April 2024 CCU meeting Report from IEC

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2024-04

Agenda

- Activity since the last CCU meeting
- Digital transformation project

Activity since the last CCU meeting

Activity of direct concern for CCU

- Implementation of the new SI in the IEC and ISO/IEC International Standards

Activities for information

- IEC adopted new statutes with changes in the governance structure
- IEC is working on a global digital transformation project
- IEC developed its System standardization with now 8 systems committees
- Stronger collaboration between IEC and ISO
  - Alignment of the standardization processes
    (more common Directives and less in the specifics supplements of IEC and ISO)
  - Joint Project Committee: JTC 2 Energy efficiency and renewable energy sources
  - Joint Technical Committee: JTC 3 Quantum Technologies
  - Joint standardisation about AI: ISO/IEC JTC 1/SC 42 Artificial Intelligence
  - Joint standardisation evaluation group SEG 15 Metaverse

Implementation of the new SI

Since the adoption of the new SI, IEC TC 25 and ISO TC 12 did update the related ISO/IEC Standard. This led to a global review of the series for alignment and harmonization purpose.

Publication Number	Publication Title	Publication Date
ISO 80000-1:2022 ED2	Quantities and units - Part 1: General	2022-12-06
ISO 80000-2:2019 ED2	Quantities and units - Part 2: Mathematics	2019-08-26
ISO 80000-3:2019 ED2	Quantities and units - Part 3: Space and time	2019-10-22
ISO 80000-4:2019 ED2	Quantities and units - Part 4: Mechanics	2019-08-26
ISO 80000-5:2019 ED2	Quantities and units - Part 5: Thermodynamics	2019-08-26
IEC 80000-6:2022 ED2	Quantities and units –Part 6: Electromagnetism	2022-11-16
ISO 80000-7:2019 ED2	Quantities and units - Part 7: Light and radiation	2019-08-26
ISO 80000-8:2020 ED2	Quantities and units - Part 8: Acoustics	2020-03-04
ISO 80000-9:2019 ED2	Quantities and units - Part 9: Physical chemistry and molecular physics	2019-08-26
ISO 80000-10:2019 ED2	Quantities and units - Part 10: Atomic and nuclear physics	2019-08-26
ISO 80000-11:2019 ED2	Quantities and units - Part 11: Characteristic numbers	2019-10-22
ISO 80000-12:2019 ED2	Quantities and units - Part 12: Condensed matter physics	2019-08-26

