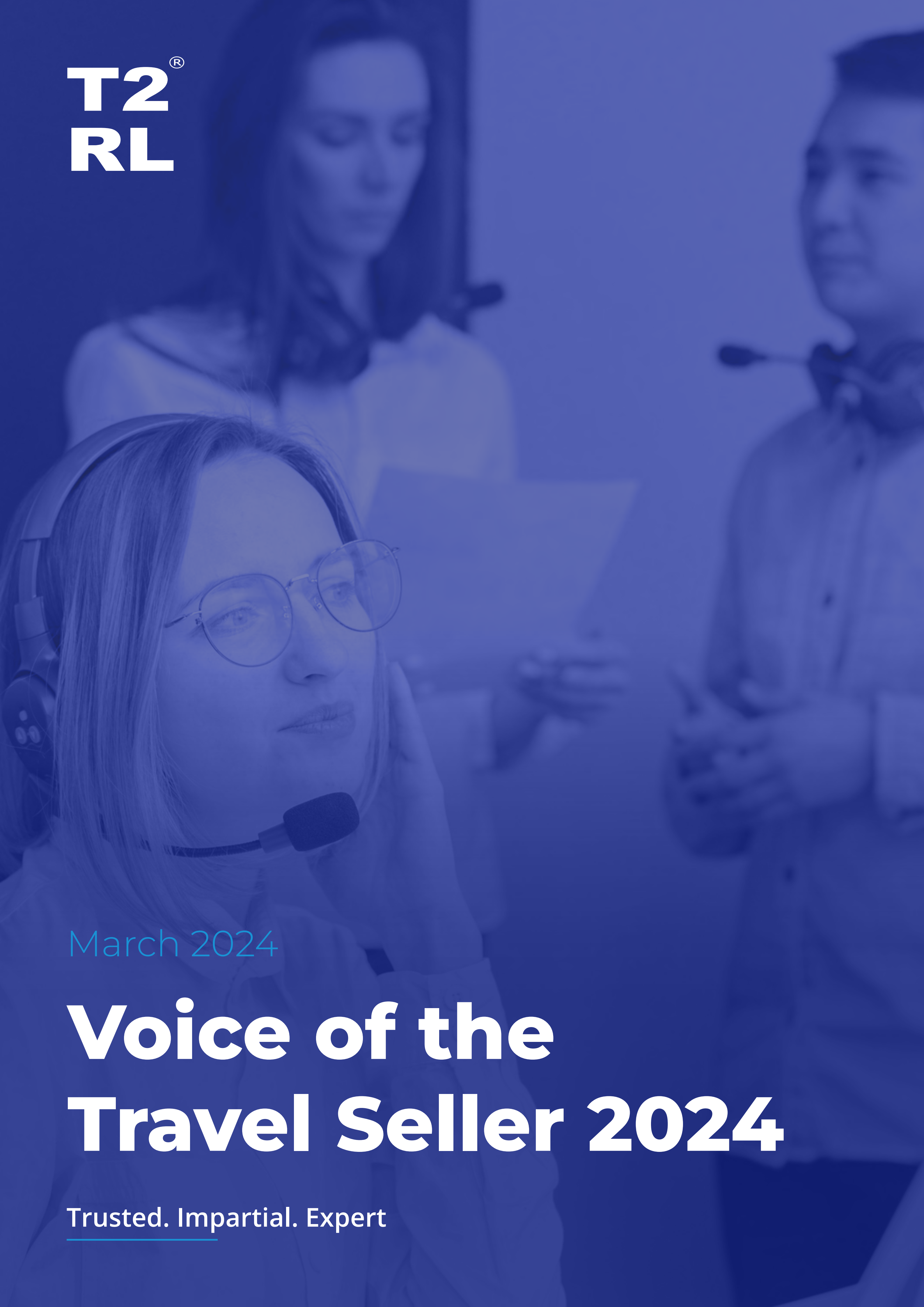

T2RL®

March 2024

Voice of the Travel Seller 2024

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Background

Why this report?

In September 2023, T2RL invited a select group of Travel Seller representatives to participate in our annual Engage conference in London. The addition of Travel Sellers' perspectives to the panels brought a new depth to the discussions held on the state of distribution in the travel industry. During one of the conference sessions held exclusively for Travel Sellers, we heard loud and clear from the participants that there are still significant challenges to work through when it comes to the roll out and adoption of NDC at scale.

T2RL believes that the voice of the Travel Seller has not always been sought out, or sufficiently considered in the design and planning for the significant transformation we are witnessing in the distribution landscape today, although some airlines seem to have invested more resource than others in travel agency engagement. We also understand that many airlines feel that many Travel Sellers did not engage in discussions about NDC until rather late in the process. Whatever the history, we believe that there is immensely valuable input and feedback from the Travel Sellers to be shared with all involved in NDC. Constructive technology discussions between all parties are critical, even if there are misalignments on the best commercial path (as there usually are between different stakeholders and competitors).

Our intention with this report is to better understand how a varied range of key players in the Travel Seller community views the current changes to our industry, both the challenges and the opportunities. We aim to record valuable lessons learnt from the experiences so far and to positively influence the NDC roll outs and improvements under way. We also seek insights to help shape the transition to OOSD (Offer – Order – Settle – Deliver) which is in its early stages. By acknowledging and understanding some of the missteps made with NDC with the benefit of hindsight, and the challenges still faced by the airlines, Travel Sellers and their technology partners today, we hope to influence a better path for OOSD transformation [1] .

[1] For more information on OOSD see the Transformation series of reports published by T2RL as well as our exclusive OOSD update reports available on T2RL.net

Industry status of NDC roll out

Since the 2012 announcement by the International Air Transportation Association (IATA), of the XML based industry data exchange standard named New Distribution Capability (NDC), progress, in terms of both the evolution of the API standard itself and its adoption at scale, has been painfully slow. There are exceptions in the form of a small number of early-adopter airlines, but only in the last 2-3 years of the 12-year journey so far has a material shift been measured across the industry, with momentum gathering since 2023.[2]

When EDIFACT messaging was created and adopted by the industry almost 40 years ago, it was cutting edge technology. In effect it enabled the first modern retailing closed network. Much has been made of the contrast between EDIFACT and NDC as methods of distribution but an important fact is often overlooked. Travel agencies have never needed to engage directly with EDIFACT connections. These are used between airlines and Global Distribution Systems (GDSs). The data obtained by the GDS via EDIFACT connections is then aggregated and normalised by the GDS before being presented to the agents in a graphical user interface provided by the GDS, or an API which is used by the agency to drive its own GUI. In contrast, agencies that are using NDC direct connections have to get to grips with the complexities of the NDC data, although we expect the majority of agencies to access NDC via a GDS or other NDC aggregator.

Pre-dating the internet, GDS EDIFACT-based technology has not been able to keep pace with the evolution of online retail. The intention to modernise the distribution of travel content using more flexible XML based data exchanges for shopping, booking and servicing, was in itself widely supported and expected to bring about positive changes for all parties involved. Rather than allowing each party to develop its own set of APIs, with as many variations as there are airlines, there was a broad consensus that a common standard would be essential to reduce both cost and effort for the industry as a whole.

Adoption of the original XML standard and IATA's announcement of NDC was made in the context of an economic model associated with the existing technology. This favoured the status quo from the perspective of the leading distribution technology providers, the GDSs. Over the years they had established a compensation model on which they and the Travel Sellers relied, but which frustrated many airlines.

What could have been a technology transformation initiative, similar to the evolutions seen in other industry sectors such as banking, became much more than that. With misaligned interests and goals relating to the economic model behind the roll out of NDC, the opportunity to collaborate and align expectations and technical capabilities fell away from the forefront. Airlines wanting to make the business case for the investment in technology to deliver NDC, had to take into consideration the existing complex distribution contracting landscape in place with the GDS companies at the centre of the travel distribution system. While at the same time for Travel Sellers and the GDSs there was little motivation to change the commercial model, even if they were generally supportive of the technology change to enable access to more content in a significantly improved manner.

In the first 10 years of NDC it is fair to say that more focus was placed on long and difficult contract negotiations between airlines and the GDSs, rather than on collaboration with Travel Sellers on the capabilities of NDC and creation of the value proposition and case for change for all parties involved.

Looking back at the first NDC projects to be launched to market, it appears that a lot more emphasis was placed on the technical feasibility of managing Offers than what Travellers and Travel Sellers actually needed to manage Orders. Whilst the promises of more modern data exchange were sound, how suitable the solutions were to the requirements of the Travel Sellers is still strongly debated, particularly for the more complex corporate booking segment.

For airlines, NDC has afforded the opportunity to align the methods of shopping, booking and servicing with their online channels as the most effective form of distribution. It also promised to enable airlines to do business directly with more end users and somewhat reduce the reliance on intermediaries. The airlines' online channels have grown significantly over the period since NDC was announced, with T2RL data showing that based on 2022 numbers[3], 50.8% of passengers boarded were sold via the web. Back in 2012 the largest single channel for bookings was still indirect distribution via the GDSs.

[2] T2RL First View February 2024 - Modern Distribution is gathering pace

[3] T2RL Airline Distribution Trends | August 2023

It is important to consider that the way bookings are sold and serviced on an airline's website captures the largest portion of use cases but not all. Travel Sellers have been enhancing their propositions over this same period to offer value adds to travellers which the airlines either can't technically support or may not wish to.

