IEC YP

Future Lab 2050

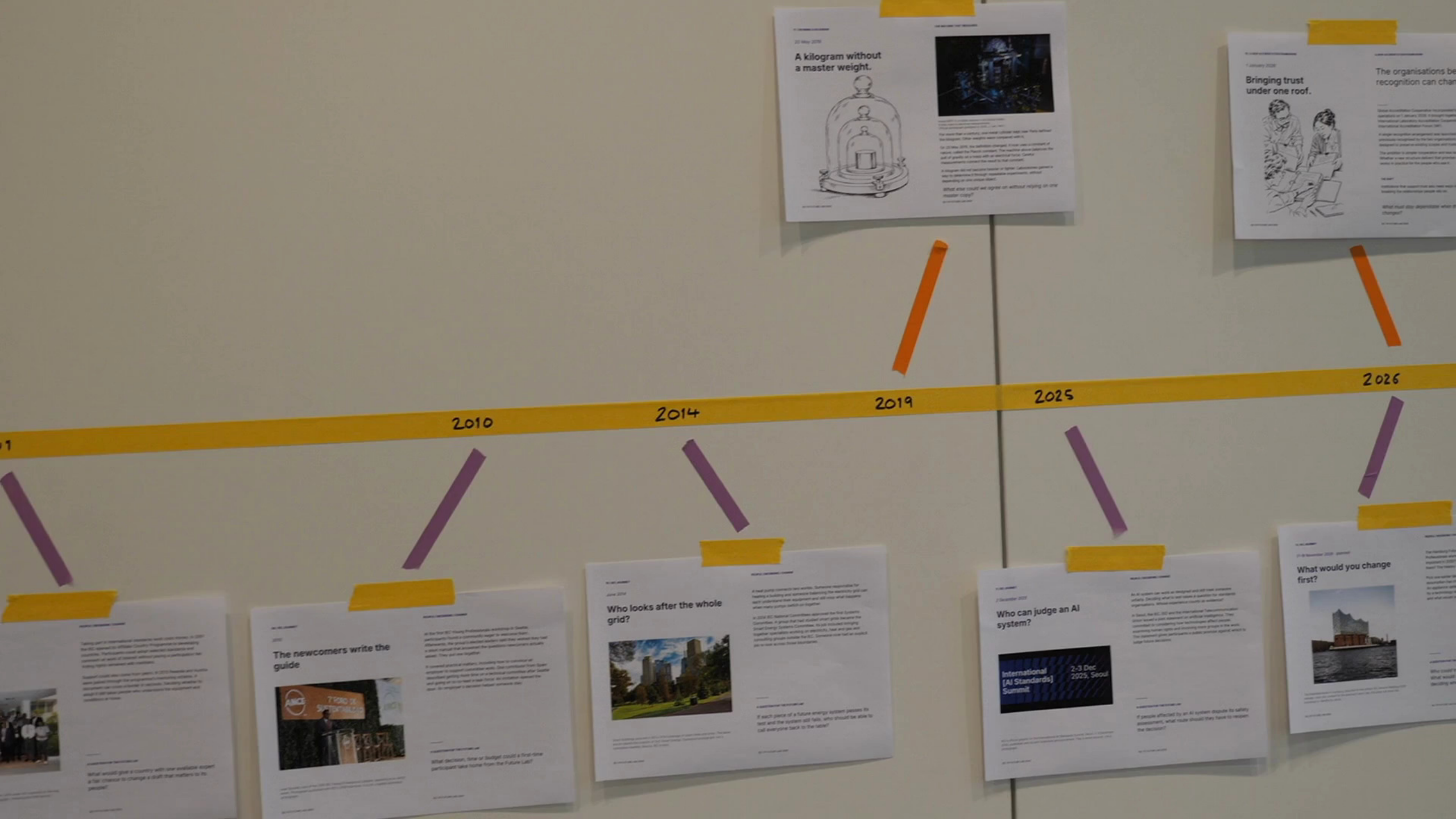
Hamburg · November 2026

Trustworthy

Inclusive

Independent

Progressive


2010
2014
2019
2025
2026
A kilogram without a master weight.
Bringing trust under one roof.
The newcomers write the guide
Who looks after the whole grid?
Who can judge an AI system?
What would you change first?
International [AI Standards] Summit
2-3 Dec 2025, Seoul

