DESIGN THINKING AND COLLABORATION IN LIVING LABS

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CONTENT

- INTRODUCTION
- THE CONCEPT OF LIVING LAB
- KEY CONCEPTS AND PRINCIPLES OF DESIGN THINKING
- DESIGN THINKING MODELS AND FRAMEWORKS
- DESIGN THINKING PROCESS AND STEPS MODELS
- WORKSHOP IN DESIGN THINKING
- DISCUSSION

30 October 2017
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HAAGA-HELIA UNIVERSITY OF APPLIED SCIENCES

Education & Research
Business Development
HAAGA-HELIA NUTSHELL

- 11,000 Students, 647 staff members
- Privately Owned
- 5 campuses:
  - Helsinki: Pasila, Haaga, Malmi
  - Porvoo
  - Vierumäki
- 1,000 International degree students
- 200 partner universities
- Over 350 exchange students yearly

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THE CONCEPT OF LIVING LAB

- A user-centered
- Open-innovation ecosystem
- In a context (city, region..)
- Integrating concurrent research and innovation processes
THE CONCEPT OF LIVING LAB

- Within a public-private-people
- Involves educational institutions
- Systematic user co-creation approach
- Integrating Res & Innovation Processes
INTEGRATIONAL APPROACH

- Co-creation and Exploration
- Experimentation
- Evaluation of innovative ideas,
- Evaluation of scenarios
- Evaluation of concepts and related technologies in real life
LIVING LAB AND INTEGRATION

- Cases involve user communities
- Not only observed subjects
- Also as a source of creation
Stakeholders

Concurrently consider both (the global) performance of a product or service

May assess the potential for a product /or Services to be adopted by users.
### LIVING LAB AND INTERACTION

**DEVELOPERS - FACILITATORS**
- Higher Educ. Institutions
- Research Institutions
- Development Centers
- Development Agencies
- Regional Development Centers

**OTHER STAKEHOLDERS**
- Private Companies
- Public Companies
- End Users - Customers
- Institutional Actors - GVT
- Non governmental actors
- Community

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Design thinking and Living Labs

[Image of stakeholders diagram]
city or region as a Living Lab:
• For market creating innovation
• Faster market access, renewing industries and
• To attract needed Finances
• Intellectual capital

COLLABORATIVE APPROACH

Mediator team as an enabler:
- facilitating
- brokering
- bridging
- curating
- interpreting
- organizing
- messaging
- reflecting...

Citizens Villages

3rd sector

Users-customers

Businesses

Public Sector:

Finance:
- public and private

Responsible for
- Economic Development
- Public Procurement

Academia-
- Educational Institutions

Design thinking and Living Labs
DESIGN THINKING METHODOLOGY
WHAT IS DESIGN THINKING?

✓ A Cognitive Problem-Solving Process

✓ Origins = Edison and other inventors

✓ More recently:

Design School at Stanford University
AS A METHODOLOGY

✓ Encourages creative consideration of a wide array of innovative solutions

✓ Can be applied to any field, including higher education

→ Challenges from the point of view of the end user.
SOME FRAMEWORKS IN DESIGN

1. Value Proposition Map
2. Business Model Canvas
3. Customer Journey Map
4. Five Whys
5. Five Steps in Design Thinking Model
6. Causal framework
Gain Creators

Pain Relievers

Products & Services

Gains

Pains

Customer Jobs

What do they value?

Who are your customers?

How does your product/service help the customer?

What kind of problems do they have?

Design thinking and Living Labs

10/30/2017
Key partners

Who do you need to work with? Your networks

Key activities

What do YOU do to create the value?

Value Proposition

Copy/paste me to wherever needed

Customer Relationships

Ways to find new customers and keeping old ones

Customer Segments

A specification of your target groups

Key resources

Your most important resources in creating the VP

Cost structure

The main costs, where do you spend money?

Revenue streams

What are they paying for, how does the money come in?

Design thinking and Living Labs

10/30/2017
Customer Journey Mapping is a method of documenting and visualizing the experiences the customers have with your organization with the intention of improving these interactions.