T2RL Global View of Passengers Boarded Sold Per Distribution Channel 2022

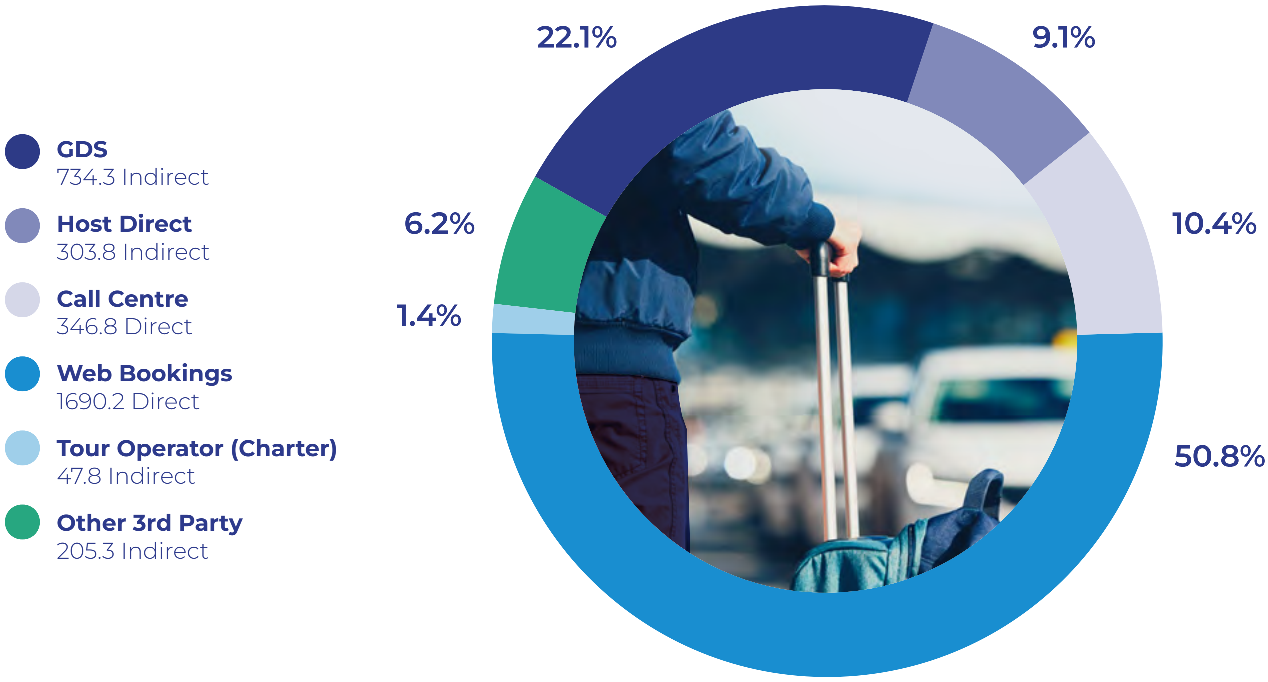

Figure 1: T2RL Global view of passengers boarded sold per distribution channel. 2022 data [4]

While most of the airlines which chose to lead the way on NDC implementations made sweeping changes to their distribution strategies and contracts, there was a perceived resistance from some Travel Sellers to take the leap due to a combination of commercial and technology issues. As a result, some airlines chose more drastic roll out approaches than others, with three primary levers now emerging to drive adoption: direct financial adjustments (surcharges and incentive payments), content withdrawal from legacy channels and content enhancement via NDC.

T2RL estimates based on 2022 flown data, that NDC made up 6% of global indirect passengers boarded and this figure is expected to have grown at a much faster pace than previously during 2023. Some Travel Sellers are still pushing back on the airlines in what may be interpreted as negotiation strategies at first glance. This report makes the case that the full picture is more complex and nuanced.

[4] Published in T2RL Airline Distribution Trends - Indirect vs. Direct – August 2023

[3] T2RL Airline Distribution Trends | August 2023

Introduction

Summarised history of NDC

2012 – IATA announces the NDC industry programme at the World Passenger Symposium in Abu Dhabi through Resolution 787 [5] and the foundation standard is set

2014 – The US Department of Transportation approves the initiative after extensive discussion and some opposition [6]

2015 – NDC certification launched with the first full version of the schema, 15.2 [7]

2018 – NDC leaderboard launched and target of 20% by 2020 announced

2021 – NDC version 21.3 published. This remains the definitive schema version at the time of writing.

> *According to IATA [8] the stated objectives of NDC are to "provide the opportunity to address the end-to-end airline distribution process and deliver an enhanced customer experience."*
>
> *"NDC enables the travel industry to transform the way air products are retailed to corporations, leisure, and business travellers, by addressing the industry's current distribution limitations:*
>
> - *Limited product differentiation*
> - *Long product time to market*
> - *Restricted access to rich air content*
> - *Ambiguous shopping experience"*

Report research method

Between October 2023 and January 2024, T2RL, in collaboration with industry expert Timothy O'Neil-Dunne, conducted 13 interviews. Ten were with large Travel Seller organisations, representing a range of business models and traveller types, and with global geographical coverage. We supplemented these insights with three "Travel Seller adjacent" interviews, representing technology companies specialised in travel aggregation, online corporate travel booking technology and booking data integration.

The interviewees were selected based on

- Their size and combined share of the market
- Their exposure to NDC
- Experience with NDC integration
- And for holding a broad range of views on NDC distribution.

They were asked to share their insights using a series of questions, see exhibit A. We hasten to add that this is not a statistically significant set of agencies, although we believe they broadly represent the global Travel Seller community, with the exception that our respondents are at the larger end of the spectrum.

[5] Resolution 787: https://www.iata.org/contentassets/6de4dce5f38b45ce82b0db42acd23d1c/ndc-resolution-787.pdf
[6] DoT approval was required due to IATA's limited immunity from US anti-trust legislation
[7] The XML schema representing the NDC exchanges is published by IATA. During the early years of development there were frequent updates which were identified by a year and a sequence number eg 15.2 or 18.1. Version 15.2 was the first full version against which IATA certified implementations.
[8] IATA NDC fact sheet: https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet---ndc/

Who participated

Breakdown of participants in the research by type

Figure 2: Participants interviewed for this report by business type.

T2RL has categorised the participants in the research for this report as follows:

Travel Management Company (TMC) - a type of Travel Seller whose activity predominantly relates to corporate managed travel. TMCs book and manage business travel related content from multiple airlines and non-air travel providers using corporate contracted rates where applicable. TMCs typically operate under strict contracted service levels to their clients and supplement their proposition with value-add services such as spend analysis and reporting, duty of care and corporate travel policy management. TMCs may work predominantly with one GDS or more, and typically offer several Online Booking Tool (OBT) solutions to meet their clients' needs. While the majority of transactions originate online, a portion of bookings and post servicing is also conducted manually or in a semi-automated fashion by skilled travel agency staff.

Online Travel Agencies (OTAs) – a type of Travel Seller which is also a travel technology company specializing in online travel retail through its proprietary e-commerce websites and brands, typically for the leisure and unmanaged travel segments, and hotels. The first OTAs were established in the mid 1990s but they only achieved a significant market penetration around the turn of the century. By 2023 OTAs were selling around half a trillion dollars' worth of travel per year with growth continuing strongly.[9] OTAs sell Air content from multiple airlines, often permitting airline combinations in itineraries beyond what airlines may offer via their direct websites, and hotel sales often make up a significant portion of their business. OTA transactions originate online, and self-service capabilities allow a significant portion of post booking transactions to be completed online, however some complex servicing is managed manually or in a semi-automated fashion by skilled travel agency staff.

Travel seller groups or consortiums – In the context of this report this refers to travel seller groups made up of several distinct brands and combining different types of smaller Travel Sellers, for example more traditional brick and mortar high street agencies, independent travel brokers and niche or specialized travel agencies.

[9] Statista: Online travel market size worldwide from 2020 to 2022, with a forecast for 2023 and 2030

Online Booking Tool (OBT) – refers to technology providers of front-end corporate travel booking technology. TMCs partner with OBT providers to deliver online corporate bookings of air and non-air content as well as some servicing. OBTs can connect to a variety of travel content sources including EDIFACT air content, NDC, Low-Cost Carriers' (LCCs) proprietary APIs, car rental companies and hotel booking APIs.

Travel Aggregators – technology companies that connect to multiple sources of non-homogenous travel content, including NDC and LCC APIs, and aggregate the content. Travel Sellers can partner with an aggregator to supplement their sourcing of travel content beyond traditional EDIFACT content from the GDS. The benefit to the Travel Seller is one technical implementation with the aggregator rather than having to manage multiple implementations which each airline.

TMC travel technology partner – in the context of the report this refers to a travel technology specialist that provides services that enable the Travel Seller to do its business. These include user interfaces for booking and servicing, data normalisation and analysis, customer relationship management, billing and numerous others.

Where are the interviewees at with NDC

For the majority of participants, the first NDC connection dated back to 2018, with all participants having at least 18 months experience with NDC.

Count of research respondents per year of first NDC implementation

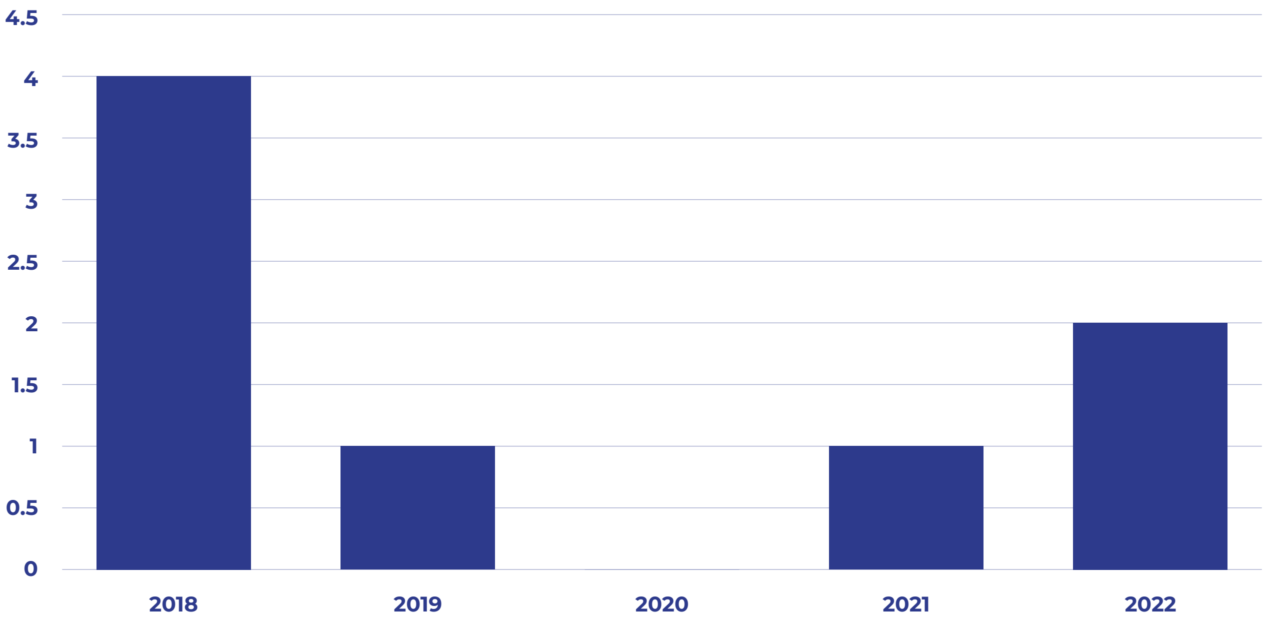

Figure 3: Year of participants' first NDC connection if shared during interviews

The average number of NDC connections in production amongst the Travel Sellers which were willing to disclose this information is 9.6, ranging between 4 and 20+. Amongst the corporate travel management companies, the average number of connections is 9.5, compared to 9.75 for the OTAs and Agency Group/Consortium businesses combined.

