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ECS7025P Ethics, Regulations and Laws in Advanced Data Processing and Decision Making

Week 2

Data Ethics & The UK Data Ethics Frameworks

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Learning outcome of the session

- Understand the need for data ethics
- The UK Data Ethics Framework

What is the Data Ethics Framework?

- First developed in 2016, updated in September 2020

- Aimed at statisticians, analysts and data scientists working directly/indirectly within the public sector

- To help public servants understand ethical considerations, address these within their projects, and encourages responsible innovation

- **Also, The Framework guides appropriate and responsible data use by those working with data, including data practitioners, policymakers, operational staff, and those helping produce data-informed insight. a valuable reference for private sector professionals**

- It has 3 fundamental principles and 5 specific actions

UK National Data Strategy

The National Data Strategy (NDS) is a strategy that aims to drive the UK in building a world-leading data economy while ensuring public trust in data use.

https://www.gov.uk/government/publications/uk-national-data-strategy

 To ensure that the data derived and the decisions made using those data do not lead to harm

UK National Data Strategy

This strategy sets out how best to unlock the power of data for the UK.

It builds upon initiatives such as the Industrial Strategy, the AI Review, the AI Sector Deal and the Research and Development Roadmap – **setting out a framework for how we approach and invest in data to strengthen our economy and create big opportunities for us in the future.**

The government believes that unlocking the value of data is key to driving growth both within the digital sector and across the economy.

UK National Data Strategy

Objectives of the NDS-

- 'transforming government's use of data to drive efficiency and improve public services'.

- 'unlocking the value of data across the economy'.

- In turn, this supports the overall ambition of the NDS: 'to help organisations of every kind succeed – **across the public, private and third sectors'. Through transforming its own use of data, the UK government can set an example for others and show how its own data practices can enable data flows and data use across sectors.**

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NDS view -

- *People and organisations must use data ethically. The choices made about what data is collected and how it is used should not be unjust, discriminatory or deceptive.*

- Ethics is about using data well and avoiding harmful impacts.

- This means maximising the benefits of data use by people, organisations, and governments, as well as thinking through the conseyences of how data use might harm people, communities and infrastructure (for example, public goods such as the environment).

- Demonstrating that ethical processes are embedded in how data is collected, analysed and used can help build confidence:

As <u>the NDS outlines</u>,

any 'transformation' in government's use of data 'will only be possible and sustainable if it is developed within a robust ethical framework of transparency, safeguards and assurance which builds and maintains public trust in the government's use of data'.

IMPORTANT

Some current high-profile topics under the banner of 'ethics' include the <u>accountability and transparency of algorithms</u> and artificial intelligence (AI) systems, <u>online harms</u> and online safety, and <u>misinformation</u>. Considering the <u>environmental impacts of the data economy</u> may increasingly become an ethical concern.

Ethics and public trust' is one of the five key areas of NDS Mission 3 for transforming government's use of data

Gov initiatives in the area of data ethics

Advisory bodies for ethical working with data

- Data Ethics Framework

- Centre for data ethics & Innovation (CDEI)- providing advice to the government on data ethics and other innovative ways of using data

https://www.gov.uk/government/organisations/centre-for-data-ethics-and-innovation

In recent years, the UK has attempted to establish and 'retain a global leadership position' in the ethical and accountable use of data and AI, through establishing CDEI, work on standards and working on national strategies around data and AI. Both the NDS and the Integrated Review discuss shaping an open international order (including ethical values), which aims to support UK businesses.

Open Data Institute

https://theodi.org/knowledge-opinion/case-studies/

UK Data Ethics Framework

First published in June 2018, the UK Data Ethics F/work is another way of protecting our sensitive information in a data-driven world.

The Data Ethics Framework is a set of principles that have been laid out by the government to guide **the appropriate use of data in the public sector.**

These are relatively new legislation and codes of practise and have been created as part of the movement to better protect our data.

The framework is centred around the individual and these principles and initiatives must be adhered to alongside existing data protection laws such as General Data Protection Regulations (GDPR).

What is it for?

Data Ethics Framework is there to guide those working in the public sector on how to use data appropriately and responsibly.

The overall idea is to help public servants better understand any ethical considerations that could arise from their work and the codes of practice they must abide by when handling data.

How do you use it?

As we mentioned earlier, public servants like those listed above must work through the framework whenever they are planning and starting a new project. As such, the framework is made up of different sections, each with its own set of questions.

