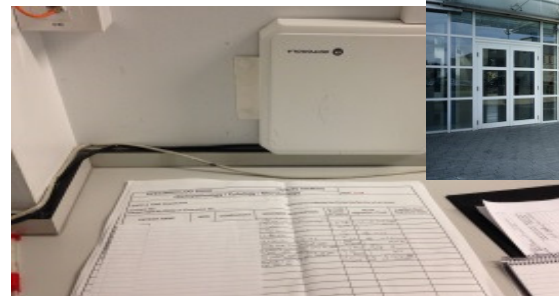


RFID-Enabled Technology for the Transport of Precious Laboratory Samples

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September 2018*

RFID-Enabled Technology for the Transport of Precious Laboratory Samples



Precious sample – patient would be harmed if specimen lost

RFID-enabled Transport of Precious Laboratory Samples

- Timelines: PSTS in Laboratory (Histopathology), Day-Surgery Centre, Main Theatre in 2016
- RFID Technology
 - Tags and Porter ID cards with GS1 Barcode scanning
 - Barcoded scanning Patient ID labels – Cerner EPR
 - Passive RFID readers
 - RFID-Track Aerospace Software Developments, Ireland (ASD)
alert system 45 mins; 90 mins alerts – text message, email and tracking log
- Activity: 16,733 tagged bags transported in 2 years from June 2016 = 24 bags per day

Systems Thinking

- A process is a series of actions or steps taken in order to achieve a particular end (goal)
- A system is a series of processes organised around a shared goal
- Complex Adaptive System - perfect understanding of the individual parts does not automatically convey a perfect understanding of the whole system's behaviour
- A systems-thinking approach
 - ✓ encourages awareness of uncertainty, contextual issues, multiple perspectives
 - ✓ facilitates improvement and innovation through its focus on relationships, information flows and adaptation to internal and external change

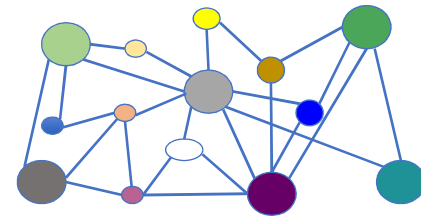


The Health Foundation
Inspiring
Improvement

Evidence scan:

Complex adaptive
systems

August 2010



ST. JAMES'S
HOSPITAL



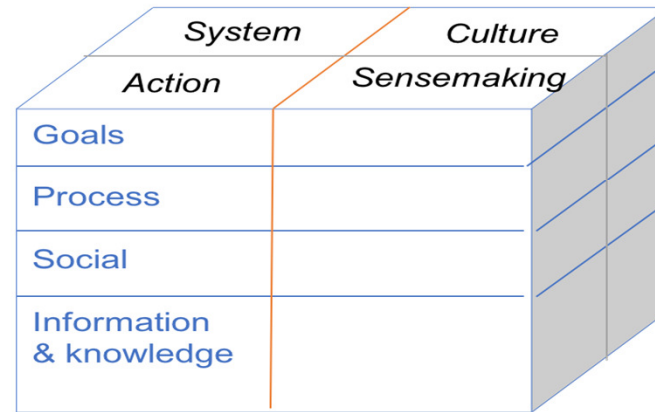


Complexity Science

“Complexity science will not provide a simple fix for the inherent tensions and paradoxes in contemporary health systems, but it will allow us to focus on – and begin to research – uncomfortable knowledge, to negotiate good compromises and to embrace creative, reflexive and collaborative ways of working and thinking”

