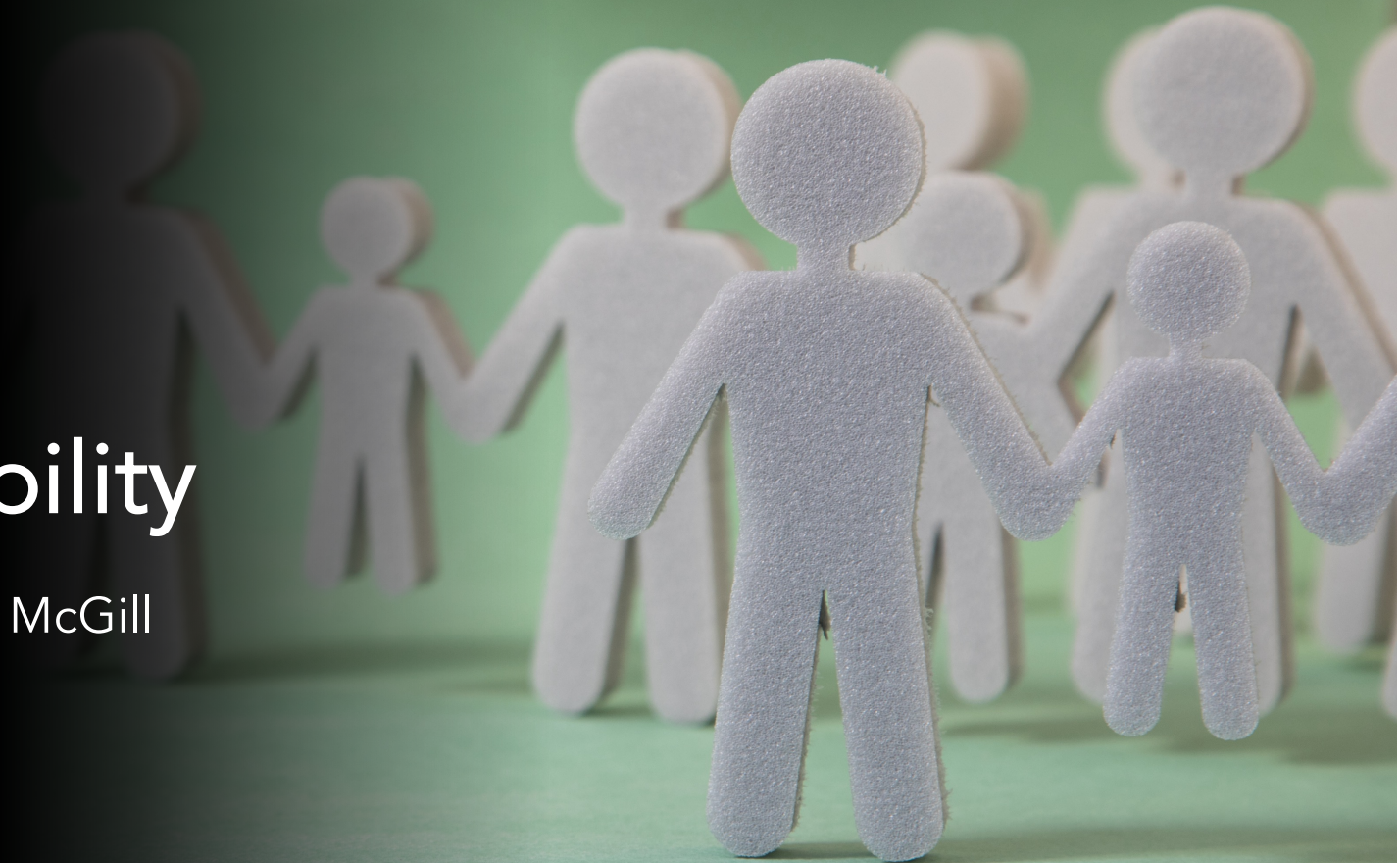# Accountability

Jin L.C. Guo, SOCS McGill University

Agenda
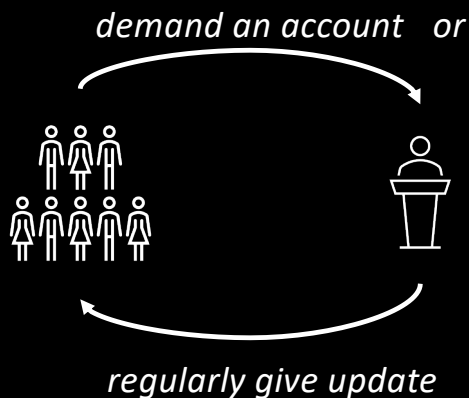
- The concept of Accountability

- External Auditing

- Internal Auditing

Accountability

"When decision-making power is transferred from a principal (e.g. the citizens) to an agent (e.g. government), there must be a mechanism in place for holding the agent accountable for their decisions and tools for sanction."

