The convergence of new technologies gives airlines an opportunity to boost ancillary revenues by tapping into passenger behaviour data. For AirAsia is using predictive analytics and partnerships with airport and destination-based retailers to pave the way for a new e-commerce model that could be a template for the industry.

The changing face of ancillary revenue

Fast-paced consumerism is a hallmark of 21st century living, with online retailers such as Amazon taking advantage of people's insatiable desire to buy. The reliance on smartphones and personal electronic devices (PEDs) to service our daily needs is evident. The number of smartphone users is forecast to grow from 2.1 billion in 2016 to 2.5 billion in 2019. Just over 36% of the world's population is projected to be using one by the end of 2018, up from 10% in 2011. Pop-up ads tempt us to extend our stay online with offers that regularly pre-empt purchasing decisions, from the mundane to the aspirational. Wherever you leave your 'footprint' online, a clever algorithm captures your every move and stores it away, ready to attract your attention when you next go online.

This is life on the ground. But what about in the air? The analysis of available technologies, the growth of connectivity to and from the aircraft, and the hardware and software with the potential to reap big rewards in ancillary revenue terms for airlines willing to invest have been covered extensively *(see, Hardware for growing ancillary revenue streams, Aircraft Commerce: 2016/January 2017, page 27; The software & platforms for ancillary revenue generation, June/July 2018, page 28; and The cabin IFE&C platform & its potential, August/September 2018, page 32).*

Some airlines, including national flag carriers and low-cost carriers (LCCs) such as AirAsia, jetBlue and Finnair, are willing to take risks, and acquire the technology to generate ancillary revenues. They recognise that the $85 billion of projected revenues from ancillary products, with $30 billion from in-flight retail alone, could be a fraction of what is really possible by 2035.

Meanwhile other carriers, such as WOW Air, Jetstar and Alaska Airlines, are placing more importance on ancillary revenues. But their focus seems to be on airline-related products, such as preferred seat selection, extra baggage and priority boarding, rather than on personalisation and offers based upon customer needs.

There is a need for a seamless omni-channel customer experience that incorporates more sophisticated retailing and personalised services. Pre-ordered catering is a growing trend, along with more focus on advertising opportunities and partnerships with ground- and destination-based service providers and retailers. Airlines are far better positioned to offer a seamless service to the travelling consumer than airports and retailers, because they can influence all touchpoints along the journey. Airlines' trump card is the fact they have a captive audience effectively doing nothing while sitting in their seats.

Ralph Wagner, chief executive officer (CEO) of software solution provider Axinom, agrees that omni-channel service will come. As a frequent flyer himself, he is keen to see this happen at a faster pace. "Offer me services. Shopping needs a minimum of bandwidth, so offer me functionality to make travel easier when I upgrade my flight or order food, and integrate this into the airline app so I will use more stored credentials to buy," he says. "If not, you will lose my custom to Google or another browser. Use the passenger manifest. Identify me and make my life easier."

Wagner confirms Axinom is working with an unnamed airline customer on a programme to increase passenger engagement, in line with expectations for ground-based services. Roll-out is scheduled for May 2019, with several additional services available around it.

Lance Hayward, director of specialist onboard service company Gastro Worldwide, majority-owned by German travel retailer Gebr Heinemann and Scorpio Worldwide, shares Wagner's optimistic view that airlines are catching up with passenger expectations. However, he highlights that there are difficulties beyond the hardware and software. "Pre-order capabilities have been around for some time on leisure flights and long-haul," says Hayward. "Short-haul carriers have shied away from the concept because of potential operational complexity, driven by the propensity for passengers to switch flights, and airlines to switch aircraft, often at short notice.

"Some airlines are planning to introduce high-speed internet access as early as 2019, which will enable most, if not all of the consumer services you describe," he adds. Nevertheless, only about 80 airlines are now connected with high bandwidth external connectivity, and many airlines with older aircraft and fleets do not want to invest. Hayward acknowledges airlines' dilemma is how they can monetise these services.

The key questions are: will passengers pay for on-board connectivity when free access is the norm? If so, how much? Will partner brands pay the airline for diverting traffic to their sites? What will be the impact of losing that 'captive and focused' audience once they are free to roam the web? What will be the impact on crew commission? What will be the impact on the range carried on board?

