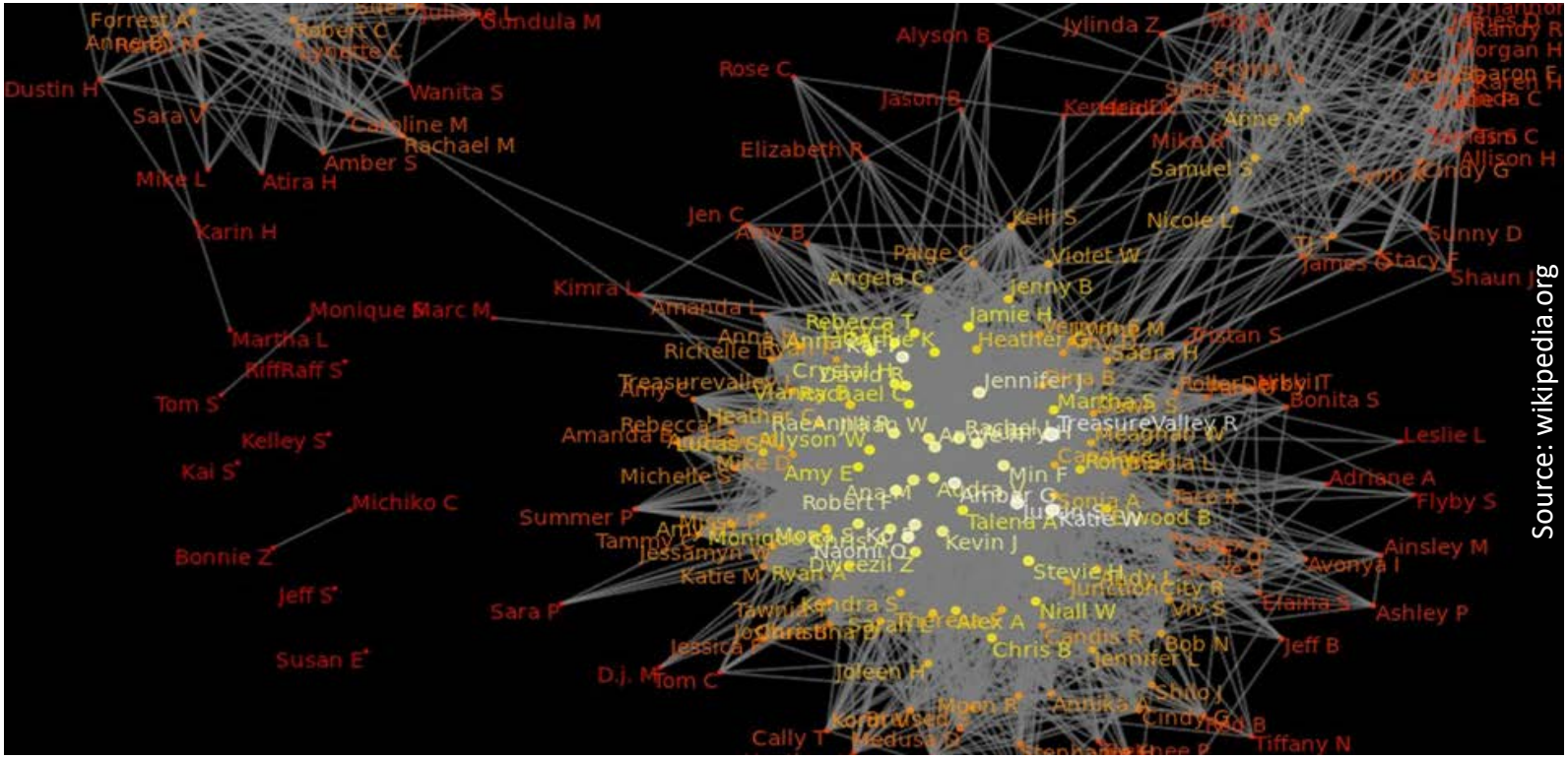


Anne Nigten

Networked Ecologies: People, City, Things

City of Things, June 21st,2016

CREATING

HOGESCHOOL ROTTERDAM

‘WE ARE LIVING IN A HYPERREALITY'

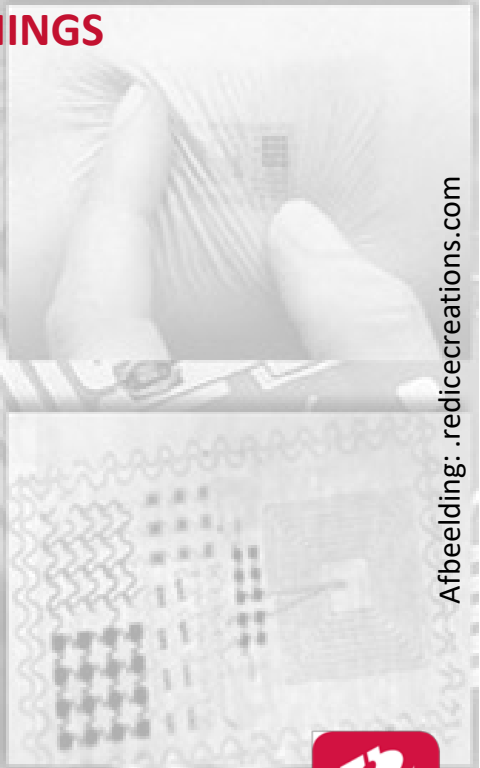
UMBERTO ECO, 1986

CREATING

HOGESCHOOL ROTTERDAM

NETWORKED ECOLOGIES: PEOPLE, CITY, THINGS

- CONTEXT
- NETWORKED ECOLOGY
- HUMAN CENTERED DESIGN?
- TRANSITION PROCESSES
- CASE STUDY
- TRANSITION DESIGN
- CASE STUDY



