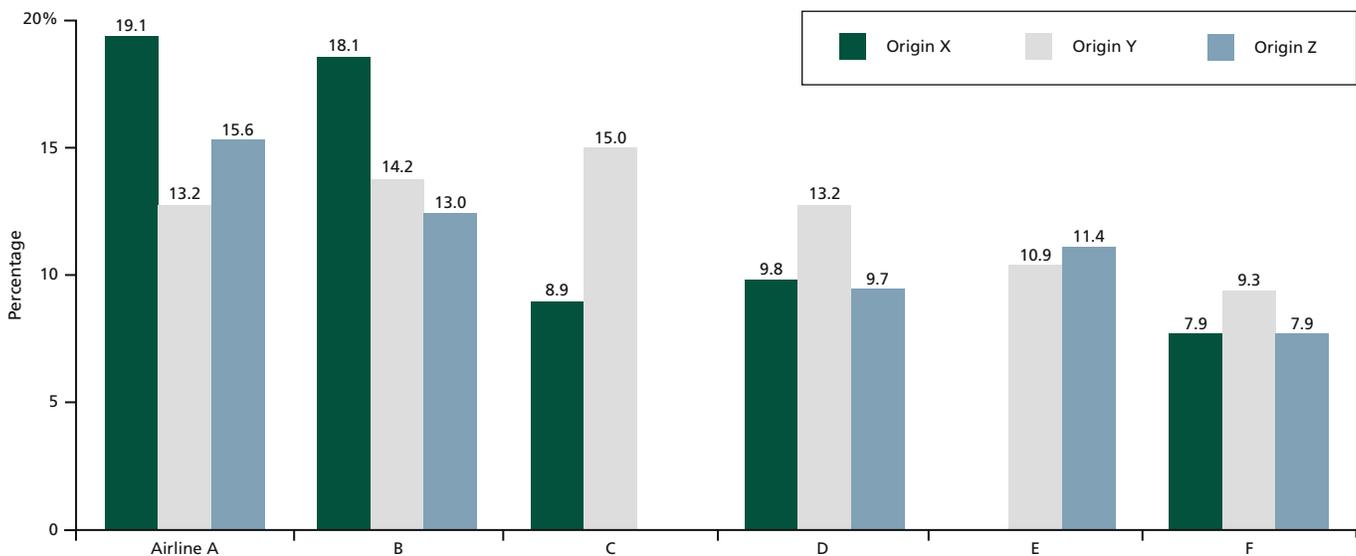# Relieving High Anxiety: Taking the 'I' Out of IROPS

In a recent survey conducted by L.E.K. Consulting, high-value frequent flyers noted a preference for airlines that demonstrated above-average performance capability when faced with a sudden irregular operations event, or IROPS. "Any airline can run on time under normal conditions," suggested one customer, "but it's the ones that provide predictability and certainty through an IROPS that get my sustained loyalty."

Still, many airlines continue to use normal operations as the standard for measuring performance, under the assumption that all carriers respond in kind when dealing with a significant weather event, security breach or other irregular occurrence. But as the data suggests, some are better at handling IROPS than others — for that matter, an airline's ability to react to an IROP can vary significantly, even within the same airport (see Figure 1). And perhaps most importantly, customers really do notice the difference.

Figure 1
**Cancellation Rate by Airline and Originating Airport**

Note: Cancellation rate is calculated as (ScheduledDepartures – Departures)/ScheduledDepartures; Jan 2014
Source: L.E.K. research and analysis

Relieving High Anxiety: Taking the 'I' Out of IROPS was written by **John Thomas**, a managing director, and **Alex Y. Lee, Ph.D.**, an aviation and travel expert in L.E.K.'s Aviation practice. John and Alex are based in Boston. For more information, please contact aviation@lek.com.

Figure 2
Systematic and Disciplined Approach to IROPS Preparedness
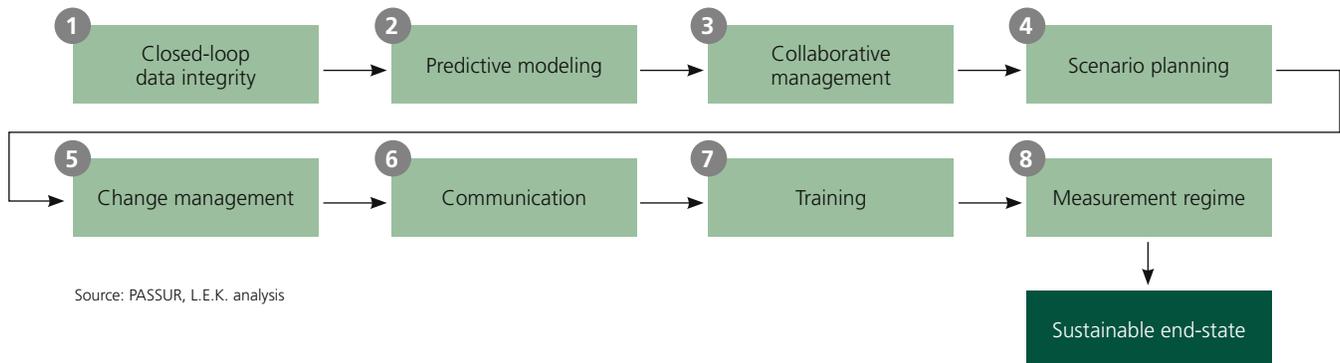
Source: PASSUR, L.E.K. analysis

