THE SHIFTING ROLE OF WORKLOAD AUTOMATION

WLA Expansion Creates a Foundation for Broader Business Process Automation and Digital Transformation

REPORT SUMMARY

ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) Research
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Written by Dan Twing

EMA™ *IT & DATA MANAGEMENT RESEARCH, INDUSTRY ANALYSIS & CONSULTING*

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Executive Summary

The role of WLA is expanding as organizations increase use of all forms of automation to become more efficient and competitive. Digital transformation, DevOps, and microservices architectures are increasing the pressure on workload automation systems. Building on EMA's 2016 "Issues and Priorities in Modern Workload Automation" and 2013 "Workload Automation in an Era of Cloud, Analytics, Enterprise Mobility, DevOps, and Big Data" research, the 2018 study revisits many important questions to monitor trends while exploring this expanding role and the convergence of workload automation with other automation disciplines.

This study was conducted as an email invite web-based survey in July 2018 and includes 427 respondents from North America and Europe. To be included in the study, respondents had to work for companies with 500 or more employees and those with IT job titles (80%) had to be involved in leading or using WLA tools, while those with business job titles (20%) had to use WLA dashboards. The study includes roughly one-third each of individual performers, managers and directors, and senior executives.

The majority of organizations surveyed believe that both their need for automation and their use of automation are growing. IT operations is the most automated function at 64 percent, with big data analytics second at 54 percent automated. Application release and onboarding new employees were the least automated at less than one-third each. WLA is the most used form of automation in the enterprise, at an average of 45 percent across IT and business processes. Specific automation for a process is the second most common form of automation at an average of 27 percent. Robotic Process Automation (RPA) is the third most common form of automation at an average of 12 percent, and is being used for IT automation use cases as well as business processes. Scripts are least used, but pervasive, averaging ten percent across all functions.

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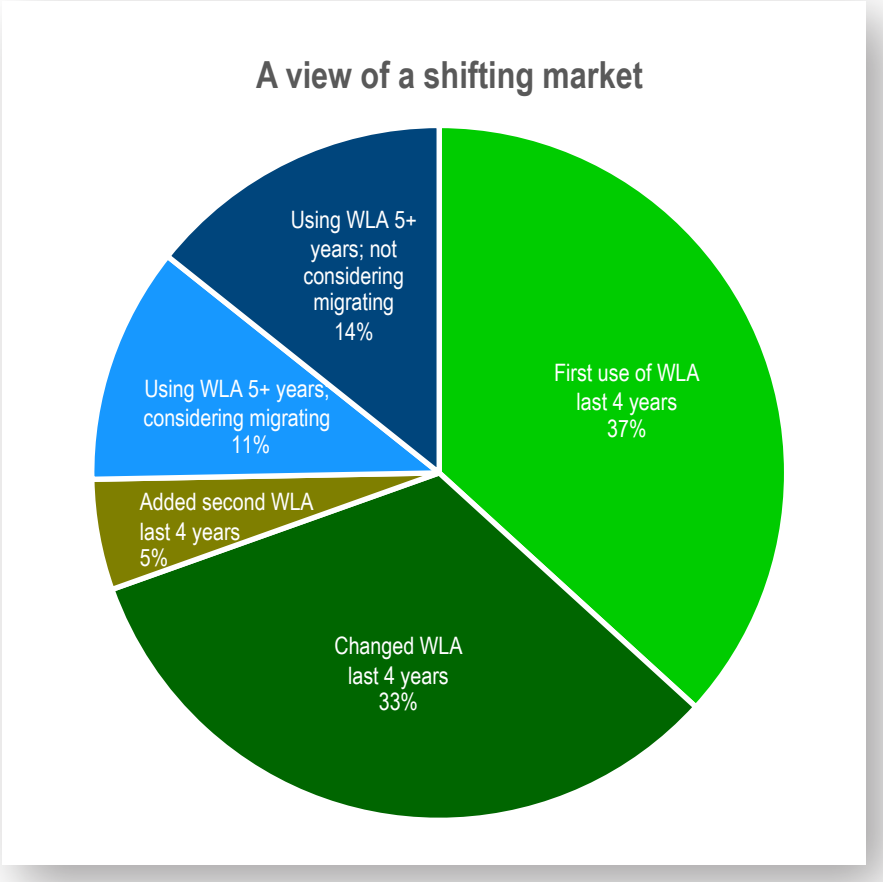
As the number of automation projects increases across the enterprise, some coordination and planning are needed. A majority of organizations view automation as a strategy, with 87 percent having a centralized automation strategy and 26 percent coordinating that strategy through an Automation Center of Excellence (COE). The majority of WLA users (54%) see WLA in a very traditional role as a key automation tool for IT operations. A small group (17%) see WLA as a non-strategic but necessary tool for IT operations. However, there is a substantial group of users (34%) that see WLA as vital to broader automation and digital transformation. This enlightened group of WLA users are pushing the envelope in how they perceive and use WLA to solve a broader set of automation use cases and how they underpin their digital transformation efforts with a proven and mature tool like WLA.

A big part of the market migrated to new WLA tools over the past five years as the demands on workload automation began to change and users searched for better tools in response. In 2013, 32 percent of the market was considering a change in software. By 2016, that number grew to 52 percent. In the past four years, 38 percent have changed their primary WLA tool, with 33 percent outright switching tools and five percent adding a new WLA tool to become their primary scheduler while continuing the use of prior tools. Another eleven percent are actively considering migrating to a new WLA tool, and are motivated by better auditing capabilities, BI connectors, easier workflow design, and better high-availability capabilities. Somewhat surprising to EMA is that 37 percent of respondents started using an enterprise-class WLA tool for the first time in the past four years. The remaining 14 percent of the market have been using their current WLA tool for five or more years and have no plans to migrate to a different WLA tool. About one-third of those are not planning to change WLA software because they are very happy with their current vendor. The remaining two-thirds are staying on their current tool because of the investments already made, and perceive the effort to move to be too great for the potential benefits.



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For those who migrated to a new WLA software, more efficient change management was the top reason for changing. Other frequently mentioned reasons for changing included simpler root cause analysis, better high availability, and lower operations costs. Twelve percent of those who changed named issues with their prior vendor as the reason for change. Many stay on inadequate software because the effort and distraction of a migration can be daunting, or at least that is the perception. Looking at those who changed their primary WLA software in the past four years, 56 percent accomplished their migration with little issue, describing it as easier than expected or a non-event. That is a positive outcome for many. However, 42 percent describe the migration as disruptive, with ten percent saying it was not worth the effort. Migrating workflows was mentioned as the most difficult aspect of changing WLA software. Also high on the list was balancing ongoing operations with migration activities and motivating the team. A slight majority (52%) of those changing WLA software in the past four years received the expected benefits, with 18 percent feeling the benefits were better than expected. Another 22 percent said it was too early to tell, but so far so good. Eighteen percent were not happier with the new software, and six percent said they had no way to measure. Most of those who took the decision to migrate to new WLA software had an easier than expected time with the migration and were happy they did so.

The long-running trend to better align IT with business outcomes has impacted almost every aspect of IT operations and development, and WLA is no exception. Eighty-six percent of respondents feel their WLA department is business-aware and can quantify business impact. This has been increasing for the past five years. Almost half of respondents have a self-service portal for business users, and this has remained fairly stable over the past five years. Self-service portals are mostly used for BI processes, file transfers, and DevOps. While an additional 21 percent of respondents are planning to offer a self-service portal in the next 12 months, 16 percent said they were planning to offer one in 2016, and it seems most did not follow through because there was no appreciable growth in those offering a self-service portal. Some offered such a portal and then discontinued it for lack of use (17%). Without a concerted effort to market the benefits of the self-service portal to business users, usage will be minimal.

Another major trend impacting WLA is the broader use of data and analytics to make better decisions. Analytics for WLA have been available for some time, but continue to improve and will get even better as machine learning becomes more incorporated into these capabilities. Over two-thirds of respondents have a central dashboard for workload infrastructure. Most organizations have the ability to correlate at least some of their infrastructure health and performance data with WLA. Analytics in WLA is pervasive, with 96 percent of respondents using some form of analytics. The most common analytics in use was capacity analytics (42%), followed by workflow optimization suggestions (40%) and SLA monitoring (39%). When asked about the statement “Predictive analytics help make workload automation more efficient and aligned with my organization’s business,” 88 percent said that was somewhat or completely true. There is a reason so many are using analytics with WLA.

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While many WLA products have built-in analytics, the capabilities can vary considerably from product to product. A number of WLA-specific add-on analytics products are available. In 2018, 36 percent are using built-in analytics, 34 percent are using a WLA-specific add-on analytics product, and 26 percent are using a general purpose analytics tool with their WLA data. Terma Software is the most commonly used WLA-specific add-on analytics tool.

Big data is another trend impacting IT generally and WLA specifically. Big data has matured, and WLA tools are better at running and managing big data workloads. However, big data is still a high-ranking demand, making the management of job scheduling more complex. Big data projects often require support from IT (72%). There has been a steady increase in the projects run by business units, growing from 15 percent in 2013 to 24 percent in 2018. EMA believes this trend will continue as big data matures further and best practices and tools are honed and improved. The more big data becomes business as usual, the more independently business units can operate.

Big data imposes a number of challenges on IT. The most mentioned are integration with big data tools, managing large data lakes, and integration with other automation tools like WLA. The biggest impacts of big data projects on WLA are increases in resource requirements, increases in complexity, and increases in the difficulty of SLA management. To improve WLA support for big data, respondents would most like deeper integration with big data and BI tools, a central dashboard showing data quantities and flows across processes, and the ability to ingest metadata.

The impact of cloud computing on IT has also been significant and had significant impacts on WLA. For hosting WLA, on-premises environments are still the most common at 55 percent, private cloud is a close second at 52 percent, and public cloud is only used to host WLA by 26 percent. In the past five years, a number of WLA vendors created SaaS-based versions of their WLA solution and 17 percent are running WLA as SaaS. Regardless of where the WLA tool itself is hosted, 96 percent of respondents are running some workloads in the cloud, with 43 percent in private cloud, 31 percent using a mix of private and public cloud, and only 18 percent using public cloud exclusively. For the past five years, the top three reasons for using cloud resources for workloads have remained stable, with dynamic scalability most often mentioned at 56 percent, resource elasticity second at 45 percent, and provisioning speed third at 42 percent. IT Directors continue to be the primary decision makers for workload placement at 43 percent, with CIOs second most likely to be making this decision at 21 percent. When deciding where to place workloads, the top three factors are security (63%), performance (56%), and cost (46%). Workloads that are not run in the cloud are most often kept from the cloud for security, compliance, or performance concerns.

Despite 2016 plans to increase DevOps and developer interaction with WLA, little has changed in the past two years. A small increase in developer access to modify workflows from 41 percent to 46 percent of respondents and a small increase in developers designing new jobs via APIs or other means (Jobs-as-Code) from 39 percent to 42 percent of respondents is very little progress given the stated intentions to increase most of these metrics by 20 percent to 25 percent or more. Similarly, developer self-service capabilities have not changed much over the past five years, even as plans to make changes across all metrics range from 20 percent to 27 percent. Many claim intentions to increase developer self-service with WLA, so this may move forward in the next two years, but history says the best laid plans on this front continue to lose out to bigger priorities.

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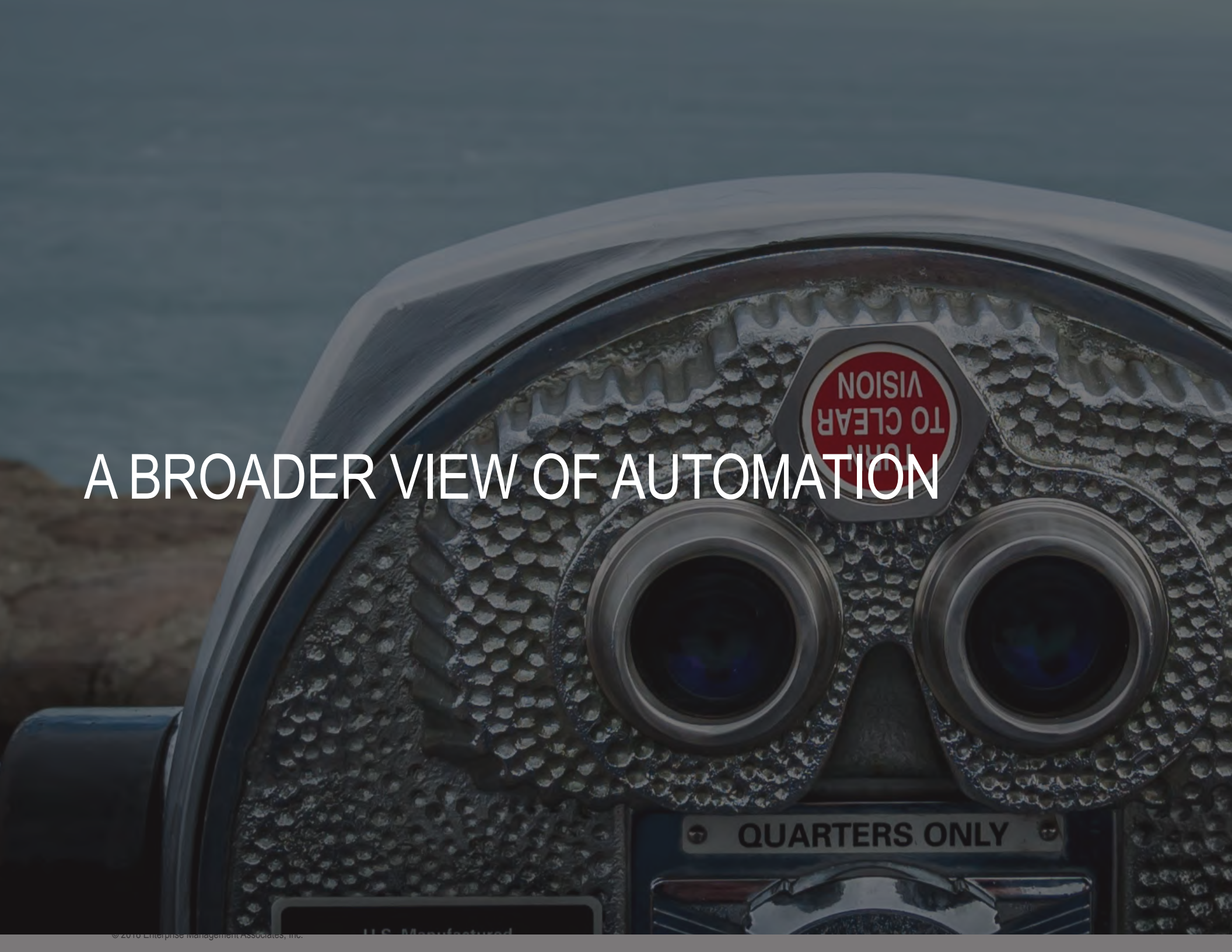
The use of containers and microservices architectures is a hot trend that continues to mature, and like virtualization before it, the use of the technology is out in front of the ability to manage it effectively in the early stages of its lifecycle. Currently, 15 percent are using containers in development and test only, while 57 percent have containers in production for one or more workloads. Container adoption continues with those planning to add container-based workloads in the next 12 months up from nine percent in 2016 to 15 percent in 2018. The biggest impact of container-based services on WLA is mixing container-based applications into processes without containerizing the entire end-to-end process, which is impacting 54 percent of respondents. WLA needs to manage these mixed job streams more cohesively. The second most mentioned demand is support for dependencies between container-based and traditional apps, which is a related theme affecting 46 percent of respondents. WLA vendors are well aware of these new demands and work to address them with each new release. Overall satisfaction with WLA support for containers and microservices architectures is 3.80, where 5 is very satisfied. WLA is doing a good job of supporting containers, but the cutting edge of container management continues to shift, particularly around Docker Trusted Registry and integration with distributed orchestration cluster schedulers like Kubernetes or Fleet. When asked which container technologies they needed WLA to support, Azure Container Service topped the list at 49 percent of respondents, Amazon Elastic Container Service was second at 42 percent, and Google Container Engine was third at 37 percent.

The core traditional uses for WLA will certainly continue to be important, and the products will continue to improve and evolve for those traditional needs. However, the importance of WLA is on the rise as use cases for broader IT and business process automation are addressed with WLA by creative users. Many business process automation needs start or end with the movement of files. As a result, the importance of managed file transfer (MFT) is rising, and leading WLA tools have stepped up their native capabilities. While Robotic Process Automation (RPA) is a very hot topic, WLA offers more sophisticated calendaring and triggering capabilities, allowing for multiple custom calendars and date and time, as well as event-based triggers. WLA also includes better end-to-end process management with audit controls and change management, and more API and developer integration. WLA is far more mature than RPA, and EMA believes that 35 percent of RPA use cases might be better addressed with WLA. The enlightened group of WLA users are pushing the envelope in how they perceive and use WLA to solve a broader set of automation use cases and how they underpin their digital transformation efforts with a proven and mature tool like WLA.

