Institution: University of Hertfordshire

Unit of Assessment: Panel D (32): Philosophy

Title of case study: Creating a conceptual framework for the use of digital technologies

1. Summary of the impact (indicative maximum 100 words)   Between 2010 and 2012, Professor Luciano Floridi transferred knowledge about epistemological issues in the philosophy of information to Sogeti, an international information technology consultancy; and, via Sogeti, to technology and business leaders in Europe and beyond, influencing their planning for and adaptation to technological change. In the realm of public policy, Floridi developed guidelines and protocols surrounding ethical problems concerning digital and online information. He chaired a European Commission group whose 'manifesto' forms part of the EU's Digital Futures initiative; influenced thinking around IP and international trade agreements; and contributed to a UNESCO action plan on ensuring equitable access to information.

2. Underpinning research (indicative maximum 500 words)   Professor Floridi, who held the UNESCO Chair in Information and Computer Ethics at the university from 2007 to 2013 before moving to the University of Oxford, undertakes research in the philosophy of information.   The information revolution has been changing the world profoundly, irreversibly, and at a breathtaking pace, making the creation, management, and utilisation of information vital issues. It has brought enormous benefits and opportunities, but also greatly outpaced our understanding of its foundations and consequences, and raised conceptual issues that are rapidly expanding, evolving, and becoming increasingly serious. Philosophy faces the challenge of providing a foundational treatment of the concepts and phenomena underlying the information revolution, in order to foster our understanding and guide the responsible construction of our information society.   This challenge is met by the philosophy of information, which investigates the conceptual nature and basic principles of information, including its ethical consequences. It is a thriving new area of research, at the crossroads of epistemology, metaphysics, logic, philosophy of science, semantics, and ethics, and Floridi has worked on developing it as an independent area of research since the late 1990s. The general view orienting his work is that information is a concept as fundamental and important as truth, meaning, knowledge, Being, and so equally worthy of autonomous, philosophical investigation. However, despite its importance, our understanding of 'information' is comparatively impoverished.   Floridi's research on the nature, dynamics, and uses of information has led to a quadrilogy entitled *The Foundations of the Philosophy of Information*. The first two volumes, on the philosophy and the ethics of information respectively, were published in 2011 and 2013.   Specific research with external partners has also fed into the impacts described in section 4. This has revolved around fostering the critical understanding of ICT-related phenomena among ICT companies, especially Sogeti (an international information technology consultancy) and Google.   **Sogeti/VINT**   In 2011 and 2012 two projects, 'The App Effect' and 'Big Data', involved collaboration with an international team of technology and behavioural experts at the Global Research Institute for the Analysis of New Technologies (VINT), founded by Sogeti. The main finding arising from 'The App Effect' was the identification of new media addiction and the blurring of any distinction between information-related behaviour and regular behaviour as two major behavioural changes that will have a profound effect on the way organisations need to operate. The 'Big Data' project resulted in analysis of data discovery as the next phase of business intelligence, seen as

a combination of heuristics in business operations combined with a significantly better performance through information management (interactive visualisation, exploration, planning and execution). These two projects led to further research, currently on the social impact of the 'Internet of Things'.

Google

Floridi's knowledge transfer project 'Information Quality Standards and their Challenges' began in December 2011 (scheduled to complete in November 2013). Google's interest lay in achieving a precise understanding of information quality standards, and constructing a conceptual framework for analysing and evaluating these standards. Overall, the project aimed to help Google identify and engineer information systems that balance the benefit of high information quality with the cost of providing it.

3. References to the research (indicative maximum of six references)

Key Publications
Books

1) Floridi, L. *The Ethics of Information* (Oxford: Oxford University Press, 2013). ISBN 978-0-19-964132-1

2) Floridi, L. *The Philosophy of Information* (Oxford: Oxford University Press, 2011). ISBN 978-0-19-923238-3

Peer-reviewed articles

3) Floridi, L. 'Turing's Three Philosophical Lessons and the Philosophy of Information', *Philosophical Transactions of the Royal Society A*, 370, 2012, 3536–3542. doi: 10.1098/rsta.2011.0325

4) Floridi, L. 'Semantic Information and the Network Theory of Account', *Synthese*, 184.3, 2012, 431–454. doi: 10.1007/s11229-010-9821-4

5) Floridi, L. 'Network Ethics: Information and Business Ethics in a Networked Society', *Journal of Business Ethics*, 90.4, 2010, 649–659. doi: 10.1007/s10551-010-0598-7

6) Floridi, L. 'Understanding Epistemic Relevance', *Erkenntnis*, 2008, 69.1, 69–92. doi: 10.1007/s10670-007-9087-5

Selected Peer-reviewed Funding

2011–13 AHRC Knowledge Transfer grant with Google UK, 'Information Quality Standards and their Challenges', **£166,000**.

2010–12 AHRC, 'The Construction of Personal Identities Online', **£165,521**.

Selected Recent Awards

2013: Weizenbaum Award.

2012: Covey Prize, awarded by the International Association for Computing and Philosophy.

2009: Elected to a Fellowship of the Society for the Study of Artificial Intelligence and the Simulation of Behaviour.

4. Details of the impact (indicative maximum 750 words)

Since 2008, Floridi has been engaged in several high-impact projects at the crossroads of philosophy, computer science, information science, and information and communication technologies. The impact has occurred outside academia in two areas: 1) fostering the critical understanding of ICT-related phenomena among ICT companies; and 2) shaping policy agendas at European and UN level on the ethical foundation for advanced information societies.