"Opinions are split," adds Hayward. "Some airlines are pursuing 'local network' options, which retain the integrity of the captive audience, while widening consumer choice to a limited amount of participating brands."

Getting airlines onboard

Kim Creaven, vice president for global advertising, sponsorships and partner marketing at Global Eagle, believes that airlines do not have such a tough choice, and they can mitigate risk in the short term by taking 'some connectivity' as a first step with a lower-cost solution. "Everybody wants to move

AirAsia's pioneering initiative 'OURSHOP' seeks to turn the digital and e-commerce challenge into opportunity, linking the consumer with multiple marketing and shopping touchpoints throughout the travel journey.

forward with connectivity," says Creaven, "but very few airlines are fully connected with external satellite connection and others do not want to invest in systems for older aircraft."

Global Eagle launched Airconnect Go as a 'light solution' to address this issue. "The connection lasts for 18 hours and is recharged at night, after which it can be recharged in a standard aircraft power outlet and updated with new content by airline employees," adds Creaven. "It is a great cash solution for wireless without satellite, providing relevant snackable content that can open up opportunities to build ancillary revenue through advertising sponsorships and retail."

Global Eagle is aiming to serve as many airline customers as it can with the subscription-based 3.3Kg Airconnect Go box. This plugs in easily to back-end services and provides the ability to stream 50 people.

Axinom offers a full solution package for airlines that is software only, custom-built, installed on existing hardware and fully integrated with on-ground and on-board services. Content is not included, but the buyer takes care of certification *(see The software & platforms for ancillary revenue generation, Aircraft Commerce June/July 2018, page 28)* with content protection and studio approvals offered. The company's CEO has a broad, yet simple vision for the future where software plays the leading role in creating a seamless passenger experience, side-stepping some of the issues airlines find difficult. "The commercial airline industry is just like the computer industry was 20 years ago, where devices were more important than software. If you want to offer software services in the aerospace industry, 95% are in combination with hardware and certifications.

"Software is beginning to play a more important role than hardware, however, and the industry is now focusing more on software and its features," says Wagner. "How to connect ground services with

crew services, for example, and how to bring all of this together with the right software is important. When the creators of Uber were in the concept stage, they were not focusing on the car or the driver. They started working with the software and the map and location services. To make it seamless for the customer, they focused on usability first."

As Wagner suggests, there are airlines actively integrating technology and data to digitise the whole process for crew in facilitating the passenger experience. For example, Lufthansa Systems' mCabin provides guest service information in real-time via travel guides, and also shows real-time in-flight retail transactions, with delivery to an address of the passenger's choice via back-office inventory updates. Through this software, crew can access individual passenger data before and during the flight, including seat location, frequent-flyer status, personalised meal requests, other special requirements and airline operational data, including passenger manifest. Such fully integrated software linking crew to the ground and to the passenger can lay the foundations for building ancillary revenues, only if airlines know what to do with this valuable data and how to hold onto it.

Wagner is very clear on this. "For me there are two crucial things: one is retail, and the other is personalisation and customer orientation. Airlines are putting passenger satisfaction as one of the most important measurements, without prioritising customer relationship management (CRM). This is contradictory. There is a difference between knowing the customer and understanding their data. Do not ask me if I want to sit in the window seat. Know where I want to sit. Airlines have the data. You know what I eat and what I am watching. Use this data.

"As a frequent traveller, I open the in-flight entertainment system (IFE) system when I am on the ground, and IMDb on my phone and search for films I can add to my IFE favourites list," says Wagner.

"I can only compare available content with my IMDb profile until take-off. This information is lost if the IFE system reboots, and on my return flight. With CRM and personalisation, the airline can store my preferences and use my IMDb ratings to offer me what fits my profile before I even start the IFE system."

Patrick Prefontaine, chief commercial officer of avionics for Black Swan Data, agrees with Wagner that the industry has been too driven by hardware in the past. But he explains that some carriers cannot catch up overnight, especially where a large amount of legacy equipment is still in place. It is also about moving a service that has historically been allocated to a cost centre over to a profit centre.