Afbeelding: .redicecreations.com

CREATING

HOGESCHOOL ROTTERDAM

CONTEXT

THE CITY TRANSFORMS TO A SMART CITY

iHealth, activity tracker

Fitbit, Wifi scale

CREATING

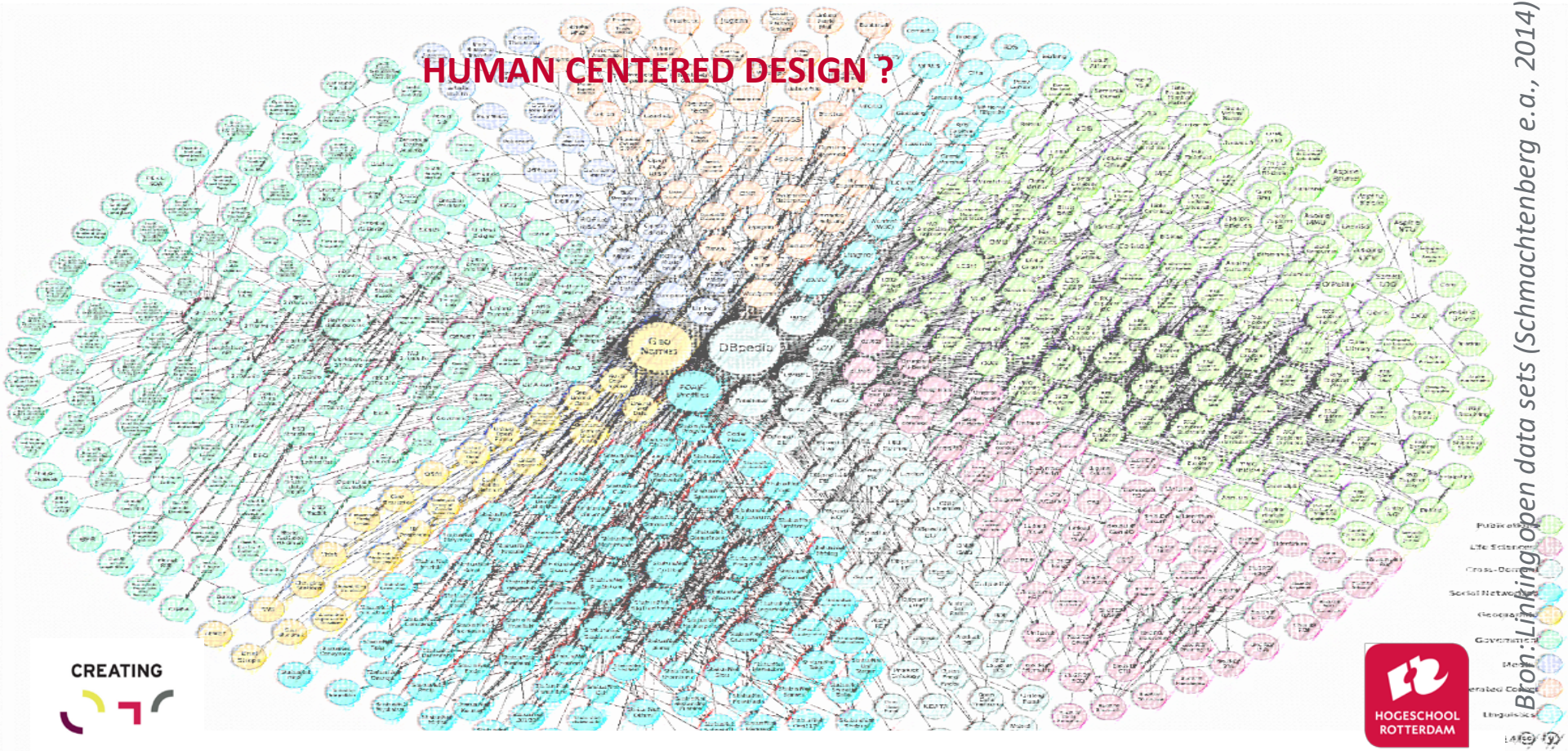
HOGESCHOOL ROTTERDAM

THE NETWORKED ECOLOGY

ACTOR NETWORK THEORY (BRUNO LATOUR, 1987, 2010)

- EMPHASIS ON INTERACTION
- 'ACTORS' IN THE NETWORK ARE PART OF THE NETWORK
- INTERACTION AMONG PEOPLE, GOVERNMENT, INDUSTRY, SMART OBJECTS, ROBOTS, ANIMALS, DEVICES AND SO ON
- ACTORS HAVE MULTIPLE ROLES

HUMAN CENTERED DESIGN ?



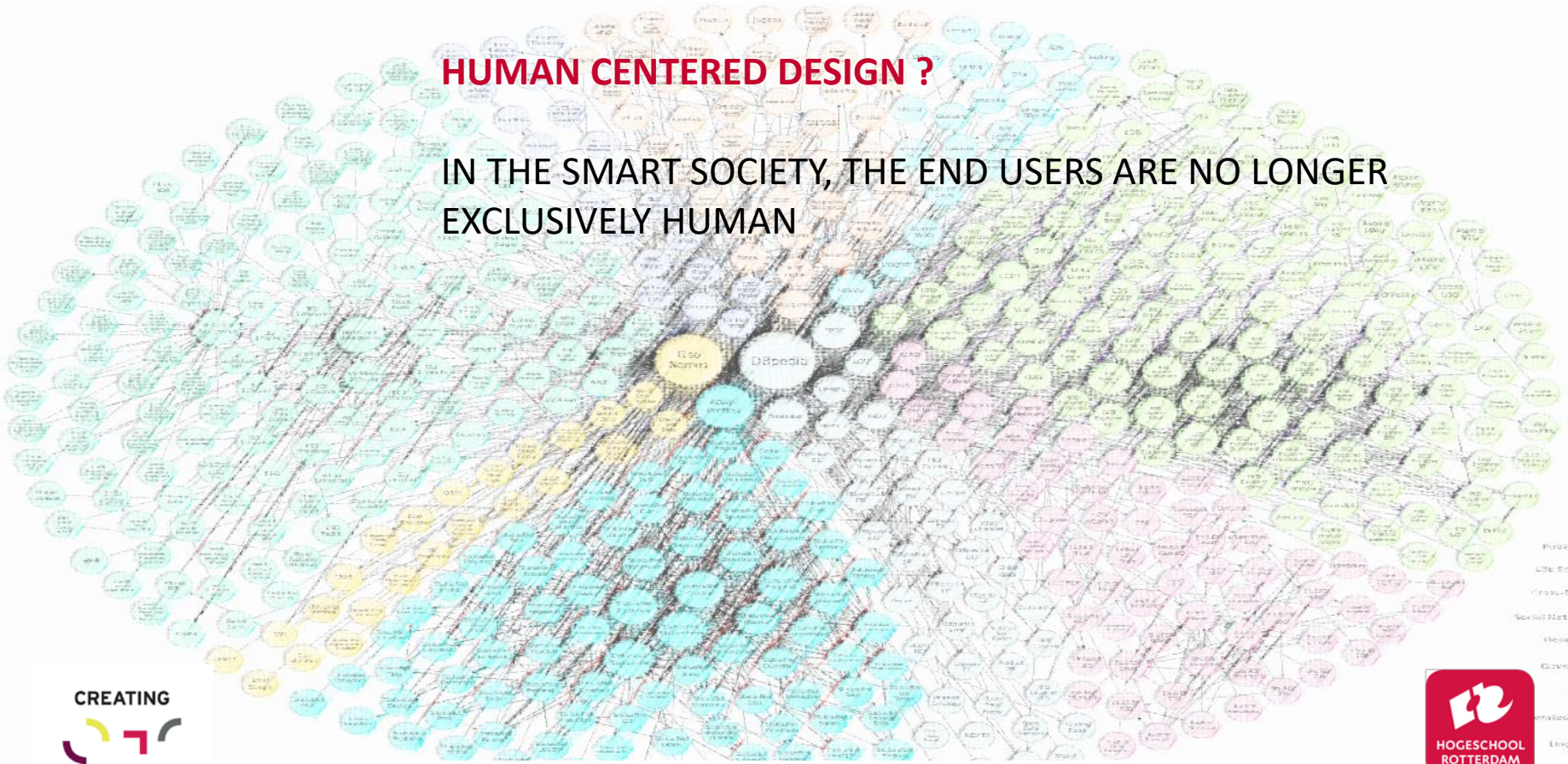
Bron: Linking open data sets (Schmachtenberg e.a., 2014)

CREATING

HOGESCHOOL ROTTERDAM

HUMAN CENTERED DESIGN ?

IN THE SMART SOCIETY, THE END USERS ARE NO LONGER EXCLUSIVELY HUMAN



Bron: Linking open data sets (Schmachtenberg e.a., 2014)

CREATING

HOGESCHOOL ROTTERDAM

HUMAN CENTERED DESIGN ?

