T2RL

BETTER INFORMATION FOR
BETTER DECISIONS

NDC IS HERE TO STAY

INTRODUCTION

This report has been produced by T2RL on behalf of Accelya.

The data used in this report are derived from T2RL's extensive experience of working with airlines and vendors on the application of information technology to the real-world challenges of the modern airline industry.

EXECUTIVE SUMMARY

NDC is certainly here to stay. As 2024 progresses we're starting to see the number of NDC bookings increase. American Airlines stated that 80% of its bookings are now being transacted via 'internet based channels.'[1] With around 63% of these coming from web and mobile, this means around 17% of AAs total bookings in 2023 came via its NDC connections. This equates to over 37 million bookings and is by far the largest airline driver of NDC bookings to date.

T2RL estimates that the total market for NDC bookings in 2022 was around 85 million or 3% of the total market with this expected to have grown by over 60% in 2023 and further still in 2024.

So far the uptake of the standard has, generally, been the focus of the larger Tier 1 airlines which have used it predominantly as a negotiation lever to reduce their distribution costs with the GDSs.

These larger airlines have spent the past ten years experimenting with retailing techniques and distribution tactics such as implementing surcharges, incentives and content removal/addition to increase the uptake of NDC bookings. As the standard and their experience in using the standard has evolved these larger airlines have adapted their distribution strategies to focus on using NDC as a revenue driver.

GDS implementations of NDC are gathering pace. T2RL data shows that together the GDSs have signed or implemented over 70 airlines for their NDC content. Non-GDS aggregators are also increasing their reach. These include veteran platforms like TravelFusion as well as newer entrants such as AirGateway and TPConnects.[2]

Top tier airlines have set the pace and established many of the necessary processes, laying the foundations on which other, smaller airlines may build their NDC strategies.

[1] https://www.phocuswire.com/american-airlines-distribution-strategy-fy-2023

[2] T2RL Report : The Travel Distribution Aggregator Market 2023

NDC TO DATE

WHERE ARE WE WITH NDC API IMPLEMENTATIONS?

Airlines from the LCC and hybrid market segments have been exposing APIs to travel sellers for many years but the first network airline to implement an API that looked somewhat like NDC was American Airlines in 2010. Although this first implementation was in production before IATA announced the NDC standard, the concept put in place by AA and Farelogix[3] was a direct ancestor of today's NDC. Fast forward 14 years and the standard has evolved to include almost 50 messages through multiple iterations. The most recent version is 21.3[4] which has been stable for almost three years. With this version it is safe to say that NDC has reached a level of maturity that means it can no longer be considered experimental.

Currently nearly half of the airline market in terms of passengers boarded has implemented an NDC API[5] in some form or another.

However this picture is biased towards the largest airlines. If we look at the airlines in each tier with NDC APIs we see a different picture:

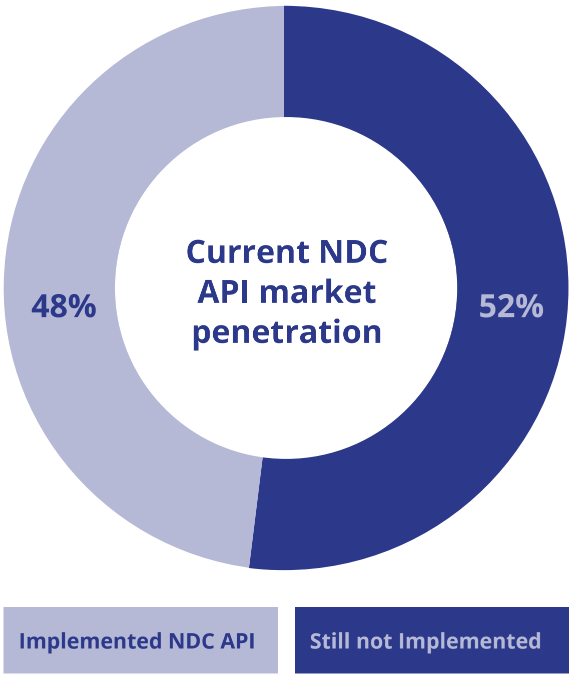


Figure 1: T2RL Current NDC API market penetration

Tier	Number of airlines implemented NDC	Total number of airlines	% of total implemented NDC
1	22	33	67%
2	22	45	49%
3	19	78	24%
4	55	996	6%
Grand Total	**117**	**1152**	**10%**

Figure 2: T2RL Current NDC API market penetration by Airline Tier

[3] Farelogix was acquired by Accelya in 2020

[4] Versions are named for the year of their adoption and a sequence number within that year. The first practicable implementation was 15.2

[5] Based on T2RL total projected passenger data 2023

As detailed above, typically implementations are being led by the larger Tier 1 and 2 airlines. Only 6% of smaller Tier 4 airlines and 24% of Tier 3 airlines have implemented an NDC API.