**Customer Journey Mapping**

<table>
<thead>
<tr>
<th>Activity Phase</th>
<th>Enter Starbucks</th>
<th>Find Seat</th>
<th>Buy Coffee</th>
<th>Wait for Coffee</th>
<th>Drink Coffee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Actions</td>
<td>Look at café surroundings</td>
<td>Walk towards counter</td>
<td>Queue at the counter to be served</td>
<td>Wait at the counter</td>
<td>Seat at the table</td>
</tr>
<tr>
<td>Touchpoints</td>
<td>Entrance / Posters / Signages</td>
<td>Café space</td>
<td>Ordering Counter / Wall Menu Display</td>
<td>Collection Counter</td>
<td>Seat</td>
</tr>
<tr>
<td>Thinking</td>
<td>Am I entering the right place?</td>
<td>Can I find seats?</td>
<td>Which coffee do I want?</td>
<td>How long do I have to wait?</td>
<td>Is the seat taken?</td>
</tr>
<tr>
<td>Feeling</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Backend Processes</td>
<td></td>
<td></td>
<td>Payment process (cash / membership card / mobile app)</td>
<td>Brew the coffee</td>
<td>Clearing the tables</td>
</tr>
</tbody>
</table>
Overnight Hotel Stay

CUSTOMER PHYSICAL EVIDENCE

Hotel Exterior Parking
Cart for Bags
Desk Registration
Hallways Papers
Lobby Lobby
Key

Arrive at Hotel
Give Bags to Bellperson
Check in
Go to Room
Receive Bags
Sleep Shower
Call Room Service
Receive Food
Eat
Check out and Leave

CONTACT PERSON
(On Stage)

Greet and Take Bags
Process Registration
Deliver Bags

Take Bags to Room

SUPPORT PROCESS
(Back Stage)

Registration System

Take Food Order
Prepare Food

Registration System

Bill
Desk
Lobby
Hotel Exterior Parking
Building a Service Blueprint

Step 1
Identify the process to be blueprinted.

Step 2
Identify the customer or customer segment.

Step 3
Map the process from the customer’s point of view.

Step 4
Map contact employee actions, on stage and backstage.

Step 5
Link customer and contact person activities to needed support functions.

Step 6
Add evidence of service at each customer action step.

Stage 1
Inquiry Stage

Stage 2
Reservation system

Stage 3
Boarding Stage

Stage 4
Journey Stage

Stage 5
Arrival at the Destination
JOURNEY STAGE

Physical evidence
- Railway stations and Tone of the representative
- Tone of Persons and passing of trains

Customer
- Passengers at the station waiting for train
- Luggage
- Arrival of the station and hires cooie
- Check PNR status
- Board the train
- Journey start
- Gets Ticket checked
- Receives Food and facilties
- Arrives at destination

Contact (Visible)
- Gives Required info.
- Current route situation
- Take the Bags to the boogie
- Ticket checker checked ticket
- Deliver food and bedding
- Prepare food and clean the bed

Invisible Process
- Database and GPS
- Preparation of list and putting at required places
- Driver starts the train
- Rail traffic operator
- Provide with list of passengers and other info
- Prepare with food and clean the bed

Invisible Process
- Noise of the trains, tracks and signals
- Seats, toilets, windows, cleanliness
- Ticket checker uniform, list of other passengers
- Food, pillows & sheets
- Food, pillows & sheets
- Tea stall, Announcements of trains
The Five Whys is an iterative interrogative technique used to determine the root cause of a problem by repeating the question “Why?”

<table>
<thead>
<tr>
<th>Why?</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why is there oil on the floor?</td>
<td>Oil leaks from the cylinder rod when activated.</td>
</tr>
<tr>
<td>Why did oil leak?</td>
<td>The O-ring was cut.</td>
</tr>
<tr>
<td>Why was the O-ring cut?</td>
<td>The rod was flawed.</td>
</tr>
<tr>
<td>Why was the rod flawed?</td>
<td>Dirt in the oil abrades the rod.</td>
</tr>
<tr>
<td>Why did dirt get in the oil?</td>
<td>There are holes and gaps on the upper plate of the tank.</td>
</tr>
</tbody>
</table>

Root Cause
DESIGN THINKING AS COLLABORATIVE METHODOLOGY
DESIGN THINKING - 5 STEPS MODEL

1. EMPATHY
2. DEFINE
3. IDEATE
4. PROTOTYPE
5. TEST
LEARN ABOUT THE USERS

LEARN ABOUT THE AUDIENCE FOR WHOM YOU ARE CREATING SOLUTION

1. EMPATHIZE

WHO ARE THE USERS? WHAT MATTERS for them

METHOD: OBSERVATION

- Out of comfort zones
- Go to real world
- Data in several format
- Video, Photos etc.
- Be creative at presenting
- Insights

Base line Assessment

10/30/2017
An Empathy Map is a tool to help you synthesize your observations about your customer segment and draw out unexpected insights.

