



Luxembourg | Healthcare

5G connects Hôpitaux Robert Schuman to patients for better and faster diagnosis and treatment

Client profile

Hôpitaux Robert Schuman (HRS) coordinates and offers complex, high-tech, high-risk and cost-intensive medical treatments. They provide care and treatment for patients in all stages of health (preventive, curative or palliative care).

In cooperation with their partners, HRS aim to keep hospital stays as short as possible, opting instead to allow people to heal safely at home – and thereby adding value for patients and employees.

“The open digital platform connects apps, services and health-related IOT devices, while exchanging all kind of sensitive relevant data and content in real time, in a secure and reliable way.”

Jacques Federspiel, Chief Information Security Officer, Hôpitaux Robert Schuman

Summary

Hôpitaux Robert Schuman believes that technology combined with the human element of medicine improves patient care. They partnered with us to leverage the speed and security of 5G to connect patients to doctors and health-related Internet of Things devices for faster diagnosis and treatment. Our digital health platform model also allows the hospital to receive and share patient information securely to diagnose and treat patients and improve health outcomes.

Vision

Combining digital technologies and the human touch for better patient outcomes

When the Department of Media, Telecommunications and Digital Policy put out the call for new ways to use 5G, Hôpitaux Robert Schuman (HRS) wanted to explore how they could use this technology to improve healthcare for the citizens of Luxembourg.

Hospitals have specialists and information that allows them to treat many health conditions effectively. However, this information does not always benefit patients if they're not physically at the hospital. And while basic telemedicine can connect a patient to a clinician's expertise, the clinician needs accurate, real-time healthcare data about the patient to prescribe the correct course of treatment.

To bridge this gap, HRS investigated several use cases for technology that connects people, healthcare devices and hospital data to improve patient outcomes.

Transformation

A digital platform to deliver hospital services outside the hospital

HRS chose NTT to help them explore the potential of Internet of Things (IoT) technologies and connectivity options to support their chosen use cases.

The foundation of our solution was a digital health platform for sharing patient and hospital information securely.

Since security is paramount, 5G was a good fit. It not only transmits data in real time, but it's also secure.

We built the digital health platform for HRS on Microsoft Cloud for Healthcare. It connects apps, services and health-related IoT devices to exchange sensitive data and content securely and reliably. Function tests were carried out without real patient data, due to regulation, enabling them to explore the opportunities presented by delivering hospital level services outside the hospital.

Which technologies?

- Internet of Things
- 5G
- Digital Health Platform
- Microsoft Cloud for Healthcare

Which partners?

- Microsoft
- 5G Telco network
- Ministry of Media and Telecommunication, Luxembourg

“It allows much better monitoring of health parameters. And also for the patients to feel more relaxed and comfortable, especially if they are already back home and in a remote location. So, there’s less time spent at hospital, and a greater wellbeing felt by the citizens.”

Erik Krier, Policy Advisor, Department of Media, Telecommunications and Digital Policy, Government of Luxembourg

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The work on this POC prompted a new project focused on European Regulation in Healthcare, leveraging European initiatives around Gaia-x and Dataspaces for Healthcare. This addressed three key scenarios:

Treating heart attack and stroke

When it comes to obstructions to blood flow, every minute before treatment starts can lead to muscle and tissue death. If treatment only starts in hospital, precious time is lost. Connecting paramedics in the ambulance with specialists in the hospital allows appropriate treatment to be prescribed, and to start, much sooner.

Monitoring and managing chronic conditions

To be as healthy as possible, patients with chronic conditions (such as high blood pressure or diabetes) must measure their relevant health metrics and keep taking medicine. It’s also important to share this information with their doctors.

Analyzing device data to identify health trends

Health-monitoring devices generate an immense amount of data – as do consumer devices such as smart watches and fitness devices. With the right technology to collate and analyze it, this data can reveal important information about the health trends of groups and individuals.

Results

Use technology to share medical knowledge to improve and save lives

The digital health platform and 5G allows paramedics, clinicians and patients to share information quickly and securely. This means that patients can get treatment fast, when they need it, and come to the hospital only if they really need to.

Early treatment improves health outcomes for heart attack and stroke

Every minute is important when someone has a stroke or a heart attack. The time to start treatments can make a difference between recoverable and permanent damage. Connecting paramedics to neurologists and cardiologists in the ambulance means treatment can start before the patient reaches the hospital.

Detecting chronic conditions early

Consumer devices already continuously monitor blood oxygen saturation and heart rate, and could improve health outcomes if the information is shared with the patient’s doctor. AI can analyze the mass of data from hospital and consumer health-monitoring devices to warn of the early signs of chronic disease.

Remote monitoring and telemedicine

Adverse medical events are most likely when people are discharged from hospital. Monitoring patients means they can rest and recover in a home environment, and their doctors can address problems early.

Charting a way forward

With the success of the first 5G project between Hôpitaux Robert Schuman and NTT – with a focus on use cases for heart disease treatment and stroke patients – Luxembourg has achieved another milestone on its journey to bring digitalization into healthcare. The solution we’ve created together has laid the foundation for future uses of 5G and the digital healthcare platform.

Ensuring that these solutions can seamlessly meet all future compliance requirements, especially in the area of healthcare data exchange, is the next step in the creation of a platform that can be deployed both in Luxembourg and across Europe.