In general, the larger the airline the more likely it is to have implemented NDC as part of its overall distribution strategy. Some of the airlines in the top tiers are large LCCs which have implemented proprietary APIs to serve the same purpose so are not counted here. If we include them the percentage penetration for Tier 1 and 2 airlines climbs to almost 100%. In tier four there are hundreds of very small airlines for which T2RL may not have complete information but nevertheless it is clear that these small carriers have not yet embraced NDC.

The overwhelming majority of airlines with NDC are Network Carriers that have chosen either to develop their own NDC API in-house or have taken an off-the-shelf product offered by a vendor such as Accelya (which is now the owner of Farelogix). T2RL data show that Accelya processed 57 % of passengers booked via NDC in 2023.

Low Cost Carriers have typically had their own proprietary APIs in place for quite some time, particularly enabling them to connect directly to OTAs in their key markets. As the priority for these airlines is mainly to sell their products on their own website and mobile apps they have not yet seen the value in replacing their proprietary APIs with a more standardised NDC API, although this may change in the future.

Additionally, some regions are more advanced in the NDC journey than others. The Middle East, North America and Europe based airlines are generally leading the way in implementations.

Although market penetration in North America only constitutes 8% of airlines it is worthy of note that two out of the top five airlines in the region have now implemented NDC[6]. Together they fly over a third of passengers in the region. With Delta Air Lines, the second largest North American airline, having just announced its plans to implement NDC in the near future that will rise to well over 50%.

