



Fondazione IRCCS  
“Istituto Nazionale dei Tumori”



on:RFID The next step to  
THE INTERNET OF THINGS



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**Safe and integrated transfusion process**

# Agenda



- Background and objectives
- Transfusion safety
- The reengineered transfusion process
- Key Performance Indicators
- Future Developments

# Background



Founded in 1925 the Fondazione Istituto Nazionale dei Tumori is widely recognised as a top tier Scientific Research and Treatment Institution (IRCCS)

- 14,000 in-patients
- 12,000 day-hospital patients
- 900,000 out-patients
- >15,000 surgical treatments
- 362 acute care beds, 51 day hospital beds, 8 operating theatres
- ~ 1900 employees

# Objectives

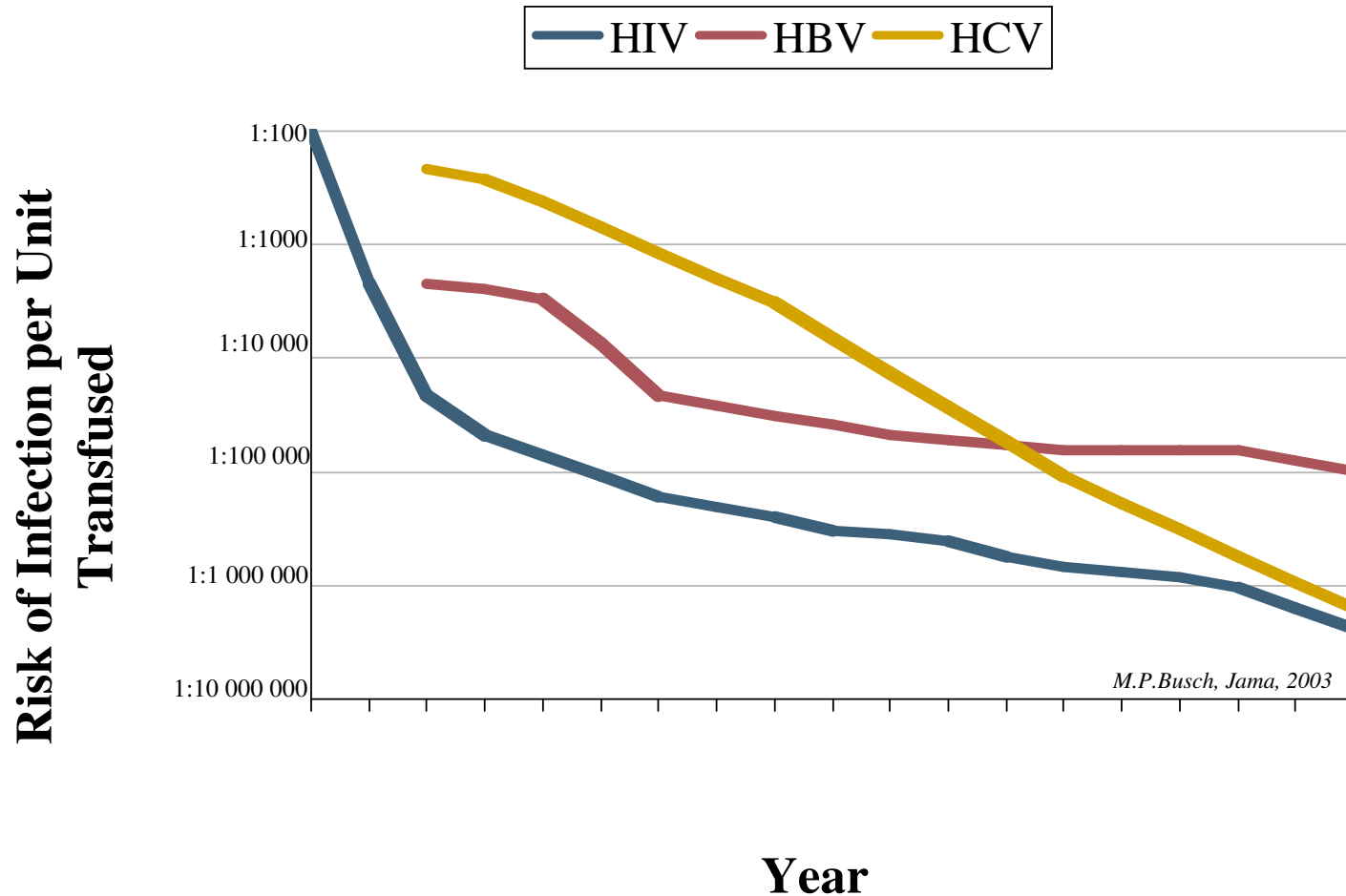


The aim of the pilot project was to address two major pain points:

