New Distribution Capability (NDC)

Together Let’s Build Airline Retailing

Strategy Paper (version 1.2)

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Author: Yanik Hoyles, Director, NDC Program
Preamble

On August 6th 2014, the US Department of Transportation (DOT) granted final approval to Resolution 787, effectively completing the development phase of NDC. Produced by IATA’s NDC team, this document aims to:

− Present the NDC program vision, objectives, benefits and scope
− Illustrate how airlines and their value chain partners can use the NDC standard
− Explain how the standard will be delivered to stakeholders
− Provide a comprehensive directory of key contacts and information sources to help get started with NDC

This strategy paper is for general use, and is publically available on IATA’s NDC website at http://www.iata.org/ndc.

At this stage it is clear that this document looks at NDC essentially through the lens of the airline stakeholder. Our goal overtime will be to complete it by giving more perspectives from other stakeholders. To this effect we would welcome any feedback that would enable us to enrich this document from the perspective of Travel Agents, IT providers and others.

This document is a Strategy paper and is not designed to provide detailed explanations. A first version of the NDC implementation guide, which provides a more detailed and technical overview of NDC is currently available on IATA’s NDC website at http://www.iata.org/ndc.

We plan to publish an updated version of this document by the end of the year as we will have gathered more input and experienced more deployments of the Standard.

Updates of this document will be made available on the website.
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1. NDC Program Description

1.1. Introduction

In the 1970s, the airline industry was at the peak of electronic commerce. Green screens connected hundreds of airlines to thousands of travel agents selling air travel, and what a fantastic job they were doing.

However in a booming market (1970: 380 million passengers a year, today: 3 billion passengers a year), this technology did not evolve as fast as the way airlines embraced internet distribution on their own websites. Some changes have been made since this period, but it was more about moving from paper to electronic… and retailing and merchandizing capabilities for airlines are still limited today when selling through travel agents.

The indirect channel is suboptimal in 3 areas today:
- Travel agents have limited access to the type of rich content and choices presented to customers via the airline website
- It takes much longer to deliver new airline products (such as preferred seating and lounge passes) through the indirect channel
- Differentiation and personalization of offers is limited because of the current distribution channel architecture, the existing technology and cumbersome processes

Finally, customers’ expectations have risen: they want more transparency and choice when buying products, they want to know the value of what they buy, not only the price – regardless of where they shop.

Recognizing the need to address these limitations, the IATA Board of Governors approved the NDC Program as a Simplifying the Business initiative in early 2012.
1.2. Vision and Objectives for NDC

NDC (New Distribution Capability) is a travel industry-supported program (NDC Program) launched by IATA for the development and market adoption of a new, XML-based data transmission standard (NDC Standard).

The NDC Standard will enhance the capability of communications between airlines and travel agents.

The NDC Standard will enable the travel industry to transform the way airline products are retailed to corporations, leisure and business travelers, by addressing the industry’s current distribution limitations:

− Product differentiation and time-to-market
− Access to full and rich air content
− Transparent shopping experience

The NDC Standard will allow an airline to make sales offers to agents without them being prepared by a third party as an intermediary. The sales offers can be aligned to current inventories rather than based upon previously filed products (i.e. dynamic and personalized offers are possible). It also unlocks opportunities for the airline to manage other components throughout the indirect distribution process such as the opportunity to fulfill the transaction, create the booking record, issue the document(s) and respond with confirmations – should they choose to do so.

The diagram below describes the high level distribution process in today’s world, and how it could evolve with the NDC standard:

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1 The NDC standard provides a technical capability for airlines to enhance their distribution through travel agents. However the commercial decisions as to what content is distributed through which channels will always pertain to the airline.
Visit the NDC home page to access an illustrative video: http://www.iata.org/whatwedo/airline-distribution/ndc/Pages/default.aspx.

You can also access the NDC Educational Videos available online through the IATAtv channel: https://www.youtube.com/playlist?list=PLM2XOQXtRLMcj-hquOlTqY4-vtZqaxxk8

The NDC Standard, like all IATA standards from the Passenger Service Committee, will be available on an open and voluntary basis to any third party, intermediary, IT provider or non-IATA member, to implement and use.

The NDC Program was initiated in 2012 and is currently coming to the end of its development phase. From 2015 onwards we begin to see the first market deployments.
1.3. Stakeholders and Benefits of NDC

While intended for airlines and travel agents, the NDC Standard has implications for the entire airline distribution value chain, therefore the IATA NDC Program involves all the following stakeholders:

In terms of benefits, standards are powerful tools to achieve simplification, interoperability and cost efficiencies. They also foster greater innovation. The NDC Program will benefit and give access to new capabilities to all players in the distribution value chain\(^2\):

\(^2\) Being capable to distribute, i.e. the capability is what NDC could bring. It is a business decision of the airlines to decide whether they want to distribute all of their content or not.
Aggregators and other IT providers also benefit from NDC. Some of the features above provide a good description of how their value proposition can also be enhanced.
1.4. Scope of the NDC Standard

Structured around key functional domains, the NDC schemas provide the opportunity to address the end-to-end airline distribution process, e.g. shopping and order management, to deliver enhanced customer experiences.

NDC Shopping

The NDC Shopping schemas enable airlines to distribute their full product offers and to merchandize their baggage, seat choices and ancillary services, using rich content, in an anonymous or personalized manner.

NDC Order Management

The NDC Order Management schemas enable airlines to manage NDC-driven orders throughout the entire lifecycle, from booking to fulfillment. It is composed of:

- The schemas for Booking & Servicing, to enable airlines and travel agents to manage the order from the traveler, once he/she has selected an offer, and service it at any point throughout the order lifecycle;
- The schemas for Payment & Ticketing, to enable airlines and travel agents to collect and pass form of payment details for the supported methods, as offered by the airlines and selected by the traveler; these schemas will also allow travel agents to request accountable documents issuance to fulfill NDC-driven orders.

NDC Airline Profile

The NDC Airline Profile schemas enable airlines to communicate the markets for which they are willing to respond to requests for offers and associated services.

Interline

The NDC Shopping and NDC Order Management schemas will also enable airlines to send requests for offers and associated services to their interline partners, and manage the resulting booking and servicing, including for ancillary products.

The NDC Standard will have some interdependencies with existing processes (for example on revenue accounting, BSP, SIS services...). A dedicated section on this subject can be found in the appendix of this report.
2. How will NDC work?

2.1. Illustrations: Airline Distribution Without and With NDC

The illustration below presents the current air travel sales through travel agents. It describes -at a very high level- the respective contribution of each party involved during such a sale, starting with the shopping/search, to order & delivery and finally payment.
This second illustration shows the same process (i.e. air travel sales through travel agents) but illustrates how it could evolve in an NDC environment. The key changes are driven by the fact that an airline has now the capability to make offers to agents without them being prepared by an intermediary.
2.2. Description of the Full Process (End-to-End)

This section covers a more detailed description of the data information flows between the different stakeholders in a complete NDC environment. The **FULL PROCESS** can be summarized as per the illustration below:

**Step 0.** Setup  
**Step 1.** Shop  
**Step 2.** Order  
**Step 3.** Pay / Ticket  
**Step 4.** Report Sales  
**Step 5.** BSP Confirmation  
**Step 6.** Payments
Step 0: Set up

− Before any NDC sales processes can occur, it is necessary to establish the roles for the various players in the distribution landscape. For indirect sales, the players are Airlines, Travel Agents, Aggregators and IATA BSP (or equivalent such as ARC or TCH). There are two industry setups to be made, but in addition each player will need to agree contracts for services with other players.