"Airlines like Norwegian and Level of Spain do not have these technological drawbacks," says Prefontaine. "On LCCs passengers can order a drink on a flight without having to wait for a trolley to pass by, so they naturally question why they can't do that on every flight they take. They don't understand the technological barriers involved in offering what is a simple service to them.

"Airlines have always wanted the touchpoints within the planes to be more useable to generate a better experience for passengers," adds Prefontaine. "They want to glean information on how passengers interact with their systems so that they can offer them the right information throughout their flight. The trend that is happening now with PEDs and original equipment manufacturers (OEMs) means that the airline's technical ecosystem needs to be structured to learn how to predict different behaviours and reap the full benefits. To have visibility on how passengers buy on the plane is still not just about generating more revenue. It is about the experience.

"For example, I just got off a flight where I paid for my food and drinks," continues Prefontaine. "But the paper menu was not in the seatback. This was a lost experience. Even the flight attendant thought it was in there. This would have been a perfect opportunity for me to order via an app on my PED. At airports, people use PEDs to order food and other products and services all the time. Being in travel mode increases the amount people spend, so when they are ready to order a drink in-flight, they should be able to do so without having to wait for the flight attendant."

Grab's mobile ordering will be live at 30 airports by the end of 2018. Partner airlines will be able to plug in to the platform and gain unique insights into passenger movements within the airport to create better experiences for their customers.

Expectations among passengers remain pretty low when it comes to in-flight service. However, as people become more aware of improved offers, and better still, offers that are personalised for them, they will become less irritated by the idea of being 'sold to'. An airline seat is occupied for hours, so travelling consumers would be open to products and services that appear tailor-made to make their flight more comfortable.

Predictive analytics

Predicting and influencing consumer behaviour using sophisticated algorithms and data mining techniques has been fundamental to the success and continued growth of retail giants, such as Amazon, Target and Walmart. Yet, as Wagner and Prefontaine suggest, airlines are only scratching the surface of what is possible using such technology. This is good news for companies like Black Swan Data and Guestlogix, both of which are courting airlines to adopt similar strategies to drive new ancillary revenues and provide passengers with a more personalised experience that they expect only on the ground.

Leading in-flight caterer Gate Group has recently partnered with Black Swan to use its sophisticated data mining techniques to forecast future purchasing activity among passengers and help airlines stock inventory more efficiently. The idea is to offer an expanded product that is better aligned with passenger expectations, and reduces waste through advanced forecasting. This could be a win-win for airlines with reductions in fuel-burn costs.

"There is no doubt that developments in technology have enabled great strides in predicting consumer behaviour without going through a potentially painful and costly learning experience," argues Gastro's Hayward. "Space issues mean that it is more likely to result in more of what passengers want on board, as long as the product meets the cost and revenue/margin requirements, than in an expanded product offering."

The potential of the retail giants moving into the sector is greatly increased with the imminent introduction of on-board, high-speed internet access. The question is why have airlines resisted the temptation to date? Perhaps the answer

lies in the level of complexity, legislative red tape and cost associated with stocking up a relatively small shopping outlet with a small window for delivery, and no means of service recovery once the shop is at 30,000 feet. That all potentially changes with affordable, high-speed passenger access to the web."

This could soon make the in-flight catalogue a thing of the past. Mark Bergsrud, chief executive officer at Grab, a software platform that connects airport restaurants, retailers and services to travellers, believes this will happen, and that airlines will make more revenue from food and drink sales as a result. Bergsrud has some insights after leveraging his platform for airline partners Canadian Airlines (ceased operations in 2001) and American Airlines. "The cost of waste from unconsumed fresh food is a real issue, and I think leveraging better data for forecasting will improve results," says Bergsrud. "I think in-flight retail catalogues will eventually become obsolete. Airlines and their in-flight retail partners will still want to offer a branded digital experience on board with a unique value proposition to take advantage of the captive audience in-flight. It will be interesting to see how airlines manage their WiFi portals as the installed base grows and bandwidth increases in speed and decreases in price."

