🔥 JetBlue Airways and TIBCO

ANDI AZZOLINA

As director of shared development services, Ms. Azzolina developed and implemented the multi-year IT strategy at JetBlue. She leads a team of more than 100 software and data engineers and architects, and consults with and mentors aspiring entrepreneurs through JetBlue Technology Ventures in Silicon Valley. Prior to JetBlue, she worked for 11 years as the director of applications management at NYU Medical Center where she led the development and implementation of more than 100 teaching, research, and patient care applications and was responsible for the enterprise employee data warehouse and reporting. Ms. Azzolina has over 20 years' experience in software development, data management, research, reporting, and analytics. She holds a bachelor's degree in Psychology from American University and an MBA in high tech entrepreneurship from the University of Baltimore. In addition, she has completed courses in design thinking at Stanford University and was a participant in PWC's CIO LeadersLab.

Ms. Azzolina is also proud of her work as an advisory board member of the Bronx-based non-profit Per Scholas, an organization with a 20-year history and the mission to open doors to transformative technology careers for individuals from overlooked communities. At Per Scholas, Ms. Azzolina mentors individuals and contributes to the development of innovative IT training and employment programs.

Since it first started providing air passenger services in 2000, JetBlue has been innovating. It was the first airline to embrace dot.com transactions and electronic ticketing, and continues to churn out industry-leading inventions as described here. When business needs changed in 2014, JetBlue embarked on very robust digital transformation based on TIBCO integration and analytics technology—and the company was recognized with the first-ever TIBCO Trailblazer Impact award for the incredible effect this project was having on its strategic differentiation. In this case study, Director of Shared Development Services Andi Azzolina describes the objectives, initiatives, capabilities, and achievements making up JetBlue's journey towards becoming the most caring travel provider in the world.

OBJECTIVES

JetBlue's objectives included continual innovation and improvements in the customer experience made possible by connecting data, intelligence, and personnel.

"The partnership and collaboration between marketing and IT, and across business units, is really key to our success," says Ms. Azzolina. "Innovation is key to everything we do. It's just part of our DNA, part of our culture—whether it's free Wi-Fi on board, the Mint Cabin experience, or our auto check-in product. It's something that we talk about every day, so much so that we launched JetBlue Technology Ventures in Silicon Valley to engage with the innovation community and be part of the dialogue. Things are evolving so rapidly, we are always trying to stay on the forefront. Innovation will continue to drive growth for the company, and also create much richer and more meaningful travel experiences.

"Data is obviously really critical to everything we do, having it easily available to inform our analytics, as well as to collaborate with the world at large, whether it's government agencies or the startup community, data is front and center. Table stakes for us is flight and passenger information. As most companies, we're focused on having that 360-degree view of our customer so we can be much more predictive and personal in our interactions with them.

"Our mission of humanity will always be delivered through our crew members. Our 21,000 crew members are critical for delivering an amazing customer experience in the airport, on board, on the aircraft, and through our contact center.

