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MARCH/APRIL 2024

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# eVTOL *interiors*

EXCLUSIVE  
PICTURES!

THIS DYNAMIC NEW INDUSTRY HAS UNVEILED A RANGE OF CABIN IDEAS – INCLUDING THIS EXCLUSIVE REVEAL FROM SIRIUS AVIATION AND DESIGNWORKS

## SOFT FURNISHINGS

The annual review of new leathers, faux leathers, fabrics and carpets is a feast for the eyes

## DECORATIVE ART

Everything you need to know about commissioning, installing and certifying custom art pieces on board

## DESIGN FORUM

VIP aircraft interior designers weigh in on technologies including AI and AR

# tech

## SUPPORT

VIP AIRCRAFT INTERIOR DESIGNERS SHARE THEIR THOUGHTS ON KEY TECHNOLOGICAL TRENDS INCLUDING AI, AUGMENTED REALITY AND OTHER POTENTIAL DESIGN TOOLS

*Words by Izzy Kington*





## Agnès Guiu

senior aircraft interior designer,  
Agnès Guiu Design

# Q&A

### HOW DO YOU FEEL ABOUT THE POTENTIAL OF AI FOR DESIGN?

I feel that using AI for design applications is like 'riding the tiger'! It is a rather ambiguous feeling combining both excitement and slight reluctance or mistrust. On one side, I find AI extremely exciting and challenging. To explore new possibilities, shapes, directions, horizons, to make the impossible possible, is a dream for a designer and provides an incredible feeling of total freedom in creativity. For instance, I am amazed by the quality of AI renderings presented by talented designers and architects on LinkedIn. AI offers exponential perspectives and it is or will be extremely hard to resist it.

On the other side, the problem is the idea of control. If the tool takes so much space in the process of conceiving a project, then to what extent is this still my project? If AI starts to suggest, propose, offer, how long shall I consider myself as a creator and not a follower? AI will become extremely addictive: where shall I put the limits? Shall I want or be able to stop; I'm not so sure!

### ARE THERE USES FOR AUGMENTED REALITY (AR) IN CABIN DESIGN?

Absolutely! For instance AR provides the client with an immediate understanding of the project. It also gives you the possibility to enhance, to emphasise your concept with the view to provide the best. AR helps to push things beyond your limits.

### WHAT OTHER TECHNOLOGIES DO YOU THINK COULD BENEFIT THE DESIGN PROCESS?

Immersive design with interactive headsets could definitely benefit the design process. You create a concept and can check immediately if it is OK or not. It gives you better control over what you design. However, I think we should find something lighter such as connected glasses. Considering what happened with smartphones, these new tools will soon become a part of designers' everyday lives.

### WHAT CABIN INNOVATIONS HAVE CAUGHT YOUR EYE RECENTLY?

Lighting, display technologies, interactive windows and shades and new materials.

### WHAT EMERGING TRENDS WILL IMPACT CABIN DESIGN IN 2024?

Wider open spaces, more colourful environments, more welcoming furniture design, more life on board.

### WHAT ARE YOUR HOPES FOR EBACE AND/OR AIRCRAFT INTERIORS EXPO (AIX)?

A creative exchange of inspiring ideas.



BELOW LEFT: AN ACJ320 DESIGN,  
'EIDER' BY AGNÈS GUIU DESIGN

# Greig Jolly

partner, Winch Design



## Q&A

### HOW DO YOU FEEL ABOUT THE POTENTIAL OF AI FOR DESIGN?

As a tool for sparking thoughts or ideas, it's great to quickly visualise what you're thinking about or to generate initial ideas. However, the text-to-image software we've been experimenting with is generative AI – meaning it takes huge amounts of data and through machine learning, regurgitates it based on the user's input to produce new data – so it doesn't really match the boundless creativity of a designer's brain.

We live in a very visual and design-literate world now – every time we pick up our phone we're bombarded with cutting-edge designs. Apps like Instagram or Pinterest intensified this and now there's a tsunami of visual stimuli created in AI. The skill of a designer is to be selective; to sift through all this content and validate what's good and bad, what's right for the client or the project and what isn't. This applies to AI too – anyone can use it to quickly generate professional-looking images, but that doesn't mean the core idea or concept behind the



LEFT: A GLOBAL 5000 INTERIOR BY WINCH DESIGN

image is good. You need to filter through the noise to get to the right solution, and you still need experience and knowledge to be able to take that flashy concept image and turn it into a successful project.