With 11 years' experience in understanding consumer behaviour, Black Swan Data is well positioned to advise airlines on predictive analytics. "Gary Townsend, our chief innovation officer, came from Panasonic and continued working with them to develop tools for

their content management systems," says Prefontaine. "The two founders saw an opportunity seven years ago to use social media data to predict consumer behaviour. We first worked with Disney to predict what movies would do well on opening at the box office, by using weather data and third-party data."

The company has developed a close relationship with Twitter and other social media partners over the years and learned how to use data to become good at 'social listening' to develop algorithms that can spot if a trend will continue in the future. Black Swan's Trendscope product is commissioned by companies, including PepsiCo, to identify trends around popular ingredients, and to predict buying habits, for example, over a six to 12-month period.

"We work with airlines on a case-by-case basis. We can bring our approach down to an airline level," adds Prefontaine. "With Panasonic, we built a connected traveller dataset from more than 400 million conversations about the pre-, during and post-travel experience and looked at key words associated with travel. These are a lot of key areas that an airline might not look at. This was not just an exercise in social listening. We flowed through different products using that dataset. We identified four pillars with Panasonic that form the basis of the predictive analytics strategy: theatre, loyalty, wellness and market place."

Prefontaine explains that the term 'connected traveller' was used in a much larger context for the strategic work completed for Panasonic, and not just around the dataset. "It was more about
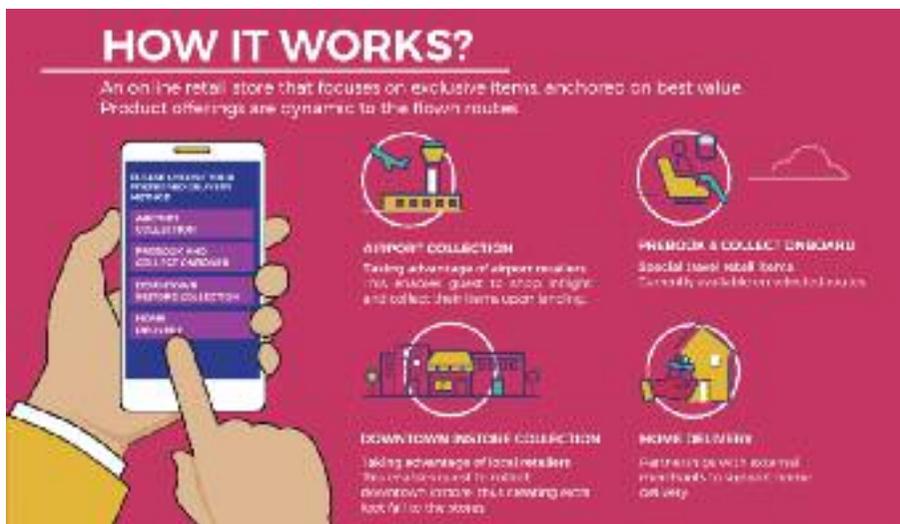
the whole experience for the passenger. Our aim is to get to the point where you can use third-party data on passenger behaviour in-flight to direct tools from that behaviour and learn," he says.

The passenger experience

Grab's Bergsrud says airlines want to use his company's mobile platform more to improve customer experience than for any ancillary revenue benefits that it could bring. He says it is important to recognise the diverse nature of products offered at the airport, and of airlines too. Integrating third-party services helps travel brands like American Airlines and Heathrow Airport ensure that their mobile apps remain relevant and useful.

"The platform provides meaningful new functionality for an airline's mobile app, increasing the app's utility while customers are in the airport," says Bergsrud. "Offering mobile ordering, using Grab for food and beverage (F&B), for most airlines will be more about creating better experiences for customers that are in a hurry and value the time-saving benefits and control offered by our mobile platform.

"Ancillary revenue streams can be developed with the platform but are relatively modest compared with credit cards and seat upsells," adds Bergsrud. "Ancillary revenue is important. In creating alignment with airlines and prioritising integration in busy development calendars, however, the Grab mobile commerce platform is also a great way to monetise the significant investments by airports and airlines in mapping and way-finding technology."

Prefontaine agrees and says that Black Swan Data has had discussions with Grab, but not only about technology. Both share the view that many airport commercial managers and their airline counterparts view each other as competitors, when they should be looking at the travelling consumer's whole experience on their journey. "There is a

process to go through with airports and airlines, and this takes time," says Prefontaine. "The landscape is changing to everyone's advantage, and we will all benefit if the passenger has a better experience. For example, making it easier for them to order duty-free in the air, and pick it up when they land buys loyalty."

