AVIATION WEEK NETWORK

AEROSPACE IT

ASK THE EXPERTS

As Aviation Week Network continues to develop and grow our offerings in this space, we are pleased to share our first *Ask the Experts* guide that will features select providers sharing their expertise, solutions and expectations for the future!

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AVASANT

As the aerospace industry gets more digital, how are your products/ services moving it forward?

Avasant is a leading management consulting firm focused on translating the power of technology into realizable business strategies. Specializing in digital and IT transformation, sourcing advisory, global strategy, and governance services, Avasant prides itself on delivering high value engagements through industry-focused innovation and flexible client-based solutions. We work with A&D companies to uncover the best use cases for digital technologies to drive innovation for their businesses: Digital Accelerators • Business Transformation • Digital and IT transformation • Strategic Sourcing and Cost Optimization • IT Infrastructure Operations Optimization.

How does your organization fit into the digital evolution of the industry?

Avasant's CEO, Kevin Parikh, is a thought leader and published "Digital Singularity – A Case for Humanity" in 2018 with unique insights into the emerging technologies that are creating new business and social imperatives for those operating in our increasingly global economy.

Avasant is at the forefront of business innovation. We empower organizations to embrace the potential of business process optimization, technology, strategic sourcing, and digital transformation to realize unprecedented value.

- Thought Leadership & Expert Insights
  - Experiences and insights shared by airline, airport & defense leaders on the evolving landscape
  - First-hand accounts of the challenges and successes that are progressing the industry
- Market Trends & Industry Analysis
  - Deep understanding of market dynamics
  - In-depth knowledge of global and regional airline & airports trends
  - Future-centric outlook
  - Comprehensive Published Research on the Airlines, Airports, and A&D Industries
- Provider Assessments & Industry Surveys
  - Independent assessment of the capabilities of airlines & airports technology product and service providers to help clients evaluate partners for their digital journeys

What trends are you observing in the aviation IT industry?

Avasant's Research publishes A&D and Airline & Airports Industry RadarViews to share industry trends and insights. The scope of the reports includes digital initiatives implemented by aerospace and defense industry clients across the commercial and defense segments. Here are some excerpts from the related RadarViews:

- Digitalization of aviation operations by leveraging advanced technologies like IoT, 5G, applied AI, advanced analytics, and SaaS-based applications. Here are some use cases:
  - Smart maintenance through the prediction of component failure and proactive scheduling of replacement
  - In-flight safety through pilot assistance applications to provide real-time intelligence
  - Aircraft health monitoring for improving the availability and reliability of aircraft
  - Asset management through remote monitoring
  - Optimization of fuel consumption and emissions
  - Voice-of-Customer (VoC) using sentiment analysis of social media content
- With the rising passenger traffic, aerospace companies are driving innovation to offset air travel's environmental impact and reduce travel time. The emerging market segments include supersonic travel, zero-emission aircraft, advanced air mobility, and electric aircraft.
- Digital tools and technologies are used to harness the rising volume of data generated across the ecosystem
- Leveraging data analytics to drive operational excellence and customer improvements for segment players like OEMs, suppliers, and MRO providers.

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HCL

As the aerospace industry gets more digital, how are your products/ services moving it forward?

As many companies look to digital transformation to improve their overall bottom lines, they will need to understand how to gain insights and react quickly to changing dynamics within their entire ecosystem. This requires the ability to process enormous amounts of information and have visibility across all of the value chains. This is what we call Model Based Enterprise 2.0 (MBE 2.0). We are now seeing the digital representation, or virtualization, of processes happening across supply chain models, factory models, and financial models. The key for the future will be the ability to leverage these digital representations across the value chain and responding/ planning ahead for events that might occur. MBE 2.0 extends the concept of maintaining the digital representation of the product definition to an enterprise view that uses digital tools to define and optimize the digital threads of each of the functional areas. It's the ability to look across all of the digital threads—from engineering to the supply chain to finance and the factory—to gain insights. We also have a decision-making framework to support MBE 2.0 which helps organizations map their processes and data to facilitate decision-making during the digital transformation process.

What trends are you observing in the aviation IT industry?

