The Transition from Cards to Portable Devices and Sensor Networks for Wireless Personalized Health Services

Sensor networks for optimization of blood bag logistics in hospital

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OPAL Health

Gefördert durch das

- OPAL Health – optimized and secure processes through mobile and intelligent monitoring and localisation of assets in hospitals

- funded by the Federal Ministry of Economics and Technology for 3 years and started in second part of 2007

- Aims of the project is to use smart objects, to:

  - Create transparency in logistical activities in a hospital

  - Support activities for further increase in safety and quality

  - Save costs and resources with different types of optimisation

- Wireless sensor networks as generic smart object technology

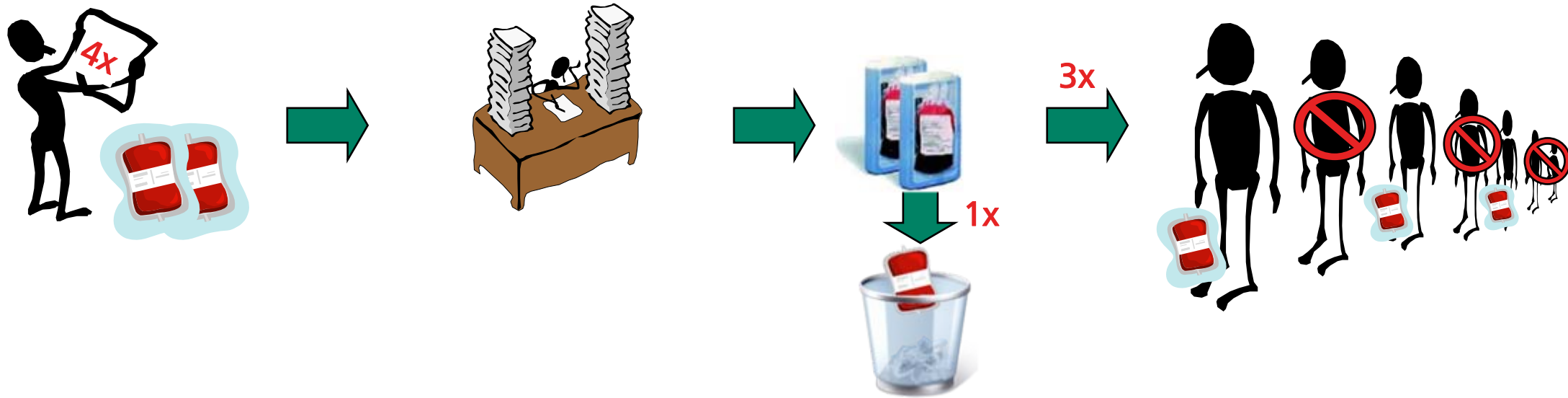- Seamless Integration of the wireless sensor networks in clinical IT-Environment and the activities

