

T2RL'S INDUSTRY OUTLOOK JANUARY 2023

Transition to Normality

COVID IS NOW JUST ONE CHALLENGE AMONGST MANY

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INTRODUCTION

During the Covid-19 Pandemic T2RL tracked its impact and the steps to recovery. As we enter 2023 the industry is regaining some sort of normality and while Covid has certainly not gone away it is no longer the dominant issue for many airlines. We plan to continue with this bi-yearly report but to broaden its scope to take in the issues of political unrest, economic challenges and the drive towards sustainability that will be exercising the minds of airline executives during 2023 and beyond.

T2RL'S SUMMARY

The Covid-19 pandemic still has more shocks in store as recent events in China have shown. After almost three years of a rigorous zero-Covid policy China abandoned almost all its restrictions during December 2022, including the ban on Chinese citizens travelling overseas. While it is too early to estimate the full impact of this drastic change some expert analysis estimates that there are currently 9,000 Covid deaths per day in the country and that this number may rise to 25,000 per day before the end of January.¹ As a result many countries, including the United States have introduced or reintroduced mandatory Covid-19 testing for passengers arriving from China. This will obviously have an impact on the rate of traffic recovery in 2023.

T2RL subscribers can follow the development of traffic recovery at our dedicated COVID-19 pages. https://www.t2rl.net/airline/covid19traffic

Away from the pandemic other trends and events are making an impact on the prospects of the airline industry. The war in Ukraine which began almost a year ago continues to impact fuel prices and the availability of some air routes. The climate emergency is causing more extreme weather events such as the one seen in the USA and Canada over the Christmas holiday. There will be both short and long-term impacts from this and similar events.

For technology provision, the trends in external events should be putting a premium on flexibility and robustness at the expense of the final degree of efficiency in normal operation. This applies both to the technology itself and to the contractual provisions governing it. Efficiency remains important but management and recovery from disruption is increasingly even more significant.

¹ https://www.theguardian.com/world/2022/dec/30/china-covid-experts-estimate-9000-deaths-a-day-as-us-says-it-may-sample-wastewater-from-planes

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COVID-19

The world's airlines are gradually recovering the passengers that they lost during the Covid pandemic. IATA and the World Economic Forum expect the industry to return to profitability in 2023, partly due to recovering volumes and partly to higher average fares around the world. T2RL's own projections suggest that passenger numbers will recover to 2019 levels some time in 2024. This is only a partial measure for the recovery as different market segments are returning at different rates. Leisure, VFR and SME travel are all coming back strongly but the corporate sector is not expected to reach 2019 volumes for a further two years. Prior to 2020 airline passenger numbers had been growing at a rate of around 7% per year since 2012. To reach the traffic level that would have been expected had there been no pandemic will take until 2026 even if the current rapid growth rate is maintained. While this may seem a hypothetical concern, many airlines' fleet and network plans will have been predicated on the earlier growth rates. Getting back to the long-term growth trend will be very important to many carriers.

The airlines that have survived the pandemic so far have already taken short-term measures for operational continuity. By necessity these included significant staff lay-offs so airline management needs to apply itself to the challenges of growth in an era with fewer staff available. This was shown in the European summer of 2022 when airlines and airports alike proved to be massively under-resourced to cope with resurgent demand.²

Part of the reason for the increase in demand in 2022 was the lifting of travel restrictions in most regions of the world. Countries such as Australia and New Zealand which applied very stringent controls through 2020 and 2021 have been rewarded with per capita Covid death rates around five times lower than the USA and four times lower than the European Union³ Although there was a small uplift in Covid cases and deaths after restrictions were lifted during 2022 there was no surge, probably due to successful vaccination programs in both countries during the period of isolation. This contrasts significantly with the situation in China which followed an aggressive zero-Covid policy until political unrest led to a rapid lifting of restrictions in December 2022. This included the announcement that the ban on overseas travel for Chinese citizens would be scrapped from January 8th 2023. At the time of writing it appears that Covid cases and fatalities are rising rapidly in China and several countries have announced that they will implement mandatory testing for passengers arriving from the country. Press reports suggest that China's vaccines have not been as successful as those used in the West and it seems likely that there will be a significant surge.

When considering technology investment driven by the pandemic, airlines will have to do more with fewer people for the next several years. This means more self-service, both in the selling chain and at the airport. The process has already started but should be accelerated. Operational systems such as crew scheduling and flight operations also need to be kept fit for purpose to support a level of flexibility which has increased and is unlikely to decline in the near future.



² https://www.forbes.com/sites/tedreed/2022/07/14/how-europes-airports-became-choke-points-for-summer-travel/?sh=62f799f73415 ³ All pandemic statistics taken from ft.com

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WAR IN EUROPE

The Russian invasion of Ukraine in February 2022 has created large-scale disruption that extends beyond the borders of the countries most directly affected. Severe economic sanctions imposed by most western countries have led to a near complete shutdown of flights between Russia and the rest of the world, the closure of Russian airspace to foreign airlines and a spike in the price of oil. Of these effects the oil price rise had the most widespread immediate effects although the closure of routes across Russia has a severe impact on long haul flights to and from Asia Pacific.

