

Autonomio<sup>TM</sup>  
AUTONOMOUS TESTING FOR  
SERVICENOW<sup>®</sup>

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## 1. Artificial Intelligence in Software Testing

There are many inefficiencies and waste in the way software is developed today. Agile and DevOps, coupled with value stream management, eliminate waste and focus on business value. At the same time, app architectures with loose coupling and micro-services will only increase the number of moving parts to manage. The complexity will go beyond what humans can manage and interpret.

AutonomIQ's vision is simple: Artificial Intelligence (AI) agents, bots, and embedded capabilities in tools will become enabling technologies for software development, testing and release teams to manage this complexity. At AutonomIQ, we believe that AI — in particular machine learning, and predictive and deep learning — will slowly but surely encapsulate the entire software development life-cycle.

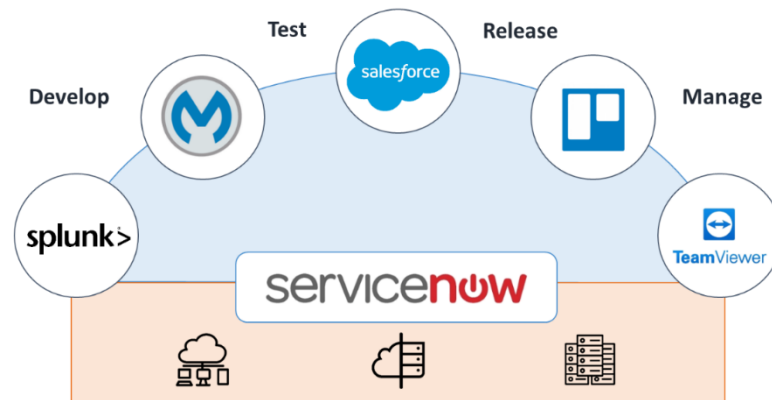
We envision the initial impact of AI to optimize the software testing life-cycle before disrupting other parts of the life-cycle. The three areas in which AI will disrupt the software testing life-cycle are as follows:

1. AI will synthesize vast amounts of natural language requirements and descriptions to automatically generate test cases.
2. AI will determine the right test scripts to be generated autonomously to ensure the application can be tested for the right test cases.
3. AI will process all the changes that are going on across the application landscape, and autonomously keep all the software testing assets in sync with those changes.

Our end-state vision for AI in software testing is a world where, AI agents will automatically learn code and predict software bugs before they occur, and then automatically heal them if they are missed in the prediction process.

## 2. Key Testing Challenges with ServiceNow Implementations and Upgrades

ServiceNow applications' owners must: manage mission critical processes, deliver new services to the business from their ServiceNow implementation, integrate with a broad swath of applications across their end-to-end workflow, and keep up with the changing application environment, all without compromising quality while delivering results under budget and on time.



ServiceNow teams must overcome the following hurdles if they want to deliver value:

- a. **Deliver transformation projects faster without compromising quality.** It is relatively straightforward to implement a single service with ServiceNow applications, but the real world involves complex integrations with other application landscapes. Identifying all testing scenarios, creating the testing assets, and finally executing them consumes at least 30-40% of delivery time. Moreover, project teams don't have a common language to develop and test implementations, because users of ServiceNow automation tools are not familiar with other domain-specific testing tools for other mission critical SaaS applications.
- b. **Manage testing through constant changes.** Managing all testing artifacts across release cycles and enhancements of underlying ServiceNow stack is a constant struggle. Previously, change came from the dev team. Today, ServiceNow implementation and upgrade projects are hampered by changes coming from multiple sources – internal, APIs, SaaS integrations, cloud infrastructure changes, and on and on. Even elite enterprise development and testing teams are severely challenged by the intensity and frequency of change management. To survive, IT must enlist and adopt sophisticated approaches to keep up with the changes, oftentimes calling on armies of teams with silo specific expertise to attempt to manage these constant changes.
- c. **Manage frequent upgrades and new functionality across an end-to-end business process.** In many organizations, ServiceNow implementations are the central nervous system of IT operations. This means the application stack must have the highest levels of quality. Downtime due to quality issues causes severe financial and reputational damage. IT leaders must be sure that they test their implementations thoroughly before rolling out to production.

