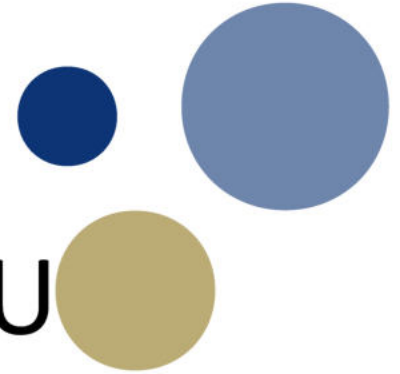


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19.12.2019



Promoting Critical Citizen Participation in Technology Development:

Enabling Responsible Research and Innovation
through Science Humanities and Arts Knowledge



NTNU – Trondheim
Norwegian University of
Science and Technology

Exercises (SHAKE)

One two-part thesis



- Responsible Research and Innovation (RRI) needs to consider the soft –besides the hard- impacts of technology and
- Art-based approaches help engage a broader public in reflecting on soft impacts, in an empowering mode.

‘Soft’ impacts



- Technologies are important to govern not only because they can poison, pollute and explode but because they can co-shape our identities, values and relationships
 - These are **soft**, vs. hard impacts of technology. (Swierstra 2009, 2015)
- VERY hard, and controversial, to regulate.

Why Arts?



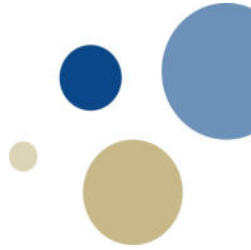
- **Simplify and make accessible** (cf. Kupper 2017)
- **Play and make concrete** (cf. Calvert & Schyfter 2017, Ginsberg et al. 2014, Driessen et al. 2014)
- **Bring the body into ‘material deliberation’**
(cf. Davies et al 2012)

Why Arts?



PLUS:

- Attend to the ‘soft impacts’ of technology – GOOD LIFE ethics
- Empower through play – SHAKE



Science Humanities & Arts Knowledge Experiences

Outline



1. Attending to soft impacts – A philosophical argument for why the arts matter in RRI
2. Art as RRI – How to SHAKE soft impacts into visibility
 - Response/able walking
 - Virtuous designs (play!)
3. Discussion: Feedback and feed-forward



1. Attending to soft impacts

—

A philosophical argument for
why the arts matter in RRI

1.1 Responsible Research & Innovation

Prior approaches

- Risk-assessment after a product is made ‘downstream’
- Regulation upfront through law and directives ‘upstream’

RRI –

REAL-TIME – MIDSTREAM

WITH THE TROUBLE



1.1 RRI – why?



Solution seeking (von Schomberg 2011, 8)

- Time lag from development to market is too big
- Avoiding “lock in” but getting enough knowledge to anticipate risks (Collingridge dilemma)
- Ensuring societal acceptance

1.1 RRI – Technology Governance



As we read on website of Horizon 2020:

- Responsible Research and Innovation (RRI) implies that **societal actors** (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society.



That sounds great!
– but difficult!



1.2 Intimate Technology and Soft Impacts

Many of today's most eye-catching technologies
are 'intimate' (Van Est et al 2014)