IN THE SMART SOCIETY, THE END USERS ARE NO LONGER EXCLUSIVELY HUMAN

HUMAN USERS ARE PLAYING AN INCREASINGLY ACTIVE ROLE IN THE DESIGN PROCESS.

Bron: Linking open data sets (Schmachtenberg e.a., 2014)

CREATING

HOGESCHOOL ROTTERDAM

HUMAN CENTERED DESIGN?

HUMAN CENTERED DESIGN ISSUES IN THE NETWORKED ECOLOGY

1. THE (RE) EMPOWERMENT OF HUMAN BEINGS IN THE NETWORKED ECOLOGY

2. THE VALUES, HUMAN AND OTHERWISE, PROGRAMMED INTO THE SOFT- AND HARDWARE (META DESIGN)

TRANSITION PROCESS

TRANSITION PROCESSES BRING ABOUT IRREVOCABLE SHIFTS IN VALUES, EVEN NEW SETS OF VALUES

(EHN, 2008, TILT FACTOR, 2013, AVELINO ET AL 2014)

TRANSITION PROCESS

WICKED PROBLEMS (RITTEL & WEBBER, 1973)

ACTOR NETWORK THEORY (LATOUR, 1987, 2010)

Claim your smart citizenship!
Creating 010

TRANSITION PROCESS

THE CITY BECOMES A SMART CITY

CASUS: CLAIM YOUR SMART CITIZENSHIP!

The Smart Citizen project,
Fablab Barcelona,et al

CREATING

HOGESCHOOL ROTTERDAM

CREATING

HOGESCHOOL ROTTERDAM

TRANSITION PROCESS

THE CITY BECOMES A SMART CITY

CASUS: CoProdUse

HOW CAN THE LOCAL GOVERNEMENT CALL ON CITIZENS' IDEAS AND BRAINPOWER?
HOW CAN THE CITIZENS BE EMPOWERED TO CO-DESIGN THEIR URBAN ENVIRONMENT?

CREATING

HOGESCHOOL ROTTERDAM

TRANSITION DESIGN

TRANSDISCIPLINARY COLLABORATION

TRANSDISCIPLINARY COLLABORATION AS A CONJOINING OF FORCES OF KNOWLEDGE AND EXPERIENCE NECESSARY FOR SOLVING SUPER WICKED PROBLEMS

(NICOLESCU, 1994, 2002, 2013; SOMERVILLE & RAPPORT, 1998, 2000, NIGTEN, 2009, 2013)

CREATING

HOGESCHOOL ROTTERDAM

TRANSITION DESIGN

TRANSDISCIPLINARY COLLABORATION

“Transdisciplinarity may even be described as ‘intellectual outerspace’. But to have an ‘outerspace’ necessarily requires that there would be an ‘innerspace’, and this ‘innerspace’ is provided by the disciplines.” (MARGARET SOMERVILLE, 1998)

CREATING

HOGESCHOOL ROTTERDAM

TRANSITION DESIGN

CATALYSTS AND TRANSITION DESIGNERS

AGENTS OF CHANGE (BARNARD ET AL, 2015)

Source: dobberendbos.nl / Jeroen Everaert - Mothership

CREATING

HOGESCHOOL ROTTERDAM

TRANSITION DESIGN

CATALYSTS AND TRANSITION DESIGNERS

AGENTS OF CHANGE (BARNARD ET AL, 2015)

LOCAL AND INTERNATIONAL CONTEXT

TRANSITION DESIGN (IRWIN, 2015, SANDERS & STAPPERS, 2008)
DRIFT
CITIZENS INITIATIVES

TRANSITIONDESIGN.NET

Source: dobberendbos.nl / Jeroen Everaert - Mothership

Bron: dobberendbos.nl/ Jeroen Everaert - Mothership

CREATING

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AGENTS OF CHANGE

SMOG FREE TOWER, STUDIO ROOSEGAARDE
I.C.W. ENS EUROPE & BOB URSEM, TU DELFT (2015)

‘I THINK WE SHOULD BE DOING MORE TOWARDS THE HEALTHY CITY OF THE FUTURE.’ (ROOSEGAARDE, 2015)

CREATING

HOGESCHOOL ROTTERDAM

MORE INFORMATION

Design in a genetwerkte ecologie /
Design in a networked ecology

Anne Nigten

CREATING010.COM
RESEARCHGATE.NET/PROFILE/ANNE_NIGTEN
FACEBOOK.COM/**ANNE.NIGTEN**
LINKEDIN.COM/IN/**ANNENIGTEN**
PATCHINGZONE.NET

CREATING

HOGESCHOOL ROTTERDAM

AGENTS OF CHANGE

Source: dobberendbos.nl / Jeroen Everaert - Mothership

CREATING

HOGESCHOOL ROTTERDAM

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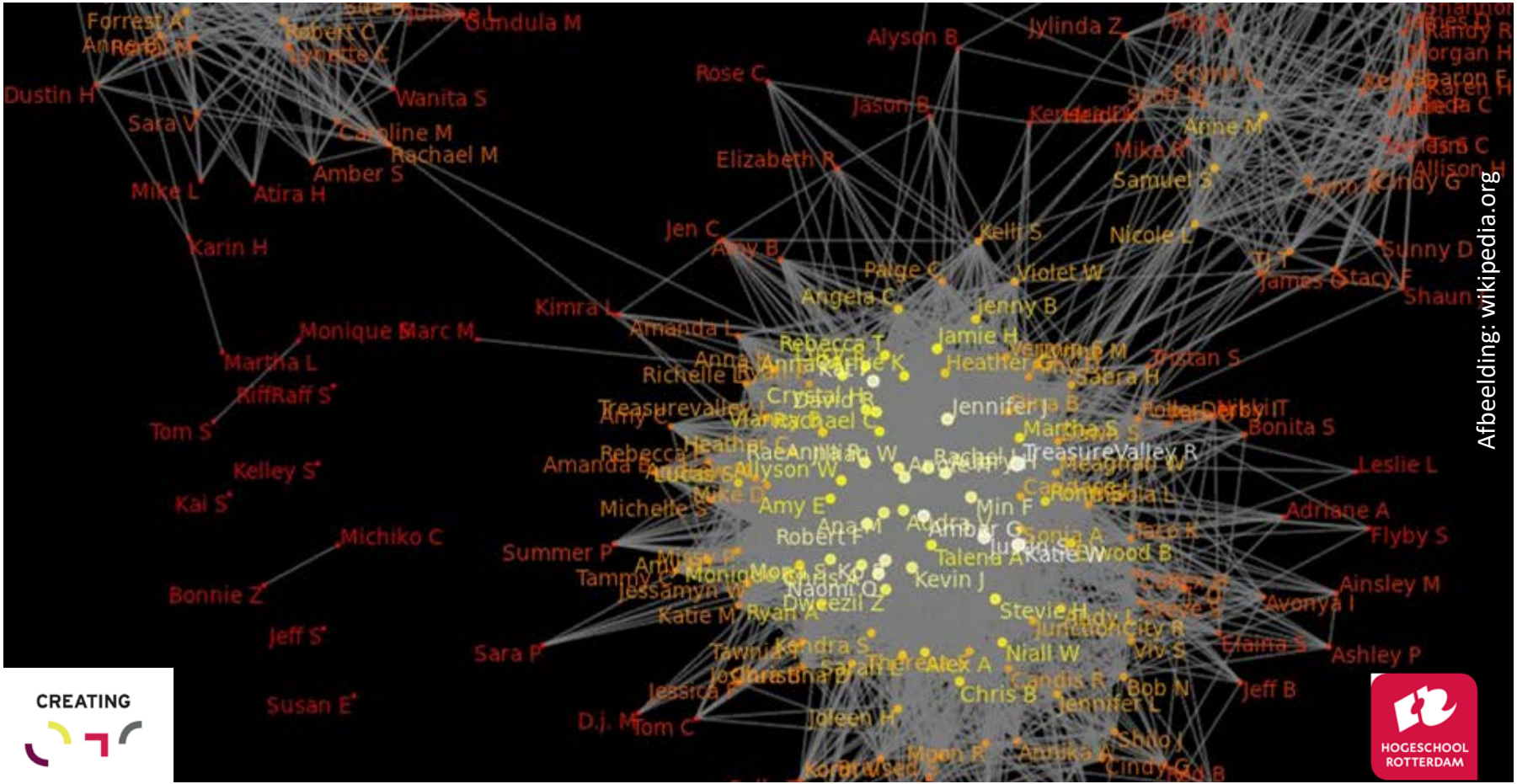
CREATING

