



Faculty of Design

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System design perspective of healthcare provision in humanitarian aid

Santos, Ana Laura Rodrigues and Wauben, Linda S.G.L.

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System Design Perspective of Healthcare Provision in Humanitarian Aid

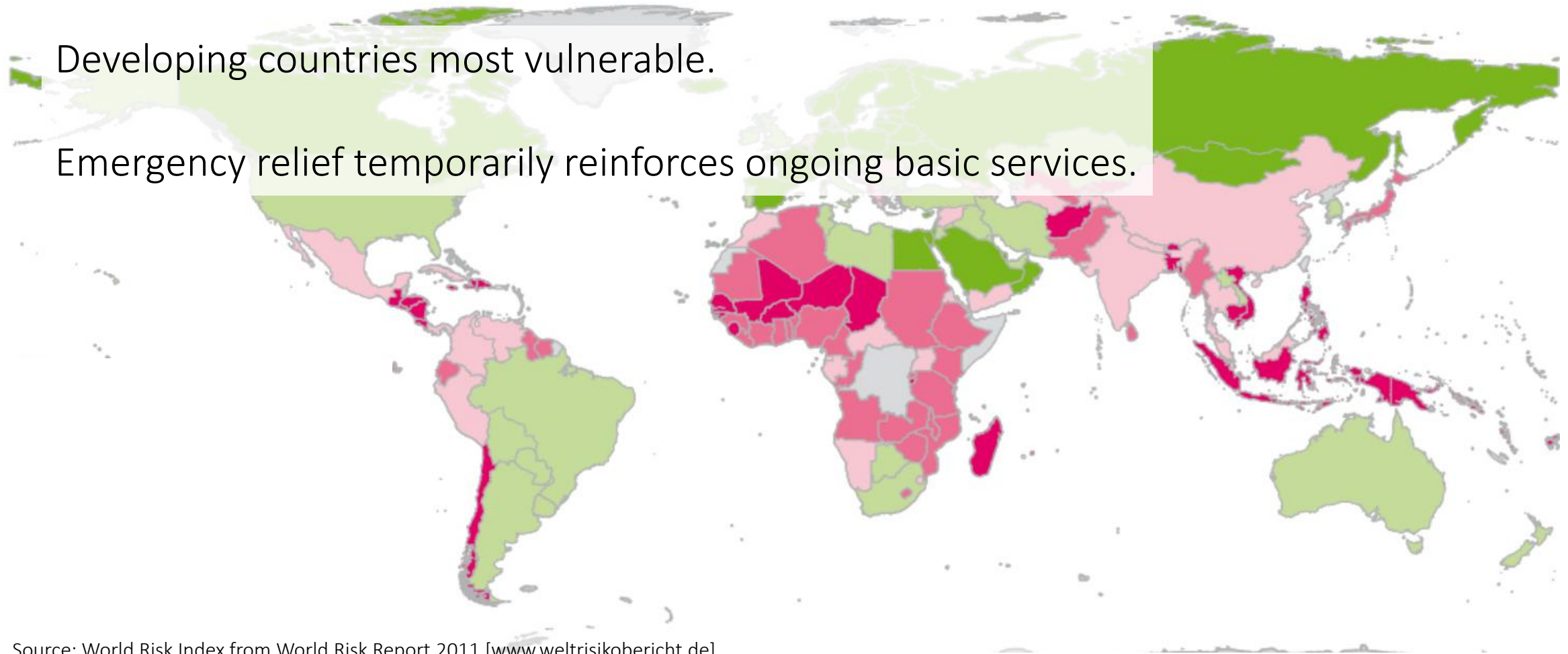
Ana Laura R. Santos

Design for Sustainability, Faculty of Industrial Design Engineering,
Delft University of Technology, Delft, The Netherlands

Linda S.G.L.Wauben

Department of Surgery, Erasmus University Medical Centre,
Rotterdam, The Netherlands

Humanitarian crises



Source: World Risk Index from World Risk Report 2011 [www.weltrisikobericht.de]

Healthcare in emergency relief

Local service overload.

