WHITE PAPER

WHAT MOBILITY TRENDS MEAN FOR THE PROFESSIONAL USE OF IT IN EUROPEAN AVIATION, 2015-2025

PROFESSIONAL USE OF IT IN EUROPEAN AVIATION

2015-2025

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TOUGHBOOK   TOUGHPAD

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1.   TRENDS IN EUROPEAN AIR TRANSPORT

In 2012, the Organisation of Economic Cooperation and Development said that air passenger traffic could double in 15 years; airfreight could treble in 20 years.[1] Writing about transport around the world, the OECD asked: **'Will current infrastructure be adequate?'**. It replied: **'The short answer is "no"'**. It continued:

'Most of the gateway and corridor infrastructure currently in place could not handle a 50 per cent increase, let alone a doubling or tripling of passengers and freight in 20 years.'

Aided by lower fuel prices, aviation now faces **unprecedented demand**. Airbus says that **load factors** rose by 0.5 per cent in 2013, to 79.7 per cent.[2] And if world GDP grows at the 3.2 per cent a year Boeing expects between 2013 and 2033, then, at 4.2 per cent, annual growth in the number of airline passengers could comfortably exceed that.[3] By 2033, indeed, Boeing reckons Europe will have ordered 7500 new planes, as low-cost carriers and large established airlines embark on a new round of competition with large airlines from the Middle East. Europe will need 94,000 **new pilots** and no fewer than 102,000 **new technical staff**.

Since 2011, Europe has won more than half the world's **airport acquisitions**.[4]   Here, **China** has emerged as a player.[5] So can Europe's airports cope with any more change? From €540m in 2004, German airports have raised annual investments to €1.815bn in 2011.[6] Yet that has not prevented major problems of capacity.[7]

In fact, capacity is a problem right across the EU. By 2030, 19 airports may have to end extra flights.[8] Delays, confusion and stress may be more frequent. One reason: aviation reflects **today's turbulent geopolitics**, around not just disasters, but also new regulatory regimes (ASEAN, eastern and southern Africa's COMESA, etc).[9]

There are two further trends to register. First, **security** concerns will not go away. Second, since the tragic end of Germanwings flight 9525 in March 2015, attention has moved to the use and abuse of autopilot systems. A senior Airbus official has called for less reliance on **cockpit automation**, as well as for better **pilot training**.[10] Clearly, the **balance between IT systems and their human users** has become an issue.

To deal with the new, more fluid complexity, airlines and airports will need the very best mobile IT.

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1 http://bit.ly/1G0nKJ3

2 Airbus, Global Market Forecast 2014-2033 – Flying on demand, September 2014, http://bit.ly/1QzAl3i

3 http://bit.ly/1m5YOt3 Growth of revenue per tonne-kilometre in freight, projected by Boeing at 4.3 per cent, and, most remarkably, of revenue per passenger-kilometre, 5.0 per cent, would also be impressive.

4 'Flying high: Why buying airports has taken off', The Economist, 6 June 2015, http://econ.st/1IrgB8l

5 http://bit.ly/1cDiHnf In a first for the country, a Chinese consortium has bought nearly half of Toulouse airport, France's fourth largest.

6 ITF Transport Outlook 2015, http://bit.ly/1djZsjl

7 Hans-Martin Niemeier, 'Expanding Airport Capacity under Constraints in Large Urban Areas: The German Experience', ITF, Discussion Paper 2013 No 04, http://bit.ly/1FEhH9P

8 http://bit.ly/1cCpq0F

9 Guillaume Burghouwt, 'EU air transport liberalisation: Process, Impacts and Future Considerations', ITF, Discussion Paper 2015, No 4, http://bit.ly/1BR2WQg

10 http://on.wsj.com/1M1pe7f

2. THE GOOD NEWS

The problems described above are mostly those of success. But there are opportunities, too. Airbus reckons that, with the **optimisation of Air Traffic Management and on-board technologies**, the world's aircraft could cut 13 minutes from average flight times.[11] The firm is keen on funneling aircraft into high frequency, gate-to-gate routes and flying them in formation, at distances of about 20 wingspans. These **'express skyways'** could bring airlines major gains in efficiency. Moreover, Airbus anticipates that **robot ground vehicles**, perhaps powered by electromagnetic tracks, could make gate delays 'a thing of the past'.[12]

That may be overstating the opportunities. Yet there are still plenty of grounds for optimism.

