L'etica del digitale: ragioni e obbiettivi

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Outline

Dati e IA

Etica del digitale

Data for good

Messaggio

A DAY IN DATA

The exponential growth of data is undisputed, but the numbers behind this explosion - fuelled by internet of things and the use of connected devcies – are hard to comprehend, particularly when looked at in the context of one day

500m

tweets are sent every day

Twitter

4PB

of data created by Facebook, including

350m photos

100m hours of video watch time

Facebook Research

294bn

billion emails are sent

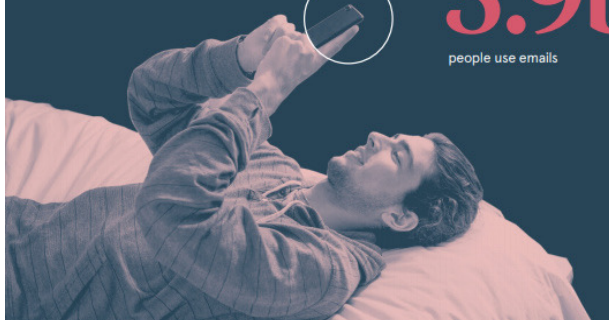
Radicati Group

320bn emails to be sent each day by 2021

306bn emails to be sent each day by 2020

3.9bn

people use emails



4TB

of data produced by a connected car

Intel

65bn

messages sent over WhatsApp and two billion minutes of voice and video calls made

Facebook

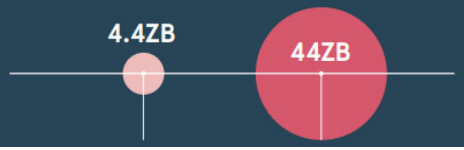
DEMYSTIFIYING DATA UNITS

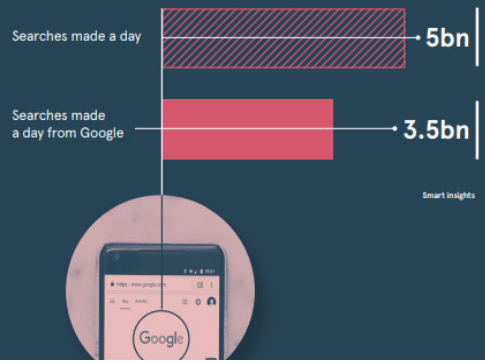
From the more familiar 'bit' or 'megabyte', larger units of measurement are more frequently being used to explain the masses of data

Unit		Value	Size
b	bit	0 or 1	1/8 of a byte
B	byte	8 bits	1 byte
KB	kilobyte	1,000 bytes	1,000 bytes
MB	megabyte	$1,000^2$ bytes	1,000,000 bytes
GB	gigabyte	$1,000^3$ bytes	1,000,000,000 bytes
TB	terabyte	$1,000^4$ bytes	1,000,000,000,000 bytes
PB	petabyte	$1,000^5$ bytes	1,000,000,000,000,000 bytes
EB	exabyte	$1,000^6$ bytes	1,000,000,000,000,000,000 bytes
ZB	zettabyte	$1,000^7$ bytes	1,000,000,000,000,000,000,000 bytes
YB	yottabyte	$1,000^8$ bytes	1,000,000,000,000,000,000,000,000 bytes

*A lowercase "b" is used as an abbreviation for bits, while an uppercase "B" represents bytes.

ACCUMULATED DIGITAL UNIVERSE OF DATA





Smart insights

463EB

of data will be created every day by 2025

IDC

95m

photos and videos are shared on Instagram

Instagram Business

28PB

to be generated from wearable devices by 2020

Statista


Nel 2023 sono stati prodotti 97 zettabytes di dati (20.6 miliarid di DVDs)

Data are not the new oil

- Data do not deplete with use (the more one uses them, the more information one extracts; data generate data)
- Data production and access is not per centralised/monopolised
- Environmental impact of data can be mitigated

L'IA è una risorsa di agenti autonomi, capaci di interagire e di imparare e che possono essere usati per eseguire compiti che altrimenti richiederebbero l'intelligenza umana per essere eseguiti con successo

Yang, Taddeo ***et al.*** Science Robotics, 2018

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Predirre incidenti (~90% accuracy)
Identificare pattern del traffico e ottimizzare risorse
Ridurre le emission di CO_2

