

# Accelerated digital transformation journey for Merck

A global pharmaceutical company



## About Merck

HCLTech is a strategic technology partner for Merck - a global multinational pharmaceutical company headquartered in the US. They are proficient in the development and production of medicines, vaccines, biologic therapies and animal health products.

## HCLTech Solution

HCLTech currently manages the cloud environment as well as application maintenance for Merck. There are 100+ applications in this environment covering life science applications value chain that are organized along the following: Research & Development, Clinical, Regulatory, Commercial and Manufacturing. We had to realign our approach to foster maturity of cloud and operations.

We leveraged GxP SDLC to support the managed services model and manage the application support. HCLTech teams were trained on GxP and regulatory and compliance to ensure operations stay compliant. HCLTech also supported cloud operations in a product model which included services across data warehousing, data lakes, DevOps and AI & ML in the AWS environment. This maintenance implementation and support was done by leveraging both IaaS and PaaS solutions from AWS.

## Business Requirements

Merck was looking for maturity in cloud adoption and operations to help support digital initiatives in a compliant manner.



# AWS services used:

1. Amazon Redshift
2. Amazon Simple Storage Service (Amazon S3)
3. AWS Glue
4. AWS Lambda
5. Amazon Comprehend
6. Amazon Simple Notification Service (SNS)
7. Amazon Simple Queue Service (SQS)
8. Amazon API Gateway
9. Amazon DynamoDB
10. Amazon SageMaker
11. Amazon EC2

A multiple-AWS account architecture was developed as per the business unit requirements. While our Cloud GxP layered approach helped meet GxP and other regulatory requirements, we were also able to achieve the separation of business logic through microservices that helped in the re-usage of the components. To facilitate faster onboarding, we also setup an extension of Cloud Foundation Platform for faster on-boarding. Any changes to the environment were automated using Jenkins & AWS CloudFormation. The implementation of modular design against layered design in legacy helped achieve compliant cloud platform operations specific to the pharma industry.

We also deployed Amazon Athena to analyze cloud trail logs, access analyzer and cloud watch insights analysis of AWS service activities. The Amazon CloudWatch agent helped push logs to Amazon CloudWatch for alarms and metrics dashboard.

We used Venafi SSL certificate automation for single sign-on for all web service. AWS Trusted Advisor helped conduct performance checks and cloud health for delivering cloud monitoring strategy and metrics using cloud native controls. With this, thresholds and alerts for the IT environment were optimized.

## Business Benefits

Merck digital transformation goals were achieved to onboard data faster and expedite advanced analytics. This helped the business make faster, data-driven decisions.

- Cloud platform operations were made compliant for the pharma industry.
- Application scalability and availability were improved across the board.
- Efficiency improvement & cost reduction was achieved by implementing the cloud solution along with HCLTech managed services. Extensive utilization of AWS Trusted Advisor provided cost optimization analysis.
- The increased operational experiences for end customer provided improved traceability, availability and coverage.