These questions guide the individual or team through various ethical considerations and how these might apply to their project. This requires going through and recording their answers to create a data ethics self-assessment. This can then be compared to the self-assessment scoring scale.

Why a Data Ethics Framework is needed?

- Data science provides users with the capabilities to perform analysis of large volumes of data.

- Ethical implications when generating, analysing and disseminating data

- **Anonymity**, as this is something that analysts can overlook when combining several datasets for analysis.

A technical approach to protecting privacy — anonymization — also doesn't work effectively in many cases. Anonymization refers to stripping out from datasets any personal identifiers, such as name, address, credit card number, date of birth, or Social Security number. The resulting data can then be analyzed and shared without compromising anyone's privacy. That works in a world of small data. But big data, with its increase in the quantity and variety of information, facilitates re-identification. Consider the cases of seemingly unidentifiable web searches and movie ratings.

In August 2006 AOL publically released a mountain of old search queries, under the well-meaning view that researchers could analyze it for interesting insights. The dataset, of 20 million search queries from 657,000 users between March 1 and May 31 of that year, had been carefully anonymized. Personal information like user name and IP address were erased and replaced by unique numeric identifiers. The idea was that researchers could link together search queries from the same person, but had no identifying information.

Still, within days, the *New York Times* cobbled together searches like "60 single men" and "tea for good health" and "landscapers in Lilburn, Ga" to successfully identify user number 4417749 as Thelma Arnold, a 62-year-old widow from Lilburn, Georgia. "My goodness, it's my whole personal life," she told the *Times* reporter when he came knocking. "I had no idea somebody was looking over my shoulder." The ensuing public outcry led to the ouster of AOL's chief technology officer and two other employees.

Yet a mere two months later, in October 2006, the movie rental service Netflix did something similar in launching its "Netflix Prize." The company released 100 million rental records from nearly half a million users — and offered a bounty of a million dollars to any team that could improve its film recommendation system by at least 10 percent. Again, personal identifiers had been carefully removed from the data. And yet again, a user was re-identified: a mother and a closeted lesbian in America's conservative Midwest, who because of this later sued Netflix under the pseudonym "Jane Doe."

Researchers at the University of Texas at Austin compared the Netflix data against other public information. They quickly found that ratings by one anonymized user matched those of a named contributor to the Internet Movie Database (IMDb) website. More generally, the research demonstrated that rating just six obscure movies (out of the top 500) could identify a Netflix customer 84 percent of the time. And if one knew the date on which a person rated movies as well, he or she could be uniquely identified among the nearly half a million customers in the dataset with 99 percent accuracy.

In the AOL case, users' identities were exposed by the content of their searches. In the Netflix case, the identity was revealed by a comparison of the data with other sources. In both instances, the companies failed to appreciate how big data aids de-anonymization. There are two reasons: we capture more data and we combine more data.

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Discuss

- *Why is this an ethical concern?*

- *Have the researchers at the University of Texas used the data-informed insight responsibly?*

- *Can you think of any legal frameworks that could avoid a situation like occurring?*

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Transparency

Transparency means that your actions, processes and data are made open to inspection by publishing information about the project in a complete, open, understandable, easily-accessible, and free format. In your work with and on data and AI, use the available guidance, for example the Open Government Playbook, to ensure transparency throughout the entirety of your process.

Potential measures

During the project

- Accurately capture the process of developing your project

- Ensure the decision-making journey is documented in a timely manner, with opportunities for potential internal and external input and feedback clearly marked.

- Keep original documents and details of the meetings held, e.g. minutes and readouts, or a list of key issues discussed.

- If running external consultations, capture and publish all activities and outcomes, and document them (for public sector, make them available to the public, if information and data is not sensitive, e.g. defined as GDPR or FOI exceptions).

- Generate an aggregated statistical overview of the engagement, e.g. 10 roundtables with 60 stakeholders, X of whom were from the government, and Y from the private sector, etc.

Potential Measures

After the project

- Generate evaluation reports and next steps. Consider publishing reports in different formats to make them accessible to different groups of people (e.g. pdf, doc, and html formats).

- Stick to the timeline of generating this data, and be clear if there are any delays.