TECHNOLOGY INITIATIVES
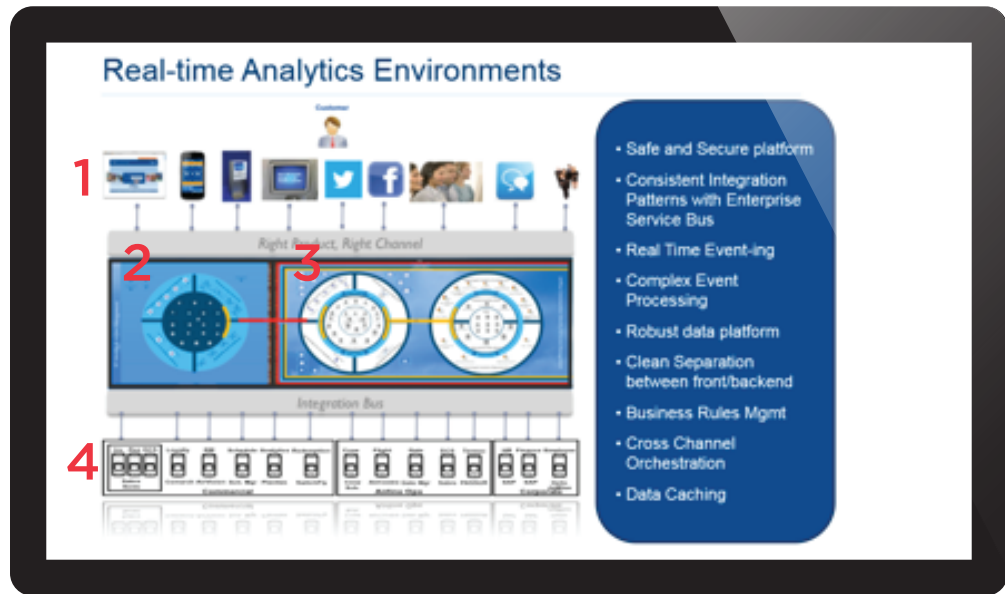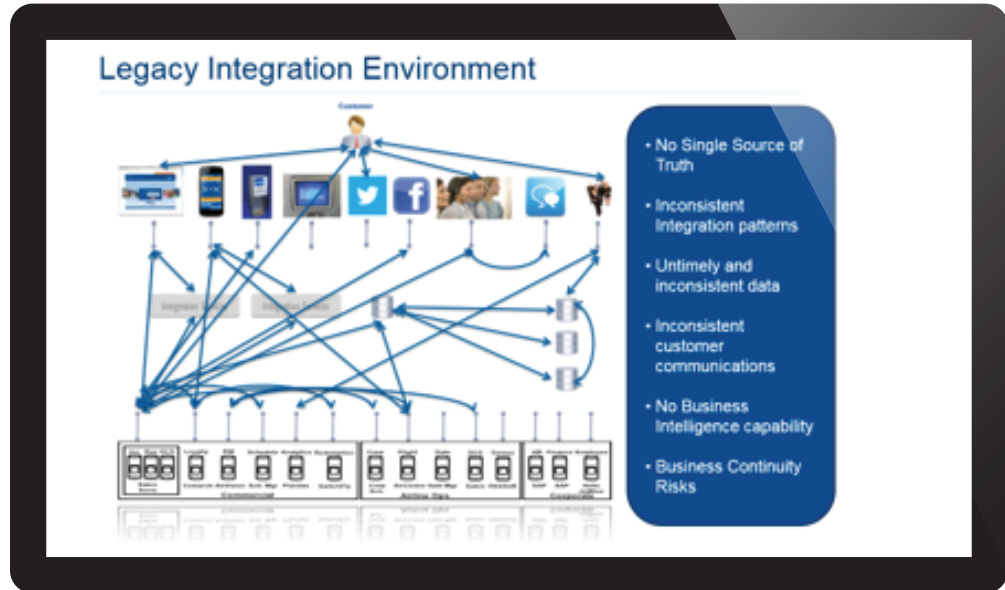
1. Via web services, channels (social media, web, mobile, kiosk, contact center) are integrated and published to a SQL Server operational data store with TIBCO BusinessWorks® providing publish/subscribe functionality. For example, the contact center receives real-time data to identify inbound customer calls by phone number, which brings up the customer record for the contact center agent. Airport information displays (web, mobile, kiosk) are also updated, as is the JetBlue employee tablet app. **2.** The eventing system, which includes TIBCO BusinessEvents® for real-time analytics and TIBCO ActiveSpaces® in-memory data grid, processes incoming channel data. **3.** Enterprise analytics environment, including TIBCO Spotfire®, Informatica ETL for historical data batch loads, and Sabre back-end services. **4.** Crewmember channels including commercial (marketing & sales), airline operations, corporate back office.

