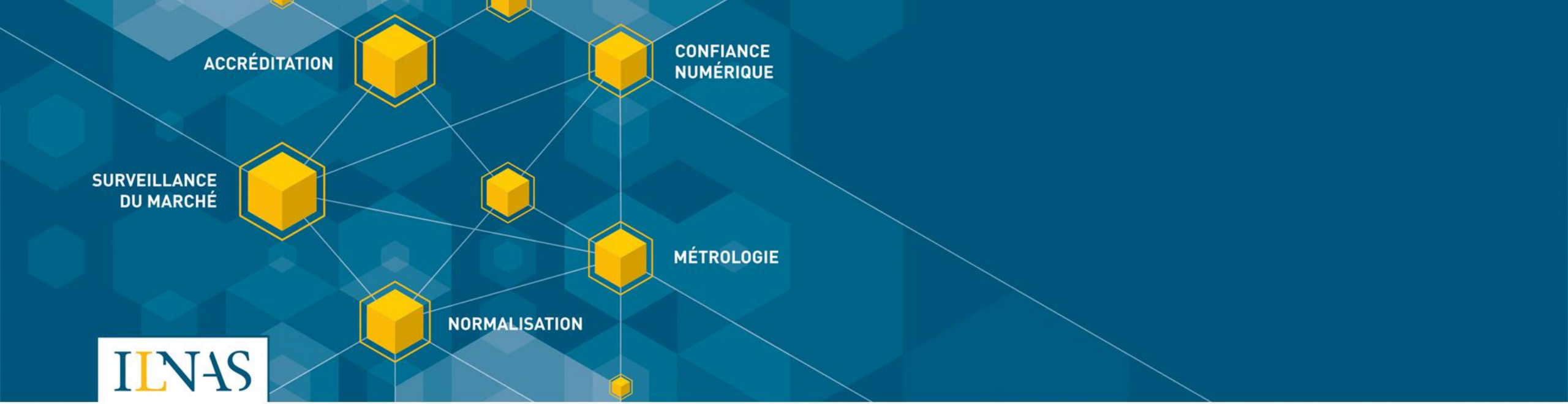
Breakfast event | 27 September 2024

Breakfast Event
« Technical standardization for a Circular Economy »

ILNAS



National standardization strategy 2024-2030 and standardization policies of the “growth” sectors

Breakfast “Technical standardization for a Circular Economy”

27 September 2024

Jérôme Hoerold

Head of department – ILNAS/OLN

AGENDA

I - INTRODUCTION OF ILNAS AND EIG ANEC

II - NATIONAL STANDARDIZATION STRATEGY 2024-2030 & STANDARDIZATION POLICIES OF THE “GROWTH” SECTORS

AGENDA

I - INTRODUCTION OF ILNAS AND EIG ANEC

II - NATIONAL STANDARDIZATION STRATEGY 2024-2030 & STANDARDIZATION POLICIES OF THE “GROWTH” SECTORS

- **ILNAS**
  - Public administration under the authority of the Minister of the Economy, SME, Energy and Tourism
  - Creation: Law of May 20, 2008
  - Legislation in force: amended Law of July 4, 2014 reorganizing ILNAS
  - Total staff: 62 (September 2024)
  - ISO 9001:2015 certification (Budget and administration department, OLN, Digital Trust department, Market surveillance department, BLM, OEC)

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QUALITE · SECURITE · CONFORMITE
UNE INITIATIVE DE L'ILNAS

- **National Standards Body (OLN)**
  - Composed of 8 persons
  - Close collaboration with the E.I.G. ANEC-N

I - INTRODUCTION OF ILNAS AND ANEC EIG

- **Creation:** October 4, 2010
- **Status:** Economic Interest Group (EIG)
- **Objectives:** Promotion, awareness raising and training, applied research in the field of standardization and metrology in order to support companies' competitiveness in Luxembourg
- **Human resources:** 9 persons, including 4 employees in the standardization department (July 2024)
- **Partners:**

GOUVERNEMENT DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Économie

ILNAS

CHAMBRE DES METIERS Luxembourg

CHAMBRE DE COMMERCE LUXEMBOURG

➔ Support for the implementation of the Luxembourg standardization strategy

AGENDA

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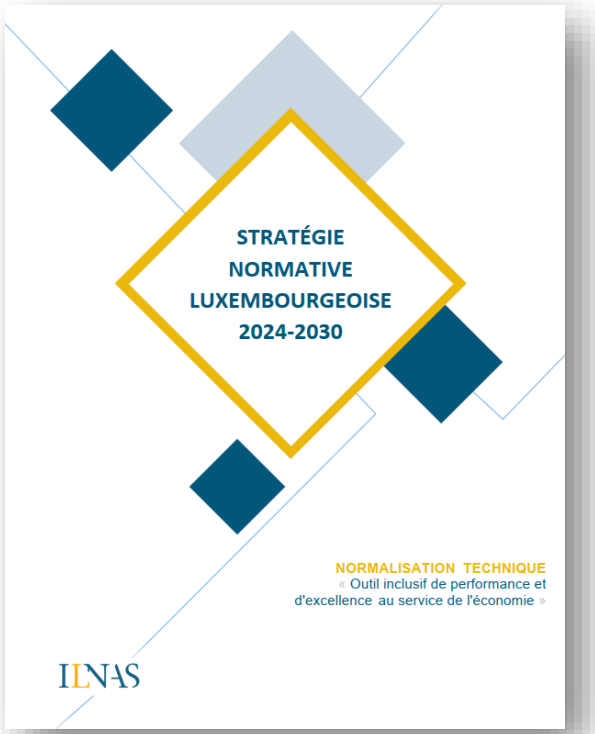
Technical standardization
"Inclusive tool for performance and excellence to serve the economy"



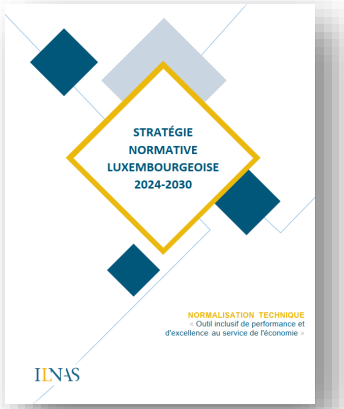
PERFORMANCE

- ❑ **Pillar 1 – Use of relevant technical standards**
- ❑ **Pillar 2 – Involvement in the standardization process**

EXCELLENCE

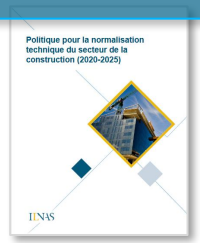
- ❑ **Pillar 3 – Active participation of the NSB in the European and international standardization organizations**
- ❑ **Pillar 4 – Development of research and education about standardization**

II - NATIONAL STANDARDIZATION STRATEGY 2024-2030 & STANDARDIZATION POLICIES OF THE "GROWTH" SECTORS



3 growth sectors identified

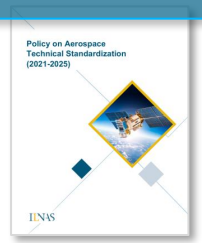
CONSTRUCTION



- Computer Aided Design (CAD)
- Building Information Modelling (BIM)
- 3D printing
- …

