Vertical Integration in the Health Value Chain

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The San Raffaele Foundation
Corporate Overview

Facts and Figures, 2002
- 1,350 beds in Milano
- 3,400 employees
- 53,000 patients hospitalized
- Over 6 million laboratory tests
- Over 6 millions out-patient services
- 55,000 patients to emergency
- 22,000 surgeries performed
- 12.4% of the Italian scientific productivity

Worldwide Activities
- Poland, Brazil, Israel, India, China, etc.

The San Raffaele Foundation
Case Studies, Business Process Re-engineering & Pilots

Vertical Integration of the Pharma
Business Process: Hospitals

DRIVE with RFID tags for Pharma Products

Vertical Integration of the Pharma
Business Process: Patient Self-Care

The DRIVE Project: IST 12040
The Partners

Key action II
New methods and work for electronic commerce
Schedule: start June 1st, 2000; duration 30 months
Budget: 4.2 million EURO

Scientific Institute H San Raffaele (I)
European Community Joint Research Center JRC (EU)
Politecnico di Milano (I)
Health Projects Favero (EI)
Atos Origin Integration (F)
AstraZeneca (I)
GlaxoSmithKline (I)
Karolinska Institute-CHT (S)
Gdansk University of Technology (PL)
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**The DRIVE Background**

Healthcare Value Chain

![Diagram of healthcare value chain with back end and front end categories: Pharmacy, Ward, Laboratory, etc.]

**Back End** vs. **Front End**

**Estimated US cost-savings**
11 billion $/year


**The DRIVE Project**

Objectives

1. **The First Objective: SAFER Healthcare System**
2. **The Second Objective: SMARTER Healthcare System**
3. **The Third Objective: TRUSTED Healthcare System**

**The DRIVE System - FP5 IST 12040**

Proactive Patient Safety and System Efficiency

![Diagram of DRIVE system with clinical processes and logistics modules]

**Point of Care Complexity as a Source of...**

... Patient Safety Risks, non-Compliance & System Inefficiencies

![Diagram illustrating point of care complexity and its impacts]

**The DRIVE Clinical Module**

The Focus on Patient, Products and Point of Care

- e-Prescription for Doctors
- e-Prescription Validation system for Pharmacists
- e-Preparation/Administration system for Nurses

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The DRIVE Clinical Module
The Process-Integrated Point of Care

The DRIVE Labeling Strategy
Redundant and Distributed Databases: Self-Informative Products

The (end-to-end) DRIVE System
Supplier + Hospital = Safety + Efficiency

EU Cen Tc 251: Patient Safety
Safety Procedures for Identification of Patient & Related Objects

Italian "Bollino" Law (Aug. 2, 2001)
Italian-wide serial number for drug packages

Progressive (item-level) Number on labels to uniquely identifying all pre-packaged drugs under the Italian public healthcare insurance reimbursement system.
Preliminary results* of the DRIVE Task Group on RFID:

- Full traceability of single items through the whole of the supply chain (supplier-distributor-hospital-patient) is the enabler of VALUE-ADDED SERVICES (Patient Safety & Products Logistics), with short term ROI;
- System costs with optical reading are 4 times higher than costs with RFID tags.

* The estimate has been performed comparing end-to-end processes of 4 typical products.
**Vertical Integration in the Health Value Chain**

**IP-PIPS:** Integrated Personalised Platform for Health and Life Services

**D²: RFID + ePC enabled DRIVE System**
- **Tunnel for Simultaneous Item Reading**
- **In-bound:** Receiving, Stocking, Shipping

**Distributor:** Stocking & Shipping

**Supplier Stocking & Shipping**
- **In-bound:** Receiving, Stocking, Prescribing, Dispensing

**D²: RFID + ePC enabled DRIVE System**
- **Tunnel for Simultaneous Reading of RFID tagged Packages, randomly distributed in shipping boxes.**

**Supplier – the packaging**
- **In-bound:** Receiving, Stocking, Prescribing, Dispensing

**D²: RFID + ePC enabled DRIVE System**
- **RFID & WiFi Seamless Supply Chain Integrity Check**

**RT³**
- **Management**
- **Supplier Stocking & Shipping**
- **Supplier - the packaging**

**D²: RFID + ePC enabled DRIVE System**
- **RFID & WiFi Seamless Supply Chain Integrity Check**

**RT³**
FP6 IST 507019 PIPS: Personalized e-Services... 
... to assist individual Choices for Better Lifestyle & Health

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Vertical Integration of the Pharma Business Process: Hospitals

DRIVE with RFID tags for Pharma Products

Vertical Integration of the Pharma Business Process: Patient Self-Care

Vertical Integration in the Health Value Chain

• Supply Chain Efficiency
  ✓ Sustainable Data Capture of Cluster of Products

• Standardization and Coding at the Item Level
  ✓ Global, European, National, Regional, Provider level?
  ✓ Blister Level? Medical Devices, Reagents, Implantable Devices? Packaging Requirements?

• Safety critical application
  ✓ Redundancy for Critical Data Availability at the Point of Care (Decision)

• Protection of Sensitive Data
  ✓ Patient Privacy, Business Confidentiality
  ✓ Health Authorities and Regulatory Bodies

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