INTEGRATION

"Prior to 2014 when we brought in TIBCO integration technology, we had silos of data throughout the organization and a lot of point-to-point integrations. We had no single source of truth for our data. It was a very hard for analysts and people throughout the enterprise to gather the data they needed to do their jobs. So part of the strategy and partnership with TIBCO was to create a platform and a place where analysts could get data they could use to derive intelligence as well as to provide consistent information across all our channels.

DATA DOMAINS

"There's endless opportunity to leverage flight and passenger domain data throughout JetBlue, and we've been really lucky to have partnerships with our systems operations center, airports teams, and contact center. We're always coming up with new ideas on how to leverage this data, whether proactively communicating with our customers, letting them know what's going on with their flights, or anticipating challenges that come up due to misconnections or weather events. Having this data at our fingertips helps us stay proactive in solving those sorts of key operational challenges.

ANALYTICS DEPLOYMENT AND TRAINING

**SPOTFIRE
IMPLEMENTATIONS**

Airports
Audit
Customer Support
Finance
Inflight
IT
JetBlue University
JetBlue Vacations
Legal
Marketing
People
Pilots
Revenue Management
Revenue Protection
Safety
Security
System Operations
Tech Ops

"For analytics, we started small. We looked for some key business units that needed a really easy-to-use tool so they could connect to data. We showed them how quickly and easily they could leverage the TIBCO Spotfire® tool to both get data and derive insight. Then, quite frankly, the word got out. Many other business units heard about what we were doing and wanted to get on board.

"The nice thing about Spotfire is that we knew it would be easy to set up, easy to support and maintain, and very accessible for our end-users. We had a main lead team, just one or two folks. As it's been catching on in various business units, we've grown the team, but we're still not very large. We only have about 10 people supporting over 400 authors. And frankly, everyone in the enterprise is using Spotfire to some extent, which would be about 21,000 crew members.

"Our mantra is to empower our end users—so for all the considerable number of analysts and others who need to get at data, we do a lot of training. We have a number of internal structures, a group that brings all the analysts together, and we educate them regularly. We encourage collaboration between the groups. And wherever we can, we train and support analysts so they're able to work on their own. We usually get involved only to develop enterprise-grade reports involving multiple teams that go out companywide.

ANALYTICS ASSETS

"We have an internal Spotfire Community SharePoint site that includes information on the data structures themselves, set up and connectivity information, how to install a Spotfire Web Player, contact information for our teams—really all the information that analysts need at their fingertips so we can work with them over the phone, at their desks, or at a team meeting. We try to engage and support.
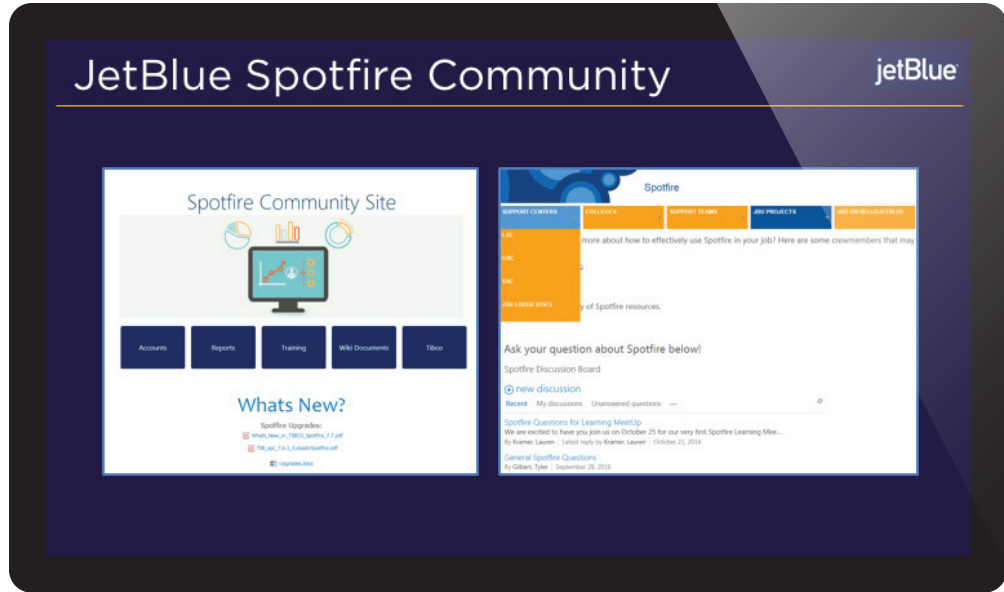
The Spotfire Community website at JetBlue, everything needed to get up and running.

