The MIT Center for Digital Business

RFID pilot in Japan using SGTIN
~ from factory to bedside ~

Granted by

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The concept of the Hospital IT system in Japan is

- POAS: Real-time Consumption Data Capturing System
  - Collects, manages, and uses consumption data at the point of consumption (e.g. Hospital bedside)
    - In the form of When, Where, Who, to Whom, Why, What, How (6W's, 1H)
  - The first application is hospital
    - International Medical Center of Japan (since 2002)
  - Current technology is PDA/bar code, and RFID technologies are in processing.
  - We have a feasibility study with RFID tag in 2008.

What can POAS do?

➲ By collecting data from wireless PDAs, examination room terminals, and laboratory equipment, POAS can:

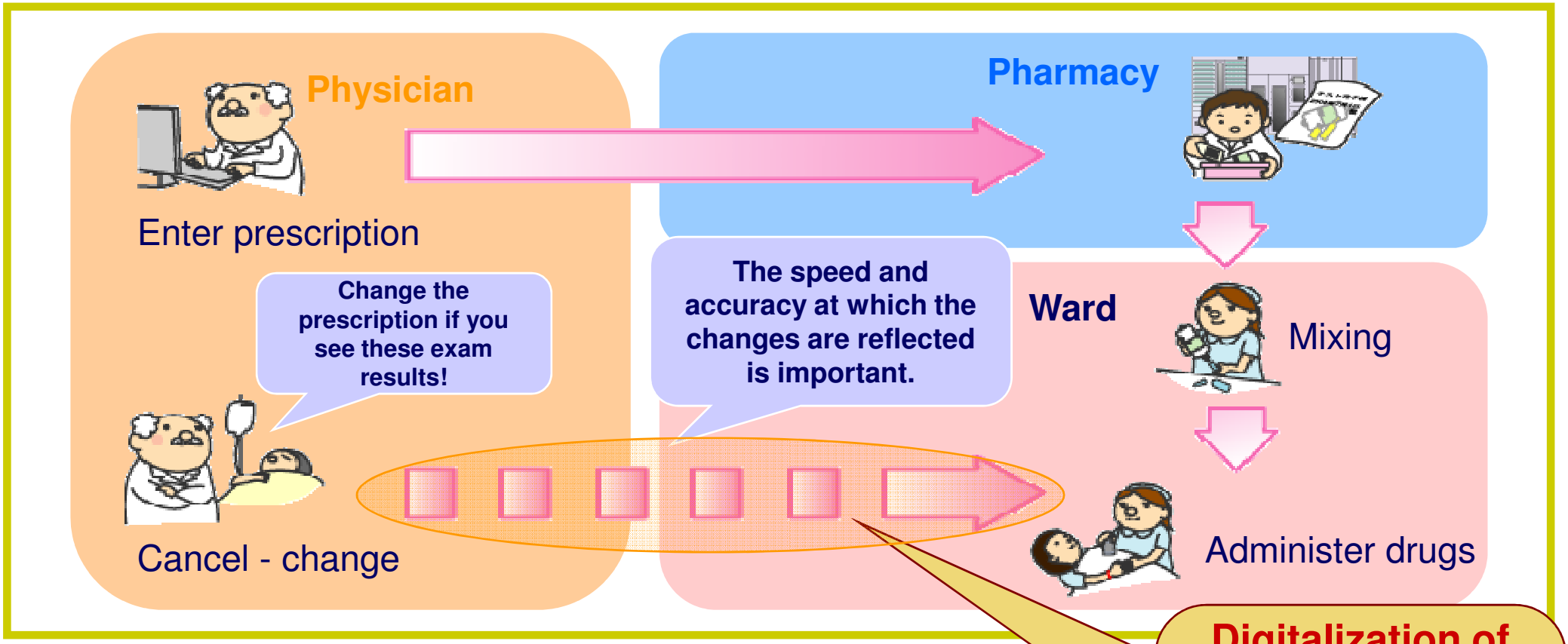
- Record medical actions in detail, everywhere
- Assist practicing medical treatment to patients
- Monitor patient symptoms continuously
- Comprehend logistical data by the “minimum unit”

→ In real-time.

➲ Useful for automatic single size item identification

➲ UDI: Unique Device Identification (US FDA) [redacted]

Injection operations from the perspective of medical safety



- An inter-divisional safety system is needed.
- A system is needed that reflects changes and cancellations in the information given to medical staff within a timeframe of 2 seconds.

Digitalization of this section was achieved with Single Item management as POAS.