With more than 30 years' experience in airline catering and retail, Gastro's Hayward sees a more sophisticated approach being adopted to on-board ancillary revenue because it is more critical to an airline's profitability than ever, as air fares become increasingly competitive and fuel prices more volatile.

"Successful airlines make great efforts to understand their passengers' needs," says Hayward. "This reduces cost and drives up revenue and margins within the unique parameters of the on-board environment. These are items, such as available space, the dimensions of the galley equipment, the integrity of the chill chain, the number of ovens, the service time, and the number of available crew members to provide the service.

"You can pretty much throw a small blanket over the average revenue and margin per passenger generated on board by flight type (LCC, leisure, charter, legacy carrier), and by geographical region. This suggests that most airlines and concessionaires have adopted a similar approach to range planning and have done a good job given the challenges they face," adds Hayward.

Hayward believes the next shift will be driven by a number of developments. First, he sees a conversion of more passengers into consumers through the changing nature of the retail environment on board, which is increasing the propensity to buy. Second, he sees an extension of passengers' consumer relationship with the airline beyond just the length of the flight. This is the model being adopted by AirAsia.

"You can see evidence of boundaries being pushed. Seatback ordering, pre-order options from top restaurant brands,

premiumisation options, grab-and-go solutions offered with airport ground retailers, predictive analytics, virtual reality (VR), artificial reality (AR) and high-speed connectivity, and delivery to home and hotel," continues Hayward. "These are all areas being explored by forward-thinking organisations."

Since working with airline partners, Bergsrud is well aware that some airlines are more ancillary-focused than others, and further ahead on that paradigm shift. This is certainly the direction LCC AirAsia is going in, with 'OURSHOP', the omni-channel retail operation that it launched in July this year.

"I believe that offering a larger choice of products on board and in the airport will make customers more satisfied with the travel experience and maximise revenue performance for the entire travel F&B and retail ecosystem," says Bergsrud. "While the retail industry is being challenged by Amazon and Alibaba, travel companies have some advantages in terms of deep customer relationships, customer engagement on day of travel, and the availability of space in airports that can be leveraged successfully.

"Our strategy remains to build a flexible eCommerce platform that enables the discovery and, most importantly, the purchase of F&B, retail goods and services from a worldwide network of airport businesses," says Bergsrud. "With ubiquitous coverage and wide distribution through a variety of digital channels, customer awareness and behaviour will change and benefit all stakeholders. Airlines and airports need to work together closely to make this happen, and we are positioning ourselves as a bridge between the two sectors."

Grab's greatest challenge has been to grow the network of airport partners as fast as it would like. The airport F&B and retail industry is highly fragmented, creating an urgent need for an aggregated platform like Grab, yet development is hampered by bureaucracy. Nevertheless, Grab will be live at 30 airports with mobile ordering by the end of this year. "Airports should take the lead in getting their digital platforms and strategies in place, so that airlines can plug into these platforms and create better experiences for their customers," says Bergsrud.

Bergsrud is keen to forge partnerships with in-flight connectivity and content providers to gain additional customers.

Global Eagle's Creaven learned about the Grab platform 18 months ago.

"GRAB is a very cool solution and a great concept," says Creaven. "It is the missing piece in pre-journey marketing. It is great for frequent flyers like me, who do not want to spend hours in the airport before they take a flight. American is now testing this in Dallas-Fort Worth, but they do not market it enough when there is a clear revenue-sharing opportunity between the airlines and vendors."

Creaven believes airline lounges could hold the key to driving greater ancillary revenue for providers like Grab, and this is where Global Eagle can partner and give valuable support for a mutually beneficial arrangement. "We have access to Delta's and American Airlines' lounges, for example, and have the ability to push messages out into IFE channels. Frequent flyers sitting inside lounges are a perfect audience to approach with marketing messages of this nature.

