

# AI Ops and IT Analytics at the Crossroads

WHAT'S REAL TODAY, AND WHAT'S MOST NEEDED FOR TOMORROW?  
REPORT SUMMARY

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OCTOBER 2018

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# Report Summary – AIOps and IT Analytics at the Crossroads: What’s Real Today, and What’s Most Needed for Tomorrow?

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# Report Summary – AIOps and IT Analytics at the Crossroads: What's Real Today, and What's Most Needed for Tomorrow?

## Executive Introduction

What EMA calls advanced IT analytics (AIA) most directly refers to what most in the industry call AIOps currently, along with IT operations analytics and digital operations. While each of these terms is associated with some precise definitions, they nevertheless often float among other categories, such as big data, AI, and machine learning without clear boundaries in the minds of many in the industry.

The goal of this research was to create a roadmap of what technologies are really in use and most importantly, to examine the dynamics that separate the most effective AIA deployments from those that struggle due to a variety of reasons, ranging from technology priorities to organizational and process issues. This included evaluating use cases ranging from performance and availability management to change management, to capacity planning and cost management, to end-user experience management, to security and compliance, to support for cloud and DevOps.

The research done in Q3 of 2018 attracted 300 respondents with roughly two-thirds in North America and one-third Europe. Some of the highlights were:

- **Executive leadership** in terms of strategy, deployment, and purchasing/ investment was predominant and correlated strongly with success.
- **Best practices** were actively pursued in support of analytics strategies by 63%, and prioritizing best practices also correlated with success.
- Average responses indicated more than 11 different **heuristics** and nearly 13 different **data sources** for AIA deployments.
  - While also seeking to assimilate, nearly 25 different third-party monitoring or other toolsets as data sources.
- **Capturing interdependencies** across the application infrastructure affiliated with success, and 54% of respondents viewed the configuration management database (CMDB) or configuration management system (CMS) as extremely important for their analytics strategy.
- Average responses indicated 5.16 **automation** integrations.
  - 83% were using or have plans for using **AI bots**.
- 74% were actively supporting **agile/DevOps** needs through their analytics.
  - 95% are supporting or have plans to support **IoT**.
- The top two **roadblocks** were *data quality issues* and *products not fully baked yet*.
- The top two **achieved benefits** were *improved OpEx efficiencies within IT* and *faster time to repair problems*.
- 42% believed that **AIA value** had dramatically exceeded costs.



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## Methodology and Demographics

EMA conducted the research in Q3 2018. In terms of exact numbers, 191 respondents were in North America and 109 were in Europe. Overall, company size was balanced, starting at the lower mid-tier (500 and above) and progressing to large enterprises (20,000 and above).

Respondents were qualified based on requirements that were actively involved in supporting advanced analytics initiatives, with a 65 percent minimum quota on *AIOps* (or *IT operations analytics*, or *digital operations*). Other analytics accepted included big data, end-user experience analytics, security-specific analytics, and capacity analytics. Respondents were also qualified based on whether they were:

- Hands-on stakeholders (33%)
- Data scientists (12%)
- Managerial (39%)
- Technical stakeholders/advisors (12%)
- Business stakeholders (4%)

Those who were only aware of advanced analytics initiatives, but not directly involved, were disqualified.

Other demographic highlights include:

- **Strong executive presence** with 40% VP or above.
- **Leading verticals** were ISVs, manufacturing, banking/finance, and high-tech service providers.

## Overall Analytic and Use Case Priorities

EMA targeted AIOps as its core direction for advanced IT analytics because it most closely aligned to EMA's view of advanced IT analytics in attributes, such as:

