Equipping IT to Deliver Faster, More Flexible Service Management

IT must apply new strategies and tools to the service management function, in order to address fundamental changes in how end-users are consuming technology and services. By reshaping its traditional role, IT can increase service delivery speeds and user satisfaction, while delivering greater value to the business.

Executive Summary

As the need for IT service delivery undergoes dramatic change, traditional IT service management (ITSM) is being challenged to respond effectively. Multiple trends – including disruptive technology innovation, massive changes in service consumption behaviors, the rise of niche sourcing strategies, the changing role of IT and the relevance of the Information Technology Infrastructure Library (ITIL) in accelerating business performance – are causing a major rethink of traditional service management approaches. To respond effectively, IT organizations need to evolve their role from service providers to business enablers.

To accomplish this transformation, IT organizations must recalibrate their operations and deploy tools and strategies that are enabled by developments in automation, analytics, smarter service integration and context-aware ITSM, among others. This white paper reveals how these capabilities can help IT power next-generation service delivery that accelerates the adoption of new business models, products and services.

The Forces Influencing Next-Generation Service Management

IT organizations need to fully understand what's driving the need for next-generation service delivery and accelerated business performance, as well as the relationships between these trends.

Disruptive Innovations Are Radically Changing IT

Today's IT organization manages a cornucopia of services and technologies deployed over time, some of which require specialized expertise and tools to manage and maintain. Services are delivered on-premise or via the cloud, perhaps acquired by business users to solve a real or perceived pain point. Regardless of age, origin and function, the IT organization is expected to integrate, sustain and service this technological array and ensure it delivers the features and functions business users expect.

Technology evolves rapidly, and IT is expected to insulate the organization from the impact of these changes. In practice, that means IT is

responsible for change management, support and maintenance, acquiring and enhancing skills, addressing financial and compliance issues, and training and supporting end-users and customers to ensure satisfying experiences.

Disruption from rapid advances in technology also increases the speed with which systems become obsolete. Yet even as new technology is deployed, older technologies still require management. IT again is on the front line in these situations, integrating legacy systems with new systems, ensuring interoperability, managing dual estates, sun-setting obsolete systems, and managing contracts, licensing and finances.

These realities require an IT service model that aligns service design, delivery infrastructure, enterprise architecture and relevant roles with business objectives. IT must also reduce its costs and improve efficiencies. Developing an agile, modular and contextual approach to supporting organizational change management is another imperative.

The Consumption of Technology Services Is Undergoing a Massive Shift

The proliferation of mobile devices and "anytime, anywhere, anything" services is bringing consumers closer to the business – and to IT. End-users increasingly expect to accomplish virtually any transaction via a mobile device, from submitting expense reports, to shopping, to transferring funds, to booking travel.

A shopper may expect to access store maps, check inventory, order online and pay with a mobile wallet app, and then receive a text when the item is ready to be picked up at an in-store service kiosk. At each step, the shopper is essentially the customer of the IT organization, which is responsible for the user's experience and satisfaction – or lack thereof.

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Corporate social media further connects end-users to IT. Data gathered via social can provide insights for IT to introduce new services and enhance existing offerings. Social can also provide clues to an end-user's physical and even emotional context. For example, a business user can post on a corporate social page that he's missed his flight, spurring front-end intelligence to relay an alert to the travel desk, which contacts the traveler via phone or text message to rebook the flight.

Delivering these anytime/anywhere services requires IT to change how it manages front- and back-end operations, with the primary objective being the quality of the end-user experience. Within the existing enterprise architecture, frameworks must be reviewed for scalability, interoperability and intra-app dependencies.

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Corporate social media also becomes a channel for IT support and assistance, as well as a feedback mechanism that offers insights into issues, turning it into a proactive virtual helpdesk.

Dynamic and Niche Sourcing Strategies Fortify New-age Service Construction and Delivery

Rapid and robust technology advancements are facilitating the anything-as-a-service consumption model. Business units and IT organizations can select from a plethora of point solutions and service components, from hosting, to front-end design, to back-end data processing, delivered by multiple vendors. From a service delivery perspective, this creates new service integration and management challenges.

All these factors call for refreshing the service integration and management (SIAM) layer to adapt to the realities of integrating multi-sourced services and products, as well as managing rapid changes in technology, delivery options and their effects on services.

Whether point solutions are "shadow-sourced" by a business unit or selected by IT to meet a specific need, all must be aligned with business objectives and integrated to perform as expected. This involves managing multiple integration points and relationships with service providers. An agile integration layer is necessary because of the continuous reviews and revisions that different services, solutions and technologies will undergo.