So what can carriers do to improve their IROPS performance? Working in conjunction with PASSUR, the industry's leading provider of flight, airspace and airport optimization solutions, L.E.K. has devised a multi-tiered plan aimed at making IROPS no different from normal day-to-day operations. Achieving success requires a top-down, systematic and disciplined approach to IROPS preparedness (see Figure 2).

1. Closed-Loop Data Integrity

Lack of data or data integrity can severely limit a carrier's ability to proactively manage their fleet. Thus, airlines need to ensure consistency of data capture covering the entirety of each flight's profile (including Out, Off, On and In). Data collection should be automatic, in real time, with the ability to interface directly and be autonomous from the aircraft. PASSUR's data collection includes:

- **Integrated Surveillance Network.** Collected data feeds from its own proprietary sensor network into specialized databases to support operational performance improvements and optimization in predictive, real-time and post-operational modes. Augmenting the PASSUR network are additional sources of surveillance data, including ADS-B, ASDE-X, Mode S, en Route Radar, Airline OOOI data, ACARS, industry data and customer data. Using these sources, PASSUR creates detailed and massive Big Data about flight, airport and airspace operations that are needed to optimize complex air traffic management operations during disruptive events.

- **Gate-to-Gate Constraint Management.** Leveraging its extensive surveillance network — including surface surveillance at airports — PASSUR identifies, optimizes, and measures key constraints throughout the flight, gate-to-gate. Airlines and airports use these decision support tools to address disruptions like extended taxi-out delays on departure, diversions en route, inefficient airport arrival rates and arrival gate delays. The consolidation and processing of multiple data sources allows PASSUR to manage IROPS events systemically, targeting key constraints through the entire lifecycle of a flight in order to optimize fuel costs and emissions, schedule integrity and the passenger experience.

2. Predictive Modeling

Proper planning is key to enhanced IROPS performance. For instance, severe-weather episodes often recur within the same general time frame, allowing carriers to anticipate similar events and likely operational impacts ahead of time. With an accurate weather forecast, flight demand forecast, and access to large amounts of historical flight, airspace and airport data, it is possible to create decision-support tools that accurately anticipate disruptions and recommend preventive measures ahead of time — all based on past performance under identical or similar conditions. And as forecasts change, sometimes on a moment's notice, the same data-driven capability allows airlines to dynamically adjust their plans with the same level of predictive confidence and effectiveness. Therefore, airlines should have a "rolling perspective" reflecting a number of

possible outcomes over a 3 to 18-hour period. Predictive modeling factors to consider:

- As major weather events are identified on long-term forecasts, airlines can utilize prior experiences to plan for and mitigate IROPS — experiences that are reflected in the form of data-driven scenarios captured in PASSUR's predictive analytics software. By learning from previous operational disruptions and leveraging the data from those events, it is possible to continuously improve upon IROPS management with each event.

- As volatile weather patterns either improve or worsen, it is essential for carriers to remain flexible and adjust plans accordingly. This dynamic approach to IROPS mitigation ensures that operational disruptions are met with an appropriate amount of planning that is based on data rather than subjective reactions or "tribal knowledge."

3. Collaborative Management

IROPS events are frequently complex and involve multiple players. As a result, the impact of proactive management of IROPS is much greater when airlines, airports, Air Navigation Service Providers (ANSPs) and other key stakeholders are able to share the same data-driven decision-support tools on a common operating platform in real time, and manage their changing priorities and demands collaboratively on industry platforms that reflect common "rules of the road." This allows each airline to optimize its schedule and minimize disruptions without disfavoring or penalizing another airline. PASSUR's platform includes a layer of networking tools designed to enable real-time information sharing and collaborative decision making.

4. Scenario Planning

Given the unpredictable nature of forecasting, one should also incorporate various scenarios based on actual prior weather events in order to determine whether or not IROPS plan adjustments are needed, then subsequently run these scenarios in line with the predictive-model rolling cycles.

By developing a number of contingent scenarios, airlines will be able to conduct a sensitivity analysis for their IROPS plans, making the necessary adjustments in order to strengthen their plans and better meet a larger subset of potential outcomes.