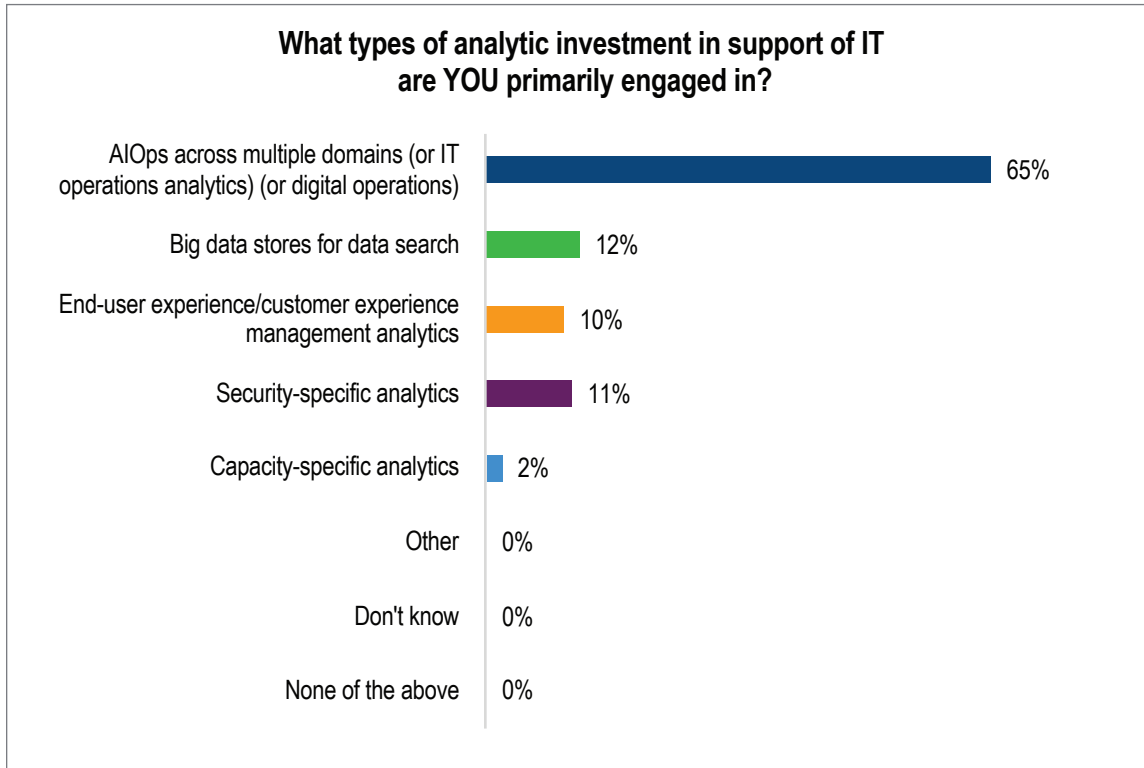
- Assimilation of data from cross-domain sources in high data volumes for cross-domain insights.
- The ability to access multiple data types, e.g., events, KPIs, logs, flow, configuration data, etc.
- Capabilities for self-learning to deliver predictive, and/or prescriptive and/or if/then actionable insights.
- Support for a wide range of advanced heuristics, such as multivariate analysis, machine learning, streaming data, tiered analytics, cognitive analytics, etc.
- Potential use as strategic overlay that may assimilate or consolidate multiple monitoring investments.
- Support for private cloud and public cloud, as well as hybrid/legacy environments.
- The ability to support multiple use cases, including but not limited to application/infrastructure performance and availability. AIOps investments, for instance, supported all use cases examined in this research, often outstripping more niche approaches in terms of active support. AIOps led over security-specific analytics in showing active support for the use case for integrated security and operations, whereas a higher percentage of security-specific analytics respondents were still in deployment or planning stages.

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## The AIA Landscape

In order to map out the broader AIA-related landscape, EMA also wanted to evaluate AIOps in context with other operations-related analytics. These included big data, security-specific analytics, end-user experience (EUE) analytics, and capacity analytics. We asked respondents what was occurring in their IT organizations and what they were most involved in.

Figure 1 shows the final sorting based on quotas to prioritize AIOps at a 65 percent minimum, with the final, select 300 respondents used throughout the report.



**Figure 1: Analytic priorities after quotas were directed at strong (65%) AIOps or IT operations analytics (ITOA) content to align most directly with EMA’s requirements for advanced IT analytics (AIA).**

## AIOps in Profile

Some of the other highlights regarding AIOps versus the other analytic choices (big data, EUE, security and capacity) included:

- An affiliation with larger enterprises
- Active support for a broader range of use cases
- More likely to be top-down driven by the executive suite
- A greater affinity for applying best practices
- Dramatically broader support for third-party toolset integrations
- Stronger support for integrated automation, including AI bots
- The highest success rate overall

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## Use Case Reviews

In evaluating use cases for company-wide deployments, EMA was non-restrictive to analytic type. Figure 2 highlights the data, showing that cross-domain application infrastructure performance was far and away the most pervasive in terms of active use, while change management and cost management were least actively in use according to the research respondents. However, significantly, all use cases were largely at least in the deployment or planning stage, with single digit answers for not planning/don't know. This serves to underscore the growing diversity of AIA use cases, as technologies evolve to become more functionally rich and administratively effective, and as IT organizations become themselves further prepared to work in a more AI-driven mode.