A BROADER VIEW OF AUTOMATION

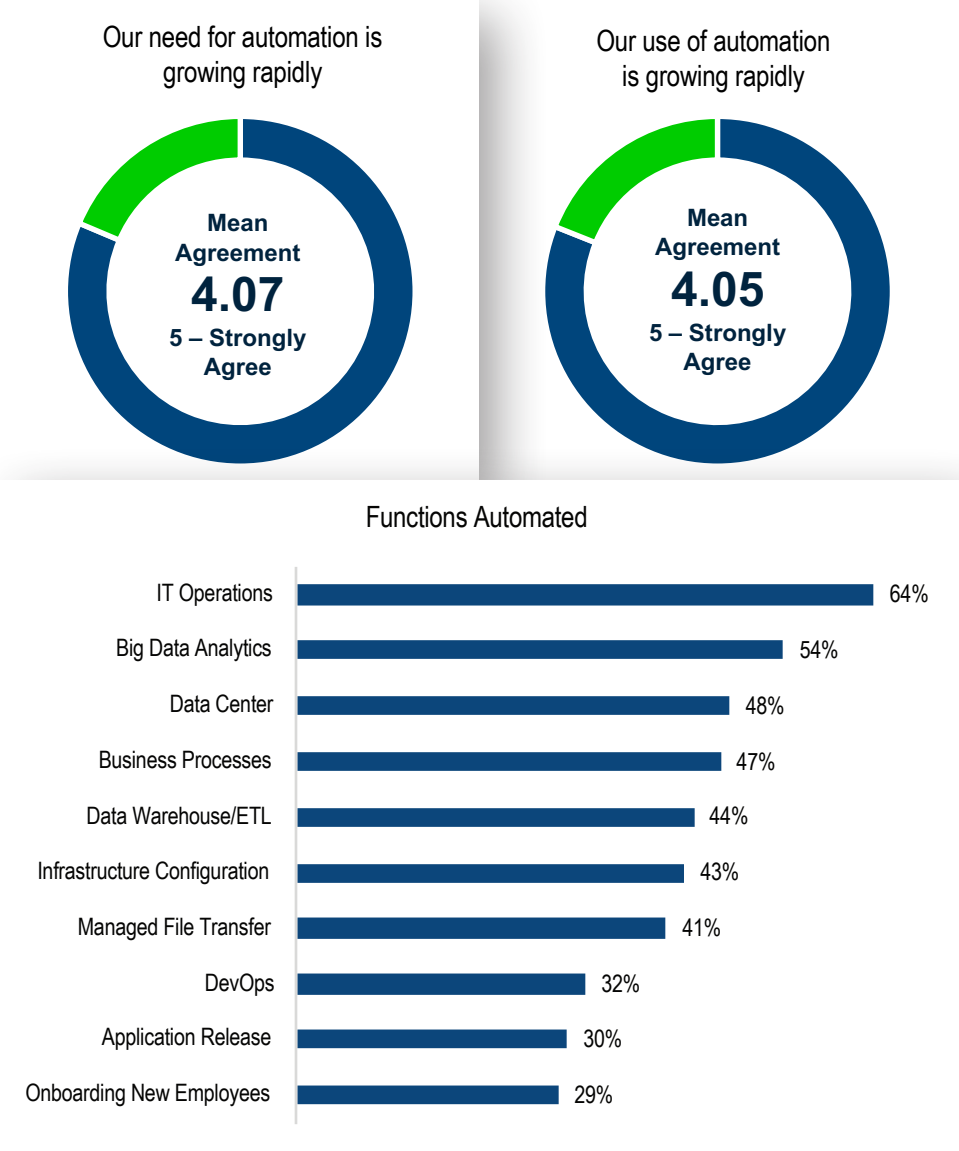


Extent of Automation

Automation is becoming a very hot trend in IT, an industry that has been all about automation since its inception. However, pervasive network access, cloud computing, mobile-enabled and tech-savvy customers and trading partners, and the coming AI capabilities are some of the trends putting more pressure on organizations to automate. Respondents were asked about their agreement with the statement "Our need for automation is growing." The mean response was 4.07, where 5 is strongly agree. Also asked was agreement with "Our use of automation is growing rapidly." The response was also a high average score of 4.05, where 5 is strongly agree. It is clear that organizations feel the need to automate and are doing so as fast as they can.

Next, respondents were asked to estimate the percentage of automation across a variety of IT functions and business processes generally. IT Operations is the most automated function at 64 percent, second is Big Data Analytics at 54 percent, and the only other function over 50 percent automated. Application Release and Onboarding New Employees were the least automated at less than one-third.

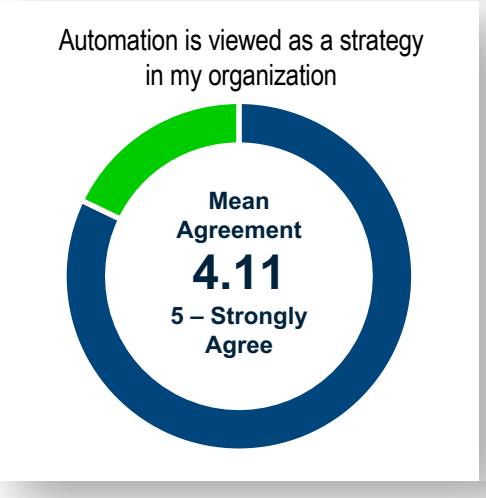
Respondents were then asked to estimate the type of automation used to automate each function. Averaging across all functions, WLA is by far the most common form of automation used for the functions listed at 45 percent. Process-specific automation is the next-most common form of automation at 27 percent. Somewhat surprising to EMA is the amount of Robotic Process Automation (RPA) used across IT functions, averaging 12 percent across the functions listed. Scripting is least used, but pervasive across all functions, averaging ten percent.



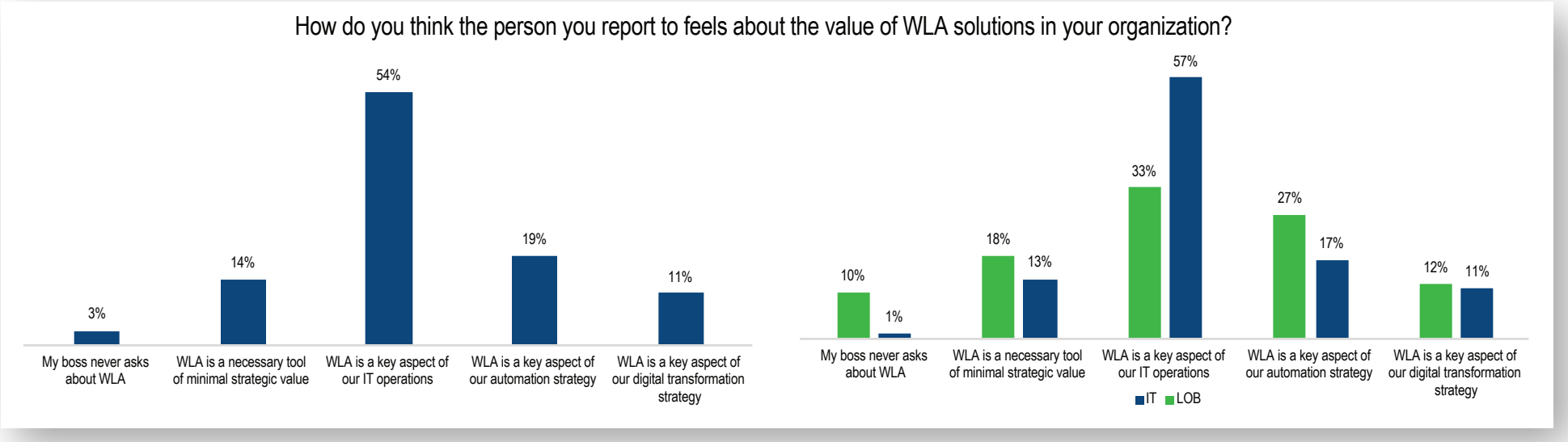
Automation as a Strategy

As the number of automation projects increases across the enterprise, some coordination and planning are needed. When asked how strongly they agree with the statement "Automation is a strategy in my organization," respondents answered with an average of 4.11, where 5 is strongly agree. Clearly, most organizations are taking automation seriously, but how well are they coordinating all these activities? Respondents were asked if their organization has a centralized automation strategy. Eighty-seven percent said yes, with 26 percent going beyond a centralized strategy to having a formal Automation Center of Excellence (COE). EMA is working on other research looking at the automation trends and COEs specifically, so if this is of interest, watch for the release of that research later in 2018.

Respondents were also asked how they think the person they report to feels about WLA. Response options ranged from low interest (My boss never asks…) or minimal strategic value on the low end, to important to IT operations as the mid-level response, to being key to automation strategy and digitalization strategy on the high end. The overall answers show that 17 percent see limited value, 54 percent think WLA is important to IT operations, and 30 percent see WLA as important beyond IT operations.



The second chart includes this same data, separating the IT job titles from the line of business job titles. The majority of IT respondents were most likely to see WLA as key to IT operations, with few seeing limited value. Twenty-eight percent of IT respondents see the larger role for WLA. Business respondents are more polarized, with 28 percent seeing limited value, 33 percent feeling WLA is key to IT operations, and a much larger 39 percent of business job titles seeing the potential for WLA to support a broader automation strategy or even playing a key role in digital transformation.

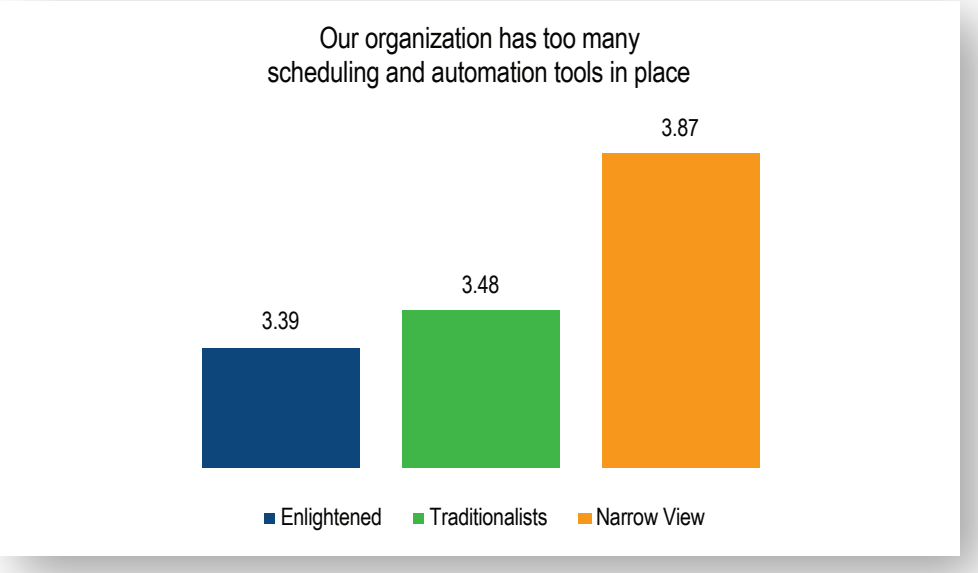


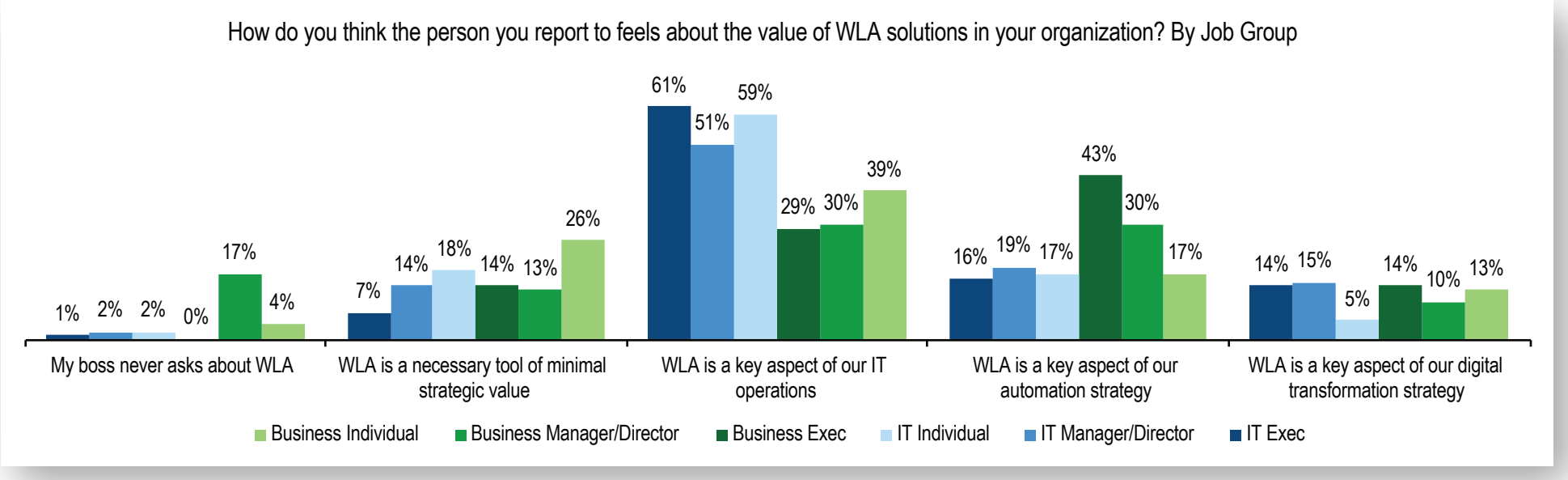
WLA and Automation Strategy

EMA feels WLA has a significant role to play in broader automation and digital transformation, so a deeper look at those who share this feeling is warranted.

Grouping the IT and business job titles by Individual, Manager/Director, and Executive provides some additional insight. Interestingly, some of the senior business people stand out as believing WLA is key to automation strategy. The group who sees WLA as key to digital transformation also has a larger representation from more senior IT and business people.

EMA believes those looking at WLA as key to broader automation and digital transformation are the more enlightened users of WLA. Those who see WLA as key to IT operations are traditionalists, and the others have a narrow view of WLA. After grouping respondents this way to consider agreement to the statement "Our organization has too many scheduling and automation tools in place," it becomes clear that those with a narrow view are struggling more with automation tools than those with the most enlightened view of the role WLA can play in broader automation and digital transformation.





MARKET IMPACT

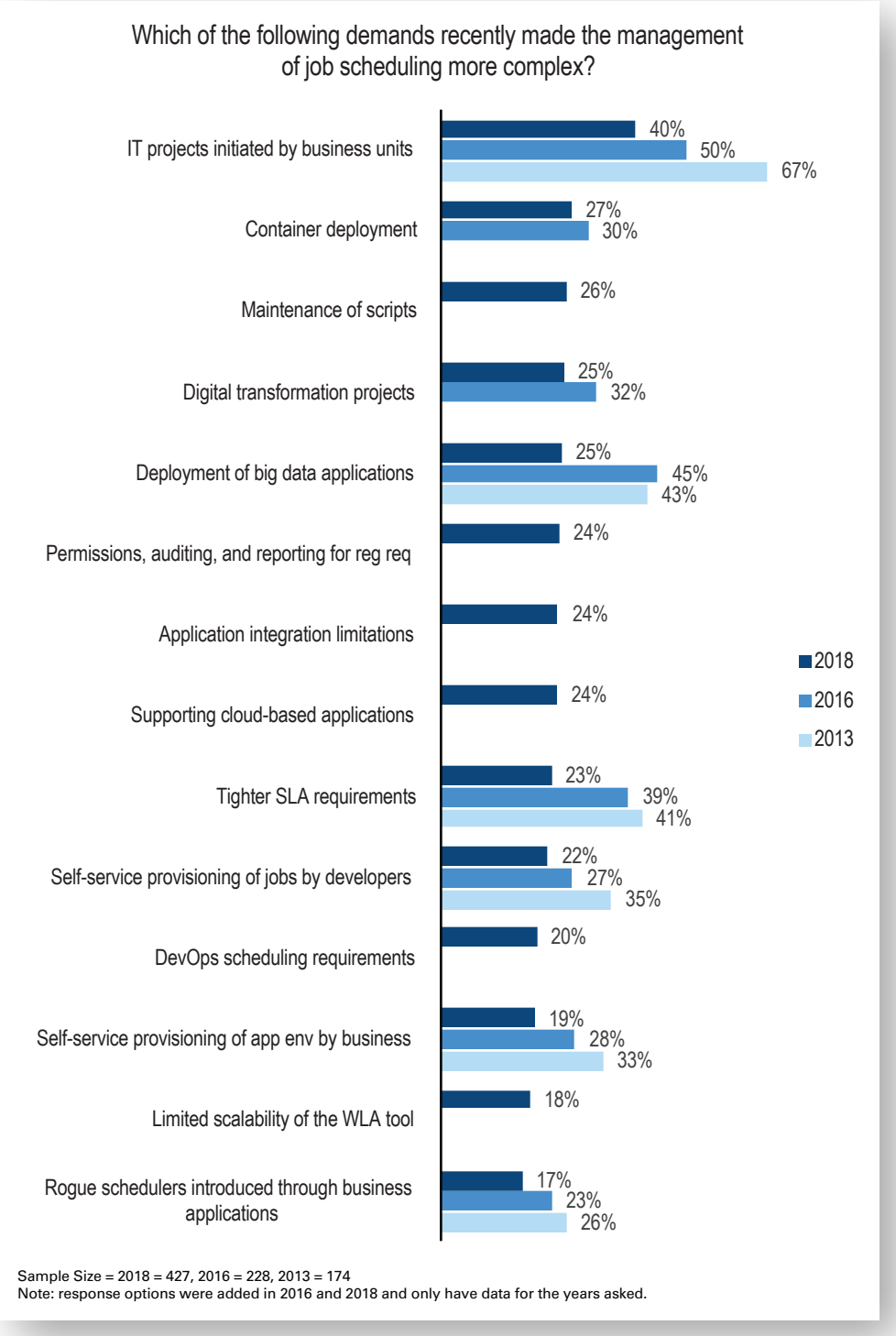
Pressures on WLA

IT has been addressing a number of megatrends that have impacted many aspects of enterprise management. These include:

- a push for service management and greater business impact awareness
- a drive to cloud computing
- big data and the need for more sophisticated analytics
- a faster rate of change and corresponding changes to how developers work and interact with operations
- increased pressure to automate IT and business processes
- changing data policies to support machine learning
- digital transformation that can change business best practices

While all of these trends have positive outcomes for the business stakeholders, they do not happen without causing turmoil to existing processes that must continue to maintain service levels while undergoing change. EMA has looked at how these demands have increased the complexity on WLA since 2013. Consistently, the most mentioned demand making WLA more complex is IT projects initiated by business units. In 2016, container deployment was first added to the response options to this question, and it moved higher on the list to second place in 2018 as more organizations began adopting containers and microservices architectures. Even as the tools to manage containers have improved and as WLA products have increased support for containers, this is a relatively new area, and the path to maturity can be disruptive. This is one of the major trends that this report looks at in greater detail later.

