BBC Research & Development

BBC + W3C WEB MACHINE LEARNING WORKING GROUP

Towards Ethical Web Machine Learning

James Fletcher - BBC Lead, Responsible AI/ML

16 December 2021

TOWARDS ETHICAL WEB MACHINE LEARNING

Background / Context

The challenge

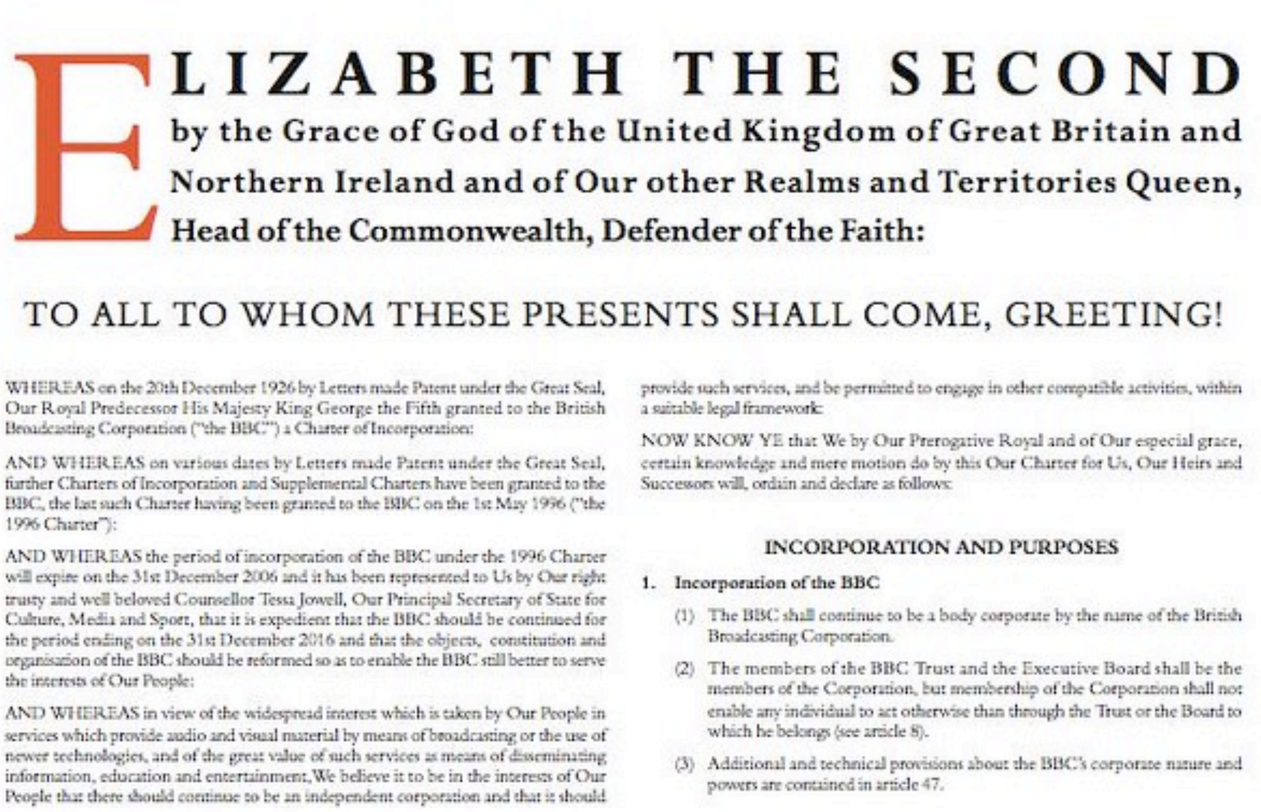
What are the ethical considerations that should inform the development of the Web Neural Network API, and what mitigations should be taken into account?