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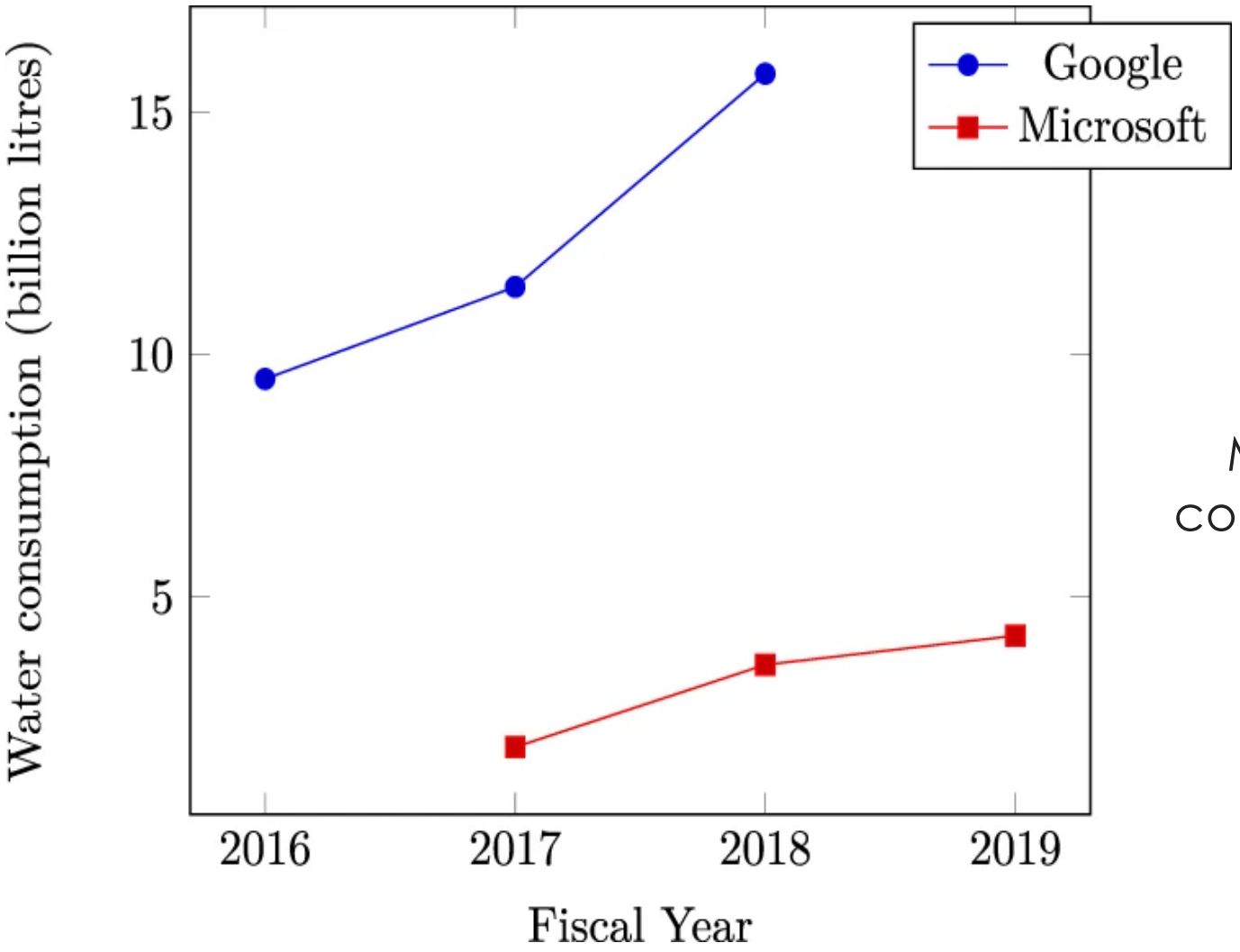
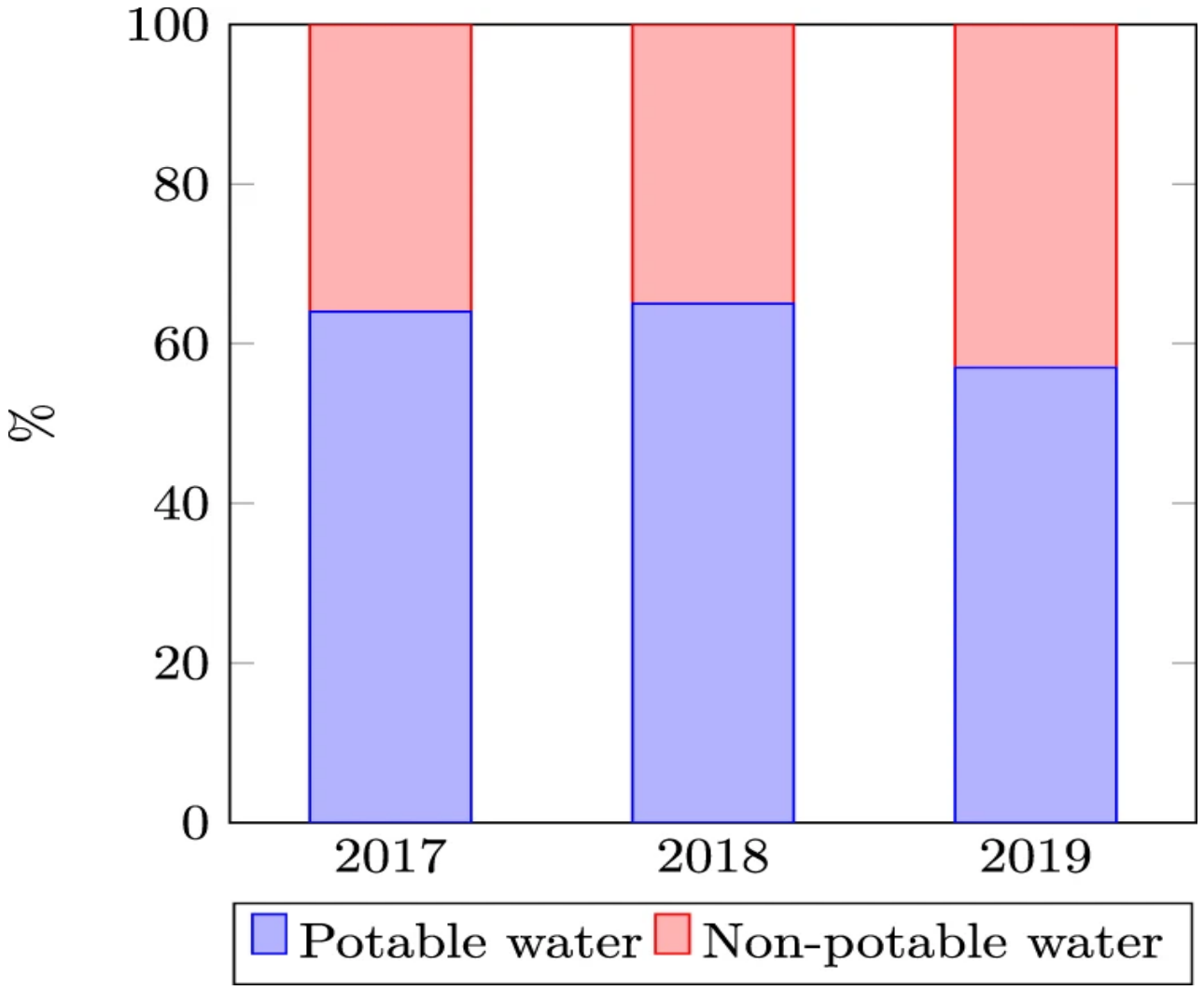
AI+data to
achieve ambitious
and complex goals


