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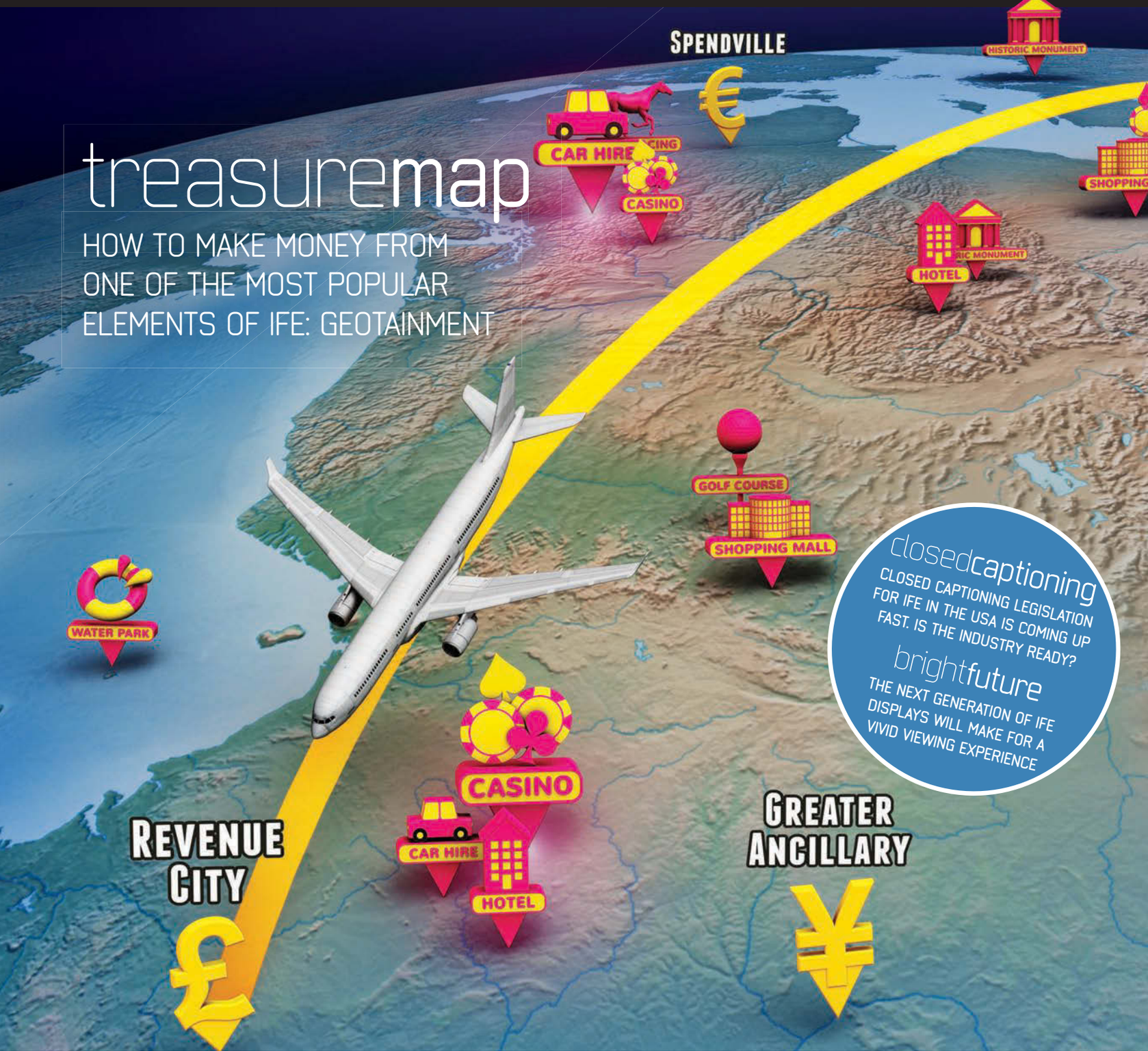
SHOWCASE2013

What's inside?

- Airlines that broke the IFE mould
- IFE industry Q&As

THE INTERNATIONAL REVIEW OF IN-FLIGHT ENTERTAINMENT & COMMUNICATIONS



treasuremap

HOW TO MAKE MONEY FROM ONE OF THE MOST POPULAR ELEMENTS OF IFE: GEOTAINMENT

closedcaptioning

CLOSED CAPTIONING LEGISLATION FOR IFE IN THE USA IS COMING UP FAST. IS THE INDUSTRY READY?

brightfuture

THE NEXT GENERATION OF IFE DISPLAYS WILL MAKE FOR A VIVID VIEWING EXPERIENCE

RAVE MAKING HEADLINES!

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> I'M HAPPILY IMMERSED IN A POTENTIALLY REVENUE-GENERATING EXPERIENCE, AND THE AIRLINE IS HAPPY WITH THE ENHANCED IFE OFFER AND PROFITS

scenicroute

For me, like many passengers, the moving map is the backbone of the IFE experience. Every film or TV programme I watch on the system is partly for enjoyment, partly to consume a chunk of time. So after a 120-minute film I have a quick check of the map, am baffled why only two hours of my journey have passed (I seem to lose all temporal sense on an aircraft, particularly in economy), and then select another time-filling blockbuster. And repeat. And repeat again, many times.

I could look out of the window, but generally the view from 35,000ft, while amazing from the perspective of human achievement, offers little I can identify. Fields and mountains, bodies of water, and the occasional town or city can be spotted, but it isn't especially engaging. The moving map often doesn't add much, beyond some vague topography and the major cities within 500 miles or so being highlighted. But there is all manner of life down there – towns, racetracks, parks, historical sites…

Now imagine how much more interesting that speck down there would be if the map told you it was the site of a major landmark – Mount Rushmore, perhaps. And what if there were an option to dig a little deeper to find out more information, see photos of the site, and perhaps watch a short video? Perhaps that site itself could – for a small fee to the mapping company – provide a little more information, show prices and offers, hotel deals and hire car companies, so you could plan a visit now that your interest has been piqued. In fact, I'm already in a travelling mood and carrying my always-ready 'oh come on, we're on holiday' wallet, so let's book it now, using the seatback card reader – it'll be something to look forward to when we get back. Oh look, an ad just appeared offering me a guide book to the area and a case of the local wine, so let's buy that too.

I'm happily immersed in a potentially revenue-generating experience, the airline is happy with the enhanced IFE offer and profits, and local businesses are happy with my impulse purchases. Are we there yet? Nearly.

Adam Gavine, editor


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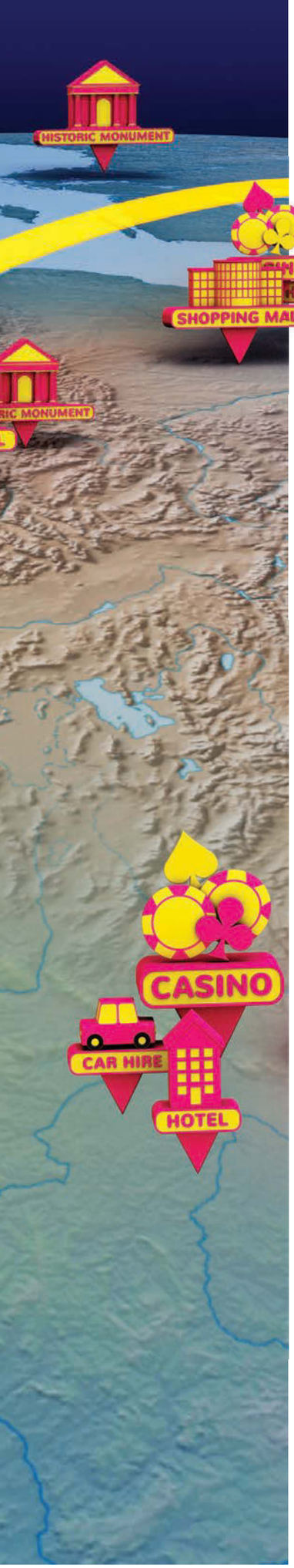

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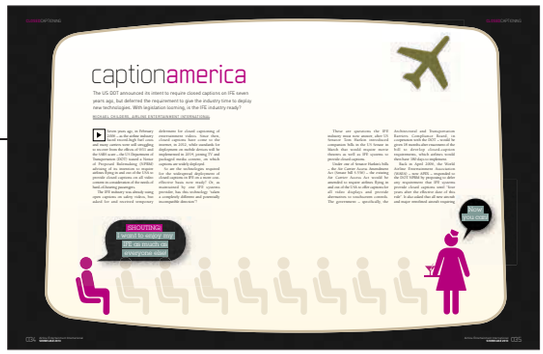
shorts

closed captions 034

Closed captioning legislation is about to take effect in the USA. Is the IFE industry ready?

MICHAEL CHILDERS, AIRLINE ENTERTAINMENT INTERNATIONAL



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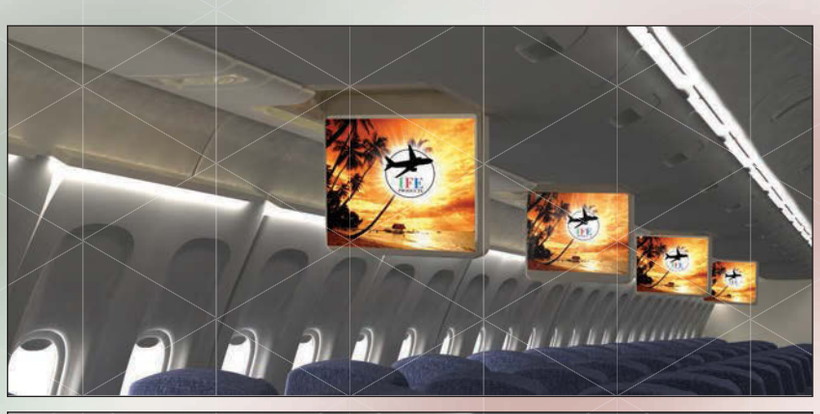

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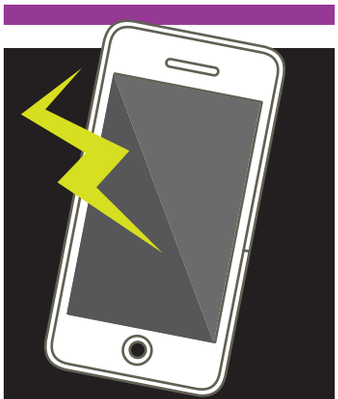
totallyconnected

As passengers get more accustomed to being connected inflight, the latest research has generated some interesting figures

84%

of passengers oppose inflight wi-fi charges

Holiday Extras survey



The number of hours of disrupted technological activity on domestic flights attributable to the FAA ban on the use of electronic devices during take-offs and landings has grown by **104%** since 2010. In 2013, **105.8 million hours** of technological activity are likely to be hindered as a result of the ban, compared with **51.7 million hours** in 2010

Tablets Take Flight study, DePaul University, Chicago

97%

of airlines plan to invest in mobile passenger services and personalisation by 2016

2013 Airline IT Trends Survey, SITA

The IFEC market will grow from today's US$2bn to US$3bn by 2017

Global Commercial Aviation IFEC Market (2012-2017), Research and Markets

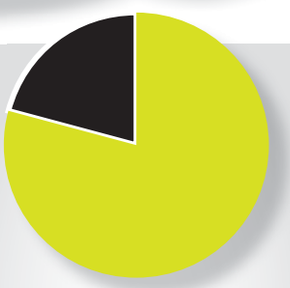
25% of respondents would choose one airline over another if it offered wi-fi

37% consider their iPad or tablet a carry-on essential, a **5% increase** from 2012

Tripadvisor annual air travel survey

Inflight wi-fi revenues will exceed **US$1.5bn** in 2015

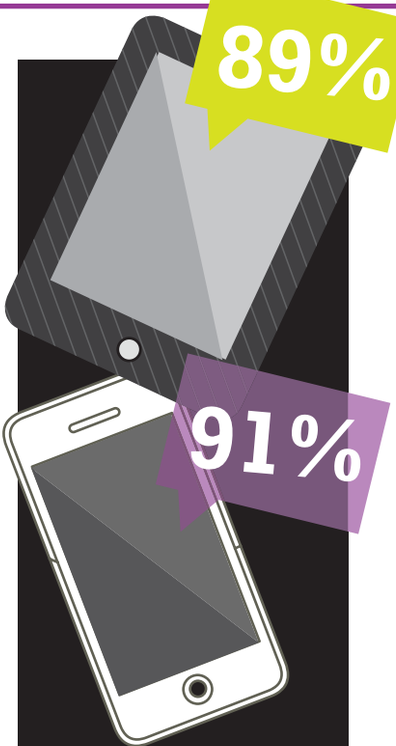
From Pipe to Platform: Worldwide In-Flight Broadband Providers Redefine Strategy, In-Stat



79.2%

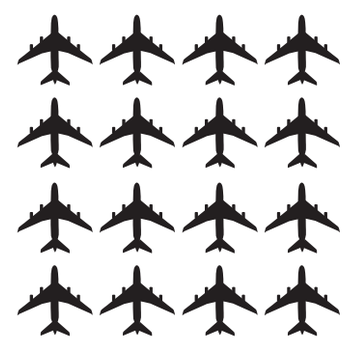
of US passengers are against allowing passengers to make mobile phone calls during flight

Travel Leaders Group survey



By the end of 2018, **91%** of US travellers will own a smartphone and **89%** will own a tablet

Travel's Mobile Centric Future, Hudson Crossing

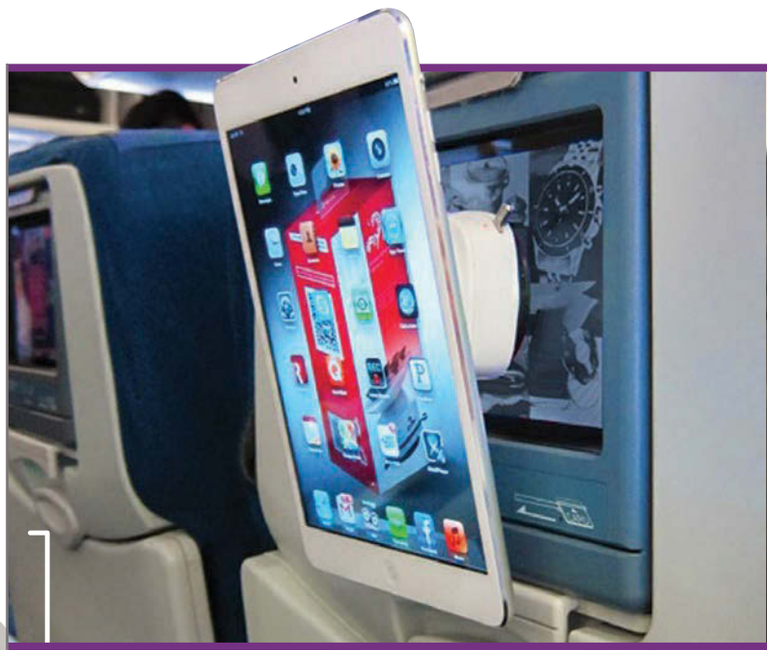


Over 12,000 commercial and 16,000 business aircraft will provide inflight connectivity by 2022, with passenger revenues growing from US$300m to US$1.3bn

