Case studies for Design Informatics 1

Tutorial 3: Responsible Innovation 1

In this tutorial, we will start to explore the analytic tools of the Responsible Innovation (RI) framework, which will also help you critically approach your chosen technology for CW1.2. For this tutorial, you will mostly be working in a small group of 3-4 students through a number of structured activities.

As always, the session will start by taking attendance. The Tutor will add a discussion thread to the TEAMS chat for your group, where you can answer a simple question: Can you tell us the one of the four key "AREA" activities involved in doing RI? You can find this on this week's Miro board:

https://miro.com/welcomeonboard/
U2QwcVJoSmdaTk5MdjJiTTFiNnE4WGxqMVg3dlJ0Z1VmVUtkDGQ0b2UxcFA3MF
ZRZjVYSXVobmh0Z3FKU3NKeXwzNDU4NzY0NTY2NDU5NjM4NTk1fDI=?
share_link_id=928645449792 .

Type "I don't remember" if you do not know – this is not a test!

This week's tutorial, we will make use of a set of Responsible Innovation prompt cards designed by Horizon Digital Economy Research Institute at the University of Nottingham. These can be found at the Miro link above.

The cards give prompts for design teams and ethicists to reason about the potential uses, misuses, benefits, and harms of technological innovations using the AREA-4Ps framework, considering four key activities (*AREA: Anticipate*, *Reflect*, *Engage*, and *Act*), each with four focuses of consideration (*4 P's: Purpose*, *Product*, *People*, and *Processes*).

Activity 1: Responsible Innovation cards (20 minutes)

The first task for this tutorial is to familiarise yourself with the cards and the framework they represent. For these activities, work in a small group of 3-4 students.

In your groups, first have a look at the sixteen coloured AREA-4P's cards, in the grid on the top left side of the Miro board. Each row of the grid shows the *card back*, which presents a summary of the *AREA* activity considered by the cards in this row, and four card faces, which present examples of questions and actions relevant to this activity in relation to one of the four P's.

Take a few minutes to discuss each row, and think about how some of the questions on the card are relevant to technologies you're interested in. This is a good chance to stimulate some critical thinking about your CW1.2 topics!

If anything in the cards in unclear to you, ask your peers, or ask your tutor.

Activity 2: McQueen Labs - self-driving cars (50 minutes)

Now, we will use these cards as a jumping-off point for thinking about a hypothetical scenario...

You and your team-mates have been hired as ethics consultants by *McQueen Labs*, an autonomous vehicle start-up that has recently made great strides towards full autonomous driving in naturalistic traffic conditions. They've just received $3 billion in venture capital funding, and are moving from a pure R&D focus to preparing to bring their first products to market.

They have in fact hired three teams of ethics consultants. Teams A and B have been asked to tackle the two most obvious considerations: safety concerns and the potential for loss of employment by people who drive for a living. Your team, Team C, has been hired to develop a report about the broader social, environmental and legal considerations --- all the *less* obvious stuff, beyond the issues teams A and B have been asked to think about. (Since your team is addressing a harder set of problems, you have accordingly been able to charge the company a 25% higher consulting fee)

Use **'Exercise 2: Planning a Project'** from the white 'instruction cards' to the left for ideas of how you might use the cards to help with this.

Part 1: The business model (15 minutes)

The company's initial idea for a business model is simply to sell direct to consumer. They have developed proprietary hardware for the vehicle's sensing and computing package, and over all, the manufacturing cost of an MQL Self-Driving car is about 150% of a mid-market Toyota. They therefore conclude that they could sell their self-driving cars for 150% of the retail price of a mid-market Toyota. However, they argue that with financing, for anyone for whom a non-autonomous car is affordable, an MQL Self-Driving car is also affordable, thanks to their recent deal with Uber which would allow consumers to recoup their costs and even make a bit of passive income by allowing their cars to be rented as autonomous taxis through the Uber app when they're not in use.

This would also save users in parking costs when they're at work, as their car could simply roam the streets like a taxi while waiting for a fare. They even dare to speculate that this scheme might help reduce poverty, giving more and more people access to passive income through their cars.

Discuss this business model in your groups. Sounds like a win for everyone, right?

Look through the AREA-4P's cards and see which you find that have relevant questions. In particular, have a look at the orange 'Anticipate' cards, and use the questions to start discussions about the risks and benefits of this product.

Part 2: Smart cities (15 minutes)

So much of the way cities are organised is structured around how we move people and stuff around them, and changing the mix of transport technologies changes urban planning in ways that can have long-lived consequences. Compared to ordinary, non-autonomous cars, how might this technology affect the life and material structure of our cities?

One proposal circulated by the company describes a *City of the Future*. The self-driving algorithms the company uses have been extensively tested and audited and found to be safer than human drivers – but safer still (even in much denser, faster conditions) in controlled environments where there are **only** autonomous vehicles.

So the document describes a city in which congestion is solved by a network of autonomous-only expressways, in which convoys of self-driving cars move in lockstep at 80 mph. This would greatly increase effective road capacity, perhaps leaving other streets to be pedestrianised.

For this part of the discussion, again, make use of the cards as starting points for discussion. It would be good to look particularly at the *Reflect* and *Engage* cards – what sort of public discourse might there be around this? What stakeholders might be involved? Which groups might be underrepresented?

Part 3: Pay no attention to that man behind the curtain (15 minutes)

The company recently partnered with Ethics Team B – the ones who were tasked with thinking about the effects of the technology on jobs – to release a white paper advocating for a Universal Basic Income. MQL isn't the only company automating people's jobs away, and if we're going to have a future where companies just don't need as many people, we ought to ease the transition to that world by giving people the means to support themselves. UBI also has the advantage of being less bureaucratic than means-tested benefits, and presenting less of a disincentive to work, as people keep every penny they earn on top of their UBI.

They note, in one paragraph at the end of the document, that any country implementing a scheme of this kind would need to take care with their immigration policy – they would become an attractive target for mass migration from non-UBI countries. They suggest that it may not be necessary simply to deny entry to migrants from non-UBI countries, as long as these migrants are not given access to UBI

MQL aren't policy-makers, of course – but they have the ear of think-tanks who *do* have the ear of policy-makers, and other AI companies have come out in support of this proposal. Is this a future we want?

Again, pick out cards with questions you think are relevant to your discussions – but in particular, I'd suggest looking at the blue *Act* cards. MQL has it's own vision for the future it wants to create – but who gets to decide what sort of future we should have? Who should?

Wrapping up

Throughout these activities, your tutor will be there to help prompt you as you get stuck. If there is time, at the end of each activity they will quickly review what your group has produced, and share different ideas between groups.