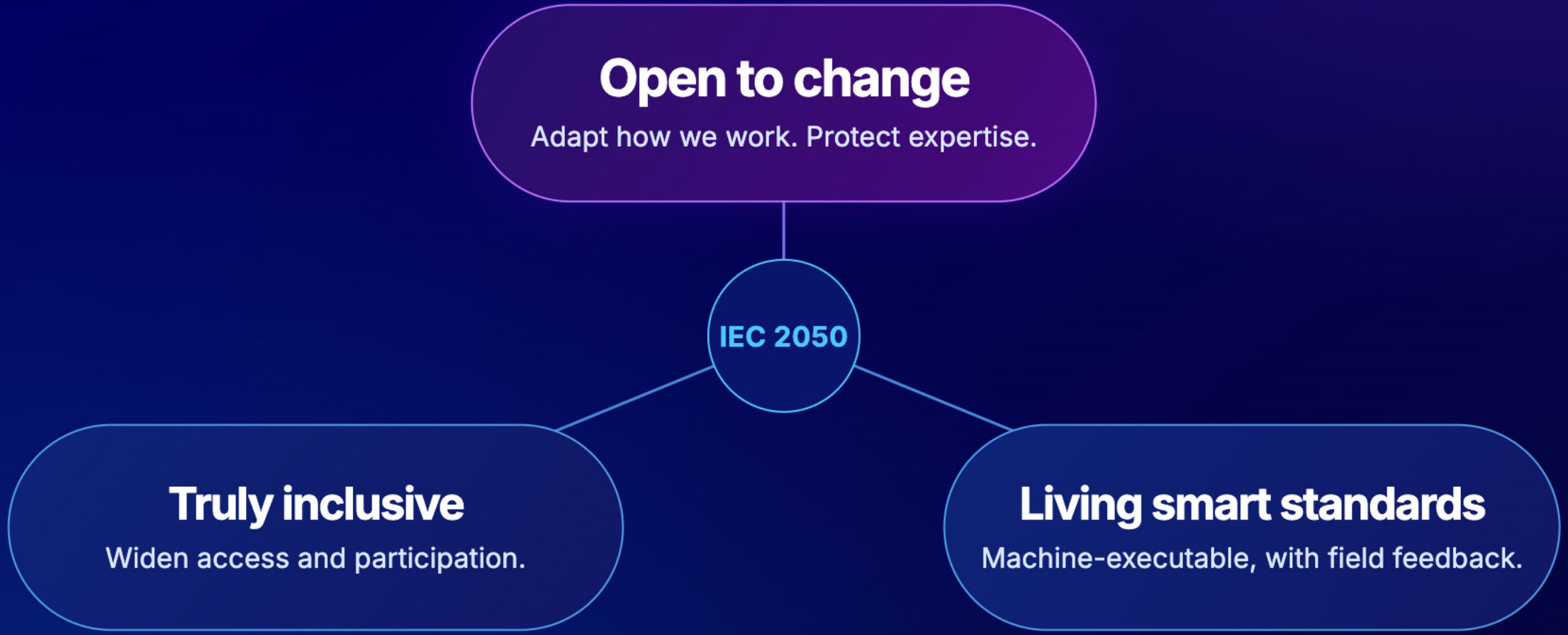
IEC YP Future Lab 2050

Challenges the IEC faces today



IEC YP Future Lab 2050

Three future directions

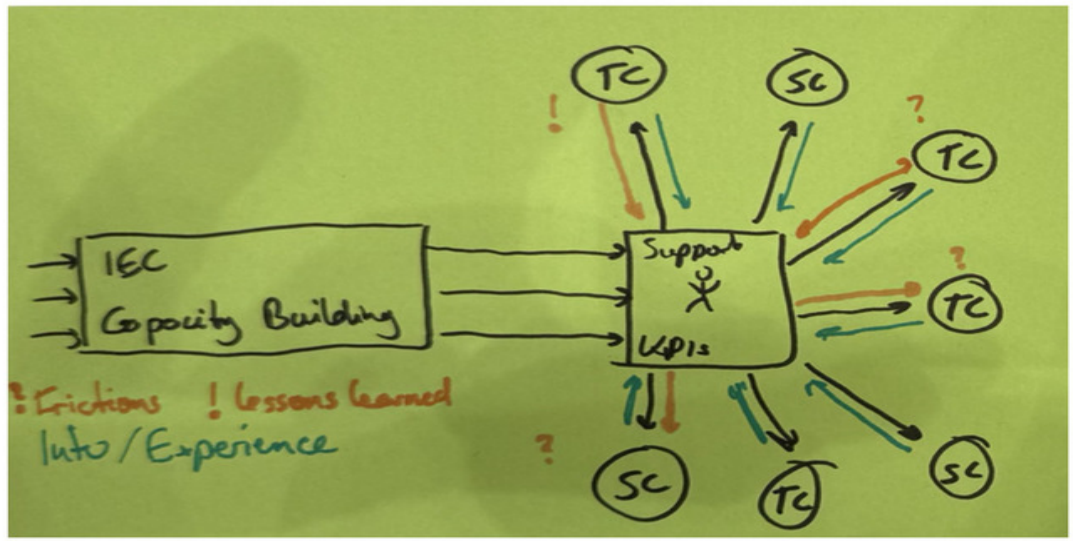


CHANGE



2028

Committee performance support kicks off



The team's sketch shows how peer support connects IEC Capacity Building with committees.