Prospects for In-Flight Entertainment and Connectivity Euroconsult

handsoff

Wireless IFE has only one problem: no one wants to hold a device for hours. These designs can help passengers take a hands-off approach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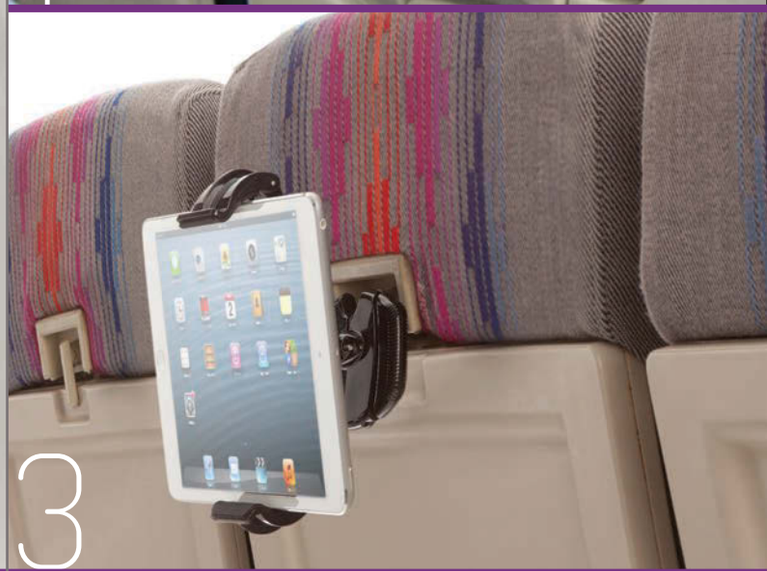
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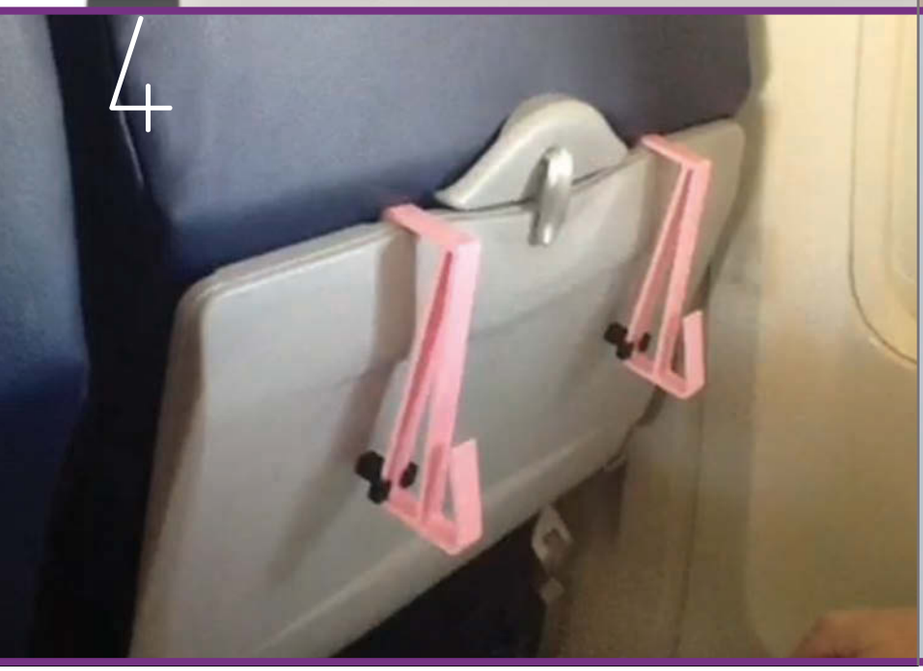
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5

1. Tablets suck

While on a flight, Terence Ronson, director of Spicy Innovations, noticed people trying all sorts of ways to rest devices at a comfortable viewing angle, some even involving handbags – hardly an elegant way to use sleek technology. Thus he devised the iFlyPad, a widget that clamps on to a surface and to which you attach your device using suckers. iFlyPad is device-agnostic and allows the viewing angle to be adjusted. However, it does have one drawback: it is intended to be clamped to a seatback IFE screen, which makes it unsuitable for flights with wireless streaming.

2. Stuck on you

The Tablet Holder from Kaelis has a design as simple and straightforward as its name suggests. Simply slide your tablet device inside the sleeve, attach it to the seatback velcro, and you're ready to be entertained. This lightweight solution works well as a passenger-owned product, or airlines can lend out devices already fitted inside the sleeve.

3. Latch point

It's amazing how many seatback attachment points product designers are discovering. The SkyView, from technology accessories giant Griffin, features a clip that fits over and into the latch of most tray tables. Clip it on, fix your tablet into the adjustable cradle, and it's showtime. If SkyView – priced at US$29.99 – doesn't fit a particular latch all is not lost, as it can also be used as a tray table stand.

4. Right hook

Yet another fixing point has been found – this time the edge of the stowed table. AirClipZ are a remarkably simple idea: you simply hook one end of the clips over the table edge, then insert your device in the other end. It doesn't matter if the device is in a cover or not, it can still fit, and you can slide the simple adjustment mechanism to alter the viewing angle. If you're not in the mood for a movie, you can even use the clips to hang a jacket or handbag.

5. Lock and upload

The Arctic Flight stand shows the power of crowdsourcing, as it was funded through Kickstarter. This iPad-only solution again uses the tray table as its mounting point. Securely lock your device into the bracket (you can use it full-time as a screen cover), then slip it behind the closed-and-locked tray table and you have a fully adjustable seatback display. This device is great for really frequent flyers as it is very sturdy, although it is also one of the heavier options at 13oz (370g).

6. Get lippy

The ECO-00 short-haul economy seat from ZIM Flugsitz is a well-considered design, featuring a sculpted seatback to improve comfort at a 28in pitch. Another great feature is the simple lip on the cocktail table, which lets you rest a tablet on the seatback for hands-free viewing.

7. Rack star

Not to be outdone, Italian seat supplier Geven has included in its Comoda business class seat a beautifully integrated PED rack option, which can hold and tilt a range of tablets. It works especially well when the seat is also fitted with a conveniently located power outlet for charging. The PED rack is no mere concept – it is available today and is already being delivered to three major carriers.

8. Into the groove

Back to tray tables, another clever solution is the SmartTray X1 from Smart Tray International. Brilliant in its simplicity, the X1 is... a tray table with a groove in it. And what can we say, other than it works perfectly and holds a device with no brackets or clips involved. An existing tray table can be straight-swapped for a SmartTray in less than one minute with two screws. However, the really clever bit is that the SmartTray includes the option for an advertiser-driven revenue-sharing plan that creates ancillary revenues for the airline.

brightfuture

The next generation of IFE displays will offer passengers an array of astonishing blockbuster capabilities

JAMES CARELESS, AIRLINE ENTERTAINMENT INTERNATIONAL

Super-thin large organic light-emitting diode (OLED) flexible curved screens, and a womb-like immersive video experience: these are a couple of the options being researched and developed now for the IFE displays of tomorrow.

The R&D visions range from the advanced to the seemingly outlandish, and on to the outright 'belongs in the next *Star Wars* instalment' type of notions. However, dig into the next generation of IFE display options being developed, and two facts become clear: these innovative IFE display options are technically possible, and their realisation may be closer than one might think.

LOOKING FOR A WIN-WIN For IFE display makers such as Panasonic and Thales, the goal is to create IFE displays that provide passengers in all classes with a better entertainment experience; whether they are watching movies, playing games, or surfing multimedia content. At the same time, IFE manufacturers want to develop displays that are lighter, simpler to install and maintain, and provide promotional/value-added benefits for airlines. After all, the business purpose of IFE is to keep the passengers quiet, engaged and happy – much like busy, contented toddlers in a well-run daycare centre.

Compared with the heavy analogue CRTs of yesteryear, today's IFE displays are already on this track. "The latest IFE LCD displays are all HD, with 178° viewing angles," says Neil James, Panasonic Avionics' executive director of corporate sales and product management. "The extra viewing angle

01. Curved OLED screens bring more depth to entertainment

WILL SAMSUNG THROW A CURVEBALL INFLIGHT?

The 2013 International Consumer Electronics Show in Las Vegas saw Samsung unveil its Curved OLED TV, designed to add depth for a more life-like viewing experience. The screen also offers a panorama effect, which is not possible with conventional flat-panel TVs. Samsung says it has optimised the picture quality to deliver a more comfortable viewing experience too, as the curved panel allows the distance between user and screen to be the same from almost any angle.

Samsung won't be the first to bring the technology to the consumer market – LG has taken that accolade with its 55in 55EA9800 model – but could it be the first to bring it to the IFE market? The company has teamed up with Boeing to research and develop technologies that improve IFE and communications.

The two companies will, they say, start developing advanced display and wireless networking technologies that offer more capabilities for passenger entertainment and ground-to-air communications, but are lighter and require less power.

Bum-Coo Cho, Samsung's senior VP of enterprise business, explains, "Aviation is one of the most complex and sophisticated landscapes in business, with millions of passengers and employees passing safely through aviation systems every day. We will bring our expertise in multimedia and information technology to the forefront of aviation for a richer and more fulfilling connected experience while travelling."

has enabled us to remove tilt mechanisms from these seatback monitors, which saves a lot of weight in the aircraft. Meanwhile, the move to backlit LCDs has substantially reduced power requirements, which is also good news for airlines."

Current trends in IFE displays are pushing into technologies that improve passenger viewing experiences while further reducing power and weight demands, translating into less fuel being required to support onboard IFE systems. These trends include a push towards OLED displays in place of LCDs, and bigger, thinner and curved displays that give passengers more to see while further reducing aircraft weight for fuel-conscious airlines.

WHY OLEDs? OLED displays have a number of distinct advantages over LCD displays. The organic material used in an OLED display emits its own light when electricity is applied, meaning an OLED display doesn't require a backlight like an LCD display does.

Eliminating the backlight reduces power consumption and allows the OLED screen not just to be thinner, but also to be applied to a flexible plastic material. This makes it possible to create wider curved OLED screens, providing a more immersive viewing experience, even in a seatback monitor.

OLEDs also provide better blacks than backlit LCD displays, simply because there's no background LED

> 66 CURVED AND FLEXIBLE OLEDS CAN REDUCE THE SEVERITY OF PASSENGER HEAD IMPACT INJURIES INCURRED DURING TURBULENCE 99

01

02

illumination to wash out the blacks. "They also provide a wider range and variety of displayed colours," says James. "Meanwhile, as video content quality advances from HD to 4K resolutions – a four-times resolution improvement that is on the horizon – OLED technology is better suited to showing this content than LCD."

In an aircraft environment, curved/flexible OLEDs offer another advantage: they can reduce the severity of passenger head impact injuries incurred during turbulence and forced landings. Add the thinner profile, which fits better in today's reduced-thickness economy seats, and OLED IFE displays are a natural fit for the airline industry.

At present, the cost of manufacturing OLED displays is keeping them out of aircraft. But Brett Bleacher, Thales' director of innovations and R&D, expects this cost to drop soon. "Although Samsung has already been making a big push for OLEDs in HD TVs, we have to wait until this technology turns up in laptops and tablets," he says. "Once this happens, OLED prices will drop sufficiently to allow us to use them in IFE systems."

Flexible, super-thin curved seatback OLED displays are only one of the exciting possibilities for this technology. Given that seats in first and business class are usually too far away from the row ahead to make touchscreens

02. Panasonic is striving to create the home cinema experience in the air. Interestingly, due to the shape of many first-class suites, many passengers still demand touchscreens

03. No touching required with Thales' gesture control technology

03

practical, Bleacher foresees the use of flexible OLED screens to provide these passengers with touchscreen control units.

"They will be like the roll-down plastic screens seen in the sci-fi movie *Red Planet*," he explains. "When you want to change the content on your display, you'll pull out the flexible plastic touchscreen and make the changes you desire."

NEXT-GEN CONTROL... AND BEYOND

Next-generation IFE displays aren't just about better resolution, bigger yet thinner pictures, and less demand on their aircraft: they're also about more intuitive yet less hardware-intensive control systems.

Already, the move to touchscreen seatback displays has reduced the amount of cabling and control systems required in the cabin, by removing the need to install separate chair-mounted display controls.

"To keep from annoying people in the seat on which the monitor is mounted, we have made our touchscreens very sensitive, so that a light touch is all you need," Panasonic's James says. "After all, you don't want passengers pecking away at the display while the person in that seat is trying to sleep."

Thales is a leader in advanced control systems, as proven by its 2013 Crystal Cabin Award-winning eye tracking and gesture control technologies. Both of these take a nod from Microsoft's Kinect video game technology, enabling users to operate IFE systems without physically touching a screen or separate control surface.

"Our systems use cameras to track the users' hand and eye movements," says Bleacher. "They are being developed for first and business class, where passengers are too far away from the next row to use a touchscreen approach. Gesture and eye-tracking also relieves users from having to look down at a remote control, up to the screen, and then back down again. That can be annoying for passengers on long flights."

These two control systems and many other advanced features are being harnessed by Thales in its immersive multimedia 'pod' prototype. Designed to be large enough for a fully extended first/business class bed seat, with access to a window for outside viewing, the pod is a world within itself. Not only will passengers enjoy full wrap-around OLED screens for enjoying movies or games, they will also have multichannel audio, massage seats with transducers capable of vibrating in sync with movie/game effects, and aromatherapy scents to add an extra layer of reality to the experience. "If you're looking at a forest,

do the twist

Prototype mobile devices that can change shape on demand have been unveiled by researchers at the University of Bristol in the UK, who say this could lay down the foundation for creating 'high shape resolution devices of the future'. They could also indicate a possible new direction for shape-changing, or perhaps even stretchable, IFE displays and handsets.

The research, led by Dr Anne Roudaut and Professor Sriram Subramanian, from the university's department of computer science, have used 'shape resolution' to compare the resolution of six prototypes the team have built using the latest technologies in shape-changing material, such as shape-memory alloy and electro-active polymer.

One example is the team's concept of Morphees: self-actuated flexible mobile devices that can change shape on demand to better fit the many services they are likely to support.

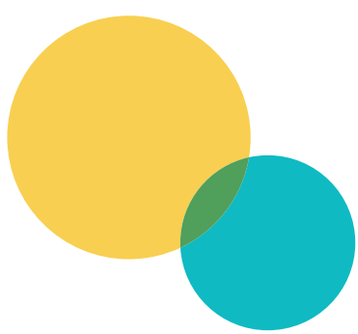
The team believe Morphees will be the next generation of mobile devices. Roudaut, a research assistant at the university said, "The interesting thing about our work is that we are a step towards enabling our mobile devices to change shape on demand. Imagine downloading a game application on the app store, and that the mobile phone would shape-shift into a console-like shape in order to help the device to be grasped properly. The device could also transform into a sphere to serve as a stress ball, or bend itself to hide the screen when a password is being typed so that passers-by can't see private information."

In the future the team hope to build higher shape resolution Morphees by investigating the flexibility of materials. They are also interested in exploring other kinds of deformations that the prototypes did not explore, such as porosity and stretchability.

This may not be a distant reality, as Apple has filed patents for 'Flexible Electronic Devices' which look similar to bendy iPhones, and recently posted a job advertisement for a display specialist to work on, among other technologies, flexible displays.

04

04. Shape-changing technology could create truly personal entertainment devices



> NEXT-GENERATION IFE DISPLAYS AREN'T JUST ABOUT BETTER RESOLUTION, BIGGER YET THINNER PICTURES, AND LESS DEMAND ON THE AIRCRAFT

05

you'll smell the forest," Bleacher says. "Or if you're in an orange grove, you'll smell the fruit."

Thales is even experimenting with bodysuits and slippers to provide tactile sensations in the pod. "If you're standing foot-deep in the ocean, the slippers will chill your feet, a sensation similar to being wet," says Bleacher.