INFORMATION AND COMMUNICATION TECHNOLOGIES

AEROSPACE



- Space data processing
- Space traffic management
- Smart Mobility
- …

Identification of trans-sectoral standardization interactions

2024

SUSTAINABILITY

2022

CONFORMITY

II - NATIONAL STANDARDIZATION STRATEGY 2024-2030 & STANDARDIZATION POLICIES OF THE "GROWTH" SECTORS

"Foster and strengthen the national economic sectors involvement in standardization work"

1. Promoting technical standardization to the market
2. Reinforcing the valorization and the involvement regarding technical standardization
3. Supporting and strengthening the Education about Standardization and the related research activities

Policies are based on similar lead projects

II - NATIONAL STANDARDIZATION STRATEGY 2024-2030 & STANDARDIZATION POLICIES OF THE "GROWTH" SECTORS

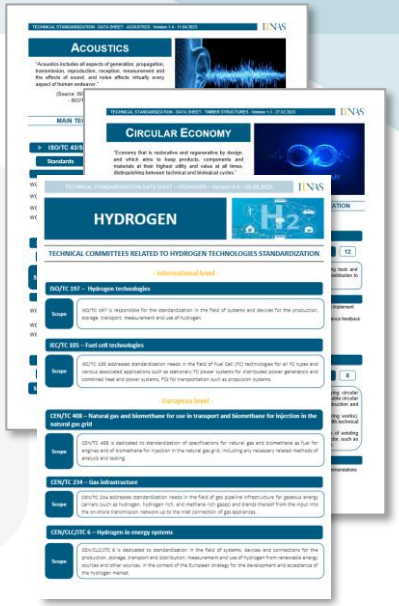
Pillar 1 – Use of relevant technical standards – **Some recent results/developments**

Training catalogue

- 10 trainings/awareness sessions covering the growth sectors
- 3 "general" trainings on standardization

Technical Standardization data sheets

- 9 for the ICT sector
- 7 for the construction sector
- 4 for the sustainability domain



Standards Analyses

- ICT sector (April 2024)
- Construction sector (March 2024)
- Aerospace sector (July 2024)

ILNAS e-shop

2022 → 2023

- +21 % of standards sold
- +108% of licenses sold

→ **2024**: new notification system in the ILNAS e-shop to implement its own standards watch

- 9 reading stations to consult standards for free

2024

→ 317 national delegates in standardization

→ 1.071 registrations in technical committees in total

National Committee ILNAS/TC 108

Telecommunications – Vertical cabling techniques in residential and mixed-use buildings

National Committee ILNAS/TC 109

National standard in the field of geotechnics

National Committee ILNAS/TC 110

National Annex to the standard EN 1916 "Concrete pipes and fittings, unreinforced, steel fibre and reinforced"

INFORMATION AND COMMUNICATION TECHNOLOGIES

93 national delegates

CONSTRUCTION

157 national delegates

AEROSPACE

4 national delegates

CONFORMITY

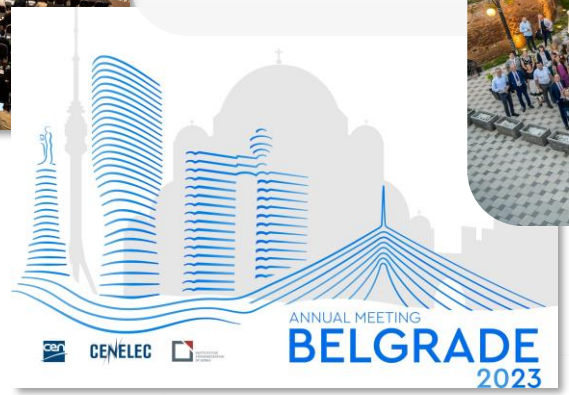
5 national delegates

II - NATIONAL STANDARDIZATION STRATEGY 2024-2030 & STANDARDIZATION POLICIES OF THE "GROWTH" SECTORS

Pillar 3 – Active participation of the NSB in the European and international standardization organizations

