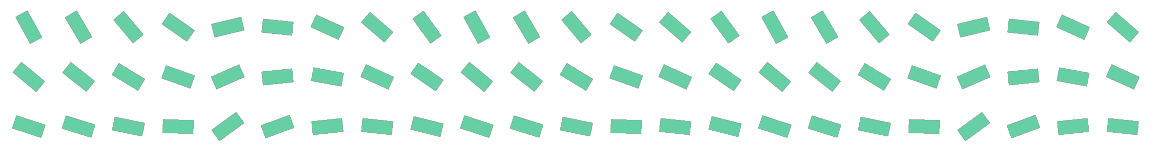


Background for Ethical Web ML Brainstorm & Review Sessions

James Fletcher - BBC Lead, Responsible AI/ML

10 March 2021



In this video ...

Background

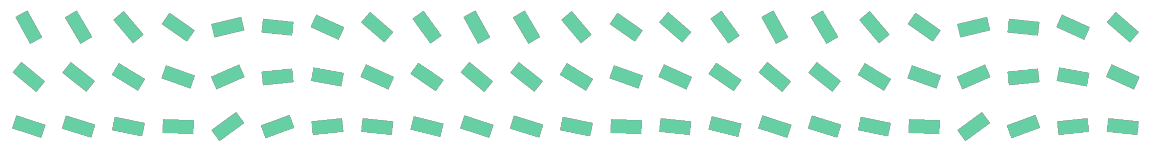
What is Web
Machine
Learning?

What is ethics
and why does it
matter in ML?

How did we
get to the
principles?

What are the
principles?

What to expect
in the group
sessions



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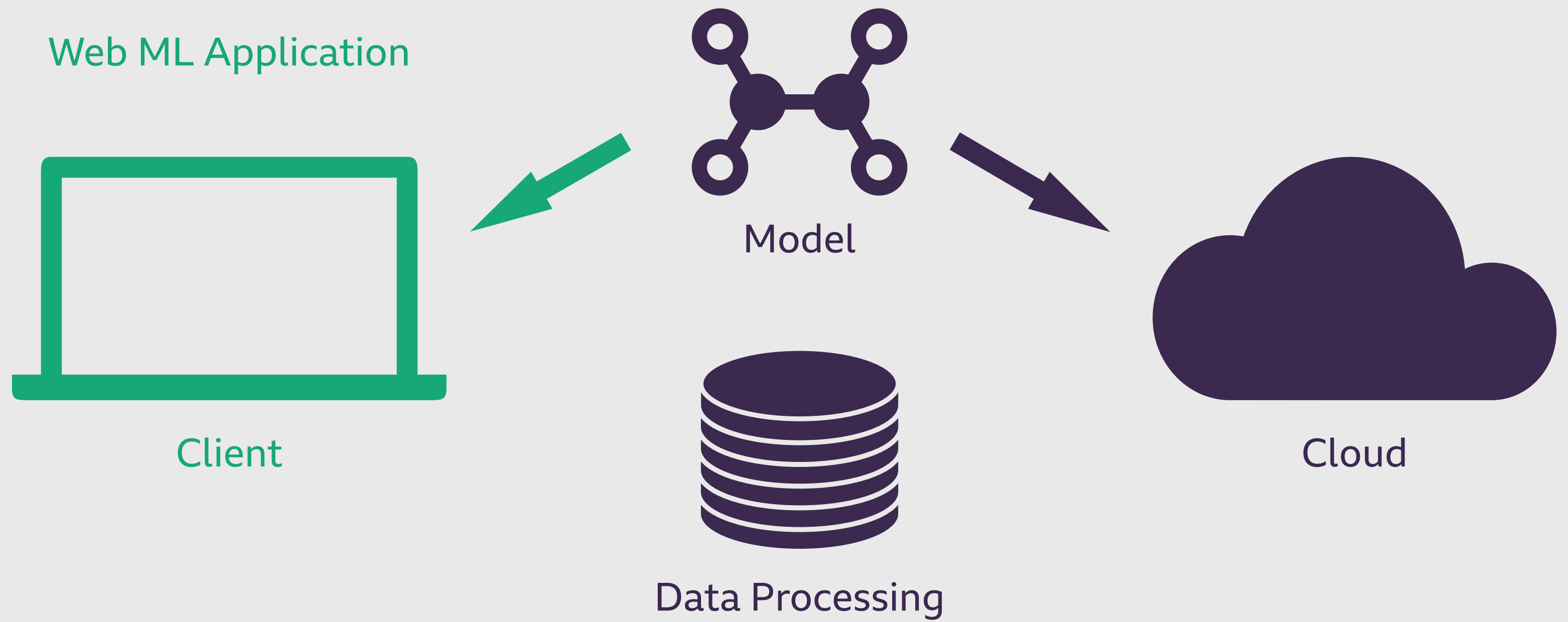
W3C Machine Learning Working Group