**All use cases were largely at least in the deployment or planning stage, with single digit answers for not planning/don't know.**

Use Case	Actively using	Currently in deployment, but not yet using	Planning, but not yet deployed	Not planning/don't know
Cross-domain application infrastructure and performance	87%	12%	1%	0%
Capacity management and infrastructure optimization	73%	22%	5%	0%
DevOps/Agile	72%	22%	4%	2%
End-user experience/customer experience management and business alignment	71%	23%	4%	1%
Integrated security and operations (SecOps)	69%	26%	3%	1%
Cost management (including hybrid and multi-cloud)	66%	29%	3%	1%
Change management	65%	28%	4%	3%

Figure 2: EMA wanted to assess the active use cases for advanced IT analytics regardless of specific analytic type company-wide.

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## Organization

In terms of stakeholders using AIA capabilities, EMA looked at domain-specific, cross-domain, and business stakeholders.

The top five domain stakeholders (with an average of 7.21 supported) were:

- Cloud management
- Database management
- Applications management/support
- Security/compliance
- Systems

The top five cross-domain stakeholders (with an average of 7.55 supported) were:

- IT operations/cross-domain (tied with) executive IT
- ITSM (beyond the service desk)
- Data analyst/data scientist
- Infrastructure management
- Line of business (not central IT)

The top five business stakeholders (with an average of 4.47 supported) were:

- Business operations
- Business development/planning
- Customer experience management
- Executive (non-IT)
- Online operations

In other words, average responses indicated support for more than 19 roles for their AIOps/AIA initiatives, a dramatic growth over an average of just 11 roles 2.5 years ago.<sup>1</sup> Moreover, it should be understood that each role might include many individuals, so that in some cases, directly or indirectly, AIA deployments may be informing the actions of many hundreds of IT stakeholders in large organizations. In other words, advanced analytics is becoming a venue for sharing more consistent data and more proactive insights across an ever-broadening IT and enterprise population. The implications this has for AIOps/AIA as a transformative force for unifying IT as a whole, as well as for IT-to-business alignment, are significant.