REAL-TIME DATA ANALYTICS ENVIRONMENT

TOOLS AND TECHNOLOGIES

Informatica ETL
Sabre Airline Solutions
SQL Server
TIBCO ActiveSpaces
TIBCO BusinessEvents
TIBCO BusinessWorks
TIBCO Enterprise Message Service™
TIBCO® MDM
TIBCO Spotfire
Web services

"We set up a real-time data and integration platform built on the TIBCO technologies for real-time flight information and passenger information. We connected Spotfire to a variety of data sources, so analysts can get it immediately. We have data in our business intelligence and data warehousing environment, and we evolved the enterprise platform with richer, more timely data, so we have a variety of means and mechanisms. We've definitely worked to centralize data, document it, and make sure it's clean and available across the enterprise. We primarily use relational schemes at this point, although we've done some proof of concepts with noSQL unstructured data, and we're definitely beginning to go in that direction. Depending on how much data needs to be retrieved for any given query, or the business problem we're trying to solve, we can put the Spotfire reports on regular refreshes every three minutes or so. For the majority of users, that works extremely well.
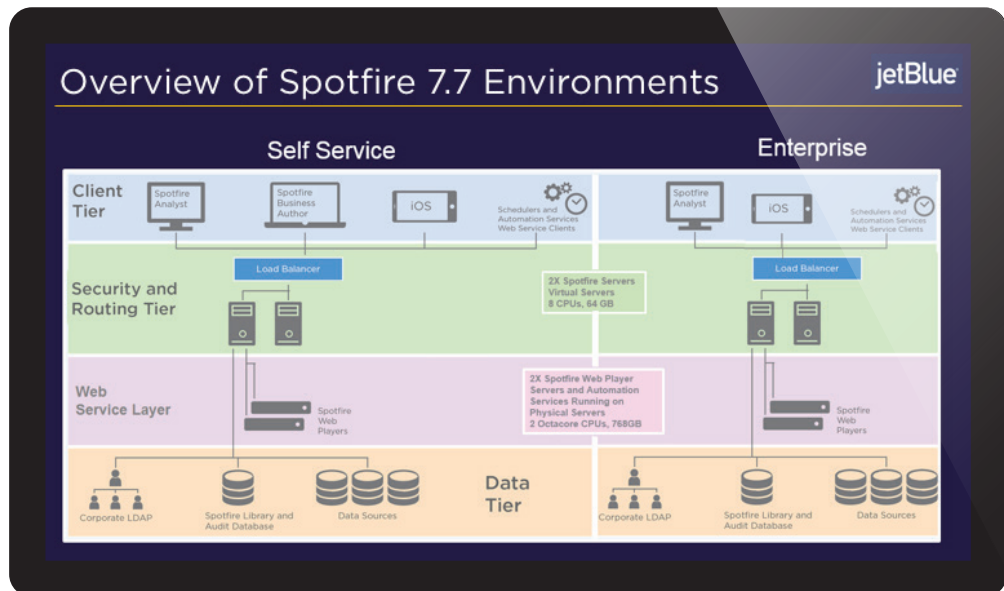
Self-service and enterprise Spotfire and data environment.

INDUSTRY INITIATIVES

"There's conversation in the industry and with the FAA about data sharing between airlines and federal agencies. It will be very interesting to see how that evolves. JetBlue definitely wants to be part of that conversation. The good news is we're set up really well to share data in the ways they're looking to.

