Environmental Data in face of Digital and ecological transformation

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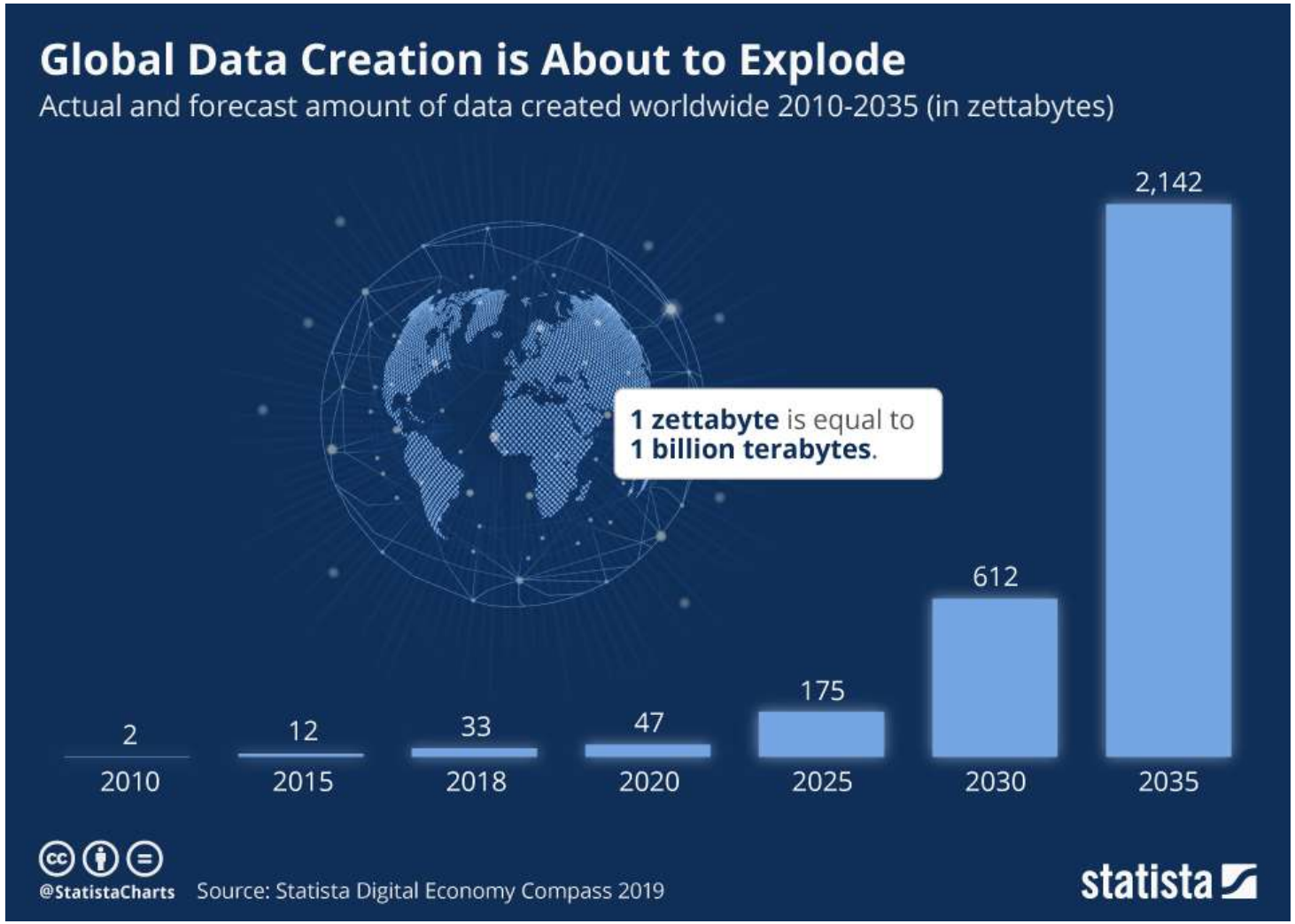
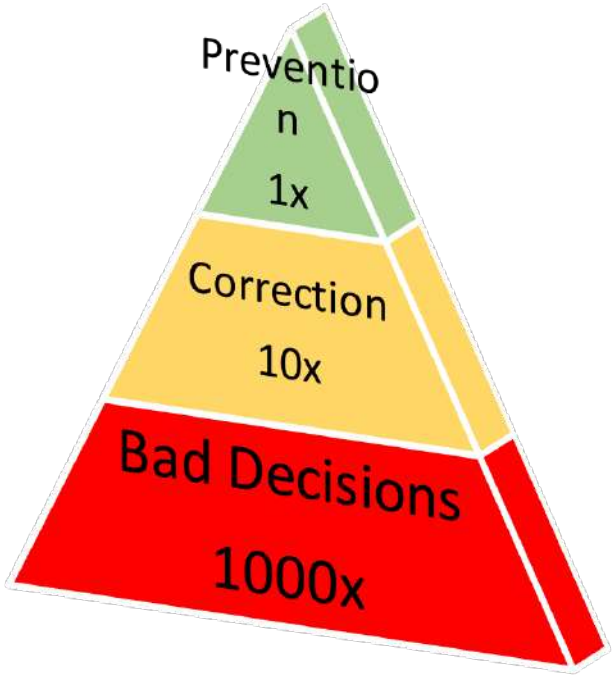
Today's Journey

