

To discuss

1. Groups
2. Case analysis – Group 1: Claned <https://claned.com>
3. Agency to visit: Palmu / Redi
4. Guest lecture: Frank Martela or Karoliina Jarenko
5. Blogger

Homework: Create a Provotype

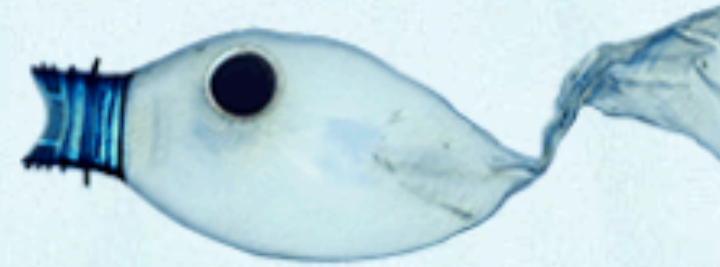
A *provotype* is a **provocative prototype** introduced in the early exploratory phases of the design development process

- to cause a reaction — to provoke and
- engage people to imagine possible futures

Provotypes are

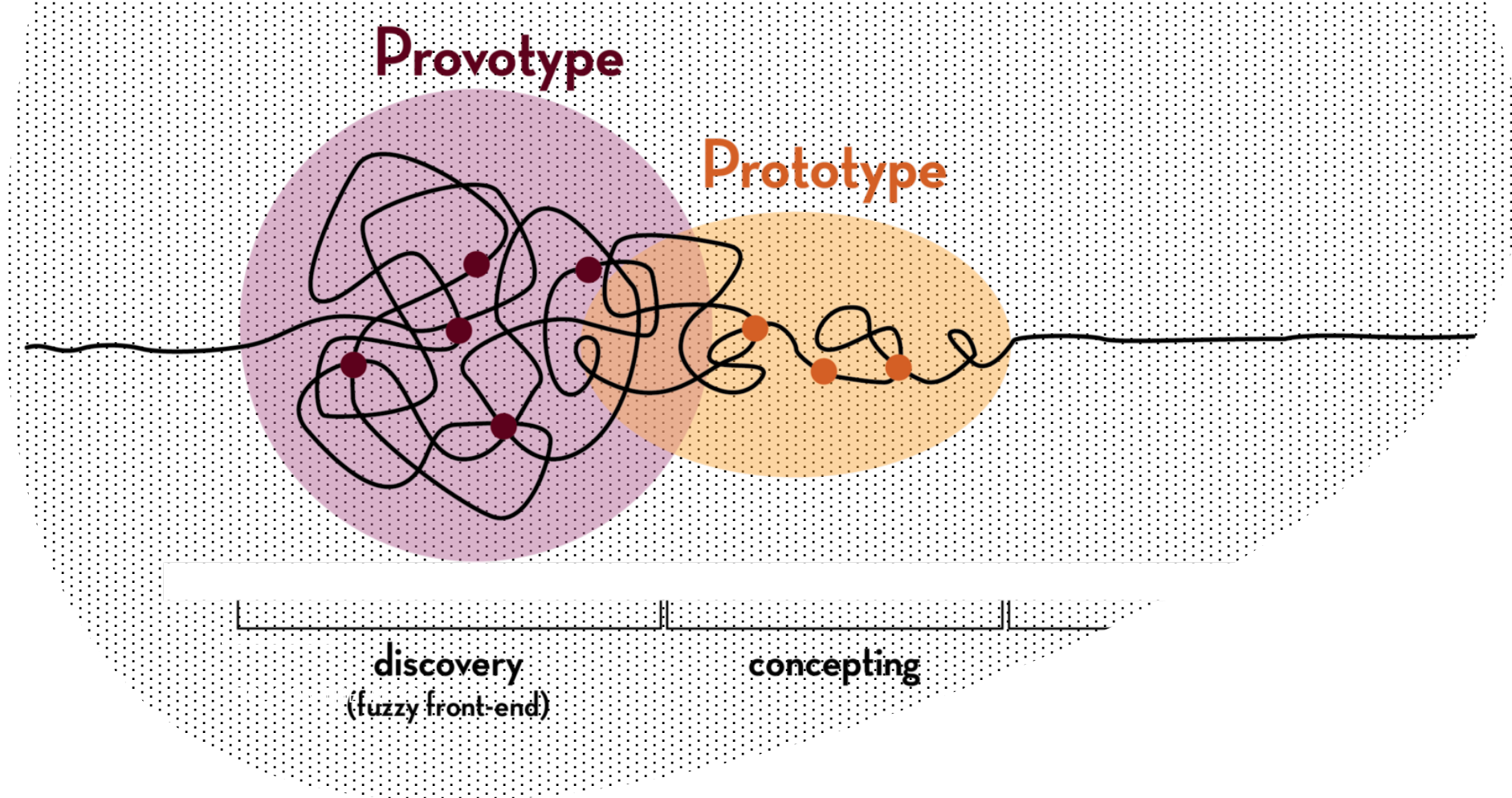
- designed artefacts that are informed and inspired by emerging technologies, user interviews, and co-creative engagement with end-users & stakeholders
- are used as a quick and effective means to explore a problem/solution space by providing tangible ideas to spark discussions

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<https://www.pidasaaristosiiistina.fi>



Recourses: <https://medium.com/@thestratosgroup/moving-from-prototyping-to-provotyping-cedf42a48e90>

Boer, L. and Donovan, J., 2012, June. Provotypes for participatory innovation. In *Proceedings of the designing interactive systems conference* (pp. 388-397). ACM.

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Systemic Design

Systemic design

Lecture goals:

1.
 - Services vs. Systems
 - Systemic design in services (the case)
 - Why systemic design is important?
 - Methods: systemic design methods and systemic methods
2.
 - Exercise: 3 horizons mapping future trends

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Source: <http://www.systemsorienteddesign.net>

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Lecture outcomes

1. Recognise relationship between service design and systemic design
2. Recognise some of the systemic design tools
3. Apply a systemic design tool in a practical project (3H - mapping out future trends)

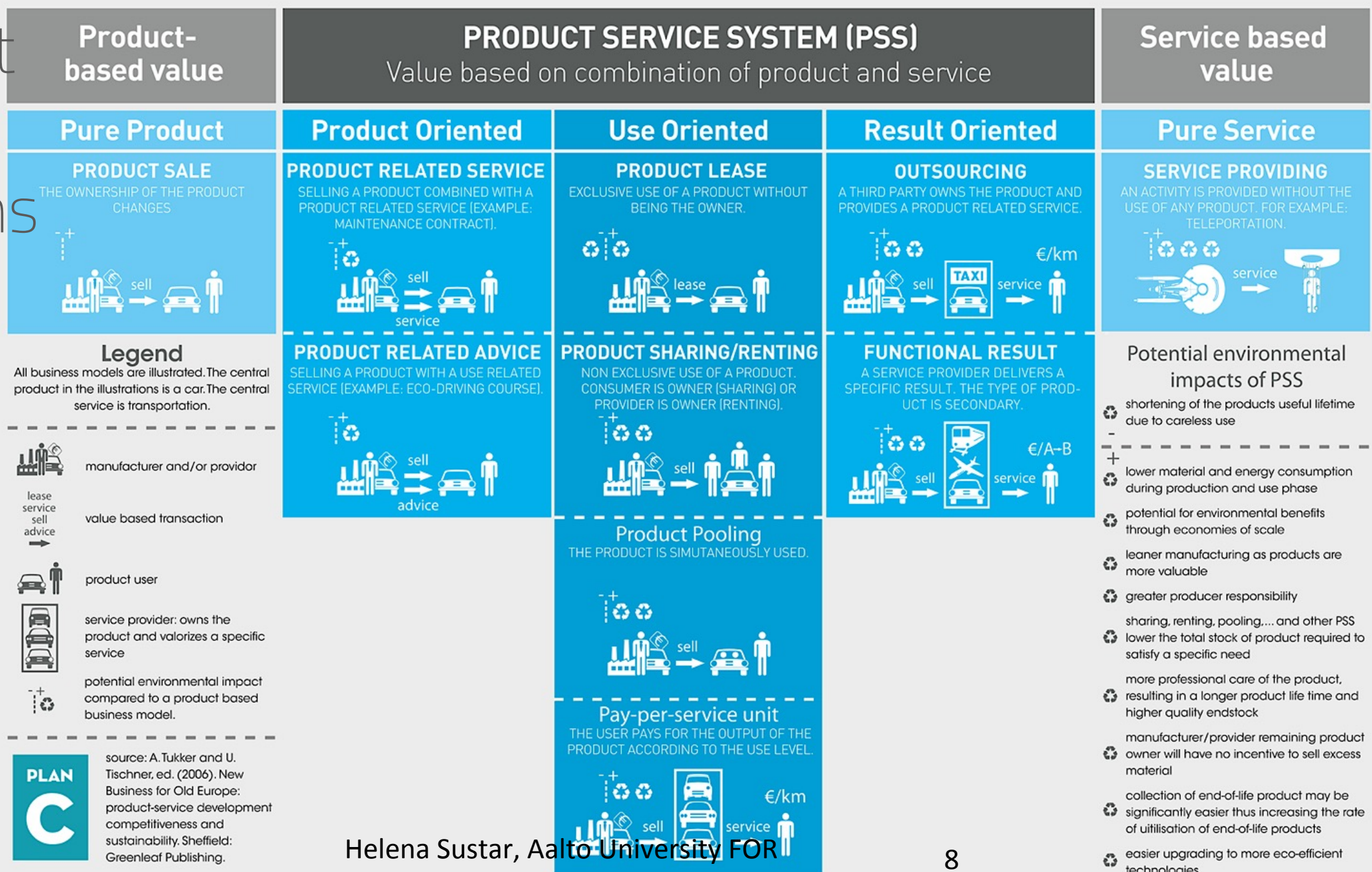
DfS is transdisciplinary field



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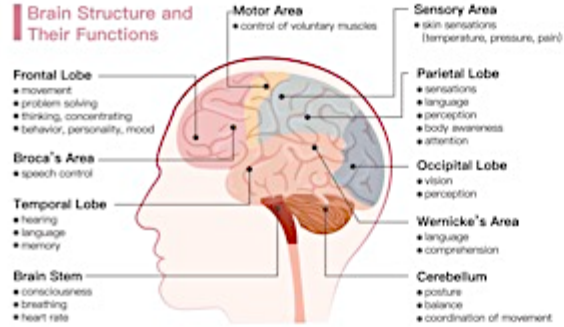
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Product Service Systems



source: A. Tukker and U. Tischner, ed. (2006). New Business for Old Europe: product-service development competitiveness and sustainability. Sheffield: Greenleaf Publishing.





