



The Roadmap to Becoming a Top Performing Organization in Managing IT Operations

Research Study

Digital Enterprise Journal, September 2019

Executive Summary

The Market for Managing IT Operations

- The amount of change in IT environments has been increasing by an average annual rate of 86% since 2016, while also reported that the effectiveness of solutions for managing IT Operations has declined by 29% in the same time period
- The role of IT Operations in the business needs to be better defined, as 52% of LoB managers reported that the impact of IT Operations on business goals has to be more clear, while 74% of organizations are not able to quantify the benefits that IT Operations is delivering to the business

The Need for Modernizing IT Operations

- 41% of organizations reported that they redefined their IT Operations strategies over the last 18 months.
- 2.7x – Average increase in amount of alerts and events to be processed over the last 2 years
- 68% of organizations reported that their customer’s expectations for experience and engagement has increased over the last 12 months

Key Challenges

- Inability to prevent performance issues before users are impacted was reported as the #1 challenge (64% of organizations) and the challenge that has the strongest impact on overall performance (81% impact).
- Average Mean Time to Repair (MTTR) per incident is 3 hours and 7 minutes. 72% of that time is spent on identifying the root cause of the problem.
- 71% of organizations reported that the performance metrics that IT Operations are using do not reflect true user experience.

5.9x

Shorter average Mean Time to Resolution (MTTR) per incident for top performing organizations (TPOs) as compared to all others

Class of Top Performing Organizations (TPOs)

- 79% - Percent of performance issues that are proactively detected, as compared to 39% for all others
- 38 minutes - Average Mean Time to Resolution (MTTR) per incident, as compared to 224 minutes for all others
- 51% - Percent of IT budgets available for growth and innovation, as compared to 26% for all others

Attributes of TPOs

- 2.2x more likely to have customer experience as a central focal point of IT
- 2.1x more likely to have an automated process for turning alerts and events into actionable work items
- 74% more likely to have capabilities for real-time analysis of streaming data
- 77% more likely to have capabilities for unified analysis across IT management tools stack
- 52% more likely to educate IT staff on AIOps related skills

Cost of Not Acting

- \$2,129,000 - Average estimated revenue loss, per month, due to performance related slowdowns in application release times
- \$126,000- Average revenue lost due to 1 hour of downtime
- \$10,700 - Average IT labor cost per performance incident

Recommendations

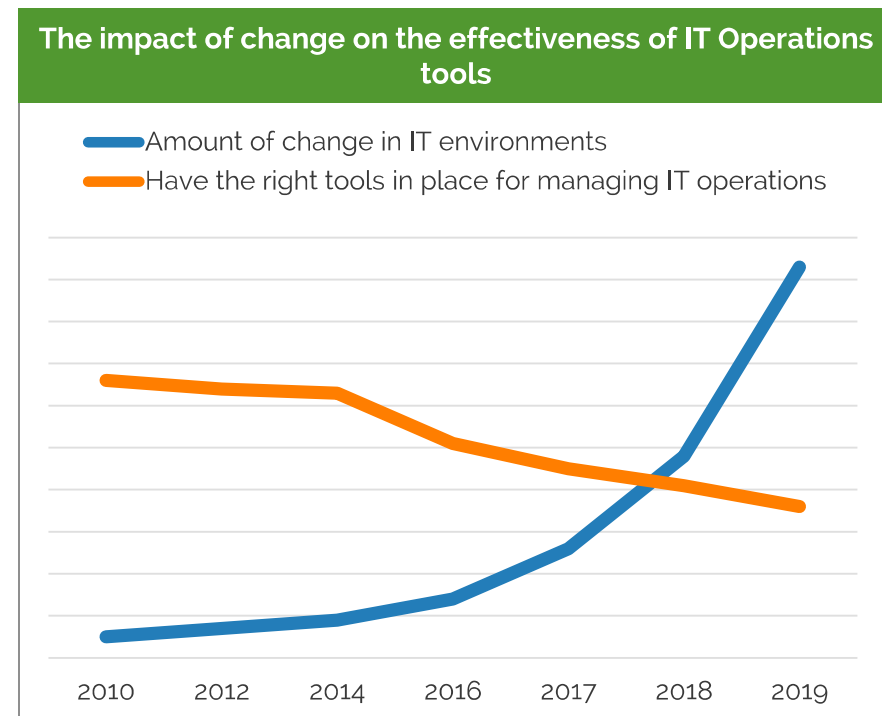
- Deliver IT data in a context that is actionable, relevant and aligned with business goals
- Change the approach for managing IT Operations to adjust to new technologies, infrastructure types and software architectures
- Quality of experience monitored from the end-user perspective should be the key indicator for the performance of IT services
- Adopt AIOps concepts and be prepared to maximize their value

The Market for Managing IT Operations

Traditionally, the key responsibilities of IT Operations teams have been well defined and included areas such as ensuring the availability and performance of IT services, addressing any performance issues in the shortest time possible, optimizing resources needed for delivering IT services, and supporting deployments of new technologies or modernization of the existing ones. The majority of issues they had to troubleshoot were due to either: 1) problems with hardware performance; 2) changes in their environments (configuration changes, software updates, etc.).

The changes that they used to deal with on a yearly basis were infrequent and they were predominantly deploying management solutions that would provide good visibility into the health of their servers, network devices, etc. When new technologies started entering the enterprise (virtualization, new types of application architectures, cloud, mobility, etc.) and the role of technology in building and executing business strategies became increasingly important, IT Operations teams faced a completely new situation. The group that was not used to many changes was hit by a "perfect storm" of new technologies to manage, therefore, managing changes became a key part of their jobs.

This had a major impact on their effectiveness to perform everyday functions and a majority of organizations started realizing that they can't manage these new IT environments with old tools.



Digital Enterprise Journal (DEJ)'s research study, [17 Areas Shaping the Market for Managing IT Operations in 2018](#), showed that organizations are replacing their IT operations management solutions at a rate that is 3.1 times faster, as compared to 2013. Starting from the key focus of ensuring the health of hardware to supporting initiatives, such as Software Defined Everything, and making the infrastructure invisible in less than 5 years is a major shock for any area of responsibility and has to have a significant impact on its management approach.

As a result, the technology market for managing IT Operations is changing rapidly and the pace of change is accelerating every year. This is due to changes in both internal and external environments that are impacting IT Operations teams.

3.1X

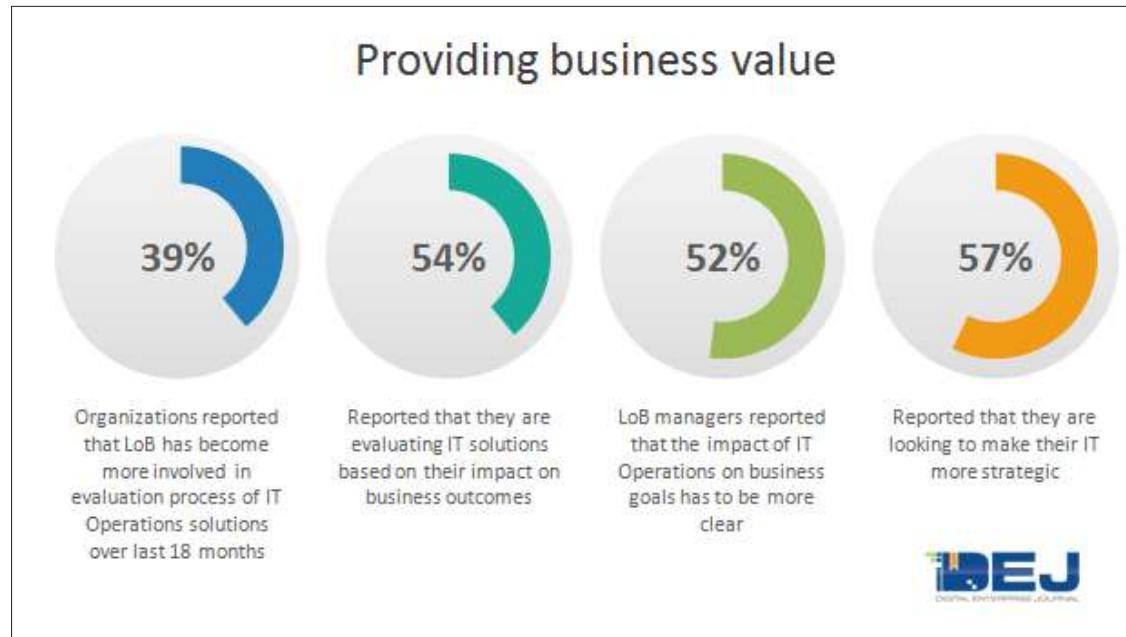
Increase in speed of replacement of IT Operations solutions since 2013

Changes over the last 2 years			
INTERNAL		EXTERNAL	
Increased amount of IT data and events to be processed	88%	Increased expectations for customer engagement and experience	68%
Increased number of new application releases or deployments	55%	New ways to connect across the value chain (customers, partners, suppliers, etc.)	51%
Deployed dynamic and hybrid infrastructures	43%	More use of technology as a source of competitive advantage	47%
Increased expectations to contribute to the business	39%	The need to faster adjust to changes in the market	47%
Increased focus on employee experience	34%	More need for personalization of digital services	41%

Due to this amount of change, the role of IT Operations has drastically changed as well, especially over the last 3-5 years. This requires new processes, skill sets, changes in organizational alignments and workflows.

Role in the Business

Traditionally, the business benefits that IT Operations technologies have been delivering to the enterprise were centered around cost savings, productivity improvements and mitigating damage to business goals due to issues with IT availability and the performance of IT services. The improvements that organizations are making in modernizing IT Operations are, for the most part, still focused on the same business benefits. This still profiles the IT as a cost center, only a more efficient one.