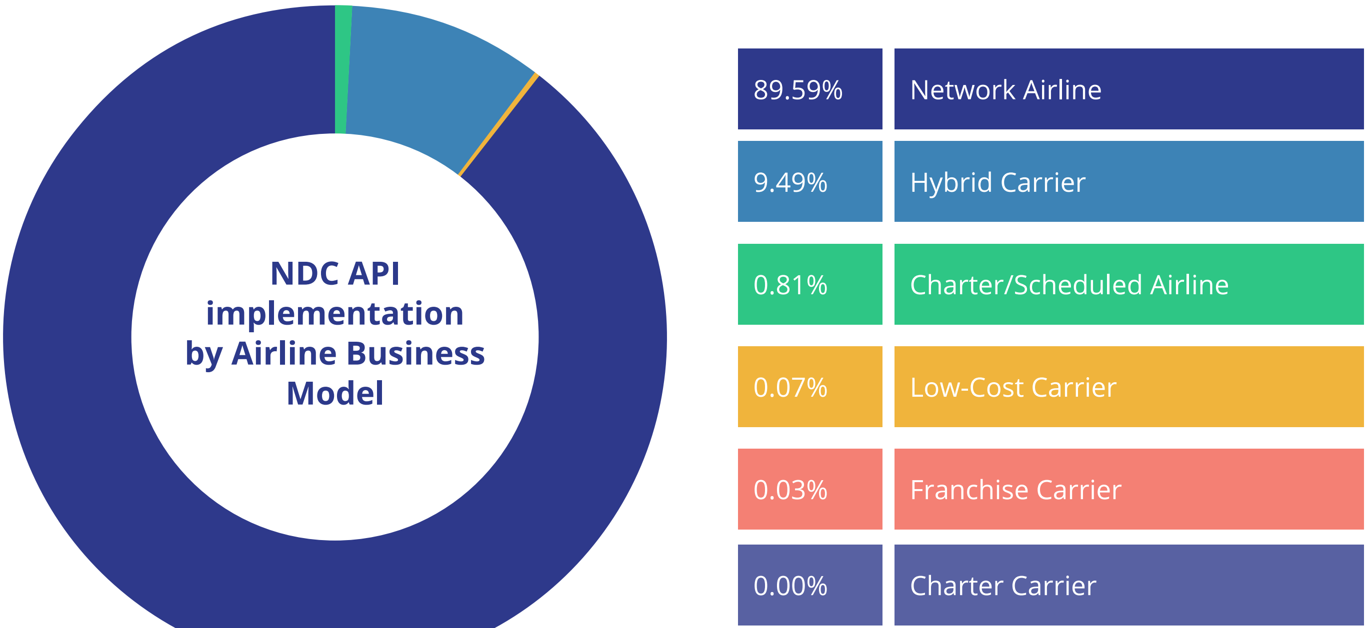


Figure 3: T2RL NDC API implementation by Airline Business Model

[6] During the preparation of this paper Delta Air Lines announced that it had agreed to implement an NDC API supplied by Accelya so this will shortly be 3 out of 5.

	Number of Airline NDC implementations by Region	Total number of Airlines by Region	% of total implemented NDC
Africa	6	163	4%
Asia Pacific	23	321	7%
Europe	51	328	16%
Latin America and Caribbean	17	144	12%
Middle East	9	58	16%
North America	11	138	8%
Grand Total	117	1,152	10%

Figure 4: T2RL NDC API implementation by Region

NDC Volumes

Despite nearly half the market[7] having implemented NDC, we are still seeing low volumes when it comes to actual bookings transacted via this path.

T2RL estimates that in 2022, 2.6% of the total market was transacted via NDC messaging. Given that bookings via intermediaries represent a little under 40% of all airline sales this means that nearly 7% of all indirect bookings made by travel agents used NDC. However this is expected to grow significantly in the next 5 years. T2RL data show that NDC bookings for 2023 grew by around 60% on 2022 and recent data from ARC in the USA show that in that market, at the start of 2024, NDC represented more like 18% of agency bookings[8].

Reasons for the historical low booking volumes have been described in detail below.

[7] Based on passengers boarded

[8] https://www.travelweekly.com/Travel-News/Travel-Technology/ARC-working-group-tackles-NDC-issues

WHAT HAVE BEEN THE STUMBLING BLOCKS?

Reasons for slow uptake of NDC and low NDC transactions to date have been discussed widely but mainly come under the following categories;

AGENCY UPTAKE

Apart from the large Online Travel Agencies (OTAs), travel agencies have been slow to adopt NDC connectivity but this is beginning to change. T2RL conducted research with a range of travel sellers in early 2024.[9] This showed that most of them are open to using the new standards although they have valid concerns about the lack of consistency between airline implementations. With the increase in GDS NDC implementations we should see a natural progression in agency uptake as more NDC content becomes available through travel agencies' traditional booking channels.

DIFFERENT VERSIONS – IS NDC REALLY A STANDARD?

Airlines that have implemented NDC connectivity have used several different versions of the standard. The most frequently used versions are 17.2 and 18.2 with take-up of the current 21.3 version still at low levels. Even with implementations of the same version there is a great deal of inconsistency as different airlines make different choices in the optional and conditional components of the messages.

As the overall market evolves to using 21.3 as 'standard' there are expectations that these inconsistencies will be ironed out.

FUNCTIONALITY NEEDS IN 21.3

Even the most recent version of the standard has not addressed all the functional needs that have been identified by travel sellers. This is likely to be the case for the foreseeable future given that even forty-year-old EDIFACT standards are still subject to minor revisions from time to time.

On the other hand there are also capabilities within the 21.3 standard that are just not possible within legacy EDIFACT messaging, such as auto-refunds. Airlines that have implemented NDC can now benefit from this improved functionality.

RESOURCE / COSTS

Based on conversations with airlines and vendors it appears that NDC implementations are more expensive than simply opening up a vendor's standard API. As airlines evolve their distribution strategies and take advantage of the expected wider retailing capabilities NDC will offer such as true continuous pricing it is expected these costs will become more justified.

