Transparent assessment of environmental impact of AI

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Environmental claims

No unified approach, yet

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Standardized methodology needed for environmental impact

Initiatives started

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ITU-T work item L.ClimAI

Guidelines for Assessing the Impact of Artificial Intelligence on Greenhouse gas emissions

In ITU-T SG5 Q9

https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=19564

New work item initiated in June 2024
Target completion in 2026

Supporting members

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China Telecom
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Standardization scope of ITU-T L.ClimAI

Guidelines for Assessing the Impact of AI on Greenhouse gas emissions

Holistic framework for evaluating the GHG emissions of AI, covering **direct and indirect impacts**, **assessment**, and **mitigation** strategies

Based on **ITU-T L.1410** (LCA) and **ITU-T L.1480** (enabling effect)
applying the methods for AI systems

Comparative assessment
1) AI technology compared to not using AI or
2) comparing impact of two AI systems

Full life cycle of AI systems

L.1410 "Methodology for environmental life cycle assessments of information and communication technology goods, networks and services"

L.1480 "Enabling the Net Zero transition: Assessing how the use of information and communication technology solutions impact greenhouse gas emissions of other sectors"

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Applying existing LCA methodology for AI systems

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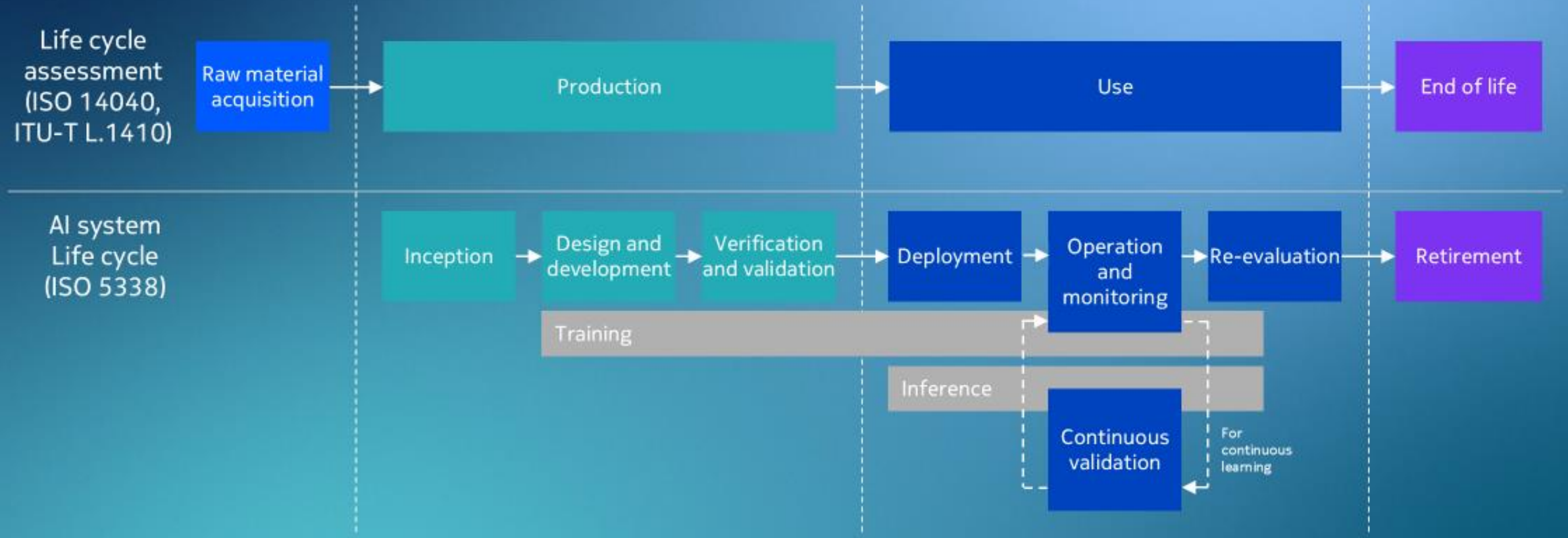
The environmental sustainability impact of AI
Mapping from Nokia



Source: Figure 4 in Nokia WP 'A transparent and standards-based way to assess the environmental impact of AI systems', https://onestore.nokia.com/asset/214115