− In the case that the Airline and the Agent want to use BSP, the first process is to establish BSP participation. IATA will accredit agents in each BSP country and make these available for airlines through the BSPLink portal service. Airlines will declare their willingness to accept certain of these agents to work on their behalf in BSPLink through what is known as ‘ticketing authority’. In the circumstances of an accredited agent defaulting on a payment to the BSP, then IATA updates its accredited agent listing in BSPLink and includes the detail in the ‘Ticketing Authority’ update messages sent every 2 hours via XML to NDC Airlines, similar to what is provided to GDSs today.

− The second part of the setup, is for airlines to record the markets for which they wish to receive NDC shopping requests through their ‘Airline Profile’ which may be distributed to each Aggregator. The airline profile, as defined under the NDC XML standard, is intended to avoid Agents/Aggregators sending NDC shopping requests to airlines that have no interest in receiving requests for travel in those geographic markets.

Step 1: Shopping

− Agents raise a ‘Shopping Request’ within their front-office system and pass it to their Aggregator as an NDC standard message.

  o The ‘Shopping Request’ will be for broad travel search down to specific airline flights, but always specifying type of passenger (adult, child, infant, pets etc.) and type of products required (class of service and any ancillary product).

  o The Agent may include the identity of a corporate client to claim corporate pricing or FFP or other personalization for any privileged access to fares or ancillary products (or these could be added after completing booking as today).

− Aggregator receives ‘Shopping Request’ and forwards to all relevant airlines.

  o Aggregator will follow instruction of Agent, but where not specified will use the Airline Profiles to determine NDC capable airlines that wish to receive requests for travel in the specified market.

− NDC airline receives ‘Shopping Request’ and prepares to respond with its ‘Offers’.
Airlines have complete flexibility on how to do this – whether accessing filed fare (public or private fares) and associated product data (whether flight-related like seats and meals or generic such as lounge access) or creating specific one-off replies for this potential customer.

Offers, returned to the Aggregator, may be restricted to a single flight or ancillary product with the price, or could be a broad response proposing numerous alternative flights, fares and ancillary product choices. It may contain just flight data, just ancillary products or a combination of both.

Offers will typically be marked as being available for a certain time after which they expire unless a booking has been progressed. Another time limit can be set by the airline to guarantee inventory associated with this offer for a certain time, and a third time limit set to when payment must be committed (this is the same as today’s ‘ticketing time limit’).

Each Offer from an airline will be individually tagged and stored so that it may be subsequently referenced – ‘Offer ID’

- The Aggregator will collect the Offers from different airlines and ‘aggregate’ them into a consolidated view for the Agent.

- Presenting the Offers in an intelligible way to the Agent will be a core requirement and distinguishing capability for an Aggregator.

- The presentation should take into account any specific requirements from the Agent as well as showing what the Aggregator considers to be alternative offers which may still be of interest. The contracts between Aggregators and Airlines and with Agents are expected to clarify what content is to be passed through to the Agent.

- Where the Aggregator is a GDS and has access to legacy filed airline products or has special (non-NDC) arrangements with other carriers they are free to also use this other non-NDC content to provide alternative options back to the agent.

- The Agent receives the combined response from its Aggregator as representing the available options from which to refine the requirement or proceed to accept one offer.

- The Agent can specifically request ancillary products relating to a particular flight offer.

- The Agent has complete freedom to choose suppliers for flights and ancillary products, but separate offers from different suppliers can never be combined into a single contract of service (i.e. agents working with aggregators cannot create an ‘interline itinerary’).
Step 2: Ordering

- When the Agent is satisfied with an offer set, he/she will initiate the 'Ordering'. The offer acceptance message is received by the airline that will now turn their 'Offer' into a specific order for a named passenger and contact (minimum requirement for an airline booking today, where the contact can be either passenger or agency). The airline response is to confirm the booking with an 'Order ID' (which may be a PNR) for reference together with details of booked travel and ancillaries. The Agent is expected to store the booking in their bookings system, which may be their own system or be provided by their aggregator/GDS (as today).

Step 3: Ticketing

- The Agent is responsible for ticketing within the time limits as specified in the Offer (e.g. at time of booking or at a certain time before travel).
  
  o The Agent initiates ticketing by confirming the flights for the Order and adding the payment details (cash for an accredited agent, card, miles etc.) in the Ticketing Request to the airline.

  o The Airline will check the proposed payment method
    
    - For cash – is the Agent accredited and credit worthy in the BSP/ASP?
    - For card – conduct an authorization request with their acquiring bank and receive a satisfactory response
    - For other forms of payment: the airline will now be in charge of deciding which payment methods to accept and manage their authorization & collection.

  o The Airline now creates the ticket in its Electronic Ticketing database and confirms the issuance (ticket number and full itinerary together with the formal passenger itinerary receipt) to the Agent.

  o The Airline will also issue EMDs for ancillary products, especially those who have a separate process

- Airlines that do not wish to use the NDC end-to-end process and manage their own booking/ticketing, perhaps as an interim measure to aid implementation with minimum system disruption, can request services of a third party (typically the aggregator). Any aggregator performing this service would need to be recognized in the BSP as it would apply a neutral ticket stock number and report the sale to the BSP.
Step 4: Sale reporting to BSP

- The Airline reports sales to ASP/BSP for ARC/IATA to progress remittance of cash payments and settlement of any due commissions.

Step 5: BSP processing

- IATA or ARC will include NDC sales submitted by airlines to sales data submitted by GDSs to produce the periodic billing statement for each Agent.
- The BSP carries out data validity checks, calculates commissions and local taxes on these before preparing output files to Airlines and Agents.
- The Airlines receive their sales reports by Agent (HOT files) and Credit Card remittance files.
- The Agents receive their billing statement for the period (requirement to pay the BSP for their airline cash sales and any Agent Debit Memo (ADM) amounts less airline commissions and any Agent Credit Memo (ACM) amounts.

Step 6: Fund settlement between Agents and Airlines in BSP

- Agents are required to 'remit' payments according to their billing statement on the BSP due date.
- The BSP will ‘settle’ with airlines based on remittance calendar. Where an Agent does not make the full payment, and following request to complete this immediately, the BSP declares the Agent as being in default and automatically removes the ticketing authorities that Agent held with different airlines.

NDC impact on Servicing for Bookings/Tickets

- The need to service bookings will either be driven by a schedule change of an airline or by the desire of the passenger to change his/her booking.
- Where an Airline has changes to a booked flight, it will send an unsolicited NDC service advice message to the Agent to amend the Order, in a manner similar to the way it is done today.
  - The amendment may have already been made by the Airline (e.g. for a small schedule change) and simply require the Agent to notify the passenger and confirm contact.
  - More complex involuntary changes will typically require the Agent to contact the Airline service desk.
  - After reworking the order a new ticket may be required (exchange and re-issue)
Where a passenger wishes to change a booking, the Agent will display the current Order, and then revert to using the Shopping, Ordering and Payment processes as required with the Airline updating the order and reissuing the ticket – triggering payment or refund as required.

**NDC impact for the On the Day Operation**

- NDC does not have an impact on how the airline manages its operation, even for disruption as explained below:

- The Airline continues to manage check-in from its Departure Control System and Electronic Ticketing System whether through its own system or by a ground handler.