Staffan I Lindberg. 2013. Mapping accountability: core concept and subtypes. International review of administrative sciences 79, 2 (2013), 202–226. DOI:http://dx.doi.org/10.1177/0020852313477761

"the obligation to explain and justify conduct"

demand an account   or

Mark Bovens. 2007. Analysing and assessing accountability: A conceptual framework 1. European law journal 13, 4 (2007), 447–468.

regularly give update

Accountability in CS

"Information accountability means that *information usage should be transparent* so it is possible to determine whether a use is appropriate under a given set of rules."

DanielJ.Weitzner,HaroldAbelson,TimBerners-Lee,JoanFeigenbaum,James Hendler, and Gerald Jay Sussman. 2008. Information Accountability. Commun. ACM 51, 6 (June 2008), 82–87. DOI:http://dx.doi.org/10.1145/1349026.1349043

"Alice is the mother of a three-year-old child with a severe chronic illness. She learns all she can about it, buying books online, searching the Web, and participating in online parent-support social networks and chat rooms. She then applies for a job and is rejected, suspecting it's because a background check identified her Web activities and flagged her as high risk for expensive family health costs. "

Privacy	Transparency	Data Governance

Accountability in CS
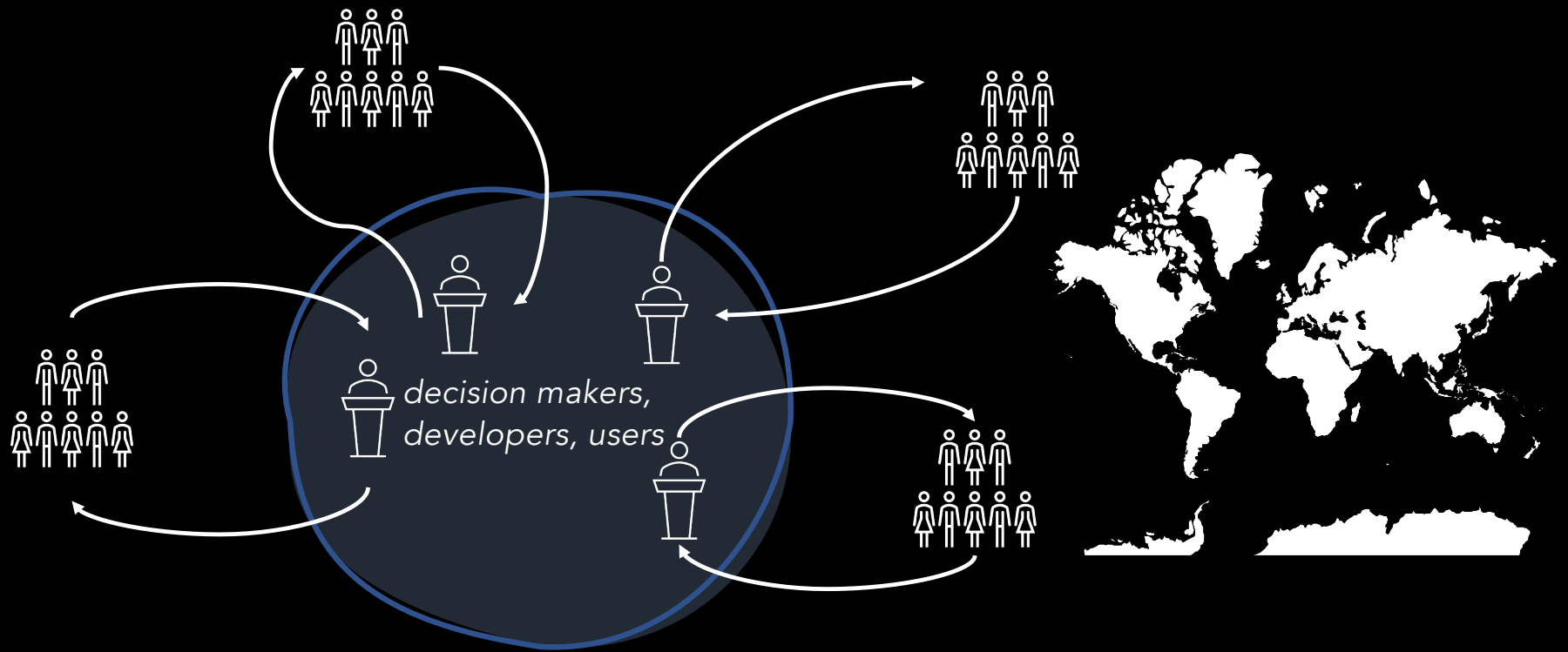
Maranke Wieringa. 2020. What to account for when accounting for algorithms: a systematic literature review on algorithmic accountability. In Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency. 1–18.

