Finalists

at the

Crystal Cabin Award 2013

Industrial Design & Visionary Concepts

Acro Aircraft Seating – UK: Acro Ultra In Arm Table Seat (AIX 5E41)

The Acro Ultra in arm table assembly is self-cleaning, lightweight, line replaceable in less than 60 seconds and greatly improves passenger comfort and visual appeal.
Acro's Ultra in arm table seat applies the Acro formula of simplicity and innovative design to the front row. The reduction of the mechanism to its essence results in the omission of the conventional table enclosure, returning the full width of the seat to the passenger, and adding ease of cleaning and a lower part count to the benefits for the operator. The in arm table seat is certified and flying.

Paperclip Design Limited – Hong Kong: Checkerboard Convertible Seating System

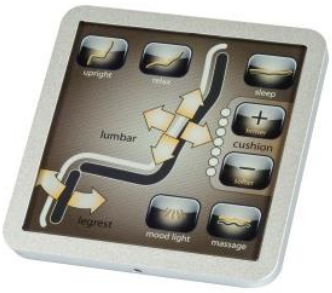
Designed for the short-haul market, Checkerboard is a concept for passenger seats that are readily convertible between economy and business class configurations, with the latter having extra width, additional 8" legroom, as well as many other useful features.
Checkerboard gives airlines the flexibility to adjust cabin configuration for each flight to match the huge variability in demand, allowing them to maximize revenue while giving high-value customers a truly differentiated product.

Zodiac Aerospace (cooperation partner ZEO) – USA: ISIS – Innovative Space Interior System (AIX 7B40)

The ISIS interior is the result of deconstructing, challenging, and ultimately reimagining the A320 interior. Its pivoting bin achieves a 60% gain in bag capacity and improves headroom. The passenger service unit transforms into a striking light fixture, with contemporary touch sensitive surfaces. Modular design makes installation simple and reduces costs and installation time for the manufacturer, and the 100% recyclable ECOform sidewalls make the cabin greener. The benefits to the airlines include reduced turnaround time and workload; unique and flexible branding opportunities; and the ability to retrofit the interior into their existing fleets. Finally, the passenger benefits the most: no rush to find bag space, an interface that is delightful to use, and a sleek, spacious, and modern look that makes the cabin an exciting place to be once again. A customer centric cabin for A320 conceived to set entirely new standards, bringing revolutionary change in interior design, and benefits for passengers, airlines and manufacturers alike.

Premium Class & VIP

Dornier Technologie Systems – Germany: Glass PCU (AIX 6A81)
The brand-new generation of the Passenger Control Unit family, developed and produced by Dornier Technologie Systems, is a capacitive touch panel which gives each seat a modern and sophisticated look. It is certified for both Airbus and Boeing and is already flying in aircrafts of different airlines. It can be considered for both retrofit and line fit programs. Some of the many highlights are the high durability and flexibility, the robustness against scratches by usage of special hardened glass, the resistance to any kind of fluids, e.g. wine, Cola, cleaning agents, and the easy and hygienic cleaning. In addition the Dornier PCU is freely customizable (size, shape, colours), has a homogeneous and selective lighting by using a specific light guidance technology and reduces significantly the cost of ownership of the operator.



Lufthansa Technik – Germany: nice® HD (AIX 6B68)
The nice® HD system includes personal HD video at seat locations via ultra-thin, and light-weight 7 or 10-inch pop-up HD displays. It also offers a number of media interfaces (USB, Apple, HDMI), a multifunctional nice® HD media center unit that includes a Blu-ray player, a media server, an Audio / Video on Demand (AVoD) server, both wired and wireless, and a map server. All cabin functions can intuitively be controlled via a scroll-wheel with a corresponding animated User Interface, a touchscreen control or a wireless application on their iPhone or iPad. The nice® HD also meets today's stringent requirements for the legal streaming of HD content with integrated Digital Rights Management (DRM) and Hollywood-approved encryption.

