Hype Cycle for ITSM, 2020

Published: 27 July 2020 **ID:** G00441600

Analyst(s): Siddharth Shetty, Keith Andes

IT service management innovations enable IT teams to deliver services, support the business consumer and transition IT into a strategic partnership role in the digital business. The Hype Cycle for ITSM provides I&O leaders with guidance on key practices, tools and technologies.

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What You Need to Know

The 2020 Hype Cycle for IT service management (ITSM) helps infrastructure and operations (I&O) leaders understand the changing technology landscape and offers practices that will enable them to meet the increasing effectiveness and agility demands of digital business. The innovations in this Hype Cycle support the future vision of ITSM and enables I&O leaders to support the digital business.

I&O leaders responsible for infrastructure, operations and cloud management must evaluate an array of technologies and practices to determine which can provide an early advantage without excessive risk. Use this research to evaluate the relative maturity of innovations for your ITSM roadmap.

For more information about how peer I&O leaders view the technologies aligned with this Hype Cycle, please see “2020-2022 Emerging Technology Roadmap for Large Enterprises.”

The Hype Cycle

This Hype Cycle is one of four key Hype Cycles for I&O leaders focused on IT operations. The others are “Hype Cycle for I&O Automation, 2020,” “Hype Cycle for IT Performance Analysis, 2020” and “Hype Cycle for Agile and DevOps, 2020.”

The tools within this Hype Cycle align primarily to the experience management minisuite. Use this research to review your technology portfolio and evaluate future investments based on your organization’s ability to innovate and assume risk.

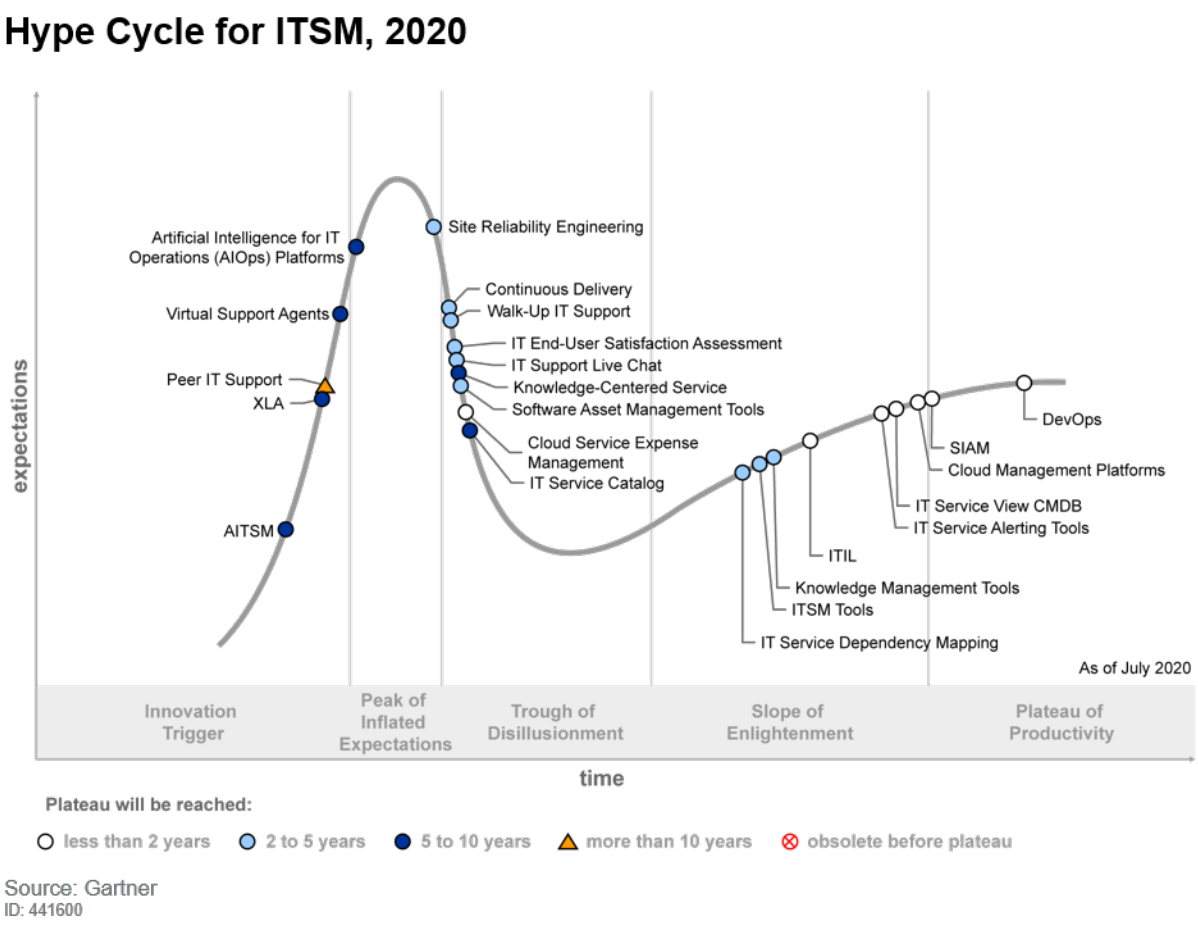
The Hype Cycle for ITSM provides information and advice on key practices, tools and technologies to improve the quality, agility and efficiency of IT service delivery and IT service support. Within the experience management minisuite, many of the tools are used initially in the IT service desk. With maturity, organizations further leverage these tool capabilities and expand to other areas, such as cloud management and DevOps. ITSM tools that enhance support by automating tasks and workflows form the core of ITSM. However, organizations transitioning from reactive to proactive service orientation often leverage components such as IT service catalog, IT support live chat and knowledge management tools. Specifically, IT service catalogs have seen increased interest among Gartner clients in the past year, which underscores the service requisition and provisioning capabilities of IT service catalogs. Organizations commonly source these components as functions of the ITSM tool rather than as stand-alone products. Additional ITSM innovations for software asset management and IT end-user satisfaction enable I&O leaders to better understand and manage the business value of I&O. All of these capabilities contribute to the goal of enhancing IT service effectiveness and efficiency.

The 2020 Hype Cycle now includes experience-level agreements (XLAs) and AITSM as new additions. XLAs help to measure end-to-end business user experience and therefore identify opportunities to improve these technology experiences for business users. AITSM optimizes ITSM practices to enable the application of context, assistance, actions and interfaces of AI, automation, and analytics on ITSM tools to improve the overall effectiveness and efficiency for I&O staff. IT Event Correlation and Analysis Tools are no longer represented as a separate technology on the Hype Cycle, as most vendors in this space have been leveraging AIOps capabilities and, therefore, this technology is now a subset of AIOps. Multisourcing Service Integrator has been renamed SIAM in keeping with the popularity of the latter.

ITIL 2011 continues to be the predominant ITIL implementation even with the release of ITIL 4. Virtual support agents and IT support live chat made noteworthy progress over the past year. This underlines the importance I&O leaders are allocating to provide multichannel support to business

consumers. Growing software expenditures and increasing audits by software vendors have driven software asset management to the Peak of Inflated Expectations. Cloud management platforms and DevOps have made significant moves over the last year. This highlights the need for any service management strategy to synergize at a technology and process level with these innovation profiles, rather than operating in isolation.

Figure 1. Hype Cycle for ITSM, 2020



Source: Gartner
ID: 441600

The Priority Matrix

The Priority Matrix maps an innovation profile's time to maturity in an easy-to-read format that answers two high-priority questions:

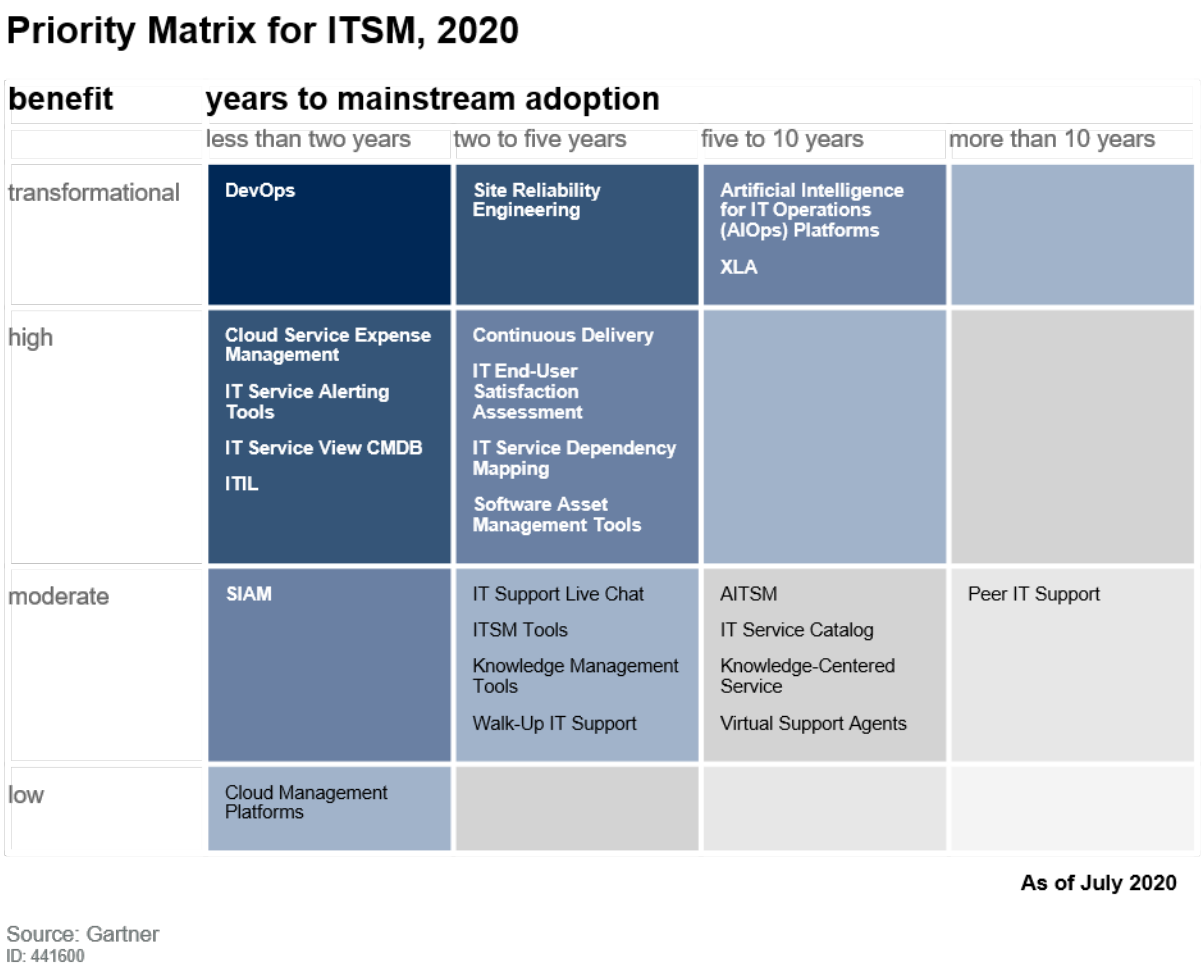
- How much value will an organization receive from an innovation?
- When will the innovation be mature enough to provide this value?

The 2020 Priority Matrix for ITSM indicates that, except for DevOps, ITSM innovation profiles with potentially transformational benefits will not reach mainstream adoption in the near term. Therefore, I&O leaders adopting these elements should be either in more mature organizations or explicitly

willing to assume the risks of earlier adoption, perhaps starting by piloting them in parts of their organization. Less-mature, risk-averse organizations should focus on leveraging less transformational, more proven technologies, such as IT service alerting tools and IT service view CMDB. Such organizations may also benefit from an established best-practice framework like ITIL.

Old and new innovations intersect in the area of people and process changes. For example, profiles such as DevOps and Site Reliability Engineering joining ITIL is highly beneficial. All of these approaches require process and cultural changes, rather than new technology adoption. Cloud management platforms continue to represent low benefit compared to other innovation profiles. This reflects the challenges faced by this category of tools, in which customer requirements are still evolving and market consolidation will continue for the next few years.

Figure 2. Priority Matrix for ITSM, 2020



Source: Gartner
ID: 441600

Off the Hype Cycle

The innovation profiles for IT Financial Management Tools and Bimodal IT Operations have been retired from the ITSM Hype Cycle.

The IT financial management (ITFM) tools market remains robust with estimated growth of 15% to 20%. ITFM tools have reached a relatively high level of maturity. Pending new vendor entrants or delivery approaches, Gartner has moved the ITFM tools discussion off the Plateau of Productivity to a high-function, minimal-hype category.

I&O leaders are experiencing an acceleration toward approaches to a new “normal” that embraces Mode 2 ways of work. Capabilities developed regarding people, processes and technologies can traverse both certainty and uncertainty. Improved guidance is provided in Gartner’s operating model research. As such, the Bimodal IT Operations innovation profile is being obsoleted before the plateau.