AI+data to breach
human rights



Mytton, Data centre water consumption. *npj Clean Water*, 2021



Mytton, Data centre water consumption. *npj Clean Water*, 2021


L’etica è analisi concettuale per identificare
una strategia per rischi e opportunità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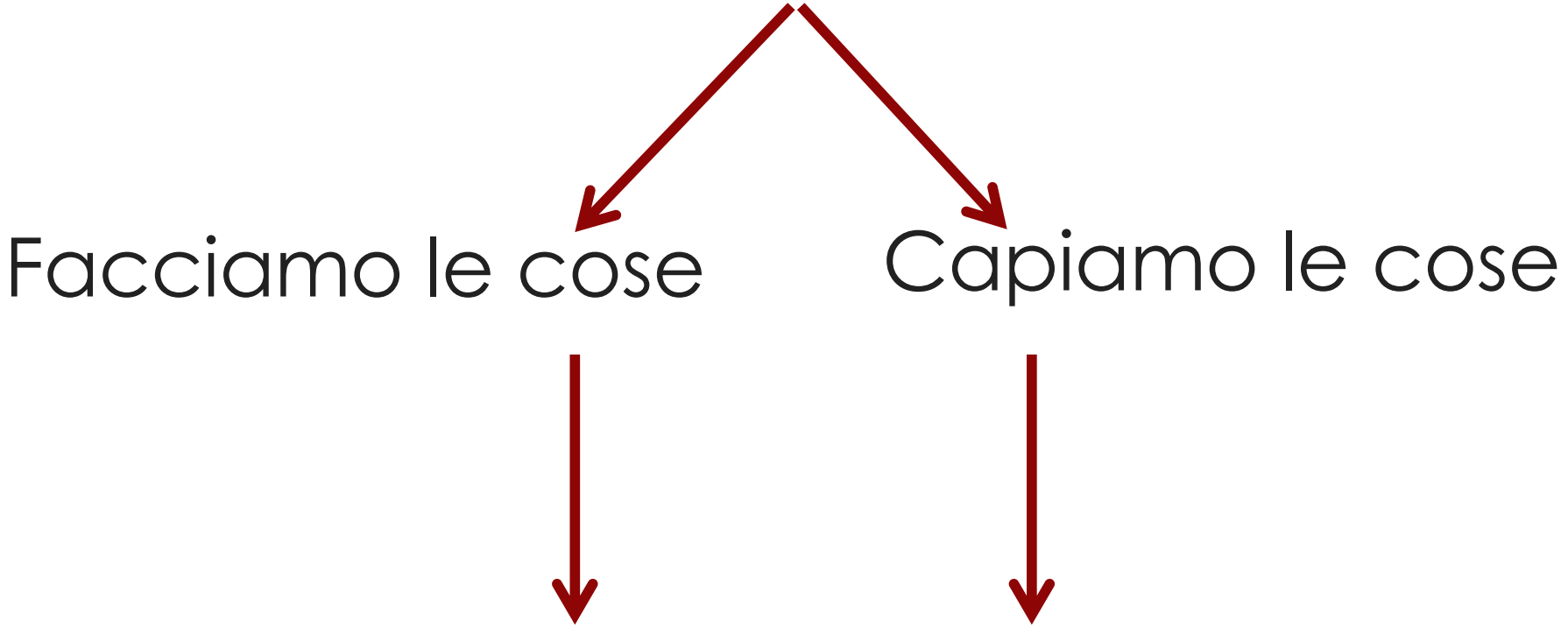
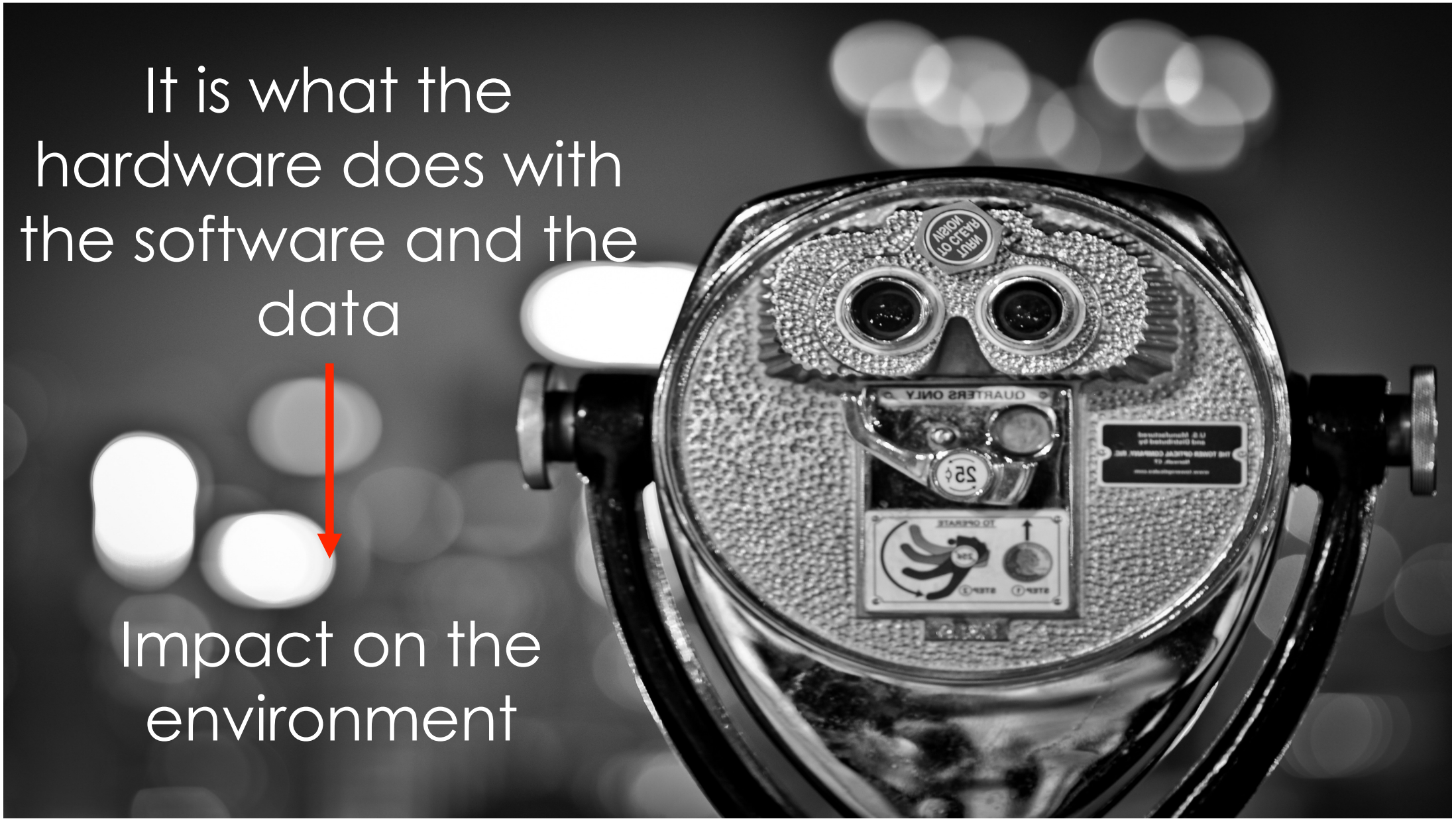
una strategia per rischi e opportunità

