What Science and Whose Art?
Demarcation of AI and human roles in IA

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Session Outline

Introduction

Opening pitches:

- **Paul Eijssen**
- **Patricia Rodrigues**
- **Michelle Petigny**
- **Ginny King**

Q&A: Audience & panel

Table discussions:

- **Topic 1**
- **Topic 2**

Voting via Menti

Wrap up

Paul Eijssen

The case for AI …

Demarcation of AI and human roles in IA

or

The dynamic duo?

Paul Eijssen - Haskoning, NL

Digital advancements

Role of AI in EIA

Data collection and analyses

Predictive modeling

Automation of routine tasks

Benefits and threats

Human role in EIA

Human expertise

AI and IA

The dynamic duo

Ginny King

The case for the humans …

"Just remember one thing. You wouldn't have your artificial intelligence without my actual intelligence."

'Just remember one thing. You wouldn't have your...

Isaiah Legette

Humans vs AI

- AI cannot take the place of interfacing with local communities and other pertinent stakeholders in the IA process
- AI will allow us to expedite data collection; however, information acquired from AI must be verified
- AI cannot “think” for itself and therefore, careful “programming” must occur to effectively utilize AI in the IA process

"Are you worried that artificial intelligence will take...
Mark Lynch

Humans vs AI

Wisdom, which is an attribute only belonging to humans:

1) allows us to discern between what we could do and what we should do

2) what we should do and how we should to it

3) inventing tools AND knowing how to use them

4) wisdom must be applied after AI is utilized

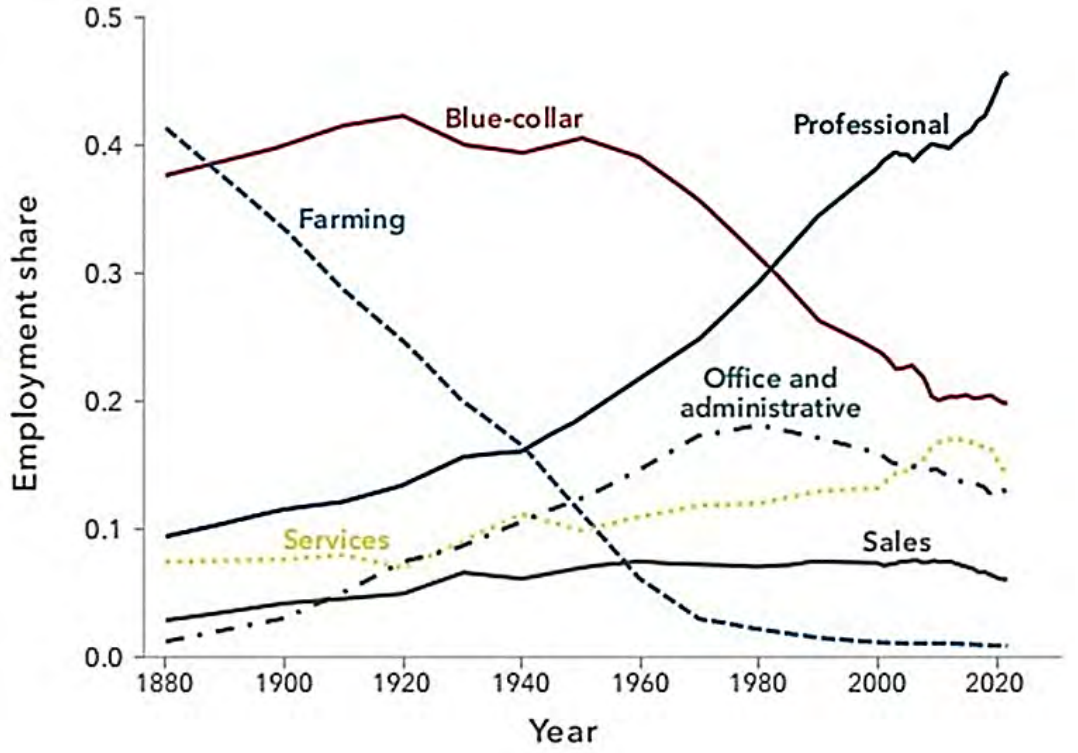
"Yes, Cogswell, I'm well aware that 'to err is human.'
But keep in mind I'm not human."

"Yes, Cogswell, I'm well aware that 'to err is human.' But keep in min..
Doug Grundy