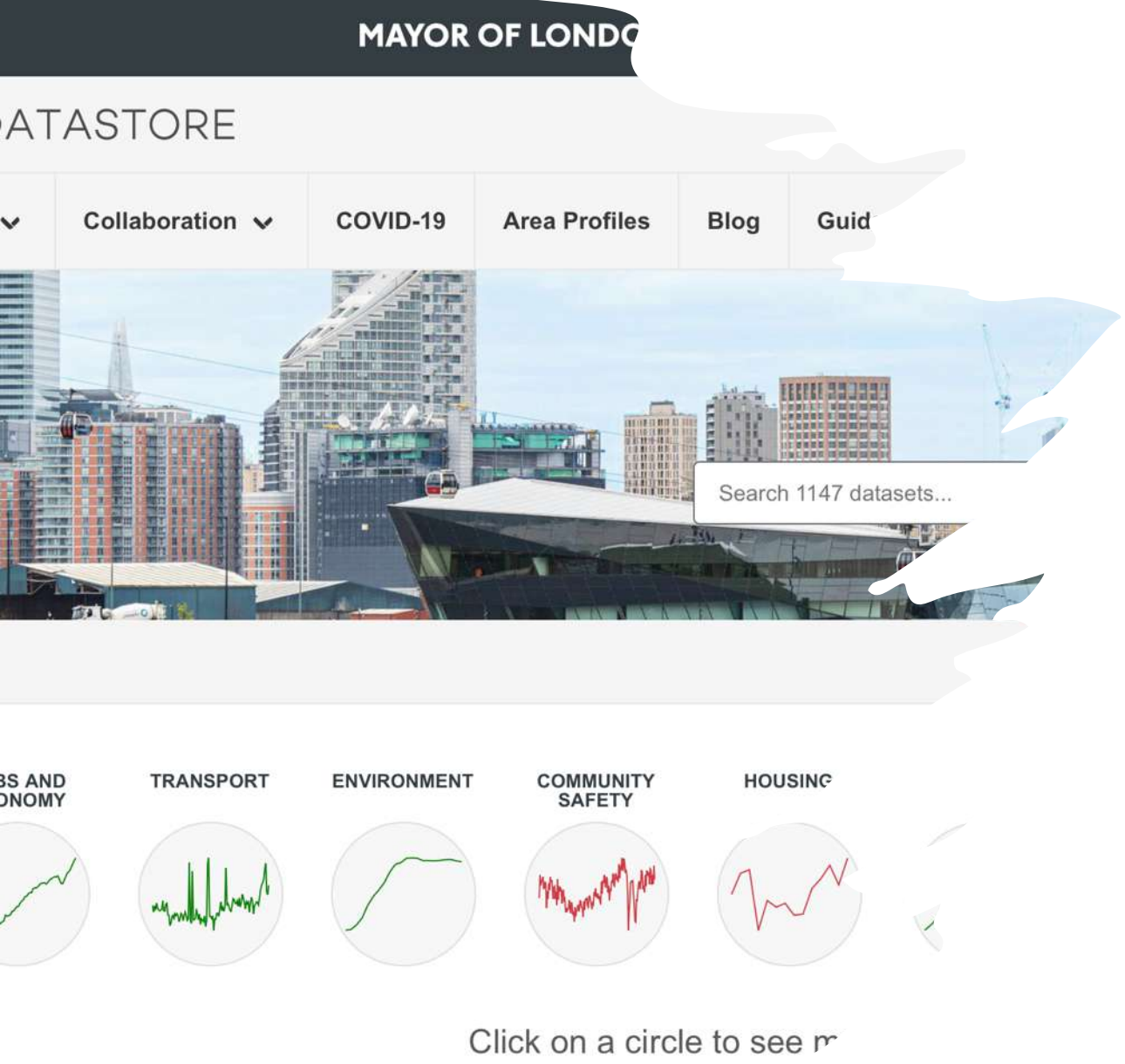
- New Economics of Environmental Data: Downstream Costs
- New Data Ethics: Avoiding Hidden Vulnerabilities
- AI Integration: New Scenarios of Decision-Making
- Local Data Cultures: Re-centering the human component