About me

- Leading the BBC’s approach to responsible AI/ML across the organisation
- Previously with BBC Voice + AI, including leading on ethics of conversational AI
- Long career as senior journalist, covering issues including social impact and ethics of technology, and applying the BBC’s editorial values

The BBC & Standards

"The BBC must pay particular attention to supporting and engaging actively in national and international forums for the development of "open standards" … in co-operation with suitable partners"



ELIZABETH THE SECOND

by the Grace of God of the United Kingdom of Great Britain and Northern Ireland and of Our other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith:

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING!

WHEREAS on the 20th December 1926 by Letters made Patent under the Great Seal, Our Royal Predecessor His Majesty King George the Fifth granted to the British Broadcasting Corporation ("the BBC") a Charter of Incorporation:

AND WHEREAS on various dates by Letters made Patent under the Great Seal, further Charters of Incorporation and Supplemental Charters have been granted to the BBC, the last such Charter having been granted to the BBC on the 1st May 1996 ("the 1996 Charter"):

AND WHEREAS the period of incorporation of the BBC under the 1996 Charter will expire on the 31st December 2006 and it has been represented to Us by Our right trusty and well beloved Counsellor Tessa Jowell, Our Principal Secretary of State for Culture, Media and Sport, that it is expedient that the BBC should be continued for the period ending on the 31st December 2016 and that the objects, constitution and organisation of the BBC should be reformed so as to enable the BBC still better to serve the interests of Our People:

AND WHEREAS in view of the widespread interest which is taken by Our People in services which provide audio and visual material by means of broadcasting or the use of newer technologies, and of the great value of such services as means of disseminating information, education and entertainment, We believe it to be in the interests of Our People that there should continue to be an independent corporation and that it should provide such services, and be permitted to engage in other compatible activities, within a suitable legal framework:

NOW KNOW YE that We by Our Prerogative Royal and of Our especial grace, certain knowledge and mere motion do by this Our Charter for Us, Our Heirs and Successors will, ordain and declare as follows:

INCORPORATION AND PURPOSES

1. **Incorporation of the BBC**

(1) The BBC shall continue to be a body corporate by the name of the British Broadcasting Corporation.

(2) The members of the BBC Trust and the Executive Board shall be the members of the Corporation, but membership of the Corporation shall not enable any individual to act otherwise than through the Trust or the Board to which he belongs (see article 8).

(3) Additional and technical provisions about the BBC's corporate nature and powers are contained in article 47.

The BBC & Standards

- We currently work in approximately 40 different standards groups and sub-groups, to varying extents.
- We participate in and chair a number of W3C working groups, mostly around audio and video media support, and accessibility
- We have helped develop standards such as DVB, DAB, SMPTE and many others

The BBC & Standards

BBC response to the House of Lords Select Committee on Artificial Intelligence (2017)

We believe the BBC can play a public service role in the development of the right environment for AI & ML by...

1	2	3
Informing the Debate	**Bringing Partners Together**	**Responsible Technical Development**

The BBC & Standards

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TOWARDS ETHICAL WEB MACHINE LEARNING

Responsible AI/ML at the BBC

BBC

Machine Learning Engine Principles

BBC Machine Learning Engine Principles

Our Approach

AI&ML is going to transform the way we work & interact with audiences

Our objectives:

- Fulfilling our commitment to develop these new technologies responsibly and in the public service
- Maintaining audience trust
- Leading the way and anticipating future scrutiny

