Improving resource utilization and efficiency at Delta TechOps

Rick Uber, Delta Airlines and **Dinakara Nagalla**, EmpowerMX share how the partnership between the two businesses has benefitted maintenance provider, Delta TechOps

***Aircraft IT Magazine* had the opportunity to interview Rick Uber, General Manager Base Maintenance, Delta Airlines, and, for their technology partner, Dinakara Nagalla, CEO of EmpowerMX**.

Aircraft IT: Can you introduce yourselves and explain the background to this relationship between Delta and EmpowerMX?
Rick Uber, Delta: Delta TechOps is the full-service maintenance provider for the entire Delta Airlines fleet, numbering close to 900 aircraft. In addition to maintaining its own airplanes, Delta TechOps also provides MRO solutions and support to more than 150 third-party operators around the world, making it the largest airline MRO provider in North America.

Despite having one of the most experienced work forces in the industry, the company realized there was room for improving resource utilization and overall efficiency, from standardizing how our different teams worked to ensuring their tribal knowledge is available as intelligence for others as well, and to improve risk mitigation during the MRO execution process.

The managing team had a very clear idea of the metrics they wanted to collect for effective decision-making. However, the manner in which the data was being collected left substantial gaps between the way the team perceived performance and the actual status of the services. There were also disparities in the ways first- and third-party services were planned and executed. There was widespread agreement that change was needed.
Dinakara Nagalla, EmpowerMX: EmpowerMX's cloud-based, mobile-first software-as-a-service (SaaS) solutions are used by the world's leading airlines, MROs, and OEMs to more efficiently plan, execute, and optimize heavy maintenance, line maintenance, materials management, shops activities and component overhaul. Our software drives ROI and delivers efficiency gains by shortening maintenance turn-around times (TAT), increasing aircraft availability, and lowering cost per available seat mile (CASM) by improving workforce utilization, eliminating unproductive workflows, providing real-time visibility into task completion, and digitizing paper-based processes and documentation..

Aircraft IT: What was the selection process by which EmpowerMX became Delta's chosen partner and why EmpowerMX?
Rick: We looked at different alternatives in the marketplace and, after an extensive evaluation process, chose EmpowerMX for its flexibility, robust functionality and framework that supported and enforced the standardized work processes throughout Delta TechOps facilities. EmpowerMX also met our need for real-time access to execution data and paves the way the way for the transition to fully paperless operations. Most importantly, it was clear to us that EmpowerMX is a solution purpose-built and optimized for aviation by industry veterans with real in-the-trenches experience. EmpowerMX is run by aviation experts and A&Ps who have led and managed the maintenance facilities and tech ops functions for major airlines and MROs, and spent decades implementing and developing mission-critical software on the floors of these organizations. As a result, this firsthand understanding of how MROs, OEMs, and airlines can best leverage cloud-based, mobile-first technology to more efficiently and profitably plan, execute, optimize, and digitize their maintenance and overhaul functions is fully reflected and embodied in the EmpowerMX solution.

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Dinakara: Delta was already measuring a series of KPIs before they started looking for a new solution. We ran our modules for several months as part of a pilot project and collected data helping Delta to compare the KPIs before and after the introduction of the new software. The results corroborated the significant positive impact Delta TechOps could expect upon deploying the solution across their entire MRO operations.

Aircraft IT: How does EmpowerMX's solution change the way that MROs work and how can that add value to Delta's businesses?
Rick: First, it allows the service to be executed in accordance with a digital plan so that every time you start deviating from the plan the system will tell you about it. The variations could be in the number of task cards getting closed, the availability of materials, the rate of manpower being applied to the service and others. The system tells you early enough about these deviations so you can come up with an action plan to compensate for them and get the work package back on track. We are also using the data provided by the system to continuously look for ways of optimizing the way we do business.
Dinakara: We target check efficiency in multiple ways like assisting technical personnel through their daily tasks so they can maximize the time they spend on value adding activities. We manage this without neglecting other areas of similar importance like collaboration and communications. Processes are streamlined for quick reaction to production bottlenecks and avoiding duplicate work. Streamlining reduces waste and results in better resource allocation.