SIAM could be the orchestrator of IT service operations – a single point of accountability for the defined business service level agreement (SLA) framework.

Traditional IT Roles and Responsibilities Are Changing

Unrelenting technological change requires IT organizations to gain new skills and management methods to effectively enable new business services, innovation and transformation. Filling this role will require IT professionals to view services from a wider framework, shifting their focus from vertical technology stacks to an end-to-end perspective on understanding and delivering services that align with and enable business outcomes.

Traditional IT roles are evolving in this context. The CIO is becoming more entrepreneurial, translating business requirements into solutions, and management roles are becoming more horizontal to align with a business-oriented view of services. Examples of emerging roles include social media evangelist, technology broker, cloud integration specialist and end-to-end IT service manager. A risk-taking mindset will increasingly be seen as a key attribute for IT operations and professionals.

Perceptions on ITIL Relevance Are Evolving

ITIL today is not tuned to address current technological trends. Tools can now work faster and more intelligently than ITIL permits, creating conflicts between tool capabilities and the ITIL framework. For example, driven by strong analytics, changes such as selecting a corrective action or picking

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a suitable implementation window can be accomplished in seconds. Applying ITIL in its current form to this process would drastically slow it down. Thus, ITIL must adapt itself to today's technology advances.

IT organizations should begin to develop more flexible frameworks, customized to the specific needs of the business. These hybrid approaches may combine ITIL best practices with those of other frameworks, including IT4IT, eTOM, COBIT, DevOps,[1] etc. The goal is shifting from a highly structured, planned-phase approach to service delivery, to a framework that supports greater agility and rapid shifts in business strategy, as well as lean IT operations.

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Achieving Next-Generation IT Service Delivery

Present-day IT service delivery attempts to achieve a balance between the pressures of business initiatives, reducing costs, improving quality, etc., and the onslaught of new technology options that IT is expected to deliver in near real-time. Today's technology advances have unleashed tools and strategies that offer new abilities to manage and optimize service delivery to keep pace with the accelerating speed of digital business. These include:

- **Calibrated operations:** To respond to the challenges presented and the perceived inadequacy of ITIL, service management must be re-calibrated with refreshed approaches. IT can start by reviewing industry data and analyzing market trends, and then correlating the opportunities created by these trends with the available delivery instruments. This calibration needs to happen across all facets of service delivery management, from strategy to ground-level transaction processing.

IT operations must complement the on-demand, elastic nature of technologies with strategies to stay relevant and adapt to plug-and-play technology ecosystems. Enablers include:

- > **A comprehensive reference architecture for service delivery.** The pick-and-choose approach requires future delivery architectures to be modular and flexible, forcing IT suppliers to build architectures and operating models that are comprehensive, scalable and agile.

- > **Convergence of delivery frameworks.** The aforementioned market trends create the perception that ITIL is less relevant today. But rather than wait for a new framework to

emerge and gain traction, IT can consider a hybrid approach to converge frameworks.

> **Agile service management.** Process designers must eliminate bad practices in the ecosystem and replace them with short, simple and flexible transactional steps. Designers must embrace simplicity, reduce complicated approval mechanisms, build automation and adopt transactional accountability.

The next generation of service delivery management will draw on the following concepts and technologies to calibrate service delivery for future demand:

> Service architectures for cloud-based technologies.

> Crowd-sourced knowledge management on one integrated platform.

> Convergence of Agile, Lean, CoBIT, IT4IT, eTOM and ITIL.

> Automation through DevOps and infrastructure-as-code.[2]

> Federation (or aggregation) of configuration management systems.

- **Automated remediation:** Along with minimizing operational glitches and time to recovery, delivery managers are now required to pre-empt and prevent avoidable events. That said, given the multi-supplier contract and product environments, achieving holistic automation can be a long and drawn-out process, if internal standards are not established first.

However, unlike software as a service (SaaS) approaches, this quasi-nirvana state of IT operations cannot be just procured and implemented. It requires the following:

> **Pervasive standardization.** An intentional focus on standardization is fundamental to automation. Standardization must be driven at multiple levels and tiers to cover processes, procedures, tools, technology and skills, etc.

> **Pre-empt, predict and prevent.** Future infrastructures will use artificial intelligence and machine learning capabilities to detect plausible transactional issues, learn from previous events and trends, and predict operational disturbances that could lead to an incident.

> **Self-learning and self-healing IT infrastructure.** A high percentage of technical incidents will be resolved through self-healing solutions and the use of virtual engineers

created through autonomics. With a growing focus on SLA, automating standard operating procedures and run-book activities will help reduce cycle times and unintentional human errors.