HOGESCHOOL ROTTERDAM

CREATING

HOGESCHOOL ROTTERDAM



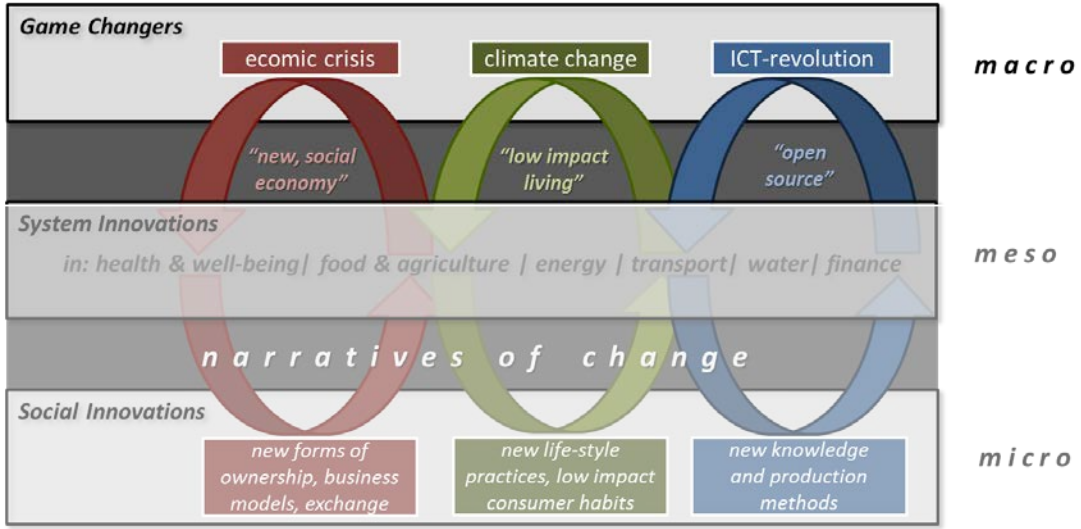
Afbeelding: wikipedia.org

CREATING

HOGESCHOOL ROTTERDAM

TRANSITION DESIGN

GAME CHANGERS



MULTI-LEVEL PERSPECTIVE ON TRANSFORMATIVE SOCIAL INNOVATION, AVELINO E.A. 2014

CREATING

HOGESCHOOL ROTTERDAM

GEBRUIKERSGEMAK

Motorola Bravo express (1996)

iPAD 1 (2010)

JUNG-WOO LEE (2016)

STICKNFIND (2016)

