



Dipartimento degli Studi Aziendali,
Tecnologici e Quantitativi

“An integrated approach in healthcare e-procurement: the case-study of the ASL of Viterbo”

Tommaso Federici

Università della Tuscia

Dipartimento di Studi Aziendali Tecnologici e Quantitativi

Via del Paradiso, 47 - 01100 – Viterbo – Italy

federici@scec.eco.uniroma1.it

**TED Conference on e-Government
(TCGOV 2005)**

Free University of Bozen

2-4 March 2005

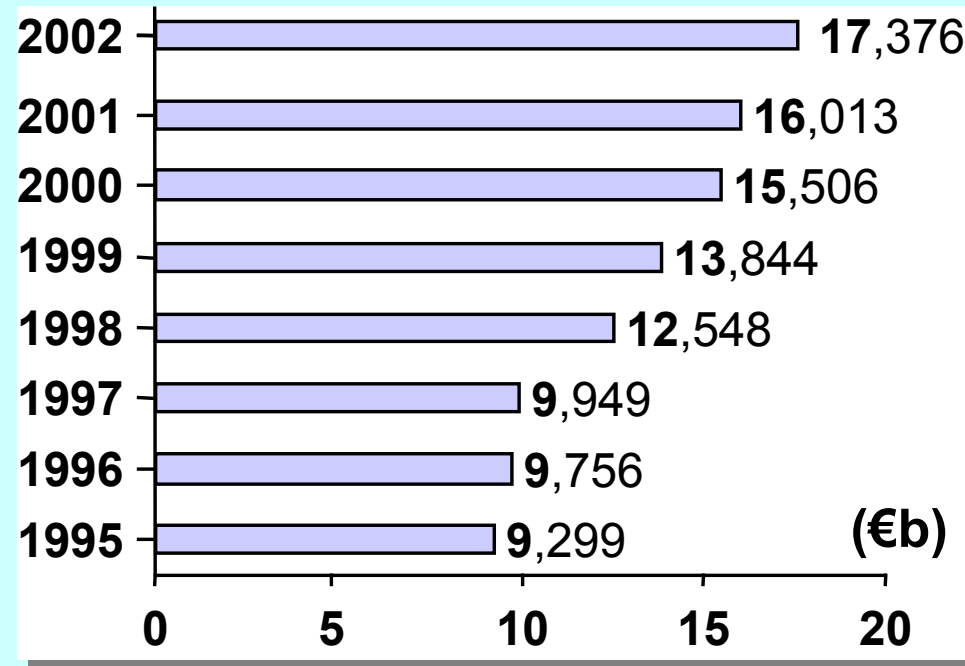
An integrated approach in healthcare e-procurement: the case-study of the ASL of Viterbo

SUMMARY:

- Healthcare spending trend and characteristics
- e-Procurement solutions
- ASL of Viterbo
- Initial assumptions
- Project approach
- e-Logistics pilot
- Operating room e-procurement pilot
- Conclusions
- Next steps

Healthcare spending for good and services in Italy

National Healthcare System is more than 20% of the total spending and has almost doubled from 1997 to 2002



Source: ASSR elab. on data SIS

Healthcare spending characteristics

Spending for goods and services is influenced by some complexity factors:

- largely varies in percent among the various Italian regions
- there are about 350 diverse healthcare structures (ASL, AO and IRCSS) with different procurement needs
- suppliers are about 500.000, highly differentiated (multinationals, mid-size national Companies and local SME's)

Healthcare spending classification

Healthcare spending can be usefully divided in three categories:

- **COMMON** **(20-25%)**
(e.g.: phone services, office materials)
 - **COMMON-BUT-DIFFERENTIATED**
(e.g.: building maintenance and cleaning)
 - **HEALTHCARE-SPECIFIC**
(drugs, medical devices)
- } **(75-80%)**

e-Procurement solutions

e-Sourcing: to perform on-line tenders and auction with web-based models and tools (including contracts, analyze spending and measure supplier performance)

Preferably applied with medium / low-frequency purchases.

e-Requisitioning: to fully manage and monitor orders (from the issuing of requests up to the payment of supply)