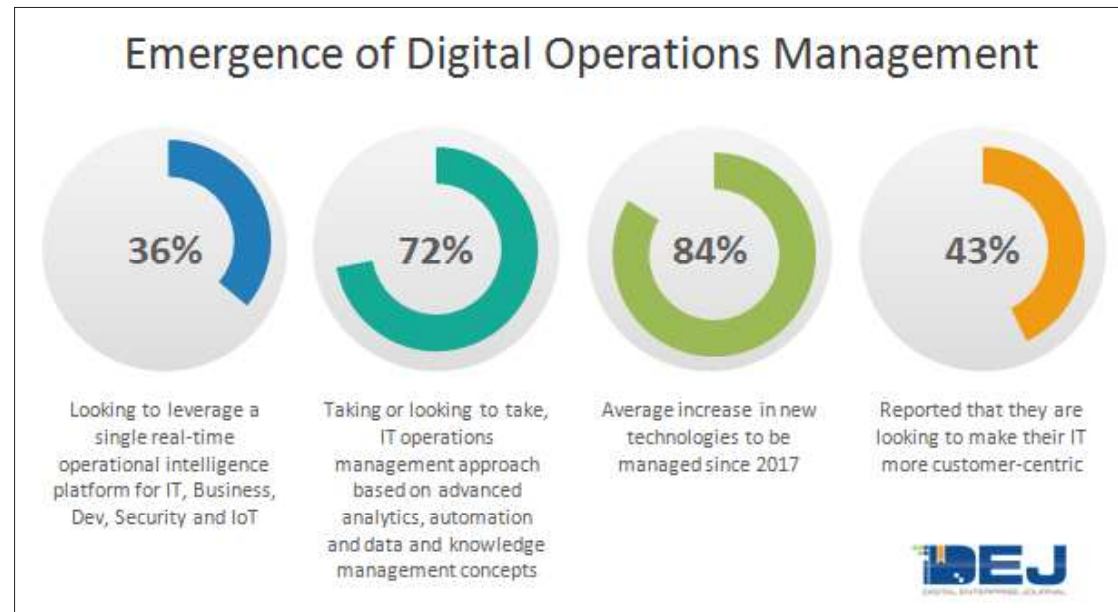


Many organizations that are looking to become digital businesses are deploying different variations of the RGT (Run, Grow, Transform) budgeting process for technology. Seventy-two percent of IT budgets, according to DEJ's study, [17 Areas Shaping the Market for Managing IT Operations in 2018](#), were spent on managing and maintaining existing IT services or just "keeping the lights on". That number saw a slight decline down to 67% in this years' research.

In order for IT Operations to prove their impact in the business, they need to not only clearly communicate (quantify, be more customer-centric and proactive, etc.) as to how they can help reduce the "R" portion of the RGT model, but also how they align with the six key attributes of leaders in digital transformation: 1) Integration; 2) Intelligence; 3) Automation; 4) Agility; 5) Collaboration; 6) Flexibility.

Emergence of Digital Operations Management

The complexity of managing modern IT and the need to provide value to the business are increasingly driving organizations to use a single platform that unifies data from a variety of sources to benefit different groups that are looking to streamline their processes - IT, Developers, Security, IoT and Industrial and, finally, business operations. By being a part of this market dynamic, it is driving IT Operations to also become a part of a larger market, Digital Operations Management, which is defined by 7 key principles:



1. Enabling deployment, delivery and management of digital services with the key focus on user experience, security and business value
2. Differentiation, strengths and weaknesses are defined by the ability to contribute to business outcomes
3. Supporting of development and releases of new digital services with shortest time to market and optimal use of resources
4. Focus on enabling customer-centric IT
5. Core functions are based on advanced information, automation and data and knowledge management concepts
6. Platform-based approach with capabilities for real-time processing of streaming data
7. Proactive approach for managing the secure delivery of digital services at high user experience

The Need for Modernizing IT Operations

Forty-one percent of organizations reported that they redefined their IT Operations strategies over the last 18 months. The research makes it evident that the need for modernizing is predominately driven by 5 key factors.

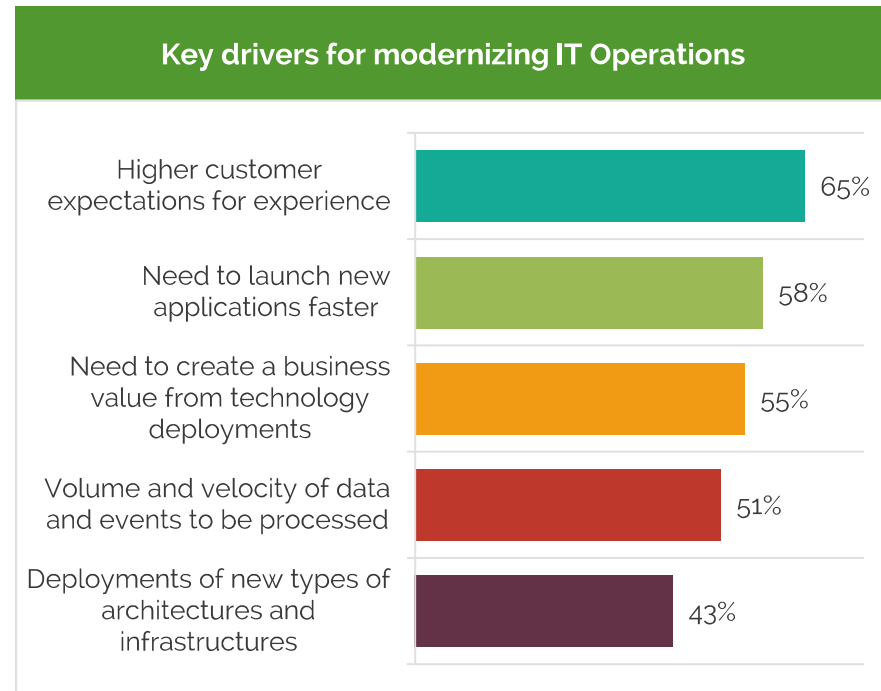
The volume and velocity of events to be processed

- The growing complexity of IT services is causing IT staff to have to deal with an increased amount of alerts and events issued. The research shows that the amount of alerts and events increased by 2.7 times over the last 2 years. In order to identify alerts that really matter, organizations have to filter through millions of those that are not meaningful and are only creating noise. This is causing situations where it is not humanly possible for IT professionals to manually deal with the velocity and amount of data to be processed and put into actionable context.

The need for launching new applications faster - In order to be successful in the digital economy, organizations are looking to use technology as a source of competitive advantage.

A decade ago, businesses were going from 1 or 2 major releases per year, as opposed to thousands of releases per day at present time. This is adding more complexity to the responsibilities of IT Operations teams to ensure that these new applications and features are delivered at a high level of user experience.

Deployments of new infrastructures and architectures - DEJ's 2018 study on 17 areas shaping the market for managing IT Operations shows that managing the performance of cloud services, containers and other types of modern IT environments is a different game when it comes to the capabilities needed to ensure optimal performance. Organizations that are trying to manage these environments by using legacy tools are realizing that they are not effective in these types of use cases.



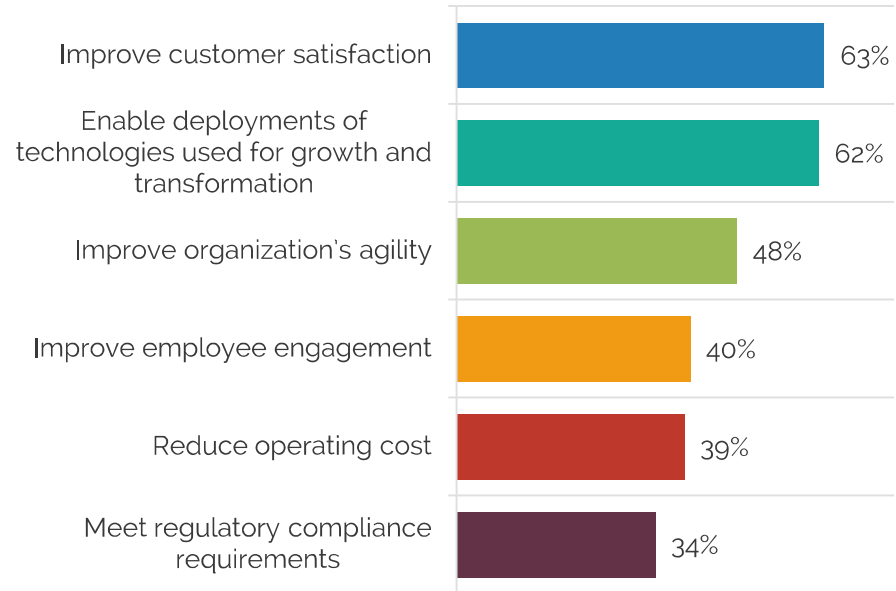
Higher expectations for customer experience –

Sixty-eight percent of organizations reported that their customer’s expectations for experience and engagement increased over the last 12 months. DEJ’s research also shows a 71% increase of revenue loss per 1 hour of downtime over the last 18 months. This indicates that customers are becoming quicker to bring their business elsewhere if they experience issues with the performance of digital services. IT Operations teams should not only enable new ways in which customers prefer to engage, but they also have to deliver IT services at higher levels of performance and user experience.

Need to create a business value from technology deployments –

Thirty-nine percent of organizations are reporting that Line of Business (LoB) managers are becoming more involved in evaluating IT Operations management technologies. At the same time, only 26% of organizations are able to quantify the benefits that IT operations is delivering to the business. As a result, organizations are looking to deploy technology solutions that would allow them to make their impact on key business goals more visible.

LoB manager’s view – areas where IT Operations can contribute to the business



74%

Of organizations are not able to quantify the benefits that IT operations is delivering to the business

Key Challenges

Thirteen areas in DEJ's survey were listed as a major challenge for managing IT Operations by 40% of organizations or more. This also proves the increased complexity that IT teams are dealing with and that there is no simple solution for these issues.

Lack of real-time capabilities - In order to meet increased customer expectations for quality of experience, organizations need to have full visibility into IT performance in real-time. Traditionally, organizations were pulling historic data when needed to assess performance levels, but many of them have moved to having data delivered to IT teams in real-time or near real-time. However, not all capabilities for real-time management of IT Operations are created equal. Organizations should understand that there is a major difference in processing batch and streaming data in real-time. Having capabilities for real-time processing of streaming data shows significantly stronger business benefits as compared to using other approaches.