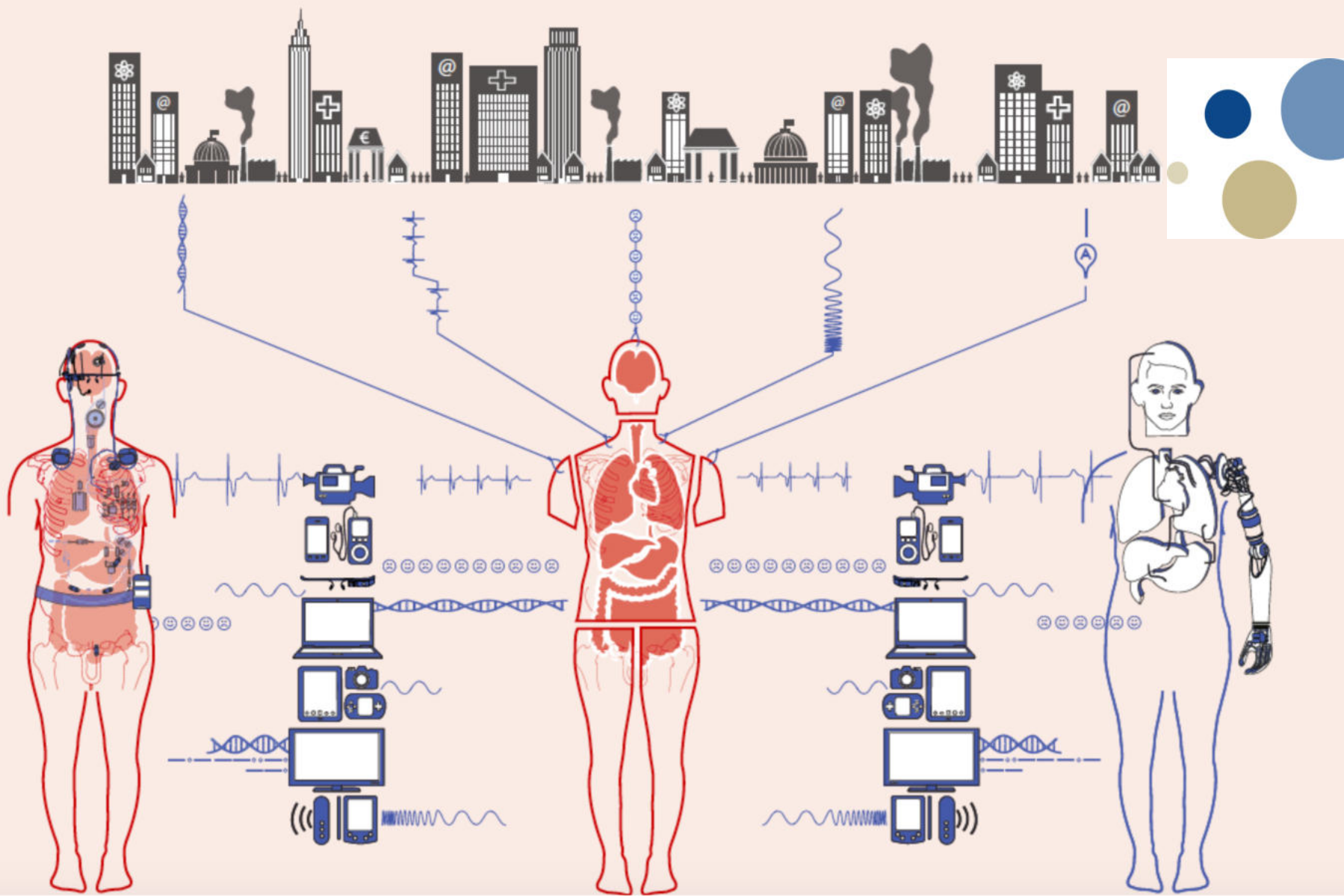


Image on Van Est et al 2014 p. 72

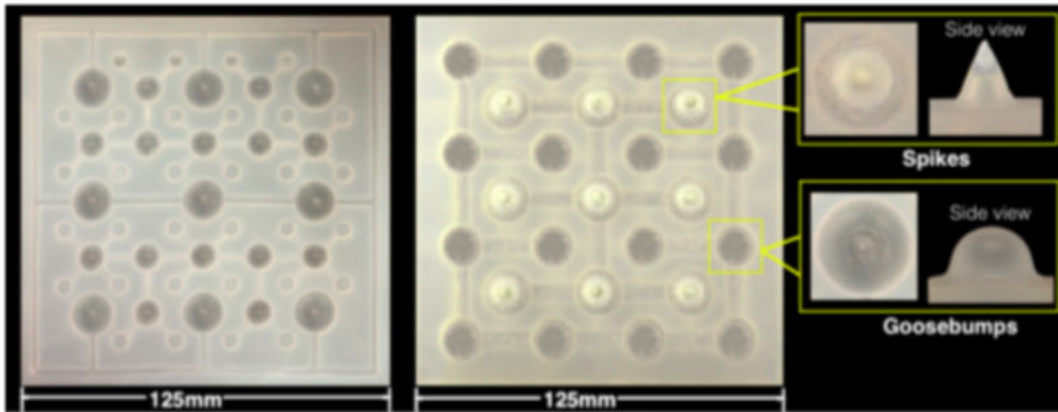


Fig. 1. Two socially expressive Texture Modules: multi-scale Goosebump Texture Units (TUs) (left) and a mixture of Goosebump and Spike TUs. Each set of TUs is controlled separately via a fluidic conduit network.



‘Soft skin texture modulation for social robotics’

Hu et. al (2018)

Available at
<http://guyhoffman.com/publications/HuSoftRob18.pdf>

Intimate technology



Technologies exist increasingly

in us,

between us,

around us, and purport to be more

like us e.g.

- Implants
- Self-quantification
- Augmented reality

Soft impacts



Important for RRI

- co-shape what we consider a ‘good life’ and what we owe to each other:
 - norms and values
 - identities
 - bodies
 - aspirations and desires
 - responsibilities
 - vulnerabilities and virtues

Soft impacts



- *qualitative* rather than quantitative changes
- morally *uncertain*
- *co-produced* by how technology and its users are entangled in society

Soft: Qualitative changes e.g.