Inevitably the world has adapted to the realities of the situation. The price of jet fuel peaked at around \$175 per barrel in April 2022 but by December had fallen back to \$115. This is only marginally higher than the price immediately before the invasion.⁴ Airlines have revived routes that were used in the 1980s to fly between Europe and Asia. Although this adds significantly to flight times compared to those across Russian airspace the longer range of modern wide body aircraft means that it is operationally sustainable without the need to find intermediary stops.

From a technology perspective the biggest impact has been the forced migration of five large Russian airlines to PSS providers in Russia and away from Western vendors. This represents a loss to Sabre of 32 million passengers boarded and to Amadeus of 27 million. The beneficiaries are Sirena-Travel which picked up 41 million PBs and ORS which gained the 18 million from S7 Airlines. All these migrations took place in October 2022 and appear to have gone without major incident although the real test may come when the airlines are able to return to a full international network.

For other airlines that are not directly impacted by sanctions or airspace closures, the war and its knock-on effects have again emphasised the need for flexibility. By now traditional revenue management and pricing systems that base their forecasts on past year performance are almost worthless. Newer generations of systems that use AI and machine learning to calculate demand based on large amounts of diffuse data give airlines that adopt them a clear competitive advantage.



⁴ https://www.iata.org/en/publications/economics/fuel-monitor/

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THE DRIVE FOR SUSTAINABILITY

After decades of controversy there is finally a global consensus that the climate crisis is real and that its effects will be severe, widespread and long-lasting. Airlines are both contributing to the crisis and victims of it.

The most immediate effect of the crisis is a rapid increase in the number of severe weather events across the world. At the time of writing North America is recovering from an extreme cold-weather event. This resulted from disruption of wind patterns caused by the overall rising world temperatures. Air that would normally remain in the Arctic plunged southwards while in the Eastern hemisphere hot air from Africa was dragged over Europe, causing record high temperatures in December and January. Airlines' systems and processes have been designed over decades to operate within an expected range of weather conditions. When conditions go outside expectations it puts strain on the ability of carriers to operate. Most recently we have seen Southwest Airlines network in a state of near collapse for several days because its systems were unable to cope with the disruption caused by the severe cold weather. While Southwest's management will have to review the event and take action other airlines should not assume that they are invulnerable to similar issues in the future.

From a technology perspective the lessons must be around flexibility and robustness of operation. For decades the mantra of "Just in Time" has dominated thinking about supply chains and logistics. The Covid-19 pandemic highlighted the vulnerability inherent in such an approach following a sharp change in the external environment. Something similar is likely to occur in the face of climate change. Even at the cost of slightly reduced profitability airlines need to improve the robustness of their networks with more reserves and better ability to replan at short notice. This means keeping systems such as flight planning and crew allocation fit for purpose in a changing world. Modern developments in AI and machine learning will be critically important in this and in the business of reaccommodation of passengers following disruption events.

In the longer term there will be even more impact on the airline industry from its role as a contributor to climate change. The best available estimates are that aviation contributes around 2.5% of global greenhouse gas emissions. While this means that there are bigger targets for reduction, the extreme visibility of aviation means that it will come under severe pressure to reduce emissions in the very near future. IATA airlines have committed to net-zero emissions by 2050 but this target is likely to prove simultaneously inadequate and far enough away that meaningful action will be avoided for a while longer. Short-haul flying may be amenable to conversion to electric aircraft but on the scale of a couple of decades there is no real alternative to liquid combustible fuel for larger and longer-distance aircraft. This means that the drive for sustainable aviation fuel (SAF) is critical to the future of the industry.⁵ In 2022 SAF accounted for only around 0.1% of world aviation fuel but this already represented a tenfold increase in three years. Investments are being made⁶ and it is likely that governments will set mandatory targets that further spur the development. Even before such targets take effect airlines may find themselves competing in the marketplace on grounds of sustainability. This is already evident in markets such as Scandinavia where environmental concerns have traditionally been higher on the agenda than in other developed regions.

The changes that are needed will predominantly come on the operational side of the business. They will affect systems such as MRO – engine technology will necessarily change at least a little. Fleet planning, flight planning and ground operations will all be impacted. Commercial systems such as pricing and distribution will need to adapt to new requirements, especially if governments impose differential tax regimes on sustainable versus fossil fuel. Aviation fuel has traditionally avoided most of the tax burden placed on other petroleum products but there is no guarantee this will continue. As with many of the macro trends that will impact the industry the watchwords must be flexibility and adaptability.