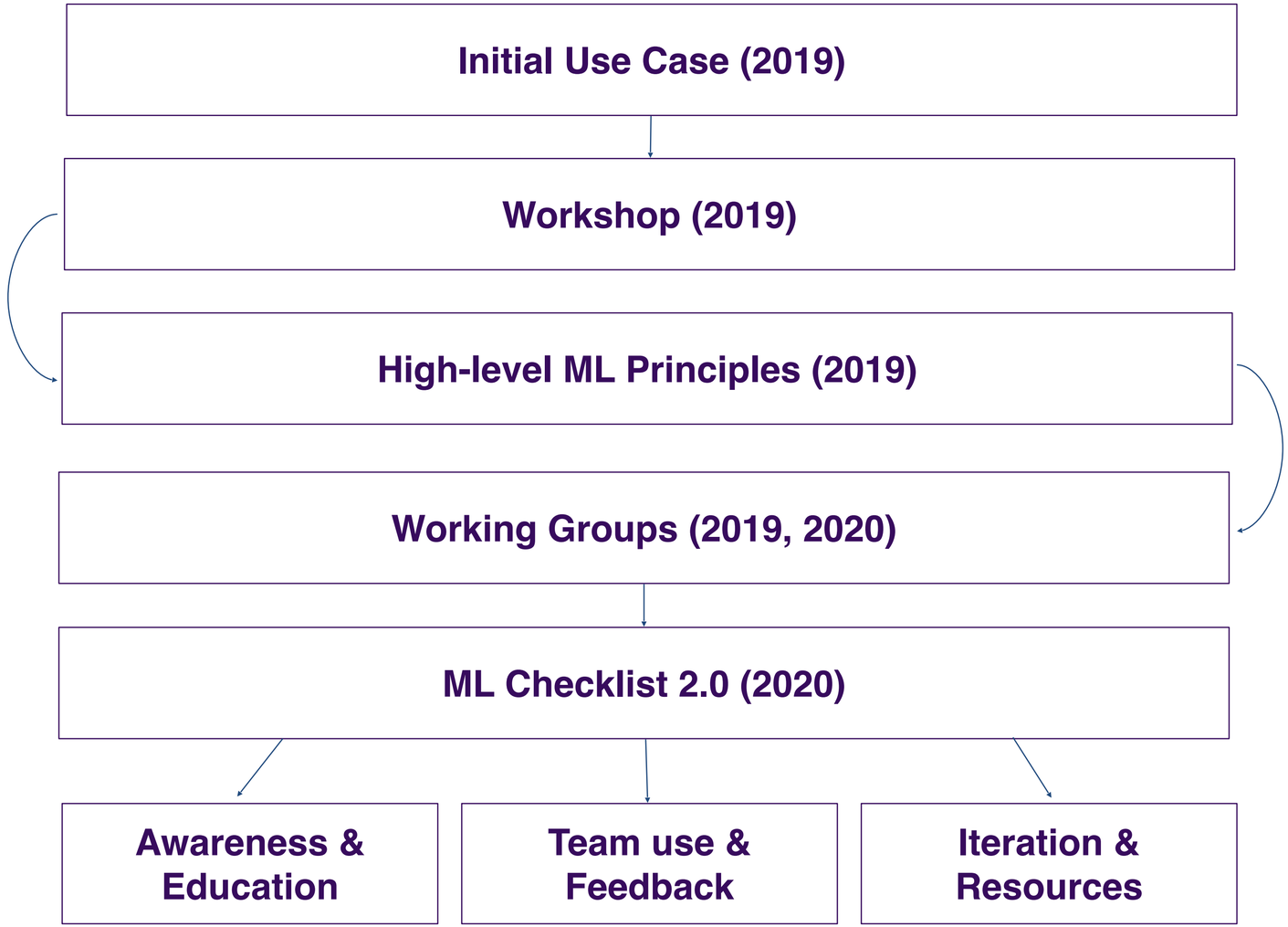
We want to help teams build ML products & services which work for all users, in the way they intend them to work, and align with our public service values.

Three pillars:

- Building thoughtfully
- Avoiding pitfalls
- An interdisciplinary approach

BBC Machine Learning Engine Principles

Our Timeline



BBC Machine Learning Engine Principles

The Principles

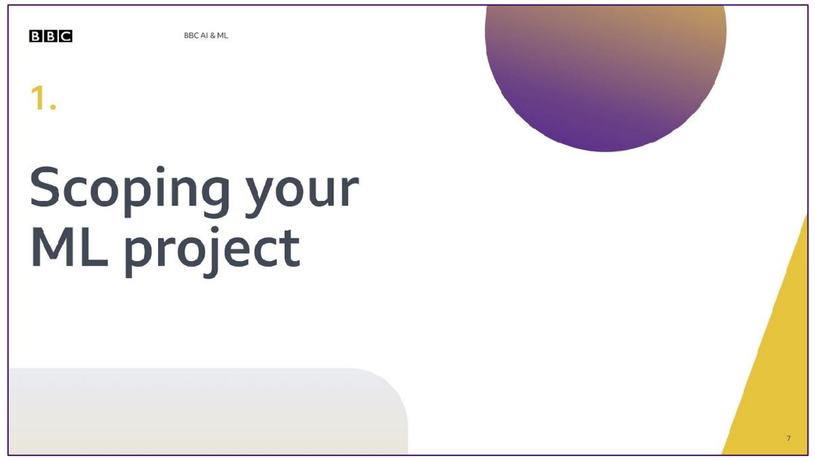
- **Reflecting the BBC's Values**
- **Improving Audience Experience**
- **Clear Explanations**
- **Editorial Values & Broadening Horizons**
- **Taking Responsibility: Review, Security & Fairness**
- **Human in the Loop**

BBC Machine Learning Engine Principles

MLEP Checklist 2.0 Overview

The checklist:

Machine Learning Engine Principles



Intended ML application

1.1 What will this application of ML do and why is it being created?

1.2 Have you considered using potential alternatives to ML? If not, why is ML appropriate or essential to your project?

1.3 Which of the BBC's public purposes does the project support? Please give reasons for your choice.

