

A doctor in a white coat is using a smartphone. The phone screen displays medical data, including a stethoscope icon, a heart rate monitor showing '37.2', and a line graph. The background is a blurred blue-toned image of a computer keyboard and other medical equipment.

How McKesson Ensures Business Continuity While Accelerating Innovation



Test Automation Helps One of the Largest SAP Platforms in Healthcare Move Fast Without Disruption

by Brianna Shipley, Senior Editor, SAPinsider

Long before [McKesson](#) came to run one of the largest SAP environments in healthcare, it began in 1833 as a pharmaceutical company that imported and sold wholesale therapeutic drugs and chemicals. Since its founding, the business has expanded and evolved to reach into nearly every aspect of healthcare. Today, the [Fortune 500 company](#) partners with biopharma companies, care providers, pharmacies, manufacturers, governments, and others to deliver the right medicines, medical products, and healthcare services to the patients who need them, when they need them, safely and cost-effectively.

McKesson's extended reach into so many facets of healthcare resembles a central nervous system, and the company's own central nervous system is a distributed IT environment with a complexity level comparable to conglomerates such as Amazon and Procter & Gamble. McKesson's SAP stack alone includes 24 SAP instances (running both SAP ERP and SAP S/4HANA systems) with extensive customizations developed by McKesson and third-party developers. And McKesson is not just an SAP shop—its SAP footprint closely interconnects with many other packaged and custom applications.

Rapidly responding to change is difficult with such complex landscapes, but agility is vital for McKesson's business. Numerous factors are driving the company to change faster than ever before—from healthcare policy shifts to mergers and acquisitions to evolving demographics and unprecedented health crises, change is a constant.

To improve its long-term flexibility, McKesson has a plan to simplify its IT landscape and reduce the effort, cost, and risk associated with change. This includes completing a migration to SAP S/4HANA, consolidating more than seven warehouse management systems, re-architecting custom applications, and more. As one can imagine, this will take time—likely almost a decade.

To improve its adaptability in the meantime, McKesson is drastically accelerating the pace at which it updates its current IT landscape, including its SAP systems. While in the past it updated its software every three to four weeks, the business is now edging toward daily or even hourly releases.

Given the nature of its business and the complexity of its systems, any change McKesson makes could cause disruptions that ripple throughout the supply