Immediate, limited, complex, extensive, diverse.



Source: Médecins Sans Frontières in Haiti [www.msf.org]

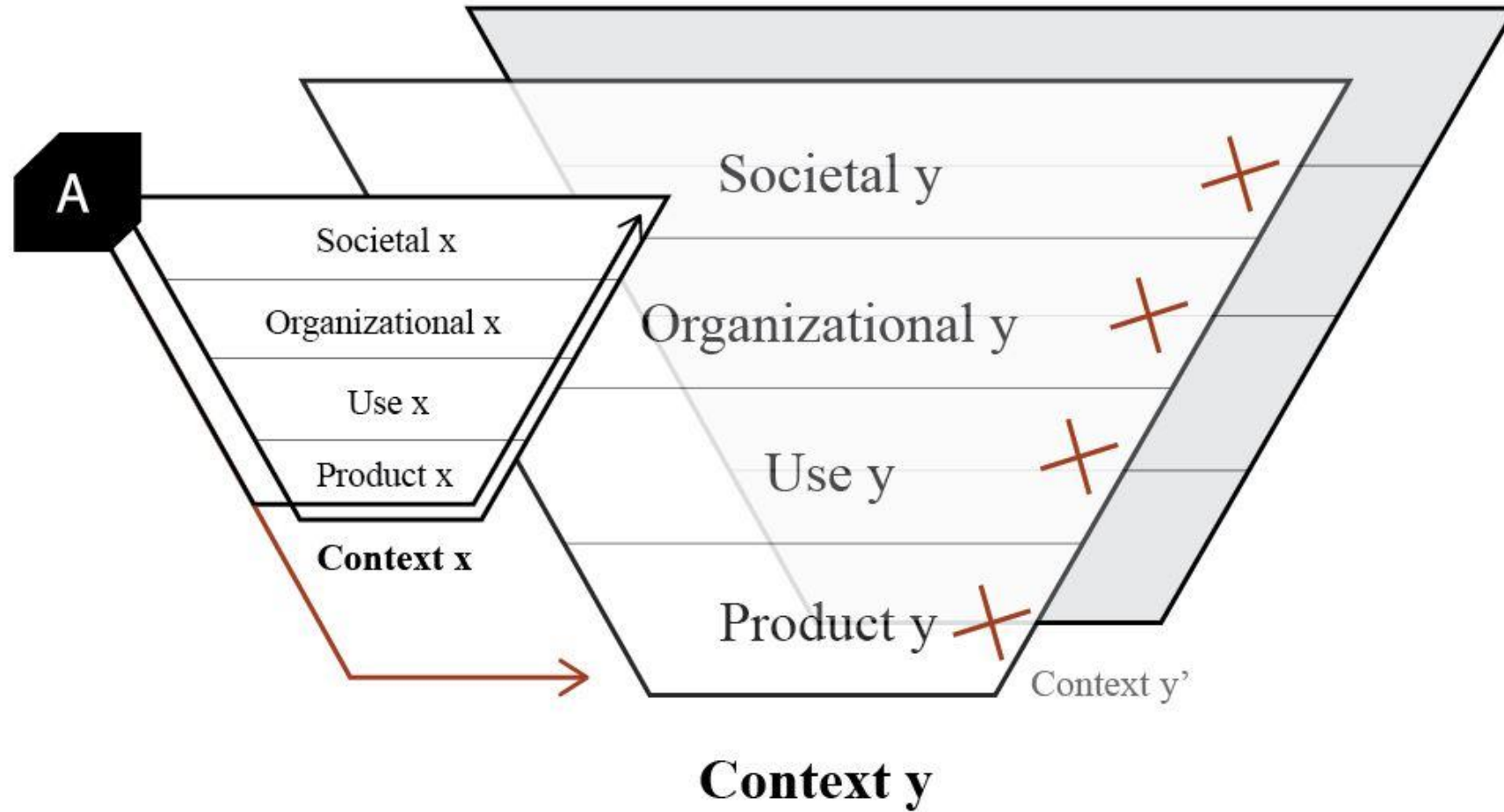
One-side transfer of medical devices

results in a mismatch between medical devices and their context.