Conventional system ID: GTIN
POAS system ID: GTIN + serial number

Data granularity

Management of the number of items

Individual (ID) management

Order

Act1

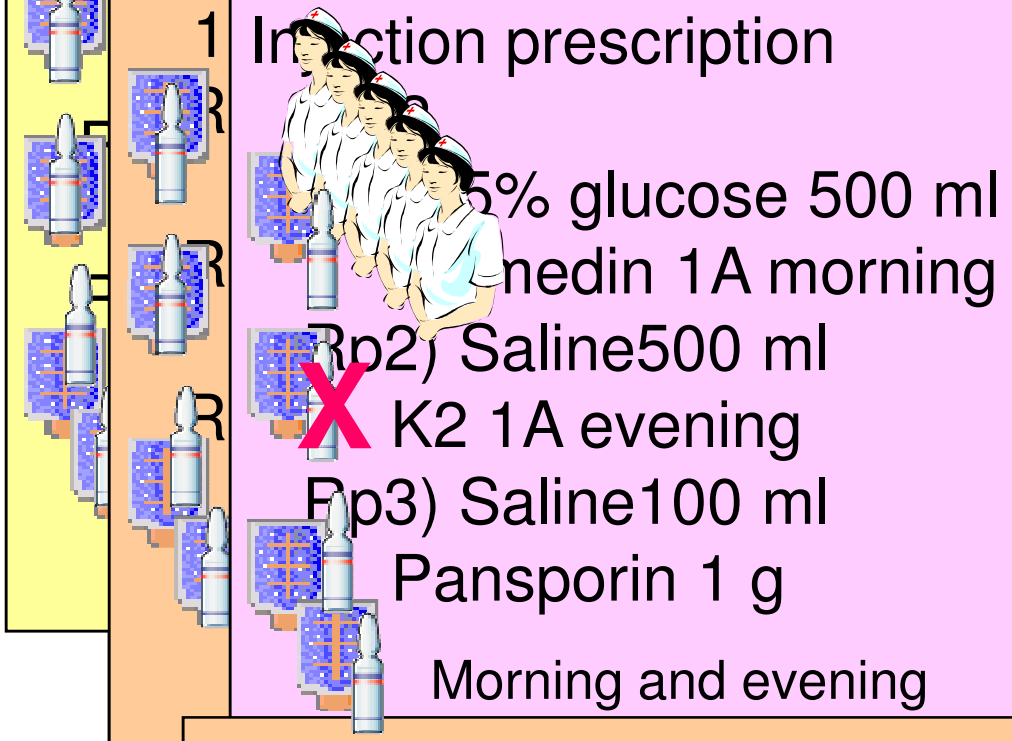
Task:5W1H

Act2

Task:5W1H

Act3

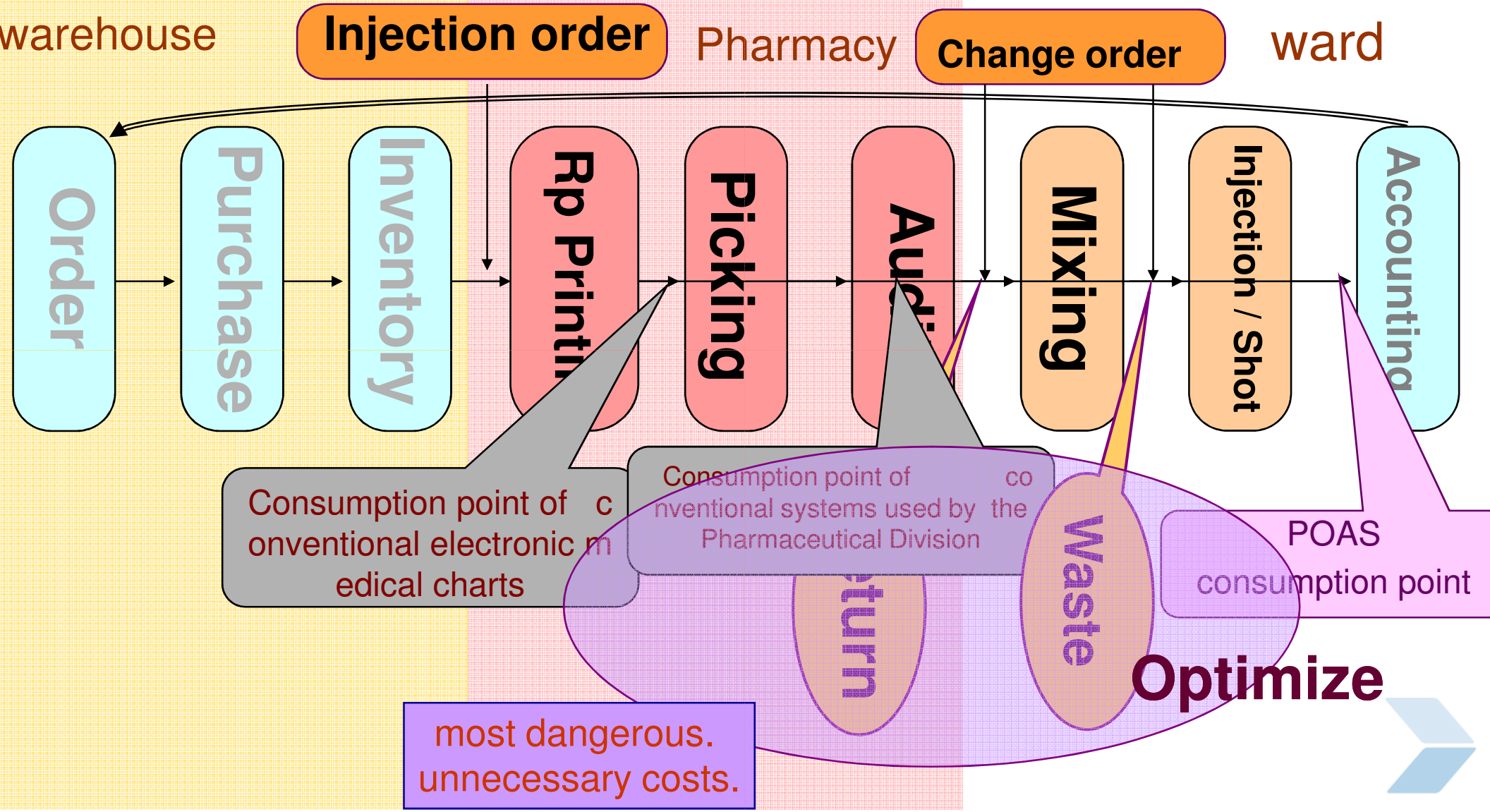
Task:5W1H



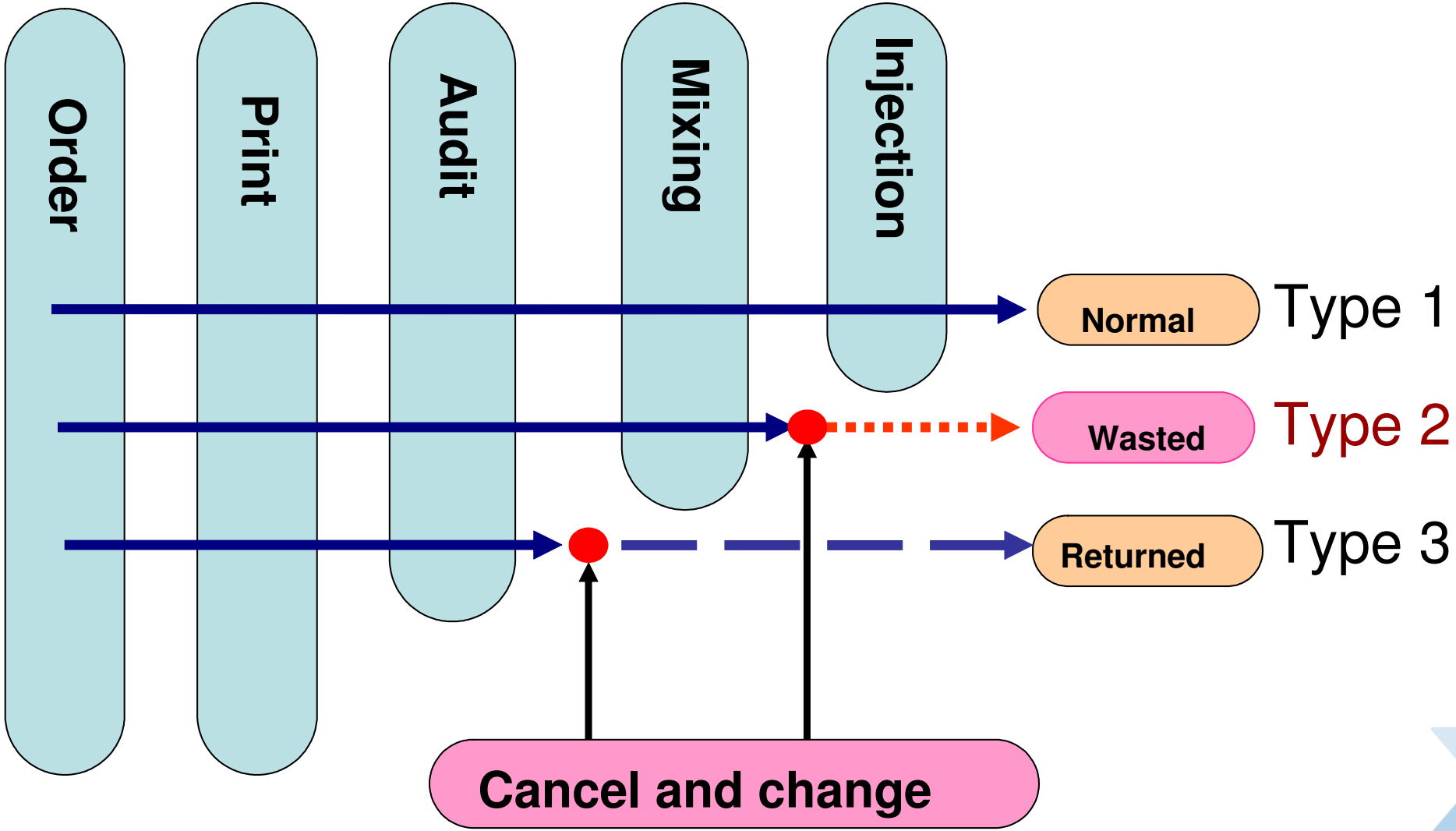
Data unit = People's actions (changes) single item based

