T2RL®

Challenges to Growth

Business Almost as Usual

T2RL's Industry Outlook

January 2025

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Introduction

This is T2RL's annual assessment of the outlook for the airline industry with particular emphasis on information technology. The establishment of this report was a response to the crisis brought on by the Covid 19 pandemic but it is increasingly clear that there are many other strategic challenges that impact airlines' business plans and the technology they adopt.

T2RL's Summary

In 2025, the airline industry will navigate a complex environment of post-pandemic recovery, sustainability mandates, and geopolitical risks. Airlines that can adapt to sustainability pressures, exploit technological advancements, and build financial resilience may thrive. However, the pace of recovery and growth will vary by region, airline business model and airline size. Low Cost and Hybrid carriers and those in emerging markets are likely to show stronger growth than Network carriers in mature markets.

Geopolitical upheaval has continued through 2024. The war in Ukraine and the multi-front military action by Israel are both in full spate at the time of writing. Other potential flashpoints such as the Korean peninsula and Taiwan have mercifully not ignited during the year although the number of current armed conflicts remains at a record high. The most significant geopolitical change however may yet prove to be the United States presidential election result. President-elect Donald Trump has indicated that he intends to make sweeping changes to most aspects of US policy. These include international diplomacy, trade and energy policies. Any or all of these could have a material effect on the world's airlines as 2025 plays out.

Covid 19 Recovery

Many measures introduced during the COVID-19 pandemic have transitioned into permanent or semi-permanent practices across industries. While some have been relaxed due to the success of vaccines and a measure of herd immunity, others remain in place as safeguards for public health, reflecting lessons learned and a greater awareness of global health risks. The biggest risk may be the very success of the suppression of Covid 19 by mass vaccination which in many quarters has led to complacency. This is most evident in a growing anti-vaccination sentiment. Although anti-vax movements are found across the world the most concerning is probably that in the USA where the incoming administration is threatening to end all vaccination programs, including those that had virtually wiped out diseases such as measles and polio. Airlines, airports and governments would do well to keep their pandemic-preparedness plans readily available and under regular review.

The recovery of global passenger traffic to pre-Covid levels is essentially complete. T2RL projections show that 4.82 billion passengers will have been boarded by the world's airlines by the end of 2024. This is 4% up on the last pre-pandemic year in 2019. However an industry that was growing at 6-7% per year before Covid has lost around 10 billion revenue passenger segments over five years. Using a conservative estimate of $200 per passenger segment, that represents two trillion dollars lost revenue. This is revenue that would have improved profitability, contributing to fleet renewal, human resources and technology as well as providing returns to investors. The collective knock-on impact to technology vendors was at least 10 billion dollars shortfall on revenue expectations.

In its half year assessment in June, IATA forecast an industry-wide net profit of $30.5Bn which equates to a net margin of 3.1%[1]. While this reflects a measure of recovery after the losses in 2020 and 2021and the marginal profits in 2023, it is still a long way from robust financial health. Several more years of improved margins will be needed before the industry is considered financially stable. Many airlines survived the pandemic by a combination of government support and borrowing at very low interest rates. Both those lifelines have now diminished. Most specific support programs have been withdrawn and central bank interest rates remain at around 5%.

[1] IATA Global Outlook for Air Transport June 2024

Military Conflict

The war in Ukraine recently marked 1000 days since the invasion in February 2022. It has settled into slow-moving war of attrition with little movement of the front lines since the Ukrainian incursion into the Kursk oblast in August. As 2024 came to a close several strategic changes were observed including the arrival of North Korean troops on the side of Russia and the relaxation of some restrictions on Ukraine's use of western long-range missiles. A potentially more significant change will occur at the beginning of 2025 as the new administration takes office in the USA. President-elect Trump has said that he would end the war immediately although it is not clear how that would happen. The most likely approach would be to end military aid to Ukraine, forcing it to negotiate a settlement from a severely weakened position.