Source: Tsunami Indonesia. Nelson Olim, general surgeon from portuguese military

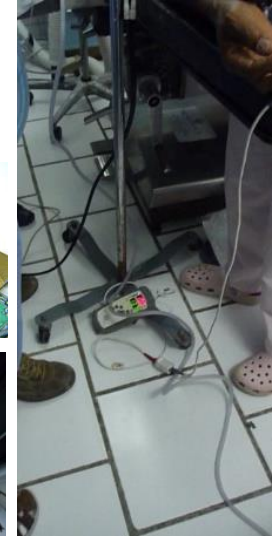
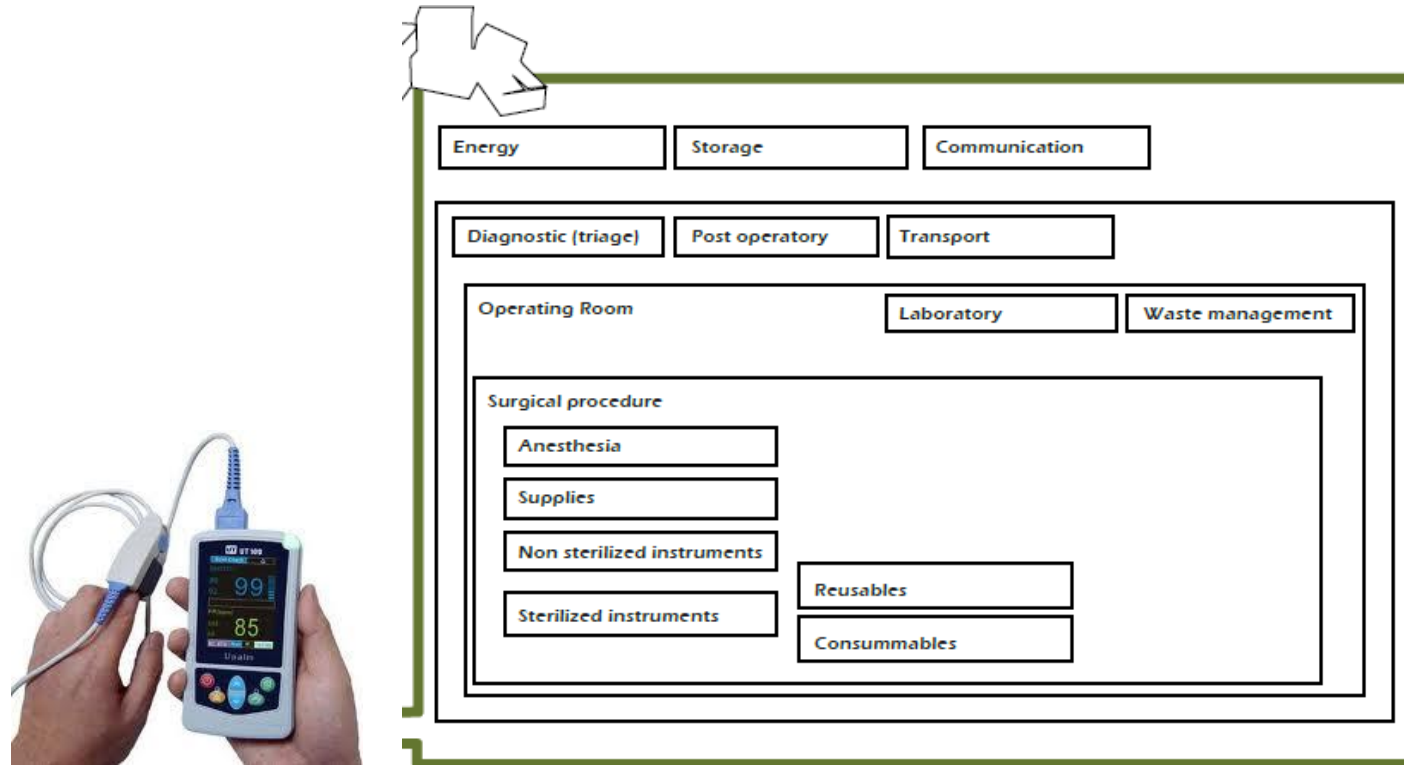
STS approach – theoretical background