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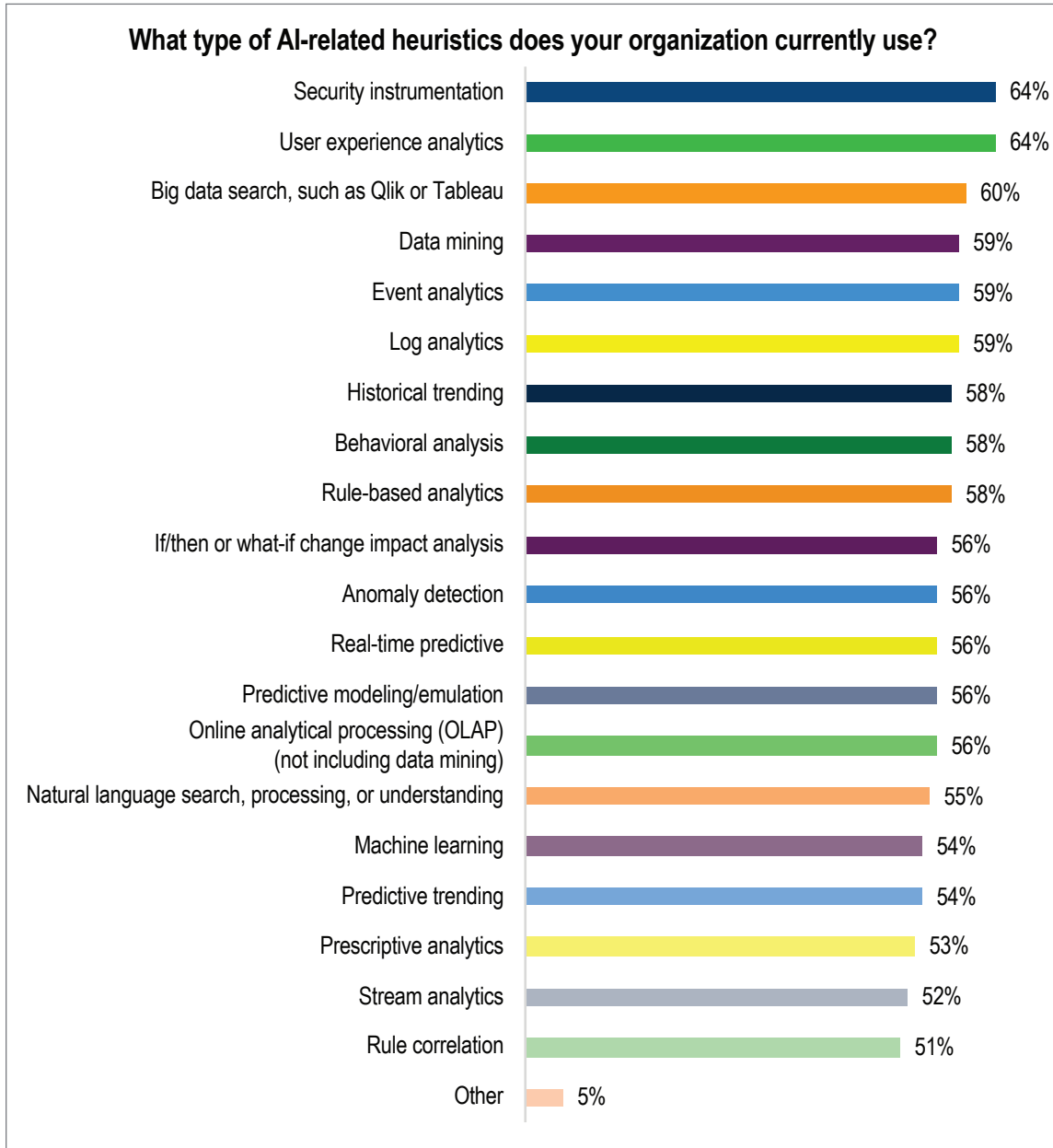
Given the broader role assumed by ITSM teams, it’s not surprising that 57 percent of respondents indicated a 50/50 sharing/integration when it came to AIA between ITSM and operations as a whole. An additional 36 percent indicated that they were “very well integrated,” with 25 percent placing operations in the lead, and eleven percent placing ITSM teams in the lead.

<sup>1</sup> “EMA Research: Advanced IT Analytics: A Look at Real-World Adoptions in the Real World,” March 2016.

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## Heuristics Integrations and Interdependencies

Advanced analytics for IT are evolving to become more diverse in heuristics, data sources, and integrations. It's proof in part that what five years ago might have been viewed primarily in academic terms is becoming richer in capability, function, and design. Figure 3 provides a glimpse of heuristic priorities. One of the main takeaways from the data is how closely ranked heuristic priorities are. Perhaps even more importantly, an average response indicated more than eleven (11.38) heuristic affinities, a dramatic increase from 3.68 in Q1 2016!<sup>2</sup>



**Figure 3: Heuristic priorities are closely grouped and show a striking evolution in terms of diversity and richness, with more than eleven (11.38) in active use, which is a tripling of the number from just two and one-half years ago.**

<sup>2</sup> Ibid.