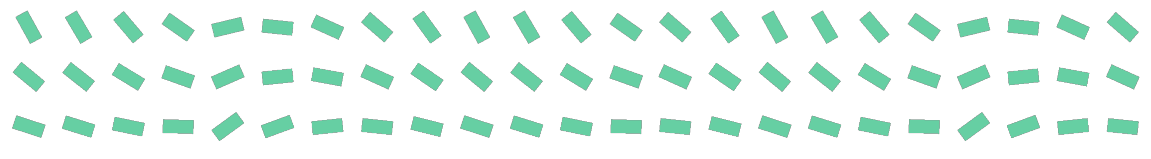
Mission:
to develop APIs for enabling efficient machine learning inference in the browser

Currently working on:
a W3C draft recommendation for a Web Neural Network API.

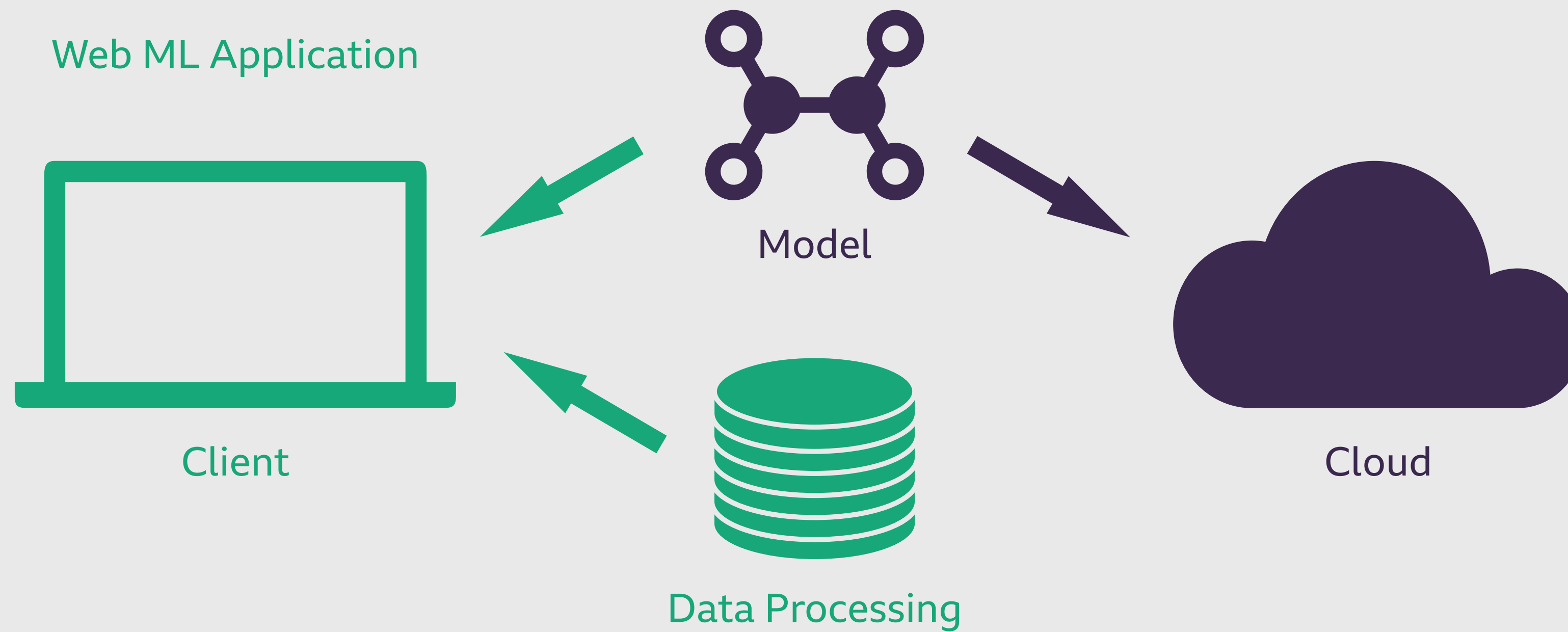
Deliverable:
“a Working Group Note documenting ethical issues associated with using Machine Learning on the Web, to help identify what mitigations its normative specifications should take into account.”