Data unit = Invoice (payment) unit

Automatically acquired information : Digitize



Explanation of type



Cancel data 4/01/2004 – 3/31/2005

Type	Cost (Yen)	Number	Rp numbers	The number of injection and shot
Normality	1,113,386,619	1,019,229	556,283	336,682
Cancel Type2	108,535,086	102,127	55,289	35,959
Cancel rate(%)	9.75	10.02	9.94	10.68

cost saved : $1M / year

this amount if there was no confirmation before mixing the medicine.

bout the division
Normality: After the medicine is mixed, discontinuance (for the abandonment) is contained.
Discontinuance: Medicine that was discontinued before medicine is mixed, and returned.

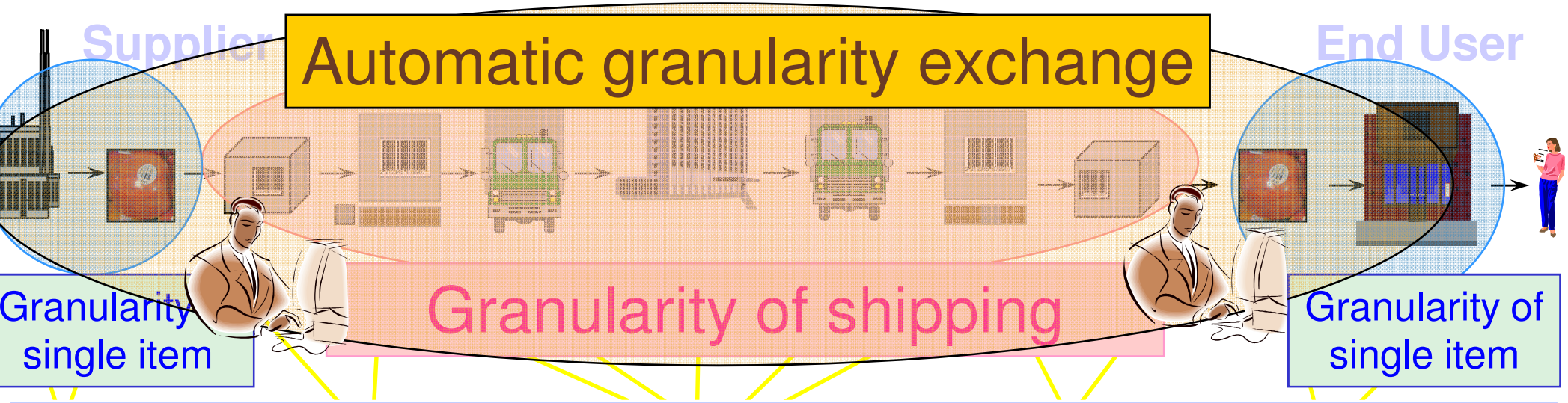
About the unit price
Normal: I calculate by an actual unit price by the inventory.
Cancel: Because drawing is released and it is drawn by other patients after returned goods unsold, a real unit price is uncertain. Therefore, the agreement unit price of a period concerned and the trial.

IT can be improved hospital management.

- Prevent medical accidents.
- Thorough inventory management
- Keywords are “**real-time** entry” and “**serialization** for single item management.”
- The accurate acquisition of information on bedside actions is crucial.
- Acquire cancellation and change data.
  - Only about 60% can be acquired in conventional systems.
  - POAS gives an overall picture.
  - POAS can **save 4 million dollar per year**.
- This improves medical **safety** and **management efficiency**.

GS1: Product Identification through the Supply Chain

PHYSICAL ITEMS & DATA FLOW



GTIN / Serial ID	GTIN	SSCC	GTIN	GTIN / Serial ID
RSS / RFID	**GS1-128**	**GS1-128**	**GS1-128**	**RSS / RFID**

Item data , sales catalog, ship notice, invoice

request for quotation, planning schedule, POS

Electronic Commerce Information Flow

Objectives

1. **Track & Trace for Patient Safety**

2. **To improve SCM in Healthcare Field**

3. **To reduce CO2**

Timeframe of the Pilot Study

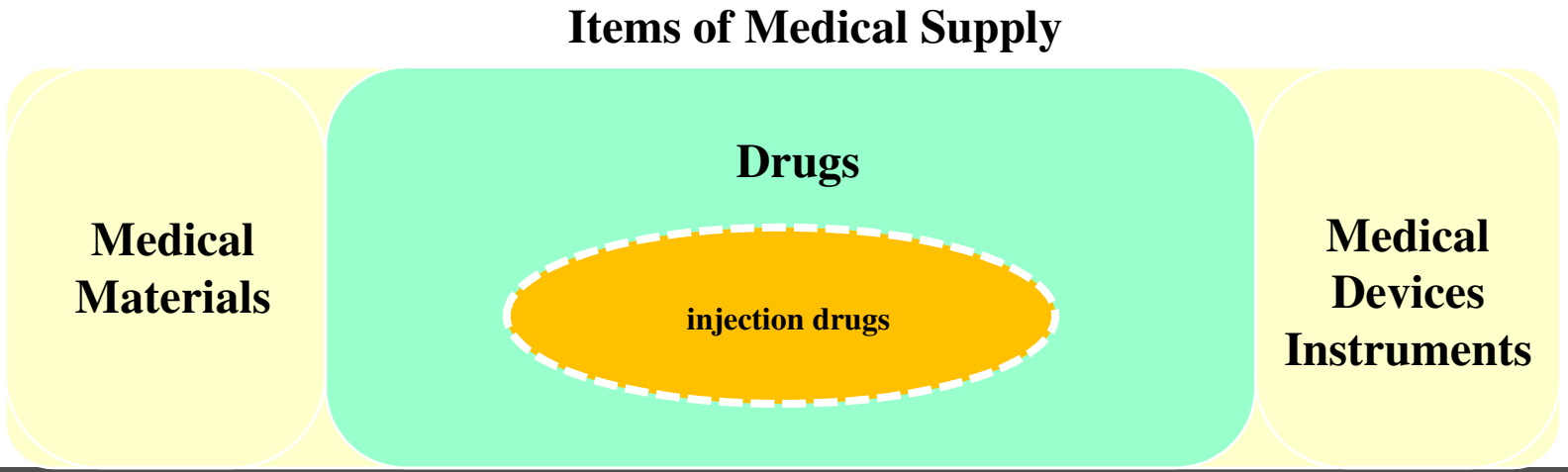
Year	2007						2008					
Month	October		November		December		January		February		March	
Days	1-14	15-31	1-14	15-30	1-14	15-31	1-14	15-31	1-14	15-29	1-14	15-31
Event		* Kickoff	* Steering Committee		* Steering Committee		* Steering Committee				* Steering Committee	* closing
System Development												
Field Practice												
Researching In EU/US												
Reporting												