*The advent of the **Internet of Things**, and of **wearable media**, will increase the quality of the information available to ground and air crew.*

Missing bags and missing passengers will be found more easily; the full complement of lifejackets, once tagged, will be more easily checked. Also, sensors will make possible **predictive maintenance**: anticipating when a part will wear out, and ordering the mobile skills and replacement components to fix it.

Beyond the efficiencies that IT brings, other **fuel-saving, low-emissions technologies**, and in particular **lightweight materials**, look set to accrue fresh savings – and Europe, the birthplace for 20th-century chemistry and 21st-century manufactured graphene, is particularly well positioned here.

More broadly, airlines will go on growing their **high-margin ancillary services**. Special seats, special menus, pre-ordered duty-free, help with airport transfers: given the pressures now on them, passengers are likely to ask and pay for more of these extras in future. Already Delta Airlines offers some passengers Early Valet, a routine through which a steward takes carry-on luggage from passengers at the gate and pre-loads it in the compartment above their seat, so obviating the usual jostling for space that follows boarding a plane.[13] Also: that Lufthansa may surcharge customers who buy its flights through third-party websites shows how seriously the German airline wants to direct customers to its own site, the better to sell ancillary services.[14]

There is more good news. Today, the EU is ahead of America in the regulation of **unmanned aerial vehicles** – drones. It favours a simple, performance-based regime for them, and wants to integrate drones so they 'create spin-off benefits for traditional aviation and so frame the future of flying'.[15] In aircraft inspection and even the delivery of small items, drones could do much for aviation – including deliveries to help in-flight retailing.

Through the new IT, European airlines and airports will be able to make ambitious innovations.

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11 http://bit.ly/1FAyv2m

12 http://bit.ly/1QzwSab

13 Jamie Merrill, 'Could a new carry-on luggage 'valet' service end the fight for overhead storage space on flights?', The Independent, 3 June 2015, http://ind.pn/1cEzpCC

14 Leo Kelion, 'Lufthansa makes flight booking sites add fee', BBC News, 3 June 2015, http://bbc.in/1KUQAyW

15 Riga Declaration on Remotely Piloted Aircraft (drones): "Framing the Future of Aviation", 6 March 2015, http://bit.ly/1KLrhvX

3.   THE NEED FOR TABLETS THAT ARE TOUGH

There is much to do. In research commissioned by Panasonic Computer Product Solutions, no fewer than 12 per cent of respondents in transport, travel and distribution said they were dissatisfied with their tablet in professional situations, and, over all industry sectors, an enormous 68 per cent of users surveyed reported themselves not completely satisfied.[16] The physical circumstances in which tablets are used professionally have a lot to do with these complaints: in further research commissioned by Panasonic, it was found that 43 per cent of frontline mobile workers used tablets in direct sunlight, 28 per cent wore gloves while using tablets, and a similar number used them in rainy conditions.[17]

Aviation can fairly claim to offer the most stringent conditions for tablet use. Countries boast more airports; aircraft boast more seats, most of them filled. A more stretched European air travel system, yet one that offers passengers more options, will demand round-the-clock real-time information – and more professional hardware in the realm of IT.

Tablets must be light, give out low magnetic emissions and, given growing worries about terrorism, be completely secure. Tablets must help pilots handle all the news they, their colleagues and their passengers need. Pilots must be able to use tablets to **deal with disruption and accommodate last minute changes, 24/7** – and to treat these hazards as likely to be the rule, not the exception.

For pilots, tablets must, through Electronic Flight Bags and Electronic Technical Logs, form a completely reliable alternative to the paperwork of the past. At the same time, **tablets must allow the experienced decision-making of the pilot to override the rigid options contained in helpful but standard algorithms**.