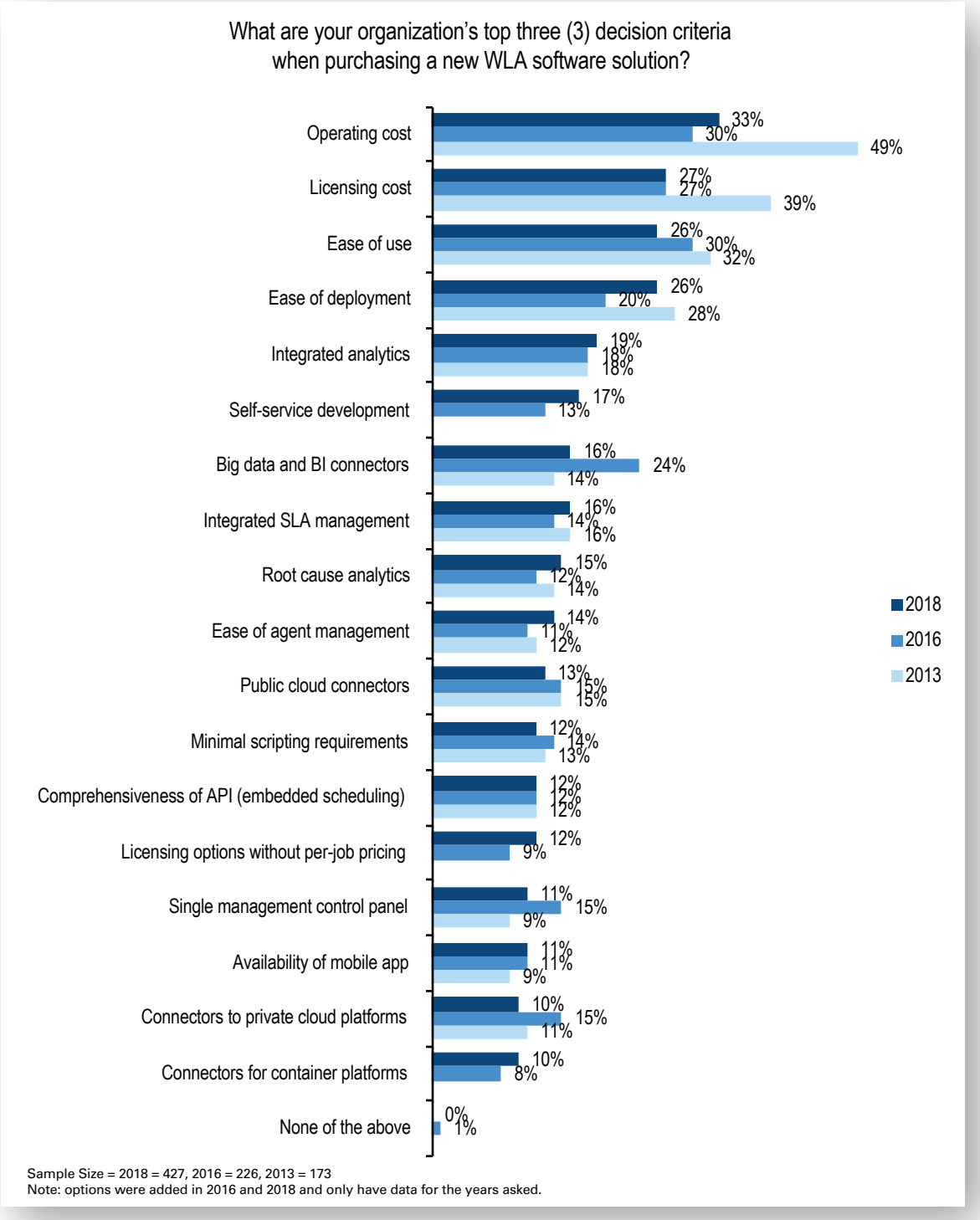
Maintenance of scripts was added to the list of responses in 2018 and sits in third place. This is not a new demand, but a long-standing challenge for WLA, and one that ranks right up there with the impact of digital transformation projects. Big data deployments are also high on the list; however, as support for big data has matured and WLA products have increased their integration with big data tools, the disruptive nature of big data on WLA has trended downward since 2013.



Sample Size = 2018 = 427, 2016 = 228, 2013 = 174
Note: response options were added in 2016 and 2018 and only have data for the years asked.

Decision Criteria for New WLA Software

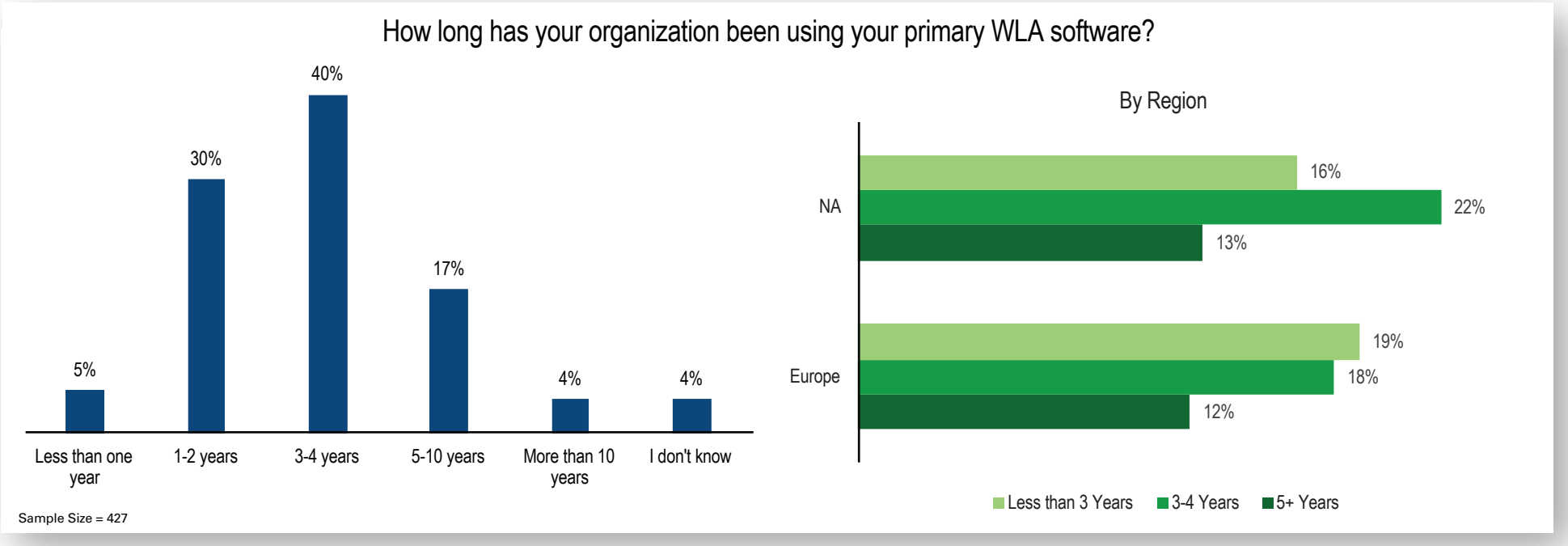
The increased pressures on WLA have caused many to consider migrating to new WLA software. While this will be explored in the following section, all respondents were asked for the top three decision criteria if they were purchasing new WLA software. Cost is the biggest factor, with operating cost mentioned by 33 percent and licensing cost second with 27 percent. Ease of use and ease of deployment are next-highest in third and fourth place, respectively. Integrated analytics also places high on the list of decision criteria, followed by self-service for development, which increased in 2018. Both analytics for WLA and the relationship with developers are explored in more detail later in this report.



Majority of WLA Users are Using a New Product

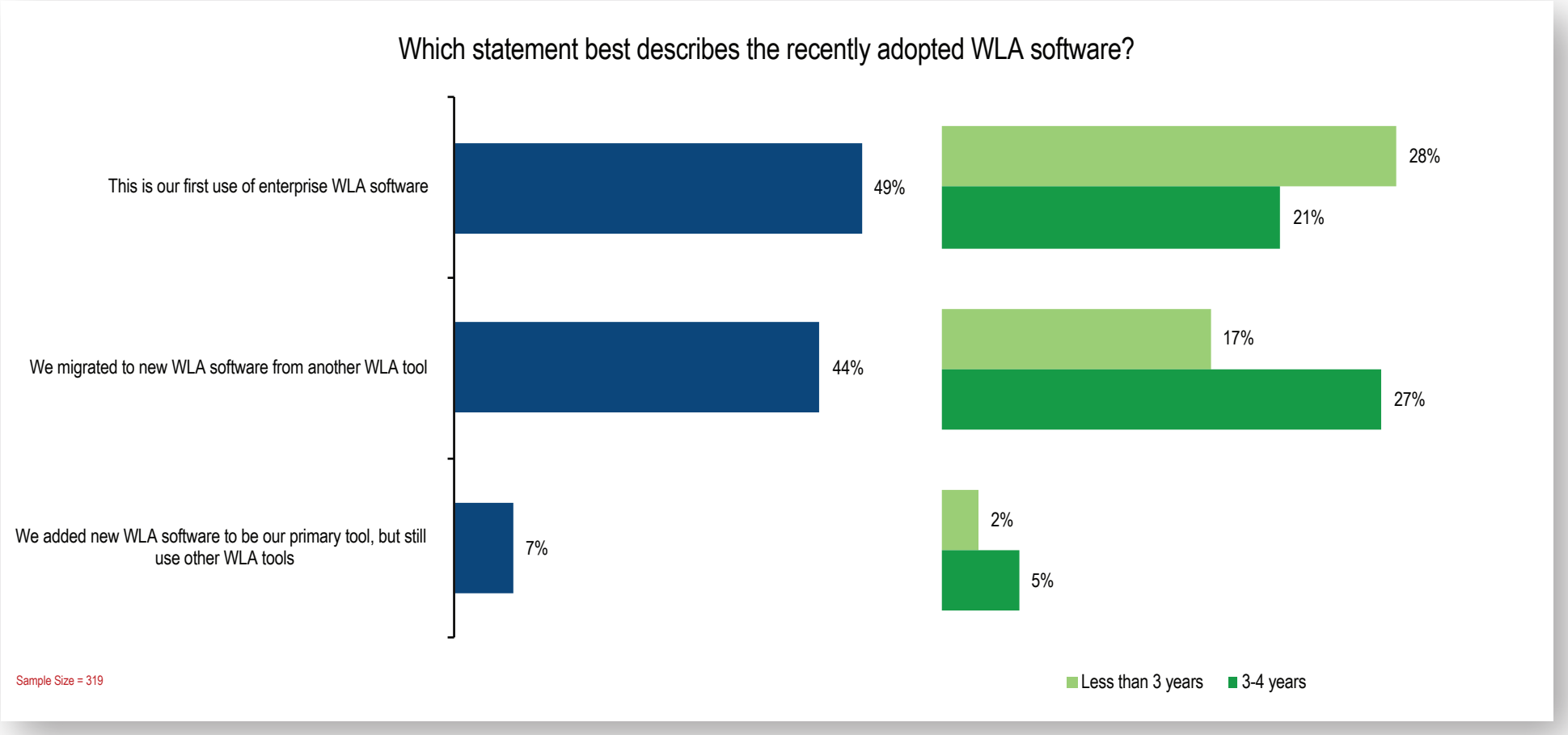
EMA has been aware since the 2016 study that a large part of the market was thinking about migrating to a new WLA solution. In 2013, 32 percent of the market was considering a change in software, and this jumped to 52 percent in 2016. In 2018, respondents were asked how long they have been using their primary WLA solution. Surprisingly, 3-4 years is the most common length of time the primary WLA tool has been deployed, and 75 percent of respondents have been using their current WLA solution less than five years. It seems many have followed through on their intentions to change software.

To further evaluate this trend, respondents were put into three groups: those on their current solution less than three years, the largest group of those on their solution for 3-4 years, and those on their current solution five years or more. Those who answered "I don't know" were included in the five years or more group, assuming a recent migration would be known. Comparing these groupings by North America versus Europe, two facts emerge. First, the percentage of the market that has not made a switch in WLA software is consistent between North America and Europe. Second, North America seems to be leading in making this change to new software, with 22 percent in the 3-4 years group and 16 percent in the less than three years group. Europe is heading down the same path, but only 18 percent have been on their current solution 3-4 years, and 19 percent less than three years. The trend to new software seems to have started later in Europe, but is in effect to the same degree.



A Look at Those Using Primary WLA Less Than Five Years

Taking a look at those using their primary WLA tool less than five years yields a surprise. Almost half are using an enterprise-class WLA tool for the first time. Those switching products are 44 percent of the less than five years group, with seven percent adding a new product as their primary WLA, but still using the other WLA tools previously in place. Breaking this out by those using the primary WLA less than three years and those using it 3-4 years reveals the majority of the first-time WLA users came to a WLA tool in the past three years. This could mean there is an increasing trend for more organizations to advance to an enterprise-class scheduling tool from the likes of cron, Windows Task Scheduler, or application-specific scheduling capabilities. The extent of this greenfield activity is interesting, and EMA intends to study this in more detail in 2019.

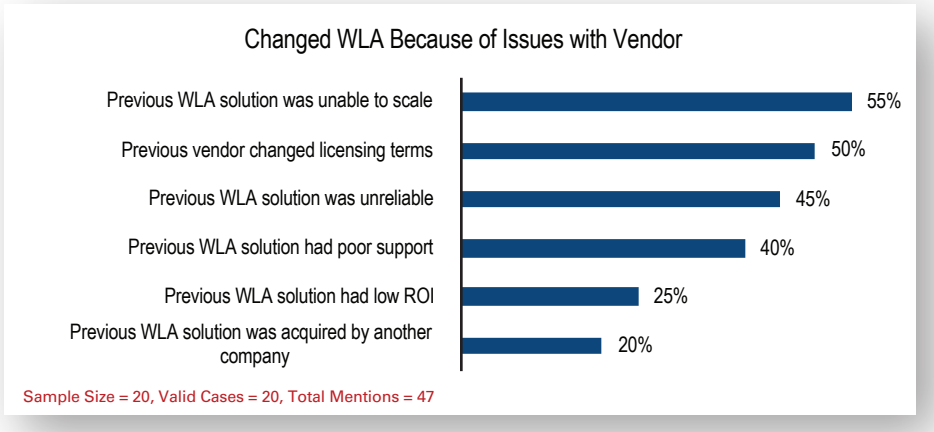


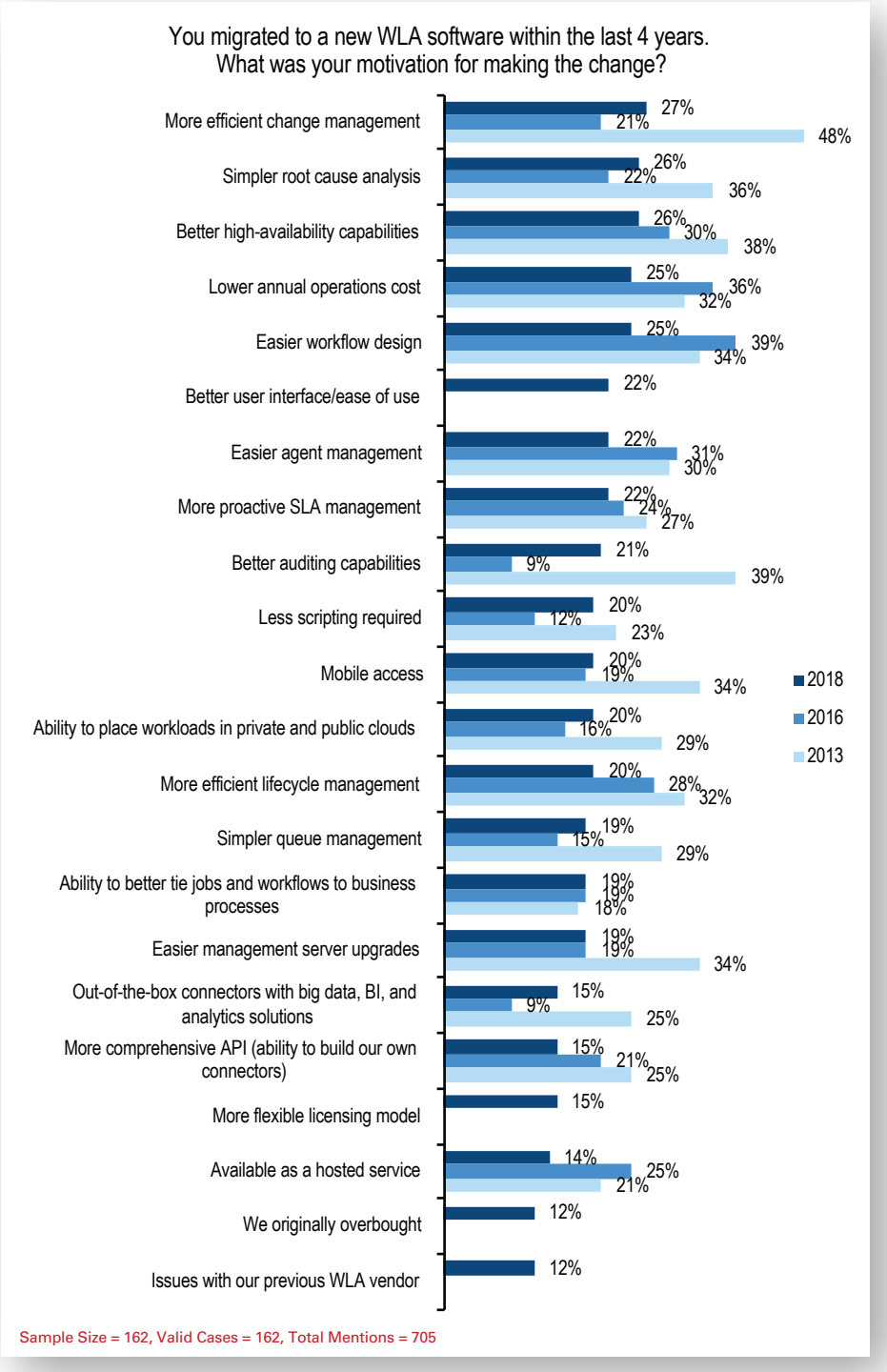
A Look at Those Who Changed Their WLA Tool in the Past Four Years

Since this study was first conducted in 2013, EMA has explored the reasons for changing WLA software. In 2013 and 2016, this question was asked of all respondents. In order to take a deeper look at those actually making a change in WLA software, the survey for 2018 was split into two paths: those who have been on their primary WLA tool less than five years (new path) and those on their primary WLA tool more than five years (old path). In 2018, only users on the new path were presented with the question of motivations for changing software.