New Economics of Environmental Data

- Downstream shift of cost: from **acquisiton** to **aggregation**.
- Aggregation cost is influenced by **data fragmentation x data quality**.
- Data fragmentation & data quality depend on human factors, political decisions and technological path dependencies.





New Ethics of Environmental Data

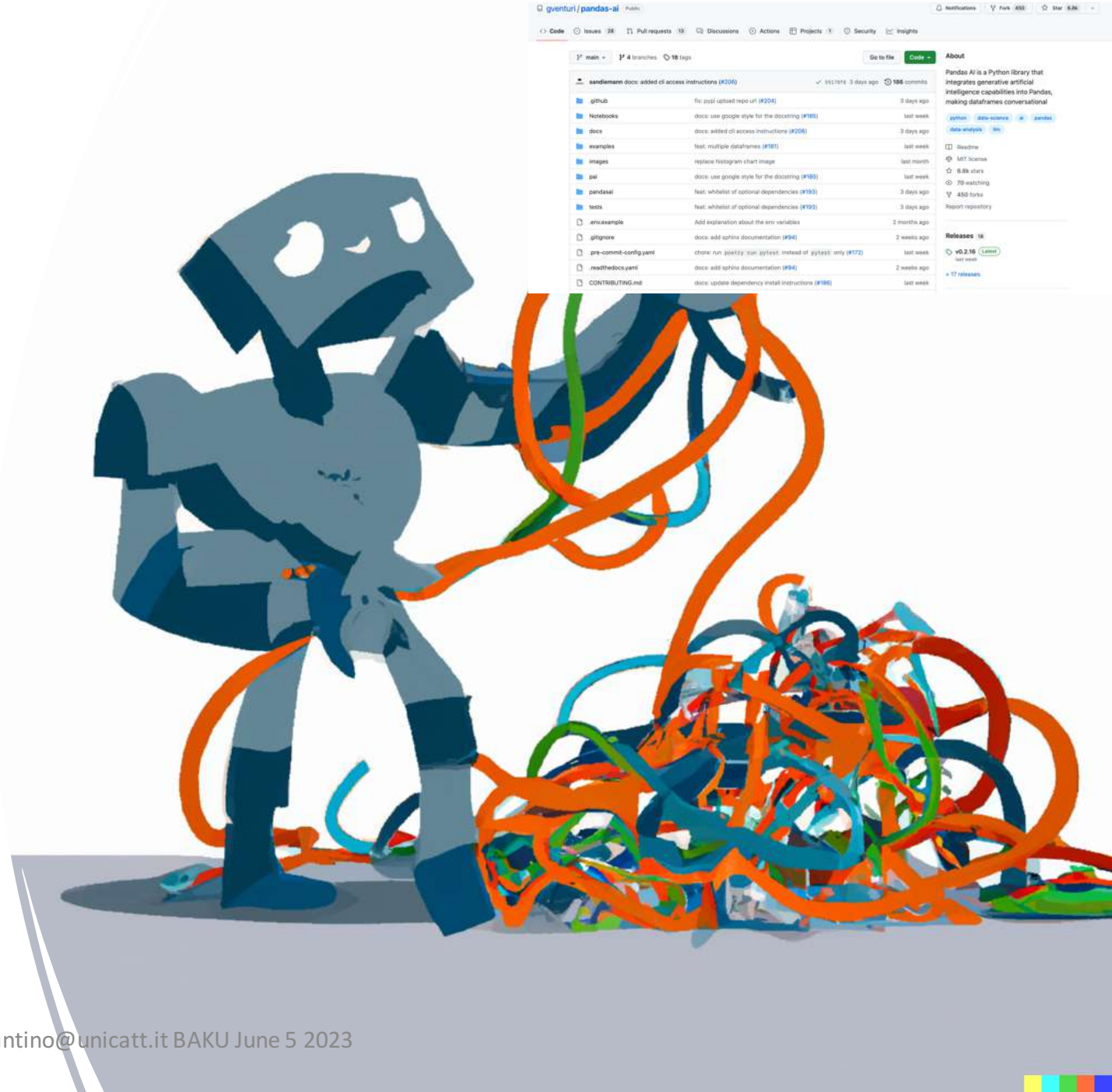
- Diffused ownership of data drives overall performance; **openness** is becoming a de-facto standard.
- Openness without control of quality can **multiply** aggregation costs.
- Incorporate Data Quality as an ethical obligation.
  - Evaluate DQ metrics in projects beyond immediate scope.
  - Accept performance/interoperability trade-offs.
- Extraction of fine-grained data from proxies (e.g. Social Media) is increasingly challenged by TOS and privacy frameworks.

AI Integration: Upstream

- AI is being integrated into all steps of the data chain.
- AI has been present for a long time in modelization and scenario simulation; machine learning is making this more affordable.
- The AI-driven processing of satellite imagery is revolutionizing several areas of sustainability analysis and decision-making.

