

# **International standards in support of digital transformation**

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# Presentation outline

- ✓ **What and why? Terminology, motivation and concepts**
  - Digital transformation
  - Standards
- ✓ **Standards enabling digital transformation**
- ✓ **Who is developing standards, how to get involved**
- ✓ **Call to action**

**NOTE: The views expressed in this presentation are those of the author and do not necessarily reflect the views of the ITU or its membership.**

**Digital transformation** is  
the change associated with  
integrating digital technologies to  
all aspects of society.

It is a **continuous process** that impacts society by changing how resources are obtained, operations are executed and how services are delivered.

# **Digital transformation enhances**

- sustainable economic development**
- innovation and agility in businesses/governments**
- productivity and operational efficiency**
- quality of products and services delivered**
- quality of life and wellbeing of individuals**
- ...**

# Implementing digital transformation

## Purpose

Ultimate goal of transformation – defines the specific process or service to be improved

## Enablers

Methods, tools or approaches that will lead to achievement of objectives and purpose

## Success factors

Critical factors impeding/facilitating successful transformation of a process or service

## Technology

Specific digital technologies to be adopted and the expertise needed for their adoption

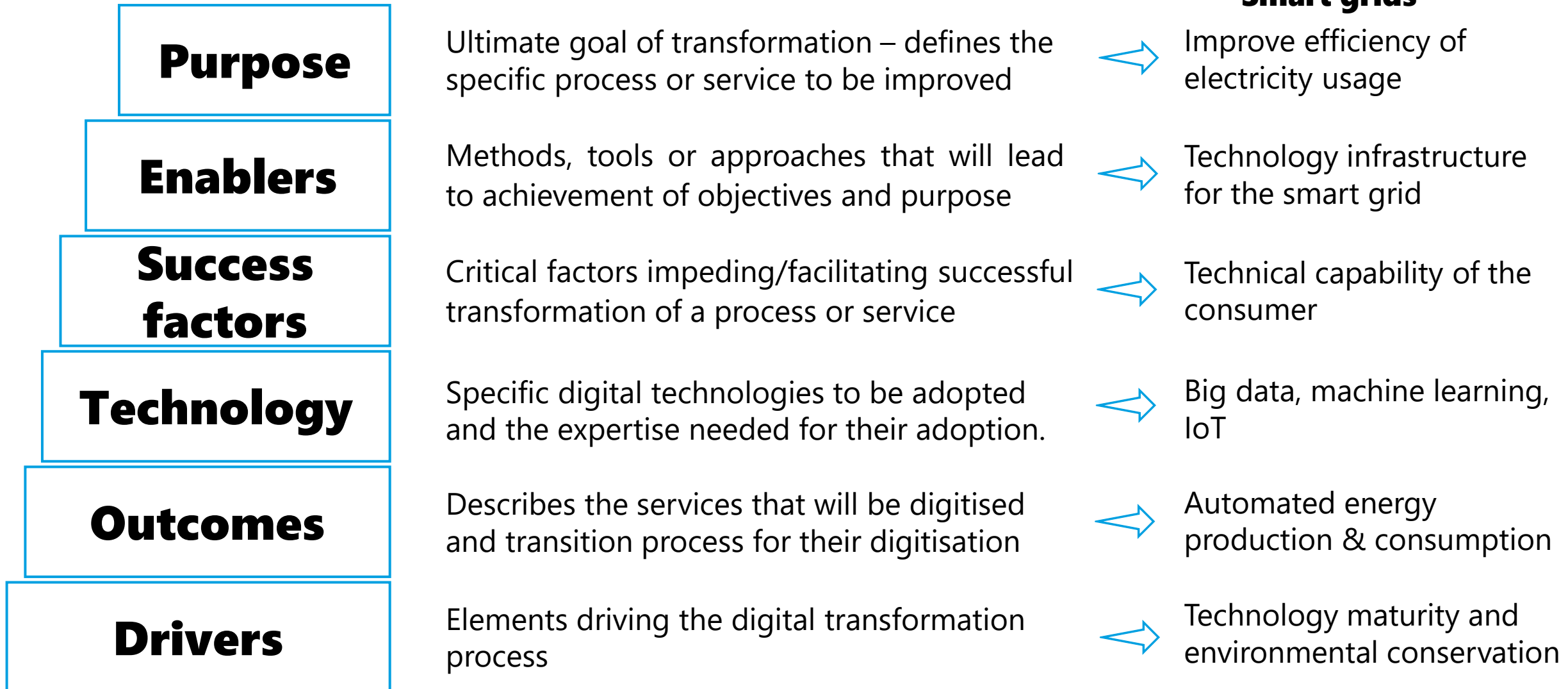
## Outcomes

Describes the services that will be digitised and transition process for their digitisation

## Drivers

Elements driving the digital transformation process

# Example: Smart grids



# Success factors for digital transformation

- ✓ availability of funds and resources
- ✓ maturity level of new technologies
- ✓ expertise required for implementation
- ✓ regulations and governance
- ✓ standards

...and others, factors vary based on purpose of transformation

**Standards are documents providing rules, guidelines, requirements or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for purpose.**



# Standards development

A process guided by **well-established principles** and **best practices**:

**Balance**

Stakeholders' interests are given equal weight in standards development. No specific interest dominates the process.