05. The next consumer trend to influence IFE displays? 4K TVs are now on the market, with a resolution of 3840 x 1260 – four-times that of HD panels

> 66 THE PROBLEM WITH 3D IS THE DEMAND IT PUTS ON YOUR AIRCRAFT SYSTEM. SUPPORTING TWO HD STREAMS PER MONITOR MEANS TWICE THE BANDWIDTH 99

ANOTHER DIMENSION With all of these incredible IFE display advances, one would expect 3D to be a part of this bold new future. But despite the fact that Panasonic is already offering 18-24in 3D-capable displays, there isn't a tremendous amount of demand.

"The problem with 3D is the demand it puts on your aircraft system," explains James. "Supporting two HD streams per monitor means twice the bandwidth is needed, plus twice the storage space on the IFE server. In an aircraft Ethernet environment, that demand can add up, and affect performance for other non-3D viewers."

Even in a perfect world where 3D TVs didn't require special glasses, the technology isn't well-suited for aviation. "3D TV isn't real 3D," says Bleacher. "The way your eyes perceive three dimensions in reality is not quite the same as how it is simulated by 3D TV, which is why up to one-third of the population gets headaches and eye strain watching 3D content. Frankly, it doesn't make sense to offer something that can cause nausea inside an aircraft."

This said, Thales has a 3D application it is developing for the pod; a 3D hologram of a stewardess, programmed to interact with passengers, and capable of displaying different facial emotions.

"We're thinking of something like the Princess Leia hologram in *Star Wars: A New Hope*," Bleacher says. "She could be a first point of contact for passengers in the pods, enabling them to get some level of service and assistance without ringing for a human stewardess."

REAL PROGRESS When it comes to IFE displays, the aviation industry has come a long way since 1925. That is when *Flight* magazine reported that "an interesting experiment was carried out on 7 April, when a Handley Page aeroplane ascended from Croydon Aerodrome, with 12 passengers, and during half-an-hour's flight the film version of Sir Arthur Conan Doyle's *The Lost World* was 'shown' on a screen fitted up in the cabin of the machine."

Today, HD touchscreen displays are becoming commonplace. But when will they be replaced by flexible OLED displays, gesture and eye-controlled monitors, and immersive multimedia pods? "The technology to make them happen exists," replies Bleacher. "So it is possible that you will see these devices turn up in aircraft in a few years' time, and that they will become standard equipment not long after that." ■

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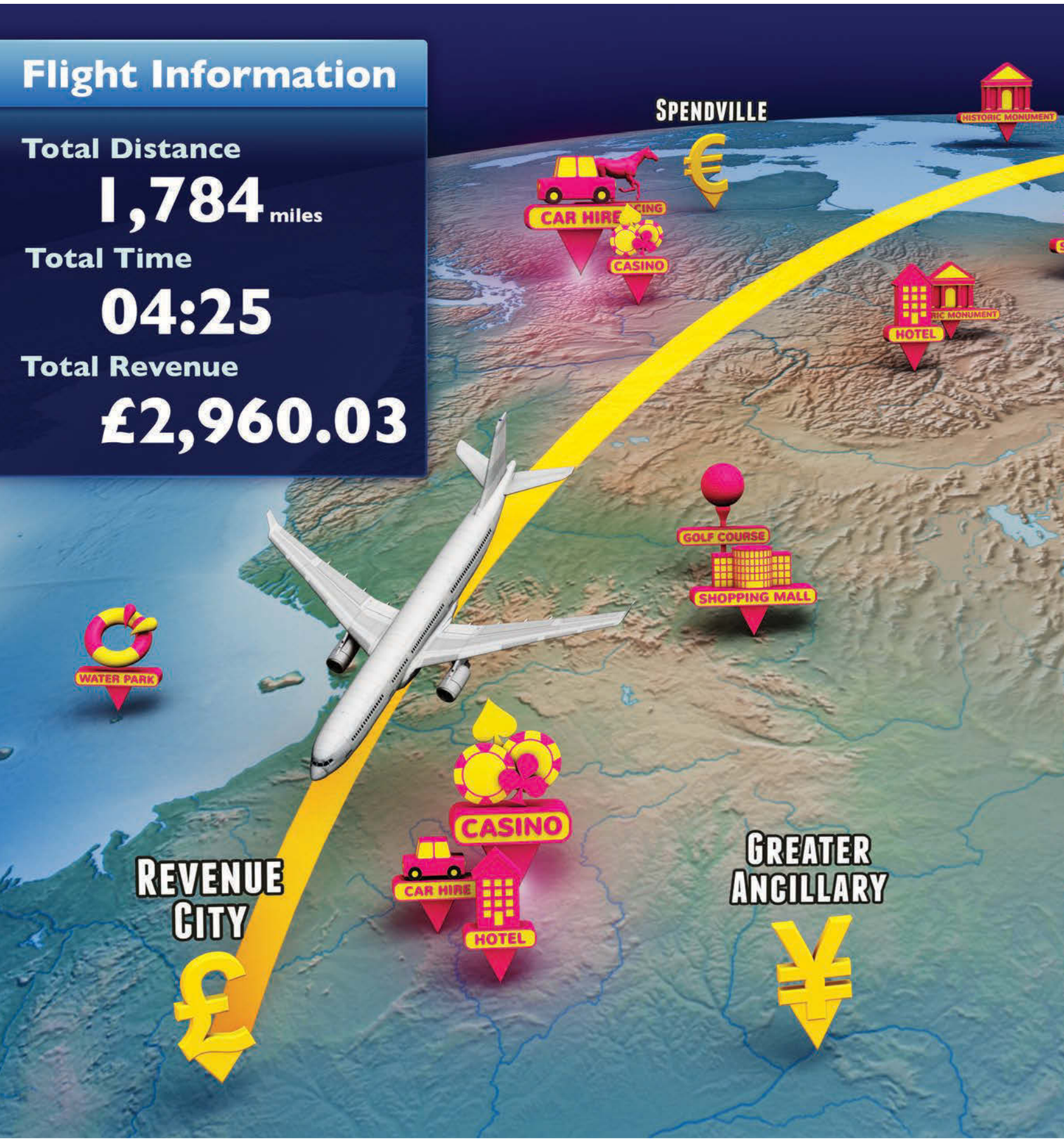
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treasuremaps

Geotainment trumps even the latest Hollywood content in terms of passenger usage and enjoyment. The time has come to make it a more immersive and profitable experience

PAUL WILLIS, AIRLINE ENTERTAINMENT INTERNATIONAL

There's truth to the old cliché that the best ideas are often the simplest. Take the moving map – the screen that tracks your flight's geographical position on a commercial aircraft's IFE system. The map is synced to the aircraft's GPS, with the aircraft's coordinates plotted out on a spatial map. Nothing could be more straightforward.

Yet since it first appeared in the 1980s, the moving map has not only endured, it has become so popular it's now fitted as standard on virtually every IFE system around. According to David Pook, director of applications for aeronautics giant Thales, the reason for the moving map's popularity is as easy to explain as the idea itself.

Pook says, "Whenever we go on a journey, there's this child inside us going 'Where are we now? When are we going to be there?' The moving map answers this need."

Over the years, the software companies that make the maps have gone beyond these basic questions to find answers for passengers' curiosity on a range of flight data. The current generation of moving maps feature panels for altitude, airspeed and outside temperature, as well as points of interest (POIs) along the way. They have also created maps that are visually stunning and increasingly interactive: both Thales and Rockwell Collins, the leading producer of moving maps, have products that use 3D visualisations and multiple viewpoints that the user can control.

THE REVENUE ROUTE One thing that the map makers haven't made much of, however, is the ancillary revenue the maps might generate through advertising. The ubiquity and popularity of the maps make them an obvious place to put ads. Yet,

ILLUSTRATION BY MAGIC TORCH

01

01. Rockwell Collins' Airshow for the iPad app expands on Airshow's capabilities

until now, this potential has remained largely untapped.

To get a sense of just how big this potential might be, the Swiss media company Ocleen TV has developed a free onboard IFE system financed entirely by advertising. The Ocleen product works via an onboard server that passengers can access with handheld devices like iPads and Androids. Dubbed Air.connect, it may be the shape of things to come.

Lufthansa Systems' Norbert Müller certainly thinks so. Müller heads the business division for the BoardConnect wireless infotainment system. Like Ocleen's product, BoardConnect brings IFE to aircraft where no seatback entertainment exists, usually short-haul flights. According to Müller, this is where the biggest future growth in IFE and, by extension, moving maps, is likely to come from. He says the advertising and branding potential is something Lufthansa Systems has already researched extensively.

> 66 ALL OF THIS IS GOING TO HAPPEN. THE ONLY QUESTION THAT NEEDS TO BE RESOLVED IS WHO WILL THE MERCHANT BE? 99

POINTS OF INTEREST "We're in the process of adding POIs that will be rolled out later this year," he says. "The next step is to use the POIs as a way to promote and sell services relevant to the passenger experience."

Müller suggests that these services could include obvious tie-ins such as hotel and car rental information at the flight's destination point. But he points out that the services needn't be so narrowly focused.

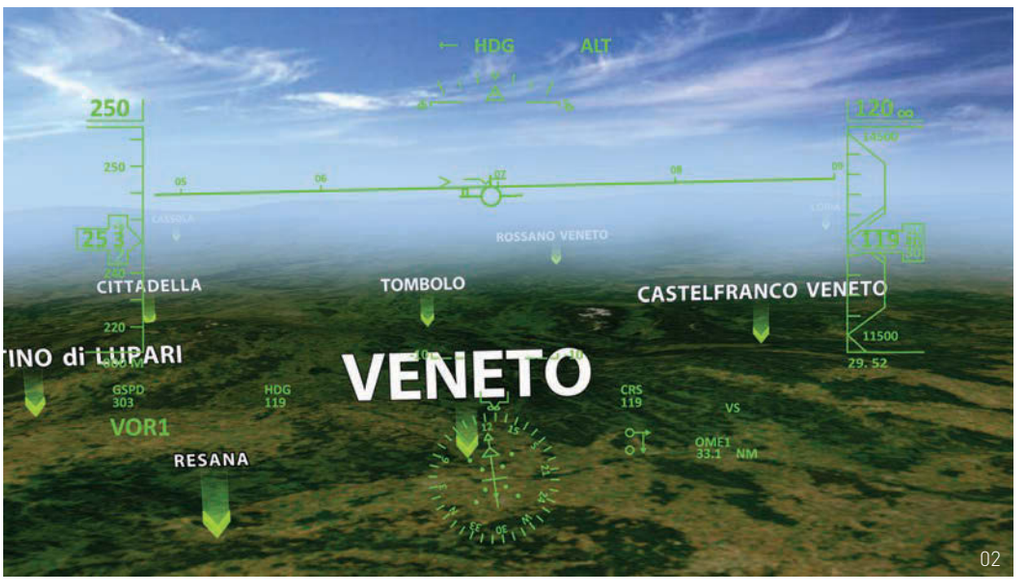
"The example would be: say you're flying over France, and people associate France a lot with wine. Well, our POI might be a vineyard in Burgundy that takes you to an online shop where you can buy some of that vineyard's product and have it shipped to your home. The possibilities are really broad."

Müller says Lufthansa Systems plans to introduce sales options to its BoardConnect map by next year. He says any lack of internet connectivity won't impede this development.

"Even without connectivity you can do most of the business. You can take card payments at an offline shop hosted by the onboard server. When the aircraft lands, the server will connect to ground-based wi-fi and the transactions will be automatically processed," he says.

"All of this is going to happen. The only question that needs to be resolved is, who will the merchant be? Is it the airline that controls the shopping experience, or do they contract out to a big online retailer such as Amazon? We've talked to some of the big guys about this, but for now this question still needs to be worked out."

> 66 WIRELESS SYSTEMS MAY OFFER HUGE POTENTIAL MARKETS, BUT FOR NOW THEY ARE IN THEIR INFANCY 99



02

02. Rockwell Collins advises against overloading Airshow with ad content
03. Investigating POIs on BoardConnect

03

Wireless IFE systems such as BoardConnect may offer huge potential markets, but for now they are in their infancy. The onboard servers they need to function are on very few flights. BoardConnect trials began with Condor, and it currently exists on only a few aircraft, though Virgin America will soon be running the system. The Ocleen product, meanwhile, has yet to be fitted aboard any aircraft. A third wireless moving map created by California-based MondoWindow can be accessed only via a web-based version available on US domestic flights hosting internet connectivity.

THE ORIGINAL AIRSHOW For now, the major market in moving maps remains the seatback IFEs that are used on the majority of international flights. If you've used one of these maps recently there's a good chance it was put there by Rockwell Collins. The Iowa-based avionics firm is the world's largest provider of moving maps, and estimates its maps are present in around 70% of all IFE systems on international flights.

Rockwell Collins' main product is the broadcast-only Airshow 4000. The latest generation of the 4000, the 4200D, features multiple 3D visualisations, information tickers for altitude and ground speed, and a relative location indicator giving precise distances to POIs. The POIs themselves are enhanced by information panels containing photos and facts provided by the travel guide publisher Fodor's that slide in and out of screen.

The maps can be customised to include ads. Right now, this is usually done

04

with full-screen display ads that flash up during the broadcast sequence. Emirates, one of Rockwell Collins' biggest clients, has taken advantage of this capability and updates these display ads about once a month, says Cathleen Collett, sales support manager at Rockwell Collins.

Collett says further customisation will be rolled out "within the year" with the coming wave set to focus on destination. Rockwell Collins is also working on expanding the POI feature to enable users to zoom in on a more detailed satellite image of the POI accompanied by an in-depth information panel. There are no plans as yet to carry further ads or sponsorship on the POIs.

"It is important to maintain a balance between information and entertainment," says Collett. "We want our product to look good and provide an enjoyable user experience, and part of that means not overloading it with sponsorship."

ENHANCE THE EXPERIENCE

Enhancing the user experience has been the main driver behind Thales' latest-generation moving map. Developed alongside technology company Geofusion for the TopSeries platform, the map will eventually replace some of the Rockwell Collins legacy products currently installed on about 300 aircraft with certain airlines. The new product was premiered in 2011 on a batch of 15 new Boeing 777s operated by Air China and has since been fitted to about 20 more aircraft, including some of the British Airways and Aeroflot fleets. The Geofusion 3D visualisations include views from left- and right-hand windows, cockpit views and an outside view of the aircraft that the user can rotate 360° in either direction.

"The really great thing about this system is the quality of the visualisations," says Pook. "We're using high-resolution satellite imagery that allows you to zoom in on things in incredible detail. It's analogous to Google Earth."

> 66 INCREASED INTERACTIVITY WILL NOT ONLY ENHANCE THE USER EXPERIENCE, IT WILL ALSO MAKE IT EASIER TO TARGET ADS TO CUSTOM AUDIENCES 99

04. The Geofusion/Thales system lets users immerse themselves in the environment outside the aircraft

Not everyone is quite so excited about creating a beautiful product, however. "From a personal perspective, aesthetics doesn't interest me as much as useful information," Lufthansa Systems' Müller reveals.

Greg Dicum, president and co-founder of MondoWindow, goes along with this philosophy, adding that the key to unlocking the useful information Müller is talking about is greater interactivity. Dicum says passengers should be able to scroll around the map with the same ease with which they browse a web page, clicking on geographical markers and POIs that link through to sponsored content. For example, a feature on Broadway theatre could pop up when you hover over New York. Dicum says increased interactivity will not only enhance the user experience, it will also make it easier to target ads to custom audiences.

"The fact that we know where the passenger is travelling to and from is already invaluable information to marketers," says Dicum. "The way the passengers then interact with the product can help us further determine what their specific interests are. It's the same principle behind the target ads you see on Facebook. It also means that advertisers can keep track of exactly how many passengers are viewing their content."

Either through web connections or onboard servers, there's no doubt that passengers in the future are going to enjoy fuller control of their IFE experience. What the moving map will look like in this new age of interactivity depends in some measure on the imagination of software developers and the will of the airlines. So although it's certain that the moving map's 30-year journey has yet to run its course, no one can say for certain where we are going or when we are going to get there.