More efficient change management is the top reason for changing WLA software in 2018. Many WLA products have radically improved change management in recent versions, and this is motivating many to migrate. Simpler root cause analysis was the next-most mentioned reason for change, followed by better high-availability and lower operations costs. The reasons for migrating to new WLA software align well with the pain points and intended decision criteria reviewed previously.

While only 12 percent changed due to issues with their previous vendor, it is still worth a deeper look at those issues. More than half changed because their previous vendor solution was unable to scale. Half also mentioned their vendor changing licensing terms as the motivation for migration.

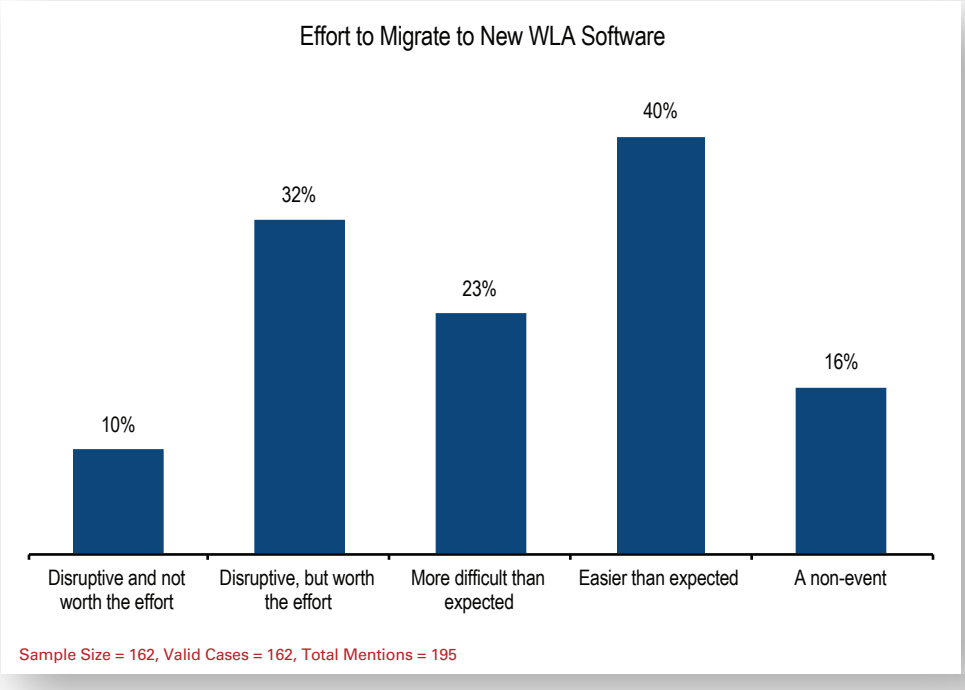


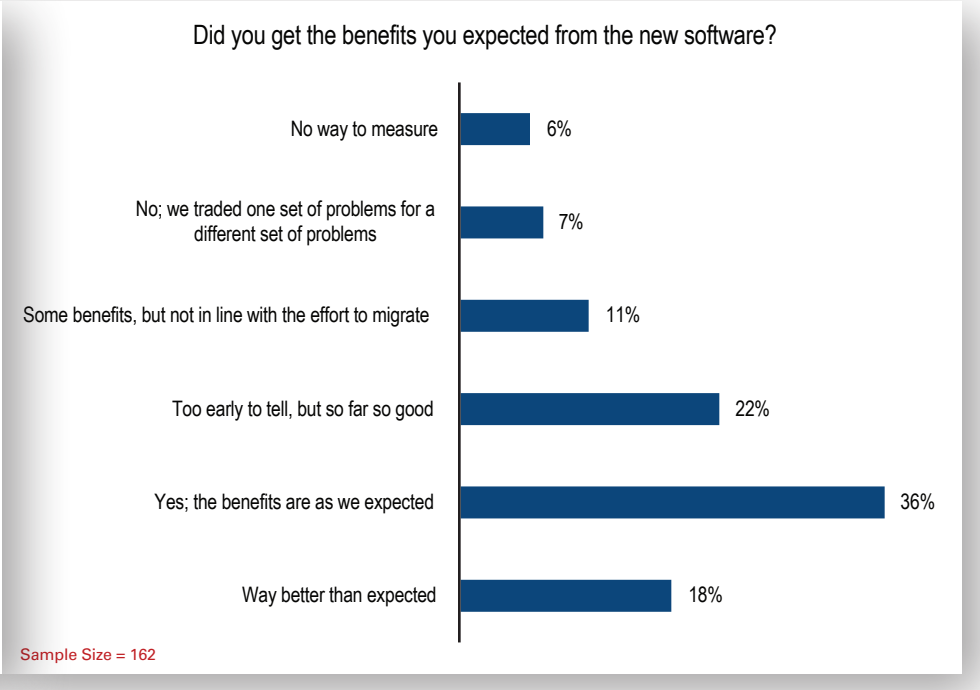


Migration Effort and Outcome

Many stay on inadequate software because the effort and distraction of a migration can be daunting, or at least that is the perception. Looking at those who changed their primary WLA software in the past four years, 56 percent accomplished their migration with little issue, describing it as easier than expected or a non-event. That is a positive outcome for many. However, 42 percent describe the migration as disruptive, with ten percent saying it was not worth the effort.

Those changing in the past four years were also asked if they received the expected benefits from the new software. A slight majority, 52 percent, received the benefits expected, with 18 percent feeling the benefits were better than expected. Another 22 percent said it was too early to tell, but so far so good. Eighteen percent were not happier with the new software, and six percent said they had no way to measure. Most of those who took the decision to migrate to new WLA software had an easier than expected time with the migration and were happy they did so.

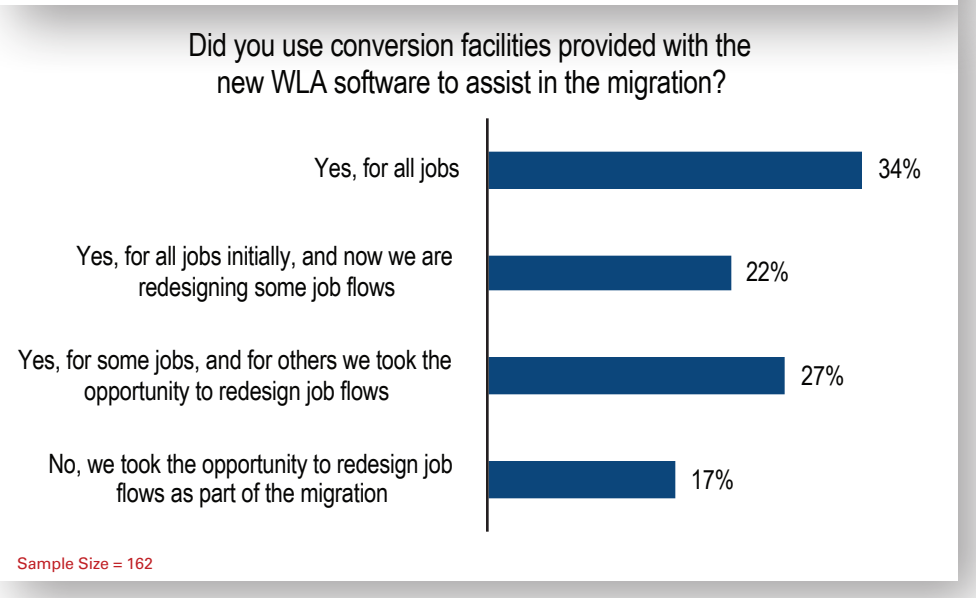




Migration Challenges

When asked for the most difficult aspect of changing WLA software, migrating workflows topped the list. Also high on the list was balancing ongoing operations with migration activities and motivating the team.

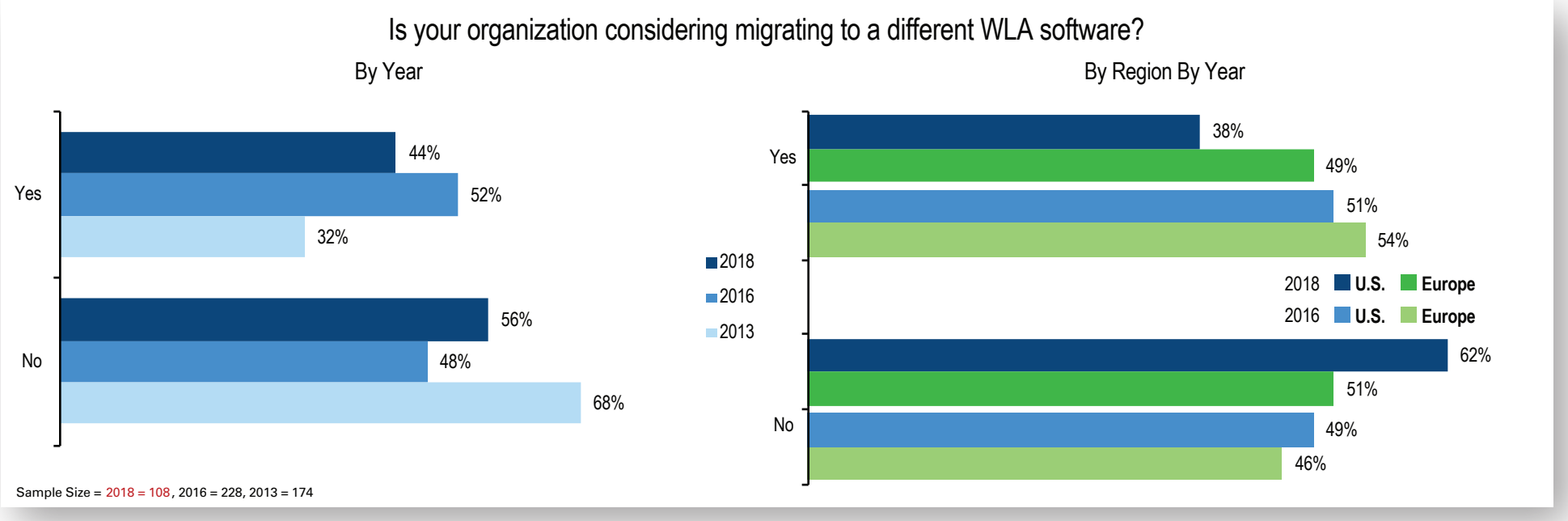
Respondents were also asked if they took advantage of the conversion facilities provided by many WLA tools. Thirty-four percent used the conversion facilities to migrate all jobs, while 66 percent redesigned some or all job flows as a result of the migration. EMA conducted dozens of interviews of WLA software users over the years, and many mentioned the tendency to use the migration as an impetus to do job flow redesign. Others do so shortly after migrating, taking advantage of the new software capabilities after the dust settles from the migration efforts.



A Look at Those Using Primary WLA Five Years or More

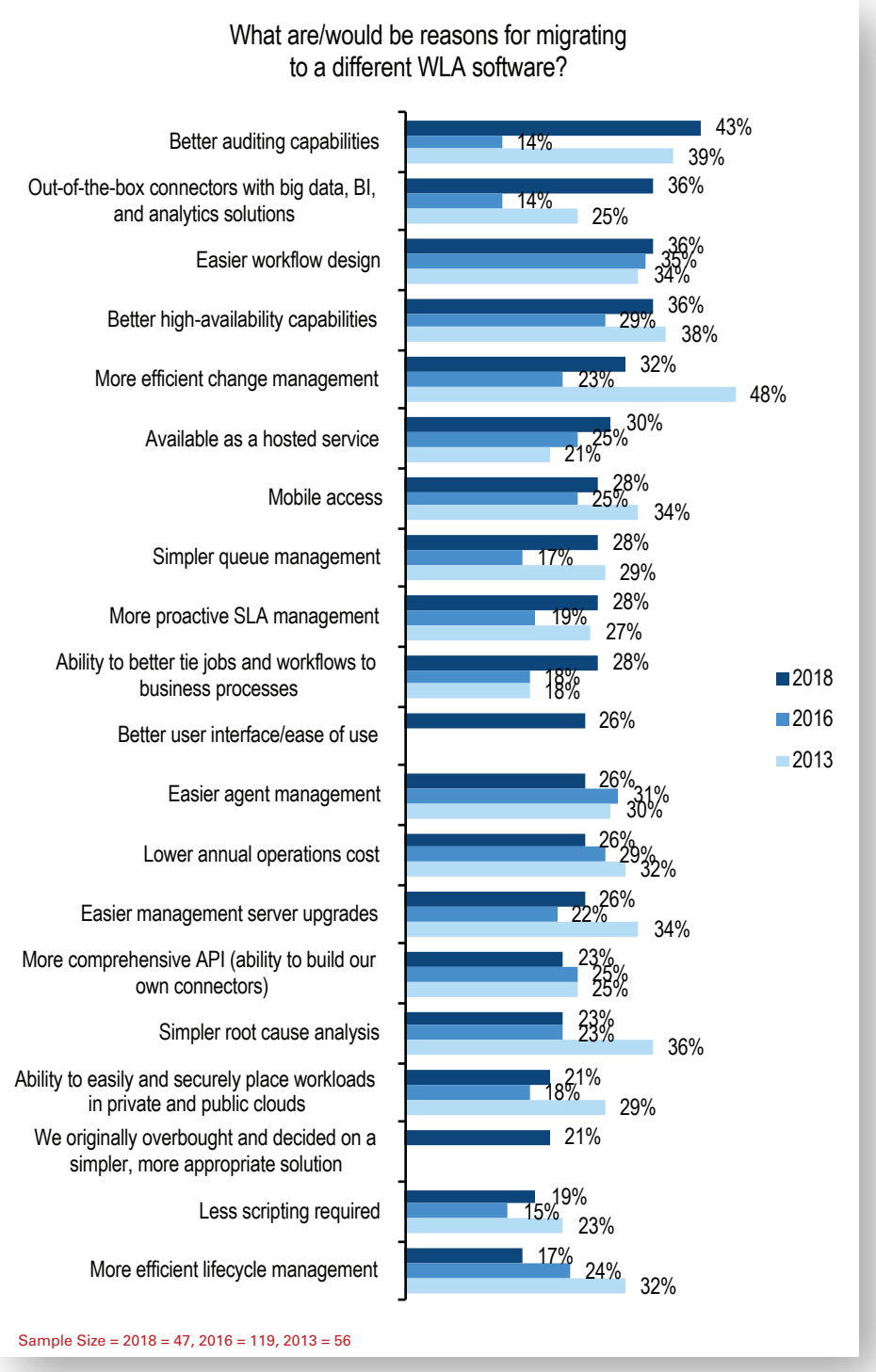
In 2018, only those running current WLA software 5+ years were asked if they were considering migrating to a different WLA software. In 2013 and 2016, all respondents were asked this question. The big news from the 2016 WLA research was the jump to 52 percent from 32 percent of respondents considering changing their WLA software. In 2018, 44 percent are considering migrating to new WLA software, an expected decline as those most likely to make this change have already made the move. Still, a significant number are thinking of migrating.

A look at this data by region shows that North America has 38 percent considering a change, while Europe has 49 percent considering a change. Given that it appears North America started down this path sooner, it makes sense that more with intentions to change have already done so in North America and fewer remain on their old WLA software, so fewer are still considering a change. Many in Europe have also moved, but more are still on their old WLA software and therefore more are still considering a change in software. EMA believes this trend will continue in significant numbers for another three to four years. By 2022, the majority of those considering migrating to new WLA software will likely have completed the change. There will always be movement in this market, but the big push to migrate that started around 2012 will have played out within a decade.