Best results with high-frequency supplies, with limited individual costs and standardized non-strategic goods with low consolidated technology

e-Logistics: to optimize management of inventories and of internal flows, with direct link to internal and external players (based on Intranet/Extranet technologies)

Particularly useful for repetitive supplies / continuous stock replenishment independently from purchase process

Healthcare spending and e-Procurement tools

CATEGORIES

- **COMMON**
- **COMMON-BUT-DIFFERENTIATED**
- **HEALTHCARE-SPECIFIC**

TOOLS

- 
 Common electronic purchasing tools:
National and regional frame contracts, Marketplace
- 
 Electronic negotiations:
on-line tenders *(also partial)*
- 
 Redesign of internal purchasing processes:
Healthcare e-logistics, on-line tenders, cost center IT support, etc

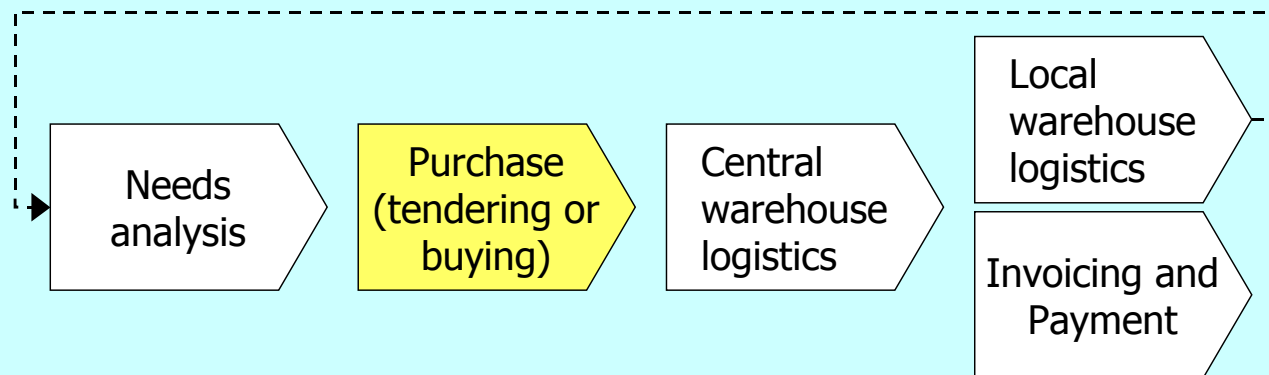
Case study: **ASL** (*local health authority*) of Viterbo

It provides healthcare to the province of Viterbo:

- Production value of about 350 €m
- About 300.000 Citizen served
- Organized in 3 organizational areas:
 - hospital services
 - territory services
 - administration services
- 6 hospitals with 859 beds
- 3.200 administrative and healthcare employees

Initial assumptions

- Procurement is an **end-to-end process** much broader than the single **purchasing phase**



- Relevant and durable benefits could be obtained only with an integrated approach along the entire process
- Healthcare spending is more specific than others and requests the adoption of different tools and methods
- Cost reductions not to be pursued on purchase prices but on the whole procurement, logistics and administrative cycle

e-Procurement projects approach

The whole procurement cycle was resized starting from a detailed analysis of the need for goods and services characterized by:

- diversified approach for common, common-but-differentiated, healthcare-specific spending
- direct and decisive role assigned to the hospital wards, that were involved in the definition of the new procurement processes
- strong cooperation with external Companies, with transfer of technology and management know-how
- use of IT supports to know wards overall consumptions and related stock levels to address the purchasing system directly
- driving role assigned to the wards, but without the responsibility to decide how to purchase each specific good

