Engaging Content
Engaging People

Discussing Ethical Impacts in Research and Innovation: The Ethics Canvas

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Overview

1. Ethics in Research & Innovation (R&I)
    a. R&I in Academia and Industry
    b. Involvement of Non-Experts
2. Tools for Practising Ethics
    a. Requirements of tool
    b. Business Model Canvas
3. Ethics Canvas
    a. Design & Philosophy
    b. Evaluation

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https://ethicscanvas.org/ | Presented at HCC13, IFIP WCC, Poznan

Pervasive Technologies - The Ethical Cycle

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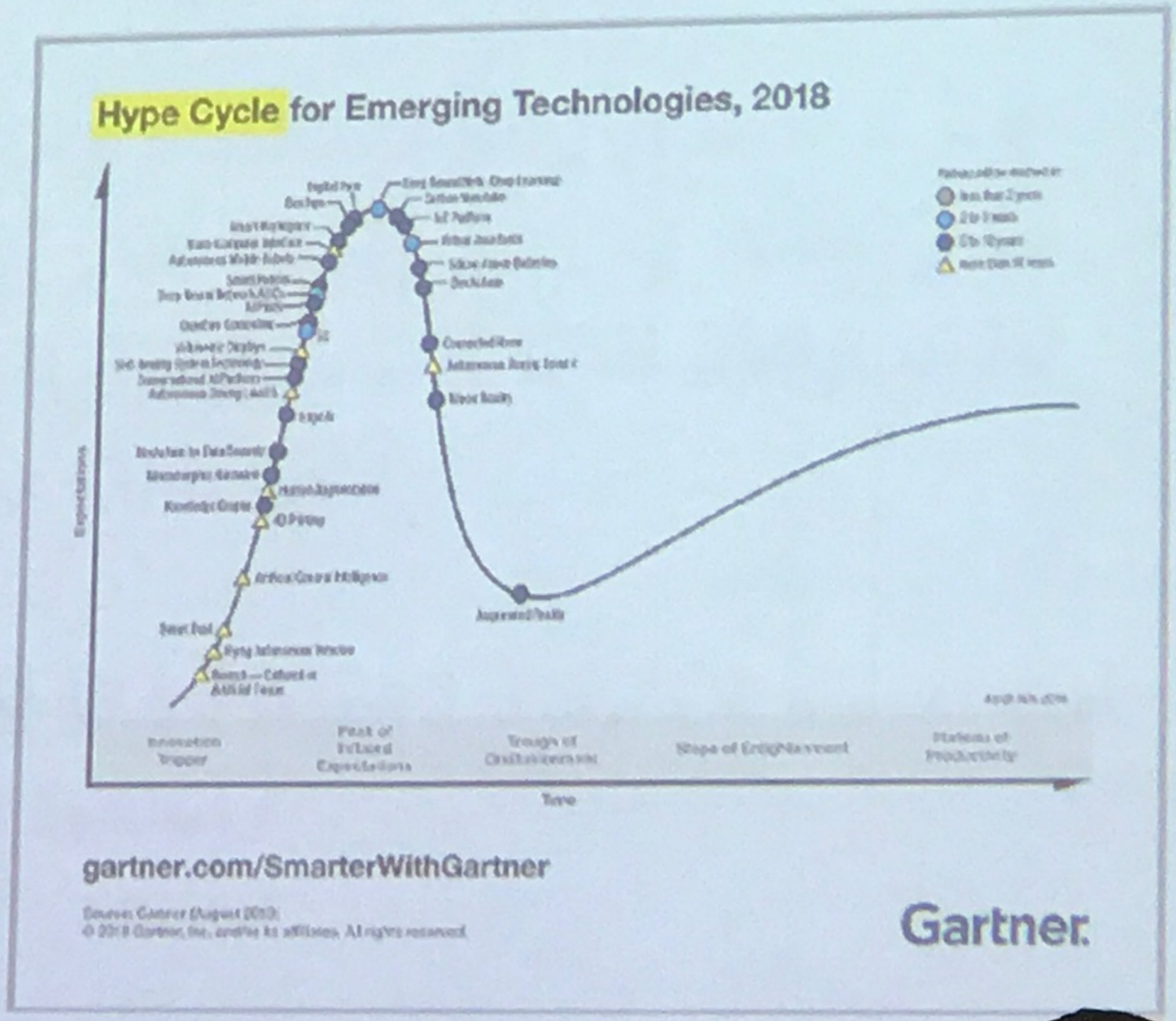
1. Rapid technological developments give new pervasive technologies
2. Adoption is faster than practising concern
3. Someone misuses the technology