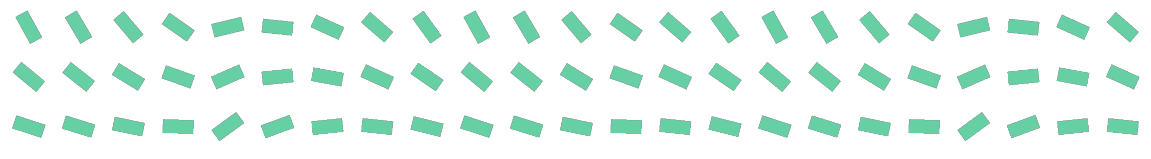
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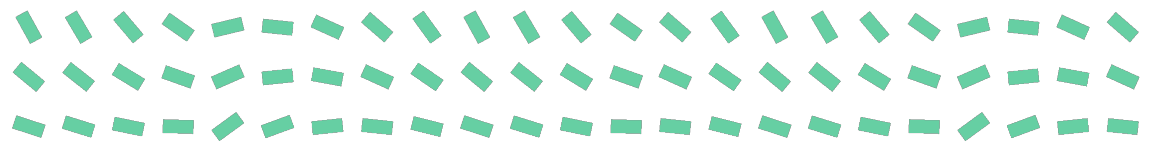
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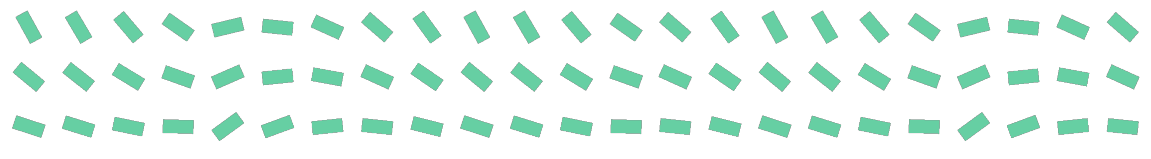


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Use Cases	Person Detection	Facial Recognition	Image Captioning	Machine Translation	Noise Suppression
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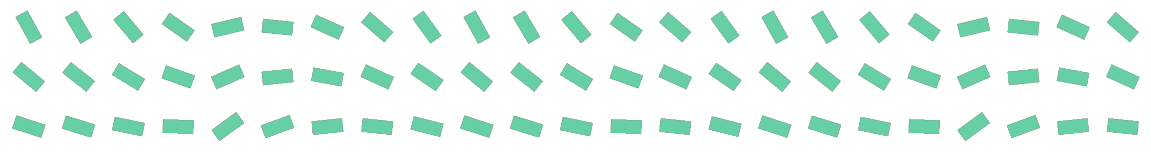


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Use Cases	Person Detection	Facial Recognition	Image Captioning	Machine Translation	Noise Suppression
Potential Benefits	Not dependent on cloud infrastructure	Decentralized web	Low Latency	Enhanced Privacy	



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What is ethics?	Ethics is about what is right and wrong, good and bad. It provides a rational framework for thinking about what's right and wrong and making decisions about how to act accordingly.
Why an ethical approach to Web ML?	Technology is never neutral - it will always have social and ethical implications. The question is whether these are actively considered and addressed, or not.
	Given the scale and depth of the impact that AI/ML is anticipated to have, failure to consider the ethical implications could cause great harm.