Participation in SDOs **General Assemblies** to represent Luxembourg's interests

- ✓ CEN-CENELEC
- ✓ ETSI
- ✓ ISO
- ✓ IEC

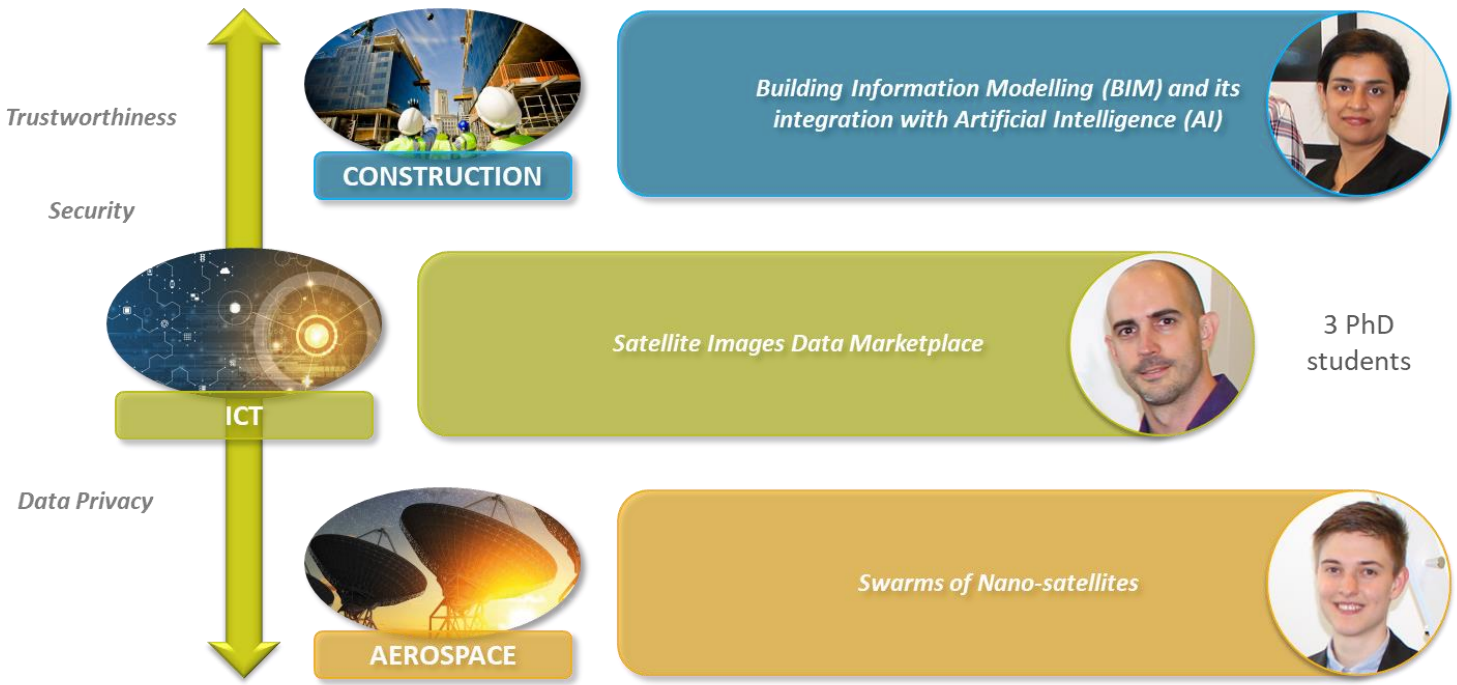


Luxembourg will host the **CEN-CENELEC General Assembly 2025**

Active participation in **strategic technical committees**

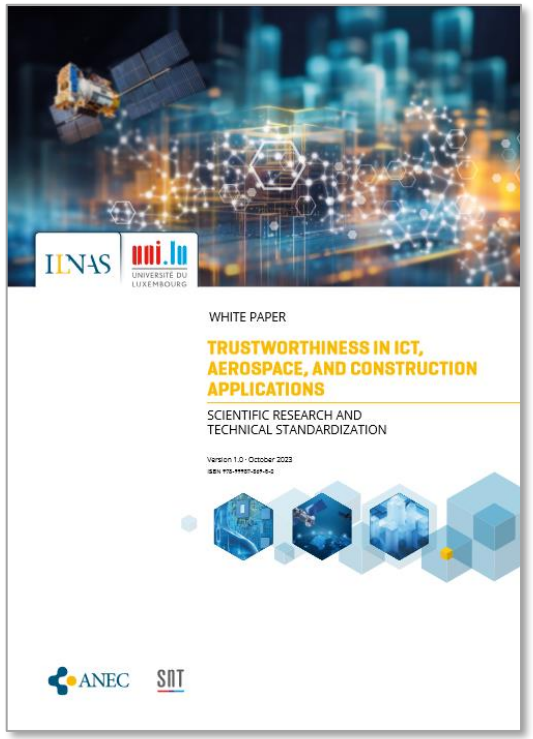
- ✓ National Presidency ISO/IEC JTC 1
- ✓ National Presidency ILNAS/NSC 02 "Conformity"
- ✓ Secretariat ISO/TC 323/WG 5 "Product circularity data sheet"
- ✓ Participation in multiple Technical Committees

Research program "Technical Standardization for Trustworthy ICT, Aerospace, and Construction" (2021-2024) in collaboration with the University of Luxembourg



3 PhD students

1 postdoc



Master MTECH – ILNAS in collaboration with the University of Luxembourg and the Chamber of Employees

PROGRAMME

STANDARDISATION	ECTS
Smart Secure ICT and Innovation	1
Technical Standardisation	3
TOTAL	4

SMART ICT	ECTS
Smart ICT Technologies I	5
Smart ICT Technologies II	5
TOTAL	10

DIGITAL TRUST FOR SMART ICT	ECTS
Security for Smart ICT I	2
Security for Smart ICT II	3
Trust Architectures for Smart ICT	4
TOTAL	9

TECHNOPRENEURSHIP	ECTS
Management of Business and Technical Innovation	3
Digital Intelligence	2
Legal Aspects	2
TOTAL	7

MASTER THESIS	ECTS
Master Thesis	30
TOTAL	30

mtech.uni.lu

- **332 hours** of teaching
- **60 ECTS**
- **Internship** (+/- 750 hours)
- **Next promotion in September 2024**
- **2 years lifelong-learning**
- **11 Modules**
- **10 students**

With the support of: THE GOVERNMENT OF THE GRAND DUCHY OF LUXEMBOURG Ministry of the Economy

CEN CENELEC ETSI

ILNAS

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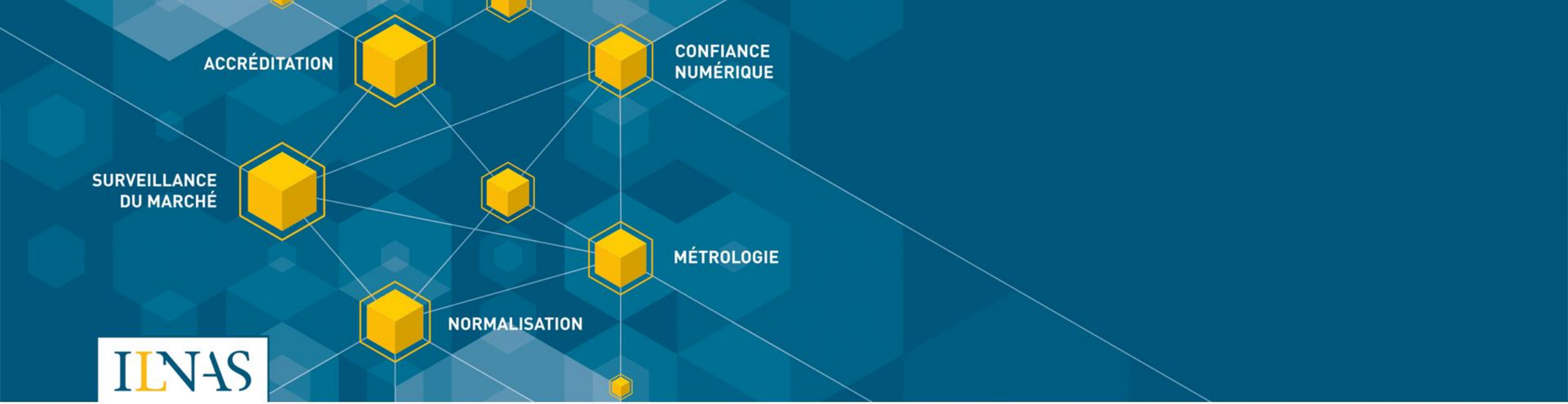

Latest developments at ILNAS in the area of sustainability

Breakfast “Technical standardization for a Circular Economy”

27 September 2024

Lucas Cicero

Project officer – ILNAS/OLN

I. HISTORY

II. NATIONAL STANDARDIZATION POLICY

III. ILNAS' LATEST DEVELOPMENTS

I. History

In July 2023, ILNAS produced an analysis tackling the « *Sustainability and technical standardization* » thematic, addressed across two perspectives:

- Environment **- ICT and sustainability**

By identifying the crossroad between standardization and national strategies, 11 sub-axes are currently developed by ILNAS :

Circular economy	e-Waste	Smart mobility	Renewable energy - Hydrogen
Sustainable construction and renovation	Smart cities	ICT energy efficiency and Green ICT	High performance computing
Air quality	Eco-design, production and materials	Sustainable production and consumption	

60 technical committees currently followed

ILNAS

I. HISTORY

II. NATIONAL STANDARDIZATION POLICY

III. ILNAS' LATEST DEVELOPMENTS

II. National Standardization policy

1 Promoting technical standardization

- Identification of national needs in term of standardization
- Issue the identification of key-standards for each sub-axes
- Dissemination and promotion of normative informative to the stakeholders

2 Reinforcing the valorization of standardization and the involvement of stakeholders in order to support sustainable development goals

- Follow-up of relevant technical committees
- Execute a regulatory watch, related to standardization
- Promote the involvement of national market to the different technical committees and the utilization of identified standards