Sources · Future Lab 2026 · Biannual scorecard · Change Infrastructure roadmap · Concept sketch, prototype and interviews

IEC Capacity Building launches a peer support service for technical committees, subcommittees and working groups that need help getting work moving again.

IEC had been tracking organization-wide measures such as publication time and stakeholder diversity. A working group that got stuck still lacked a clear way to ask for help.

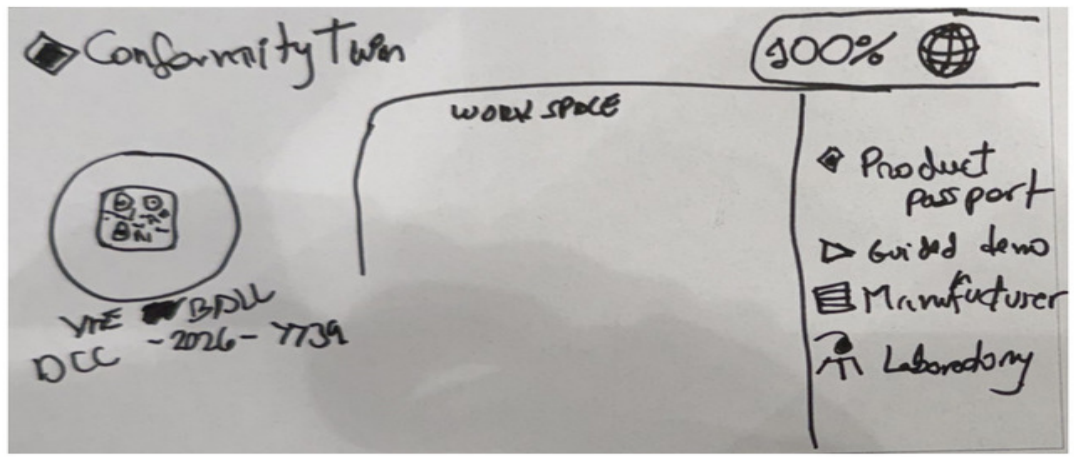
The new service uses scorecards to identify where help is needed. Peer mentors help groups work through problems and share what they learn across IEC. The committee keeps responsibility for its work.

A QUESTION FOR THE FUTURE LAB

How can committees share problems and lessons openly while keeping control of their work?

2028

IEC product database goes live: verification in one scan



The team's Conformity Twin sketch shows the scan and views for different users.

Sources · Team 7A workshop sketch · IEC Verify · IEC Passport · Conformity Assessment Twin · VDE passport reference noted by the team

An inspector on a warehouse floor scans a product to check whether it matches the exact model a laboratory tested.

The check used to take days of cross-checking across separate registries. The new IEC Global Product Database links product identities, test reports and certificates in one record.

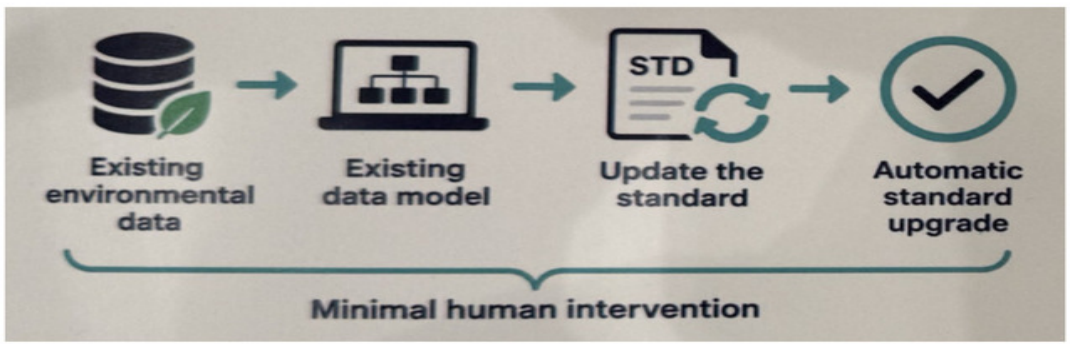
The rollout builds on IEC Verify, IEC Passport and the Conformity Assessment Twin. Inspectors can trace the evidence behind a product's certification, with access governed by their role.