Challenge	% of organizations	Performance impact
Inability to prevent performance issues	64%	81%
Lack of actionable context for monitoring data	61%	71%
Time spent on identifying the root cause	61%	67%
Inability to correlate data from different domains	59%	61%
Lack of visibility into user experience	54%	68%
Lack of capabilities for real-time management	52%	77%
Inefficient process for analyzing log data	52%	62%
Scalability of management solutions	48%	80%
Management and performance of APIs	46%	76%
Learning curve for IT Operations staff	40%	69%

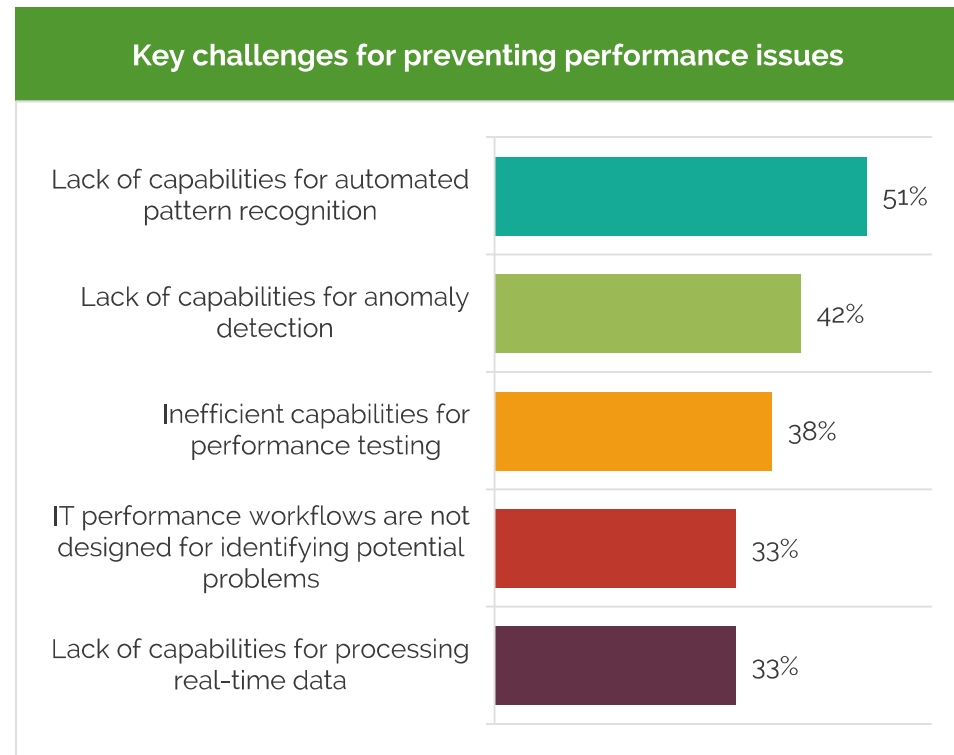
Inability to prevent performance issues - This has been the key challenge around managing IT performance, per DEJ's research, over the last 4 years. In this year's survey organizations are reporting, on average, a 61% success rate in preventing performance issues before users are impacted. This is only a 6% improvement since 2018. Additionally, the importance of addressing this challenge is increasing, as it is impacting all of the key strategic and business-centric goals for managing IT Operations. The number of trouble tickets filled should not be a measure of user experience and organizations should understand that if they are learning from their customers about performance issues, they are already failing.

Scalability of IT operations management solutions

- The definition of scalability for IT operations solutions has changed over the last 2-3 years. It has shifted from the size of the IT environment and number of devices managed to the amount of data that needs to be processed and number of elements to be discovered and monitored.

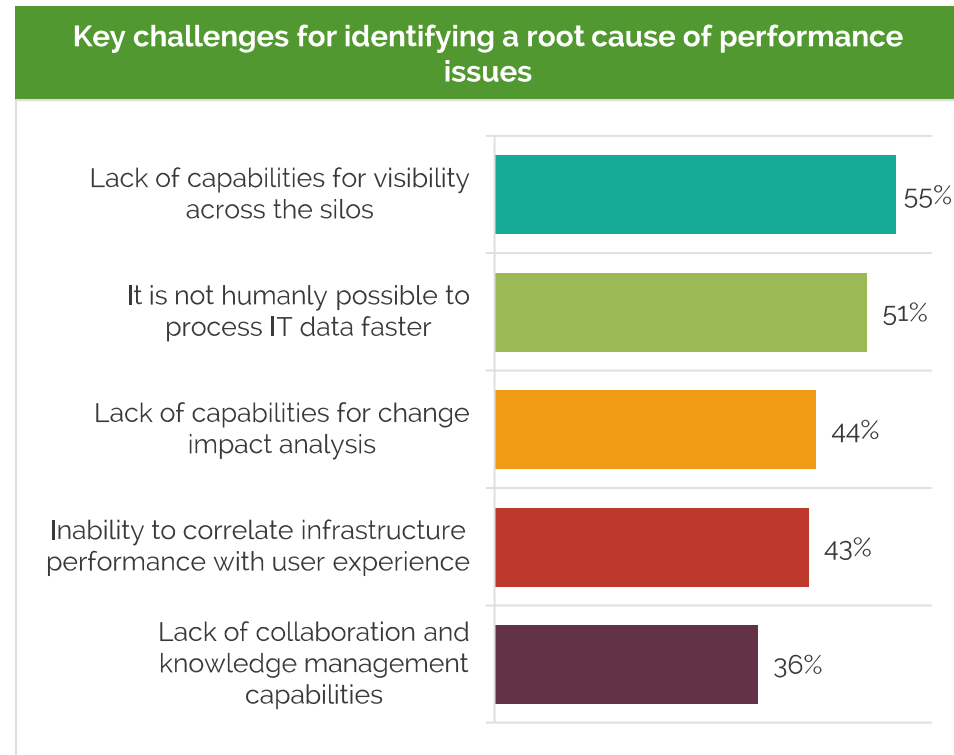
Additionally, due the amount of change in modern IT environments, organizations find it challenging to leverage tools for managing IT Operations that do not provide elasticity, in terms of being able to scale up and down when needed.

Lack of actionable context for monitoring data - DEJ's research shows that there is no, or very little, correlation between: 1) the amount of performance data that organizations are able to collect and 2) performance improvements. This is not to say that organizations shouldn't be improving their monitoring capabilities and eliminating any potential "blind spots" in their IT environments, but this shows that most of the monitoring data is not usable if it is not put into actionable context



In order to improve usability of their performance data, organizations need to ensure that this data can be turned into information that is: 1) actionable; 2) relevant; 3) trusted; 4) timely; 5) enriched.

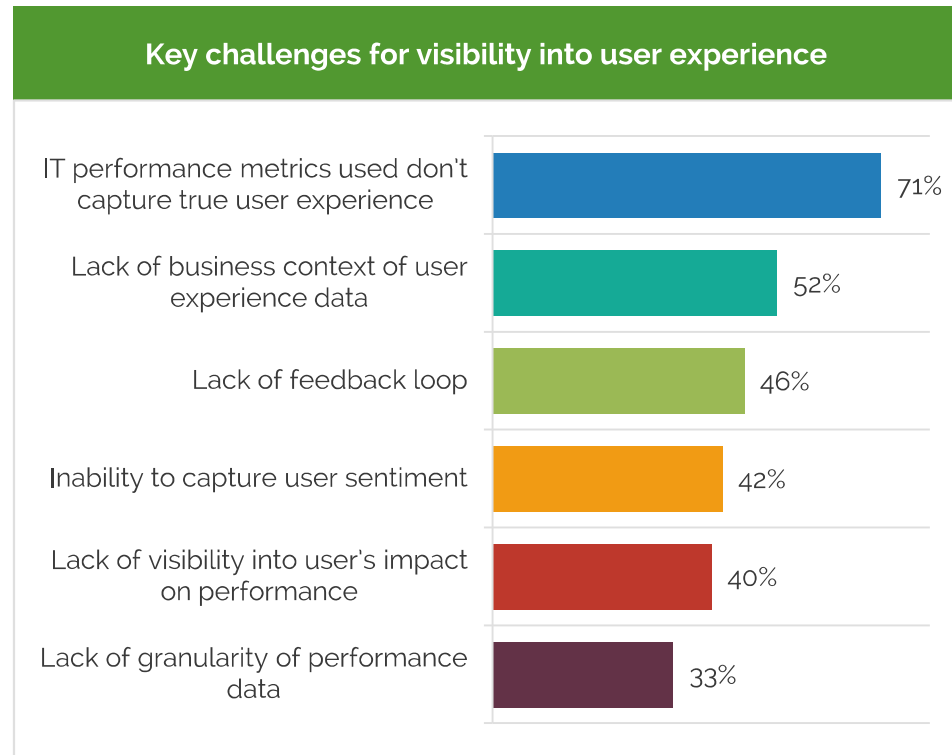
Time spent on identifying a root cause - Organizations are reporting that 76% of IT performance issues are caused by change, and with this many changes in their environment it is becoming humanly impossible to get to the root cause of the problem in a timely manner by doing it manually. Even though organizations are improving the processes that they are using to address this issue, their effectiveness in identifying a root cause of performance issues faster is not getting significantly better. The research shows that average Mean Time to Repair (MTTR) per incident is 3 hours and 7 minutes, compared to 3 hours and 30 minutes in 2018. The research also shows that 72% of that time is spent on identifying the root cause of the problem. Addressing this challenge is the key for IT Operations solutions to deliver on each of the core parts of their value proposition - enabling availability of IT services, improving productivity of IT staff, reducing operational cost, etc.



Inability to correlate data from different domains and elements - The IT operating in "silos" is still a major management challenge for many organizations. Additionally, modern IT infrastructures and the ways in which IT services are being designed drives the increased complexity of digital services' delivery chains and the need for monitoring thousands of different elements. The ability to correlate data from different domains and elements is one of the key requirements for making monitoring data actionable. Taking a platform-based, centralized and service-centric approach for monitoring IT performance allows organizations to bring the data together and provide a single, holistic view into the health of their IT services.

Lack of visibility into user experience – Seventy-one percent of organizations reported that their key challenge around this issue is that the performance metrics that IT Operations are using do not reflect true user experience. Organizations are realizing that having true visibility into the quality of user experience requires more than capturing traditional metrics, such as availability and speed of applications. To have full visibility into how digital services are performing from the perspective of the end-user, organizations need to capture information about customer usage patterns, the users impact on performance, user engagement and business impact.