Number and types of Airline NDC connections disclosed by Travel Sellers

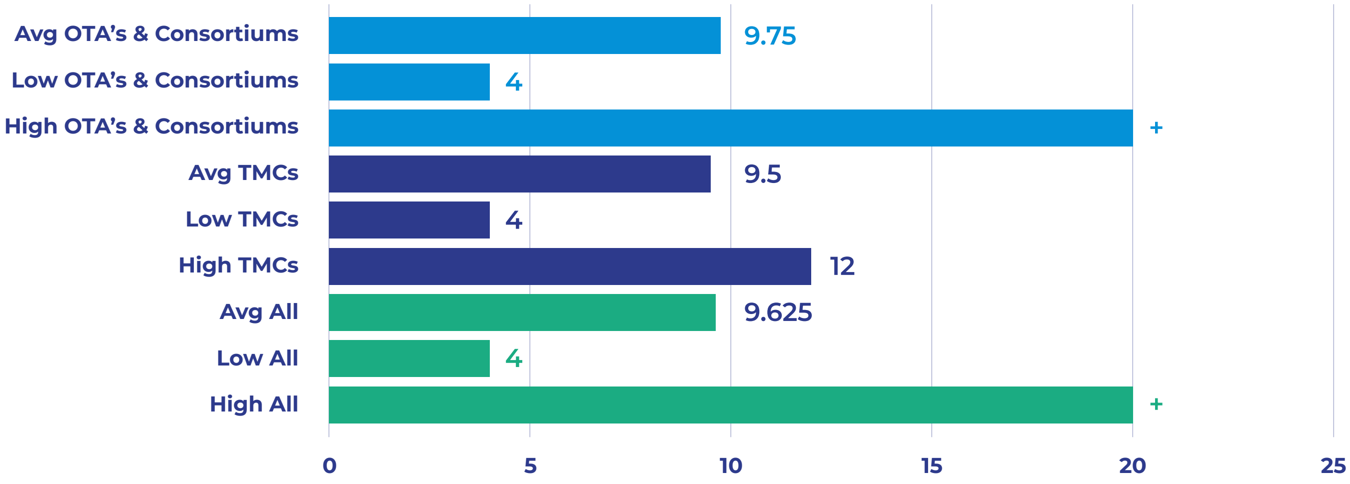

Figure 4: Average number of NDC connections by type, broken down by Travel Seller business model grouping

The participants in our research also mentioned that they have many other airline NDC connections planned for go live in 2024, all at different stages of planning or implementation.

Of those who were willing to share NDC adoption figures, the average rate of NDC transactions as a percentage of their total global transactions ranged between less than 1% to just under the 50% mark.

Percentage transactions via NDC (where disclosed during research)

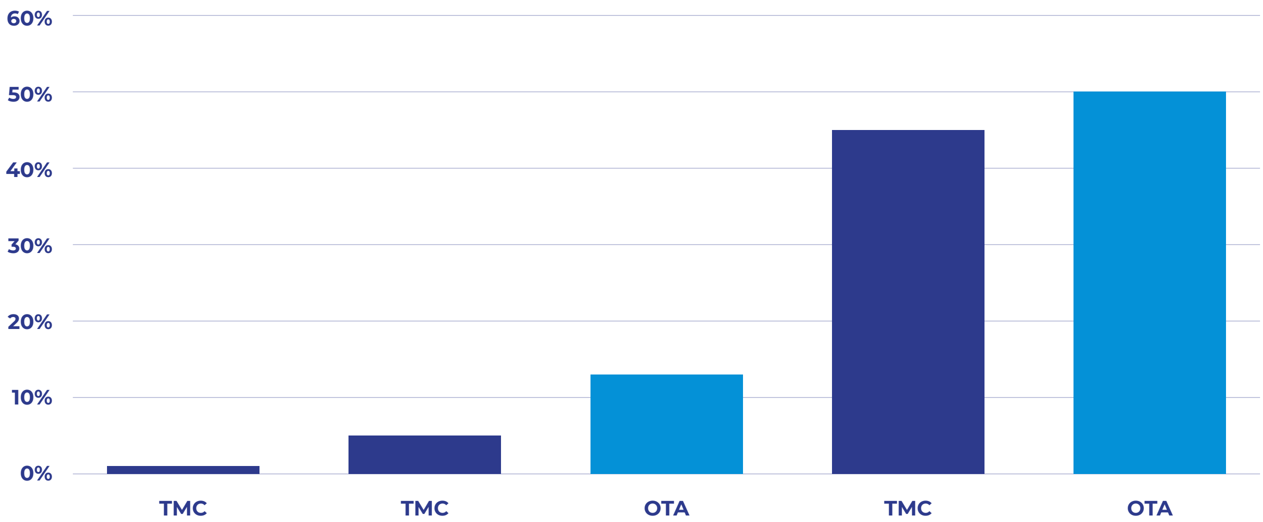

Figure 5: NDC transaction % as disclosed by 5 Travel Sellers during interviews and categorised by business model

It is also important to note that there are regional variations in adoption rates of NDC. Europe led the way in the early days of NDC adoption, but the North American markets drastically accelerated in 2023 due to the move by American Airlines to remove content from EDIFACT based distribution. This has evidently caused many Travel Sellers to pick up the pace of adoption. In most markets the determining factor for local travel agency adoption of NDC is the strategy of the home carrier(s).

T2RL

A note on the types of integrations

Background

Travel Sellers have the option to build their own technology solutions to support NDC, or may choose to rely in part or whole on third parties using one of three options for sourcing NDC content from airlines:

1. Direct Connection - An NDC API enables travel agencies to build direct connections if they wish. The primary users of direct connects have been some very technology-focussed agencies, especially OTAs. Most airlines only have direct connections with a relatively small number of key partners. The airline may pay the agency directly an incentive / booking fee instead of the GDS booking fee.

2. NDC Aggregators – Businesses offering travel aggregation services have been growing in numbers and sizes[10]. They typically aggregate different content types such as Low Cost Carrier (LCC) content, traditional GDS EDIFACT content and increasing numbers of NDC airlines' content, as well as back/mid-office agency solutions in some cases. They have been successful in the OTA segment and are growing into offline leisure channels and TMCs. Some aggregators are owned by agencies and work closely with their owners, others are strong in specific regions or market segments. The benefit to Travel Sellers is the possibility of building and maintaining just one connection to an aggregator instead of individual direct connections with airlines. Many airlines do not pay NDC aggregators. The agency pays for the service and the airline may pay the agency directly an incentive / booking fee instead of the GDS booking fee, which the Travel Seller may use to pay the aggregator.

3. GDS NDC (Sabre, Amadeus, Travelport, TravelSky) - Many airlines have now agreed to connect their NDC APIs to GDSs. All the GDSs have signed with most of the big airlines (there are some exceptions). The GDSs have a long roadmap for NDC airline implementations as of early 2024. They can display EDIFACT and NDC content in the same screen and have strong capability with agents – such as back and mid-office integration and automation, as well as providing other agency technology solutions. For Travel Sellers, NDC via the GDS may require less training, process and technology change to implement. Typically, the airline still pays for transactions, but there exists a wide range of commercial models in place compared to the position from 10-15 years ago.

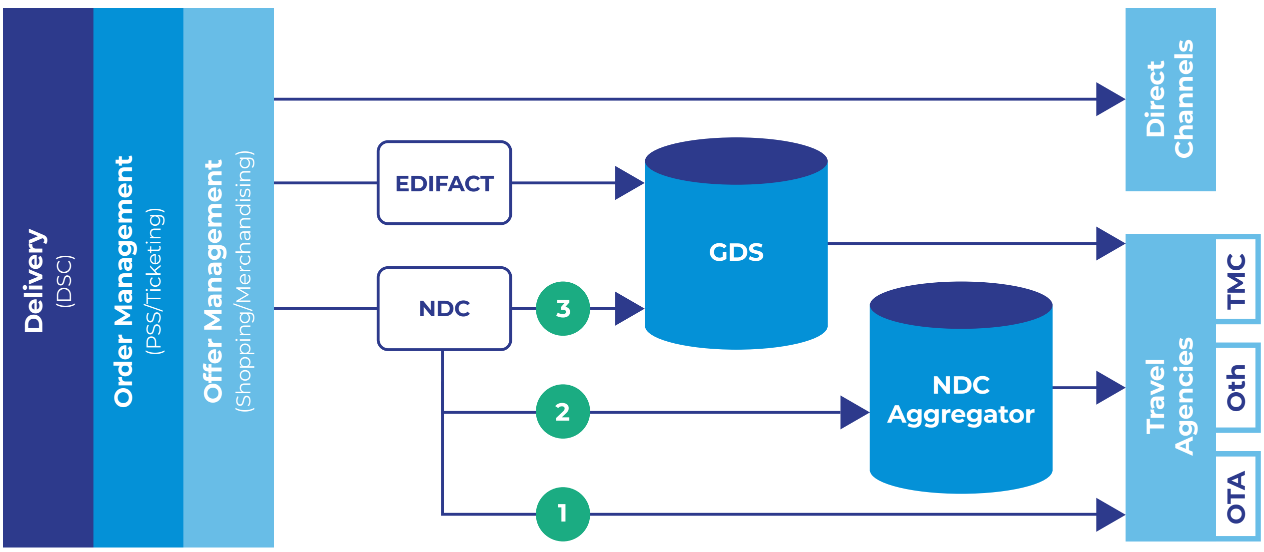

Figure 6: Diagram of connection types

[10] T2RL annual report The Travel Distribution Aggregator Market 2023

Supplemented by Booking Portals

The airline's NDC API technology provider may provide a booking portal to Travel Sellers. These are typically used for manual offline transactions and can have additional functionality offered compared to other connection methods. Airline NDC booking portals which are connected to their NDC API, can be useful for local agencies, agencies getting started on NDC, or markets where non-IATA agencies are common. Booking portals are used to supplement and support transactions, rather than as a primary content source for most Travel Sellers, as they are not suited for transacting mass volumes of automated or semi-automated bookings. The portal may also supplement the NDC capabilities via other methods of connection where there are technology limitations for the servicing of more complex bookings.