Facts of the Pilot Study

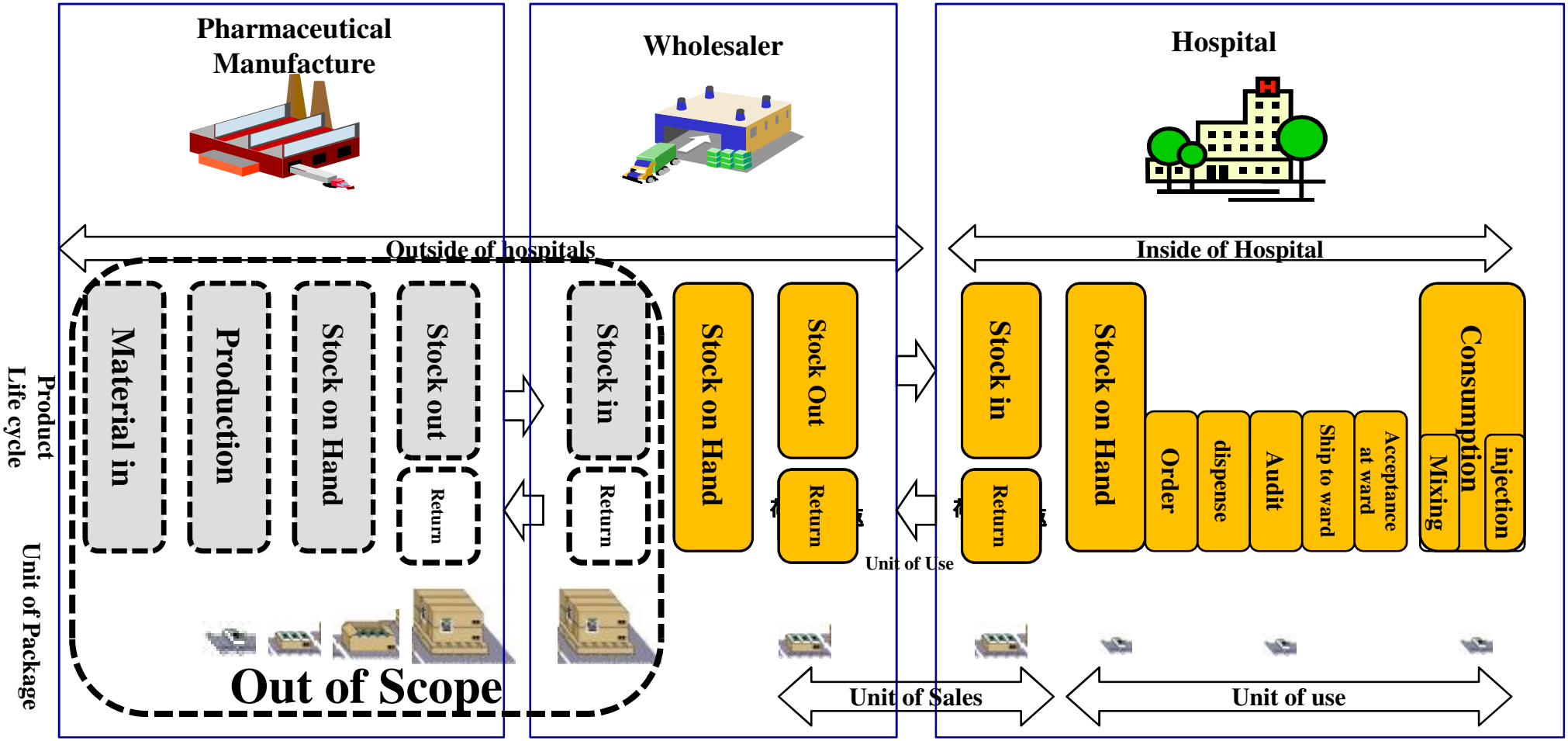
1. 1st Project scoped from the Source Marking to Bed-Sides

2. 1st Project adopting GS1 Standards in Japan (SGTIN/GLN)