39% Of organizations are using 10 or more IT monitoring tools, while 18% are using more than 20



Number of "blind spots" for IT performance monitoring - Thirty-nine percent of organizations that participated in DEJ's research are using 10 or more monitoring tools, while 18% are using more than 20. However, these organizations are reporting that not having full visibility into all of the elements that are impacting IT performance is one of their key challenges. Organizations need to take a programmatic approach when evaluating IT performance monitoring solutions and understand that the effectiveness of these tools varies based on the IT environments where they are being used. When selecting solutions for covering these "blind spots", organizations need to get a better understanding of their specific needs and attributes of IT environments that they are managing, so that they can deploy solutions that are the best fit for their individual requirements.

Definition of Top Performing Organizations (TPO)

DEJ analyzed the performance of all of the organizations that participated in the survey and identified a group of the top 20% of these organizations based on three performance indicators: 1) percent of performance issues that are proactively detected; 2) average Mean Time to Resolution (MTTR) per incident; and 3) average percent of IT budgets available for growth and innovation.

KPIs	Top Performing Organizations (20%)	All others
Percent of performance issues that are proactively detected	79%	39%
Average Mean Time to Resolution (MTTR) per incident	38 minutes	224 minutes (3.7 hours)
Percent of IT budgets available for growth and innovation	51%	26%

This group of top performing organizations (TPOs) were identified for the following reasons:

1. They calculate performance benchmarks in managing IT Operations
2. They analyze practices of the TPO class and identify areas that are enabling them to achieve top levels of performance
3. They use practices, strategies and capabilities of TPOs as guidelines for other organizations that are looking to improve their performance for managing IT Operations.

- All key TPO capabilities are grouped in 4 categories - Strategy, Process, Organization and Technology

- DEJ's research shows no correlation between companies' sizes, industry sectors or geographical location and their representation in the TPO class.

TPO Attributes - Strategy

Modifying their IT Operations strategy to meet specific requirements of monitoring cloud, container-based architectures and microservices –

Organizations are reporting that they are collecting, on average, 18 times more data from monitoring container based vs. traditional environments. Additionally, 66% of organizations reported that their visibility into IT performance declined after deploying cloud services.

Cloud, container-based architectures and microservices play an increasingly important role in digitally transforming businesses. They enable organizations to create a competitive advantage by launching new digital services faster and improving agility. Therefore, ensuring optimal performance of these technologies is one of the key areas where IT Operations can add value to the business.

TPOs are understanding that, when it comes to cloud, containers and microservices monitoring, performance is a completely different game and they are modifying their IT Operations strategies to be more effective in managing these environments.

Capability	TPOs more likely to have
Well defined API management strategy	2.6x
Have customer experience as a central focal point of IT	2.2x
Modifying their strategy to meet specific requirements of monitoring cloud and microservices	78%
Approach based on advanced analytics, automation and data and knowledge management concepts	75%
Putting context of data in the core of their IT operations strategy	62%

58%

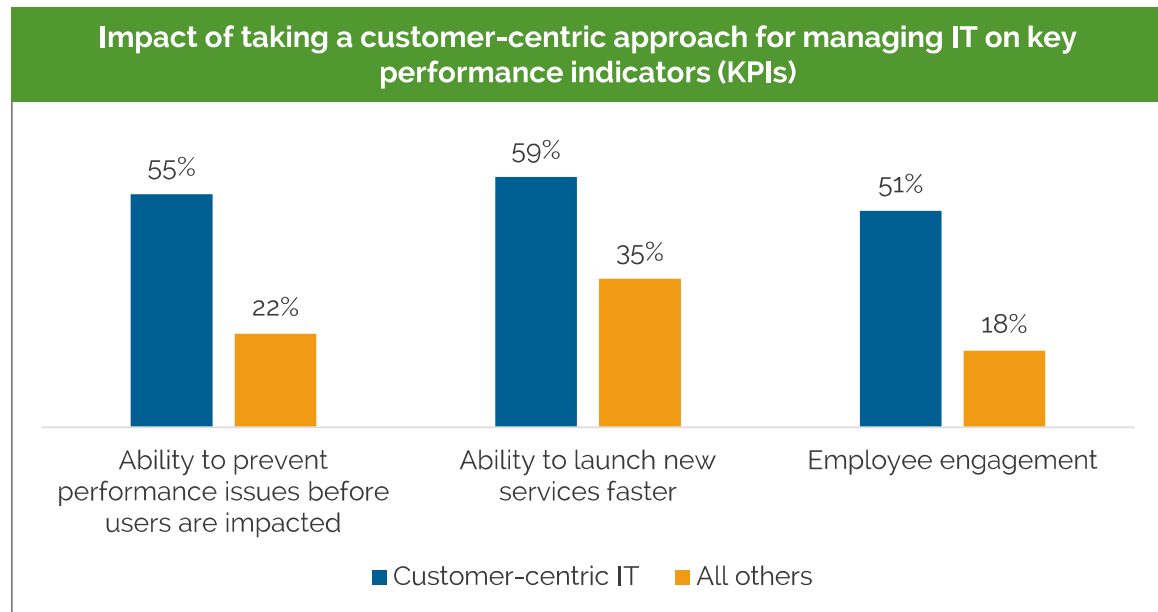
Fewer trouble tickets issued by TPOs as compared to all others

2.6x

Higher reduction in Mean Time to Detect (MTTD) performance issues (per incident) by TPOs as compared to all others

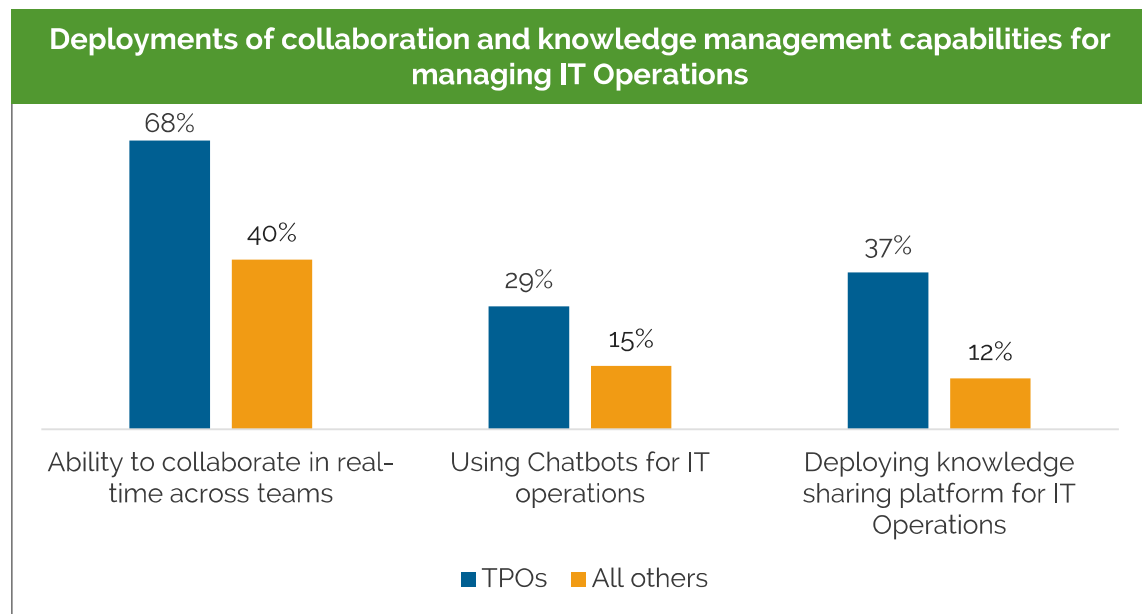
Have customer experience as a central focal point of IT - As organizations are looking to become more customer-centric, the IT organization has to play an important role in this process. Establishing customer-centric IT requires cross-functional, enterprise effort and includes: 1) redesigning processes; 2) using a new set of metrics; 3) changes in organizational culture; 4) a proactive approach for managing the IT; and 5) new technology capabilities.

66%
 of organizations reported that their visibility into IT performance declined after deploying cloud services



Putting context of data in the core of their IT Operations strategies - One of the key conclusions of DEJ's 2018 IT Operations study was that context is king, as 71% of organizations reported that their IT performance data is not actionable. This year's study shows that the context of the data is still the king, but the definition of "context" has expanded beyond using the IT data just to improve IT performance. Organizations are progressively looking to put IT data in a context that would allow them to make better business decisions and leverage it in use cases that are not even IT related.

Taking an approach based on advanced analytics, automation and data and knowledge management concepts - DEJ's 2018 IT Operations study showed that the IT Operations market drastically changed in recent years and what used to be a monitoring-centric technology area became an analytics, automation and data management game. TPOs are realizing that taking a strategic approach for managing IT Operations built around context-driven automation and applying advanced concepts from Big Data analytics and knowledge management is the key for addressing their top goals.



Well defined API management strategy - Application Programming Interfaces (APIs) are playing a key role in how digital services are built and delivered to end-users. The successful management of APIs can enable organizations to gain competitive advantage. DEJ's research shows that digital transformation leaders are 4.5 times more likely to meet their integration goals. TPOs are taking a strategic approach around this issue, which allows them to reap the benefits in both managing IT and gaining business advantage.

TPO Attributes - Process

Method for selecting monitoring solutions by predicting future amounts of data to be processed

- As we mentioned above, the definition of scalability is changing and organizations are looking for more elasticity so they can effectively deal with internal and external changes. TPOs are taking that approach one step further and looking at the current and historic data to project their needs for processing IT data in the future.

