

## Case Study

# Global Leader of Healthcare Coding Software Brings Enterprise Technologies to Fruition with Help from emids

*emids delivers thought leadership and development bandwidth to help leading provider of clinical coding and grouping solutions transform ideas into viable technologies*

## Overview

The client is a global leader in coding, classification, grouping and performance management software and consulting services for 7,500 hospitals in more than 20 countries worldwide. The company provides intelligent software, data analytics and strategic expertise to help providers as well as government and commercial payers simplify health information and payment, analyze risk and manage population health as they shift from volume- to value-based care. Their innovative algorithms, software and services have saved customers millions of dollars and improved clinical performance and quality of care for thousands of healthcare organizations across the globe.

## Business Opportunity

The client was working on several enterprise projects, but needed help to push them forward. One project involved building an internal natural language processing (NLP) tool to improve the automated capture of critical clinical data needed

to optimize coding for billing and diagnosis purposes. Another project evolved from an idea the client had to use terabytes of data across their customer base to create a population health management platform that analyzed information on patient populations and financial performance, with the goal of providing insights to help providers improve care and reduce costs.

With their current staff busy maintaining and enhancing their existing product portfolio, the company lacked the development bandwidth to turn these ideas into realities. They needed a global partner with deep healthcare IT knowledge and Agile training that could provide rapid development resources and experience with deploying technologies in cloud-based environments. Product development for the population health platform was highly complex. Not only did the product need to be housed within the client's next-generation platform, but the number of internal and external health information systems involved in exchanging the data posed significant integration and interoperability challenges.

## Solution

---

The client turned to emids for help modernizing their platform and developing frameworks for these new technologies. We formed scrum teams across three cities—Nashville, Salt Lake City and Silver Spring, Maryland—to augment their internal teams, ramping up production within eight weeks.

Initially, we provided development support for the population health platform, with two self-contained teams working on user experience-based elements of the new product. But we soon began proactively helping the client's internal teams with back-end integration so they could keep pace with completion of the front-end elements.

The client was using a third-party vendor to provide data analytics and algorithms for the product. They needed to exchange data with the vendor securely through the cloud, but lacked expertise on how to make this happen. We were able to quickly grasp and resolve these integration issues, eventually taking the lead on these more complicated elements. We worked directly with the vendor to determine how the integration and encryption should occur, experimenting with different solutions before settling on one and establishing a proof of concept.

We created a cloud environment through an 1,800-plus server farm on Amazon Web Services and established the secure transfer of the data, enabling the information to flow in an efficient, meaningful way, encrypt at the appropriate time and return analytics quickly.

## Technologies Used

- **UI Development:** HTML, CSS, Angular JS, JavaScript, JQuery
- **Back End (API Development):** Java, C#, PowerShell, VBScript
- **AWS Cloud Platform Services:** S3, EC2, AWS CodeCommit, Centralized Logging, Elastic Search for development and maintenance
- **Continuous Integration and Deployments:** AWS CodePipeline, Jenkins
- **Test Automation Tools:** Junit, Jasmine, Karma, Protractor

## Services Provided

Services we brought to the enterprise projects under development included:

- Expertise in greenfield application development, product engineering, design and architecture, user experience, testing, and data migration and integration
- Best practices in joint development, collaboration, project management and quality assurance
- Broad knowledge in healthcare IT, including privacy, security and quality requirements, and experience working with cloud-based technology deployments
- Ability to rapidly deploy Agile-trained teams that could ramp up or down based on business need.

# Results

While our work with both of these engagements are ongoing, we have helped the client meet their initial deadlines for bringing these projects to fruition and transforming them from concepts into viable technologies ready for the first phase of internal testing. Our team of healthcare experience technologists, which included 50 people at peak, jumped into both projects quickly and have added value uniformly and quickly.

We understood what needed to be built to execute the projects and assembled teams with deep healthcare knowledge to help drive their development. With the population health project, we worked closely with the client to flesh out the engineering for the product and set its direction. We helped anticipate and resolve issues before they became problems, even taking the initiative to collaborate with the third-party analytics provider that came on board to keep the engagement proceeding smoothly. The client still raves about how the initial prototype of the product matched their vision and met their needs right out of the gate.

We have continued to deliver new functionality for these projects, overseeing production releases every two weeks. The NLP tool we are developing for the client has enabled them to quickly explore the impact of different scenarios for coding by changing the rules for the automatic capture of clinical data. This process used to take days, but we have helped the client shorten the turnaround to few hours.

## About emids

emids is a premier provider of healthcare IT services and solutions. emids enables healthcare entities to achieve accessible, affordable and high-quality care by providing custom application and data solutions. Our clients experience true partnership with us as together we navigate the challenges of a rapidly changing healthcare industry.

## Contact Us

Online: [www.emids.com](http://www.emids.com) Email: [info@emids.com](mailto:info@emids.com)



## Benefits

Benefits we provided to the client throughout these engagements include:

- Proactive teams skilled in health-care IT and capable of adding value immediately and at scale
- Willingness to go beyond the project scope when necessary to ensure the success of engagements
- Outside perspectives on different technologies, methodologies and processes to evaluate the right architecture for projects and the best ways to execute them
- High-quality prototypes that are consistently updated and enhanced