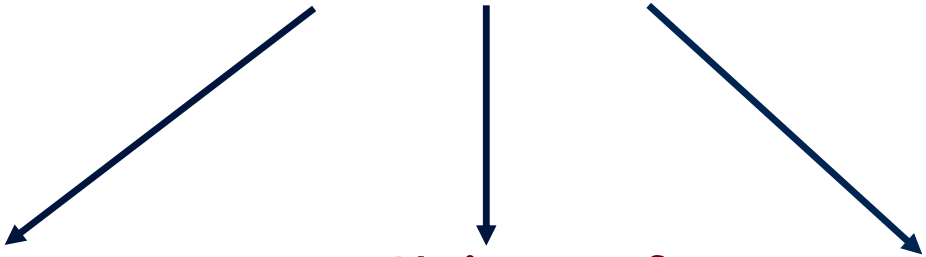
Il digitale cambia il modo in cui



Redesigns l'ambiente, le nostre interazioni, la nostra comprensione


It is what the hardware does with the software and the data
Impact on the environment

Digital ethics is developed along three axes



X: Ethics of Data

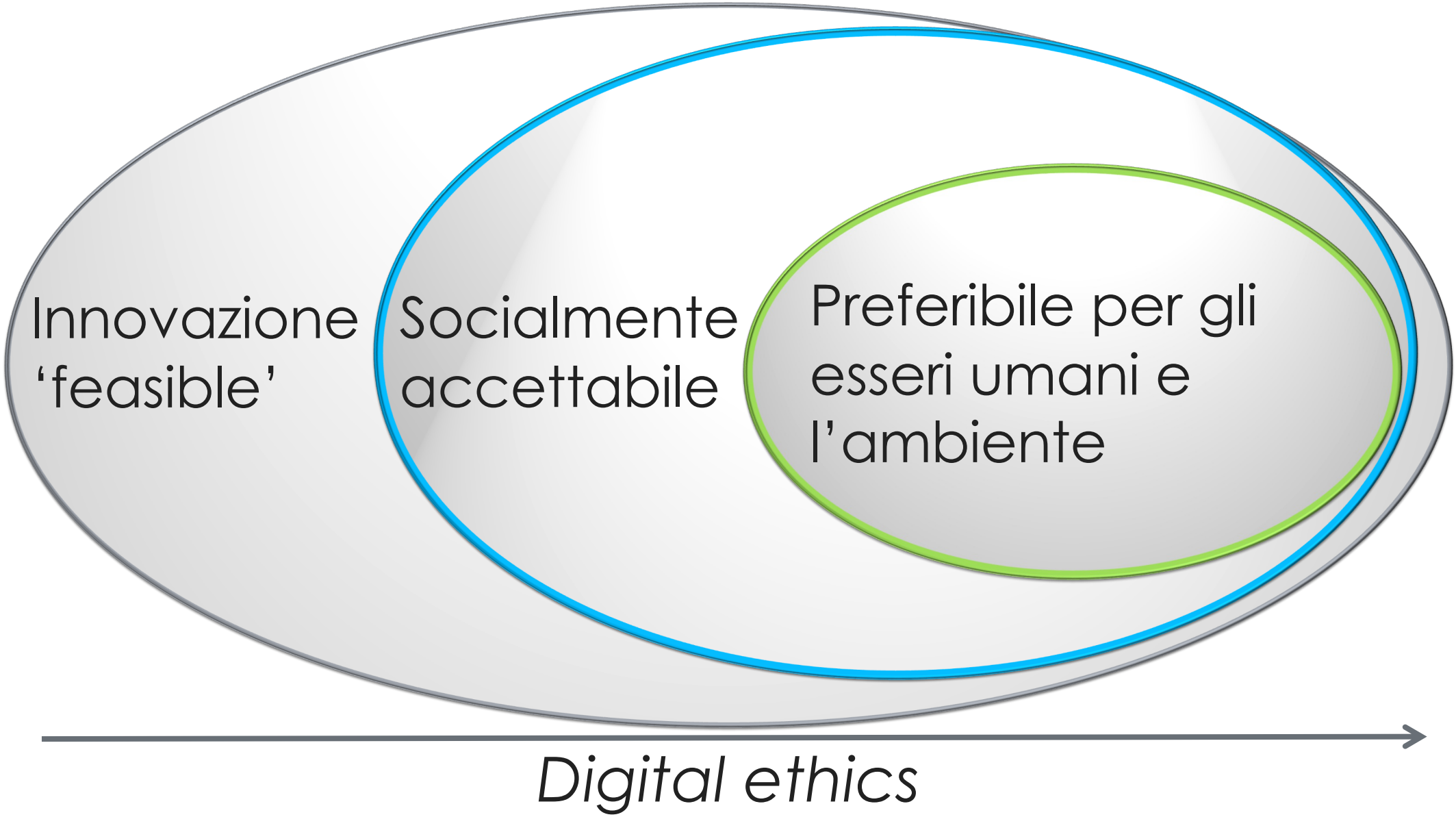
- Privacy
  - re-identification
  - group privacy
- Trust in whom?
- Transparency of what?