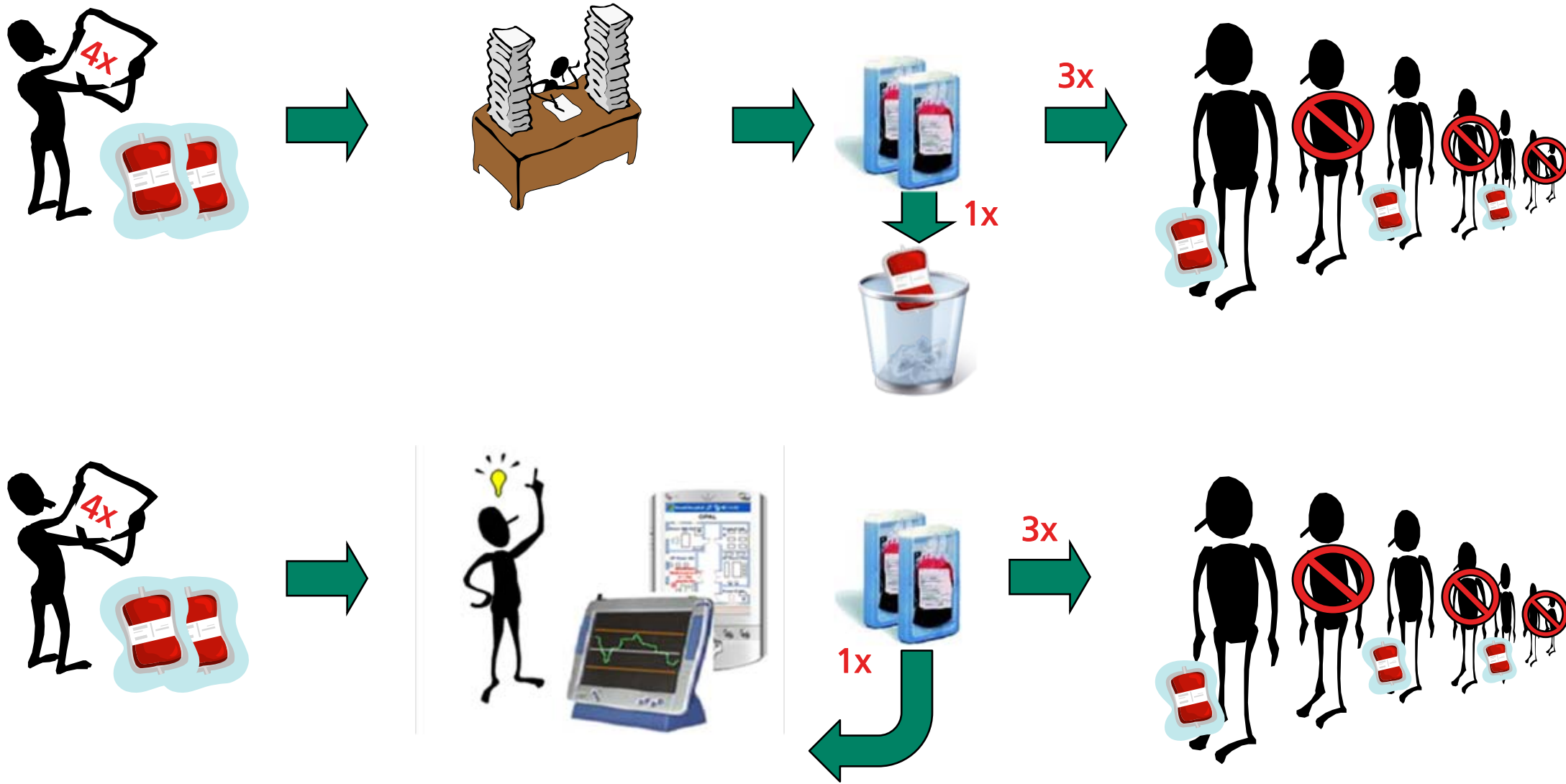# Present situation when blood is needed in a department