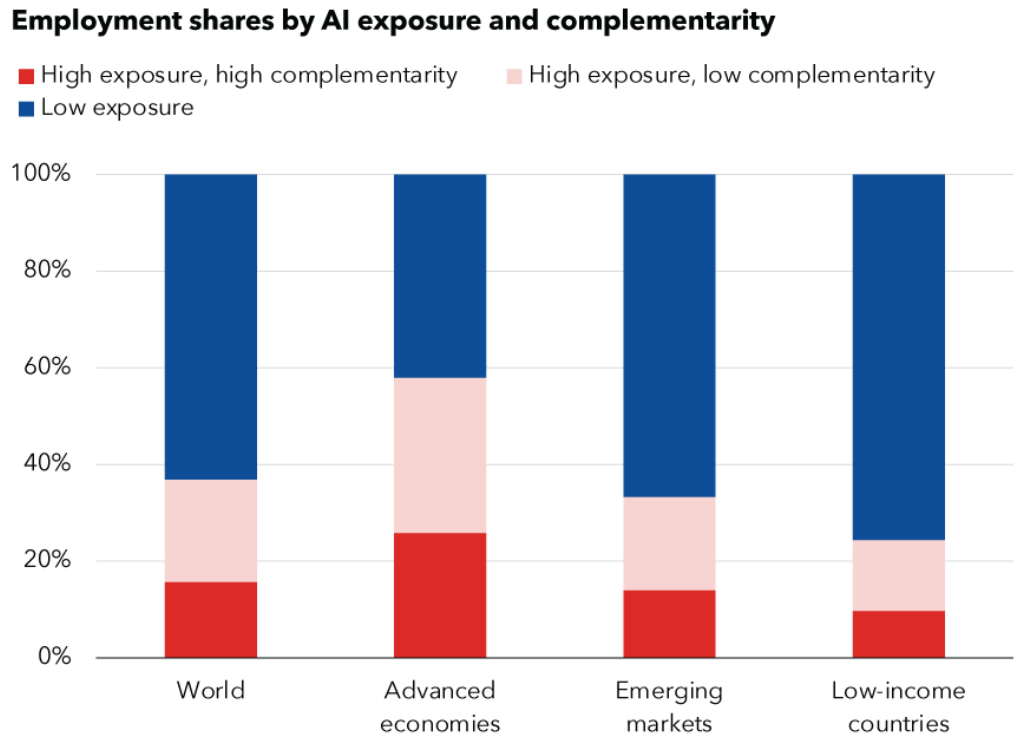
Michelle Petigny

The case for AI (continued) …

The 4th Industrial Revolution
Physical, Digital & Biological Worlds Converge



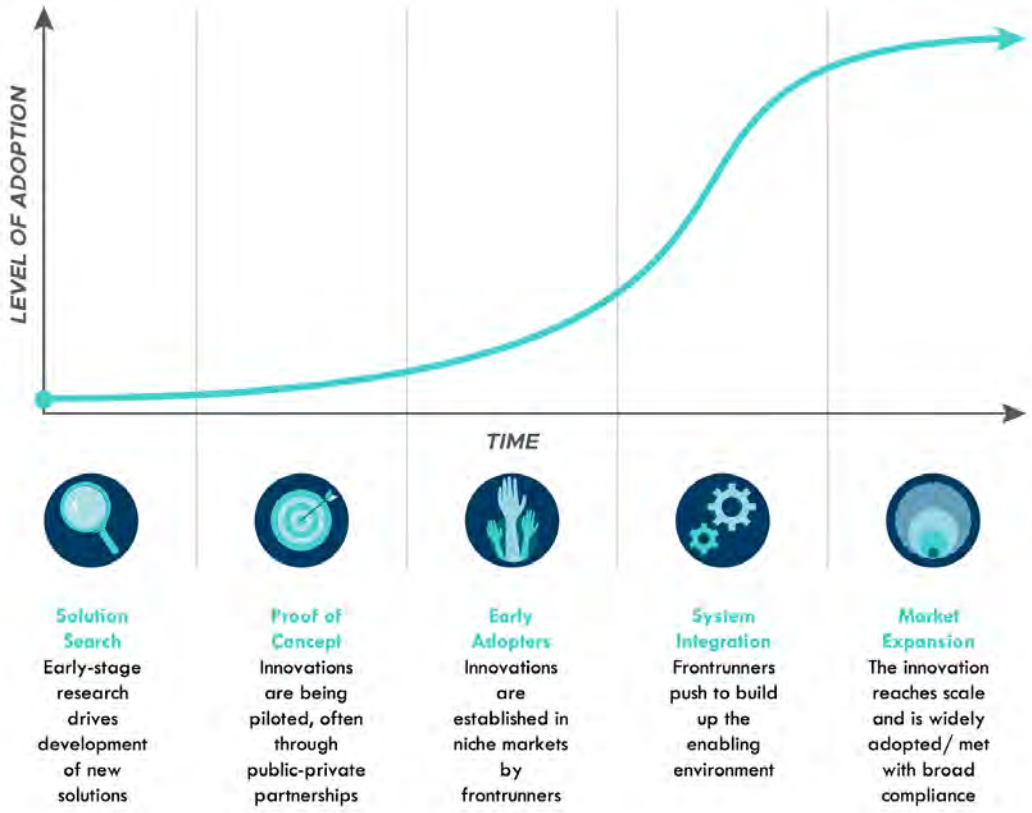
Source. Research by Harvard economists David Deming, Christopher Ong, and Lawrence Summers on occupation evolution and technological impact on labor markets



Source: International Labour Organization (ILO) and IMF staff calculations

On Technology Adoption

S-curve depicts reflect the initial slow adoption of a new technology, followed by a period of rapid growth. Finally, a plateau is reached as adoption reaches saturation.



