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## Three dimensions of application management services automation

After determining *why* automation is needed, consider the questions of *what, how,* and *when.*

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Automation of information technology (IT) application management services (AMS) has the potential to produce many different outcomes, depending on the automation strategy an organization chooses. As discussed in a recent Deloitte point of view,[1] six factors drive many automation initiatives: service improvement, speed, cost optimization, risk reduction, innovation promotion, and business value generation.

Before launching an automation initiative, it is important for organizations to determine their digital maturity and develop a clear rationale for *why* they want to automate, using those six factors as guideposts. Once objectives are clearly defined, three dimensions of the automation picture should be considered: *what* application management services can be automated, *how* each process should be automated, and *when* it should be deployed.

This Deloitte point of view explores those three dimensions to help IT executives and business stakeholders develop their automation road map.

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1. *Accelerating application management services automation – Time to break out the bots?*, http://www2.deloitte.com/us/application-management-automation

## Dimension 1 – What elements of AMS can be automated?

AMS is typically segregated into eight service elements, and each can be improved through automation:

**Service management and transition.** Automation of service measurement (e.g., SLAs), service reporting, and support of the transition process and training.

**Service workflow.** Automation of workflow steps, such as password resets or ticket categorization and assignment, using bots or ITSM tools.

**Incident resolution.** Automation to assist in or actually perform problem resolution. This function was traditionally supported by knowledge databases, but with the addition of cognitive analytics and eventually artificial intelligence, the level and sophistication of automated assistance is rapidly expanding.

**Development and release life cycle.** Automation to support the development, testing, release, and rapid defect resolution processes of software development.

**Analytics operations.** Automation of a variety of activities, such as extract, transform, and load (ETL), cleansing, exception management, and performance tuning, to manage the data and platforms that support business analytics.

**Environment management.** Automation of the many disciplines involved in operating a software platform, including application monitoring, batch management, security compliance, and provisioning, among others. These areas offer some of the greatest potential returns for AMS automation because of their repetitive nature.

**Testing.** Automation for this crucial step of software development can deliver significant effort reduction and quality improvement. As a traditional area ripe for automation, testing continues to evolve in both effectiveness and simplicity, and it is key to accelerating software development using Agile and DevOps approaches.
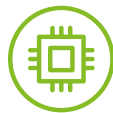
**Business value enhancement.** The freeing up of IT organization resources and the creation of an innovation mind-set so IT can extend the benefits of automation to other business processes across the enterprise. This is perhaps the greatest potential impact of automating AMS.

## Dimension 2 – How could each service element be automated?

While countless automation tools and service providers are available, six categories of automation technology can be especially effective when used in an integrated fashion to automate the delivery of AMS. Newer technologies, such as robotic process automation (RPA) and machine learning, receive considerable attention, but for many AMS elements, more traditional automation tools may provide the quickest path to an IT organization's objectives.

**ITSM 2.0.** Information technology service management (ITSM) tools have been available for decades. Early versions were used for ticket management and enabling IT infrastructure library (ITIL) processes. Modern leading tools now offer advanced capabilities in process automation, such as automated ticket routing and automated change management, as well as advanced analytics to accelerate incident resolution and problem management. Using advanced analytics and visualization tools alongside less sophisticated tools can even produce significant improvements in service management and reporting.

**Environment monitoring and management:** As with ITSM, tools for monitoring and managing applications have been available for many years. However, many organizations can still improve their use of monitoring, alerting, and even "self-healing" capabilities. Traditional systems monitoring approaches can also be extended to business process automation, enabling the application management operation to drive productivity across the enterprise.

**RPA.** Robotic Process Automation (RPA) is the use of software "bots" to automate repeatable processes so human intervention is reduced or eliminated. Processes that qualify for RPA typically must meet a number of prerequisites to justify the investment, such as being rules-based and high volume in nature. Many AMS elements meet those requirements. Furthermore, the investment in automation of AMS can often be extended to other qualifying business processes across the enterprise, creating even more value.

