



Forward Planning

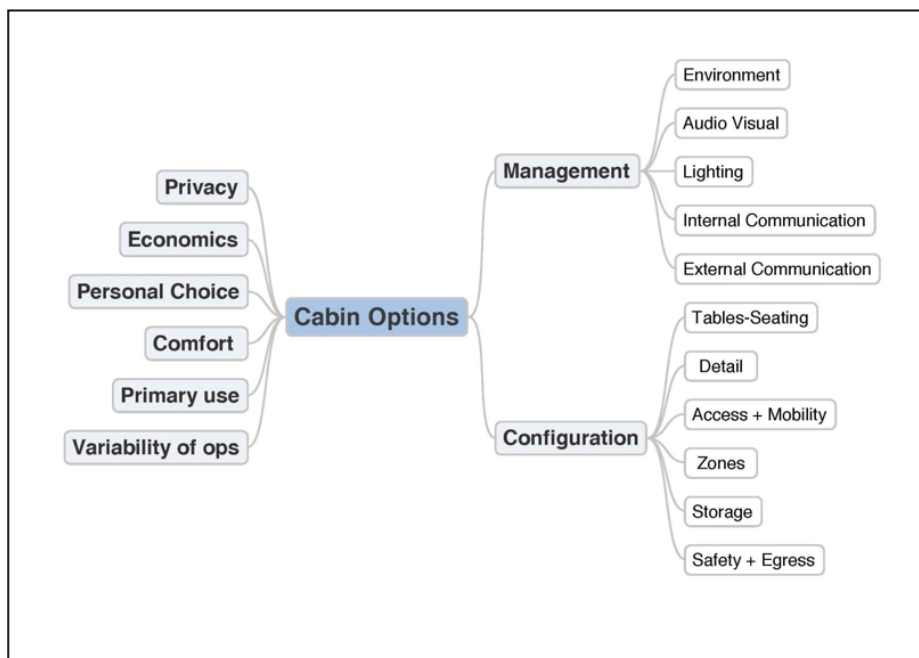
Some cabin considerations for operators.
by Ken Elliott

Anyone who has traveled in a business jet knows cabin layout and design are almost as critical for operations as the cockpit and aircraft performance. When evaluating an aircraft for purchase or for lease, a lack of capability or an unsuitable configuration within the passenger compartment can quickly rule a specific model or serial number off the shortlist.

Aircraft manufacturers go to great lengths to provide up-to-date cabins. However they can quickly fall behind the trends of style and the ability to stay connected in a way that

today's passengers expect. Many service bulletins and software upgrades have circulated the world of OEMs and MROs in order to try and stay abreast of change. **Map A** (overleaf) shows some necessary considerations for cabin outfitting and upgrades.

While not exhaustive the decision map highlights the diversity of interrelated factors in cabin options. 'Management' pertains to cabin features that are controlled either manually or automatically and often by remote means. Each area of management in itself has many sub parts; for example, environment



MAP A: DECISION MAP OF CABIN OPTIONS

"The cabin electronics and IT are the most susceptible to obsolescence. Think modular in your equipment to allow easy upgrades later. Provide easy access to audio visual items for software revisions and adjustments."

DIAGRAM A: POTENTIAL SPAN OF CMS FUNCTIONALITY



relates to soundproofing, temperature, air-flow and humidity control.

'Configuration' pertains to what you see, the arrangement, and the level of comfort, access and safety. Each area of configuration in itself has subparts; for example Access & Mobility can have different concerns for in-the-air and on-the-ground.

The input side to the cabin options map represents the expectations of the operator who could be an individual owner, a corporate team, a management company and anything in between. Together, it's a complicated process and one that can greatly benefit by taking a higher level perspective. So let's take the 30,000 ft. view, and look at the aspects of aircraft cabins that really matter to owners, buyers and sellers.

OBSOLESCENCE

Just like renovating a home in bold colors or customizing a car with a rear spoiler it may suit your own taste but would limit resale potential to a niche market. Choosing neutral blended designs and following the guidelines of aircraft interior design will limit obsolescence.