On the Rise

AITSM

Analysis By: Chris Matchett

Definition: AITSM is the optimization of ITSM practices to enable the application of context, assistance, actions and interfaces of AI, automation and analytics on ITSM tools to improve the overall effectiveness, efficiency and error reduction for I&O staff. AITSM is not an acronym.

Position and Adoption Speed Justification: I&O leaders are seeking new opportunities to automate and provide more proactive management of their environments.

Many ITSM tools currently demonstrate capability mostly in the context domain of AITSM, but rarely in the assistance and action domains. Progress is being made, but many ITSM product roadmaps have been focused on delivering chatbot and virtual support agents (VSAs). Some advanced ITSM tools are developing and have delivered analytics capabilities to improve knowledge management and drive more effective VSA capabilities.

In addition to developments within ITSM tool suites, there are several vendors offering stand-alone products to work with incumbent ITSM tools. Some are branded as AITSM but are generally focused on one or two areas, such as knowledge management tools or VSAs. Sometimes, the main AI-like component is just a natural language processing (NLP) engine that assists pattern matching knowledge and trends to speech (usually typed) but is not an adaptive system in any meaningful way beyond that.

The position of AITSM on this Hype Cycle represents AITSM in the full implementation of all four stages, not just context.

User Advice: AI solutions and adaptive systems require data and optimized practices to learn, predict and react to. Automation tools automate these reactions. Unoptimized processes can be automated, but with problematic outcomes.

Optimize ITSM practices for AITSM by identifying pockets of work that are standardized and repeatable enough to be eliminated or automated. Humans can carry out high-value cases to an extended degree (such as turning an error message diagnosis "break/fix" call into a business consumer training opportunity). This business productivity team approach will be made possible without increasing staff numbers if the lower-value interactions are dealt with by automated processes or — even better — eliminated through problem management and therefore will never need to be managed again.

Business Impact: AITSM is important for intermediate and advanced I&O maturity use cases to automate and support complex environments. Leveraging AITSM can offer benefits typically associated with automation and will be of particular interest to I&O leaders needing to optimize costs of service and support. Stage 1 AITSM capabilities (context) are unlikely to require capital investments, as these capabilities tend to be present in current ITSM tools. More advanced cases will require upgrades or procurement, so we expect to see this more often in organizations that are more focused on improving maturity than just cost cutting.

Benefit Rating: Moderate

Market Penetration: Less than 1% of target audience

Maturity: Emerging

Sample Vendors: Aisera; Axios Systems; BMC; Espressive; Moveworks; ServiceNow; Symphony SummitAI

Recommended Reading: "2019 Strategic Roadmap for IT Service Management"

"Critical Capabilities for IT Service Management Tools"

"3 Simple Ways IT Service Desks Should Handle Incidents and Requests"

XLA

Analysis By: Daniel Barros; David Groombridge

Definition: Experience-level agreements (XLAs) help drive better IT experiences by leveraging elements of digital experience monitoring (DEM), sentiment analysis and traditional service-level metrics that monitor the timeliness and effectiveness of supporting processes. The goal is to measure the end-to-end user experience within a given business process, and then be able to optimize it so that employees are continuously improving their technology experience in a wide variety of workspaces, including home offices.

Position and Adoption Speed Justification: XLAs are still in the early stages of maturity and adoption, and have not been traditionally measured, but organizations have found that focusing on the overall user experience drives higher user satisfaction and engagement. XLAs are currently mainly used in managed workplace services (MWS) deals, where client organizations seek to transform the employee experience. In these scenarios, clients want the service provider to agree to outcome-based metrics that go beyond timeliness in resolving tickets with a focus on the employee experience. XLAs aim to measure the end-to-end experience of a user in consuming the IT services necessary to perform their daily activities. In order to accurately measure this, XLAs usually rely on the implementation of DEM tools that are capable of measuring each touchpoint in the overall user journey, though they can also incorporate traditional user experience surveys. XLAs allow the impact of IT systems and services to be mapped directly onto business KPIs, allowing the creation of outsourced service deals that contract for defined business outcomes.

User Advice: Client organizations that need to enhance employee experience through digital workplace transformation should:

- Link technical service delivery to business KPIs by adopting XLAs with their service provider to measure and drive the desired user experience.
- Tie service revenue to improvement in XLA performance. Well-designed XLAs should also affect how the service is compensated. The overachievement of the target user experience should result in a premium, and the underachievement in a deduction. The premium and the reduction should be capped at an amount that is reasonable for both parties. However, having a financial incentive for overachieving the target is only effective for the client if the user experience metrics relate back to business performance.
- Ensure that XLAs measure end-to-end user experience by selecting providers with a strong track record in process mapping, analytics and digital experience monitoring. Down-select providers on the basis of their capability to demonstrate referenceable business improvement from ongoing XLA optimization. Seek providers who can align strong organizational change management to XLA-based deals.
- Organizations that run their own internal operations should identify the leading causes of employee dissatisfaction with IT services and improve them with a series of XLAs.

Business Impact: Any organization that is highly reliant on its workforce's engagement and digital dexterity to drive success should consider adopting XLAs with its service providers — or develop their own. The key purpose of an XLA is create meaningful user experience metrics that will be linked to business performance. The underlying metrics should measure individual factors that make up the user experience, such as:

- Network performance at the end-user device
- Performance of the applications that are relevant to the specific intended experience objectives
- Time to access needed applications
- User sentiment

The ability to measure these elements needs to be prebuilt by service providers. The decision of which specific metrics to use should be made through a professional services engagement to bridge the gap between the intended business performance improvements and the services that will be delivered and measured through the XLA metrics.

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: Atos; HCL Technologies; NTT DATA; TCS; Wipro

Recommended Reading: "Contract for User Experience When Outsourcing Managed Workplace Services"

"Getting Value From Employee Productivity Monitoring Technologies for Remote and Office-Based Workers"

"Market Guide for Digital Experience Monitoring"

Peer IT Support

Analysis By: Chris Matchett

Definition: Peer IT support occurs when business consumers get technical support and advice from other business consumers at Level 0 (self-service) before (or instead of) contacting a Level 1 IT service desk. This commonly takes place unofficially and rarely officially via forums and collaboration portals, or in person.

Position and Adoption Speed Justification: The consumerization of IT has changed employee expectations of IT support. Business consumers leverage user communities for quick and accessible resolution. This includes support forums, internet search engines and services such as LinkedIn and Quora. Gartner's research into business consumer support preferences in the digital workplace confirms that digital workers engage with colleagues for support questions before contacting the IT service desk. The research also revealed that asking peers for help both in person and via internet and social media sources were the most popular first-choice support channels. Although this is thriving outside of formal support practices, I&O leaders have been slow to formalize these channels within formal practices. Early movers are using collaboration portals and gamification to identify and reward knowledge, but this is a support channel that few I&O leaders have paid any attention to until recently, despite the large receptive audience. I&O leader interest in peer support has surged due to the increased shift to remote work due to the COVID-19 pandemic. Some IT service management (ITSM) tool vendors are beginning to provide features that facilitate peer IT support.

The position of peer support on this Hype Cycle represents formal peer support that is facilitated by I&O.

User Advice: Unofficial grassroots peer support happens in every company, but formalized Level 0 peer support is not suitable for every organization. Some business consumers prefer to contact only traditional support channels, and some business leaders don't want non-IT staff to spend any of their own time working on IT issues. I&O leaders must analyze the preferences and requirements of the user community before proceeding. Seek out business unit IT support that is already occurring in your organization, and identify pockets of knowledge within the employee community. Use the collaboration features in your ITSM tool or an already deployed enterprise social network or crowdsourcing platform to facilitate and track the interactions. Interface with the IT knowledge management (KM) processes to discover common issues and update the knowledge base where needed.

Identify valuable support activities that traditional reporting methods might miss (because they wouldn't hit the IT service desk) and take credit for facilitating the behaviors when justifying the performance of I&O to business leaders. Promote and reward collaborative behavior. Tools to support formalized Level 0 peer support are still emerging, so focus on simple activities for now. This is an alternative option that complements traditional support channels for low-urgency issues; it's not a replacement.

Business Impact: Business consumers are already going to their colleagues and crowdsourcing for support. IT service desks disrupted by pandemic-driven changes to the digital workplace that formalize these processes could benefit the most from successful, Level 0 peer support programs, because they can decrease the workload on the Level 1 and 2 support teams, reduce costs, and allow them to concentrate on other activities. Incident resolution (when measured from the initial interruption to service) can be expedited in cases in which the solution is simple, or when the expertise resides outside the I&O organization. When implemented properly, productive time is returned to business users, despite the perception that non-I&O employees might be distracted from their core duties. Consumer satisfaction with I&O can be improved by building engagement and trust.

Benefit Rating: Moderate

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Sample Vendors: Axios Systems; BMC; Broadcom; ServiceNow

Recommended Reading: "Don't Abuse Business Users for Peer-to-Peer IT Support"

"8 KPIs That Demonstrate How Self-Service Initiatives Advance Your IT Service Desk"

"3 Simple Ways IT Service Desks Should Handle Incidents and Requests"

"2018 Strategic Roadmap for IT Service Management"

Virtual Support Agents

Analysis By: Chris Matchett

Definition: Virtual support agents (VSAs) are conversational agent applications that deliver information, provide answers to common questions, and perform transactions to provide IT support and assistance to business consumers in an IT service management scenario alongside the IT service desk. They are an IT-support-specific subset of virtual assistants that leverage chatbot capabilities but also take actions like reset passwords, deploy software, escalate support requests and execute scripts to restore IT services.

Position and Adoption Speed Justification: VSAs enable I&O leaders to offer interactive user experiences to access data, execute transactions, leverage automation or obtain support without directly engaging a human support agent. They offer the potential to leverage natural language processing (NLP) and machine learning to improve business consumer engagement for employees that prefer this support channel.

While there is rapidly growing interest fueled by post-COVID-19 cost optimization planning, the majority of VSA offerings remains immature. Adoption has been correspondingly limited. I&O leaders are instead focusing AI strategies for IT service desk on scripted chatbots to handle simple and repetitious questions. Many vendors and marketers use key terms and concepts interchangeably, leaving buyers confused. ITSM tool vendors are commonly leveraging third-party chatbot software for simple capabilities they see as good enough to meet a chatbot requirement in a competitive bid. A select few vendors have introduced new VSA products in the past 24 months. These look promising, but we have not seen enough evidence to confirm if the full business case potential of VSA (beyond chatbot) has been met in such cases. Despite the potential benefits, cultural resistance may be one of the biggest initial inhibitors to overcome. Gartner's 2019 digital workplace study revealed that only 9% of business consumers choose VSA or chatbots as one of their top-three support options for IT issues in the workplace. For VSA usage in technical support to be accepted, it must establish trust and deliver tangible value to business consumers.

User Advice: I&O leaders looking to invest in VSA technologies should first determine business consumer interest by observing consumer trends outside the digital workplace and through direct engagement, including surveys, focus groups and product demos with employees. Invest only when the benefits of efficiency and additional contact channels outweigh any negative impact on engagement.

Focusing on high-impact use cases (driven by high volume or business criticality) will have higher chances of success and thereby will ensure ongoing commitment toward VSAs. Monitor developments in VSA technology, both stand-alone and ITSM tool suites, as one of several potential ways of satisfying these needs. Closely manage the expectations of business users and sponsors, as it may take some time before VSAs can begin to meet the identified business user expectations. As a result, plan to augment, not replace, traditional human-facing channels until the technology matures and there is clear support for such a change.

A reasonable starting point for the current set of solutions is an alternative search interface to the knowledge base. As many of these products require training to become functional, starting with the knowledge base can be a significant accelerator. In many cases, I&O leaders will find they need to (re-)establish a foundation in knowledge management by using techniques like knowledge-centered service (KCS) before they can start down the VSA technology path. Use context capabilities of

AITSM to enable VSAs to learn and generate new solutions beyond the static scripting of existing knowledge. Also, ensure that logic is embedded into the VSA to collect business consumer feedback and capture the relevance of knowledge responses.

Business Impact: Fundamentally, VSAs augment the capabilities of existing systems through a human-oriented delivery mechanism. While they may displace some incoming call volume, it's unreasonable to expect them to completely replace traditional live agent intake channels. They should be used to provide additional choices for business users and enable live agents to focus on higher-value transactions. Since VSA implementations are limited to simple transactions, like password reset, the promise lies in executing more-complex task-based actions (e.g., opening a new incident ticket). In these situations, users are provided a series of natural-language prompts asking for information used to perform back-end actions instead of dealing with complex forms and cumbersome workflows. This works well because there's a clearly identified and understood context. In this way, VSAs can add value by reducing time to resolution, saving steps by leveraging contextual information or offering extended support hours without increasing staff.

