Of cyberliberation and forbidden fornication
Hidden transcripts of autonomous mobility and urbanity in Finland

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• An introduction to my research on autonomous vehicles
• Aims to introduce theories used in the study of technology in society
• Aims to show how to go about enquiring about technology
• Designed to be heard, to inspire debate -- no need to take notes!
• References on every slide, reading available online
• No equations!
• Investigating technology—some definitions and theories from the field of Science and Technology Studies (STS)
• Researching autonomous mobility—the problem
• Research methods
• Findings—dominant technological transcripts of agency and hidden transcripts of context

Society for Social Studies of Science: http://www.4sonline.org/
Investigating technology

What is Technology exactly?

”The things we call ’technologies’ are ways of building order in our world.”

Origins of Western Scientific Thought on technology

- Modern era: 16th Century with shift in social norms (from church to trade) and intellectual thinking
- Man dominating Nature: energy conversion principles, moral philosophy, etc.
- Emergence of ”efficiency” in the Industrial Revolution.
- Efficiency changes society.
Large Technical Systems

- A feature of the Modern era—underpin our lives from birth to death
- Capital intensive
- Large scale
- Interconnected

• The car anchors a complex, large-scale sociotechnical system built on fossil fuel

• The car is the ultimate manufactured object, the second biggest item of personal consumption after the home

• It dominates the culture of mobility and images of the good life and in advertising too

• It is the single most important cause of environmental resource use

Steam, Electric, Nuclear…


Artifacts have politics

• May change the urban environment and society forever, till long after the politics are finished. (e.g. The low underpasses of NY).

• Some technologies require authoritarianism (e.g. nuclear power) or the opposite (e.g. renewable energy) – they are inherently political

• Two different versions of the same technology can have different social consequences, good and bad.

we are sleepwalking in our relationship with technology
Technology is considered:
- a simple tool that can be downed and picked up again
- separate and distinct in its use and manufacture,
- whose long-term socio-political consequences are ignored.
As a result, it quietly restructures, unnoticed, the seemingly mundane around us.
SDV research is indeed technology- and systems-centric, focusing for example on safety or routing algorithms or agent-based modelling
Researching autonomous mobility – the problem
Autonomous mobility

- Autonomous mobility is based on the Large Technical System of Self-Driving Vehicles
- Self-Driving Vehicles (SDVs) represent a convergence of powerful computing, sensing, and communications technologies; with a focus on levels of automation
- Will connect new business ecosystems (banks, insurance, etc.) to mobility
- May reshape urban environments negatively (cherry-picking) (Graham & Marvin, 2001)

Cyberlibertarianism

• “a collection of ideas that links ecstatic enthusiasm for electronically mediated forms of living with radical, right wing libertarian ideas about the proper definition of freedom, social life, economics, and politics in the years to come” (Winner, 1997).

• radically individualistic liberation and safety, efficient ride-sharing as improvement on existing traditional transport infrastructure, mobility self-realization, “no-driver” reducing operational costs and increasing business opportunities.

• Large technical systems tie us to social and political infrastructure and norms in a social contract.
• Atomistic individualism of cyberlibertarianism removes us from that contract (Rochlin, 2001).
• The libertarian approach neglects the agency and structure of large technical systems in our lives.
• LTS can lead to “cherrypicking” in the urban environment

Domination and resistance

• Need to look at relations of power impacted by technology (phronetic planning research).
• Power characterized by a dominant group’s official, public transcripts, and the dominated group’s hidden (private) transcripts of resistance, contesting ‘public transcripts’ by means of language and behaviour to resist power (Scott, 1990).
• ‘dominant transcripts of agency’ of SDV technology: the discourses that focus on SDV technology as a “tool” for the “SDV user as agent”.
• ‘hidden transcripts of context’, focusing on the power implications of contextual changes brought by technology, the potential changes to urban living “around the SDV user agent”.

### Research design

- 30 interviews (n=31)
- We map the narratives of intermediaries—various actors in the technological transition
- Intermediaries “translate” the technology—defining socio-technical relationships with the urban environment it.

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Findings

- 3 dominant transcripts of agency
- 4 hidden transcripts of social context
Dominant technological transcripts of agency
• technology is conceived narrowly as a “tool” for the “car user agent”, where it is described as “bringing gains to the user”, as such a “solution”

• deterministic—macro-level routing, namely where the SDV goes, and micro-level routing, namely handling its surroundings.

• cyberlibertarian, algorithmically-mediated liberation from the driving task, congestion and other obstacles to speed, relationships to other road users and the need to park-- resulting from a change from "efficiency of transport along corridors" (the many, fast, over public transport) to “efficiency via algorithmic routing”. Algorithmic routing is argued to increase speed and flexibility. Algorithmic routing is seen as the enabler of MaaS, flexible pick-ups and drop-offs, and a host of other services tied to human practices.