- In the event of disruption, on the day of operation, the Airline still takes charge of rebooking passengers as necessary to fulfill their itineraries as ticketed. Airlines will continue to notify the Agent of any flight changes – but do not wait for the Agent to respond as the passenger is usually standing in front of an airline desk at the airport or talking directly by phone. However the passenger is still able to ask his Agent to assist in overcoming disruption according to the conditions accepted in the order.

- NDC airlines are advised to consider carefully the IRROPS settlement processes when a passenger is re-routed onto another airline. Where a passenger has bought a ticket that does not show use of a filed public fare (e.g. net fare offered to one agent, or NDC dynamically priced fare) then a new operating carrier will claim revenue against a proportion of a full Y fare unless the validating (ticketing) carrier and new operating carrier have agreed IRROPS prorates to cover these situations.
2.3. Description of the Interline Process

The NDC schema can also be used to satisfy customers that want an **INTERLINE PRODUCT** – i.e. services from more than one airline in a single contract/ticket. The processes will differ from the one airline situation previously described in the following steps:

| Step 0. | Setup |
| Step 1. | Shop with ORA |
| Step 2. | ORA relays complementary Shop RQ to POA |
| Step 3. | ORA consolidates POA RS into its Aggregator RS |
| Step 4. | Agent sends Order RQ to ORA |
| Step 5. | ORA accepts POA’s offer with Order RQ and confirms interline order with Agent |
| Step 6. | Ticketing & payments all with ORA as validating carrier (incl. BSP reporting & settlement) |
Step 7. ORA as validating carrier advises ET# to POA using AIRIMP message
Step 8. ORA as validating carrier manages ET/EMD coupon(s) with POA using ticketing standard messages
Step 9. POA claims flown revenue through SIS-IDE (not NDC messages)

Legal Considerations for Interline NDC

Interline shopping may be used by any two participating airlines to seek or make pricing offers for interline travel segments on which the ORA and POA do not compete.

Interline shopping may be used to seek or make pricing offers for interline travel segments where a corresponding bona fide passenger enquiry for the subject route has been made to the airline (or agent). No hypothetical requests are permitted.

For purposes of interline shopping, two airlines shall be deemed to compete when they each offer for sale air travel service to any airport within the same origin and destination // city pair as the interline travel segment subject to the NDC request.

On routes for which the two airlines do offer competing air travel service, they may not utilize interline shopping unless the two airlines have received formal antitrust immunity (ATI) from relevant competition authorities. In cases where formal ATI for the two airlines has been granted, interline shopping may be used for travel segments on the same terms and conditions as non-competing routes.

Subject to the above conditions, interline shopping may also be used to seek or make a pricing request for those ancillary services related to the bona fide enquiry for the subject interline segment. These ancillary services may include all customary services related to the class of service involved in the enquiry.

Step 0: Interline Setup

- The only difference is that the airline profile should now include coverage of markets where the combined services of the airline and its interline partners will reach.

Step 1: Shopping

- Agents raise a ‘Shopping Request’ within their front-office system and pass to their Aggregator with no difference whether they anticipate an individual airline will be able to fulfill all the travel or whether it will be necessary to develop an interline solution.

- Aggregator receives ‘Shopping Request’ and forwards to all relevant airlines
New Distribution Capability (NDC)

Aggregator will follow instruction of Agent, but where not specified will use ‘Airline Profiles’ to determine NDC capable airlines that wish to receive requests for travel on the specified market. Note that airlines which include markets beyond their own fulfillment capability will need to be able to follow the interline procedures described below.

- NDC Airline receives ‘Shopping Request’ and prepares to respond with its ‘Offers’. In the situation requiring an interline solution for which messages will be sent to other airlines to supply product, the originating airline receiving the shopping request from the Agent/Aggregator is called the ‘Offer Responsible Airline’ or ‘ORA’. If the ORA sends further NDC messages to other airlines then these other airlines are called ‘Participating Offer Airlines’ or ‘POAs’.

- ORAs have complete freedom in how to prepare responses which include other airline products. They could do this by accessing filed fares (for interline journeys these could be either through fares or combinable fares) and associated product data with minimal interaction with other carriers (perhaps just to confirm inventory status) or by interacting with POAs using NDC messages. The use of these NDC messages between ORA and POA is as follows.

**Step 2: Interline Shopping**

- ORAs can select whichever POA(s) they wish to work with to generate potential offers to respond to the requesting agent. They may choose to use the Airline Profile to assist them or from their knowledge of actual airline schedules. Having selected a suitable POA they will be sent an Interline Shopping message requesting flight or ancillary product in much the same way an Agent sends a Shopping Request.

- The Interline Shopping Request differs from a Shopping Request in a few ways, most notably that the POA must be informed of the entire proposed itinerary so they are aware of their interline obligations.

- POA(s) will respond to the ORA in much the same way as a Shopping Response is made, but the pricing is a private matter between the POA and ORA, and indeed should be specified at individual item level so that the POA can make an interline settlement claim as each service is delivered with the agreed pricing. It is very important to label and price each component of the offer so that the ORA and POA can manage the settlement without misunderstanding.

**Step 3: Interline Shopping Response Determination**

- The ORA will collect the Offers from different POAs and decide which are to be included in its Shopping Response back to the Aggregator. Where a product is to be included, the product description will be included in the response to the
Aggregator, but the POA’s pricing need not be shared – indeed a component could be marked at a different price or bundled with other product into a single price that the Aggregator/Agent is to see. The pricing is entirely the responsibility of the Offer Responsible Airline – as the name implies. Essentially, NDC introduces a much more competitive framework for agents to gain independent quotes for interline journeys from different ORAs, where the POA is acting as essentially a sub-contractor to the ORA – and both airlines will know that they need to price to be more attractive than other offers. All airline pricing must of course still respect any requirement for use of government filed fares where these are still required.

- The ORA’s response to the Agent/Aggregator will also need to comply with all baggage and tax information according to relevant government requirements. They may be able to do this on their own, or may need to have requested POAs to provide inputs.

- The originating Agent will only receive NDC offers prepared by ORAs – in particular there is no role for Aggregators to identify component airlines’ products where these are to be contracted as an interline product (with the consumer benefits of a single contract of carriage from the single Validating (or Ticketing) Carrier). An Agent, aided by its Aggregator, can always shop for products, which are not to be combined into a single ticket/contract with separate shopping requests but upon purchase these will never be combined in a single ticket/contract.

**Step 4: Order**

- When an Agent accepts a Shopping Response for an interline product proposed by an ORA, the acceptance process is the same as for a non-interline product – the acceptance NDC message goes to the ORA.

**Step 5: Interline Order**

- The ORA then forwards an NDC Interline Acceptance message to each POA whose product has been included, marking carefully the POA Offer IDs that have been accepted. The POAs will respond with their order acceptance message, providing their order IDs, which then allows the ORA to eventually confirm the whole itinerary with the Aggregator/Agent.

**Step 6: Ticket**

- When an Agent is paying for the Order (which may be simultaneous with the Order) they prepare the form of payment information and request the ORA to issue the ticket/EMD. Normally the ORA will be the Validating Carrier, so will
issue the ticket and respond to the Agent with the itinerary receipt and full itinerary information.

Steps 7 & 8: Interline Ticket

- When the itinerary is interline, the Validating Carrier (i.e. ORA) is responsible for sending an AIRIMP message to each interline partner advising the ticket/EMD number(s) through the AIRIMP message (it is not thought necessary to duplicate this message with an NDC XML message). These will need to reference the particular services, as labelled by the POA, so the accounting document fully matches the order. The Validating Carrier is also responsible for issuing each ticket or EMD coupon in advance of operation according to their interline ET Agreement (once again these ticketing standard messages are thought to be sufficient with some small changes to allow inclusion of an NDC Offer ID, so are not currently proposed for being duplicated as NDC XML messages).