"It's an exciting time," says Müller. "The possibilities for the platform are really huge. It all depends what we want to do with it." ■

CONTACTS

thales-ifs.com; rockwellcollins.com; mondowindow.com; lhsystems.com

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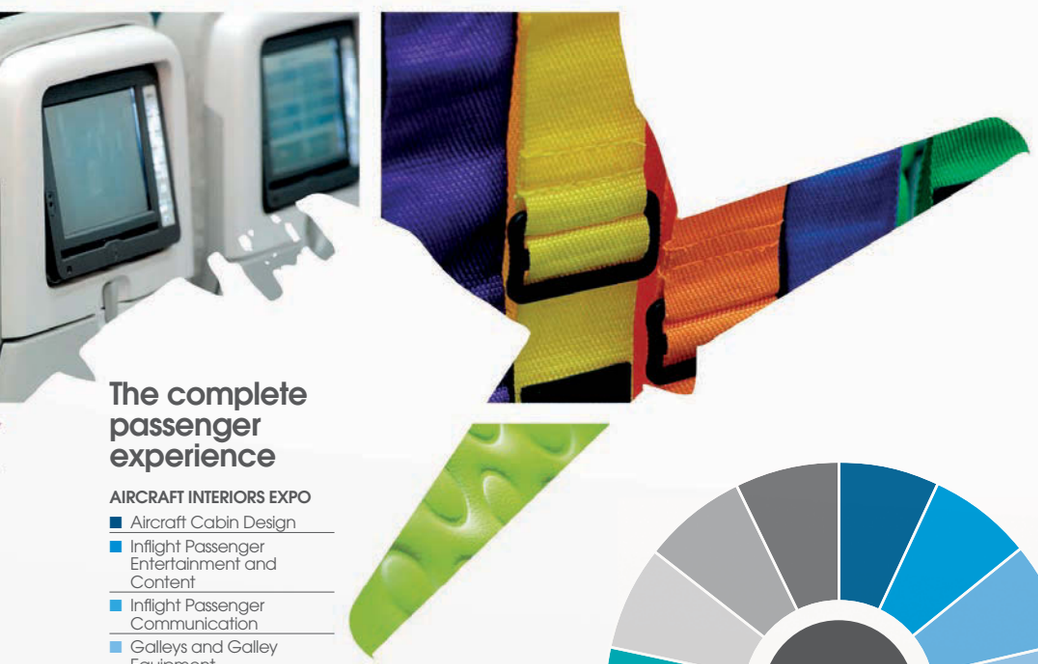

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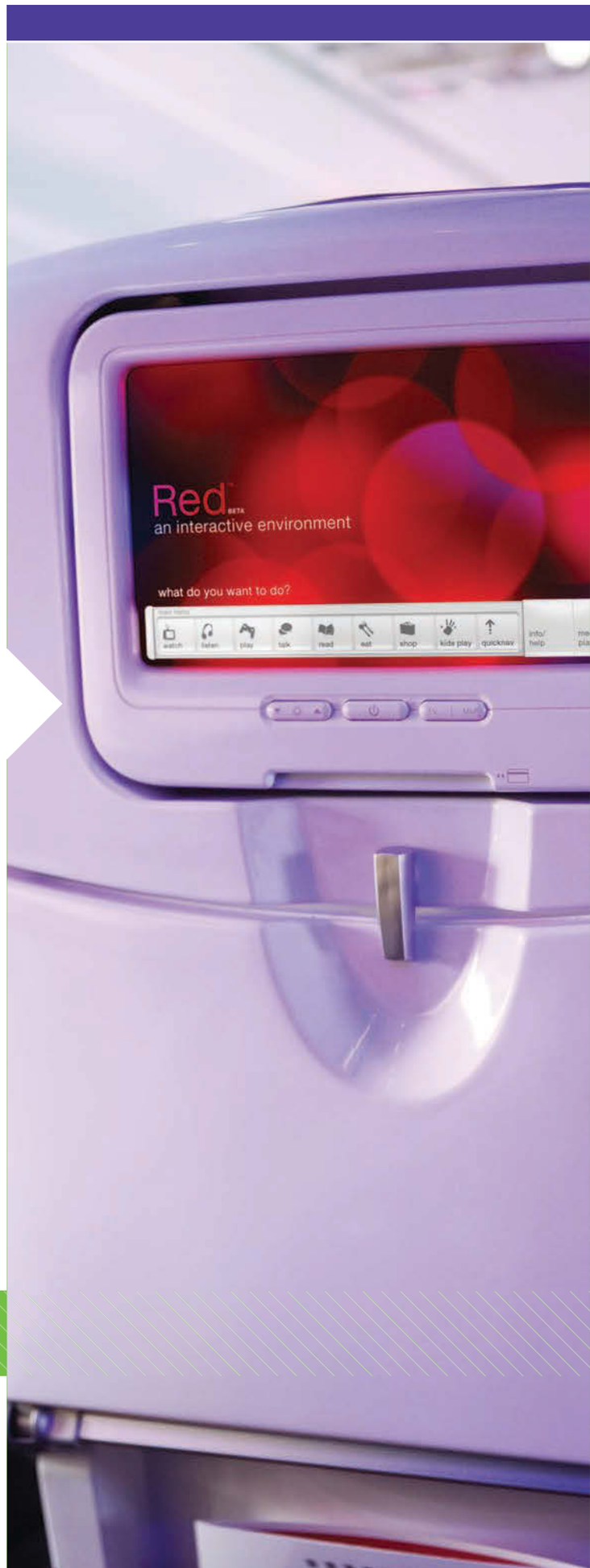
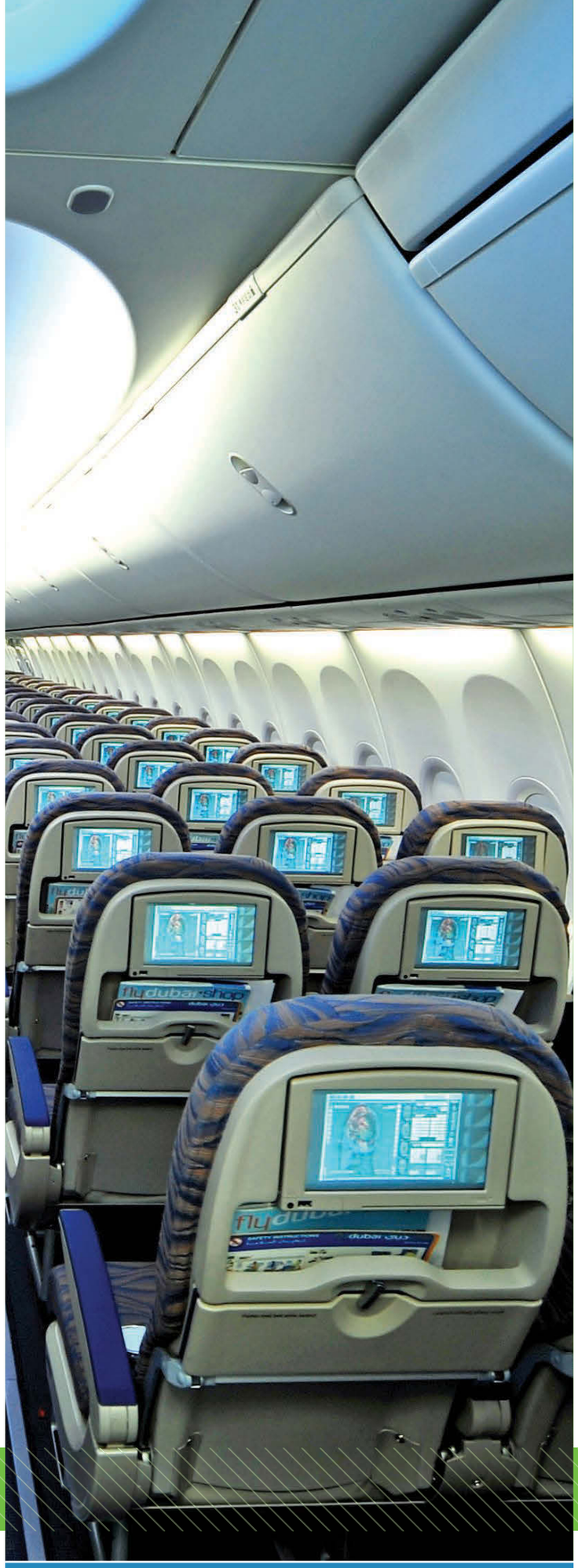
ifemavericks

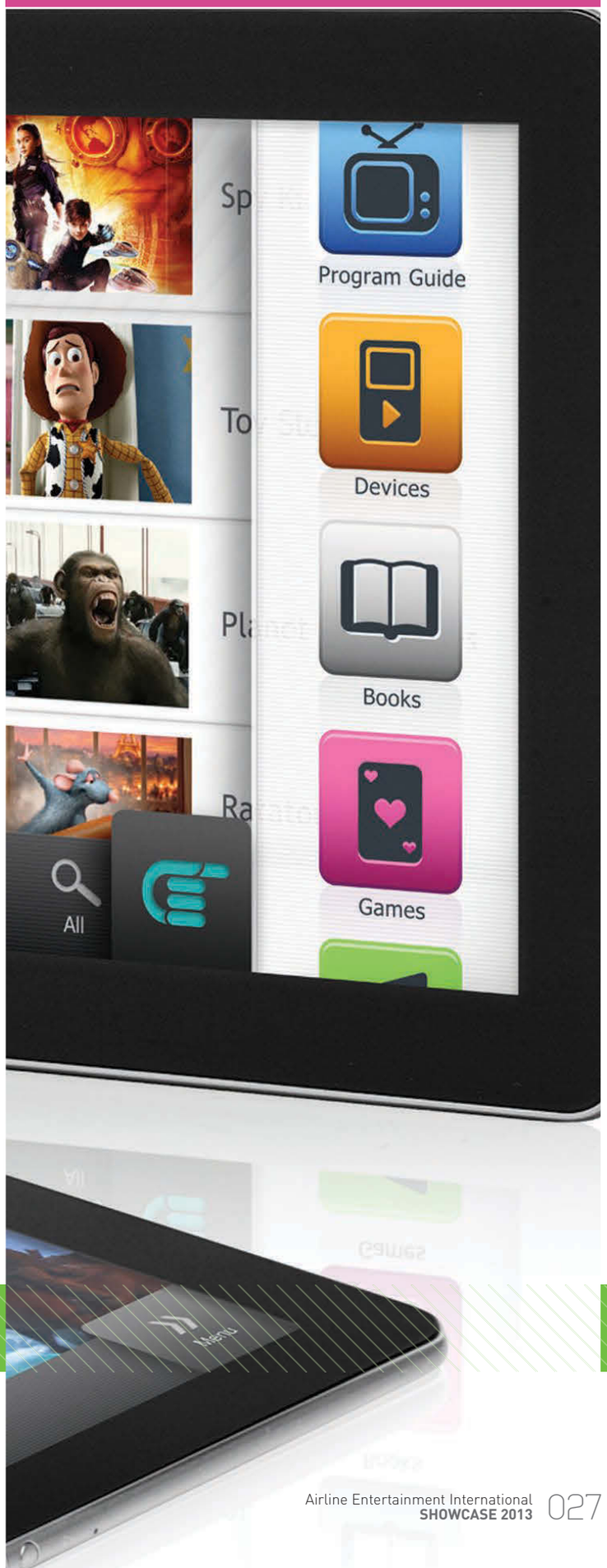
We profile some of the world's boldest airlines who have gone their own way in choosing IFE

Can you believe that in-flight entertainment (IFE) has been around for more than 90 years? A few names in history have shown that they had a vision of what IFE could be, from Aeromarine Airways' 1921 showing of *Howdy Chicago* using a suitcase projector on a Curtis F5L, to TWA showing the first film on a scheduled flight in 1961. Airlines saw the positive reaction, and the IFE industry has been growing ever since, with several innovations being developed over the years such as the 16mm film reel, the 8mm film reel, VHS, inflight audio players, and of course Airvision's introduction of the first in-seat video system in 1988, complete with 2.7in LCD screen, which Northwest proudly debuted.

The days of airlines blazing their own trail when choosing an IFE system are not over though, as these pioneering carriers show…






Program Guide
Devices
Books
Games
All

virginamerica

When Virgin America launched in August 2007, it had a respected name behind it, and its stylish interiors impressed. As a domestic carrier, surely a fairly standard IFE system would suffice for the flight durations. But when you're associated with a lifestyle brand, and even a film and TV production company, and you're keen to attract those trendy and wealthy young travellers in California, it's time to shine. A small fleet size (currently 53), mainly consisting of the same aircraft type (A320s), meant that an ambitious blank-sheet approach could be taken.

With a brief to create an interactive, Linux-based IFE environment, Virgin teamed with Panasonic Avionics for the systems; CoKinetic for the software; Wunderman for the custom GUI; and IMS for content loading. Anomaly handled some visual elements, and Inflight Canada used its iCache system to install the systems under the floor. Content was handled by Pace Communications and Spafax, as well as content partners Disney, Echostar, Fox, NBC, Paramount and Warner Bros.

The result was Red, an impressive IFE offering that also had an eye to the future, being ready to interface with external systems such as reservations systems or credit card processors, as well as to be compatible with broadband once introduced.

The launch features were seatback meal and snack ordering (a first for a US carrier), live satellite TV from Dish Network, complemented by Vera, the first ever inflight programme guide for live TV, around 25 Hollywood movies (pay-per-view in economy), VH1 music videos, and a range of open-source games with the promise of Linux game designers being able to design more games and inflight applications for the system. Not enough? How about wireless access throughout the cabin, or being able to send emails, SMS messages or even chat with each other via the screens during the flight?

Passengers were also wowed by the Google Maps feature that helps answer the dreaded question 'Are we nearly there yet?', in addition to being able to pan and zoom at eight different levels.

In November 2008, Virgin really rocked America. A special flight marked the beta launch of Gogo's wi-fi service, which let Red perform to its potential, and by May 2009 the ATG-4 service was offered across much of the fleet, enhanced through the addition of directional antenna, dual-modem and EV-DO Rev. B technologies.

The system continued to evolve, soon acquiring new features such as exclusive inflight daily pop culture video reports from Boing Boing TV, an audio channel for RCRD LBL, the world's first online music label, and the video library grew to more than 30 titles. In August 2009, some further work on the system brought useful features such as e-receipts for purchases made on the system, the option to listen to audio tracks instead of the soundtrack when playing the onboard

01

01. Red's simple purchasing processes are creating extra ancillary revenue

02. Beyond the welcome screen lies a very impressive system

03. If you like the look of a fellow passenger, you can send them a drink via Red

03

02

Condor connects

While Virgin America is preparing to install Lufthansa Systems' BoardConnect system, let's not forget who got there first: a German leisure carrier called Condor. Following a successful trial of the wireless IFE system on a single B767-300 in late 2012, the airline is currently deciding whether to go ahead and install it across its B767 fleet.

Light weight, simplicity and low cost are real benefits of the system, which consists of a server with a 3G modem and five access points throughout the cabin. Lufthansa Systems claims that the weight savings generated by the elimination of wiring and data transmission hardware reduce fuel consumption in a B767-300ER by more than 80 tonnes per year. Even better, since almost no wiring is required, the system can be installed during routine maintenance or night stops without additional ground time.

"In-flight entertainment is an important part of the travel experience and a way to stand out from the competition, particularly in the leisure segment," said Rainer Kröpke, head of product management and marketing at Condor, of the decision.

games (a feature driven by passenger suggestions), and three speeds for rewinding and fast-forwarding content.