## **Patient Safety**

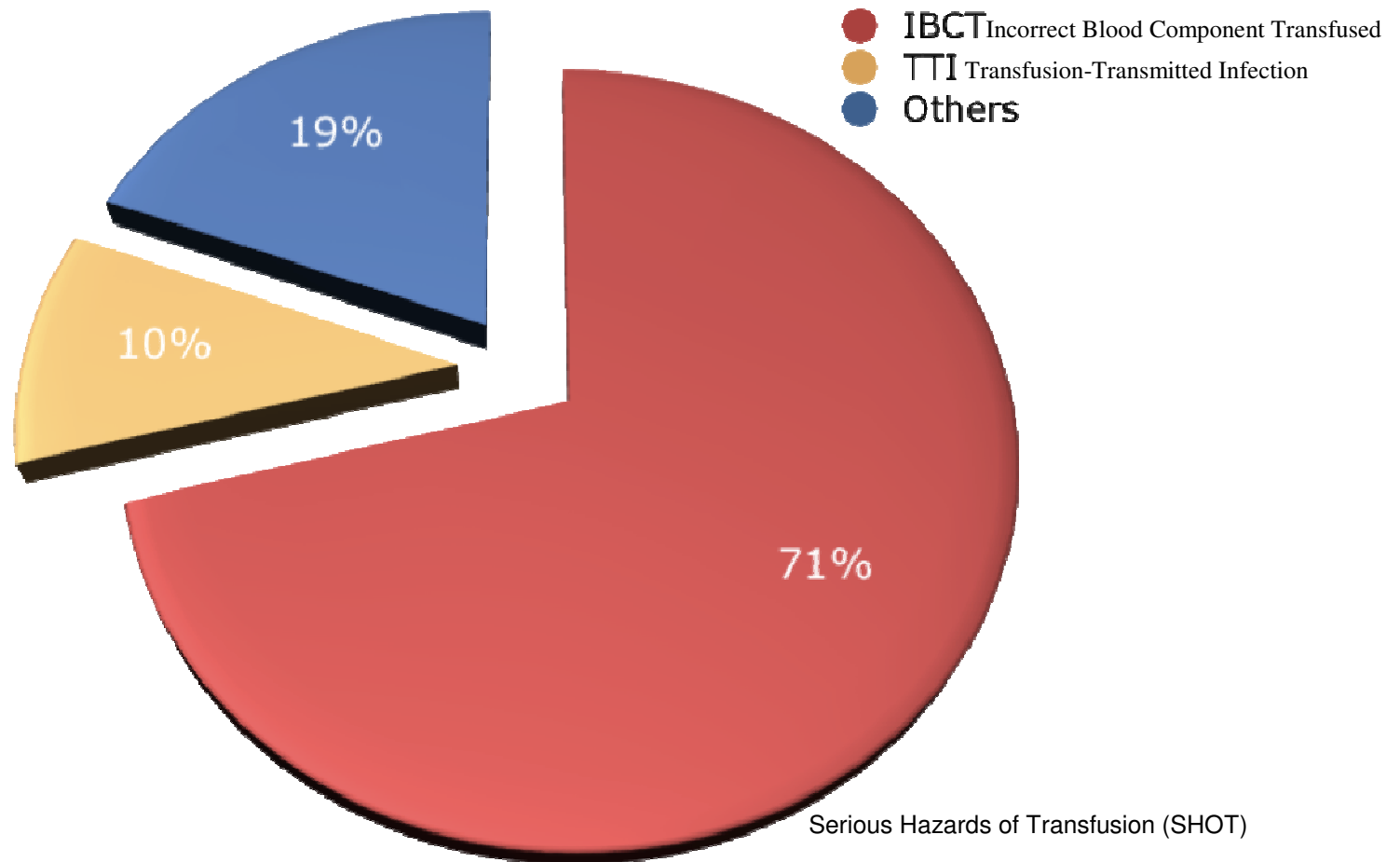
### **Auditing of transfusion process**

# Transfusion safety: infection risk



***Decline in Human Immunodeficiency Virus and Hepatitis risks of transmission through transfusion***

# Transfusion safety: adverse events



***SHOT (Annual Report 2001/2002) transfusion adverse events  
Statistics on 482 adverse events reported***



## Better patient care

- Right patient
- Right therapy
- Right match patient-therapy
- Right method
- Right time



**Due to the lack of auditing of the transfusion process the goal was to:**

- Total unit traceability
- Process performance monitoring
- Timely and complete communication within organization