Step 9: Interline Settlement

- After a POA has delivered a service (whether flight on an ET coupon or ancillary on EMD), the POA will have returned the flown coupon to the ORA and received a SAC code to verify the interline settlement claim.

- The settlement claim is made as today through the SIS-IDEC process, for which a small change will again be required in the formatting to state the NDC Offer IDs. The Validating Carrier settles the POA claims through the Interline Clearing House.
2.4. How to Just Use NDC for ‘Shopping’

This section provides an overview for how airlines can choose to use the NDC schema for the shopping and ordering processes but then subsequently not manage their own payment/ticketing but instead rely upon an AGGREGATOR WITH ADDITIONAL GDS CAPABILITY.

Step 0. Setup
Step 1. Shop
Step 2. Order
Step 3. Pay / Ticket
Step 4. Report Sales
Step 5. BSP Confirmation
Their Aggregator/GDS will be able to manage the ticketing by communicating with the NDC airline using the traditional Ticketing messages:

- The Agent is still responsible for ticketing within the time limits as specified in the Offer (e.g. at time of booking or at a certain time before travel).
  - The Agent initiates ticketing by confirming the flights for the Order and adding the payment details (cash for an accredited agent, card, miles etc) in the Ticketing Request to the Aggregator/GDS.
  - The Aggregator/GDS will check the proposed payment method
    - For cash – is the Agent accredited and credit worthy in the BSP/ASP?
    - For card – conduct an authorization request with the acquiring bank and receive a satisfactory response? The Agent is now fully responsible for deciding whether to proceed and request ticket issuance – the Airline will issue a debit memo in the situation of the card payment being rejected.
  - The Aggregator/GDS prepares ticket/EMD information. In order to specify the ticket/EMD content correctly, the Aggregator will need to first ‘view’ the Order from the Airline to obtain the Service IDs for each component of the Offer. It then adds a proposed neutral ticket number, and sends to the Airline, asking issuance of the electronic ticket. This traditional TKTREQ message, whether the EDIFACT or XML version, will also need updating to provide references to the NDC Offer IDs.
  - The Airline enters ticketing information into its Electronic Ticketing / EMD database and confirms issuance (itinerary receipt) to Agent.
  - The Aggregator/GDS reports sales to BSP for IATA (or ARC in USA etc.) to progress remittance of cash payments and settlement of any due commissions.
  - The Airline is now advised to check the fare amount and booked items against the proposed Offer ID (revenue integrity checks). This is a simpler check than today’s check against a filed fare so may be made in advance of accepting a proposed electronic ticket, or could still be done as part of the subsequent revenue accounting processes with issuance of an ADM (Agent Debit Memo) where too low a fare was ticketed. ADMs would also continue to be raised where a card issuing bank does not pay a card transaction.
2.5. Financial Impact of Implementing NDC (from an airline’s perspective)

The business case for NDC will vary greatly depending on the type of stakeholder (i.e. Airline, IT providers, Aggregators, Travel Agents). Within each type of stakeholder, it will also be strongly influenced by its size, geographies, markets etc. Consequently we have made an attempt at highlighting the additional revenues, cost savings and additional costs for an airline:

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<thead>
<tr>
<th>Additional Revenues &amp; Cost Savings</th>
<th>Additional Costs</th>
</tr>
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<td>Increased sales via full real time inventory &amp; pricing options</td>
<td>IT development, deployment and integration costs to manage sales &amp; fulfillment (1)</td>
</tr>
<tr>
<td>Cross selling in ancillaries</td>
<td>On-going systems maintenance costs</td>
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<tr>
<td>Increased sales via greater differentiation</td>
<td></td>
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<tr>
<td>Increased sales via new distribution channels (i.e. meta-search partners…)</td>
<td></td>
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<tr>
<td>Cost savings thanks to reduced use of intermediaries: portion of transactions via GDS, credit card merchant fees,… *</td>
<td></td>
</tr>
<tr>
<td>Cost savings thanks to efficiencies: Agency Debit Memos, Revenue Integrity Checks,…</td>
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</tr>
</tbody>
</table>

(*) Non exhaustive list, for illustration only

(1) Depending on the airline’s NDC integration these can cover: dynamic pricing, enhanced merchandizing, affinity shopping, customer recognition, attribute search, enriched content and differentiation, end-user experience…
Yet how these levers come into play directly depends on:

1. **The level of NDC integration the airline chooses to implement** (i.e. NDC end to end or NDC shopping only, or NDC interlining, etc.)

2. **The commercial discussions between the airline and all distribution providers** (GDSs, aggregators and agents). IATA will not be involved in any commercial discussions

While it remains the Airline’s responsibility to build its own business case, IATA can provide ad-hoc support upon request.
3. Delivering NDC: an IATA-led Industry Initiative

3.1. Program Structure & Key Work Streams

3.1.1. Overview

The NDC Program is part of the Simplifying the Business (StB) initiatives, and as such it uses the same delivery method as other StB projects, going through four key phases: Mobilizing, Facilitating, Supporting and Guiding (please can refer to the appendix for more background on StB methodology).

The NDC Program is structured around a development phase, followed by an implementation phase. Under each phase, the program delivers on 3 main work streams: Technology, Regulatory/Advocacy and Marketing/Communications:
3.1.2. Phase 1: Development

3.1.2.1. Technology: Architecture and Development of the Standard

The NDC Standard will cover the end to end airline distribution process, and thus the program will deliver the schemas/processes for the distribution related processed described below:

The NDC Schemas follow some guiding principles:
- Schemas are modular and flexible
- Schemas are optional – not mandatory
- Schemas are business model agnostic
- Schemas can be integrated into existing processes/systems

There is no specific schemas for interline, however the Shopping and Order Management schemas will enable airlines to send requests for offers and associated services to their interline partners, and manage the resulting booking and servicing, including for ancillary products.
To integrate into existing systems, Airlines will need to use ‘NDC compatible versions’ of other existing standards or processes (reservations, ticketing, reporting, settlement and accounting). These NDC versions will be developed through the responsible Standards groups with the NDC requirements being provided by an Integration Group (see Governance section).

Plan for the release of the Schemas is as followed:

<table>
<thead>
<tr>
<th>Actions</th>
<th>Added Value</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>2014</td>
<td>2015</td>
</tr>
<tr>
<td>Baseline schemas acquired from Open Axis (allow for rich content)</td>
<td>DDXWG Pilot feedback</td>
<td>DDXWG Pilot feedback</td>
</tr>
<tr>
<td>DDXWG</td>
<td>DoT Approval of PSC Resolution 787</td>
<td>DoT Approval of PSC Resolution 787</td>
</tr>
<tr>
<td>Improved schemas to support NDC requirements</td>
<td>Introduction of Order IDs and Airline Profile</td>
<td>Improved / fine-tuned schemas</td>
</tr>
<tr>
<td>Introduction of Offer ID</td>
<td>Improved design and performance</td>
<td>Comprehensive set of end-to-end schemas</td>
</tr>
<tr>
<td>NDC Shopping 1.0</td>
<td>Candidate release of NDC schemas v1.1 (Q4 2015)</td>
<td>Publication of NDC schemas v1.1 as part of IATA standards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schemas v1.2</td>
</tr>
</tbody>
</table>

The candidate release of the NDC End to End schemas v1.1.3 is currently available for download on our website at [http://www.iata.org/ndc](http://www.iata.org/ndc), under the on the dedicated “Standards” section

3.1.2.2. Regulatory Approval

Resolution 787 is the foundational document for the NDC Program. Resolution 787 was officially adopted at the Passenger Service Conference (PSC) in October 2012.
For Resolution 787 to be implemented and declared effective, it requires formal approval from the US Department of Transportation (DoT). On 21 May 2014 the DoT tentatively approved Resolution 787. DoT's tentative approval incorporates the conditions from a joint motion filed to DoT in January 2014 by IATA and Open Allies for Airfare Transparency clarifying the intent of the Resolution concerning data privacy, consumer choice and the scope of the resolution. **On 6 August 2014, the DOT issued its final Order approving Resolution 787.**

There is no official approval/exemption process for IATA Resolutions in the EU. However, IATA is in close contact with the European Commission (including DG Justice, DG Move, DG COMP, Article 29 Working Party) to explain the many benefits that NDC will bring, and answer any questions these bodies may have. Similarly, IATA is keeping regulatory agencies globally informed about the NDC program.