5. Change Management

System upgrades are an integral part of enhanced IROPS readiness. However, technology alone cannot always guarantee improved operational results. Therefore, once the proper data and systems are in place, airlines must also make the necessary process changes (including within the operations control center (OCC), flight operations and airports) to ensure that the increased operational integrity translates into better and more predictable customer service.

It is important for airline management to utilize appropriate tools and data to make informed decisions about necessary operational adjustments, including communicating these changes throughout the organization and reinforcing them at every level. This will allow the organization to begin to internalize the changes and gradually incorporate them into the company's culture.

6. Communication

Without adequately investing in the first three steps above, communications within the OCC, between it and the front line (i.e., airport and crews), as well as between front-line staff/systems and airline customers is typically rendered ineffective. By adopting a more systematic approach to IROPS, however, all aspects of airline communications can be improved, resulting in greater transparency as well as confidence in the integrity of the system.

As the amount and quality of data per IROPS event increases, the level of communication between teams will also improve. Key metrics will become clearer to personnel involved in IROPS management, leading to more efficient transmission of data for each metric and allowing management to quickly and effectively make decisions that can mitigate negative outcomes.

7. Training

Regular and systematic training is also required in order to help take the "I" out of IROPS. While each event may be slightly different from the next, many IROPS have common elements that can be mastered ahead of time. Accordingly, airlines should identify the "usual suspects" and what makes them unique — say, winter IROPS versus summer IROPS — then run simulations prior to each season involving all key participants. Using this kind of recurring training exercise, carriers will be better equipped to reveal the "weakest links" and improve the coordinated reactionary response times throughout the organization.

By developing and sharing best practices across the organization with each IROP event, all teams and key personnel will become better prepared to manage and mitigate operational disruptions.

8. Measurement Regime

To ensure the integrity of, and ongoing improvement in the handling of IROPS, it is imperative that airlines measure the right people against the right metrics.

- By developing metrics based on actual captured data, measuring performance will become an effective way to identify key areas of improvement

- When developed from data with greater integrity and organizational legitimacy, line managers will be able use performance metrics more effectively to manage the business

- With greater clarity into the nature of the performance metrics, employees will have a better understanding of how they can improve their work, as well as how they may have previously under-performed in certain areas

- Measuring progress against targets is important and the data allows airlines to create metrics and dashboards that visualize progress against previous performance (baselines) and organizational targets (operational, financial and customer service) — allowing employees to see their contributions to the shared organizational goals

Russ Chew, former JetBlue president and a member of L.E.K.'s Senior Aviation Executive Network, commented: "Given that all airlines predictably face IROPS, these systems and procedures are a must in order to mitigate the huge cost that IROPS have traditionally placed on an airline's operations."

Improving IROPS performance can go a long way toward capturing and retaining customer loyalty. The challenge has been how best to implement sustainable improvements in the absence of a systematic approach to IROPS preparedness that is integrated with flight management data. First movers who adopt this approach will be rewarded by high-value frequent flyers who welcome taking the 'I' out of IROPS.

Editor's Note: *Relieving High Anxiety: Taking the "I" Out of IROPS was updated in June 2015 from an earlier pre-release issue.*

INSIGHTS@WORK®

L.E.K. Consulting is a global management consulting firm that uses deep industry expertise and analytical rigor to help clients solve their most critical business problems. Founded more than 30 years ago, L.E.K. employs more than 1,000 professionals in 21 offices across the Americas, Asia-Pacific and Europe. L.E.K. advises and supports global companies that are leaders in their industries – including the largest private and public sector organizations, private equity firms and emerging entrepreneurial businesses. L.E.K. helps business leaders consistently make better decisions, deliver improved business performance and create greater shareholder returns.

For further information contact:

Boston
75 State Street
19th Floor
Boston, MA 02109
Telephone: 617.951.9500
Facsimile: 617.951.9392

Chicago
One North Wacker Drive
39th Floor
Chicago, IL 60606
Telephone: 312.913.6400
Facsimile: 312.782.4583

Los Angeles
1100 Glendon Avenue
19th Floor
Los Angeles, CA 90024
Telephone: 310.209.9800
Facsimile: 310.209.9125

New York
1133 Sixth Avenue
29th Floor
New York, NY 10036
Telephone: 646.652.1900
Facsimile: 212.582.8505

San Francisco
100 Pine Street
Suite 2000
San Francisco, CA 94111
Telephone: 415.676.5500
Facsimile: 415.627.9071

International Offices:
Beijing
Chennai
London
Melbourne
Milan
Mumbai
Munich
New Delhi
Paris
São Paulo
Seoul
Shanghai
Singapore
Sydney
Tokyo
Wroclaw