Choice of tools

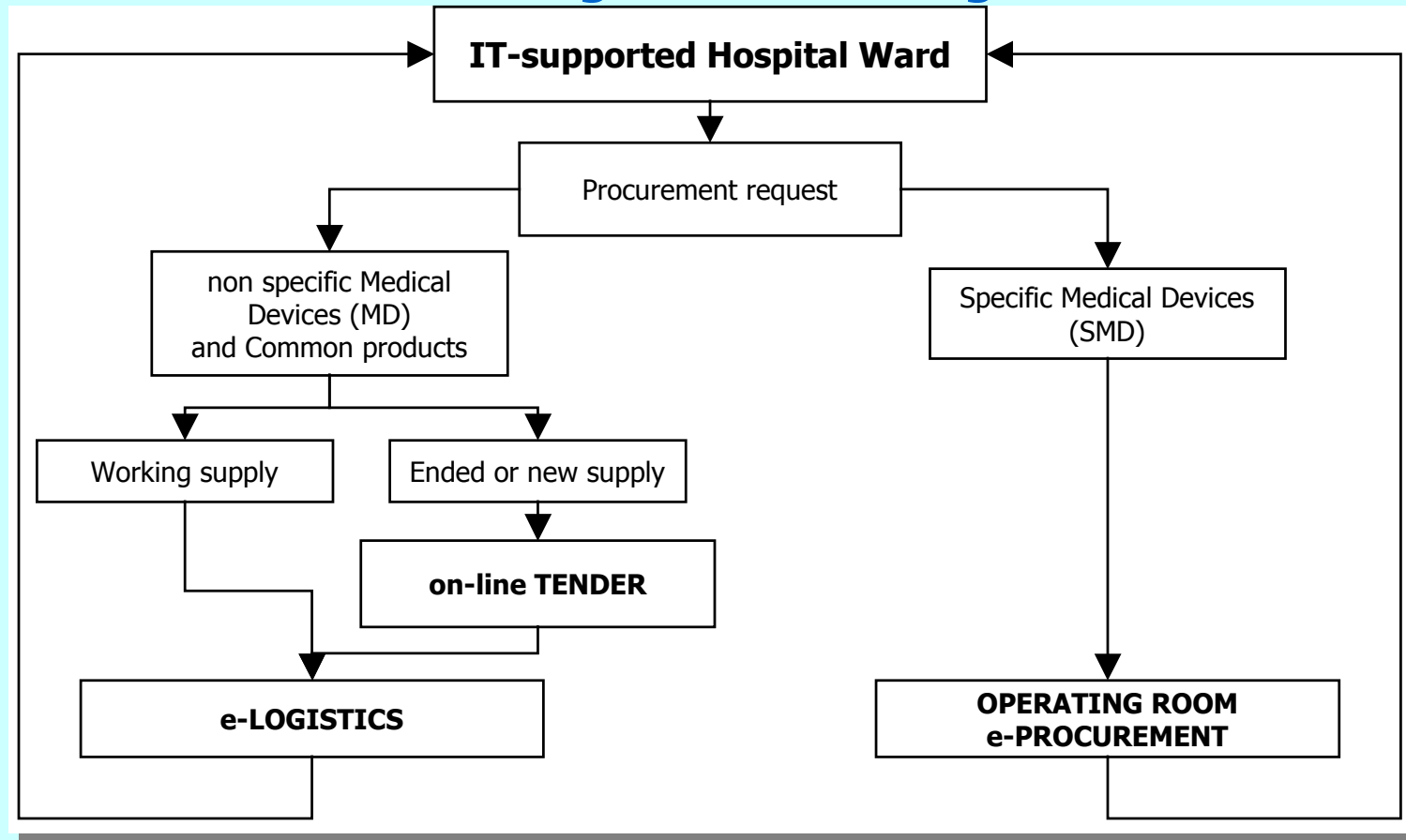
For each spending category has been chosen the best procurement solution:

- public and private **electronic catalogues** for the common spending
- fully IT-supported process with procurement flows designed along two distinct routes according to the type of goods to supply:
 - for routine non-specific Medical Devices (MD), normally used in hospital wards, and office products:
 - on-line tenders** for products not in the hospital (never purchased or fully consumed)
 - e-logistics** to automate the whole replenishment route of the product supplies between pharmacy or supply office inventories and wards
 - for Specific Medical Devices (SMD) used in surgical operations:
 - operating room e-procurement**, new on-line procurement process which optimizes the replenishment time and reduces the ward and inventory stock levels