### 3.1.2.3. An industry wide marketing and communication program

There are 7 main categories of industry stakeholders that IATA will be engaging with through the adoption of the NDC Standard across the airline distribution value chain. Our engagement program covers them all\(^3\).

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\(^3\) Diagram is not a comprehensive list of all players, named companies are for illustrative purpose only.
Note that these stakeholders each have their own views on NDC and of course it is their entire choice whether they adopt NDC or not. The simple fact that we engage with them does not suggest they support NDC and/or plan to deploy NDC.

Our marketing and communication program is structured as per the diagram below:
The content is targeted to the relevant audience. One example of the above is the launch a series of NDC demonstrators and videos, to illustrate the potential of the standards for the several groups of interests: Airlines, Online Travel Agents, TMCs and Corporate buyers.

These are just examples, mock-ups of how an IT provider may exploit the benefits of these standards, for sake of illustration. These are on open access on our webpage at the following link: [http://www.iata.org/whatwedo/airline-distribution/ndc/Pages/default.aspx](http://www.iata.org/whatwedo/airline-distribution/ndc/Pages/default.aspx)

### 3.1.3. Phase 2: Implementation

Our implementation strategy is structured around our key stakeholders, mixing industry wide actions and specific stakeholder initiatives. It can be summarized as shown in the diagram:
3.1.3.1. Delivering Technical Implementation Basics: the NDC Implementation Guide

An implementation guide has been developed to facilitate the adoption of NDC. Version 1.0 is currently available on the NDC website.

The guide covers how to approach an NDC Program conceptually (i.e. how to develop the elements that may form an NDC program) as well as the more typical technical aspects. It enables best practices sharing and avoiding pitfalls. The guide includes:

- NDC Reference Guide: Technical concepts used in NDC
- NDC Standards Support:
  - Information broken down by function
    - Principles involved in function
    - Messages used
    - Use cases, with links to mocked-up messages
- NDC Implementation support: tools, architecture
- Appendices: Glossary, schemas

The 1st release of the guide takes the airline’s perspective, and is regularly updated to reflect the learning & best practices from the various pilots. The 2nd edition, which will include sections on project planning, information security, and other topics and perspectives, is planned for publication in November 2015.

3.1.3.2. Engaging Individual Stakeholders in a Dedicated ‘Engagement Cycle’

The NDC program has established an “Airline Engagement Cycle”. It is a 5-step process with the goal to facilitate IATA member airlines’ progression towards NDC adoption.

This process describes:

- The activities to be undertaken
- The tools available to help carry out these activities
- The validation of the progress
- The resulting status of the airline

The chart below provides an overview of the process, which will be further described in the following sections of this document. The average duration of the engagement cycle lasts 6 months.
- **Step #1: Conduct Airline Surveys**

We will conduct Airline Survey with our airline members on a regular basis in order to determine their level of awareness and readiness towards NDC. This will enable the NDC team to establish a central repository with a dynamic overview of each member airline’s status in their path to NDC adoption over time.

- **Step #2: Hold One-to-One Meetings**

The IATA NDC Regional Implementation Manager will contact the airline that has filled out the survey and inquire about their level of interest for a One-to-One Meeting on NDC. These meetings should bring the airline to conduct a SWOT Analysis in order to identify the relevance of NDC in their strategy.

- **Step #3: Conduct Alignment Sessions**

The IATA NDC Regional Implementation Manager will organize an Airline Alignment Session with the airline. These sessions shall result in a significant cross section of the airline’s understanding of NDC and the end-to-end opportunities, and being able to assess its full strategic potential.

- **Step #4: Organize Pilot or Initial Deployment Setup**

The IATA NDC team will organize a Pilot/Initial Deployment Introduction Workshop with the airline. These workshops shall lead the airline to kick off a pilot or initial deployment with their preferred technology providers and travel agency partners.
Step #5: Deliver & Monitor Pilot or Initial Deployment Projects

The IATA NDC team will monitor the Pilot or Initial Deployment Project kicked off by the airline. As an outcome of a “live” pilot, the airline will become NDC-certified while the findings of a test pilot will be shared with the Distribution Data Exchange Working Group (DDXWG).

Note that the Engagement Cycle is available on a completely open basis, and there is no requirement for airlines to carry out all the specific activities.

At this stage, the Engagement Cycle is focused on Airlines, but a similar cycle will be provided for other key stakeholders (such as Travel Agencies, Corporate buyers, IT providers).
3.2. Program Road Map and Achievements To Date

The October 2011 presentation of the StB goals marks the start of NDC. Launched in 2012, the NDC Program is currently coming to the end of its development phase and gradually moving into deployment. We are currently monitoring the first market deployments.

Below is the 2012-2016 program industry roadmap:
Below are selected key achievements to end 2014:

2012

**Creation of the Passenger Distribution Group (PDG).** IATA creates the Passenger Distribution Group (PDG) to govern the development of the Standard.

**Setup of the Distribution Data Exchange Working Group (DDXWG).** The Passenger Distribution Group (PDG) sets up the Distribution Data Exchange Working Group (DDXWG) to document business requirements and develop implementation guidance for the NDC Standard.

**NDC Standard formally approved by IATA members.** At the IATA Passenger Services Conference, IATA member airlines approved Resolution 787, the foundation framework for the NDC Standard.

2013

**Resolution filed with the US Department of Transportation.** IATA files with the US DoT an application for approval of Resolution 787 in March 2013. Engagement with DoT and EC to explain the nature of Resolution 787. IATA AGM resolution on NDC adopted in June 2013.

**Completion of version 1.0 of the NDC Shopping schemas.** The first version of the NDC (Shopping) schemas is signed off and ready to be used by current and future pilots, subject to US DoT approval.

**Initiation of the Pilot Phase.** American Airlines, Air New Zealand, Swiss International Air Lines, China Southern Airlines and Hainan Airlines become the first airlines to pilot the NDC schemas, in cooperation with their chosen technology and travel agent partners. Hainan issues the first NDC shopped ticket in November 2013.

**Setup of the PDG Advisory Forum.** IATA creates the PDG Advisory Forum, giving senior representatives from across the airline distribution value chain the opportunity to provide feedback and recommendations to the PDG.

2014

**Resolution 787 approved by the US Department of Transportation.** The US Department of Transportation approves Resolution 787, the foundation document for the development of the NDC Standard.
**Release of the 1st version of “end-to-end” schemas.** Allowing any airline to test the “end-to-end” NDC vision and allowing any travel technology company to start building their road map for their next generation of NDC-based airline, agency or corporate booking solutions.