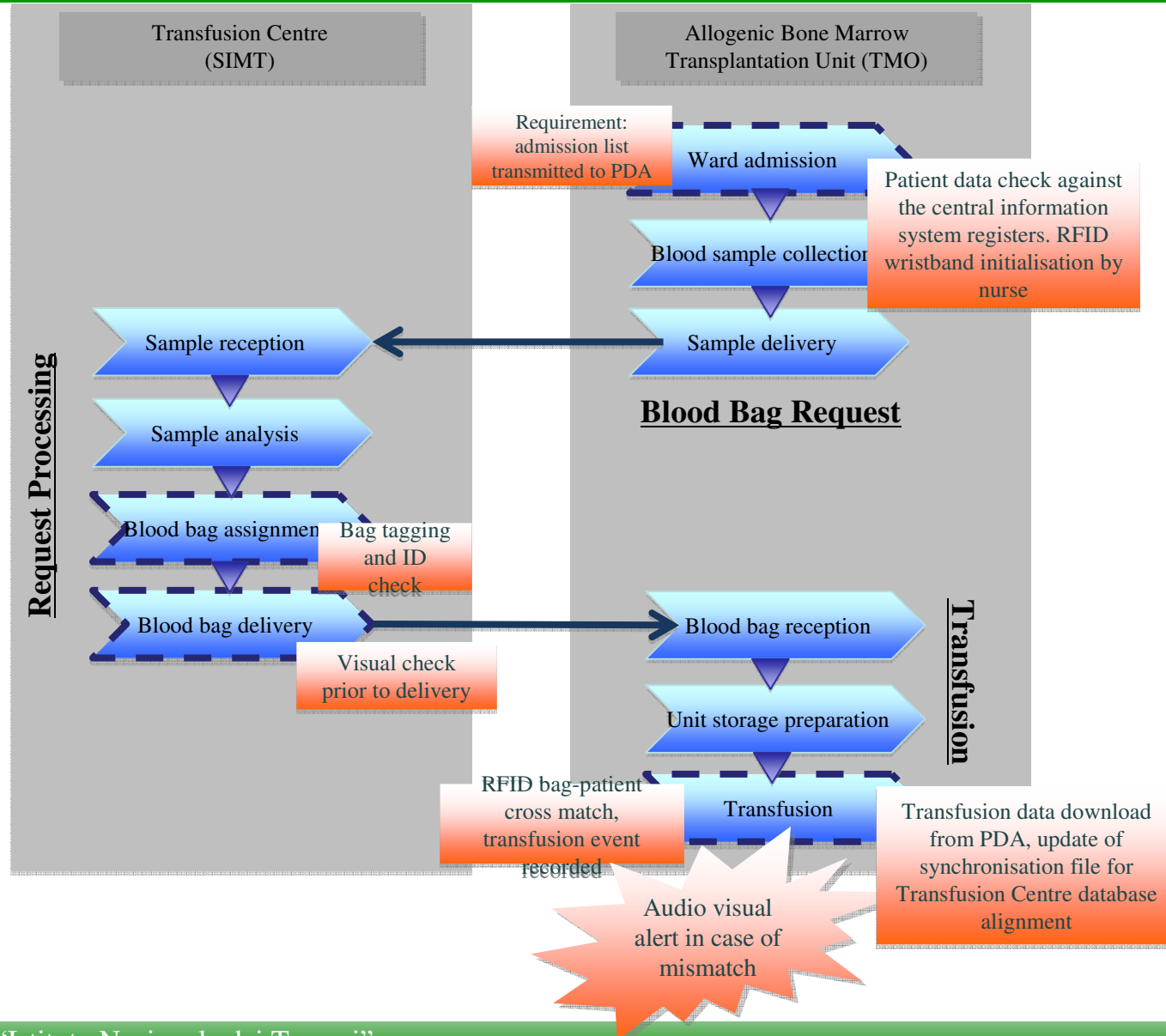
# The reengineered transfusion process



The pilot project started in the early months of 2006 and has been implemented in:

- the Transfusion Centre (SIMT)
- the Allogenic Bone Marrow Transplantation ward (TMO)

# “To be” Transfusion process



# The RFID solution



RFID technology (13.56 MHz)