The distinction into two routes must be considered just a first experimental step: in the future could be overcome by extending the scope of the **operating room e-procurement** route that integrates together supply and outsourcing of logistics

e-Procurement projects approach

Purchasing channels designed



Testing methods *(1)*

Application tests were performed in internal pilots in order to track results in terms of innovation effectiveness and time and costs reduction providing:

- a detailed map of the existing process with:
 - identification of micro-activities and number and type of human resources engaged
 - quantification of working and elapsed time through interviews
- a design of the new process flows with embedded methods to automatically track the time spent in each activity
- a comparison between the existing and the new process of:
 - volumes of goods
 - time spent
 - purchase costs

Testing methods (2)

For the **operating room e-procurement** pilot a more detailed analysis has been ruled out:

- identifying direct costs related with existing and new process according to:
 - cost accounting (*e.g. hourly pay per job position*)
 - field surveys (*e.g. squared meters actually occupied in the warehouses*)
- producing estimates for:
 - relevant indirect costs (*e.g. general costs*)
 - voices where precise measurements was not considered useful (*e.g. costs of obsolete products*)

e-Logistics project

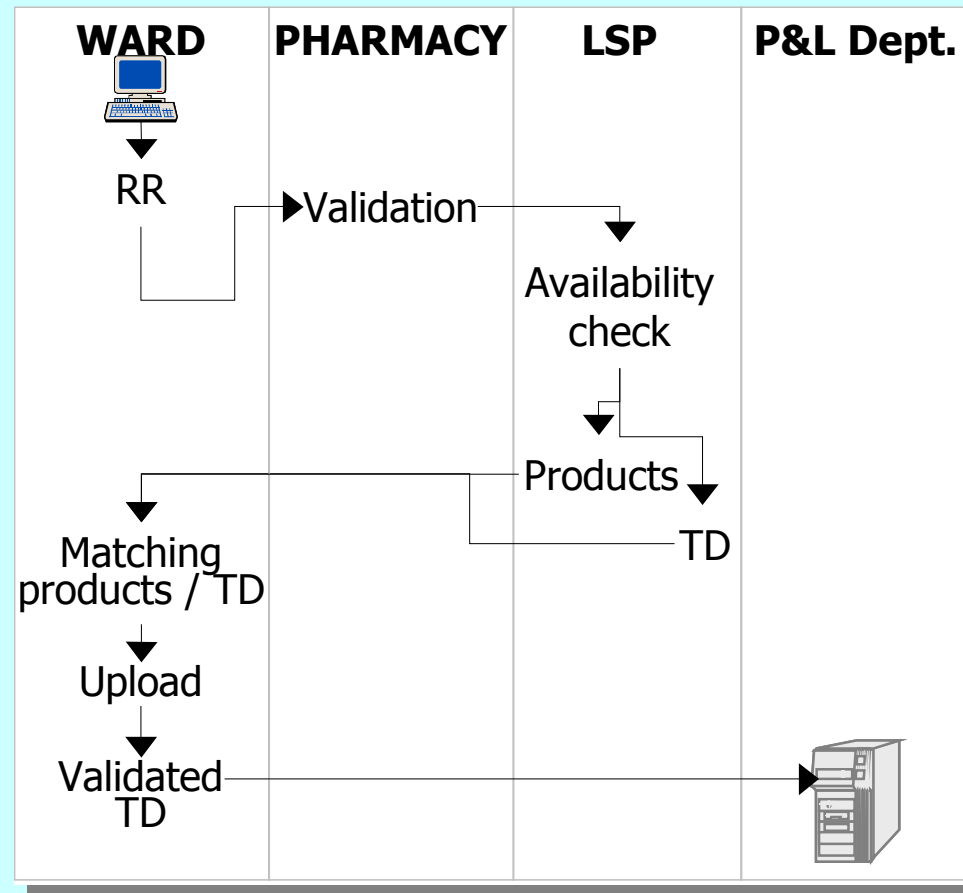
The new e-logistics process outsources the management functions of hospital and supply office inventories to an external Logistics Service Provider (LSP) with significant reduction of the operating and economic burden on the ASL

The initiative supports the assumption that savings in healthcare should be pursued through the IT support of the procurement processes of the wards and a profound review and integration of the logistics management