[9] T2RL Report: The Voice of the Travel Seller

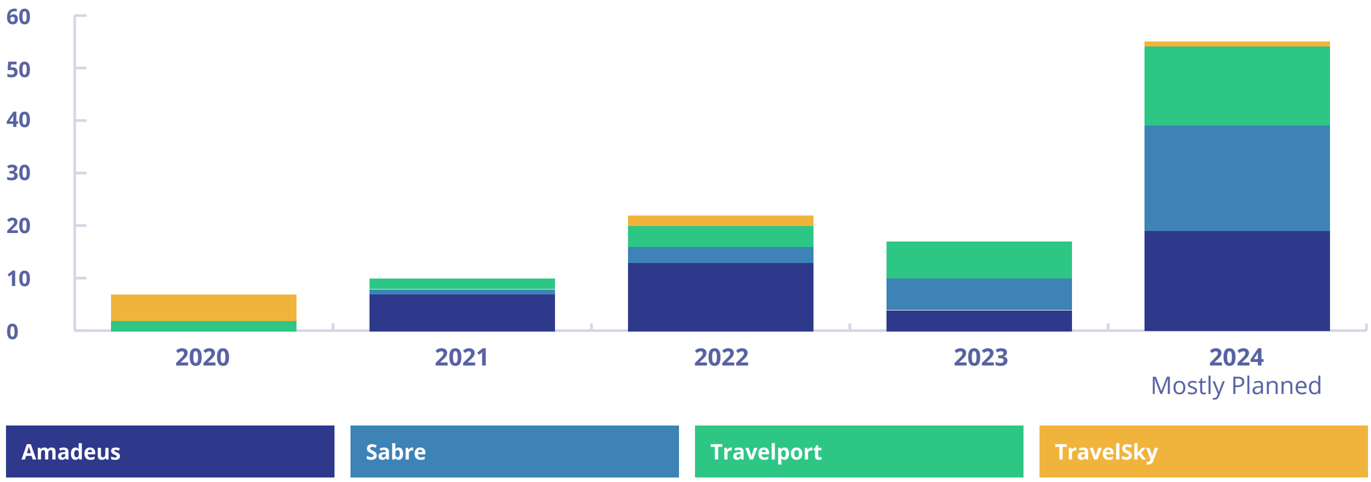


Figure 5: T2RL Number of Airline NDC Implementations by GDS/Year

SLOW GDS IMPLEMENTATIONS

After a few false starts the GDSs are now very much on board when it comes to implementing NDC content. Although the last few years have been mainly about renegotiating distribution contracts to include NDC content, GDS NDC implementations are now well under way. Airlines such as American, Qantas, Singapore Airlines and United are now available to book via NDC in all GDSs. The above graph shows the number of airlines each GDS has implemented and has planned for the rest of 2024.[10]

T2RL believes NDC bookings will increase rapidly once GDS implementations mature and become more standardised.

SCALE

There are still significant questions about the ability of NDC distribution to manage scale. The problem is compounded by many airline implementations returning excessive numbers of offers in response to NDC shopping requests. This puts strain on both the communications networks and the client software that must select offers to put in front of humans, whether travel agency staff or consumers using OTAs/corporate booking tools. Providers and airlines are currently working together to build tools to solve this issue.