3 Supporting innovation through standardization, research and education

I. HISTORY

II. NATIONAL STANDARDIZATION POLICY

III. **ILNAS' LATEST DEVELOPMENTS**

1 Promoting technical standardization

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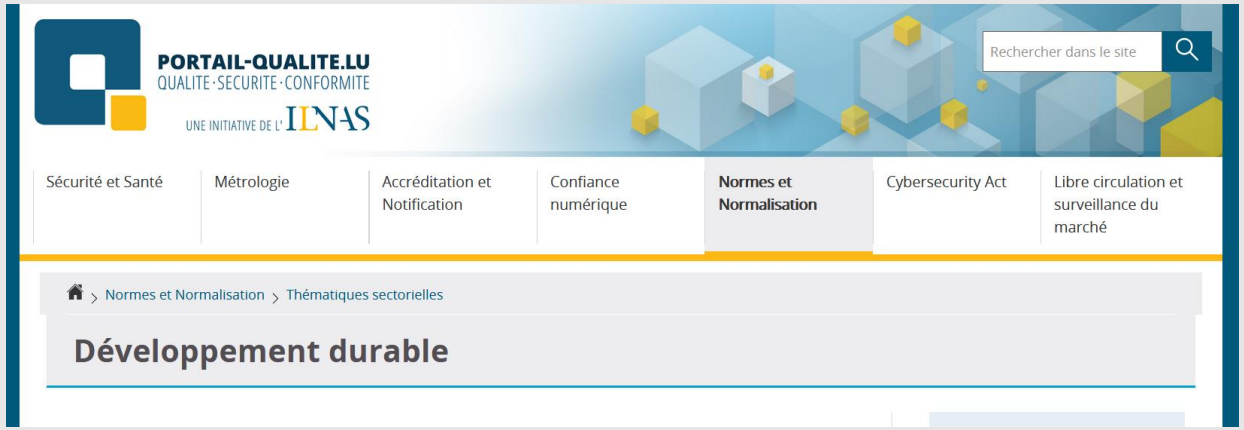
- **Update of ILNAS' website to include sustainability**



1 Promoting technical standardization

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- **Meeting the national actors in the domain of sustainability and identified sub-axes**

  → More than 50 organizations directly contacted

  → Participation to 10 national events

  → **In the future :** contact of governmental organizations

1 Promoting technical standardization

2 Reinforcing the valorization of standardization and the involvement of stakeholders in order to support sustainable development goals

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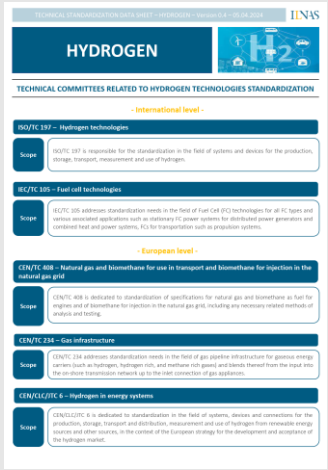
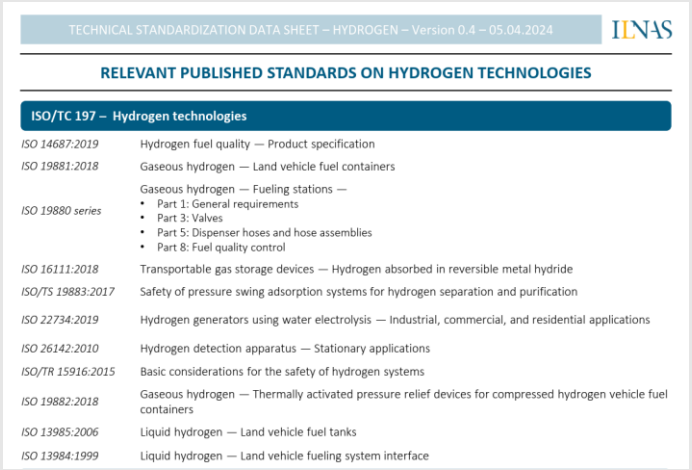
- **Draft of standards packages on specific thematics**

  → Sustainable Construction
  → Circular Economy
  → Hydrogen
  → Sustainable Cities





Currently under development : sale on ILNAS e-shop of standards package with competitive prices

1 Promoting technical standardization

2 Reinforcing the valorization of standardization and the involvement of stakeholders in order to support sustainable development goals

- Identification of national needs in term of standardization
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News and technical reports publication

« ISO et le Programme de Développement des Nations Unies tracent le sillon du développement durable pour les organisations »
25/09/2024

« La normalisation pour s'assurer de la sécurité des installations hydrogène »
28/08/2024

« Villes et collectivités durables : les derniers développements normatifs publiés »
20/06/2024

« Normalisation technique : vers des centres de données durables »
15/04/2024

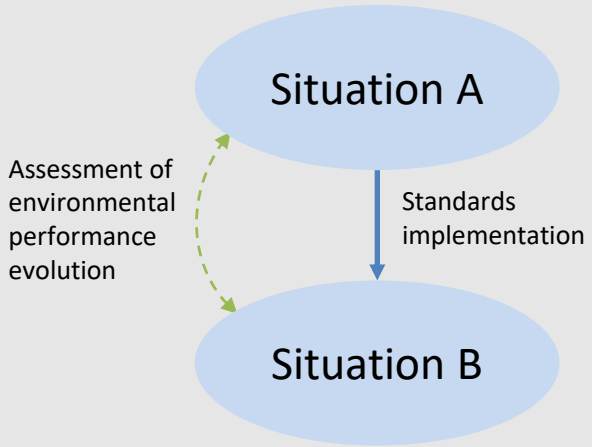
Currently under drafting : technical report which will be published in 2025

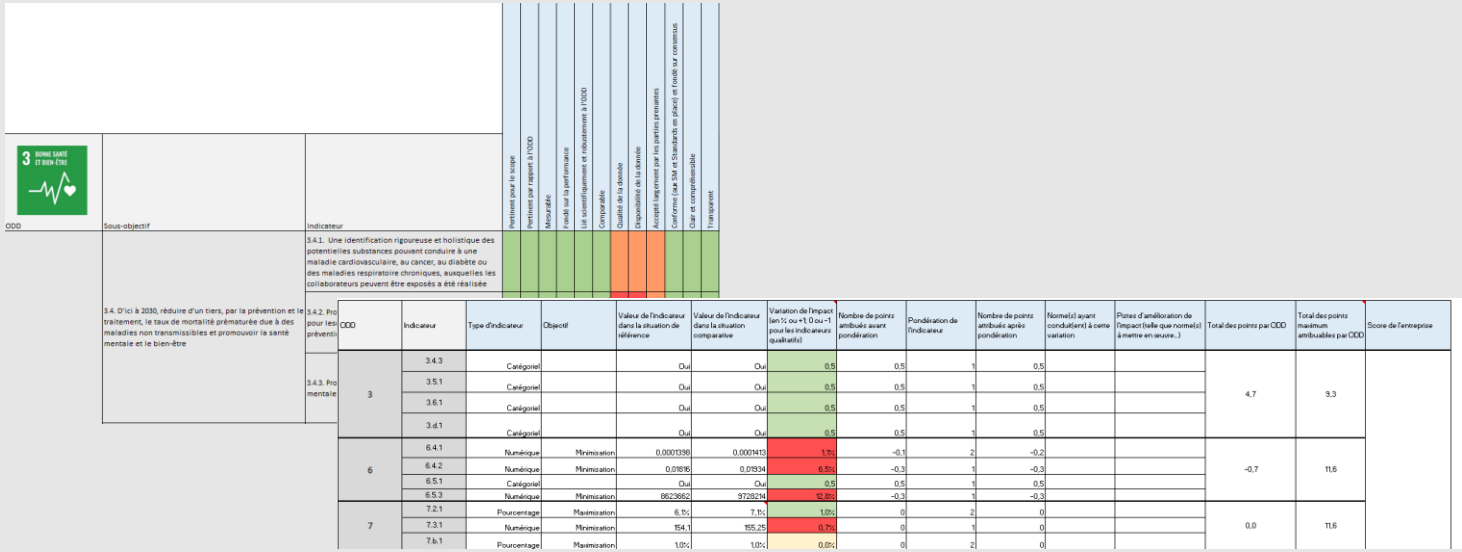
3 Supporting innovation through standardization, research and education