Accountability in CS

"Algorithmic accountability concerns a networked account for a socio-technical algorithmic system, following the various stages of the system's lifecycle. In this accountability relationship, multiple actors (e.g. decision makers, developers, users) have the obligation to explain and justify their use, design, and/or decisions of/concerning the system and the subsequent effects of that conduct. As different kinds of actors are in play during the life of the system, they may be held to account by various types of fora (e.g. internal/external to the organization, formal/informal), either for particular aspects of the system (i.e. a modular account) or for the entirety of the system (i.e. an integral account). Such fora must be able to pose questions and pass judgement, after which one or several actors may face consequences. The relationship(s) between forum/fora and actor(s) departs from a particular perspective on accountability. "

Maranke Wieringa. 2020. What to account for when accounting for algorithms: a systematic literature review on algorithmic accountability. In Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency. 1–18.

Challenges

- Define Indicator of Accountability at different level

- Establish clarity and/or agreement on the roles of various actors and stakeholders in ensuring accountability in AI.

Auditability
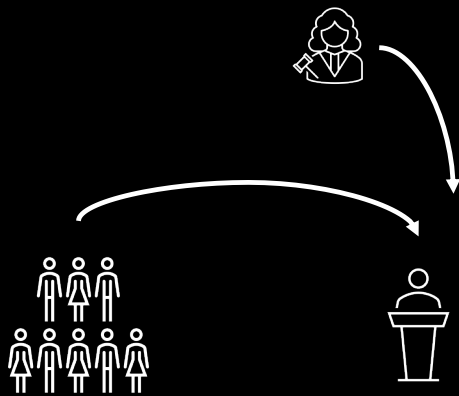
The process should be understandable by people apart from process participants, who can check that process standards are being followed and make suggestions for process improvement.

Gender Shade — Example of External Auditing

https://www.media.mit.edu/projects/gender-shades/overview/

Buolamwini, Joy, and Timnit Gebru. "Gender shades: Intersectional accuracy disparities in commercial gender classification."
In *Conference on fairness, accountability and transparency*, pp. 77-91. 2018.

SMACTR — Example of Internal Auditing

Draw lessons from other domains:
- Aerospace
- Medical devices
- Finance

Design Checklist

Traceability

FMEA (Failure Modes and Effects Analysis)

Raji, Inioluwa Deborah, Andrew Smart, Rebecca N. White, Margaret Mitchell, Timnit Gebru, Ben Hutchinson, Jamila Smith-Loud, Daniel Theron, and Parker Barnes. "Closing the AI accountability gap: defining an end-to-end framework for internal algorithmic auditing." In *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency*, pp. 33-44. 2020.