- Does preventive medicine change **conceptions** of who are ‘ill’ and ‘healthy’? If so, is that for the good? For whom? (Boenink 2009)
- Does self-quantification lead to richer or impoverished **lives**? (Sharon 2017)
- Does Facebook affect friendship and **identity**? (Chambers 2013)
- What does it mean to be truly **human**, and is that still a desirable goal? (Kane 2004)

Soft: Morally ambiguous



- Secular pluralism— lack of shared vocabularies
- Liberal political systems confined to ‘thin’ morality, neutral ‘traffic rules’ vs. ‘thick’ moralities prescribing how to live one’s life.

(Taylor 1989, MacIntyre

1984)

Soft impacts challenge the ‘solution’ of
privatising good life issues (cf Rose 1998).

e.g. Good life ethics questions



For example, is this technology

- o Wise?
- o Courageous?
- o Modest?
- o Caring?
- o Magnanimous?
- o Respectful?
- o ---A priority?

Soft: Co-produced



- By human-technology encounters and interactions
 - inviting, enabling, inspiring
- Responsibility and accountability will in these cases be distributed
 - soft impacts are often unanticipated and unintended. E.g. IVF, cell phones

1.3 Why Soft Impacts need the Arts and Humanities

- TOPIC: The arts and humanities study culture and morality
- METHOD: The arts can attend to, make visible and felt, how technologies are implicated in shaping everyday life.



2: Art as RRI: How to SHAKE soft impacts into visibility

2.1 How art meets RRI



- PARTICIPATORY: RRI values for co-governance and inclusion connect with ‘participatory art’
- EMPOWERING: Transforming the ‘audience’ into participants and ‘co-creators’ has proliferated across the visual and performing arts, esp. since the 1990s

Participatory art



Esp. since the 1990s

- Visual art: *This Progress* (Tino Seghal, 2010 and ongoing)
- Performing art: *The 100% City* (Rimini Protokoll, 2008 and ongoing)
- Experimental game field: Blast Theory

The new Socrates? Artist Tino Sehgal sets up talking shop in Athens agora

Tino Sehgal's latest interactive artwork in Athens pays tribute to the masters of philosophy – hopefully without the same deadly end result



THE GUARDIAN 24.05.2014, J. JONES

Art as RRI ?



- Participatory – co-governance
- Avant-garde, and neo-avant-garde:
 - Attack art institutions
 - Transform art into life
- Focus on people empowerment –e.g. Boal

Augusto Boal (1931-2009)



Augusto **Boal**
was very much
inspired by
German theatre
maker Bertolt
Brecht (creator
of the
*estrangement*²⁹

The Spect-Actor



- ***Forum Theatre*** is one of the several theatre forms that Boal devised as part of his **Theatre of the Oppressed**—which he established, together with the Workers' Party (PT), in the early 1970s—
- A participatory theatre form that fosters democratic and cooperative forms of interaction among participants.

The Spect-Actor



- In Boal's *Forum Theater*, the actors begin with a dramatic situation from **everyday life**, a **political or social problem** with a difficult solution and of an oppressive nature.
- Audience members are invited to **intervene** by stopping the action, coming on stage to replace actors and **leading the action** in the way that seems most appropriate.

The specere- matters like the -act



One can explore and imagine things being otherwise in the **safety** of the art context, training abilities to be applied in real life

- Pausing
- Listening
- Imagining
- Failing

The **specere**- matters like the -act



Besides empowering one to act, theater can give a fresh **awareness** of one's everyday reality

Eugène Ionesco



We need to be virtually bludgeoned into detachment from our daily lives, our habits and mental laziness, which conceal from us the strangeness of the world... the real must in a way be **dislocated**, before it can be reintegrated.

(Quoted in Feyerabend 1967, 302)

--- VIOLENT meditation



2.2 **SHAKE**ing soft impacts into visibility and action

Gameformance



- a composite term, a combination of ‘game’ and ‘performance’
 - rules and competition found in games
 - open-ended language of performance
- E.g. Yoko Ono’s *Map Piece* (1962)



MAP PIECE

Draw an imaginary map.

Put a goal mark on the map where you want to go.

Go walking on an actual street according to your map.

If there is no street where it should be according to the map, make one by putting the obstacles aside.

When you reach the goal, ask the name of the city and give flowers to the first person you meet.

The map must be followed exactly, or the event has to be dropped altogether.

Ask your friends to write maps.

Give your friends maps.