**Set up of the NDC Integration Group.** The NDC Integration Group is looking at the issues of NDC integration for airlines: i.e. when an airline only wishes to carry out the Shopping functionality of NDC, how to ‘integrate’ back into the current ‘GDS’ process.

**Grow engagement and stakeholder management.** Continue active stakeholder management industry wide (over 120 sessions to date), attend all leading conferences and set up new relevant forums (ex Airline Distribution Stakeholders Forum created in January)

**Ramp up of Airlines Alignment sessions.** IATA engaging with individual airlines on NDC interest and next steps for roll out

**Launch of new pilots & market deployments.** Additional airlines, travel agents and IT providers joining the NDC Program as pilots

**Launch of the NDC Innovation Fund** in partnership with Travel Capitalist Ventures. This is a stand-alone strategic investment fund. It will make investments in small and medium size companies seeking to develop solutions which support airlines and agents as they leverage the enhanced distribution capabilities enabled by the NDC standard. For more information please go to [http://www.ndcinnovationfund.com](http://www.ndcinnovationfund.com)

Looking forward the roadmap is as follows:

**2015**

**Greater number of pilots and deployments projects**, to be initiated by airlines around the globe, in partnership with their travel technology partners and selected agency partners.

**Monitoring and improving the performance of the schemas**, in order to ensure that they meet market expectations in terms of functionality, scalability, security and ease-of-use of implementation.

**Establishing and managing the certification process**: to ensure there is transparency and visibility for those who have implemented the NDC standard

**Continuous engagement of industry stakeholders towards adoption.**
IATA and Coalition of National Travel Agents Associations Study: a joint study to look at options that could benefit the travel agents

2016

Ramp up adoption of NDC. IATA to continue standard development and implementation support. Program to reach end of 2016 at a point where there are enough “early adopters” to have triggered sufficient momentum for the roll out to carry on without IATA support (a number of airlines, IT providers and travel agents that are “NDC compliant”)

2017

Program close and handing over to IATA Standard team for maintenance
3.3. Team Structure and Governance

The NDC Program is part of the Simplifying the Business (StB) initiatives. It is supervised by the StB Steering Group, and the NDC Standard is governed by the Passenger Distribution Group (PDG). The program is delivered by a global IATA team based in IATA regional and local offices. This core team is closely collaborating with key other IATA bodies (PSC and their related Standing Committees).

The following diagram summarizes the key stakeholders of the NDC Program:

**THE PASSENGER DISTRIBUTION GROUP (PDG)**

The Passenger Distribution Group (PDG) is comprised of senior airline distribution executives whose responsibilities are to govern the development of the NDC Standard.
They meet four times a year. View the terms of reference of the Passenger Distribution Group

THE PDG ADVISORY FORUM (PDG AF)

The PDG Advisory Forum is comprised of senior representatives from across the airline distribution value chain. The role of this forum is to drive a common industry perspective on key topics through the inclusion of airlines, travel agents, global distribution and IT providers. It then provides feedback and recommendations to the PDG from an industry stakeholder’s perspective. They meet four times a year. View the terms of reference of the PDG Advisory Forum

THE DISTRIBUTION DATA EXCHANGE WORKING GROUP (DDXWG)

The Distribution Data Exchange Working Group (DDXWG) is comprised of up to 80 participants representing airlines, global distribution systems, IT providers, travel agents and other industry third parties. Its primary role is to document detailed business requirements and develop implementation guidance for data exchange standards in the area of airline distribution.

The group is led by an elected Steering Group, and has held eight three-day meetings since July 2012. DDXWG is split into 6 Functional Task-Forces (e.g. Shopping or Interline), task forces are work-horses for developing schema supported by the Steering Group. More information: Distribution Exchange Working Group

THE INTEGRATION GROUP (IG)

The Integration Group is looking at the issues of NDC integration for airlines. Their responsibility will be to allow a completion of an NDC sale from different stages of use of the NDC schemas (e.g. shop, order, ticket) into the existing PSS functions (reservations & ticketing functions principally). The Integration Group is comprised of IT providers & airlines.

THE AIRLINE DISTRIBUTION STAKEHOLDERS FORUM (ADSF)

The ADSF includes senior representatives from across the airline distribution value chain (airlines, global distribution systems, IT providers and travel agents). This industry forum seeks to exchange information in a collaborative manner on technical standards and regulatory policy.
THE IATA NDC PROGRAM TEAM

IATA’s involvement in NDC is led by a Program Director, Yanik Hoyles. The team is structured around a few key sub-teams:

- A Technology team
- A Marketing, Coms and Bus Development team
- A Legal and Advocacy team
- In-regions dedicated NDC Program Implementation Managers
- A Program Manager

For more detailed information about IATA Governance, please visit: http://www.iata.org/about/Pages/corporate-structure.aspx
## 3.4. Risks & Mitigations

The following factors have been identified as potential risks for the successful completion of the NDC Program, and possible mitigation responses defined.

<table>
<thead>
<tr>
<th>Risks</th>
<th>Mitigations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard quality &amp; delivery: IATA does not deliver and validate all the standards on time &amp; with strong quality levels, including the associated standards, leading airlines to use other available standards for booking, payment, settlement and servicing</strong></td>
<td>Strong engagement of all key stakeholders in the DDXWG</td>
</tr>
<tr>
<td></td>
<td>Executing pilots &amp; feedback sharing</td>
</tr>
<tr>
<td></td>
<td>Ensure adequate expert resources available on a voluntary basis, hire experts when necessary</td>
</tr>
<tr>
<td><strong>Legal: EU Article 29 Working Party does not validate compliance with data privacy</strong></td>
<td>IATA closely collaborating with ECCTA and ETTSA to facilitate all relevant information. ADSF to act as industry working group on privacy</td>
</tr>
<tr>
<td><strong>Adoption: Airlines slow to actively adopt NDC (due to complexity, costs issues, not a priority, etc.)</strong></td>
<td>IATA Engagement and adoption strategy in place</td>
</tr>
<tr>
<td></td>
<td>In June 2014 AGM the IATA Board renewed its support for the NDC Program</td>
</tr>
<tr>
<td><strong>Adoption: Airlines lacking solutions from IT providers to implement NDC</strong></td>
<td>Set up of NDC Integration Group + building a network of Strategic Partners officially committing to providing NDC solutions</td>
</tr>
<tr>
<td><strong>Adoption: Some GDS slow to embrace NDC</strong></td>
<td>Actively integrated into NDC via specific working groups (DDXWG + ADSF + Integration Group)</td>
</tr>
<tr>
<td><strong>Adoption: Agents and/or Buyers slow to embrace NDC</strong></td>
<td>Set up of ADSF group + Communication plan to generate awareness and educate (demonstrators, events participation, trade associations workshops) + Joint Travel Agents Study</td>
</tr>
<tr>
<td>Adoption: Technical pre-requisites to integrate into existing processes not identified or addressed (identity management, BSP…)</td>
<td>IATA team actively engaging with experts to validate/adjust existing processes + Integration group</td>
</tr>
</tbody>
</table>
4. Getting started on NDC

Interested about NDC, want to know more or to get involved? Please see below a few hints on how to get started.

4.1. Basics

For general and latest information about NDC (Resolution 787, program status, white papers, videos, webinars, demonstrators, case studies, blogs...) please refer to our web page: www.iata.org/ndc under the Resources section.