NDC connection types among the Travel Sellers interviewed

The types of connections varied amongst the interviewees, with some of the Travel Sellers preferencing the sourcing of NDC content via direct connections. They report that they work very closely with the airlines in this model. Others prefer, and are already transacting via, the GDS. A minority of the interviewees also supplement their NDC content sourcing via aggregators, particularly for the long tail of smaller airlines which they book less frequently. The pattern which emerged from the interviews is that Travel Sellers are mostly choosing multisource content strategies at present, whether by choice, necessity or as the result of business acquisitions.

Some Sellers acknowledged having to supplement their NDC content with content or tools from the traditional GDS/EDIFACT channels.

Number of respondents per type and combination of NDC connections

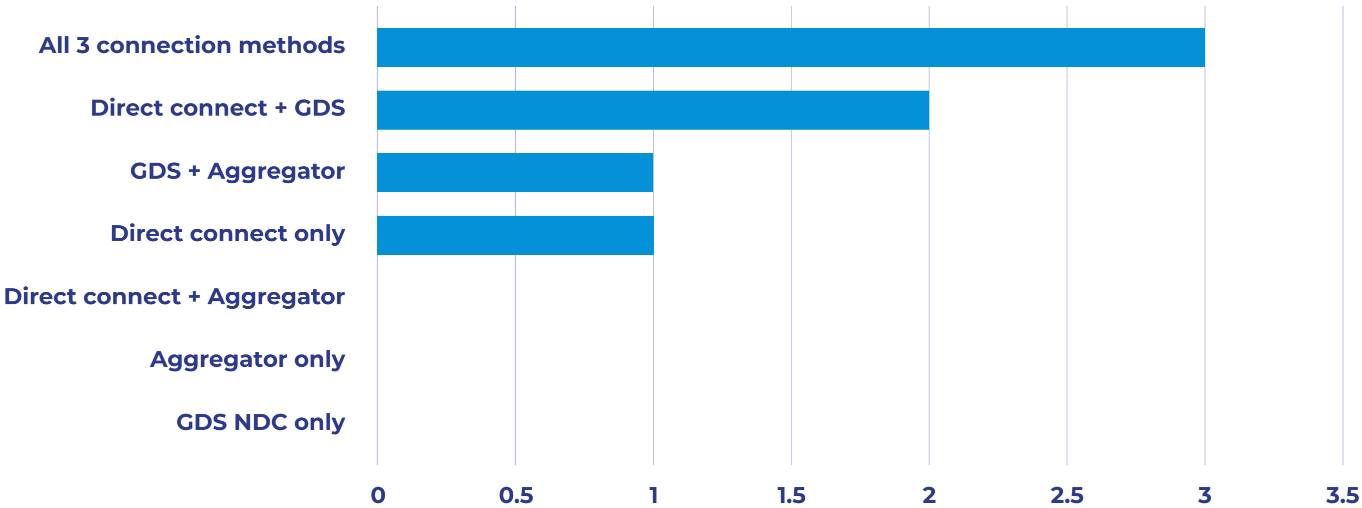

Figure 7: Types of NDC connections in production as disclosed by 7 Travel Seller participants in the research

The Travel Sellers that have achieved the highest figures of adoption for NDC content, with some quoting in the range of 50% of transactions now being generated via NDC, are correlated to having Direct Connects in place. They shared that they had worked very closely on implementations with the airlines, referring to them as "deep integrations". They quoted close relationships where they provide ongoing feedback, extensive testing, and collaborative approach to roadmaps for improvements.

Each Travel Seller articulated that its preferred content sourcing strategy needs to meet its business needs as well as the requirements of its customers. Here are quotes from three participants with very different approaches:

"We made a decision that the best aggregator for us will be the GDS, for a number of reasons. We have complex mid and back office environments. If we stay with the GDS we don't have to change our back office or mid-office, it might need a little tweak but nothing material from a financial perspective. For us we figured there's no aggregator that we saw, and we saw many, that was scalable and could cover all aspects of our business. Which is leisure, cruise selling, corporate, high yield customers, entertainment. So we made the decision to go with the GDS."

"Going via GDSs means the feedback loop becomes too slow and disconnected, Direct connects allow for quick improvements and testing by the agency. This doesn't happen as efficiently when going via an aggregator or a GDS."

"We work with the airline's API directly, with third party aggregators, GDS aggregators. I'm sure everybody will say the same, of course, but we really have gone down the path of engaging with multiple airlines and with multiple technologies as well. We have tried to determine how well it will work for the whole ecosystem.

What we've done is an airline by airline approach and based it upon airline recommendations to a certain degree in terms of what connectivity and technology solutions are available. Where we're getting to now is we see the GDS aggregation model as being the one that is going to provide the scale to allow us to move.

The majority is going through aggregators, although we do have direct connects. We've implemented an aggregator, but our primary investment focus now is on the GDS. It's simply because that's where OBTs are going. It's the route that we're more confident about in terms of being able to deliver the scale and the robust solutions that we need"

Content and functionality

Among the Travel Sellers T2RL spoke to, there was a consensus that the NDC capabilities of each airline they connect to varies significantly. As IATA did not mandate a minimum viable product (MVP) module adoption, this has resulted in a fair number of different implementation variations amongst Sellers.

Some of the variations are attributed to the different API schemas, and other variations are an indication of the differences in underlying retailing capabilities and architecture of each airline.

As a result, there are still some obvious gaps in functionality when comparing the NDC booking and servicing flows to EDIFACT which benefits from far greater homogeneity due to the mandates of each particular GDS. While some of these discrepancies are on the airline side, it is also apparent that some of the differences can be attributed to the lack of NDC booking data enrichment capabilities on the Seller side. Over decades of development, the GDSs have built capabilities to enrich booking data with solutions such as structured remarks which allow agencies to run automated servicing processes. In turn Sellers have implemented a host of modifications within the EDIFACT/GDS structure germane to each GDS. Without these additional capabilities and processes, NDC bookings require more manual intervention until this gap is addressed.

The obvious question is who will pay for the increased cost both the manual intervention and the technology enhancements the Sellers must adopt.

"[The] GDS give you a lot of functionality around trip improvements, e.g. change seats, or schedule changes which can be processed in a more interactive and service friendly way. Other examples (today) are traveller types, profiles, policy exceptions etc, the data can be captured in EDIFACT but is not in the NDC record because it is not for the same purpose".

"there are differences, there are new things that can be done and there are also some things that used to be done in a certain way that now are done in a different way and there are perhaps some things that used to be possible that are no longer possible. All of that impacts productivity in the front end in terms of the shopping and the booking, but it's when it gets to the servicing piece that we have real issues."

> *“The functionality with NDC connections is not fully there for change notifications, schedule changes. There’s no standardisation across the different APIs, which means that even if you are doing the extra legwork of normalising the data to be able to offer a unified experience to the end customer, you will still be missing all sorts of functionality depending on what the airline makes available.”*

The Travel Sellers that have completed the highest number of NDC implementations shared that they are taking on some of the effort to help airlines better manage their implementation and conduct them in a more standardised way.

Different approaches to NDC

Each Travel Seller shared its business’s unique approach to NDC, with an overall consensus voiced, that transformation is now happening and presents opportunities.

However there are challenges and hurdles both on the technology and the cost side as well as the changed processes with all that entails.

> *“We recognise that NDC or airline retailing is the future. We view it as not optional. We view it that the quicker we can consume NDC, the quicker we can have the mindset of our thousands of agents, the better we can service our customers and the better we can maintain our relationships with our corporate and leisure customers.”*

> *“for the adoption [of NDC] there needs to be a [commercial] incentive. It’s not a matter of covering the cost of the transition, although an argument could be made for that. The reality is that when you move from a GDS to an NDC world, the maturity of the system is far lower, which then effectively means that there is no normalisation of data and consequently a much higher cost of servicing, which either needs to be passed to the customer or end user, or to be absorbed by the intermediary offering that ticket. There are very few players who can handle that complexity both from the tech side as well as on the commercial and operational side in a period where multiple models are live that need to coexist.”*

In the corporate selling segment, the interviewees expressed that a lot of change is driven by demand from the travel buyers. This can present challenges where the buyers expect access to content, particularly for fares and price points which are only available via NDC, but without a full understanding of potential functionality limitations that may impact on service levels and servicing capabilities in general. Similarly since the offer process is generated within the airlines’ systems – the TMC has less control over that offer.

> *“We have this ecosystem built over the years which we’ll continue to evolve. NDC is an important component of this marketplace, it’s not the only thing in the marketplace, we want to make sure that we have competitive airfares out there and that we help our airline partners achieve what some are trying to do which is competing beyond the price points. For a long time we had schedule and price point with a race to the bottom, of who is going to give the biggest discount to sell the ticket. It’s been clear from our airline partners they want to move beyond that, to compete more on what products are out there, what’s the different investment in the experience, what are different ways to compete to gain share of the marketplace over just discounting and driving down price points. Some airlines don’t have that objective and are trying to reduce cost or renegotiate different deals. NDC creates a big opportunity if done the right way not only for the suppliers but also for our customers.”*

For the Travel Sellers that expressed a more positive and welcoming approach to NDC, a common thread is that it is not just the technology changes they are open to, it is the potential for improvement in how products are sold and delivered to travellers that is of interest. They are embracing NDC to the extent that it will improve the traveller experience in the long run. For this it was almost universally agreed that the processes needed to be different.