Benefit Rating: Moderate

Market Penetration: Less than 1% of target audience

Maturity: Emerging

Sample Vendors: Aisera; Creative Virtual; Espressive; Moveworks

Recommended Reading: "When Will AI Virtual Support Agents Replace Your IT Service Desk?"

At the Peak

Artificial Intelligence for IT Operations (AIOps) Platforms

Analysis By: Charley Rich; Pankaj Prasad

Definition: Artificial intelligence for IT operations (AIOps) platforms combine big data and machine learning through support of all primary IT operations functions through the scalable ingestion and analysis of the ever-increasing volume, variety and velocity of data generated by IT operations. The platform enables the concurrent use of multiple data sources, data collection methods, and analytical and presentation technologies.

Position and Adoption Speed Justification: Increased demand for AIOps platform capabilities is fueled by the growing need to intelligently drive the acceleration and automation of IT operations functions through analysis of both historical and real-time data. This is happening as roles and responsibilities converge (with DevOps and SRE as a leading examples) in the pursuit of greater agility as well as the ever increasing momentum behind digital transformation. The desire to intelligently drive automation requires continuous insights derived from machine learning algorithms based on data generated by ITOM disciplines like APM, ITIM, NPMD, DEM and ITSM. AIOps platform adoption — in particular, machine-generated data including logs, metrics and traces, as

well as human-processed data such as incidents dependencies and changes — continues to rise in support of ensuring high-quality digital experience.

Interest and investment will continue to rise due to:

- Rapid growth in data volumes generated by the IT systems, networks and applications
- Increasing data variety — velocity at which data is generated and changing
- Challenges in maintaining observability and improving engagement due to the adoption of cloud-native and ephemeral architectures
- The need to intelligently and adaptively drive the automation of recurring tasks and predict change success and SLA failure

AIOps capabilities have evolved across multiple dimensions:

- The domain-agnostic AIOps platforms with vendors offering a general-purpose AIOps platform.
- Domain-centric AIOps vendors, that have the key components, but with a restricted set of use cases focused on one domain (for example, network, endpoint systems, APM or ITSM).
- Do it yourself (DIY), where end users can mix and match the components, essentially assemble tools for data ingest, a big data platform, ML and a visualization layer from multiple providers or open-source projects.

Machine learning uses multiple analytical approaches, while remediation requires significant maturity. Gartner still sees event correlation as the predominant practical use case, while aspirational goals like real-time business insights requires end-users to invest in resources like time, effort and skills. Remediation is still being handled via rule-based approaches although vendors are beginning to deliver ways to systemize and recall the problem resolution process for later reuse.

User Advice: I&O leaders must build a strategic AIOps platform investment plan that is tied to driving measurable business outcomes though analysis of performance, digital experience and delivery automation while utilizing stagewise implementation of AIOps capabilities:

- Begin with practical goals, such as reducing operational noise through event correlation and anomaly detection, and later moving on to root-cause analysis.
- Start proactively detecting the signals that indicate emerging problems before users are impacted.
- Use NLP to democratize the automation of reoccurring workflows, making it easier to initiate them without deep specialist skills.
- Apply the pattern-matching capabilities of AIOps to the DevOps build-deploy process in order to detect potential impacts to production prior to deployment.

The AIOps strategy must account for the following:

- Balancing ease of implementation/use with interchangeability of platform capabilities

- ITOM tool portfolio rationalization
- Key technology gap investment

Before embarking on an AIOps journey, I&O leaders must determine whether using a domain-centric AIOps solution such as a monitoring tool that leverages machine learning is sufficient or whether a separate AIOps solution is necessary for their use cases. The domain-centric solution will likely have a shorter time to value, but its scope will be narrow and impact will be less. Domain-agnostic solutions may address a broad scope, and while their time to value will necessarily be longer their impact can be greater. If a domain-centric solution is already deployed for its primary purpose, evaluate its capabilities for AIOps in relation to the data sources that must be analyzed before considering a domain-agnostic solution.

Business Impact: By enabling I&O teams to enhance and transform major operational functions with a real, automated insight generation capability, organizations across all verticals stand to realize:

- Agility and productivity gains — via active combined analysis of both IT and business data, yielding new insights on user interaction, business activity and supporting IT system behavior.
- Service improvement and cost reduction — via a significant reduction in time and effort required to identify the root cause of availability and performance issues. Behavior-prediction-informed forecasting can support resource optimization efforts.
- Risk mitigation — via active analysis of monitoring, configuration and service desk data identifying anomalies from both operations and security perspectives.
- Competitive differentiation/disruption — via superior responsiveness to market and end-user demand based on machine-based analysis of shifts, beyond those that are immediately obvious to human interpretation.

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Emerging

Sample Vendors: Aisera; Appnomic; BigPanda; BMC; Digitate; Moogsoft; ScienceLogic; ServiceNow; Splunk; StackState

Recommended Reading: “Market Guide for AIOps Platforms”

“Avoid the Unexpected Consequences of IT Change Management With AIOps and CMDB”

“Assess Approaches to AIOps for a Comprehensive Solution”

“Deliver Cross-Domain Analysis and Visibility With AIOps and Digital Experience Monitoring”

“Augment Decision Making in DevOps Using AI Techniques”

Site Reliability Engineering

Analysis By: George Spafford; Daniel Betts

Definition: Site reliability engineering (SRE) is a collection of systems and software engineering principles used to design and operate scalable resilient systems. Site reliability engineers work with the customer or product owner to understand operational requirements and define service-level objectives (SLOs). The site reliability engineer then collaborates with IT stakeholders to design and continuously improve systems that will meet the SLOs. For products or platforms that meet SRE guidelines, the engineer may choose to provide operational support.

Position and Adoption Speed Justification: SRE is a discipline originally created by Google, and was described in the 2016 book, "Site Reliability Engineering: How Google Runs Production Systems." Adoption interest continues to grow both by digital-native organizations as well as traditional enterprises. SRE emphasizes the engineering disciplines that lead to resilience, but individual organizations implement SRE in widely varying ways. SRE is a complementary practice for organizations seeking to scale their DevOps activities.

SRE is intended to help manage the risks of rapid change, through the use of service-level objectives (SLOs), "error budgets," monitoring, automated rollback of changes and organizational learning. SRE teams are often involved in code review, looking for problems that commonly lead to operational issues (for instance, an application that does not do log cleanup and therefore may run out of storage). They also ensure that the application comes with appropriate monitoring and resilience mechanisms, and that the application meets SRE approved standards or guidelines set to achieve negotiated SLOs. SRE teams can serve as an operations function and nearly all such teams have a strong emphasis on blameless root-cause analysis. This is to decrease the probability and/or impact of future events and enable organizational learning, continual improvement and reductions in unplanned work.

SRE practices are being adopted by organizations that need to deliver digital business products reliably. These practices require a culture that supports learning and improvement, highly skilled automation practices (and usually DevOps), usage of infrastructure as code capabilities (which usually requires a cloud platform). SRE also uses automation to reduce manual processes, leverages resilient system engineering principles, and an agile development process that employs continuous integration/continuous deployment (CI/CD).

User Advice: Organizations can benefit from SRE principles even if they are not sufficiently mature, agility-focused, or large enough to adopt SRE as a primary operations model. The SRE principles for risk management, release engineering, handling service-level objectives, monitoring, automation, and self-healing can be applied to a broader range of products and platforms. SRE also represents a useful means to scale DevOps initiatives.

An SRE initiative should have an executive sponsor. The first opportunity to begin with should have the following characteristics:

- The target application must change rapidly yet maintain high availability in order to maximize business value. Stakeholders should be politically friendly.

- The pilot must demonstrate sufficient value to improve credibility and support, yet also have an acceptable level of risk, allowing the stakeholders to learn.
- The initial SRE team must have a collaborative engineering mindset, strive to continuously learn and improve, and desire to automate tasks to reduce repetitious manual work, which is known as "toil." It is often easiest to move DevOps-skilled employees from different parts of the organization, due to the relative difficulty of hiring engineers with SRE experience. A site reliability engineer is typically a software engineer with an excellent understanding of operations, or, less frequently, an infrastructure and operations engineer with strong programming skills.
- There must be clear SLOs that can be continuously monitored and reported against.
- The SRE collaborates with developers to help them learn how to design and build their product to meet the defined SLOs — the SRE is not doing the actual development work or inspecting quality in.
- The application development team must collaborate with the SRE team to meet SLOs. Developers are responsible for a resilient architecture and reliable code. SREs should not spend more than 50% of their time on ad hoc operational activities. Any excess should go to the developers for support.
- An iterative approach must be used to start and evolve SRE practices. The teams involved must share experiences and lessons learned.

Business Impact: The SRE approach to DevOps is intended for products and platforms that need to deliver customer value at speed at scale while managing risk. The two primary use cases are to improve reliability of existing products or platforms as well as to in creation of new products or platforms that warrant the investment in reliability.

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Recommended Reading: "DevOps Teams Must Use Site Reliability Engineering to Maximize Customer Value"

"SRE and DevOps: End-to-End Accountability"

"Agile and DevOps Primer for 2020"

"Innovation Insight for Chaos Engineering"

"Maverick* Research: Software Testing and the Illusion of Exterminating Bugs"

Sliding Into the Trough

Continuous Delivery

Analysis By: Hassan Ennaciri

Definition: Continuous delivery (CD) is an approach that enables DevOps teams to create an automated pipeline for producing software in short cycles. CD ensures that software can be reliably released any time via a DevOps toolchain and is a key capability of a DevOps initiative.

Position and Adoption Speed Justification: Growing DevOps initiative success continues to drive enterprise investments in CD capabilities. CD improves release velocity and reliability while simplifying compliance enforcement via automation. Continuous integration (CI), automation and testing are core to CD. These functions provide environment models that can be leveraged throughout the software development life cycle (SDLC) to more consistently deploy application builds and updates.

CD is a nonprescriptive, evolving approach that DevOps teams can deliver and realize in many ways. Given the emerging state of CD, market demand and vendor responses have been fragmented. DevOps teams typically start by automating functions that can clearly demonstrate the value of CD (e.g., application deployment and release configuration) when integrated with CI and testing. As a logical linkage between CI and operational functions, CD plays a critical role in building scalable DevOps toolchains.

User Advice: DevOps teams should incorporate CD processes to help reduce friction throughout the SDLC. They must also evaluate and invest in associated tooling, such as application release orchestration tools, containers and continuous configuration automation tools. These tools provide some degree of environment modeling and management, which can prove invaluable for scaling CD capabilities across multiple applications.

When starting a CD initiative, enterprises must consider all associated technologies and take an interactive approach to adoption. This will require collaboration with all stakeholders from product, development, security and operations. To enable a higher likelihood of CD success, DevOps teams must also establish consistency across application environments and implement a continuous improvement process that relies on proficiency metrics. DevOps product teams should assume that there will be continual discoveries about roles and responsibilities, required skills, automation details and documentation, especially during the early phases of adoption. DevOps teams should build requirements for CD tools with a broader view than just one environment (development, test, quality assurance, preproduction or production) and one application (for example, Java and .NET). The primary application of CD is to extend CI processes, but organizations also need to consider applying CD principles to infrastructure automation.

Business Impact: CD is a key capability of a DevOps initiative that reduces build-to-production cycle time. This accelerates the positive impact of new applications, functions, features and fixes by increasing velocity across the application life cycle. The positive impacts include improved business

delivery and end-user satisfaction, improved business performance and agility, and risk mitigation via rapid delivery of updates.

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Adolescent

Sample Vendors: Broadcom; Chef; CloudBees; GitLab; Harness; IBM; Microsoft; Puppet

Recommended Reading: "How to Build and Evolve Your DevOps Toolchains"

"The Future of DevOps Toolchains Will Involve Maximizing Flow in IT Value Streams"

"Magic Quadrant for Application Release Orchestration"

"Critical Capabilities for Application Release Orchestration"

Walk-Up IT Support

Analysis By: Keith Andes

Definition: Walk-up IT support is a formal face-to-face support channel that offers a location where business consumers can go to interface with IT personnel. Walk-up centers provide standard support services such as break/fix, troubleshooting and "how to" support through prescheduled appointments or ad hoc requests. Walk-up centers can also serve a broader function with services such as new-hire onboarding, technology training, education around new IT offerings, marketing and other available IT services.

Position and Adoption Speed Justification: The consumerization of IT and continued shift toward mobility have changed expectations of IT support. Through 2019, opportunities to improve business consumer satisfaction with IT continued for organizations with a centralized worksite and users with mobile devices (such as laptops). Even though the number of users with mobile devices increased during the COVID-19 pandemic, access to a centralized worksite has been all but eliminated for the time being. With centralized worksites returning to operations, there will be more mobile users to support. Mobile users have often preferred to bring their issues to a live person and have their problem resolved on the spot.

