IBM Travel & Transportation Industry

Asset management and predictive maintenance benefits for airports

Deploying integrated solutions to help extend the revenue-producing life of assets

Highlights

- Improve asset performance and longevity for revenue creation

- Unify management of facility, operational and infrastructure assets

- Reduce costs and unplanned repairs with analytics tools

Overview

Airport ecosystems are a collection of disparate systems that all serve a mission-critical function. In today's modern airport, the goal is to minimize asset performance disruptions in order to maximize the ability of each asset to produce revenue. That includes managing the facility itself, airport personnel, passenger transport, terminal communications and operational assets, both inside and outside the primary structures. The task can be time-consuming, expensive and, at times, daunting.

By combining advanced asset management and analytics solutions specifically tuned and configured to meet the needs of airports, you can achieve more robust operational flexibility and fewer disruptions, and reap the proven benefits of predictive maintenance. This combination of interconnected solutions can provide a sustainable basis for continuous operational improvements to help reduce costs, add new capacity and simplify the process of meeting compliance demands.

Manage airport assets more effectively and efficiently

Asset management solutions tailored for airports that include analytics can provide an integrated approach to managing all discrete or complex assets in your inventory. They can help you overcome challenges rooted in aging infrastructures or insufficient human assets and bring unity to the typical airport's siloed or disconnected systems.

Solutions such as these use advanced analytics to manage critical assets from a single system, allowing greater visibility and operational control across the organization. By consolidating virtually all asset-related information in a single repository, these solutions can help you assess and manage asset performance. Through improved asset utilization and operational efficiency, an airport can increase return on investment (ROI) and, at the same time, help deliver an enhanced customer experience.

Asset management solutions can help airports reduce the risk of disruption to operations while providing an improved end-to-end experience for both travelers and tenants. Effectively tracking, managing and maintaining airport assets in order to optimize their utilization can improve operational efficiency and help reduce expenses. Such solutions can provide:

- End-to-end asset lifecycle management, including asset procurement, deployment, maintenance and retirement
- A dynamic, interconnected suite that features consolidated solutions for asset management
- Service-oriented architecture that can provide flexibility across your operation and help speed deployment
- Predictive maintenance capabilities

Predictive maintenance can transform your airport's performance

Predictive maintenance solutions give you the ability to gather and analyze data about asset operations that help you move from *corrective* (repairs made after a problem occurs) to *preventive maintenance* (dictated by a schedule based on past experience) to *predictive maintenance* (performed because data for an asset indicates a problem is imminent). This latter scenario can reduce unplanned downtime, improve decision making and extend the life of assets.

Real-world success: Australian airport increases proactive maintenance by 33 percent

An Australian airport serving more than 30 million passengers annually extended the reach of its asset management system from its engineering department to its air-side, land-side and terminal teams, encompassing everything from runways and physical plants to fleet vehicles. While the airport managed physical assets such as luggage carousels and flight information boards using the asset management system, those assets were also dependent upon technology.

The airport's IT help desk and ticketing processes, however, were managed in a stand-alone service management system. That made it difficult to determine whether the issue was hardware or IT related. It also created a bottleneck in maintenance processes, which cost more time and effort to fix issues and resulted in fewer resources for preventive maintenance.

With their new unified system in place, the various business units and IT are now sharing data and working with a common work order process, resulting in improved operational responsiveness across the entire airport. The airport has increased the proactive versus reactive maintenance ratio by 33 percent, reduced the overall fault per asset ratio by 7 percent, and improved the preventive maintenance strike rate by 81 percent.

Predictive maintenance solutions can help you evaluate the efficiency of maintenance operations by collecting historical and operational data, then providing reports and dashboards using an analytics approach. With this information, it's possible to make faster, more informed decisions regarding asset availability and reliability, as well as find new ways to reduce costs and decrease maintenance needs.