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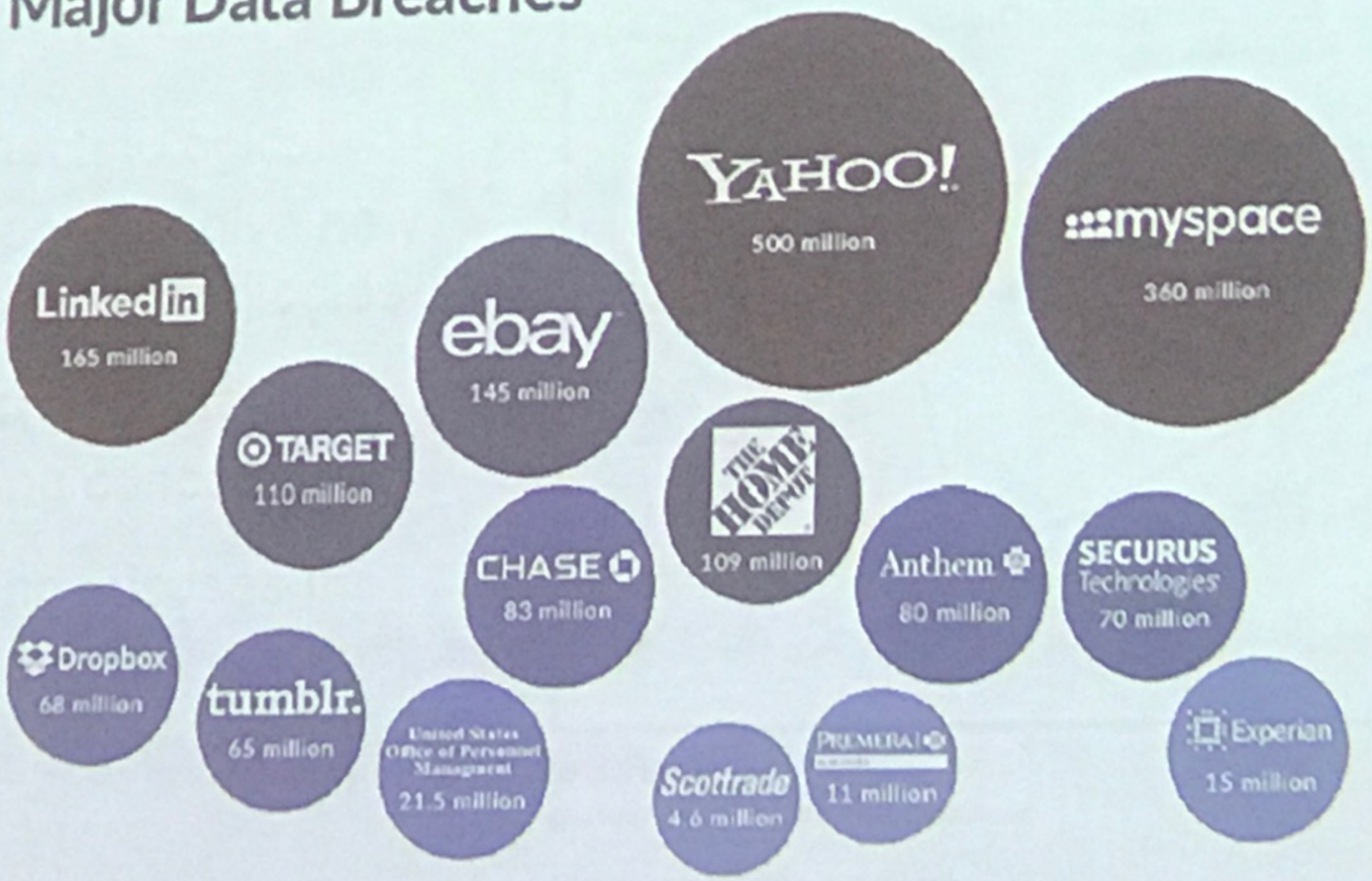
Pervasive Technologies - Ethical Impacts