Today OEMs need to prepare for the new market environment that demands digital value-add services which means using data collected from different systems and exchanged on digital commerce platforms. Changing business models in the industry demand that OEMs and MROs leverage and monetize the data they collect to create new revenue streams. Intelligent technologies such as analytics, the Internet of Things (IoT), artificial intelligence (AI), machine learning, and digital twins can enable them to streamline maintenance execution, cut turnaround times, and decrease process costs. Embedding these intelligent technologies into MRO processes can automate manual processes and dramatically improve the customer experience. One such MRO process is requested to service where the individuals performing the service can get direct answers to questions around the maintenance activities they need to perform, for example, the work scoping app within the SAP Enterprise Asset Management, add-on for MRO by HCL for SAP S/4HANA, provides intelligent work scoping proposals based on the condition of the asset. For automation of the sourcing process, the demand sourcing app provides precise contextual information about available serviceable parts. Another area is the component maintenance process, where machine learning could be integrated with applications such as SAP S/4HANA, SAP Fiori apps, and SAP C/4HANA and used for image recognition to identify the exact physical part and its condition and start root-cause analysis to understand what caused the failure and even trigger follow-up activities.

As technicians do more on-point work, what are the tips to ensure workforce agility and effectiveness as they use hand-held devices?

The potential for augmented and virtual reality applications is huge as technicians use mobile devices to support maintenance tasks. Additional context on the product data or job instructions with searchable video content for MRO service teams can be provided to ensure workforce agility and effectiveness. For a true paperless shop floor experience, the technicians should be able to access the information they need through different channels — for example using smart devices to view task details, or recording the findings and sign-offs on a simple mobile app. When a defect is found, a technician can interact dynamically with a conversational bot to support the process and use wearables that overlay work instructions step by step and can connect to other experts over a video call. The SAP Enterprise Asset Management, add-on for MRO by HCL for SAP S/4HANA can provide a range of capabilities and user experiences to support the move to paperless shop floor processes.

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Trax emro emobility

As the aerospace industry gets more digital, how are your products/services moving it forward?

Documentation and data integration via upload functions and APIs is prevalent in the aerospace industry, and TRAX products have the functionality to automate data ingestion and exchange. Its eMRO software has an integrated digital documentation management system for OEM data, internal documents, AMM, IPC, etc. for multiple format types (SGML, XML, video, etc.). TRAX eMobility apps include a digital documentation app that integrates with all modules and mobile apps to allow users to search, view, and attach documents. The lack of standardization for digital data exchange in the industry is a great challenge today. To overcome this, TRAX participates in groups such as the Air Transport Association of America (ATA) e-Business forum for the development of industry standards such as Spec2500 and S1000D.

OEMs are increasingly sharing data and incorporating more sensors. Software developers would be remiss not to take advantage of these extraordinary amounts of operator data to build a dynamic and predictive software solution. The difficulty is in developing constructive algorithms that can transform statistics into dynamic and beneficial predictions. TRAX plans to take advantage of innovative technologies such as machine learning, predictive analytics, and virtual reality digital twins that extend our software's utility beyond historical reliability data and formulas currently in use.

As technicians do more on-point work, what are the tips to ensure workforce agility and effectiveness as they use hand-held devices?

The TRAX eMobility apps are an example of how mobile add-ons to a Maintenance & Engineering software system makes the maintenance process more efficient and paperless. For example, using the TRAX electronic technical logs apps, a pilot can raise a defect during a flight, which when connected through the onboard Wi-Fi system, streams down to the ground and presents a notification to a technician assigned at that flight's location. The mechanic can prepare ahead from wherever they are located to review the OEM manuals on their app, order replacement parts in advance, follow the aircraft status and arrival information, etc. Agility is also enhanced by incorporating features from mobile devices such as notifications, camera access, voice recognition, e-signatures, and thus not having to return to the hangar as frequently.

While there are many mobile maintenance applications available, most do not have off-line capability with automatic synchronization when in Wi-Fi range. This was a deal breaker for TRAX customers and why we developed our suite of apps to have this capability. Access to real-time information is critical to decision making, workforce agility, and on-time performance in the fast-paced aviation world.

How can digital tools be used to increase efficiency in the workforce?

The gains in efficiency and ROI for paperless processes are undisputed. There is an increasingly high level of awareness of this within the aerospace industry which is driving the process of digitalization. In the recent past, operators focused more on technological advances for passenger-facing inflight entertainment systems (IFE), operational software for reservations, Flight Ops software, etc. They are now seeing more clearly the efficiency advantages of digital platforms for their maintenance operations and are launching projects accordingly.

The market response can be seen in the enormous number of digital products being offered today. TRAX has greatly increased its software offerings to respond to its customers' needs and the increasing drive toward digitization. Its suite of eMobility apps include apps and dashboards for fleet management and planning for an airline or MRO shop. The device-agnostic Maintenance & Engineering ERP system, combined with thirteen task-based web and iOS apps, allow an operation to be fully mobile and paperless with completely synchronized and integrated data. As a result, our clients are reporting reduced aircraft maintenance delays, savings in manhours, increased productivity measured by task transactions, additional paperless operation savings on physical storage, and other measurables in the million dollars range.

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