Zodiac Seats – USA/Mexico: Reversible Seat (AIX 7B40)
Reversible Seat is a solution that allows passengers to orient their seating in accord with the size of the group they may be traveling with, and the activities they may have planned during the course of the flight. The underlying proprietary mechanism is designed to allow the orientation of the seat to be reversed quickly and with minimal effort. The mechanism allows the flight crew to swing the backrest from the back of the seat to the front while simultaneously reversing the angle of both the backrest and seat cushion, and sliding the base-frame forward to enlarge the shared foot area between the newly facing seats. A locking feature prevents the seat from sliding into a new position unless intended. This newly developed seating and the alternate orientations it allows, facilitates a range of activities between passengers who may be traveling together for business purposes, as a group of friends, or as a family, and promotes a shared experience.

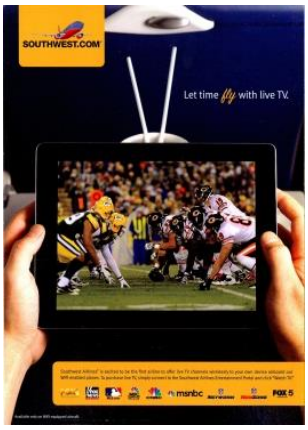
Passenger Comfort Hardware

Diehl Aircabin – Germany: Membrane Ceiling Panels for cabin interiors (AIX 7D20)
Diehl Aircabin developed membrane ceiling panels that offer improved passenger comfort, a weight reduction through system integration and new possibilities for the design of cabin interiors. The currently used sandwich structure is replaced by membranes that are mounted on a supporting structure. The membranes are backlit by integrated lighting units and allow cabin illumination as well as mood lighting. By using these air permeable membrane materials, distributed air outlet with low airflow velocities can be realized. This prevents draft effects and increases the efficiency of the ventilation systems by reducing shortcut flows. Because of the absorbent acoustic behavior of the membrane construction cabin noise is reduced.

MERU (cooperation partners Balform, UK CAA, EASA) – UK: MERU TravelChair
The TravelChair is a totally unique product that offers comfortable, postural support for severely disabled children between the ages of approximately 3-11. Weighing 6kg, the TravelChair fits in most airline seats, is secured using a strap around the host seat and allows for the airline seat lap belt to be used in the usual way, meeting aviation safety regulations. It is manufactured by Balform under Form 1 regulations and is EASA approved. It folds in half to fit into the overhead locker when not in use.
The TravelChair is sold to airlines and offered as part of their standard service. Virgin Atlantic is the first airline to market - having just purchased 25 TravelChairs.

Zodiac Airline Cabin Interiors – USA: Amber Interior Pivot Bins (AIX 7B40)
At a time when passengers are bringing roller bags into aircraft cabins in record numbers, ZACI offers the Amber Interior for 737s and 757s, providing operators a way to retrofit their NG interiors with new overhead bins and increase stowage capacity for carry-ons by up to 86 roller bags.
At the heart of Amber's innovative upgrade architecture is a pair of deep pivot bins that are staggered in an asymmetrical 34″ x 46″ configuration along the length of the cabin. The patent pending design of the bins affords an increase in cabin capacity for carry-on roller bags by up to 122%, depending on the aircraft's existing cabin architecture.
For many travelers, that's music to their ears, as being able to travel with their carry-ons and personal belongings nearby in the cabin is the only way they can comfortably fly.

Passenger Comfort Systems



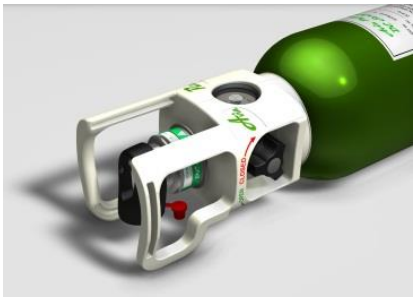
Row 44 – USA: Row 44 Live TV to Passengers' Devices (AIX 6B36)
The first service of its kind operating on commercial aircraft anywhere in the world, Row 44's Inflight WiFi Live Television lets passengers watch live TV channels inflight on their smart phones, tablets, laptops, and other WiFi devices. At the time of the product's rollout in July 2012, Row 44 and launch customer Southwest Airlines offered passengers a choice of several live channels – CNBC, MSNBC, NBC Sports Network, FOX News Channel, FOX Business News, Major League Baseball, NFL Network, NFL Red Zone, and Fox NY (WNYW). This service can be made available to passengers as a separate WiFi offering, independent of whether or not a passenger chooses to pay for Internet access. The service allows airline partners of Row 44 to delight their customers with a new entertainment product that does not impact Internet connectivity and also offers opportunities for airlines to garner incremental revenues.