Customers Affected by Major Data Breaches



BestCompany

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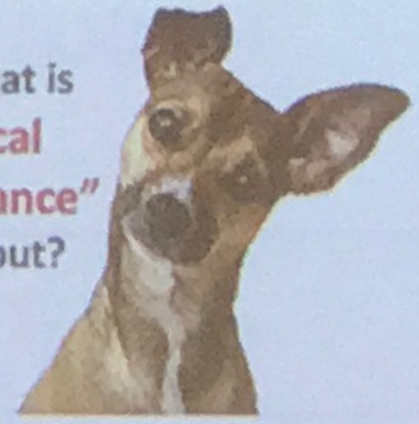
Research & Innovation (R&I)

- Academia
  - professional codes of conduct
  - 'ethical' clearance procedures
- Industry / Commercial ← **Reactive; Not Proactive or Reflexive**
  - lumped together with legal concerns often
  - not 'systemised' or 'formalised'



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Understanding R&I

1 — 2 — 3 — 4

formation

formation of (scientific) knowledge and concepts that can be operationalised for technical applications

translation

translation of knowledge into a technology design

prototyping

prototyping and testing of design

incorporation

introduction of R&I outcomes into society

A tool for Ethics in R&I

Requirements to satisfy:

1. accessible to non-ethicists
   a. or people without a background in ethics
   b. argument supported by Council for Big Data, Ethics and Society [14]
2. enable collaboration in identifying ethical impacts
   a. people can be from different backgrounds, roles
   b. multiple people can contribute using 'narratives'
   c. fits theories in Science and Technology Studies (STS) [15]

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BMC	Literature	Trial & Error
* Enable users to discuss how technology might bring about ethical impacts for different stakeholders. * Building blocks for holistic analysis of technological applications being discussed	* Impacts of technology on individuals, groups, and society as a whole * Gathering different vantage points to consider ethical impacts of technology * Use writing in Philosophy and Technology	* Ensure design is user-friendly and intuitive * Iterate through series analysis exercises * Trial in teaching and training settings with >260 students

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Ethics Canvas

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Ethics Canvas

Project Title:

Date:

Ethics Canvas 1.0 - ethicscanvas.org © ADAPT Centre & Trinity College Dublin & Dublin City University 2017

Individuals affected

Identify the types or categories of individuals affected by the product or service, such as men/women/a wide range of users, age category etc.

1

Behaviour

Discuss problematic changes to individual behaviour that may be prompted by the application e.g. differences in habits, time schedules, choice of activities, people behaving more individualistic or collectivist, people behaving more or less materialistic.

3

Relations

Discuss problematic differences in individual behaviour such as differences in habits, new schedules, choice of activities, etc

4

What can we do?

Select the four most important ethical impacts you discussed. Identify ways of solving these impacts by changing your project's product/service design, organisation. Or by providing recommendations for its use or spelling out more clearly to users the values driving the design

9

Worldviews

Discuss how the general perception of somebody's role in society can be affected by the project.

5

Group Conflicts

Discuss the impact on the relationships between the groups identified, e.g. employers and unions

6

Groups affected

Identify the collectives or communities, e.g. groups or organisations, that can be affected by your product or service, such as environmental and religious groups, unions, professional bodies, competing companies and government agencies, considering any interest they might have in the effects of the product or service.