Walk-up support takes many forms. Market adoption of formal and informal walk-up support programs remains low and has been nearly nonexistent during government-sanctioned stay-at-home orders. While many organizations have had some form of walk-up support prior to the COVID-19 pandemic, Gartner client interactions indicate that this face-to-face support had often been ad hoc, and not usually through a formal channel. Although adoption of formal walk-up support grew through 2019, some IT service desk leaders have been hesitant to implement this channel due to the cost.

User Advice: Not all environments will be conducive to walk-up support services. Particularly, large campus sites are best-suited to walk-up, while small sites are not. Additionally, locations that consist primarily of fixed workstations are generally not a good fit for walk-up services. Conditions before and after the pandemic should be evaluated to determine if walk-up support will provide value upon return to a centralized worksite. This is especially true for organizations that intend to retain the increased number of mobile devices deployed during the pandemic. IT leaders must review their organizations' objectives, budget, staff, office space, and culture in deciding if and how to provide walk-up support.

Successful walk-up support implementations require a focus on experience, value-added services (beyond break/fix), branding, location, staffing, business value metrics, and process and tool integration. Where possible, identify locations that are easily accessible and with high business consumer activity to generate increased foot traffic. As an example, a pop-up table or booth can take advantage of an annual meeting or special event when remote workers are being brought on-site. For smaller locations, or when challenged with budgetary constraints, periodic walk-up support centers opened for limited predetermined windows in common areas or conference rooms may provide a suitable alternative.

Recommendations:

- Pilot walk-up services to gauge interest and establish best practices before rolling out larger-scale implementations.
- Promote the services offered at the walk-up support center to the user base to encourage attendance.
- Provide a "menu" of services that are supported by walk-up IT support. This can serve as marketing material, as well as helping to manage the scope and volume of interactions.
- Avoid operating walk-up support in a silo by ensuring that the staff has the tools necessary to create tickets in the IT service management (ITSM) tool for each interaction.

Business Impact: Walk-up support is complementary to — but does not replace — other support channels. It also does not reduce support costs or increase scalability in the short term. The cost of building out the infrastructure (including the office space, furniture and automation tools required) and staffing with the necessary skill sets often requires an initial capital investment.

The value provided by walk-up support comes from increases in staff engagement, improvements in the perception of IT responsiveness, and reduction of friction that limits staff performance. Walk-up support provides mobile users a location where they can bring their smartphones and tablet devices, which may otherwise be more difficult to remotely troubleshoot. They also help users associate real people with IT, which provides a better connection to IT and assurance that somebody is available to help them with their issues.

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Recommended Reading: "5 Best Practices to Create a Successful IT Walk-Up Center"

IT End-User Satisfaction Assessment

Analysis By: Siddharth Shetty

Definition: IT end-user satisfaction assessments help organizations assess the sentiment of consumers of IT services and plan for closing gaps and deficiencies in service or recognize the strengths and build on them. Various methods and tools are deployed to understand the level/degree of satisfaction among consumers of IT services.

Position and Adoption Speed Justification: IT end-user satisfaction has been measured in various forms and methods. It enables the IT organization to determine whether the services were delivered in an adequate and mutually agreed-on manner, were of sufficient quality, and satisfied the end user. Different methods can be used for assessing end-user satisfaction like annual IT surveys, surveys post ticket closure, Net Promoter Score (NPS) and Customer Effort Score.

There are broadly two kinds of tools for measuring end-user satisfaction:

- Specialized survey tools enable the creation of ad hoc surveys that can be administered at any point in time. Some of these tools can be low cost, and many are available in a SaaS model as well. These tools can have social media, email and chat integrations for sending/receiving feedback or publishing results. They may also integrate with other applications, such as ITSM and ERP tools. These tools are mostly used for periodic surveys.
- Tools that are a part of ITSM tools. ITSM tools often provide basic survey functionality that is adequate for transactional surveys, but may lack advanced functions, such as branching and piping.

The problems that most organizations suffer from are erratic survey administration and asking too many of the wrong questions. This inconsistent strategy results in poor end-user participation. They rarely conduct complex or role-based surveys or use different levels of data access and report views. However, we expect the usage of survey tools to increase in the next two to three years, and the more-complex surveys to be conducted at a higher frequency. This increase in survey usage will be driven primarily by the need of I&O organizations to assess the business user perception of their services to aid in future I&O strategy development and to justify funding for I&O projects (wherever applicable). Incorporating business user feedback as part of I&O strategy will support the service broker role that I&O organizations will be expected to perform in the future.

User Advice: IT end-user satisfaction surveys provide visibility into the perceived value of their delivered services by the business user; however, they are effective only if acted on. IT leaders should leverage these surveys to:

- Generate key information that drives decision making
- Capture key factors affecting "moments of truth" and "touchpoints"

- Promote effective communication between I&O and the business
- Enable a process to provide feedback to IT on the perceived quality of its services
- Conduct resource allocation planning
- Execute planning for training and skills upgrades

Getting an adequate number of responses from the right audience has always been the challenge. Organizations need to take special care to ensure that the surveys are short, simple, easy to comprehend, easily administrable and not too frequent (see "How to Improve IT Satisfaction Survey Quality and Utility in Three Steps"). Incentive-based surveys get more responses, but the incentives need to be appealing for the audience. Corrective actions taken as a result of these surveys should be shared with the users as much as possible. Maintain a consistent strategy for IT satisfaction surveys in terms of the frequency of surveys, number of questions and communicating what was done with survey data. This helps users see the value and impact of such surveys and pushes them to increase their participation.

Business Impact: End-user-satisfaction-level data will help in understanding the perception of IT among users. Such information helps the business make the right IT investment decisions by plugging any major shortcomings, improving quality of service, planning training for IT service associates and building technical competencies across teams. Depending on the capability of the survey management tool, complex feedback data like business unit satisfaction levels and customer perception of I&O subgroups or technical functions can be ascertained. IT end-user satisfaction assessments, followed by sharing of key data and visible actions taken on the ground to improve services, help build a positive image of IT with business users and external customers. A positive IT image helps build confidence with business and other IT users, which may translate into more investments in IT.

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: Survey Analytics; SurveyGizmo; SurveyMonkey; Zoho

Recommended Reading: "Measuring End-User Satisfaction Is Critical for IT Service Support"

"Use Net Promoter Score to Measure Business User Satisfaction With the IT Service Desk"

"Effective Communications: IT Satisfaction Surveys"

"Start Measuring IT Service Desk Anti-Dissatisfaction"

IT Support Live Chat

Analysis By: Keith Andes

Definition: IT support live chat facilitates real-time support interactions between business consumers and live service desk agents via text chat. A live chat session can take place through a browser-based web chat application or an instant messaging (IM) client. During a chat session, business consumers may share their screen or application to help with remote troubleshooting and resolution.

Position and Adoption Speed Justification: Interest in IT support live chat has often been based on cost containment by increasing the number of tickets that an IT service desk can handle at one time. However, adoption by business consumers is often limited. Additionally, most implementations have been ad hoc and not directly integrated into IT service management (ITSM) tools. Without supporting tools and processes, these initiatives have largely failed to enable agent multitasking and desired scalability. Over time, however, ITSM tool vendors have been adding or improving live chat capabilities and integrations. While progress has been slow, Gartner expects these ongoing capability improvements to benefit multitasking and drive further interest in IT support live chat in the future.

Market penetration today is similar to 2019, though may accelerate in the second half of 2020 as organizations restructure. As a result of the COVID-19 pandemic, some organizations have found the need to introduce devices to roles previously without, so that they could continue to work while sheltering in place. Due to this and increased remote work in general, some employees may now find live chat viable where it was not before.

User Advice: IT leaders evaluating support via live chat should seek to add value, rather than view it as a cost-saving mechanism. The ratio of parallel live chat conversations conducted per agent directly impacts quality and must be limited. This ratio, however, can improve with experience over time, while retaining quality.

Complement existing channels by identifying usage scenarios in which live text-based interactions offer new opportunities for business consumers. Examples are large contact center environments in which business consumers cannot disengage from automatic call distribution (ACD) queues to call the IT service desk, and regions where language constraints make telephone support cumbersome.

To ensure it is suitable for the environment, organizations looking to deploy live chat for IT support need to carefully evaluate end-user requirements and culture, as well as internal skills and tooling. IT service desks may need to hire additional head count or conduct a skills assessment to realign existing staff who demonstrate strong written communication skills. Capacity planning that factors in agent skills, complexity of support and supporting technology should be used to help determine staffing requirements (the ratio of agents to chats).

Gartner has spoken with a number of organizations leveraging collaborative IM and support tools (such as remote desktop support or ITSM) for IT support live chat. Although the inclination to leverage in-house chat capabilities is high, IT leaders must be able to integrate them into ITSM workflows. Examples of ways in which integration can help agent productivity include:

- Avoiding manual effort (such as copying and pasting session into an incident record)
- Streamlining supervisor visibility (via a reporting dashboard)

- Enhancing the business user experience (with the ability to link a chat session to an IT support ticket)

Business Impact: Omnichannel strategies are required to address the increasingly complex needs of the digital workforce. Live chat in the IT service desk enables on-demand, real-time interaction with IT support agents when the use of other channels, such as phone support, may not be practical. However, this is only viable for employees who have a screen. IT support live chat is also typically unable to reduce the burden on the IT service desk. Instead, live chat supports targeted work environments and user preferences, thereby improving business consumers' experience and perception of the IT service desk.

Increased automation through chatbots and virtual support agents provides an alternative chat-based interface. However, this technology is still immature, and often benefits from an integrated handoff to a live chat agent when an interaction goes beyond the technology's capabilities. As a result, live chat between business consumers and human agents remains a practical and relevant solution.

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Recommended Reading: "Making Live Chat a Must-Have Engagement Channel"

Knowledge-Centered Service

Analysis By: Rich Doheny

Definition: Knowledge-centered service (KCS) is an industry-recognized methodology for IT knowledge management (KM) created by the Consortium for Service Innovation. The methodology focuses on driving knowledge to the point of demand as soon as possible, through embedding the creation, use and maintenance of support knowledge. KCS is driven by the core principles of collaboration, value creation and customer centricity.

Position and Adoption Speed Justification: Many IT support organizations struggle to institutionalize KM. When Gartner asks clients why they have been unsuccessful with KM adoption, engagement and participation, they often call out lack of time and resources, bloated and out-of-date knowledge bases, or they simply blame their tools. Cultural challenges and human elements remain key roadblocks to successful KM adoption. KCS focuses on culture, behavior and performance management, which lend themselves well to navigating these challenges.

KCS' last major update was in 2016. Despite the potential value of KM for infrastructure and operations teams, Gartner client interest around KCS for IT service management remains low since the update. Some I&O leaders will experiment with KCS to address specific pain points, however, will fail to incorporate it into a broader long-term strategy. Without a well-designed program in place that creates knowledge for specific roles, clearly defines KPIs for success and proactively identifies

the value of the knowledge created, these programs often fail to maintain their funding and leadership's support. I&O leaders are also starting to experiment with machine learning and natural language processing technologies to automate knowledge capture and sharing. While this is not a full replacement for good knowledge management practices, it can augment or replace a traditional knowledge base for specific needs (e.g., building responses for self-service support via a chatbot or virtual support agent).

User Advice: I&O leaders must approach KM as an organizational change, not just a technology purchase. Many organizations that fail with their KM initiatives do so because they treat the initiative predominantly as a knowledge base or a tool implementation. Processes, policies and procedures are key, and these efforts must be integrated into relevant processes, such as incident and request management, to institutionalize knowledge practices. I&O leaders should leverage the relevant core concepts and principles of KCS. These include the integration of knowledge into the processes that use it, focus on value creation, rewarding the use of knowledge, and the need for life cycle management of knowledge, as one source of guidance in their knowledge management strategy.

Processes and tools are only as good as the people using them. Teams that are unaware of processes or are not given incentives to follow them will lack desire and capability; and, if there's little to no framework in place for reinforcement, then progress with KM won't take place. Defining accountability for your knowledge management program and adopting a methodology such as KCS will provide structure and guidance to make success more likely, and to break through many of the cultural and behavioral barriers.

Business Impact: IT organizations that pragmatically leverage KCS guidance as part of their knowledge management program can create a more dynamic and sustainable knowledge management program. The concepts within KCS help IT leaders shift the focus around knowledge management toward the process and cultural elements, rather than thinking of it as a one-time technology investment. Knowledge management can create significant value in terms of increasing the efficiency and effectiveness of your IT organization. It can be seen in the form of providing the right information at the point of demand, enabling self-service channels, and reducing the time it takes for a new hire to get up-to-speed. This drives down support costs and frees up support capacity, which can then be deployed elsewhere. From a qualitative perspective, knowledge management can increase customer satisfaction and influence overall customer perceptions by increasing the quality of support.