IEC new management structure

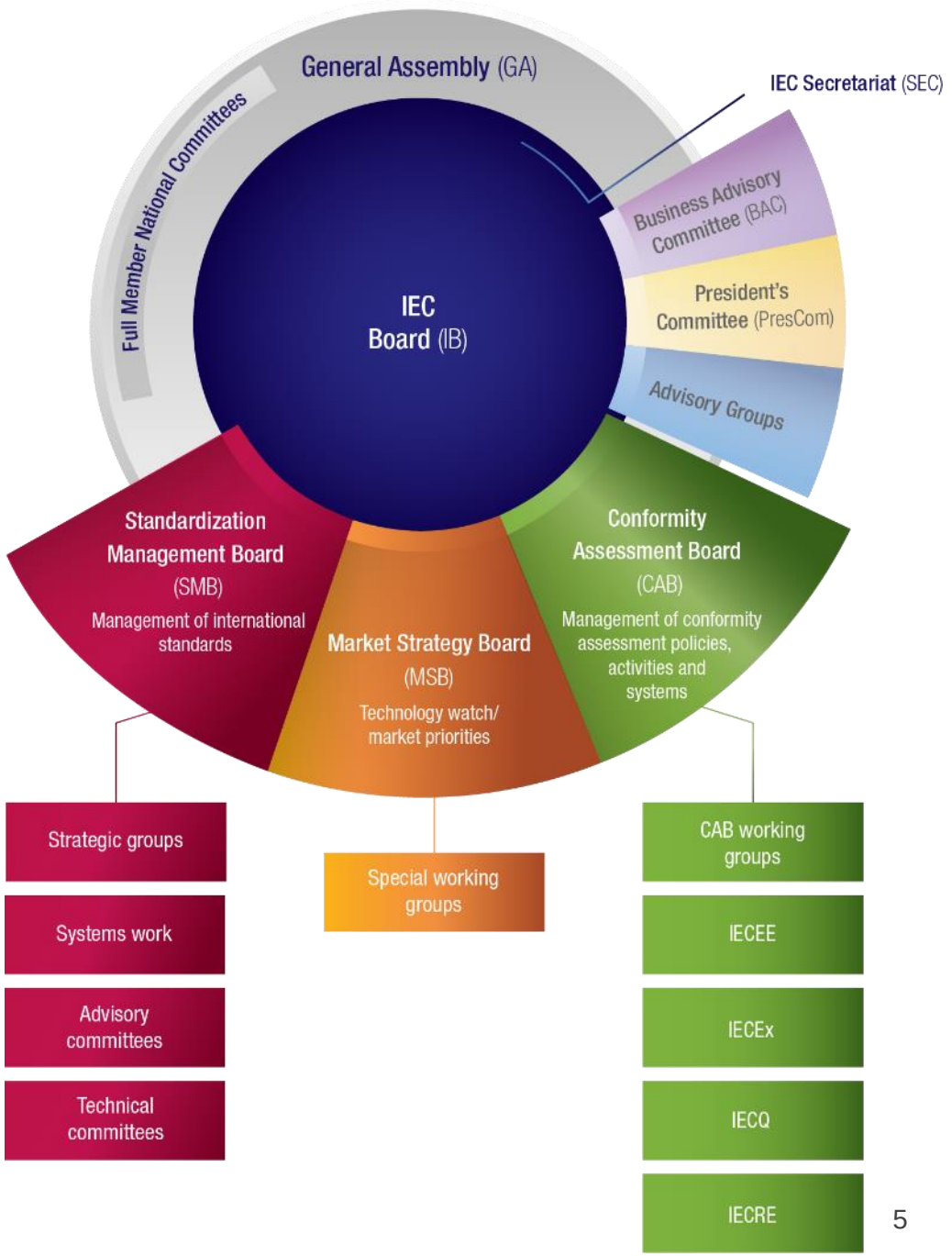
The new management structure is a consequence of the ne IEC Statutes.

The General Assembly is the supreme governing body of the IEC.

Management is delegated to:

- IEC Board
- Conformity Assessment Board
- Market Strategy Board and
- Standardization Management Board

Before	Now
IEC Central Office	IEC Secretariat
Council Board	IEC Board
Council	General Assembly
ExCo	PresCom



IEC Systems committees

SyC AAL	Active Assisted Living
SyC BDC	Bio-digital convergence
SyC COMM	Communication Technologies and Architectures
SyC LVDC	Low Voltage Direct Current and Low Voltage Direct Current for Electricity Access
SyC SET	Sustainable Electrified Transportation
SyC SM	Smart Manufacturing
SyC Smart Cities	Electrotechnical aspects of Smart Cities
SyC Smart Energy	Smart Energy

Agenda

- Activity since the last CCU meeting
- Digital transformation project

IEC Digital Transformation Project

- The project was initiated by the Standardization Management Board which developed a new technical model for SMART Standards.
- This new technical concept for SMART Standards did effectively impact not only the development process but also the business model, the copyrights models, and the global governance of the IEC.
- Thus, IEC initiated a global Digital Transformation Project.
- The project is led in close collaboration with ISO and the mutualisation of IT developments is made through common projects when relevant.

SMART Standards Concept

- Develop common understanding
  Develop a model for discussion and understanding across organizational borders
- Decompose standards into smallest information units
  Increase the flexibility of usage and creation of standards
- Define administration of the smallest information units
  Put together meta-data on interdependencies, references, context, access control, security and copyright
- Create truly digital-SDO organization
  Re-design organization towards the new, evolving business models
- Develop publications in native XML
  Develop a tool to draft standards in native XML, not using Microsoft Word anymore

Standards Information Model

Decompose standards into smallest information units (SIU)

The decomposition into smallest information units will allow flexibility in the creation and the usage of those units.