She adds that LCCs are the risk-takers that will trial new ideas. Following research being conducted by the ARC ancillary revenue panel around legacy carriers, premium and LCCs, partnering to get flagship carriers on-board via lounge access could be important. "ARC launched an ancillary revenue panel earlier this year, looking at everything from advertising and sponsorship. LCCs

can try something new, pull back quickly and not lose much," adds Creaven.

Bergsrud responds: "Making Grab available through WiFi portals and even seatback screens is a great way to reach customers, particularly those that fly less frequently and may not have the airline's app. In-flight is a good time to be showing content about connecting and destination airports, rather than doing it days in advance when customers are more price-conscious, rather than experience-oriented. I like the lounge idea as it is consistent with our strategy of a flexible ubiquitous platform."

Axinom's Wagner suggests that airlines consider integrating a platform like Grab by offering it through their frequent-flyer and loyalty programmes.

"Companies like GRAB give you an individual service up to the door of the aircraft," says Creaven. "Outside of an airport this service is nothing special, but inside the airport it is. Airlines need to use this and their environment better and offer this as a complimentary or paid service. Airlines should know individual passenger movements in the airport, and then such a service could be integrated into their loyalty services."

Bergsrud thinks Wagner's idea is good, and there is a market for pre-order meals, but he believes that many customers will not be ready to make meal

decisions until the day they travel.

"Many airlines are interested in pre-order meals, but will not be able to offer them to, or satisfy, all customers," says Bergsrud. "This is due to the physical limits of aircraft and the logistics of service, particularly on shorter flights. Giving passengers more choices and control is always good, provided the delivery is rock solid. Using data to make the offering more personal is important."

Build it and they will come

With the launch of 'OURSHOP' in July, AirAsia has taken a step that no other airline has yet managed to do. Such an innovative approach in thinking beyond the cabin to increase ancillary revenues, where partnerships with airport and local destination-based retailers are a focus, and offering cashless transactions, is unprecedented. The airline has put in years of development to create a digital market place designed to connect its 80 million passenger base with airport, high street and local specialist retailers in a bid to create a unique experience that could be a saleable model to other airlines.

This pioneering initiative seeks to turn the digital and e-commerce challenge into opportunity, linking the consumer with multiple marketing and shopping touchpoints throughout their journey,

from online booking to social media, from boarding gate to check-in, from on-board Wi Fi, to arrival.

The in-flight e-market place is centred on a vast range of products from a large number of airport and local market retailers, anchored on best value. Airline CEO Tony Fernandes identified the value in forging partnerships across the travel chain, with a strategy to drive passengers and other shoppers towards the retail providers. The aim is to increase retailers' virtual and physical footfall, and drive up transaction volumes and values.

Hassan Choudhury, group head of ancillary for AirAsia, says there have been challenges around technology and understanding the customer journey. "With a business model like OURSHOP, which is a world first, there will always be challenges," he admits. "If it were easy, another airline would have done it. We are making huge strides in trying to perfect the customer journey, and we have been fortunate to have experienced senior management who have been down this road before.

"As for retailers we are focusing on airports both airside, landside and downtown," continues Choudhury. "We are in advanced conversations with most global airport retailers and duty-free operators. I hope to announce some new major partnerships soon to add to the already signed Plaza Bali and Lotte Indonesia."

AirAsia's vision that OURSHOP will be a standalone business that airlines will emulate is a bold one. It would place it in a much-envied position akin to an Amazon in the sky. Bergsrud applauds AirAsia for its culture of innovation, aspiration and real focus on its entire route network, but says that it cannot own the strategy to connect with retailers. "While I do not believe that an airline can or should lead the airport retail industry to its final digital destination, it is critical that the journey to efficient digital travel commerce advances quickly to bring airports to the standard expected

by customers on the high street," says Bergsrud.

"Airlines are a very valuable part of this journey, given their unique ability to connect with customers. It would not be positive for the broader industry, however, if multiple airlines created their own bespoke platforms maintaining destructive fragmentation. I think it is incumbent on airports, and those that operate businesses in airports, to get ahead of these individual efforts so they have a network that maximises benefits and minimises complexity."

