Trustworthy Tech & AI

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Trust in Tech domain (1)

- The word "**Trust**" is used to describe in concept the relationship between the objects, including human relationship.
- However, the word "**Trust**" is being used in **engineering level** such as **identifying one of categories** of communicating between objects and human. Getting more attention today.
- ITU-T studies on the issue how to identify and build "**Trust environment**" in **ICT domain**.
- Currently ITU-T has **304 Recommendations** related with Trust in various series: F, J, P, Q, X, Y series
  - ITU-T Rec Y.3051: Basic **principles of trusted environment** in information and communication technology infrastructure
  - ITU-T Rec Y.3052: Overview of **trust provisioning** in information and communication technology infrastructures and services
  - ITU-T Rec Y.3053: Framework of **trustworthy networking** with trust-centric network domains
  - ITU-T Rec Y.3054: Framework for **trust-based media services**
  - ITU-T Rec Y.3055: Framework for **trust-based personal data management**
  - ITU-T Rec Y.3056: Framework for bootstrapping of devices and applications for **open access to trusted services** in distributed ecosystems

Trust in Tech domain (2)

- **Definition of "Trust"** [b-ITU-T Y.3052]
  Trust is the measurable belief and/or confidence which represents accumulated value from history and the expecting value for future.

  NOTE – Trust is quantitatively and/or qualitatively calculated and measured, which is used to evaluate values of entities, value-chains among multiple stakeholders, and human behaviours including decision making.

- **Definition of "Trusted environment"** (in ICT infrastructure) [b-ITU-T Y.3051]
  An information and communication technology-enabled environment providing a set of technical and regulatory conditions sufficient for establishing trust between interacting entities.

  NOTE – From a broader perspective, the trusted environment can be perceived as a multidimensional concept with technological and societal implications.

Ref: ITU-T Rec Y.3051: Basic principles of trusted environment in information and communication technology infrastructure

Trust in Tech domain (3)

Requirements for a trusted environment in the ICT infrastructure

- **Predictability**: All participants within a trusted environment are required to be equipped with the capability to predict the outcome of their interactions
- **Information security**: Each participant is required to be verified for compliance with the common minimal security requirements
- **Interoperability**: support internetwork connections to provide unified interaction capabilities to each participant, independent of technical infrastructure (core networks) used
- **Availability of administration services**: Provision of continuous customer support is required for all interacting participants within a trusted environment in an ICT infrastructure

On the global scale, a trusted environment is not possible in the absence of ICT interoperability.