> *“how do we get the corporate deals, how do we put the bundles together, how do we get them through check-in, how do they get recognised better when they travel, that’s what we are interested in driving forward. We are open to NDC as the precursor to get the basics done, but around that it leads us to consuming other content potentially in other ways.“*

Insights from implementations to date

Going well

Relationships

Travel Sellers interviewed quoted the quality of the relationships where airlines have taken a collaborative approach with an openness to feedback, as one of the positives to emerge to date. In some cases, the feedback loop between Travel Sellers and airlines, as well as technology providers where they are involved, is resulting in improvements to the quality of the functionality of the NDC APIs.

> *"On the positive side, what we've experienced is certainly good collaboration between all of the parties in terms of getting people around the table. Airlines technology, our teams, our corporate clients as well. So that's been very positive and I think there's been an acknowledgment that everybody needs to work together."*

Improving implementation processes and timelines

Some Travel Sellers shared how, as they have gained experience, the approach to implementations is now turning into a fine art, with a strict set of minimum criteria and project implementation processes which have been continuously refined. This enables airlines to improve the quality of their implementations with all parties. It also results in increasingly efficient implementations.

> *"We have an art in how we approach NDC with each carrier, having what our minimum criteria is, and we've set that minimum criteria based on the fact we know all the common pitfalls. We've learnt over 5 years, and we don't fall in the same pitfalls because we are learning as an organisation. We don't like to do pain points twice. Our bar keeps raising with every implementation. So for each new airline, the later they come the bar is higher but it's for the betterment of all sides. We're finding that our implementations are shrinking and becoming more effective, in terms of faster adoption path. Everything from what we want to see, what information we want to share, what's your strategy: for the content you're distributing, for how you want to service the PNRs, voluntary changes, invols, etc, etc all the way down to what information can we share once we have this new type of data that we've not had before, to make the experience better for the traveller. [ ]*
>
> *When we've had that end-to-end approach, the implementations have been fantastic. The implementations where the airlines say here's what we're going to go do and provide that to us, those have been a little more rocky. Never that bad, but they've encountered more issues, bugs and things that the airline didn't think about."*

> *"Once we do the first airline on a certain technology on a certain platform, it means airline #2, #3, #4 become much, much quicker. There is still additional work, but rather than having to completely reinvent the wheel and the processes we have a good basis, maybe 70%, maybe 80% of what has been done already can be reused."*

It is clear that each adopter of NDC needs to have a standardised model for its own business since the airlines have not been able to deploy a consistent MVP for either corporate or leisure clientele.

Better processes

Other positives of note, mentioned by the interviewees relate to the processes for completion of ticket reprice and exchanges. Thanks to NDC these can be executed in a more automated fashion, with fewer steps in comparison to a manual ticket exchange in EDIFACT today.

> *"The changes you can do in the NDC channels, the guaranteed filed fares from the airlines, the reduction in ADMs, that's a positive thing that people don't talk about between NDC and EDIFACT. Also invols and schedule changes, they're just guaranteed, they can be processed straight away and are all automated, but I just don't think there is enough adoption and maturity yet for [agencies] to see the benefits."*

Other improvements

Additionally, with the airlines taking on the offer creation as well as the repricing or refund calculation responsibilities for bookings, Travel Sellers can avoid fare related Agency Debit Memos (ADMs), indeed they are redundant. In the longer-term agencies may see a decrease in training needs and cost for ticket repricing and refunds - a major pain point for Sellers.

Improvements to conversion have also been reported, particularly for Travel Sellers working with airlines that have rolled out differentiated content and pricing strategies.

> *"Our adoption of NDC has been as much of an acceleration as possible, we have specific data points now that give us feedback that says that on average we've had a great experience. Not only on how we're getting closer to our partners and seeing the differentiation as some of them deploy different strategies and what that can affect on our response, our conversion, everything."*

The consensus amongst Travel Sellers interviewed in our research is that they are embracing NDC with varying degrees of enthusiasm and confidence. Compared to just two years ago, the conversation appears to have truly moved on to how as an industry we improve the quality of NDC and implementations and derive value from the investment in transformation.

> *"[NDC] is going to get us to a better spot. The status quo is not that great, NDC has the potential to be much better."*

Challenges and opportunities

Consistency in implementations, processes and booking flows

A unanimous common theme amongst participants in our research as the biggest area for improvement in NDC was the variability of booking processes and flows from one implementation to another. Even amongst airlines using the same version of NDC standards and the same technology providers there were noticeable differences. When working with airlines on different technology the differences are even more noticeable.

Pointing fingers here is hard but perhaps greater cooperation and cohesion within the NDC technology community is a necessary next step. It clearly cannot hurt.

> *"we're active with a dozen airlines and airline groups and probably we see a dozen variations across all of those, because every airline does things slightly differently."*

> *"Nothing is consistent in NDC and that's the biggest problem. Every airline with every tech partner, every OBT, every point of sale becomes a new permutation. And that's what we need to stop. The NDC protocol today is not only a new language that we have to internally make sure all our systems can interpret and ingest, but it's also got many dialects. So it's not a one for one, it's a one to many. And so any internal systems and downstream products and services we've integrated with and we have 4 or 5 hundred products we offer to our clients. We have to then own that capability and an interpretation."*

Although the NDC API standards are published, there is room for variation. In some cases, airlines have supplemented the NDC standards with custom proprietary APIs, and while this might increase the functionality available it presents a challenge for Travel Sellers that wish to scale up and increase the number of airlines they are connected to.

> *"One of the reasons why we push so hard for 21.3, is to address some of the standard components, things really don't work well when adding ancillary to a product in the previous versions. But even behind the standards, the implementations have a lot of inherent complexity around them that sometimes the IT provider or the airlines hasn't encountered or worked out yet. There are other complexities, divide is a good example, where the carrier may not provide the ability to do a divide yet in their implementation. That's why the questions and answers with the airlines are so important, so we can understand if the implementation is mature enough, or the cost for us to go and take on the implementation."*

Where there are variations in booking flows the result is an increase in complexity, cost, training and technology investment from a Travel Seller's perspective. And while for some, a level of customisation is acceptable in connections with strategic airline partners, particularly for Direct Connect, we heard from the majority of participants in our research that this is not sustainable at scale when looking to connect to a multitude of airlines.

> *"For some [airlines] even the standard servicing workflows are not the same, for example non-used tickets workflow, and how unused credits are applied to a booking, airlines do it differently. We didn't appreciate how much variation there would be. Which is the industry's problem."*

Servicing

All participants interviewed quoted servicing as the biggest challenge with NDC to date and as the biggest barrier to adoption.

> *"There's been massive improvements over the last 18 months. There was non-existent servicing 36- 24 months ago. The airlines were focused on shop, book and pay. We spent a lot of effort with the airlines, understanding that the corporate managed world and corporate traveller is very different to the leisure traveller, or the OTA or someone who is just going to shop and book and is ok to call the airline for support. The effort level has been around education with the airlines, how do we get them to change some of their capabilities within the API, how do we get the GDSs to help."*

> *"The user will go onto my site and try to make a change or cancellation and with some airlines that will be possible and will service on the display but with others it won't. In the GDS environment you have flows that take care of a number of operations, in the NDC environment you don't or you are required to go through different agent portals and then have a workforce of customer service agents who are now required to be trained in different agent portals. So if we try to quantify the incremental cost of going from functionality that exists in the GDS environment to functionality that either exists in the NDC environment but not to the same extent, or for some operations it doesn't even exist, the increased cost of servicing will be different depending on the airline and the functionality they offer or how good their portal is. But all of that will actually be a layer of fundamental infrastructural increased cost of servicing which has to do with organisational set up, the training etc..."*

> *"There are good things with exchanges when it works. When it works, it's actually easier but exchanges aren't working everywhere for every airline, for every configuration. Eventually we're going to be using a new workflow, which will be more intuitive to train our staff of the future."*

Some Travel Sellers also recognised that EDIFACT was far from perfect and there has been a lot of booking data augmentation and additional automation in place to enable the current servicing customer experience. Expecting this to be in place from the get-go in NDC is unrealistic, especially as most of this technology sits on the agency side or within the GDS solutions for Travel Sellers.

> *"A lot of manual work is required behind the scenes for the servicing, but it is improving. EDIFACT also requires a lot of manual processes, but these have been accepted over the years and people forget they exist."*

Issues with fare filling and loss of transparency

One of the biggest changes that comes with NDC selling is moving away from providing Travel Sellers with the schedules, fares and availability, to priced Offers instead. For agents making bookings manually this is a significant change to the process flow of making or changing a booking.

> *"there's a huge shift in the way shopping happens. We're going from an availability or schedule framework to a shopping path, meaning we're pricing at the beginning versus finding the right route. Those are positive things, but it's a monumental change in how our workflows work today within our organization."*

In addition, a growing number of airlines are using dynamic or continuous pricing in their NDC channels, where it isn't possible via EDIFACT. A consideration for airlines may be that an important aspect of the Travel Seller's value proposition is to provide fare expertise to their customers and assurance that they are getting the best deal available for the specific set of requirements of a trip. In the TMC world it is common to provide detailed reporting to corporate customers on adherence to and variations to best fare of the day policies. Removing some of the information from the hands of the Travel Seller has implications on how they perform the services they offer to their customers. It also has implications for TMCs that have automated processes in place for rebooking corporate fares where a lower option is detected.

> *"there is a little lack of transparency from the airlines as to what a corporate deal looks like in NDC. Because, remember, in NDC you will lose the transparency of fare. You won't have the fare ladders anymore."*

In the corporate selling space, a common challenge faced over recent years, has been complaints from travellers or travel arrangers who have found cheaper elsewhere, questioning the value brought by the TMC and wanting to book themselves offline. Airlines have introduced content carve outs in their GDS contracts allowing for web exclusive fares and some airlines have exited full content agreements for content distributed in certain channels. Additionally, there may be situations where metasearch engines or OTAs show lower fares in web search comparison results. This may have contributed to diminishing trust in the TMC being able to provide the "lowest fare", where in many cases the "best" fare within contract and adhering to corporate policy for that specific traveller, may indeed not be the lowest fare anyway. To improve transparency and trust in the value chain, airlines should consider how they can provide the appropriate assurances and evidential data to their Travel Seller partners and to their contracted corporate customers when introducing new content strategies and dynamic or continuous pricing.