Y: Ethics of Algorithms

- Responsibility/accountability
- Ethical design of requirements
- Ethical auditing of algorithms

Z: Ethics of Practices

- Deontological code
- Consent
- Privacy of data subjects
- Secondary use


Innovazione ‘feasible’
Socialmente accettabile
Preferibile per gli esseri umani e l’ambiente
Digital ethics

La etica dell'IA richiede equilibri dinamici e complessi

Path to the Digital Decade una proposta della Commissione EU di raggiungere tre obbiettivi entro il 2030:

- > 90% PMI in EU avranno un minimo livello di digitalizzazione
- 75% delle aziende in EU useranno uno o più tra cloud, IA e big data
- *scale ups & finance* raddoppierano EU *Unicorns*

Studio su1500 AI decision-makers

(aziende con >250 dipendenti)

70% ha un progetto AI (28% progetto *at scale*)

Top challenges

- Compute carbon-footprint (68%)
- Data management (32%)
- Cybersecurity (26%)
- Computing resources (20%)

S&P Global's 2023 Global Trends in AI report, 2023

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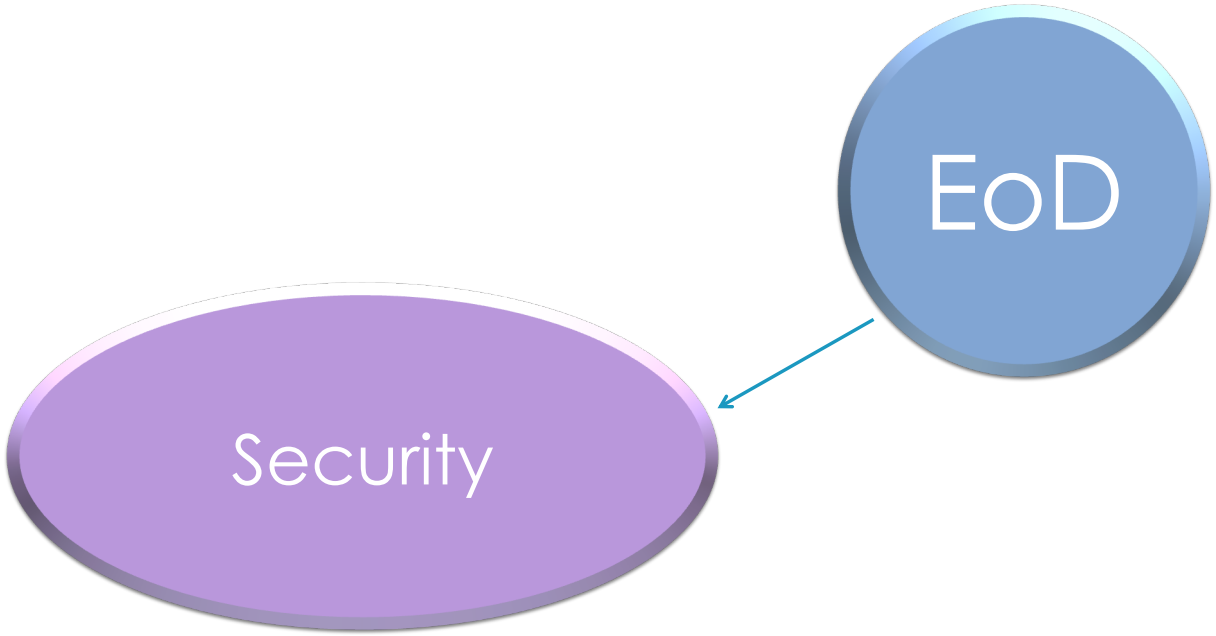

EoD
Security

Figure 1.7 The G7 risk bump chart, aggregate ranking of risks by the G7 countries, 2021–2023