1.4 How does this project represent value both to the BBC and (if your project is external facing) to the BBC's audiences?

1.5 What are the desired/expected outcomes?

Impact

1.6 Who will be affected by the deployment of this system? Will it have an impact on any audience-facing services? If so have you considered the editorial policy aspects?

Risks, opportunities and consequences

1.7 What are some of the potential limitations, issues, or risks that could arise from your project?

1.8 Have you considered whether any groups could be negatively impacted because of the use of your application? How might you mitigate this?

https://www.bbc.co.uk/rd/publications/responsible-ai-at-the-bbc-our-machine-learning-engine-principles

BBC

Machine
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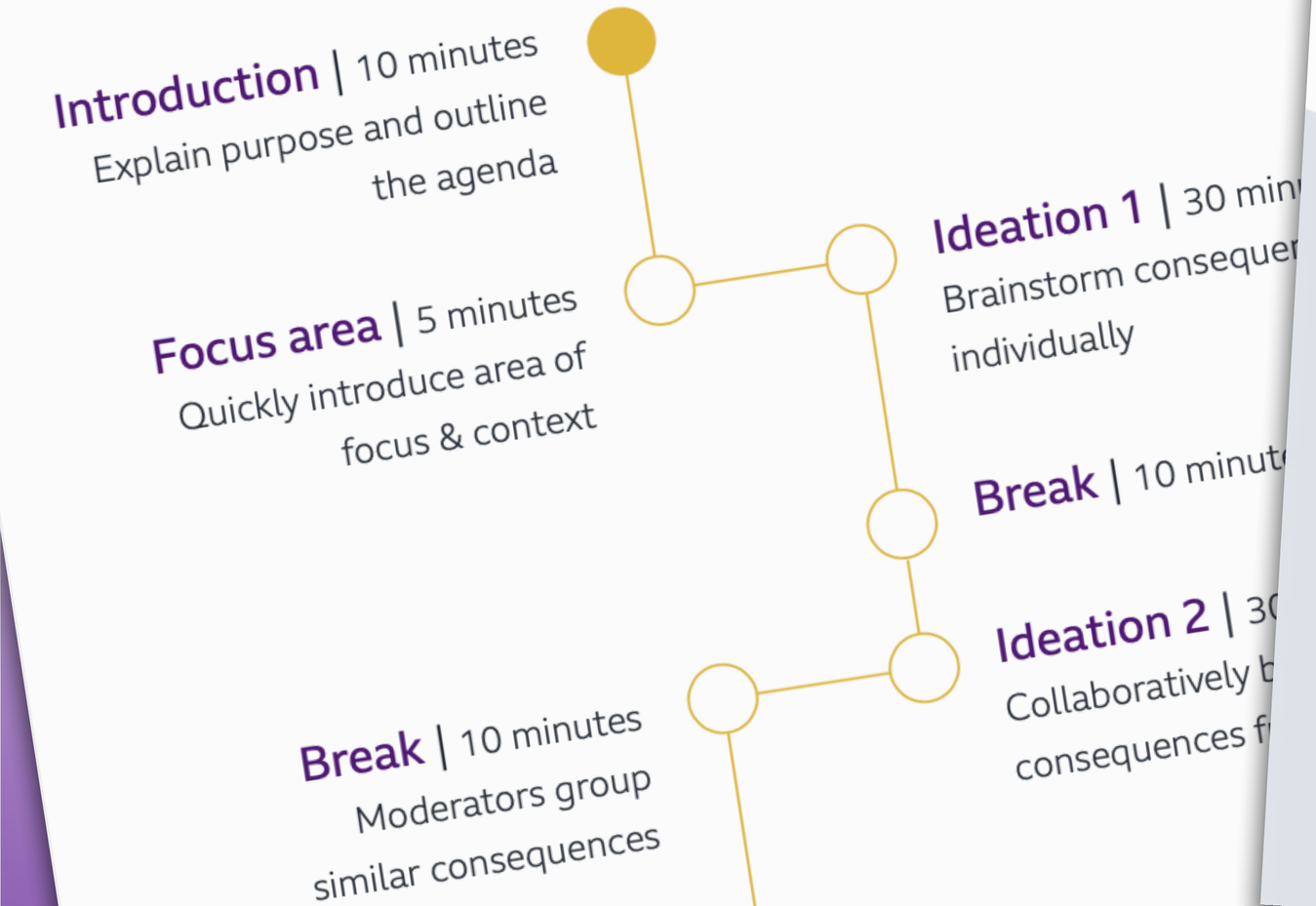
Principles