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Recommended Reading: "Use These Three Techniques to Achieve Success With ITSM Knowledge Management"

"Knowledge Management Practices Must Support Both IT and Business Consumer Needs"

Software Asset Management Tools

Analysis By: Ryan Stefani

Definition: Software asset management (SAM) tools help maintain compliance with licensing agreements and optimize software spending by identifying opportunities to reuse software, by monitoring consumption and providing data to improve software negotiations. They facilitate this by aggregating organization's entitlement and consumption data, and then reconcile it in order to establish an effective license position (ELP). This is becoming increasingly important given the complexity of SAM in hybrid environments.

Position and Adoption Speed Justification: While SAM tools continue to be of interest within organizations to simplify the management of their software in order to reduce waste and risk of noncompliance, they've come to find that SAM tools alone do not suffice. Organizations that have opted to procure, deploy and maintain a SAM tool have encountered issues with realizing the expected benefits, leading to failed SAM initiatives.

This disappointment is attributed to two key factors:

- **Underestimating complexity of managing entitlements.** Most software obtained by organizations does not comply with ISO 19770-3 format, which provides data and format structures for publishers to provide customers with once they purchase entitlement to enable automated loads of software entitlements. This results in a complex and resource-intensive process to manually enter their software entitlements that is often overlooked at the time of purchase.
- **Inability to automatically create an ELP.** SAM tool vendors market their solutions' ability to easily produce an ELP for complex licensing. While SAM tools do enable easier ELP creation, the increasing complexity of environments and license metrics often inhibit the ability to automate this process. The core means for identifying software consumption to support reconciliation, is through the use network discovery and inventory tools. This does prove valuable for many software applications but doesn't account for alternative metrics that aren't discoverable such as indirect access or client access. This leads to manual intervention, or the use of additional data collection tools to produce an ELP.

While SAM tools don't fully automate the management of software, they help organizations automate portions of the function. This is still extremely valuable as it reduces the time required to manually produce an ELP and allows skilled resources to focus on identifying opportunities to optimize the software estate.

User Advice: Determine what publishers, applications and environments are in scope. Focus on the most impactful publishers. Start with the top 80% of software spend and publishers with a high risk of audit activity. This list should be manageable and would concentrate your efforts based on the most significant impact.

From there, obtain a list of the underlying applications your organization uses to focus on three items:

- **Entitlement management:** Organizations should evaluate the vendors' product catalog for in-scope applications, to determine the level of effort required to create and maintain accurate entitlement records. Loading and managing entitlements is a resource-intensive process, that should be accounted for. Organizations can also look to third parties such as SAM service providers or resellers with licensing expertise to help with these ongoing efforts.
- **Consumption:** Determine how is consumption measured, per user, per install, hardware configuration, etc. Then ascertain what environments (IaaS, SaaS), operating systems, and virtualization technologies are present in the organization, as these will determine how consumption is measured and your inventory needs strategy. Use the out-of-the-box SAM tool integrations, where available, and constantly monitor data for accuracy and ensure that no new data is needed to monitor consumption. If needed, evaluate the use of additional data sources or tools required to supplement your SAM tool.
- **Reconciliation:** Don't anticipate having a real live ELP for all applications all the time. Organizations must create a schedule for reconciliation of in-scope applications, based on risk and events like renewals. Creation of an ELP is very resource-intensive and requires highly specialized expertise for specific publishers. Organizations must adequately staff for this effort or seek the assistance of third-party service providers to successfully create ELPs in order to optimize their costs.

Business Impact: Software expenditures continue to grow and remain a top IT expense for most organizations. At the same time, software vendor audits are still prevalent, as they continue to underpin revenue; this is likely to disrupt organizations with unplanned expenditures. Additionally, organizations are continually adopting the use of cloud computing, by shifting workloads to public cloud providers and introducing new SaaS applications. This is increasing the complexity of SAM by adding the need to manage the consumption of these cloud services, introducing new complex licensing rules, and increasing the amount of shadow IT in organizations.

SAM tools manage software licenses to help mitigate compliance risk and optimize consumption. All industries need to both reduce audit risk and optimize software spending. As organizations move to new licensing models, they must efficiently consume licenses to avoid creating high watermarks in their licensing agreements that will be a challenge to true-down after the fact. Procurement departments will benefit from SAM by having better data to support contract renewals and prevent license compliance issues that offset their negotiation leverage. Gartner expects strong, continued adoption among enterprises that want to implement software license management for compliance and improve spending for installed and as-a-service software.

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Sample Vendors: Aspera; Certero; Eracent; Flexera; Ivanti; License Dashboard; Matrix42; ServiceNow; Snow Software; Xensam

Recommended Reading: "Magic Quadrant for Software Asset Management Tools"

“Critical Capabilities for Software Asset Management Tools”

“Software Asset Management for the Cloud: Consumption Management and Optimization Take Center Stage”

“Three Critical Elements of a Successful Software Asset Management Tool Implementation”

Cloud Service Expense Management

Analysis By: Dennis Smith

Definition: Cloud service expense management (CSEM) is the practice of reviewing, reconciling and optimizing the charges for services provided by external cloud service providers (CSPs). A set of vendors provide tools to answer questions such as “Did you get what you paid for?,” “Are you paying for the right things?” and “How can I optimize my spend?” Managing cloud expenses is vitally important as organizations increase the number of cloud services they use, because many don’t understand their cloud consumption and associated expenses.

Position and Adoption Speed Justification: The need to provide cost management and workload optimization within cloud deployments has become prominent as investment in public cloud resources grows and the need for expense transparency also increases. Organizational maturity regarding CSEM has increased for some organizations but still lags for many. The energy associated with using external cloud resources has outpaced efforts to gain a deeper view of expenses.

There is an increased industry awareness of the need for this functionality as public cloud adoption has increased. Gartner finds that unhappiness with cloud deployments is often related to an inability to manage costs. Many vendors that initially provided CSEM functionality have been acquired. These vendors and most remaining vendors are now combining CSEM related functionality with governance, software and hardware asset management and/or cloud workload optimization. Historically, public cloud providers provided limited insight into the costs and usage of their environment. Recently significant improvements have been made, including Amazon Web Services (AWS) Cost Explorer and Microsoft Azure Cost Management. However, these tools are targeted exclusively at their own environments, so organizations looking to understand spend in multiclouds will still need to use third-party tools. Initially, cloud management platforms (CMPs) did not address CSEM, but now most CMPs have added the functionality. CSPs and management service providers (MSPs) are also providing cloud service expense management services and or tools.

It is anticipated that these tools will see more adoption post COVID-19 as enterprises look to optimize their IT expenses.

User Advice: IT leaders need a strong understanding of their external cloud expenses. They should deploy processes and tools to:

- Determine who in the organization is spending money on cloud resources.
- Execute a tagging strategy to help in cost management.

- Ascertain whether they've got what they paid for — to gain an understanding of the expense, IT leaders need to know whether they received the appropriate services associated with the expenditure.
- Obtain the best value possible — IT leaders need to track the services they need against the expenses incurred, and to determine whether there are more efficient ways of obtaining the same required services.
- Evaluate usage for what was contracted — overprovisioning can be costly, so IT leaders need to identify whether they're using the services which they've paid for.
- Align expenses to needs — IT leaders need to be able to interrogate the expenses incurred and to determine whether they're being properly applied to real imperatives.

If you only require cost management functionality look for a tool or service that provides that, not a multifunction CMP. If you are looking to select or have deployed a CMP tool, look to see what CSEM capabilities are provided.

Do not accept your service provider's invoice at face value. Even if it's accurate, you can probably identify potential expense reductions or invest in more processing power for applications or services that create additional business value.

Business Impact: CSEM has the potential to affect business services and processes across all verticals. This involves the ability to compare costs, identify waste and create more-efficient spending opportunities. Treating public cloud resources in a businesslike manner — optimizing resource unitization and managing spending — will enhance IT's credibility by delivering business value in terms that business leaders understand.

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Early mainstream

Sample Vendors: Apptio; CloudCheckr; Flexera; Turbonomic; VMware

Recommended Reading: "Magic Quadrant for Cloud Management Platforms"

"Critical Capabilities for Cloud Management Platforms"

"Reduce Cloud Spend and Risk by Identifying I&O's Role in Cloud Governance"

IT Service Catalog

Analysis By: Siddharth Shetty

Definition: IT service catalogs support fulfillment of requests from business users by simplifying how IT communicates the details of IT service offerings and enabling easy submission of requests. This catalog should provide clear information on pricing, service-level commitments, escalation/exception-handling procedures and instructions for how to request IT services. Most IT service

management (ITSM) tools also provide a process workflow engine to automate, manage and track service request fulfillment.

Position and Adoption Speed Justification: IT service catalogs gained impetus with the ITIL v3 update more than a decade ago (in 2007); however, analysis of IT Score for Infrastructure and Operations (ITSIO) reveals limited adoption. Core service catalog request functions are usually found in ITSM tool implementations or even excel sheets where formal ITSM tools do not exist. Stand-alone IT service catalog tools do not have as much influence in the market as they used to do in the past. There is greater interest in IT service catalogs over the past year, which is reflected in the progress along the Hype Cycle, as expectations about service catalogs have become more realistic. Some clients still confuse simple service request fulfillment with a more robust service catalog.

User Advice: Some service catalogs end up as documentation projects that are never read by anyone outside the authoring team, because the catalog ends up in an internal document repository. The most useful and effective service catalog designs are focused on specific customer segments or business user profiles, using terms and concepts that directly relate to the users' wants and needs, in language they are comfortable with, not "IT speak." Before developing an IT service catalog, I&O organizations should develop an IT service portfolio, and should internalize the distinctions among services, processes, products and platforms. For each service catalog entry, define the service delivery process workflow steps and milestones for tracking success. This connection to the back-office service fulfillment processes supports automation and improves IT efficiency. I&O organizations with a lower I&O maturity (an ITSIO score of 2 or lower) should focus on service request fulfillment for now and be prepared to revisit the service catalog at a later stage. Otherwise, they are likely to produce an asset database that is focused on technical components and IT capabilities that may not really represent IT services. IT service catalogs are expected to evolve in line with changing business expectations. Hence, most IT service catalog projects fail because they are deemed as a one-time exercise and become obsolete over time because of nonmaintenance. Accountability for maintaining the IT service catalog, via an IT service catalog manager, is crucial to ensure it delivers value over an extended period of time.

Business Impact: Service catalogs simplify the service request process for customers and link to automated service delivery processes for improved IT efficiency. Presenting a single "face" of IT to the customer for all kinds of IT interactions (e.g., incident logging, change requests, service requests, project requests and new portfolio requests) simplifies the customer experience and improves satisfaction. Understanding the costs associated with delivery, communicating the price for requested services, and making connections to key customer results obtained through service usage help IT organizations demonstrate value provided to their organizations. The use of standard services also helps ensure delivery consistency, manage customer expectations, control output quality and reduce the volume of exceptions or ad hoc requests.

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Recommended Reading: "So You've Been Asked to Create an IT Service Portfolio and IT Service Catalog"

"Magic Quadrant for IT Service Management Tools"

"2019 Strategic Roadmap for IT Service Management"

"Critical Capabilities for IT Service Management Tools"

Climbing the Slope

IT Service Dependency Mapping

Analysis By: Roger Williams

Definition: IT service dependency mapping (SDM) tools discover, snapshot and track configuration relationships by creating blueprints to map dependencies among infrastructure components (for example, servers, networks and storage), services and applications in physical, virtual and cloud environments. This forms an IT service view that provides crucial information for improving IT service delivery. Key differentiators are breadth of blueprints and depth of discovery across different environments.

Position and Adoption Speed Justification: IT SDM tools traditionally provide visibility into how components come together to provide an IT service. They may be acquired as stand-alone tools, as part of an IT service management (ITSM) tool or from related domains such as software asset management (SAM), security, or monitoring. They are often used for projects like data center consolidations or ongoing IT service view configuration management databases (CMDBs) and disaster recovery efforts. Capabilities for capturing on-premises device linkages have begun to commoditize and many providers offer this functionality. IT SDM for cloud infrastructure and applications has become more of a focus as this information is crucial for hybrid digital infrastructures.

IT SDM tools often fall short in the discovery of homegrown or custom applications yet have made improvements. Validating dependency relationships with business capabilities or services remains labor-intensive. These gaps have slowed adoption of the tools beyond their primary use of discovery.

The cloud also exposes the limits of the traditional focus on device dependency mapping. The lack of transparency into component details and the pace of change are ill-suited to traditional mapping approaches. Instead, clients are increasingly seeking the ability to track performance promises, which are the aspects of latency, throughput, error rate, etc., required from the cloud service provider for a dependent application, product or service to function as intended. Such visibility enables more effective decision making and data management and will become a key differentiation point for IT SDM tools.