Adapted from Multilevel Design model (Joore, 2010)

Source: Joore, P. (2012); Geels, F. W. (2004); Gaziulusoy, I., (2011)

The systemic mismatch



Source: Santos, A.L.R. et al., In Press 'Medical emergency dynamics in disaster-prone countries – implications for medical device design. Int. J. Human Factors and Ergonomics

The systemic mismatch



Source: Ted Talk "Scraps of men do not exist"; HFE issues captured in Haiti (2012) and Indonesia (2012)

The systemic medical device

User-centred (Re)design

Product focus

Materials

Reduced complexity

Reduced functions

Reduced components

Reduced price



Systems design

+ Product-Service-Management focus

+ Facilities

+ Complementary and supportive services

+ Decentralize purchasing

+ Feedback from consumer

+ Integrated/iterative re- and co-design

Humanitarian Organizations as change actors



“Good afternoon..

May I offer you a case full of money?”

“I miss the magic word”

“May I **please** offer you a case full of money?”

Source: Detox Plan for the Aid Industry by Thierry Sanders and Henk van Stokkom (Financieel Dagblad 2009)

Summarizing thoughts

Role of international organizations

Complex coordination and definition of work boundaries

Carry out additional tasks/services

Use medical devices, inadequately sold, donated and/or serviced

Relevant coping mechanisms

Medical devices

Play a relevant role but depend on numerous factors for proper functioning

Throughout lifecycle: from purchase to disposal

Conservative and expertize based industry

Design as part of STS analysis and opportunities for humanitarian innovation

Implications for design at product and process level

The required indepth knowledge lies with users and stakeholder network

Shaping humanitarian innovation

How HFE knowledge should be used to support systems design?

- Should innovation role be given to organizations?
- What conditions can organizations offer to designers?
- What practicalities does this imply for design practice?

How can systemic design make a difference over past experiences in developing countries?

- How can local beneficiaries most effectively be involved?
- Can this transfer be designed to influence the recipient context by offering opportunities for innovation and healthcare improvement?

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Thank you.