**Openness**

The process should be open to participation to all relevant stakeholders.

**Consensus**

The process should be inclusive. All views are taken into account and the final composition is agreed by relevant stakeholders

**Due process**

All stakeholders should be able to express a position, its basis and have that position considered on an equal footing.

**Transparency**

Information on the proposal, development and approval of a standard is available to all relevant stakeholders.

# SDOs - formally recognized bodies that create standards

## ✓ National SDOs

Tanzania Bureau of Standards (TBS), South African Bureau of Standards (SABS), Deutsches Institut für Normung (DIN, Germany) etc.

## ✓ Regional SDOs

African Regional Organization for Standardization (ARSO), European Telecommunications Standards Institute (ETSI) etc.

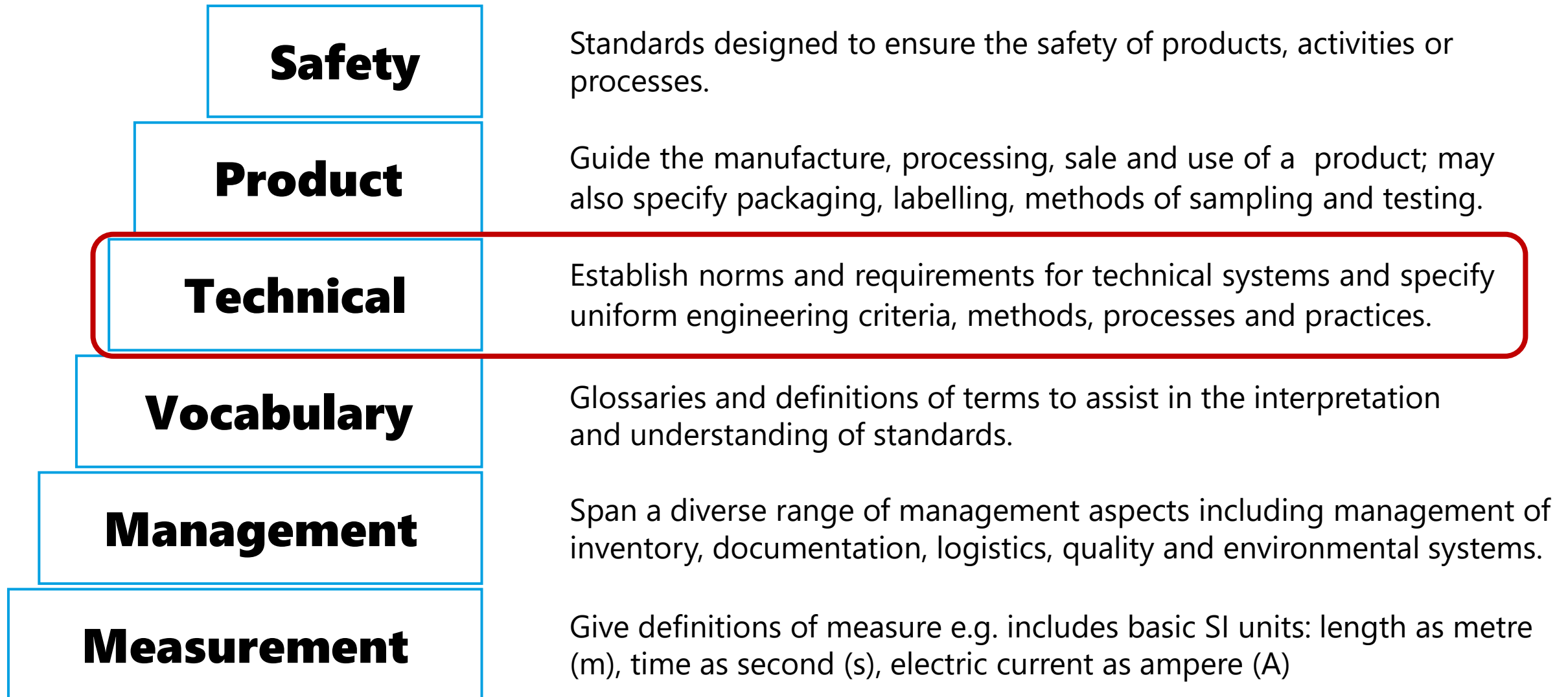
## ✓ International SDOs

International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), International Telecommunication Union (ITU)

# Other standard-setting bodies

- Organizations that lie between single companies that develop standards and formal SDOs.
- Established with various motivations – either to specifically develop a single standard, or designed to have a long lifespan and serve a wider technology area.
  - **Consortia:** Could be open to all e.g. Organization for the Advancement of Structured Information Standards (OASIS); or more exclusive, restricting participation to members who join based on certain criteria e.g. World Wide Web Consortium (W3C)
  - **Quasi-formal:** Similar to formal SDOs but not formally recognized by national authorities e.g. the Internet Engineering Task Force (IETF) who develop Internet standards, particularly those related to the Internet Protocol suite (TCP/IP).

