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Re-Engineering of Hospital Processes at Arras Hospital

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Arras Hospital of tomorrow: view of new buildings, completion date years 2007

Arras hospital, like all healthcare establishments, either public or private, had to evolve in line with expectations. In 2002, rather than adapting by necessity, Arras Hospital chose a path based on improvement, development, and reorganization, while attempting to see the new constraints as opportunities. The 'process' approach, and Information and Communication Technologies (ICT) took a special place in the projects implemented notably in the impact of the reconstruction of the hospital which opens in the first trimester of 2007.

The principle objective: an efficient offering, integrated into the social health network of the Arras area

Arras hospital, a 1200-bed hospital, at the centre of a catchment area of 230,000 people marked by a traditional organisation dating back to the 1960s, undertook a complete overhaul in three major directions :

• an opening-up to the partners of the hospital: patients, relatives, health professionals, social and health services – profound cultural evolution realised notably through a system of transmisssion and secure and reliable exchange of information, an exchange platform conceived as the departure point for extrahospital actions.

• The development of diversified care (medicine, surgery, gynacology/obstetrics, after-care, re-adaption, long-stay and live-in, psychiatry) which offers the local population a service combining proximity, security and quality to the local population.

• The quest for medico-economic efficiency based on the optimisation of the flow of patients and information which allows for the internal redeployments necessary for the funding of modernisation and investment. And thus, to control costs while diversifying its service offer, it is essential for the Arras Hospital to optimize the different resources – human, logistical, financial, and architectural – which it uses on a daily basis for its activities.

These three directions were defined by a very important phase of the projects, initiated in 2001 with the arrival of new management. The following paragraphs present the principal areas of work: the optimisation of buildings and infrastructures serving a new organisation. The optimization of resources, formed by buildings and infrastructure, relied on the construction of new buildings, which consisted of a new main building and a psychiatric building opened in 2004, both of which are equipped with IP (Internet Protocol) and wifi. In addition, the construction followed the principles of 'High Environmental Quality' ('HQE', Haute Qualité Environnementale)

The Optimisation of 'Information Resources': Integrated Information Systems

Traditionally, hospitals recognised four types of resources: property; logistics; human; and financial. The team in charge of the project highlighted another resource: information. The optimisation of information resources relied on the implementation of an integrated IT system. The solution was a system which is both medical and administrative.

A compromise was found for the implementation of an IT system, between a collection of precise, but compartmentalized applications (the 'best of breed' approach) and the adoption of a tailored solution (the 'integrated' approach).

Arras Hospital chose an approach which is closer to 'integrated' than 'best of breed'. This approach resulted in SISAS ('Système d'Intégration de l'information en Sante' or 'System of Integration of Health Information' for Arras).

The Process Orientation of Flow Changes

The project team established a 'road-map' for the principal processes necessary for the care service at Arras Hospital. For each of the key services, a study for the means to optimise each resource (architectural, logistical, human, financial, and informational) was undertaken. The information and communication technologies were key in the optimisation of these resources.

The principal processes (or 'circuits') are: managing admission; managing transfer; managing release; making internal appointments for technical facilities; writing, validating and sending medical letters; requests and results for biological analyses; requests and results for imaging examinations; surgical intervention; from the anesthetic consultation to the operating realization; lodging logistics; bedroom allocation; meals; cleaning; patient transport; stretchering; transport arrival/departure; etc.

The particularity of the processes identified is that they are transversal: they transcend the usual compartmentalized logic, ignoring the frontiers between services.

The IT Simulation Tools to Validate the Concept and the Model, and to Communicate

For this final point, a phase of studying needs and simulation permitted both to obtain guarantees on the feasability of the study, and to communicate with the teams concerned. It also served to counter the often too classic visions of architects and consultants.

The IT simulation tools of linear programming and programming limits allowed to measure, under different scenarios, the key indicators of expected performance.

The investment necessary for these preliminary studies was immediately covered by the choice of an optimised series of scenarios of organisation of machines, the performance of each scenario being measured by indicators.

Choices Made

The principal formative choices in the new building were:

• a very high capacity, secure and reliable network (20gb), totally convergent, apart from fire security (one could note the strong impact on this type of project of an indispensable, very high technical quality integrator)

• a steep reduction in paper documents, audio (dictation) and a HIS (Hospital Information System) used in the optimal fashion

• A completely wi-fi hospital, which allows portable tools, IP telephony and the evolution of geolocalisation.

• Integration of AGV (Auto-Guided Vehicles) in the logistical organisation

Hospital Resources: Property; Logistics; Human;

Integration of sick calls by IP telephony (direct patient-nurse link)

• Internal hospital architecture oriented and organised by patient flow

• A specific organisation of bedrooms, with zoning and specialisation of spaces

• The installation of multi-media terminals for each patient allowing him/her single-point access to the telephone, digital television, radio, internet, the patient intranet, and to educational medical videos. These terminals also allow staff to connect if necessary to the hospital intranet.

Conclusion; Transversality and Decompartmentalization

The experience of Arras Hospital demonstrates the necessity of a transversal approach, in rethinking both the physical and informational flows because the care processes are often transversal at the hospital. This transversality makes a decompartmentalization of the hospital necessary, which the organisation by poles facilitates.

A patient-centred transversal information system, coupling the administrative and the medical approaches, is an essential condition for the success of the decompartmentalization, which forms the basis of the new organisations. The opening-up to the outside is more delicate, depending notably on the existence and the use of technical exchange standards, without which the technical means of communication would prove to be too expensive. In 2006, more than 45,000 pages of electronic medical files were exchanged between the hospital and private doctors.

For bibliography, please contact: english@hospital.be

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