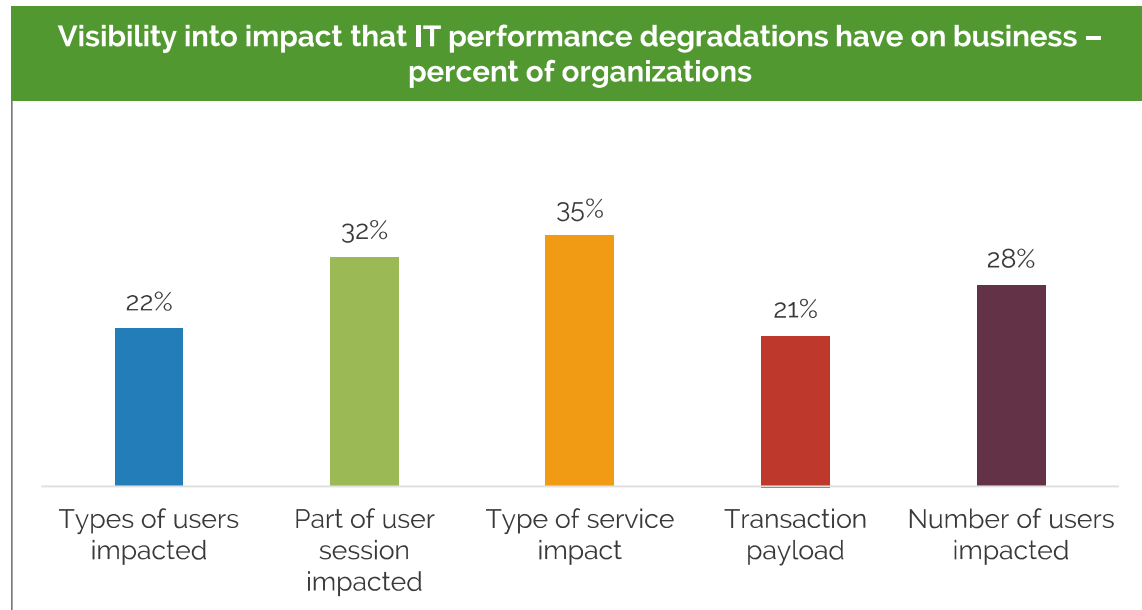
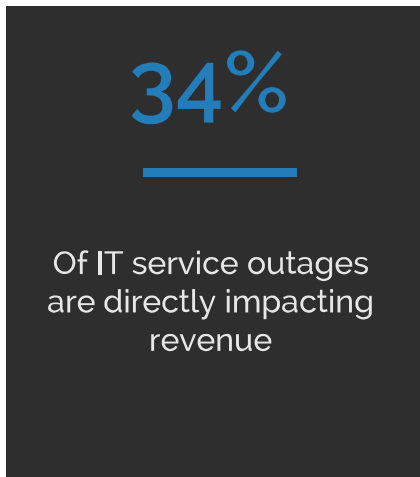
Deploying testing processes that measure the impact on user experience

- TPOs are realizing that the processes for testing new digital services before they are put into production are only effective if they are conducted from the perspective of the end-user. This also includes understanding how new digital services will perform depending on user device type, operating system, type of the delivery infrastructure, etc.

Capability	TPOs more likely to have
Ability to predict performance incidents	2.4x
Selecting monitoring solutions by predicting future amounts of data to be processed	84%
Correlating IT performance and business metrics	68%
Automating processes for launching new technologies and services	63%
Process for prioritizing IT incidents	61%
Testing processes that measure the impact on user experience	59%

Ability to predict performance incidents - Solutions that are based on different types of capabilities for automated active learning enable TPOs to leverage historical data to predict potential performance issues. These types of analytics and correlation capabilities allow them to significantly reduce resources needed for ensuring optimal levels of digital services, as they are able to forecast potential problems and address their causes before they actually occur.

Process for prioritizing IT incidents - The research shows that the majority of organizations do not have visibility into the impact that IT performance degradations have on their business. TPOs are not only deploying capabilities for visibility into specific metrics that show the severity and type of impact of performance issues, but they are also able to build workflows that enable IT teams to focus on performance incidents that matter the most.



Correlating IT performance and business metrics - This process is enabled by technology capabilities that allow organizations to have deep visibility into both IT performance and business metrics through a single platform. Two of the key enablers of this process are strong capabilities for monitoring user experience and having a centralized, service centric approach for managing IT performance.

TPO Attributes - Organization

Enterprise wide initiative to evaluate technologies based on the ability to contribute to business outcomes

- Sixty-one percent of organizations reported that they are looking to use technology to create competitive advantage, but 58% of business executives reported their interest in learning more about technology features and functionalities as “low” or “very low”. TPOs are putting into place enterprise wide initiatives that enable them to connect the dots between the value proposition of IT Operations solutions and desired business outcomes.

Ensuring that multiple job roles and departments gain value from IT data

- Organizations are estimating that only 11% of the IT data they are collecting is used to its full potential. That number would be even lower if organizations were aware of some of the use cases in which this data can be leveraged. TPOs understand the richness of the IT data and are putting capabilities in place to unlock its full potential.

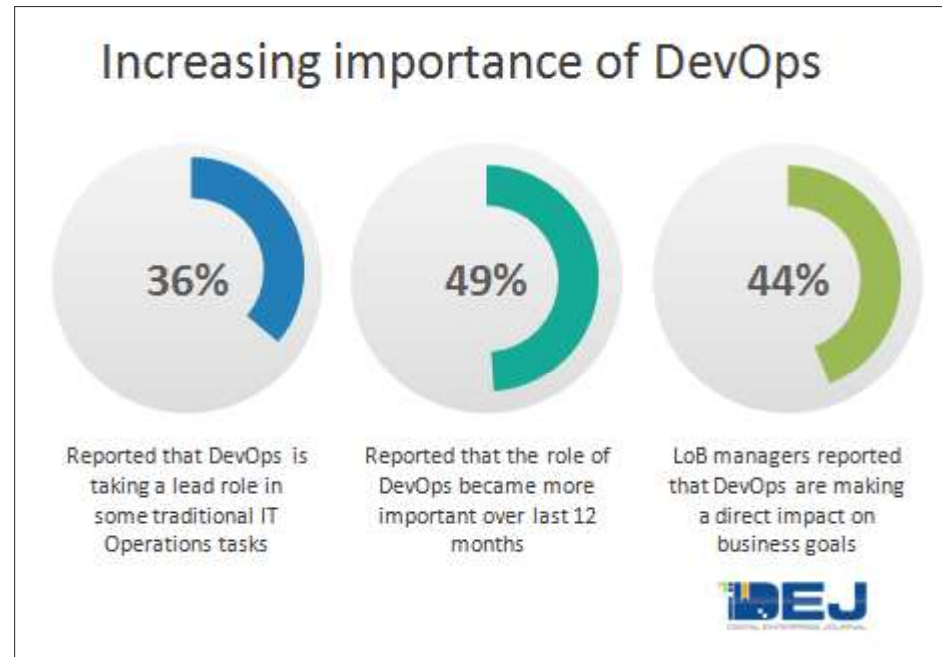
Educating IT staff on AIOps related skills

- DEJ’s research shows that deployments of Artificial Intelligence for IT Operations (AIOps) concepts have a major impact on some of the key goals for managing IT Operations. However, adopting AIOps requires some education of IT staff - both in terms of the value of these solutions and getting the most out of them. TPOs are understanding the importance of AI enabled solutions for managing IT operations and ensuring that their organizations are ready to maximize the value of AIOps.

Capability	TPOs more likely to have
Leveraging a single platform for IT, Dev, Security, IoT and Business Operations	2.7x
Ensuring that multiple job roles and departments gain value from IT data	2.6x
Enterprise wide initiative to evaluate technologies based on the ability to contribute to business outcomes	2.3x
Established formal policies and channels to enable DevOps initiatives	74%
Educating IT staff on AIOps related skills	52%

Leveraging a single platform for IT, Dev, Security, IoT and Business Operations - TPOs are recognizing the potential of enabling operational intelligence and understanding that different operations teams - IT, Dev, Security, industrial and business operations - can benefit from the same data set. Also, 30% of organizations reported the lack of technical expertise as the key obstacle for not deploying machine learning capabilities. Taking a platform-based approach for leveraging operational data enables organizations to; 1) make this data easier to use; 2) benefit from synergies of using this data in different use cases; 3) making sure that they are capturing all of the data and using it to its full potential.

71% Average increase in revenue loss per 1 hour of downtime over the last 18 months



Established formal policies and channels to enable DevOps initiatives - As organizations are looking to leverage technology to create a business value and 57% of business executives are reporting that they are looking to make the role of IT more strategic, improving processes for both developing and managing digital services is becoming more important. Thirty-six percent of organizations in DEJ's research reported that DevOps is taking the lead role in some traditional IT Operations tasks. TPOs are realizing the importance of DevOps and are making an organizational effort to enable these groups.

TPO Attributes - Technology

Capabilities for automated root cause analysis - DEJ's research shows that the lack of automation capabilities is the key reason for issues with identifying the root cause of a problem for 51% of organizations. TPOs are deploying capabilities that enable them to automate the process of sifting through millions of changes that could have caused a performance problem and identify those that are most likely the root cause of an issue.

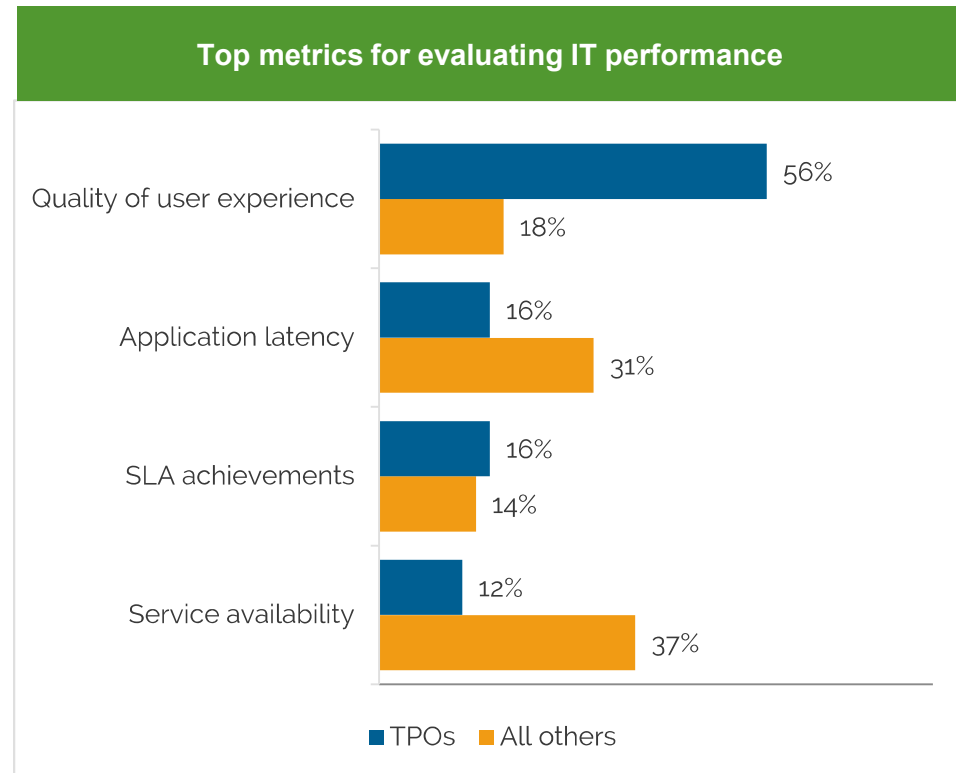
Single platform for managing performance of on-premise and cloud services – Fifty-nine percent of organizations that are deploying cloud services are also using services that are managed on-premise. Many of these organizations are using different toolsets for monitoring on-premise and cloud services, which is not an effective strategy and adds even more complexity to managing IT operations. DEJ's research shows that using a single platform for managing the performance of on-premise and cloud services results in a 44% average improvement in meeting SLAs.

