

Transcript final recording MOOC RI (feedback week 5,6 & 7)

Dear students,

Thank you for following the MOOC on Responsible Innovation. I hope you enjoyed the course content and discussions. In this video, we will do a quick feedback of discussions from Weeks 5 to 7. Then we will discuss the third peer review assignment.

The discussions on the forum have been interesting as usual. I'd like to take some time to discuss a number of points that came up.

In Week 5, we discussed the Precautionary Principle, which states: if there is a potential for great harm and uncertainty about the impacts, then anticipatory action should be taken to avoid harm. This, however, does *not* mean that the Precautionary Principle advocates we stop developing technologies altogether even if there is a slight risk.

The Precautionary Principle is compatible with the idea of small and long-term experiments designed in such a way that failures can be isolated and discarded with negligible damage. This is a more proactive way of dealing with risk, it can be called a "tinkering" attitude. Through tinkering, risk is minimised and limited to small experiments that cannot bring down a whole system.

The discussions about GMOs were the most heated. Please do check, for example, the contribution by [dukellmi](#) titled '*10 Scientific Studies Proving GMOs Can Be Harmful To Human Health*'

We can say at least that mass consumption of modified organisms is a large societal experiment,. So it would be morally required to reflect on the technology at some point.

In Week 6 we discussed Cost Benefit Analysis.

CBA is a common practice in industry, and is used as an objective tool because it is a quantitative metric that allows for easy comparison of options. However, in the spirit of responsible innovation, we can question the value system and assumptions behind the CBA. It is easy to see - when we are pricing the priceless, like the cost of human life - CBA is not purely objective and hence uncontroversial. There are aspects to CBA, which require independent moral justification, underneath "just looking at the numbers".

When discussing innovation, many of you agreed that innovation and risk go hand in hand. We were also impressed by your suggestions on how to address this entanglement of innovation and risk. One student argued that human factors are a somewhat neglected topic in discussions of risk in complex systems. It should be given more emphasis. That is a fair observation. It is also observed that risk management should be an ongoing process, not just a checklist. Which is correct. There were also many discussions around the theme of risk and uncertainty in complex systems. Feedback loops are one feature of complex systems and it is extremely difficult to anticipate emergent phenomena and the results of failure. What we need is close monitoring.

Coming to Week 7, many agreed with the VSD approach to responsible innovation. There were very interesting responses to "Why VSD has its origins in IT?". Many of you agreed that not only was IT disruptive, it also evolved at such a fast pace that it challenged our capacity to adapt, more than any

innovation before. On this note, some suggested that VSD would be useful for designing IT for education. Look, for example at the contribution of [PINGPERIA16](#) or [charlesomonyao](#). The debate on autonomous weapons was engaging, just as I expected. Some argued that autonomous weapons can be justified, because it prevents harm to a soldier who might otherwise be in dangerous territory. Others questioned whether such technologies do not detach us too much from the horrible realities of war.

In the context of Responsible Innovation, you commented on autonomous weapons. Even the smartest algorithm preserves at least some of the priorities and values of its designer, and hence we cannot simply say that the machine pulled the trigger. There is moral responsibility and accountability with the maker as well.

Autonomous weapons were also the subject of our final peer review assignment. Before I continue, we apologize for a few technical problems which we had with the peer review system; edX will look into this.

We uploaded the top-25 contributions for week 7, please *do* have a look! You will see the controversies very well explained in specially the top-5! On your screen you will see some great examples of a VSD-matrixes you made. I will quote 3 important notions from this top 5 :

- *One:*
From the technological perspective, a main argument you used is that humans should stay in control. Autonomous weapon systems will never be able to select and strike targets on the basis of an ability to analyze a complex situation, identify human nuances, and use basic intuitions associated with mercy, identification, and morality, as human beings are able to do. As one of you rightfully noted, some experts have warned that there is a large, difficult-to-predict area between the intentions of the developers and operators of autonomous weapon systems and their ultimate behavior in practice.
- *Two:*
Fully autonomous weapons could lower the threshold of war!
- *Three:*
We must ensure that those who ought to use them take full responsibilities for their actions. The necessary regulations, the responses of civil societies, and the international institutions such as the UN and the Red Cross must be added to enforce compliance with existing regulations for the development and deployment of autonomous weapons. We must build values into the designs that must ensure accountability and openness.

With that, we have come to the end of the MOOC. We do hope that you appreciate the importance of responsible innovation and the ways to apply it. Please spread the word.

Thank you once more for joining us. Please help us to improve the course for the next run by filling the post course survey or by sending your comments directly to the course team.