ICT and Commerce

Sogeti is an international information technology consultancy with global reach, connecting 20,000 professionals in 15 countries. The director of its Research Institute for Analysis of New Technologies (VINT) reports that Floridi's contribution to the 'The App Effect' (2011) and 'Big Data' (2012) projects greatly assisted understandings of how modern information technologies shape society, culture and business, and that his ideas fed into the strategies of European and American organisations.

Sogeti further recognises that his work on the philosophy and ethics of information, in addressing questions of how government and commerce should strategise their responses to rapid technological change, has 'influenced the influencers', to the extent that members of the International Executive Council (a community of CEOs and CIOs of 80 companies worldwide) approach ICT challenges differently. Specifically, the director pinpoints the effect of Floridi's work on 1) a group of 350 technology leaders working in various industries across Belgium and Luxembourg; and 2) the VINT/New Technologies community in the Netherlands, which consists of 900 technology leaders. His insights allowed these two groups to consider how technology changes organisational environments, and they have consequently been able to place their activities and research on a firm theoretical basis.

ICT and Public Policy

The following examples outline the influence on public policy of Floridi's information ethics research.

EU Policy Makers: The Onlife Initiative

In 2011, Floridi was asked by the European Commission's Directorate-General for Communications Networks, Content and Technology to chair a thirteen-member group on 'Concept Re-engineering: The Onlife Experience'. This group was one element of the EU's Digital Futures initiative, which sought to anticipate issues and generate ideas for policy making in the digital realm. The group formally presented its report, 'The Onlife Manifesto: Being Human in a Hyperconnected Era', in Brussels on 8 February 2013, and has since taken the Onlife Initiative discussion to other centres and events in Greece, France, Italy, Canada, Holland and Portugal.

The report, which discusses how 'the deployment of information and communication technologies (ICTs) and their uptake by society affect radically the human condition, insofar as it modifies our relationships to ourselves, to others and to the world' (Sect. 5, Ref. 4, p. 2), is also a critical element in implementing 'Horizon2020'. According to the European Commission's website, Horizon2020 is 'a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. Running from 2014 to 2020 . . . [this] new programme for research and innovation is part of the drive to create new growth and jobs in Europe.'

European Centre for International Political Economy

From late 2011, Floridi began informing the work of the European Centre for International Political Economy (ECIPE), a research institute on international economy and global trade. ECIPE's director has said that, prior to working with Floridi, there had been no consideration given to connections between political economy and ethics, but that his organisation had since begun looking at the ethical evaluation of international trade agreements on Intellectual Property Rights. In the context of the Anti-Counterfeit Trade Agreement (ACTA), 'the framework and contributions by Floridi has been accepted by all disciplines, political groupings and interests, and thereby contributing towards discussion on a future model for internet and enforcement of intellectual property between previously irreconcilable parties'. He also said that, overall, Floridi's research 'is leading to a reorientation in the broader sphere of our understanding of the impact of ICT on market regulation and assessment of international agreements. This will have repercussions for political, social and economic interventions for a range of ICT-related issues, in which we face new difficulties or simply unprecedented novelties.'

UNESCO Policy Makers

Working with UNESCO's intergovernmental Information for All Programme (IFAP), Floridi made a substantial contribution to UNESCO's draft Code of Ethics for the Information Society (2010) (Ref. 6, p. 2), which was concerned with ensuring equitable access to information. The proposed code was debated at UNESCO's 36th General Conference in 2011, with member states suggesting that the document be referred to as 'guidelines' or a 'set of principles' (Ref. 7, p. 2). Ultimately, the draft code was used as the basis of an action plan, adopted by the Executive Board in November 2012, to address ethical issues surrounding the information society (Ref. 8).

5. Sources to corroborate the impact (indicative maximum of 10 references)

ICT and Commerce

1) 'Big Data and Their Problem', video presentation by Luciano Floridi at the VINT Symposium 2012. <http://vint.sogeti.com/?s=floridi>

ICT and Public Policy

Onlife Initiative

2) Details of the Onlife Initiative can be found at:

   <https://ec.europa.eu/digital-agenda/en/onlife-initiative>

3) The report 'The Onlife Initiative' (incorporating the 'Onlife Manifesto') is available from:

   <https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/Onlife_Initiative.pdf>

4) 'The EU Framework Programme for Research and Innovation', European Commission website, Research and Innovation: Horizon 2020.

   <http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020>)

ECIPE

5) Luciano Floridi, 'ACTA – The Ethical Analysis of a Failure, and its Lessons', ECIPE Occasional Paper No. 04/2012, (2012). Available from the ECIPE website:

   <www.ecipe.org/publications/acta-ethical-analysis-failure-and-its-lessons/>

UNESCO/Information for All Programme

6) 'Draft Code of Ethics for the Information Society', IFAP-2010/COUNCIL.VI/5, 25 February 2010, presented at the Intergovernmental Council for the Information for All Programme (Sixth session), UNESCO House, Paris, 29–30 March 2010. Available at:

   <http://unesdoc.unesco.org/images/0018/001871/187196e.pdf>

7) 'Report for the 19th Meeting of the IFAP Bureau', UNESCO IFAP Intergovernmental Council Working Group on Information Ethics, 17 January 2012. Available at:

   <www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/ifap/meetings/bureau/Working%2 0Group%20on%20Information%20Ethics%20Report%20for%20the%2019th%20Meeting%20of %20the%20IFAP%20Bureau.pdf>

8) '190 EX/5 Part I: Item 5 of the Provisional Agenda', UNESCO Executive Board, 190th Session, 14 September 2012. <http://unesdoc.unesco.org/images/0021/002173/217316e.pdf>

Institutional Corroboration

Representatives of three organisations mentioned in Section 4 can corroborate relevant aspects of the impact. Further details are supplied separately.