The configuration of the cabin should follow what is standard for the aircraft, or at least what buyers would expect for the model. Most importantly stay at least to the minimum seating capacity, and preferably, provide the ability to seat to the maximum for the type certificate by providing a fully belted couch, for example.

The cabin electronics and IT are the most susceptible to obsolescence. Think modular in your equipment to allow easy upgrades later. Provide easy access to audio visual items for software revisions and adjustments. Manufacturers of these technologies are now 'future proofing' in an effort to be adaptable to changes as they occur.

'Commercial off the shelf' (COTS) products are renewed almost as often as seasonal clothing and appear dated quicker than you could imagine. Bear in mind support for COTS products is not what you have come to expect with equipment specifically designed and developed for aircraft. If an aircraft has any COTS cabin equipment it is recommended to purchase back-up units.

BUYER AND SELLER EXPECTATIONS

Jetcraft Corporation, trades corporate jets as its core business. When asked what today's buyers and sellers mostly focused on regarding the cabin, Sales Director Chris Brenner said that external communication and connectivity in general were key expectations. "Most of today's business jet transactions are of an international nature and many aircraft must be able to perform across different geographic regions including land, sea and polar."

Connectivity involves voice, data and video with a service provider to enable your link to satellites. In-Flight Entertainment (IFE) and 'office in the sky' are the two big hits for initial configuration and upgrade costs, so there is a tendency to look for ways to save. Technology that uses Iridium satellites and is globalized for full international and polar coverage will typically cost less in both initial equipage and operating costs. Inmarsat satellites however have good data capability for international use.

Make sure that cockpit needs such as FANS, weather and other operational services are considered when it comes to the selection of external communication equipment. Both the cabin and the cockpit may be using the same system(s).

Regarding the cabin appearance, Chris Brenner pointed out that, as with any depreciating asset, the return on investment for an upgrade may appear negative to both a seller and a buyer of a business jet. However the need to add, generate or 'clean up' an interior in order to sell may be necessary. Sales professionals can advise on the need to make cabin changes in order to sell. Buyers may negotiate pricing on aircraft to offset their own cost to add necessary or desired cabin changes as an alternative approach.

CABIN MANAGEMENT

Business jet cabin management varies from

single seat manual control of lights with a monitor to icon-based individual remotes controlling a host of cabin variables. **Diagram A** (bottom left) shows the potential span of cabin management functionality.

A FEW LAST MINUTE CABIN TIPS

With so many factors to consider regarding cabin design, it helps to have a few good places to start:

- When working on connectivity for initial and upgrade cabin design, be sure to involve the company IT department. Have the IT representative work closely with the aircraft technology OEM and the MRO to test communications protocol, especially where secure IP and fire-wall protections are involved.
- Dedicate a laptop and tablet computer for aircraft use to secure set up, capability, reliability and protection from unsecure internet use out of the aircraft. Make sure the CEO and other leaders are familiar with them. Whether you have one or multiple aircraft, use only one Service Set ID (SSID) or network name for the whole fleet, by design.
- Think closets, storage and access during cabin selection. Where does the CEO sit?
- Use neutral and coordinated colors and tones during cabin design. You may regret bold choices, especially when it

comes to selling the aircraft.

- Interview those who will be flying in the cabin before finalizing interior designs. You may have thought they needed an office when they only wanted an 'in-flight playroom' for the teens and those new additions to the family!

Perhaps the most important steps are to find a trusted aircraft interior designer and then an IT service provider who has the most experience with your communications, data and media configuration. This combination will more than pay for itself, ensuring your satisfaction and reliable continuous connectivity as you circumnavigate the world.

➤ Ken Elliott is an avionics veteran of 40 years and more recently focused on NextGen. His work within the NextGen Advisory Council sub-committees brings him close to current and intended development effort. Equally, his specialization in low-vision

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