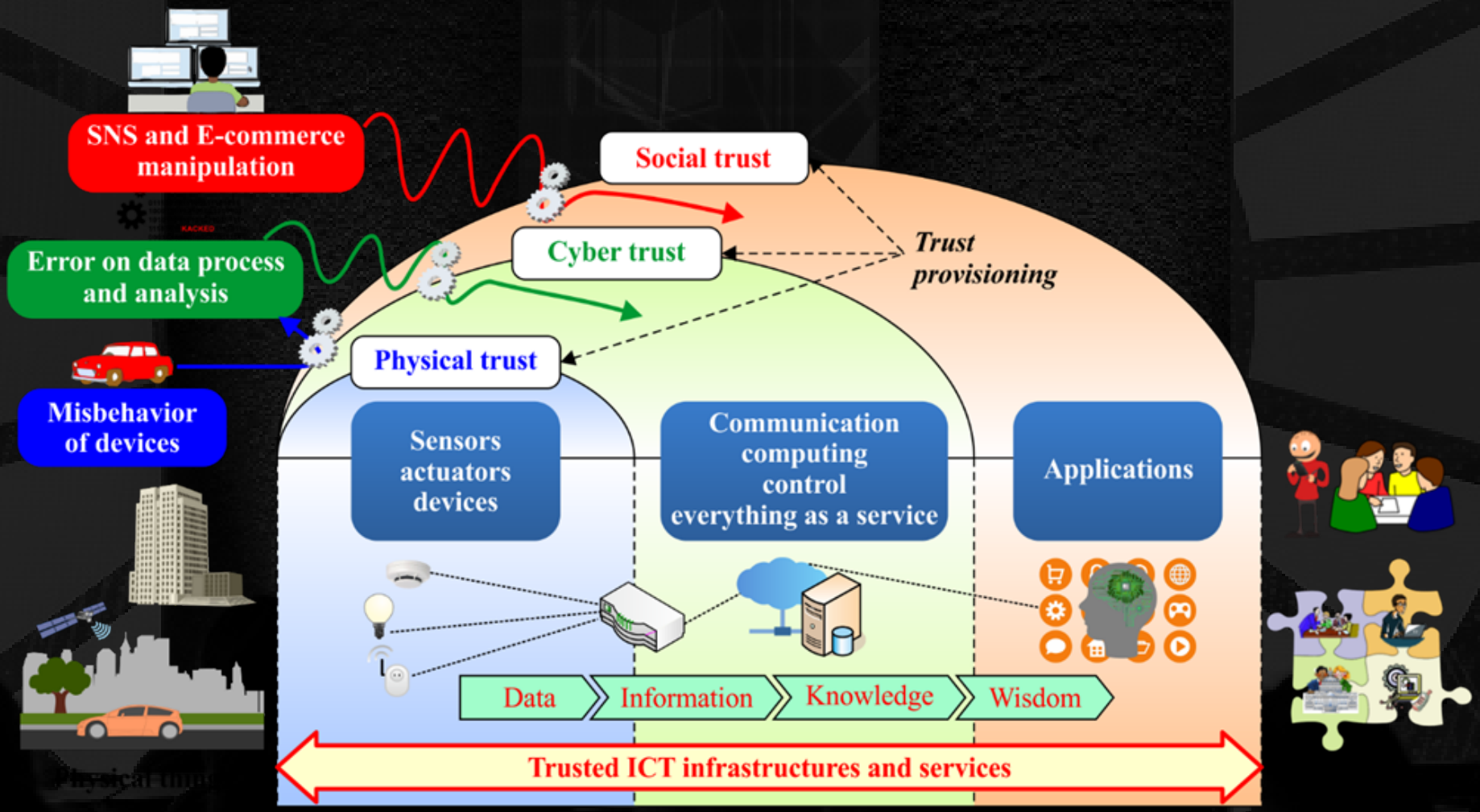
The basic principles for creation of a trusted environment in ICT:

non-discrimination, technological neutrality, functional equivalence, unification, scalability, equal reliability of infrastructure, legalization of electronic document, client-oriented architecture and systematization

Ref: ITU-T Rec Y.3051: Basic principles of trusted environment in information and communication technology infrastructure

Trust in Tech domain (4)

Concept of Trusted ICT infrastructure and Services



Ref: ITU-T Rec Y.3052:Overview of trust provisioning in information and communication technology infrastructures and services

AI for Good

Trustworthy of AI (1)

Question 1: Does AI trustworthy?

Basic compo of AI: Algorithm + Data

Efficiency
Neutrality
Transparency

Integrity
Security
Privacy

Variety

Differences by many factors: People, Culture, Location, History, Application, Usage, and many others

Unique

No differences by any factors: People, Culture, Location, History, Application, Usage, and many others

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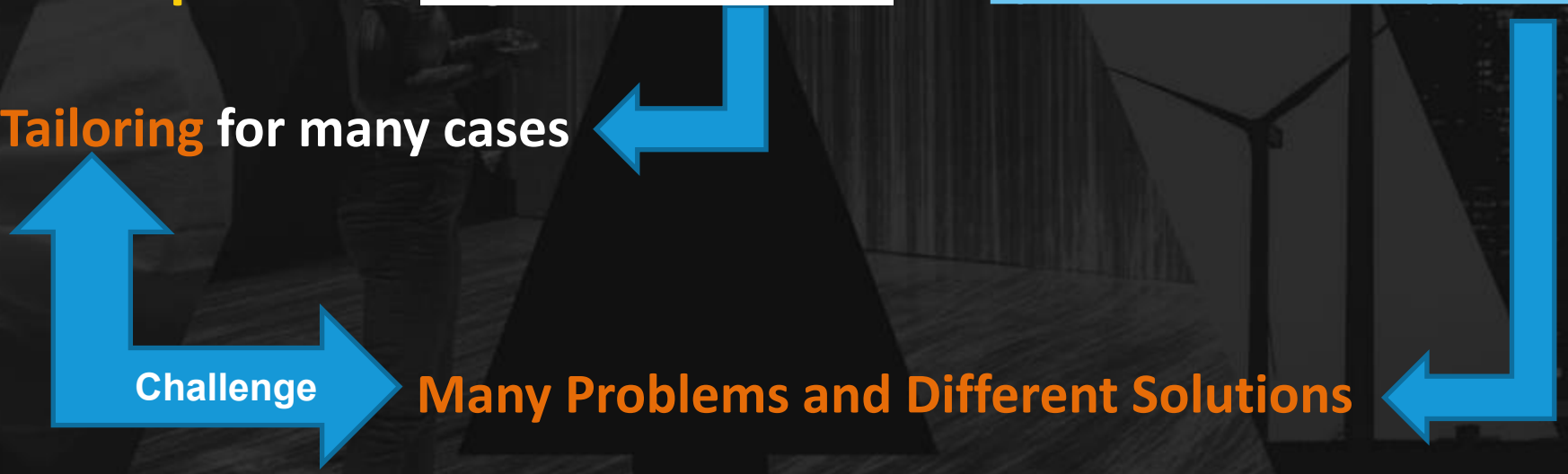
Trustworthy of AI (2)