For the time being at least economic sanctions on Russia and its small number of allies will probably continue unless of course, Trump can make the removal of sanctions part of US brokered peace-deal between Russia and Ukraine. These sanctions have made an impact on the Russian economy but appear far from causing a complete collapse. Russian airlines are excluded from many international routes and have switched to providing mostly domestic services with notable exceptions such as UAE, Thailand, China and India. Russia is one very few countries whose air traffic has not recovered to pre-pandemic levels. T2RL's projection shows passenger numbers around 15% down on 2019 but, despite sanctions for most of the Western World, around 9% up on 2023. Some western airlines have felt the impact of sanctions as they have lost overflight rights to Russian airspace. This has had particular impact on routes between Europe and east Asia. Airlines such as British Airways and Virgin Atlantic are withdrawing from routes to China in the face of competition from Chinese carriers which do not face the same restrictions.

Within Russia the process of switching airline technology services to local providers and excluding western ones is more or less complete. The western provider hardest hit by this change is undoubtedly Sabre but few major vendors have been completely untouched. Whatever the resolution of the military conflict it is likely to be many years before western providers are able to compete for business in Russia.

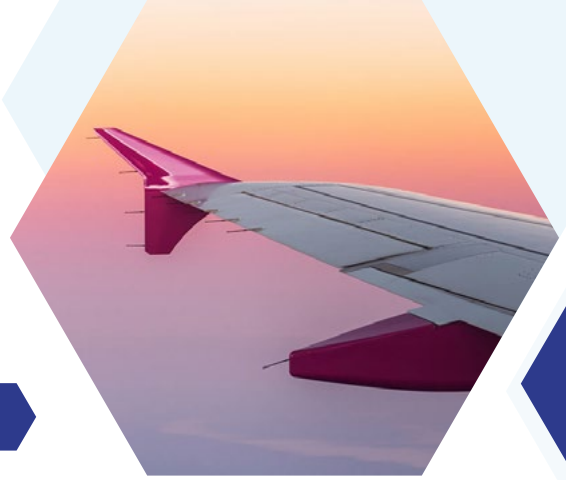
Ukraine is far from the only site of armed conflict in the world. The International Red Cross continues to track more than 110 armed conflicts. Ukraine dominates western news coverage because it is located in Europe and involves a major power. In Africa there are several active conflicts including civil wars in Sudan, Somalia and the Democratic Republic of Congo[2]. Conflict in Yemen is continuing. This has led to restrictions in surface shipping in the Red Sea and a higher level of vigilance for airlines overflying the region. Tension remains high in the Korean peninsula and may be ratchetted higher by North Korea's deployment of troops to aid Russia. In terms of news coverage all of these have been dwarfed by the upsurge in violence between Israel and Palestine which has dominated the airwaves and the internet since the Hamas attacks on October 7th 2023. Israel's subsequent retribution, which now extends into Lebanon, has drawn retaliation from Iran and most recently direct strikes on Iranian territory by Israel. While current events are tragic enough, a full regional conflict between Israel and Iran would be substantially more significant and certainly disruptive to all transport, including air, in the region and more widely.

Every military conflict sets problems for the airline industry. Some lead to closure of airports and airspace while others drastically reduce demand for flights into the affected areas. Set against the real human suffering caused by war these are definitely "first world problems" but they are problems nonetheless and airline management must deal with them.

The Drive for Sustainability

The airline industry has adopted a target to be carbon neutral by 2050. At present there does not seem to be a clear route to achieving this. Although progress has been made on many fronts the overwhelming contribution to carbon emissions from the airline industry is the burning of fossil jet fuel. Unless substantial reductions are made there, other initiatives such as electric tugs and running buildings on renewable electricity will count for little.

[2] https://www.bbc.co.uk/news/world-africa-63384278



Sustainable Aviation Fuel (SAF) continues to be a key focus. Airlines including American and United are investing in SAF. Startups such as Metafuels are developing processes to produce synthetic kerosene using renewable electricity and captured CO2, which could make SAF more affordable and scalable in the future. However the most recent update from IATA in June 2024[3] indicates that 2024 will see SAF production amounting to only 0.5% of the world's requirement. The report goes on to say that even if all current renewable fuel projects deliver on their projections, production in 2030 will be less than 20% of airlines' needs. There is an urgent requirement for more investment and probably for government intervention. Differential taxation between fossil hydrocarbons and sustainable ones would be a useful lever but this would require aviation fuel to be brought into taxation in the first place.

