**Business Transformation & Operational Excellence Awards**

**PROJECT AWARD CATEGORY: Best Achievement in Operational Excellence to deliver Digital Transformation**

**Provide a 250-word synopsis of your project. This allows judges to get a summary understanding of your entry and is a useful tool for you to guide them to the key components (i.e. significant results) within your entry.**

The Chief Technology Organization is responsible for supporting Bank of America’s technology including over 5,700 applications, 160,000 servers, 1.33 MM network ports, 16,000 ATMs, 36 MM digital and 25.9 MM active mobile banking users. The stability of Bank of America’s systems is critical to our global operation and maintaining our customers’ trust.

Technology operations plays a significant role in enabling responsible growth and driving operational efficiency throughout the organization. We launched a program almost two years ago to focus on these areas with the key objectives being:

* Build an operating model that optimizes our structure
* Reduce the volume and duration of technology incidents
* Return productive capacity to the organization by increasing automation
* Reduce the cost of operating Bank of America’s technology

As a result of this program we’ve reduced the number of high priority technology incidents by 93%. We’ve reduced the average duration of an incident by nearly half, with over 40% resolved in mere seconds through automation. We’ve reset the bar for what operational efficiency looks like and have done so while simultaneously taking out over $16.5 MM in annual operating expense.

**PROJECT DETAILS**

Almost two years ago, we chartered this program and kicked off a “100 Day Sprint” to establish a set of quick wins to set us on a course for improving operational efficiency and enabling Bank of America’s digital transformation. Fifty of our key operations leaders and practitioners from across the organization met at an off-site location, removed from day-to-day distractions, to focus on operational efficiency. After two intense days the team walked away with a set of recommendations we began to implement over the course of the next 100 days, including:

* Creating an intelligent alert platform that dramatically reduced the number of alerts generated by our systems. This resulted in less time responding to duplicative or erroneous alerts and allowed our engineers more time to drive further operational efficiencies.
* Building an automated self-healing platform directly integrated with our technology event management platform and our incident management system of record to ensure immediate action could be taken to fix the issue without requiring any human intervention.
* Dedicating additional people to investigate the root cause of our incidents and take steps to prevent recurrence, reducing duplicative work.
* Accelerating our adoption of the private cloud to reduce the number of incidents as compared to our legacy platforms. Going into the 100 Day Sprint we were already well on our way towards migrating legacy platforms into Bank of America’s private cloud, this only further affirmed we were heading in the right direction and needed to stay the course.

With the 100 Day Sprint in-flight we began to address some of our key process challenges and lay the foundation for a dramatic transformation; however, that did not solve for our fragmented operating model. To continue driving transformational change and reach the next level of operational efficiency we needed to look at the way our functions were organized.

We first started by bringing together over 2,800 teammates across 15 teams to form a single shared infrastructure operations organization. We now have leaders responsible for the operation of our server, storage, database, middleware, mainframe and network environments all within one organization.

With all of infrastructure operations consolidated into a single organization we turned our attention to the support of our applications, the remainder of the technology estate. The support of our production applications were divided across seven organizations which made driving further operational efficiency more difficult. We outlined a vision to create a horizontal, enterprise-wide Application Production Services capability to improve operating efficiency and meet business service level requirements. We identified over 5,000 people globally who would move out of their vertical organizations and come together to form a horizontal function. This resulted in the formation of a single organization responsible for the operation of Bank of America’s technology—infrastructure and applications.

We now had all of the components in place to accelerate our operational and digital transformation, but needed to create a sustainable method to drive it forward. We needed to bring together employees from across the organization, many of whom had never worked together before, and show continuous progress and to respond to changes around us. We needed a way to sustain the transformational energy for years to come.

To solve for this final component we leveraged techniques from our software development teammates. Our software developers had adopted the Agile methodology, a set of widely accepted principles that encouraged self-forming teams, enabled continuous improvement and allowed for sustainable delivery. We found by taking the core Agile principles and applying them to technology operations transformation we could accelerate our delivery and provide the flexibility required to enable long-term sustainable transformation. In addition to developing code in Python, Java or C++ our “developers,” now a broader term used for anyone involved in driving our operational and digital transformation, were developing changes to organizations, processes and tools, the necessary elements of any technology transformation.

Through our Agile routines we selected a set of “stories” or improvements to develop and then implement every two weeks. Some stories would stand by themselves and would allow for quick wins, others were part of a larger effort or an “epic”.

One set of stories we quickly prioritized was the adoption of automated self-healing. A group of employees working out of our office in Singapore formed a team that would focus on dramatically improving the adoption of automated self-healing for our hosting and private cloud environment. They began by analyzing our event management data to identify “top talkers” or those infrastructure components that most contributed to the volume of incident tickets requiring manual remediation. With support from engineering teams from across Bank of America, they started writing scripts that would automatically remediate these common issues. Week by week we’d see the adoption of self-healing automation rise and equally as important the success rate increase for each automated action taken. Within the past year alone, we’ve seen a 700% increase in self-healing automation adoption with the majority of those automated actions successfully remediating the issue. For those actions where the issue wasn’t successfully remediated by automated actions the incident ticket is enriched with additional information that allows our engineers to fix the issue more quickly. We also prioritized enhancements to the script to make it more effective should a similar issue recur.

Another set of stories that we prioritized was less technical, but had an equally large result. For the thousands of people in our newly combined organization responsible for resolving incident tickets, we needed a way to provide a real-time view of our operational health. A small team of developers working out of our Chester, United Kingdom and Singapore offices got together to build a dashboard that aggregated data from multiple systems to provide a real-time view of our operational health. Hundreds of managers and front-line employees from our Chief Technology Officer to our service desk analysts rely on this dashboard. At a glance we are able to see the number of currently active incidents by priority and by organization. Triggers have been established to provide real-time alerting when incident counts exceed pre-defined thresholds. We are able to quickly identify aging incidents along with incidents impacting our critical offices. This improved visibility and focus throughout the organization has helped us eliminate incidents that, less than a year ago, remained open beyond our internal service level objectives on any given day. Finally, borrowing a concept commonly employed on construction sites and factory floors to reduce accidents and improve safety, we now display the number of days elapsed since the last incident occurred that was caused by a scheduled change to our systems.

As we close out 2018, we’ve now implemented thousands of stories through multiple sprints and have entered a period of unprecedented operational stability while simultaneously unlocking productive capacity to invest in additional strategic opportunities.

The total number of high priority incidents has decreased an astonishing 93%. The total volume of incidents in just the last twelve months is down by greater than 25%, reducing the amount of time our engineers are forced to spend resolving issues. The adoption of automated self-healing has increased by an incredible 700%. Finally, our speed to restore service has been cut nearly in half, leading to quicker recovery in those instances where service was disrupted.

While we’re extremely proud of the operational performance on its own, we’re even more proud of the business results it’s been able to generate for the company. We’ve been able to take out over $16.5 MM in operating expense delivering a meaningful reduction to Bank of America’s expense base that has positively impacted the company’s financial performance.

The banking industry is rapidly changing due to changing customer demands and expectations. In order to remain competitive and ultimately provide the best services to our customers, it is imperative we remain on a digital transformation journey, constantly innovating to work better, faster and smarter. Our efforts to streamline and simplify our operational structure and performance has greatly helped us achieve our digital transformation goals and significantly contributed towards Bank of America’s 15 consecutive quarters of driving positive operating leverage.