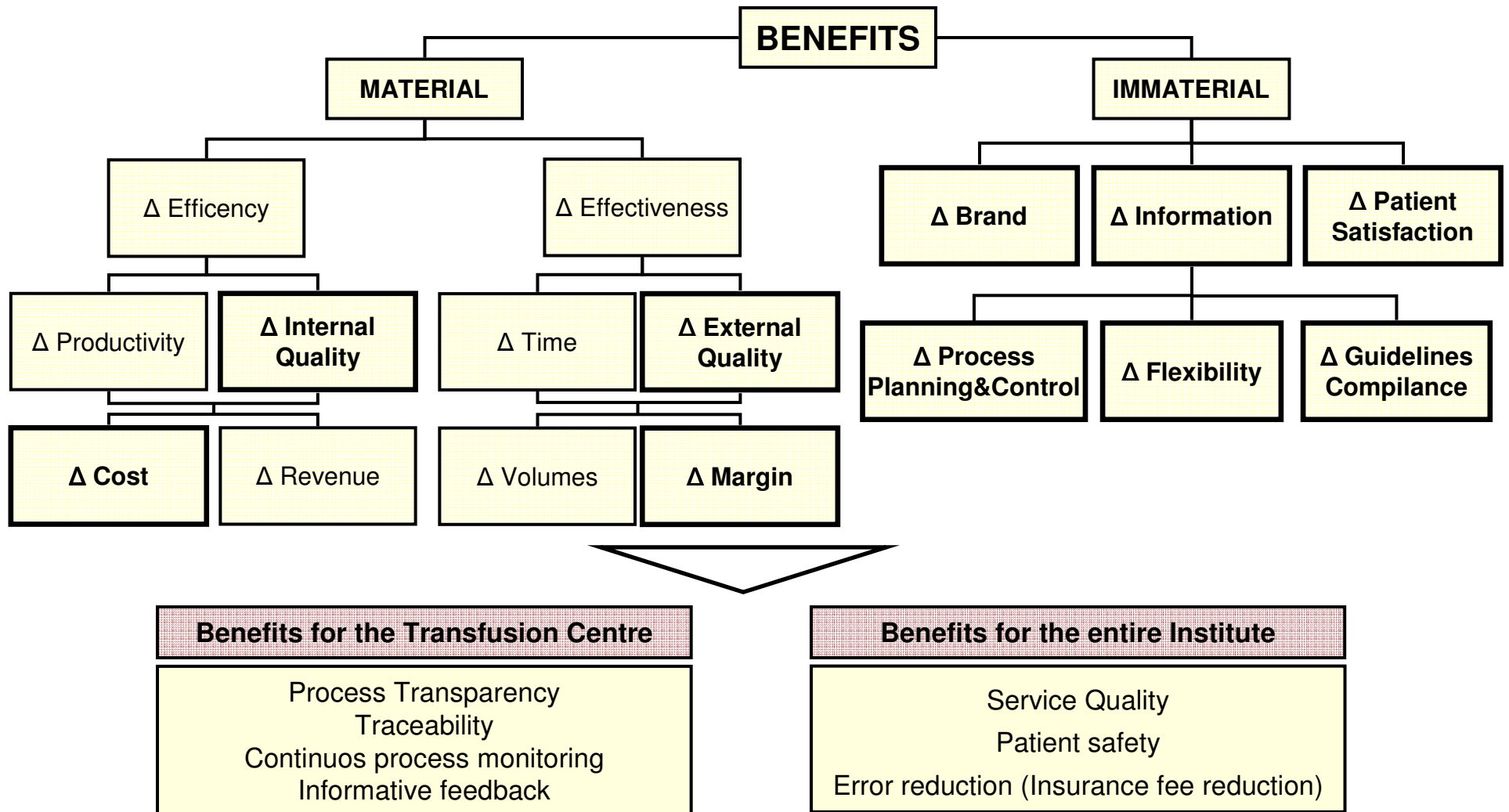
## **SIMT**

- RFID printer
- RFID tags for blood bags

## **TMO**

- 3 HP iPAQ handheld devices equipped with RFID antennae
- Transfusion management application running on PDAs enables:
  - *Patient check-in*
  - *Patient identification*
  - *Self identification*
  - *Blood bag identification*
  - *Bedside cross match*
  - *Disable Rfid tags*
- RFID Patient wristbands and RFID staff cards

# Key Performance Indicators

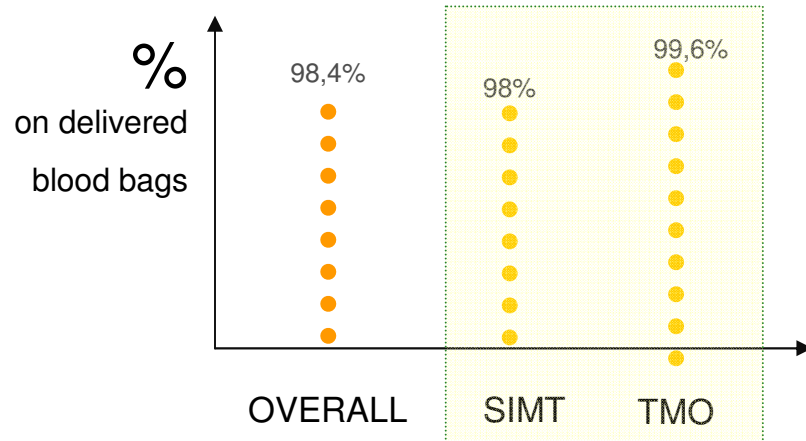


# Key Performance Indicators



**System Usage Rate** **98,4 %**

**SIMT** 98%  
**TMO** 99,6%



- user-friendly application
- step-by-step operational guide
- successful staff training
- proactive staff attitude

\* Data referring to Sept-Oct-Nov 2006 trials

# Key Performance Indicators



- Average value of blood bags supplied by SIMT: more than 1,7 million euro/year
- Average value of blood bags non transfused/returned: 11%
- Average cost per blood bag unit: ~ 200 euro

# Future developments



- Extension of RFId technology to the whole transfusion process and to all Istituto's wards
  - Blood sample tubes collection
  - Blood units supply to other hospitals
- Extension of RFID technology to cells and tissue banks