Other technological solutions will probably need more time to make a material contribution. Various companies including Airbus are working on hydrogen powered aircraft but technology including lightweight cryogenic hydrogen tanks and liquid hydrogen pumps will require extensive development and investment, even assuming hydrogen-burning engines become readily available. Hybrid and electric propulsion systems may offer some opportunities for short-haul flights but their commercial adoption will not occur in the next few years.

In the short term airlines will be able to make marginal reductions in emissions by updating their fleets to more modern fuel-efficient types, adopting more efficient routings and optimising flight operations. There is value in all these measures but the only way to make a real difference is to move away from burning fossil hydrocarbons.

Much will depend on the regulatory environment. At the time of writing the COP29 climate summit has just concluded in Azerbaijan. The conference was characterised by strong disagreement between developed and developing nations about the level of financial support the latter will provide to the former to mitigate the effects of climate change. The eventual agreement to set the bar at $300 billion per year by 2035 was greeted with dismay by many smaller nations which consider it to be totally inadequate.

[3] SAF Production to Triple in 2024 but More Opportunities for Diversification Needed

Hanging over all the political considerations is the imminent change of the US administration. President-elect Trump is on record as considering climate change to be “a hoax” and pledging to dramatically increase fossil fuel production while withdrawing from the COP process. This could set back the achievement of sustainability in the airline and other industries by years or even decades.

Airlines are not just sources of climate change but also its victims. Severe weather events have increased in frequency over recent years. 2024 has seen two major hurricanes in the southern USA, Typhoon Yagi bringing widespread destruction to the Philippines and IndoChina, and the “Gota Fria” flooding event that brought devastation to Eastern Spain. Many other lower-level events were recorded as 2024 was set to be the hottest year on record, breaking through the 1.5°C rise has been the target for mitigation efforts for several years

These and other extreme weather events posed severe operational challenges for airlines in most regions of the world.

For airline managers and technology suppliers the message has not really changed. Extreme weather is inherently disruptive. 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.

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.

Fuel Price

Even before the widespread uptake of SAF the cost of aviation fuel accounts for between 19% and 40% of an airline's total operating costs. Over the course of 2024 the average price of jet fuel has gradually fallen. On a superficial analysis it appears that the upheavals of the last five years have gradually worked through the system. The Covid 19 pandemic drove demand and hence price to a historic low. After a period of gradual recovery the invasion of Ukraine caused a spike to historic highs in 2022. Since then there has been a downward trend with the result that at the end of 2024 jet fuel prices are broadly back to where they were before Covid. At the time of writing a barrel of aviation fuel costs around $89 while the crack spread[4] has come down by almost 50% since this time last year to $16.

Fuel is by far the biggest variable cost involved in operating a flight. Indications are that SAF will be significantly more expensive than fossil fuel in the medium term at least. The balance between fuel cost and revenue is absolutely critical in determining flight profitability. Airlines that have not already done so need to invest in analytics tools to enable them to model the impact of volatile markets.

Demand for Travel

Demand for travel remains very strong but the very high fare levels seen in 2023 have come down from their peak, indicating a slight change in the balance between available capacity and customer demand. In the middle of the year global average fares were around 25% lower than their 2023 levels but that gap has closed into the third quarter and at the start of November fares were slightly higher than the equivalent week in 2023[5]. Amex GBT's annual fares trend forecast calls for modest fare increases in 2025 except in Australia where economy fares are expected to rise by 8% and business class by 14%[6]. The airline industry has a track record of adding capacity in times of strong demand, creating downward pressure on pricing. As more airlines adopt dynamic pricing solutions they should be able to better manage the matching of supply and demand. It is not yet clear whether this will moderate their inclination to increase capacity more than is justified by solid demand.

[4] The difference between the price of crude oil and refined aviation fuel.

[5] Airline pricing trend data from OAG

[6] Amex GBT Projects 'Modest' 2025 Airfare Increases

Economic Impacts

Interest rates remain high around the world compared to pre-Covid years. Recent indications from the UK Bank of England and the US Federal Reserve are that they will not fall very rapidly. This will have an impact on airlines' ability to finance investment and in some extreme cases threaten the survival of carriers that are on the edge. In November one of the largest LCCs in the Americas, Spirit Airlines, filed for Chapter 11 protection. An extended period of high interest rates may put others at risk.