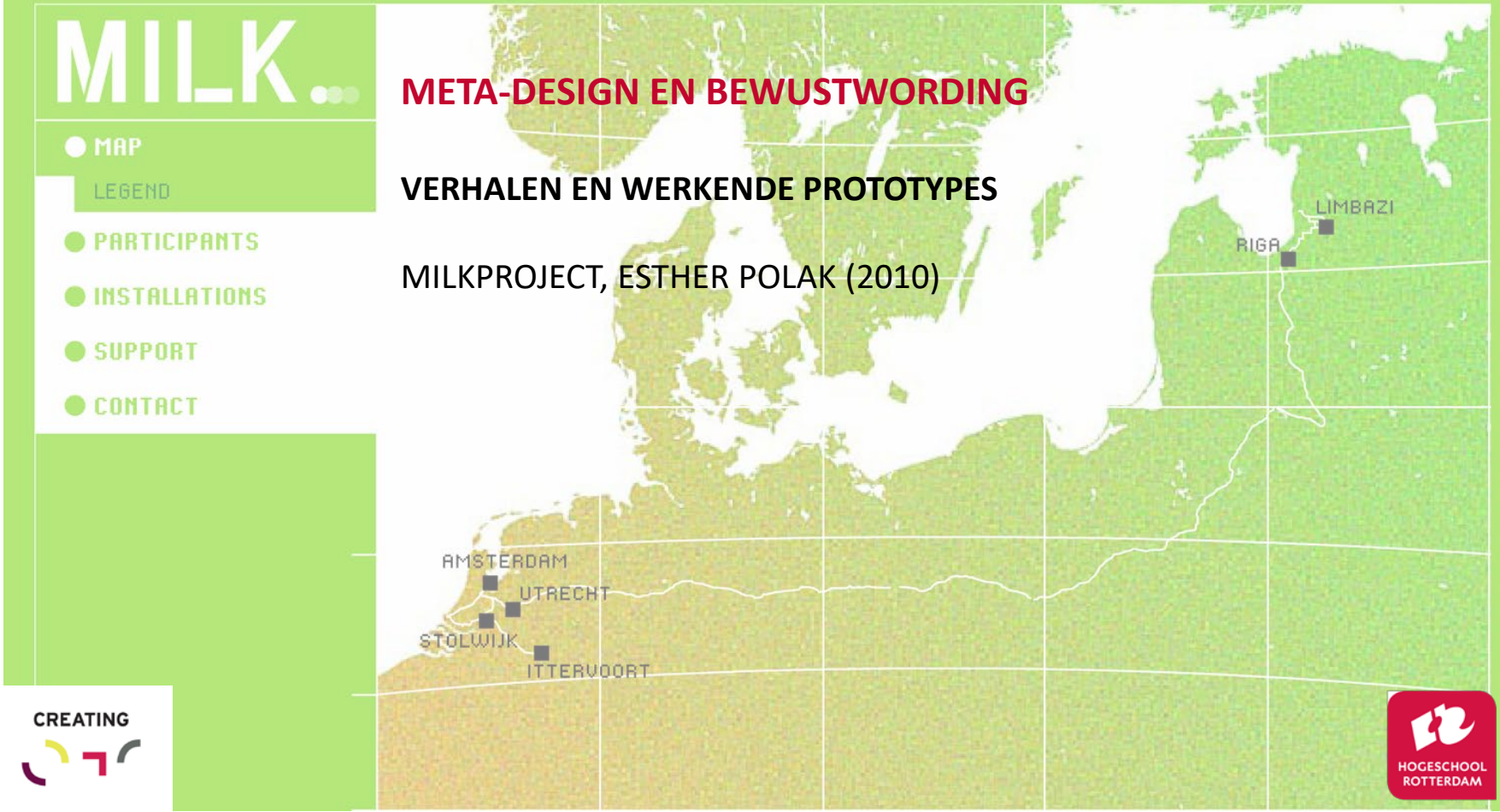
CREATING

HOGESCHOOL ROTTERDAM

META-DESIGN EN BEWUSTWORDING

VERHALEN EN WERKENDE PROTOTYPES

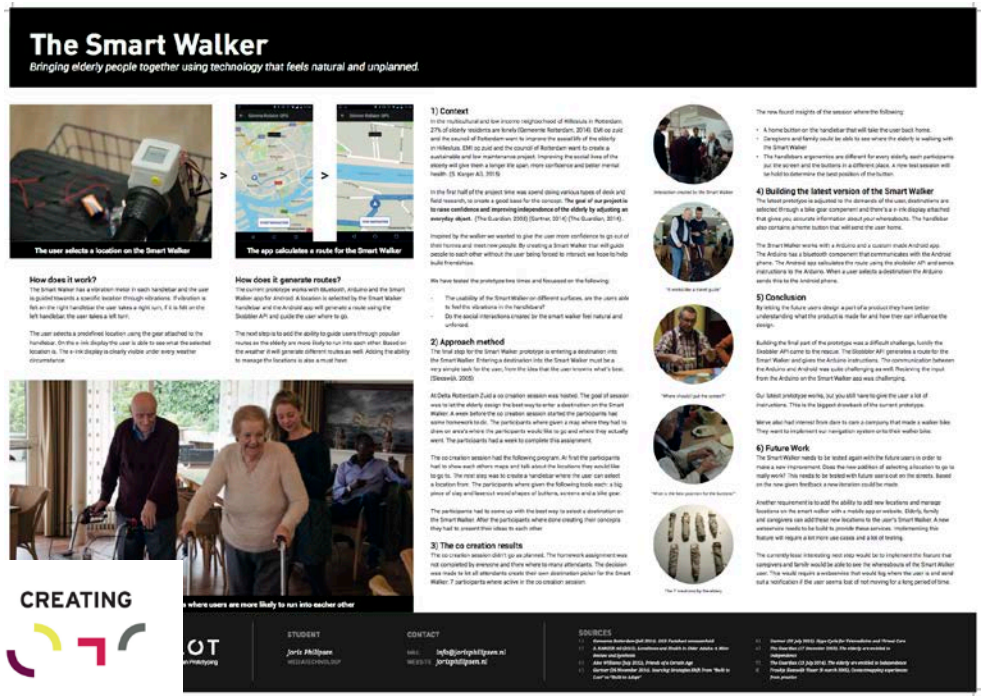
MILKPROJECT, ESTHER POLAK (2010)



CREATING

HOGESCHOOL ROTTERDAM

TRANSITIEPROCESSEN



The Smart Walker

Bringing elderly people together using technology that feels natural and unplanned.

The user selects a location on the Smart Walker

The app calculates a route for the Smart Walker

How does it work?

The Smart Walker has a vibration motor in each handlebar and the user is guided towards a specific location through vibrations. If vibration is felt on the right handlebar the user takes a right turn, if it is felt on the left handlebar, the user takes a left turn.

The user selects a predefined location using the gear attached to the handlebar. On this e-ink display the user is able to see what the selected location is. The e-ink display is clearly visible under every weather circumstance

How does it generate routes?

The current prototype works with Bluetooth, Arduino and the Smart Walker app for Android. A location is selected by the Smart Walker handlebar and the Android app will generate a route using the Stadsdler API and guide the user where to go.

The next step is to add the ability to guide users through popular routes so the elderly are more likely to run into each other. Based on the weather it will generate different routes as well. Adding the ability to manage the locations is also a must have.

1) Context

In the multicultural and low income neighborhood of Hillesluis in Rotterdam, 27% of elderly residents are lonely (Gemeente Rotterdam, 2014). EMI as just and the council of Rotterdam want to improve the overall life of the elderly in Hillesluis. EMI as just and the council of Rotterdam want to create a sustainable and low maintenance project. Improving the social lives of the elderly will give them a longer life span, more confidence and better mental health. (S. Karger AG, 2016)

In the first half of the project time was spend doing various types of desk and field research, to create a good basis for the concept. **The goal of our projects is to raise confidence and improving independence of the elderly by adjusting an everyday object.** (The Guardian, 2008) (Gartner, 2014) (The Guardian, 2014).

Inspired by the walker we wanted to give the user more confidence to go out of their homes and meet new people. By creating a Smart Walker that will guide people to each other without the user being forced to interact we hope to help build friendships.

We have tested the prototype two times and focussed on the following:

- The usability of the Smart Walker on different surfaces, are the users able to feel the vibrations in the handlebar?
- Do the social interactions created by the smart walker feel natural and unforced.

2) Approach method

The first step for the Smart Walker prototype is entering a destination into the Smart Walker. Entering a destination into the Smart Walker must be a very simple task for the user, from the idea that the user knows what's best. (Slosevick, 2005)

At Delta Rotterdam Zuid a co creation session was hosted. The goal of session was to let the elderly design the best way to enter a destination on the Smart Walker. A week before the co creation session started the participants had some homework to do. The participants where given a map where they had to draw an area where the participants would like to go and where they actually went. The participants had a week to complete this assignment.

The co creation session had the following program. At first the participants had to show each others maps and talk about the locations they would like to go to. The next step was to create a handlebar where the user can select a location from. The participants where given the following tools each: a big piece of stag and leaverout wood shapes of buttons, screws and a little gear.

The participants had to come up with the best way to select a destination on the Smart Walker. After the participants where done creating their concepts they had to present their ideas to each other.

3) The co creation results

The co creation session didn't go as planned. The homework assignment was not completed by everyone and there where to many attendees. The decision was made to let all attendants create their own destination picker for the Smart Walker. 7 participants where active in the co creation session.

The new found insights of the session where the following:

- A home button on the handlebar that will take the user back home.
- Caregivers and family could be able to see where the elderly is walking with the Smart Walker
- The handlebars ergonomics are different for every elderly, each participants put the screen and the buttons in a different place. A new test session will be hold to determine the best position of the button.

4) Building the latest version of the Smart Walker

The latest prototype is adjusted to the demands of the user, destinations are selected through a bike gear component and there's a e-ink display attached that gives you accurate information about your whereabouts. The handlebar also contains a home button that will send the user home.

The Smart Walker works with a Arduino and a custom made Android app. The Arduino has a bluetooth component that communicates with the Android phone. The Android app calculates the route using the stadsdler API and sends instructions to the Arduino. When a user selects a destination the Arduino sends this to the Android phone.

5) Conclusion

By letting the future users design a part of a product they have better understanding what the product is made for and how their can influence the design.

Building the final part of the prototype was a difficult challenge, luckily the Stadsdler API came to the rescue. The Stadsdler API generates a route for the Smart Walker and gives the Arduino instructions. The communication between the Arduino and Android was quite challenging as well. Receiving the input from the Arduino on the Smart Walker app was challenging.

Our latest prototype works, but you still have to give the user a lot of instructions. This is the biggest drawback of the current prototype.

We've also had interest from dare to care a company that made a walker bike. They want to implement our navigation system on to their walker bike.