Gastro's Hayward also points out a few challenges. "AirAsia's 'OURSHOP' is a great concept that seeks to extend the consumer relationship beyond length of the flight," he says. "From passengers' perspective, they have convenience, an expanded product range, and a choice of delivery options at competitive prices. The challenge is to demonstrate to all players involved that each has an integral part to play. Overall the pot can grow so it does not dilute the revenues and margins already being enjoyed.

"There are some legislative hurdles to be overcome and sticky questions to be answered," says Hayward. "For example, who owns the passenger? Is it the airline or the airport? And how will the existing separate sales channels be handled?"

Choudhury is understandably bullish, given the sizeable amount that has been ploughed into AirAsia's strategy. "Everyone is entitled to their opinion, but are these the same cynics who said our CEO Tony Fernandes would never succeed in the LCC space when he started with two aircraft? The fact that we now have a fleet of more than 200 sums it up. I attribute these comments to ignorance of the huge investment we are making in data analytics as we move to personalisation."

Prefontaine believes that AirAsia has a saleable model that could become very attractive to other airlines in the future. "AirAsia has become very strong in the Asia Pacific and has invested in

technology companies and platforms to build and launch its whole ecosystem. If it brings hugely competitive advantage it is worth trying to sell it. This has given them a lot more say in what is developed, what the system will do, and how it will do it. In-flight connectivity was not really part of the plan at the start. It was about how to monetise the tools available."

Prefontaine agrees that not all airlines could match AirAsia's innovative strategy, nor would they want to try to. Airlines use many platforms from competitor or partner airlines that have become a product. "Now it is less about hardware, technology and certification, and more about partnerships and the capability of generating revenue," says Prefontaine.

Partnerships & the passenger

Being able to 'talk' to the passenger along every step in the travel journey is the prime selling point to attract partners to buy into AirAsia's e-commerce platform. "Data is king, and the ability to connect with our passengers is equally important," says Choudhury.

But it is also important 'how' you talk to your customers, and Choudhury adds that partnerships are fundamental to AirAsia's long-term strategy in achieving a "perfect experience for the passenger." Although he would not reveal more details at this stage, he did say that some "hugely exciting news" will be announced about the airline's F&B brands SANTAN and T&CO in the coming months.

Decisions around hardware and software and the complex nature of external connectivity have been managed well, confirms Choudhury. The connectivity world was not on the radar for AirAsia's CEO, because the market is too crowded with fierce competition.

"The world always wants to be connected. We are not obsessed with it, but we recognise its huge importance to link our ecosystem, particularly BigPay, Big Loyalty and OURSHOP, which are huge focus areas for AirAsia."

Rokki WiFi is already installed on more than 50 aircraft, with the full fleet to follow in the next 18 months. Rokki WiFi offers passengers pre-paid or buy-onboard WiFi access on a 'Chats Plan' or 'Internet Plan', so they can use their favourite apps to stay on-line and shop, chat or check e-mails. There are several plans tailored for different needs.

The ability to purchase larger goods

that would be the territory of an Amazon on the ground is something that Axinom's Wagner believes will excite passengers and offer great value for airlines.

"If I can buy duty-free during the flight, or even larger goods, without having to think about where I need to pack them, that is great," says Wagner. "Such scenarios offer huge value for airlines with regard to building ancillary revenues. The passenger is not really doing anything when on board, so these retail options become very valuable.

"Every traveller can forget to pack an item," adds Wagner. "Offer a service to deliver a product I have forgotten, like a razor or a shirt. Amazon does this daily."

One way to subsidise the connectivity investment is through advertising, sponsorship and charging for in-flight internet access. AirAsia has used the latter, but Global Eagle's Creaven believes advertising holds the key to big revenue gains for airlines to more than offset any investment in the cost of operating a wireless IFE system that provides free content. Adverts have not generated significant revenues through IFE in the past, but Creaven thinks this will change.

"Everyone is talking, but no one is doing when it comes to the opportunities being missed in advertising," she says. "The advertising industry is worth $600 billion. We are showing airlines that they can grow revenues much faster by taking simple steps. For example, we know of an airline with three different WiFi providers, which means it has to educate three different advertisers about adverts."

Choudhury says AirAsia is looking carefully into this, but will not be drawn on details. "Advertising and sponsorship are huge in a consumer-facing business. The ROKKI team has the ambition and a plan to grab that revenue stream."

