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Designing products and services for challenging societal contexts
Santos, Ana Laura Rodrigues and Da Costa Junior, Jairo and Waub, Linda

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Designing products and services for Challenging Societal Contexts.

Ana Laura Rodrigues Santos, MSc.
Linda S.G.L. Wauben, Dr.
Jairo da Costa Junior, MSc.
Challenging societal contexts | From perspective of products and services

Multi-stakeholder environment
  Partnership between governments, companies, NGO and end users
  Passive participation of end user

Complexity and ambiguity
  Variety of interests within stakeholders network
  Higher than in traditional businesses

Lack of regulations and policies

Low-resource settings
  Poor financial and infrastructural resources
  Dependency in subsidies and donors
  Informal economy
  Adoption of unconventional tasks (product distribution and servicing)

Technology incompatibility
Product Service System | The Concept

The PSS concept consists of a *system of products, services, supporting networks and infrastructure, closely involving final consumers and stakeholders in the value chain and beyond*, which is designed to be: competitive, satisfy customer needs and have a lower environmental impact than traditional business models (Mont, 2002).

Product Service System | System thinking

PSS offers design strategies based on *systemic knowledge* that promote innovation and social, environmental and economic *sustainability*.
About the course | PSS for Complex Societal Contexts

7 weeks, 7 workshops, 7 steps of the PSS design process

- Introductory lecture
- Inspiring lecture
- Hands-on workshop

2 clients, 2 assignments

Humanitarian-PSS: Médecins Sans Frontières (MSF)
Develop a groundbreaking solution for the autoclave business model and a solution that allows the monitoring of medicines throughout the whole supply chain

Energy-PSS: Accord Illumination and Partners (SENAI and NDS/UFPR)
Develop an innovative and sustainable lighting Product Service System for Brazilian urban low-income household
Results | 6 Energy-PSS and 6 Humanitarian-PSS projects

Energy PSS

- Pay-per-use (card) LED-light system
- LED lighting products that empower craftsmen
- Self sufficient solar LED leasing system that enables energy sharing
- Local shop/school of modular LED-light products that empower craftsmen
- Lighting PSS based on local resources
- Modular LED lighting kit for craftsmen

Humanitarian PSS

- Sustainable leasing model of sterilization equipment
- Maintenance lab for medical devices
- A digital sharing platform for cooling boxes
- RFID monitoring system
- Visual communication paper form to create awareness amongst cold chain drivers
- Improved vaccine monitoring device
Analysis | 6 Energy-PSS and 6 Humanitarian-PSS projects
Advantages of system approach when designing for challenging societal contexts

Social
- Think beyond the concept of affordability towards a concept of value creation;
- Consider a broad network of stakeholders and their motivations for change as well as for roles for new stakeholders from parallel industries;
- Promote social integration and cohesion;
- Empower the (local) end-user through education, employment and leadership;
- Promote knowledge exchange and communication for improved awareness and consumption;

Economic
- Increase competitiveness and innovation;
- Promote sharing of responsibilities and gains amongst stakeholders;
- Consider positive macroeconomic impact;
- Design of affordable solutions;
- Offer added value for business;
- Design of scalable solutions with a long-term business perspective;

Environmental
- Consider technological and organizational dependencies of products;
- Optimize lifecycle of products and services - from manufacturing to disposal;
- Valorise local material resources;
- Reduce dependency on material resources and environmental footprint;
- Promote awareness and choice of environmentally-friendly resources;
Advantages of system approach when designing for challenging societal contexts

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Celsius | Visual communication to create awareness amongst cold chain drivers
Power Cube | Local Accord schools that empower craftsmen
Advantages of system approach when designing for challenging societal contexts

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- **Promote sharing of responsibilities and gains amongst stakeholders**;
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Dream Steam | Sustainable leasing model of sterilization equipment

WE WANT TO CREATE AN EXPERIMENT THAT SENSITIZES STERIFLOW FOR THEIR TASK AND responsibility to create an online platform.

With a budget of 100 €, a board game has to be designed that puts Steriflow employees into MSF’s and the local doctors’ shoes in order to foster understanding and open-mindedness. It is a fun way to understand each other and mentally prepare Steriflow for the collaboration.

Goal
- make problems tangible
- Sensitize Steriflow employees
- create shared tacit knowledge
- prepare Steriflow mentally for the creation of platform
- create mutual understanding

how?
- dream Steam creates a fun game to transfer important messages and knowledge.
- game also includes financial aspects and encourages the user to reflect critically
- Through role play, put Steriflow employees in the position of MSF and the local doctors.
- Empathy and sympathy is created

Requirements
- 100 € to build and test
- materials and some time to develop the game
- team dream Steam to do all of the above
LED-kit | Modular LED-light kit for craftsmen

Challenge the future
Advantages of system approach when designing for challenging societal contexts

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Zazu | Cold chain control

- Feedback to stakeholders
  - Box saves data and sends it to the Zazu platform when a connection can be established
- Battery is charged by thermoelectric gen. and used to power the data communication
- Thermoelectric generator
- RFID readers for info about medicines
- RFID tags on the medicines
**AcCard** | Pay-per-use (card) LED-light system

Counter with acCARD
Lights have a connection with the counter,
lights can be turned off all at once! You won't forget it!

Powerfull LED

On/Off light

Counting amount of light of all bulbs through a wire

Pay the amount of light that you used at a local retailer with your acCARD

Counter (how much light have I already used?)
Lessons learnt | Working in Process

BE AWARE
- Dependency on donors or subsidies determines priorities
- Diversity of contexts
- Poor diversity of available skills/expertise
- Ideology-motivated decision making

ENSURE
- Motivation of each stakeholder is addressed
- And local end-user practices are respected

COMMUNICATE
- Complexity with hands-on processes and visualizations
- Involve stakeholders in building shared mental models

FAMILIARIZE
- Stakeholders with PSS
- Tackle lack of organizational knowledge

MANAGE
- Expectation regarding results and stakeholders involvement
- Prepare universities to offer an experimental space
- And support the follow-up of projects
Q&A | Thank you