there are many variables that will influence this curve.

The speed of adoption is expected to increase at a fast pace, as customer demand, intermediaries and sellers already have done the necessary heavy lifting thanks to the Leaderboard push during the last 2.5 years. Many people in the industry have contributed to make this happen, both on the standard and implementation side.

Volumes of Orders are expected to increase gradually from 2022 – 2023, but there will be a retrofit to legacy in order to feed all systems. Initial 'orders only' transactions could be for example for simple flows (domestic point to point as well as for interline and settlement). It will then expand to include gradually all airline processes: travel sellers, airports, etc.

Chart 2: Retailing adoption rate (in %)



3.2.5 A move towards widespread adoption

The industry will not transition without a significant effort by all parties and this will need to start with the commitment from airlines, with their top management involvement.

Lessons from the ET transition is that leaders have influenced followers. For example, an airline that had implemented ET, would require the same from interline partners, in a reasonable timeframe.

There is no doubt that at some point during this journey, the industry will wish to accelerate in order to remove complexities and duplication of systems and processes required for the duration of the transition (ET was handled in this way) in order to reduce costs.

Finally, it seems reasonable to expect that any IT solution in the future be built around the notion of Offers and Orders. This does not mean that there will not be any retrofit. Future RFIs and RFPs could reflect this. Many IT providers have already built order-centric solutions and only fall back to legacy processes because they must.

Conclusion

It is a long journey that is ambitious but achievable. It requires top management support to drive the transformation and to approve funding and therefore a robust business case.

The industry in 2030 will be more agile, more efficient, and create more value for the airline, its customers, and the value chain players. The COVID-19 crisis has shown the need to continue to innovate fast and to be resilient to future shocks. We list some key highlights to drive this transformation:

- **New customer expectations based upon personalization and contextualization.**
- **Modern technology that can address these customer expectations.**
- **A desire to modernize and simplify an industry that is unnecessarily complex, after decades of layers of processes that seem unreal to younger generations or people outside the industry.**
- **A simple aspiration: 100% by end 2030.**
- **A driving spirit from technology providers to enable this to happen.**
- **A historic opportunity for this industry to modernize itself.**

As the industry comes out from its worst crisis, it is motivating to think about the future. A general sentiment is to focus on the return to “normal”. With regards to airline distribution, it is difficult to talk about normality: most processes are bespoke to our industry and have only just evolved over the last decades, but they now need to be modernized.

What seems obvious in most industries (the customer at the centre) is not the case today in the airline technical environment.

IATA will support its airline members through this critical industry transformation in collaboration with all the key stakeholders across the value chain.

Acknowledgements

IATA, with DAC sponsorship, has consulted many industry stakeholders and expresses its sincere appreciation for the discussions that took place. IATA also got some guidance from consultant Renaud Arnoux Prost – from **Copernicus Software Solutions**.

Below is a list of stakeholders that gave feedback and provided general support for this approach.























Glossary

API	Application Programming Interface
ARC	Airlines Reporting Corporation
BSP	IATA Billing and Settlement Plan
CRS	Computerised Reservation Systems
DAC	Distribution Advisory Council
DCS	Departure Control System
DOT	Department of Transport
EMD	Electronic Miscellaneous Document
ET	Electronic Ticket
GDS	Global Distribution System
IBE	Internet Booking Engine
LCC	Low-Cost Carrier
MITA	Multilateral Interline Traffic Agreement
NDC	New Distribution Capability
OTA	Online Travel Agent
PNR	Passenger Name Record
PSS	Passenger Service System
RA	Revenue Accounting
RFI	Request for Information
RFP	Request for Procurement
RMP	Revenue Management Pricing
RMS	Revenue Management System
SLA	Service Level Agreement
SRSIA	Standard Retailer and Supplier Interline Agreement
TMC	Travel Management Company
VMCO	Virtual Miscellaneous Charge Orders