After the pilot experiment at Civita Castellana the ASL of Viterbo planned a full roll-out of the system, extending the IT support to all the hospitals of the ASL

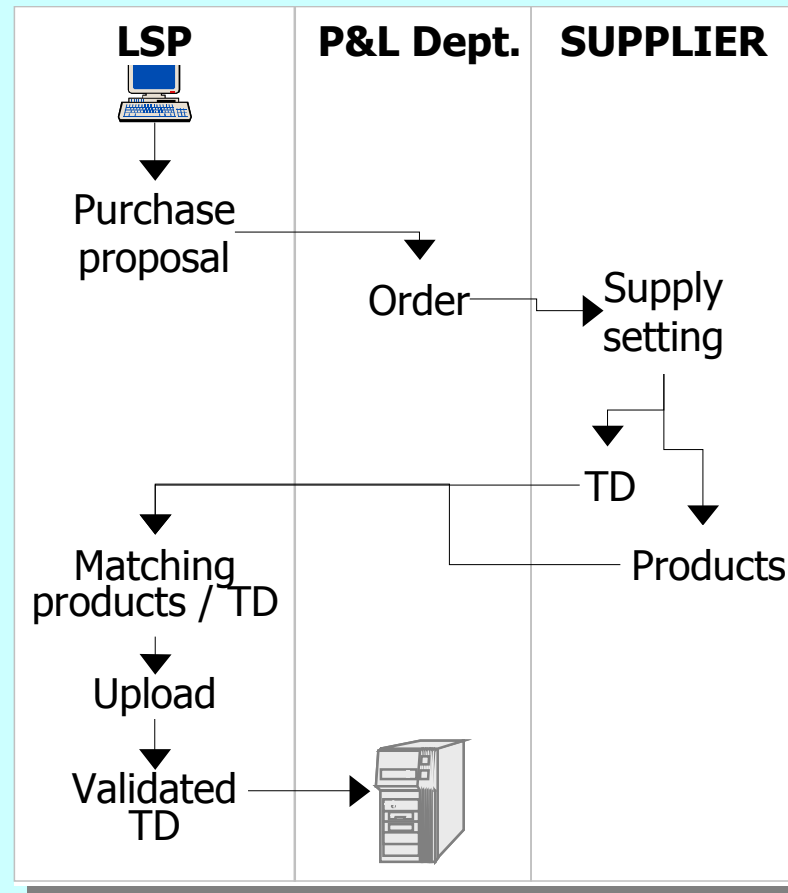
e-Logistics project

Replenishment request internal flow



e-Logistics project

Supply order flow



Operating room e-procurement project

Carried out since 2001 at the hospital of Civita Castellana

The operating and technical staff of the General Surgery Department was directly involved in rethinking and redesigning the SMD procurement

The model conceived is based on:

- a novel approach to provide the SMD's to the operating room based on the type of surgical operation performed (actual data immediately available), and no longer on the SMD stock level that requires a huge administrative work
- the definition of surgical protocols (SP) which indicate the type and quantity of the medical devices needed for each type of operation and allow to determine, after it has been performed, the quantities actually consumed to be reordered
- the contractual allocation – with innovative paying terms – of the products supply and management to a single player