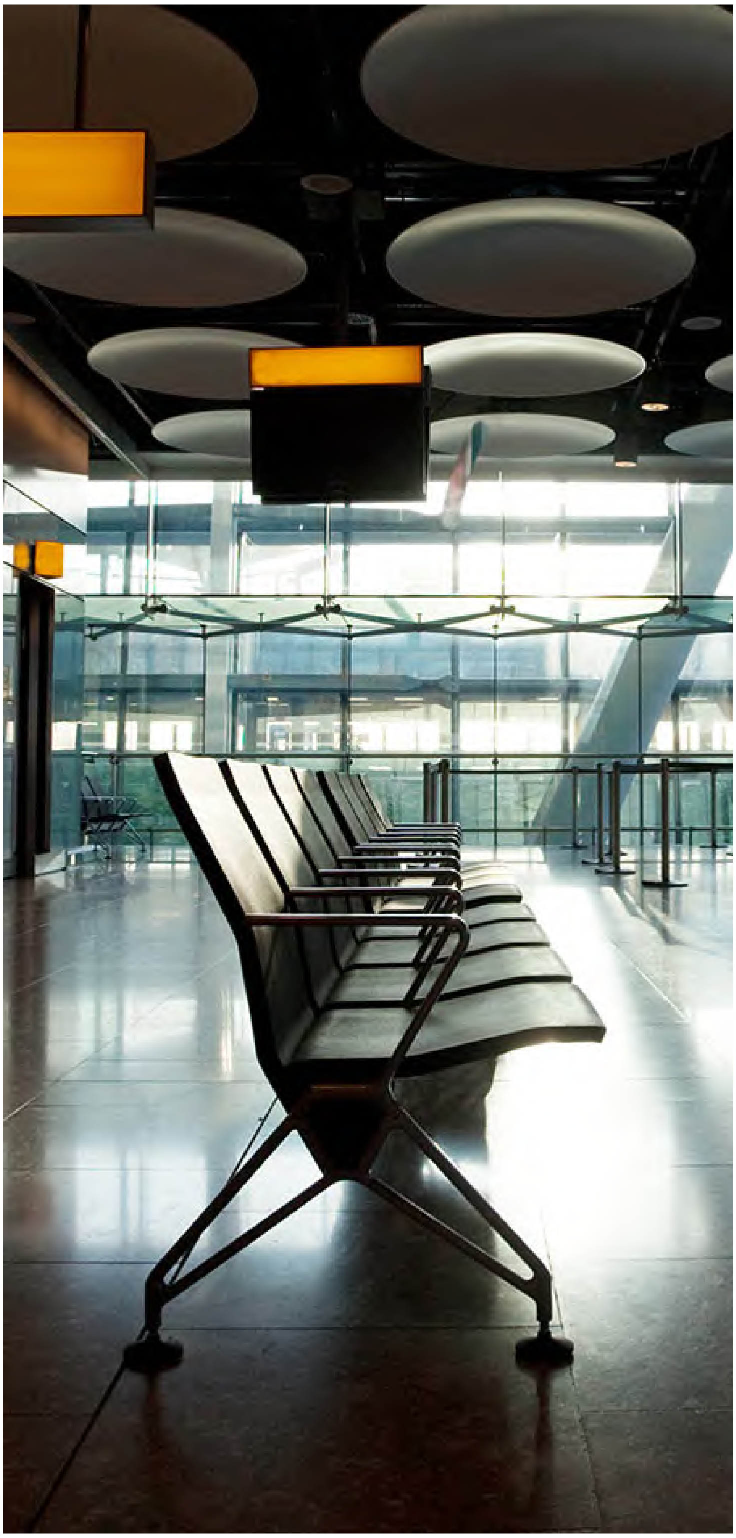
EXPERTISE

As with any new technology introduction there is a need to enhance the skills of the implementers and users. In today's market there is not yet enough expertise in NDC to manage the global rollout, although this is becoming more of a focus for airline organisations as the industry moves towards a more modern retailing environment.

[10] For details on which airlines please contact; enquiries@t2rl.com

WHAT HAS BEEN SUCCESSFUL?

Despite the stumbling blocks listed above, the top-tier airlines that have implemented and supported NDC connectivity have generally stated that their experiences have been positive. An interesting aspect of the market is that there are many variations of strategy and successes have been reported for most of them. These include;



The Lufthansa Group has showed significant distribution cost savings since it began its roll out of NDC in 2015 supported by surcharges on traditional channels.[11]

United Airlines has implemented its own continuous pricing across the board allowing it to sell more price points via its direct and NDC channels than it is able to via legacy EDIFACT technology.[12]

American Airlines has followed an aggressive content-removal strategy which has resulted in 80% of its business moving to so-called "modern" distribution channels.[13]

Qantas has tied in NDC distribution to FFP benefits in the Qantas Distribution Platform.[14]

New aggregators have entered the distribution chain giving airlines leverage in GDS price negotiations.[15]

In 2023 Hawaiian Airlines was able to accelerate its NDC business case by 3 years, adding an additional 11 million USD to its original ROI target. [16]

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[11] https://www.linkedin.com/feed/update/urn:li:activity:7171808452019765249?utm_source=share&utm_medium=member_desktop
[12] https://www.businesstravelnews.com/Distribution/EDIFACT-Move-Clarifies-Impact-of-United-Airlines-Continuous-Pricing-Strategy
[13] https://www.phocuswire.com/american-airlines-distribution-strategy-fy-2023
[14] T2RL Qantas finding value in its NDC investment
[15] T2RL Travel Distribution Aggregator Market 2023
[16] T2RLEngage 2023

WHAT HAVE WE LEARNT SO FAR?