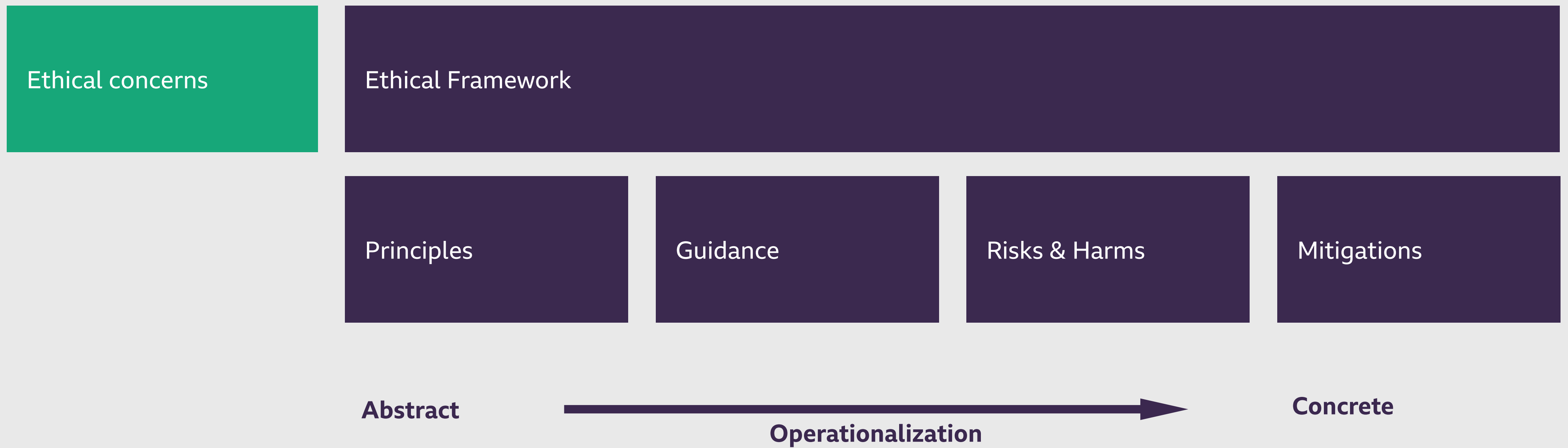
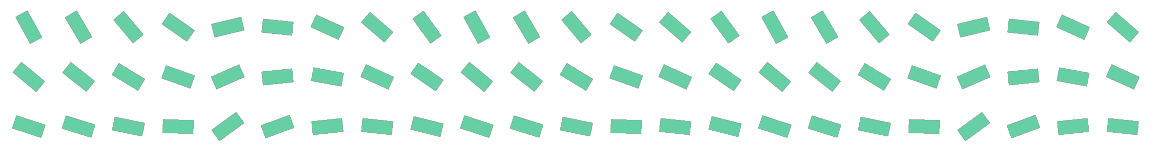
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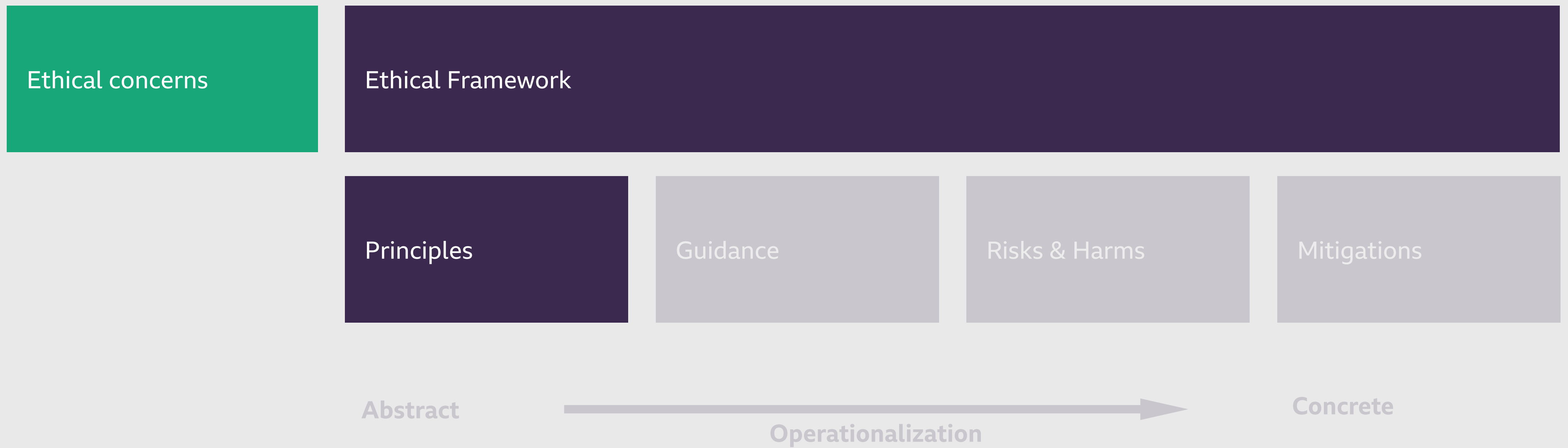
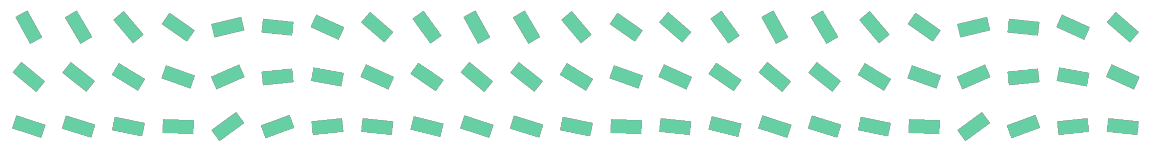
Current ethical issues

Bias & Fairness: for example where facial recognition technologies work less well for people of colour; or a search for 'CEO' returns mostly pictures of white men.