User Advice: I&O leaders should consider IT SDM as part of a broader service asset and configuration management (SACM) program. Lack of information regarding the relationships

between IT components hampers decision making on IT service delivery (such as change approval, incident remediation actions or problem investigations). Those considering projects such as disaster recovery, data center consolidations and data center transformations should also consider IT SDM tools, due to the risk from failure if dependencies are not clearly understood. These tools require effective governance of IT services to yield meaningful value, so are rarely valuable in low-maturity I&O organizations beyond providing current state visibility.

I&O leaders should evaluate the vendor's capabilities and roadmap to ensure there is a focus on emerging technology requirements such as support for containers and edge computing. Although most IT SDM tools aren't capable of action-oriented configuration functions (for example, patch management), they can document what is installed and where, and can provide an audit trail of configuration changes. If the IT SDM tool differs from the ITSM tool, they must be integrated to ensure timely information is available for decision making.

IT SDM tools can also provide visibility into virtual or cloud infrastructures. I&O leaders seeking this functionality must ensure that the tool can discover and map virtual-to-virtual relationships where IT services are within a single host, or across hosts and data centers. They should also ensure that the tool can map virtual-to-physical relationships, such as between virtualized applications and physical databases. If the virtual infrastructure includes public cloud resources, ensure that the IT SDM tool supports cloud service provider APIs (for example, Amazon Web Services or Microsoft Azure). Organizations with significant multicloud and hybrid digital infrastructure investments should also seek capabilities for managing performance promises from cloud service providers.

Business Impact: IT SDM tools enable improved application availability and reduced service disruption for targeted high-profile systems, which have a significant impact on the business's view of IT and on overall service delivery. They reduce the risk of high-profile initiatives, such as IT service view CMDBs, software asset management and data center transformation projects. As digital business initiatives become more critical, dependency information becomes essential for making service delivery decisions at speed without sacrificing quality.

These tools will also have a less glamorous, but significant, effect on the day-to-day requirements to improve SACM competency by enabling change impact analysis and by providing missing relationship data critical to disaster recovery initiatives. This level of proactive change impact analysis can create a more stable IT environment, thereby reducing unplanned downtime for critical IT services, which will save money and ensure that support staff are allocated efficiently.

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Mature mainstream

Sample Vendors: BMC; Device42; Eracent; FixStream; Flexera; iQuate; Riada; ScienceLogic; ServiceNow; Tanium

Recommended Reading: "Critical Capabilities for IT Service Management Tools"

“Market Guide for IT Resilience Orchestration”

“Break the CMDB Failure Cycle With a Service Asset and Configuration Management Program”

“Innovation Insight for Promise Theory”

“Don’t Let Your CMDB Die From the Cloud”

ITSM Tools

Analysis By: Rich Doheny

Definition: IT service management (ITSM) tools facilitate the tasks and workflows associated with the management and delivery of quality IT services to the business. These tools help infrastructure and operations (I&O) organizations plan and manage the consumption of IT services, the infrastructure that supports the IT services and the IT organization’s responsibility in delivering business value with these services. They are a core component of the experience management minisuite of IT operations management (ITOM) tools.

Position and Adoption Speed Justification: More than 400 vendors offer ITSM products, but the majority is of basic or intermediate tools that focus on IT service desk and ticketing functions targeted at lower-maturity I&O organizations. This market is mature, but new capabilities supporting more agile ITSM processes, integration with development tools, integrated VSAs and the use of AITSM are emerging to help ITSM vendors differentiate themselves and their forward visions. The market has been stable for many years, but some significant vendors have consolidated their offerings over the past few years, through mergers and product retirement. On one hand, this reflects the advanced maturity of the market, but it also creates new vendors and products that could potentially challenge the current leaders. An ITSM tools market with fewer, stronger offerings will benefit I&O leaders more than a market with a high number of vendors that can only offer minor differentiation and limited competitiveness. Vendors are increasingly concentrating product development on non-ITSM use cases (e.g., HR, facilities, and project management) in search of margin and differentiation as market saturation of basic and intermediate ITSM tools continues. If this trend continues, those vendors investing across both ITSM and non-ITSM workflows who are lacking significant R&D resources will see stagnation in their ITSM products. This results in a broader functional gap between advanced and basic/intermediate tools.

User Advice: Many I&O leaders fail to leverage much of the capabilities of their ITSM tool. I&O organizations that plan on achieving or retaining basic to lower-intermediate I&O maturity should consider basic or intermediate tools to avoid overspending. High maturity I&O organizations should identify tools that provide value in advanced process support, AITSM, and by integrating with broader ITOM solutions, specifically in IT asset management, discovery and IT process automation. I&O leaders pursuing DevOps and supporting agile methodologies should select tools that support adaptive process models and integration into their DevOps toolchain. As part of their product evaluations, I&O leaders should account for resource overhead associated with the product (specifically in perpetual versus software as a service licensing models), ease of use, ease of implementation, ease of ongoing maintenance, and any third-party products (e.g., automation or collaboration capabilities) that may need to be purchased and/or integrated into their tool to meet

their base requirements. Non-I&O functionality may be attractive, but this is overhyped by vendors, and proven cases rarely extend beyond ticket handling. Chatbot capabilities are often basic and nonproprietary.

Business Impact: ITSM tools are most heavily used by IT service desks and IT service delivery functions to support the tasks and workflows for processes including incident, request, problem, change, service-level, knowledge and configuration management.

Benefit Rating: Moderate

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Sample Vendors: Atlassian; BMC; Cherwell Software; EasyVista; Freshworks; Ivanti; ManageEngine; ServiceNow; TOPdesk

Recommended Reading: "6 Smart Steps for ITSM Tool Selection Success"

"Magic Quadrant for IT Service Management Tools"

"Critical Capabilities for IT Service Management Tools"

"The Reality of ITSM Tools as Enterprise Service Management Tools"

"Midmarket Context: 'Magic Quadrant for IT Service Management Tools'"

Knowledge Management Tools

Analysis By: Rich Doheny

Definition: Infrastructure and operations (I&O) leaders use IT knowledge management (KM) tools to create, modify and access IT knowledge bases. KM tools are often linked to portals, virtual support agents, or mobile apps that support self-service so that end users can access relevant intellectual assets themselves. The products are defined by their ability to federate, store and access information about IT and non-IT services. KM tools are available as stand-alone options or integrated components of broader IT service management (ITSM) tools.

Position and Adoption Speed Justification: KM provides significant untapped potential for many IT organizations to optimize, drive efficiencies and realize economies of scale in ITSM. Done correctly, it can greatly improve I&O effectiveness and business user self-sufficiency. In addition, KM provides a vital component in enabling future automation as a repository of information to teach emerging technologies, including chatbots and virtual support agents. Many intermediate and advanced ITSM vendors are enhancing their products' capabilities in the area of KM. As a result, the market for stand-alone tools targeting the ITSM use case has seen consolidation and become stagnant over the past several years. Emerging adjacent vendors challenge the traditional approach to knowledge management by automating the generation of knowledge through a combination of machine learning and natural language processing techniques applied to live agent-driven

conversations. These have yet to fully replace knowledge management tools in most cases, instead are augmenting them for specific use cases such as training a virtual support agent.

KM tools, typically delivered as part of an integrated ITSM suite, are becoming more commonplace in IT organizations, and Gartner estimates that market penetration is between 20% and 50%. Many organizations struggle to realize the ROI and true value, due to cultural issues, behavioral challenges and a lack of understanding regarding the successful implementation of the underlying KM practices.

User Advice: Knowledge management tools are an integral part of an I&O strategy, whether through stand-alone options or as part of an ITSM suite. Integration into related workflows and tooling (e.g., easily identifying and tagging relevant knowledge articles into an incident) is necessary to reap the benefits of a knowledge base, and buyers must assess which platform best suits their needs. Don't overemphasize the tools' potential for success as tools enable processes; but they are only as good as the processes, procedures, policies and people you have in place to support them. I&O leaders must identify the different roles consuming knowledge and curate targeting knowledge assets for their needs. Formal knowledge management governance mechanisms that embed KM into the organization are crucial to ensure that the content is reviewed, updated and corrected on an ongoing basis.

Business Impact: Used optimally, a good knowledge base can create significant efficiencies across I&O, although knowledge bases are most often targeted for incident handling, request fulfillment, training, impact assessments and self-service implementation. Knowledge tools can drive down support costs as well as free up IT service desks and other resources to be deployed elsewhere. The effective use of KM can also pay off in terms of the qualitative perspective, driving customer satisfaction in effective self-service channels and positive support experiences.

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: ComAround; KMS Lighthouse; Upland

Recommended Reading: "Use These Three Techniques to Achieve Success With ITSM Knowledge Management"

"Knowledge Management Practices Must Support Both IT and Business Consumer Needs"

ITIL

Analysis By: Mark Cleary

Definition: ITIL is an ITSM framework owned by AXELOS, a joint venture between the U.K. Government and Capita. ITIL provides best practices, from a service perspective, in the definition, design, deployment and management of products and services delivered by IT to the business. Related activities are collated as 'practices' to address specific aspects of service delivery such as

managing incidents or changes, negotiating service levels or ensuring there is enough capacity in the infrastructure.

Position and Adoption Speed Justification: ITIL is used to provide a consistent, repeatable and standardized approach to the planning and management of IT services. A successful implementation significantly improves the competence and capabilities of an infrastructure and operations (I&O) organization allowing it to move from a technology to a service focus.

Interactions with Gartner's clients show that more than 80% of I&O leaders use ITIL, but many state that momentum has stalled usually due to a lack of governance, and cultural resistance from the change in working practices. This results in a reduction in the service quality due to a lack of compliance with the ITSM disciplines.

The ITIL 4 Foundation was published in 2019, but uptake appears to be low. ITIL 2011 remains the predominant implementation and is based on the service life cycle. However, most clients focus on the operational aspects rather than the strategy, design and transition components.

The mainstream adoption of ITIL has moved higher on the Plateau of Productivity due to its principle value to the production environment.

User Advice: Organizations looking to upgrade to ITIL 4 should continue with their current journey, review the ITIL 4 publications and assess the impact of any upgrade.

ITIL should be leveraged as one source of good practice that must be refined to meet your specific business goals. While key developments, such as the rise in agile and DevOps practices, digital transformation, and changing landscapes (including cloud), are not reflected in ITIL 2011, they are addressed in ITIL 4. Review the ITIL 4 management practices for the latest thinking and seek additional inspiration in sources such as DevOps and agile methodologies.

ITIL helps put IT service management into a strategic context and provides guidance on service management practices and associated factors in the service life cycle. Leaders will be successful if they pragmatically leverage the advice in ITIL and other sources to transform their practices, culture and competence. For many this will require a review of their current approach to ensure that ITIL is adapted in line with agile thinking while remaining focused on business outcomes.

Business Impact: ITIL can support I&O by having a significant impact on the business if it is implemented correctly. Defining and deploying practices that can be used across the organization in a consistent and standardized way improves the credibility of I&O and increases the business' confidence in IT's ability to deliver. Following an initial investment in the core practices of incident and change management, I&O leaders can better plan and manage their environment by investing in further ITIL practices that extend their service competence and capabilities. The benefit of this approach is an improvement in I&O's ability to deliver services and meet targeted business outcomes. New ways of working are also catered for as ITIL 4 provides advice and guidance on how to integrate ITIL practices with, for example, agile and DevOps frameworks.

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Recommended Reading: "2019 Strategic Roadmap for IT Service Management"

"What I&O Leaders Need to Know About the ITIL 4 Foundation"

"How to Organize IT for Efficiency"

"Product Planning Primer for 2020"

"Agile and DevOps Primer for 2020"

"Infrastructure, Operations and Cloud Management Primer for 2020"

IT Service Alerting Tools

Analysis By: Pankaj Prasad; Padraig Byrne

Definition: IT service alerting (ITSA) tools automate the distribution and management of notification messages to identified recipients. These tools integrate with ITSM and monitoring tools, which are the source of the events, incidents and alerts related to IT outages. The messaging can be delivered by SMS, voice calls, pager and/or a mobile app.

Position and Adoption Speed Justification: ITSA tools have been in existence in one form or another for over a decade, but their application is increasing due to the proliferation of dedicated mobile apps. This has given rise to extended use cases — for example, basic analytics capabilities for event correlation and the ability to configure workflows. Automated remediation through prescribed actions is also a commodity feature in these tools.

Digital workplace practices and increased use of DevOps practices is driving the uptick in ITSA tooling investment. Business users want real-time insights into business impact, which is further stimulating demand for the technologies. Vendors have responded to this demand with tailored capabilities for business stakeholders outside traditional IT operations, through different licensing models for IT operators and business stakeholders. Vendors are also introducing analytics capabilities into the toolsets and the ability to design scenario-based workflows cutting across multiple tools.

Notwithstanding the above, ITSA tooling adoption remains comparatively low within IT operations due to a lack of process maturity among several existing adopters of the technology that are not extracting the full value from their investments. On the other hand, adoption for the DevOps use case has seen an uptick due to the ability to collaborate seamlessly across multiple teams and toolchains.

