



Doing Future. Innovating Society.

Invited keynote at the symposium „The Future of Work and Innovation in a Networked Society“ – Weizenbaum Institute for the Networked Society, 15th May 2018 in Berlin.

Thank you so much for inviting me, I am honored to be able to talk to the avant-garde of internet research in Germany.

That this symposium is happening, that the Weizenbaum institute is „happening“ – is, in part a consequence of something that occurred seven years ago.

Seven years ago, the term „Industry 4.0“ was coined. And at least for these seven years we have seen an ongoing vital discourse in our society about the future.

A future that seems to come over us. Akin a devastating Tsunami, destroying the world as we know it, replacing jobs and employment by collective alms called basic income. Or, a future coming over us as the most perfect wave, surfed by some brilliant adventurers who have set out to „make the world a better place“. A phrase that has become a cliché of our time.

As always, the dystopian as well as the utopian perspective have more in common than it may seem at first glance. For both, the underlying dynamic seems to be a natural force: Unpredictable, unstoppable, fateful. Both see society not as an actor or as a creator of the digital transformation, but as a bystander, left to discuss today which pieces have to be picked up tomorrow. Both do not imagine established institutions as powerful actors, but as weak relics of yesterday. Both do not see citizens or employees as self-determined, but as victimised by greater forces.

In a nutshell: Both perspectives, although opposing on the surface, at heart suffer from the same serious symptoms of quasi-religiousness. Worshipping technological progress as an exogenous dynamic, understood and navigated only by the chosen few – for better or worse.

Or how Weizenbaum put it in the 1970s: AI technologies had become a “fetish surrounded by black magic“. So lets debug – or better: reverse engineer – two „black magic“ examples of the current discourse on digitalization.

Is AI dreaming? Is AI an artist?

First Example: Google reversed the image learning processes of its neural network. Although most resulting pictures are just dumb nonsense, some appear to be surreal representations of dreams, and discourse has it that this could even be a first sign of consciousness formation.

An AI/Deep learning researcher at Stanford „fed“ thousands of classical nude paintings into a Generative Adversarial Network (GAN). Based on that input, the program generates paintings like this one. Although the researcher stresses that the AI can not discriminate between a human body and „blobs“ of flesh, he – and again the media coverage – wonder if this is how AI „sees“ us and describe the paintings as „surreal“ and impressionistic art.

Examples such as these may be appealing, but are nevertheless just amalgams of the information fed into the algorithm, and does not „know“ what it „sees“. Those pictures are not at all an early pre-form of Kurzweil's Singularity in the making.

Instead the pictures illustrate the limits and restrictions of IT systems we ascribe as „intelligent“. Weizenbaum would plead for this kind of critical reasoning. He would be aghast to see well known mystifications thriving again, the current discourse twisting what he always wanted to put back on its feet.

The most common of this twists: Deeply human capacities (such as learning, autonomy, self-determination) and natural principles (experience, feedback, adapt) again are ascribed to technology. Although the human body is an all-body sensor, a holistic organ of perception, the current discourse reduces humans, their bodies, their perception, even the results of their labour to mere auxiliary inputs for technology. At the same time the current discourse conceals that still all things technical are the result of human labour, of human experience, of human corporal being in a material world. At the same time the current discourse conceals that still all things technical are the result of human labour, of human experience, of human corporal being in a material world.

Is labour doomed?

Second example: As I guess you are all familiar with, Frey und Osborne (2017) predict 47% of all jobs in the US labour market are at risk of computerisation. We have similar but not that dramatic predictions for Germany. Based on that 2013 study, the media headlines have repeatedly announced that every second job has to go.

According to this study, the risk of susceptibility is especially high for humans working with machines, and on the shop floor. 98% of machine workers are predicted to be out of job in the next twenty years, replaced by robots. One key concept of this and similar studies is the assumption that highly routinised work could easily be automated, be it by machines or by algorithms. Without a doubt a correct assumption.

Although labour market datasets do not provide a measure for the share of routine tasks in specific occupations, the distinction between routine and non-routine work is seen as crucial the risk of susceptibility. And all studies assume machine work to be highly routinised. But how do data scientists know, if there is no measure? They don't. They just assume.

Decades of qualitative sociological studies can tell us, what non-routine means: It means coping with imponderability, it means coping with with situative and structural complexity, and it means coping with and enabling change at the workplace.

Based on that scientific knowledge, we developed the „Labour Capacity Index“, using 18 task items from the BIBB/BAuA Employment Survey, a representative dataset with 20.000 respondents. And by that we made visible that 74% of all employees in Germany need to apply non-routine decision making at their workplace very often. So, if we compare all the machine related occupations, Frey and Osborne rank with a risk of susceptibility over 90% (table on the left side), with our data, we see a different picture.

Almost all machine workers show above average LC means (right side in green). That means machine related work requires a big share of non-routine labor. They should not be labeled as victims, they could act as qualified co-creators of their workplace future.

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We could find many more examples of what Weizenbaum called black magic in our current discourse:

- The inevitability of polarisation for example (although it is the consequence of intentional deregulation of labour);
- the exponential quality of the development, humans are fundamentally not able to grasp (despite those consultants who explain that fact to you);
- the claim that regulation kills innovation (while global players and their lobbyists are pretty busy explaining their regulatory needs to governments);
- the celebrated democratization of the agile and holocratic firm (while co-determination is under attack); and so on...

But our first two examples alone stress the need to debunk black magic.

In the first example: Understanding the limitations and fallacies of AI and Learning Systems. Only by that we will be able to embrace these new technologies and design them for the better.

In the second example: Making the complexity and quality of real-life and of human behaviour visible, instead of reducing them to conveniently calculable quantities, based on questionable assumptions.

From both examples science could learn: we need to acknowledge and to deeply understand the „abstract materiality“ of technology. And we need to acknowledge and to deeply understand the reasons undergird human action. Scientists not only have to leave their disciplinary and methodological „comfort zone“. They have to overcome their own traps of „instrumental reason“.

And here we are again, following Weizenbaums footsteps. Weizenbaum argues for rationality. He claims that rationality may not be separated from intuition and feeling. He argues for the rational use of science and technology, not for its mystification (...). „Combat the imperialism of instrumental reason, not reason“ is his claim. This might, I think, as well be the claim of the Weizenbaum Institute and a leading motto for the discussions during symposiums such as this one we are opening today.

This quote shows: Weizenbaum, in the best sense, is a critical advocate of enlightenment. Some enlightened principles translated for our today society could be:

- Apply human reason for creating and designing reasonable technology. Instead of designing technology which forces humans into instrumental reason.
- Use science to enable all humans to participate in designing our future today. Instead of using our expertise to forecast how society might look tomorrow.
- Embrace the idea that the liberation of humanity from „selfimposed immaturity“ (Kant) is an ongoing challenge, never „done“ on the „all time todo“ list of our species.
- Conceptualize self-determination as a feature, not a bug. Let us work really hard to implement this principle in all things digital.

In this spirit: May this symposium, and may all research at the Weizenbaum Institute combat the imperialism of instrumental reason. By applying reason in its holistic sense. By hopping over fences we all helped to build: Fences between methodological dogmas, between disciplinary inner circles, and – maybe the most important fence of all: between science and society.

Make your research a contribution to „Doing Future. Innovating Society.“ Enjoy being part of this symposium. Thank you!