I don't envisage AI displacing designers – it will change their workflows, provide design inspiration, alter how they visualise ideas, how they communicate and likely myriad other elements of their jobs, but it won't replicate the expertise that comes from years of experience, knowledge and skill.

### ARE THERE USES FOR AR/VR?

Virtual reality (VR) is something we've been using for a while at the Winch Design studio, but we are now using more and more. It allows the client to explore every inch of the interior, inspecting the layout and design details in a three-dimensional space. This not only enhances client engagement but also facilitates effective communication between client and designer.

### WHAT EMERGING TRENDS WILL IMPACT CABIN DESIGN IN 2024?

Private jet owners are looking for a seamless transition between the house, office and aircraft. They want consistency of design quality and elegance. By creating a bespoke interior and using a colour palette and materials normally found in a residence, we can fulfil this home-from-home dream. Flexibility is also key – often an aircraft must be used as a business tool one minute and a place of relaxation the next.

We're also seeing clients becoming more interested in using sustainable materials throughout interiors and we are committed to demonstrating that sustainability is synonymous with bespoke, top-end design. We embed sustainable solutions in our designs and educate clients and partners in choosing the best option for them and the environment. We have a dedicated in-house sustainability specialist who manages our sustainable interiors library.

# Q&A

## WHAT CABIN INNOVATIONS HAVE CAUGHT YOUR ATTENTION RECENTLY?

We're seeing more sensorial approaches to experiences and attention to the tailoring of environments – from personalisation of light and sound, to the curation of airflow and temperature control from seat suppliers such as Caynova.

It's interesting to see how other industries innovate. An example is the eVTOL sector choosing to embrace accessibility to drive change. We've recently seen concepts that fully integrate different and reduced mobilities through modular layouts on Eve Air Mobility's latest concept. Another example is how a major carrier like Delta Air Lines is investing in modular front-row seats that accommodate wheelchairs. At NewTerritory we believe accessibility is a driver and that by solving the needs of the few we can improve experiences for the many.

## WHAT EMERGING TRENDS WILL IMPACT CABIN DESIGN IN 2024?

This year we hope to see more substantial innovation in the sustainability realm – new ways to embed circularity or create regenerative design. It's a real challenge in an industry driven by strict rules and regulations, but we see these evolving quickly in the auto industry and it's our responsibility to catch up. Seeing what's happening on the eVTOL front, we believe there is potential for smaller jets to become greener ahead of larger aircraft. We're keen to explore how interior design can support advancement with lighter, more circular materials and better builds.

Parallel advancements in terms of connectivity and spatial computing (or AR/VR) will offer new ways to expand the physical cabin environment and how we experience travel, with augmented layers. A determining factor for this adoption will be how meaningful those experiences will be and how they answer current travel pain points to become a sustained evolution rather than just a passing trend.

## HOW DO YOU FEEL ABOUT THE POTENTIAL OF AI FOR DESIGN?

AI is now proven to dramatically accelerate parts of the design process, stretching what is achievable in standard project timelines, and helping operators and manufacturers to react faster to evolving trends. This requires us to regularly advance our processes.

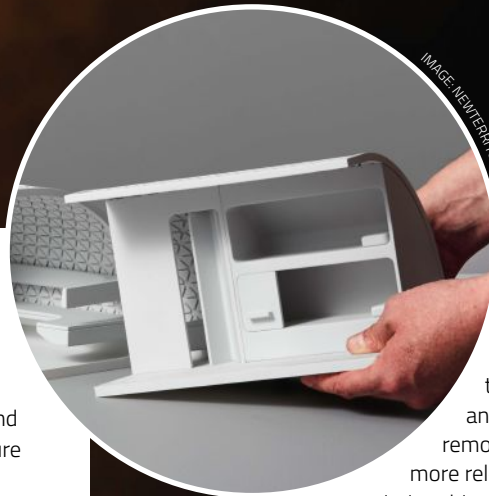


IMAGE: NEWTERRITORY

LEFT: A NEWTERRITORY MODULAR SCALE MODEL FOR THE AIRBUS TRANSPOSE PROJECT

AI has become a rich curatorial tool allowing for more exhaustive qualitative research, helping organisations to better survey, sort and analyse customer insights, removing subjectivity and producing more relevant data-driven solutions. In

aviation this could allow for more relevant business cases, new models of ownership, routes and services, or new interior designs and features.

AI also offers new capabilities when it comes to user interaction. This is seen through hyper-personalisation of interfaces and environments that react or adapt to passengers' needs or moods, and also through new types of interaction, allowing us to design interfaces beyond traditional IFE, using sensing technologies or voice for example.