- **Unit:** The **smallest information unit (SIU)** that enables a certain function or action in application
- **Flexiblity:** Units can be **flexibly combined** according to the application
- **Agility:** Units can be **independently developed, maintained, updated**, sold and used
- **Step-wise development:** The **level of decomposition** can be **flexibly** developed/increased in future (from whole standards to individual sentences)
- **Focus on Service:** The list of functions, capabilities and **services of a SIU** will determine its usage in any application

Standards Information Model and XML

XML based on NISO standards

NISO Class „Definition“
Metadata defines content, context and „location“ in the document

```
<concept concept-id="con-3.1.1">
<entry-label>3.1.1</entry-label>
<lang-set language="en">
<term term-id="ter-soa" term-status="preferred">
<term-name>
<abbreviation reference="abb-soa">SOA</abbreviation>
</term-name>
</term>
<definition>
<paragraph id="p-40">semiconductor optical amplifier
that includes the "<abbreviation reference="abb-
soa">SOA</abbreviation> chip" and the "<abbreviation
reference="abb-soa">SOA</abbreviation>
module"</paragraph>
</definition>
</lang-set>
</concept>
```

Class „Section“
with metadata defining context and „location“

```
<section id="sec-3">
<section-label>3</section-label>
<section-title>Terms, definitions, abbreviated terms and
symbols</section-title>
```

Other objects/instances
Defines relation to other class „definition“ objects

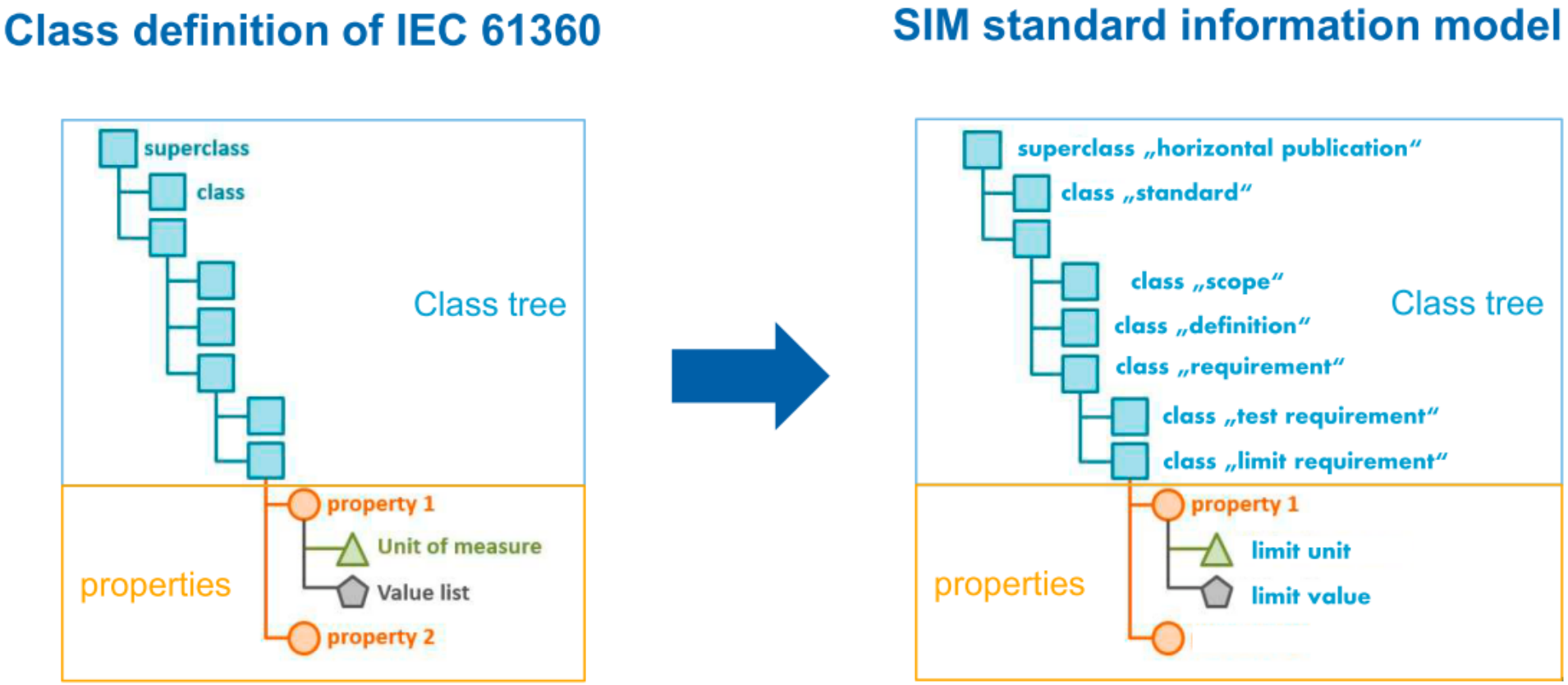
```
<concept concept-id="con-3.1.2">
<entry-label>3.1.2</entry-label>
<lang-set language="en">
<term term-id="ter-soa_chip" term-status="preferred">
<term-name><abbreviation reference="abb-
soa">SOA</abbreviation> chip</term-name>
</term>
<definition>
<paragraph id="p-41">semiconductor chip that is the
active component of the <abbreviation reference="abb-
soa">SOA</abbreviation> module</paragraph>
</definition>
</lang-set>
</concept>
```