Monitor Temperature to be able to better decide if a returned blood bag has to be thrown away or not
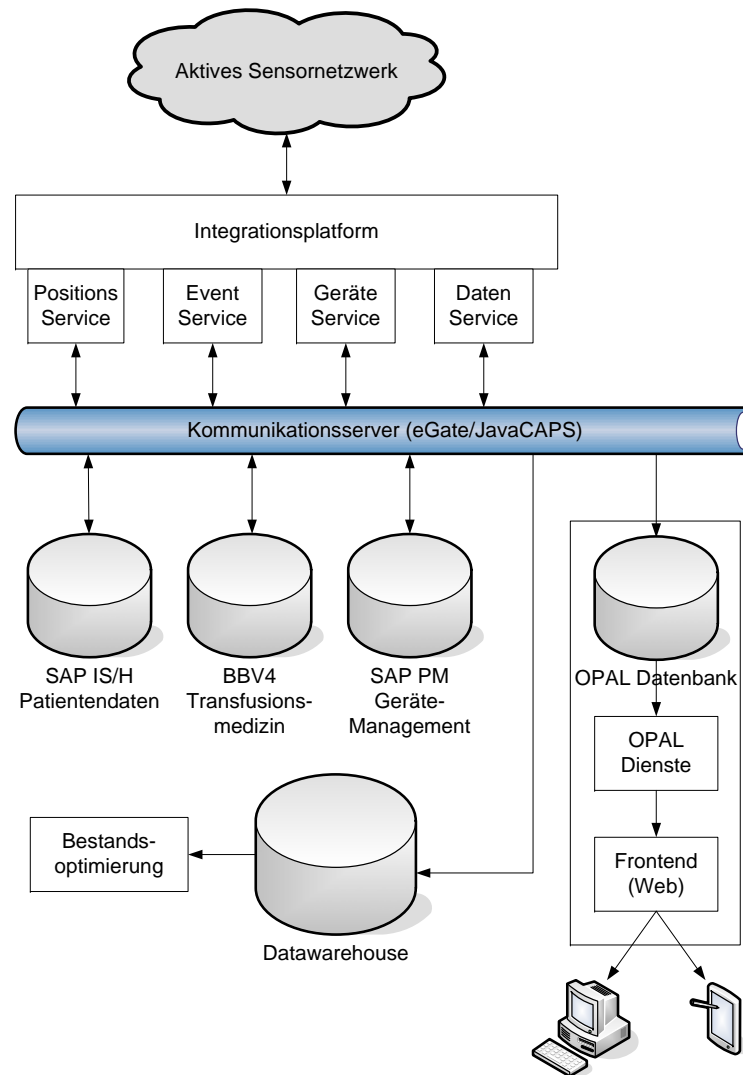
Expected benefits of supporting the blood bag handling in hospitals with Wireless Sensor Networks
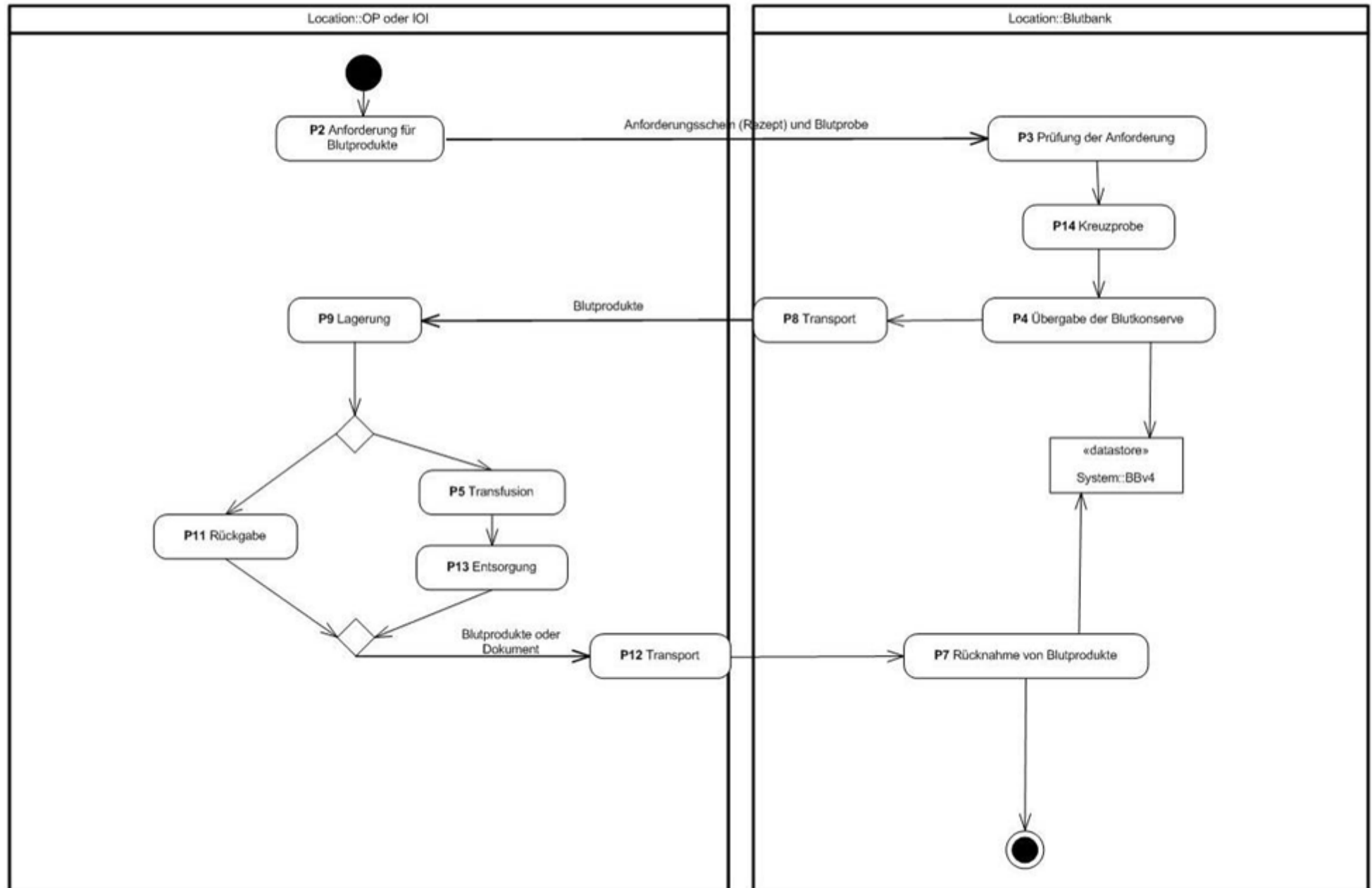

