



The client

A US-based healthcare consulting firm that helps hospitals and health systems use data to optimize hospital facility management and surgical and perioperative processes.

Industry

Healthcare

Headquarters

United States

Solution elements

Technology services

Business process

Solution architecture

System administration

Emerging technologies (AI)

Data science

RWS Technology Services improves hospital scheduling with fast, accurate and transparent analytics and data visualization

An estimated 300 million people undergo surgery each year, and this figure is only expected to grow as the world's population ages.

Because surgery is a complex process that demands both focus and efficiency, hospitals commit to delivering quality perioperative care, which is the practice of providing patient-focused and integrated medical care from the time surgery is considered until full recovery.

Our client, a healthcare consulting firm that helps hospitals and health systems use data to optimize surgical and perioperative facilities, wanted to modernize their application to better support hospital administrators, patients and physicians.

Improving the legacy application

The client envisioned several functional upgrades for their legacy application. The first was to replace the existing third-party data visualization service. By incorporating a built-in solution, data could be displayed faster and be scalable while eliminating costly third-party licensing fees. Faced with a limited number of out-of-the-box reports and charts in the third-party service, the client also wanted the new application to have more customizable ways to visualize data.

Several user experience issues also hampered the legacy application's performance. The user interface was outdated and no longer user friendly. Critical functions like user profiles and navigation to different sections of the legacy application were missing.



Because of the manual room assignment process, facility managers scheduled patients and medical staff to treatment rooms based on availability. These random assignments caused appointments to take longer if a room didn't have the right medical equipment – for example, an orthopedic appointment may need to wait for a room with an x-ray. The client wanted to integrate the room assignment process into the application and automate scheduling to ensure each room was fit for purpose and make appointments more efficient for patients and doctors.

Data management also presented an ongoing challenge in the legacy application. Perioperative data from multiple hospitals was provided via email or FTP and manually entered into the database, which typically took three staff members approximately 15 days. Not only was there a risk of human error but by the time the data was entered in the system, it was outdated. In addition, due to a lack of smart analysis functionality, the legacy application was unable to make recommendations to hospital administrators to help them optimize their facilities and provide more services to patients.

Modelling modern operating room management

After learning about a similar solution RWS created for another company, the client contacted our Technology Services team. Over the course of several discussions, the Technology Services team shared their experience with custom charts, graph plotting, Python and React Redux and the client soon chose RWS to upgrade their application.

We began by collaborating with the client to analyze the legacy application and discuss the new functionality the client wanted to implement. To ensure a comprehensive approach, RWS assembled a team that integrated resources from multiple disciplines including user experience, development and project management. This team worked closely with the client's product manager and conducted user interviews to align and improve the existing user experience.

Scheduling the right rooms faster

First, we addressed data management. To consolidate and integrate data from multiple hospitals, RWS developers created an extract-transform-load (ETL) pipeline to automatically deliver and consolidate data into one database. Instead of data being updated every three weeks, it was now updated every other day and the data entry staff allocated to more important tasks.

Using rules shared by the client, RWS built a custom artificial intelligence (AI) engine that uses smart analysis to automatically make custom room recommendations. With up-to-date data on each room's equipment and availability, the AI engine automatically makes room assignments and ensures the right room with the right equipment is scheduled, which improves patient care.

Facilities can treat more patients per day, appointments are more efficient and patients and physicians spend less time waiting for rooms with the right equipment.

Meaningful operational change

Improvements in the new application quickly proved popular, with over 700 hospital administrators and staff using the application every day across multiple medical facilities. Feedback from users demonstrates that this new application is easier to navigate and has a simple but attractive UI that produces better results. The responsiveness of the new application is also improved, enabling it to be used seamlessly on multiple devices, including mobiles and tablets.

Better data visualization means medical professionals can trust the accuracy of scheduling and manage their work more efficiently than ever before. Hospital staff can filter and create charts like heat maps and bar charts – and the data is more precise thanks to the automatic population of data. When a user wants more details, it's now possible to drill down into the data and gain more insights – a feature that didn't exist before. Hospital staff can now click a cell to verify the room and physician's details to ensure the room contains the right equipment for the procedure.



From time to health, better results for everyone

RWS Technology Services maintains a close relationship with our client as the cloud-based application continues to evolve and improve, freeing the client's IT and development resources for other tasks.

As hospital and facility administrators use the application and its analytic features to better understand how many patients were seen per day and for what kinds of treatments, they are able to continue optimizing and improving their facilities to improve patient outcomes. Transforming the way operating rooms and other medical suites are used leads to lower cancellation rates and turnover times, fewer errors and reduced hospital readmission rates.

For the client, the new application offers a competitive advantage, but hospital facilities and their staff are the real beneficiaries of the improved application. Naturally, improved efficiency in scheduling and room management positively impact financial performance and utilization of limited hospital resources.

The combination of less stress and waiting time for patients combined with increased engagement and satisfaction on the part of surgeons and other medical staff leads to better hospital experiences for everyone involved.

In an environment where minutes can impact health outcomes, data visualization and algorithmic scheduling helps hospitals simplify organizational complexities.

Technology Services capabilities

- Develop custom-built AI engines for automation
- Redesign user interface to be intuitive and user friendly
- Integrate and consolidate data faster
- LImprove data visualization, filtering and reporting for insights
- Enhance application responsiveness and scalability

Key benefits for the client

- New application functionality offers competitive advantage
- Higher user engagement across medical facilities
- Supporting data-driven outcomes and optimization for patients

Learn more about RWS Technology Services

rws.com/technology-services/

About RWS

RWS Holdings plc is a unique, world-leading provider of technology-enabled language, content and intellectual property services. Through content transformation and multilingual data analysis, our unique combination of technology and cultural expertise helps our clients to grow by ensuring they are understood anywhere, in any language.

Our purpose is unlocking global understanding. By combining cultural understanding, client understanding and technical understanding, our services and technology assist our clients to acquire and retain customers, deliver engaging user experiences, maintain compliance and gain actionable insights into their data and content.

We work with over 80% of the world's top 100 brands, more than three-quarters of Fortune's 20 'Most Admired Companies' and almost all of the top pharmaceutical companies, investment banks, law firms and patent filers. Our client base spans Europe, Asia Pacific and North and South America. Our 65+ global locations across five continents service clients in the automotive, chemical, financial, legal, medical, pharmaceutical, technology and telecommunications sectors.

Founded in 1958, RWS is headquartered in the UK and publicly listed on AIM, the London Stock Exchange regulated market (RWS.L).

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