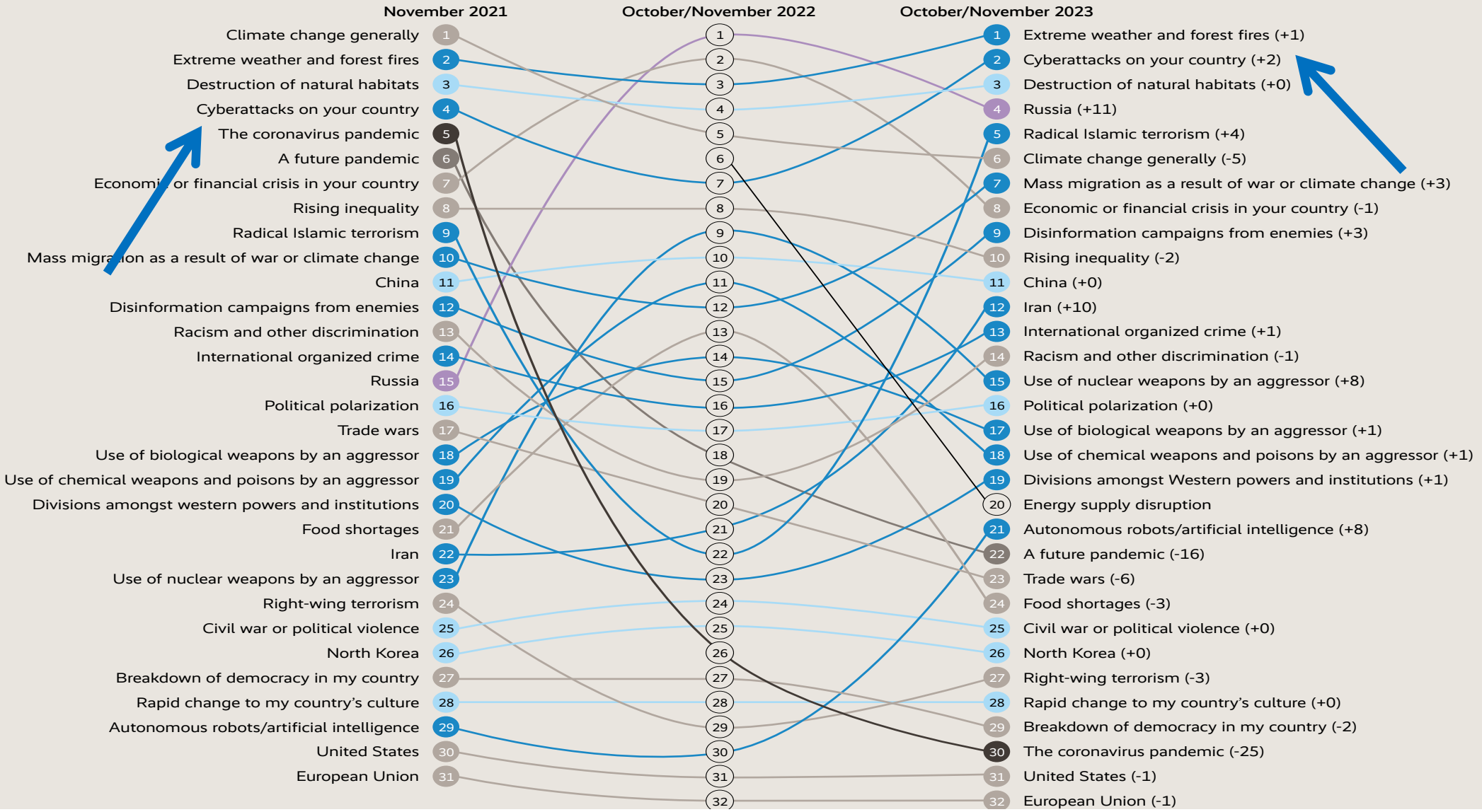
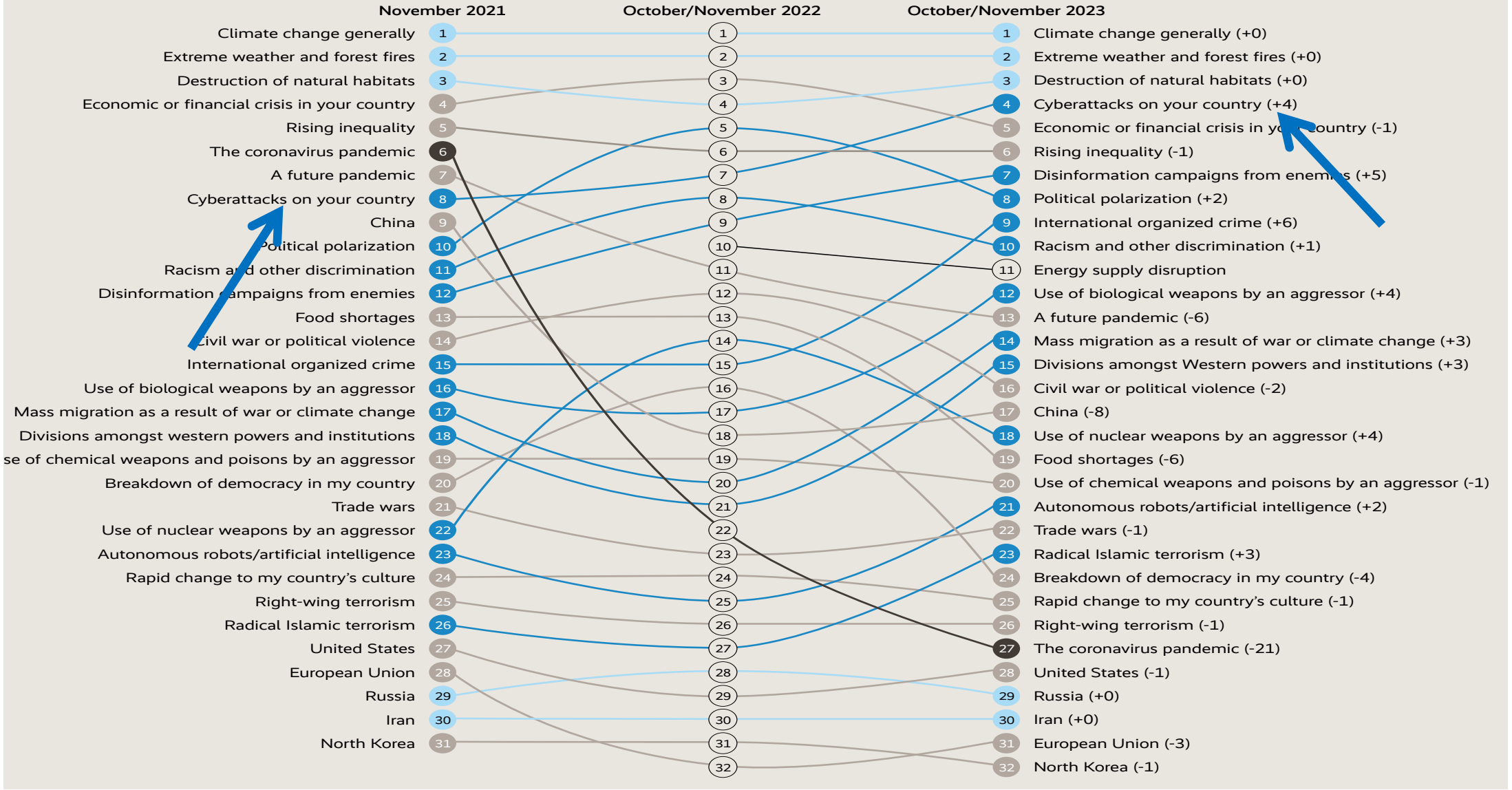


Figure 1.8 The "BICS" risk bump chart, aggregate ranking of risks by Brazil, China, India, and South Africa, 2021–2023