Unified analysis across IT management tools stack - One of the key challenges for managing IT performance is the inability to correlate data from different domains (59% of respondents reported) and IT monitoring tools. TPOs are addressing this issue by deploying solutions for centralized, context-based management that allows them to bring all the IT management data together while putting it into an actionable context.

Capability	TPOs more likely to have
Automated discovery of containers and dependencies for microservices	2.5x
Automated root cause analysis	2.3x
Ability to monitor user experience at the point of interaction with digital service	2.2x
Automated process for turning alerts and events into actionable work items	2.1x
Single platform for managing the performance of on-premise and cloud services	88%
Unified analysis across IT management tools stack	77%
Real-time analysis of streaming data	74%
Automated remediation of performance issues	66%
Ability to monitor the impact of API performance on user experience	65%
Anomaly detection capabilities for managing IT Operations	59%
Notification system that is based on context-driven automation	52%

Ability to monitor user experience at the point of interaction with the application - TPOs are 3.1 times more likely to view the quality of user experience as the #1 measure of IT performance, as compared to all others. In order to gain full visibility into IT performance from the user perspective, organizations are looking to monitor user behavior, usage patterns, user sentiment and make sure that usage of digital services is in compliance with regulations. TPOs are understanding that monitoring user experience at the point of the users' interaction with digital services is the most effective way to gain this type of visibility.

Leveraging anomaly detection capabilities for managing IT Operations - This is one of the core capabilities that TPOs are using for each of the areas of incident management - problem prevention, detection, root cause analysis and resolution.



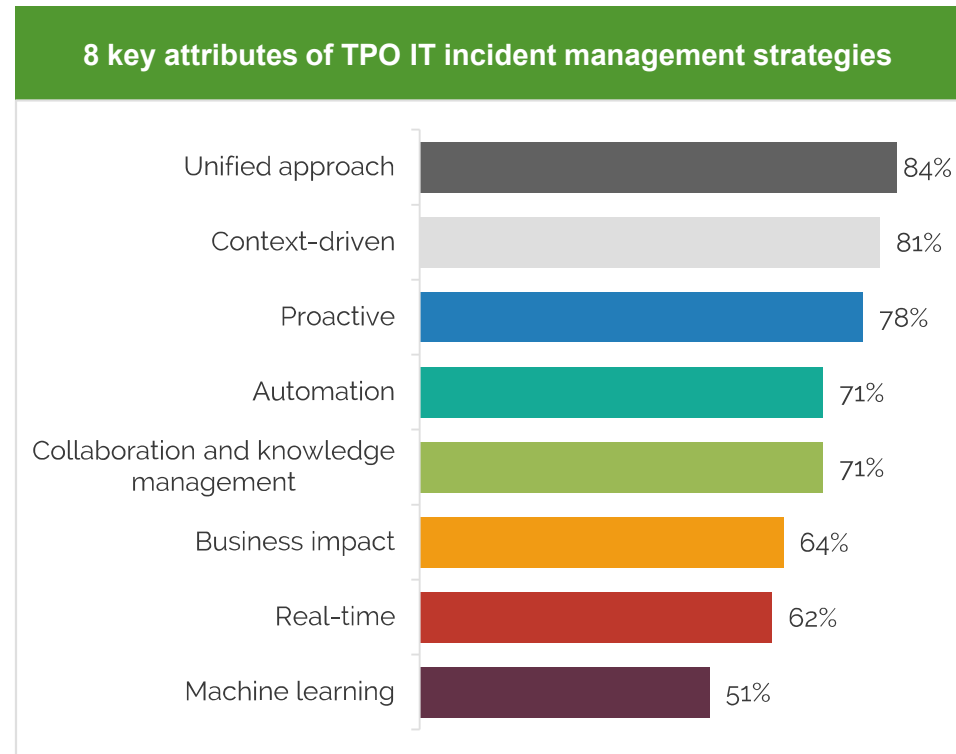
DEJ's research shows that deploying this capability results in a 65% average improvement in the success rate of preventing performance issues before the users are impacted.

Ability to monitor the impact of API performance on user experience - As we mentioned before, the definition of the quality of user experience is changing and includes new areas, such as content and functionalities of digital services. Issues with API performance typically don't impact traditional user experience metrics, such as speed and availability, but have a significant impact on overall user experience by making some content and functionalities unavailable or invisible. TPOs are understanding that these issues have a significant business impact and they are putting capabilities in place for monitoring the performance of APIs.

Automated process for turning alerts into actionable work items- Seventy-nine percent of organizations reported alert and event "noise" as the key challenge for managing IT Operations. Additionally, 79% of organizations reported that adding more IT staff to address this problem is not an effective strategy. TPOs are deploying context-based automation capabilities to deal with this issue, which enables them to turn data from alerts and events into actionable work items.

Notification system that is based on context-driven automation - TPOs approach to IT incident management is more mature and effective in general, and this maturity is especially reflected in notification systems that they have in place. These systems enable organizations to reach the right people at the right time, provide actionable information and facilitate collaboration with the key focus on resolution.

Automated remediation of performance issues - TPOs are not only more likely to automate processes for preventing and detecting problems and identifying a root cause, but they are also deploying capabilities for providing data-driven recommendations of how the problems can be solved. Additionally, these organizations are more likely to automate the execution of some repeatable tasks that lead to problem remediation.



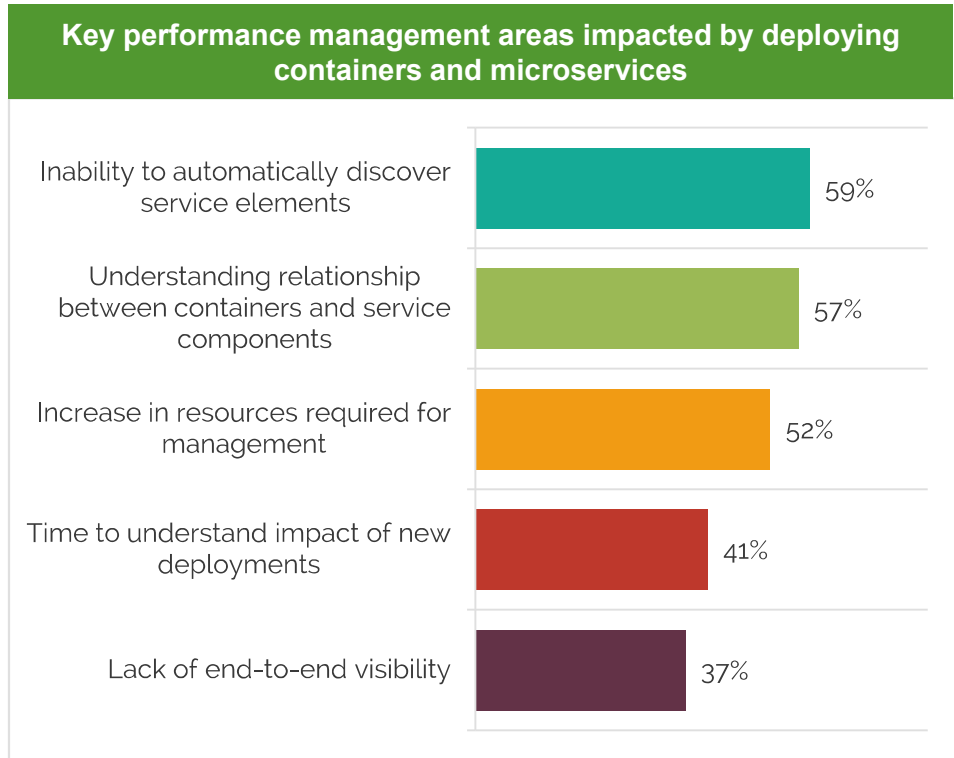
2.1X Average improvement in relevancy of alarms by TPOs, as compared to all others

Automated discovery of containers and dependencies for microservices

- Due to the dynamic, fast changing nature of container-based and microservices architecture, it is difficult to identify, map and continuously monitor all of the elements that constitute an IT service. TPOs are automating this process by deploying capabilities that are dynamically identifying changes in containers, microservices and their interdependencies.

Capabilities for real-time analysis of streaming data

- As we mentioned above, the lack of capabilities for real-time management is one of the key challenges for managing IT Operations and the most effective way is to analyze streaming data in real-time. Deploying this type of capability allows TPOs to react to the potential issues faster and, as a result, these organizations are reporting a reduction in the number of trouble tickets issued and shorter Mean Time to Detect (MTTD) performance issues.



