Regulatory challenges of emerging data drive technologies

[Lachlan Urquhart](#) is a Research Fellow in IT Law in Horizon. He talks to us about the possibilities of aligning the fields of IT Law and Human Computer Interaction (HCI), so academics and designers can work together to address the regulatory challenges of emerging data driven technologies. He is especially interested in how to support legal and ethical compliance by digital start-ups and SMEs.

What was your research for your PhD?

I was looking to understand the role of technology designers in addressing some of the tough regulatory questions around emerging technologies, like the Internet of Things (IoT). I was interested in how much we could conceptually align IT Law and HCI - and the areas of practical crossover between the two disciplines.

I studied different design frameworks which were quite open to engaging with wider ethical implications of technology, and from the law side looking to see what role design already has, as a regulatory tool to shape behaviour of end users. While this has been studied to some extent, I found a gap between the work in HCI - looking at how users interact with technology - and the models we currently use in IT Law, which are more abstracted and neglect how actual users use technology in practice.

To explore the implications of this, I focused on smart metering and domestic IoT, conducting in-depth case studies of regulating these types of technologies. Some examples of the real big issues are: getting informed consent from users when they are using ambient technologies, and how to implement the right to be forgotten. I carried out interviews with experts from both IT law and HCI/design communities to see if the concepts I was developing in my PhD would work in practice.

Alongside this, a set of physical [ideation cards](#) were developed, centring on doing "privacy by design" in practice. The cards are a great tool to sensitise the design community to legal issues, as law is not a traditional area of focus or familiarity for them.

How do the cards work?

To begin with we developed a deck of cards to explore impacts of the new pan European data protection law, the EU GDPR,[1] in practice. Initially we focused on changes in data protection law, like new breach notification requirements or the right to be forgotten. We looked at impacts on design and how can these data protection changes best be communicated to designers. We presented these findings at CHI 2015.[2] After this, we developed a wider deck for the whole new GDPR, as part of a Horizon Agile project (with Tom Rodden and Neha Gupta) in partnership with Microsoft Research (with Ewa Luger and Mike Golembewski).[3] I ran a series of workshops with our deck of cards in a range of organisations and with a mix of attendees from interface designers, programmers, business strategists and beyond – all of them concerned about the impact of regulation on their work.

We concentrated on the design of a hypothetical system (such as an autonomous vehicle), and the cards were used to lead the attendees through various scenarios – for example, how would consideration of specific user types (older or young people) change the design of the system; what if there are constraints on context of use, for instance, poor network connectivity or tight budgets - again what impact would these have on the design process? Lastly we introduced legal concepts, like

user legal rights and designer responsibilities. How would the right to be forgotten be implemented to ensure all personal data was deleted? How can designers enact the right to data portability, to allow users to move information freely between service providers? Tricky questions to answer!

To make the law more accessible, the cards are clustered up into suites of legal concepts - such as the rights of the end user, the responsibilities of the designers, definitions like what is personal data, what is a data controller, and international concerns, such as using cloud services hosted in the US. We analysed how users went through the process of using cards and how they navigated around these complicated legal concepts.

Finally I carried out a focus group discussing the issues arising out of the workshops. Interestingly it ended up developing into a clinic, where participants were raising many different questions related to their own individual situations. It became clear that, while often large companies and multi-nationals often have internal advice-giving departments, small companies do not have a support structure for this. They felt the cards would be a good entry point for them to be introduced to some of the ideas, and helping them understand what questions they need to ask during the design process.

And now you are a research fellow in Horizon?

That's right. I am keen to develop the work from my PhD around effective regulation of emerging technologies, from Internet of Things to Smart Cities and robotics. I'm planning to develop other support mechanisms to work alongside the ideation cards too. Pamphlets, apps and open sharable repositories of best practice are all options I'm considering. I'm also keen to develop approaches to support designers interacting with other areas of law like information security, intellectual property and digital ethics too.

The challenge is how to keep these tools relevant as both the technology, and the law that governs it, keep moving on!

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[1] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2016:119:FULL&from=EN
[2] http://dl.acm.org/citation.cfm?id=2702142
[3] https://www.nottingham.ac.uk/research/groups/mixedrealitylab/projects/information-privacy-by-design-cards.aspx