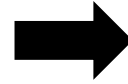
a.l.rodriuessantos@tudelft.nl

Extras

One-side transfer of medical devices

Procurement

Selection criteria
Purchase
Kits



Transport

Logistics
Packaging
Set up locally



Use and servicing

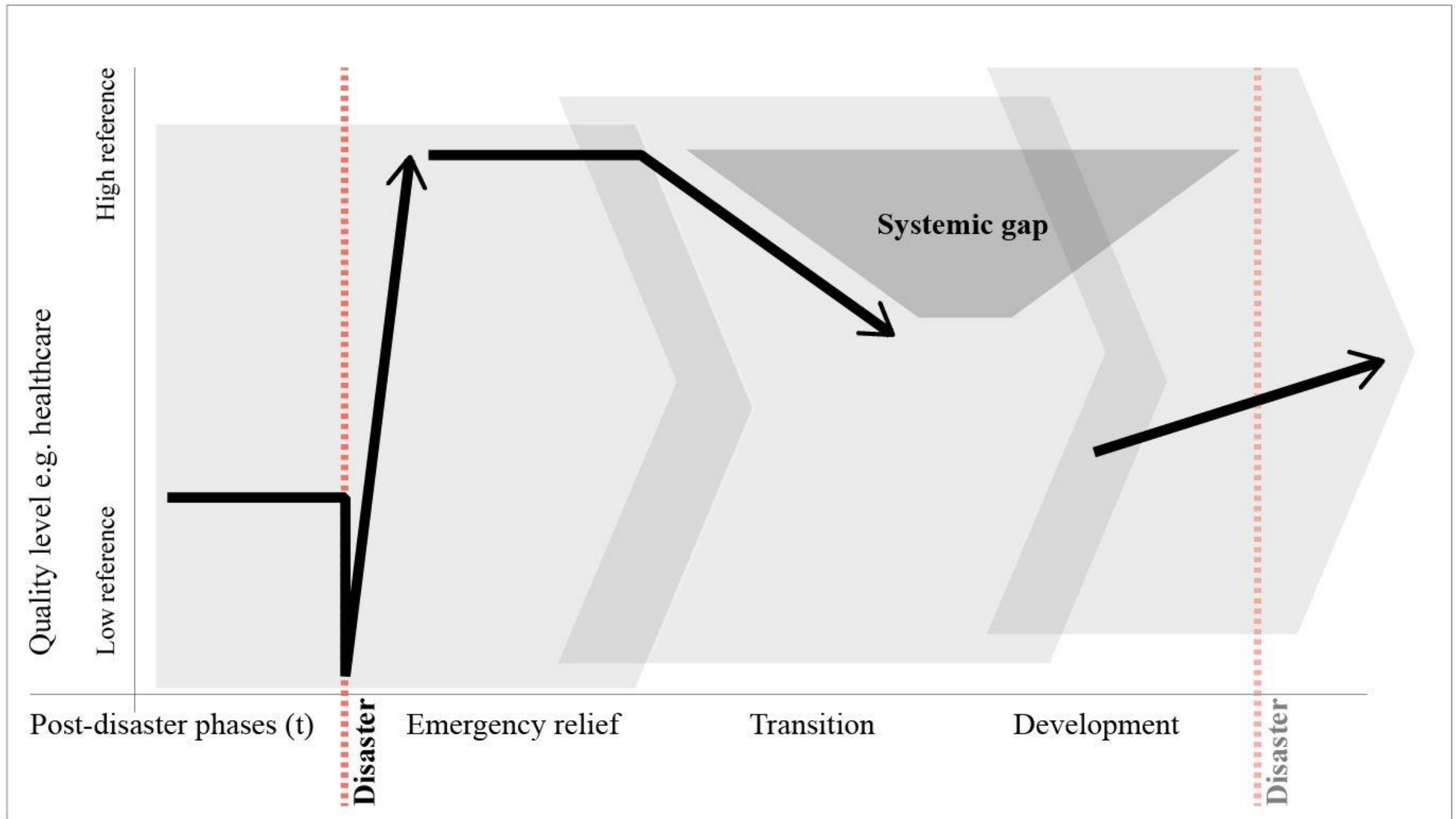
Maintenance
Training
Supply
Disposal



Donation