Aircraft IT: How do the features of EmpowerMX's solution integrate into the overall system?

Rick: It is very difficult for any IT vendor to provide a single source of truth. A single system may work fine for smaller companies. However, it is not a good fit once you start dealing with large organizations like Delta Airlines. At TechOps we have a complex IT portfolio covering inventory management, supply chain, technical content management, human resources, training, planning and execution. EmpowerMX was brought in to specifically help improve the areas driving productivity — planning and execution. From that position the system had to integrate seamlessly with other software solutions within the existing portfolio. In the end, if you are now a Delta TechOps technician working, for example, in Atlanta or in Minneapolis, you will be using a very simple and uncluttered user interface even though, behind the scenes, you will be tapping into data managed and controlled by multiple IT solutions displayed using the EmpowerMX tool.

Dinakara: Just to expand on Rick's point, our approach at EmpowerMX is always to strive for implementation plans with the least amount of disruption. If the IT landscape of any given MRO includes systems which are still doing their job at controlling mission critical data, and their immediate replacement will not bring a noticeable impact on productivity and the financial bottom line, we would rather go ahead and interface with these systems instead of pushing for the old-fashioned wall-to-wall replacement way of introducing change. We learned from the limitations of previous generations of airline Maintenance & Engineering Systems (M&E), and, from the very beginning, designed modularity into our databases. Pre-existing systems can be readily integrated with EmpowerMX modules using our Digital Data Connect universal connector. The goal is to break down silos and allow the data to be shared across multiple solutions in a collaborative effort.

Aircraft IT: How would you summarize the benefits of EmpowerMX solution for:

- **Technicians — engineers and mechanics?**
- **Middle management?**
- **Senior Leadership Team and the business in general?**

Rick: We are now empowering Technicians with all the data they need to focus on the work they have been assigned to do. The new approach has led to less quality escapes and higher levels of on-the-job safety as technicians are no longer required to move around the facility to get support, parts, and tools. Access to the relevant technical content is instantaneous. Also, the average time waiting for buybacks and receiving assistance from other support departments has been greatly reduced.

Middle management is measuring savings in pre-dock planning activities and, when already in execution, can quickly identify systemic bottlenecks which

previously managed to go undetected. Managers get visibility of critical factors and can act before these events start posing risks to turn-around times (TAT) and financial performance. This visibility allows project managers, crew leads, material support personnel and others to make educated corrective decisions based on real-time, solid, and easily accessible data. Services are performed in accordance with best practice execution plans. In terms of third-party activities, the system facilitates interaction with customers while automatically enforcing the billing rules defined in the digital MRO contracts. This extra control helps our operation to

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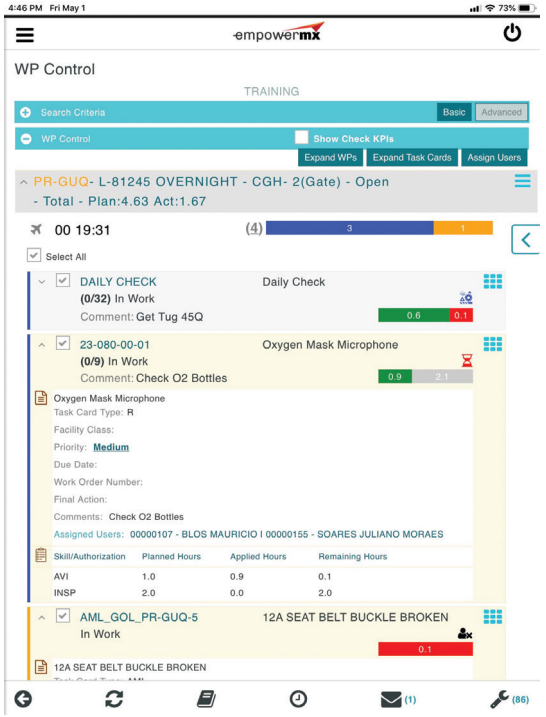
collect on all the work we perform on third-party aircraft. The more efficient utilization of resources, and a consistent TAT performance, bring extra value to our first-party customer Delta Airlines.