ACHIEVEMENTS

CUSTOMER RE-ACCOMMODATION

"The achievements that are really exciting to me are ones that allow JetBlue operational teams to solve immediate problems. Our system operations center is on the front line, operating the airline safely and efficiently. Meanwhile, we have folks in the airports delivering the customer experience, and folks in our contacts center in communication with customers. Often situations bubble up where these three teams need to work together.

"We've had a number of opportunities where we've developed reports and analytics that allow these three teams to collaborate on what's going on. Let's say there's a snow storm and customers are stranded in the airport. We need to be able to very quickly re-accommodate them. Our contact center can actively work cases for customers looking for options. So we have a number of Spotfire reports that enable the contact center and the airport's team to help all customers get to their final destinations. That's a great use case that supported a good amount of organizational change. I really like to think about enabling our crew members so they can enable the customer.

Proactive customer re-accommodation using real-time flight and passenger data.

Proactive disruption management using real-time flight and passenger data.

HURRICANE RESPONSE

"We are the biggest carrier in Puerto Rico, and we are very dedicated to supporting Puerto Rico in its recovery from Hurricane Maria. We've started a number of initiatives along these lines: relief and supply flights and volunteering. We have about 500 crew members located in Puerto Rico, so using data to understand where customers and crew are and who may need help is definitely part of the landscape. It's our mission to do everything in our power to help customers and crew in these trying times.

NETWORK-WIDE VIEW

"We can look at the fleet early in the morning at startup; make sure departures are on-time first thing the morning; see if there are any challenges arising; track across the entire network to check for delays, cancelations, or diversions; and really have that holistic view. And frankly, that really is something we've only been able to do through Spotfire."

"The system operations center uses several systems to track and monitor aircraft. Sometimes the data in these systems can be a bit disjointed, but with our platform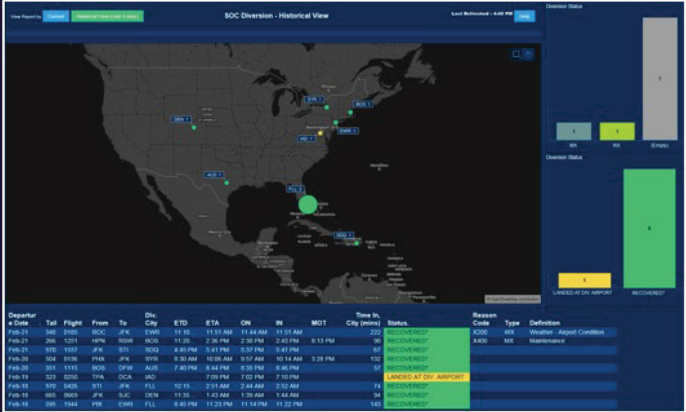 and Spotfire, we have the ability to bring it all together. We can look at the fleet early in the morning at startup; make sure departures are on-time first thing the morning; see if there are any challenges arising; track across the entire network to check for delays, cancelations, or diversions; and really have that holistic view. And frankly, that really is something we've only been able to do through Spotfire. We also have the passenger information there, so we'll have insight into the number of customers on board and the impact on them.
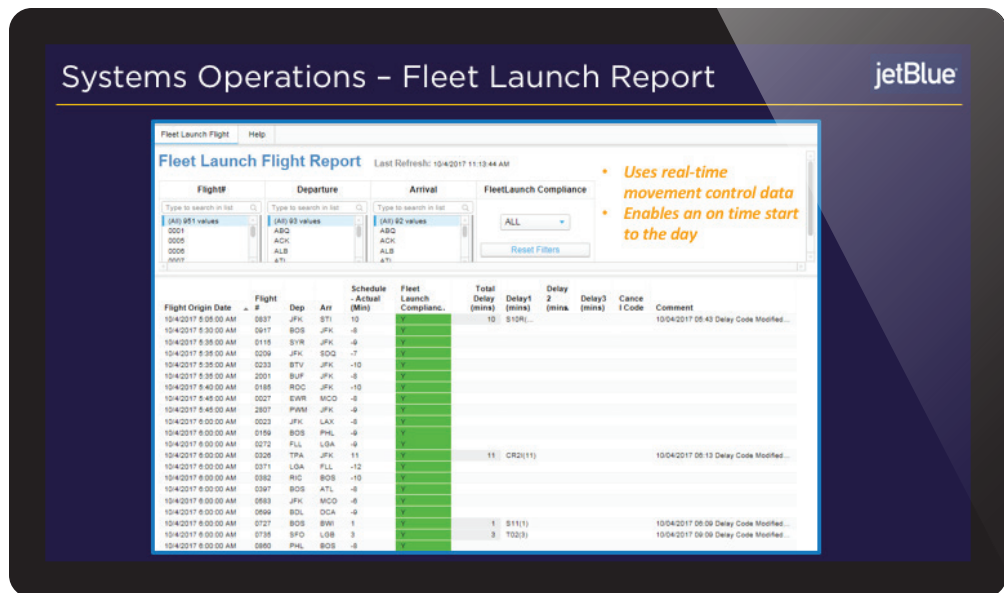
Fleet launch report with real-time control data for start of the day.