Transparency & explainability: widespread concern about 'black box' algorithms where it is impossible to know why they arrived at particular decisions, particularly in high stakes areas such as criminal justice.

Sustainability: increasing awareness that computationally complex ML approaches trained on very large data sets can have a large environmental impact, given the amount of energy required to power the training phase.

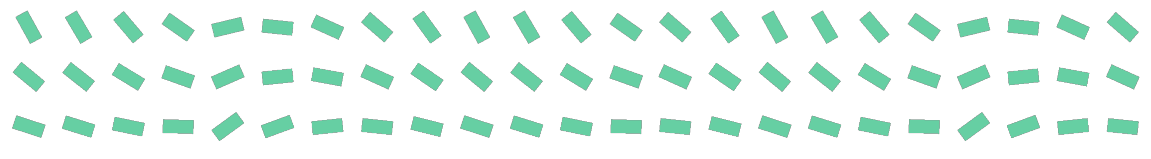






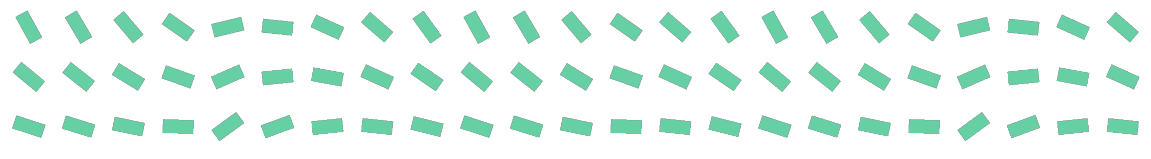
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				Recommendation on the ethics of artificial intelligence (UNESCO 2021)
Key criteria	Universality: as evidenced by a diverse, global range of stakeholders involved in their development and broad acceptance of the final result.			Developed through a global, multi-stakeholder process, and have been ratified by 193 countries.
	Coverage: they should be as complete as possible, while not unnecessarily broad, as evidenced by alignment with key principles found in meta-analyses of AI ethical principles.			Covers all the main themes without going too far beyond. Lacks explicit principle of 'Autonomy'.
	Alignment: with relevant existing W3C principles and guidance.			Good alignment with relevant W3C concerns, although again lacking 'Autonomy' principle.



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Values	Principles		
Respect, protection and promotion of human rights and fundamental freedoms and human dignity	Proportionality and Do No Harm	Safety and security	Human oversight and determination
Environment and ecosystem flourishing	Fairness and non-discrimination	Transparency and explainability	Awareness and literacy
Ensuring diversity and inclusiveness	Autonomy	Responsibility and accountability	Multi-stakeholder and adaptive governance and collaboration
Living in peaceful, just and interconnected societies	Right to Privacy, and Data Protection	Sustainability	



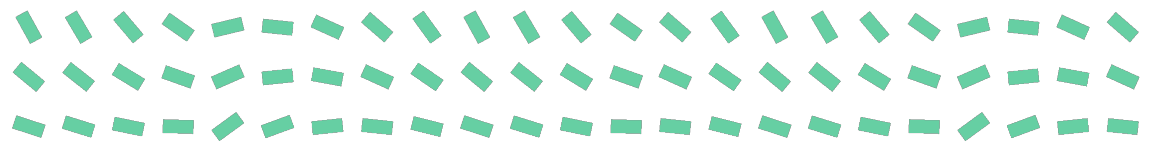
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Ethical Framework

Principles

Guidance

DRAFT WG Note: Online review & comment



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Ethical Framework

Principles	Guidance	Risks & Harms	Mitigations
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Review	Brainstorm
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Thank you



“There is no 'silver bullet' here; creating technologies that will promote human flourishing and sustainable life on this planet is hard and uncertain work, involving difficult tradeoffs, some inevitable failures, and challenges that defy simple and stable solutions. But it is good work, work that can and must be done.”

Vallor, Green & Raicu: Overview of Ethics in Tech Practice