To access our NDC Educational Videos available online through the IATAtv channel: https://www.youtube.com/playlist?list=PLM2XOQXtRLMcj-hquOlITqY4-vtZqaxxk8

To find us and have a chat at your next industry events, please refer to our web page: www.iata.org/ndc under the Events section.

To receive the latest information on the Program, subscribe to our monthly NDC Hub e-newsletter: sign up from www.iata.org/ndc main page, right below the NDC header.

To learn more about the NDC Innovation Fund please visit the dedicated website: www.ndcinnovationfund.com

4.2. Becoming Part of NDC

To get started with the NDC standards, several options:

- Contact us to initiate an alignment session: contact your regional IATA NDC manager or email us
  - For North Asia: wangz@iata.org
  - For Asia-Pacific: DogeanuM@iata.org
  - For Africa and the Middle East: almuhaisem@iata.org
  - For Europe: RutnamD@iata.org
  - For Americas: carbonea@iata.org
  - Or alternatively contact rousseauc@iata.org
- Directly apply to conduct a pilot or deployment via the following link
  http://www.iata.org/whatwedo/airline-distribution/ndc/Pages/contact.aspx

- Directly access the schemas by downloading them from our web page:
  www.iata.org/ndc under the Standards section

Interested in joining the Distribution Data Exchange Working Group? Please contact us
http://www.iata.org/whatwedo/workgroups/Pages/ddx.aspx

Interested in joining the Integration Group? Please contact: McEWEND@iata.org

The IATA NDC team is here to support you in developing your NDC vision and driving it
to successful implementation. We’re looking forward to hearing from you!
5. Appendix

5.1. Impact on other IATA Supporting Services

Impact of NDC on Revenue Accounting

The main impact of NDC on airline revenue accounting is to provide some simplification in eliminating some of the complexities, such as the need for interline proration and dispute, as well as for agency ticket revenue integrity checking and ADMs. The main change for revenue accounting will be to change from a dependence on formally filed fare products to recognize the ‘NDC Offer’ as holding the total truth about a ticket. One of the consequences of this is that under disruption an ‘IRROPS’ ticket will not contain any fare construction data, so that as with the specially priced IT/BT sales today the new operating carrier will make claims against the higher industry fare levels unless disruption settlement amounts have been negotiated. IATA management would anticipate more of these agreements will now be developed that will again result in further revenue accounting simplification.

However, revenue accounting is still required to manage the revenue that has been earned from each passenger flown.

Impact of NDC on BSP and Simplified Interline Settlement (SIS) services

The BSP requirements under NDC relate to accepting individual NDC airlines ticket sales in an IATA standard DISH format that will now need to include the NDC ‘Offer ID’ in both input RET and output HOT files. Airlines may no longer need to include the details of their credit card sales, if they have decided to make themselves the remittance to their acquiring bank, but they may still wish to submit these records, without card details, for the BSP to manage commission payments and calculation of taxes on these commissions and to prepare the remittance file to each card company.

It is essential under NDC for airlines to know the latest status of accreditation of agents for whom they are issuing tickets, especially against a cash payment. This information will continue to be made available via the Agency Information Relay Services (AIRS) Bulletin. In addition, IATA is proposing to send to the airlines a ticketing authority file, similar to the one it sends today to the GDS to manage default. In the longer term IATA
could develop a new NDC XML message, which will advise all airlines of the defaulting of an agent.

As NDC adoption increases, there will be new opportunities to improve the BSP service. Instead of having ticket sales filed on a daily basis, these could be registered in real time, perhaps as simply as copying the BSP into each XML message confirming ticket issuance. The BSP could then use this real time information to actively manage the credit-worthiness of each agent and provide an instant warning when cash credit limits have been reached.

The SIS platform for interline settlement will also need to accommodate a reference to the NDC Offer ID for an interline participating offer airline (as operating carrier) to make a clear revenue claim to the offer responsible airline (as validating carrier).

5.2. StB Initiative and Methodology

Simplifying the Business (StB) is an industry initiative that aims to transform the end-to-end journey experience through the implementation of innovative solutions. The NDC Program is one of the StB actions.

All StB Programs are delivered using a proven methodology:

**Global strategy. Local implementation.** Worldwide industry change cannot be achieved only from headquarters or over email. It depends on local engagement – building relationships and understanding the reality on the ground. Through StB Champions (individuals appointed at each stakeholder in scope to drive StB) and project-level working groups that include airlines, airports and solution providers, the program gathers the expertise required to deliver change.

Our efforts are focused in four areas: mobilizing, facilitating, supporting and guiding. This is reflected in our StB Change Model, shown below:
The industry is mobilized through both ongoing engagement and structured, targeted campaigns led by IATA’s global team. StB facilitates industry adoption of its projects through a variety of channels. StB then supports implementation efforts by providing expertise to those that need it. Finally, and in many ways most importantly, StB uses and contributes to the definition of industry standards and recommended practices, which are the basis for all the other elements of the model.

For more information visit the StB website: [www.iata.org/stb](http://www.iata.org/stb)
5.3. Glossary of Terms

**Accountable Document**
Validated official document (such as any type of an airline ticket, or a Standard Traffic Document (STD) or payment voucher) that has a value and must be accounted for.

**Acknowledgement**
Acknowledges the receipt of a message but does not imply acceptance of the message content.

**Affinity Shopping**
A wide search defining a range of criteria including specific interest, destination attributes and defined budget plus date and destination ranges.

**Aggregator**
The business function of distributing a Seller’s shopping request to multiple Airlines and aggregating the subsequent responses.

**Airline**
Supplies product offers in response to receiving a request from a Seller. Airline refers to itself and any subcontracted entity providing a service to the airline.

**Airline Currency**
Miles, vouchers, residual value EMD, airline issued gift/cash card.

**Ancillary Services or Optional Services**
Ancillary Services are defined in PSC Resolution 787 as anything outside of product attributes (optional or discounted). Ancillary Services may be bundled in the product offer, or offered as additional, à la carte services. In NDC-related documentation, Ancillary Services is sometimes used interchangeably with the term Optional Services.

**Anonymous Shopping**
A Shopping Request sent to airlines without Personal Data.

**API**
Application Programming Interface
Attribute Shopping
A search specifying one or more attributes to get more focused results (e.g. equipment types, seat types and characteristics, baggage allowance, meals, etc.)

Authentication
The process by which a system identifies an individual or a business entity to make sure that the user or the business entity is whom they claim to be, based on attributes that are sent in a message.

Bilateral Interface Agreement
A documented agreement made between the sender and receiver as the basis of the data exchange between systems. This agreement defines a number of features, which are mandatory or optional within the specification (time outs, message order processing, reject processing).

Bilateral Time Limit
A generic structure for time limits, that is subject to bilateral agreements between parties.

Cabin
A compartment where passenger seats are installed.

Campaign Identifier
Campaign ID is a tracking code used by the airline’s advertising analytics system to monitor and optimize the paid advertising by the airline across interactive marketing channels. By including the Campaign ID with shopping requests the online media publisher (MSE, OTA, affiliate partner, booking widget, etc.) can help guide the airline so that the airlines personalization of offers can align with any paid advertising that may be present on the publisher’s display.

Card Payment
Various forms of payment that include: credit card (includes UATP), debit card (PIN based or signature based), pre-paid debit/bank/gift card, cash card where the Airline is the merchant. Refer to IATA Resolution 728 Attachment A for full details on card types and codes.
Cash Payment
Any payment that is collected by the agent and settled between the Airline and the agent. Refer to IATA Resolution 728 Attachment A for full details on card types and codes.

CBT
Corporate Booking Tool.