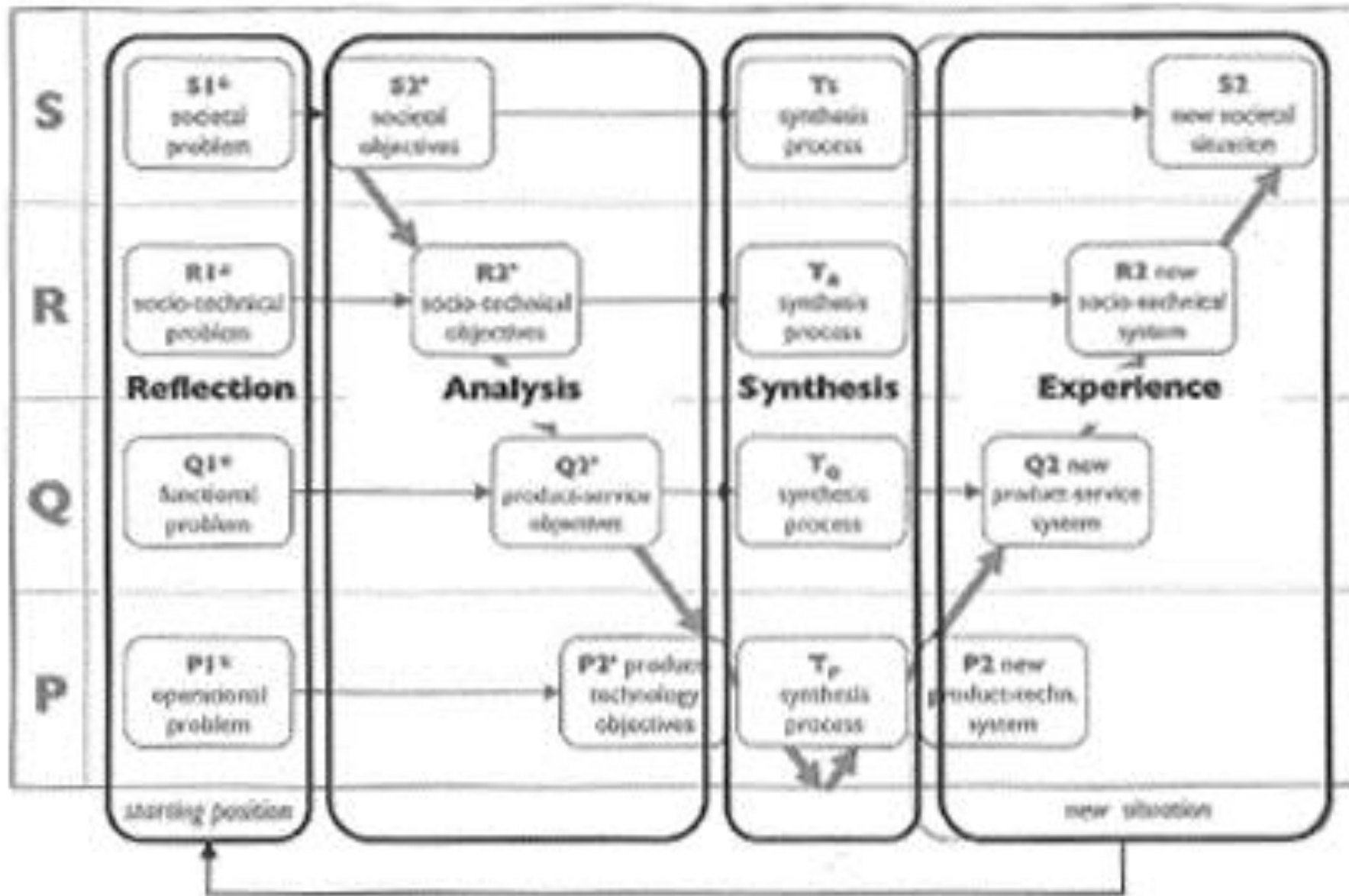
Lotery
Hand-over



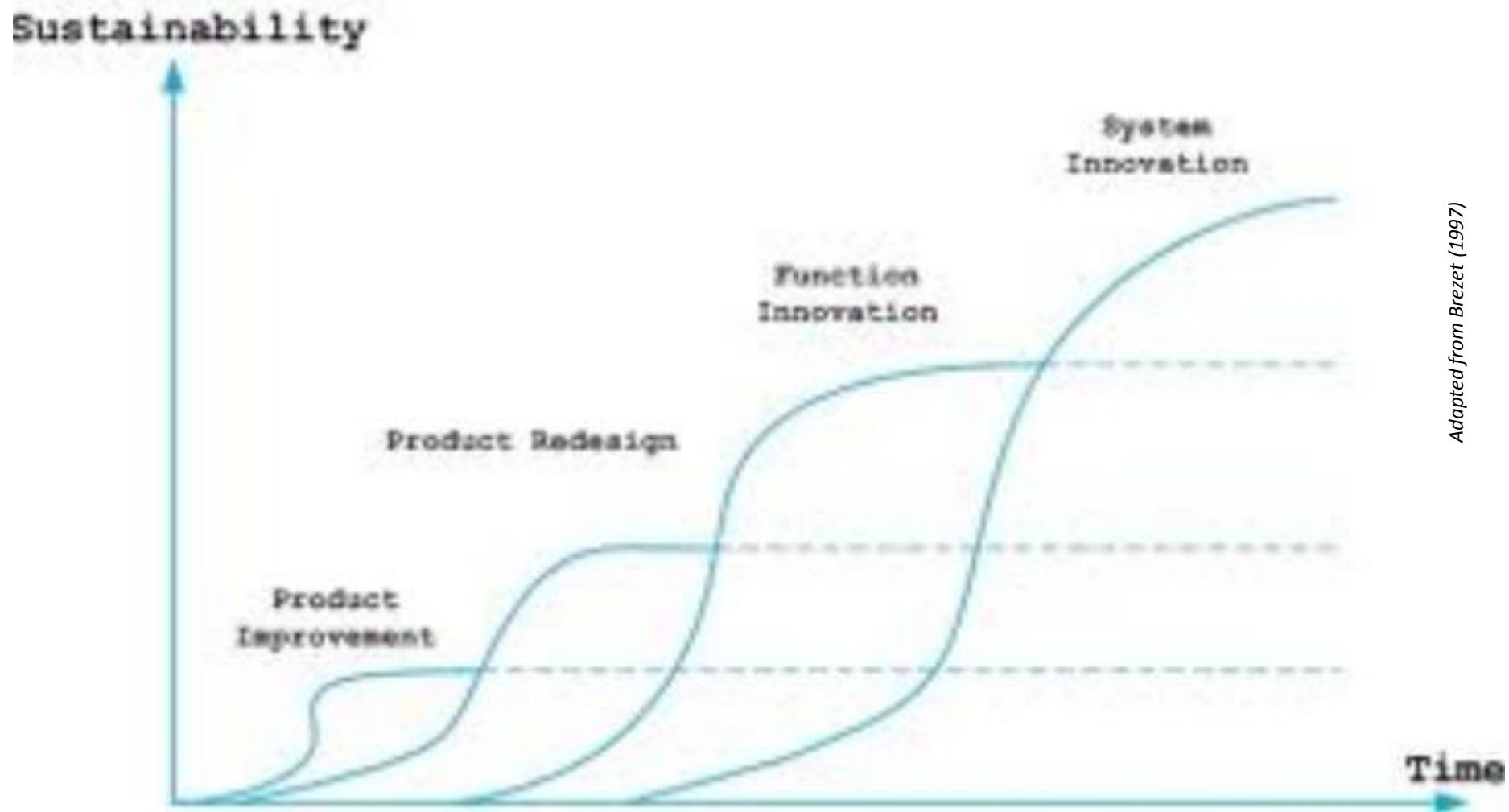


Technology perspective of medical device transfer in humanitarian aid.