- **Research programme ILNAS/SnT – 2025/2028**
  - Currently under definition
  - Three PhD subjects, each focused on one of the growth sectors and linked with sustainability

3 Supporting innovation through standardization, research and education

- **Internship of Baptiste Bridon (01/06/2024 – 31/08/2024)**
  - → **Subject :** Development of a methodology to assess the environmental impact of standardization inside an organization
  - → Based on SDGs and linked to standards through indicators





ODD	Indicateur	Type d'indicateur	Objectif	Valeur de l'indicateur dans la situation de référence	Valeur de l'indicateur dans la situation comparative	Variation de l'impact (en % ou +1, 0 ou -1 pour les indicateurs qualitatifs)	Nombre de points attribués avant pondération	Pondération de l'indicateur	Nombre de points attribués après pondération	Norme(s) ayant conduit(ent) à cette variation	Pistes d'amélioration de l'impact (telle que norme(s) à mettre en œuvre...)	Total des points par ODD	Total des points maximum attribuables par ODD	Score de l'entreprise
3	3.4.3	Catégoriel		Oui	Oui	0,5	0,5	1	0,5			4,7	9,3	
	3.5.1	Catégoriel		Oui	Oui	0,5	0,5	1	0,5					
	3.6.1	Catégoriel		Oui	Oui	0,5	0,5	1	0,5					
	3.d.1	Catégoriel		Oui	Oui	0,5	0,5	1	0,5					
6	6.4.1	Numérique	Minimisation	0,0001398	0,0001413	1,1%	-0,1	2	-0,2			-0,7	11,6	
	6.4.2	Numérique	Minimisation	0,01816	0,01934	6,5%	-0,3	1	-0,3					
	6.5.1	Catégoriel		Oui	Oui	0,5	0,5	1	0,5					
	6.5.3	Numérique	Minimisation	8623662	3728214	12,8%	-0,3	1	-0,3					
7	7.2.1	Pourcentage	Maximisation	6,1%	7,1%	1,0%	0	2	0			0,0	11,6	
	7.3.1	Numérique	Minimisation	154,1	155,25	0,7%	0	1	0					
	7.b.1	Pourcentage	Maximisation	1,0%	1,0%	0,0%	0	2	0					

This assessment tool is currently under fine tuning to create a dedicated service

3 Supporting innovation through standardization, research and education

- **Trainings and awareness sessions**

→ 2024

Technical standards on Hydrogen technologies

28/11/2024

→ 2025

Stay tuned !

Training catalog under development…

ILNAS

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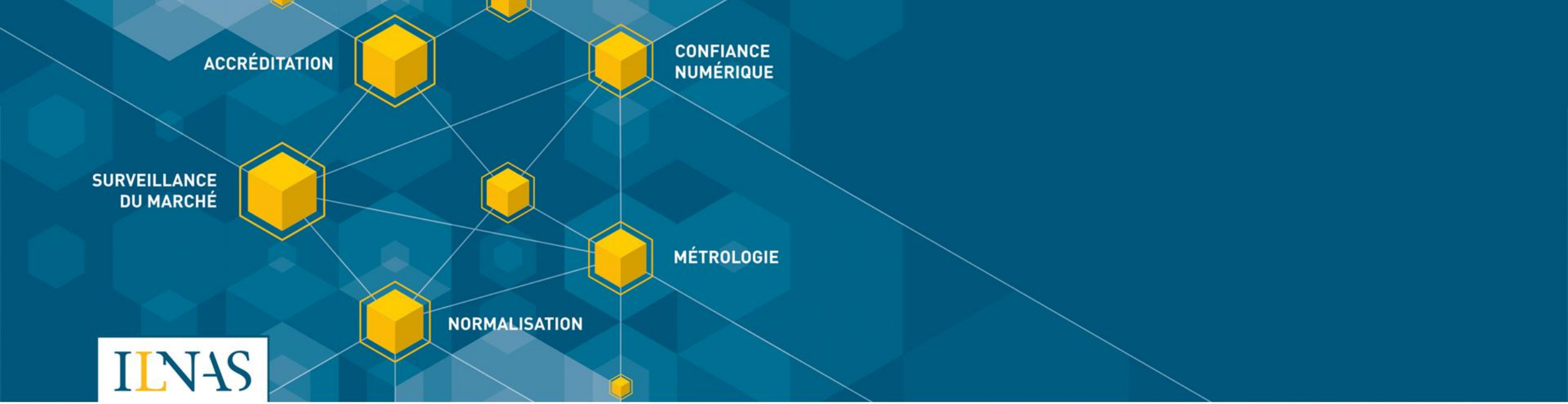


Standardization in the field of circular economy

Breakfast “Technical standardization for a Circular Economy”

27 September 2024

Anika Ley

Project officer – ILNAS/OLN

Overview of Technical Committees

HORIZONTAL COMMITTEES

ISO/TC 323: Circular economy

Scope

ISO/TC 323 deals with standardization in the field of Circular Economy to develop frameworks, guidance, supporting tools and requirements for the implementation of activities of all involved organizations, to maximize the contribution to Sustainable Development.

Standards	3	Projects	1	National delegates	12

CEN/TC 473: Circular economy

Scope

CEN/TC 473 develops horizontal standards that address European specific prerequisites, legislation, and policy in the field of Circular economy. The standards aim to provide guidance, recommendations, requirements, methodologies and tools to implement, support and measure transition towards a Circular Economy at an organizational level. The deliverables aim to complement international and European standardization in the advancement in the transition towards a Circular Economy, while contributing to sustainable development.

Standards	0	Projects	0	National delegates	2

SECTOR-SPECIFIC COMMITTEES

Construction

CEN/TC 350/SC 1 : Circular Economy in the Construction Sector

Standards	0	Projects	0	National delegates	9

Textile

CEN/TC 248/WG 39 : Circular economy for textile products

Standards	0	Projects	1	National delegates	0

…and others

ISO/TC 323
Circular economy

101 participating and observing members and 19 international organizations

ISO 59000 family of standards

A common understanding:
Definitions, principles, actions, business models, value networks, measures, assessment, …, all what is needed to act now!

WG 1

ISO 59004
Circular economy
Vocabulary, principles and guidance for implementation
Published

WG 2

ISO 59010
Circular economy
Guidance on the transition of business models and value networks
Published

WG 3

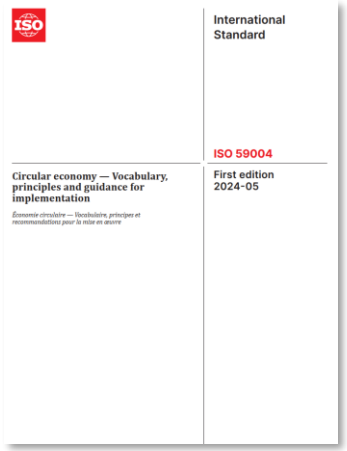
ISO 59020
Circular economy
Measuring and assessing circularity performance
Published

WG 5

ISO 59040
Circular economy
Product Circularity Data Sheet
To be published Q1 2025

Joint ISO/TC 207/SC 5 & ISO/TC 323 WG

ISO 59014
Environmental management and circular economy
Sustainability and traceability of secondary materials recovery
To be published Q4 2024



ISO 59004

Circular economy – Vocabulary, principles and guidance for implementation

WHAT?