Question 2: What are most influence of AI?

Basic compo of AI: Algorithm + Data for specific services/applications

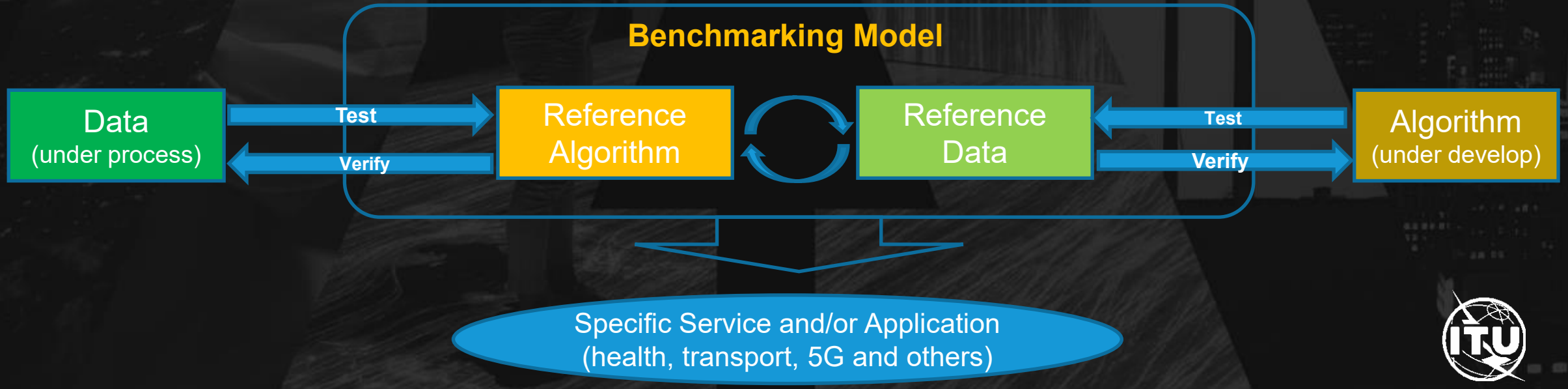


ITU work on AI (1)

Basic compo of AI: Algorithm + Data

Performance/QoS
Integrity
Neutrality
Application Model(s)

Genuity
Security & Privacy
Trust & Safety
Exchangeability



ITU work on AI (2)