> *"Our biggest competitor is unmanaged travel versus managed travel. That managed travel programme is more than just schedule, airfare, there's a whole series of things we have to make sure we're doing for those customers, duty of care, reporting, data security, creating an easy shopping environment where you can compare different offers, sustainability, servicing."*

Dynamic pricing introduces new challenges for Travel Sellers as well as opportunities. It is not unreasonable to expect that new technology solutions will start emerging to address some of the gaps in the availability of trusted fare monitoring data. For airlines that wish to innovate and build trust with Travel Sellers and their end customers, considering new ways of providing best fare guarantees could become a strong competitive advantage. This does not necessarily have to relate to cheapest price only, but providing guarantees that the offer selected was the "best option" available for the fare and product searched for at the time of booking.

In this period of flux, some agencies are already taking matters into their own hands to devise methods of checking price points and offers in different channels. This is not new for multi GDS agencies, which are extending the capabilities to NDC. We heard in the interviews that some Travel Sellers now compare price points in EDIFACT versus NDC either routinely or at least occasionally. As with anything new, it will take time to build confidence that the offer sourced is indeed the best possible one for the customer. For airlines introducing dynamic offers, there is a learning and experimentation phase to be expected. In the meantime, the resulting unfamiliarity and uncertainty comes at a cost for both Travel Sellers and Airlines and T2RL believes that this is one of the key challenges to address.

Anecdotally we also heard from two Travel Sellers interviewed that the manner in which certain Airlines have set up fares in NDC causes avoidable challenges. In one scenario corporate net fares in NDC is too complex creating another barrier to adoption.

> *"If all the corporate booking tools were ready and the fares filed properly, adoption would increase a lot – travel agent bookers also feel NDC is more complex so offline adoption may not increase too much, whereas once online is set up properly there should be high adoption."*

The second scenario relating to currency fluctuations.

> *"another issue that doesn't happen in the GDS. That is the fare filing. The pricing on the airlines in the NDC world as we use different currencies than their fare filing so often we have price jumps. They often do FX exchange between fare currency and ticket currency. The airlines are not very active on sorting these little problems. They are not big problems for sure, but they are problems that may affect the journey of the client.*
>
> *If you are seeing price jumps during the booking flow, even if they are small, as a business we cannot be all the time observing a loss from search to price to book."*

Incomplete functionality

Despite more than 10 years of evolution of the NDC API, the functionality is only starting to mature to the extent that some of the key processes for Travel Sellers are now being addressed. There are differences in how travel agents manage bookings and tickets versus how an airline's internal processes work. For many airlines, these may still be roadmap items to implement or not yet solved for by their technology partners. NDC schemas were designed to emulate the airline online flows rather than being designed for a Travel Seller workflow. These discrepancies are being fixed retroactively. but Travel Sellers perceive that doing so is not necessarily a high priority for the airlines.

> *"Particularly in the US there has been a huge dependency on the GDS to provide the PNR augmentation for processing and automation.*
>
> *Outside of the US they have had more time to get used to the non-homogenous view. There has to be aggregation and normalisation first before there can be enrichment of records for automation. If agency processes had been better taken into consideration from the start in NDC, there wouldn't be as much of a gap and need to build new bridging or record "augmentation"."*

The unfortunate consequence of these gaps is a perception amongst some Travel Sellers that many airlines do not understand their business and that it has taken too long for the right questions to be asked, let alone addressed. More research into agency transactions and processes could have helped bridge these gaps faster and reduce the sense of misunderstanding which some Travel Sellers interpret as a lack of interest in the value they bring to the end traveller.

> *"Examples of the richness of processes in EDIFACT today is unused tickets, where the value can be applied towards future travel (TMCs track, report on and process this for their customers). In EDIFACT it is easy to maintain the value and apply the "floating" (no PNR) ticket towards an exchange."*

In addition, there are still roadmap items which are yet to be fully solved. The impact of the pandemic on the industry as a whole has significantly reduced the capital available to invest in technology and slowed down progress on some of the more complex use cases which require modern solutioning and further development. This is even more obvious for use cases that require collaboration amongst airlines. Two such cases are codeshare and more significantly, interline. For example, a commercial agreement may be made with a joint venture or alliance carrier partner yet the two airlines may have different modules of NDC implemented and on different versions.

> *"Obviously on the NDC channel there is a lot of content that is missing versus the GDS. For instance, codeshare agreements we do not get otherwise. So on our rules engine, very often we should make more than one request per supplier. And whatever it brings us the best content, and here it's our definition of best content being price*

> *and convenience. We have our own algorithm on how to query the suppliers and how to filter out what we don't consider good content."*

Lack of value adds in NDC to date

A concern voiced by six participants in our research, is the lack of value adds in NDC. The clear expectation set by IATA and airlines over recent years is that NDC would deliver new capabilities and improve the traveller experience. Travel Sellers expressed that the main difference to date is (access to) lower fares. There was an expectation on airlines to deliver new improved products and services. This has largely not yet materialised for the Seller community.

> *"Are there any examples of value adds in the NDC offering that we see today? To be perfectly honest, there are very, very few. Like building a house, I guess at the moment everybody really is focused on the foundations, getting the foundations set up and steady and secure. But the problem probably is that from a marketing perspective, what's being sold is the house"*

> *"One of the things I think was horribly lost in the NDC implementation rollout was, the making the case for positive change. The sales pitch is really unclear. It's like if you don't do this, you won't be able to access this content, and I've yet to see any of the promised exciting new content like the ease of adding ancillary content and any products and services and so on really materializing at scale or even being brought to market at any sort of reasonable scale."*

> *"Understanding the value is going to help determine which airlines we prioritise, we don't want to be in NDC just to plug content gaps."*

> *"You need to nudge people along in some way, but nevertheless I think you can nudge in a more positive way. Again, this whole topic of removing basic content out of a distribution channel and just making it available in a new channel. That's not adding value, but adding new content into a new distribution channel, that is a value add and that's a much more positive message to go to market with and but very few airlines are doing that. Probably because it's horrendously complex for them to do it with their systems."*

Misaligned expectations

Another common thread amongst participants in our research was the misalignment in expectations between how NDC has been positioned and sold by IATA and the airlines versus the current reality of implementations.

There was a general assumption that the migration from the current hybrid (but GDS centric) solutions to the open NDC based platforms would be orderly. There was a further expectation amongst some of the respondents that the technology aspect of the migration would be handled – as it had always been in the past – by the GDSs. Judging by the responses from the sellers that is far from a realised expectation. As a result, Sellers are caught – once again –between the GDSs and the airlines. With certain airlines now taking aggressive steps to reduce GDS transactions the agents have a difficult choice ahead of them. Do they wait for the GDSs or do they have to adopt their own technology-stack based solutions? So far it is hard to say if many agencies will make use of broad scale aggregators that can normalise the old GDS centric world and the newer NDC world.

Further misalignment occurs in the non-booking processes employed by agents. While leisure bookings are usually non-refundable and seldom changed, corporates need a lot more flexibility.

> *"The challenge is that a lot of the benefits have been oversold in the marketplace and in many cases we've certainly had to educate, in particular the airlines, about what we actually do and where our clients see the value of a TMC.*
>
> *Obviously we need access to the content. We need to shop and book, but we need to provide a servicing capability and that's where the capability needs to catch up. Many of the folks that we've been talking with in the*

airlines say they haven't had that level of understanding as to how core that is to what we do, what our clients expect us to do."

The Seller community in the traditional GDS world has had the benefit of being able to make their own changes to bookings or escalating the issue to a GDS or ultimately the airline help desk. Where any booking cannot be serviced via NDC, the airline now has the primary responsibility for supporting the agency to solve the problem. Some airlines appear to have stepped up to this challenge, for example implementing dedicated service desks for their NDC business, others have received criticism for not supporting agencies sufficiently. Time will tell which approach delivers airlines the most value in the long run.

Differences in architecture on the airline side

One of the root causes for the variations in booking processes in NDC are the differences in underlying technology architecture between airlines. The majority of early NDC adopters on the airline side, have integrated solutions such as Accelya's FLX NDC, as an offer distribution management layer on top of the respective PSSs. With this solution, Accelya as currently the market leader in terms of NDC transactions, one could expect there to be more similarities than differences. From an architecture standpoint however, airlines have taken vastly different approaches. Some favour booking flows that mimic their direct channels very closely, while others have sought a more traditional approach resembling the EDIFACT booking processes for indirect bookings. There is also a multitude of supplemental solutions for offer optimisation implemented in the mix. The result is a landscape of multiple NDC API standards and implementations for Travel Sellers to contend with. It should be remembered that airline direct web and mobile bookings have matured for over 20 years. That maturity is not found commonly at scale in the NDC world.

> *"It's been a rocky road based on the variability of what the capability of each of the APIs has. Different airlines are taking different approaches to some basic, e.g. unused tickets, how do we shop, how do we apply the corporate discount. There's been a wide range of how these things are done within NDC. It makes it more complex but we're working closely with the airlines, with the GDSs, with our online partners to bring that in. It has required quite a lot of effort and a lot of three way engagement We have weekly calls with all the airlines in our NDC programme trying to solve problems that crop up. We're constantly trying to evolve the platform, so that it meets the needs for our customers. If it doesn't meet their needs, they're not going to want NDC content and the airlines aren't going to achieve their goals of selling more NDC."*

Readiness of the corporate online booking tools and integration with mid and back office

Six of the companies interviewed shared concerns that the OBTs have not been preparing for NDC fast enough. Again, this results in misaligned expectations between what is being sold by the airlines to the corporations versus what can actually be displayed and serviced when it comes to NDC in the OBTs. Some OBTs have embraced NDC such as the company T2RL interviewed as part of this research, and in some cases the Travel Sellers also own their own technology which they have been upgrading.