2

Product or Service Failure

Discuss the potential negative impact of your product or service failing to operate as intended,eg technical or human error, financial failure/ insolvency/acquisition, security breach, data loss, etc.

7

Problematic Use of Resources

Discuss possible negative impacts of the consumption of resources of your project, e.g. climate impacts, privacy impacts, employment impacts etc.

This Ethics Canvas is adapted from Alex Osterwalder's Business Model Canvas. The Business Model Canvas is designed by: Business Model Foundry AG. It is work is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported License. To view a copy of this license, visit http://creativecommons.org/licenses/by-sa/3.0/. To view the original Business Model Canvas, visit http://www.

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Online Ethics Canvas

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ONLINE ETHICS CANVAS

Canvas Title: Ethics Canvas Adoption

Saved Tags for This Canvas: ethics IoT diversity

Individuals Affected

- Designers
- Business leaders
- Legal professionals

Behaviour

- Heightened awareness / concern about possible ethical issues
- Delay the launch of product / service until all potential risks are mitigated
- Increased complaints, civil suits

What can we do?

- Increased education / awareness of the use / application of Ethics Canvas
- Include all stakeholders in the use of the Ethics Canvas
- Agile approach - frequent & fast prototyping, testing and fine-tuning iterations

Worldviews

- Heightened awareness of biases, more appreciation of / openness to diversity
- Overly sensitized / paranoia / adoption about differences; increased need for transparency

Groups Affected

- Activists, religious, gender, ethnic groups, parents
- Suppliers, manufacturers, service providers, consumers

Relations

- Product service developers with legal dept
- Digital agencies with clients
- Service providers and consumers

Group Conflicts

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13

Assessment

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- Evaluate perceived usefulness amongst users
- Pilot: students creating an ICT application as part of coursework
- Students attend a 1-hour lecture presenting the Ethics Canvas
- Use (online) Ethics Canvas in groups for ~1-hour
- Free to collaborate physically or virtually
- Questionnaire (voluntary) after completing Ethics Canvas

Evaluation

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- 109 students participated in the exercise
- Organised into groups of 3 to 4 students (on average)
- Feedback given by 31 students (28% to total students)
- Questionnaire followed 5-point Likert scale to ask:
  - perceived usefulness of the Ethics Canvas
  - anticipated effect of the Ethics Canvas

56%+28%

(strongly agreed / agreed)
Exercise improved their understanding of potential ethical impacts

44%+29%

(strongly agreed / agreed)
Ethics Canvas widened their understanding of groups and individuals affected

42%+35%

(strongly agreed / agreed)
Helped to create a broad overview of potential ethical impacts of their projects

40%+21%

(strongly agreed / agreed)
Ethical impacts discussed fitted the structure of the Ethics Canvas

21%

(disagreed/disagreed strongly)
Ethical impacts discussed fitted the structure of the Ethics Canvas

52%+5%

(strongly agreed / agreed)
Ethics Canvas led them to reconsider their business models for the project

Conclusions

01 Ethics Canvas is perceived as an useful tool to guide participants in discussing a broad range of ethical impacts as well as identification of relevant stakeholders

02 Ethics Canvas can lead to intention of participants to reconsider their business model or technology designs

03 Structure of Ethics Canvas needs to be improved to be more inclusive of potential ethical impacts

To Summarise...