Recommended structure and suggested timescales for a consequence scanning workshop.

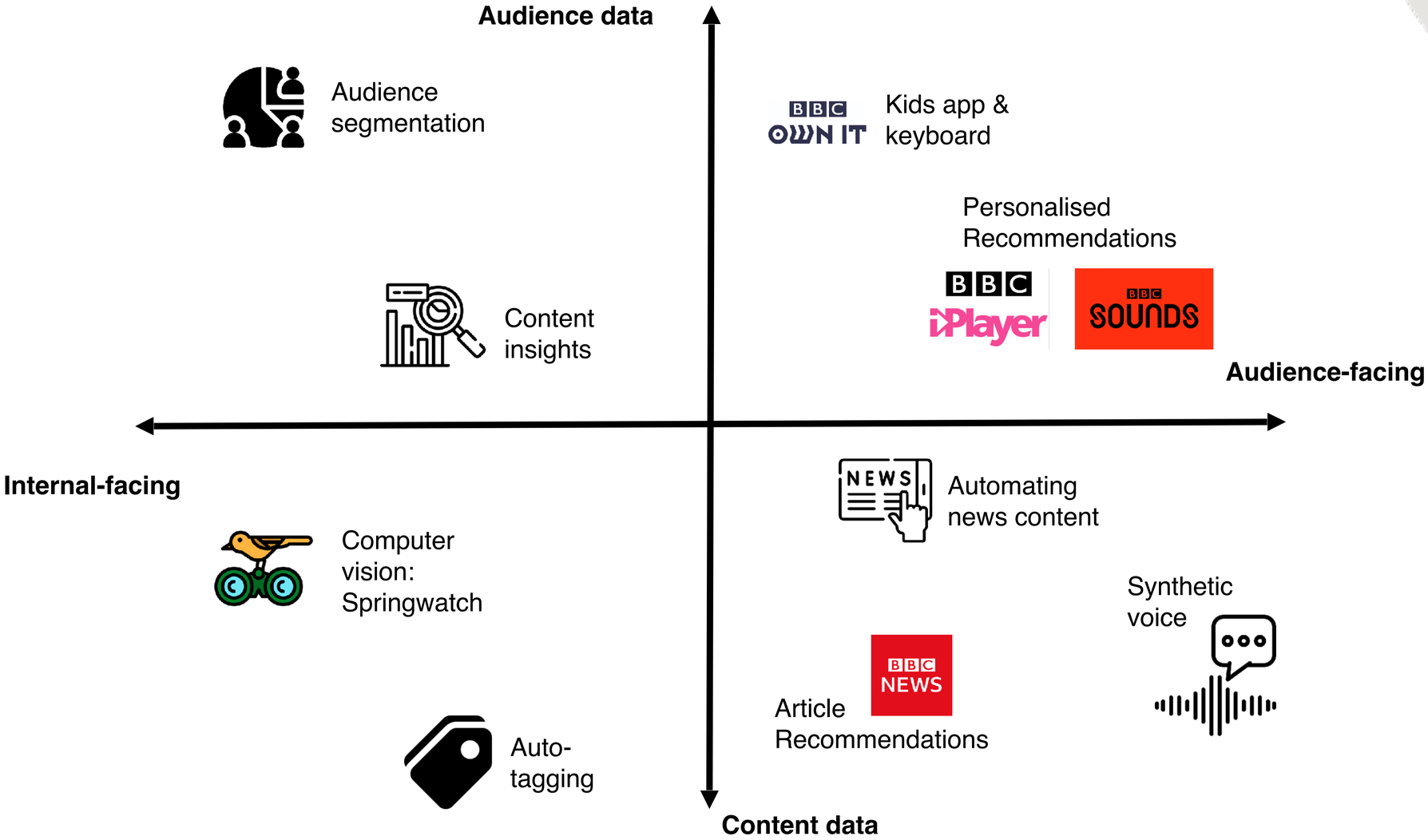


BBC

Consequence Scanning Toolkit

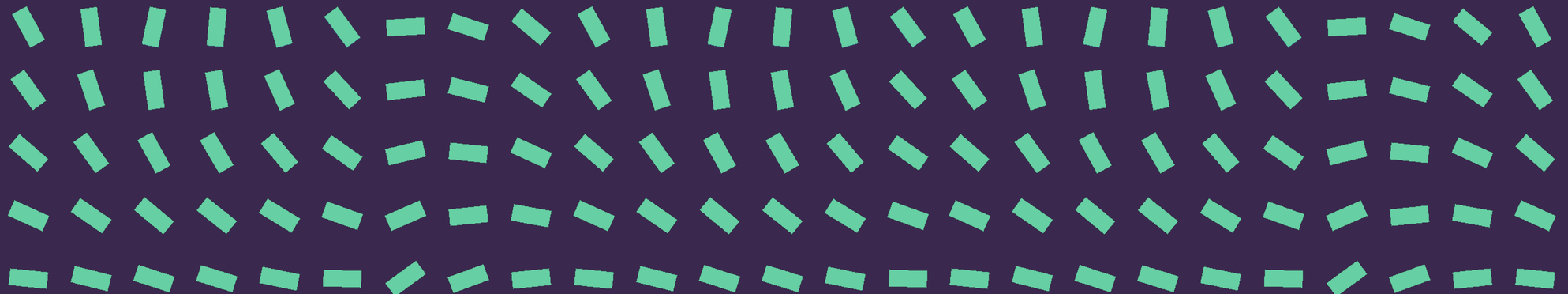
Machine Learning Engine Principles

AI & ML at the BBC



TOWARDS ETHICAL WEB MACHINE LEARNING

How might we apply an ethical approach to the web neural network API?