WHAT IS STROKE

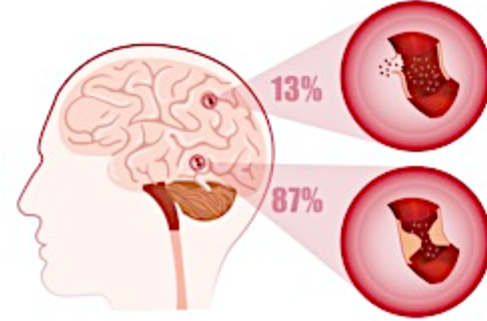
A stroke is a "brain attack". It can happen to anyone at any time. It occurs when blood flow to an area of brain is cut off. When this happens, brain cells are deprived of oxygen and begin to die. When brain cells die during a stroke, abilities controlled by that area of the brain such as memory and muscle control are lost. (<https://www.stroke.org/>)



In China, the annual stroke mortality rate is approximately **1600000**, approximately 157 per 100 000, which has exceeded heart disease to become the leading cause of death and adult disability. Being the first cause of mortality and the first one of handicap in adults, we can say that stroke is one of the main health problems in our era. (World Health Organization, <http://www.who.int/en/>)

China has **2500000** new stroke cases each year and 7500000 stroke survivors.

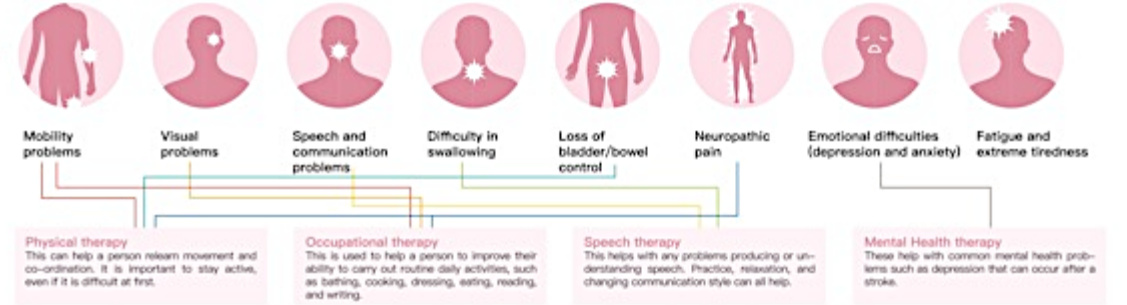
The type of stroke



Hemorrhagic Stroke
 • A brain aneurysm burst or a weakened blood vessel leak (hemorrhagic) is one of two types of stroke. While the least common of the two types of stroke it most often results in death.

Ischemic Stroke
 • Ischemic stroke occurs when a blood vessel carrying blood to the brain is blocked by a blood clot. This causes blood not to reach the brain. High blood pressure is the most important risk factor for this type of stroke. Ischemic strokes account for about 87% of all strokes.

COMMON CONSEQUENCES



How stroke can affect upper limb

Solutions Methods

<p>Hemiparesis — weakness</p> <p>Your arm may be paralysed completely, or your shoulder, elbow, wrist or hand may be weak. Paralysis on one side is called hemiplegia. Weakness on one side of the body is called hemiparesis.</p> <ul style="list-style-type: none"> Constraint-induced movement therapy. This involves using a mitt or sling on your unaffected hand or arm to encourage you to use your affected limb. Increased use of your affected hand or arm will promote improvement. Video games to help you practise using your arm. Low-level electrical current to stimulate a weak muscle. Mirror therapy (put a mirror between your arms on a table.) 	<p>Apraxia — coordinating problems</p> <p>You may have difficulty planning arm movements. This is called apraxia. You may also have difficulty coordinating arm movements, which makes them feel slow or clumsy.</p> <ul style="list-style-type: none"> Talk about, rehearse and practise the steps that make up that movement. Therapist may also do the movement with you. If your muscles have high tone, an injection of botulinum toxin A (Botox) may help. Electrical stimulation may also be used. 	<p>Spasticity or Hypotonia — changes in the muscles</p> <p>You may have high tone which makes your muscles stiff and tight. This is called hyper-tonia or spasticity. Alternatively, your muscles may be floppy or loose. This is called low tone or hypotonia.</p> <ul style="list-style-type: none"> Stretching and strengthening exercises. Temporary braces or casts, limb positioning. Application of cold packs. Electrical stimulation and biofeedback. 	<p>Subluxation</p> <p>Changes in the muscle may cause your arm bone to sit slightly lower in your shoulder socket.</p> <ul style="list-style-type: none"> Electrical stimulation A sling or strapping You will also need to learn the best ways to move and protect your arm. If the pain does not improve, you may need a specialist pain management doctor or clinic. 	<p>Contracture — joint fixed in one position</p> <p>If your muscles are tight or weak, they can become shorter. This can result in the joint becoming fixed in one position.</p> <ul style="list-style-type: none"> Begin to loosen up your contractures with daily stretching and passive exercise 	<p>Changes in sensation — lose feeling</p> <p>You might lose feeling, have pins and needles or have increased feeling (hypersensitivity).</p> <ul style="list-style-type: none"> Retrain your senses by feeling different materials, objects and textures to re-learn what they feel like. 	<p>Swelling</p> <p>If your hand or arm does not move as well as it used to, fluid may build up (oedema).</p> <ul style="list-style-type: none"> Exercises, electrical stimulation, massage or pressure garments. Supporting your arm in a raised position when resting can also help.
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What is the relationship between service design and systemic design?

- Service design focus on value co-creation / Systemic design is more contextual oriented
- Service design focus on tools & methods / Systemic design focus on complexity (gigamapping)
- Service design emphasizes user-centred design / Systemic design engage diverse stakeholders and emphasize conflict of interests
- Service Design try to simplified / Systemic design, acknowledges the complex problems and tensions between different parts

Services & Systems

- See the big picture.

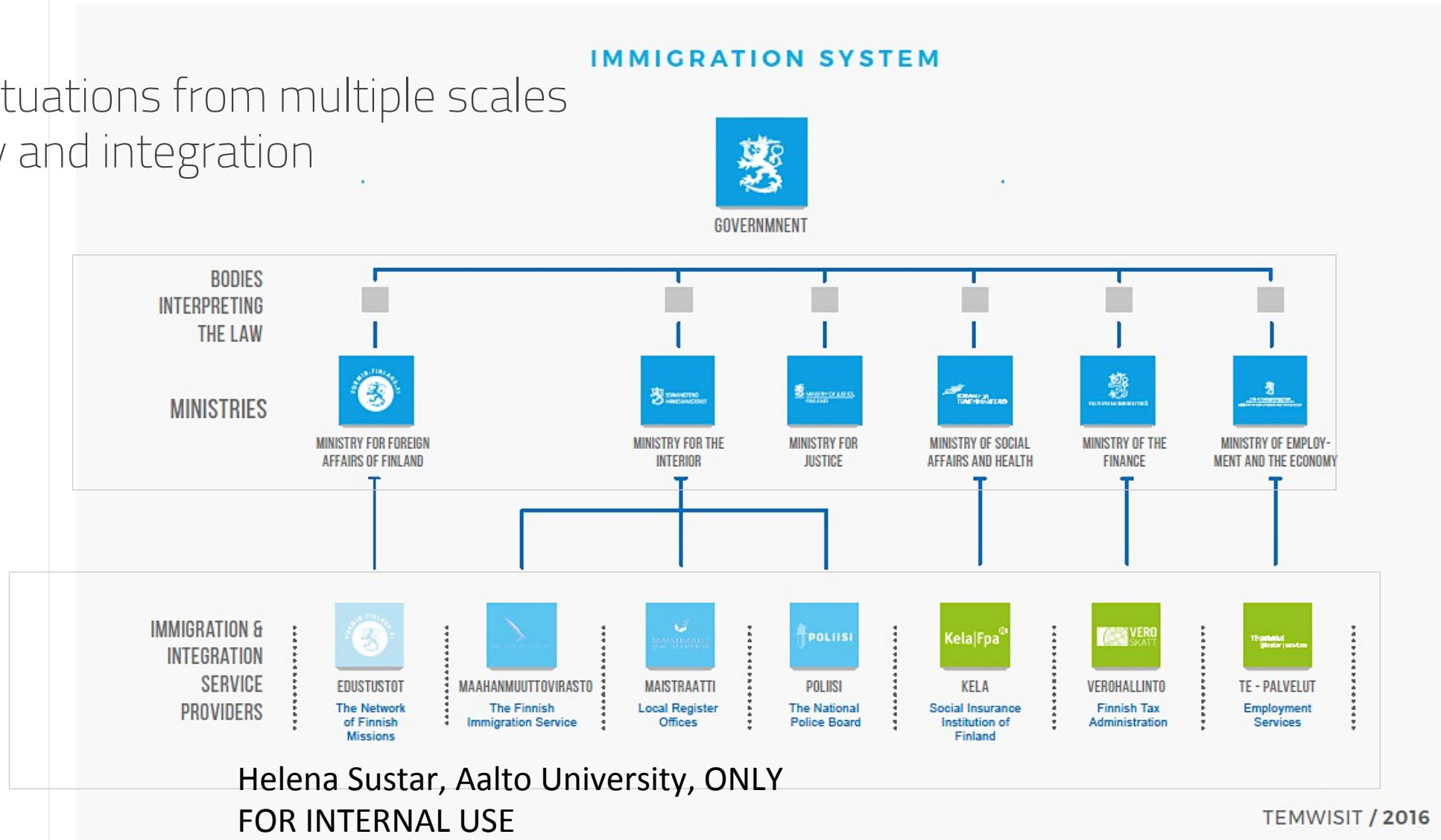
Services are embedded in larger systems of relationships and interactions. And they need to take into consideration the changes users go throughout the duration of the relationship.