6) Future Work

The Smart Walker needs to be tested again with the future users in order to make a new improvement. Does the new addition of selecting a location to go to really work? This needs to be tested with future users out on the streets. Based on the new given feedback a new iteration could be made

Another requirement is to add the ability to add new locations and manage locations on the smart walker with a mobile app or website. Elderly, family and caregivers can add these new locations to the user's Smart Walker. A new webservice needs to be build to provide these services. Implementing this feature will require a lot more use cases and a lot of testing.

The currently least interesting next step would be to implement the feature that caregivers and family would be able to see the whereabouts of the Smart Walker user. This would require a webservice that would log where the user is and send out a notification if the user seems lost of not moving for a long period of time.

Interaction created by the Smart Walker

"It reminds me a travel guide"

"Where should I put the screen?"

"What is the best position for the buttons?"

The 7 involved by the elderly

where users are more likely to run into eacher other

STUDENT
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SOURCES

CREATING

A solution to help reduce loneliness

How to create more social interaction between the elderly

Context

Loneliness can be defined but, what now?

The municipality of Rotterdam has a growing problem: "How can we solve loneliness among the elderly?" [1]. With a team of six students of the course Making and Urban Innovation Design, we were asked in September of 2015, to help find solutions for this problem. After doing different types of research such as desk research, fieldstudies and in depth interviews, we concluded that loneliness can somewhat be defined through categorizing the elderly in three types: "Happy Alone" "Neutral Alone" and "Depressed Alone".

These three types represent the feeling that someone's personality has in its centre. Content and personality influence eachother which is why someone that has the most depressing context, could still be Happy Alone, her happy personality influences the way she perceives this context thus making her a positive and happy person. These three types not only influence themselves, they also influence eachother in either positive or negative way. [2].

After this research we started brainstorming and proposed several solutions.

Initial concept

Design guidelines for the concept

The first concept that was created while brainstorming was to combine the "Neutral Alone" and the "Happy Alone" in a community through a device that was placed in the houses of those Alones and outside of their houses. The device looks like a cube showing colour. The idea was aim to notify the elderly if he or she had not been outside their room in a day through showing a more and more intense colour as the day progresses. This whenever, is not only seen inside the house but also on the outside the elderly lives in. This way, the neighbours of the elderly might take action and ring the bell, creating a social interaction. The cube would also know and alarm when someone was ringing the doorbell or when an event would occur in the meeting area of the retirement home of the elderly. Different colours will be shown for different nonverbal messages, like for the bell.

Goal

A means that facilitates interaction between the Happy Alone's and the Neutral Alone's and develop the already existing community within a retirement home.

Approach

Co creation of the final concept

We wanted to give this initial concept more meaning through a co creation session with the elderly of Hillesluis [3].

A co creation session was conducted, consisting of two assignments and a probe with fourteen elderly participants, at the 8th of January 2016.

The participants were a mix of all the types of Alone's and it was found out that most of them had mental problems. The co creation session was adapted to this knowledge since we tried to carry the assignments and questions as basic as possible while still getting information that could be useful.

The elderly were given a probe before the co creation sessions, where they were scrolled to fill in their activities throughout a day. This probe was more an introduction to our assignments but it could give information about how many times an elderly goes outside their home and whether or not they do that on their own.

The goal of the co creation session was to find out which colours had which effect on the emotion that the elderly felt. This is important because we wanted to motivate the elderly in a positive way with our concept.

Another goal was to see what would trigger the elderly to ring the bell of their neighbours or what would trigger an elderly to go outside. (See plan 1).

The first assignment was done to find out about the colours and the emotions felt with the colours mentioned. The colours were chosen beforehand and printed on paper cards. The twelve most common emotions were also printed on paper cards alongside with many empty cards so that the elderly could fill in an other emotion than just the twelve.

A philips hue lamp was used to demonstrate the six colours mentioned, to give the elderly a proper feel of how the colour would look in a room.

The second assignment that was given to the elderly was to find out how much they would do for their own social interaction or for their neighbour. This was done through proposing different statements, for instance: "I would ring the door bell if I know that my neighbour has not been outside for a while" and observe if the elderly would agree or disagree.

The co creation session took place in the local small community center of Hillesluis where the elderly come for activities and drink coffee. The session lasted for an hour and a half.

Analysis

The findings of the co creation session

During the first assignment, it was found that different colours caused different feelings for every participant. The colour green was the most positive with only positive reactions. It was also found that the lighter the colour, the more positive the colour was perceived (See plan 2).

With the second assignment alongside with the probe, it was found that the elderly had a top three of activities they would do will their neighbours. Going to the park, drinking coffee and going grocery shopping were listed the highest. While filling in the probe it was also found that our concept should consider when the elderly get out of bed and go to sleep so that the cube won't shine throughout the night.

Photo 5: Conducting the co creation session.

Results

What was yield during the co creation session

- Green is found to be the most positive with emotions such as energetic, happiness and joy. The more dark the colour get, the more negative the emotions were.
- The elderly go to sleep around 11 PM and wake up around 8 AM.
- The most mentioned activities were: drinking coffee and taking medicine.
- The elderly would want to go to the park, drink coffee and go shopping, together with their neighbour.

Conclusion

The cube needs to be refined

To motivate the cube more complete, it is needed to carefully consider which colours will be used the which activity. The co creation session also showed that it was important to keep the cube as simple as possible for the elderly that might not remember every type of colour for every activity that is used for it. It needs to stay simple.

The cube needs to consider the bed time and wake up time of the elderly so that the cube will not shine throughout the night.

Final Concept

The companion cube.

The final concept has adapted the results of the co creation session. The companion cube is a cube that can be placed in the home of the elderly and also hangs outside of his/her home. A motion sensor detects whether the elder is inside his/her home and how long this has been. If the elder has been in the home for too long, the cube will turn more green. This way not only the elder sees that he / she has not been outside, but also the neighbours see this and ring the bell. As soon as the bell rings, the cube will give a pulsing very light blue output to notify the elderly not only through sound but also through vision (See plan 3).

Photo 2: A photo of the Companion Cube

Proof of concept

User testing our final concept

To proof this concept, a user test was conducted on the 18th of January 2016 with six participants (Happy Alone's and two Neutral Alone's) from another retirement home. During this user test it was found that all of them would ring the bell if one of their neighbours had a bright green light in their cube and five of them would consider having one themselves.

(For more information about this, see Gold's poster).

Photo 3: A user test with six users.

Discussions

Refining this Companion cube through participatory design.

To fully understand the impact of our concept, it needs to be tested through a try-out within the home of an elder. It is preferred that this elder is a "Neutral Alone" and does not come outside of his/her home a lot. This way, the cube and the idea behind it can be fully tested for a couple of days and it will show if the elder and the neighbours will change their behaviour in a positive way, having more social interactions by going outside more.

The way the cube looks can also be discussed since there might be a way that the elderly like their furniture the best. The cube needs to be a part of their furniture and not some weird object in the elder's house.