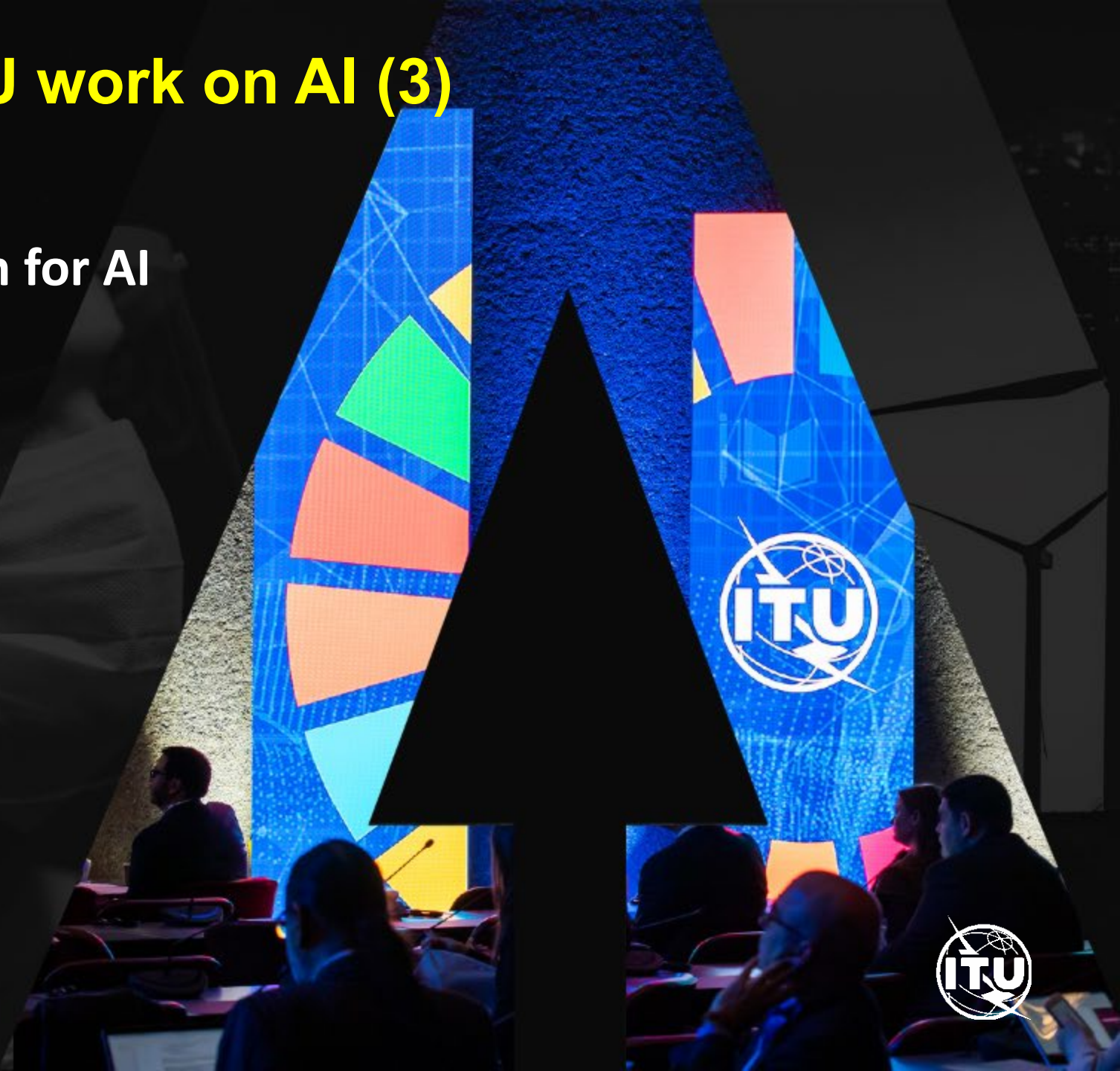
ITU work on AI (3)

AI for Good

The United Nations platform for AI

All YEAR, ALWAYS **ON**LINE

- Organized by ITU
- 38 UN Organizations
- Co-convened by



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ITU work on AI (4)

Identify practical applications of AI

Scale solutions for global impact

Accelerate progress towards the UN Sustainable Development Goals

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ITU work on AI (5)