Accountability

Accountability means that there are effective governance and oversight mechanisms for any project. Public accountability means that the public or its representatives are able to exercise effective oversight and control over the decisions and actions taken by the government and its officials (Not applicable for private sector), in order to guarantee that the initiatives meet their stated objectives and respond to the needs of the communities/customer they are designed to benefit.

Accountability

Score					
0	**1**	**2**	**3**	**4**	**5**
Mechanisms for scrutiny, governance, or peer review for the project haven't been established					Long-term oversight and public scrutiny mechanisms are built into the project cycle

Key:

Start   During   After

Potential Measures

Before the Project

- Assess the project plan to identify and disclose any potential conflicts of interest that the personnel participating in the project may have. If there is a conflict of interest, take steps to prevent them from taking part in any decision-making processes.

Potential Measures

During the Project

- Keep an accurate and detailed record of actions and the decision-making process, e.g. feedback provided on earlier internal and external input, and, why it was or wasn't taken on board.

- Establish an oversight body to which individuals with ethical concerns can report or seek protection; ensure that they are sufficiently protected from reprisal for exposing wrongdoing, for instance by ensuring their anonymity.

Potential Measures

After the Project

- After the project is finished and/or the policy is implemented, establish a forum to have a retrospective session, providing a safe space to scrutinize the project/policy.

- Create an online tracker where implementation results are shared and the internal/external stakeholder can provide further feedback.

Fairness

It is crucial to eliminate your project's potential to have unintended discriminatory effects on individuals and social groups. You should aim to mitigate biases which may influence your model's outcome and ensure that the project and its outcomes respect the dignity of individuals, are just, non-discriminatory, and consistent with the public interest, including human rights and democratic values.

Fairness

Score

0	1	2	3	4	5
There is a significant risk that the project will result in harm or detrimental and discriminatory effects for the public or certain groups					The project promotes just and equitable outcomes, has negligible detrimental effects, and is aligned with human rights considerations

Key:

⊙ Start   ⊙ During   ⊙ After

Principles	Score					
	0	**1**	**2**	**3**	**4**	**5**
■ Transparency						
▲ Accountability						
● Fairness						

Data Ethics Framework

Self-assessment tables for the 5 specific actions.

Please use the following self assessment to mark, track and share your overall progress over time against the following 5 specific actions.

Specific actions		Score					
		0	**1**	**2**	**3**	**4**	**5**
1	Define public benefit and user need						
2	Involve diverse expertise						
3	Comply with the law						
4	Check the quality and limitations of the data						
4.1	Check the quality and limitations of the model						
5	Evaluate and consider wider policy implications						

Data Ethics Framework

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Other Shared Principles in Data Ethics

When designing governance structures and policies, you want to include the following shared principles from ethical frameworks.

- **Privacy**
- **Non Discrimination**
- **Explainability**
- **Safety**
- **Reliability and security**
- **Equality…**

Privacy

- Privacy refers to the protection of personally identifiable information, from unauthorized disclosures. Be that through internal or external malicious actors, either intentionally or unintentionally.

- This is an important principle to keep in mind because of the decree of external scrutiny that it invites.

- In addition to the scale of harm that it can have on individuals if left on mitigated.

Explainability

- Explainability refer to the idea of being able to examine the workings of the data project. Such that you can gain an understanding of why it makes certain decisions.

- Also explain why specific decisions were made in certain circumstances.

Safety, reliability, security

- The ability of an organization to maintain the integrity of the system both from unwanted manipulations. And from keeping its behaviors within stated an acceptable balance.

New Yorker Article: The Equality Conundrum

https://www.newyorker.com/magazine/2020/01/13/the-equality-conundrum

Discuss:

1. The article raises the scenario of dividing assets amongst children by either "equality of resources" or "equality of welfare'" - which of these do you find yourself leaning toward as the more fair definition? Why might that be?