The introduction of NDC in 2012 carried with it many expectations, not all of which have been fulfilled. Possibly the most important learning is that airline commercial and distribution processes are a complex system with many moving parts. The introduction of a new interface standard does not in and of itself change very much. At best it is an enabler that allows airlines to follow their commercial strategies in pursuit of business benefits. "Doing NDC" is just a single step on the road.

This last point is reflected in one of the findings of our research with travel sellers. They report that there has not yet been a significant move towards the breadth of product innovation that was widely expected to be a benefit of NDC. The lesson here is that the NDC interface does not by itself provide airlines with the tools needed to innovate in the market. They also need the back-end merchandising systems needed to construct offers to go into the channel. These may be novel products and bundles, personalised prices, family and group discounts or a range of other offers which cannot be disseminated via traditional channels. Large and sophisticated airlines may deploy and orchestrate multiple solutions for these requirements, bringing them to market via a web site or NDC connection. For smaller airlines with fewer IT resources there is a clear attraction to buying a merchandising platform with the ability to work directly with airline.com or via NDC with a range of travel sellers.

Airlines that have seen successful results from NDC are those which:

Know what they are trying to achieve including some or all of:

- Cost reduction specifically in legacy GDS fees.
- Pricing Flexibility leading to offering more price points for the traveller and subsequently increased sales.
- Product Innovations allowing the airline to easily offer additional products and services through their indirect channels without the constraints brought by legacy technology.
- Improved customer satisfaction offering better products and solutions to meet customer needs and requirements.

Have a well thought out 'LONG-TERM' distribution strategy with;

- Clearly defined objectives
- Supported by appropriate technology
- With due regard to the role of intermediaries
- Within constraints created by existing contracts

This last consideration has probably received insufficient attention but this is beginning to change as illustrated by the T2RL report "Voice of the Travel Seller". All these points should eventually lead to the airline improving its bottom line.

[17] T2RL: The Voice of the Travel Seller 2024

An important part of the distribution strategy is to determine the approach to connectivity with travel sellers. Early NDC implementations have been largely based on direct connections, including via non-GDS NDC aggregators. This will remain important for large airlines dealing with travel sellers responsible for a significant proportion of their volume. Over time the costs and resource requirements for implementing direct connections are coming down. This means that large airlines will be able to justify connecting to a wider range of travel sellers and even quite small airlines will be able to use a direct connect approach with their most important agents. Nevertheless there will probably always be a long tail of relationships for which the volumes are just too small to justify a dedicated connection. For these relationships aggregators including the GDSs will continue to be important.

This graph shows a typical distribution of travel agencies doing business with an airline. The horizontal axis shows the percentage of agents in each category while the vertical axis shows the proportion of the airline's business done by those agents. In this case it shows that 50% of the airline's indirect bookings are made by 5% of travel agencies while 50% of the agencies together account for only 1% of the business. The exact numerical values will vary from one airline to the next but the shape of the curve will be consistent. The heavy horizontal line illustrates the division between those agents that justify a direct connect and those that should be reached via an aggregator.

The position of the line will shift according to the size of the airline and the amount of indirect business it does. For larger airlines the line will move further down and for smaller ones it will shift further up. A further factor in play is the experience of the industry in implementing NDC. As NDC becomes more standardised over time, and all parties (airlines, agencies and technology providers) gain more experience, the line will move down for all airlines.

Whether the GDSs become the most important aggregators of NDC content, as they no doubt intend, or the specialist new platforms dominate remains to be seen. The GDSs have the current reach and travel agency relationships but the new players have more agile technology and processes. It will be an interesting battle.

