SERVICE DESIGN FOR PRO-ENVIRONMENTAL BEHAVIOUR IN THE BUILT ENVIRONMENT (KTH LIVE-IN-LAB CASE STUDY)

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A central problem of our minds is that we know so much in theory about how we should behave, but engage so little with our knowledge in our day-to-day conduct.

Akrasia - ‘weakness of will’ (Aristotle)
RESEARCH SCOPE

HYPOTHESIS:
End-user’s oriented services, tailored with the pro-environmental behaviour modelling (PEB) will systematically increase the motivation of the users to behave in the more pro-environmental way.

GOAL:
This research project aims to create an end-user oriented service design process for built environment context, which will include the end-users’ needs, stakeholders’ expectations and PEB integrated models.
FRAMEWORK: SHARED LAYERS APPROACH

- Human behaviours & HAS
- End-user's Products & Services
- Home Products & Services
- Space plan
- Building services
- Skin
- Structure
- Site

Site Structure Skin Building services Space plan Home Products & Services End-user's Products & Services Human behaviours & HAS
# FRAMEWORK: ANALYTICAL STRUCTURE

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<th>TYPE OF THE LAYER</th>
<th>STAKEHOLDERS</th>
<th>TYPE OF INTERACTIONS</th>
<th>BEHAVIORAL PATTERNS</th>
<th>POTENTIAL ENERGY SAVINGS</th>
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METHODOLOGY: SERVICE DEVELOPMENT & PEB MODELLING

- Theoretical framework
  - KPIs structure
  - Stakeholders needs
  - Users needs + HAS
  - Service concepts

- Service layer + PEB scenario modelling

- Service analytics
  - SOA pilot
  - UX / UI test
  - Service blueprint

- Scaling up strategy

- Service engineering
- Service design
CASE STUDY

KTH LIVE-IN-LAB
KTH Live-in Lab is a platform of multiple testbeds for accelerating innovation rates in the construction and real-estate sectors.
TOOLKIT: HAS MAP + SERVICE BLUEPRINT

Human Activity System (HAS) is used to model the daily activities of the end-users and personal interaction with Building System. The concept based on the Human-Activities Recognition (HAR) and Human-System Interaction theories.

The service blueprint is an applied process chart which shows the service delivery process from the customer's perspective. The service blueprint has become one of the most widely used tools to manage service operations, service design and service positioning.
END-USERS’ vs STAKEHOLDERS’ NEEDS

**End-users’ key needs:**
1. Social spaces / more activity-based spaces
2. Diversified Working spaces (silent | groups)
3. Productivity enablers
4. Comfort enablers
5. Sustainability informativeness

**Stakeholder’s key needs:**
1. Space optimisation
2. Clear value proposition
3. Data availability for decision making
4. New business opportunities
5. Scaleability
END-USER SERVICES OFFERINGS

**SUSTAINABLE EVERYDAY FOOD**
- Sustainable food insights
- Inspiration
- Healthy habits constructor
- Smart planner
- Community
- Kitchen insights

**PERSONAL WELLBEING**
- Productivity Management
- Thermal comfort
- Audio-visual Environments
- Habit maker
- Sleeping & Relaxing
- Community

**SPACE AS A SERVICE**
- Space Optimiser
- ABS On demand
- POI Advance mapping
- Deep Work Space
- Relaxation Space
- Micro-space Booking
- Activity Buddy

Electrolux

Schneider Electric

ÖURA

AKADEMISKA HUS VASAKRONAN

- 7-10% electricity reduction
- 5-7% water usage reduction
- 5-7% electricity reduction
- 10-15% UX increase
- Ongoing evaluation
“We must design for the way people behave, not for how we would wish them to behave.”

— Donald A. Norman | Living With Complexity