- A service design approach is holistic.

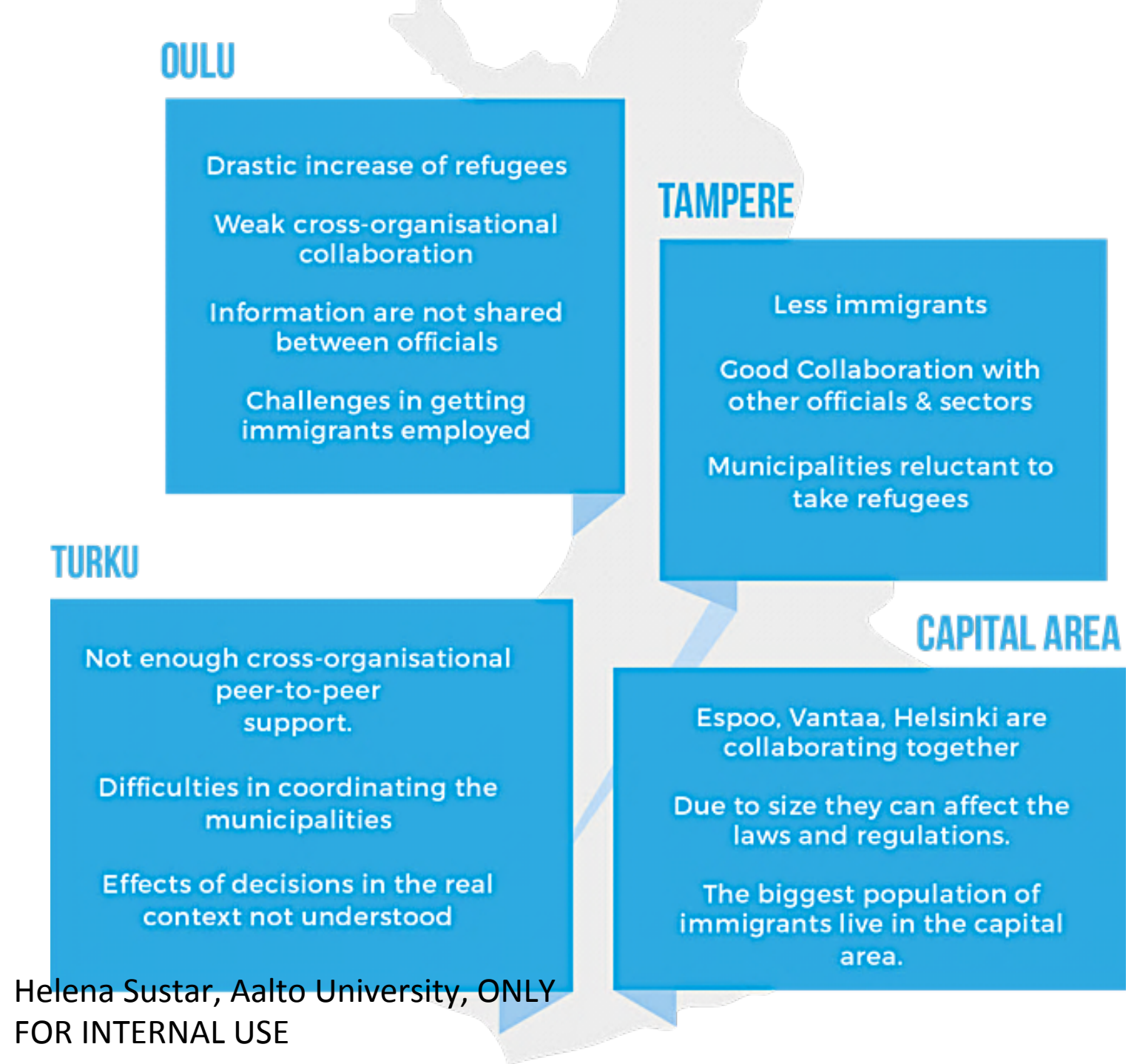
It looks at systems and subsystems of relationships and interactions. It takes the context into consideration, being aware that services are living systems.

Finnish Immigration System

- understanding situations from multiple scales
- social complexity and integration



Interviews



SYSTEM CHALLENGES

**INCREASED AMOUNT OF
IMMIGRANTS**

**INEQUALITY OF SERVICES
ACROSS FINLAND**

**SYSTEM DEVELOPMENT IS
NOT DONE HOLISTICALLY**

**LIMITED KNOWLEDGE ON OTHER
ORGANISATION'S PROCESSES**

**DOUBLE &
UNNECESSARY WORK**

**LACK OF IMMIGRANT
PERSPECTIVE**

Interviews

- Empathising with stakeholders
- Human-centred design



“We should have good service for everybody.”

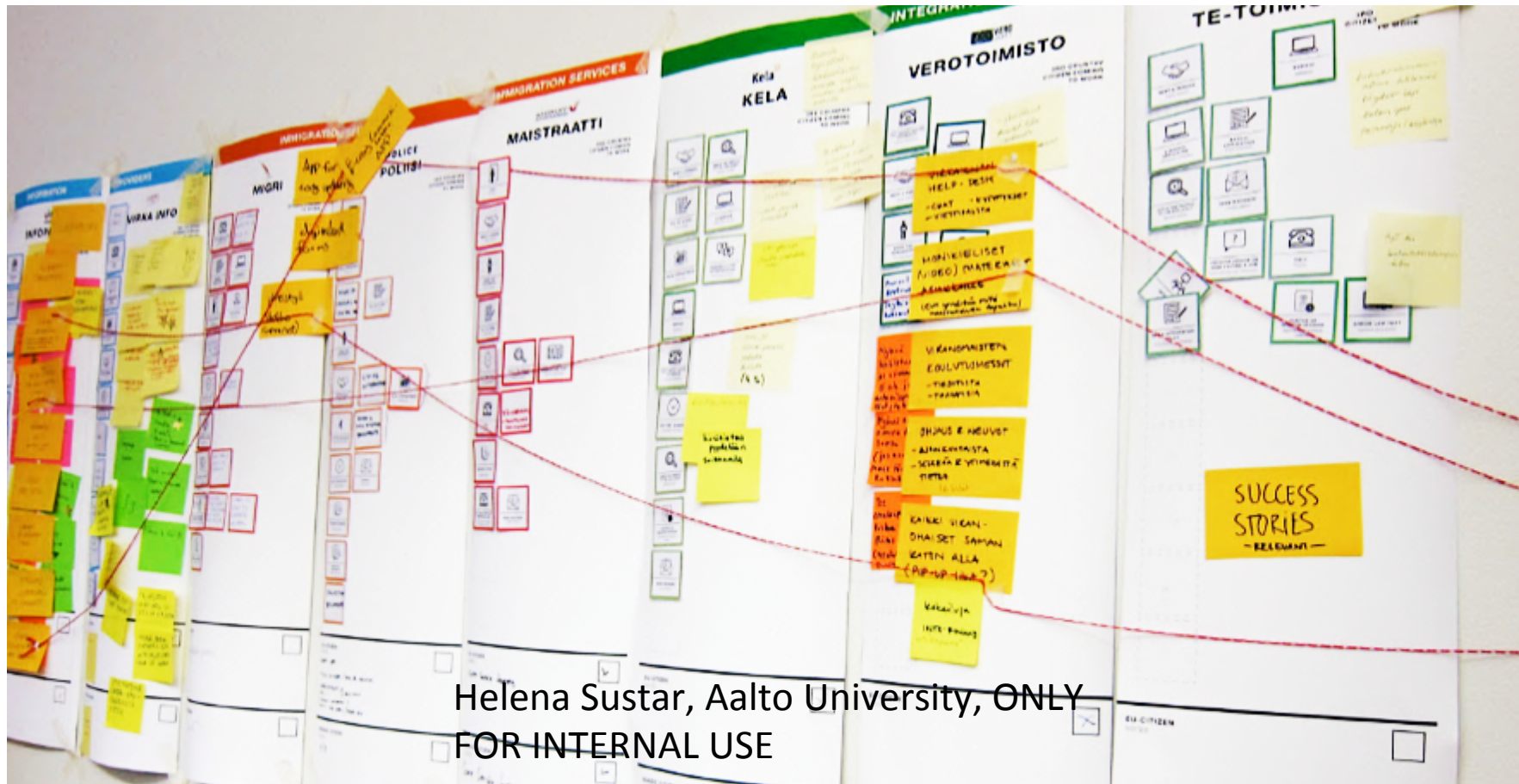


“We aim to make a tool that would benefit all of the organizations to get the updated information. That way the process can be made simpler and unified in the whole country.”

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Workshop 2

- Challenge boundaries
- Sketching and visualization practices - visualise alternatives to current paradigms.