Source: Santos, A.B., Capet, J. & Diehl, J.C. (2013) The Value Of Collaborative Design To Address The



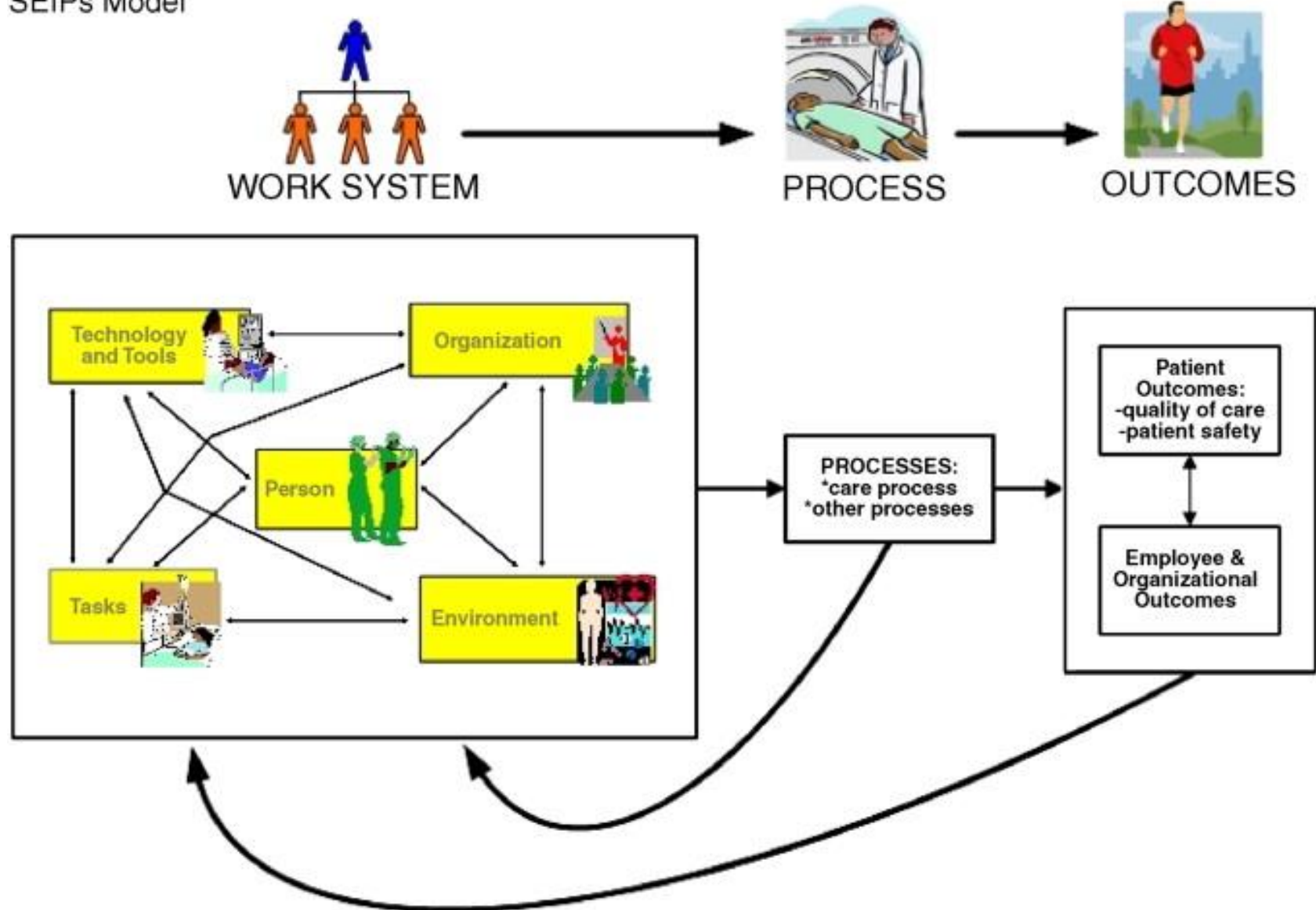
Source: Joore, P., 2010. *New to Improve*, PhD dissertation, Delft University of Technology



Adapted from Brezet (1997)

Source: Brezet, H., 1997. Dynamics in Ecodesign practice. *Industry and Environment*, 20, pp.21–24.

SEIPs Model



Source: Carayon, P., 2007. *Handbook of human factors and ergonomics in health care and patient safety*