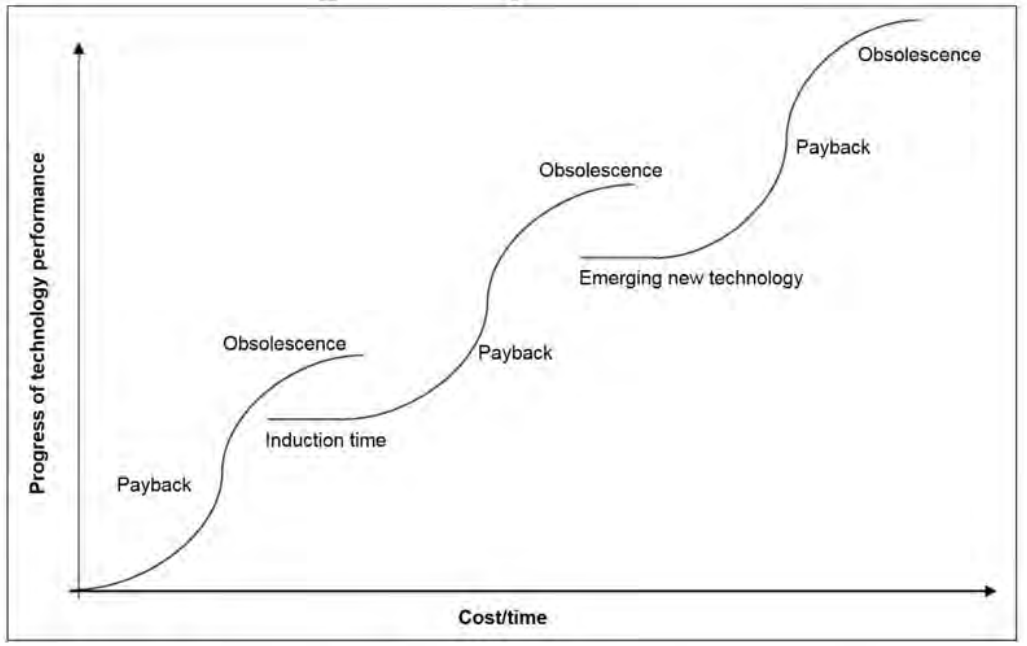
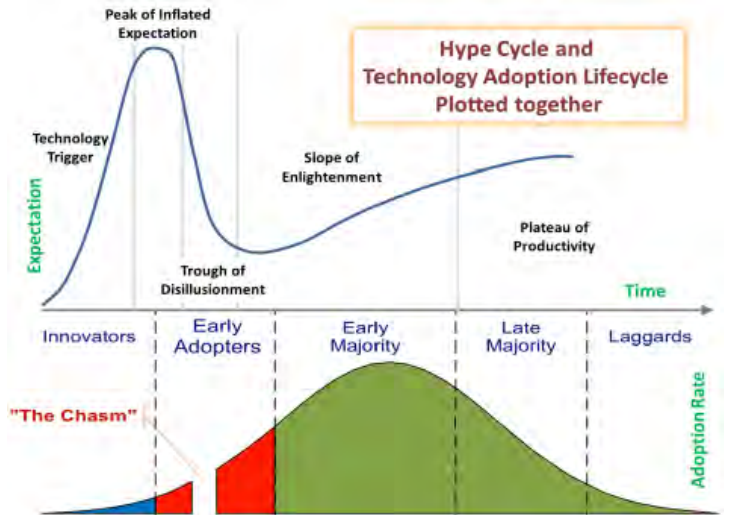
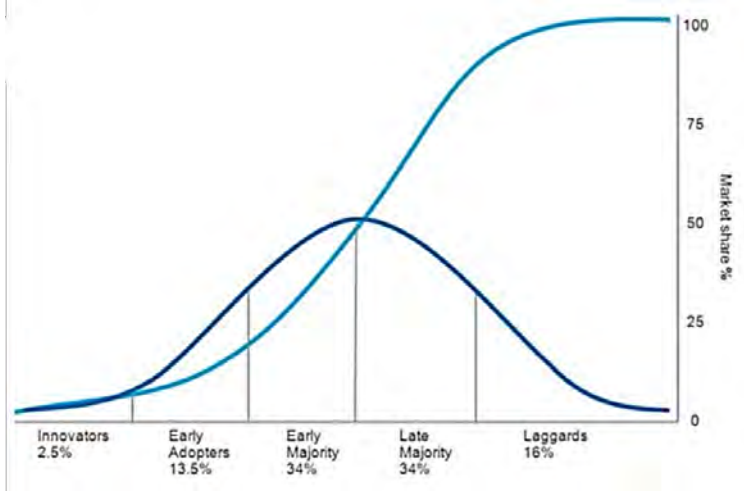
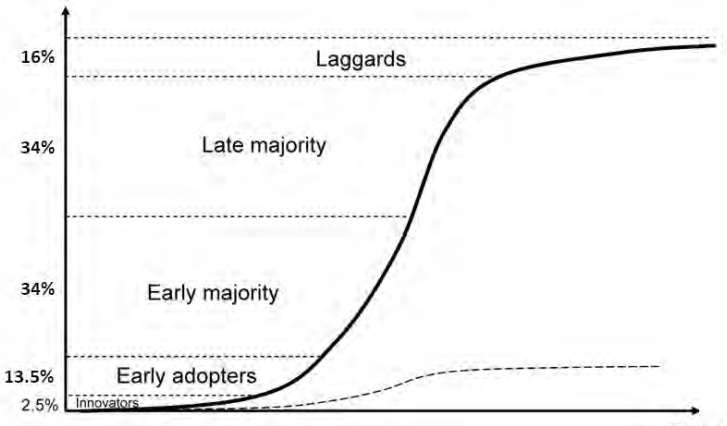


Figure 3: Waves of Technological Innovation S-curves (Brown, 2006)

S-Curves and Rogers' Diffusion Theory

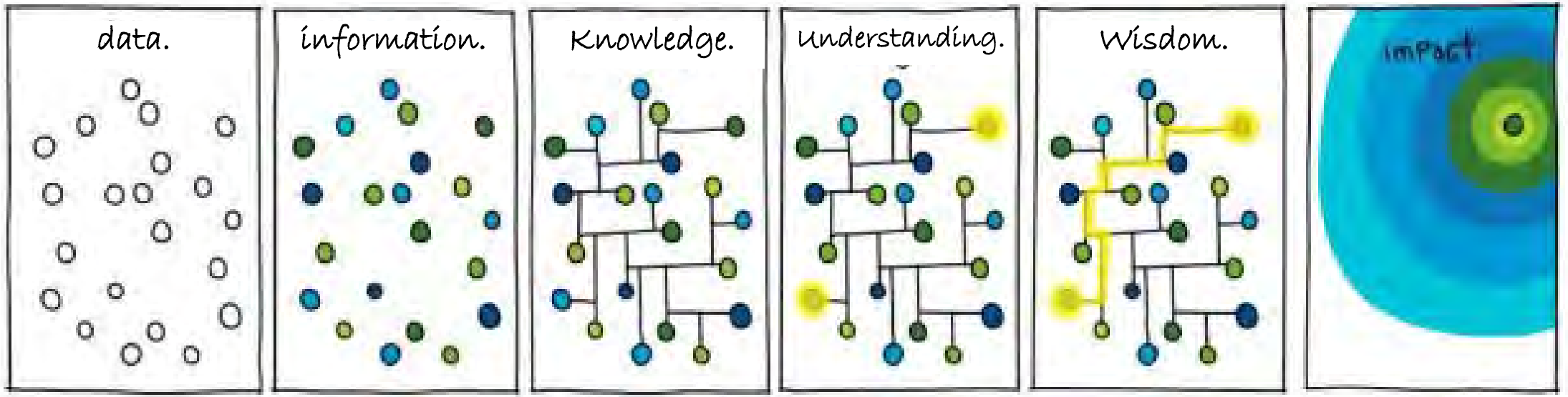
The Process of Innovation Adoption Over Time