Workshop 2

- Support actions

OBJECTIVES FOR THE TOOL

GENERALIZE THE SERVICE AND IMPROVE EFFICIENCY

Save time
and
resources

Remove
double work

Harmonise the
complex
information

EMPOWER & MAKE THE CUSTOMER MORE PROACTIVE

Minimize
customer
frustration

Customer
understands
consequences

Independent
immigrant
customer

GIVE SUPPORT TO THE SERVICE PROVIDERS & ADVISORS

Education
purposes

Help for
advisors
to advice

Understand
situation of
the human

BRING TOGETHER CURRENTLY SEPARATE SERVICE PROVIDERS

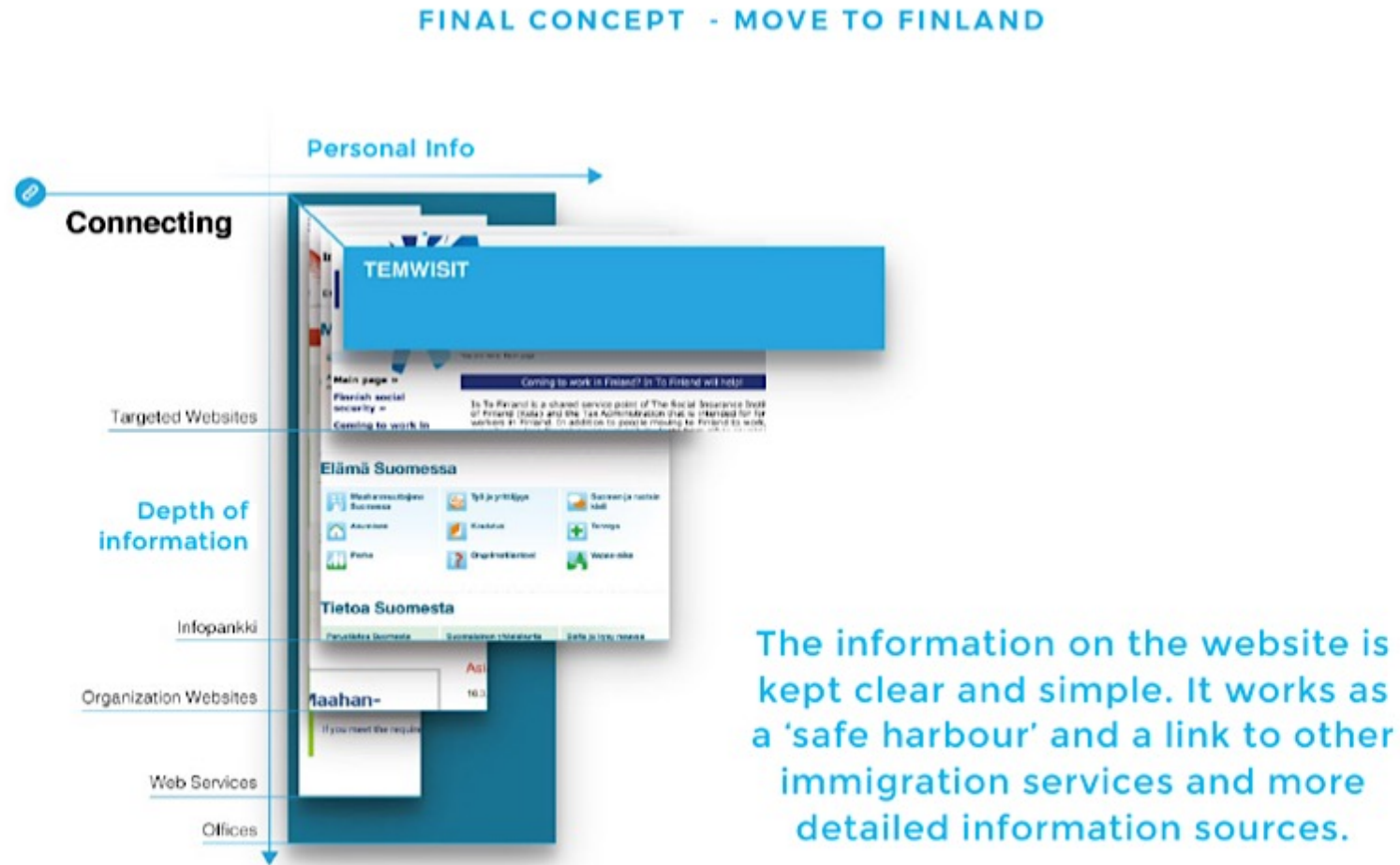
Make
collaboration
more fluent

Low-barrier
communi-
cation

Establish
stakeholder
network

Systemic Service Design Solution

- Transform actors and organisations.



What systemic design does?

1. Allows understanding situations from multiple scales and perspectives.
2. Provides ways of empathising with stakeholders to construct a broader context within specific challenge.
3. Challenges boundaries, construct shared frames, visualise alternatives to current paradigms.
4. Supports actions to improve difficult situations.
5. Works together to act, reflect, and learn while doing.
6. Transforms actors and organisations.

Systemic & design methods

Figur 6: The project Ambient Amplifier Started with un-programmed spatial structures generated from an intricate setup of particle animations over a model of the site (top row). Through several graphic stages (second and third row) the generative diagrams were slowly programmed but only in a soft manner, resulting in concepts of a meandering and layered network of activity surfaces, playgrounds and paths (right third row), an adaptive and programmable street system (fourth row) and a series of "islands", constructs that would be prepared for being developed from only footprints to fully developed pavilions and back to footprints if needed (bottom row). The use of this diagramming technique resulted in new creative solutions sabotaging the preconceived and leading the design process in new directions. (OCEAN Birger Sevaldson and Phu Duong 2000)

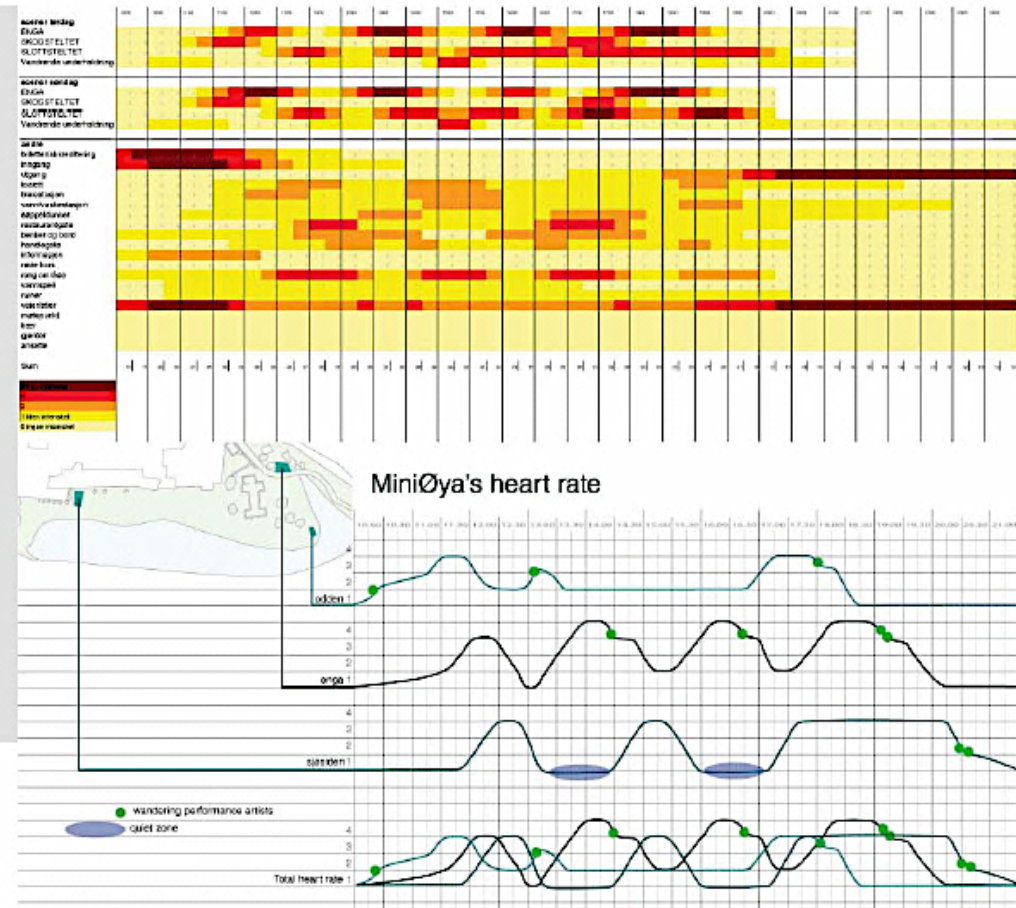
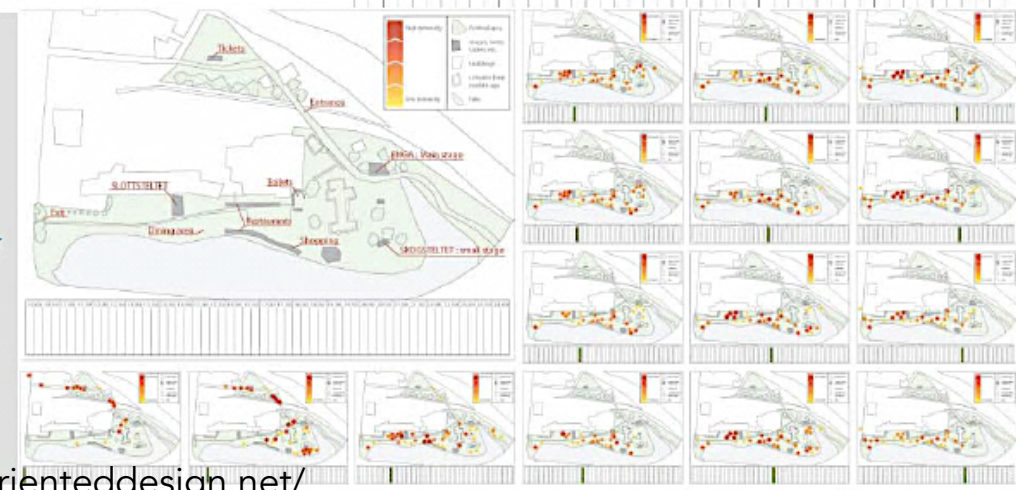
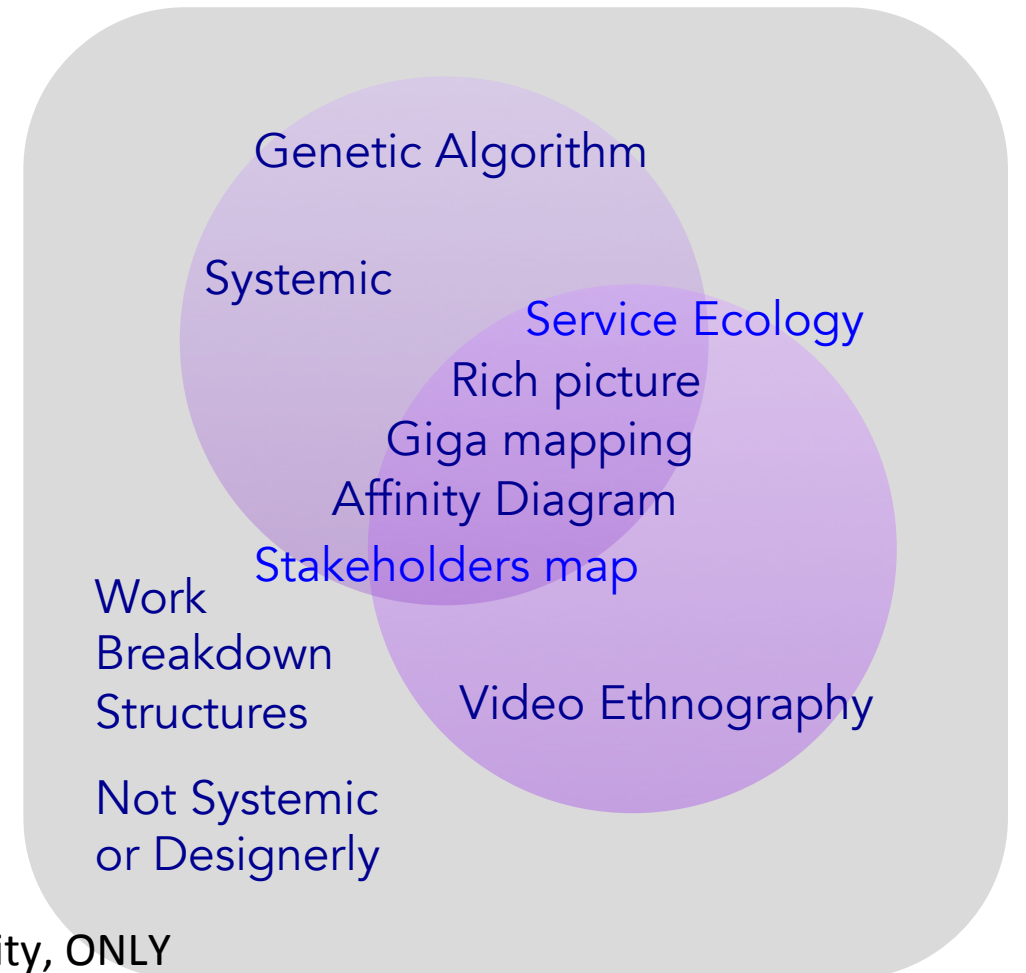