SMACTR — Example of Internal Auditing
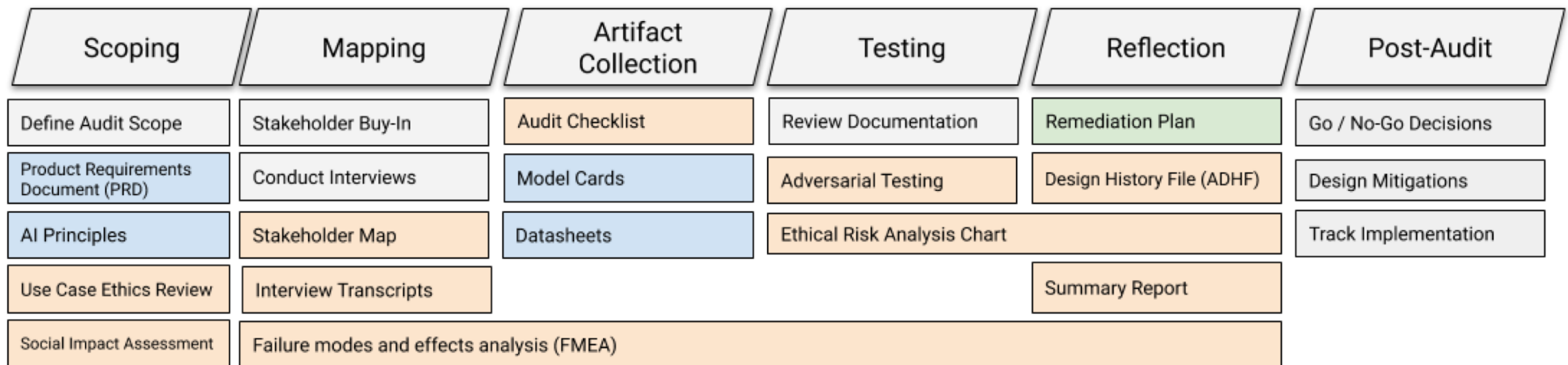
Figure 2: Overview of Internal Audit Framework. Gray indicates a process, and the colored sections represent documents. Documents in orange are produced by the auditors, blue documents are produced by the engineering and product teams and green outputs are jointly developed.

Raji, Inioluwa Deborah, Andrew Smart, Rebecca N. White, Margaret Mitchell, Timnit Gebru, Ben Hutchinson, Jamila Smith-Loud, Daniel Theron, and Parker Barnes. "Closing the AI accountability gap: Defining an end-to-end framework for internal algorithmic auditing." In *Proceedings of the 2020 conference on fairness, accountability, and transparency*, pp. 33-44. 2020.
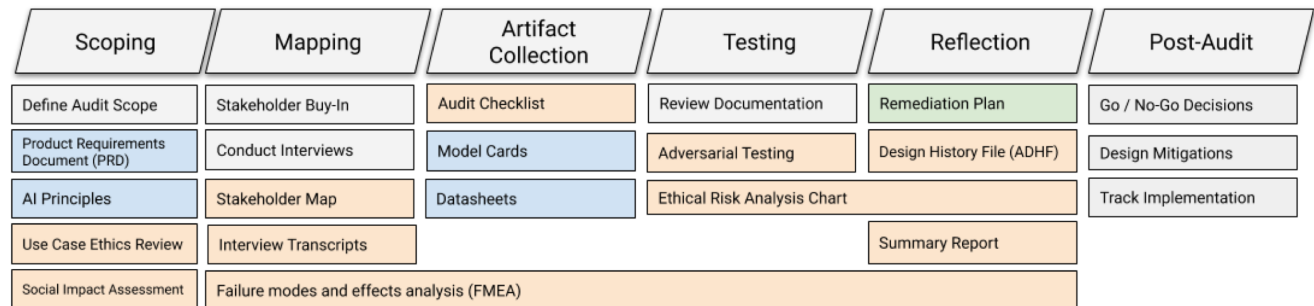
Activity

Scoping	Mapping	Artifact Collection	Testing	Reflection	Post-Audit
Define Audit Scope	Stakeholder Buy-In	Audit Checklist	Review Documentation	Remediation Plan	Go / No-Go Decisions
Product Requirements Document (PRD)	Conduct Interviews	Model Cards	Adversarial Testing	Design History File (ADHF)	Design Mitigations
AI Principles	Stakeholder Map	Datasheets	Ethical Risk Analysis Chart		Track Implementation
Use Case Ethics Review	Interview Transcripts			Summary Report	
Social Impact Assessment	Failure modes and effects analysis (FMEA)				

- Each pair of you is assigned with one stage from the above framework.
  - (Individually) Read the related section from the paper "Closing the AI accountability gap" Section 4.
  - (Individually) Choose one artifact that might be applicable to your case study project form the course assignments.
  - (Individually) Brainstorm the content of the artifacts if possible. If not, consider how to generate the artifacts (plan).
  - (Pair) Share your project context, the artifact plan or draft from this activity.

Review

- The concept of Accountability

- External Auditing

- Internal Auditing

Next

Transparency and Explainability