Thales – USA: Eyetracking and Gesture Control (AIX 6A30)
The IFE system is controlled via a combination of the passenger's eye movements and hand motions. Through such human behaviors, passengers can navigate through the seat display menu options and select their entertainment and information preferences. This combination of eye tracking and hand gesture technologies gives the passengers a very user friendly and natural way to engage with their in-flight entertainment. The use of Eye Tracking and Hand Gesture Control technologies creates a MMI (Man-Machine Interface) whereby the Field-of-View between the passenger's eyes and hands is all within the same visual plane of the seat display which eliminates the need to constantly look down at a remote controller to make a selection. The far reach airline seat configuration is also called pod seat.

Zodiac Premium Galleys – Germany: Modular Galley Concept (AIX 7B40)
Zodiac Premium Galleys developed a concept for a new modular galley family that occupies less main deck space, needs less engineering efforts, improves industrial production and provides Airlines with highly flexible solutions for initial cabin furnishing and easy retrofits to support individual on-board passenger service. The concept is applicable to all wide body A/C models. It allows implementation of an enhanced industrial production with significantly higher number of carry-over parts. A sophisticated Cart Refill in the lower lobe and a Standard Unit Refill in the upper fuselage area enable Airlines to remove monuments from the main deck and gain revenue space for additional seats. Pre-certification of modules allows Airlines to easily change galley configurations for different operations, service concepts and seasonal requirements. A/C Manufacturers will benefit from a reduced number of qualification documents and reduced lead times.

Greener Cabin, Health, Safety & Environment

Avia Technique – UK: Avia Pulse DE Series Portable Pulse Oxygen System (PPOS) (AIX 5A40)
The Avia Pulse DE Series is a Portable Pulse Oxygen System (PPOS) designed for airline passengers who require oxygen for a medical pre-condition. The DE Series can also be used for emergency first aid. It is light weight, has a long duration and is designed to complement modern cabin interiors.



Boeing – USA: Insulated Galley Cart (AIX 6D60)
The new Insulated Galley Cart (IGC) allows airline operators to load cold food at the catering facility and keep the food cold, both in transit to the airplane and for the entire length of the flight. The IGC eliminates the need for onboard refrigeration systems. This change in managing refrigerated food storage dramatically reduces airplane weight and airline operating costs, and improves airplane performance. In addition to the monetary benefits, the weight savings reduces CO_2 emissions by 100s of tons per year. This cart holds the potential to revolutionize the way in which food is refrigerated on commercial airplanes.

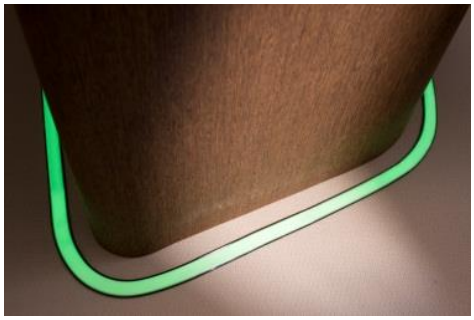
RECARO Aircraft Seating – Germany: "Green" innovations in the sky (AIX 7D40)
Airlines are increasingly focusing on environmental protection. In order to reduce fuel consumption and CO_2 emissions, they are looking for weight-optimized solutions. But weight alone is not the only way to achieve a "green cabin." Indeed, there are a wide range of environmental aspects to consider during the development process of aircraft interiors.
RECARO has scientifically examined this issue and integrated the LCA (life cycle assessment) into its product development process. Based on a pilot project, RECARO has developed an effective tool to systematically assess and develop environmentally-friendly products and identified synergies between ecological and economical goals. The LCA key performance indicators will allow airlines to include ecological aspects in their purchase decisions – and take a transparent approach that shows passengers the efforts in the area of environmental protection. Based on the life cycle assessment, RECARO Aircraft Seating is systematically assessing the environmental performance of its seats throughout the entire product lifecycle and provides its customers with an assessment of the impact of these environmentally-friendly solutions.

