

Accelerating and Scaling Biotech Innovation

Moderna employs cloud-native integration technologies to automate business processes, scale on-demand, and alleviate administrative burdens for scientists.



Biomedical

Cambridge, MA, U.S.A.

www.modernatx.com

Business Needs

Moderna Therapeutics was founded in 2011 to improve people's lives through mRNA medicines. To bring speed and agility to its operations, Moderna has adopted a cloud-first philosophy, which requires integrating multiple SaaS applications, including SAP (ERP), Workday (HR), Solium (equity plan management), and Concur (expense reporting).

Solutions at a Glance

- Boomi AtomSphere Integration Platform
- Boomi MDM Management

Business Results

- Delivered cost savings in platform administration and maintenance
- Automated complex, cross platform business transactions
- Supported rapid growth without increasing G&A staff
- Minimized data errors while increasing process visibility
- Streamlined application migrations
- Simplified integration mapping — reducing cost of additional master data connections
- Accelerated employee onboarding by automating access to applications and resources
- Improved permissions management reliability, consistency and documentation
- Reduced IT effort focused on user access and permissions

What if an integral part of our bodies could dramatically alter the way we treat life-threatening diseases?

That's the founding premise of Moderna Therapeutics. Headquartered in Cambridge, Mass., Moderna is a clinical-stage biotechnology company focused on advancing messenger RNA (mRNA) medicines.

mRNA is a fundamental part of human biology and conveys information from DNA for the synthesis of proteins. Moderna is using mRNA as a drug to direct cells in the body to make proteins for fighting and preventing diseases.

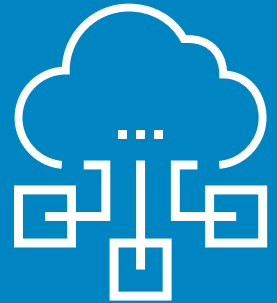
Central to its efforts, the company has developed its own advanced technology platform to create mRNA therapeutics and vaccines addressing a spectrum of ailments, including infections, cancer, rare diseases, and cardiometabolic issues.

"mRNA science requires intense analytics," says Marcello Damiani, chief digital officer for Moderna. "You need analytics in R&D, in clinical development, in process development, and in manufacturing. Data is at the center of what we do."

Under Damiani's leadership, the Moderna team has built a high-tech enterprise to manage this data and leverage analytics to advance multiple breakthrough biopharmaceutical products simultaneously.

Moderna is fueled by a robust digitization strategy that "uses the full power of the cloud as the foundation," Damani says. In addition to the cloud, the company's strategy comprises five other building blocks: integration, the Internet of Things, automation & robotics, analytics and artificial intelligence.

The Boomi integration platform and MDM capabilities solved the "last mile" problem for Moderna.



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Ander Tallett

Associate Director of Business Systems,
Moderna Therapeutics

Moderna needed to integrate its best-in-class, on-demand applications and data. That's when it turned to Dell Boomi.



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Marcello Damiani
Chief Digital Officer, Moderna Therapeutics

The cloud helps Moderna accelerate learning, automate processes, and improve quality at scale. To harness the full power of the cloud, Moderna needed to integrate its best-in-class, on-demand applications and data. That's why Damiani and his team turned to Dell Boomi.

[Boomi’s native-cloud integration platform](#) allows Moderna to scale efficiently by integrating systems and automating complex, cross-platform business transactions including budgeting, vendor payments, and human resources management.

Boomi MDM Addresses Integration Complexities

As Moderna’s portfolio of cloud and SaaS applications grew, the company and its implementation partner KitePipe developed more than a dozen point-to-point integrations in Boomi. The integrations worked as designed, but these integrations did not address the larger issue of keeping data in sync across Moderna's full suite of applications. The company began looking for options for simplifying its IT infrastructure overall and better managing the data shared across its applications.

To simplify its computing architecture and improve data management, Moderna selected [Boomi’s MDM Management platform](#). Boomi's unified platform for core integration combined with master data management helps organizations validate, enrich, aggregate and synchronize data in any domain. Boomi MDM helps businesses ensure their data is consistent across on-premise or cloud systems for managing customers, products, employees or vendors.

Boomi MDM makes it possible to enter data once in one, discrete system and have it flow to all systems across a company. For Moderna, those systems included Workday, SAP, and Active Directory.

“When you can enter data once and have it connect everywhere, that is a tremendous advantage,” says Ander Tallett, Moderna’s associate director of business systems.

The combination of Boomi's core integration platform and Boomi MDM allowed Moderna to scale its HR operations and remain agile, bringing much greater efficiencies to its business.