2. How we can apply some of the philosophical arguments present in this article toward our data processing project?
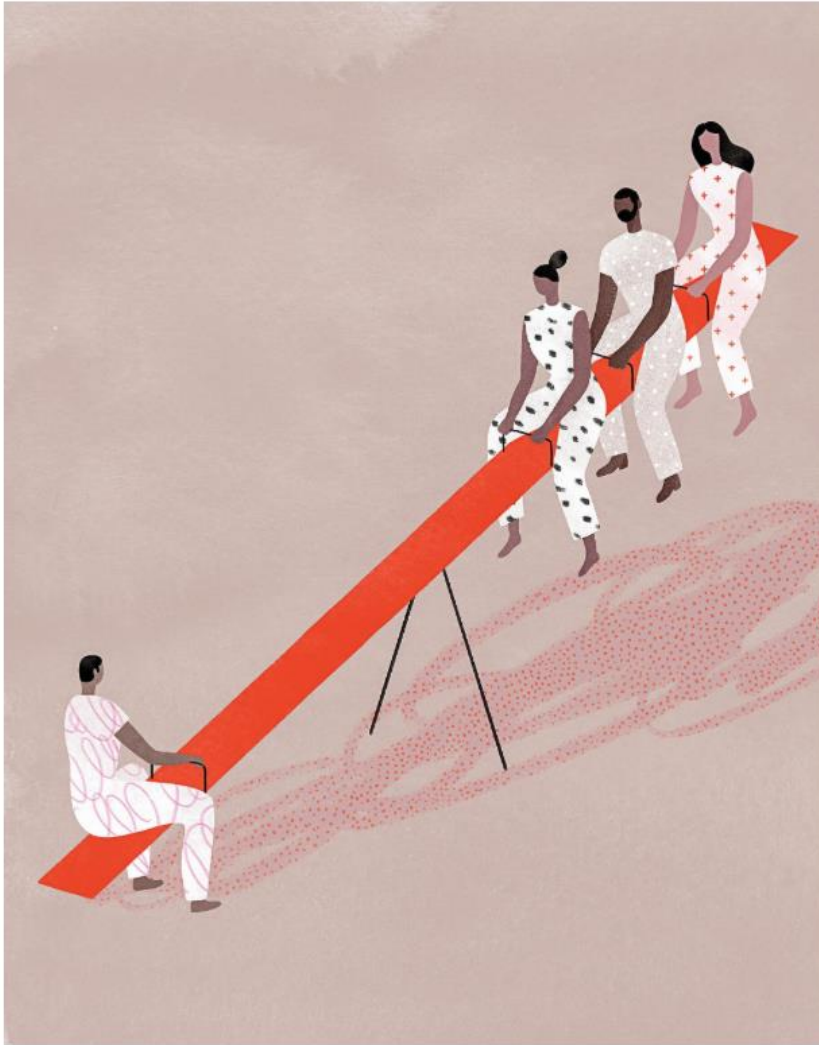
Code of Ethics

ACM Code of Ethics and Professional Conduct

1. GENERAL ETHICAL PRINCIPLES.

1.1 Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.

1.2 Avoid harm.

1.3 Be honest and trustworthy.

1.4 Be fair and take action not to discriminate.

1.5 Respect the work required to produce new ideas, inventions, creative works, and computing artifacts.

1.6 Respect privacy.

1.7 Honor confidentiality.

2. PROFESSIONAL RESPONSIBILITIES.

2.1 Strive to achieve high quality in both the processes and products of professional work.

2.2 Maintain high standards of professional competence, conduct, and ethical practice.

2.3 Know and respect existing rules pertaining to professional work.

2.4 Accept and provide appropriate professional review.

2.5 Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.

2.6 Perform work only in areas of competence.

2.7 Foster public awareness and understanding of computing, related technologies, and their consequences.

2.8 Access computing and communication resources only when authorized or when compelled by the public good.

2.9 Design and implement systems that are robustly and usably secure.

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Code of Ethics (acm.org)

Code of Ethics

ACM Code of Ethics and Professional Conduct

3. PROFESSIONAL LEADERSHIP PRINCIPLES.

3.1 Ensure that the public good is the central concern during all professional computing work.

3.2 Articulate, encourage acceptance of, and evaluate fulfillment of social responsibilities by members of the organization or group.

3.3 Manage personnel and resources to enhance the quality of working life.

3.4 Articulate, apply, and support policies and processes that reflect the principles of the Code.

3.5 Create opportunities for members of the organization or group to grow as professionals.

3.6 Use care when modifying or retiring systems.

3.7 Recognize and take special care of systems that become integrated into the infrastructure of society.

4. COMPLIANCE WITH THE CODE.

4.1 Uphold, promote, and respect the principles of the Code.

4.2 Treat violations of the Code as inconsistent with membership in the ACM.

Ethical Committee

Please glance through the Accenture Report

Accenture-AI-And-Data-Ethics-Committee-Report-11.pdf

Question:

How does the ethics board contribute to overarching principles?

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