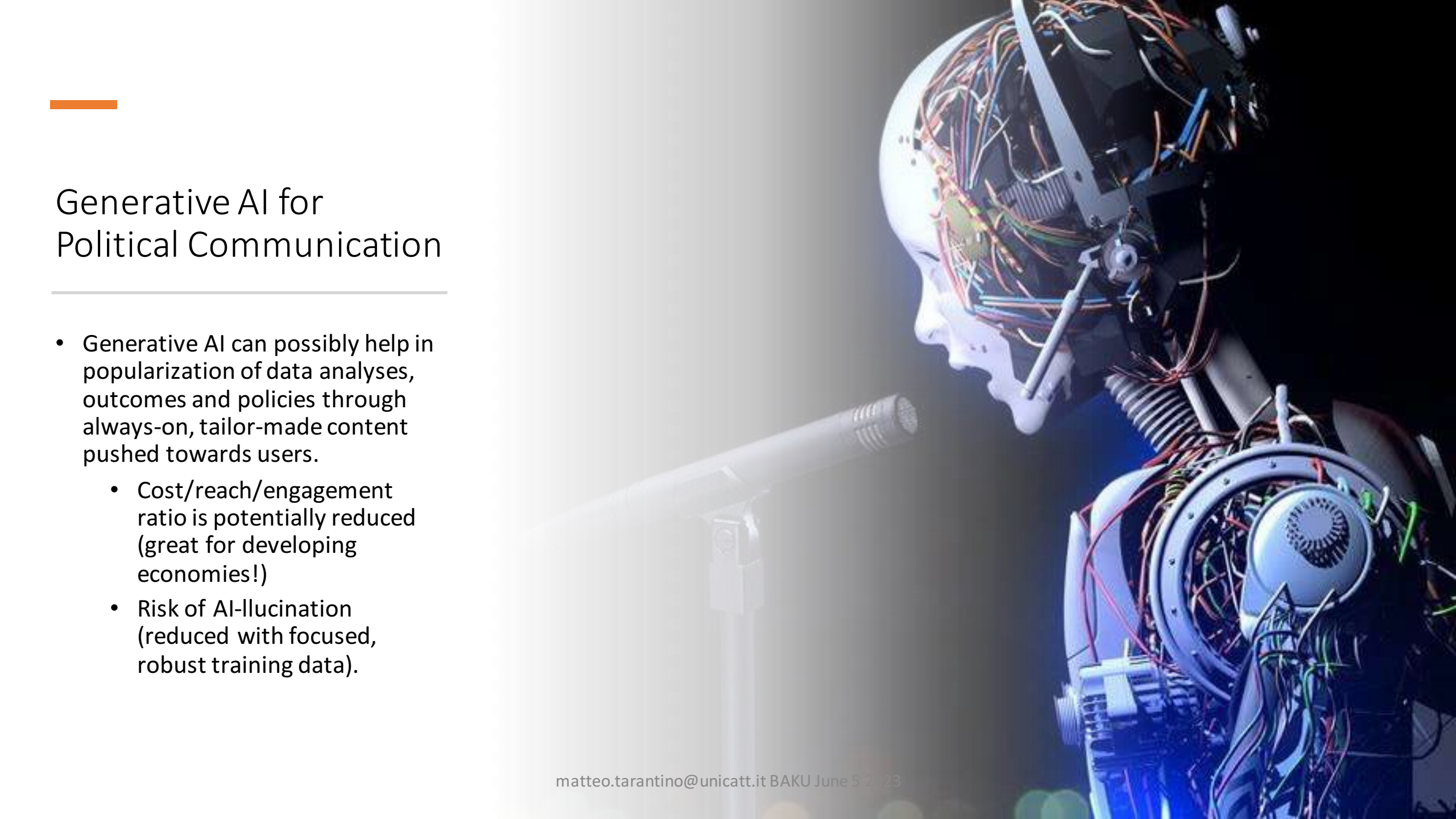
AI integration: Downstream

- Increasingly efficient AI-run tools and libraries (eg. Pandas-AI) are being developed for data cleaning and data consolidaition jobs.
- Risk of offloading the ethical obligation to data quality to AI before it's fully integrated into organizational cultures.



Generative AI for Political Communication

- Generative AI can possibly help in popularization of data analyses, outcomes and policies through always-on, tailor-made content pushed towards users.
  - Cost/reach/engagement ratio is potentially reduced (great for developing economies!)
  - Risk of AI-llucination (reduced with focused, robust training data).