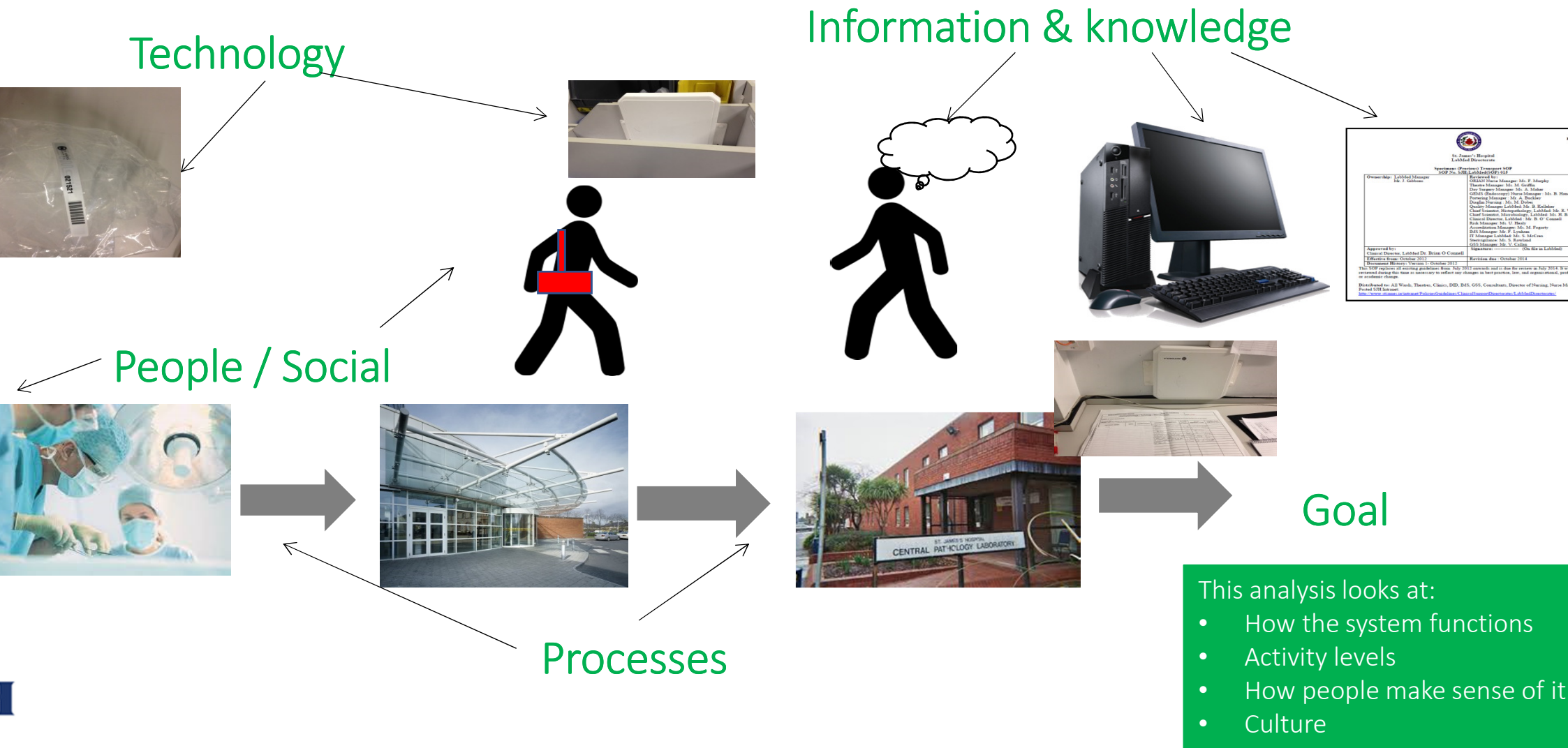
Greenhalgh, T., & Papoutsis, C. (2018). Studying complexity in health services research: desperately seeking an overdue paradigm shift. BMC Medicine, 16(1), 95.