McKesson's Core Business Processes - Distribution

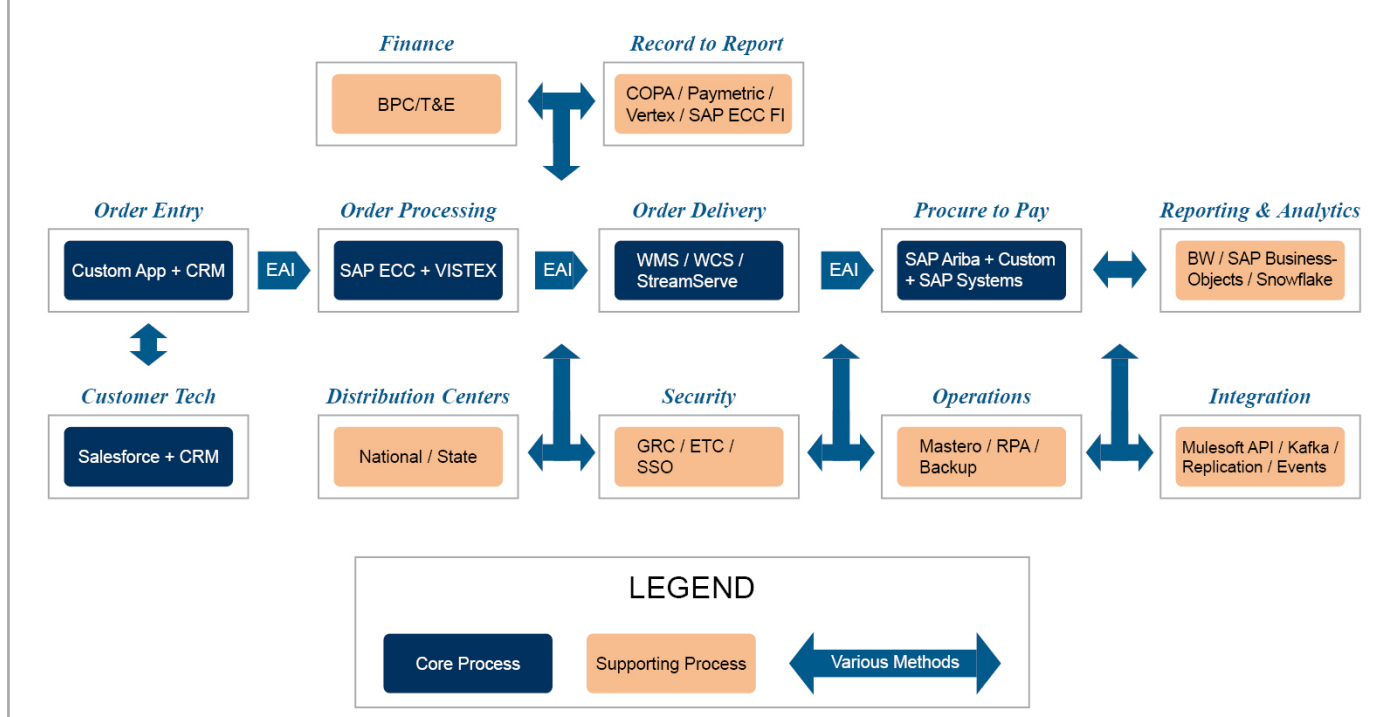


Figure 1 McKesson operates a complex network of distribution centers, with SAP software as the core, that each can process as many as 60,000+ line items per hour during peak times

chain. To prevent unexpected, adverse effects on the processes its clients depend on, rapid and rigorous testing is required for a massive system migration, such as a move to SAP S/4HANA. For this reason, McKesson recognized that a testing transformation must be an integral part of its broader digital transformation. With advanced test automation ensuring the continued integrity of core business processes, McKesson can move quickly without the risk of disrupting core business processes.

Combating the Complexity That Underlies Healthcare Processes and Systems

McKesson's business has four core components:

- **Providers:** Helping healthcare providers navigate an evolving landscape and make smarter decisions about business operations and healthcare
- **Life sciences:** Working with life sciences companies to help develop and deliver advanced medical treatments that lead to improved care and outcomes
- **Pharmacies:** Supporting the missions of pharmacies by expanding the range of medical supplies and services they can offer customers
- **Health systems:** Providing pharmaceutical distribution services that are customizable and

scalable for hospitals and health systems of all types and sizes — from small rural facilities to academic medical centers to multi-site integrated delivery networks

Each segment of the organization processes a large volume of daily transactions. McKesson delivers one third of all pharmaceuticals in North America, and each of the company's distribution centers can process an average of around 1 million line items per day, or 60,000+ line items per hour, during peak business ordering times.

To get a sense of the complexity driving these transactions, consider how McKesson takes and distributes a health system's order today. A hospital worker places an order for gauze pads and insulin, either through a standard customer relationship management (CRM) interface or the hospital's custom user interface (UI). From there, the order moves through McKesson's order processing and delivery processes, navigating a combination of SAP, non-SAP CRM, and multiple warehouse management systems. Along the way, various supporting processes involving distribution centers, security, operations, and more are triggered. Each of these supporting processes are connected by different integration technologies (see **Figure 1**).

Now, imagine that you are McKesson and one of your clients asks you to start holding 30% of



its orders at distribution centers across California, North Carolina, and Texas. Your existing processes were not designed to do this. To make the necessary changes, you would need to update the UIs and business logic across all the related processes and systems (such as order placement, order processing, and warehouse management). You would also need to test each component to verify that the individual changes work as designed. Then, once all the individual updates were finished, you would want to test the complete end-to-end process to ensure that everything works together and that some subtle-yet-critical element was not overlooked.