Operating room e-procurement project

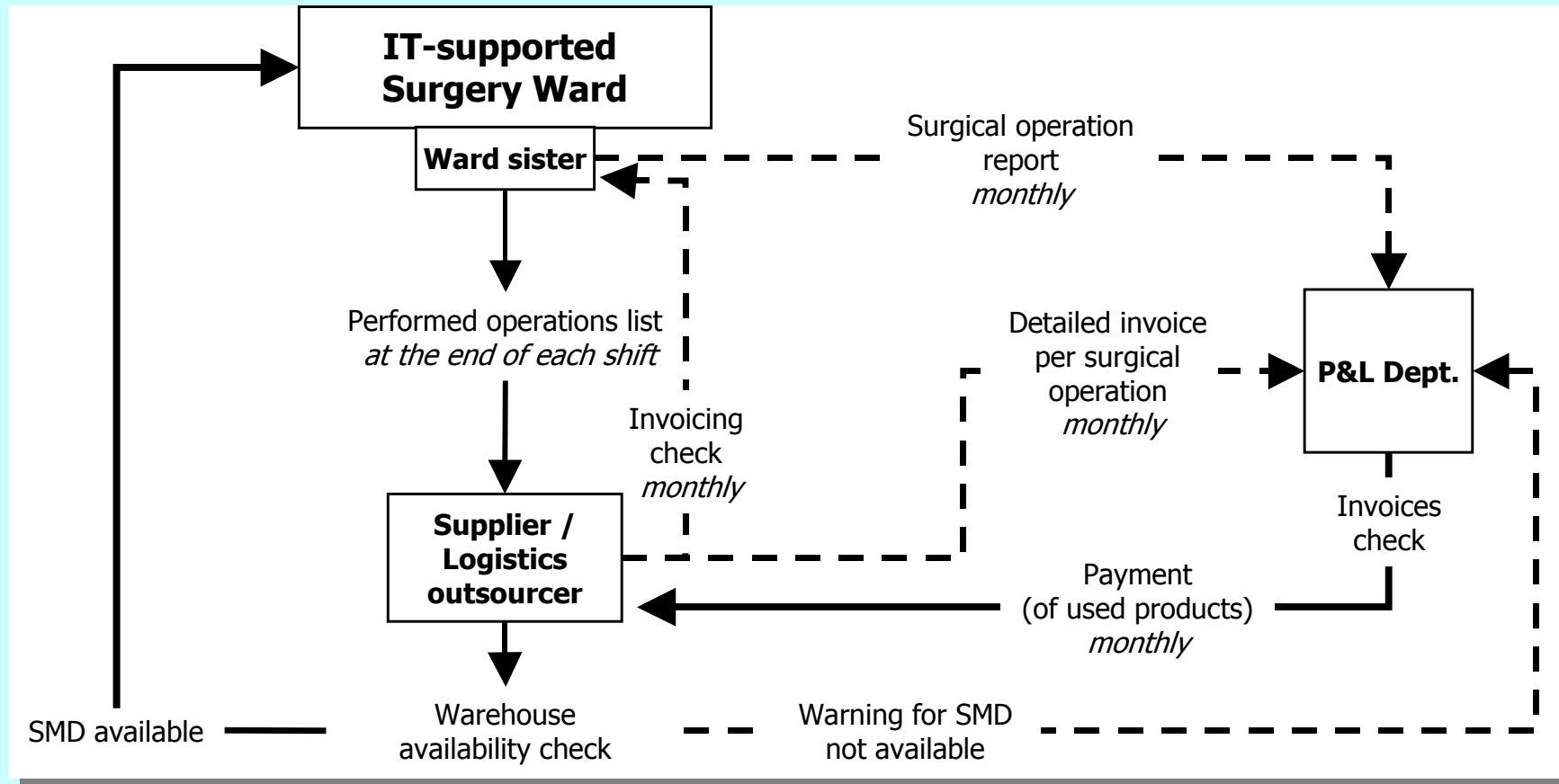
The new process is supported by a shared application platform:

- at the end of each shift the ward sister sends the list of the operations performed to the supplier
- the supplier according to the product quantities indicated by the corresponding surgical protocol (SP) knows product consumptions in real time and can thus replenish them

The process ends monthly when the supplier issues a detailed invoice per surgical operation, which:

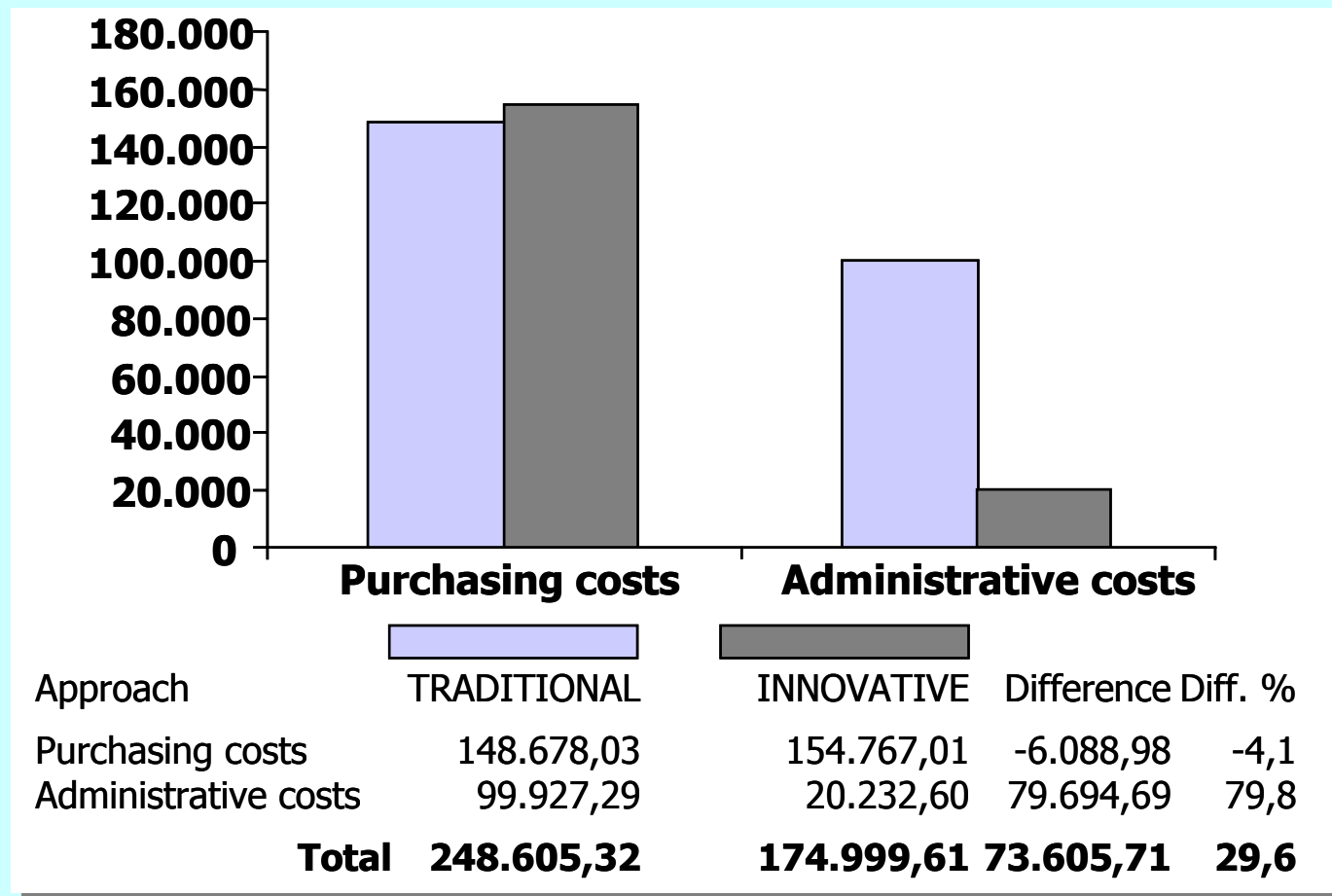
- allows the P&L Dept. to activate the payment after a brief check
- provides data for an effective periodical comparative analysis of ward needs