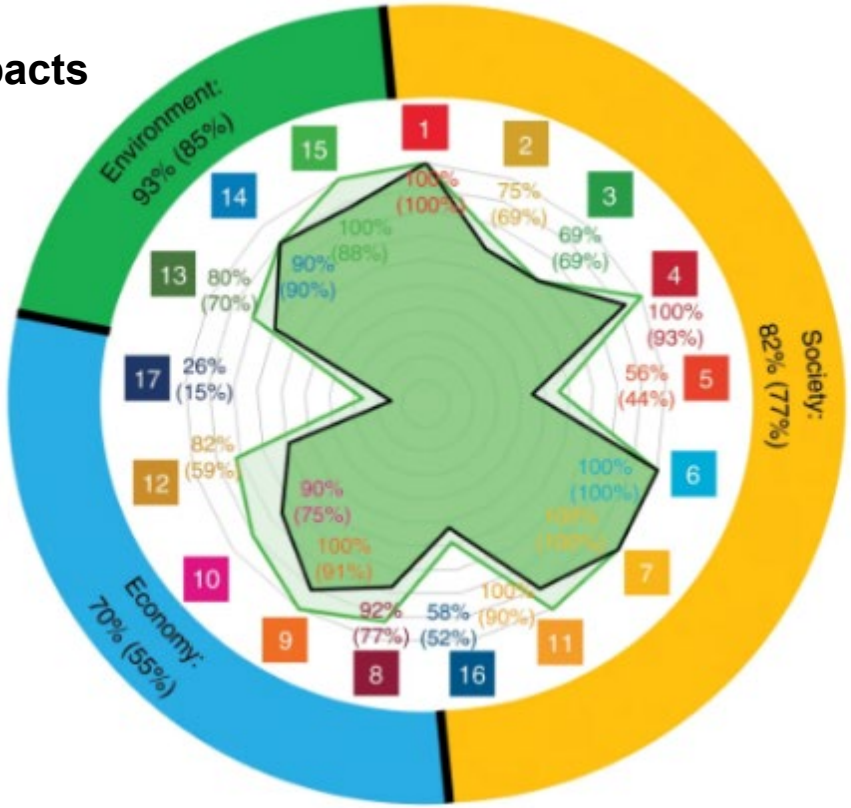
We have less than 10 years to solve the SDGs and AI holds great promise…

SUSTAINABLE DEVELOPMENT GOALS

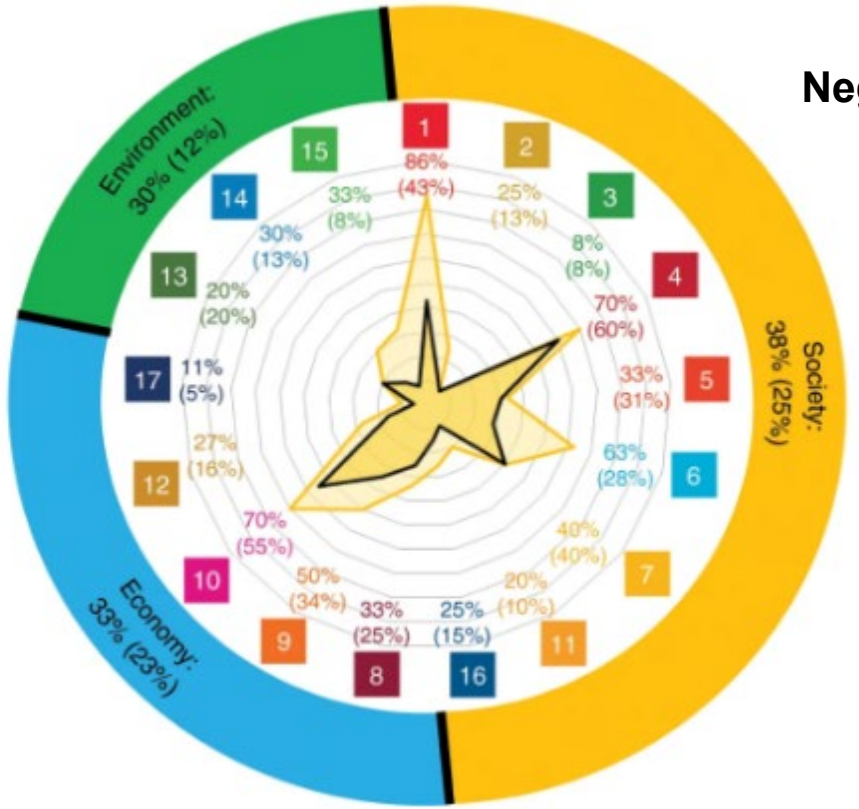
ITU work on AI (6)

AI can **enable the accomplishment of 134** targets across all the goals…
but it **may also inhibit 59 targets**

Positive Impacts



Negative Impacts



Source: ***The role of artificial intelligence in achieving the Sustainable Development Goals,*** *Nature Communications, 13 January 2020*

Time to move the needle.
#AIforGood
aiforgood.itu.int