• “flexible infrastructure” replaces “big investment in a system of stops” to avoid “a too big an investment in a system of stops that cannot be changed afterwards”, users as “co-creators and co-designers” of the line

• The technology is portrayed as an enabler of MaaS as it enables carpooling—by renting one’s private SDV to the pool or for picking up ride-sharers. The public good of over capacity is trumped by efficiency.

• this liberation transcript reaffirms automobility and the continuation of a libertarian, individualistic lifestyle – liberation from making more sustainable choices
• Mostly from Finnish governmental organizations

• 80 to 95% of traffic accidents are caused by human factors, they argue that removing the human from driving decisions, and replacing the driving process with algorithms, removes the (human) cause of accidents

• SDV technology is a “tool” for the “car user agent”, to help prevent traffic injuries generally, but also in handling difficult driving conditions, such as those resulting from ice and snow

• SDV technology is perceived as a “tool” for safety gains not just to the “car user agent” but also for other users outside the vehicle, but requires a lot of data

• a very individualistic, cyberlibertarian transcript—removing the driving function from the vehicle, as the cost of a need for huge quantities of data, but not removing the vehicle itself.
Customer accessibility

• a shift from provider-oriented public transport service provision to customer-oriented, individualistic use of transportation services.

• accessibility to transport is technologically-mediated

• technological mediation is highly individualistic.

• The premise of this accessibility transcript is the high penetration of internet use by Finns—but it overlooks those who do not use the internet.
Hidden transcripts of context
Restrictions in sharing space

should be part of overall urban development, not a technological issue that you can buy something from a shop like you buy a device [...] [Senior Official, Transportation Systems, Regional Transport Authority]

[technology is seen as the answer to all problems]. Space does not matter in politics. [Senior Official, Land Use Planning, Local Government Authority]

It is really part of the land use and the whole infrastructure and part of other services. [Senior Official, Transportation Systems, Regional Transport Authority]
And nowadays, the big problem is, that we do not exactly know what the industry is doing, they are not really telling us what they need, sometimes they, two or three years ago, I always heard from them saying “now we are planning to operate our vehicles on the current roads, so you don’t need to do anything”. And then another guy says “well, it would be very nice if when you do some upgradings on your road network, when you repave your road, when you repaint them, it would be very nice if they would be exactly kept in the same place, all the paintings and markings would be on exactly the same place as they were before”. Then I have to ask them, “Do you realize what that would cost us to make it exactly the same?”, so sometimes they are giving us very unrealistic requirements and sometimes they have given us no requirements at all. [Principal Advisor, Government agency 1]
Loss of social safety

- The street safety is less because the social control is not there [...] .

- Some guy jumping from the bushes or something.

- An alcoholic comes in, it is a small space and there is nobody to take care of it.

- It is important that children could feel that they are safe when being in traffic and using the vehicles, especially if they use them alone. [...] sometimes it is more safe to use public transportation. [Senior Official, Public Authority for Children’s Rights]

- “Other people are not so considerate particularly because you are competing for the same free space. You compete for space with people with small babies” [Senior Official, Representative Body for Disabled People]
You have no control over the thing once you are inside.

If I am alone in the car and the computer goes haywire, I would be completely helpless.” [Senior Official, Representative Body for Disabled People]

“You are testing this with mothers I presume? When my sister had a baby, she was so terrified that something happened to her little one, she could not even drive for the first couple of months. The idea of going into a self-driving car with a dependent child is difficult.” [Senior Official, Representative Body for Disabled People]
“It limits my autonomy. If I go to a gay bar in Helsinki, people will know. [...] Every trip you take is recorded somewhere. Someone is interested in where did you go, how long did you take, when did you come back. Everything is catalogued somewhere. If I decide that I want to go to the most hardcore, gay place in Helsinki, it is no longer just my business, a whole team of people know about it.” [Senior Official, Representative Body for Disabled People]

Let’s just say that if a person with a severe disability wants to stay overnight with someone else, with or without disability […]. If you are in the system, like I am now the information of ten people before the morning. If someone calls, they might ask, why did you go to that address? That address is not listed as your home address or work address. Then you are forced to say, well I had a one night stand. The system is built in such a way that it intrudes upon your privacy […]. It is a topic of much conversation among disabled people.” [Senior Official, Representative Body for Disabled People]

“If you use a trip to go to a pub, for example, that is a little bit frowned upon, because you are not supposed to use [travel] funds for frivolous purposes. You should only use funds to go to church. Church on Sunday and a pharmacy on Monday […]. That is really judgmental. […] Nine trips per month, two trips per week. […] It is a very Calvinist idea […]. […] Many of our associations have reported that they can no longer have so many social activities like clubs or peer groups because people have a limited number of these leisure trips […]” [Senior Official, Representative Body for Disabled People]
Thank you