Hype vs Innovation Diffusion	Innovation Curve	S-Curve
		

Adopter Categories

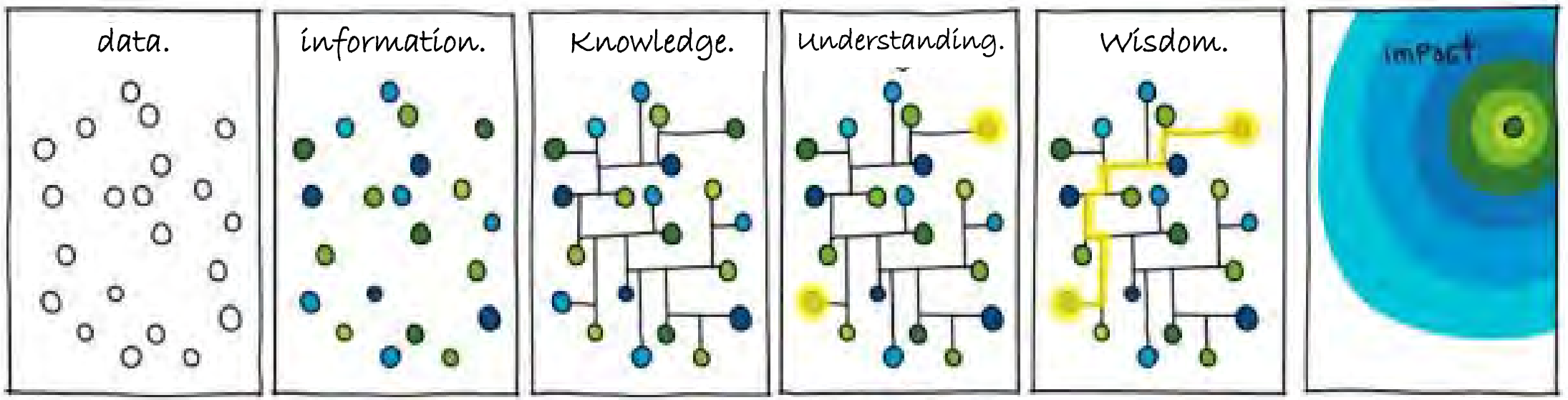
Rogers identified five categories of adopters based on when they adopt a new idea.

- **Innovators.** The first 2.5% to adopt, risk-takers, and often have access to resources and influence.
- **Early Adopters.** The next 13.5%, influential individuals who often have high social status and influence others.
- **Early Majority.** The next 34%, who adopt after seeing the benefits from early adopters, and are often cautious.
- **Late Majority.** The next 34%, who adopt only after the innovation is widely accepted, and are often skeptical.
- **Laggards.** The last 16%, who are the slowest to adopt and may resist change.



How can AI best add value to IA?

Automated tasks, amplified thinking



Data

Raw facts (e.g., "67 degrees")

Information

Structured data with context (e.g., "Temperature in Seattle is 67°F at 2 PM on July 10, 2007")

Knowledge

Actionable information enabling decisions (e.g., "It's nice but cool for July in Seattle, so bring a light jacket")

Understanding

Recognizing patterns across knowledge over time (e.g., "This has been an unusually cool summer in Seattle")

Wisdom

Seeing larger systems and predicting long-term outcomes based on established patterns (e.g., "Based on El Niño patterns, we can forecast Seattle's weather trends for the next decade")

Patricia Rodrigues

The case for the humans (continued) …

ARTIFICIAL INTELLIGENCE IN ENVIRONMENTAL IMPACT ASSESSMENT

Risks and Limitations

AI Has Limits

🤯 **Hallucination:** AI can make things up that sound true but are completely false.

🧓 **Lack of Wisdom:** AI does not understand the world like humans—it follows patterns, not meaning.

⚖️ **Judgement Errors:** It cannot make thoughtful decisions; it lacks common sense and experience.

🚫 **Ethical Void:** AI lacks genuine ethical understanding and cannot grasp moral context.

The Bias Problem

⚠️ **Biased Data**

If the data is biased, AI will repeat and highten those inequalities.

🧩 **Systemic Inequality**

Without diverse voices, AI may leave out the needs of many stakeholders.

The Transparency Gap

Black Box

How AI gets to a decision is often nuclear … even to its creators!

Ownership Issues

We often don’t know who owns or controls the information AI gives us.

Social and Digital Risks

🌐 **Digital Divide**

Not everyone has the same access to tech and/or how to use it … some are left behind.

🐢 **Two-Speed World**

We risk expanding data availability gaps with equity implications.

Security and Misinformation

🧪 **Data Poisoning**

AI can be tricked with corrupted data … used intentionally to deceive.

📢 **Disinformation**

AI can spread false information very quickly.

Practical Concerns

📊 Access to Data

Accurate and representative data is still hard to find … and often not digital.

✍️ Prompt Dependence

Good results depend heavily on how well people write their prompts.

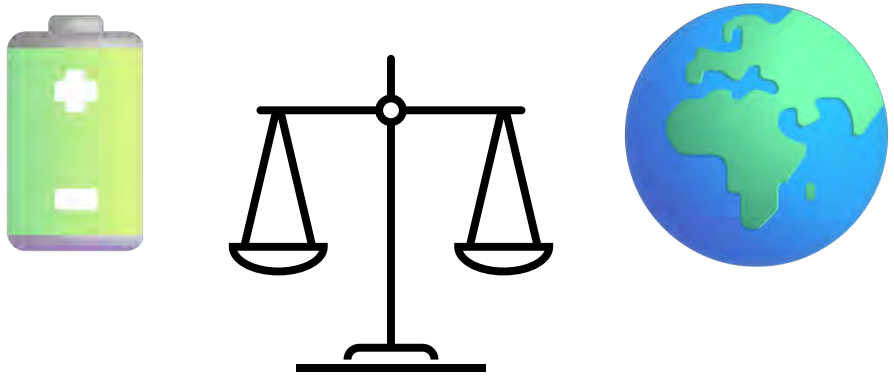
⏳ Time Pressure

Experts need time to check what AI produces … but this time is often not available.

Environmental Concerns

Climate Impact

Running powerful AI systems consumes lots of energy and water



Final Message

While AI can support Impact
Assessments, we must be aware of its limits.

Artificial Intelligence is a tool that offers great potential
— but it must be handled with care.

Artificial Intelligence won’t replace humans,
but humans who use AI
will replace those who don’t.

Popular insight

Are you ready for this paradigm shift ?