Key considerations

Build on existing W3C ethics work

Involve a wide range of stakeholders

Use internal + external expertise

Build towards broader web machine learning principles

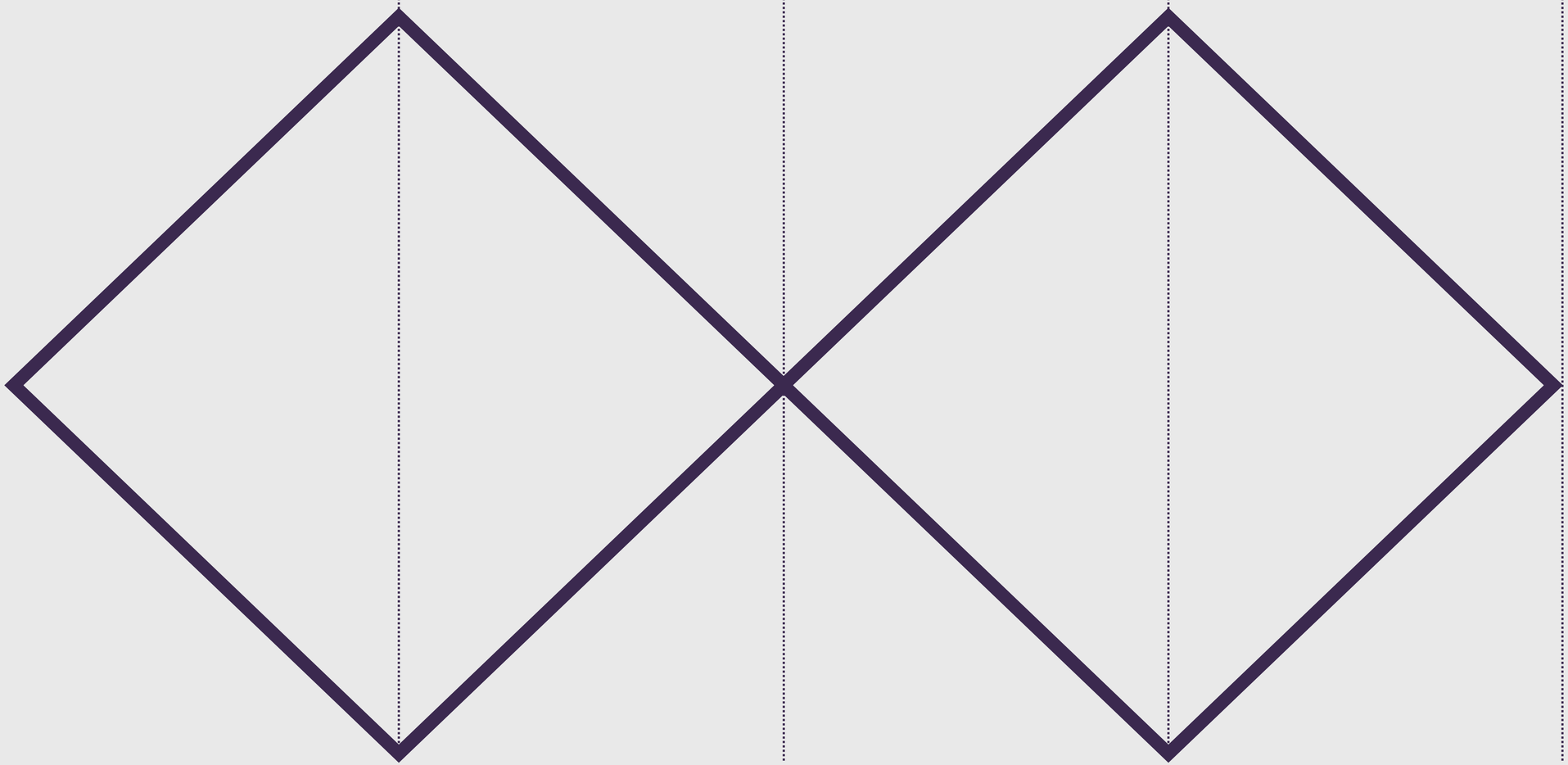
How might we get there?

