

**Case study: Mater Private Hospital, Dublin, Ireland**

# Optimizing clinical operations through digital modeling

How a leading Irish hospital's radiology department used a Digital Twin for Workflow Excellence to transform care delivery.

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## Modeling scenarios to optimize the diagnostic experience

Change is constant in healthcare delivery. Building long-term success takes insight, resources, and courage. You need a partner that enables you to move beyond reacting to change, and to anticipate and even drive change in healthcare. A partner that helps you innovate new services, strategies and solutions to create value for your stakeholders. Siemens Healthineers is that kind of partner, and Value Partnerships are how we help you meet your goals right now, next year, and further down the road.

Siemens Healthineers Value Partners for Healthcare Consulting offers a Workflow Excellence capability module. This includes a powerful simulation tool for intelligent decision-making. We start by building a 3D computer

model of your clinical environment. This could encompass radiology, the emergency department, operating rooms, and any other facility that's a focus area for you. We then transform the model into a digital twin of your institution. How? By inputting your operational and financial data to simulate your actual everyday workflows.

The virtual replica of your work world enables us to test different operational scenarios and layouts. Workflow simulation is an excellent "what if" tool that predicts the operational and financial impact of any scenarios you want to explore. Realistic animations and quantitative reports enable you to evaluate options instantly and find your perfect solution to transform care delivery.

Improvements that previously took months or years of trial and error can now be achieved in a matter of days or weeks. Your digital twin creates a faster, simpler route to optimizing clinical operations, creating value for your stakeholders, and improving patient experience.



Digitalize healthcare and optimize your performance with **Digital Twin for Workflow Excellence**

## The customer

### Engaging in a Workflow Excellence program to embrace and anticipate change

The Mater Private Hospital (MPH) is one of the leading private hospitals in Dublin, Ireland. Founded in 1986, MPH's goal is to make its facilities the best place to receive care, to work and to practice medicine.



## The challenge

### Pursuing new efficiencies in operational workflow and care delivery

Management recognized a need for change in the radiology department. With growing patient demand, increasing clinical complexity, ageing infrastructure and lack of space, it was becoming harder than ever to deliver efficient patient care. Rapid advances in medical technology were underlining the need for equipment modernization. Perhaps most important of all, rising waiting times, interruptions and delays were having a negative impact on patient experience.

## The approach

### Digitalizing healthcare to generate actionable insights

To overcome these challenges, MPH set a goal to redesign the layout and infrastructure of the radiology department. They engaged Siemens Healthineers Value Partners for Healthcare Consulting to optimize care delivery and create more value using a Digital Twin for Workflow Excellence.

## Digital workflow optimization



### Data analysis and assessment

Radiology information system (RIS) data was analyzed to build a picture of current radiology operations. At the same time, Siemens Healthineers Value Partners worked with the hospital's architects to review current layouts and identify potential improvements. A one-week on-site assessment was conducted, including workshops, stakeholder interviews, and process observation.

### Digital Twin for Workflow Excellence

Based on the outcomes of data analysis and assessment, a digital twin of the department was created (baseline model).



**Digital Twin for Workflow Excellence:**  
3D computer model of your department and your actual operational data.

### Scenario definition and simulation

Two assumption-led scenarios were modelled to explore changes in patient demand and complexity. Impacts of different scenarios were viewed, analyzed, and discussed by all stakeholders.

### New Layout and improved infrastructure:

Finally a new layout and infrastructure were designed to deliver increased value:

- Optimized clinical processes
- Increased efficiency
- Improved patient and staff experience

## The Outcome

### Improving access to care and increasing workforce productivity

The Workflow Excellence program gave MPH the actionable insights they needed to make informed decisions about facility design, processes, and workflows. Besides identifying the best way forward, management was able to check the operational impact of various solutions before implementation. It was the perfect springboard for change and transformation. Improving patient experience was high on MPH's agenda. Redesigning the patient changing facilities creates a more pleasant environment and shorter waiting time. In addition, optimized maneuvering areas improve the ability of healthcare workers to care for bedridden and wheelchair patients.