With a predictive maintenance strategy, it's easier to preserve capital by reducing the number of spare parts required. Better insights into when and where parts are needed also helps reduce expensive expedited shipping costs for spares and the storage space they occupy. What's more, it can help you schedule the necessary skilled maintenance personnel more accurately, potentially reducing overtime expenses.

As illustrated in Figure 1, IBM studies[1] have found that when compared to companies that use traditional approaches, on aggregate those that use predictive maintenance solutions can enjoy significant benefits.
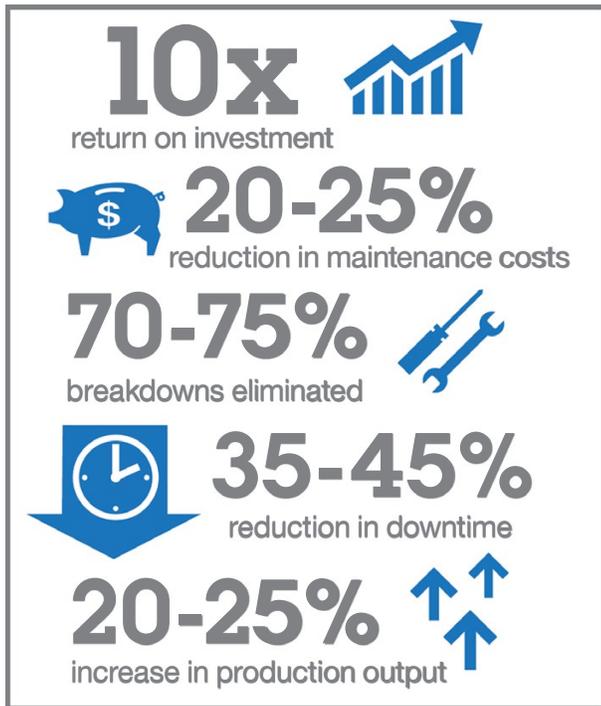
Figure 1. Average improvements of IBM customers that have utilized predictive maintenance solutions.

Real-world success: Middle Eastern airport reduces maintenance costs by USD10 million

This rapidly growing hub airport in the Middle East needed an asset management and maintenance solution that would allow it to control maintenance costs even while expanding its facilities and assets. They deployed a solution which standardizes processes, minimizes resource requirements, automates processes, and generates job plans with task, duration and resource categories for all planned work. In addition, the solution automates work assignments by using a comprehensive database to match employee skills with labor availability, thereby optimizing resource use. Employees can also access asset management and maintenance scheduling processes remotely.

The airport decreased planning, scheduling and assignment times, and reduced maintenance costs while improving asset uptime and other key performance indicators. The airport estimates savings of USD 10 million in 2014 through reduced maintenance man-hours and other efficiencies.

Conclusion

The need for airport operators like you to increase operational efficiency and enhance the passenger experience while reducing cost is intense. Most airports are under pressure to improve capacity to meet peak travel demands and increase revenue, which is particularly difficult when you may be strapped with aging facilities and infrastructure. The best approach to managing airport asset and maintenance complexity is to implement a holistic system of analytics solutions designed to integrate and analyze your airport's disparate data.

About IBM asset management and predictive maintenance solutions

As a world leader in analytics, IBM has invested billions in solutions designed to help you achieve more efficient utilization of airport assets and predict demand for facilities. Each IBM solution contains connectors to other asset systems that can enable greater operational efficiency while helping reduce costs. With these IBM analytics solutions in place, you can be more confident assets will perform when they are needed, helping you deliver a better customer experience and maximize every asset's ability to produce revenue.

For more information

To learn more about asset management and predictive maintenance benefits for airports, please contact your IBM representative or IBM Business Partner, or visit the following website: **ibm.com**/travel

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[1] These results are based on averaging the ROI of IBM customers that have utilized predictive maintenance solutions. They also appear in an IBM infographic published here: http://www.huffingtonpost.com/2012/09/11/ibm-predictive-maintenance_n_1873701.html?1347826655

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