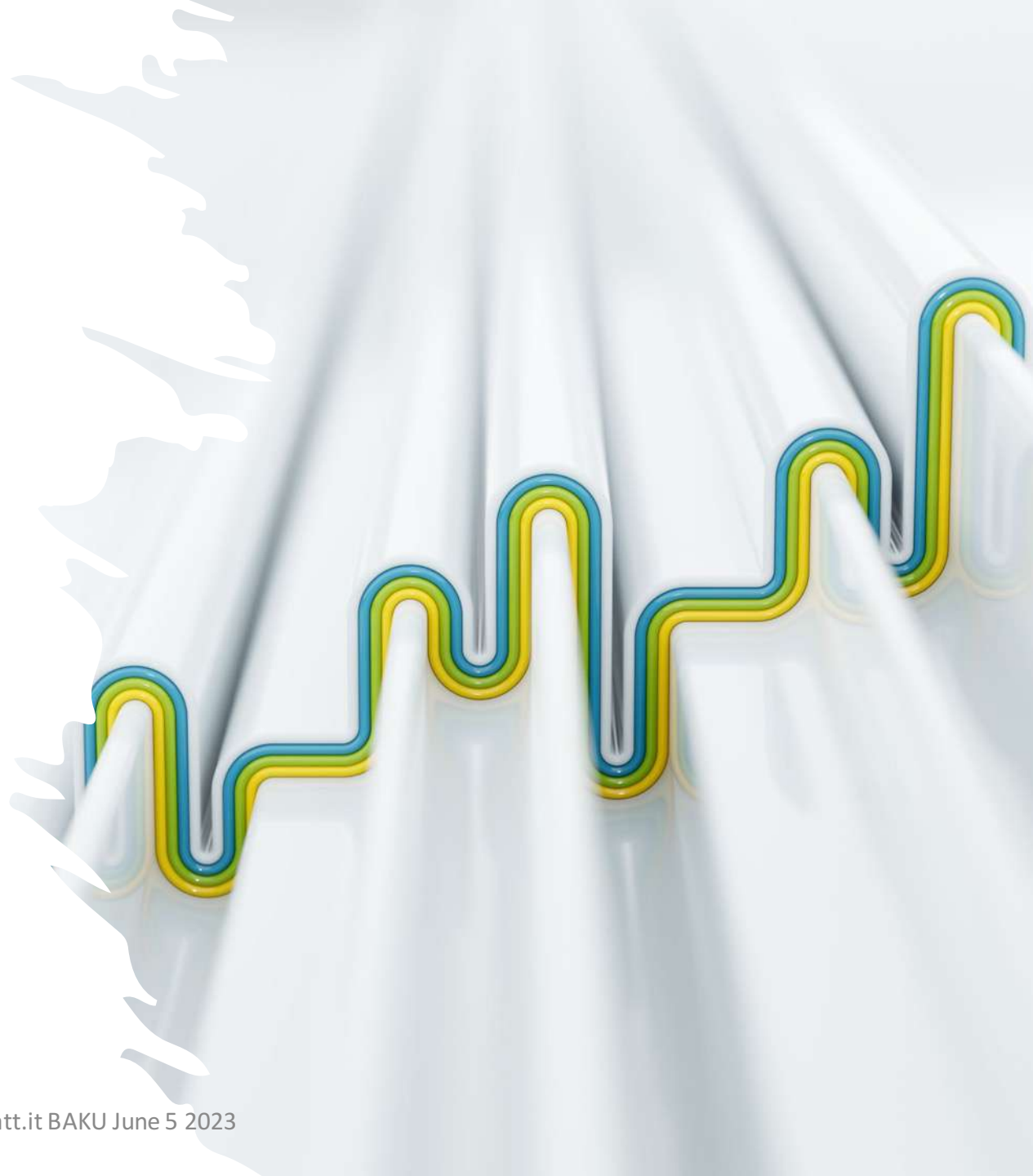


Local Data Cultures

- Environmental data is trans-boundary.
- High variance in understandings and working practices at all scales (office to office, institution to institution, country to country).
- This multiplies fragmentation, and with that efforts & resources.
- We need frameworks to understand these "local data cultures" and align them towards common objectives. (REDEHOPE Project 2019-2023)

Conclusions

- Environmental data is a cornerstone of decision-making towards sustainability.
- Its economics are shifting towards unpredictable costs. This can damage particularly emerging economies.
- AI is bringing about significant cost reductions, but can also slow systemic change.
- We need new concepts, tools and upstream policies to drive the transition.



Thank you for your Attention

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