3. SGTIN (GTIN + Serialized Number) on RFID



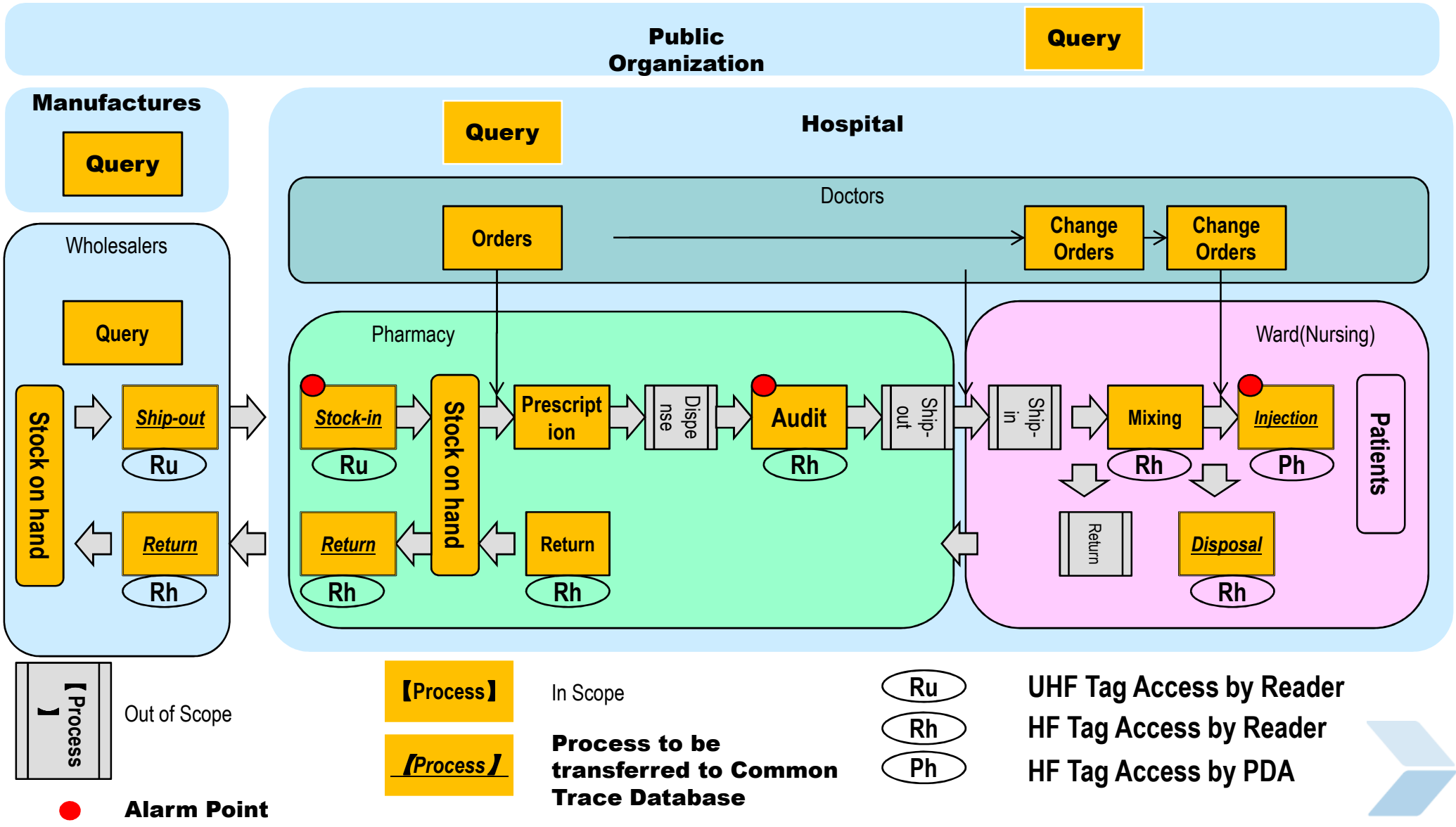
Business Process of the Pilot Study



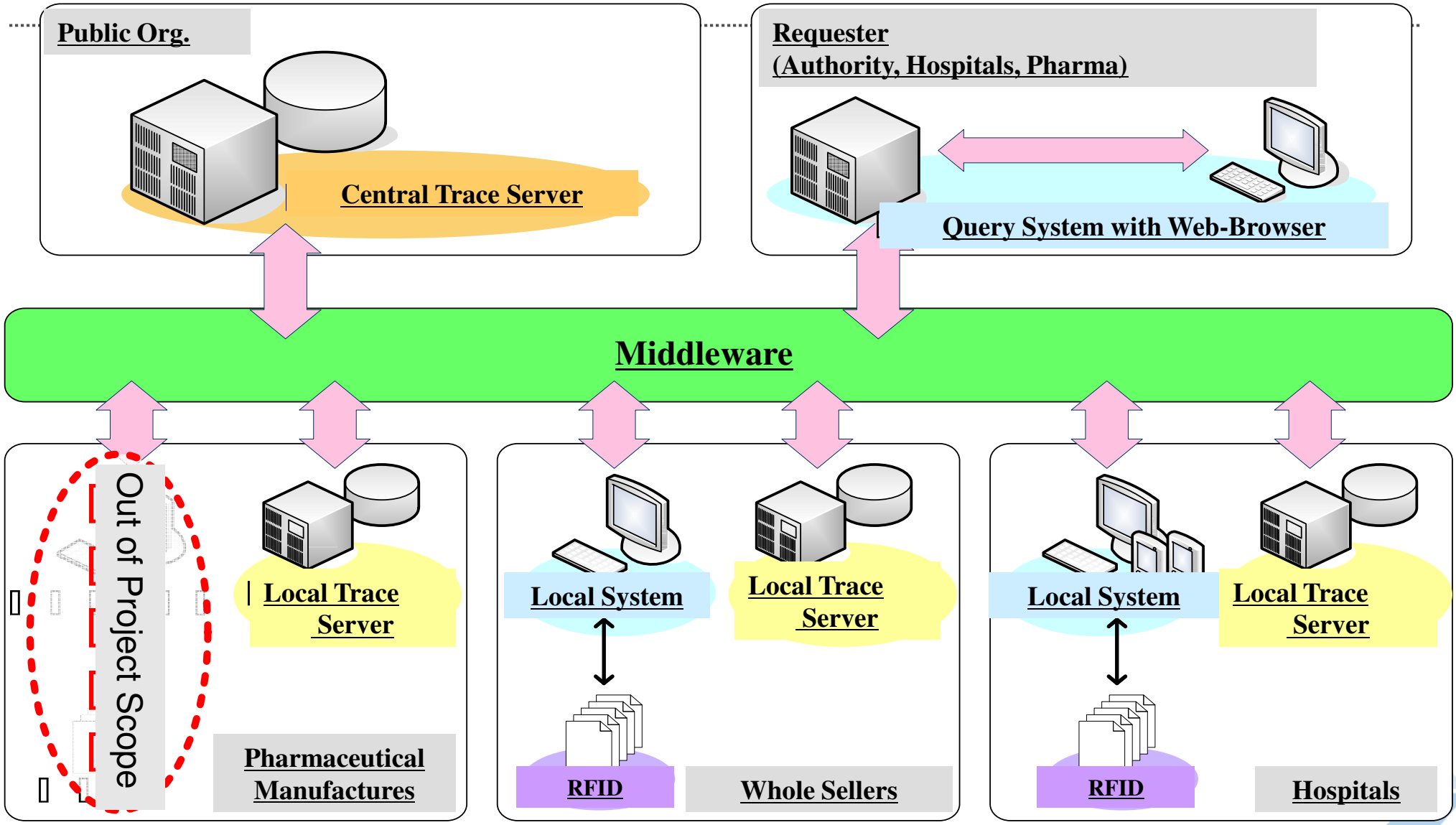
Scope of the current pilot study(2007)

Scope of the past pilot studies(2004-2006)