- Academia
  - professional codes of conduct
  - 'ethical' clearance procedures
- Industry / Commercial – **Reactive; Not Proactive or Reflexive**
  - lumped together with legal concerns often
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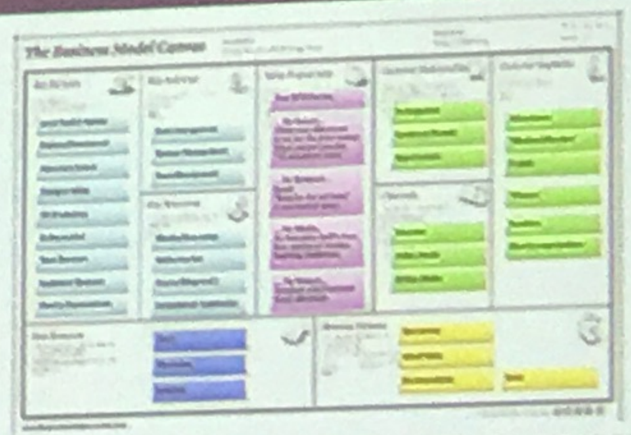
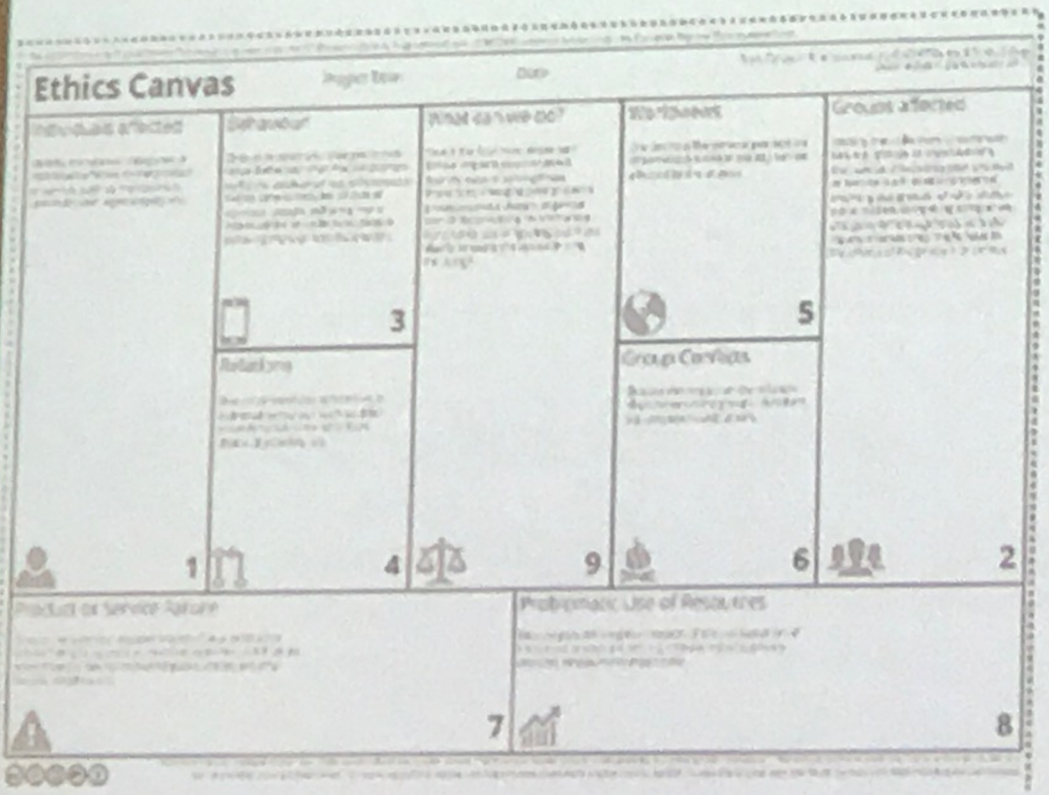
1. **formation** – formation of (scientific) knowledge and concepts that can be operationalised for technical applications
2. **translation** – translation of knowledge into a technology design
3. **prototyping** – prototyping and testing of design
4. **incorporation** – introduction of R&I outcomes into society





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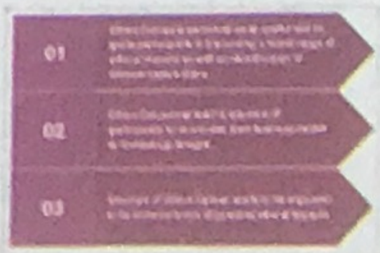

1. Evaluation of impacts
   a. whether the impact is positive or negative
   b. whether it is severe or non-severe
2. Translate engagement with Canvas
   a. back to conceptual roots in E
   b. transition outcomes into cha
   frameworks

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