Check/Cheque
Personal or bank issued order for transfer of money. Refer to IATA Resolution 728 Attachment A.

Commercial Agreement ID
Code or ID referenced by ORA or POA in message exchange, which refers to a previously created bilateral agreement. A SPA is an example.

Corporate ID
An ID provided by an airline to uniquely identify a corporate location for which a commercial arrangement exists.

Deposit Time Limit
Time by which a deposit must be paid for an Order.

Distribution Channel Provider
An entity that has the capability to interface with an airline’s dynamic shopping API, enabling distribution of airline product offers across one or multiple channels. For the purposes of this document it is assumed that such provider shall use industry standard NDC XML messages to communicate with airlines dynamic shopping API, and may act as a content aggregator.

FQTV
Frequent Traveler.

Group Booking
An Order made under a group name without individual passenger names at the point of creation.

Inventory Guarantee Identifier
A unique identifier issued by an Airline to reference that inventory for a specified offer will be guaranteed as available for a period.
**Inventory Guarantee Time Limit**
The time that inventory for a specified product offer is guaranteed as available. The inventory held must be converted into a completed order before the time limit expires otherwise the guarantee is lost. Held Inventory is referenced by an Inventory Guarantee identifier (equivalent in business terms to the legacy ITAREQ ‘Conversation ID’). In the context of Interline Ancillary Shopping, this term is defined as the time window (or final date) identified by the ORA or POA where inventory will be held prior to booking.

**Leg**
The operation between a departure station and the next arrival station.

**Marketing Carrier**
The carrier that sells with its own code as part of a code share agreement on a flight that is actually operated by another carrier.

**Marketing POA**
A POA that is in a codeshare relationship with another carrier that will operate or fulfil the service(s) offered.

**Meta Search Deep Link**
A link to an airline’s or OTA’s itinerary purchase page enabling the user to purchase a specific itinerary offer.

**Meta Search Shallow Link**
A link to an airline’s or OTA’s shopping results page listing multiple flight options for a pre-specified city pair and dates, as well as upsell / cross-sell products.

**MSE (Meta Search Engines)**
MSE redirect their users to an airline or Online Travel Agent for the creation of an Airline Order. A MSE is not involved in servicing the resulting order - this is done by the OTA or Airline.

**Multi Leg Flight**
A flight comprised of more than one leg.

**Naming Time Limit**
Time by which an Order, must be completed with individual passenger names.

**OAL**
Other Airline.
**Offer ID**
The *Offer ID* facilitates the tracking and verification of individually priced offer(s) selected from the shopping response. Only the Offer IDs of the ORA (Offer Responsible Airline) are returned in shopping responses. The *Offer ID* is unique to each individually priced offer in the shopping response even if the offer price is zero. The *Offer ID* may be specific to individual passengers in the offer, and may be associated with a segment or a journey. The set of OfferIDs returned in a response are referenced by a Shopping Response ID.

**Offer Item**
One or more products that has one price, e.g. a product bundle.

**Offer Responsible Airline (ORA)**
The airline responsible for returning a combined offer, including participating airline offers, to the requesting entity.

**Offer Time Limit**
The time within which offers must be converted into completed Orders. On expiry a new shopping transaction is required. Offer Time Limit is mandatory.

**Operating Carrier**
The carrier that holds the Air Operator’s Certificate for the aircraft used for that flight.

**Operating POA**
A POA that operates or fulfils the service that is marketed by the Marketing POA.

**Order**
An Order is a uniquely identified record of the agreement of one party with another to receive products and services under specified terms and conditions. ‘Order’ supports the sale of a flexible range of airline products and services that are not necessarily journey based (e.g. subscription services). A ‘PNR’, ‘super PNR’ and ‘ticket’ are all today’s versions of airline implementations of aspects of an Order. An Order will contain 1 or more Order Items each with an identifier that is unique within an Airline’s Order Management system. An Order may support non-homogeneity, i.e. each passenger in an Order may hold different sets of order items at different prices.

**Order Item**
A selected Offer item.
Order Management
Order Management is the process of taking, amending, tracking and fulfilling requests for an airline’s products and services.

OSI
Other Service Information.

OTA
Online Travel Agency.

Participating Offer Airline (POA)
An airline other than the Offer Responsible Airline involved in a product offer.

Payment Time Limit
The deadline by which a commitment to pay must be made for the items in the order. This includes ticketless transactions and other accountable documents (i.e. EMD). Payment Time Limit and Ticket Time Limit may be the same in most cases; however, Payment Time Limit expands to include ticketless transactions and other accountable documents. Payment Time Limit is mandatory.

Personalised Shopping
Traveller consents to include personal data in the shopping request.

PNR
Passenger Name Record.

Price Guarantee Time Limit
Period for which an Offer price is guaranteed. On expiry an Offer may be re-priced up to the point an accountable document is issued. A Price Guarantee cannot extend beyond the Offer Time Limit unless the Order has been created.

Processing of Personal Data
Any operation or set of operations which is performed upon Personal Data, such as collection, recording, organization, storage, adaptation, or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, blocking, erasure or destruction.

Product Bundle
Where several products are offered for sale as one product.
**Referrer Identity**
Identifies to the aggregator or the airline, the specific commercial contract under which a particular message should be tracked; for example, is the message related to (A) the x cents per click for traffic from Indonesia or (B) the y % per ticket for each booking that originates from Japan.

**Seller**
Creates shopping requests to Airlines on behalf of a customer and displays the subsequent product responses for review.

**Seller Point of Purchase**
The point of purchase and payment, which is the basis for the calculation of applicable taxes (including merchandise taxes).

**Service Item**
An airline service item is a product or a service that can be separately delivered and uniquely described by an airline. It is referenced by an ID that is unique within an airline. A service may be sold separately in a single offer/order item or sold bundled with other service items in a single offer/order item (e.g., a return price consisting of inbound and outbound services).

**Service Time Limit**
Time limit for EMD creation. May be different from Payment Time Limit.

**Settlement Providers**
Third parties that provide settlement services between agent and airlines. Could include ARC, BSP, TCH, MoneyDirect, eNett, etc.

**Shopping**
A process whereby a requestor is able to request offers from the airlines (i.e., flight and ancillaries) based on its desired search criteria and receive offers corresponding to its request. There are various types of shopping, including, for example, Personalized/Anonymous and Attribute/Affinity shopping types as defined in this document.

**Shopping Basket**
A Shopping Basket is e-commerce software that allows visitors to an internet site to select items for eventual purchase.
Shopping Response ID
The *Shopping Response ID* facilitates the tracking of what was offered and is an identifier unique to the source airline for a set of product offers returned in response to a shopping request. The *Shopping Response ID* may be comprised of an Offer ID corresponding to an individual flight and/or ancillary service product offer that make up the offer.

SSR
Special Service Request.

Sub-POA
Participating Offer Airline (POA) that receives requests from another POA acting as a sub-ORA.

Third Party Service Provider
An entity that is under contract with a POA or an ORA to fulfill one or more ancillary services as part of an Order. It is not party to interline settlement processes.

Third Party Validator
A validating carrier that is not the Offer Responsible Airline although it could be a Participating Offer Airline. This entity assumes responsibility for issuing the accountable document(s) and settling with ORA and POA(s) to said document(s).

Ticket Time Limit
The amount of time which the booking maybe held until it must be ticketed or other accountable documents issued (e.g. EMD).

Ticketing
The process of issuing any type of an accountable document to fulfil an airline order.

TMC
Travel Management Company

XML
Extensible Markup Language