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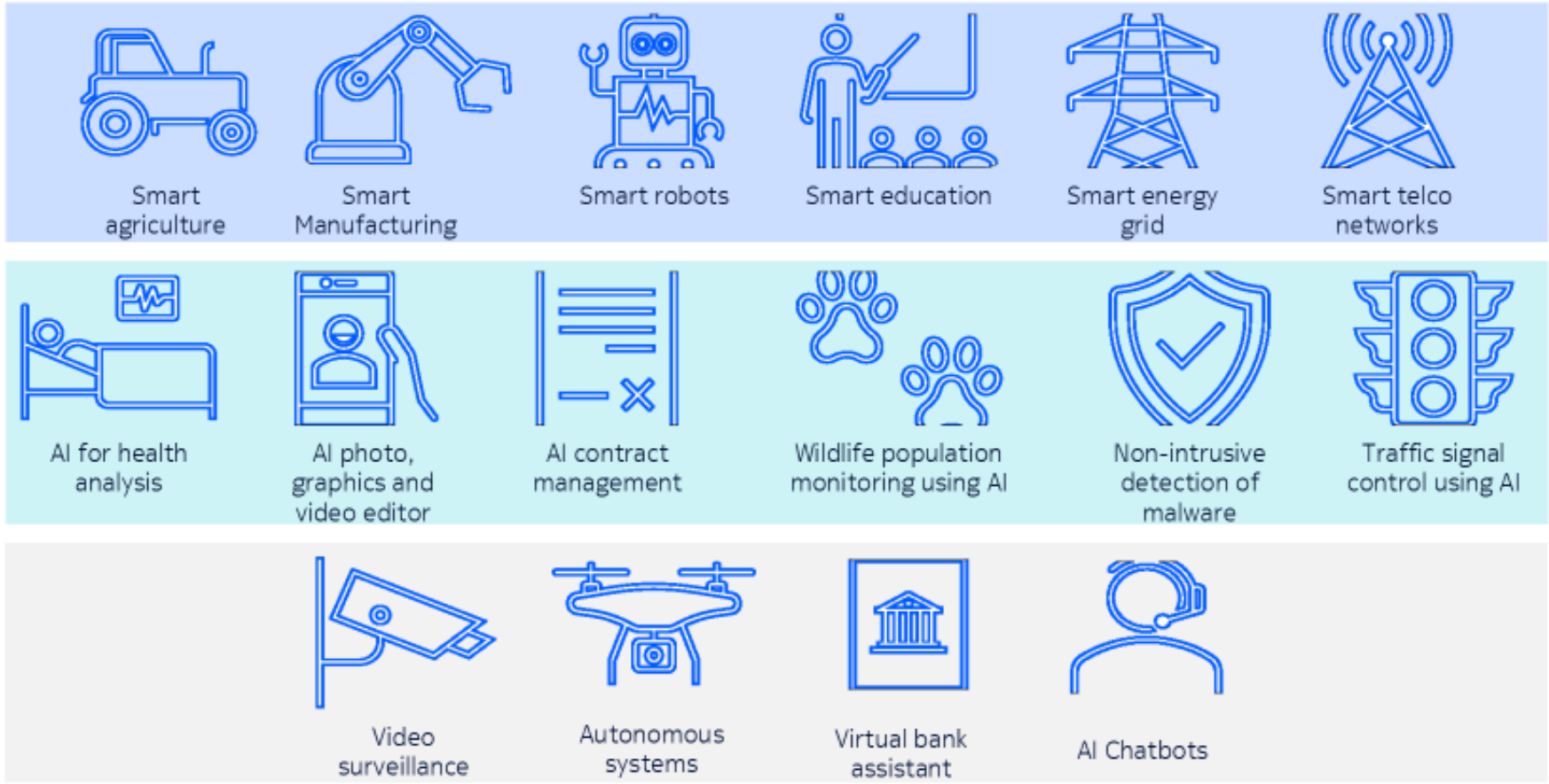
Using AI in manifold use cases