1962 summer

SHAKE gameformances



- RRI context
- Engage soft impacts of tech
 - qualitative
 - morally ambiguous
 - co-produced
- Two features
 - Participatory exercises
 - Serious play

Response-Able Walk



Facing Sound, 23.04.19 Cornell
Photo by M. Papalexandri-Alexandri

Reflection



- What happened?
- What constrains our abilities to ‘respond’ to each other?
 - Rules
 - Space, structures
 - Choices
- Can we anticipate patterns emerging from individual actions?



Virtuous Designs


Reflection



- What happened?
- Do things have morality?
 - Can one be made good by technology?
 - What is good technology?
- Would you want your virtuous design to be made?
- De sing, de sign, se ding
 - Free meaning
 - Find meaning fit to found (Estethieu, 2000, 2012, 2016)

2.3 SHAKE in relation to STIR

Socio-Technical Integration Research (Erik Fisher and colleagues)



<i>Decision Protocol</i>	<i>Questions to engage a technologist with:</i>
<u>opportunity</u>	What opportunity presents <u>itself</u> ?
<u>selectors</u>	What are the factors important to consider?
<u>alternatives</u>	What alternative approaches are there?
<u>outcome</u>	What will/did you do?

Table 2. The STIR decision protocol. Four parts of making a decision in the lab.

SHAKEing v. STIRing



- Targeting a broad audience vs. technologists
- Targeting soft impacts vs. hard
- Dislocating vs. integrating in existing

---STIR is a careful SHAKE

Why Arts in RRI?



- **Simplify** (cf. Kupper 2017)
- **Make things concrete** (cf. Calvert & Schyfter 2017, Ginsberg et al. 2014, Driessen et al. 2014)
- **Use the body into ‘material deliberation’**
(cf. Davies et al 2012)
- **Attend to the ‘soft impacts’ of technology**
(Swierstra et al 2009, 2015)
- **Empower through play – SHAKE**

One two-part conclusion



- Responsible Research and Innovation (RRI) needs to consider the soft –besides the hard- impacts of technology and
- Art-based approaches help engage a broader public in reflecting on soft impacts, in an empowering mode.

Thank you!



Collaborators

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Co-authors!

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- Elena Pérez – Trondheim Art Society

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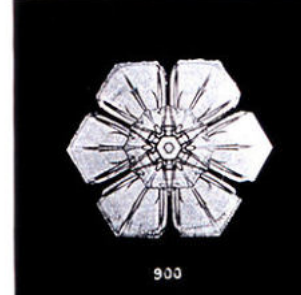
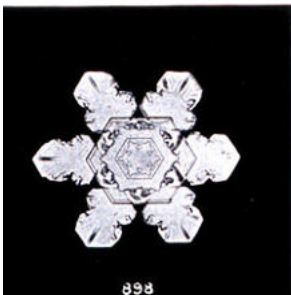
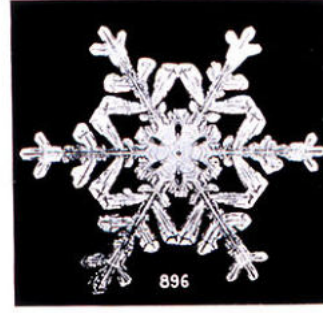
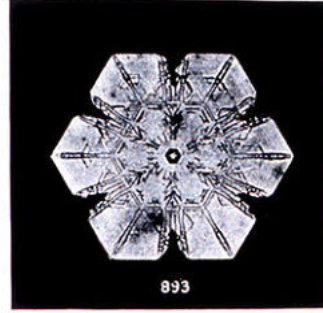
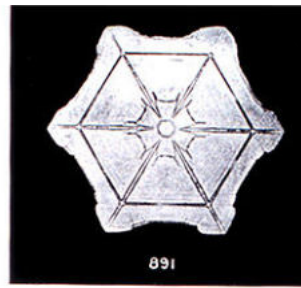
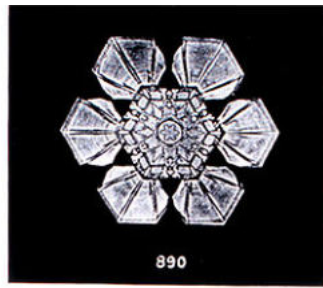
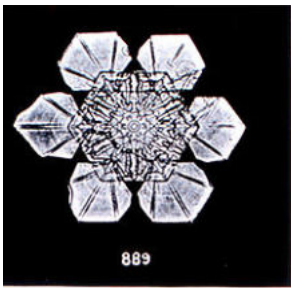
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Emergence

- (1) radical novelty (features not previously observed);
 - (2) coherence or correlation (integrated wholes that maintain themselves over some period of time);
 - (3) A global or macro "level" (i.e. there is some property of "wholeness");
 - (4) the product of a dynamic process (it evolves); and
 - (5) "ostensive" (it can be perceived)
- (Corning 2002, p. 22)