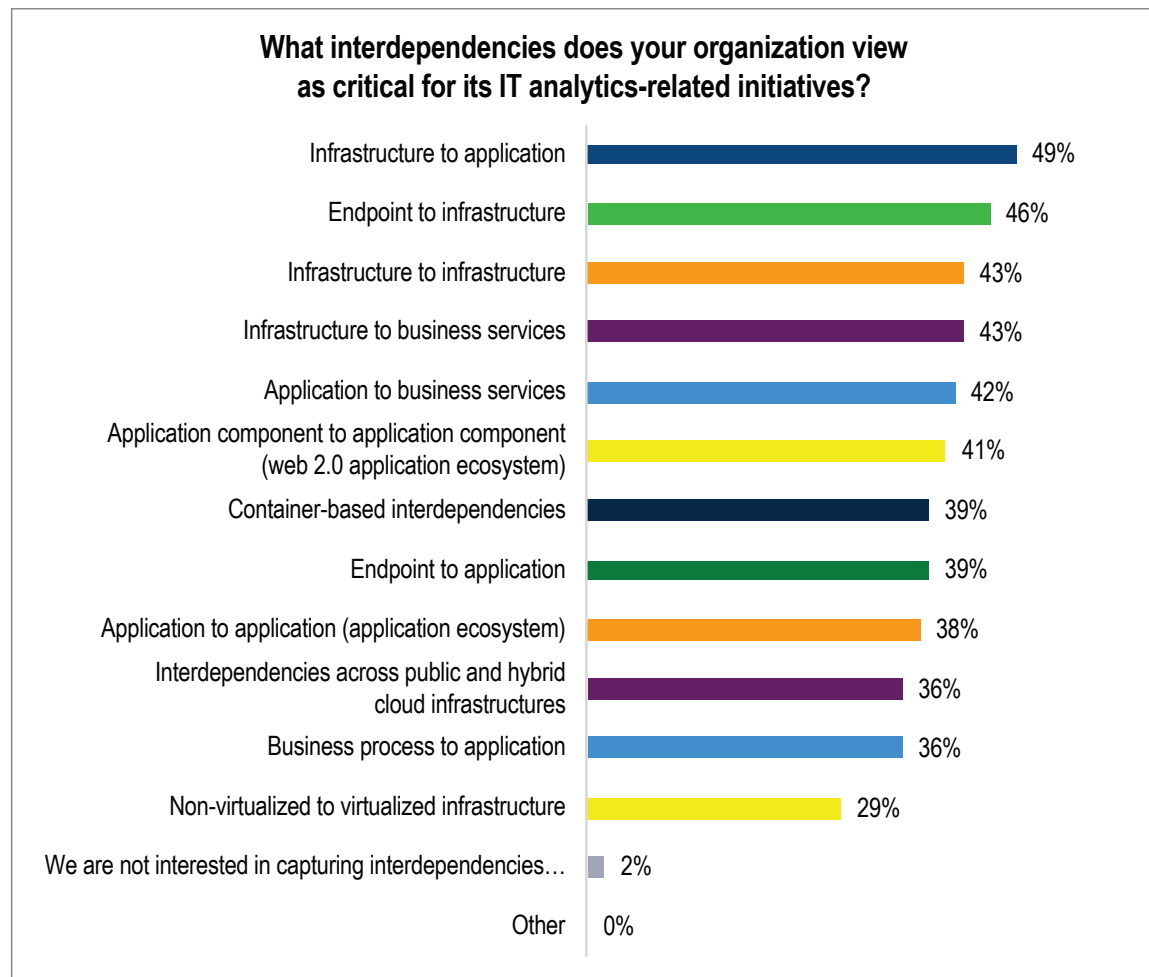
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Integrations with third-party monitoring and other tools were also a key point of growth, going from an average of about fifteen in 2016 to nearly twenty-three in 2018. These integrations can either be done directly or through an aggregated data store. Direct integration with the analytics platform was preferred by 60 percent of the respondents, while 29 percent preferred an aggregated data store provided by the analytics vendor.

The value of toolset integrations can go beyond data access, or tiered use of already predictive sources. EMA consulting has seen distinct political values in allowing IT stakeholders to evolve more gradually toward a true, IT-wide analytic platform without feeling threatened because the tools there used to work with will be immediately taken away from them.

## Understanding Interdependencies can Also be Key

One of the features that sets AIOps and advanced IT analytics overall apart from classic big data analytics is an awareness of interdependencies across the application/infrastructure. While how this is done will vary dramatically by vendor, most AIA solutions apply some level of dependency or at least topological insights to help provide contextual insights as to where, why, and how issues are arising. Figure 4 shows priorities in interdependencies, with an average of nearly five (4.81) per respondent.



**Figure 4: Capturing and/or leveraging interdependency insights across the application infrastructure plays a critical role in many AIA deployments. Not surprisingly, infrastructure to application leads, but it’s also worth noting that an average response indicated that nearly five (4.81) dependency insights were critical.**

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When asked about the importance of a **CMDB/CMS** for an AIA initiative, 54 percent felt it was extremely important and 36 percent felt it was very important. Moreover, 81 percent were also leveraging their AIA capabilities to update their CMDB/CMS for currency and relevance.