Introducing these future-proofing concepts will greatly enhance the management and relevance of delivery operations. The enablers include:

> IT process automation.

> Operations orchestration.

> Network automation solutions.

> Autonomics using heuristic analysis and machine learning.

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- **Operational analytics:** A typical enterprise with about 5,000 servers generates in excess of 1.3 TB of data per day. In analytics terms, 33 GB of that data is metrics data, and 1 TB is unstructured. Greater dependence on technologies such as cloud computing, enterprise mobility, social media and Internet of Things devices is expected to generate even larger amounts of unstructured data moving forward. Today, most of this data goes unanalyzed, creating potential blind spots.

IT must mine this trove of data using state-of-the-art analytics tools and systems to gain the insight necessary to deliver fast application performance, proactive outage prevention and rapid problem resolution, which affects all links in the application service delivery chain. Doing so will help IT improve its visibility into the activities of developers, application owners, service delivery managers, suppliers, performance analysts, business stakeholders and, ultimately, end customers. IT operational analytics (ITOA) uses analytics-based insights to help resolve IT issues more proactively and effectively to directly improve business performance. ITOA insights enable developers and performance analysts to accurately tune their applications for high performance, or find and fix application problems with laser-like focus. The broad categories of analytics available to IT operations include:

- Predictive analysis.
- Diagnostic analysis.
- Unstructured data analysis.

ITOA uses cognitive computing capabilities to analyze and transform terabytes of operational data into relevant information and insights, enabling more structured decision-making. Typical techniques used in ITOA include:

- Cloud analytics.
- Log analytics.
  - » Capacity analytics.
  - » Storage optimizers.
  - » Textual pattern recognition.
  - » Behavioral learning analytics.

- **Context-aware ITSM:** Context-aware services adapt to changes in the immediate computing environment. However, these are largely restricted to mobile applications, with location being the primary context variable. Regular ITSM tickets do not usually capture all the contextual details surrounding a simple incident. While a tool determines an incident's urgency or severity based on its mandatory parameters, the service desk agent or the back-end L1, L2 or L3 technician must validate the actual problem.

  Now, imagine a situation in which the system is intelligent enough to perceive the full severity of the incident without human interaction by using a mesh of dynamic policies and context variables, including time of day, pre-defined events, location, formless request management, etc.

  Context-aware service management is an add-on component that can change policies on-the-fly and perform automatic contextual reconfigurations. It requires the following components:

  - **Dynamic policies.** Non-technical and static business-oriented policies incorporated into the ITSM system can change on the fly, and make related changes to the metadata.
  - **Context-based task severities.** Based on dynamic policies, the system can change the severity of a technical issue, regardless of the pre-configured classification, and automatically schedule it based on a dynamically assigned priority.

- **Enterprise social media as IT workflow initiator.** Social media can process contextual data of a particular profile to preempt a plausible issue. After a logical confirmation, it can trigger a service request workflow.

The key enablers for making service management context-aware are:

- A catalog of business rules for automatic reference.
- Flexible policies enabled by a logical model of environmental parameters.
- Cross-platform integration of ITSM modules with social media platform.

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- **Delivery integration:** Sourcing is evolving continuously – from application maintenance, to multiple small contracts leading to large single-vendor consolidation deals, to today's service oriented multi-supplier ecosystems. This evolution has created issues with governance and accountability. In such circumstances, the IT organization requires an integrator. Previous avatars of SIAM (i.e., a service management office or a supplier integration function) partially solve the governance issue but do not address accountability.

  The sole purpose of multi-level aggregation is to bring different facets of delivery onto a single unified platform that will maintain accountability for overall service delivery (i.e., a delivery integrator function). Aggregation is required in three primary areas:

  - **Governance for uniform service delivery.** The service governance function must maintain a healthy operating relationship with the same suppliers whose performance it must monitor and evaluate. With active participation from key suppliers, it will also align with overall IT governance, acting as a subsidiary.

> **A multi-directional approach to service level management.** Future SLA frameworks will bridge the expectation gap created when three factors converge during operations: business requirements, IT's ability to manage the service, and partners' ability to deliver the required SLA, rather than attempting to reverse-integrate them with the rest of the mesh.

> **Framework for the changing role of IT from provider to broker.** Future delivery frameworks will require IT to broker a service, while the supplier ecosystem delivers against demand. IT as a service broker introduces a standardized approach to meeting the ever-growing demands of business.

Delivery integration will bring uniformity to service performance, standardize service levels, ensure service quality and modularize service delivery. The pillars of this aggregation are:

> Practical multi-directional SLM framework.