Material & Components

Diehl Aircabin (cooperation partner Diehl Aerospace) – Germany: iPanel (AIX 7D20)

The iPanel shows a possible application of an integrated electric wiring to save weight and mounting effort. The electrical conductors are running inside of the panel to empower the light, instead of outside running cables like in classical installations. The amount of needed electrical space is optimized. Parts like inserts and domes are not necessary anymore and the amount of additional parts is reduced down to a tenth. Misleading wires are no longer possible during production and the plug can be set right onto the panel surface. This new design features a light pit which integrates wiring, driving LED boards, into a panel. A lense is covering the groove with the applied LED boards, thus making additional lamp housing, usually needed so far, dispensable. The integration of electrical wiring and components into lining parts results in a 30 per cent weight reduction, fewer parts, and reduced mounting work with lower risk of false connections in the manufacturing process.

Lufthansa Technik – Germany: ColourCurve (AIX 6B68)



Since 1995 Lufthansa Technik offers non electrical floor path marking system for aircrafts. It guides the way to emergency exits in the dark with light, using photoluminescent material instead of electricity. That means: 100% failure proof, lifetime guarantee and no maintenance.

The new ColourCurve is the first non-electrical system worldwide that can be shaped to follow any form, adapted to any interior design. Flowing shapes can be supported with 20 colours. New ColourCurve consists of only 2 parts instead of 6 at the former system. One strip fits all, thus customers do not need different strips for galley and aisle. Efforts for installation and spare parts are reduced. ColourCurve achieves up to 8kg/35% weight reduction (compared to former products) over the lifecycle of the aircraft. This means remarkable cost savings. ColourCurve will be installed as a standard in the Airbus A350 and the Bombardier C Series, for example.

Rogers Corporation – USA: Rogers Corporation Silfx™ (AIX 7A1)

Utilizing innovative formulation and processing techniques Rogers developed a non-petroleum based foam technology that enables thin cushion design, longer cushion life and lasting passenger comfort. The silfx™ silicone comfort foam is the lowest density flame-retardant silicone foam in the world and has been launched in December 2012. Rogers Corporation (NYSE:ROG) is a global technology leader in specialty materials and components that enable high performance and reliability of consumer electronics, power electronics, mass transit, clean technology, and telecommunications infrastructure.

University

Alberda, Kampinga, Kassels, van Kester, Noriega / TU Delft – The Netherlands: Tray Table Cabinet

As a substitute for regular tray tables, this new tray table cabinet can be opened and passengers can store their (smart) phone, tablet or wallet in dedicated compartments. The idea is based on passenger preferences regarding using and storing personal belongings. Furthermore it responds to the increasing amount of people carrying smart phones and tablets that exceed on-flight entertainment systems (if even present) on economy flights by far. The main features of the tray table cabinet are: compartments that have space for at least a tablet, (smart) phone, wallet and key; protective and fixating foam rubber; openings for headphone wires; see-through bottom to prevent passengers from forgetting their belongings as well as USB-charging output.

Hillig / TU Dresden – Germany: Future Aviation – Concept Cabin

This concept is intended to show the possibilities of economical yet comfortable flying. Heavy mechanical parts are replaced by intelligent, flexible materials. Large screens are nothing more than thin films. Hybrid OLED layers convert light into energy and small units and sensors harvest energy by themselves through light and vibration – sufficient energy for wireless communication with the In-Flight-Entertainment-System. To give the passenger an impressive flight experience, the sidewall panels are expanded with many 3D-displays that provide a great picture of the environment. Additionally, the view of the environment will be supplemented by digital information about the region, of the mountains or the ocean below. An augmented reality is presented to the passenger.

Waldheuer, Brötzmann / HAW Hamburg – Germany: Big Lavatory Concept (AIX 1D19)

The BigLavC will be the first aircraft lavatory on market which is customized to the special needs of obese passengers and fulfill all requirements of regular and PRM (Passenger Reduced Mobility) lavatories. Creating more space in the lavatory is a gain of comfort for all kind of passenger. The new diagonal position of the toilet improves conventional aircraft lavatories to increase comfort and space, especially for obese passengers and wheelchair users. The new Design is a reaction of the rising body mass indices worldwide. A new toilet seat makes it safer and easier for wheelchair users to change between wheelchair and toilet seat. For the first time it is possible to earn money with the integrated infotainment display in the lavatory. It will be used for short commercials to support the sales volume during flights.