The Workflow Excellence capability module points out the following improvement potentials for MPH:



**Shorter wait times** for patients: a reduction of **13 minutes** for CT scans and **25 minutes** for MRI



**Faster patient turnaround** (arrival to departure) which **shrank to 28 minutes** for CT scans and **34 minutes** for MRI.



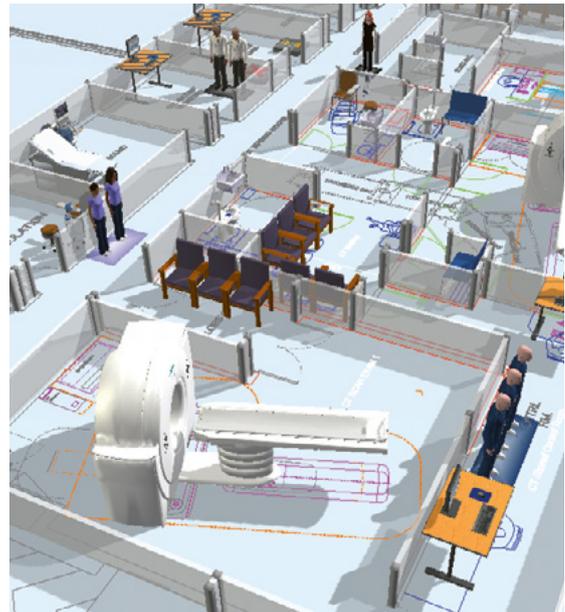
**Increased equipment utilization** – MRI usage went up by **32 percent** and CT usage went up by **26 percent**.



**Lower staffing costs**, including **50 minutes less MRI overtime** pay per day, representing up to **€9,500 annual savings**<sup>1</sup>

### This unlocks a wealth of benefits:

- Improved patient experience
- Increased workforce productivity
- Smarter resource allocation
- Enhanced clinical safety
- Optimized clinical operations
- Greater staff satisfaction



The future of healthcare is digital, and workflow simulation is already playing its part. The Digital Twin for Workflow Excellence concept makes it easier than ever to identify opportunities to transform care delivery while maintaining quality and profitability.

<sup>1</sup> Assuming one medical assistant on duty; 365 operating days; €26 per hour staffing cost (Source: payscale.com)

## Voice of the customer

*“The Siemens Healthineers team was excellent. They took the time to understand our challenges and the way we work. They really listened. And it was clear that they shared our commitment to delivering the best possible patient experience.”*

*“It was amazing watching our 2D plans transform into 3D and then 4D reality. Thanks to our digital twin, we now have the best possible configuration for our department.”*

*“With the increasing focus on value based radiology, where the patient experience matters as much as cost, it’s reassuring to have this kind of insight at our fingertips.”*

*“Thanks, Siemens Healthineers, for helping us integrate our patient flow with spatial design. Our patients are already noticing the difference.”*



**Assoc. Prof Paddy Gilligan,**  
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Do you want to use a Digital Twin for Workflow  
Excellence in order to optimize you operations?

**Get in contact:**

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## About Value Partnerships

Siemens Healthineers Value Partnerships combine our strength in holistic medical technology management and digitalization into a long-term performance-oriented engagement focusing on the creation of value. With our sustainable healthcare consulting and transformation services as well as our future-proof design planning, we are well positioned to co-create a solution with and for you, which will generate clinical, operational, and financial benefits.

Siemens Healthineers Value Partnerships help you optimize operations today, expand with new capabilities tomorrow, and advance the level of innovation in your network.

### Disclaimer

The products/features and/or service offerings (here mentioned) are not commercially available in all countries and/or for all modalities.

If the services are not marketed in countries due to regulatory or other reasons, the service offering cannot be guaranteed. Please contact your local Siemens Healthineers organization for more details.

The results described herein by customers of Siemens Healthineers were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that other customers will achieve the same results.

The scientific overlay on the title is not that of the individual pictured and is not from a device of Siemens Healthineers. It was modified for better visualization.

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