⁵ https://www.ainonline.com/aviation-news/air-transport/2022-12-15/saf-production-proliferates-aviation-has-long-way-go ⁶ https://www.scientificamerican.com/article/cleaner-jet-fuel-is-poised-for-takeoff/

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ADDITIONAL CONSIDERATIONS

As well as the major issues explored above there are many other externalities that could impact the airline industry over the coming years.

DEMAND FOR TRAVEL

As noted above, demand for travel remains very strong. Despite the understandable reluctance of corporate travellers – or their employers – to get back into the saddle, leisure and VFR demand is as high as ever. Airlines that have traditionally been highly reliant on the corporate sector need to adjust their thinking to address how they will be profitable with a different mix of customers.

ECONOMIC IMPACTS

Both Covid-19 and the war in Ukraine have had economic impacts that are likely to extend beyond their active stages. A substantial reconfiguration of the market for energy is already taking place with European countries especially scrambling to reduce their dependence on Russian resources. This is driving inflation in most markets which increases airline costs and the subsequent fare increases impact demand. The world's economy is liable to remain volatile for many years.

OTHER CONFLICTS

Ukraine is far from the only site of armed conflict in the world. The International Red Cross is currently tracking more than 100 armed conflicts. Ukraine dominates western news coverage because it is located in Europe and involves a major power. In Africa there are several active conflicts including a major civil war in Ethiopia which has killed thousands and spilled over into neighbouring countries.⁷ In the Middle East the perennial conflict between Palestinians and Israel shows no signs of resolution, while the situation in the Korean peninsula remains tense. All of these could pale into insignificance if China were to take military action against Taiwan. Conflict there could impact air transport across the whole Pacific region.

PANDEMICS AND EPIDEMICS

The Covid-19 pandemic may be in its end-game but it will not be the last to impact the world. Following initiatives taken during Covid, discussions are now taking place involving IATA and the WHO about the introduction of a "Travel Health Code".⁹ The exact form this will take is still unclear but if it happens it is almost certain that airlines will be required to administer it.

DATA PROTECTION

There are conflicting trends affecting the management of personal and other data that will impact airlines. On the one hand initiatives such as the European Union's GDPR set significant limits of how personal data may be acquired and stored. Other jurisdictions in the world are either adopting GDPR or creating their own versions. On the other hand those same governments are also demanding more information from airlines especially about passengers crossing national and supranational borders.¹⁰ Achieving a balance between these potentially conflicting requirements will require attention from a high level policy perspective, but just as significantly at the nuts and bolts level of IT implementations.

⁷ https://www.icrc.org/en/document/humanitarian-crises-world-cant-ignore-2023

- ⁸ https://www.bbc.co.uk/news/world-africa-63384278
- ⁹ https://www.bangkokpost.com/business/2461732/iata-calls-for-adoption-of-travel-health-code

¹⁰ https://www.theregister.com/2022/12/20/europe_plans_to_standardize_passenger/?utm_source=daily&utm_ medium=newsletter&utm_content=article

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RECOMMENDATIONS FOR AIRLINE IT AND DISTRIBUTION

The world is a volatile place and is very unlikely to become less so. IT solutions adopted by airlines must be designed to support their business across the range of scenarios that can be reasonably forecast and have the flexibility to adapt to challenges that cannot.

Flexibility and robustness are the watchwords both in the actual technology deployed and in the contractual terms governing their deployment. Features that are common to all deployed systems include scalability, connectivity, interoperability, use of large data sets and machine learning. In the era of cloud deployment systems should scale linearly. Contract terms that allow vendors to lock in airlines with onerous charges for connection to other systems should be resisted strongly.

Events of the last two or three years have shown that airlines have to be able to do more with less. Optimisations, whether of pricing or of fleet deployment, that may once have occurred on a time scale of weeks or months must now take place in hours or minutes. Advances in algorithms are moving from academia to deployment more rapidly than ever. It is likely that small and start-up vendors will be at the cutting edge of development but may not have the depth of resource to support major airline operations. This is why interoperability is so crucial.

The adoption of API-mediated distribution, primarily NDC, brings benefits in terms of flexibility. Great efforts have gone into improving the capabilities of the standard and some large airlines now state that their ability to manage disruption is much improved using NDC compared to using older standards. NDC also allows more effective exploitation of opportunities around ancillary sales and dynamic pricing. Flexibility comes with a cost however and airlines need to invest in their technology stack (especially offer management) in order to achieve the performance of the older technologies. Some airlines and vendors have made progress in this area, but it still needs work by individual airlines, their technology providers and by like-minded groups within the industry.

Overall it is essential that IT management and especially IT procurement is not treated as an isolated function. Considerations such as those discussed above have a direct bearing on the technology required to secure the airline's future. CIOs and their staff should be thinking about them whenever they go to market.

This paper is discussed in our T2RL Talks Podcast which is available wherever you get your podcasts.



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T2RL Travel Technology Research Ltd. is an independent sourcing and research company that specialises in airline technology and distribution. 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.

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