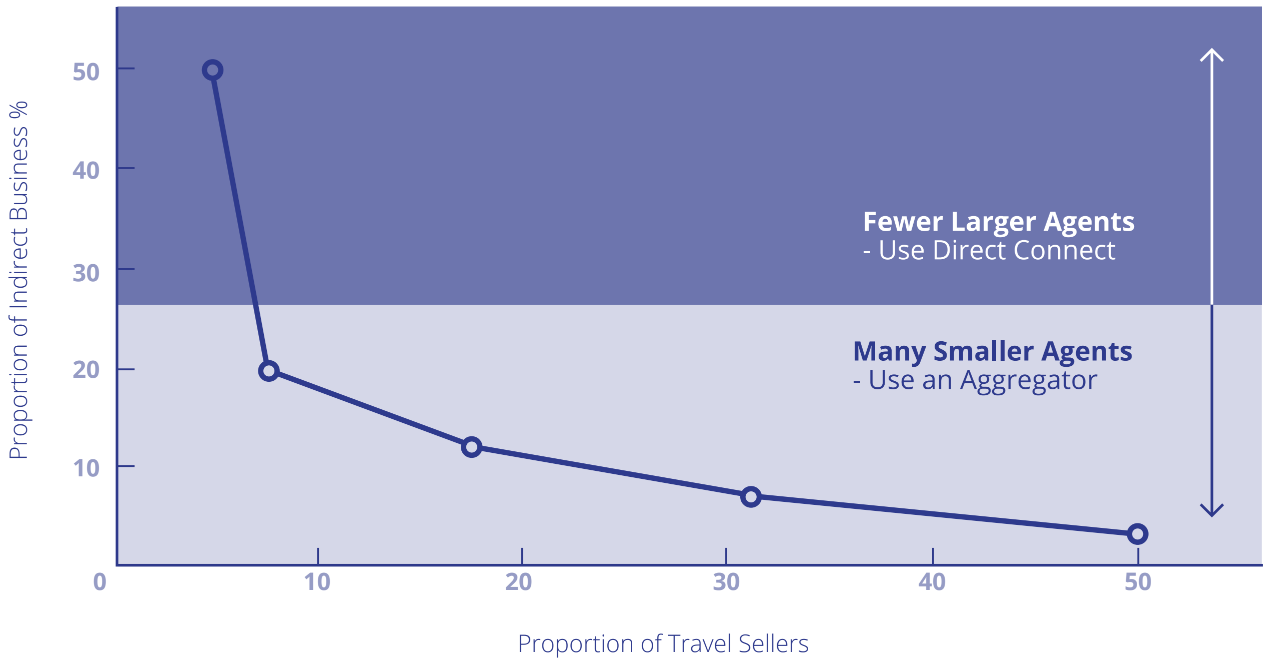

Figure 6: Travel agency distribution according to importance

WHAT ARE THE NEXT STEPS?

As we note above the largest airlines have gradually deployed their NDC strategies and volumes are beginning to be significant. The next step for the industry is to extend the use of NDC to smaller and medium sized carriers. These airlines do not have the depth of resource of their top-tier competitors however, luckily, they do not need to start from scratch. They can now benefit from the advancements that have been made in this area during the last ten years.

A standardised approach is the only one that makes sense. This may seem like a strange statement since NDC itself is supposedly a standard, but the fact is that like many innovations it has taken time to settle down to the point where it is consistent across the board.

Version 21.3 of the NDC standard has addressed most of the gaps in earlier iterations and may now be considered a usable common platform. There is still too much scope for variation in implementation but this is gradually being addressed. In this the role of the GDSs and large aggregators will be critical. Direct connections will continue to be important for the biggest airlines and the biggest travel sellers but the ability to reach hundreds of airlines and hundreds of thousands of sellers requires large-scale aggregation. GDSs are not the only aggregators but they are the ones that have the reach in today's world. A standard Amadeus, Sabre or Travelport configuration would allow NDC connectivity to become more or less plug and play – as its originators envisaged.

The suppliers of the NDC API would welcome this level of standardisation as it would enable them to reduce their own implementation costs and hence make NDC more accessible to smaller airlines.

For a tier 3 or 4 airline contemplating the introduction of NDC the steps to be followed are:

- Define a strategy
  - What are the objectives?
  - Involve all stakeholders inside and outside the airline
    - This is not something the distribution department can or should do alone
  - Consider organisational and process issues before defining technology
- Build a business case
  - Define the costs and benefits
  - Define a time scale
- Assess the market for suitable solutions that suit your strategy
  - Only when strategy, process and organisation are settled go to market for technology solutions

Innovation proceeds far more effectively when objectives are clearly defined and widely shared. With good strategy and processes in place implementing technology from an experienced vendor is the final piece of the puzzle.

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.