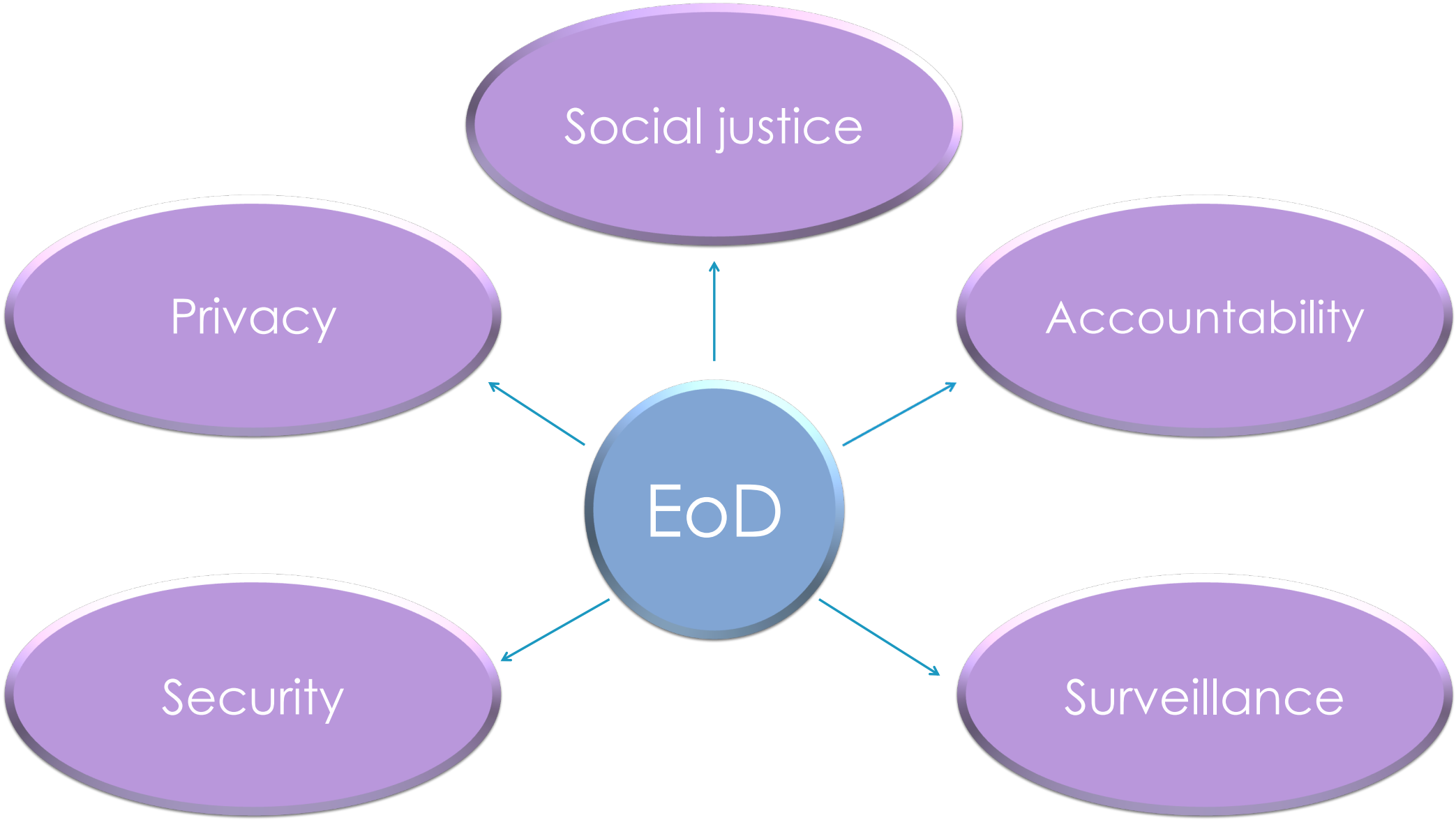


- Data poisoning
- Tempering of categorization models
- Backdoors
- Prompt injection

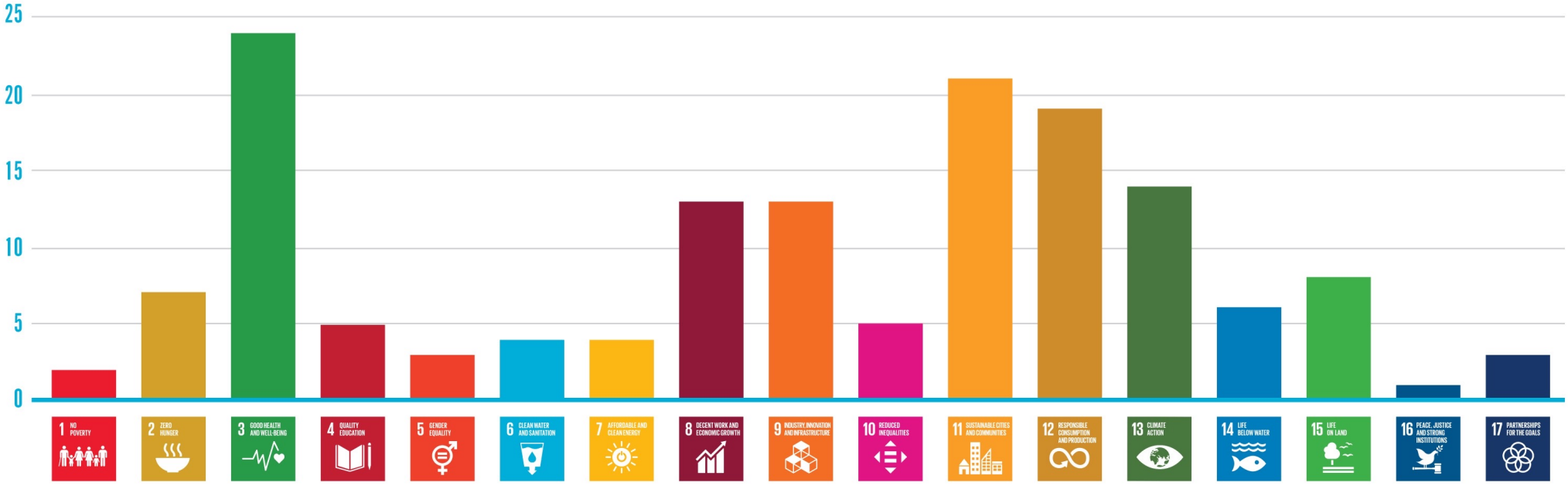
From data extraction and disruption to system control

Taddeo, McCutcheon, Floridi, *Nature Machine Intelligence*, 2019

AI may trigger an infrastructure-wide security crisis


Social justice
Privacy
Accountability
EoD
Security
Surveillance

Every SDG is being addressed but some more than others



Cowl, Tsmados, Taddeo, Floridi, Nature 2020


Singapore: integrated data per ottimizzare la programmazione dei servizi
London: Oyster/contactless data per pubblicizzare il servizio pubblico
NY: tickets data per offrire servizi accessibili a comunità meno abbienti