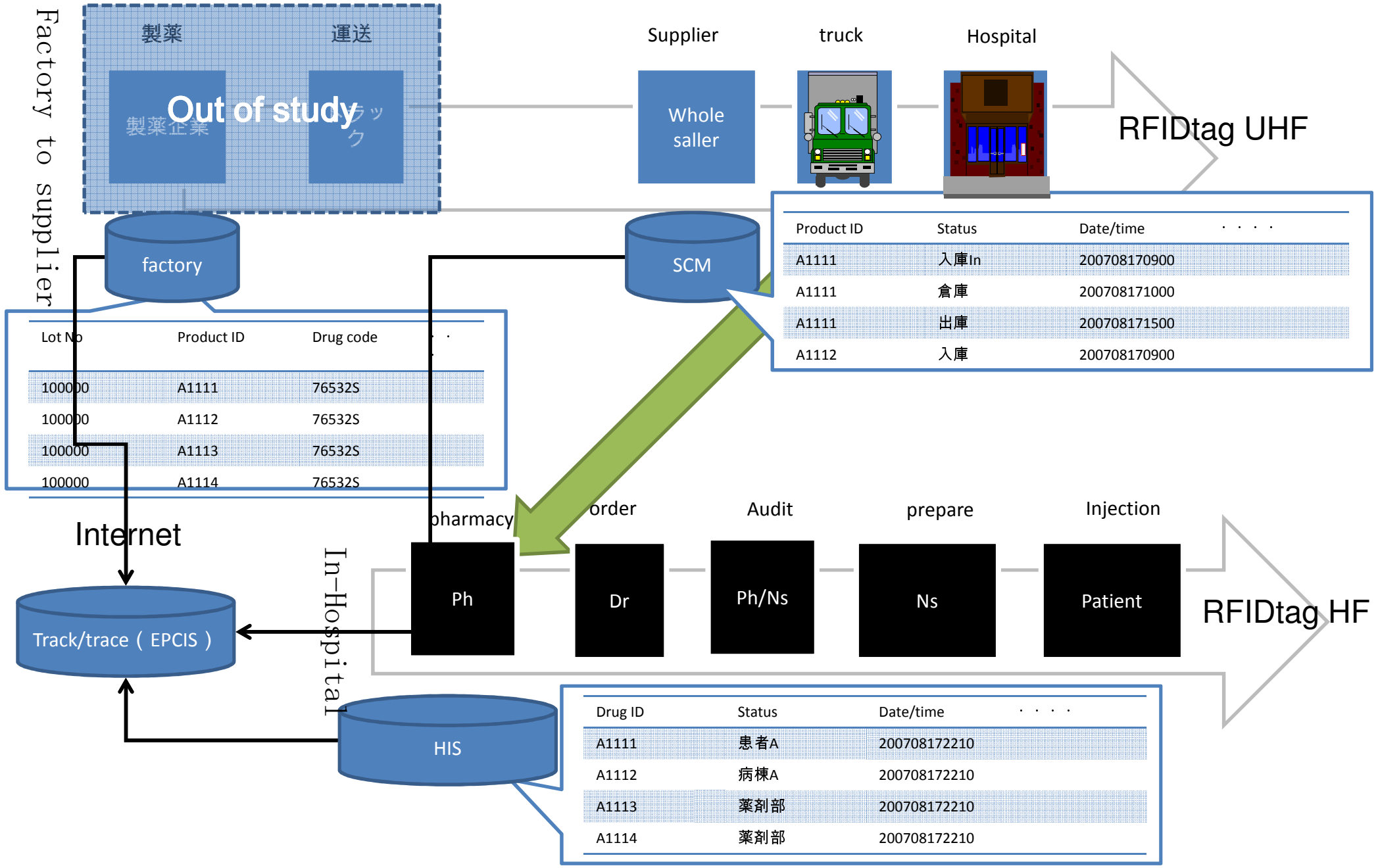
Scenario Overview

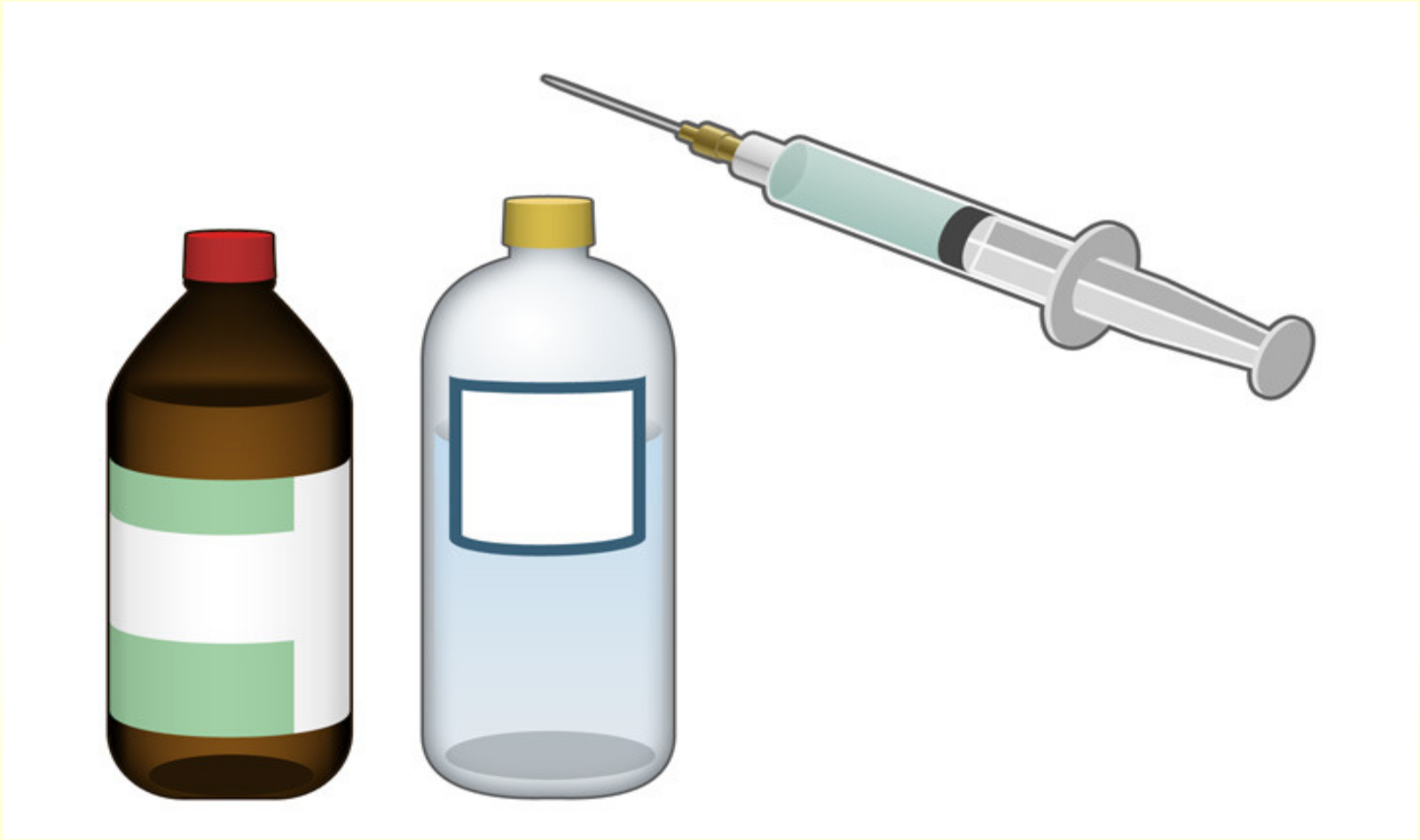


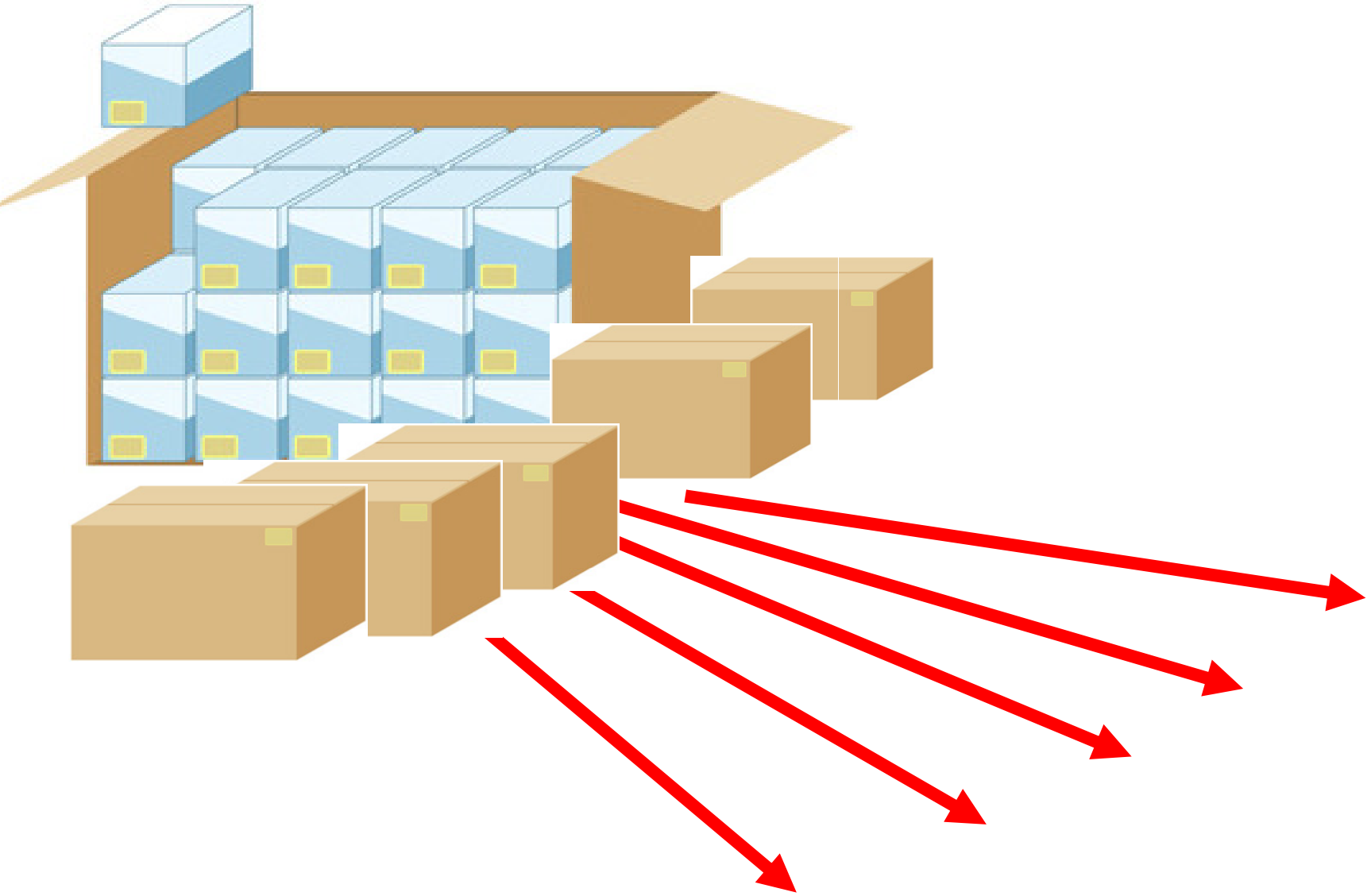