Time to relax? Hardly. July 2010 saw a further upgrade of the system, including Google Maps now featuring terrain view maps with fresher images and eight levels of zoom functionality, a feature whereby passengers can swipe their credit card just once per flight and run up a tab for food, drink or movies, suggested pairings of food and drink, and an enhanced cocktail offer.

David Cush, president and CEO of Virgin America, said of the upgrade, "From our 2007 launch, our mission has been to harness new technology and design to reinvent the flying experience and give guests more comfort, choice and control. Red was already the largest and most advanced IFE platform in North America, but these latest enhancements will give guests even more options. The debut of enhanced Google Maps, shopping and even an open tab are all firsts in the IFE space, and we intend to keep investing in our system in order to deliver the best inflight experience in the skies."

Of course, the work was not just done because of a love of IFE. As Cush explained, "Investment in product is a core part of our business model and will allow us to stay ahead of the competition and win over consumers. Onboard ancillary revenue is a growing revenue stream for us, and we want to drive it in a way that gives travellers more value-added options they will appreciate. Believe it or not, custom cocktails, food pairings, an open tab and shop have all not only been part of our Red roadmap from launch, but they've also been requested by guests."

Wonderful, but September 2011 brought a dramatic development that will rock Red to its foundations. The airline announced that it had selected Lufthansa Systems' BoardConnect platform for the next iteration of Red. The system will run from the wi-fi network, but will still feature seatback monitors – indeed they will be larger and higher definition – and will allow passengers to multitask across platforms. Mobile connectivity will also be offered, as well as the ability for guests to plug their devices into the platform to download content. Recognising that many of their silicon valley passengers will appreciate the technology, back-end testing of the new platform took place on its newest Airbus A320 – aptly named #nerdbird.

"The idea behind Red has always been to reinvent the flight experience, by offering travellers more options, more control, more content and more interactivity. Even though we believe that Red has raised the bar and is still head and shoulders above anything else in the US skies, we're not the kind of company that rests on our laurels," said Cush at the announcement. "Our focus on innovation is a core part of our business model and guest offering, and BoardConnect will allow us to not only leap even further ahead of the airline pack, but also pace the larger consumer trends in mobile technology. We now have the architecture to design a dynamic entertainment experience that is the next logical iteration of Red."

Unfortunately, several issues have conspired to delay the proposed 2012 launch of the system. As a Virgin America spokesperson told us, "The deferrals will slow our plans a bit, but we still hope to launch new products in the coming years and we remain committed to BoardConnect. We've been very pleased with the early testing of the project and are now reviewing options and plans for next steps, with respect to possible retrofits and/or deferred implementation."

In the meantime, Virgin has added another feature: the ability to send a drink to another seat. Could IFE be the latest ice breaker?

flydubai

Our second maverick could be regarded as a bit of an underdog. Flydubai is another relative newcomer to the airline industry, having launched in June 2009; however, from the beginning it had a clear vision of offering a great passenger experience. This of course meant offering IFE, but as a low-cost carrier Flydubai needed maximum efficiency and the lowest costs. In its search, the airline made the bold move of venturing beyond the Boeing catalogue when looking to fit out its initial fleet of 44 B737s.

It was a bold move to be the launch customer of a new type of system, but that's just what the airline did with Lumexis's Fiber To The Screen (FTTS) IFE system (and, it must be noted, Flydubai was also the launch customer for the Boeing Sky Interior).

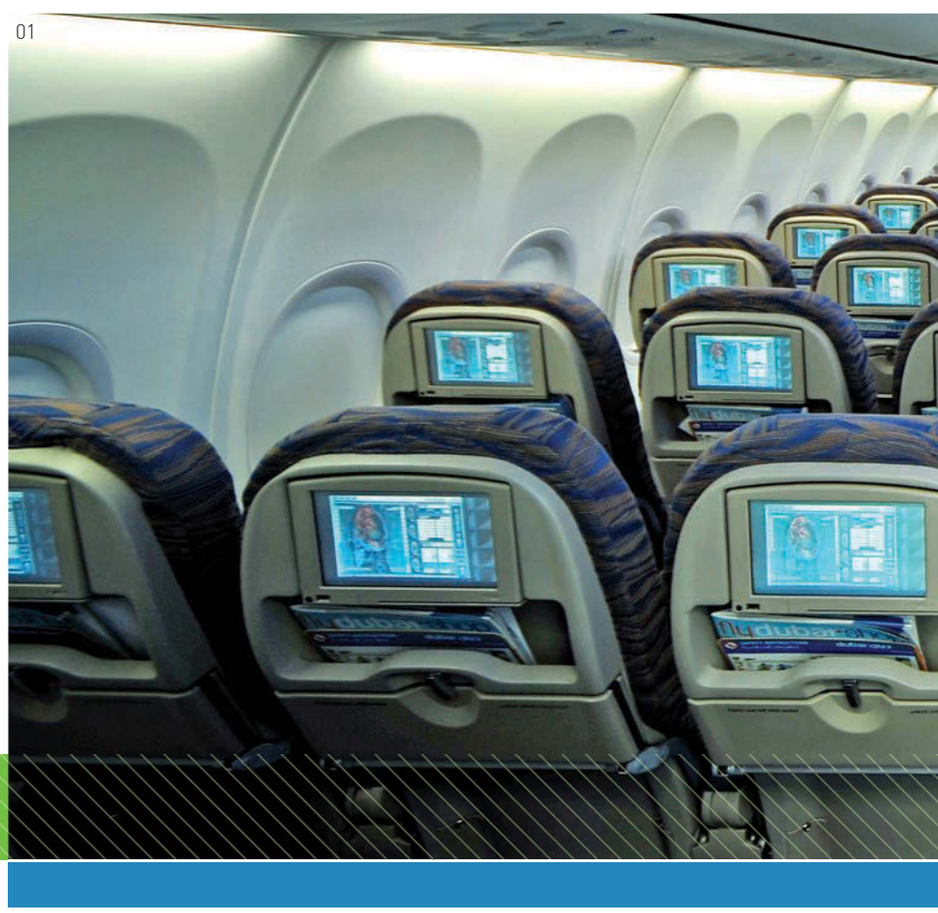
The system is well known now, but at the time its simple but effective setup was a revelation: just a server switch unit, with fibre optic cables running data and content to the 8.9in touchscreen LCD seatback monitors. No copper wiring (fibre optics can provide higher bandwidth and faster data transfer), no separate server and switch units, and no zone boxes or underseat boxes. This simplicity meant the system was claimed to be up to 60% lighter than some legacy systems… and cheaper to buy.

"IFE is very popular with passengers, but the traditional systems were prohibitively expensive for us as a low-cost carrier," said Flydubai's CEO Ghaith Al Ghaith, of the choice. "The Lumexis FTTS touchscreen system offers us a flexible, high-quality and innovative IFE option at a fraction of the normal cost."

Another benefit is the system's reliability. The low parts count aids reliability, while back-up cables and a second server ensure system redundancy. The system is also simple to fit, with Flydubai's B737s requiring only two-and-a-half days each for installation.

Daniel Kerrison, inflight product development and customer experience manager at Flydubai, explains, "I think it is quite unusual for a low-cost carrier to offer in-seat video in every seat in the aircraft. But that's the benefit of the Lumexis FTTS system being less than half the weight of traditional IFE

01. First with Lumexis IFE and first with the Boeing Sky Interior – Flydubai is an airline to watch



more from Lumexis

For a young technology, there are many developments still happening at Lumexis. In January 2012, the company launched a development of FTTS for carriers that do not want seatback monitors on their narrow-body fleet, but do want to offer IFE: WiPAX, which offers wireless streaming to PEDs from the FTTS head-end server/aircraft interface system, as well as internet access. There is also an option to mix wireless IFE in economy with seatback IFE in premium classes.

Lumexis has also partnered with Technicolor to provide secure, high-speed transmission of IFE content via the internet. The monthly content load for Lumexis's FTTS system (digitally encoded SD and HD films, TV programmes, music, etc), can amount to well over 1TB of data each month, which will now be delivered more quickly via Technicolor's data 'pipe'. This further reduces costs (no freight), and again aids reliability as there is no risk of damage or customs delays.

systems – and around half the cost. It really was the only way we could make a business case to cut the cost of the investment – not only in the hardware, but also the ongoing investment in content, acquisition, and the technical cost to integrate the system, as well as the fuel burn to carry the weight of the system."

In early 2012, Flydubai enhanced its IFE content offering to include 149 Hollywood, Bollywood and Arabic films – an amazing 830% increase from the 16 movies offered when the system was first installed. The system also now offers 154 TV shows (up from 32 in 2010) plus 250 music albums, providing more than 500 hours of entertainment.

Flydubai has also replaced its pay-per-show format with a range of payment packages. Starting from AED10 (€2), these packages offer access to all TV programmes, audio and games. Alternatively, the Premium package, priced at AED30 (€6), includes everything in the Basic package plus movies. Daily newspapers, Flydubai news, the route map and information continue to be free-of-charge on all flights for all passengers.

> 66 WE'RE FORTUNATE TO SAY THAT THE RISK WE TOOK WITH LUMEXIS HAS PAID OFF 99

In December 2012, Flydubai achieved another IFE first, becoming the first airline in the world to show HD movies from all six of the biggest Hollywood studios such as 20th Century Fox and Sony Pictures.

And the airline has achieved yet another first, becoming the first to offer daily updated digital newspapers through its IFE system. The eReader platform, which runs digital reading software from DTI Solutions, provides access to 45 newspapers in seven languages in pdf format.

This was a bold step by Flydubai, and one that it believes has really paid off. "The full redundancy that the Lumexis system offers and the simplicity of its architecture with fewer parts, means we're fortunate to say that the risk we took has paid off," says Kerrison.

srilankanairlines

01

In early 2008, a small airline had big ideas when it decided to commit to a young technology for medium-haul entertainment: seat-centric IFE. Fast-forward through nearly four years of planning, development and production and in December 2011, SriLankan Airlines offered the first flight equipped with The IMS Company's RAVE system. Despite RAVE standing for Reliable, Affordable and Very Easy, this was a bold move, especially when embarking on such a project in a recession – even if the system is claimed to cost half as much as a more traditional IFE system.

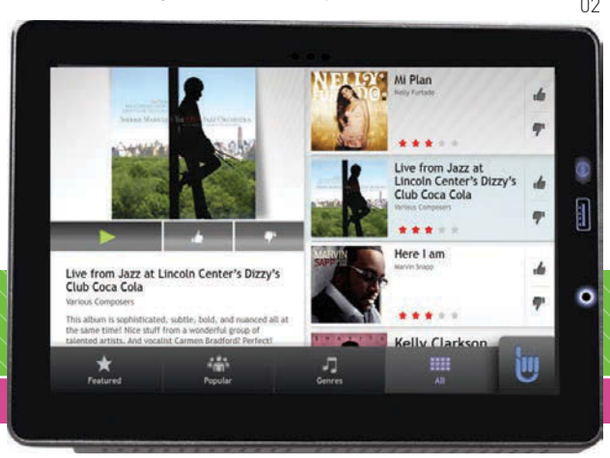
Mind you, this was a bold project for IMS, too. "Rising fuel costs and the need to eliminate excess weight continue to characterise IFE requirements today," states Joe Renton, chairman and CEO of IMS. "For a company like ours, reversing decades of a completely different system architecture at a time when airlines were reducing the amount of money spent on IFE was a calculated risk."

The RAVE system's reliability is achieved through its redundancy, with content storage (4TB) and playback functionality handled independently in each seatback display unit (SDU). The head end contains the system control unit, which weighs 3.5kg and consumes less than 50W, and has a 12TB capacity from which future content can be loaded to the SDUs in the background while passengers watch current content that is played back from an SD card in each seat, thus eliminating the single point of failure scenario. Weight and space was also saved as the system has no distribution boxes and seat electronics boxes, bringing the system to 3 lb per seat. Should an SDU be damaged somehow, the dockable installation means that units can be replaced easily by the crew during the flight.

> 66 THIS WAS A BOLD MOVE, ESPECIALLY WHEN EMBARKING ON SUCH A PROJECT IN A RECESSION 99

As Priyantha Rose, the airline's head of engineering, said at the launch, "SriLankan is proud to be the launch customer of RAVE, giving priority to today's industry needs by initiating the installation of a high-quality AVOD system, which is also low weight."

SriLankan Airlines may only have signed up for two A340s and five A330s to be equipped with RAVE, but this small airline has earned itself a place in IFE history, and 10 other airlines have now followed in committing to RAVE. ▣



02

01. The slim display can be easily swapped out of the seatback if necessary
02. IMS offers the HD displays in sizes ranging from 9 to 17in

morepioneers

BIG AND BOLD

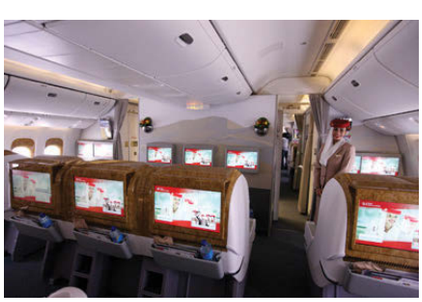
Emirates really saw the value of IFE to the passenger experience when in 1992 it made the bold move of becoming the first airline to install seatback IFE in every seat in every aircraft in its fleet. Indeed, since it set a new world standard for IFE, the airline has been constantly upgrading the offer. The current fleet runs Panasonic eX2 systems, branded 'ice Digital Widescreen' (ice stands for information, communications and entertainment), and the sheer scale of the content is staggering. In excess of 1,400 – yes, 1,400 – entertainment channels, with more than 300 films, hundreds of TV programmes, and thousands of music tracks will ensure that even the most prolific viewers find something new to watch.

And if that's not enough, every seat in the fleet is also already equipped with a seatback telephone and SMS/email service, and 90 aircraft now feature an AeroMobile system, so passengers can use mobile phones in flight.

In another IFE first, Emirates was the first to introduce closed captioning on films. The latest development is that Panasonic has developed a new GUI for the system, which draws on passengers' increasing familiarity with touchscreen devices by adding a swipe-and-scroll control function. In addition, Emirates is investing in larger HD displays on its 777 fleet, with an impressive 27in in first class, 20in in business, and 12.1in in economy.

Small wonder that Emirates has been awarded the World's Best Airline Inflight Entertainment award at the SKYTRAX World Airline Awards for eight consecutive years.

And the future? Paul Margis, CEO of Panasonic Avionics, says, "For many years, Panasonic and Emirates have shared a vision about the positive impact that IFEC can have on air travel, and we look forward to working with them on a unique, home-theatre experience environment that ensures an amazing experience for their passengers."



OUT OF THE BLUE

JetBlue liked its IFE system so much that it bought the company. In April 2000, the US low-cost carrier began offering LiveTV IFE, with up to 24 free channels of DirecTV satellite programming – after it decided to drop a planned US$5 fee. The public reaction was great, and in 2002 JetBlue acquired 100% ownership from Thales.

As David Neeleman, CEO of JetBlue at the time, said, "Since its first installation aboard our aircraft in early 2000, LiveTV has proved to be a significant aspect of the JetBlue experience. With this acquisition, JetBlue has an opportunity to wrap its arms around an integral brand component. At the same time, we're excited to welcome to the JetBlue family the team of professionals at LiveTV with whom we have worked for several years."

Thus JetBlue was – and still is – in the rare position of being an airline that owns its IFE supplier. However, it operates as an independent unit, albeit with JetBlue as its principal customer, and has several other airlines signed up for LiveTV, including Azul, United, Frontier, Virgin Australia and WestJet.