[1] Rijnmond (2015). Hoeveel eenzaamheid onder 1 op 4 ouderen? Retrieved on: http://www.rijnmond.nl/nieuws/96.00.2015/1/hoeveel-eenzaamheid-onder-1-op-4-ouderen
[2] Cacioppo, J.T., Hawkley, L.M., Thisted, R. A. (2010). Alone in the crowd: The structure and spread of loneliness in a large social network.
[3] Wisker, M. J. (2005). Participatory design. An inter disciplinary approach. Retrieved on: https://www.researchgate.net/profile/Alison_Evans/publication/228651135_Participatory_design_an_inter_disciplinary_approach/links/53fb0132cf2d6d9d7c6d0a0a.pdf

CREATING

VLOT
Rapid Urban Prototyping

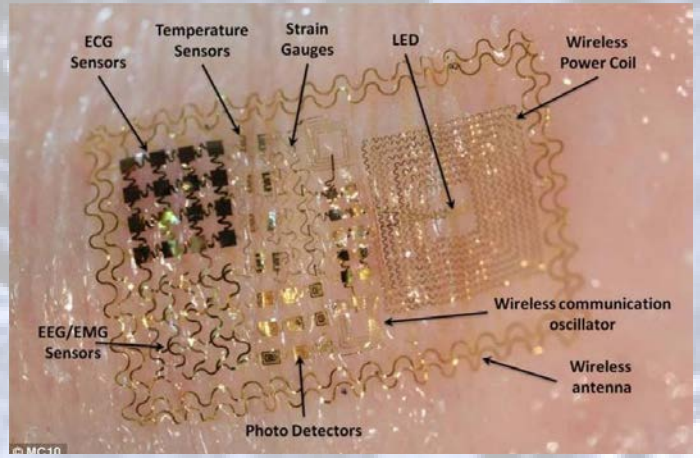
STUDENT
Susanne van Rossum

HOGESCHOOL ROTTERDAM

TRANSITIEPROCESSEN

ZORG & WELZIJN

WE BEVINDEN ONS IN EEN TRANSITIE VAN ZORG NAAR SLIMME ZORG



BIOSTAMP, MC10

Bronnen: www.bibliotecapleyades.net; iwsinc.com

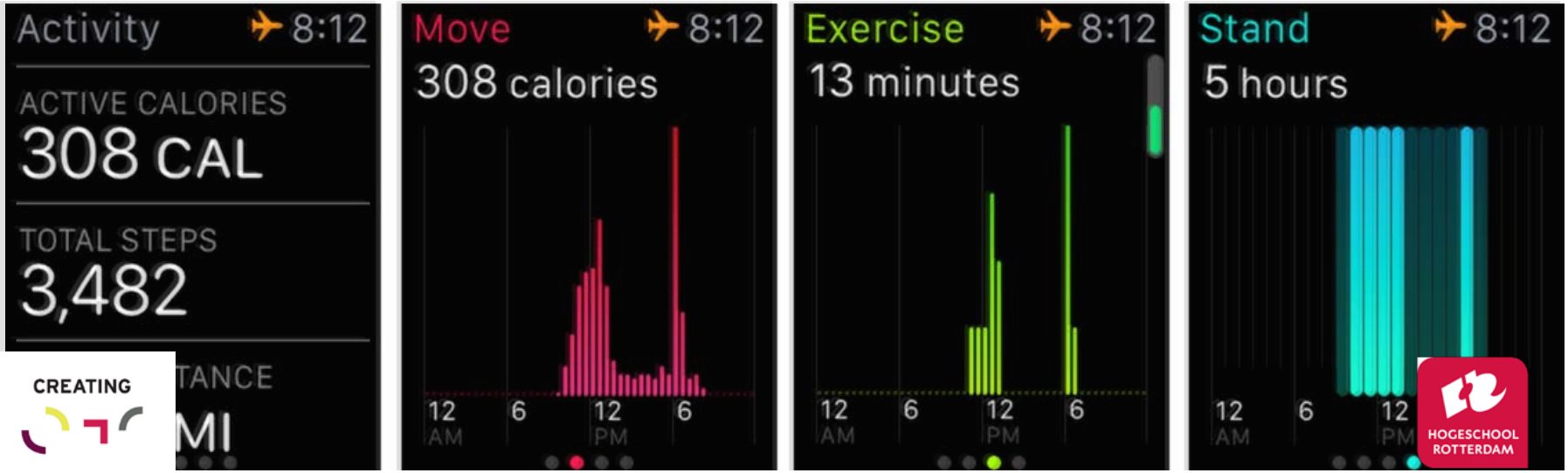
CREATING

HOGESCHOOL ROTTERDAM

TRANSITIEPROCESSEN

BIG DATA & PRIVACY

BIG DATA, QUANTIFIED SELF



CREATING

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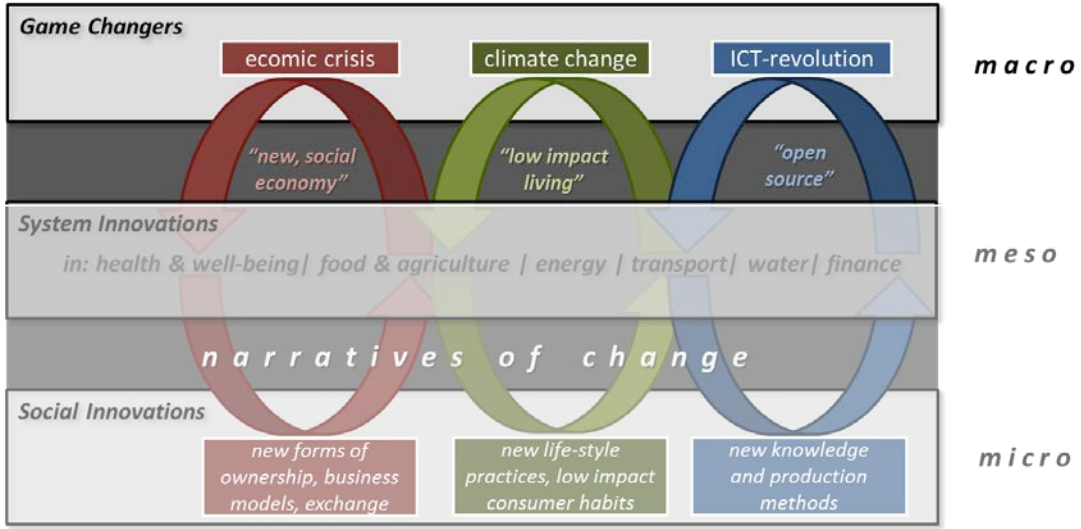
TRANSITIEDESIGN

GAME CHANGERS



MULTI-LEVEL PERSPECTIVE ON TRANSFORMATIVE SOCIAL INNOVATION, AVELINO E.A. 2014

CREATING

HOGESCHOOL ROTTERDAM

TRANSITIEDESIGN

TRANSDISCIPLINAIRE SAMENWERKING

THIRD SPACE (MULLER, 2003)

BASISKENNIS VAN PROGRAMMEREEN EN MEDIATHEORIE ALS GEMEENSCHAPPELIJKE TAAL

CREATING

HOGESCHOOL ROTTERDAM

GENETWERKTE ECOLOGIE (*NETWORKED ECOLOGY*)

VERMENGING ONLINE EN DE OFFLINE WERKELIJKHEID

‘HYPERREALITEIT’ (UMBERTO ECO, 1986)

Afbeelding: wikipedia.org

CREATING

HOGESCHOOL ROTTERDAM

EMANCIPATIE

“Wat nodig is, is een studium generale digitale materiaalkunde.”
(GEERT LOVINK, 2012)