System Overview

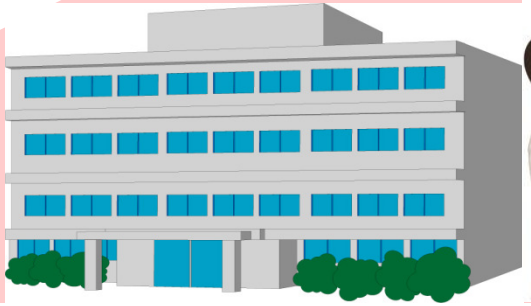


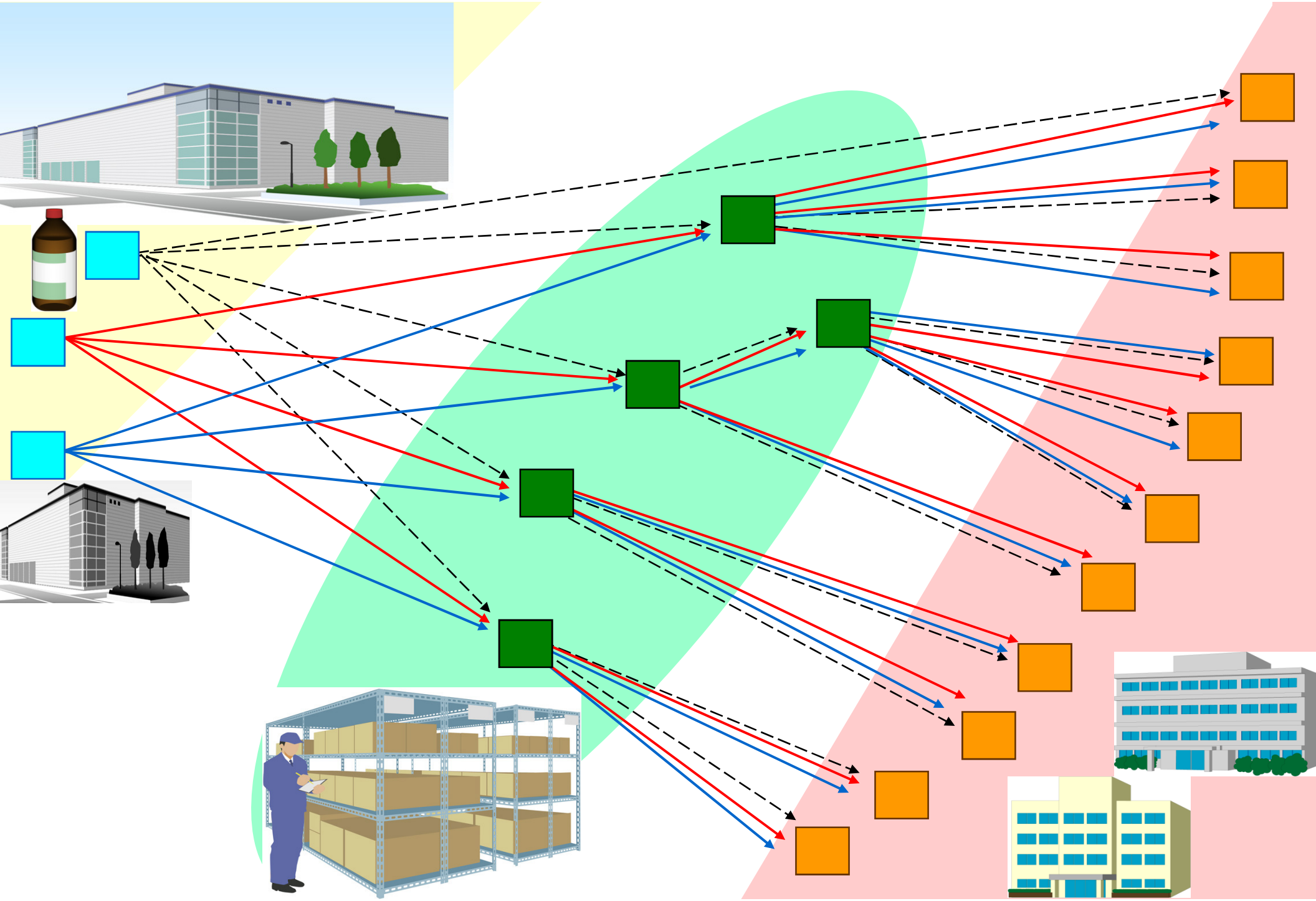
Feasibility study on medical field in Japan