### 3. A New Approach for Testing ServiceNow Implementations and Upgrades

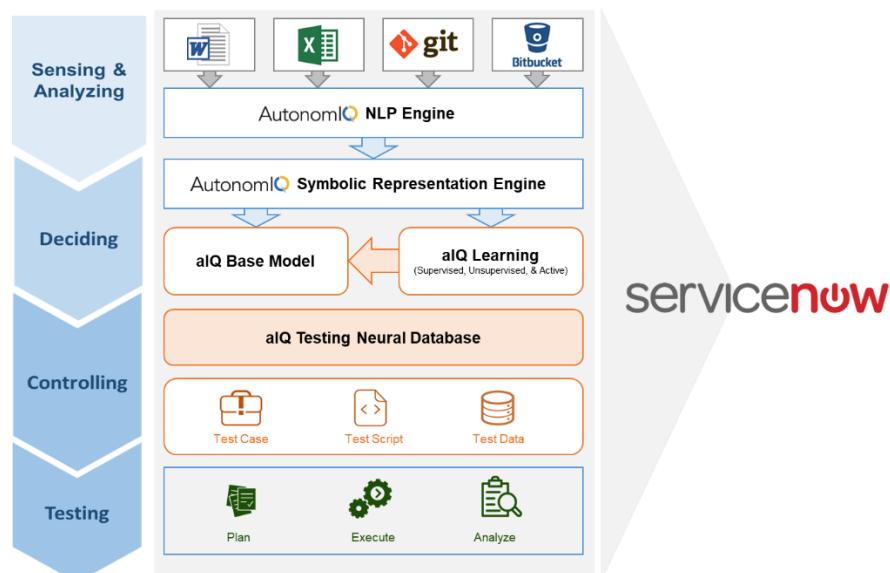
Current manual-testing approaches and current test-automation frameworks aren't enough to continuously test ServiceNow implementations. Using modern CI/CD or DevOps approaches is only a partial solution because this just shifts many of the same software testing challenges to a different implementation-and-upgrade methodology. Furthermore, the frameworks and tools ServiceNow provides testers creates silos in organizations that are supposed to operate together. This makes it nearly impossible to test the regular changes and upgrades across sophisticated ServiceNow implementations.

Instead, teams need to solve the core problem — a reinvention of software testing for the modern SaaS world. We need software testing approaches that can autonomously manage the testing life-cycle across complex business processes, by autonomously and continuously testing ServiceNow implementations through the life-cycle of the project.

This new approach has to make software testing appear as if it were inherently integrating into the implementation-and-upgrade cycle, spanning across silos, and instantly executing at scale and on-demand as soon as code commits occur. The approach must compress the testing time per sprint and allow development teams to focus on adding value-added services to the business.

### 4. Autonomous Testing for ServiceNow by AutonomIQ

The Autonomous testing for ServiceNow by AutonomIQ offers automation and agility at the click of a button at speeds manual testing and ServiceNow-specific test automation cannot deliver. Compared to current approaches for testing ServiceNow applications, the autonomous testing solution delivers unparalleled velocity, superior performance, costs less to run, and eliminates human error.



a. Autonomous Generation of Test Artifacts

Autonomous testing for ServiceNow automatically generates all the test artifacts required for executing tests, including test scripts and test data, all without reworking existing artifacts. All the artifacts are generated at the time of code commit and integrated into the ServiceNow developer workflow.

This reduces test analyst and test automation labor required to understand, validate, write, troubleshoot, and tune the various testing artifacts, freeing testing resources to work on higher value tasks. Testers can spend their time focusing on testing new functionality and ensuring a seamless user experience, not recording test results to spreadsheets or writing scripts.

b. Autonomous Self-Healing of Test Artifacts

AutonomIQ's autonomous testing for ServiceNow autonomously maintains all test artifacts needed used in ServiceNow implementations, eliminating the need to spend effort reworking automation each time a configuration changes. Users are notified only if the test case fails.

The AI engine of AutonomIQ constantly gathers all the changes occurring in the application landscape for ServiceNow environments and automatically modifies the right test artifacts required for executing tests, including test cases, scripts, and test data. All the artifacts are constantly synchronized with the changes occurring in the environment in real time, ensuring companies can spend their time building new services and not retesting working ones.

This reduces the amount of manual work and effort involved in detecting, correlating, analyzing and updating all the test artifacts. Instead, these tasks are completed autonomously for you.

c. Autonomous End-to-End Business Process Testing

One of the key challenges in ServiceNow implementations is ensuring the integrity of the end-to-end business process. Sophisticated users of ServiceNow unlock its full value by integrating it with other applications like MuleSoft and Salesforce, creating the central nervous system of the business. Autonomous testing gives silos a common tool to autonomously configure and test business processes, ensuring that the testing scenarios address the end-to-end business process testing scenarios without human effort. Furthermore, autonomous testing gives silos a common language to communicate and coordinate changes.

This ensures that the ServiceNow implementation or upgrade project delivers the business process scenarios that business users are going to use on the final outcome.

## 5. Conclusion – Game Changing Intelligence to Testing ServiceNow

IT leaders face the imperative to transform their business through Artificial Intelligence and Machine Learning to do more with less.

Autonomous testing for ServiceNow by AutonomIQ is the only solution that enables IT leaders to leverage AI and machine learning in an effective manner to transform their software testing life-cycle for ServiceNow applications.

With autonomous testing, customers uniquely acquire the best domain-specific Artificial intelligence algorithms and autonomous technology for software testing, all available out of the box to work with their existing test assets. This combination provides the most intelligent, fastest, proven solution at the lowest cost as all software testing tasks are fully automated.