CREATING

HOGESCHOOL ROTTERDAM

TRANSITIEDESIGN

TRANSDISCIPLINAIRE SAMENWERKING

ALS NOODZAKELIJKE BUNDELING VAN KENNIS EN ERVARING VOOR SUPER *WICKED PROBLEMS*
(NICOLESCU, 1994, 2002, 2013; SOMERVILLE & RAPPORT, 1998, 2000)

"Transdisciplinarity may even be described as 'intellectual outerspace'. But to have an 'outerspace' necessarily requires that there would be an 'innerspace', and this 'innerspace' is provided by the disciplines." (MARGARET SOMERVILLE, 1998)

TRANSITIEDESIGN

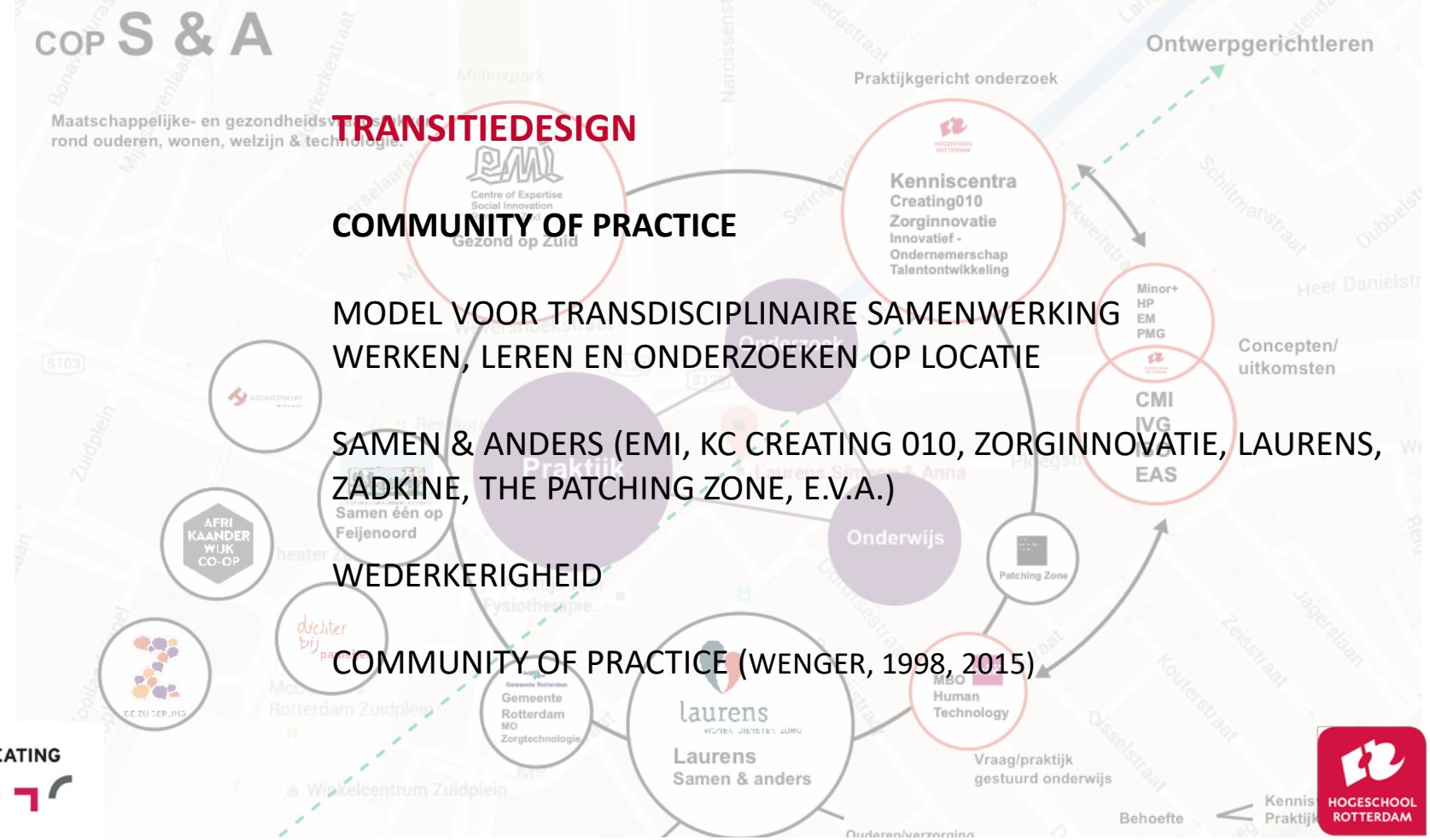
COMMUNITY OF PRACTICE

MODEL VOOR TRANSDISCIPLINAIRE SAMENWERKING
WERKEN, LEREN EN ONDERZOEKEN OP LOCATIE

SAMEN & ANDERS (EMI, KC CREATING 010, ZORGINNOVATIE, LAURENS, ZADKINE, THE PATCHING ZONE, E.V.A.)

WEDERKERIGHEID

COMMUNITY OF PRACTICE (WENGER, 1998, 2015)



TRANSITIEPROCESSEN

DUURZAAMHEID

1. BEWUSTWORDING RONDOM DUURZAAMHEID (BARNARD E.A. 2015; VAN DARTEL & NIGTEN, 2015; NIGTEN & VAN DARTEL, 2014)
2. VERBINDING MET RIFKIN'S THIRD INDUSTRIAL REVOLUTION (RIFKIN, 2013)

SPECULATIEF DESIGN ?

CREATING

HOGESCHOOL ROTTERDAM

GENETWERKTE ECOLOGIE (*NETWORKED ECOLOGY*)

SOCIAAL-CULTUREEL PERSPECTIEF

- REFLECTIE EN BESPIEGELING
- *SPECULATIVE DESIGN* EN *DESIGN FICTION* (DUNNE & RABY, 2013)

CREATING

HOGESCHOOL ROTTERDAM

MENSGERICHT ONTWERPEN ?

EMANCIPATIE

"I have always imagined the information space as something to which everyone has immediate and intuitive access, and not just to browse, but to create."

(TIM BERNERS-LEE, 2000)

Bron: Linking open data sets (Schmachtenberg e.a., 2014)

CREATING

HOGESCHOOL ROTTERDAM

MENSGERICHT ONTWERPEN?

EMANCIPATIE

APPS

ONLINE TOOLS VOOR DOE-HET-ZELVEN (FOTOBOEK)

IEDEREEN IS EEN DESIGNER ! (GERRITZEN E.A., 2003)

"Wat nodig is, is een studium generale digitale materiaalkunde."
(GEERT LOVINK, 2012)

CREATING

HOGESCHOOL ROTTERDAM

META-DESIGN EN BEWUSTWORDING

VERHALEN EN WERKENDE PROTOTYPES

(ANDERSEN E.A., 2006)

POINTS OF DEPARTURE, THE PATCHING ZONE (LLORET, 2015; VAN DER MEER, 2015; DOVEY; 2015; SEYNAEVE, 2015; NIGTEN, 2013, 2015).

CoProdUse

CREATING

HOGESCHOOL ROTTERDAM

AGENTS OF CHANGE

SMOG FREE TOWER, STUDIO ROOSEGAARDE
I.S.M. ENS EUROPE & BOB URSEM, TU DELFT (2015)

‘I THINK WE SHOULD BE DOING MORE TOWARDS THE HEALTHY CITY OF THE FUTURE.’ (ROOSEGAARDE, 2015)

CREATING

HOGESCHOOL ROTTERDAM