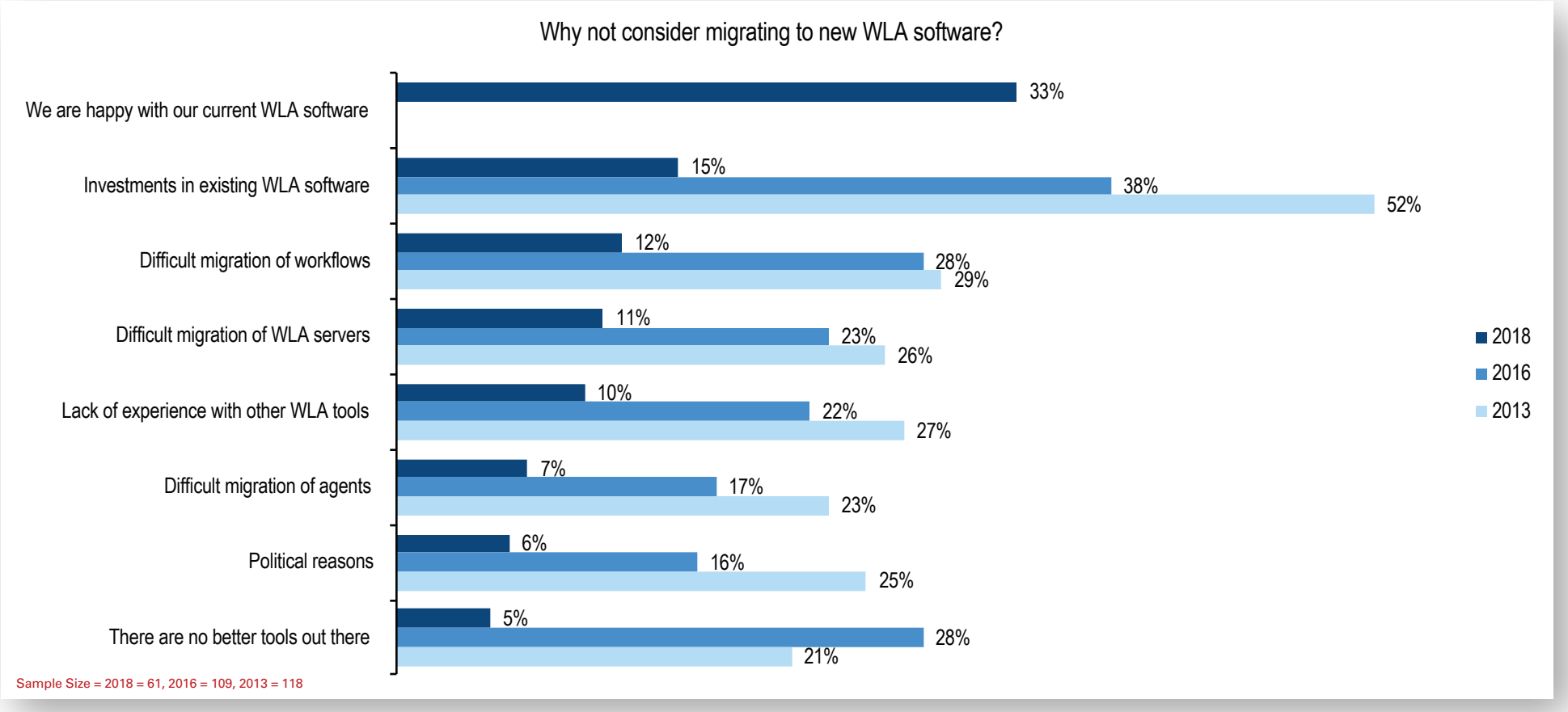
What Motivates Those Still Considering a Change in WLA Software

In 2018, only those on their WLA software five years or more were asked if they were considering migrating to new WLA software, and those who said yes were asked about the motivations to change. In 2013 and 2016, all respondents were asked this question if they said they were considering a change. Since many who were motivated to change have already done so, the reasons to change for those remaining on their WLA software have shifted significantly, since they represent the sentiment of those who have not yet migrated. Better auditing capabilities tops the reasons to change, selected by 43 percent. BI connectors, easier workflow design, and better high-availability capabilities were also top reasons to change.



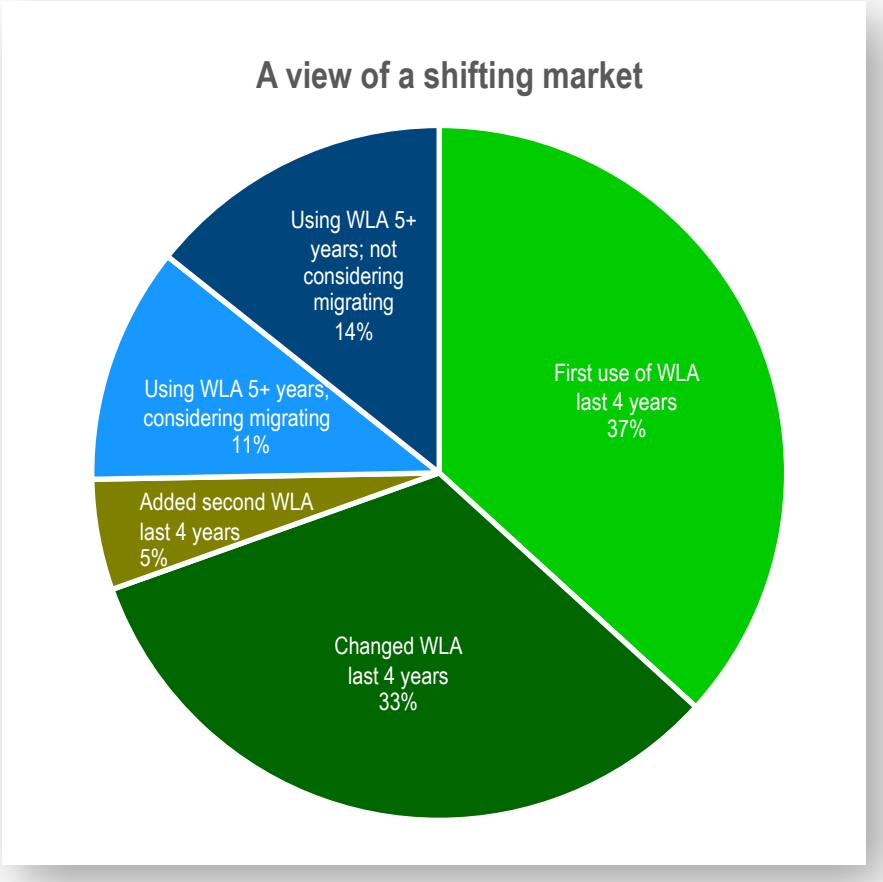
Reason Not to Change

In 2018, only those on their WLA software for five years or more and not considering a change in software were asked why they were not considering making a change. In 2013 and 2016, all respondents were asked if they were considering a change and all those who said no were asked this question. In 2018 a new option was added, that a change was not being considered because they were happy with the current WLA software, and this was selected by 33 percent—the biggest response by far. All the other responses can be considered barriers to exit in contrast to those who are staying, because they are happy rather than staying because they perceive negatives to changing software. Investments in existing WLA at 15 percent is the most mentioned reason for staying for those not happy with their current software.



A View of a Shifting Market

Combining all respondents together in a single view shows some interesting results. Thirty-seven percent of respondents started using enterprise-class WLA software in the past four years. Thirty-three percent migrated from a previous WLA software to a new WLA software in the past four years, and five percent added a new WLA software while continuing to use prior software as well. Therefore, 75 percent have licensed a WLA product in the past four years. Eleven percent have used WLA software for five years or more and are considering migrating to new software. Fourteen percent have been using their current WLA software for five years or more and have no intention of changing. It remains to be seen how long organizations will stay on modern WLA software (those who moved in the past four years) or if the motivation to migrate will repeat after using their current software for five to seven years. EMA will continue to monitor this trend.



TRENDS IMPACTING WLA

Business-Aware WLA

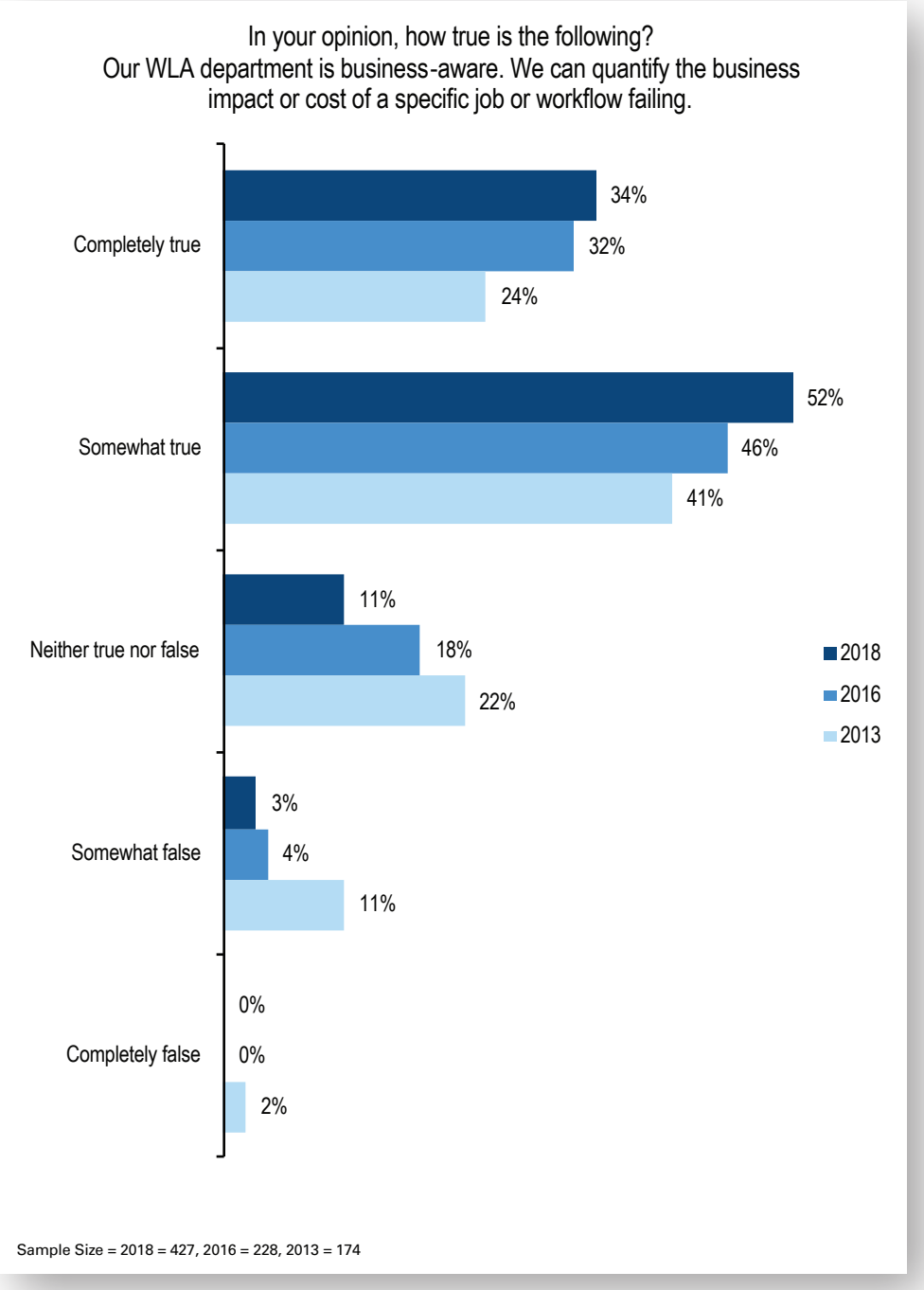
Eighty-six percent of respondents feel their WLA department is business-aware and can quantify business impact. This has been increasing for the past five years.

Almost half of respondents have a self-service portal for business users, and this has remained fairly stable over the past five years. Twenty-one percent are planning to offer a self-service portal; however, 16 percent said they were planning to offer one in 2016, and it seems most did not, given no upward change in those who are offering one. Seventeen percent offered a self-service portal and then discontinued it for lack of use. EMA interviewed a number of users who have offered self-service portals to business users. Those who are successful have taken active steps to market the benefits of the self-service portal to business users. Without such an effort, usage will be minimal.

Self-service portals are most used for BI processes, file transfers, and DevOps.

A major aspect of being business-aware is understanding the impact of IT outcomes on the business, and SLAs are key to understanding the most important and measured outcomes. A majority of users want to manage SLAs within the WLA software, and this has been trending upward for the past five years. There has been a steady decline in those who want to use a separate management tool or policy governor to manage SLAs, and a somewhat stable group who want to manage SLAs from with the hypervisor.

Another measure of business awareness is the time to satisfy new requests as business stakeholders almost always want things faster. Time to accommodate provisioning requests is one measure of responsiveness. There has been a steady trend to faster provisioning over the past five years. In 2013, 72 percent accommodated provisioning requests in seven days or less. This increased slightly to 74 percent in 2016, and in 2018 increased again to 79 percent.

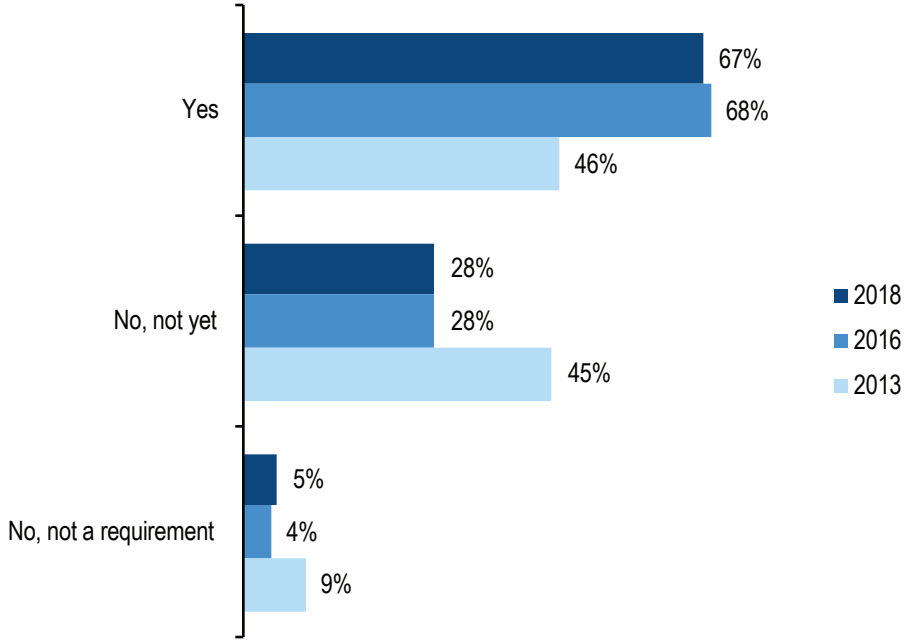



ANALYTICS FOR WLA

Analytics for WLA

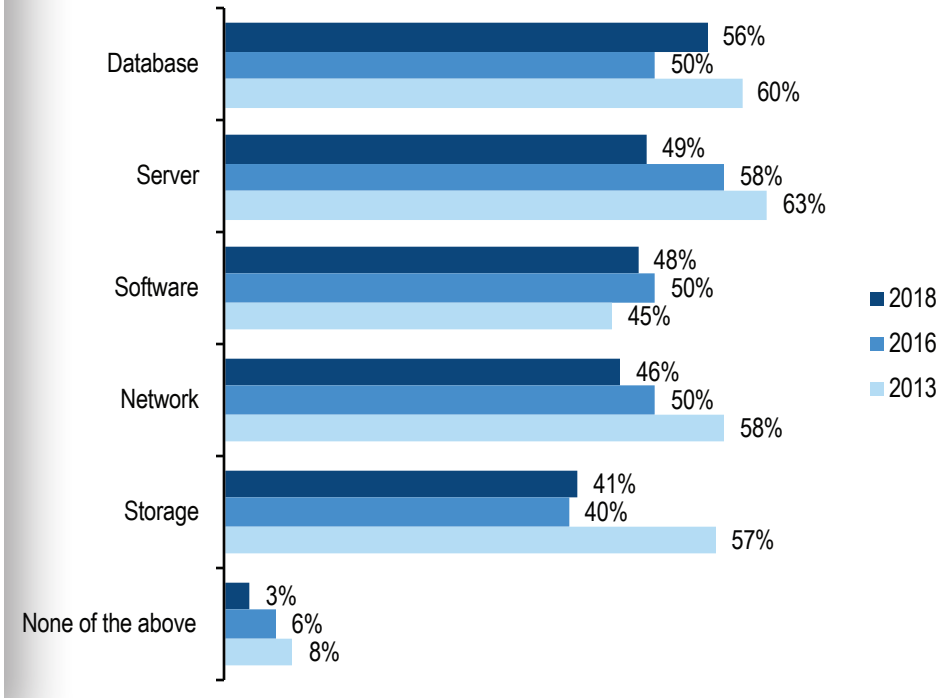
Analytics for WLA have been available for some time, but continue to improve and will get even better as machine learning becomes more incorporated into these capabilities. Over two-thirds of respondents have a central dashboard for workload infrastructure. Most organizations have the ability to correlate at least some of their infrastructure health and performance data with WLA.

Does your organization have the ability to manage workload infrastructure (server, network, storage, and performance) through one central dashboard?



Sample Size = 2018 = 427, 2016 = 228, 2013 = 174

Does your organization have the ability to correlate WLA-relevant health and performance data from any of the following sources?