Discover
Insight into the problem

Define
Areas of focus

Develop
Potential risks + solutions

Deliver
Solutions that work



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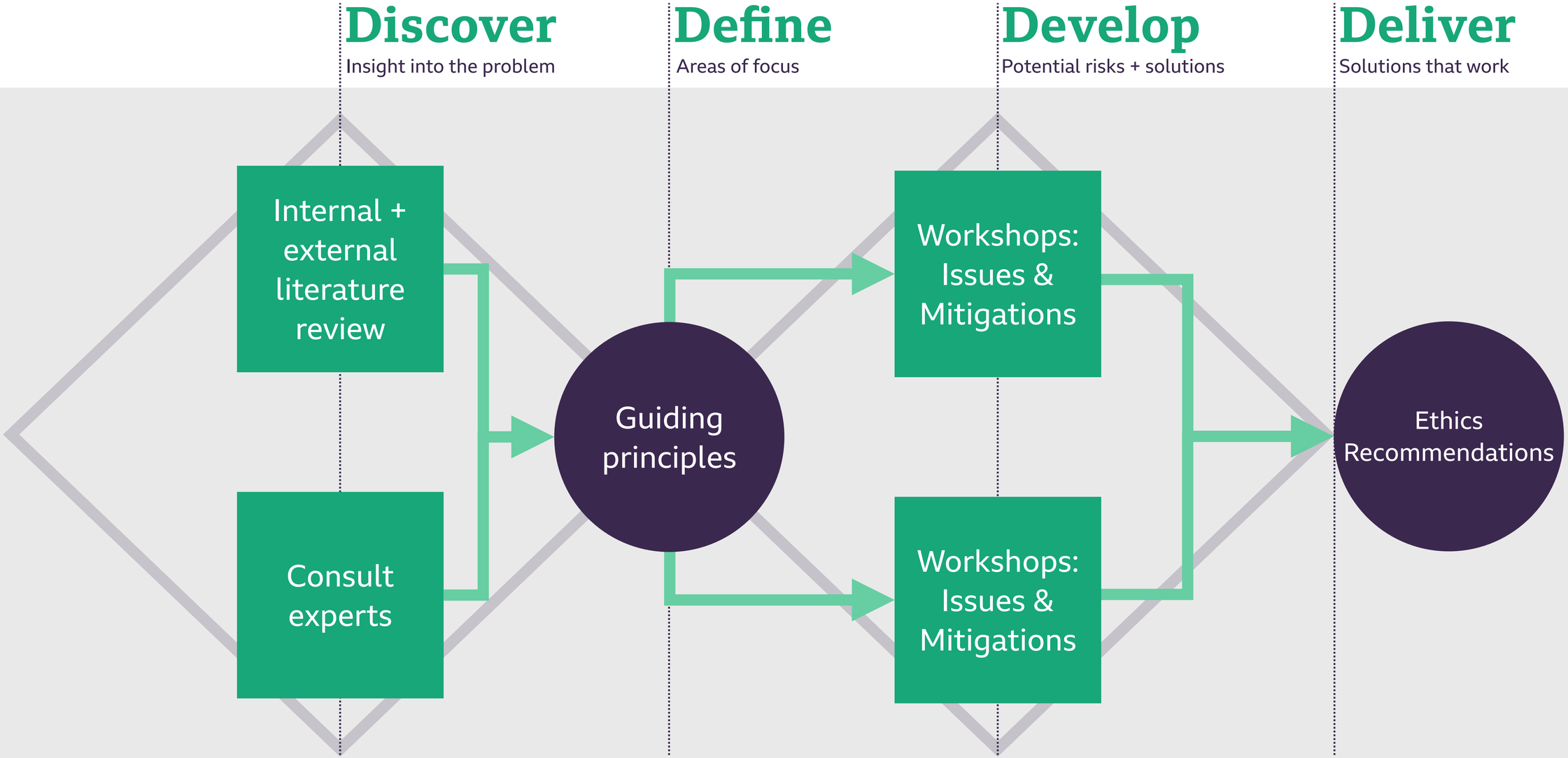

Questions from me …

- Thoughts on the proposed process
- Timeline considerations
- Recommendations for key stakeholders, internal and external experts

Questions from you …

Thank you

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@radiojay

https://www.bbc.co.uk/rd/publications/responsible-ai-at-the-bbc-our-machine-learning-engine-principles