When updates occurred less frequently, McKesson verified such changes with a combination of open-source test automation tools and manual testing (about a 40%/60% split). However, with the push for daily or hourly updates, the testing team quickly learned that this approach could not keep up. The open-source test automation tools focused only on certain technologies, resulting in “islands of test automation,” which meant extensive manual testing was still required to validate complete end-to-end business processes. This resource-intensive approach simply does not enable the speed, scope, or accuracy of testing that is essential with the new pace of innovation. The company needed a faster, easier way to ensure its core processes would continue working after an update.

Increasing Agility Without Risking Business Disruption

To help McKesson reach its goal of rapid updates without business disruption, the company embarked on a testing transformation project in July 2019. This endeavor continues to evolve today based on a three-year roadmap created by the project’s lead, [Danial Khan](#), North America Service Transition and Business Operations Leader at McKesson.

“Software that doesn’t function correctly can have far-reaching and, in some cases, dire implications due to McKesson’s industry-leading business and life-critical mission,” Khan says. The company needed a testing platform that automates testing across every part of its complex systems and processes. After extensive research, McKesson elected to partner with [Tricentis](#) and implement its enterprise continuous testing platform, which McKesson identified as the ideal product to work across all its different SAP and non-SAP platforms and technologies.

The Tricentis platform includes three core capabilities: agile test management, provided by Tricentis [qTest](#); change impact analysis, provided by Tricentis [LiveCompare](#); and enterprise test automation, provided by Tricentis [Tosca](#).

McKesson was first introduced to Tricentis by way of qTest. For over a year, qTest has provided McKesson with centralized visibility and control across its entire software testing practice, including manual and automated testing tools, commercial tools, and open-source tools. It also integrates with a third-party tool application that McKesson uses for software management, which helps prevent duplicated efforts while improving traceability and collaboration. After rolling out qTest across its US locations, Khan says that McKesson noticed a 25% reduction in its test cycle times.

“The journey isn’t just about selecting a tool and letting it do that work. It’s also about changing the mindset of not just the testers, but also the developers, business partners, and other supporting functions who use the tool daily.”



Danial Khan

North America Service
Transition and Business
Operations Leader, McKesson

Current

- SAP (24 Various)
- JD Edwards (Various Components)
- WMS (7+ Different Types)
- Reporting (10+ Different Solutions)
- On Premise / Hybrid Cloud

Future

- SAP S/4HANA Consolidated
- Consolidated WMS Systems
- Enterprise API
- Container / Side by Side / Microservices
- Single Data Lake
- Fully Cloud Hosted (PaaS, SaaS, IaaS)



Figure 2 The before-and-after state of McKesson’s three-year IT simplification initiative

To address test automation, McKesson initiated a rigorous proof of concept (PoC) for Tricentis Tosca. The PoC identified 13 use cases representing different challenges experienced by the company. Tricentis successfully automated all 13 core scenarios in just three weeks.

The next step was adding Tricentis LiveCompare, which uses artificial intelligence (AI) to analyze SAP ecosystems and highlight changes that pose technical and business risk. LiveCompare works with Tosca to identify which automated tests to run or create to address these risks, and reports when the changes are safe to deploy. This reduces the amount of testing McKesson needs to perform for any given update by 85% (on average) while preventing up to 100% of the risk.

With the complete Tricentis testing platform in place, McKesson is on the path to 90% test automation with a 35% reduction of testing costs. Tricentis has already proven essential for helping the company ensure business continuity in the face of constantly accelerating timelines and rapid pivots in response to an unprecedented global pandemic. Today, McKesson can release software in its SAP environment every two weeks (compared to every three weeks to once a month previously) and is approaching its goal of daily or even hourly digital environment updates. With Tricentis, McKesson’s Defect Removal Effectiveness (DRE) metric exceeds 99%, and McKesson anticipates lowering testing costs by \$750,000 during the first five quarters of use — and thereafter attaining a monthly savings of \$120,000 and an annual savings of \$1.44 million.