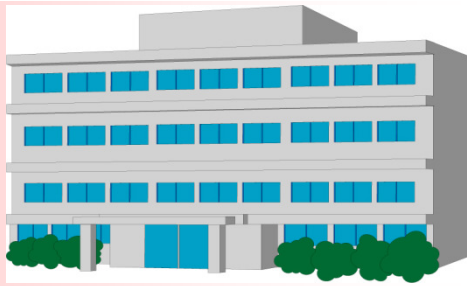


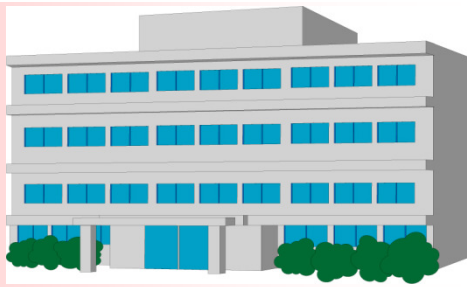












OK

OK

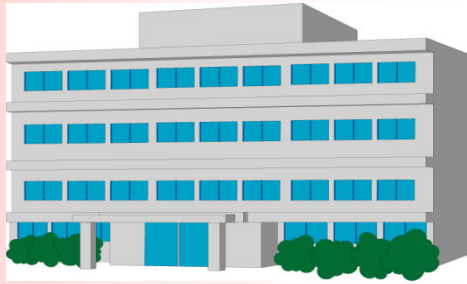
Questionable

NG

NG

OK

OK



OK

OK

OK

OK

Questionable

OK

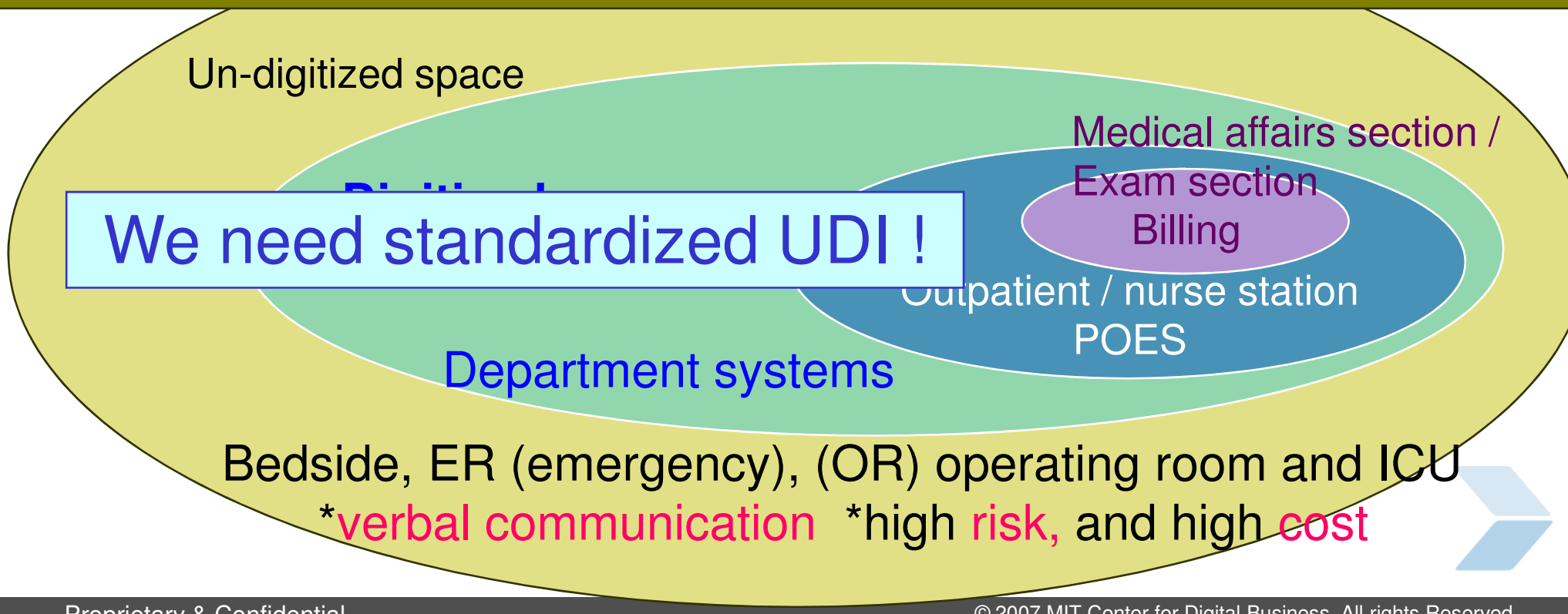
The evolution of hospital information systems

1G: Billing and Lab test : medical affairs and specimen exams

2G: CPOE : ordering

3G: EPR : paperless electronic medical charts

4G: Ubiquitous medical information systems for most dangerous / high costs areas



Conclusion

Not only cost saving but also Patient safety ---

- important to manage the verbal communication in Bedside, ER (emergency), (OR) operating room and ICU

- Single item management with unique serialized number

References:

M Akiyama.
Risk Management and Measuring Productivity with POAS - Point of Act System.
A Medical Information System as ERP (Enterprise Resource Planning) for Hospital Management.
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Akiyama M, Kondo T.
Risk management and measuring productivity with POAS--point of act system.
Medinfo. 2007;12(Pt 1):208-12.

Thank you for your attention.
Any Questions?

- Think !
- What kind of system do you want, if your son or daughter were a patient?

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