Audience Q&A with Panel

- **Paul Eijssen**
- **Patricia Rodrigues**
- **Michelle Petigny**
- **Ginny King**

Table discussions

Two rounds of 20 minutes each.

Five topics in first round, five different topics in second round.

Switch tables after first round if you wish.

Each topic, identify key aspects:

- **Which human impact assessors should control (and why).**
- **To which AI can most usefully contribute to (and why).**

Use Miro board or hard copy tools and paper on the tables.

Formulate two sentences articulating the different roles of humans and AI for the topic.

Table hosts will facilitate/ explain further as necessary.

miro

Scan to use miro for your thoughts – or use hard copy

Round 1 discussions (20 minutes)

Tables A & B: Screening

Tables C & D: Scoping

Tables E & F: Stakeholder engagement during EIS preparation

Tables G & H: Project refinement/ consideration of alternatives

Tables I & J: Technical investigations (biophysical disciplines)

For each topic, draft a succinct sentence:

- **In [this IA topic], human impact assessor control is required for …**
- **In [this IA topic], AI can best contribute to the IA process by …**

Round 2 discussions (20 minutes)

Tables A & B: Technical investigations (socio-economic disciplines)

Tables C & D: EIS report writing

Tables E & F: EIA exhibition/ display and public access

Tables G & H: Public participation/ formal submissions

Tables I & J: Final assessment (independent review authority)

For each topic, draft a succinct sentence:

- **In [this IA topic], human impact assessor control is required for …**
- **In [this IA topic], AI can best contribute to the IA process by …**

And now to vote!

Voting by Menti [insert QR code], hard copies of code also on each table

For each of 10 topics, vote for your preferred sentence about the human role and then for your preferred sentence about the AI role.

A third option in each case is to vote for combination of both sentences – but only if you think each sentence has something different and critically important.

Options will be visible on host's laptop if you can't see them on your own device.

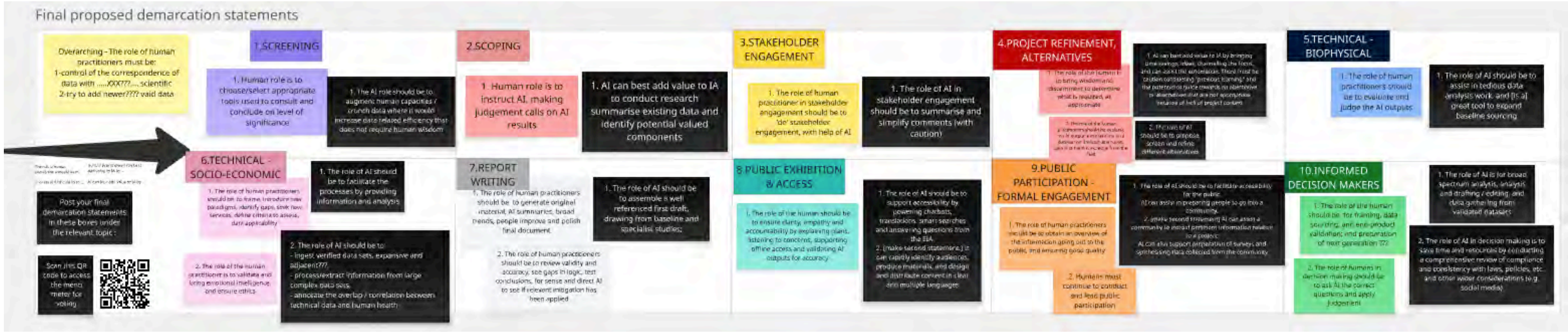
Ask someone else to submit your vote if you can't access Menti on your own device.

Less than a minute for each vote, so be quick!

Mentimeter

Time to vote

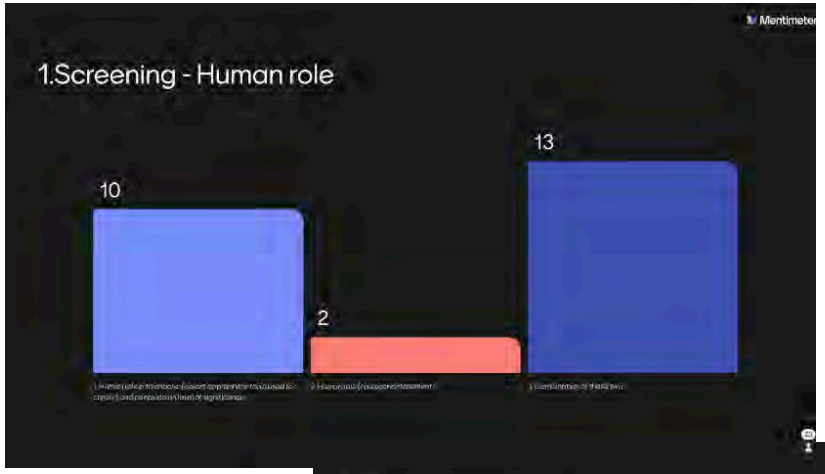
Miro board statements

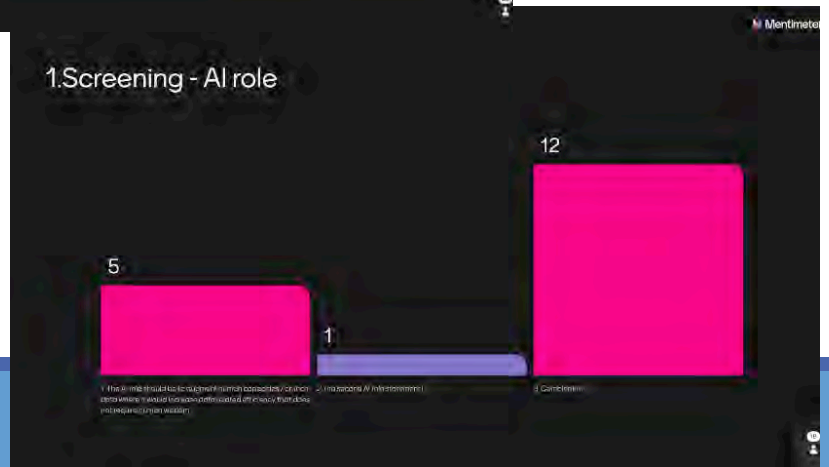


1.SCREENING

1. Human role is to choose/select appropriate tools used to consult and conclude on level of significance

1. The AI role should be to augment human capacities / crunch data where it would increase data related efficiency that does not require human wisdom