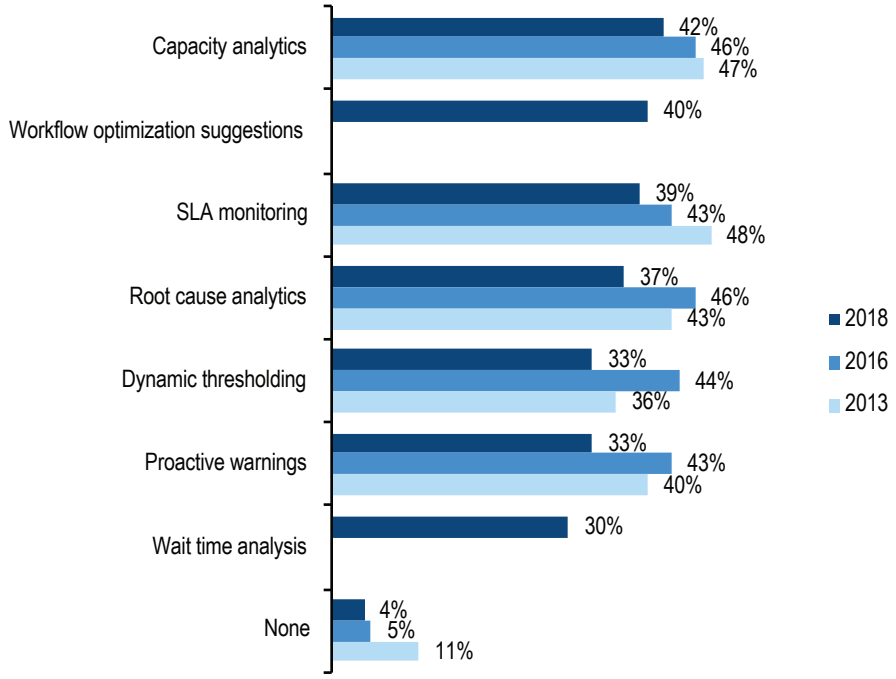


Types of Analytics for WLA

The most common analytics in use is capacity analytics at 42 percent. Workflow optimization suggestions and SLA monitoring are the next most common analytics in use at 40 percent and 39 percent, respectively. Most notably are those who said they had none of the listed analytics capabilities at just four percent, meaning 96 percent have at least one of the listed types of analytics. Analytics in WLA is pervasive.

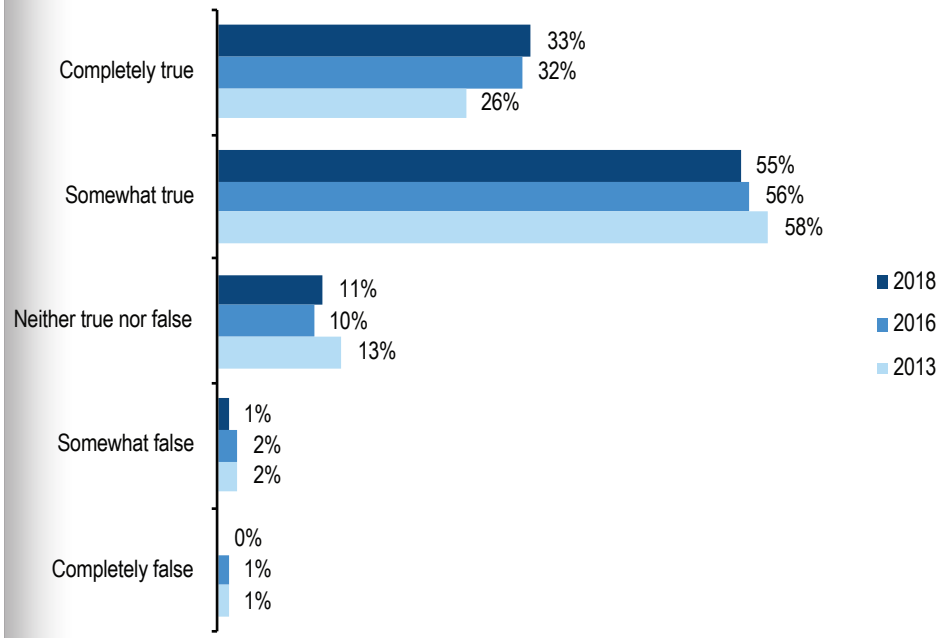
When asked about the statement "Predictive analytics help make workload automation more efficient and aligned with my organization's business," 88 percent said it was somewhat or completely true. There is a reason so many are using analytics with WLA.

What type of analytics capabilities does your organization currently have in production or will be deploying within the next 12-24 months?



Sample Size = 2018 = 427, 2016 = 228, 2013 = 174
Note: options were added in 2016 and 2018 and only have data for the years asked.

In your opinion, how true is the following statement?
Predictive analytics help make workload automation more efficient and aligned with my organization's business.



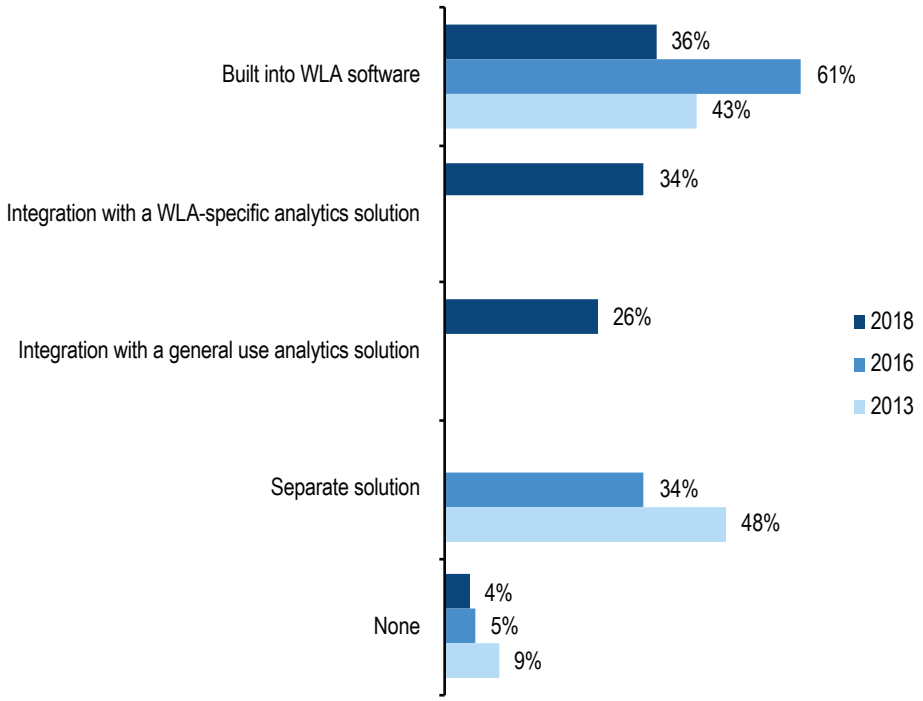
Sample Size = 2018 = 427, 2016 = 228, 2013 = 174

Add-On WLA-Specific Analytics

Many WLA products have built-in analytics. Those capabilities vary considerably from product to product, from simple reporting to very thorough predictive analytics and what-if analysis. In 2018, 36 percent are using built-in analytics. There are also several WLA-specific analytics tools that can be purchased separately and are integrated with many of the leading and broadly-used WLA products. Thirty-four percent are using these types of tools with their WLA solution. Twenty-six percent are using a general purpose analytics solution with their WLA data.

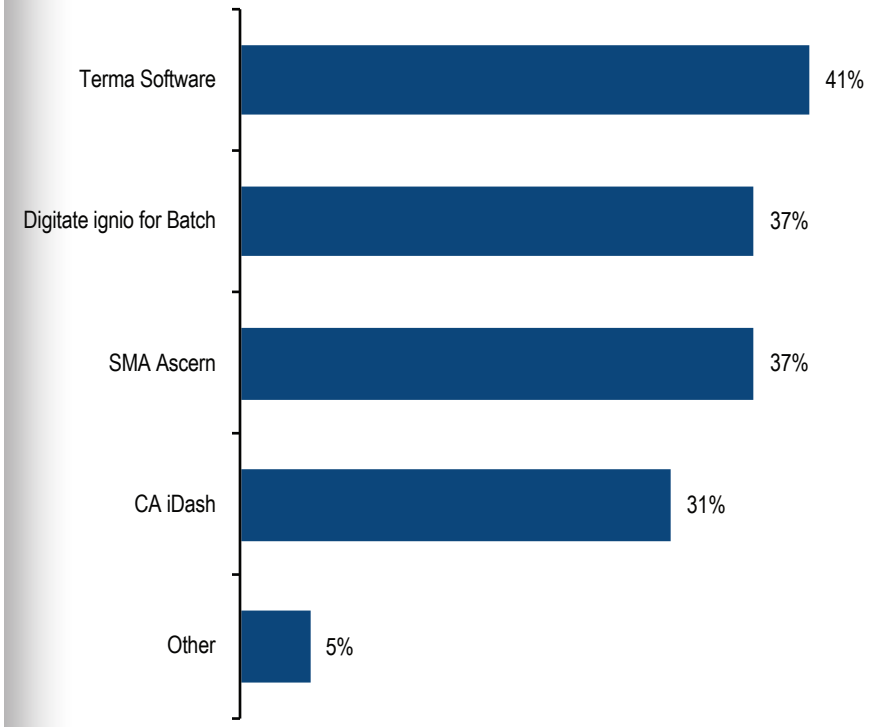
Those respondents using an add-on WLA-specific analytics tool were asked which tool they were using. Terma Software, the first of such products EMA is aware of, tops the list at 41 percent. Digitate's ignio for Batch and SMA Ascern were tied in second at 37 percent, and CA's iDash was fourth most mentioned at 31 percent. Add-on tools can provide very powerful analytics, often more powerful than what is included in the WLA tools natively. These tools can do something that built-in analytics do not do… they can incorporate data from multiple WLA solutions and provide a single view across all workloads.

Are these analytics capabilities built into your organization's WLA software, or are they part of a separate solution?



Sample Size = 2018 = 427, 2016 = 228, 2013 = 174
Note: options were added in 2016 and 2018 and only have data for the years asked.

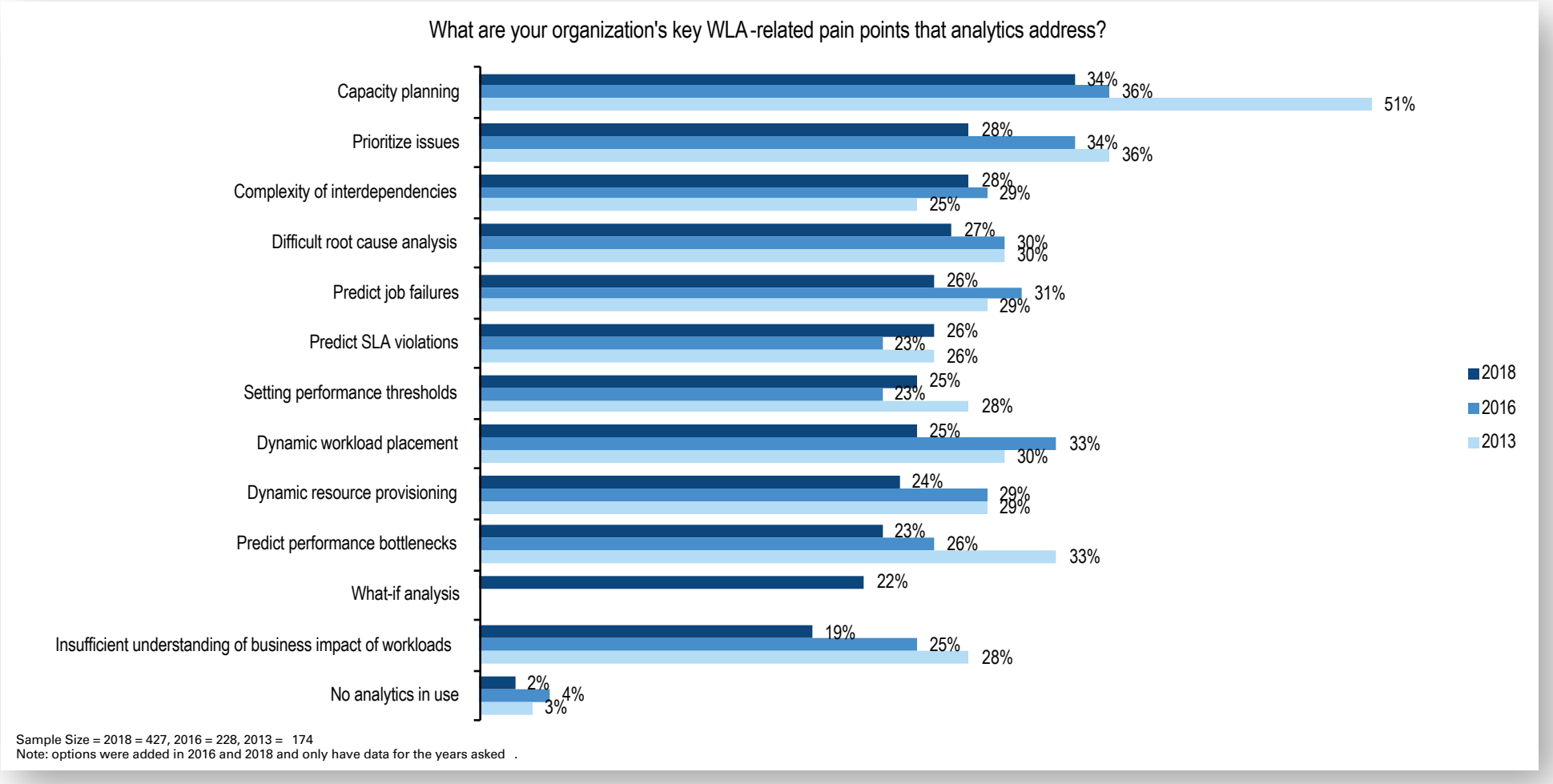
Which WLA-specific analytics solution are you using?



Sample Size = 144, Valid Cases = 144, Total Mentions = 216

WLA-Related Pain Points Addressed by Analytics

Just as capacity analytics was the most used type of analytics for WLA, it is also the most mentioned pain point addressed by WLA analytics. These tools also help with prioritizing issues, understanding the complexity of interdependencies, and with root cause analysis. The predictive capabilities of these abilities can predict job failures and SLA violations, as well as performance bottlenecks.



Sample Size = 2018 = 427, 2016 = 228, 2013 = 174
Note: options were added in 2016 and 2018 and only have data for the years asked .

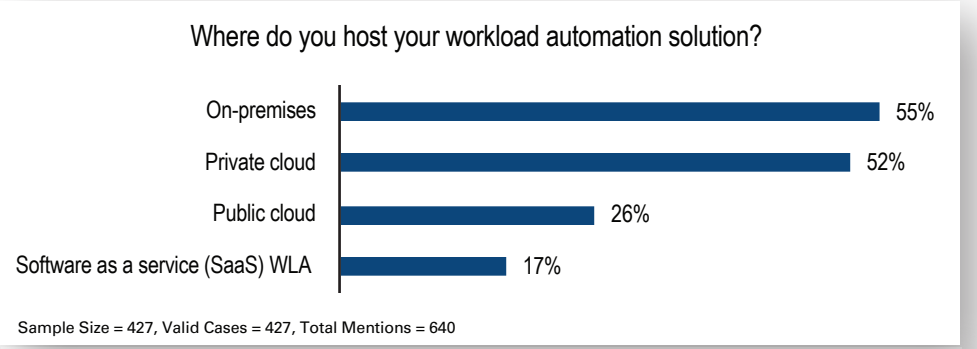

CLOUD IMPACT ON WLA

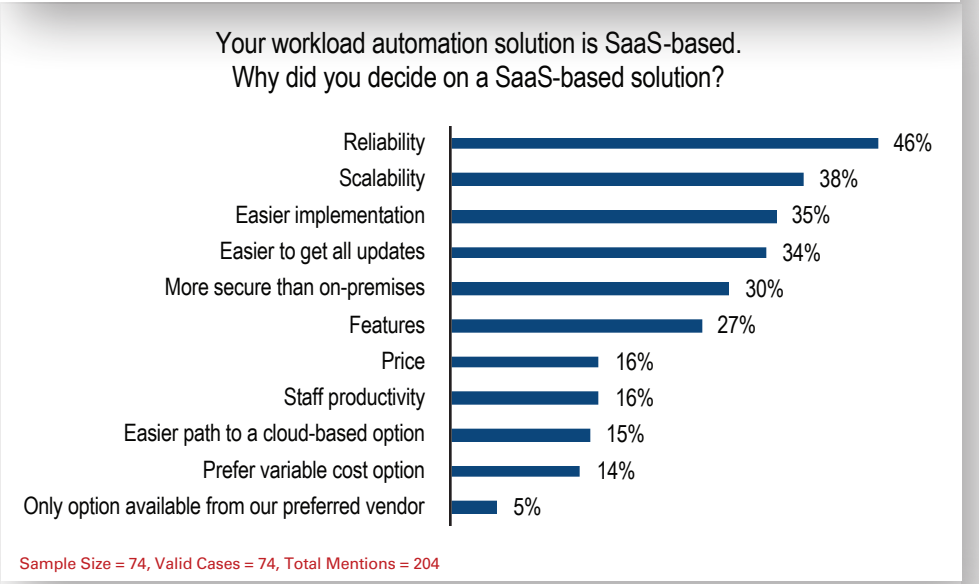
Environments Hosting WLA

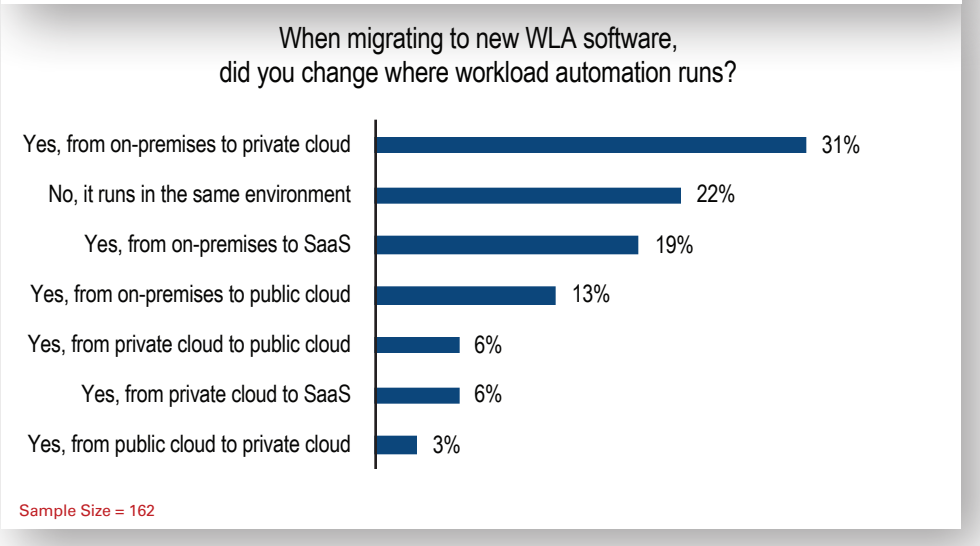
The impact of cloud computing on IT has been significant and is still ongoing. Companies born in the cloud may be 100 percent cloud, but legacy organizations are still using a variety of environments and may not yet know the right mix of on-premises, private, and public cloud. On-premises environments are still the most common place to host WLA solutions at 55 percent of respondents. Private cloud is a close second at 52 percent. While public cloud is used for many production workloads, only 26 percent are using public cloud to host WLA solutions. In the past five years, a number of WLA vendors created SaaS-based versions of their WLA solution, and 17 percent are running WLA as SaaS.

