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R-Bay – An eBay© for Radiology? Teleradiology Marketplace Brings Smarter Resource Use

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A smooth, functional and efficient system for managing and overcoming the short or long-term challenges in imaging diagnostic services is a necessity – especially as human and economic resources are scarce in the healthcare sector. One novel solution to this is represented by R-Bay, a recently ended project in which a consortium of hospitals and healthcare system providers created and tested an online marketplace for selling and buying radiological services like commodities.

A System Under Pressure

European health systems are under heavy pressure from many sides. The demographic challenges alone are enormous. In an aging population, more people will suffer from chronic conditions like COPD, diabetes and cardiovascular diseases – conditions that are already the main “big spenders” in health systems and, on top of that, the cause for severely decreased quality of life for many people.

Another worrying issue is recruitment in the health and social sectors. General care personnel are scarce, and certain medical specialties like radiology, psychiatry and oncology are lacking specialists. As the prospect for recruiting sufficient personnel is only getting bleaker given the wider imbalance between capacity need and available resources, the situation will become very serious in most countries throughout Europe and beyond, in the near future.

Financial supply to the healthcare arena is unequal to these challenges. From a political side, there is much focus on controlling and containing expenditure for the public sector while at the same time enacting laws on e.g. waiting list guarantees. The general perception is that more health should be possible for the same amount of money - but high expectations are coming not only from the political environment, but also from the general public where a consumer mentality is applied to the public health arena, and citizens require fast diagnosis and treatment, coherent course of treatment, involvement, access to their data, control, and the highest quality at every level.

With this level of pressure from all sides, current and future health systems are forced to reorganise and re-engineer the provision of their services. Consequently, healthcare managers must look to flexible and resource-saving solutions or systems that support optimal utilisation of personnel, technology, and costs.

Meeting the Challenge: The Odense Experience

At the Odense University Hospital in Denmark (OUH), one of the largest university hospitals in the Nordic countries, there is much focus on meeting these challenges. Throughout the organisation, activities and projects have been initiated to seek innovative solutions that can change the provision of care and services. For years now, the LEAN approach (Toyota’s business philosophy on simplifying and streamlining production processes) was implemented in the organisation, encouraging personnel at all levels to contribute with ideas that improve workflow, patient care, and/or optimise use of resources.

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The hospital is working extensively with innovative e-health and telemedicine applications as a strategic method for optimising resources and providing better health services to patients. For example, an online interpreter service through a video conference system is cutting costs and heightening the interpretation service. Another of the hospital's telemedicine services enables COPD patients to be home-hospitalised and receive care and treatment from hospital specialists in the home through an online video interface equipped with appropriate measurement devices,

Crossing Distances

Teleradiology has, in recent years, gained substantial ground among healthcare providers. Many hospitals are now deliberately outsourcing larger parts of their imaging production to help overcome lacking resources in times where personnel are insufficient and waiting lists continue to grow. The market is also witnessing that more remote reporting companies and clinics are entering the arena and providing remote and cross-border services.

Consequently, as the market and number of users grow, the demands on efficiency, flexibility, cost containment, and not least quality, increase. One of the main constraints on teleradiology in its traditional form is that it is characterised by point-to-point connections. As customers' needs increase and change over time, this becomes a problem because the set-up is rigid and limited. Each customer and provider relationship has its own technical set-up, connection, administration process, etc. making multiple relationships resource-demanding.

Based on the positive experiences from the Baltic ehealth project and the strategic decision to implement telemedicine in its daily health provision, OUH participated in a new project aiming to test a solution where only one connection to a central online portal is needed regardless of the number of teleradiology relationships an organisation has with external organisations. The idea was to create an e-Marketplace for imaging services - a complete solution for establishing, administering and using remote imaging reporting - that can meet not only the users' present but also future demands.

A Unique, Single Point-of-Contact

What makes R-Bay unique to traditional teleradiology setups is that it operates via a single-point-of-contact. A health provider only needs to establish and pay for the connection to the portal and not to the different hospitals, reporting companies, clinics, etc. that the hospital wants to exchange images with. Secondly, R-Bay provides a brokering service, which contains online contracts, billing system, quality assurance, and identification management systems. This adds unique value to the system and streamlines processes for the users - not only the clinicians who work on the diagnostic side but also for technicians and administrative personnel.

At OUH, this means that they can use the service in a way that suits their organisation and their needs while at the same time having a constant and current overview of the situation and conditions on the market as R-Bay equals transparency. The portal can be used for managing capacity problems in one diagnostic area or in a certain period of time by utilising available resources within another hospital, clinic etc. and in another region or country. R-Bay will enable the hospital to streamline processes through the involved departments while at the same time have a flexible solution for managing the capacity problem.

An eBay® for Radiology?

The R-Bay project was part-funded by the European Commission under the DG INFSO/eTEN programme coordinated by the Region of Southern Denmark through MedCom. The project was launched in August 2007 and ended May 2009. RBay builds partly on the Baltic e-health project and was a liaison between different public and private organisations that together wanted to create a solution for integrated image exchange, storage, and brokering services.

Project partners decided to test in a real-life clinical environment, a brokering solution for a virtual marketplace for radiology services where providers and customers can meet, using an existing and running e-Consultation portal as infrastructure. The inspiration for the brokering portal came partly from eBay® - hence the name - where the portal is a reliable and secure infrastructure for parties to meet and trade commodities with each other. Like eBay®, the R-Bay portal does not trade radiology services itself but rather enables others to sell or buy reporting, second-opinion, or other services in a simple, flexible, and trustworthy way.

The key element of R-Bay is the interpretation service like remote viewing, reporting and second-opinion, but the portal also offers support services such as image storage, advanced processing tools, automated structured reporting translation, and training functionality.

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