**Empathy Map**

- **THINK & FEEL?**
  - What really counts
  - Major preoccupations
  - Worries and aspirations

- **HEAR?**
  - What friends say
  - What boss says
  - What influencers say

- **SEE?**
  - Environment
  - Friends
  - What the market offers

- **SAY & DO?**
  - Attitude in public
  - Appearance
  - Behavior towards others

- **PAIN**
  - Fears
  - Frustrations
  - Obstacles

- **GAIN**
  - Wants/Needs
  - Measures of success
  - Prestige

Source: XPLANE

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Description of the components of an Empathy Map

**Empathy Map**

**WHAT DOES SHE SEE?**
- Describe what the customer sees in her environment
  - What does it look like?
  - Who surrounds her?
  - Who are her friends?
  - What types of offers is she exposed to daily (as opposed to all market offers?)
  - What problems does she encounter?

**WHAT DOES SHE HEAR?**
- Describe how the environment influences the customer
  - What do her friends say?
  - Who really influences her, and how?
  - Which media channels are influential?

**WHAT DOES SHE REALLY THINK & FEEL?**
- Try to sketch out what goes on in your customer’s mind
  - What is really important to her (which she might not say publicly)?
  - Imagine her emotions. What moves her?
  - What might keep her up at night?
  - Try describing her dreams and aspirations
CREATION OF A POINT OF VIEW (POV)

1. DEFINE

WHAT ARE THEIR NEEDS?

2. CREATE POINT OF VIEW

USER´S NEEDS INSIGHTS

- STRESS ON FOCUS
- FEEDBACK ON POV
- STRIVE FOR
- CONCISENESS
- FOCUS ON ONE NEED

FORMULATION

[USERS ]
Needs to
[USER´S NEED]
Because
[SURPRISING INSIGHTS]

Design thinking and Living Labs
IDEATION

3. IDEATE

BRAINSTORMING
CREATE IDEAS

- SUMMARIZE
- CATEGORIZE
- MAKE ANALYSIS
- COME UP WITH
- CREATIVE IDEAS
- BASED ON POV
- PROPOSE
- SOLUTIONS

CREATIVE IDEAS

AS MANY IDEAS POSSIBLE

BRAINSTORMING
TECHNIQUES
GO CRAZY
ENVIRONMENT
INTERVENE
ANALYZE TEAM
DYNAMICS
4. PROTOTYPE

- MAKE SEVERAL
- PROTOTYPES
- USE SIMPLE
- MATERIAL

SHOW CASE

- SELECTION
- PROCESS
- KEEP FOCUS
- ELIMINATE
- IDEAS
- RELEVANT

BUILD PRODUCTS OR SERVICES

ASK FOR FEEDBACK FROM ACTORS
5. TESTING

- WHAT WORKED
- WHAT DID NOT
- CHANGES
- IMPROVEMENTS

Bring Customers Back To see the results

Stress on importance
Ask for constructive Feedback
Ask for iteration

ORIGINAL USERS

SHARING

IDEA TESTING
<table>
<thead>
<tr>
<th></th>
<th>Interests</th>
<th>Potential project impact</th>
<th>Relative priorities of interest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Secondary stakeholders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Primary stakeholders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>External stakeholders</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MATRIX OF INFLUENCE AND IMPORTANCE

High importance

Low importance / Low influence

High influence
### PARTICIPATION MATRIX

<table>
<thead>
<tr>
<th>Stage in process</th>
<th>Inform</th>
<th>Consult</th>
<th>Partnership</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of participation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem exploration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan generation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ex ante evaluation (before)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan choice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ex post evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SWOT MATRIX

<table>
<thead>
<tr>
<th>Positive</th>
<th>Internal</th>
<th>Strengths</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>External</td>
<td>Weaknesses</td>
<td>Threats</td>
</tr>
</tbody>
</table>
## Example SWOT Matrix in Tourism

<table>
<thead>
<tr>
<th>Positive</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengths</td>
<td>Effective municipal government</td>
<td>Opportunities</td>
</tr>
<tr>
<td></td>
<td>Valuable nature reserves</td>
<td>Recreational activities for people who love nature</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Noise reduction using buffer zones</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public-private partnerships for development of recreational facilities</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>Insufficient controlled economic activities</td>
<td>Threats</td>
</tr>
<tr>
<td></td>
<td>Uncoordinated environmental policies</td>
<td>Recreational activities affecting nature reserves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Over-exploitation of natural resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increased traffic noise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not respecting local culture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
</tr>
</tbody>
</table>
ISSUES CAN BE DETERMINED