Those who choose to use a SaaS-based WLA do so primarily for reliability (46%), scalability (38%), ease of implementation (35%), and ease of updates (34%). Thirty percent believe SaaS-based WLA is more secure than on-premises. These results are very similar to any type of software run as SaaS.

A good indicator of the direction most are taking to where they choose to place WLA is to look at the group that recently migrated to new WLA software in the past four years. Almost one-third of those migrating to new WLA switch from on-premises to private cloud. Twenty-two percent stay in the same environment as their old WLA. Almost one-fifth switch from on-premises to SaaS, with only 13 percent switching from on-premises to public cloud. EMA believes private cloud will become the most common environment in which to run WLA software within three years. SaaS could overtake on-premises environments to become the second-most popular environment to host WLA within five years, and will likely overtake public cloud.





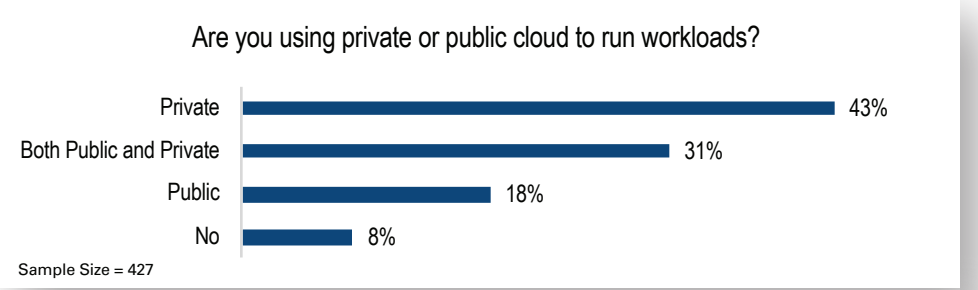


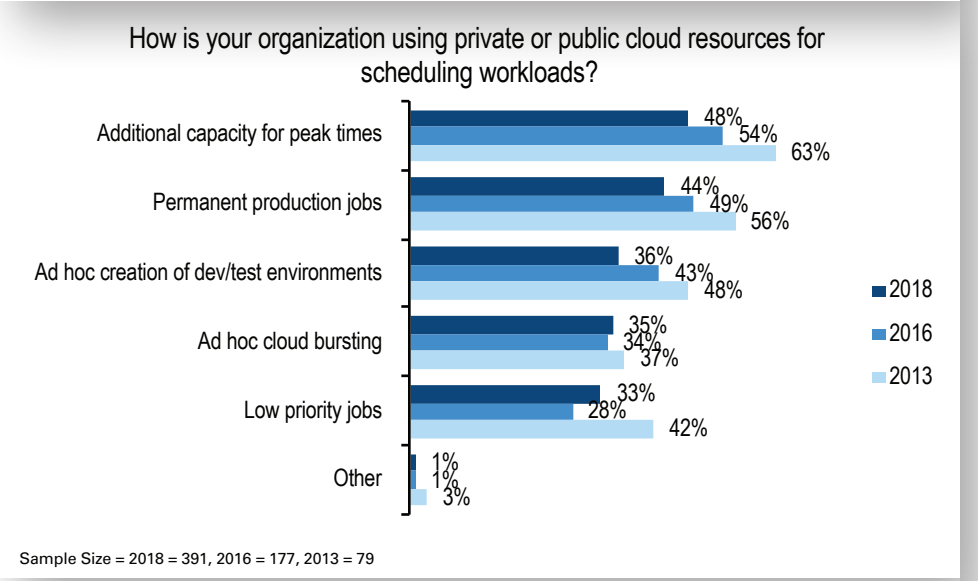
Environments for Workloads

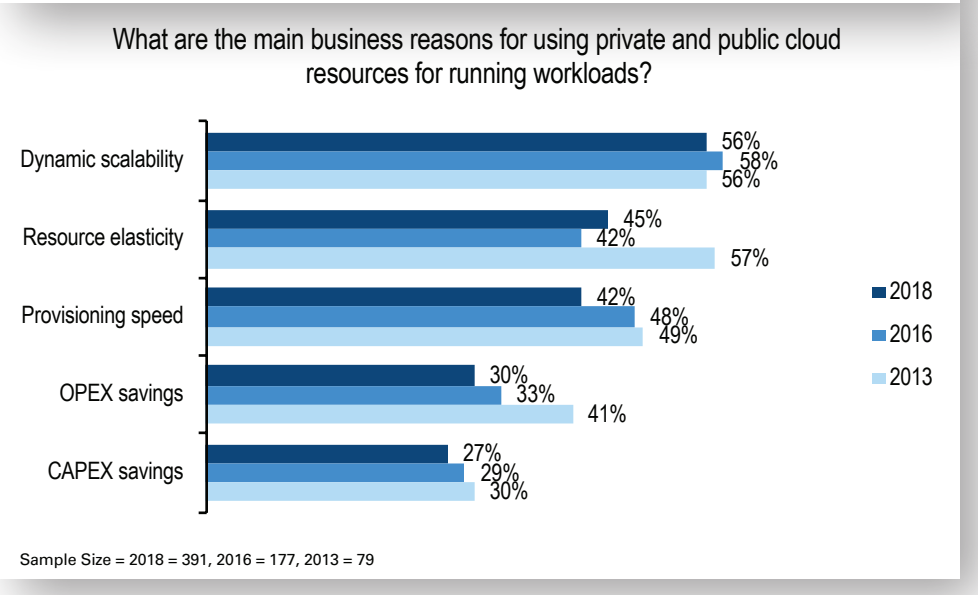
Ninety-two percent are running some workloads in the cloud. Just as cloud-hosted WLA is greater in private cloud than public cloud, private cloud is also most used for running workloads at 43 percent. Those with a mix of public and private clouds for workloads are next-most common at 31 percent, with only 18 percent of workloads run exclusively in public cloud. Only eight percent have no workloads in private or public cloud.

The 92 percent that run workloads in the cloud do so most often for additional capacity in peak times. While this is still the most common reason to place workloads in a cloud environment, it has steadily declined as a reason to use cloud for workloads over the past five years, from 63 percent down to 48 percent. The next-most common use of cloud for workloads is permanent production jobs at 44 percent. Ad hoc use of cloud environments, either for creation of dev/test or for cloud bursting of production jobs, is used by just over one-third of respondents.

For the past five years, the top three reasons for using cloud resources for workloads have remained stable, with dynamic scalability most often mentioned at 56 percent, resource elasticity second-most mentioned at 45 percent, and provision speed third at 42 percent. Many expected cloud to bring cost savings. This might be true for private cloud, since the hardware can be run closer to capacity and private cloud best practices are more efficient than traditional on-premises environments. However, public cloud cost savings are more elusive. Many have found it challenging to control costs in public cloud environments as they scale up. As a result, using cloud for Opex cost savings has steadily declined over the past five years, from 41 percent to 30 percent. Those choosing cloud for Capex savings have been more stable, from 30 percent in 2013 to 27 percent in 2018.





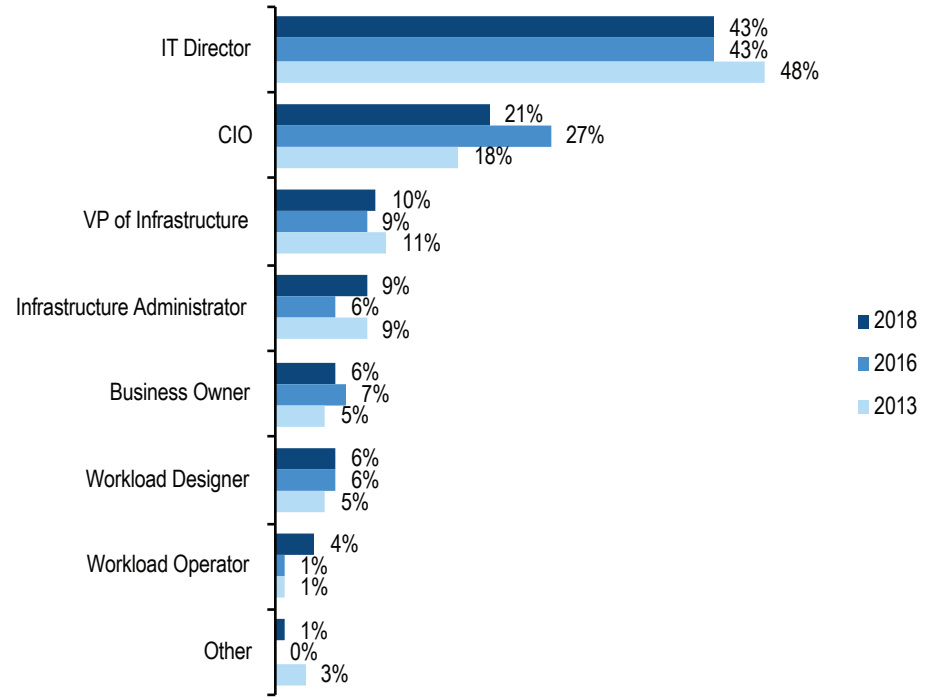


Deciding Where to Place Workloads

IT Directors continue to be the primary decision maker for workload placement at 43 percent. CIOs are second most likely to be making this decision at 21 percent. This has been quite stable over the past five years.

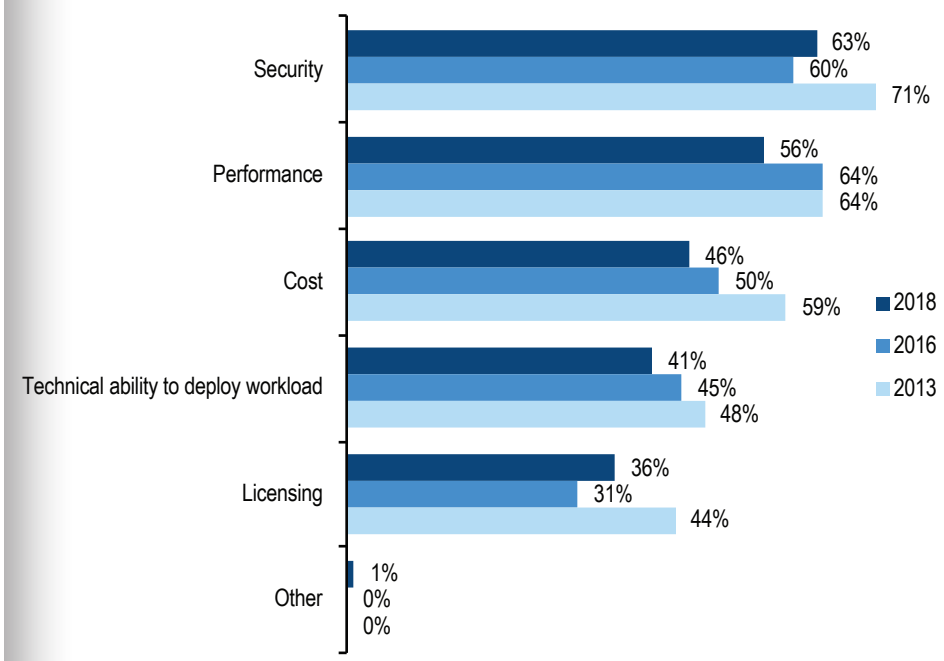
The decisions on workload placement are made for very logical reasons and have remained stable over the past five years. Security is the most important consideration at 63 percent. Performance is the next-most mentioned consideration at 56 percent, followed by cost at 46 percent. The technical ability for the workload to run in cloud and licensing considerations also factors into the decision far less often.

Who decides where a specific application or workload must be hosted (physical, virtual, private cloud, or public cloud)?



Sample Size = 2018 = 426, 2016 = 228, 2013 = 174

How does your organization determine whether a new workload needs to be placed in a physical, virtual, private cloud, or public cloud environment?



Sample Size = 2018 = 426, 2016 = 228, 2013 = 174

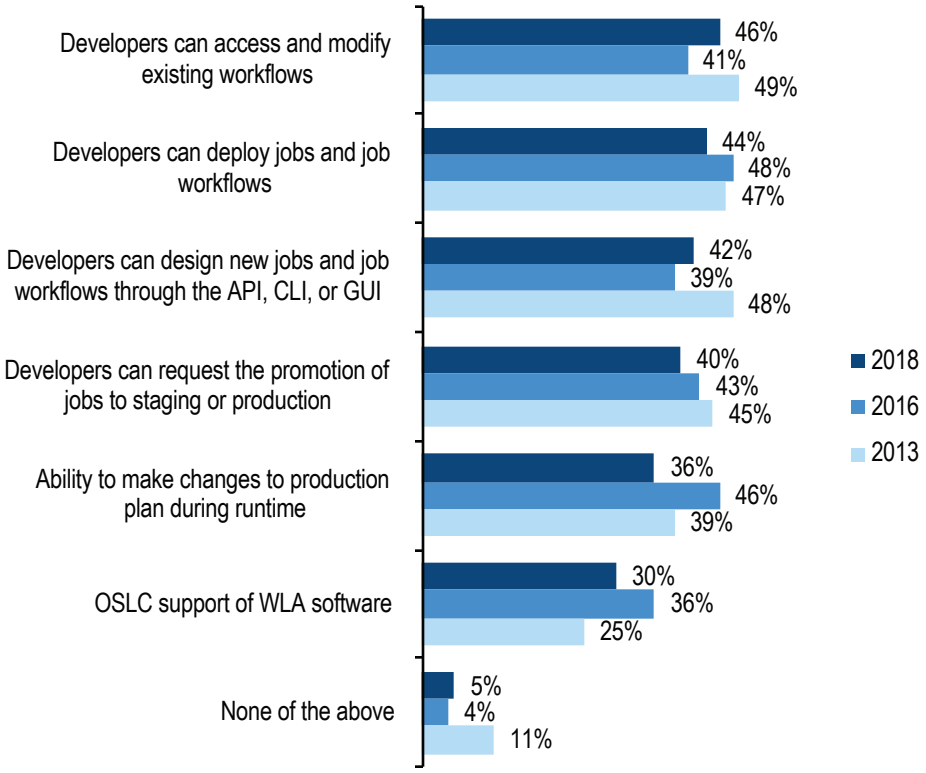

CONNECTING WLA WITH DEVELOPERS

Connecting WLA With Developers

Despite 2016 plans to increase DevOps and developer interaction with WLA, little has changed in the past two years. A small increase in developer access to modify workflows from 41 percent to 46 percent of respondents and a small increase in developers designing new jobs via APIs or other means (Jobs-as-Code) from 39 percent to 42 percent of respondents is very little progress given the stated intentions to increase most of these metrics by 20 percent to 25 percent or more.