Operating room e-procurement project



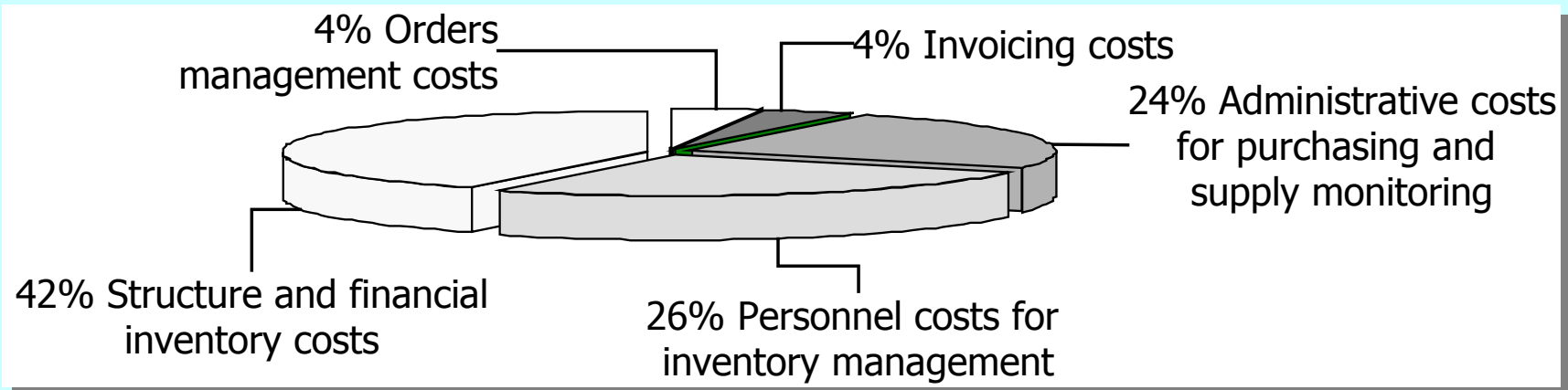
Operating room e-procurement results

As in this field it's not safe operating on goods prices, the huge savings obtained are fully concentrated on administrative costs



Allocation of savings obtained during experimentation

- 42% from reducing the fixed and financial inventory costs, by outsourcing logistics and shifting the payment terms after consumption
- 26% from reducing personnel costs (of Hospital Pharmacy and Operating Room), by outsourcing inventory management to the LSP
- 24% from reducing the administrative cost for purchasing and supply monitoring, by unifying sets of diverse medical devices into SP kits and by being provided with detailed information directly
- 8% from reduced order management and invoicing costs



Conclusions (1)

- Healthcare structures provide critical and specialized services (vs. the rest of PA):
 - goods and services are frequently very specific and can have an impact on the service quality
 - cost reductions should not be pursued on purchase prices but on the whole procurement, logistics and administrative cycle
- Goods and services needed are very diverse in terms of quantities, technical characteristics and peculiarities: e-procurement solutions must be segmented to properly respond to this variety
- In order to obtain valid results a comprehensive perspective of the problem is needed, with the aim of designing brand new purchase, logistics and administration processes and of integrating technical solutions available
- For the most specific supplies it is paramount to involve wards doctors and technicians as:
 - experts in the design phase
 - primary players of the redesigned process
- On the technical level, it is necessary to provide a shared IT platform, linking the administrative offices, wards and external providers (when needed)

Conclusions (2)

- A sound e-procurement introduction can provide significant savings for all categories of spending items:
 - common
 - common-but-differentiated
 - healthcare-specific
- As regards the *healthcare-specific* spending (more than 50% of total) savings are necessarily linked to administrative and financial costs
- Personnel seemed to positively participate in new e-procurement process
- Main risk for a full implementation are linked to the outsourcing of the logistics function (the core of the change) and could be minimized with the usual precautions used to grant a global service assignment

Next steps

Basing on the results obtained ASL of Viterbo is broadly deploying:

- **e-logistics** project in connection with **on-line tenders**
- **operating room e-procurement** project, also in a new version designed for analysis laboratories
- use of public **Marketplace** of Consip, both for common goods and some Medical Devices

With the aim of measuring the detailed benefits that these innovations will bring to ASL a wide research project has been promoted since October 2004 by:

- ASL of Viterbo
- University of Tuscia
- Consip (*Italian Public Procurement Agency*)

A first intermediate report is scheduled for June 2005



Dipartimento degli Studi Aziendali,
Tecnologici e Quantitativi

“An integrated approach in healthcare e-procurement: the case-study of the ASL of Viterbo”

Tommaso Federici

Università della Tuscia

Dipartimento di Studi Aziendali Tecnologici e Quantitativi

Via del Paradiso, 47 - 01100 – Viterbo – Italy

federici@scec.eco.uniroma1.it

**TED Conference on e-Government
(TCGOV 2005)**

Free University of Bozen

2-4 March 2005