User Advice: For enterprises with business-critical processes that rely on an IT infrastructure, invest in closed-loop ITSA tools for urgent communications to ensure that IT operations personnel, on-call engineers and business stakeholders, no matter where they are, receive critical alerts.

Although ITOM product vendors focus on web-based displays for alert notification (consoles, administration interfaces and information portals), consider using ITSA tools for when IT professionals are not in front of their primary display screens, or acknowledgment and automated escalation procedures are time-sensitive and mandatory.

Before deploying an ITSA tool, focus first on improving the underlying event management tools monitoring tools and processes, because ITSA tools are not a cure for poor event management. IT organizations must ensure that good event management practices (such as event correlation, categorization, deduplication and root cause analysis) are in place to avoid event overload. Eliminate the noise (for example, insignificant faults) before configuring policies about how to urgently communicate the critical faults. Further, for the business and senior IT stakeholders, establish what information they want/need to see to avoid spam. Finally, modify communication methods, frequency and language to suit different stakeholders and to maintain sensitivity. In short, users must take care of technical debt and not expect these tools to compensate for lack of monitoring governance.

IT organizations that have already implemented ITSA tools should explore extended use cases such as executing predefined actions to rectify known errors remotely from mobile devices, and further refine existing processes by using the detailed annotations.

Small and midsize organizations that do not want to invest in an overengineered event correlation and analysis (ECA) or ITIM solution should examine the event correlation and basic analytics in ITSA tools for postprocessing of events and for notifications.

Business Impact: ITSA tools can lower the risk of critical issues being missed by IT operations teams. They increase IT operations efficiencies by enabling IT personnel to perform their other IT operations duties and still be notified of critical IT issues that require immediate attention. ITSA tools also help establish ownership and/or acknowledgment of a critical IT event, no matter where the alert recipient is located.

The use of ITSA tools can reduce the mean time to repair (MTTR) by automating the delivery of alerts to the appropriate IT operations personnel through the most-effective communications channel, in support of availability and established escalation and outage procedures.

ITSA tools can also provide seamless communications over multiple channels (mainly mobile app, instant messenger and web-portal) across multiple DevOps teams. Flexible workflows within these tools can automate processes and actions that need to be taken across multiple tool chains, thereby reducing the possibility of errors.

Business leaders benefit by having instant visibility into critical or sensitive issues pushed on the device of their choice.

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Mature mainstream

Sample Vendors: AlertOps; Atlassian; Derdack; Everbridge; OnPage; OnSolve; PagerDuty; Splunk; xMatters

Recommended Reading: "Market Guide for Emergency/Mass Notification Services"

"Complement IT Infrastructure Monitoring With IT Service Alerting"

IT Service View CMDB

Analysis By: Roger Williams

Definition: An IT service view configuration management database (CMDB) is a logical repository with four functional characteristics: IT service modeling and mapping, configuration item (CI) record integration/federation, CI record reconciliation, and CI record synchronization. It provides a consolidated view of selected sources of IT asset inventory and configuration data that have been integrated and reconciled into a single IT service view that supports improved decision making for delivery of an IT service.

Position and Adoption Speed Justification: IT service view CMDBs continue to be of interest within infrastructure and operations (I&O) organizations. IT service view CMDBs combine a subset of inventory content with contextual information to facilitate decision making. They are most useful for change impact assessment, incident investigation and continuity planning. However, sustaining the effectiveness of an IT service view CMDB is challenging. While Gartner inquiries indicate that success rates are increasing, most efforts still fail to meet expectations. Despite this, many who fail at them try again due to the promised benefits. The most significant obstacles to success include lack of collaboration, process governance gaps, data management deficiencies and poor coordination with change activities. Overcoming these obstacles requires strong management support, good organizational change practices and a well-defined scope to focus efforts. Many organizations are renovating their IT service view CMDBs to remove content not related to improving business outcomes. Improved top-down and event-driven discovery and dependency mapping approaches augment traditional bottom-up discovery yet should not be confused for an IT service view CMDB that also provides a forward-looking view.

User Advice: I&O leaders must ensure that IT service view CMDB investments support a broader approach to service asset and configuration management (SACM). These investments only provide value when improving IT service delivery via practices such as incident, problem, change and release management. Improve the likelihood of success by deriving IT service view CMDB goals, critical success factors (CSFs) and key performance indicators (KPIs) from business improvement goals such as reducing downtime or safely increasing change speed. Determine how an improvement in IT practices can produce or improve a specific business goal for a defined user community.

Enterprises that lack change and configuration management processes should focus on establishing process and data ownership and understanding the current state of data usage for operational decision making before investing in IT service view CMDB development. Only include data in an IT service view CMDB configuration model that has a direct effect on a goal, a clearly defined owner and a mechanism to update the data to reflect changes in the environment. Exclude

other data and federate from other tools as appropriate — for example, keeping financial data in an IT financial management (ITFM) tool and software license information with a software asset management (SAM) tool or separate module. In addition, coordinate with detailed data available in newer technologies — such as continuous configuration automation, cloud management platforms and container registries — to limit redundancy, while ensuring information is available when needed. Evaluate key data sources to enable IT service view CMDB creation as part of the proof of concept for IT service management tool selection.

Business Impact: An IT service view CMDB provides insight into and visibility of key peer-to-peer and hierarchical relationships in IT services. Such insight improves IT decisions in nearly all areas of IT operations. An IT service view CMDB is foundational to improving IT service support and delivery, and to reducing time to value for new and changed IT applications and services. A successful IT service view CMDB improves risk assessments of proposed changes and can assist with incident resolution and root-cause analyses. It can aid in compliance, asset management, disaster recovery, data center consolidation and enterprise architecture gap analysis. However, the two most predominant use cases continue to focus on improving change impact assessment and root-cause analysis.

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Mature mainstream

Sample Vendors: Axios Systems; BMC; Broadcom (CA Technologies); Cherwell Software; Device42; EasyVista; Ivanti; Micro Focus; ServiceNow

Recommended Reading: “Break the CMDB Failure Cycle With a Service Asset and Configuration Management Program”

“4 Steps to Improve IT Service View CMDB Data Quality”

“How to Modernize the Configuration Management Database”

“Don’t Let Your CMDB Die in the Cloud”

“Critical Capabilities for IT Service Management Tools”

Cloud Management Platforms

Analysis By: Dennis Smith

Definition: Cloud management platforms (CMPs) enable organizations to manage private, public and multicloud services and resources. Their specific functionality is a combination of provisioning and orchestration; service request management; inventory and classification; monitoring and analytics; cost management and resource optimization; cloud migration, backup and disaster

recover; and identity, security and compliance. This functionality can be provided by a single product or a set of vendor offerings with some degree of integration.

Position and Adoption Speed Justification: While the CMP market is continually changing, vendors and enterprise customers are getting a better feel about where such tooling can and cannot be used. Vendors are still being challenged with evolving customer requirements (for example, interfacing with multiple public clouds, cost transparency with workload optimization to remediate cost overruns and handling newer functions like containers and serverless deployments). At the same time, major market consolidation will continue. For example, many vendors, that initially targeted cost management, have been acquired as this functionality is becoming a part of the basic CMP. Additionally, many vendors in adjacent markets are acquiring CMP vendors and combining this functionality with asset management (software and hardware) and SaaS operational management. Cloud service providers (CSPs) and management service providers (MSPs) are also entering the market. Additionally, many long-standing vendors are introducing next-generation products, often targeting holes that their previous products had. Finally, vendors in different markets (e.g., monitoring) are also entering the market. Some of the core CMP functionality is also being combined (for example, monitoring and analytics with cost management and resource optimization). The ability to serve both application developer and I&O personas is the key. This requires that CMPs be linked into the application development process without imposing a workflow that inhibits agility while also allowing infrastructure and operations (I&O) teams to enforce provisioning standards.

Organizations have an increasing need to address multicloud requirements. In some cases, they want to become internal cloud service brokers (CSBs) and manage public services that were previously acquired — often by lines of business (LOBs) outside the I&O organization — and have become difficult to manage operationally.

User Advice: As CMP market volatility increases, IT organizations must:

- Consider CMP vendor's viability along with evaluating features.
- First consider native cloud services as an alternative or option versus CMPs, particularly if you favor depth with an individual cloud provider versus breadth across different cloud providers.
- Consider functionally focused tools (e.g., cloud expense management tool) if you only require a limited set of functionalities.
- Augment, swap out or integrate additional cloud management or traditional management tools for many requirements, because no vendor provides a complete cloud management solution.
- Standardize, because deriving value from your CMP will depend heavily on the degree of standardization offered by the infrastructure, software and services.
- Set realistic expectations on deployment times, as mature organizations implement CMP in a relatively short period (one to two years); however, less mature organizations may require two or more years to design effective, repeatable, and automatable standards and processes.
- Plan for new roles, such as cloud architects and cloud service brokers (CSBs), including developing skills in the financial management and capacity management areas.

Business Impact: Enterprises will deploy CMPs (increasingly as a part of a larger product suite) to increase agility, reduce the cost of providing services and increase the likelihood of meeting service levels. Costs are reduced and service levels are met because CMP deployments require adherence to standards, as well as increased governance and accountability. Desirable IT outcomes include:

- Policy enforcement (e.g., on reusable standard infrastructure components).
- Reduced lock-in to public cloud providers, although at the cost of CMP vendor lock-in that can slow innovation.
- Enhanced ability to broker services from various cloud providers and to make informed business decisions on which providers to use.
- Ongoing optimization of SLAs and costs.
- Management of SLAs and enforcement of compliance requirements.
- Health and performance monitoring of cloud applications.
- Accelerated development, enabling setup/teardown of infrastructure that mimics production, resulting in lower overall infrastructure costs and higher quality. This can be in support of DevOps initiatives.

Benefit Rating: Low

Market Penetration: 5% to 20% of target audience

Maturity: Mature mainstream

Sample Vendors: CloudBolt; CloudSphere; Flexera; Morpheus Data; Scalr; Snow Software; VMware

Recommended Reading: "Magic Quadrant for Cloud Management Platforms"

"Critical Capabilities for Cloud Management Platforms"

SIAM

Analysis By: Jim Longwood; Pablo Arriandiaga; Andrew Miljanovski

Definition: Service integration and management (SIAM) is a role that coordinates and integrates service delivery of multiple internal and external IT and business process service providers in a hybrid IT services ecosystem. It can be undertaken by the client, or by a third-party service provider appointed by the client. The SIAM role is different from the prime contractor role; if outsourced, the client organization has a direct contract with not only the SIAM role, but also each of the service providers managed by the SIAM on the client's behalf.

Position and Adoption Speed Justification: As digital, cloud and Internet of Things (IoT) adoption grows, multivendor management of hybrid IT services' ecosystems becomes more complex. The SIAM role continues to move up the Slope of Enlightenment as client adoption increases, and as

offerings mature and start to address digital drivers. The role is called “multisourcing service integrator” (MSI) in some geographies. “SIAM V2” or “digital SIAM” terminology is emerging, reflecting market movement from first-generation operational-based into second-generation ecosystem-based SIAM offerings.

Other trends accelerating SIAM adoption:

- Midsize enterprises tend to insource the role or use a lead service integrator. Larger enterprises tend to outsource the role. Some use a build-operate-transfer (BOT) approach.
- Mature SIAM offerings in the market focus on consulting, BOT or managed SIAM services using standardized solution architectures.
- “Clustered”-based solutions to manage related providers, e.g., in IoT and CSP offerings.
- Further integration of CSB aggregation function into role.
- Leading solutions cover agile and DevOps, with providers introducing IA, RPA and digital capabilities.
- Clients increasingly want to know how to make the business case for SIAM.
- SIAM accreditation services are growing.
- SIAM-related toolset offerings are emerging (e.g., from 4me, ONEiO and SirionLabs)

User Advice: The SIAM role helps IT sourcing leaders achieve integrated, end-to-end service delivery outcomes across an expanding range of services — from traditional to cloud, IoT and communications — and increasing numbers of providers. The role’s use in infrastructure services is higher than in application services, with limited uptake in BPO and growing uptake in emerging digital service offerings.

Before starting this journey, ensure that internal and external service providers are ready for the SIAM role and that individual providers are well-managed. Decide whether to insource or outsource the SIAM role via a managed service or clustered offering. If taking a DIY approach, consider the BOT model and ensure that you have the budget to buy and integrate the required ITSM toolsets and dashboards.

As you increase adoption of disruptive digital services, use the role to improve management of all service providers, reducing gray areas in handoff points.

Integrate the SIAM and CSB roles into your adoption of an IT solution broker role for your hybrid IT service ecosystem. As part of this:

- Review your existing SIAM arrangement to ensure integration of evolving offerings in intelligent automation, agile, DevOps and digital.
- Ensure that you have senior staff delivering and managing the SIAM role and service providers involved.