Now

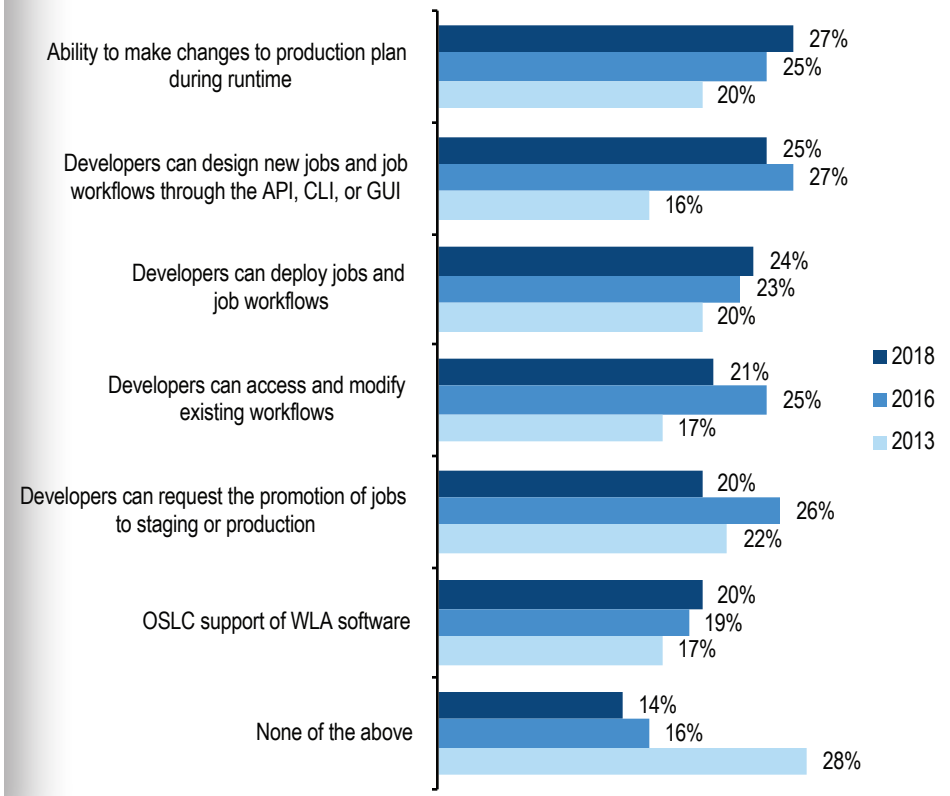
Does your organization have any of the following capabilities?



Sample Size = 2018 = 427, 2016 = 228, 2013 = 174

Future

Will your organization have any of the following capabilities within the next 12-24 months?

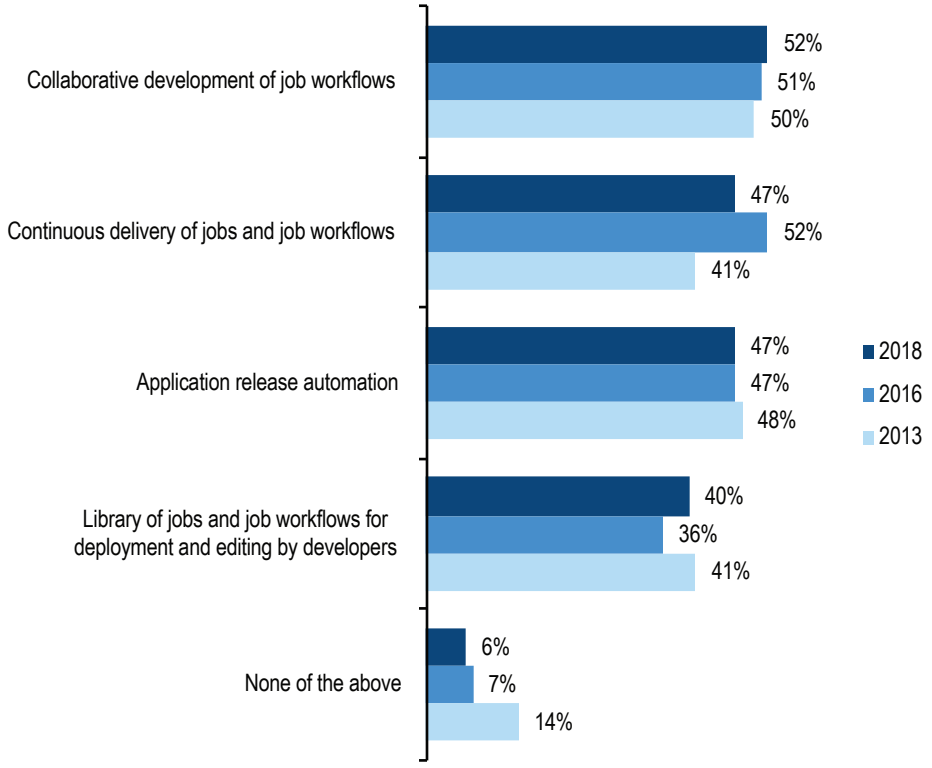


Connecting WLA With Developers

Similarly, developer self-service capabilities have not changed much over the past five years even as plans to make changes across all metrics range from 20 percent to 27 percent. The intentions are still there or increasing to do more for developer self-service with WLA, so this may move forward in the next two years, but history says the best laid plans on this front continue to lose out to bigger priorities.

Now

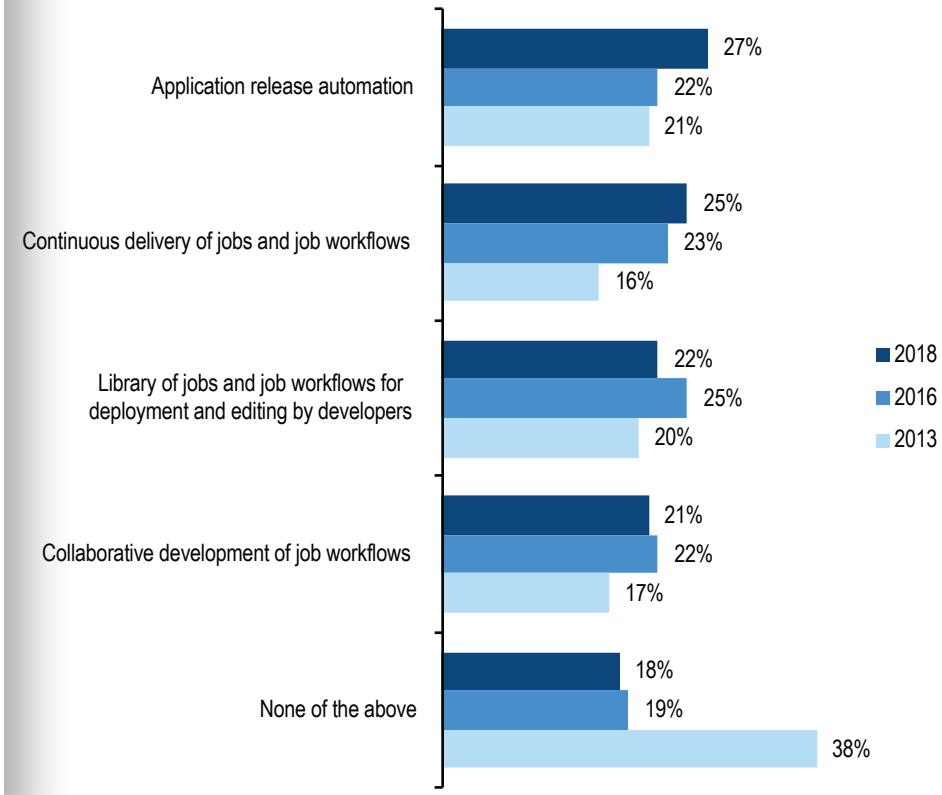
Currently, in which of the following self-service capabilities has your organization invested?



Sample Size = 2018 = 427, 2016 = 228, 2013 = 174

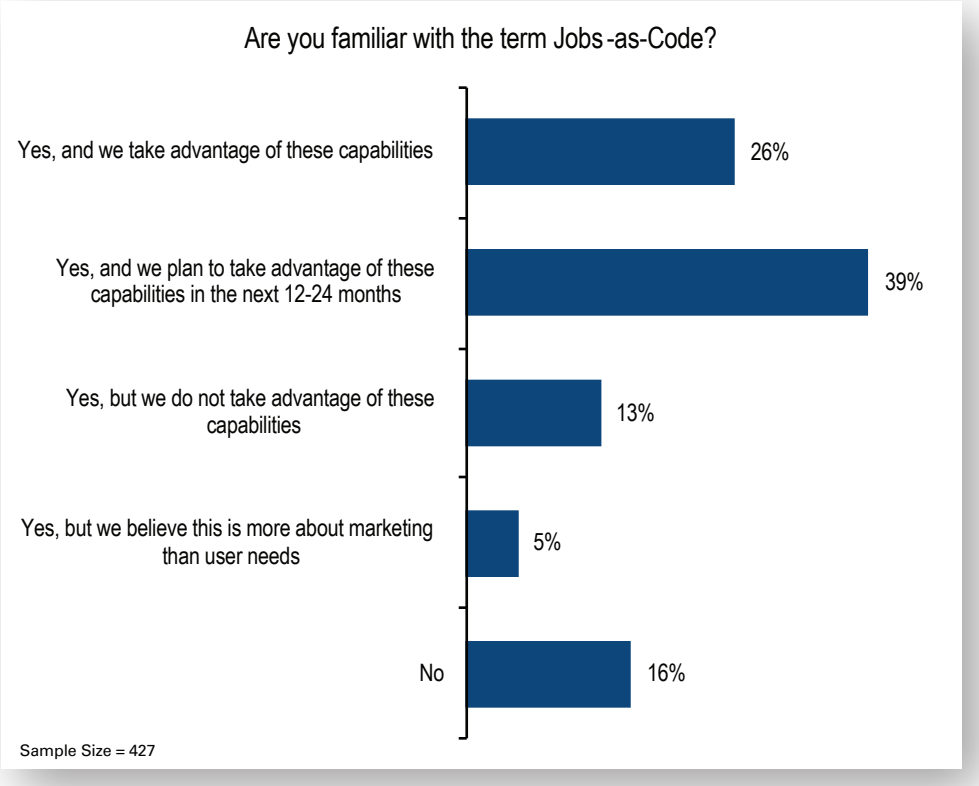
Future

In which of the self-service capabilities is your organization planning to invest within the next 12-24 months?



Connecting WLA With Developers

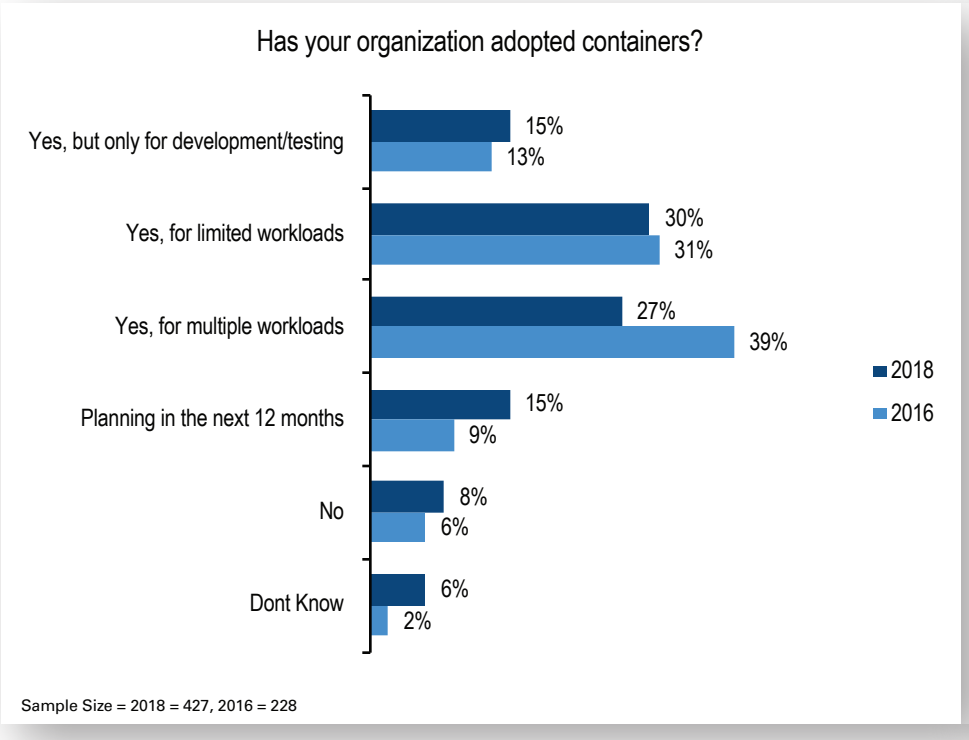
One area that is at least picking up interest is the concept of Jobs-as-Code. Many vendors attribute this term to BMC because they added significant capabilities to define jobs in JSON, which once ingested look like anything set up in the GUI, but allow developers to work in their native environment. However, BMC considers this more of an industry term and one can find online forums where the concept is being discussed by developers using a variety of WLA tools. All that marketing has been effective at educating the market to some extent, as 84 percent of respondents are familiar with the term Jobs-as-Code and 65 percent say they will be using Jobs-as-Code features within 24 months. All the pressure to implement DevOps and Continuous Delivery should mean that the relationship between developers and WLA will become more interactive eventually, but it is happening very slowly.

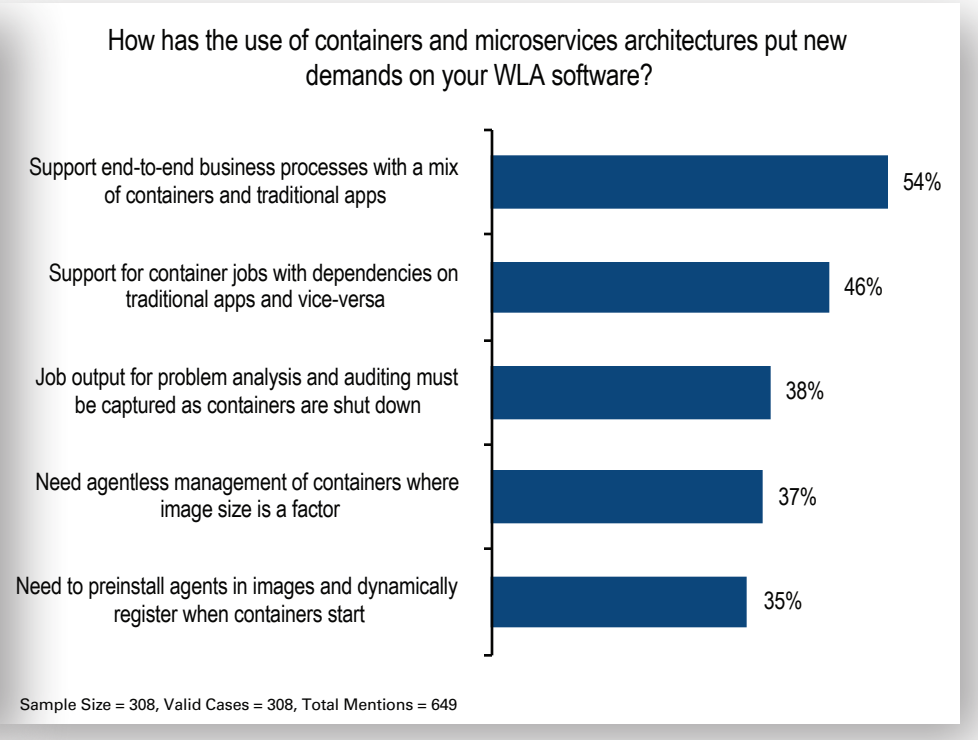


Impact of Containers and Microservices on WLA

The use of containers and microservices architectures is a hot trend that continues to mature, and like virtualization before it, the use of the technology is out in front of the ability to manage it effectively in the early stages of its lifecycle. Currently, 15 percent are using containers in development and test only, while 57 percent have containers in production for one or more workloads. Container adoption continues with those planning to add container-based workloads in the next 12 months, up from nine percent in 2016 to 15 percent in 2018. However, there was a significant drop in those claiming multiple container workloads. Two steps forward and one step back. EMA believes this is due in part to the rate of new container management capabilities and the learning curve as organizations figure out the best use for these technologies.

Container-based workloads impact WLA in a variety of ways. The biggest impact is mixing containers into processes without containerizing the entire end-to-end processes, which was mentioned as a new demand on WLA by 54 percent of respondents. WLA needs to manage these mixed job streams more cohesively. The second-most mentioned demand is support for dependencies between container and traditional apps, which is a related theme affecting 46 percent of respondents. WLA vendors are well aware of these new demands and work to address them with each new release. However, they are aiming at a moving target because the entire IT industry is still learning how best to take advantage of containers and how to manage them effectively.





The Shifting Role of WLA

Workload automation is the most used form of automation across a number of IT and business processes. The importance of WLA is on the rise, as use cases for broader IT and business process automation are being addressed with WLA by creative users. Many business process automation needs start or end with the movement of files. As a result, the importance of managed file transfer is rising, and leading WLA tools have stepped up their native capabilities. While Robotic Process Automation (RPA) is a very hot topic, WLA offers more sophisticated calendaring and triggering capabilities, allowing for multiple custom calendars and date and time, as well as event-based triggers. WLA also includes better end-to-end process management with audit controls and change management, and more API and developer integration. WLA is far more mature than RPA, and EMA believes that 35 percent of RPA use cases might be better addressed with WLA.

The majority of WLA users (54%) see WLA in a very traditional role as a key automation tool for IT operations. A small group (17%) see WLA as a non-strategic but necessary tool for IT operations. The core traditional uses for WLA will certainly continue to be important, and the products will continue to improve and evolve for those traditional needs. However, there is a substantial group of users that EMA believes are enlightened to the broader automation and digital transformation role of WLA (34%). This enlightened group of WLA users are pushing the envelope in how they perceive and use WLA to solve a broader set of automation use cases and how they underpin their digital transformation efforts with a proven and mature tool like WLA.

About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help EMA's clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals, and IT vendors at www.enterprisemanagement.com or blog.enterprisemanagement.com. You can also follow EMA on Twitter, Facebook, or LinkedIn.

Corporate Headquarters:
1995 North 57th Court, Suite 120
Boulder, CO 80301
Phone: +1 303.543.9500
Fax: +1 303.543.7687
www.enterprisemanagement.com

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