And it doesn't end there, with available channels rising above 100 and, most excitingly, JetBlue launching Fly-Fi this year, a Ka-band connectivity package via LiveTV's technology.

comicrelief

When Japan Airlines was designing its Dreamliner interiors, it included some wonderful touches such as electronic toilet seats, lighting that reflects the Japanese seasons, and something very Japanese for the IFE...

Among the 50 channels running on the Thales TopSeries IFE system, passengers can enjoy Sky Manga, with at least 38 sets of 100 volumes of Japanese comics available in electronic versions, including six sets of 30 volumes in English. Even better, for the full Manga experience, since many films based on Manga comics are being released, JAL plans to offer the electronic Manga comics at the same time as they offer the film on IFE, so that the same works can be enjoyed in different ways. This sounds like a great way to use the TouchPMU handset as a second screen.

captionamerica

The US DOT announced its intent to require closed captions on IFE seven years ago, but deferred the requirement to give the industry time to deploy new technologies. With legislation looming, is the IFE industry ready?

MICHAEL CHILDERS, AIRLINE ENTERTAINMENT INTERNATIONAL

Seven years ago, in February 2006 – as the airline industry faced record-high fuel costs and many carriers were still struggling to recover from the effects of 9/11 and the SARS scare – the US Department of Transportation (DOT) issued a Notice of Proposed Rulemaking (NPRM) advising of its intention to require airlines flying in and out of the USA to provide closed captions on all video content in consideration of the needs of hard-of-hearing passengers.

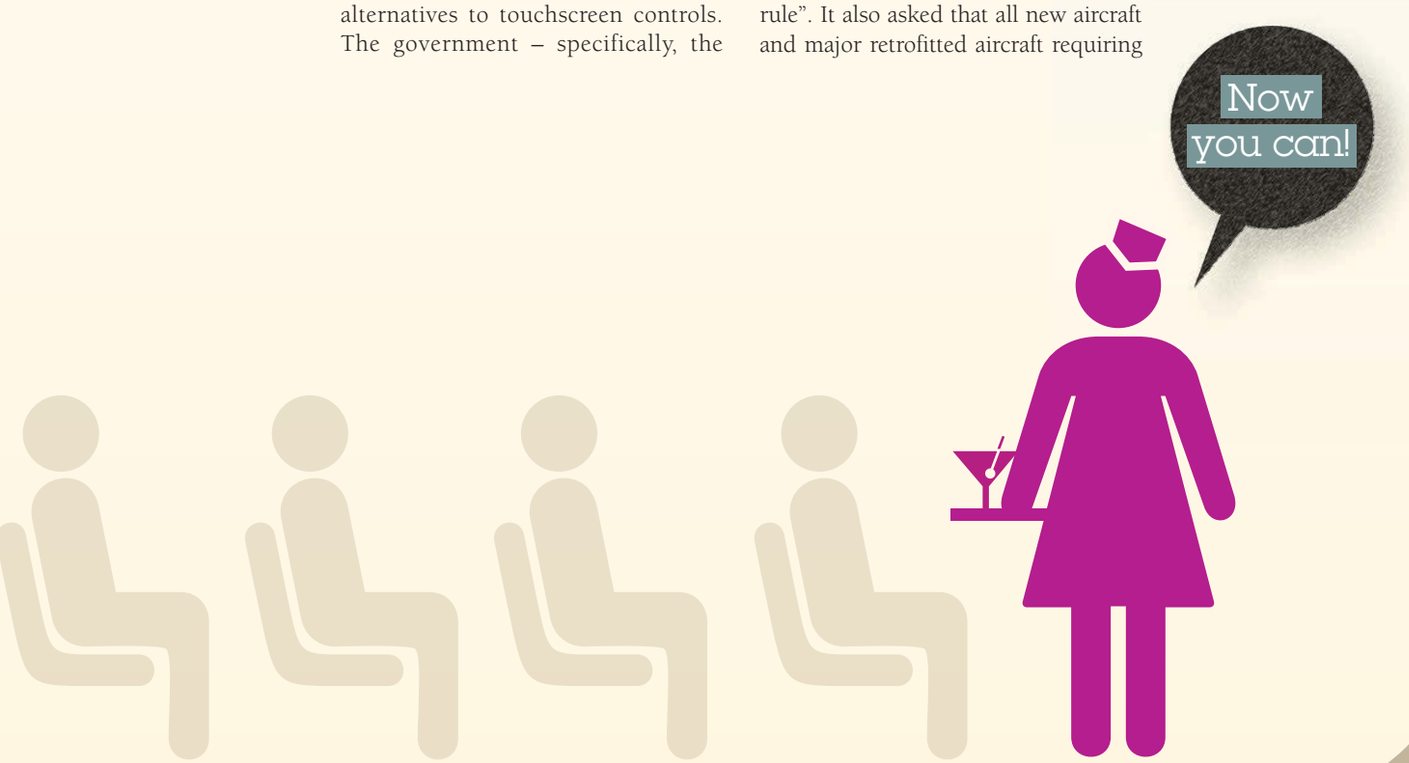
The IFE industry was already using open captions on safety videos, but asked for and received temporary deferment for closed captioning of entertainment videos. Since then, closed captions have come to the internet, in 2012, while standards for deployment on mobile devices will be implemented in 2014, joining TV and packaged media content, on which captions are widely deployed.

So are the technologies required for the widespread deployment of closed captions in IFE on a more cost-effective basis now ready? Or, as maintained by one IFE systems provider, has this technology "taken a completely different and potentially incompatible direction"?

These are questions the IFE industry must now answer, after US Senator Tom Harkin introduced companion bills in the US Senate in March that would require movie theatres as well as IFE systems to provide closed captions.

Under one of Senator Harkin's bills – the Air Carrier Access Amendment Act (Senate bill S.556) – the existing Air Carrier Access Act would be amended to require airlines flying in and out of the USA to offer captions for all video displays and provide alternatives to touchscreen controls. The government – specifically, the Architectural and Transportation Barriers Compliance Board, in cooperation with the DOT – would be given 18 months after enactment of the bill to develop closed-caption requirements, which airlines would then have 180 days to implement.

Back in April 2006, the World Airline Entertainment Association (WAEA) – now APEX – responded to the DOT NPRM by proposing to defer any requirement that IFE systems provide closed captions until "four years after the effective date of this rule". It also asked that all new aircraft and major retrofitted aircraft requiring



> IT IS THE ACTION OF THE FCC THAT MAY HAVE PUT THE MOST PRESSURE ON THE IFE INDUSTRY TO BE RESPONSIVE TO DEMANDS FOR CLOSED CAPTIONS

a change of all seat boxes not be required to provide closed captions until "10 years after the effective date of this rule".

In engaging the DOT, WAEA found that the agency was under the misapprehension that video monitors on aircraft functioned like televisions on the ground, where closed captions could be turned on and off by – in the words of the NPRM – "the pressing of buttons that already exist on televisions and audio-visual equipment".

The WAEA advised the DOT that because "inflight systems were not designed to accommodate broadcast closed captioning signals and technologies" at that time, no such buttons existed.

The WAEA explained that "open captions must be 'burned into' the video frame and are neither system controllable, nor (in the case of personal video screens) seat controllable. If an airline wishes to offer passengers a choice of a movie with captions or without, two separate versions of the movie must be stored, thus limiting the number of titles and programming available to the system (and passenger)."

The 2006 promise to deliver closed-caption capability in new IFE systems in four years was based on the fact that the industry was beginning a migration into MPEG-4, which ostensibly offered better choices for the implementation of closed captions than the more limited MPEG-1 and MPEG-2.

There are two kinds of captions: text-based and rendered image (bitmap). In 2006 the WAEA's Digital Content Management Working Group was working with the National Center for Accessible Media (NCAM) – developers of technologies such as Rear Window Captioning and DVS Theatrical for motion picture theatres – with a focus on timed text, a text-based solution that was being considered by W3C as the standard for text on the internet, and which was the basis for the standard deployed in 2012.

The IFE industry, however, moved to adopt the graphical image subtitle format specified for Digital Video Broadcast (DVB). The specification supporting that format is codified in the APEX 0403 Digital Content Delivery specification, and Thales, Panasonic and Lumexis use solutions rooted in DVB and bitmap.

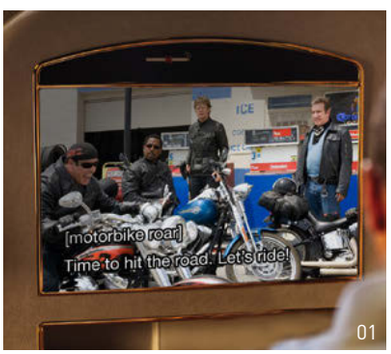
Thales says that it "adopted this standard as the captioning standard for our systems as of 2008". Also, in late 2007, Emirates became the first airline to use closed captions on IFE content via Panasonic's eX2 system. But while Live TV's television broadcast solution also offers closed captions, only a few airlines today provide this option.

THE DOT RESPONSE The WAEA and other appeals on behalf of the industry in 2006 were successful. In 2009 the DOT announced: "We have reluctantly concluded … that we cannot adopt a regulation governing [closed captions on inflight] entertainment displays at this time." Citing the responses submitted by the WAEA and NCAM to the NPRM, the DOT ruled: "We cannot conclude on the basis of the comments that providing high-contrast captions for entertainment displays is technically and economically feasible now, nor can we ascertain a date by which it likely will be."

The DOT cited the work of the WAEA's Technology Committee and Digital Content Management Working Group in the creation of digital delivery standards in IFE that "reflects progress towards development of a common methodology for delivering digital content", which seemed likely to be helpful in arriving at a future solution.

Advocacy groups, however, still demanded action. In early 2010 – four years after the original DOT NPRM – the Association for Airline Passenger Rights, an advocacy group that cites its mission as promoting fairer customer service and accessibility standards in the airline industry, attempted to reopen the issue by formally requesting the DOT to require provision of closed captions on all IFE.

But it was the action of another US government agency – the Federal Communications Commission (FCC) – that may have put the most pressure on the IFE industry to be responsive to demands for closed captions.



01

Industry response

Several IFE systems suppliers continue to prefer a rendered image solution. "One of the strengths of a graphical image standard is the ease with which different languages and language combinations can be accommodated," a Thales spokesperson told *Airline Entertainment International*. "In addition, the 'black with white outline' or 'white with black outline' characteristic required for captioning (readable text overlay over an unknown colour image) can be accomplished without a custom text-rendering engine in the in-seat displays."

One observer with reservations about the SMPTE standard for IFE says that it is "well positioned for efficient use in the USA but poorly fitted for international applications. For international, multilingual use [as required for IFE], employment of the SMPTE standard would require substantial changes in the font/text rendering capability of the in-seat displays."

An active Technology Committee member says, "To properly support our international market, movement to the proposed SMPTE standard may be problematic. The three-colour [fill colour, outline colour, transparent background colour] text rendering is a substantial challenge, especially when it is tied to international, non-romance font requirements. Tools could be developed to make the encoding/transcoding process capable of converting the SMPTE-TT material into EN 300 743 material, but motivations for development are limited."

The 21st Century Communications and Video Accessibility Act of 2010 (CVAA) was enacted "to update communications laws to help ensure that individuals with disabilities are able to fully utilise communications services and equipment and better access video programming". The CVAA directed the FCC to establish the Video Programming Access Advisory Committee (VPAAC) to determine, among other things, how closed captions could be provided on video programming delivered via internet.

INTEROPERABLE STANDARD FOR CAPTIONS VPAAC's Working Group 1 was created to examine issues involved in transferring closed captions provided on television programmes to the online environment. At its initial meeting, on 13 January 2011, WG1 was briefed on the work done by the Society of Motion Picture and Television Engineers' (SMPTE) broadband standards committee, which had published a timed-text standard and recommended practice for converting analogue captions authored using CEA-608 (line 21) – the original closed-caption standard for analogue television – for internet distribution. This is the same timed-text solution that WAEA's DCMWG had considered for IFE. When NCAM and the WAEA's DCMWG discussed timed text seven years ago, it was called TTML (time text mark-up language) or DFXP, whose use of Unicode was at that time a step beyond the ASCII-based SAMI (synchronised multimedia integration language) platform. ASCII only includes characters from the romance languages while Unicode ostensibly includes characters from all languages.

DFXP has now evolved into timed text. The FCC has designated the SMPTE's Timed Text – officially SMPTE-TT 2052 – as the 'safe harbour' for CVAA compliance, i.e., compliance with SMPTE-TT ensures compliance with the CVAA. The SMPTE-TT standard addresses the challenges of bringing closed captions to broadcast TV and IP video such as the web and mobile applications.

While there are numerous closed-caption standards and initiatives, SMPTE-TT represents a convergence of most of them. The W3C published a TTML specification that covers timed text on the web. Then the SMPTE created the additional metadata structure for use in TTML and developed the profile of TTML called SMPTE-TT. And then the Digital Entertainment Content Ecosystem (DECE) incorporated SMPTE-TT into its UltraViolet Common File Format (CFF). All of these entities work collaboratively.

01. Emirates launched movie subtitling and closed caption technology on its Ice Digital Widescreen product in October 2007

INTEROPERABLE MASTER FORMAT Another SMPTE initiative that has been followed by APEX TC's DCMWG is the Interoperable Master Format (IMF), which began in digital cinema and enables the interoperability of elements and components in an asset-managed environment throughout a supply chain that involves consumer electronics, broadcast television and non-theatrical markets including IFE.

The IMF Working Group has adopted SMPTE-TT as its IMF standard, meaning that captions using SMPTE-TT will normally be delivered in a digital cinema package and can be reused down the supply chain to remaining markets with interoperability. Senator Harkin also introduced a companion bill (S.555) requiring any US theatre with two or more screens to provide either open or closed captions for all movies. Hundreds of US theatres today use the NCAM Rear Window and DVS Theatrical technologies. As US theatres are rapidly implementing digital cinema standards, and since the IMF

> WE MUST ACCEPT THAT SYSTEMS WILL BE DEPLOYED WITH TECHNOLOGY THAT MAY BE 14 OR 15 YEARS OLD

standard is poised for imminent adoption, it is likely that SMPTE-TT will play a role in the further theatrical implementation of captions if Harkin's bill becomes law.

SMPTE-TT was first published in December 2010 after two years of work. Its first implementation was in HBO GO, according to Craig Cuttner, SVP Advanced Technology at HBO. Common workflow across separate platforms was a goal of SMPTE-TT, Cuttner told the assemblage at the SMPTE's annual conference in Hollywood in November 2012. Closed-caption rules today are being driven by the FCC rules in the CVAA, he said.

The CVAA requires that content owners must provide captions to content distributors, who in turn must render or pass through closed captions, as well as provide applications, plug-ins, etc, that enable closed captions on the web. By January 2014 electronic apparatus with screens of 13in or larger must support closed captions.

Sean Hayes of Microsoft, who chairs the W3C Timed Text Working Group (TTWG), says the group liaises with the SMPTE, the European Broadcast Union (EBU) and the Moving Pictures Experts Group (MPEG). The TTWG has been recharted to November 2014 with the aim of developing the Single Delivery Profile (SDP), in which TV-type content is translatable to IP.

In the USA, says Hayes, SDP is focused on streamlined delivery of closed captions on the internet in support of the new FCC rules. Hayes says that his objective is for there to be one interoperable standard across all platforms that provides mandatory functionality based on a specified set of TTML functions.

Some of the new features of W3C TTWG TTML.1 include four locations on the screen for captions, support for vertical placement, line indentation and scrolling. These features answer some of the concerns expressed by WAEA in the 2006 response to the DOT, which said: "For the aircraft cabin that utilises communal screens, there are issues of screen size, passenger distance from the screen, the readability of open captions, and the amount of 'intrusion' on the picture that is imposed by the captions." The use of the above four features of TTML.1 provides some flexibility in the placement of captions.