Changing cabin crew role

Cabin crew have always been an integral part of an airline brand. They are its human face and have the power to enhance or sour the passenger's in-flight experience. With connectivity placing the passenger more in control of their experience than ever before, the role of cabin crew could change considerably. Some airlines are already scaling back human contact through multiple touchpoints with passengers. Others, such as Air New Zealand, have elevated crew to the role of onboard concierge.

"There will always be a need for cabin crew to engage with passengers," says Creaven. "Human contact is very important. Someone commented to me that they had zero human contact on a recent flight, from checking in through to the in-flight experience. Everything was digitised. A balance needs to be struck.

"The tech committee on APEX

TOP 10 AIRLINES - ANCILLARY REVENUE PER PASSENGER				
Annual results 2017 (US Dollars)		Ancillary source	2008 Comparison (US Dollars and & increase above 2008)	
$50.97	Spirit	Various	$18.61	+174%
$48.87	WOW Air	Various		Airline did not operate in 2008
$48.33*	Frontier	Various	$3.70	+1,206%
$48.67	Allegiant	Various	$26.66	+83%
$43.00	Jet2.com	Various	$19.04	+126%
$42.55	Qantas Airways	FFP	$15.83	+169%
$38.83	United	Various	$22.86	+70%
$33.12	AirAsiaX	Various	$21.00	+58%
$32.52	HK Express	Various	N/A	N/A
$31.15	Wizz Air	Various	N/A	N/A

2007 and 2008 carrier results were based on 12-month financial period disclosures.
* IdeaWorks Company estimate based on past disclosure and updated for current report.
Local currencies converted to US dollars at July 2017 and July 2018 rates of exchange.

believe that one day all services will be pushed to tech, away from people," adds Creaven. "When partnering with global brands and advertisers it takes human thoughtfulness, not computers, to gain the trust of a company willing to place millions of dollars at your disposal to start a campaign."

Christine Martin, managing director of Travel Retail Training, has worked with cabin crew for over 30 years and does not see 'digitisation' as a threat to their role. On the contrary, she embraces the possibilities for crew to give a truly personalised service. "The role of cabin crew remains the same," says Martin. "Safety first, service always. More airlines are issuing their crew with tablet devices. This enables the airline to update crew at a touch of a button and check they have read each message. So many aspects of the crew's role, such as rostering, swapping flights, and safety and service procedures, can be uploaded." She warns that adding passenger information so that crew can personalise the service more remains an issue, due to General Data Protection Regulation (GDPR) rules, but this is being explored. Martin agrees that cashless transactions on board will become the norm, with electronic point of sale (EPOS) systems becoming more sophisticated and able to collect invaluable data for the concessionaire and airline. Some airlines Martin works with take business-class passenger meal orders on tablets to reduce waste.

Wagner believes that cabin crew will serve more as guides to passengers. "They should not be pressing buttons to re-start things, but instead help people to fulfil services," he says. "I would like cabin crew to explain to me how the product I ordered will be delivered. But crew need

technology to provide this information. More digitalised services are coming and we need crew who can use them. For example, there are always black spots with no connectivity when flying between destinations. Crew need to know about these on every flight so they can answer passengers' questions. The future is going to be more and more about 'services'."

Catherine Goh, regional head of in-flight retail for AirAsia, agrees that crew should be service ambassadors and are more important than ever as the airline moves forward with their omni-channel retailing strategy.

"Our cabin crew are our greatest sales ambassadors, and can guide passengers through our exciting technology options, such as Rokki," says Goh. "If a passenger orders a product in the air via EPOS, we profile them and push similar products to them on landing to create more touchpoints for brands and retailers."

With technological developments moving at breakneck speed, only service-oriented connected airlines will satisfy the needs of demanding travelling consumers. Being able to book an Uber from the air so a car is waiting upon landing will only be possible if airlines hold passengers' credentials and credit card details from the point of booking to taking their seats.

Being 'connected' opens the door to a rich pool of data on passenger behaviour that could increase ancillary revenues via predictive analytics and profitable partnerships. It is not about reinventing the wheel. Airlines that ignore such important trends, may as well be flying blind.

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