4.2X
 More users managed per IT FTE by TPOs, as compared to all others

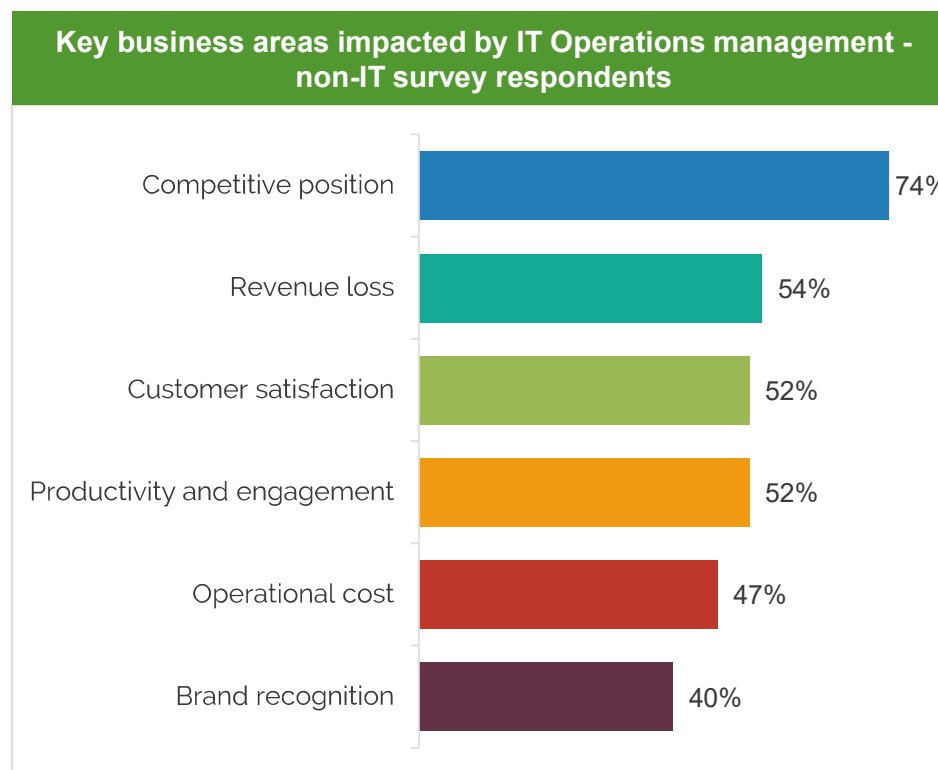
5.1X
 Faster new application releases by TPOs, as compared to all others

Cost of Not Acting

Organizations whose performance is lagging behind the TPO class have to make significant changes to their strategies, organizational approach and processes, as well as deploy a new set of technology capabilities to catch up with forward thinking organizations. This requires significant effort and new investments, but the research shows that achieving a TPO level of performance pays off.

Also, organizations that have the mindset that modernizing IT Operations is too time and resource intensive and that they can't afford the cost associated with it are not realizing that the price of not modernizing IT operations is even higher and they are paying for it every day. LoBs and other business executives estimated the impact of issues with the performance of IT services on key business goals and the numbers show a significant opportunity cost of not investing in modernizing IT operations.

\$2,129,000	Average estimated revenue loss, per month, due to performance related slowdowns in application release times
\$126,000	Average revenue lost due to 1 hour of downtime
\$10,700	Average IT labor cost per performance incident



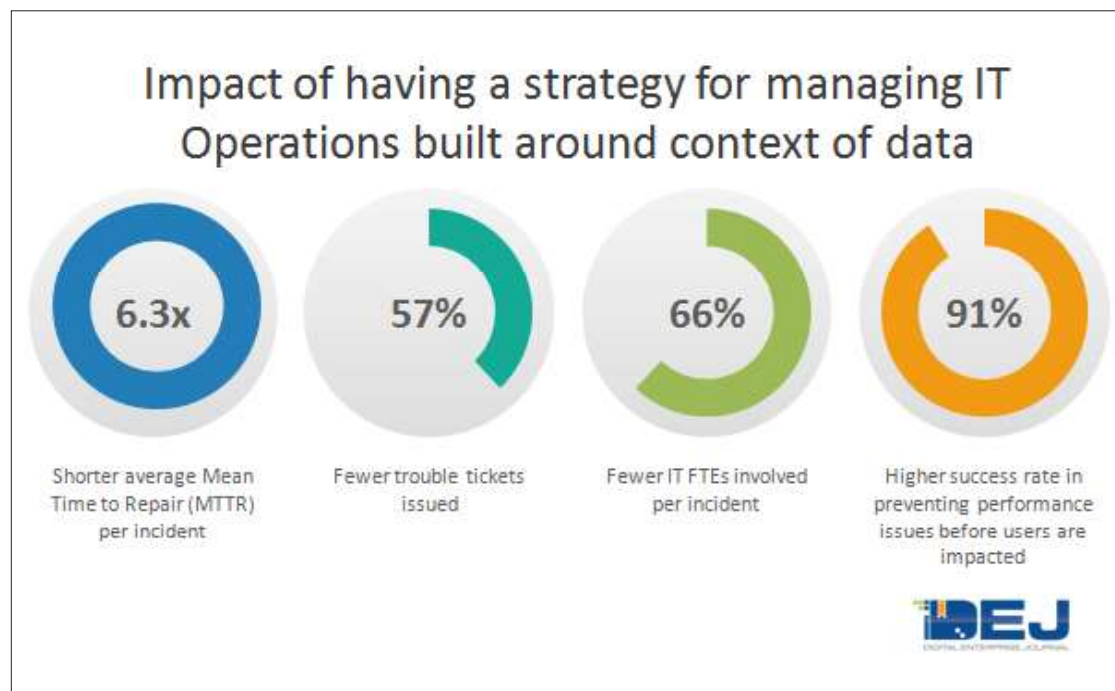
The research shows that the cost of non acting around modernizing IT Operations is not only high, but is significantly increasing every year. Organizations need to have more urgency when it comes to improving their IT Operations capabilities.

Recommendations

DEJ's research shows that the performance gap between TPO class and all other organizations is not only wide, but it is trending to be wider each year. To start closing that gap, organizations should ensure that the following 13 areas are a part of their IT Operations strategies.

1 - Deliver IT data in a context that is actionable, relevant and aligned with business goals. The research shows that IT monitoring data is only effective if it is delivered in the right context. TPOs are 62% more likely to have a context of data in the core of their IT operations management strategies and, as a result, their average Mean Time to Repair (MTTR) per incident is 5.9 times shorter as compared to all others.

35% Of incidents have 6 or more FTEs involved



2 - Ability to elastically scale up - for both the present and the future - should be one of the key criteria when selecting IT Operations solutions. Scalability of solutions for managing IT operations is one of the key challenges for 48% of organizations and that is mostly related to the amount of data that these solutions can process. TPOs are 84% more likely to be selecting monitoring solutions by predicting future amounts of data to be processed and as a result they are reporting, on average, 58% fewer trouble tickets issued, as compared to all others.

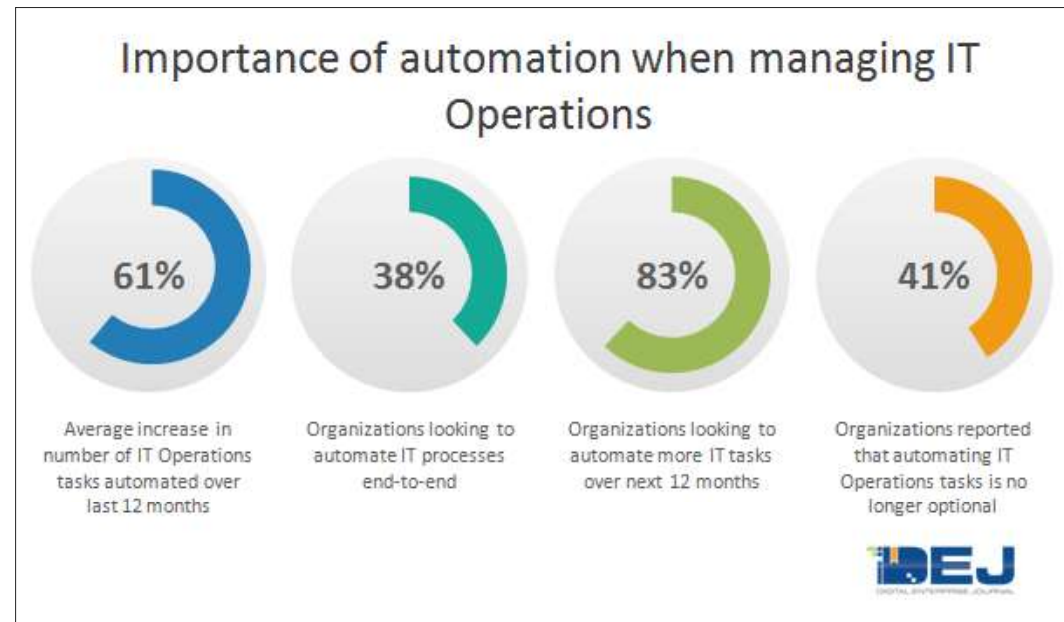
3 - Take a proactive approach for managing IT Operations. With increased expectations for customer experience and contributing to key business outcomes, organizations should not be learning about issues with IT performance from their customers. TPOs are, on average, reporting a 79% success rate as compared to 39% for all others and as a result, they are 66% more likely to experience improvements in customer and employee engagement.

4 - Change the approach for managing IT Operations to adjust to new technologies, infrastructure types and software architectures. Forty-six percent and 32% of organizations are reporting deployments of cloud services and container based architectures, respectively, as the key drivers for modernizing IT operations. TPOs are 78% more likely to modify their strategy to meet specific requirements of monitoring cloud and microservices and as a result, they are 63% more likely to meet SLAs, as compared to all others.

TPO Capability	Impact on performance
Ability to predict performance incidents	2.2x
Automated root cause analysis	84%
Automated process for turning alerts and events into actionable work items	76%
Process for prioritizing IT incidents	66%
Real-time analysis of streaming data	66%
Ability to monitor user experience at the point of interaction with digital service	64%
Unified analysis across IT management tools stack	60%
Correlating IT performance and business metrics	55%
Leveraging a single platform for IT, Dev, Security, IoT and Business Operations	53%

5 - Quality of experience monitored from the end-user perspective should be the key indicator for the performance of IT services. As business executives are reporting that the impact of IT Operations on business goals has to be more clear, having full visibility into the quality of user experience has become more important. TPOs are 3.1 times more likely to be using the quality of user experience as the top indicator of performance for digital services and as a result, they are 66% less likely to experience revenue impacting performance incidents.

6 - Take a strategic approach when incorporating automation in IT operations strategies. Automation cuts across all of the key areas of managing IT Operations. 41% of organizations reported that automating IT Operations tasks is no longer optional, but its potential in this market is just scratching the surface. Organizations are mainly focusing on automating processes around incident management, root-cause analysis and remediation. However, there are still many areas where automation capabilities can make a major impact.