First international definition:

"Economic system that uses a systemic approach to maintain a circular flow of resources, by recovering, retaining or adding to their value, while contributing to sustainable development."

- *Resources can be considered concerning both stocks and flows.*
- *The inflow of virgin resources is kept as low as possible, and the circular flow of resources is kept as closed as possible to minimize waste, losses and release from the economic system*

PRINCIPLES that need to be taken into account

Systems thinking with a long-term approach

Value creation to better use resources in an efficient way

Value sharing Collaboration along the value chain or value network

Resource stewardship by closing slowing and narrowing resource flows

Resource traceability Be accountable for sharing information with interested parties…

Ecosystem resilience and contribute to the **regeneration** of **ecosystems** and **biodiversity.**

HOW?

ACTIONS that contribute to a circular economy to be implemented

Recover value

- Reverse logistics
- Cascading of material
- Recycling
- Waste management
- Material recovery
- Energy recovery

Create added value

- Design for circularity
- Circular sourcing
- Circular procurement
- Process optimization
- Industrial, regional or urban symbiosis

Regenerate ecosystems

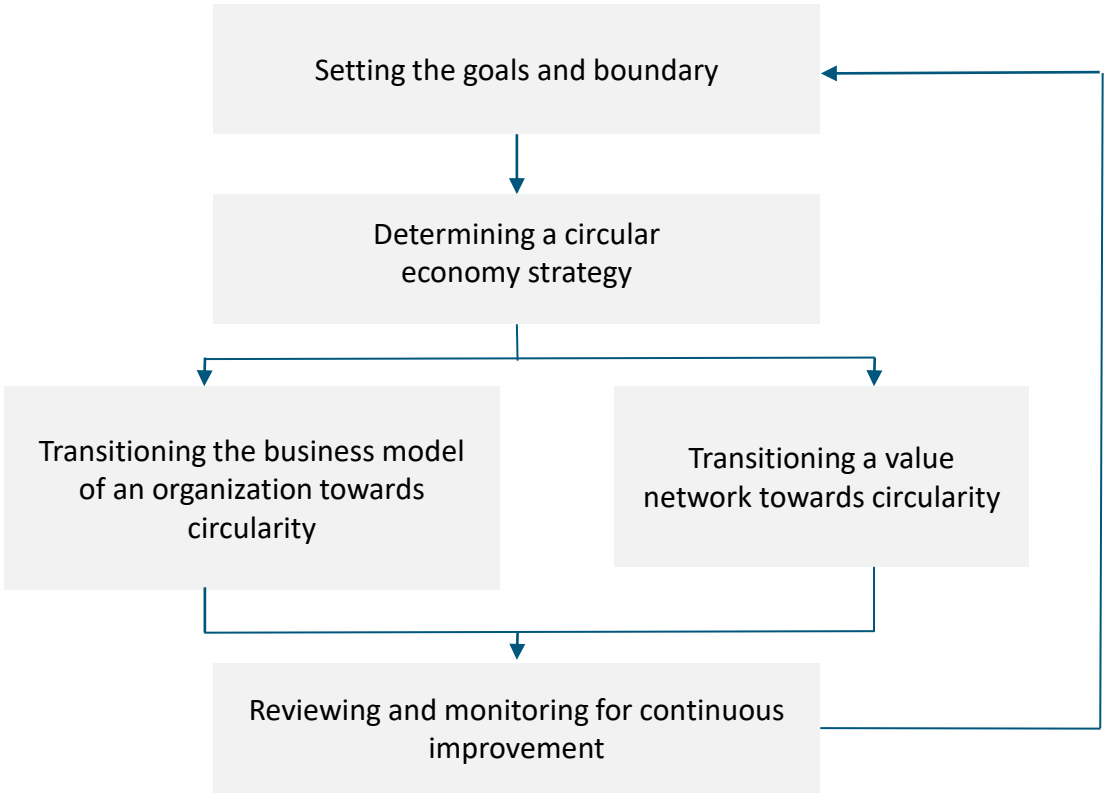
- Removal of harmful substances, remediation of soil and water bodies, mitigation and adaptation to climate change impacts, protection of biodiversity

Retain value

- Reduce, reuse, repurpose
- Maintenance and repair
- Performance-based approaches
- Sharing to intensify use
- Refurbishing
- Remanufacturing

ISO 59010

Circular economy – Guidance on the transition of business models and value networks



- Analyse the **current business models and value networks …**
- … through the **circular economy principles** and actions …
- … to transition to **circular business models.**

ISO 59020

Circular economy – Measuring and assessing circularity performance

- Provides a **structured approach** for organizations to **measure and assess their circularity performance.**
- **A framework applicable to multiple levels of an economic system,** ranging from regional, interorganizational and organizational to the product level.
- Aims to standardize the process by which organizations collect and calculate data, using mandatory and optional **circularity indicators**.