RECENT CHANGES Since the DOT first proposed the requirement for closed captions, a number of major changes have occurred.

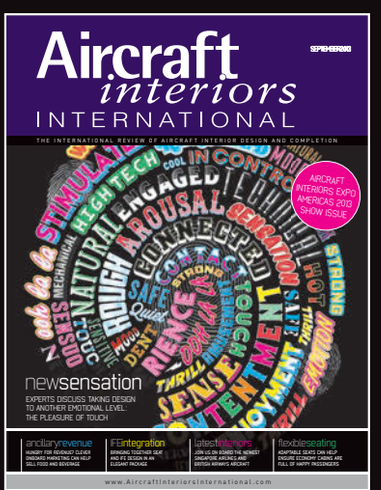
First, legislation such as CVAA that requires content providers to provide closed captions and distributors to pass them through with applications supporting their web display – along with earlier requirements in the broadcast world – help to ensure that much of today's motion picture, television and web-based content is created with closed captions available.

Second, entities such as the SMPTE have provided a clearing house where the W3C, CEA and DECE can work towards the interoperability of closed captions across multiple platforms.

Third, because of the action of the FCC, and the adoption of SMPTE-TT for IMF, closed captions are being created by content creators and are being made available as early as Digital Cinema. Through the efforts of the SMPTE, W3C, CEA, CVAA, EBU and DECE, these captions are being created to be interoperable across platforms, and the IFE industry now faces the same requirement for captions as the theatrical industry, thanks to Senator Harkin's companion bills.

But as desirable as reusing standards from other industries might be, as an industry veteran says, "The IFE industry operates on a two-year development, 12-year deployment timeframe. We must accept that systems will be deployed with technology that may be 14 or 15 years old."

Through the efforts of a likely new working group, the APEX Technology Committee is challenged to bring these activities into convergence in a standard supporting implementation in IFE. But the question is whether the IFE industry can take advantage of the interoperability and earlier availability of captions that result from these efforts, and whether the Harkin bill can be implemented on such a timeline if it is eventually adopted. ▣



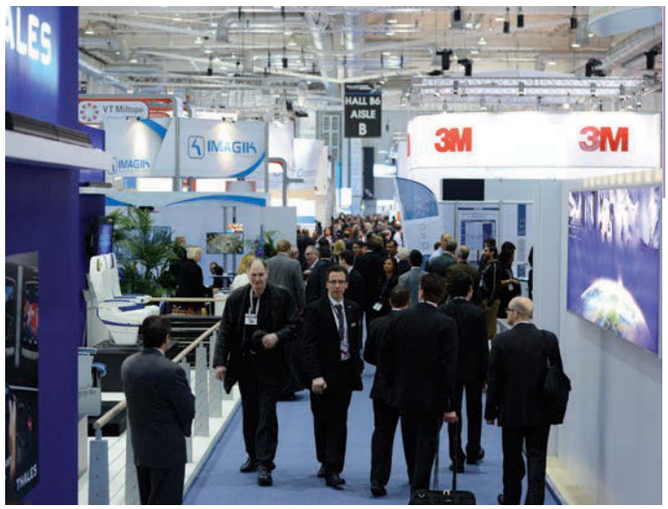
www.aircraftinteriorsinternational.com

The Aircraft Interiors International website hosts digital versions of Airline Entertainment and the latest issue of the Aircraft Interiors International magazine – plus a digital archive of past issues – as well as all the latest news, videos and exclusives you need to stay informed. You can also register to receive FREE future issues and learn more about our advertisers via our FREE online reader enquiry service.

KATIEMURPHY

Q&A

Katie Murphy, exhibition director of Aircraft Interiors Expo, discusses the future of the event and what is shaping it



WHAT MAKES THE AIRCRAFT INTERIORS EXPO BRAND SO SUCCESSFUL? Put simply, there is no doubt that the Aircraft Interiors Expo is a global and up-to-date brand that showcases the entire spectrum of interiors systems and services for airlines in one location. The show has become the world's largest event dedicated to the aircraft interiors industry. From my perspective, a key factor is that it is an unrivalled launch pad for tomorrow's designs in interiors, IFE, connectivity and passenger services.

Needless to say, any exhibition must strike the right chord with its key audiences and I believe the statistics for the 2013 Aircraft Interiors Expo demonstrate our credibility in this market. We welcomed 8,906 visitors, which was a remarkable 12% increase compared with last year. The exhibition featured more than 500 exhibiting companies from 26 countries, covering a record floor space of 35,000m^2 – the largest footprint to date.

As a brand, we realise that we must keep right up to date and keep developing its appeal. In 2012, we launched the first World Travel Catering & Onboard Services Expo (WTCE) in conjunction with Aircraft Interiors Expo, which provides a complete passenger experience package to suit the demands of today's passenger, highlighting the importance of innovation within the travel catering and onboard services scene. The success of this year's WTCE has already seen exhibitor rebooking for 2014 already reach more than 80% sold, which confirms the market's enthusiastic response.

DO YOU FOLLOW TRENDS TO TAILOR THE EVENT TO INDUSTRY NEEDS? Yes, it's crucial that we continue to monitor the market to ensure that Aircraft Interiors Expo remains relevant and, more importantly, keeps pace not only with the fast-changing trends of technology innovation within the sector, but also with commercial aerospace as a whole.

For example, Boeing issued its 20-year market outlook in June at the Paris Air Show, which projected a demand for more than 35,000 new aircraft valued at US$4.8trn (€3.6trn). Of interest to the interiors community, the single-aisle market is the main driver, with 24,670 aircraft needed due to the growth of low-cost carriers and airlines from emerging markets.

More recently, a Research and Markets report forecast that the aircraft interiors market is expected to grow to approximately US$12bn (€9bn) by 2016, with a compound annual growth rate of 8% during the next five years. In light of both these reports, it's clear that there are strategic drivers for investment in interiors as a result of the expanding worldwide aircraft fleet.

With the introduction of our first Passenger Experience Conference in 2012, our objective was to create an educational base to focus on key strategic issues surrounding cabin innovation, consumer expectations and profitability within the cabin. By staging this event with many leading industry figures and a wide-ranging agenda, we are able to be right up to date with the latest trends via a selection of panel discussions, case studies and speaker presentations.

Another good example is the one-day Seating & IFE Integration Symposium that takes place on 1 October 2013 in Seattle, just before the opening of Aircraft Interiors Expo Americas. This will focus on two major areas of cabin investment – seating and IFE/connectivity systems. It's clear that IFE and seat integration is a key topic within the industry and the Symposium will explore the emerging trends and issues in four interactive sessions.

Topic areas will include tablets and how their influence is shaping future seat design and IFE services; consumers expecting 24/7 connection and how that is triggering fast-changing trends in the cabin environment; how seats are evolving in response to new thinking, new materials and new technology; how greater integration between seats and IFE can resolve the conflicting demands of increasing features and comfort for passengers, while keeping the solutions simple and lightweight for airline customers; and how seating can keep pace with the technology revolution and whether increased modularity is an essential part of the solution.

ARE YOU NOTICING ANY CHANGING TRENDS IN VISITOR DEMOGRAPHICS? Yes, that's an interesting point – for 2013 we had record visitor numbers, and looking specifically at geographical regions, these highlight some notable increases. Attendee numbers from Australasia & Pacific went up 53%; South & Central Africa 30%; Asia 21%; Europe (non-EU) 27.6%; and Middle East/North Africa 17.1%.

In addition to demographics, I can also confirm that an analysis of visitors' job responsibilities reveal that there was

a 57% increase of executive-level visitors attending in 2013 compared with 2012, as well as a 19% increase in MDs/owners/partners.

Needless to say, I'm delighted with these encouraging figures, as they clearly prove that Aircraft Interiors Expo not only has a global reach and attraction, but that it is also the event at which to network, meet with senior decision makers, and conduct quality business.

THE HAMBURG EVENT IS UNDENIABLY HUGE. ARE THERE PLANS TO GROW IT FURTHER? Well, it's very pleasing that we find ourselves in the rather enviable position of many exhibitors wishing to increase the floor size of their stand. The beauty of a venue like Hamburg Messe is that because it is so flexible and adaptable, we can not only accommodate such exhibitor requests, we can also evaluate overall hall space and event organisation.

One of the proposed changes for the 2014 show is that the co-located WTCE will now occupy Hall B4 Upper level in addition to companies exhibiting in Halls B2, B3 and B4 Lower. Being adjacent to Aircraft Interiors Expo, both exhibitions will still be interconnected, which will give all attendees the opportunity to visit both shows using a single registration badge.

In addition, next year's Aircraft Interiors Expo's IFE Zone is set to grow by 25%, with more than 40 pioneering companies already exhibiting, including Astronics, CloudStore, DigEcor, Gogo, OnAir, Panasonic Avionics Corporation, Rockwell Collins, TE Connectivity, Thales and Zodiac Aerospace, to name a few, covering IFE, smart devices, software development and connectivity.

I was very pleased and encouraged to see new exhibitors at this year's show that specialised on the software side of IFE. Covering games, music, satellite communications and software development, the four new IFE companies included DTI Software (Canada), planBmedia (Switzerland), Satcom Direct (USA) and Western Outdoor Interactive (India).

DO YOU HAVE ANY SUCCESS STORIES FROM THE EVENTS? More than 300 delegates attended the 2013 Passenger Experience Conference, including senior representatives of major airlines, air framers and cabin interiors suppliers. A third breakout session was added to cover the three key areas of passenger experience – IFE, hospitality and service, and interiors – that took place after the two opening plenary sessions. By providing a range of key issues, delegates were able to choose the most relevant to their needs and each session blended a mixture of speakers with panel discussions and Q&A slots, as well as refreshments and networking opportunities.

The feedback that we have received so far confirms that the quality and range of speakers added exclusivity and expert input that was tailored to that session's topic. By ensuring we provide value-added events across the board, our aim is to shape and lead the important debates within the aircraft interiors and onboard services sector.

Another example was the announcement by Thales this year of a new partnership. Thales and Gogo first partnered to deliver an IFE solution for a major US airline and have now teamed to offer line-fit solutions for the global market. The solution is based on the Thales TopSeries AVANT platform and will use Gogo's connectivity solutions. Gogo currently offers solutions based on Inmarsat's Global Xpress Ka-band satellite service, Ku-satellite and Air-to-Ground technologies.

For me, this type of partnering combines differing sets of company capabilities that enable a partnership solution to deliver a unique IFE experience to airlines and their passengers, and I am delighted that Aircraft Interiors Expo is able to facilitate this.

WHY SHOULD PEOPLE ATTEND AIRCRAFT INTERIORS EXPO? If I may, I'll go back to what I said at the start – Aircraft Interiors Expo is a global and up-to-date event that showcases the entire spectrum of interiors systems and services for airlines in one location.

Co-located with WTCE, the Hamburg event is the world's biggest passenger experience conference and exhibition, comprising 42,000m^2 of space, which attracts more than 1,000 airline buyers from 75 countries. Visitors can meet with more than 700 industry suppliers covering the full spectrum of passenger experience. ■

samedifference

Does the media experience on board really differ to the one on the ground?

We're living in the age of content everywhere. Our media – branded or otherwise – follow us around on screens big and small as we move from home to office and everywhere in between.

The inflight experience used to be a refuge from all that, a haven where we could unwind, unplug and sink into a good magazine article or movie. Often, we would find ourselves gravitating towards content that we would never read or watch out of flight.

In other words, the airline passenger experience used to be a world unto itself. But things have changed.

The digital age has in some ways widened the gap between the way we consume media on the ground and in the air. On the ground, we've come to expect mobile connectivity across multiple screens and devices. Smartphones and tablets keep us connected throughout our daily journeys. We even use these devices as 'second screens' when we're at our desk computers or in front of the TV.

For example, you might be reading a website on your laptop while texting or receiving live news feeds on your phone. You could be watching a show on TV while searching Google on your iPad for additional information about an actor in the show. Or you might spot a jacket you like on TV and order it instantly on a shopping channel such as Net-a-porter.

Meanwhile, cloud-based services enable us to move from screen to screen without skipping a beat in whatever e-book, TV show or other form of content we're consuming.

Up in the air, the situation is different – but only slightly. As well as reading printed newspapers, magazines and books, we might read e-books and magazine apps on a tablet. As well as enjoying movies, TV shows and music offered on the airline's in-flight entertainment system, we might use our phone (or iPod) to listen to our personal music selection.

On many airlines, it is already possible to use your mobile phone for calls and texts and to go online for live news, email and social media.

However, due to limited bandwidth capacity while flying, it is not always feasible to enjoy streamed movies online on your personal screen. There are also rights issues for viewing some websites; if you subscribe to a movie library site at home, you might log on to find it unavailable in another part of the world.

It's likely that digital choice in the air will eventually catch up with choice on the ground. It's just a matter of time, really. But while some flyers welcome this, others will miss the idea of simply switching off for a few hours. For some, air travel provides welcome me-time, where we can relax without interruption while reading, listening to music, watching movies, dining or simply getting some sleep.

Here's the thing: just because consumers can choose to replicate their on-the-ground media consumption habits while in flight, that doesn't mean they will ultimately make that choice.

THE POWER OF THE IFE GUIDE One area where we've seen evidence of airline passengers turning away from their multiscreen, multitasking terrestrial habits is in the endurance of print as a powerful inflight medium.

At its London headquarters, Spafax publishes in-flight entertainment guides for numerous airline brands. This is in addition to traditional inflight magazines, which the company also produces.

Despite increasingly sophisticated onscreen menus for the month's movies, TV and audio offerings, demand for print guides is still strong. It seems counterintuitive in this day of touchscreen technology and interactive websites, but research shows that print is what passengers want.

A recent client survey revealed younger passengers, normally considered the natural consumers of digital content, read IFE guides most widely. Another client, which presents its entertainment on the back pages of its inflight magazine, is planning to separate the two and invest in a dedicated print guide.

Ironically, this has something to do with the increase in the number of video and audio options now available to passengers. More choice often leads to confusion (author Barry Schwartz famously called this "the paradox of choice"). A well-done guide can cut through the confusion, while highlighting the variety of entertainment available on board.

The formula for a successful IFE guide is a combination of fun and functionality. It has to be more than a menu. Passengers engage when the design is contemporary, the imagery celebrity studded, and the tone of voice lively. But its ultimate goal should be to drive traffic to the screen. Alongside functional but pithy synopses, they're inspired by authoritative recommendations, star interviews, insider snippets – that is, everything the average passenger already recognises from the wider world of entertainment media.

THE ROLE OF THE IFE SPECIALIST The trouble for legacy media brands has been monetising free content, but people are slowly coming around to paywalls. Most people are happy to pay a monthly subscription to, say, Netflix for movies on demand and more are willing to pay for access to a newspaper's or magazine's website as well.

With the rise of on-demand entertainment, TV everywhere and web-based 'walled gardens', the online media world is starting to look a lot like IFE.

Any remaining divisions between media consumption in the air and on the ground are set to be eroded as inflight connectivity grows. But that doesn't mean that the inflight media consumer is suddenly going to want the same content experience as at home.