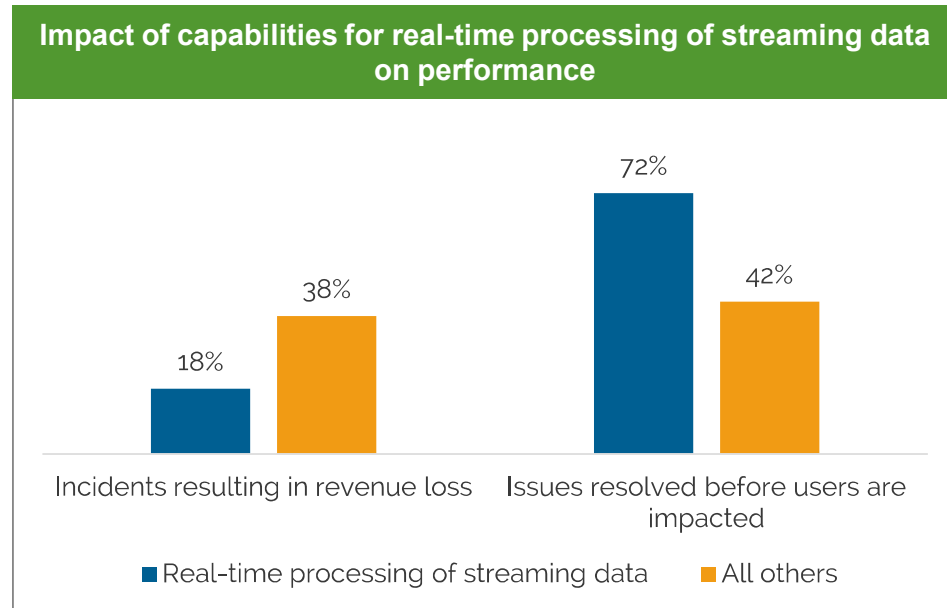
TPOs are 63% more likely to automate processes for launching new technologies and services. As a result, these organizations are reporting 5.1 times faster new application releases, as compared to all others.

7 - Make the impact on key business goals more clear. The research shows a 39% increase in Line-of-Business (LoB) managers becoming a part of the evaluation process for IT Operations solutions over the last 18 months. There are many areas where IT Operations can make a very strong impact on desired business outcomes, but making this more visible and understandable for business leaders is the key for the future of this market.

8 - Take a customer-centric approach for managing IT. The research shows taking the approach for managing IT that is centered around customer (for internal and external) experience results in measurable business and operational benefits. TPOs are 2.2 times more likely to be taking this approach and, as a result, they are able to manage 4.2 more users per IT FTE, as compared to all others.

9 - Deploy capabilities for processing streaming data in real-time. Lack of capabilities for real-time management is reported as a key challenge by 52% of organizations. TPOs are 74% more likely to have capabilities for real-time analysis of streaming data and as a result, they are reporting 2.6 times higher reduction in Mean Time to Detect (MTTD) performance issues, per incident, as compared to all others.

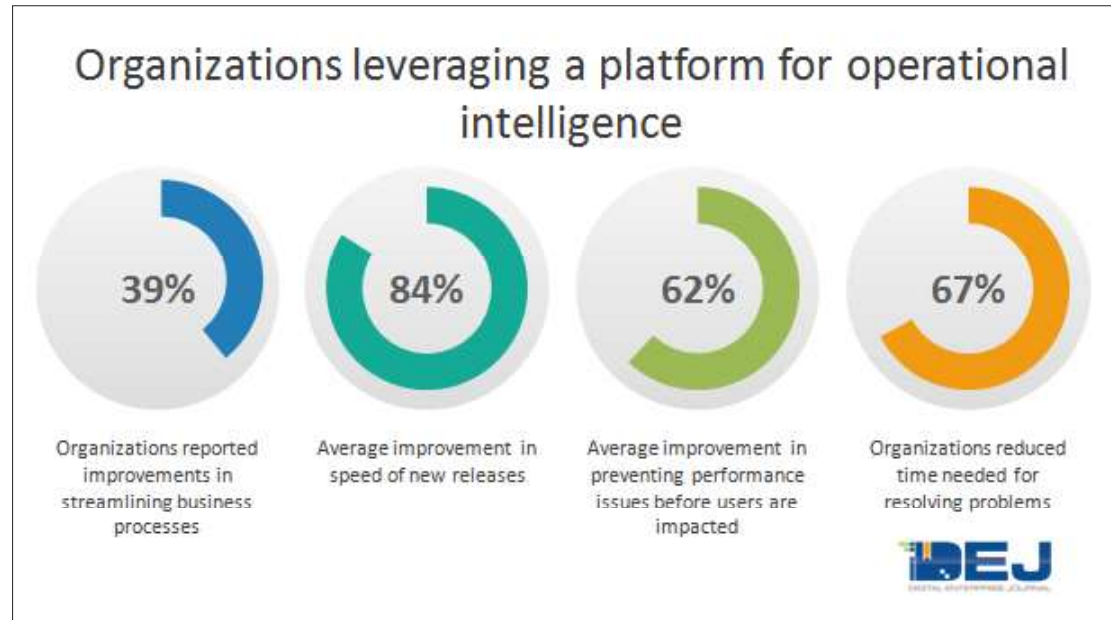
10 - Take a centralized, platform-based approach for managing IT operations. Fifty-nine percent of organizations reported the inability to correlate data from different domains as one of the key challenges for managing IT Operations. TPOs are 77% more likely to have capabilities for unified analysis across IT management tools stack and as a result, they are 69% more likely to reduce operating cost for managing IT Operations, as compared to all others.



11 - Modernize IT incident management strategies. The key challenges of managing IT operations are centered around preventing performance issues and streamlining workflows for resolving the issues faster. TPOs are modernizing their IT management strategies to include attributes such as 1) a unified, proactive approach; 2) machine learning capabilities; 3) business impact; 4) context-driven automation; 5) real-time capabilities; and 6) collaboration, orchestration and knowledge management. As a result, these organizations are reporting an average improvement in relevancy of alarms that is 2 times higher, as compared to all others.

12 – Deploy a platform for enabling operational intelligence. The research shows that organizations that are using a single platform for supporting IT, DevOps, security, industrial and business operations are experiencing significant business benefits. Taking this approach allows organizations to gain true operational intelligence and transform IT operations to become one of the key enablers of digital transformation.

32% Increase in number of organizations that are familiar with the term and value proposition of AIOps over the last 12 months



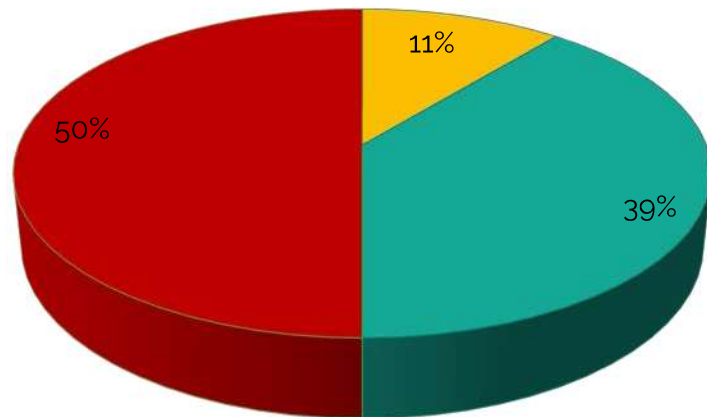
13 - Adopt AIOps concepts and be prepared to maximize their value. AIOps concepts cut across most of the key areas of TPOs practices. These organizations are 2.1x more likely to have an automated process for turning alerts into actionable events and 2.3x more likely to have capabilities for automated root cause analysis. However, the value of AI enabled solutions goes beyond IT Operations and it is increasingly being used in other areas of digital operations, such as DevOps, security operations, Continuous Delivery (CD) and Continuous Integration (CI). Organizations should be prepared to maximize the value of AIOps. TPOs are 52% more likely to educate IT staff on AIOps related skills, as compared to all others.

Research Demographics

This study includes insights from 918 organizations

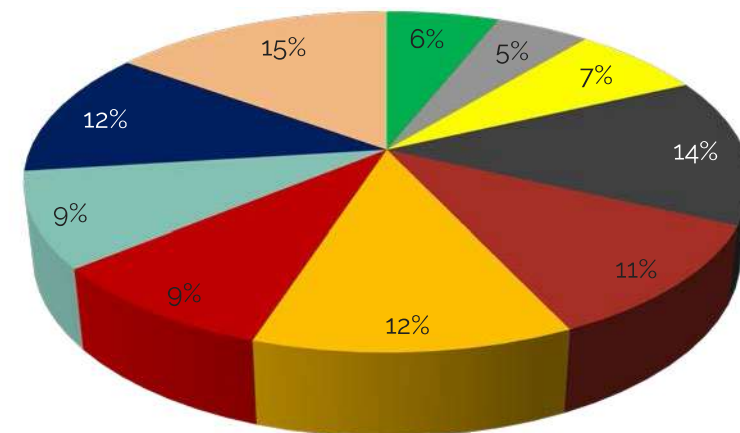
Company size

■ Small (10-100) ■ Medium (101-1,000) ■ Large (1,000+)



Job Role

■ Application support
 ■ C-Level executives
 ■ VP and Director of IT
 ■ Other non-IT role
 ■ Other IT role
 ■ Network manager/engineer
 ■ General IT Operations
 ■ Systems engineer/admin
 ■ Application/software development/QA
 ■ LoB/business management



Geography

- ✓ 58% North America
- ✓ 22% EMEA
- ✓ 12% APAC (inc Australia and /NZ)
- ✓ 6% Latin America
- ✓ 2% Other

Industry

- ✓ 14% Finance/Banking/Insurance
- ✓ 14% Technology
- ✓ 11% Business services
- ✓ 10% Retail/eCommerce
- ✓ 10% Telecommunications/MSP
- ✓ 8% Healthcare
- ✓ 7% Government/Public sector
- ✓ 26% Other

About Digital Enterprise Journal

Bringing together the most advanced concepts from analyst research and media industries

Analyst	DEJ	Media
Expertise in vendors differentiators		Engaging content formats
Long publishing cycles		No ongoing coverage of market dynamics
“One size fits all” analysis		Little or no focus on primary research
Costly access to content and findings		Frequent publishing
Expertise in market dynamics		Focus on buzz words and “hot” topics
Primary survey research		No in-depth expertise about vendors
Non engaging content formats		Free content driving larger audiences
Continuous vendor and technology coverage		Biz model aligned with modern content marketing

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Research-Media Fusion

Combination of most advanced concepts from both industries

User Insight Platform

Ongoing, personalized approach for research data collection and analysis

Business Context

Actionable frameworks to help users answer the “So what?” question

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