- Prepare an extensive business case ensuring allocation of a suitable budget for building and undertaking the role.
- Ensure that operational-level agreements (OLAs), KPIs and service provider interfaces are set up between all parties.
- Foster a collaborative working environment built on trust among all parties.
- Evaluate use of emerging offerings, e.g., for SLA/OLA auditing and solution brokering as well as SIAM-focused toolsets.
- Evaluate use of best-of-breed SIAM providers for bundled communication services.

Business Impact: The SIAM role is key to achieving end-to-end business and service outcomes in multisourced services ecosystems. Executed properly, the SIAM role, using OLAs and KPIs, break down intra-/interprovider service silos, delivering a seamless, integrated customer/end user service experience. The solution broker function has emerged to enable rapid delivery and management of new as-a-service solutions to the business. A CSP survey showed 13% reduction in total cost of ownership (TCO) of managed communication services in a multisourced ecosystem.

Done well, the role reduces interprovider incident, problem and change management issues, streamlines process handoffs, and fosters interprovider collaboration. It improves service excellence via standardization and reduces the complexity of managing a service ecosystem. This further optimizes operating costs and business agility, and improves operational efficiency and business effectiveness over time, justifying the business case for implementing the role. As cloud and digital adoption grow, the SIAM and CSB aggregation roles are coalescing, improving end-to-end ecosystem performance.

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Sample Vendors: Atos; Capgemini; CGI; DXC Technology; Fujitsu; HCL Technologies; Kinetic IT; Leidos; Orange Business Services; Wipro

Recommended Reading: “The SIAM Role Is Critical in Managing Multiple Outsourced Service Providers”

“Market Trends: MSI-SIAM Buyer Behavior in Managed Communications Services”

“Build on Your Vendor Management Capabilities When Insourcing the MSI-SIAM Role”

“Optimize Multisourcing Service Integration Using the Right Toolsets to Drive Delivery Excellence”

Entering the Plateau

DevOps

Analysis By: George Spafford; Joachim Herschmann

Definition: DevOps is a customer-value-driven approach to deliver solutions using agile methods, collaboration and automation. DevOps emphasizes people and culture to improve collaboration between development, operations and other stakeholders to navigate uncertainty, and accelerate the delivery of customer value. DevOps implementations use architecture and tools to improve the flow of work.

Position and Adoption Speed Justification: DevOps doesn't have a concrete set of mandates or standards, or a known framework (such as ITIL); thus, it is subject to a more liberal interpretation. In general, it is about cross-functional teams collaborating to deliver business value faster. DevOps is associated with processes, tools and organizational styles intended to optimize the flow of work across the application life cycle, from development to production. DevOps concepts have become widely adopted for initiatives with a style of work that is focused on exploration and agility, including digital business, machine learning, mobile apps, IoT. Also, there is potential for use in more traditional enterprise environments; however, every implementation is unique. Good practices are emerging, the sharing of lessons learned is vibrant among practitioners. Vendors are developing and delivering supporting tools and professional services. While some new adopters are having challenges clients report that DevOps does deliver value.

User Advice: DevOps initiatives must be iterative, focused on business value and have executive sponsorship, with the understanding that new team(s) will have to make an often-difficult organizational philosophy shift toward the development of agile capabilities. DevOps hype remains elevated among tool and service vendors, with the term applied aggressively and claims outrunning demonstrated capabilities. Many tool vendors are adapting their portfolios and branding their offerings as DevOps-related to gain attention. Some vendors are acquiring smaller point solutions specifically developed for DevOps to boost their portfolios. Clients are recommended to clearly tie investments to business outcomes to help improve internal adoption.

IT organizations must establish key criteria that will differentiate DevOps tooling traits (strong toolchain integration, workflow, automation, etc.) from traditional management tools. Both development and operations should look to tools to replace custom scripting with improving deployment success and cycle times through more predictable configurations and seek to continually improve the flow of work via refactoring.

IT organizations should approach DevOps as a set of flexible guiding principles. Start small and focused — don't try a "big bang" approach. Select a product that is politically friendly, and offers acceptable value and risk involving development, operations and other critical stakeholders, such as information security and architecture. Stakeholders need to work together to accomplish the business objective, while learning how to organize and determining what methods and tools to use. At a minimum, seek to continually improve the flow of work from developer through to the new or changed application being in production and the customer receiving the promised value. These stakeholders must also collaborate to scale efforts.

Business Impact: DevOps is focused on delivering customer value and enables hypothesis-driven development and the aggregation of data to make decisions about future functionality. Release cadence can be varied to meet demands for organizational learning and change absorption. DevOps approaches are made possible by the adoption of continuous learning, improvement and incremental release principles adopted from agile methodologies. Smaller, more frequent updates to production can work to improve organizational learning and overall quality, including both stability and control, thus reducing risk. A successful DevOps implementation will improve the delivery of customer value. This delivery of value justifies the scaling and expansion of DevOps using an iterative approach.

Benefit Rating: Transformational

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Recommended Reading: "Adopt an Iterative Approach to Drive DevOps Success in Large Organizations"

"DevOps — Eight Simple Steps to Get It Right"

"DevOps Primer for 2019"

"Three Ways Midsize Enterprises Can Maximize Value From DevOps"

"Four Steps to Adopt Open-Source Software as Part of the DevOps Toolchain"

"DevOps Success Requires Shift-Right Testing in Production"

"Avoid Failure by Developing a Toolchain That Enables DevOps"

"Top 5 Causes of DevOps Failure and How to Avoid Them"

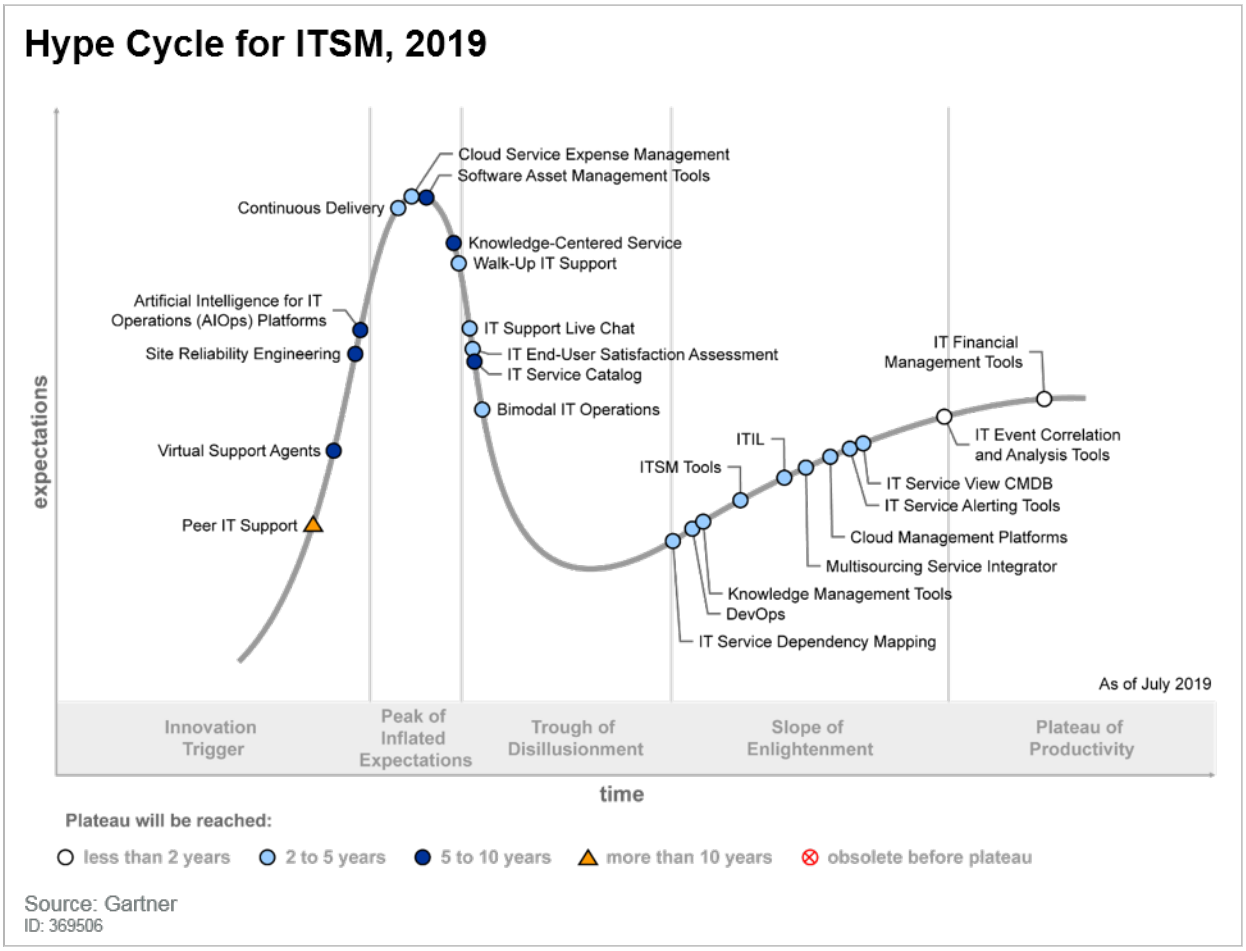
"How to Avoid Compliance and Audit Concerns When Using DevOps"

"How to Scale DevOps by Building Platform Teams"

"Top SRE Practices Needed by Teams Scaling DevOps"

Appendixes

Figure 3. Hype Cycle for ITSM, 2019



Source: Gartner
ID: 369506

Hype Cycle Phases, Benefit Ratings and Maturity Levels

Table 1. Hype Cycle Phases

Phase	Definition
Innovation Trigger	A breakthrough, public demonstration, product launch or other event generates significant press and industry interest.
Peak of Inflated Expectations	During this phase of overenthusiasm and unrealistic projections, a flurry of well-publicized activity by technology leaders results in some successes, but more failures, as the technology is pushed to its limits. The only enterprises making money are conference organizers and magazine publishers.
Trough of Disillusionment	Because the technology does not live up to its overinflated expectations, it rapidly becomes unfashionable. Media interest wanes, except for a few cautionary tales.
Slope of Enlightenment	Focused experimentation and solid hard work by an increasingly diverse range of organizations lead to a true understanding of the technology's applicability, risks and benefits. Commercial off-the-shelf methodologies and tools ease the development process.
Plateau of Productivity	The real-world benefits of the technology are demonstrated and accepted. Tools and methodologies are increasingly stable as they enter their second and third generations. Growing numbers of organizations feel comfortable with the reduced level of risk; the rapid growth phase of adoption begins. Approximately 20% of the technology's target audience has adopted or is adopting the technology as it enters this phase.
Years to Mainstream Adoption	The time required for the technology to reach the Plateau of Productivity.

Source: Gartner (July 2020)

Table 2. Benefit Ratings

Benefit Rating	Definition
Transformational	Enables new ways of doing business across industries that will result in major shifts in industry dynamics
High	Enables new ways of performing horizontal or vertical processes that will result in significantly increased revenue or cost savings for an enterprise
Moderate	Provides incremental improvements to established processes that will result in increased revenue or cost savings for an enterprise
Low	Slightly improves processes (for example, improved user experience) that will be difficult to translate into increased revenue or cost savings

Source: Gartner (July 2020)

Table 3. Maturity Levels

Maturity Level	Status	Products/Vendors
Embryonic	■ In labs	■ None
Emerging	■ Commercialization by vendors ■ Pilots and deployments by industry leaders	■ First generation ■ High price ■ Much customization
Adolescent	■ Maturing technology capabilities and process understanding ■ Uptake beyond early adopters	■ Second generation ■ Less customization
Early mainstream	■ Proven technology ■ Vendors, technology and adoption rapidly evolving	■ Third generation ■ More out-of-box methodologies
Mature mainstream	■ Robust technology ■ Not much evolution in vendors or technology	■ Several dominant vendors
Legacy	■ Not appropriate for new developments ■ Cost of migration constrains replacement	■ Maintenance revenue focus
Obsolete	■ Rarely used	■ Used/resale market only

Source: Gartner (July 2020)

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2019 Strategic Roadmap for IT Service Management

6 Smart Steps for ITSM Tool Selection Success

Design and Deploy ITSM Key Performance Indicators and Metrics That Support Business Services

What I&O Leaders Need to Know About the ITIL 4 Foundation

3 Steps to Agile IT Service Management

8 KPIs That Demonstrate How Self-Service Initiatives Advance Your IT Service Desk

How to Scale DevOps by Building Platform Teams

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GARTNER HEADQUARTERS

Corporate Headquarters
56 Top Gallant Road
Stamford, CT 06902-7700
USA
+1 203 964 0096

Regional Headquarters
AUSTRALIA
BRAZIL
JAPAN
UNITED KINGDOM

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