2.SCOPING

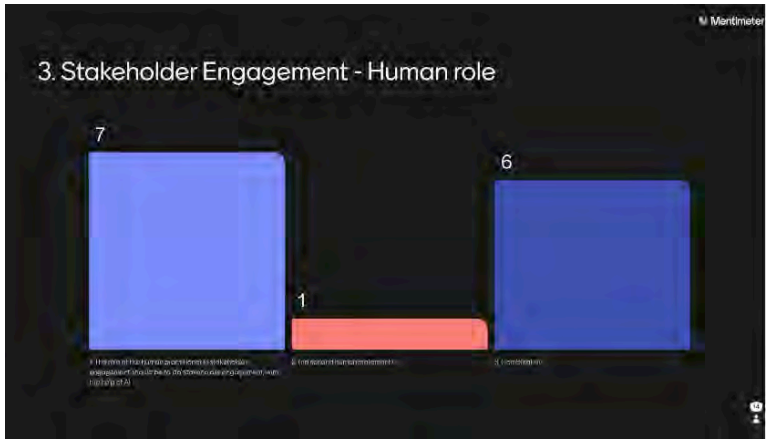
1. Human role is to instruct AI, making judgement calls on AI results

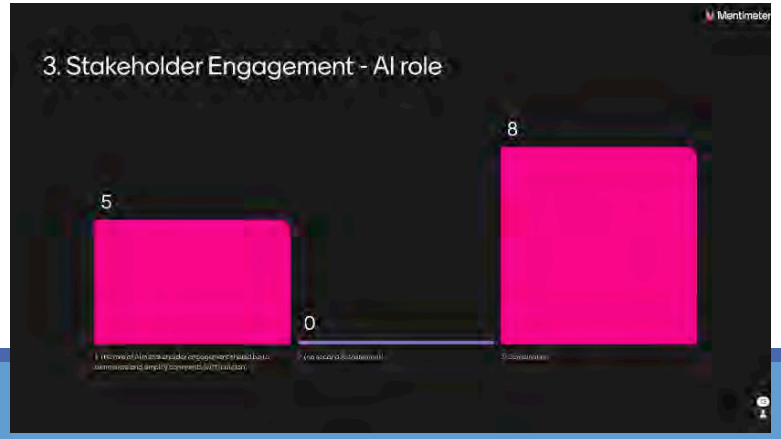
1. AI can best add value to IA to conduct research summarise existing data and identify potential valued components

3.STAKEHOLDER ENGAGEMENT

1. The role of human practitioner in stakeholder engagement should be to 'do' stakeholder engagement, with help of AI

1. The role of AI in stakeholder engagement should be to summarise and simplify comments (with caution)





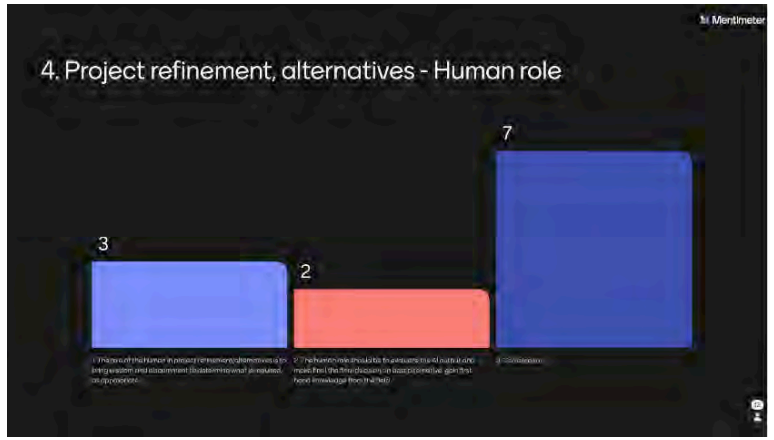
4.PROJECT REFINEMENT, ALTERNATIVES

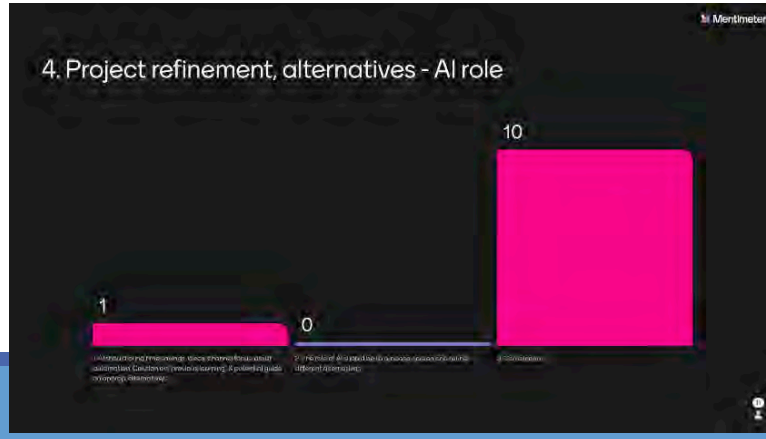
1. The role of the human is to bring wisdom and discernment to determine what is required, as appropriate

1. AI can best add value to IA by bringing time savings, ideas, channelling the focus, and can assist the automation. There must be caution considering "previous learning" and the potential to guide towards an alternative or alternatives that are not appropriate because of lack of project context

2. The role of the human practitioners should be evaluate the AI output and make the final decision on the best alternative, gain first-hand knowledge from the field