As with many other factors the incoming US administration will be critical in determining the future macro-economic environment. The stated intention to impose tariffs on all imported goods will have a significant impact on consumer demand and airline costs. Airlines based in the USA and those operating to the USA should be scenario planning now to determine how they will attempt to mitigate the impacts.

Pandemics and Epidemics

At the time of writing Canada and the USA are seeing a small but worrying incidence of H5 influenza. So far it is mostly confined to poultry and cattle but there have been several cases in humans[7]. The appointment of an avowed vaccine sceptic Health Secretary by the incoming administration will severely hamper the USA's ability to contain any significant outbreak that may occur. IATA and the WHO appear to have backed away from the proposed introduction of a "Travel Health Code" so it will be incumbent on individual governments and airlines to closely monitor the threat posed by influenza and other infectious diseases.

Data Protection

Data protection and customer confidentiality remain hot issues for regulators, especially those in the European Union. In August this year Uber was fined €290 million by the Netherlands for breaches of regulations on cross-border data transfers. International airlines routinely move customer and employee data across borders and it is critical that any new technologies they adopt (like Offer and Order Management) are scrupulously compliant with applicable regulation. Such compliance must be included in contracts with technology providers as new systems are introduced.

[7] CDC: H5 Bird Flu: Current Situation

Recommendations for Airline IT and Distribution

T2RL is familiar with generic recommendations for IT management and investment that are made by consultants and analysts. What many of them fail to understand is that most of the big-ticket items in an airline's technology portfolio are supplied under Software as a Service contracts of various flavours. There are exceptions of course, but most airlines do not directly control the platforms or environments that underpin their critical applications. With this in mind the most critical skill of an airline IT organisation is contract negotiation and management.

T2RL's recommendations have not changed significantly over the course of the last year although the continued take-up of NDC distribution and the commitment to the move to Offer/Order based systems have affected the level of urgency for some of them.

The world continues to be unstable and that is unlikely to change in the near term. IT solutions adopted by airlines must be specified to support their business across the range of scenarios that can be reasonably forecast and have the flexibility to adapt to challenges that cannot.

IT supply contracts must allow flexibility to allow for a changing environment. Contractual minimums should be a thing of the past. Vendors should be required to demonstrate how they will manage scalability, connectivity, interoperability, use of large data sets and machine learning. Systems should scale linearly. Onerous charges for connection to other systems should not be accepted.

With the announcement of launch customers for the Offer and Order based systems from both Amadeus and Sabre it is clear that traditional PSS contracts will be superseded by those that provide a path to modern retailing. Contractual commitment to managing the transition at an acceptable cost must be negotiated.

For airlines that elect to manage more of their systems in-house, the use of cloud-deployed technology means that capabilities developed by and for top-tier airlines are more widely available across the board. Having said that, cloud services must be managed as diligently as any other. Badly managed cloud deployments can easily become more costly than conventional data centres.

The most important technical skill set for airline CIOs to acquire and nurture is architecture. It is far from clear that the industry's aspiration to deploy modular services to create best of breed solutions will be achieved. The lack of industry standards for connectivity between the different modules presents a substantial obstacle. If it is to be overcome then architectural standards need to be developed rapidly.

2024 has seen meaningful growth in NDC distribution but there remain many critics. On balance the wider adoption of API-mediated distribution seems inevitable and NDC remains the most widely adopted API. Many airlines have acknowledged the shortcomings of existing implementations and are working to address them. The conversion to 100% e-tickets from 1994 onwards took 14 years. NDC will hit that milestone in two years' time. Any airlines and agencies that still don't have a plan for its use really need to get into gear.

Travel Technology Research Ltd, trading as T2RL is an independent research and consulting company that specialises in the market place for airline IT systems. Based on data gathered and analysed since the year 2000 it has defined and tracked classifications of airlines and their IT providers. Its research is used by airlines to enable them to make informed choices of systems and vendors and by the vendors to help them develop products that best meet the current and future needs of the airline industry. For further information, visit our website at **www.t2rl.com**.