Figure 7: The Student Ingunn Hesselberg designed a children's music festival. While a normal design process of such an event would concentrate on look, feel and features she concentrated on looking at the festival as a dynamic event. Issues of security and entertainment were linked to sequencing and duration. Very strong events acting as too forceful attractors, potentially resulting in dangerous crowding, were balanced with other attractors to stretch the field. The result was a series of maps (top row) that (re)programmed activities were orchestrated over time.



Systemic & design methods

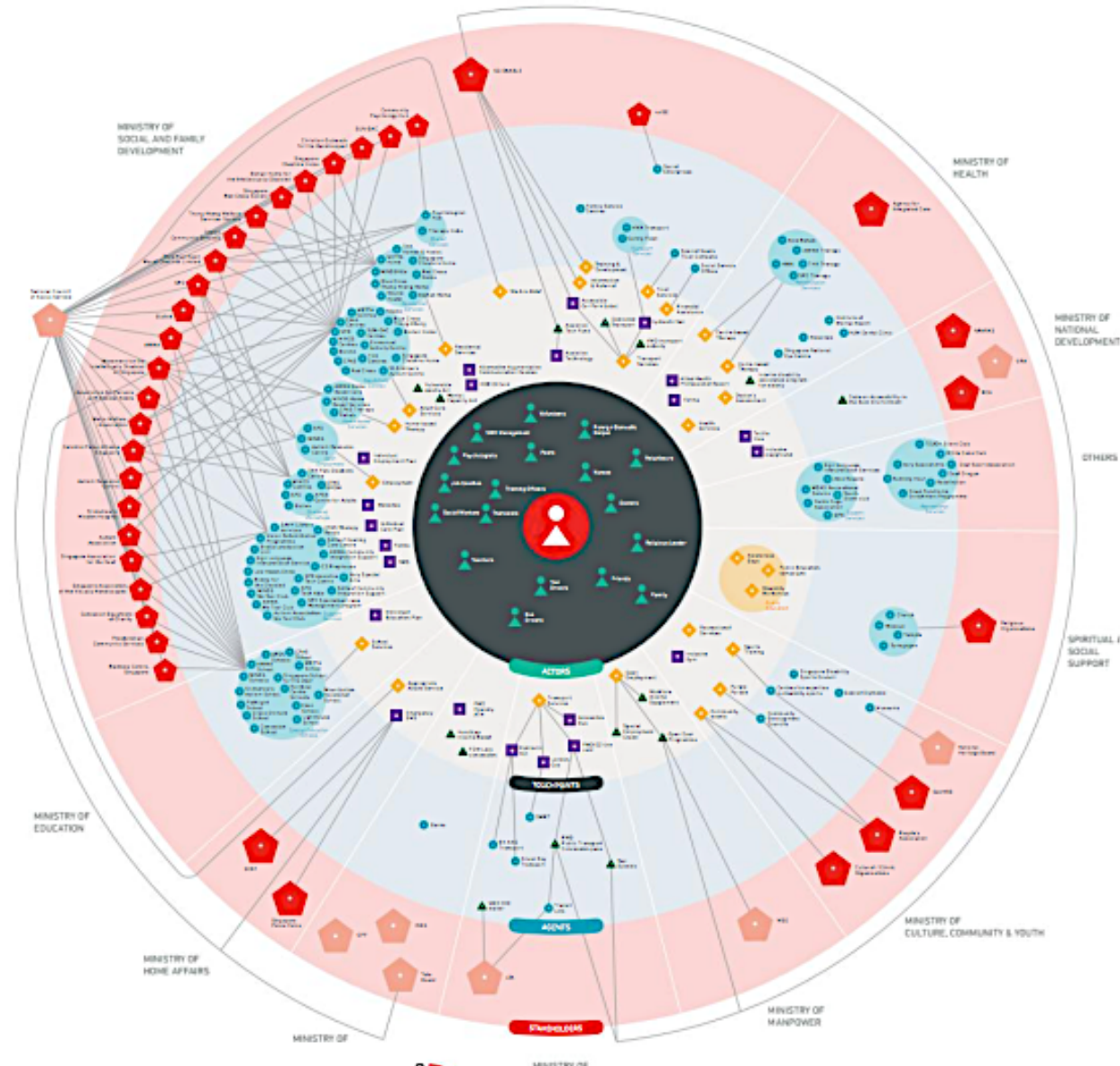
- systemic
- designerly
- systemic and designerly
- neither systemic nor designerly



Jones, 2015

Service Ecology

- Service Ecology is a system of interactions and actors that, together, create a sustainable and successful service or experience.



Social Services service ecology in Singapore
 Helena Aalto
 Aalto University, ONLY
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The service ecology map shows a holistic view of the environment we've researched and would like to innovate in.
 By visualising the different stakeholders, agents, and touchpoints, we can see how each could potentially be related.
 The service ecology map lets us investigate relationships that affect all or part of the service and helps people understand the personal relevance of services.



KEY

STAKEHOLDERS Create the promise of the service.