Preparing Four Workstreams for an SAP S/4HANA Rollout

As part of McKesson’s strategy for simplifying its IT landscape, the company is applying a “four Rs” principle to every product, which involves asking the following four questions: Should it be removed? Should it be retained? Does it require a re-platform? Does it need to be re-factored? Answers to these questions will help McKesson consolidate key applications, processes, and technologies, including migrating 24 SAP systems to SAP S/4HANA and to the cloud.

This is an enormous migration project involving one of the largest SAP S/4HANA migrations in the healthcare industry as well as data migrations, cloud migrations, and more. Before going live with each element, McKesson needs confidence that its business-critical processes will continue to function as expected. And once each element is live, the company needs to re-establish the “safety net” that sends alerts if ongoing application changes disrupt processes that the business depends on.

Tricentis’s advanced test automation capabilities have made this strategic journey possible for McKesson, according to Khan, and it replaces the company’s existing “islands of test automation” with a unified platform for quickly providing the quality feedback that is vital to a safe and efficient migration.

At the time of this publication, McKesson’s SAP S/4HANA rollout is under way in Europe, with 13 countries and four workstreams scheduled to go live over the next three years. “This is an optimal



Headquarters: Irving, Texas

Employees: 78,000 employees

Industry: Healthcare

Revenue: \$214.3 billion (2019)

Company details:

- Founded in 1833 in New York City, US
- Operates in 16+ countries
- Ranked #8 on the Fortune 500 list, and runs one of the largest SAP platforms in healthcare
- Offices in the US, Europe, and Canada
- www.mckesson.com

SAP solutions: SAP ERP; SAP S/4HANA (currently rolling out in Europe); SAP ERP Central Component (SAP ECC); SAP Customer Relationship Manager; SAP Supply Chain Management; global ATP scheduling integrator; SAP Integrated Business Planning; SAP Enterprise Portal; SAP Process Orchestration; SAP Ariba; SAP Concur; SAP Supplier Relationship Manager; SAP Business Warehouse; SAP Business Warehouse Powered by HANA with SAP HANA in a sidecar scenario; SAP Test Data Migration Server; SAP Landscape Management; SAP Fiori apps; SAP BusinessObjects; SAP Data Services; and SAP Hybris

Third-party solutions: Tricentis qTest, Tricentis LiveCompare, and Tricentis Tosca

time for test automation and change impact analysis to be embedded as part of different McKesson teams' daily ecosystem," says Khan. "Employees' exposure to the Tricentis platform will become massively important as more enhancements and integrations occur."

By streamlining SAP ERP test automation ahead of the SAP S/4HANA rollout using Tricentis products, McKesson will be able to apply that automation to its SAP S/4HANA environment. McKesson is positioning LiveCompare and Tosca to help with system cleanup that is required in the North America locations, for example. "We are creating a reference architecture so when we're ready for the journey to go to SAP S/4HANA, instead of hiring a systems integrator to build those scenarios, we'll

already have a repository available that is capable of being executed in SAP S/4HANA," says Khan.

McKesson hopes to complete the SAP S/4HANA rollout by 2022, and it will continue to use Tricentis solutions across its current SAP ERP environments, the incoming SAP S/4HANA environments, and its non-SAP applications. Khan emphasizes that a fundamental process transformation is a major factor in sustaining the company's success. "Different forms of testing have existed across all enterprises for a long period of time, so the journey isn't just about selecting a tool and letting it do that work," he says. "It's also about changing the mindset of not just the testers, but also the developers, business partners, and other supporting functions who use the tool daily." ■