From a product development perspective, AI has the potential to help with critical aircraft interior challenges by generating more efficient designs through weight and material optimisation. It has the potential to help with the product lifecycle, embedding maintenance services into the design, creating products that better sustain wear and tear and ease operational maintenance through the integration of smart sensors and predictive maintenance.

We see homogenisation as a potential threat to creativity, with industries already sharing tools we risk seeing fewer original propositions. However, we see value in harnessing AI to generate innovation, ensuring our industry is responsible and ready for long-term environmental challenges.



## Jérôme Nelet

associate creative director, NewTerritory

# Q&A

## HOW DO YOU FEEL ABOUT THE POTENTIAL OF AI FOR DESIGN?

We are seeing AI used in the design process to support the generation of multiple ideas and provide generative tools to refine the workflow. These AI tools can provide quick visual responses to the designer's inputs as part of the creative process. Although the visuals from AI are very impressive, we find the tools tend to generate familiar solutions and work on a more superficial level when it comes to resolving design issues. Asking the right question is an important part of the creative process.

The ability to produce quick polished visuals at an early stage in the design process can be a challenge as it sets up an expectation from customers to see early 'finished' designs that can lack design thinking and originality. A talented team of designers with experience in their field makes a myriad decisions during the creative process and like method actors really get under the skin of design problems. The challenge with AI is to complement our non-linear approach to design and help drive creative solutions that draw on unpredictable sources for inspiration.

## ARE THERE USES FOR AR?

We currently use AR to superimpose our design updates within a real-world environment both as a sales tool and as part of the design process. This is particularly useful when combining real-world architectural models with virtual design concepts, allowing the user to experience both the design and physical space at the same time. The step change we have seen over the past few years is the freedom to physically move around the cabin in real-time and start to immerse yourself within the virtual world. We are experimenting with tools to build sketch models in the virtual



LEFT: DOY DESIGN IS INVOLVED WITH F/LIST'S F/LAB MORPHING SIDELEDGE TABLE DESIGN

world over full-scale products in the real world. This is likely to develop into an additional toolkit for designers to develop and communicate ideas.

## WHAT OTHER TECHNOLOGIES COULD BENEFIT DESIGN?

As we all take more interest in the lifecycle of our products to minimise their impact on our environment, and with more intelligent products collecting data, we need to find efficient ways to analyse this data and provide clear inputs to the design team. AI can play a significant role in identifying how the customer uses the product in service and which materials could be used to maximise the customer benefits and develop more sustainable products for the future.

## WHAT EMERGING TRENDS WILL IMPACT CABIN DESIGN IN 2024?

We're likely to see new aesthetic finishes developed with generative design tools used in combination with smart materials.

Some of these materials will have embedded technology and additional functionality. Further development in sustainable materials will certainly be a key design direction.

We will see a trend towards highly detailed and complex forms in some areas of the cabin with micro mechanisms leveraging the opportunities and freedom given by additive manufacturing. We are using this in high-end luxury cars today to create showcase 'halo' products.



*Gary Doy*

director, Doy Design

BELOW: THE AIRTEK  
LIGHTWEIGHT SEAT FOR  
NARROW-BODY AIRCRAFT –  
A JPA DESIGN COLLABORATION  
WITH WILLIAMS ADVANCED  
ENGINEERING AND SWS  
AIRCRAFT CERTIFICATION



*Elliott  
Koehler*  
creative director, JPA Design

## Q&A

### HOW DO YOU FEEL ABOUT THE POTENTIAL OF AI FOR DESIGN?

AI is powerful and has the capability to become an essential digital tool for designers within certain applications. JPA Design has started implementing AI visualisation as a limited part of our project development. We think in general the potential is unexplored but will increase over time. AI can help speed up workflow – generating high-fidelity renders just from an initial thumbnail sketch. Like bouncing ideas off in a collaboration, AI's interpretation of a design (sketch) can trigger additional ideas. It's a tool that could help build a design team's concept through its rapid visualisation power in different styles. The main challenge is the current limitation in styles and the AI's understanding of the image presented. With time we expect this to improve.

However, there's a danger that truly innovative design development and human-centric considerations for the user experience could be compromised if designers become too reliant on AI for concept direction. AI also currently faces challenges in understanding diversity, accessibility and inclusivity – limitations that will perhaps always divide design from a human and a machine. The integration of AI in the aviation industry could bring challenges such as safety and ownable IP. Striking the right balance between automation and human oversight is crucial to ensure the reliability and safety of AI applications in aviation design as well as appropriate regional applications.