- How can weaknesses be overcome?
- How can strengths be enhanced?
- How can opportunities be seized?
- How can threats be averted?
### Strategies

**S-O strategies** pursue opportunities that are a good fit to one’s strengths  
**W-O strategies** overcome weaknesses to pursue opportunities

**S-T strategies** identify ways to use one’s strengths to reduce vulnerability to external threats  
**W-T strategies** establish a defensive plan to prevent one’s weaknesses from making it highly susceptible to external threats

#### Opportunities

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-O strategies</td>
<td>W-O strategies</td>
</tr>
<tr>
<td>S-T strategies</td>
<td>W-T strategies</td>
</tr>
</tbody>
</table>

#### Threats
THREAT AND COOPERATION OF STAKEHOLDERS

Stakeholder’s Potential Threat to living lab

<table>
<thead>
<tr>
<th>Stakeholder Type 4</th>
<th>Stakeholder Type 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mixed Blessing</strong></td>
<td><strong>Supportive</strong></td>
</tr>
<tr>
<td>Strategy:</td>
<td>Strategy:</td>
</tr>
<tr>
<td>Collaborate</td>
<td>Involve</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stakeholder Type 3</th>
<th>Stakeholder Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non supportive</strong></td>
<td><strong>Marginal</strong></td>
</tr>
<tr>
<td>Strategy:</td>
<td>Strategy:</td>
</tr>
<tr>
<td>Defend</td>
<td>Monitor</td>
</tr>
</tbody>
</table>

High

Low

Stakeholder’s Potential for Cooperation
CAUSAL MAPPING FRAMEWORK

- A network model (nodes and links) of the perceptions about a problem situation
- Nodes represent concepts = short phrases expressing ideas
- Links represent causal relationships between concepts:
  - “May lead to”
  - “Has implications for”
  - “Supports”
LINKS

- Means → End
- Option → Desired Outcome
- Issue → Issue
- Assertion → Consequence
- Subordinate Goal → Goal
- Objective → Goal
- Goal → Value
A HIERARCHY OF CONCEPTS

Goals / most desired outcomes, negative goals / disastrous outcomes

Strategic directions / key issues

Issues, options, assertions
EXAMPLE OF GOALS IN ECO-TOURISM

1. Increase competitive strength of municipality
2. Get public support for measures
3. Increase income of municipality
4. Maintain attractiveness of area for tourism
5. Support from inhabitants
6. Support from environmentalists
7. Urbanization of an area
8. Maintain ecological values
9. Broaden regional road
10. Much traffic through the region
11. Designate some area as nature protection area
12. Develop office space in the area
13. Expand capacity
14. Expand parking space
15. Re-use station as transferium for Randstad ... Use station for regional traffic
16. Connect regional road to highway ... Use road only for regional traffic
17. Attract economic activity to area
1 Increase competitive strength of municipality

2 Get public support for measures

3 Increase income of municipality

4 Maintain attractiveness of area for tourism

5 Support from inhabitants

6 Support from environmentalists

7 Urbanization of an area

8 Maintain ecological values

9 Broaden regional road

10 Much traffic through town

11 Designate North area as nature protection area

12 Develop office space in station area

13 Expand capacity of station

14 Expand parking space in station area

15 Use Other regional Traffic flow

16 Connect regional road to highway ... Use road only for regional traffic

17 Attract economic activity to area
1 Increase competitive strength of the municipality
2 Get public support for the measures
3 Increase income of the municipality
4 Maintain attractiveness of the area for tourism
5 Support from inhabitants
6 Support from environmentalists
7 Urbanisation of station area
8 Maintain ecological values
9 Broaden regional road
10 Much traffic through the region
11 Designate an area as nature protection area
12 Develop office space in the area
13 Expand capacity
14 Expand parking space in the area
15 Use an area for regional traffic
16 Connect regional road to highway ... Use road only for regional traffic
17 Attract economic activity to the area
SUMMARY - LIVING LAB AND STRATEGIC DIRECTIONS

Goals / most desired outcomes

Strategic directions / key issues

Issues, options, assertions
LIVING LABS AND POTENT ACTIONS

Goals

Strategies

Options

Hierarchical sets

Most potent options