It should be pointed out that a strong focus on leveraging interdependencies, as well as on valuing the CMDB/CMS and keeping it current via AIA, all strongly correlated with the improved effectiveness of advanced analytics deployments.

## Automation and AI Bots

Automation can play a critical role in supporting advanced IT analytics and AIOps. Indeed, higher levels of automation were singled out even above machine learning when respondents were asked to name key AIOps attributes. The analytics/automation handshake has a long history, but the advances of AIOps and AIA more generally are bringing it forward based on ongoing research and industry dialogue.

The handshake is a logical one. Analytics is about insight—including prescriptive action. Automation is about taking action, orchestration and hardening processes. As such, the two are a natural complement to each other. Poorly informed automation can be more disruptive than helpful. AIA’s value can only fully be achieved when effective automation capabilities are introduced.

The analytics/automation handshake was also underscored in this research when respondents indicated that an average of more than five (5.16) integrated automation options were preferred. In terms of prevalence, the top five were:

- IT process automation/runbook
- Security process automation or playbook
- Workflow automation combined with social IT
- Configuration automation
- DevOps-related process automation

When asked about AI bots usage, 57 percent of respondents indicated that they were currently using AI bots, and 26 percent that they had specific plans for AI bots. Moreover, 44 percent of those actively using, or with specific plans to use, AI bots claimed that AI bots were tightly woven with their broader IT analytics directions.

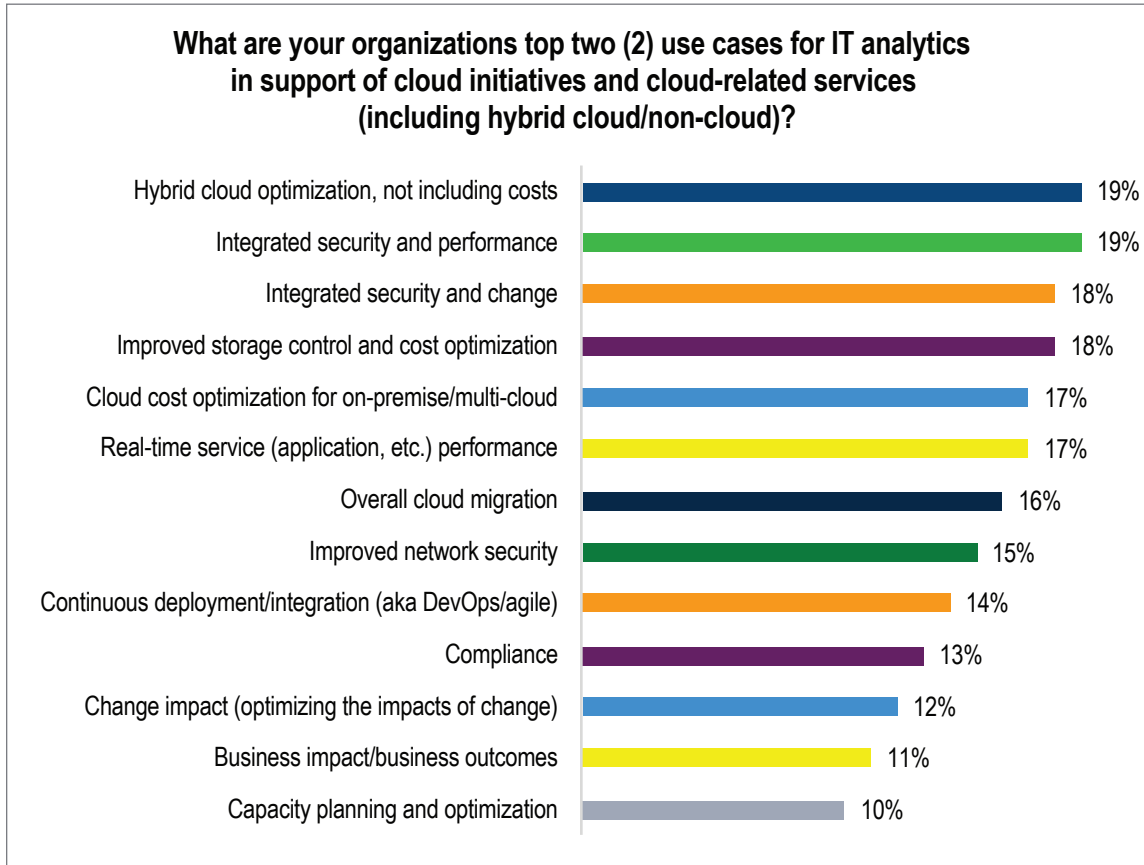
**The analytics/automation handshake has a long history.**

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## Cloud

The versatility of AIOps and AIA more generally can also be understood in a wider range of use cases, including optimizing cloud resources for performance and value, Agile/DevOps initiatives, and IoT. All of these represent areas of growth for AIA and are increasingly getting vendor attention as growing requirements.