What is true for pilots is still true for other staff. Take technical maintenance and repair personnel in hangars, or the coordination of fuelling, de-icing, cargo, baggage and passenger transfer on the airfield. For the tasks that count here, **all-weather performance in tablets, as well as the ability to mount them on vehicles**, will be essential to punctuality. Or take cabin crew. For them, the best in-flight entertainment services, together with more passenger-friendly regimes in duty-free sales, will require tablets that can consistently improve the customer experience – as well as improve airline revenues. That means **machines that are compact for staff to carry around, yet flexible enough to add all the quick scanning and payment mechanisms that tomorrow will furnish**.

The multiplication of passenger numbers in Europe alone summons the need for tablets that are tough. Yet at the same time tablets must be fit for the purposes of the 200,000 new aviation staff Europe will recruit and train by 2033. Also, tablets may well be hooked into pilot health monitoring systems.[18]

Pilots and cabin crew will need to give more and better information to passengers when they land. More planes will move through better traffic systems, but that will increase traffic information, which tablets will need to manage better. Result? **To transform the way they work, staff will need equipping with special tablets, not general-purpose ones.**

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16 Panasonic Computer Product Solutions, Tablets and the European productivity revolution, 25 November 2014, http://bit.ly/1ImqzoB

17 David Krebs, 'Enterprise and Government Tablet Solutions: Realizing the Gift of Time', VDC, March 2014, ftp://ftp.panasonic.com/computer/whitepaper/enterprise_mobility_whitepaper.pdf

18 In the wake of the Germanwings disaster, the European Aviation Safety Agency met on 7 May 2015, at the request of EU Commissioner Violeta Bulc, to begin taking evidence that could lead to changes in the criteria and procedures applied to the medical monitoring of pilots. http://bit.ly/1G40HwV

European aviation is becoming more of a 24-hour business. Long-haul flights are growing. There will be more changes of airport and airline ownership. All this will put a premium on **multi-role tablets that can handle long journeys, different nationalities and taxing situations**. This implies that such devices have a **long battery life**, especially in situations where there is no access to power.

In fact what aviation will demand of tablets is not so different from what their professional users priorities across all industry sectors. In research commissioned by Panasonic Computer Product Solutions, battery life and reliability counted much more for tablet users than price considerations.[19]

Tablet screens must shine bright in daylight, and must be able to accommodate the latest and best data visualisations. Their connectivity must be as good as can be got. Tablets must be light and durable. Equally they must be simple to charge, accessorise, and input to and output from. On the other hand, they must be able to survive dust, moisture, varied temperatures and the experience of being dropped. They must last and last, and must be able to handle regularly distributed upgrades with ease.

In the round, these are exacting requirements. They evoke the need for what Panasonic calls **'enterprise-class' tablets, rather than less durable, less versatile consumer devices**.[20] That class of device is what Panasonic offers with its Toughpad tablets.

For European aviation to make the kind of innovations it needs to make, the hardware and software that its IT chiefs specify for their staff will have to be the very best – so that those staff can turn all their efforts to making the kind of judgments that only humans can make. **The kind of IT that's now needed, therefore, must work with staff, not against them**.

For workers at the sharp end of the Europe's high-stakes aviation business, only the very best will be good enough.

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19 Battery life and reliability were named by 30 per cent of respondents as being among their top three must-haves of tablets; by contrast, price competitiveness was a top priority for little more than 20 per cent. David Krebs, 'Enterprise and Government Tablet Solutions: Realizing the Gift of Time', VDC, March 2014, ftp://ftp.panasonic.com/computer/whitepaper/enterprise_mobility_whitepaper.pdf

20 Panasonic Computer Product Solutions/VDC, 'Realising the Gift of Time: Enterprise and Government Solutions', March 2014, http://bit. ly/1Gijs0W

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James has worked with most of the world's top IT organisations. These include Amadeus, Brother, BT, EMC, Fujitsu, Mahindra, Microsoft, the International Security Forum, Oracle, Orange, IBM, Sabre, Sage, SAP and Vodafone.