- – further reduce possibility to transfuse blood to the wrong patient

- – further reduce lethality rate through active process quality management

- – avoidance of wasting blood products while holding high quality standards

- – enhance availability of blood products

- – automation or simplification of documentation activities

- – provide data material for medical research

Integration of the wireless sensor networks into the clinical IT-Environment

Aktives Sensornetzwerk

Integrationsplatform

Positions Service | Event Service | Geräte Service | Daten Service

Kommunikationsserver (eGate/JavaCAPS)

SAP IS/H Patientendaten | BBV4 Transfusions-medizin | SAP PM Geräte-Management | OPAL Datenbank

OPAL Dienste

Bestands-optimierung

Datawarehouse

Frontend (Web)

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Integration of the Smart Object into the activities

Technical properties of the Wireless Sensor Node used in the project

- 868 MHz Sender (CC1101)

- Small chip antenna

- Ultra Low Power 16 Bit Microcontroller (MSP430F5437 with 256kByte Flash, 16kByte RAM)

- 48bit unique ID-Chip

- Buzzer

- Red and green LED

- Sensors for Temperature and Movement

- magnetic Reed-Contact

- Additional memory

- Battery (1200mAh)

Acceptancetest in the Operation Room at the Uniklinikum Erlangen

Acceptancetest in the Intensive Care at the Uniklinikum Erlangen

Vision… all logistical activities in hospital are supported by smart objects like Wireless Sensor Networks

- These Technologies should be:

  - Safe and Secure

  - Standardized

  - Cost-effective

  - Accepted by all Stakeholders

  - Easy to Use and seamless integrated in IT-Environment and activities

  - and adaptable to new services and scenarios

- Other Scenarios in Hospitals we are realizing with little to no change to the same generic technology are:

  - Management of mobile medical Devices

  - Tracking and Tracing of Patients to reduce time spent in hospital

Thank you
Any Questions?

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