Figure 5 highlights top analytics priorities or use cases for cloud-related initiatives, or cloud-enabled services. In optimizing cloud, security looms large, which is also consistent with prior EMA research done in 2016 already cited.



**Figure 5: Security continues to be a major area of interest for advanced analytics when it comes to cloud adoption, along with optimizing cloud resources for performance and value.**

The value of AIA insights regarding cloud in all of its dimensions cannot be underestimated. While public cloud environments pose new opportunities and new challenges, hybrid cloud and multi-cloud (where IT leverages multiple cloud-related infrastructure and application options) often add complexity to the IT landscape. The unifying effect of AIA can provide a far more cohesive and proactive understanding of how IT services, costs, and performance can be managed and optimized than purely segregate or niche solutions. This is true for hybrid infrastructures and mixed application portfolios with the move to containers and microservices.

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## Operationalizing Advanced IT Analytics: Insights on Real-World Deployments

One of the first discoveries was that top-down, executive-driven deployments led the pack.

- The executive suite drove 52% of deployments
- Mid-level teams and technical support drove 24%
- 22% were an even mixture of top-down and bottom-up
- Third parties drove 2%

Top-down deployments also correlated most strongly with success. The reasons for this are consistent with executive-led advantages in strategy. Adopting AIA requires a strategic commitment to evolve in working habits, processes, and best practices. Doing this won't be achieved by merely deploying a new technology along with a few emails from on high. Active executive leadership, combined with an effective mid-level team with strong technical credentials, has shown itself to be overall the most effective organizational formula for AIA success, from strategy, to deployment, to investment.

## Benefits and Success Rates

When benefits were examined, respondents indicated the following top five:

- Improved OpEx efficiencies within IT
- Faster time to repair problems
- Faster identification of advanced threats
- Faster time to deliver new IT services
- Better correlation between change and performance

It's significant that even the top ten were separated by only five percentage points (from 30% to 25%) in rankings. Even more significant was the fact that the average response indicated more than five (5.26) benefits were achieved.

## Success in Two Flavors

EMA routinely requests that respondents self-assign success rates. While the numbers given are invariably more positive than a thorough evaluation would indicate, contrasting the extremely successful with other groups (in this case very successful and successful/marginally successful) provided the useful trend alluded to throughout this report. In terms of actual percentages, 44 percent claimed that their AIA initiatives were extremely successful, 41 percent were very successful, 13 percent were successful, and two percent were marginally successful. This was in itself a sign of forward progress from 2016 research, in which only 18 percent of respondents believed they were extremely successful in their AIA initiatives.

In addition to the areas of correlation already mentioned in this report, extremely successful and overall success rates also correlated strongly with:

- Having top-down (VP and above) executive sponsorship and direction
- Having more heuristics actively deployed
- Leveraging more data sources
- Integrating with a CMDB/CMS in support of AIA initiatives
- Showing more capabilities for triage and diagnostics
- Addressing more issues for change management and application/infrastructure optimization
- Supporting more business impact metrics



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Another read on success in this research was targeted at ROI. Respondents were asked about AIA value versus costs. In summary:

- 42% indicated that value has dramatically exceeded costs
- 39% indicated that value has significantly exceeded costs
- 16% indicated that value has risen to equal costs
- 3% indicated that overall costs (still) exceed AIA value

42% indicated that value has dramatically exceeded costs

## Conclusion: Seven Critical Takeaways

While there was a lot to consider in this research, the bottom line message is that AIA/AIOps tell an evolving story with growing strengths in functionality, use case, and overall impact. How this is occurring can be highlighted in seven critical takeaways.