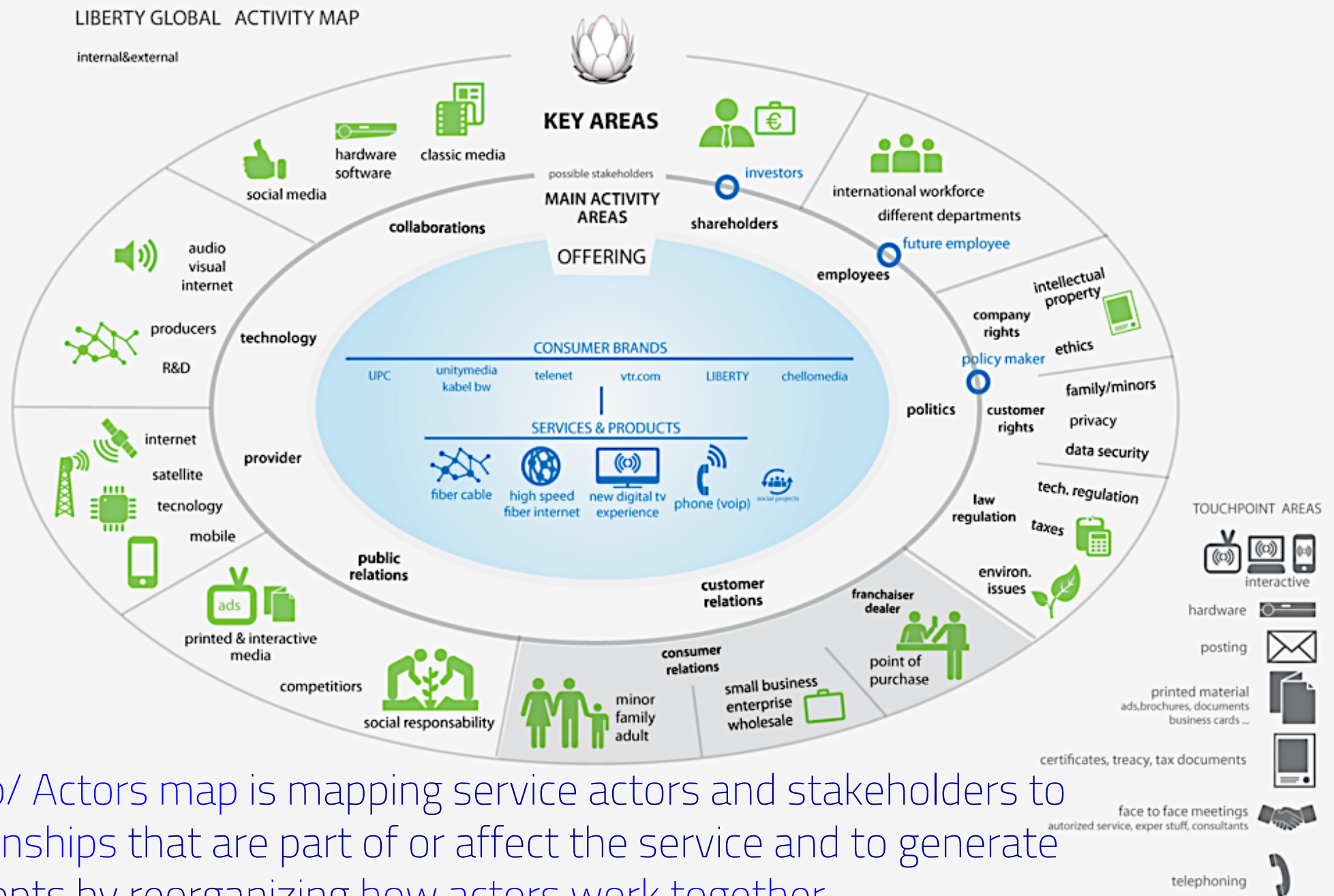
- Active stakeholders (Red pentagon)
- Non-active stakeholders (Orange pentagon)

AGENTS Deliver the offering to users.

- Agents (Blue circle)
- Schemes & Policies (Green triangle)

TOUCHPOINTS & SERVICES Final touchpoints to grow engagement.

Stakeholders map/ Actors map



- Stakeholders map/ Actors map is mapping service actors and stakeholders to investigate relationships that are part of or affect the service and to generate new service concepts by reorganizing how actors work together.

GIGA-map

GIGA-mapping visualise complexity from which a designer can deliver innovative solutions.

GIGA-maps provide a multi-scale, multi-layered framework for visualising information gathered during a systemic design inquiry.

GIGA-maps are synthetic and flexible, hierarchical and non-hierarchical maps into a single description.

(Sevaldson, 2011) the Oslo School of Architecture and Design; System Oriented Design

Currency, Value and Debt:

How might we Reframe Money as a Technology to Facilitate and Empower the Natural Human Inclination to Exchange, Trade, and Share Value?

Inasmuch as we are social beings, exchange and trade are fundamental features of the human condition. Money and currency arise as tools to facilitate these natural inclinations.

CONSUMER DEBT LEVEL
LOW ——— HIGH
USAGE LEVELS

FOR WHAT IT'S WORTH
A desired medium of exchange, serves to standardize all of the transaction to be separated. Through the technology that solves the problems associated with a barter and increases the ease of exchange. The risk using this technology, like using any technology, is the pain technology while the common changes to another medium, as many beta types when VHS became prominent, or the ones we put onto My Space before Facebook came along.

CONSUMER DEBT LEVELS
LOW ——— HIGH
INTRINSICITY OF TRANSACTION
TANGIBILITY ——— LEVERAGABILITY

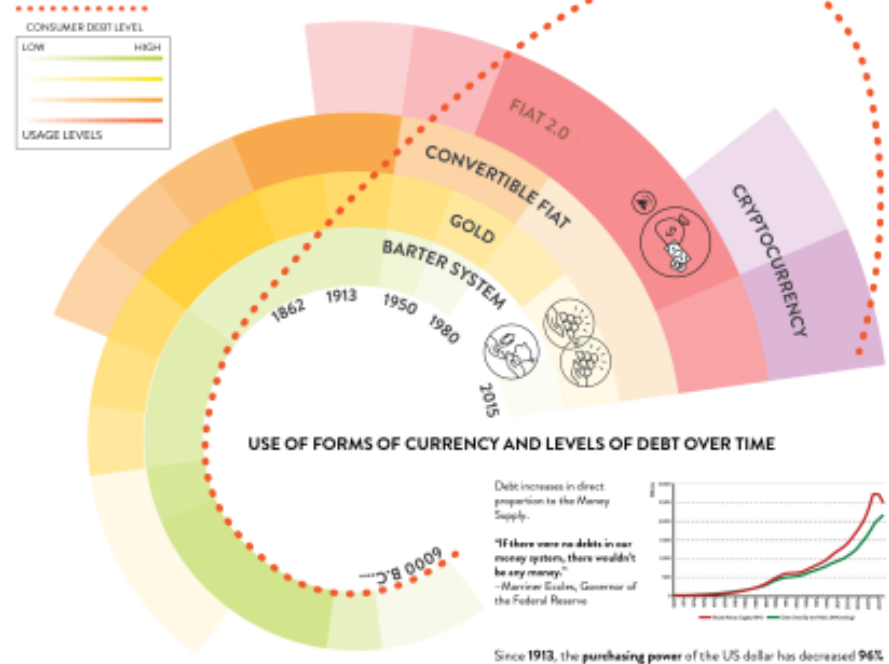
POTENTIAL FOR SEIGNORAGE MARGIN
LOW.

PROMISSORY NOTES COUPLED TO GOLD
Traditional Goldsmiths used to take the Promissory Note as a form of Gold. Goldsmiths were active lenders of gold on an international scale.

BARTER SYSTEM
YOU'VE GOT WHAT I NEED, A SYSTEM OF TRADE.
Two parties where each has the goods the other wants, and neither has. In a theoretical market based solely on one transaction and an increased possibility that there will be able to.

CONSUMER DEBT LEVELS
LOW ——— HIGH
INTRINSICITY OF TRANSACTION
TANGIBILITY ——— LEVERAGABILITY

POTENTIAL FOR SEIGNORAGE MARGIN
NONE. THE INTRINSIC VALUE IS INHERENTLY VALUEABLE.



Seigniorage is the difference between the cost to produce money, and the value of that money, within a given economy or country.

- + A positive seigniorage results when the value exceeds the cost of production. The government will make money.
- A negative seigniorage results when the cost of producing the money exceeds its value. The government will experience economic loss.

CRYPTOCURRENCY CUT OUT THE MIDDLEMAN A NEW WAY TO TRADE

Bitcoin are created as a reward for payment processing work in which users offer their computing power to verify and record payments into the public ledger. This activity is called mining and is rewarded by transaction fees and newly created bitcoins. The key feature of Bitcoin is that the issuance of currency into the system is decentralized across a network of computers. One way to describe the potential impact of a widespread adoption of Bitcoin and other decentralized cryptocurrencies, is that the model essentially creates a decentralized market for seigniorage.

With the power to issue currency in the hands of a more diverse set of participants the ability to create value from seemingly nothing, has the potential to be reduced. That said, Bitcoin has the risk and reward associated with the adoption of any new currency or technology.

CONSUMER DEBT LEVELS
LOW ——— HIGH
INTRINSICITY OF TRANSACTION
TANGIBILITY ——— LEVERAGABILITY

POTENTIAL FOR SEIGNORAGE MARGIN
NONE. THE INTRINSIC VALUE IS INHERENTLY VALUEABLE.

VALUE IS SUBJECTIVE

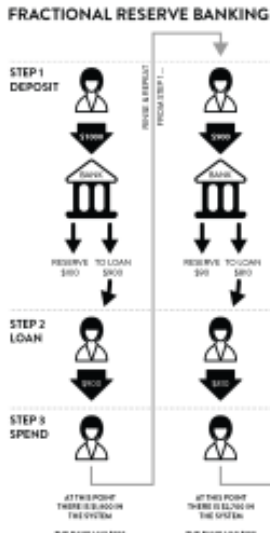
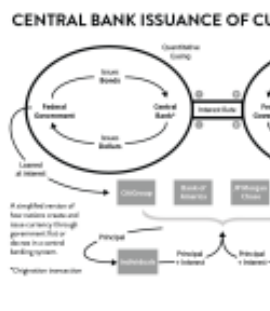
VALUE IS SUBJECTIVE