Additionally, senior leadership is now able to see live, real time overviews of each check and the exact status both financially and by schedule. This data ensures strategic decisions are made using the best available data.

Dinakara: Another benefit we bring to the market place is the ability to manage all possible types of task cards ranging from fully engineered electronic task cards (ETC) all the way to dirty-finger-print (DFP) task cards. For the ETC, we can access the airline's own specialized document management system so the MRO can use that content to generate the task cards in its own layout and design. Additionally, the emphasis in mobility and electronic signatures is very well aligned with the current drive for social-distancing and remote work.



Aircraft IT: What level of training will be required as personnel move to mobile-based working?

Rick: Change is always a challenge and as such it always requires careful management and attention. Fortunately, in this case it was very easy to train technicians on how to use the new solution. They quickly realized how the solution brought to their fingertips all the information they would normally require. Another key factor was that the data and workflow closely resembled the step-by-step process the technicians had been used to following previously when executing work on paper. This facilitated user acceptance and the efficiency of the way technicians interacted with the system.

Dinakara: From our side we try to stress face-to-face instruction, task demonstration, and hands-on practice. Our typical training program focuses on training the trainers on how to perform master tasks, giving them hands-on practice of each master task, and certifying them to train the larger population of users. These trainers will also actively participate in post-go-live support activities. Obviously, the Millennial technicians are very comfortable with mobility and paperless. However, the older generation technical staff seem to favor the combination of classroom format and hands-on activities we offer. The few needing extra attention undergo additional one-on-one training already on the job. Regardless of age difference there is no intrinsic resistance to the adoption of technology that is easy to use and reflects their way of thinking.

Aircraft IT: What are the steps in using electronic task cards and how do they vary from or improve on the old ways of working?

Dinakara: Obtaining approval of electronic signatures from the MRO's regulator is the easy part. However, it is one thing to deal with digitalization within the realm of one single company and another to do it in an environment requiring interaction with multiple regulators, customers, lessors, and other parties

"Meaningful dashboards are key when your goal is to improve the efficiency of complex activities like commercial aviation MRO."

which pretty much describes the operating environment of the typical MRO. The pursuit of regulatory approval should start in parallel with the definition of the data streams which will be used and the standard layout in which, task cards coming from different customers and data sources, will be presented to the technicians for execution. The optimization of the user experience goes hand-in-hand with the increase in productivity. Two immediate benefits are faster task card closure rates and an overall reduction in the cost of managing the data. Electronic task cards also prevent task card reopens caused by missing signatures and paperwork. Paperless brings additional improvements to customers, such as that customer technical representatives can, at their own pace, audit task cards remotely through a web portal or a mobile app without having to stop by the Production Booth to pick up DFP paperwork from a tray.

Aircraft IT: Who will have access to the dashboards and what information will they carry?

Rick: Meaningful dashboards are key when your goal is to improve the efficiency of complex activities like commercial aviation MRO. There are dashboards specifically designed for every level of the operation. The type of audiences for the dashboards can go from operational to strategic / executive roles.

The dashboards consolidate the information that is most important for each of the key roles and areas within TechOps and include performance indicators (PI) and key performance indicators (KPI). They are organized around widgets, with data coming from different business areas, and use a variety of charts, maps, dials, and actionable links with drill-down capability into real-time details. The goal of the dashboards is not simply to inform users but to compel them to act. Decisions are now linked to data, increasing accountability by giving employees ownership over their work. This way, we are fostering a proactive environment of responsibility.