> *"Corporate [travel] has a lot more requirements compared to leisure. It's easier for OTAs. TMCs are totally disaggregated, their technology is a big mess, but because it was all wrapped up in the GDS it wasn't as visible and NDC is bringing disorder. The TMC technology isn't ready but meanwhile there are travel buyers seeing that there is better content available via NDC questioning why their TMC can't offer it."*

> *"Companies like ours that work with a lot of the online booking tools we need to make sure the booking tools are being upgraded to display all this new stuff. If we're taking the time to build NDC, the airlines have invested a ton into it and we've invested a ton into it, but if we're plugging it into old versions of OBTs and reverting to schedules and price then we haven't accomplished anything we're back to square one. There's a multifaceted industry engagement which needs to happen which we're trying to help drive."*

> *"One of our biggest challenges is going to be updating our shopping experience and display. Some of the booking tools are ok, even our own have to improve. You have to have a Customer experience that showcases the new content, if you can't the indirect channel will continue to underperform on ancillaries."*

> *"[ ] across the board there's been a situation where the airlines haven't understood how key some other technologies are to what we do as well. Some third party technologies and online booking tools in particular. Customers make certain choices and it's not the case of having one booking tool out there. There's quite a number of them that we support on behalf of our customers.*

> *"[Agencies] really do need the online NDC connection in the OBT before they can offer it to their corporates. But it's not until the travel buyers ask for the content that things move. [ ] They're in the process of making changes to nearly every system they interact with, because most things are different with NDC. They need to consolidate that and then make sure it scales because they all have SLAs to meet in corporate travel. If you're going to turn NDC on as a TMC are you going to be able to maintain your SLAs? Maintain your ratio of online to offline bookings? Everything in corporate travel is measured and driven around those metrics. What are my transaction fees, what are my SLAs and making sure they're met. The agencies are very conscious of that, as it matures and stabilises and the changes happen it will take a while to scale."*

Compared to the years of development and enhancements which have been built and wrapped around GDS bookings, NDC is still in its infancy. There exists a gap today in the agency technology to enrich bookings for agency automation. Unfortunately, the agency technology space lacks consistency and T2RL perceives that it is largely underinvested, although there are clearly individual agencies that have invested heavily and technology providers bringing innovative products to market. For many Sellers it is quite a change from having had the GDS be the primary technology provider to having to take on the responsibility and the cost themselves.

The emergence and growth in popularity of NDC connections via the GDS is likely to bridge some of this gap over the coming 12-18 months, as agencies adopt NDC in formats more closely aligned to their needs for integration into mid and back-office systems. T2RL believes that there is nonetheless a gap in the market for technology providers with a good understanding of agency needs, particularly on the corporate selling side to develop and commercialise new solutions with a view to the future and the industry's transformation towards OOSD.

Responses and performance

Quoted by half of the participants in our research as a concern, T2RL expects performance to be a hot topic for NDC in 2024 as the volume of transactions grows.

> *"Response times aren't there yet, but they're much better than they were two years ago where they were missing all the gates. Today EDIFACT is sub second. I think NDC is getting closer to the five and three second response times. We're still having timeout issues where all content is not coming through and so that's creating issues as well because then we're supposed to be the trusted source of content, and if that content doesn't come through, it looks like we're hiding it when we're not. There is also the issue of far too many responses to a shopping request, many of which are not remotely viable. We have a multi minute increase to our agent workflows as it sits today and that itself costs us an amount of money that we're not going to quantify but we generally measure in seconds how much that costs us, so to talk about minutes is not a great thing."*

> *"We are seeing differences in performance, the ticket exchange flows can be slow. EDIFACT is heavily cached, but the airline API's are returning 1000s of fares and they're not necessarily using the same cache space, for us performance is a concern and customers comment that the overall experience can be slower. It's difficult because we have seen specific early-stage systems slower. Stability is also a concern, we have seen a number of support calls from airlines with issue notifications, it's very real. They give the details of what's impacted, however given their evolutionary context, it's reasonable. We're seeing stability issues rather than complete daily outages. The airlines are pretty confident that their technology is going to stand up to it over the course."*

Advice and feedback to the Airlines

Upskill Airline staff

During the interviews we asked Travel Sellers what advice they would like to share with airlines embarking on the NDC journey, as well as those already further ahead in their implementations.

One of the areas most mentioned, with nine participants commenting on its importance, is having knowledgeable teams on the airline side; whether it be the teams Travel Sellers contact for technical and commercial support, or the local sales teams agencies interact with on a regular basis outside of headquarter staff.

Testing

Another area of feedback which came across strongly in the interviews is that more testing should be done by the API providers. Travel Sellers felt strongly that they shouldn't be doing user acceptance testing for the airlines and tech provider unless this was mutually agreed.

Better definition of roles and responsibilities mentioned by half of participants

Comments on improving clarity of roles and responsibilities were raised in half of the interviews T2RL conducted. Some in relation to internal responsibilities within the airlines' teams and also in three party problem resolution between Travel Sellers, tech providers and airlines. Travel Sellers reporting issues to the tech providers say that this can be challenging because they are not the technology vendor's customer. Having clear processes for issue reporting and bug fixing, which have agreed SLAs and are regularly reviewed for continuous improvement presents an opportunity for airlines to consider.

> *"We're the triage team as well, whereas traditionally our tech providers and airlines were triaging these issues themselves because we're the last line of defence and the interface with the actual traveller, we inevitably have to solve problems that we didn't have under our operational purview before"*

> *"The speed at which things get fixed depends a lot on how the airline and tech providers teams work together, as long as that process works it's fine. Airlines direct speaking to the airline's tech team seems to be fine. When carriers haven't got their teams aligned with their provider's team it is noticeable.*
>
> *It is 100% about organisational and operational structure and not the technology providers themselves. In some airlines there are too many people involved in different parts of the process (technology, distribution) and it gets messy. "*

Collaborate and be transparent

Throughout the interviews we heard from the majority of Travel Sellers that they don't expect perfection from day one, but also do expect a set of minimum requirements to be met. In product management terms this could be considered a Minimum Viable Product, or even a Minimum Marketable Product. Many examples were shared where functionality which was not working well at launch was improved through collaboration between the Travel Sellers and the airlines. For airlines this means identifying the partners which are willing to create deeper integrations, that not only allow process flows to work better but can give them a competitive advantage. For the airlines this offers precious feedback and requirements to help their IT teams improve solutions, configurations and better plan their roadmaps.

> *"[ ] things like waivers, does the airline provide waivers for various things, so that if we get into difficulties, how do we work our way out of them and we're not taking on the full burden of everything when we're actually doing this on behalf of both of our parties. That's where if you have a great relationship with the partner and their willing to work, it might be that waivers are a bit more freeform to begin with and then they start to become a bit tighter after a while."*

> *“I think that managing expectations, being honest, being transparent, working with the stakeholders, that’s the key thing and a recognition that you know it’s not going to be perfect in in the first pass.”*

> *“What some airlines do well is the engagement and feedback loop, they are watching the tickets being opened with their NDC API provider. Some things are taking longer than hoped to get fixed but they are extremely responsive. So the right architecture and improvement processes are key to a successful NDC implementation as well as the willingness to accept that the first version won’t be perfect and there needs to be intensive bug fixing.”*

Interline and codeshare

It was no surprise to us that pain points relating to codeshare and interline were raised in several of the interviews. As of early 2024 a growing number of airlines offer interline and codeshare via NDC. For Travel Sellers accustomed to being able to book and combine multiple airlines, hotel segments and other ground services easily in the GDS, NDC content which only allows one airline to be booked, or only limited interline options, causes efficiency concerns.

Some airlines only sell their own flights via NDC by design. Others may have architectural, technical or contractual challenges preventing them from implementing interline.

Some Travel Sellers are building solutions allowing them to create “super PNRs” combining Orders from multiple sources. As expected with new technology there is some way to go for this to mature.

With regard to codeshare when it comes to TMCs, corporate customers are sometimes offered JV (Joint Venture) corporate deals, which span across partner airlines. If codeshare functionality is limited via NDC this raises valid concerns. We are also seeing scenarios where airlines have implemented fare differentials between NDC and EDIFACT which can result in inconsistencies in content and price amongst codeshare or JV partners, depending on where the Travel Seller sources the content from for the same flights. Where airlines implement distribution strategies that don’t match those of their JV or codeshare partners, Travel Sellers can be left scratching their heads as to where to book.

While the industry is in transition, both the NDC and EDIFACT worlds will have to coexist for a few more years, accommodating airlines at very different stages of NDC and OOSD readiness.

Airlines with multi airline corporate deals should consider how they position these deals to their corporate customers and Travel Seller partners. Modernising codeshare and interline selling and servicing is far from simple, however communicating roadmaps, clarifying commercials and managing the expectations of contracted customers may be an opportunity for improvement that is well within the control of the airlines.

> *“The other things that needs to be worked on is how the alliances work together. This is a discussion I’ve had with several carriers now. Carriers do NDC for themselves. But then they give the TMCs an alliance based deal, e.g. Transatlantic JV*
>
> *When an agency tries to book a JV flight via one carrier on their partner it falls back to teletype, timeout fallout pain and error. They’ve gone down this NDC path based on how they opened it up to the OTA world, then tell the TMCs that they have all these agreements based on JVs which aren’t available via NDC. In their own world they need to see how their commercial deals start to change based on how they are going to interconnect. Carriers are very much single carrier focused NDC, they don’t care about how their networks are put together.*
>
> *We’re pushing individual carriers to see how we’re going to sort this out. There’s no point putting an alliance deal on the table but you can’t book it via NDC, you have to go back to EDIFACT to book it.”*

Strategies for adoption

As mentioned previously, most airlines are now choosing a mix of direct financial adjustments (surcharges and incentive payments), content withdrawal from legacy channels and content enhancement via NDC to form their adoption strategies for NDC. It is unlikely that airlines and Travel Sellers will ever see eye to eye on what the best approach should be.

We noted that the views presented by the Travel Sellers during the interviews were influenced by the latest developments in market.

> *"I do like the path of match EDIFACT, launch your NDC, make sure it's fully serviceable, so I can service it equally whether it's NDC or EDIFACT. Then do basic economy, because we really don't care about it, it's use it or lose it, so there's no servicing. Test this with NDC.*
>
> *Then in NDC, launch the same fares, as soon as something in NDC is fully serviceable, then you can start on your continuous pricing roadmap. Because you've done no harm to your distribution, The key is do no harm to your distribution. Anyone coming down the path now is going to enjoy that most TMCs are developing to ability to book NDC. [ ] That's my recommendation. Have full content in both channels until it's fully serviceable, and then flick the switch"*

Insights from Travel Seller technology providers

Speaking to the three technology providers we interviewed, their advice unanimously was to learn from the best practices in the technology space and adopt a product management approach to releases and understanding use cases end to end.