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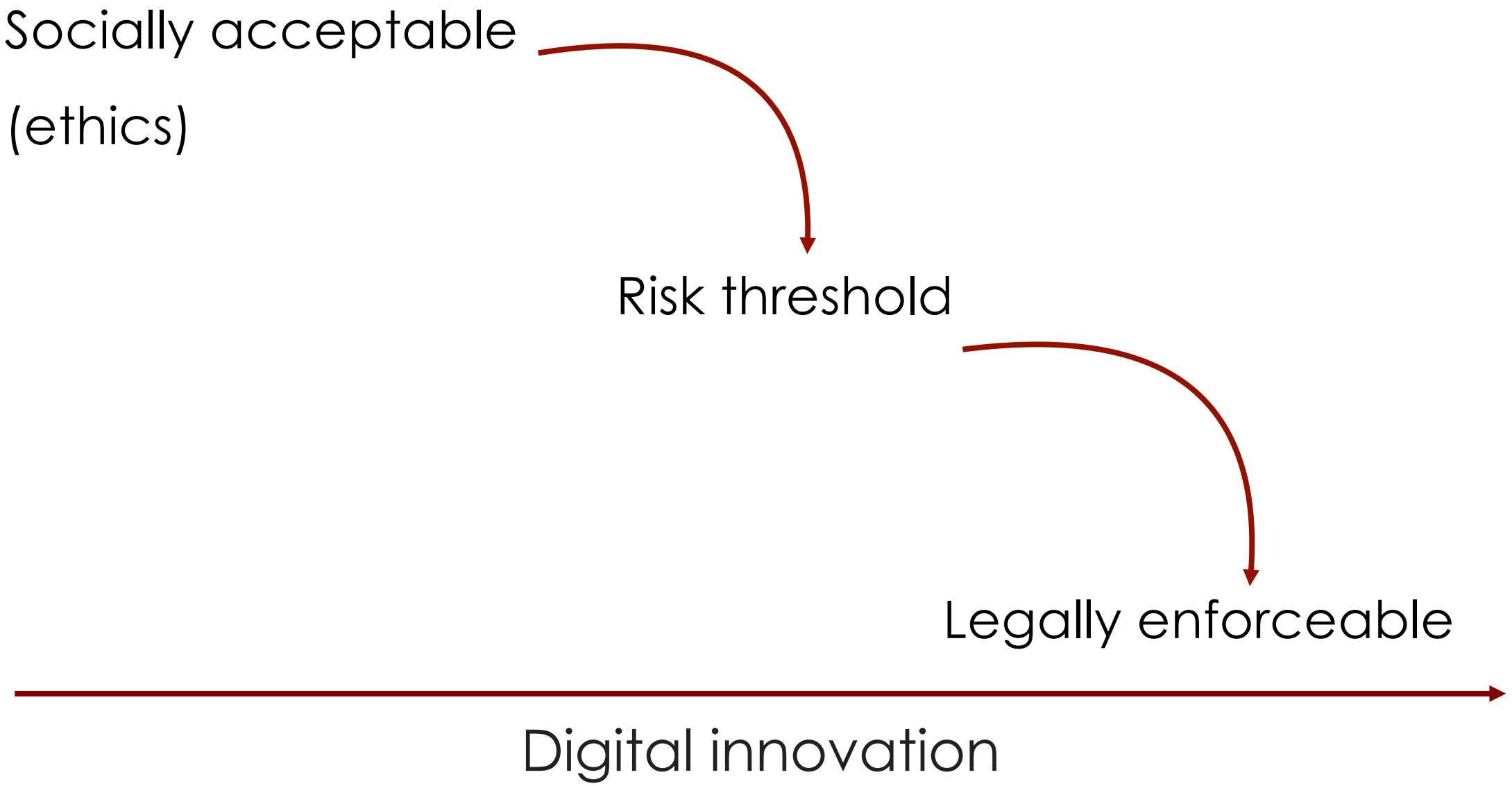
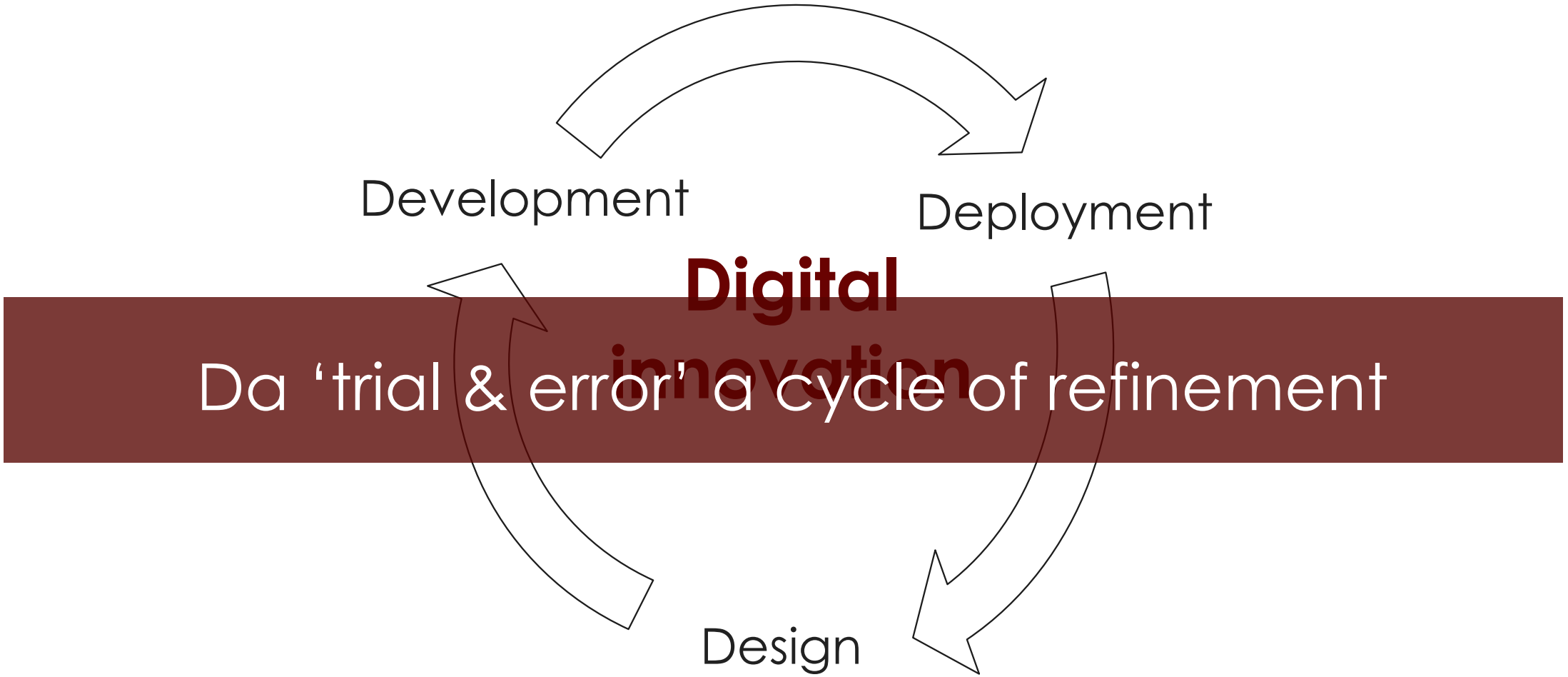

Socially acceptable
(ethics)
Risk threshold
Legally enforceable
Digital innovation



Da ‘trial & error’ a cycle of refinement


Responbilità civica dei service providers di
contribuire al design di società digitali
pluraliste, democratiche, giuste e sostenibili

Grazie

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