Thanks to Boomi's integration capabilities and data orchestration, Moderna's business processes — such as its purchase cycle workflow — were automated and now need little manual intervention. Controls were embedded in processes so they could be managed by exception. Data errors were also minimized, and processes became visible end-to-end.

Boomi MDM Solves Single Sign-on User Provisioning

Boomi MDM also addressed a vexing problem for Moderna as a cloud-first enterprise: ensuring users had access to the correct set of applications.

“User provisioning is the dark side of single sign-on,” says Kitepipe's chief solutions architect, Larry Cone. “Single sign-on solutions are slick at managing access. But no one likes to talk about how users are provisioned and de-provisioned in the applications.”

The Boomi integration platform and MDM capabilities solved that “last mile” problem for Moderna. Using a simple Boomi process, the company can easily update user provisioning across a host of cloud applications.

Boomi MDM Bonus: Simplifying Migration From NetSuite to SAP

As its operations grew, Moderna decided to migrate from NetSuite to SAP to better support its unique ERP requirements and the company's expansion into manufacturing.

Moderna's NetSuite implementation had connections to many existing applications, and those connections needed to be re-created for SAP. Fortunately, Boomi MDM was able to simplify the integration map and reduced the number of application endpoints required.

The driving value of Boomi MDM, however, was the stability it provided to other interconnected systems, Tallett says. By keeping endpoints consistent through the MDM hub, Moderna avoided complex interactions with project or support teams for tracking the existing connections to NetSuite.

This made the transition smoother, and the MDM repository provided a place where Moderna could coordinate data matches between NetSuite and SAP and stage integration test data. The migration was completed in only four months.

Keeping Scientists in the Lab

Boomi also brought other key benefits to Moderna.

For example, Moderna scientists use the company's Drug Design Studio (DDS) — a proprietary suite of informatics tools developed in-house to enable the rapid digital design and the ordering of mRNA constructs for use in research and pre-clinical (animal) studies. By integrating DDS with SAP and coordinating data from the MDM repository, scientists can remain in their application “comfort zone” while mRNA orders and project costs are automatically captured in SAP.

“Our scientists don't have to spend time switching to the unfamiliar interface of SAP and wasting their extremely valuable time on administrative tasks,” Tallett says.

As Moderna grows it will continue leveraging the integrations provided by Boomi to improve the speed and effectiveness of its workforce. Damiani says Boomi helps drive automation as a workforce multiplier for Moderna.

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Next Step: Manufacturing

When Moderna's mRNA research programs moved to clinical study, the company faced a new challenge common to many emerging biotech companies — establishing a Good Manufacturing Practice (GMP) environment. A GMP is necessary for advancing medicines into human study.

GMP guides critical identity, access, and change management practices. It ensures the highest possible standards for systems used to control the manufacturing and release of drugs

To adhere to GMP regulations without slowing Moderna's pace of innovation, the company created a separate GMP environment.

Using Boomi, the company can easily support both its enterprise operations and GMP systems, with the MDM golden record accessible from both the enterprise and GMP Boomi environments.

Boomi has helped Moderna overcome many barriers that could have otherwise impeded its ability to advance its breakthrough mRNA science for patients.

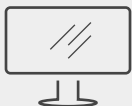
"We use Boomi integration because it works, and it's so easy to put in place," Damiani says. "And with Boomi MDM, our data is correct everywhere, whether it's flowing to our HR applications, finance applications, or our scientific tools."

Dell Boomi Specialist Kitepipe Key to MDM Deployment

Kitepipe, one of Dell Boomi's most successful system integrator (SI) partners, worked with Moderna every step of the way as it integrated the cloud-based applications so vital to the company's daily operations. So, when the number and complexity of point-to-point integrations reached the tipping point, Kitepipe realized that Boomi MDM could simplify integration architecture while creating a single, cloud-based repository from which to manage "master data" — the nouns of a business such as customers, vendors, employees, contract research organizations, etc.

Kitepipe's expertise with all aspects of the Boomi platform made the MDM implementation straight forward. The Kitepipe recommends Dell Boomi MDM because it:

- Sets up easily, provisioned in the Boomi cloud
- Supports rich and complex data models
- Offers rule-based validation and quarantine by data source
- Provides notification for updates in the source system or direct master data updates in the platform
- Uses the rich connectivity and data transformation features of Boomi AtomSphere
- Acts on application endpoints based on changes to master data, delivering user provisioning to the application



Learn more about the Boomi cloud-native integration platform
boomi.com/integration



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