> *"As the airlines start to roll out the new offers and the 83 capabilities that IATA had identified, they need to have a game plan of what they are going to roll out and when, a schedule and comms/change management of what is going to come out and when so the travel sellers know what to expect and when. [ ]*
>
> *The airlines need to take a product management approach, they need to have the same discipline that their technology providers have. Continuous release process of what they are going to fix, with a roadmap to knock off the things that need to be fixed or implemented next.[ ]*
>
> *Partner with technology providers, to understand what functionality is possible if the airline provides the current data. Know what the market needs, know how your customers and their technology works, know what your customers want, partner."*

T2RL supports the view that a product management approach on the airline side would be beneficial. It means that roadmaps of enhancements and scheduled releases are communicated to sellers ahead of time and managed carefully. For airlines new to the concept of scheduled releases collaborating with their IT providers, not just on technology but also on ways of working and best practice is highly advisable. For technology providers wanting to add value to their customers, this presents an opportunity to add significant value and differentiate their services.

> *"Frequent upgrade of the schemas will be quite challenged because earlier we had like 2-3 GDS so we could easily implement that. But connecting to 30-40 NDC's, and if they try to upgrade the schema after five or six months time it will be very challenging for the travel sellers to sell. Their job is to sell, but It is very challenging for the travel sellers to sell when the schemas are changing frequently"*

> *"There are some very proactive airlines in that space that are listening to customers and being reactive. For me it's about getting close to the customer and listening, because the airlines are the ones developing now, for the customer, like anyone you need to be out doing your research, not just sitting at your desk."*

As airline implementations mature and more airlines launch NDC a tension between the need for standardisation and the need to differentiate products and services is emerging. The answer to this may be to have not just API schemas defined but also standard implementations so that airlines know and make informed choices if they are deviating from expected process flows, or if their technology provider's solution is causing a differentiated booking or servicing flow for the Travel Sellers. Differences that are justifiable and provide value to the traveller, the airline and the Travel Seller should not be discouraged, but it seems advisable that for basic functions and flow a standard approach is the norm across airlines.

> *"Standardisation is less of an issue with (NDC version) 21.3, not making deviations to the published standard would make it easier for adoption. Any changes will delay implementation because many aggregators, even if it's going via an aggregator, have not truly normalised the airlines data structures into a single structure and there is always an expectation that there is some additional code or development time needed for a particular airline. The closer you stick to the standard the better.*
>
> *It's also fair for [airlines] to create the differentiation so that they're not commoditized and there is something which is different in how they're executing their business, which is very fair. Step one would be to get as close to the standard as possible."*

Feedback from Travel Sellers to technology providers

Service levels and performance

Over 40 years the GDSs have become a highly resilient and efficient network. Airlines and Travel Sellers are accustomed to the fast response times, reliable connectivity and very limited outages. Transitioning to new infrastructure, data exchange standards and hosting solutions does not yet deliver comparable performance. During the interviews, many questioned whether the NDC implementations that are live today, will be able to cope and scale as volumes increase. Having strong SLAs and processes for bug fixing and incident management is crucial in environments where outages have severe impacts on revenue generation and customer experience. The Travel Sellers voiced concerns and that they are looking to the technology providers to step up.

> *"What I see in this new world is everyone sort of looking at each other. The airlines haven't necessarily taken on enough, they need to have a high throughput SLA, as much as the aggregators need to and as much as we do. Any of the outages we see are material. When you go to a path of having single channel, if you don't have a multi-channel approach where you can revert back to your old technology you're just sitting there waiting. And that was never acceptable in any other contract in the industry, but for some reason that's crept in as something nobody wants to take on.*
>
> *Our challenges when we're not directly controlling our parts and connections, is that we have to work through other players. And when that happens our partners' sense of urgency and ours may not be aligned. It's not a good experience and we get a little edgy. That's number 1 for me"*

Have the GDSs truly communicated to airlines the value they have been delivering over the past 40 years, and the amount of transactional automation and data enhancement they provide to Travel Sellers, or have the commercial disagreements between airlines and GDSs clouded this issue? With the airlines taking on more responsibility for Offer and Order management, some gaps are becoming evident which Travel Sellers will need to fill. For some this means developing technology solutions in house to normalise data from airline to airline, others will look to partner with vendors creating opportunities for savvy tech providers that understand the needs of the airlines, Travel Sellers and ultimately the needs of the travellers.

OOSD

The adoption by airlines of completely new commercial processes based on Offer-Order-Settle-Deliver (OOSD) will bring far greater changes than the relatively simple switch to its precursor: NDC distribution. As yet OOSD is still in the prototype stage and it is possible to imagine that some of the missteps in NDC introduction may be avoided. The interviewees who were aware of OOSD expressed a wish that this could be achieved.

Airlines, agencies and technology companies should all seek to adopt best practice in IT development. This will involve experimentation, partnering , proofs of concept, sharing of learnings and iteration rather than trying to plan for everything upfront and locking in designs and standards. IATA has an important role to play in bringing together all the stakeholders to achieve an effective implementation.

> *"OOSD impacts the whole airline not just third party distribution. The more you can break things down and work with willing partners for PoCs and then iterate on those and improve, the better. Trying to standardise everything upfront doesn't work. Would like to see more entities experiment and teach us what we need to know. A lot of airlines went into NDC not knowing what was needed in the corporate space. On the other hand just asking TMCs what they need would have resulted in a laundry list of things that weren't really needed. Only by completing hands on experiments will things progress and we'll see industry progress for OOSD."*

> *"Our industry has a bias to inaction" A bias to action will make things move faster."*

> *"We live in a heterogeneous world today and it's not that every airline is going to enter into this OOSD world in a linear, immediate manner. Some airlines already have started, others will delay and some may not even get into that roadmap for whatever reason."*

Closing comments

This exercise has been tremendously valuable for T2RL in refining its understanding of the changes happening in the distribution landscape. Based on the input of our interviewees we believe these are the most important conclusions.

1. Communication is paramount. As long as airlines and Travel Sellers need to work together in serving their common customers it is vital that they maintain a high level of communication. This has not always been the case through the introduction of NDC but it must improve as the industry moves towards the much bigger changes involved in OOSD.

2. Servicing of bookings is far more important to agencies managing corporate travel than it is to some leisure-oriented agencies and OTAs. Servicing capability was slow to be optimised for NDC but it is in the standard now and airlines with significant corporate business must adopt it.

3. All parties need to grasp that switching the responsibility for creating Offers to the airlines implies fundamental changes to business processes.

4. There is a long tail of airlines that have not yet invested in NDC capabilities. As the mega carriers move increasingly rapidly there is a requirement and an opportunity for the GDSs - or others- to bring along the smaller airlines.

5. All parties should adopt a Product Management approach to the introduction of the new technologies and processes.

Exhibit A: Interview Guide

Format

- 45-minute in-depth interview
- ‘Distribution Head’ or similar for participant
- Open-ended questions

Questions

1. How would you describe your business’ approach to NDC today?

2. What impact has NDC had on your business (operations, servicing, productivity, tech, commercially)?

3. In NDC, how has servicing changed for you and your clients?

4. Roughly how many airlines do you sell via NDC today and can you share indicative volume % of NDC versus Edifact bookings?

5. How long ago was your first NDC connection?

6. How would you describe your experience of NDC implementations to date?
   a. What went well?
   b. Not so well?
   c. Opportunities?

7. What significant variations in the quality of NDC implementations airline to airline have you observed? And how does it impact you?

8. What is your feedback for airlines who have already implemented NDC?

9. And for those planning their NDC roll outs? Particularly tier 2-3 carriers you have in the pipeline? How many carriers do you think you will connect to?

10. Do you have any feedback for the technology providers/distributors?

11. In your opinion what are the biggest lessons learnt from NDC that can be applied to future changes as OOSD rolls out?

12. Do you have any closing thoughts for those looking to partner with your business for NDC distribution?

Glossary

API – Application Programming Interface: software that allows two applications to talk to each other.

ADM – Agency Debit Memo

Direct Connect or Direct Connection – NDC connection between the Travel Seller and the airline's NDC API without the use of a third party intermediary.

IATA – International Airline Transport Association

NDC – New Distribution Capability

Full Content Distribution – Contract terms that give the GDS access to all of the airline's available content.

OBT – Online Booking Tool, an online typically browser-based booking and servicing tool used by corporate agency customers to make and manage their travel requests. OBTs differ from leisure booking sites, in that they can be configured according to business rules set for each unique corporation, including their contracted rates, approved travellers and specific corporate travel policies, and also integrate with other systems such as mid/back office and expense management systems.

PoC – Proof of Concept, a technology experiment undertaken to prove technical feasibility.

Screen scraping – In this context, a practice undertaken typically by certain aggregators to 'scrape' fares and content from an airline's website.

TMC – Travel Management Company, a type of Travel Seller whose activity predominantly relates to corporate managed travel.

PNR – Passenger Name Record, the record holding all data related to a trip, including passenger information, itinerary, tickets etc either in the Airline or Travel Agent's legacy system.

OOSD – Offer, Order, Settle, Deliver - The move to Offer-Order-Settle-Deliver will see the end of Passenger Name Records (PNRs), tickets and Electronic Miscellaneous Documents (EMDs) and their replacement by a single retail-style Order.

Order – replaces PNRs in NDC and OOSD. According to IATA, to remove inefficiencies inherited from paper-based processes and facilitate communication between airlines' Order Management, Revenue Accounting, and delivery providers.

Offer - in accordance with IATA (2016), "An offer is a proposal by an airline to a customer for a defined set of products (flights and/or flight related or non-flight related ancillary products) in response to a shopping request received from a seller.

For further analysis and discussion on the Voice of the Travel Seller please listen to our podcast on the subject available here:

Please scan or click the QR code to view

T2RL Travel Technology Research Ltd is an independent sourcing and research company that specializes in airline technology and distribution. Based on data since the year 2000 it has tracked industry trends for airlines as well as their IT providers, distribution partners, and customers. All parties use its research to make informed business decisions to meet current and future needs. For further information, visit our website at **www.t2rl.com.**