> Accountability, assurance and governance.

> Technology brokering maturing to service brokering.

> Inter-supplier relationship management.

Prepare for the Journey

How quickly an organization travels the road to next-generation IT service delivery depends on its technology maturity and the complexity of the

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organization it serves. Many IT groups are already working with foundational technology approaches such as DevOps and taking steps to increase standardization and speed with template transactions and business rules catalogs. Achieving a completely self-managing infrastructure and process-in-a-box are further out on the time horizon but will build on the foundation laid today, such as framework convergence.

Key steps to take now include:

● **Enable architecture-driven service management.** IT needs to combine multiple service frameworks to address gaps in service management. In the future, a standardized reference architecture, such as IT4IT, must emerge to enforce framework parameters.

The Road to IT Service Management Modernization

Calibrated Operations	Delivery Integration	Operational Analytics	Automated Remediation	Context-Aware ITSM
Service Architecture	Service Level Framework	Service Intelligence	Process Automation	Dynamic Policy Management
Converged Framework	Accountability & Governance	Diagnostics Analytics	Workflow Automation	Business Rules Catalog
Federation of CMDB	Technology & Service Brokering	Predictive Analytics	Network Automation	Contextual Parameters
Crowdsourced Knowledge Banks	Relationship Management	Cognitive Analytics	Heuristics: AI from ITSM	Integration with Social Media

Functional Maturity →
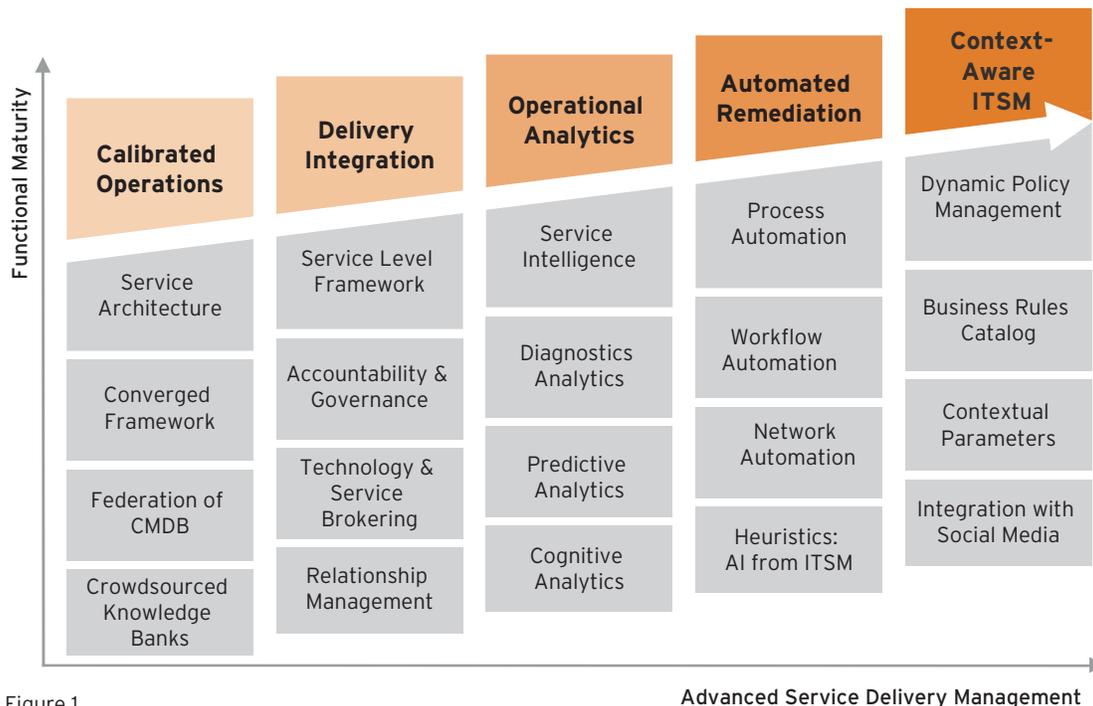Advanced Service Delivery Management →

Figure 1

Achieving a completely self-managing infrastructure and process-in-a-box are further out on the time horizon but will build on the foundation laid today, such as framework convergence.

- **Leverage technology to respond to technology.** IT needs to embrace digital technology that streamlines rote and routine activities (and perhaps broadens the tasks in those categories) to free up the time and resources to address business needs.