**Cognitive analytics, AI, and machine learning.** Analytics, artificial intelligence, and machine learning offer the possibility of dramatically reducing the amount of human intervention required for IT user support and incident resolution. While use of these technologies for AMS is still in the early stage, the potential is great for machines, such as chatbots, to intelligently address user requests, analyze problems, recommend solutions, and possibly even implement solutions.

**Development life cycle.** The typical benefits of DevOps (i.e., Agile development techniques integrated with operations) include quality, speed, and rapid recovery during the software development life cycle. While those benefits rely heavily on the cultural change DevOps brings to software development organizations, automation can be a key contributor across the life cycle, as well.

**Test automation.** Test automation is not new, but the demand for more frequent software releases, such as those required in a DevOps environment, has made the use and effectiveness of it all the more imperative. Similar to environment monitoring and management, existing test automation technology is often underutilized. New advances have greatly simplified the testing automation process and increased the flexibility and applicability of automation.

## Dimension 3 – When should automation be deployed?

A business value–driven approach to the automation of AMS should be both pragmatic and disciplined. It should include a plan for identifying and deploying automation solutions that focuses on increased productivity and efficiency, rather than being technology or tool driven. Such an approach should have four phases, including:

**Assimilate.** Deployment of automation in an AMS environment involves far more than a tool. At the most basic level, prerequisites must be met. For example, automation of the simplest process requires clear definition of the process, with specific inputs and known outcomes. An inefficient process that is automated will still be an inefficient process.

Data is another consideration. For example, the use of advanced analytics and machine learning requires a collection of data—ideally data that is both "clean" and "consistent." Anything less could result in unexpected or unsatisfactory outcomes.

At a higher level, an automation program requires clearly defined objectives, planning, and funding. Automation can bring significant benefits, but also create certain risks and have implications for employees' roles. Assimilating information about and preparing to address all of these factors is a critical success factor for automation.

**Automate.** Because of the potential impact of an automation initiative, it is prudent to use an approach that includes proofs-of-concept and quick wins. This begins with an effort to determine where automation can generate a meaningful business impact with a relatively low risk and low level of investment. For example, implementing automation of an AMS process such as ticket routing can provide an opportunity for the IT organization to gain experience with the technology and generate a productivity benefit, while minimizing risk and exposure.

**Activate.** Based on early AMS successes, an automation road map can be developed to expand implementation to areas such as process automation, machine learning–assisted analytics, automated DevOps and, eventually, other business processes across the enterprise. During this phase it is critical to measure outcomes and effectively support the deployed automation. This includes having processes and governance for improving data, modifying or enhancing automation technology, handling exceptions, addressing incidents, and measuring impact. In fact, a leading practice that many organizations adopt is an *automation CoE*—a Centers of Excellence that governs automation programs, designs and builds automations, and manages digital workforces so they continue to produce value long past initial implementation.

**Accelerate.** Like most technology initiatives, the opportunity for continuous improvement with automation is almost infinite when outcomes from each automation project are measured against objectives. Improvement may come from tuning existing deployed automations, or the experience gained from early automation initiatives may lead to use of more sophisticated solutions over time. For example, an RPA solution that automatically routes a ticket to the appropriate IT professional for resolution may over time be enhanced by analytics that recommend probable resolutions of the issue or even by AI and natural language interfaces to provide the resolution unassisted.

The key is to measure outcomes and review them against original objectives and priorities. Those results then become inputs for a new Assimilate phase in which new automation opportunities are identified based on refined business objectives and priorities.

### Keep your eye on the ball

In the AMS automation arena, bright shiny objects—the latest tools and technologies—can be a significant distraction. Making matters worse, the variety of automation solutions seems to grow every day.

It is important to stay focused on *why* automation is needed in the first place and what outcomes are expected from it. In large part, that will be determined by your organization's current digital maturity, preparedness for automation, application architecture, and culture.

Once you have a clear understanding of the *why*, then you can turn your attention to the other three dimensions of AMS automation: *what*, *how*, and *when* processes are to be automated. Following a practical, value-driven approach that includes close collaboration with the business during and after implementation can help IT organizations continually increase value, productivity, and efficiency through automation.

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