2. The role of AI should be to propose, screen and refine different alternatives

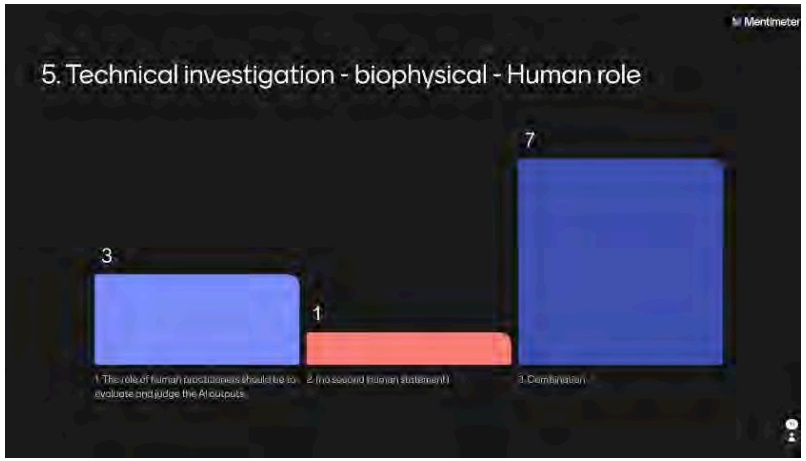


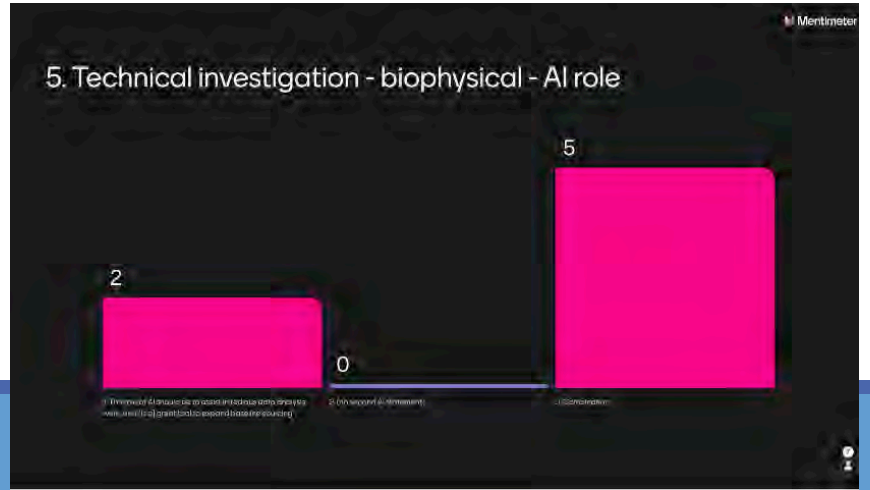


5.TECHNICAL - BIOPHYSICAL

1. The role of human practitioners should be to evaluate and judge the AI outputs

1. The role of AI should be to assist in tedious data analysis work, and [is a] great tool to expand baseline sourcing





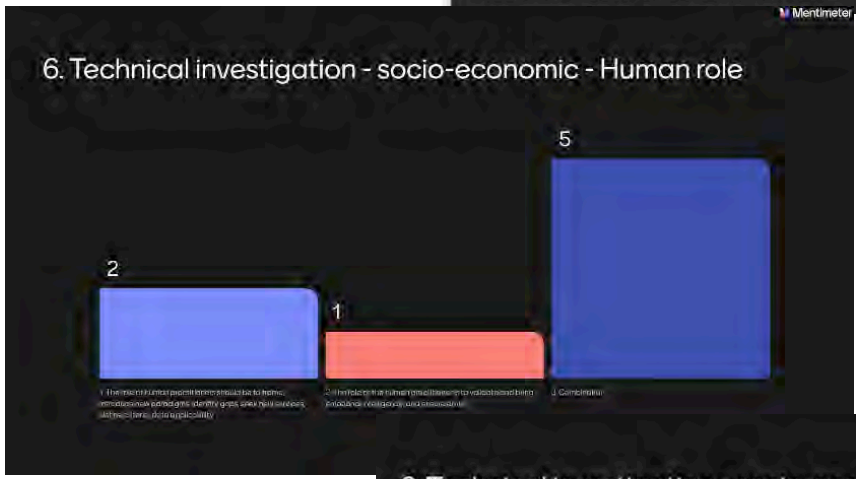
6.TECHNICAL - SOCIO-ECONOMIC

1. The role of human practitioners should be to frame, introduce new paradigms, identify gaps, seek new services, define criteria to assess, data applicability

1. The role of AI should be to facilitate the processes by providing information and analysis

2. The role of the human practitioner is to validate and bring emotional intelligence, and ensure ethics

2. The role of AI should be to:
- ingest verified data sets, expansive and adjacent???,
- process/extract information from large complex data sets,
- annotate the overlap / correlation between technical data and human health

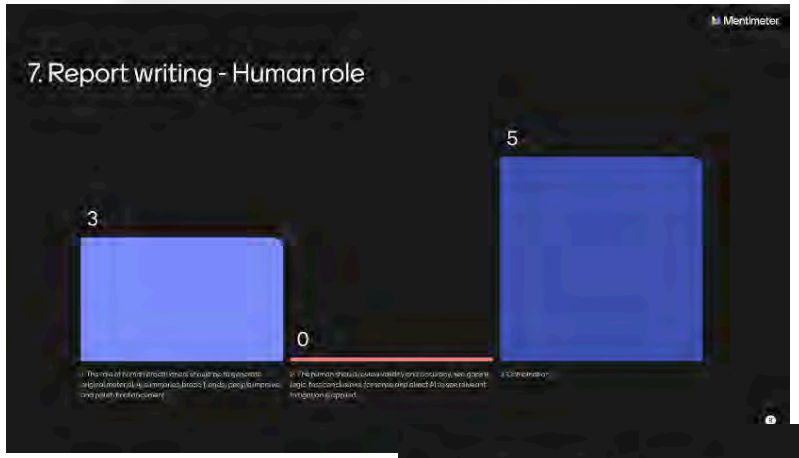


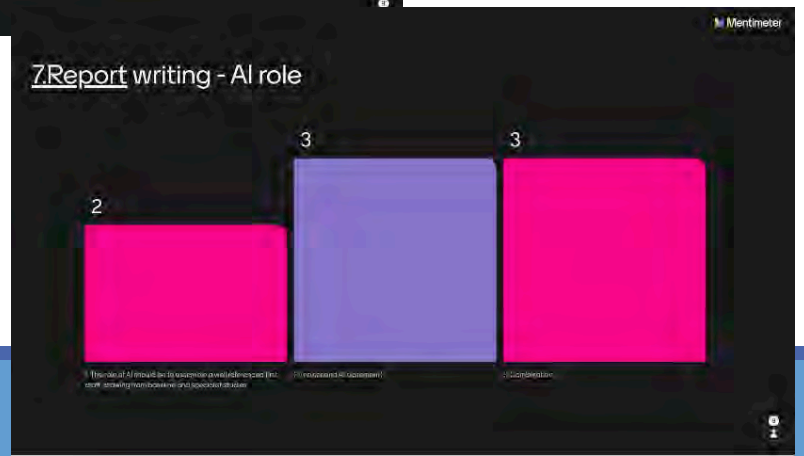
7.REPORT WRITING

1. The role of human practitioners should be to generate original material, AI summaries, broad trends, people improve and polish final document