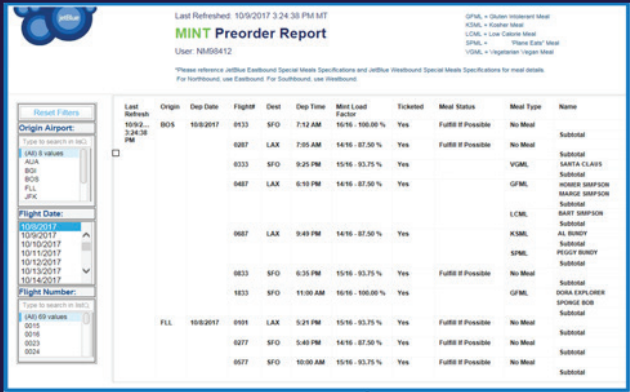Real-time movement data for a system-wide view of diversions.

CUSTOMIZED DASHBOARDS MONITOR PERFORMANCE

"Probably the first dashboard we built—and delivered in an astonishingly short amount of time—was an enterprise mobile-ready dashboard called BlueLine. with a really cool look and feel that matches the JetBlue brand. We used Spotfire to surface the six key corporate matrixes that we wanted everyone in JetBlue to be looking at, and it's still used today.

"We also built a number of dashboards specifically for airports. We have approximately 90 stations and we have a dashboard that all airport management uses to see how each one is performing day over day for on-time performance and customer satisfaction.

ON-BOARD FLIGHT EXPERIENCE

"Mint is our new first class offering. It's a really special service with lie-flat seats, special meals, and a variety of other amenities. We're actively using Spotfire to manage a lot of the special requests for Mint. If the request is for a kosher or vegetarian meal, or no meal, we have that data in our environment and we're surfacing that for in-flight crews, airports, and business partners. Just having that data at our fingertips has allowed that service to be a lot more optimized.

"A key for our operations is making sure we have enough wheelchairs where and when we need them. That's another example of leveraging our data via Spotfire to enable airport personnel or business partners to be really proactive. The reporting around those types of special service requests has been very impactful.