Monitor goals and actions

E.g. reduce, repair, reuse, remanufacture, recycle, …

Measure resource flows

E.g. inflows, outflows, releases, losses, …

Assess sustainability impacts

Social, environmental and economic impact and value

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Circular economy

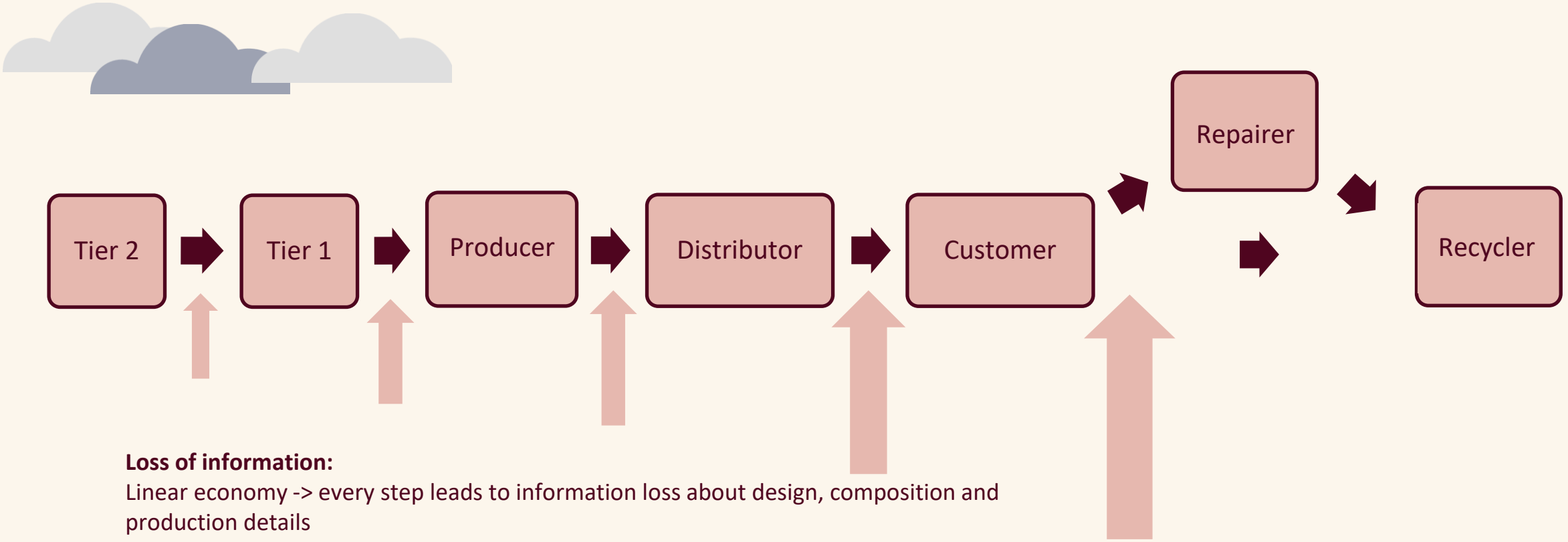
27th September 2024

ISO 59040 - Circular economy Product Circularity Data Sheet

ILNAS - Technical standardization for a Circular Economy

iso.org

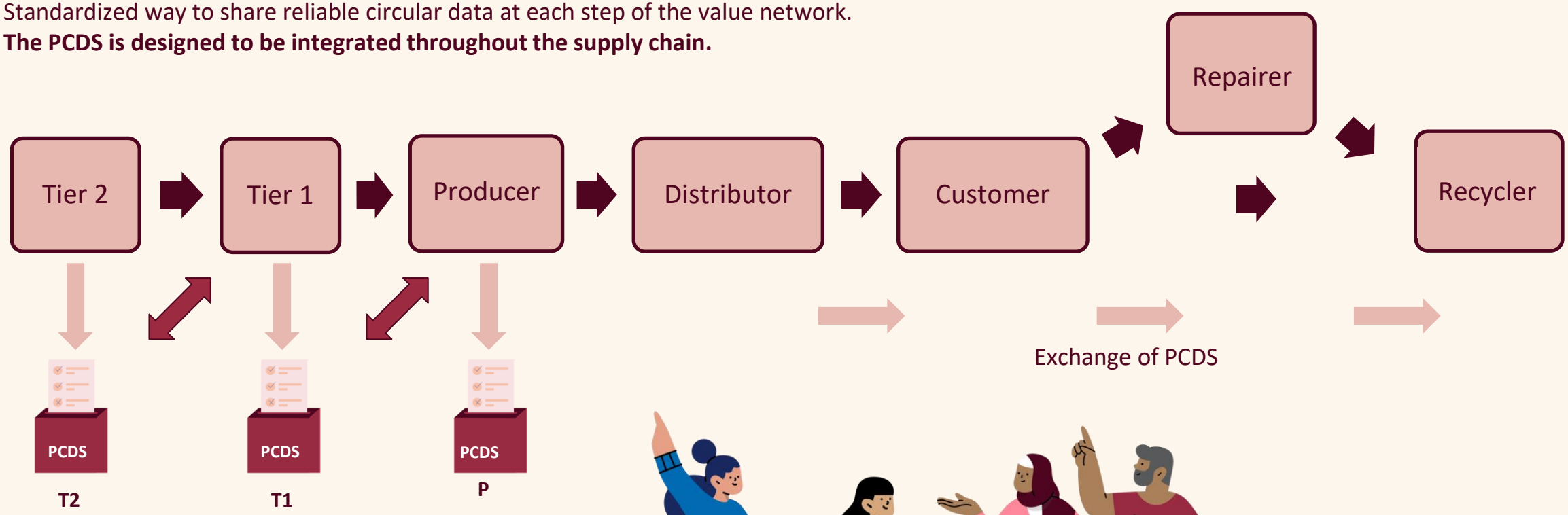
Problem statement: Lack of data, difficulty to access the data



Loss of information:
Linear economy -> every step leads to information loss about design, composition and production details

Solution: Product Circularity Data Sheet

Standardized way to share reliable circular data at each step of the value network.
The PCDS is designed to be integrated throughout the supply chain.



Ease circular economy data exchange

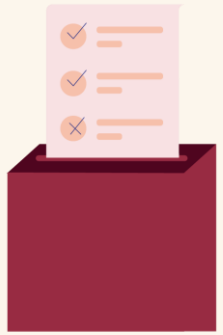
ISO 59040 in a nutshell

- Establishes a general methodology for **information exchange supporting the interoperability of circular economy related information**, based on the use of a product circularity data sheet (PCDS).
- **Specifies requirements** for completing a PCDS by an organization, when acquiring or supplying products in order to permit **the exchange of circular economy related information** about those products.

When establishing a PCDS, acquirer and supplier should consider a relationship strategy, plan and associated agreement to:

General methodology

- Identify circularity aspects for determined products and improve them
- Identify the value network
- Determine responsibilities
- Use of specification data fields
- Use of persistent identifier data fields

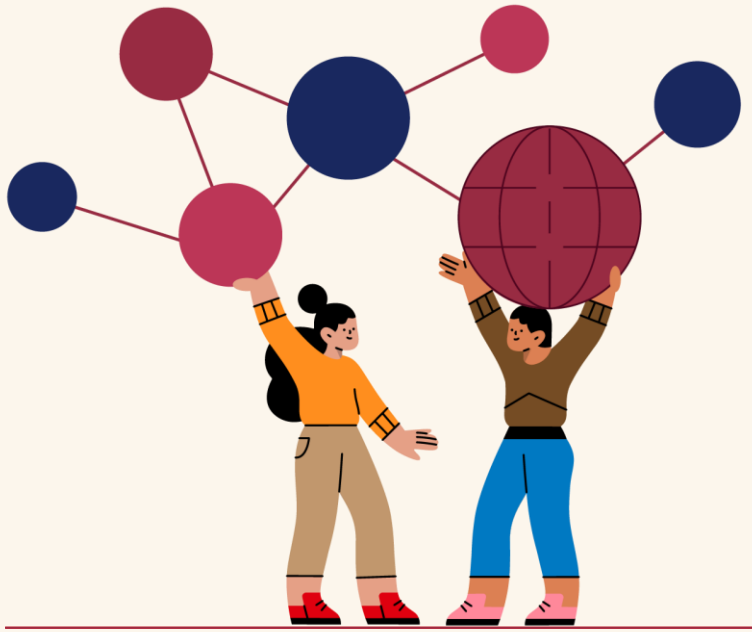


Specific requirements

- Establish and maintain a PCDS Template including mandatory and additional statements:
  - Company and product information,
  - Material inputs,
  - Circular production,
  - Durability and extended lifetime,
  - Circularity at end of product use period,
  - Circularity benefit.