1. The role of AI should be to assemble a well referenced first draft, drawing from baseline and specialist studies;

2. The role of human practitioners should be to review validity and accuracy, see gaps in logic, test conclusions, for sense and direct AI to see if relevant mitigation has been applied

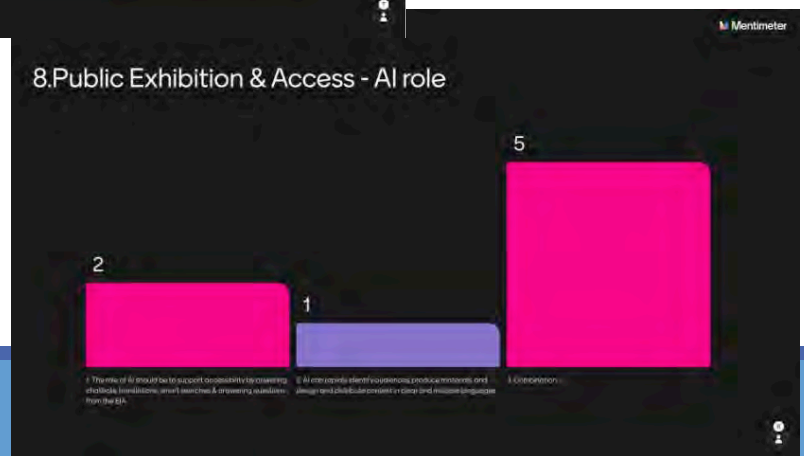




8.PUBLIC EXHIBITION & ACCESS

1. The role of the human should be to ensure clarity, empathy and accountability by explaining plans, listening to concerns, supporting offline access and validating AI outputs for accuracy

1. The role of AI should be to support accessibility by powering chatbots, translations, smart searches and answering questions from the EIA.
2. [make second statement:] It can rapidly identify audiences, produce materials, and design and distribute content in clear and multiple languages



9.PUBLIC PARTICIPATION - FORMAL ENGAGEMENT

1. The role of human practitioners should be to obtain an overview of the information going out to the public, and ensuring good quality

2. Humans must continue to conduct and lead public participation

1. The role of AI should be to facilitate accessibility for the public.
AI can assist in preparing people to go into a community.
2. [make second statement] AI can assist a community to extract pertinent information relative to a project;
AI can also support preparation of surveys and synthesising data collected from the community

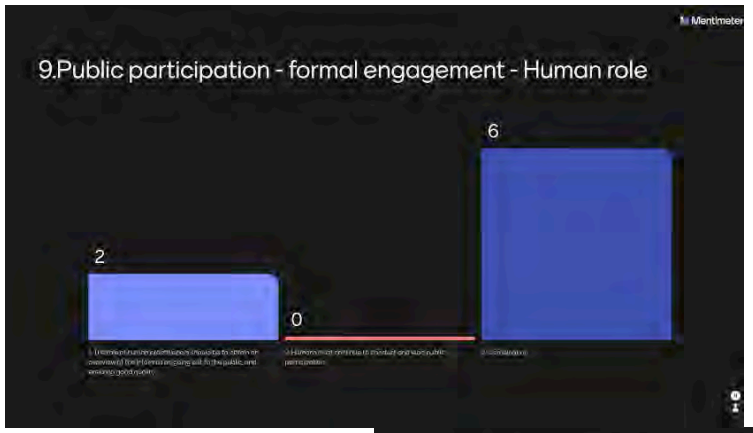
10.INFORMED DECISION MAKERS

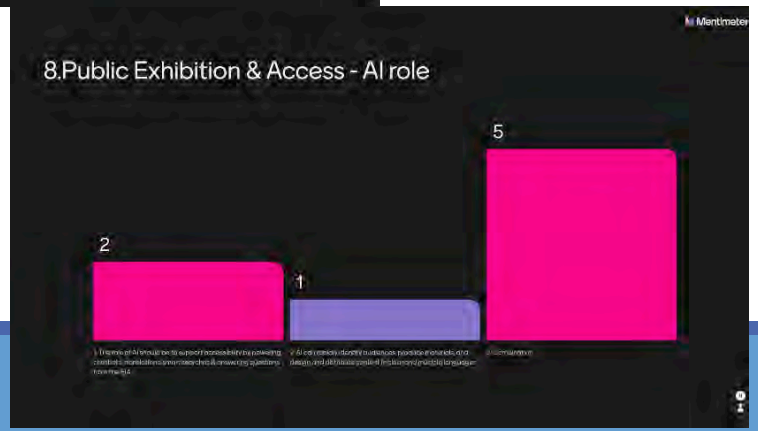
1. The role of the human should be for framing, data sourcing, and end-product validation; and preparation of next generation ???

2. The role of humans in decision making should be to ask AI the correct questions and apply judgement

1. The role of AI is for broad spectrum analysis, analysis and drafting / editing, and data gathering from validated datasets

2. The role of AI in decision making is to save time and resources by conducting a comprehensive review of compliance and consistency with laws, policies, etc. and other wider considerations (e.g. social media)





Where to from here?

Consolidated demarcation statement will appear in conference proceedings.

We will also post the statement on IAIA Hub.

Your feedback on the statement and on this session will be very welcome!

Thank you to your “pitchers”, your table hosts and to YOU!

Let’s continue the conversation!

Message me your questions or comments in the IAIA25 app.

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