Dinakara: A person in Rick's positions requires KPIs measuring what he wants to track and helping him with getting things done. This person needs the important KPIs to be consolidated in a single flash because how we present them is as important as how we track them. Working with Rick helped us understand that not all the standard metrics which MRO and airline maintenance organizations are used to following are important enough to track. It is all part of moving from controlling data to ensure compliance to using data to improve efficiency.

Aircraft IT: How will billing and invoicing be changed and what time/money savings as well as customer relationship improvements is that likely to deliver for Delta?

Rick: The MRO Customer Portal brings our MRO clients closer into the TechOps ecosystem and plays an important role in keeping them informed in real time of the status of their airplanes. We are now using traceable customer approvals and reducing the time it takes to obtain them. In terms of billing and invoicing, we no longer have to chase customers with unbilled items days after the aircraft have departed.

Aircraft IT: Who will have access to aircraft records and how will this make life easier during induction to the fleet, work life and end of lease?

Dinakara: There are specialized digital aircraft record solutions helping with the digitalization of technical records via their scanning, indexing and storage.

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However, electronic task cards, either based on XML, overlays on top of PDF or generated on the fly, eliminate the bulk of paperwork from the hangar floor. On top of that we have the ability to deploy our records system to capture the other documents that, at least for the immediate future, will partially remain on paper. One example of these are part certificates. Our records module takes these hold out paper records and digitizes them for future easy and quick retrieval. We perform scanning, OC operations and indexing, merge and final attachment to their corresponding task cards and work packages. Documents are always accessible from web browsers and apps. This way we end up feeding in real time the airlines' specialized digital records systems with electronic copies of all the documents as the task cards get closed and audited.

Aircraft IT: How does the EmpowerMX solution address the challenges that Delta had identified (see question 1)?

Rick: With the new processes we managed to optimize the allocation and utilization of resources. Project Managers now can reschedule resources in advance to prevent problems from surfacing or getting out of control. By standardizing work processes across facilities, bays, and customers we are ensuring work is performed in a pre-defined optimized way with better quality and clarity of status.

We have also achieved real-time visibility of operational and financial metrics. This visibility allows us to concentrate on what really requires attention and helps reveal opportunities for improvement.

Finally, Delta TechOps continues to rely on multiple legacy systems that are hard to replace as the company depends on them to control critical day-to-day operations. The solution we implemented managed to seamlessly integrate the data coming out of these systems and offer it to the Technicians in a consolidated holistic view. It has a sleek browser-based UI (user interface) offering a user-centric experience. This way they can focus better on what they are trained to do and enjoy doing — fixing airplanes.

Dinakara: From our side, EmpowerMX cannot stress enough the importance we put on strengthening our partnership with customers like Delta TechOps. We look forward to continuing serving our market and helping MRO and airline maintenance organizations achieve their goals. As a company that takes pride in its MRO and aviation DNA, we have ensured that we are constantly working in step with our clients to develop platform-based solutions that can help them integrate modernization into their environments without extensive and expensive rip-and-replace products. With the resurgence in air travel, and with airlines bringing fleets back into line service, the need of the hour is rapid turn-arounds, high reliability, and extreme efficiency.

RICK UBER

Started my career as a US Marine, where discipline and integrity were instilled as core values. Those values have served me well throughout my career starting as a A&P mechanic and working my way up through the management ranks. I have had the honor to lead multiple organizations to include Aviation Repair Technologies, AAR in Indianapolis IN, TechOps Mexico and currently the Airframe Maintenance division at Delta Tech Ops.

DINAKARA NAGALLA

Dinakara Nagalla is founder and CEO of EmpowerMX, where he sets the vision and product strategy for the company. He is an aviation MRO technology veteran, having worked in large-scale implementation of MRO suites for global airlines, product development, and systems integration. He has held leadership roles at aviation software and Consulting firms including American Airlines/Sabre. He holds a graduate degree in thermal engineering, and executive leadership program from Cornell University.

DELTA AIRLINES OR DELTA TECHOPS

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EMPOWERMX

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