# Types of standards



# Benefits of technical standards

- Promote **interoperability** and **compatibility** between different devices, different services and technologies, different protocols and different markets, or between these categories
- Establish a minimum standard for **quality, performance and safety of products and services**
- Support open **innovation** and **provide unified and quality solutions** to technical issues.
- Boosts **existing consumer confidence and profitability** for companies through the use of known benchmarks, performance and certification
- Facilitates **technology transfer** through capacity building which encourages **competition and growth in industry**.

# Technical standards are a backbone of digital transformation

- ✓ set targets and define priorities to support digital transformation
- ✓ identify innovative solutions to address emerging challenges
- ✓ ensure trust, safety, quality and efficiency of new technologies

# Standard in focus: Security in smart grids

**Challenges:** Known (and unknown) security threats causing malfunctions on smart grids and potential compromise of personally identifiable information (PII)

## 1. Targets and priorities for standardization:

- Prevent malfunction of smart meters caused by security threats and ensure smart meter service providers implement appropriate security measures to protect PII.

## 2. Solution = ITU-T X.1332: **Security guidelines for smart metering services in smart grids**

- Identifies security threats and attacks associated with smart metering services
- Specifies security requirements and capabilities to mitigate against threats and attacks

## 3. Applying ITU-T X.1332 **ensures confidence and trust in the use of the smart grid; furthers digital transformation in the energy sector.**

# Standard in focus: WebRTC

**Challenge:** Simplify and enhance the quality of video-conferencing

## 1. Targets and priorities for standardization:

- **High quality** and **secure** real-time communications accessible via any device or platform incl. mobile applications and IoT

## 2. Solution = Web Real-Time Communications (WebRTC)

- Enables high quality RTC capabilities to be embedded into browsers, mobile apps and IoT devices with assured audio and video security (connections are **always encrypted**).
- Initially released as an open-source project (2011), now a W3C and IETF standard
  - Future work aims to improve video quality, reduce delays and extend application to new use cases and other interactive services e.g. VR gaming

## 3. WebRTC **driver of business continuity** and **digital transformation**, especially in the pandemic:

- Expanded ability to deploy RTC for various applications e.g. for professional and personal communications, virtual learning, tele-health, entertainment, sports and cloud gaming



# Support digital transformation, get involved in standardization

## ✓ **Standardization gaps**

Identify a potential area of transformation and review existing standards and/or established industry best practices to determine if it can be addressed with existing material

## ✓ **Target user groups**

Identify the industries or user groups facing the identified challenge and outline how they would directly benefit from the new standard

## ✓ **Submit a proposal**

Identify the relevant standards body (or bodies) where the standard should be developed and submit a clear proposal for standardisation following their guidelines

# Getting involved

## ☑ SDOs

**Membership-driven** bodies - bring experts from industry, governments, academia and civil society together to develop standards in response to priorities set by their members.

Avenues for participation vary :

- **Geography** – participation at national or regional level via national/regional standardization bodies.
- **Subject matter** – participation guided by scope (mainly for international SDOs) e.g.:
  - **ISO** covers almost all technical areas
  - **IEC** covers electrical, electronic and related technologies
  - **ITU** covers ICTs

## ☑ Other standard bodies

Avenues for participation vary according to:

- **Membership** – restricted participation or access to standards to invitees or members meeting certain criteria.
- **Subject matter** – specifically develop a single standard, or designed to have a long lifespan and serve a wider technology area

Examples:

- **IETF** covers the Internet Protocol suite (TCP/IP)  
[**free & open to all**]
- **W3C**, develops standards for the WWW  
[**membership at a fee**]

**\*Consult each body for more detailed information**

# Summary

- Digital transformation is a **continuous process**
  - Success is dependent on many factors including **technical standards**.
- Technical standards promote **open innovation, interoperability, quality** and **safety** of technologies used for digital transformation.
- Contributing to **standards development** furthers digital transformation:
  - Shapes standards to **meet specific requirements** and **solve emerging challenges**
  - Provides **a platform to learn industry best practices, exchange lessons learnt and experiences** in implementing new technologies
  - Creates **opportunities for career development and industry growth** through knowledge transfer from global experts

# Call to **action**



## Connect

Explore avenues for participation, join an SDO or other relevant standards setting body

Attend workshops, symposia and other events organized by standards bodies to learn, exchange ideas, share information



## Collaborate

Network and learn from global experts on specific topics of interest

Build valuable partnerships for support in implementing projects and drafting proposals for standardization



## Contribute

Provide insight and comments to ongoing work to enhance the quality of standards developed

Present proposals for new/revised technical standards and take lead roles in their development e.g. as an editor, sub-group chair/leader