**AIOps was overall the winning strategy.** While AIOps was not the most pervasive technology associated with advanced IT analytics in the research (big data led as the most prevalent before quotas), it was the most effective and pervasively advanced. Indeed, AIOps showed the highest success rates, the greatest likelihood of supporting DevOps, IoT, and AI bots, and led in use case capabilities as well.

**Advanced IT analytics are eclectic in use case and becoming more so.** Overall support for DevOps, IoT, AI bots, and multiple use cases including end-user experience, security, capacity analytics, and cost-related optimization show increasing diversity in need and value. The implications of this are significant. AIOps and AIA are more broadly evolving as platform investments rather than niche solutions. This means the data consumed and applied can be leveraged in multiple ways, bringing added benefits to the investment, while also helping to more effectively unify various roles, organizations, and stakeholders across IT.

**AI bots and automation are not a separate world from AIOps and AIA.** The strong and perhaps surprising correlation between AI bots in use is that AI bots are a sign of overall analytics success, and AI bot integrations into broader analytic directions all indicate that the AIOps market and the AI bots market should not be viewed in isolation. This also helps to reinforce the critical handshake between automation and AI, which was also reinforced by the research findings indicating that, on average, respondents targeted more than five (5.16) automation integrations.

**Capturing interdependencies and the CMDB/CMS both stood out in importance.** As an average, respondents sought to capture nearly five (4.51) interdependencies across the application/infrastructure, while 54 percent of respondents viewed the CMDB as extremely important to their analytics strategy, a valuation that correlated strongly with success. The implications of this may seem to contradict notions that the CMDB is old hat technology. Rather, what's indicated in these findings is that CMDB/CMS and application/infrastructure dependency mapping are technology areas that AIA/AIOps investments are reinvigorating, while also providing valuable contexts for leveraging and optimizing analytic insights for a variety of use cases.

**Security is on the rise.** Priorities in cloud, vendor selection, heuristics, and best practices all indicate that security is a leading and largely integrated concern in advanced IT analytics, and AIOps in particular. This is not a surprise given similar findings in EMA's 2016 research. Moreover, it is both a welcome and a much-needed advance, as the trend toward a true SecOps (security + operations) integration across IT organizations is becoming ever more critical given rising vulnerabilities, as well as the growing demand for OpEx efficiencies across IT.

**Top-down for everything is the winning strategy.** It is also the most pervasive. The executive suite (VP and above) was more likely to be successful, and more likely to drive AIA strategies, deployment, and purchasing decisions. The reasons for this make sense once AIA/AIOps are understood as unifying technology that can help to bring IT silos closer together with shared data and common insights.

**Advanced analytics are showing strong evolutionary values compared to prior years.** EMA research from early 2016 and 2014 indicate strong growth in heuristics, data sources, integrations, stakeholder roles, and overall versatility in terms of function and purpose. The implications are that AIA/AIOps solutions are evolving dramatically in terms of functionality, use case, and breadth. However, software complexity, administrative resource, and more effective data management still stand out as barriers to adoption.

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## In Conclusion

No single data point can in itself be considered as the final answer to any question where change and evolution are both pervasive. With that in mind, this EMA research should be viewed as a snapshot in time rather than a set of absolute answers. However, this research has also been informed by prior AIA research that, when analyzed, indicates a significant trend toward broader adoption value, and more tangible directions for success than in the past.

The challenge that the IT industry and the AIOps/AIA markets will likely continue to face is one of complexity: a confusion of terms, challenging deployments, and many questions remaining about what data is needed and how it should be optimized. These questions should be examined in specific context with given IT environments, priorities, and maturity levels, rather than a single, overarching generic answer.

However, if there is a general path forward, this research would suggest the move toward a platform approach that integrates well with existing data sources and tools, while providing optimal insight across a wide variety of use cases. Progress in deployment should be use case-driven and staged based on relevance and need. Top-down direction and leadership is often key, so AIA, in all its dimensions, can be viewed not only as a new technology to invest in, but also as a unifying catalyst for both IT and digital transformation.

If there is a general path forward, this research would suggest the move toward a platform approach that integrates well with existing data sources and tools, while providing optimal insight across a wide variety of use cases.

## 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](http://www.enterprisemanagement.com) or [blog.enterprisemanagement.com](http://blog.enterprisemanagement.com). You can also follow EMA on [Twitter](#), [Facebook](#), or [LinkedIn](#).

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3709-SUMMARY.100218