Source of use cases: ISO/IEC TR 24030:2024

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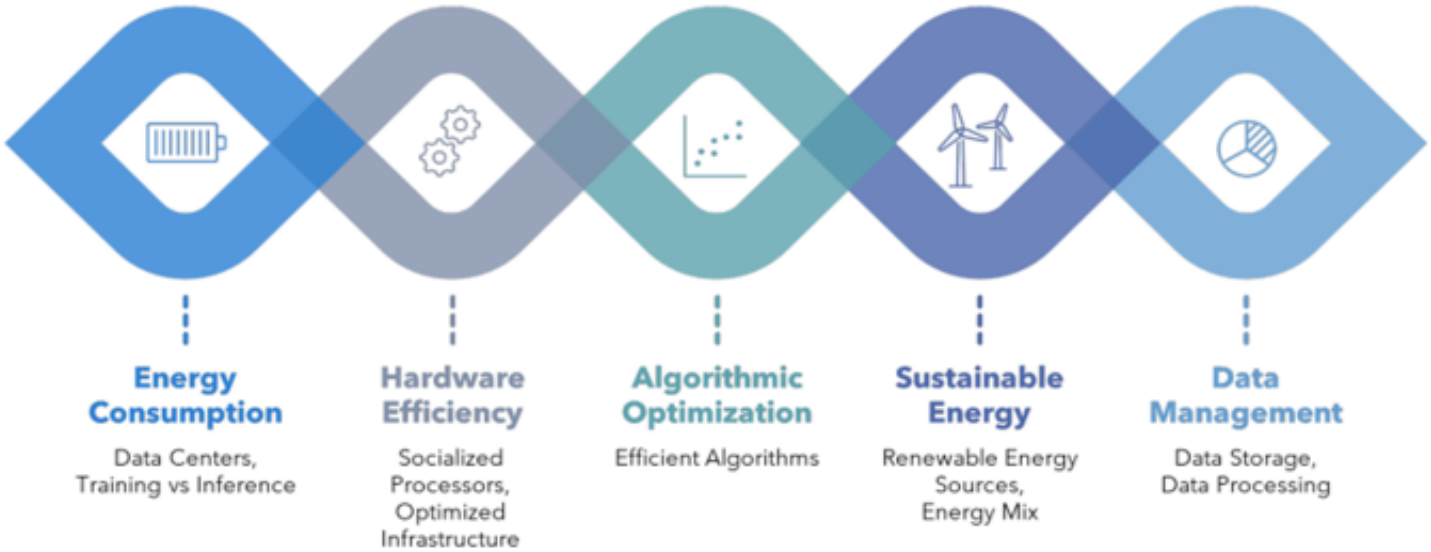
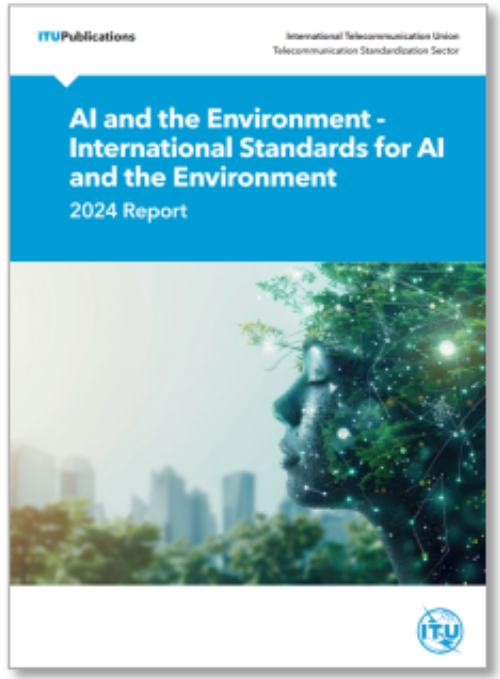
Targeted and tailored actions to reduce environmental impact





Source: ITU-T 2024 Report, AI and the Environment - International Standards for AI and the Environment, https://www.itu.int/dms_pub/itu-t/opb/env/T-ENV-ENV-2024-1-PDF-E.pdf

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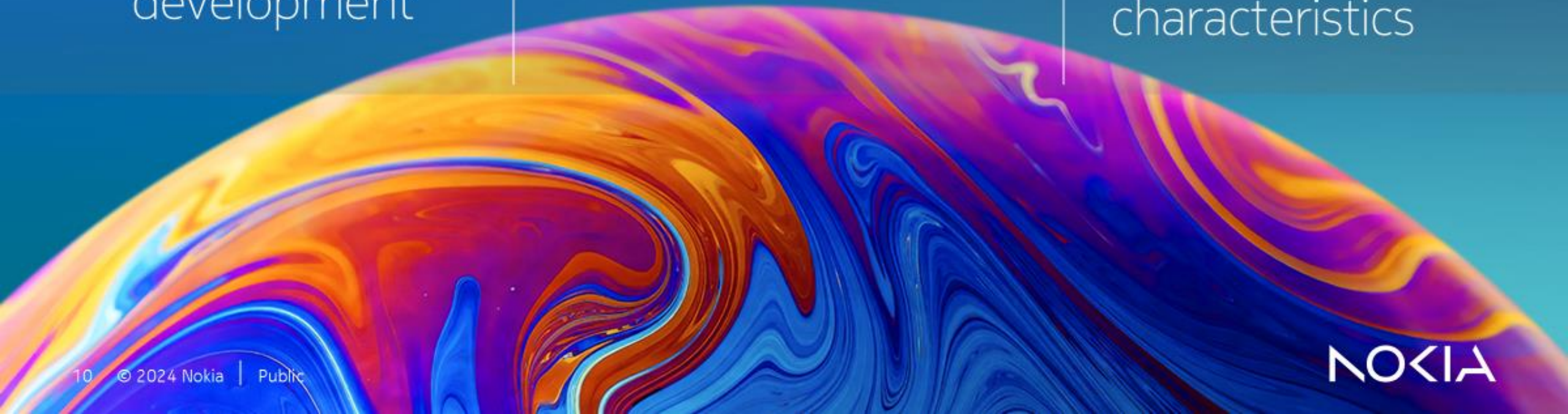
Take away

Standard methodology under development

Building on existing methods – LCA based approach

General methodology for AI specific characteristics



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