Relation to e.g. IEV
Flexible link to related repository of class „definition“

```
<paragraph id="p-35">For the purposes of this document,
the following terms and definitions apply.</paragraph>
<paragraph id="p-36">ISO and IEC maintain terminological
databases for use in standardization at the following
addresses:</paragraph>
<paragraph id="p-37">
….
<paragraph id="p-38">IEC Electropedia: available at
<url>http://www.electropedia.org/</url></paragraph>
```

Standards Information Model Information units classification

Example: Class relations according to CDD etc.



Standards Information Model Information Relations and Ontologies

Example: Class relations according to CDD etc.

Class definition of IEC 61360

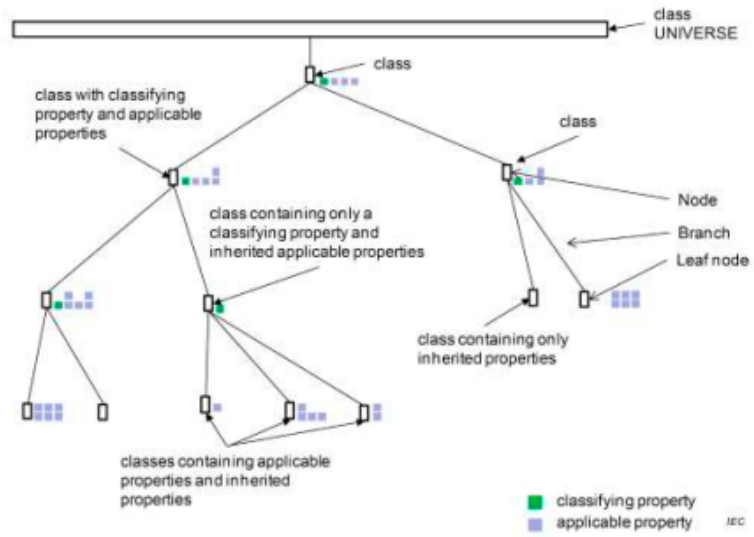
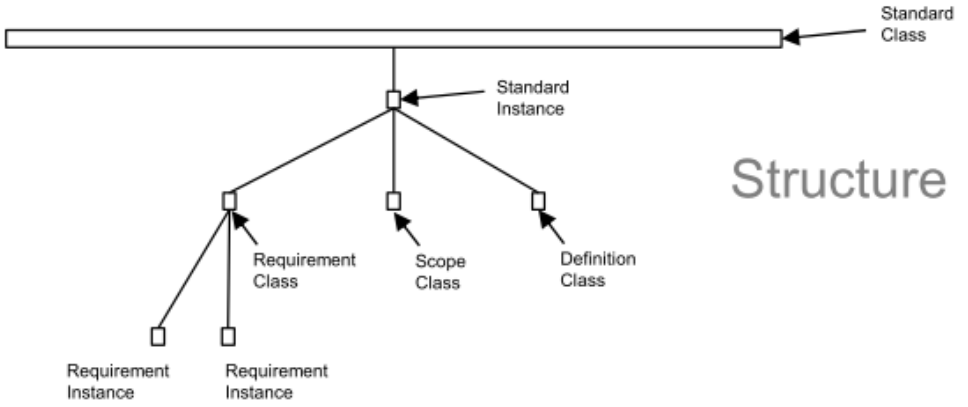
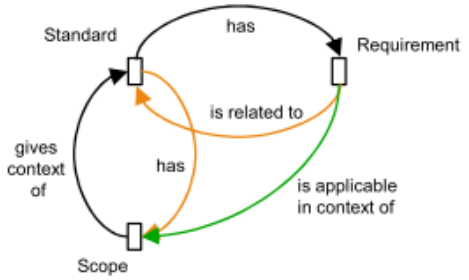