Mc Donald's Socio-Technical Systems Analysis Cube



- a framework and a tool to explore system dimensions and mechanisms
- gather and organise information
- facilitate conversations & build shared understanding
- identify areas to intervene for better risk management and enhanced value

The SJH RFID Precious Specimen Transport System



Research Methodology

A participatory insider action research project with mixed methods data analysis

Data analysis:

- Interviews
- Document review
- Focus group
- RFIDTracker data
- Data analysis using STA Cube
- Workshop of Managers to co-evaluate data and analysis
- Participant feedback analysis
- Researcher and participant syntheses of workshop outputs
- Interview with external service provider

Co-evaluate STA Action Framework to identify areas for improvement

Judging evaluation; constructing the research report



Conclusions



Information, knowledge, sense-making & social system

- The system's importance for patient safety was a shared goal
- Information transfer through the social system
 - Who had what documents
 - Who knew what about the system – explicit and implicit knowledge
 - Dependency on key people for information transfer
 - Interacting only when things went wrong
 - Need a real-time dashboard & an improved audit tool
- Theme of trust – porters felt more trusted because RFID tracking provided visibility of the movement of specimens
- External supplier perspective invaluable – role of managers & early stages



Application of STA Cube and Action Research

- Cube STA and Action Research

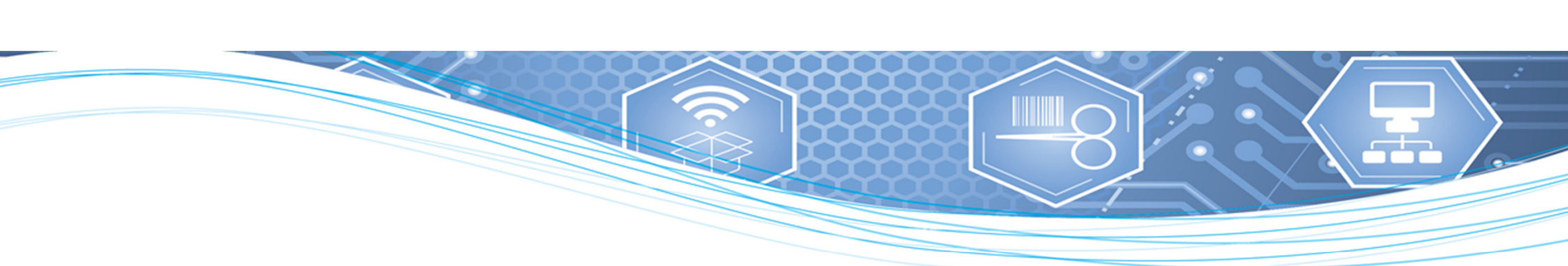
- Realised that the process was implemented but lacked feedback or reflection
 - created opportunities to uncover and organise information
 - create new knowledge about the system
 - see the social system
- intervene in the system e.g. need for an audit tool
- team learning opportunities
- plan further expansion of system
- workshop approach: “Very good for use in other projects I would be involved in”; “Should be mandatory part of all projects”

Healthcare Value

- Value in terms of patient outcomes for costs involved¹
- RFID-specific systems value² achieved by
 - refining operational processes (including communication)
 - extending business boundaries and scope
- Exploring systems value (Mc Donald):
 - Transactional value e.g. process efficiency through dashboard
 - Sustainable value e.g. reflective learning, team-work, relationships
 - Capacity to adapt and innovate e.g. new applications, strategic advantage

1. Porter N Engl J Med. 2010;363(26):2477-81

2. Tzeng, S.-F., Chen, W.-H., & Pai, F.-Y. (2008). Evaluating the business value of RFID: Evidence from five case studies. *International Journal of Production Economics*, 112(2), 601-613



“No other industry has more potential to free up resources from non-value-added and inefficient production practices than health care and no other industry has greater potential to use its resources to add value, promote health and relieve suffering.”



Through the eyes of the workforce – creating joy, meaning and safer health care
Report of the roundtable on Joy and Meaning in Work and Workforce Safety 2013
The Lucian Leape Institute. Boston, MA: National Patient Safety Foundation; 2013.

Available at <https://psnet.ahrq.gov/resources/resource/25832/through-the-eyes-of-the-workforce-creating-joy-meaning-and-safer-health-care>