### ARE THERE USES FOR AR?

For any spatial design, a mix of physical mock-up and digital detailing/CMF can assist in understanding a space and its challenges better. We can see the benefits in presenting AR work, however VR is a more appropriate tool.

### WHAT OTHER TECHNOLOGIES COULD BENEFIT DESIGN?

Technologies that could make the experience of working between different software applications more seamless. Some smaller start-up apps are more open to collaborative software applications, but established companies tend to try to limit designers within their own specific tools.

### WHAT CABIN INNOVATIONS HAVE CAUGHT YOUR EYE RECENTLY?

The Airtek concept JPA worked on over the pandemic would be hugely beneficial in saving CO<sub>2</sub> emissions. The Starlux bulkhead was interesting to see, with the possibility of a much more exciting execution.

### WHAT EMERGING TRENDS WILL IMPACT CABIN DESIGN IN 2024?

Besides the usual buzzwords of 'sustainability' and 'experience-driven' we hope to see new materials and production methods being welcomed by seat manufacturers, allowing for new design directions. We were one of the first design agencies to join the Green Cabin Alliance in recognition of the need to reduce the environmental impact of cabin interiors.



# Q&A

BELOW: A RENDERING OF A RECENT BBJ2 REFURBISHMENT PROJECT BY ALTEA



## HOW DO YOU FEEL ABOUT THE POTENTIAL OF AI FOR DESIGN?

There will be initial challenges as we start to see more AI in design applications. Any such technology raises customers' expectations, particularly as far as time is concerned – we still have customers who think a CGI-rendered image can be accomplished in a few hours from scratch. So, while AI will become a mainstay design tool – often embedded in existing software – there will be initial shortcomings.

Stock images – as used by Altea for mood boards – are a great source of inspiration in helping to present design directions for our clients to review. Sometimes finding that 'hero' image can be time-consuming or it may be impossible to find exactly what we have in mind. Designers can now work with AI to produce potentially inspirational images, but this is not design, it just widens possibilities and expedites some aspects of the process. This allows more time for development and finer details.

## ARE THERE USES FOR AR?

AR is already used in design processes, particularly in projects where customers have the space and budget. The Airbus ACJ TwoTwenty creative studio is one example but we have seen this trend emerging in commercial architecture and residential projects for a while. It's a great tool, especially for the planning and configuration of large areas.

It also begs the question as to whether independent designers can utilise it to optimal effect. It depends on your budget. If a customer wants to use such a tool for initial insights into a design, then sure – Altea has digital partners that can support the process. Many completion centres offer full-scale mock-ups (made from foam board, MDF and cardboard) and these

are incredibly useful for all stakeholders when coupled with AR to add context and detail.

## WHAT OTHER TECHNOLOGIES COULD BENEFIT DESIGN?

Design processes are certainly aided by technologies such as digital twins, which we know as CAD – but better utilisation of digital versions of the real product/environment could assist in training, maintenance and operations. In addition, 1:1-scale floor planning, which is used in architecture and by Airbus, is definitely useful. If more third-party facilities pop up then a cabin designer could utilise this for early presentations.

Finally, 3D printing in organic materials – bio-printing – is steadily growing and I'm excited to see how it will impact the industry.

## WHAT INNOVATIONS HAVE CAUGHT YOUR EYE LATELY?

One is the magnet fasteners used in automotive panel fittings that are aircraft compliant, enabling a better flush fit and a quick and efficient installation.

## WHAT ARE YOUR HOPES FOR EBACE/AIX?

More attractive, everyday products (for our industry), and better maintenance-free systems will be our focus at both.



# Robin Dunlop

founding partner, Altea





BELOW: A G650 CONCEPT  
BY AURORA SABOIR DESIGN

# Aurora Saboir

founder, Aurora Saboir Design

## Q&A

### HOW DO YOU FEEL ABOUT THE POTENTIAL OF AI FOR DESIGN?

AI and what it has to offer – both useful and concerning – is something we can't just calmly watch from the side as it evolves. Even though I do not yet have a defined methodology for when, where and how to use AI in design, it is certainly something that could be incorporated in the extended complex design and project development phases.