Figure 20 – Classification tree

SIM standard information model



Structure

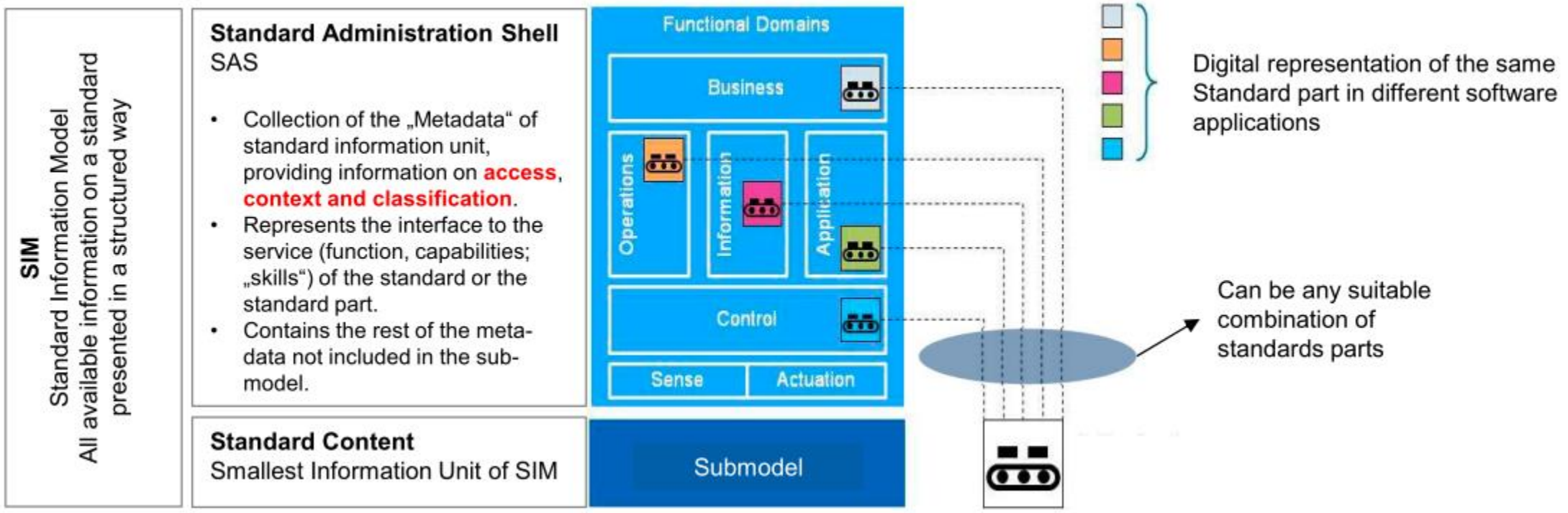


Relations

Ontologies

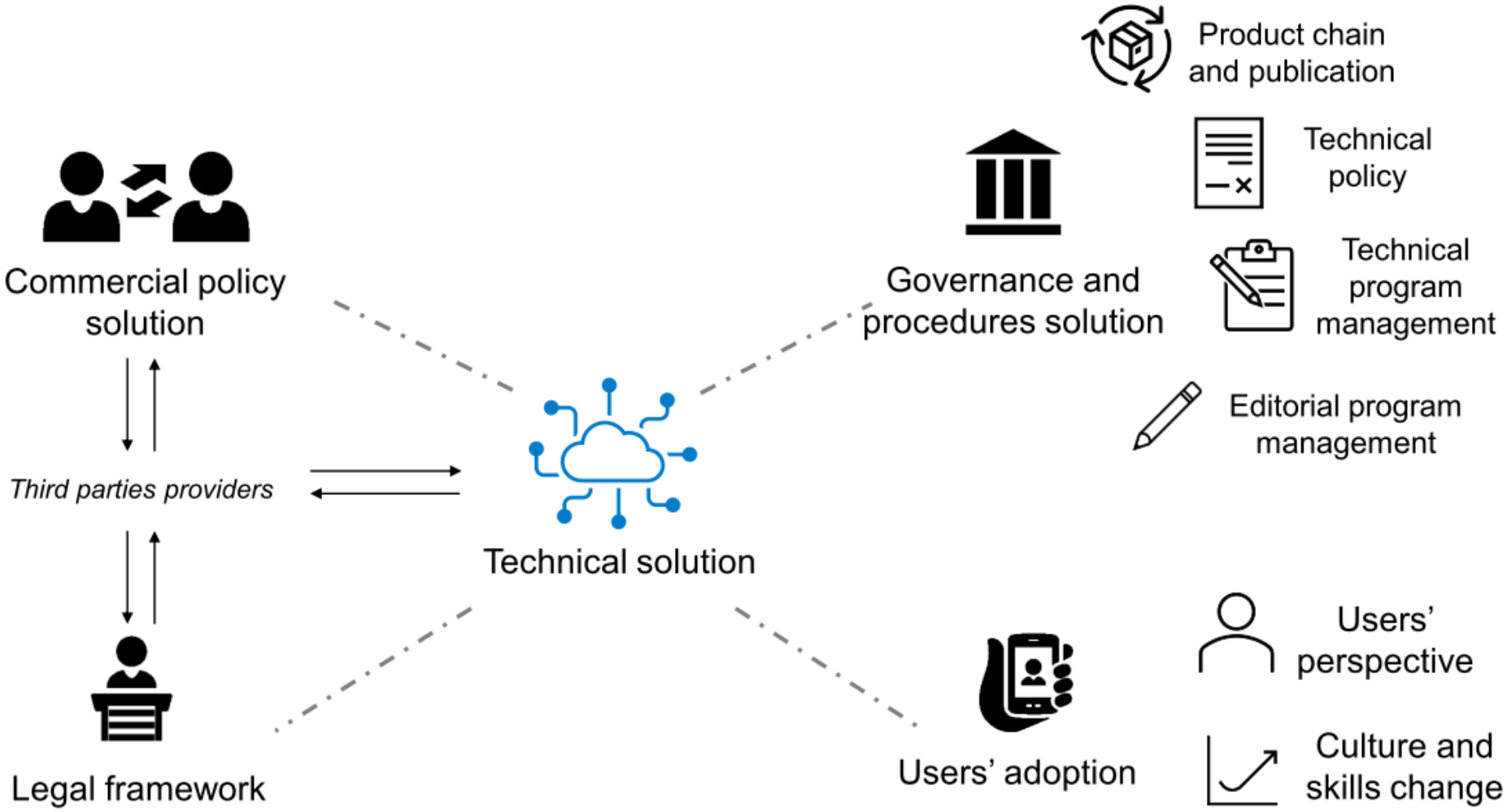
Standards Administration Shell

The Standard Administration Shell provides a standardized concept on how to get access to the capabilities of standards. It is the foundation for Digital Representations of standardization.



IEC Digital transformation project

The technical concept of SMART Standards leads to a global impact on the organization.



Project Progress

- OSD: Online Standards Development platform
  Drafting tool in native XML to replace Microsoft Word
  Partly operational (used by about 50 committees), still being developed
  Next: include artificial intelligence to implement the Standards Information Model
- Standard Information Model
  The concept of SIM is currently tests at the National Committee level with Pilots.
- Market needs
  The need for SMART standards is currently evaluated including the capability of Standards Users to benefit from them.
- More on the IEC web site
  OSD project: Online standards development (iec.ch)
  Digital Transformation project: Digital transformation hub (iec.ch)

Thank you

Pierre Sebellin