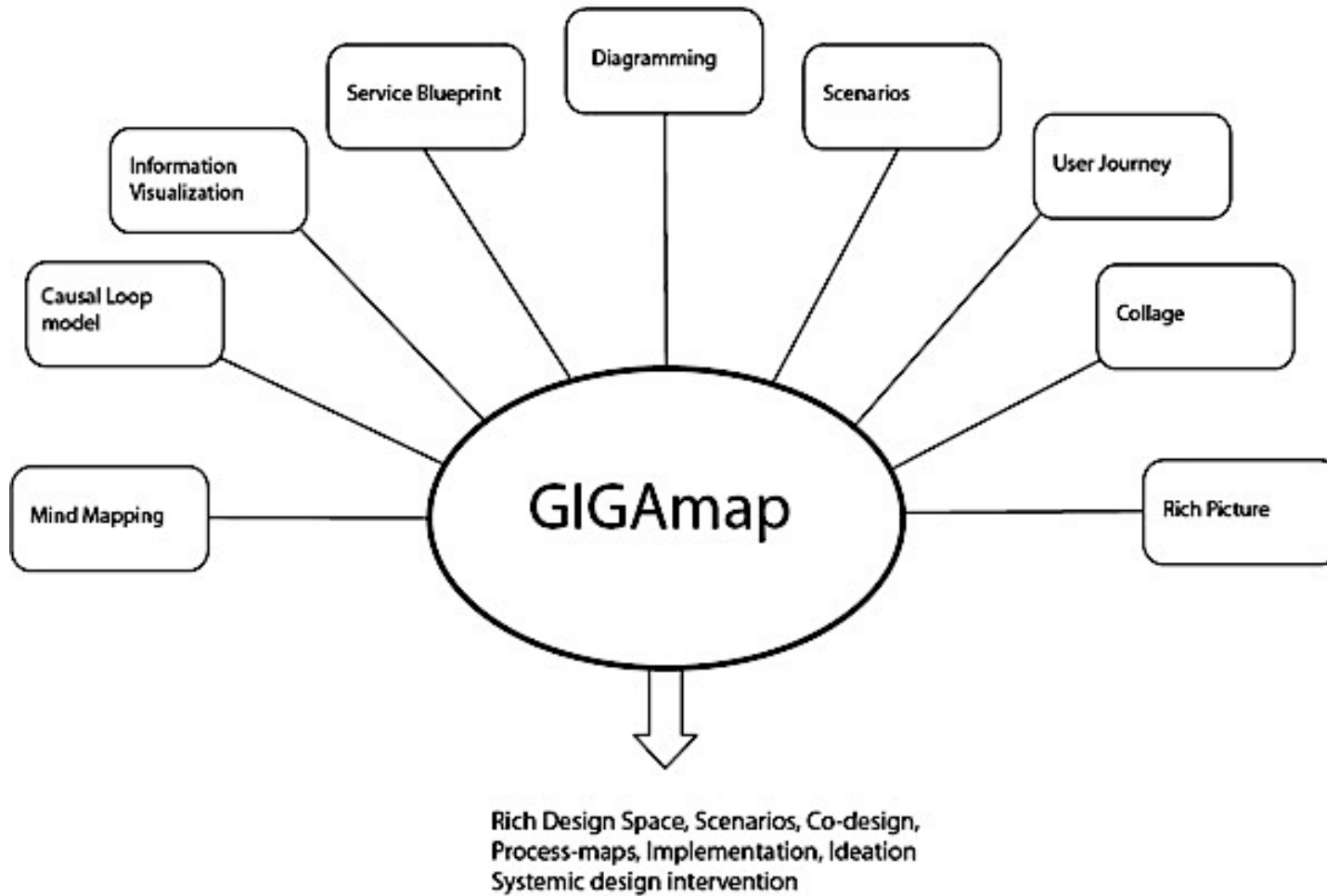
FIAT 2.0 ALL SETS ARE OF DIFFERENT LEVELS

For the first time essentially the entire world, willing or not, use a set of financial rules and the same type of currency, legal tender of a sovereign nation. Modern money (and most ancient money) tokens – an abstraction. Paper currency is perhaps the most common physical money today. However, goods such as gold or silver retain material properties of money, such as reliability and limited supply, goods are not controlled by one single authority.

CONSUMER DEBT LEVELS
LOW ——— HIGH
INTRINSICITY OF TRANSACTION
TANGIBILITY ——— LEVERAGABILITY

POTENTIAL FOR SEIGNORAGE MARGIN
HIGH.



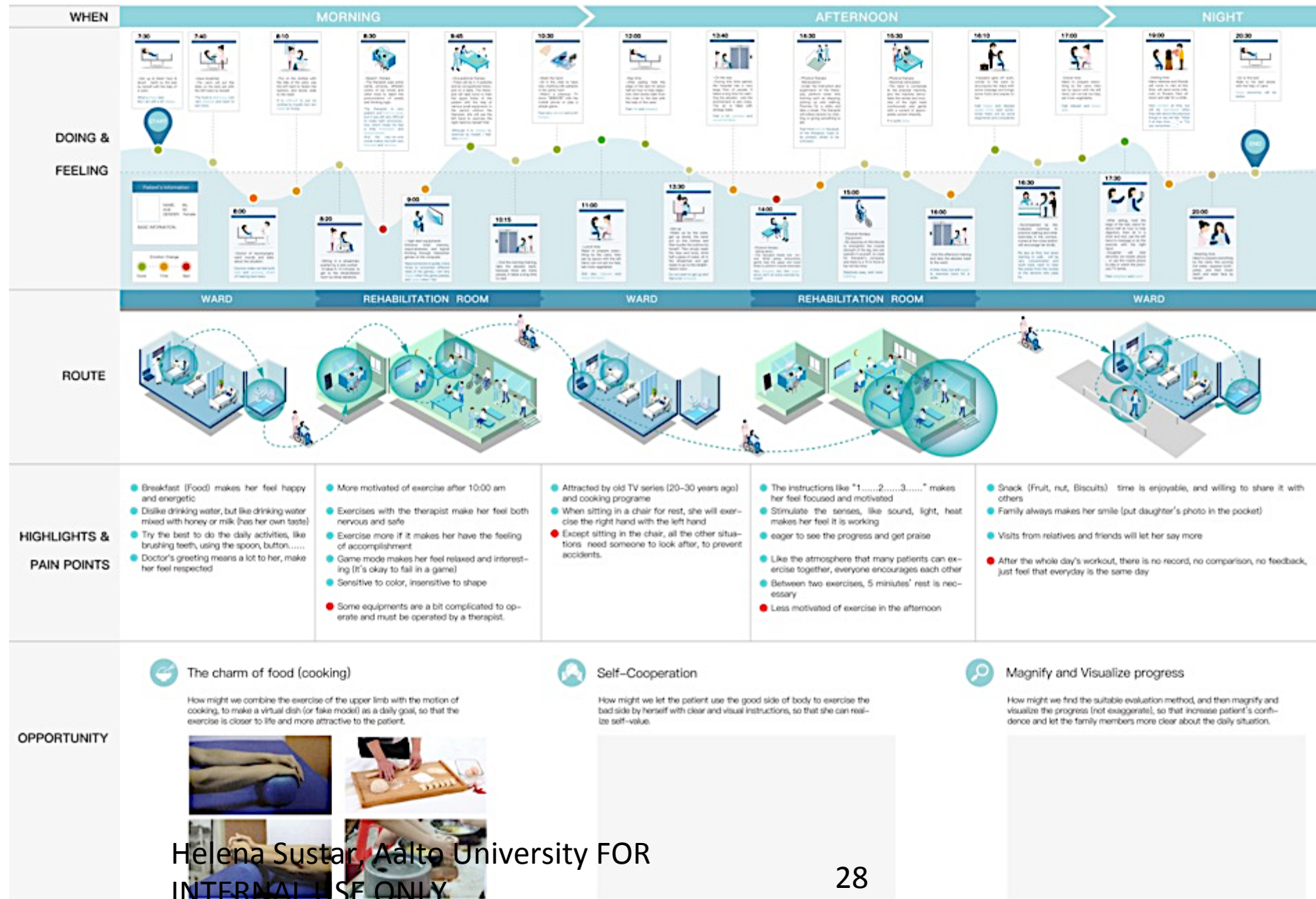


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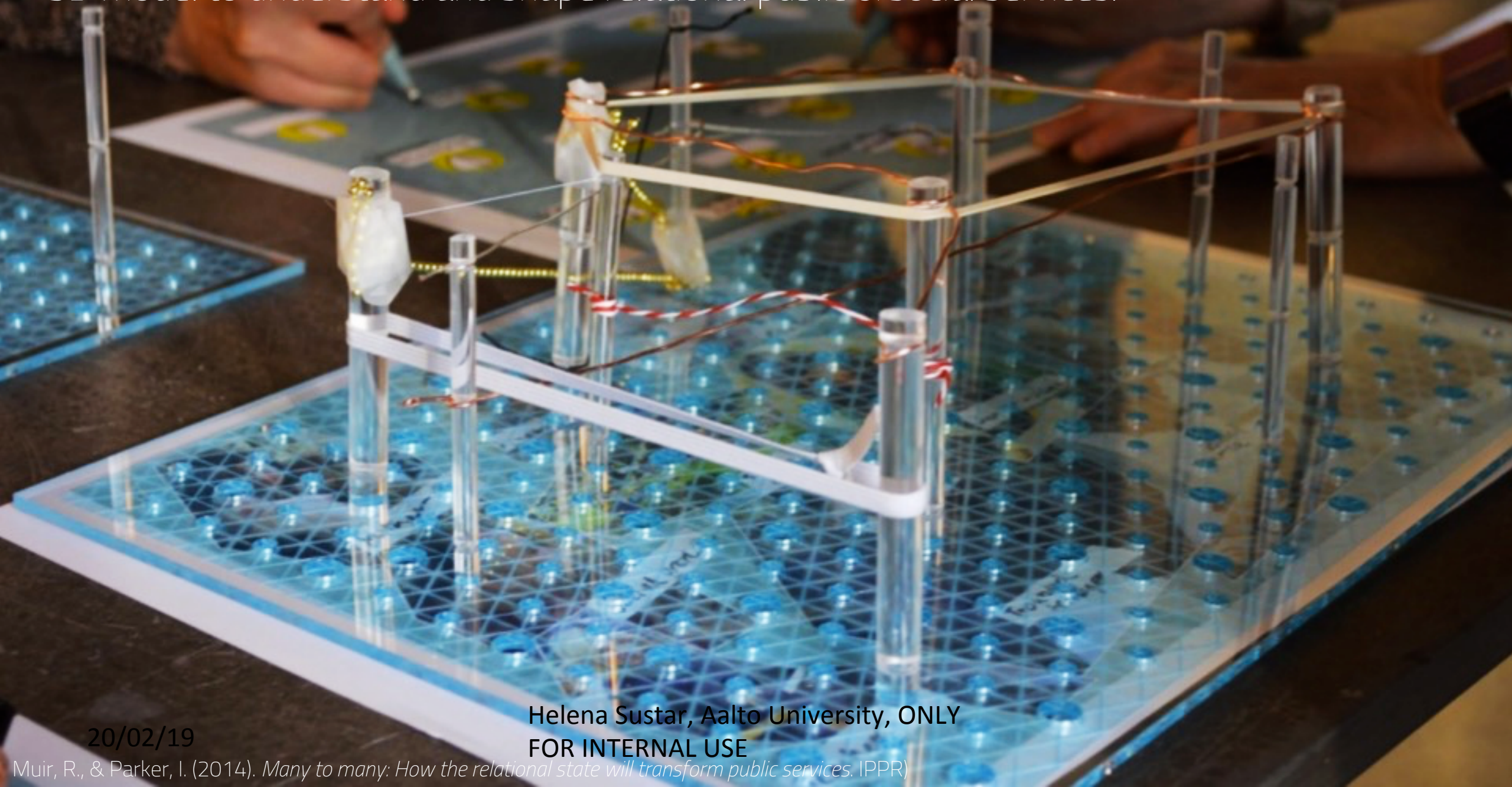
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A Gigamap draws from and combines many mapping types into one interrelated whole
(Diagram: Birger Sevaldson, 2013)