It's still up to Spafax as an IFE specialist to cater to the specific needs and wants of the consumer in transit. That means delivering unique content experiences in whatever form is best suited to the message. In the digital age, sometimes that means print. ▣

01. Despite advances in onscreen menus, passengers still favour printed IFE guides

Spafax
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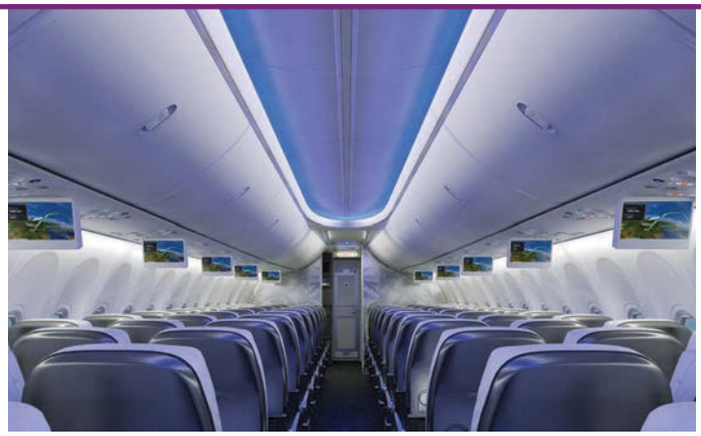

ondemand

Rockwell Collins' director of cabin systems marketing discusses the latest products, driven by airline needs

Airlines have an array of options when it comes to equipping their aircraft with IFE. Computer processing power has created some mind-boggling possibilities in the cabin, such as gesture control and games for everything imaginable. After digesting the available options – especially during tough economic times – airlines are asking themselves, 'What do we really need?'

IFE maker Rockwell Collins feels it is well positioned to answer this question and provide airlines with viable solutions that address needs for today and for the future. In fact, the company adjusted the naming of its IFE products to mirror the core needs of airlines.

"Our PAVES system is well known in the market. We've delivered almost 2,000 systems over the years," says Duc Huy Tran, director of cabin systems marketing.

First introduced in 1996, PAVES stands for Programmable Audio Video Entertainment System. In 2011, the company unveiled PAVES 3, which brings HD in-seat touchscreen monitors with client-centric content storage. Rockwell Collins recently moved away from the '3' suffix and now refers to it as PAVES On-demand.

"It made more sense to call our PAVES in-seat solution what it really is and what passengers desire in the air – an AVOD system," explains Tran. "It resonates more with decision makers at airlines.

"Our research and conversations with airlines reveal that control is of high importance to passengers. When they step onto an aircraft, they lose control, and by that I mean they are at the mercy of the flight crew, which is in control. IFE is the only place where passengers can regain control."

Tran goes on to say that early-window movies top the list of what passengers want on demand. He says gesture controls and sophisticated, content-heavy games, etc are interesting to passengers, but movies rule the roost – the newer the better. Demand for music is a close second to movies.

"So do airlines need all the bells and whistles when it comes to IFE? Is it what passengers really need?" Tran asks rhetorically. "This is a particularly important question for single-aisle operators that watch their bottom dollar very closely."

Tran believes that the bells and whistles he refers to might be best left to passengers' personal devices. The passenger need arises when passengers want to connect and enhance the capability of their own devices.

"Take for instance a true video gamer," says Tran. "Chances are real gamers will only want to play their own games and not those supplied by the airline. What the real gamers will want is the ability to connect with their fellow gamers throughout the world, perhaps within the same aircraft."

When asked about wireless, Tran says it fulfils a passenger need and is another outlet for airlines to raise brand awareness with their passengers on their personal devices. Last year, Rockwell Collins struck a deal with Thomas Cook to provide server-based wi-fi enabled content, applications and web pages.

In addition to going forward with its newly named PAVES On-demand, Rockwell Collins has also adjusted the name of its PAVES 2 IFE system (an overhead HD monitor cabin solution that provides passengers with high-quality digital content). The system will now be known as PAVES Broadcast. ■

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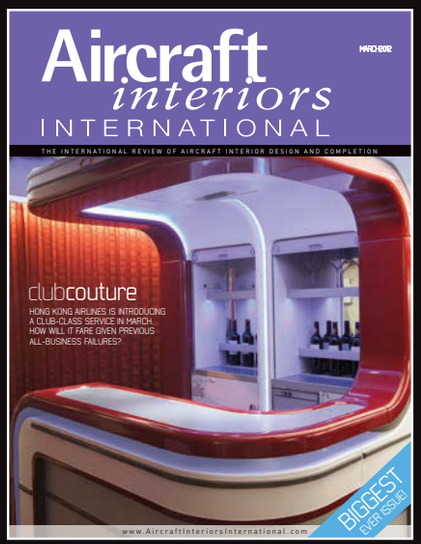

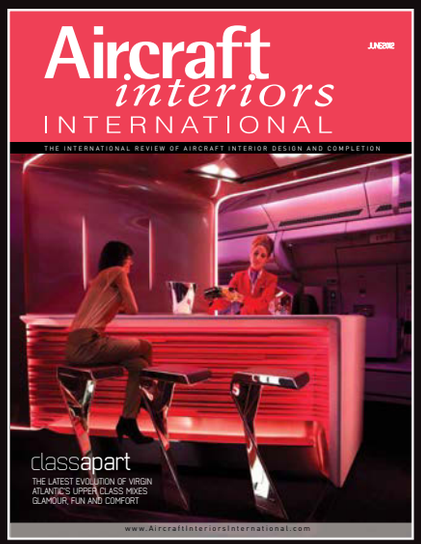

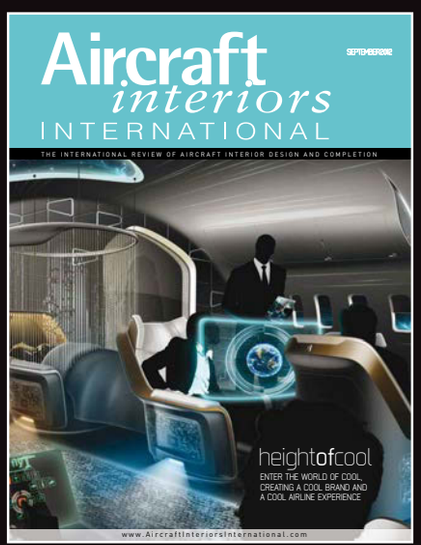

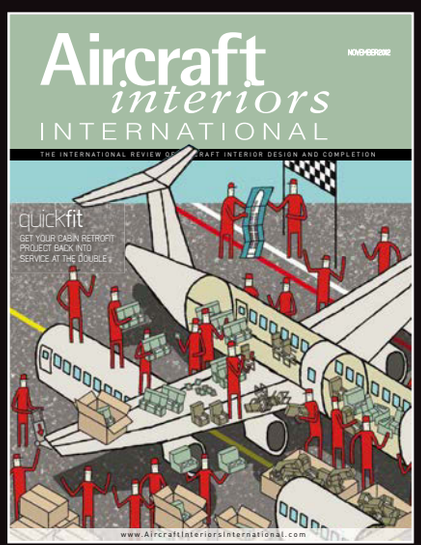

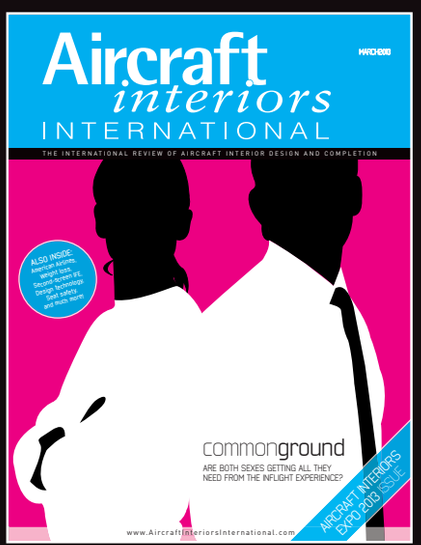

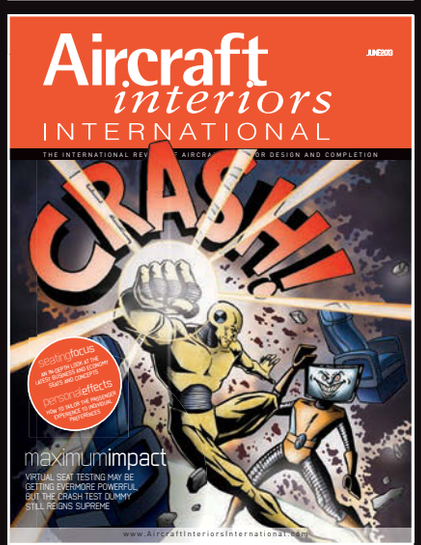

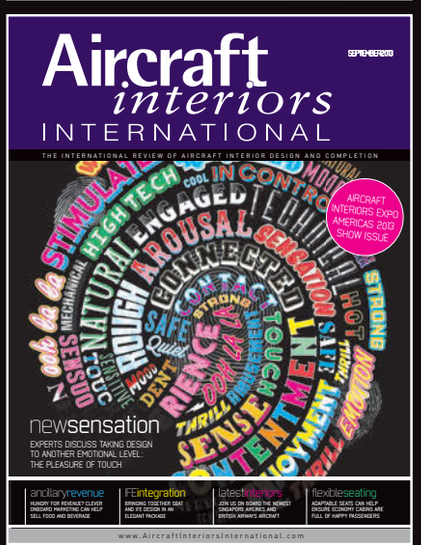

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wisewords

A growing number of airlines are adding digital inflight reading solutions to their onboard offering as passengers' expectations grow needier regarding this form of entertainment. According to Deloitte's *Devices, Consumption, and the Digital Landscape 2012* report, the vast majority of US consumers view the complete transition to digital formats as inevitable and flyers are now expecting this shift on board. Airlines are taking note.

In-seat digital e-readers have been around for several years, led by DTI's eReader solution for in-seat IFE systems. Today's shifting content trends have pushed airlines to acknowledge the many advantages inflight e-readers have to offer, including cost savings, decreased weight of printed publications, cabin-wide content availability, wider range of titles, and innovations in the paperless cabin environment.

Connectivity now provides an enhanced cabin experience with daily updated reviews, while passenger devices have become complementary to in-seat e-readers that offer a wide range of newspapers, magazines, books and comics to entertain throughout the flight.

Content is also key to providing a complete digital reading experience on board. Never has content been more relevant than today as consumers expect a seamless, content-rich experience from before they board to the moment they touch down. DTI provides route-specific content, which has been the cornerstone of several successful inflight e-reader programmes, and one to which DTI is committed.

By combining technological expertise with customised content, DTI is helping dozens of airlines around the world make the digital leap and provide an engaging entertainment experience for their passengers to indulge in a good read on their flights.

tailormade

Each seat of an aircraft is occupied by individual customers with individual needs and interests. Why would you want to offer them all the same programming options? That's where Deutsche Welle (DW) steps in.

DW's wide range of IFE lets airlines reach out to individual customers with tailored products and content – making the flight more personal and enjoyable. Its IFE programming is currently available in English, German, Spanish and Arabic – some of which is available in dual language – offering airlines the opportunity to provide multilingual content to passengers around the world.

As Germany's international broadcaster, DW has been producing and broadcasting quality programming for 60 years. Over the past decade, DW has taken this expertise from the airwaves to the airlines, making sure that travellers are given the programming options that make tuning in worthwhile.

DW has the experts when it comes to Europe. Along with popular TV magazines such as Euromaxx, which focuses on life and style in Europe, DW highlights European culture and business with in-depth analysis and features. But DW also offers award-winning documentaries that cover everything from globalisation, science and technology to travel and sports. It is content made easy, with five, 15 and 30-minute segments – all of which transmit well to IFE.

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LINDACELESTINO

Q&A

Linda Celestino, general manager of inflight services and product at Oman Air, and president of APEX, shares her views on forthcoming trends in IFE

WHAT HAS YOUR TERM AS APEX PRESIDENT BEEN LIKE? At APEX, I work with some of the most committed individuals in this industry. My term as president to date has been amazing. Our whole team – from the board of directors to individual committee members – have led the charge, reaching out to every category of APEX membership, notably comfort, ambience, connectivity and atmosphere. Looking ahead to the APEX Expo in September, we are excited to see the results of so much hard work that goes into planning the association's flagship event.

WHAT HAVE YOU ACHIEVED AT APEX SO FAR? The question is not so much what I have achieved personally, so much as what all of the dedicated members of the association have achieved. We have multiple committees full of informed and hardworking members, and I receive regular feedback from members eager to improve the passenger experience. My personal goals for this year have been to grow and broaden the APEX membership base, strengthen the APEX community, and boost our global recognition as a resource and association of innovators. To broaden the reach of the association, we've taken such steps as expanding the popular APEX TV Market Conference to include exhibitors representing movies, games, GUIs and apps. To expand the APEX map, we've held successful events in London, UK; Santiago, Chile; and most recently in Lisbon, Portugal; in addition to an event in Asia later this year – all very exciting!

HAVE YOU NOTICED ANY NEW TRENDS IN IFE CONTENT? This industry is incredibly fast-paced. Nearly every new technological advancement (touchscreens, portable electronic devices, streaming wi-fi, etc) affects how we bring value to passengers. Technology and passenger preferences are evolving so quickly that APEX hosts regular educational events worldwide to make sure our members are not only 'noticing' these trends but driving them. If I had to name a few, I would make note of the integration of portable electronic devices inflight and geo-entertainment – a trend that lets passengers view an interactive map of the flight path and learn about history and geography.

WHAT WILL BE THE NEXT CONSUMER ELECTRONICS TREND TO INFLUENCE IFE? Naming a single trend is difficult, but I can say that consumer electronics will almost certainly drive the direction of IFE in the coming years. It could be – and already is, to an extent – customised content for portable devices. Or it could be more integration between handheld devices and seatback screens.

DO YOU PREDICT IFE PROVIDING ANY NEW SOURCES OF ANCILLARY REVENUE? I think there is always potential to seek ancillary revenue sources from IFE. The challenge right now is giving passengers a reason to purchase additional services. Recent surveys have shown that passengers want wi-fi inflight, but they aren't necessarily eager to pay a premium for it. So it's up to those in the airline passenger experience industry to provide services that are highly valued – services the passengers are willing to pay for.

WILL HANDHELD IFE ULTIMATELY REPLACE SEATBACK IFE SYSTEMS? Interestingly, we've noticed both replacement and integration. APEX member companies are constantly reviewing the best way to get entertainment in front of audiences with very specific tastes. While it's true that some airlines might opt to cater to portable electronic devices in lieu of investing in seatbacks, the future of IFE can go in a number of directions. We've seen innovative solutions such as seatbacks capable of holding a tablet in place, seatback screens that respond to what a passenger is doing on a personal device, and airline-provided tablets preloaded with content. Technology is providing greater options to deliver content to passengers, and airlines are making the choices that best fit their business models.

WHAT DO YOU HOPE TO ACHIEVE AT THIS YEAR'S APEX EXPO? We have big goals for this year's event. For starters, we have partnered closely with the International Flight Services Association and integrated their expo with our own to increase the value for members of both associations and to the industry at large. Additionally, the new APEX Expo is growing well beyond traditional IFE. In 2012, expo registration jumped by 15% over the year before, and we expect to keep the momentum going. ■

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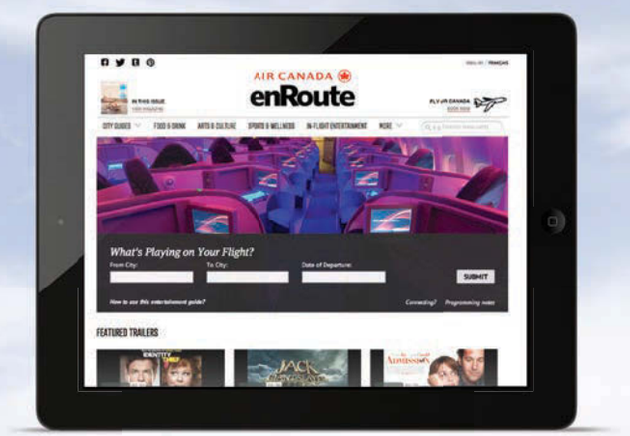

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