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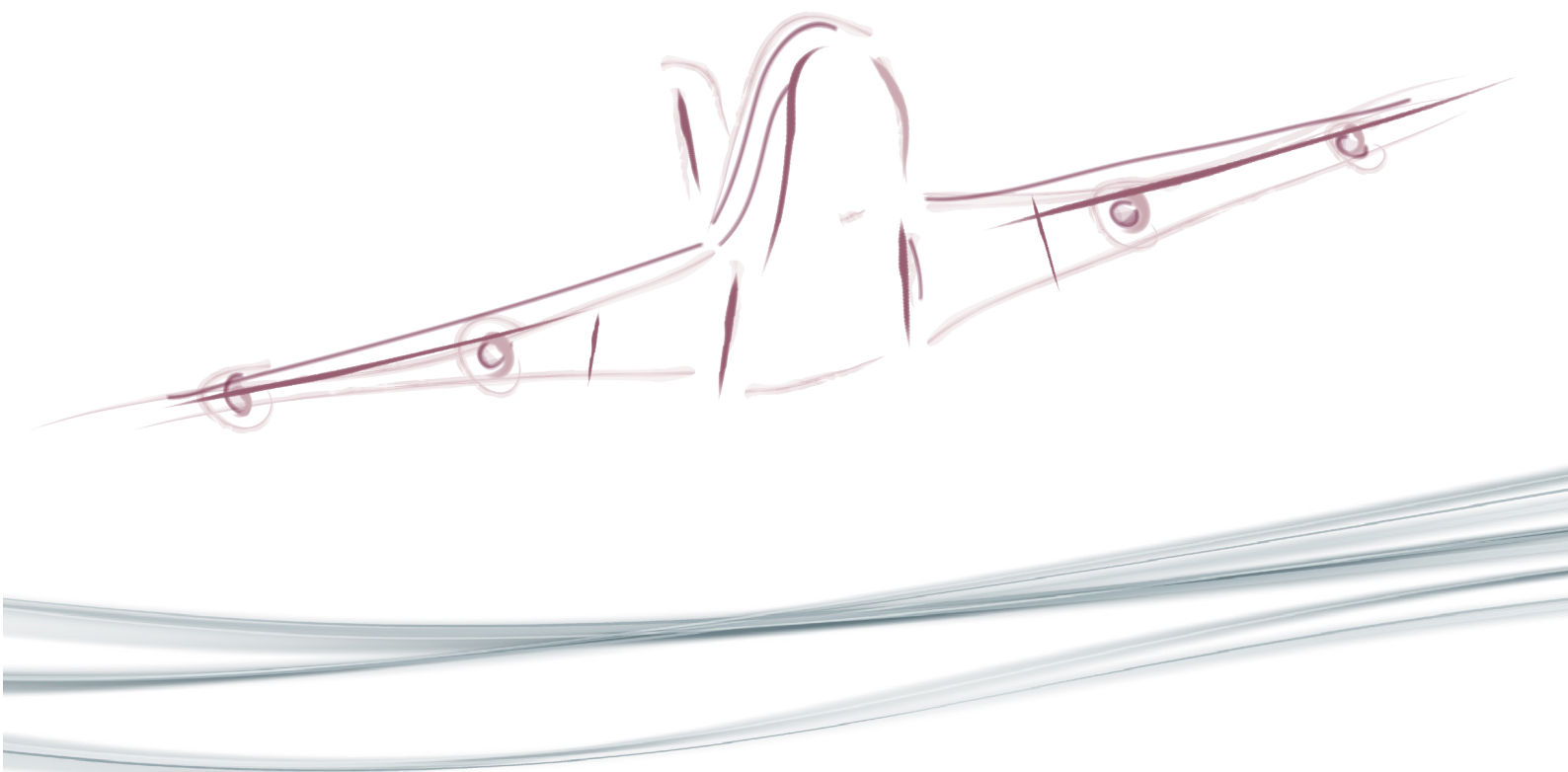
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