PATIENT WU'S JOURNEY MAP



3D model to understand and shape relational public & social services.



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Muir, R., & Parker, I. (2014). *Many to many: How the relational state will transform public services*. IPPR)

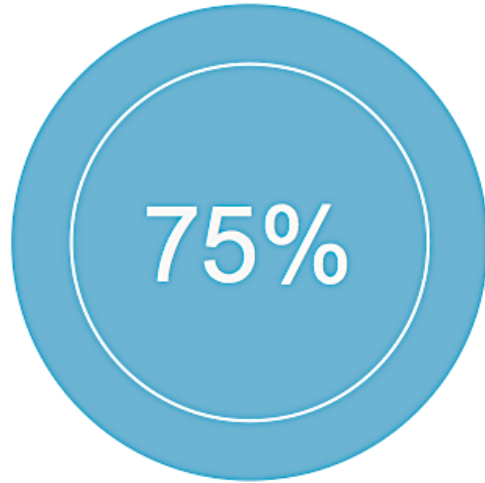
3 Horizons methods

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3 Horizons

Horizon 1



Day to day operations

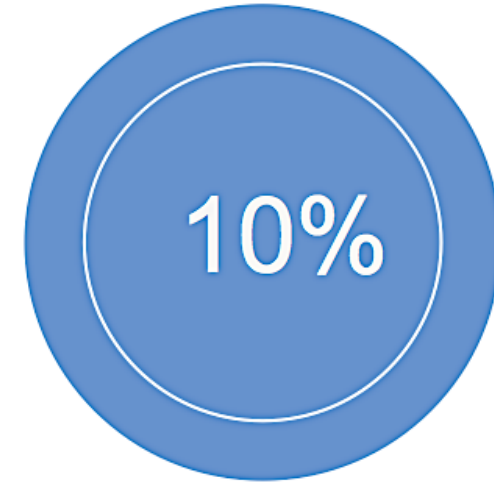
Horizon 2



5% on incremental improvements

10% on sustained innovations

Horizon 3



Big, disruptive innovations

Horizon 1 (H1): keeping the lights on and fixing problems

Horizon 2 (H2): improving services and processes

Horizon 3 (H3): transformative experiments (R&D)

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What is 3 Horizons tool?

- 3 horizons model offers deeper understanding of the significance of short, medium and long term futures, and how these connect to strategy.
- 3 Horizons builds on the insight that businesses, technologies, political policies and civilizations exhibit, life-cycles of initiation, growth, peak performance, and decline
- waves of change in which each dominant form is eventually overtaken and displaced by another.

Homework – Reading

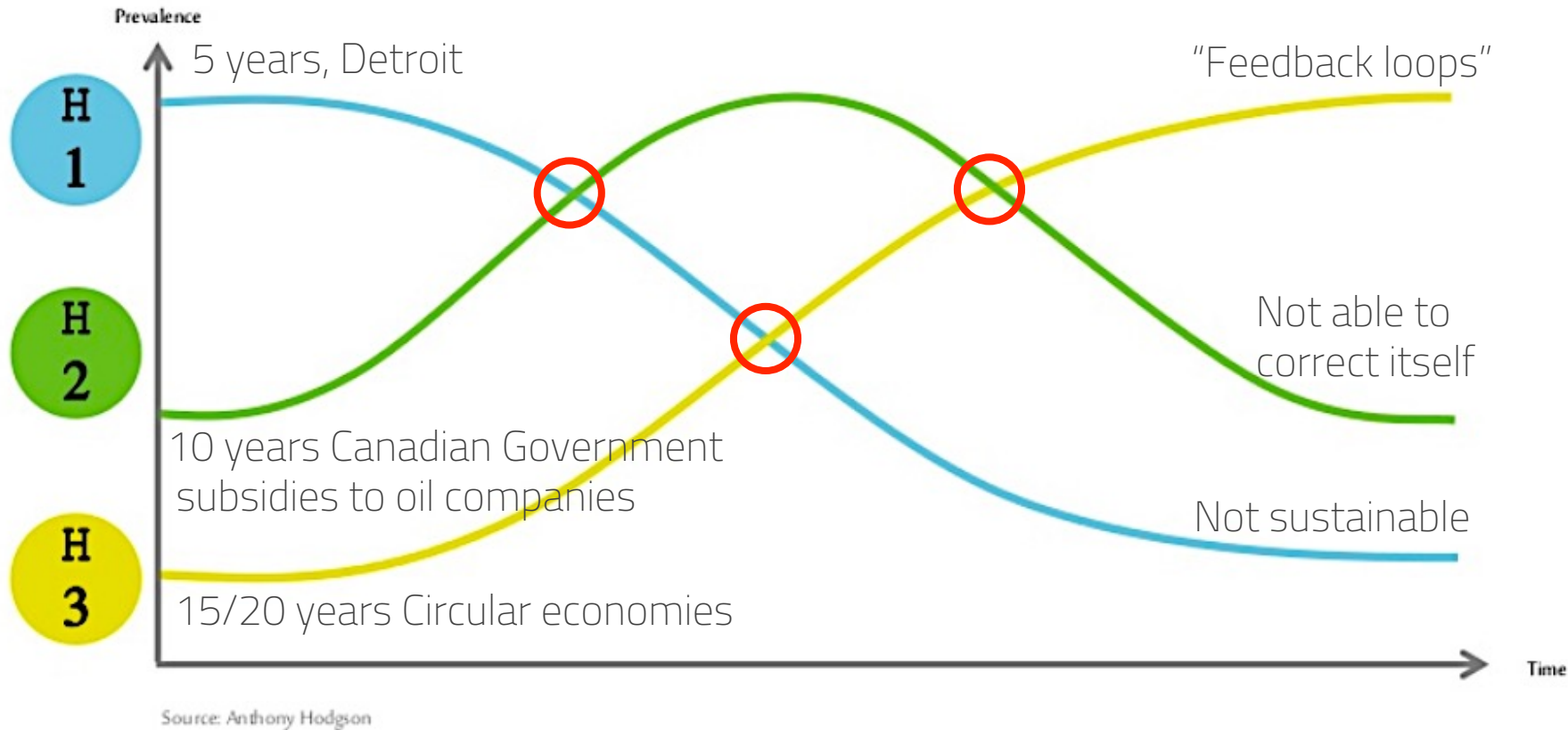
Hodgson, A., & Midgley, G. (2015). Bringing foresight into systems thinking: a three horizon approach. In Proceedings of the 58th Annual Meeting of the ISSS-2014 United States Vol. 1, No. 1.

Question: How would you explain three horizon framework?

K. Benifand, N. Ahmed, R. Church (2014) Re-imagining the Future: The Biomime Economy

Question: What were three cases used to map out three horizons?

Example: From current economy to a shared economy



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Exercise 1

Create 3 horizons diagram mapping out the future of your chosen project theme. Consider the following socio-technical issues that can affect your horizons:

- businesses & new technologies
- socio-economical changes, policies and civilization life-cycles
- growth, peak performance and decline

If you want to know more

- Meadows, D. H. (1999). Leverage points: Places to intervene in a system (pp. 1-19). Hartland, VT: Sustainability Institute.
- Meadows, D. (2002). Dancing with systems. *Systems Thinker*, 13, 2-6.
- Jones, P. H. (2014) Systemic Design Principles for Complex Social Systems in G.S. Metcalf (ed.), *Social Systems and Design, Translational Systems Sciences vol. 1*, pp. 91-128 DOI 10.1007/978-4-431-54478-4_4, © Springer Japan 2014, E Book *Social System and Design* Gary Metcalfe

Assessment

1. What are the key recognisable relationship elements between service design and systemic design?
2. List some of the systemic & design tools
3. Apply a systemic design tool in a practical project (3H – mapping out future trends)

Next time

1. Project 1 Workshop + Case analysis
2. Tools: ATLAS game + Clarifying Priorities & Master Canvas by Peloton