

## PATIENTS GET HEALTHIER—FASTER—IN ESTONIA, THANKS TO WEBMETHODS

### Challenge

In 2008, the Estonian eHealth Foundation set out to build a nationwide Electronic Health Record (EHR) system. The country's goal: improve the quality and convenience of healthcare for 1.3 million citizens by centrally storing their health records. To make the best decisions at the point of care, physicians would be able to access a citizen's EHR online, anytime.

### Solution

The Estonian eHealth Foundation makes the central EHRs a reality by using the webMethods Integration Server. Supported by the webMethods platform, medical documents are now digitally and seamlessly exchanged nationwide amongst the many disparate health-care provider databases and systems. No reengineering of the providers' underlying in-house systems or communications infrastructures was required.

### Benefits

- More efficient healthcare delivery in Estonia
- More patient-centered care—citizens get the care they need faster and are more informed about their health
- Less paperwork, giving physicians more time for patients
- Improved knowledge-sharing across healthcare providers
- Cost-effective implementation by reusing existing systems and infrastructures
- New standard set – other nations see Estonia as a pioneer in fast, effective eHealth solution implementations



The Estonian eHealth Foundation promotes and develops national e-solutions within the healthcare system. The foundation creates solutions and offers services to assist in providing high-quality and accessible healthcare services. Its broader goal is to promote the development of a patient-centered healthcare system that has well-informed patients. At the eHealth Foundation, the Estonian citizens' health is at the center of their vision.

Get There Faster.™



**“At eHealth, we’re shaping the future of health care in Estonia. Using webMethods gives us flexibility, as we can easily integrate what we need, when we need it.”**

Madis Tiik | CEO | Estonian e-Health Foundation

## On a mission to improve healthcare

After establishing a nationwide technical infrastructure called the X-road platform for e-business and e-government services, Estonia turned its attention to applying this same concept to health services. The benefits were promising. According to the Estonian eHealth Foundation, eHealth projects would:

- Decrease bureaucracy in the doctor’s work process
- Increase the efficiency of the healthcare system
- Make time-critical information accessible to attending physicians
- Assure the development of high-quality healthcare services that were more “patient friendly”

In 2008, the Estonian eHealth Foundation launched its first project: a nationwide EHR system. The central system would register every resident’s medical history from birth to death. Every document, from a physician’s notes to X-rays and prescriptions, would be included to facilitate faster treatment and to improve decision-making.

This massive undertaking needed a flexible integration platform. After extensive research, the foundation selected webMethods Integration Server, an Enterprise Service Bus (ESB), to link disparate information silos and local databases.

webMethods Integration Server enables virtually any system, as well as packaged and custom apps, to communicate efficiently in a Service-Oriented Architecture (SOA). As a result, the EHR system is now the first nationwide, complex eHealth platform for eHealth services in Estonia, and was created at low cost.

## Before: paper-based, error-prone

EHRs get rid of a long-winded paper trail, explained Chief Architect Janek Metsallik.

“Before if you had a health problem, you’d go to the general practitioner, who would interview you, do some preliminary tests and then give you a referral to special care,” he said. “The GP would give you a piece of paper to take to a registry office of a special care institution like a hospital. You’d go to the hospital, they’d give you some more information on paper, and you’d get some care and diagnostics. All that would be summarized again on paper. Then, you, the patient, would need to return this paper back to the GP.”

Paper-based reporting led to uncertain results. “The GP may file the paper. Or, you may even forget to bring the paper to the GP, so he would end up not knowing anything about the care you received in the hospital,” he said.

## Now: paper-free, pain-free

That archaic process is fast becoming history. With the new EHR system, a patient’s medical data is moved electronically between all participants. “People no longer have to run from their doctor or from the hospital test center back to their doctor with paper records,” Metsallik said. “So the system saves everyone time.”

It’s also easier for healthcare providers to make referrals. This process can be handled online, faster, rather than relying on patients to make their own appointments. An end benefit to healthcare providers is that this automated process can increase their revenue opportunities.

Patients also are now more involved in their own healthcare since they can check their EHRs online anytime, from anywhere, via a portal. By April 2010, the portal had been visited more than 13,000 times, and more than 228,000 patient inquiries had been made—proof that citizens are becoming more educated about their own health.

## Expansion no problem for ESB

By July 2010, the EHR system contained more than 1.6 million medical documents, up from 350,662 documents in only one year. The system also had more than 230,000 links to digital images, such as X-rays. From January to July, e-prescriptions grew from nearly 277,000 to more than 745,000.

Approximately 35,000 documents are added each month, and 15,000 cases are closed each day. That’s no problem for webMethods Integration Server. The platform continues to scale easily to meet growing requirements.

According to Madis Tiik, who heads the foundation, 100% of hospitals in Estonia are now participating in updating the central system. “This is very good progress,” he said. “All hospitals are submitting the agreed documents, and family physicians, who are interested in these documents, find it faster to access them.”

## “Most innovative” integration

According to the foundation’s Web site, the most innovative part of the system is that implementing EHRs didn’t cause a massive re-engineering of the many health-care providers’ existing information systems and communications infrastructures. This is because the flexible webMethods Integration Server allows any technology to be service-enabled, and the standardization makes it easy to implement new processes and quickly create new services, Metsallik confirmed.

“The integration server is very simple platform to develop on,” he said. “We don’t need to have any kind of hard-core understanding of the infrastructure in-house. Other systems can be very difficult to set up and to configure. But in this regard, webMethods Integration Server just works! In addition, it’s very good in mapping XML documents (specifically HL7 CDA schema-based) from one standard to another and integrating different databases and services.”

## Shaping the future with eHealth

“While we are the central communications channel between the various health care providers,” said Tiik, “In reality we’re doing far more than just creating new services or leveraging new technologies. We’re changing and optimizing the health care processes – and this is shaping the future of health care in Estonia.”

“Using webMethods gives us flexibility, as we can easily integrate the services and technology that we need, when we need it. We first optimize the business processes, and then determine the services and technologies that will best support them. We provide better information that enables Estonians to become equal partners in the healthcare process. At eHealth, promoting the health of our citizens is at the center of our vision.”



The Estonian eHealth Foundation is making the country healthier one process at a time. This chart shows the progression of eHealth services to be offered in Estonia. The foundation is on track with its goals, having achieved a central EHR system and citizen portal.

### KEY COMPONENTS

**webMethods Integration Server** eliminates the costly constraints of point-to-point integrations and enables easier integration of IT assets.

**webMethods Broker** is a reliable, high-performance backbone for messaging between applications.

**webMethods Insight for Infrastructure** gives insight into integration flow across the system.

**Global Consulting Services** helped the foundation optimize its development practices using webMethods Integration Server.

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We offer our customers end-to-end Business Process Management (BPM) solutions delivering low Total-Cost-of-Ownership and high ease of use. Our industry-leading brands, ARIS, webMethods, Adabas, Natural, CentraSite and IDS Scheer Consulting, represent a unique portfolio encompassing: process strategy, design, integration and control; SOA-based integration and data management; process-driven SAP implementation; and strategic process consulting and services.

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