- **Use advanced analytics to level playing fields.** Sophisticated analytics tools enable IT to make business meaning from the data it routinely creates and collects, and share these insights to enhance business strategies. An example of such a strategy could be identifying patterns in server loads that can be combined with business data to shed insight on when and why end-users consume a specific service.

- **Break the traditional IT organization structure.** As IT becomes an enabler of accelerated business outcomes, it will need an end-to-end perspective on services and their alignment with business objectives. This fresh perspective may call for new ways of structuring the IT organization to be closer to the business.

- **Reimagine service provider partnerships.** A service provider that can deliver a stream-lined SIAM solution can reduce management complexity and provide a single point of accountability that encompasses an end-to-end

business service. Such providers may work on outcome-based delivery agreements, forming close partnerships with IT organizations.

It's also important to recognize that as IT focuses on satisfying business and end-user service requests by aggregating and brokering the services they need, it will retain the core disciplines and skills required to meet this massive mandate. These include data center management, information security, infrastructure convergence, software-defined networks and more. These capabilities must be practiced alongside service aggregation and brokering to ensure the business has the robust technological infrastructure it requires.

IT needs to embrace digital technology that streamlines rote and routine activities (and perhaps broadens the tasks in those categories) to free up the time and resources to address business needs.

IT is well positioned to use technology to its advantage. Adopting new approaches to ITSM and developing a more business-driven perspective will only strengthen IT's relevance and ability to deliver a continuously ready service delivery framework that offers agile delivery, contextual services and flexibility to adapt to future technologies and business user demands.

Footnotes

[1] IT4IT is a vendor-neutral reference architecture and framework for IT management. The Business Process Framework (formerly known as eTOM, or Enhanced Telecom Operations Map) is an analogous framework developed by the telecommunications industry. ISACA, the cyber-security professional association, created COBIT (Control Objectives for Information & Related Technology), an IT management and governance framework. DevOps refers to the increasingly popular practice of software development and IT operations professionals collaborating and communicating earlier and more frequently throughout the software development process, as well as greater automation of software delivery and infrastructure changes.

[2] Infrastructure as code (IAC) is a discipline that enables IT to manage and provision the infrastructure environment in code form instead of physical form. Machine-readable formats or files (scripts or otherwise) are used to define computing, storage, network and other infrastructure elements in code form, making them programmable and thus repeatable.

About the Authors

K.S. Ganesan (KSG) is the Vice-President and CTO of the Cognizant Infrastructure Services (CIS) business unit. In this role, he is responsible for strategic technology-led innovations and transformation-led delivery, covering next-generation IT infrastructure service offerings. KSG leads the execution of transformation initiatives across cloud, infrastructure automation and resiliency engineering. He is responsible for evangelizing Cognizant's point of view and thought leadership about the infrastructure services ecosystem and building technology experience centers. KSG has over 28 years of IT services experience in the infrastructure transformation and sourcing space, as well as more than a decade of relevant cloud and automation experience in the "IT as a Service ecosystem economy." He can be reached at ksganesan@cognizant.com.

Anil Wangoo is a Director with Cognizant Infrastructure Services and a thought leader in the service management space. A regular presenter at various industry forums, he has approximately 20 years of experience spanning IT consulting, IT service management, IT operations management, program management in large and complex environments, etc. In his current role at Cognizant, he is responsible for running the service management practice, building PoVs, solutions and new offerings for new-age service management. He can be reached at Anil.Wangoo@cognizant.com.

Soumitro Mukherjee is an Associate Director with Cognizant Infrastructure Services. He has more than 15 years of experience in the IT services industry, ranging from running service desk operations to advising clients on service management strategies. Soumitro's forte is in practice development, service design, solution architectures and thought leadership in the service management space. He is currently responsible for developing methods for deploying future-ready cross-functional and SIAM operating models for Cognizant's key customers. He can be reached at Soumitro.Mukherjee3@cognizant.com.

About Cognizant

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Cognizant

World Headquarters
500 Frank W. Burr Blvd.
Teaneck, NJ 07666 USA
Phone: +1 201 801 0233
Fax: +1 201 801 0243
Toll Free: +1 888 937 3277
Email: inquiry@cognizant.com

European Headquarters
1 Kingdom Street
Paddington Central
London W2 6BD
Phone: +44 (0) 20 7297 7600
Fax: +44 (0) 20 7121 0102
Email: infouk@cognizant.com

India Operations Headquarters
#5/535, Old Mahabalipuram Road
Okkiyam Pettai, Thoraipakkam
Chennai, 600 096 India
Phone: +91 (0) 44 4209 6000
Fax: +91 (0) 44 4209 6060
Email: inquiryindia@cognizant.com

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