UX | PRODUCT BUILD | QA

Major Healthcare Provider

Healthcare

A major healthcare trust required a brand-new system designed and built to address critical issues with their existing process and better serve their needs in the medical technology space (the previous approach was inefficient, potentially inaccurate, and difficult to maintain or scale). Specifically, the client required a way for care providers to review medical technology products for suitability and to communicate with suppliers who needed an efficient way to provide up-to-date product information in relevant formats. gravity9 won the project tender process, transforming the experience and delivering the "Technology Adoption Platform" by designing and building a highly scalable web-based solution with the potential to serve the entire healthcare provider. After initial conversations, the project began with executive team discovery meetings to map what is "truly" needed, followed by iterative event storming to ensure the product meets stakeholders' needs. Built around MongoDB, Azure, React and Java, it reduces maintenance workloads, provides a clear communication channel, and enables storing relevant and accurate product information.

The new platform experience will drive efficiencies across the healthcare provider with buy-in at a government level.

Utilised Technology Stack

Cloud: Azure, Azure AD B2C, Terraform

Database: MongoDB Atlas

Backend: Java, Spring Boot

Frontend: React, NextJS, MUI components

Review of Challenges

A major healthcare trust engaged gravity9 to reimagine the service and completely replace their existing ad-hoc, email-driven communication process between care providers and medical technology suppliers for sharing specifications and information about medical care equipment. The existing process was slow, difficult to search, and not centralised, meaning the same information had to be shared multiple times between different care providers and suppliers making it difficult to keep up to date, and unsupportive of collaboration, translating into unnecessary costs (both financial and time) to the healthcare provider. The client determined that a consolidated, single-platform web-based solution should be built to address this challenge. The platform would enable streamlined, improved flow of medical technology information between suppliers, purchasers, users, and trusts.

A tendering process ensued and — against multiple technology competitors - gravity9 was selected to partner with the client on the project because of its track record of delivering dynamic, visionary projects to life through a proven design and development methodology. gravity9 transformed existing user experience process flows and insights, automating and accelerating healthcare technology adoption while enabling safer, proactive, adaptable, and connected services to the communities they serve.

We delivered the concept through our design led development process.

Our Solution

Hospitals, GPs, and other medical care providers are required to assess new medical devices for suitability before acquisition. This process required that the information necessary for these assessments be communicated via email between the suppliers of these devices and the care providers, which is a lengthy and labour-intensive process. Furthermore, this information was not searchable or filterable, which meant that assessing a single device (or) comparing multiple devices was a manual process!

Through the design-led development process, gravity9 delivered the client's concept of the Technology Adoption Platform (TAP) — a web-based platform that links medical technology providers with medical care providers, enabling seamless, dynamic communication of up-to-date documentation, specifications, and information.

As a centralised system, care providers gain access to all the information held for medical devices across multiple form types, e.g. DTAC (Digital Technology Assessment Criteria) as well as the healthcare provider's Pre-acquisition Questionnaire, which is used to gather information to aid the planning and approval process when approving the procurement of medical devices. TAP encourages device manufacturers to proactively maintain up-to-date information for the devices they supply since it opens them to multiple potential customers. It continually assesses the completeness of the information it holds and provides a direct communication channel between care providers and device suppliers, allowing for questions and feedback and improving the quality of data held by the TAP system.

"The Digital Technology Assessment Criteria for health and social care (DTAC) gives staff, patients and citizens confidence that the digital health tools they use meet our clinical safety, data protection, technical security, interoperability and useability and accessibility standards."
– Healthcare Provider DTAC Definition

Our Approach

Prior to development, gravity9 carried out design research and discovery workshopping to best align ourselves with the needs of the project. This began with an executive team meeting to document the vision of the project and agree on how to achieve maximum value.

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Secondary research was conducted to gather a richer picture of the client's vision and form a brief to include all stakeholder needs. From this, an initial solution hypothesis was produced, forming the framework of a set of rapid design workshop agendas.

By blending artistic and scientific techniques, we conducted event storming, expanding our collaborative team with subject matter experts from all dimensions of the project (suppliers, sales, finance, support, managers, account representatives — all contributed valuable insights). Armed with this information, weeks of complex problem definition were compressed into a morning session.

Our user experience practice provided iterative design and prototyping, demonstrating complex solution concepts to the client, inviting team collaboration and sweating the behavioural science and artistic expression. This ensured that we were moving efficiently towards building a useable and understandable product. This process ensured that we were making products that solve problems.

Business needs were mapped with essential user personas and an overview of the operating context provided project boundaries. A review of this alignment process allowed us to move quickly and efficiently from "what we think is needed" to "what is truly needed". The platform is hosted in Azure cloud, leveraging the cloud version of MongoDB (Atlas) and employing Java/Spring for the back end, with the front-end web interface developed in React. This serves both care providers and device suppliers as through it, device assessment details can be uploaded, searched, and compared in real time. Information concerning each device is held together, providing various assessment forms and details in one place (the aforementioned DTAC, PAQ, etc.)

The forms can be templated, allowing custom versions to be shown to meet each care provider's specific and individual needs.

The gravity9 Quality Assurance team provided testing plans and processes, analysed technical documentation and specifications for suitability, carried out functional, non-functional (performance and accessibility), and automated testing to ensure stability and useability throughout the user journey.

Automated API tests were also conducted, monitoring application health during development and allowing regression bug fixing to occur even faster.

This results in a streamlined, efficient, and effective development process capable of delivering a working, scalable system. m.

WE'RE BUILDING BETTER DIGITAL PRODUCTS

"An efficient, proactive system that works for my benefit."

Subsequent Outcomes

Our work enables meaningful improvements across several key areas:

Suppliers' benefits as cited by them are as follows: "I gain insight into how my technologies are used" and "I can understand new opportunities".

Access to consolidated information and simplified processes made markets more accessible and placed the supplier in the conversion at the right time. Some 10,000 suppliers have been registered.

Care providers report, "My governance of adoption is improved", "I remain in the loop on changes", "I can manage change by exception", "My experience is tailored" and "I gain insights to shape services". With roughly 2.6 million patient contracts registered yearly at the healthcare provider's trust (and growing!), patients can look forward to an efficient, proactive system that works for their benefit, ensuring that the technology used in their care is up to date, well documented by suppliers, and vetted by care providers.

As a system, device surveillance and alert dissemination are simplified, and indemnity monitoring is improved (and its efficiency is increased).

Service usage is designed to be widespread across 150 trusts, 30 community providers and 7000 GP practices.

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