FACIAL RECOGNITION
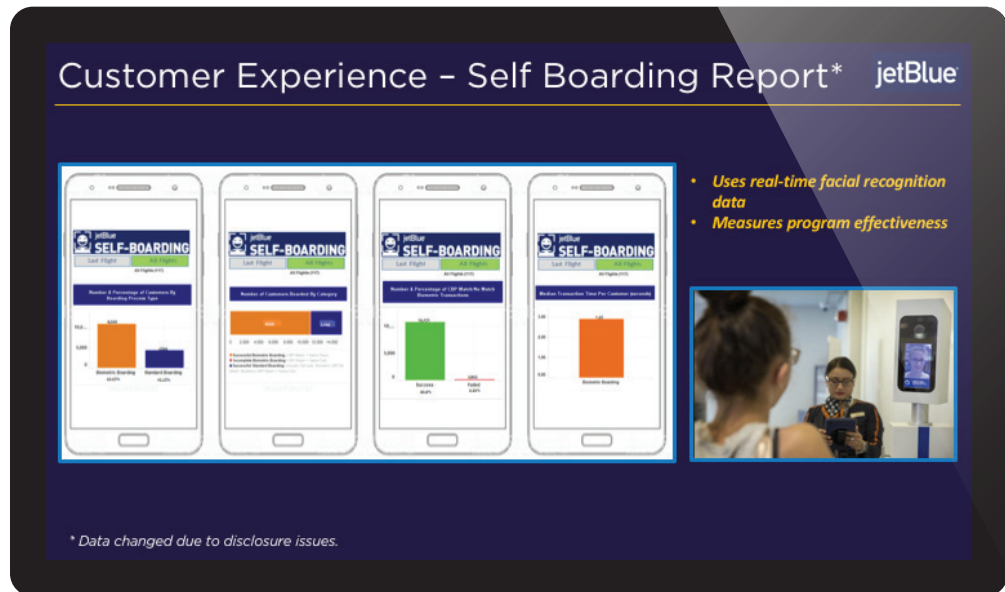
Measurement of real-time facial recognition proof of concept.

"Another example of our desire to innovate is that we were the first North American carrier to be pushing facial recognition in the boarding process. This is something we started over the summer as a proof of concept. We're testing it primarily for the Boston to Aruba route. For the first time, customers can board via a photo of their face.

"One of the ways we supported that program was by gathering data on the system's speed and how it was working, how many customers were opting in to inform on whether this would be a worthwhile investment, what type of improvement we could make with it. We really didn't know what to expect. We created an executive-level dashboard where we share a matrix around how it's performing—and that was really exciting, to be able to measure and see how it was doing. And I will say, it's doing very well. Customers were very pleased with the very seamless, very easy experience.

RESULTS

- Eliminated manual work for crewmembers, allowing time for higher value tasks
- Provided near real-time analytics to:
  - Monitor individual airport performance
  - Evaluate, track, and monitor on-time performance for departures/arrivals
  - Proactively manage customers during delays, cancellations, diversions, misconnections
- Improved individual customer experience with special services
- Enhanced overall customer experience throughout the travel ribbon

SAFETY, DEPARTURE ZERO

"At JetBlue, we have a very broad range of users. We have a large community of casual self-service users—to people who are doing some pretty awesome things with AI machine learning operations research. We have a number of groups that are building predictive modeling. Our safety team is doing some really cool work building safety models, which is really exciting because safety is our number one value. We've also done some work ourselves around Departure Zero and being predictive throughout the day on how we're tracking across the network and staying on time, which is another area that will continue to benefit JetBlue operations.

FUTURE

Where is JetBlue's DNA of innovation taking it? Using customer feedback as proof, the answer is "up." Ms. Azzolina also attributes her company's increased Net Promoter Score (NPS) score, cost savings, process efficiency, and crewmember engagement as determined by its Speak Up survey score to Spotfire. With many more teams yet to fully explore the benefits of data analytics, the sky is surely not the limit for JetBlue.

Closing Thoughts — jetBlue

- 2014 Recipient of the TIBCO TrailBlazer Award
- Spotfire is a big success story at JetBlue
- Exponential adoption of product
- Operationally critical Spotfire reports are used to improve customer experience
- Demand for new types of real-time data, predictive capabilities and mobile are growing

TRAILBLAZER AWARD

TIBCO enables digital business solutions through smart technologies that interconnect everything and augment intelligence. This combination delivers faster answers, better decisions, and smarter actions. TIBCO provides a connected set of technologies and services, based on 20 years of innovation, to serve the needs of all parts of an organization—from business users to developers to data scientists. Thousands of customers around the globe differentiate themselves by relying on TIBCO to power innovative business designs and compelling customer experiences. Learn how TIBCO makes digital smarter at www.tibco.com.