As far as my experience goes, I haven't found generative AI image creation options – such as Midjourney – useful during the early stage of conceptualisation of realistic projects; I still find traditional sketching and inspiration research the best way to express complex visions. However detailed and precise the prompts, the result was still not even close compared to the vision of the mind. Also, I do not believe in using other creators' works to feed AI, hence I would not apply it until I had my own base concept to work with. Though after the initial conceptualisation there might be a useful way of integrating AI in the process, to create variations and alterations of the preliminary concept.

The other area where I see great potential to utilise AI is for administration and project management support during design development, such as for calculating raw material quantities and updating database documents, connected with suppliers' stock availability for example.

### ARE THERE USES FOR AR?

AR is a great way to extend our perception of 'reality', mixing it with real-time computer-generated applications. Within the design process, AR could be useful for free-hand 3D sketching and sculpting, and applying real-time modifications. On the passenger experience side, extending the

perception of reality is a fascinating idea, meaning adding AR-supported activities or plug-ins.

### WHAT OTHER TECHNOLOGIES COULD BENEFIT DESIGN?

VR presentations and cabin walk-throughs are now a standard option for high-quality visualisations and presentations. Besides VR I'm excited to see where rapid prototyping technologies, mixed-reality presentations and commerce will take us. I believe the core methodology of the design development process won't change, but we will have to adapt the tools we use to visualise, prototype, produce and manufacture. Also, having access to such large amounts of high-precision data provided by AI, VR or AR, such as instant measurements, calculations and simulations, I expect more efficient production preparation and management practices.

### HAVE YOU GOT ANY NEWS?

I'm beyond proud to announce a collaboration with Aloft AeroArchitects and Stephanie Hunt of Flairehunter. Project Horizon is a BBJ Max8 concept interior and inflight experience design development project, established in January 2024. We aim to dive deep into the research and early adaptation of the latest passenger experience-related innovations, integrated in an interior with the utmost luxury. Our joint goal is to research and implement solutions to be adapted within the next five years.



# Q&A

## HOW DO YOU FEEL ABOUT THE POTENTIAL OF AI FOR DESIGN?

VLA: We've been integrating AI into our design process and it's been wild. It's certainly fascinating to see our design language being captured and co-created using these tools. The challenge is that they lack precision of course, and even more so with aviation than when we work with architecture. As a result it can take hours of refining the parameters to get the look we are seeking. Even then, we often post-process with Photoshop to integrate our design language, changing architectural elements, colours and materials, decorative items, or the majority of the cabin if needed! Our G650ER Law of Opulence concept is a prime example where we used AI and Photoshop to create a very unique design. For us it's a great way to exercise what the 'Ancient Future' could look like, and push the boundaries of the known.

## ARE THERE USES FOR AR IN CABIN DESIGN?

EB: AR offers the advantage of projecting designs in real-time over long distances. For instance, using Ray Ban's AR glasses, I can showcase a live 3D projection of design changes to a client remotely while making real-time adjustments from my office.

## WHAT OTHER TECHNOLOGIES DO YOU THINK COULD BENEFIT THE DESIGN PROCESS?

VLA: While we are using AI, a lot of our design process is artistic. I cannot think of other technologies at the moment other than our good old pencil and paper, watercolours, picking material swatches and such!

## WHAT CABIN INNOVATIONS HAVE CAUGHT YOUR EYE RECENTLY?

EB: The new Bombardier Nuage aircraft seat functions are



interesting. It has a built-in tilt system that allows it to pivot as it reclines. The most interesting part is the floating base, which enables the chair to swivel left and right, making it one of the most manoeuvrable chairs on the market right now. It's stimulating to see different designs being implemented in the industry and thinking of new ways we can customise them.

## WHAT EMERGING TRENDS WILL IMPACT CABIN DESIGN IN 2024?

DLA: We see two main trends. With the advancement of technology, one trend is cabin design following a futuristic and linear approach, where there is minimal use of colours and finishes, geometrical shapes, and basic use of aesthetic embellishment. On the opposite side, cabin design will be heavily influenced by a more natural and elemental way of living. The designs will be characterised by organic shapes, the natural beauty of material finishes, adornments, and an overall sense of ease, grace and connection with the divine. This is where we are heading, and why we are creating rich designs rooted by higher ideals, redefining what luxury is – a transcendental experience for the soul. ✕



*Valeria Lie Alonso,  
Eric Batdorff,  
Diana Lie Alonso*

partners, Lie Alonso Dynasty

ABOVE: A G650ER DESIGN  
BY LIE ALONSO DYNASTY

BACKGROUND IMAGE: KITIPOL @STOCKXDOBE.COM