Ease circular economy data exchange

ISO 59040 in a nutshell

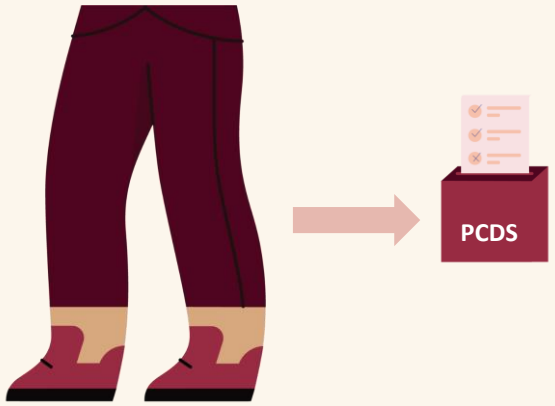


Main considerations and objectives

- Based on True / False (binary) statements
- Protection of confidential business information
- Use of unique ID’s for interoperability across value networks
- Leverage machine readability
- Promotion of bottom-up information flow along with the product
- Mandatory statements applicable to any product regardless of the sector
- Focus is on Business-to-Business
- SME inclusive

Example: What a PCDS contains

Few statement examples of specific requirements
(not exhaustive list)



Material inputs

- The product contains no known hazardous substances according to the relevant cited reference standards or regulations
- The product composition is disclosed at the 100 ppm threshold
- The product contains 0% of reused parts
- The product contains 25-50 % of post-consumer recycled materials (mass fraction out of the total product mass)

Durability and extended lifetime

- Certified third party expert knowledge is required to conduct repairs of the product
- The product can be updated to extend its useful life
- The product is designed with reversible mechanical connectors for physical demounting
- 75-95% of the product is designed to be taken apart from the total product assembly

Circularity at end of product use period

- 0-10% of the product is known to be released into the environment during use
- 25-50% of dismantlable components can be either reused or recycled
- The product is designed for cycling in the technical cycle
- The product is not designed for industrial composting

Integrated view of circularity and sustainable development

A circular economy system should contribute to sustainable development:

The circular economy is strongly related to **SDG 12 Responsible consumption and production**…

…and can also have its roots in **SDG 9 Industry, innovation and infrastructure.**

Thank you

Switch to alternative models to decouple the global economy from the consumption of limited resources…

…Let's implement Circular Economy within our organizations!

For additional information
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To join ISO TC 323 Circular Economy

Contact your national standardization body

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ISO 59040: DEFINITION OF A CERTIFICATION PROGRAMME FOR PRODUCT CIRCULARITY DATA SHEET

INTRODUCTION TO THE WORK OF THE PCDS WORKING GROUP

PRESENTATION OF THE MEMBERS OF THE WORKING GROUP

Ministry of Economy
ILNAS
OLAS

Terra Matters GIE

Luxcontrol
Seco
Vinçotte

ISO 59040 CERTIFICATION PROGRAMME

I. INTRODUCTION

The certification programme has not yet been validated. The presentation below summarises the main points of the current working version.

II. SCOPE OF APPLICATION

The aim of the certification programme is to describe the elements that will enable a competent third-party body to assess the conformity of the product circularity data sheets (PCDS) and their content.

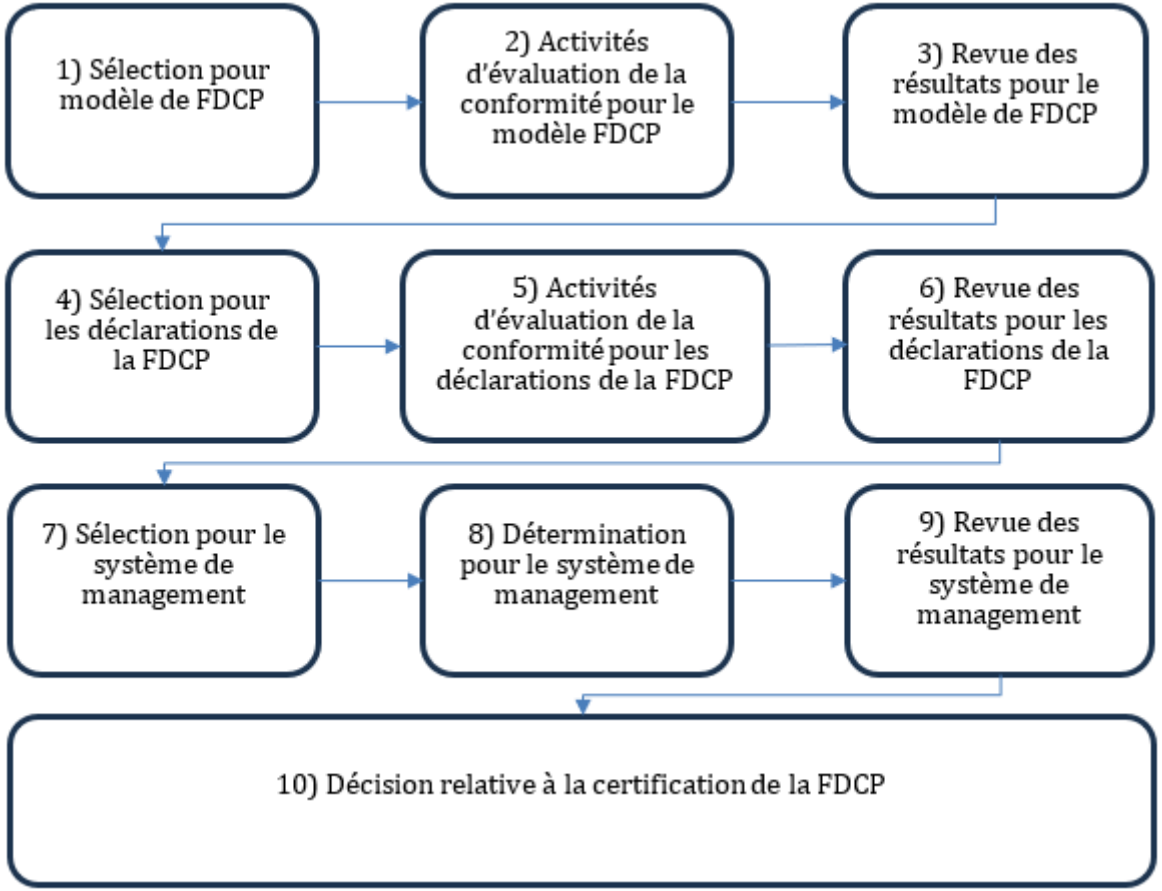
III. ACCREDITATION

Such third-party audits will be carried out by conformity assessment bodies accredited to ISO/IEC 17065 (requirements for bodies certifying products/processes/services) and/or ISO/IEC 17029 (requirements for validation and verification bodies) .

The purpose of this certification programme is to provide the market with confidence, since a competent and impartial third party will have validated the accuracy of the declarations made by the manufacturer in a PCDS.

ISO 59040 CERTIFICATION PROGRAMME

IV. THE CERTIFICATION PROGRAMME FOLLOWS SEVERAL STAGES:



If a non-conformity is raised during stages 3/, 6/ and 9, the process can be stopped.

ISO 59040 CERTIFICATION PROGRAMME

THE WORKING GROUP IS CURRENTLY DEFINING THE CONTENT OF THE FOLLOWING POINTS:

V. ROLES OF THE PARTIES INVOLVED

Description of the roles of the programme owner, certification bodies, accreditation bodies and customers

VI. PCDS MODEL REQUIREMENTS

Specific requirements for the structure and elements of the PCDS model must be met in order to obtain certification.

VII. VALIDATION OF FDCP DECLARATIONS

Verification that the information collected matches the answers provided for each declaration, using tests and documentary checks (on-site or remotely).

ISO 59040 CERTIFICATION PROGRAMME

VIII. GRANTING AND MANAGEMENT OF THE CERTIFICATION LICENCE

The licensing process, including the conditions of use of the certificate and mark of conformity, and measures to be taken in the event of misuse.

IX. MONITORING AND CHANGES

Monitoring activities to ensure the ongoing compliance of certified FDCPs and the management of changes affecting certification

THANK YOU FOR YOUR ATTENTION