A QUESTION FOR THE FUTURE LAB

Who pays to run the platform, how will IEC know it works, and who controls access?

2031

Field data informs a standard’s environmental requirements



The team’s workflow shows how environmental data could feed a standards update.

Sources · Group 5 Field Feedback Digital Twin prototype · Recording 00024_WPX-D-02 · Team interviews

Weather services and manufacturers combine environmental data and product records to compare how equipment performs across regions.

IEC releases its first international standard whose environmental values draw on digital twin data. The team imagines an automated path from existing environmental data and models to updated values.

The aim is to give manufacturers test conditions that better reflect where their products will be used, so they can design more reliable equipment.

A QUESTION FOR THE FUTURE LAB

How would this approach work for radically new equipment with little or no field data?

2032

Small businesses help shape IEC standards



The team's mockup links small firms with National Committees, IEC experts, the Academy and partners.

Sources · Team 1A Inclusive Participation Platform impact story · Its project report, evaluation and usage figures are part of the scenario

The Inclusive Participation Platform is in full operation. Small businesses can find training, take part in IEC work, share field evidence and see how their input was used.

Between 2026 and 2028, small businesses helped design and test the service with IEC, National Committees, the IEC Academy and industry partners.

From 2029 to 2031, the platform expanded, adding AI assistance, training and a way to submit evidence from products in use. It also connected to existing IEC tools so contributions could reach the people working on standards and conformity assessment.

Illustrative results in the team's scenario

8,000+ SMEs engaged · 4,500+ submissions · 120+ countries or National Committees · 15,000+ training completions · 150+ standards or assessment activities informed

A QUESTION FOR THE FUTURE LAB

How can IEC use evidence from small businesses around the world to anticipate what needs a standard or an assessment method next?

2035

Compliance Companion guides products into new markets



The team's storyboard follows a product from registration and initial checks to a later alert.

Sources · Team 8A Compliance Companion storyboard · Group 7 and Group 1 prototypes

A manufacturer photographs a product to see which regulations, standards and certifications apply in each market.

The Compliance Companion gives each person a practical next step, from planning tests to reviewing evidence or carrying out a market surveillance check.

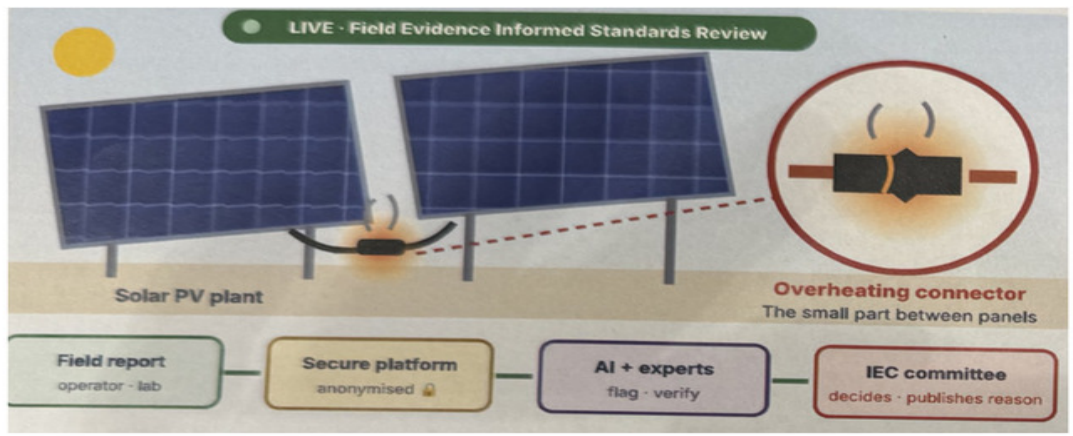
The service keeps watching for changes. When a standard or regulation is updated, it alerts the people responsible and shows which products and checks may be affected.

A QUESTION FOR THE FUTURE LAB

If anyone can photograph a product to check it, what information should consumers be able to see?

2035

IEC launches standards reviews informed by field evidence



The team's illustration traces a solar connector report from the field to the committee.

Sources · Workshop prototype (original Team 03) · PVEL and HelioVolta solar connector safety guide (2022) · Sandia PV Connectors research (2025)

Operators, test labs, manufacturers and installers can report equipment failures to IEC. Technical committees use the reports when they review their standards.

A secure gateway removes identifying details. AI groups related cases, a digital twin helps test possible causes, and technical experts verify the findings. The committee decides whether to investigate, propose a revision or close the case, and publishes its reasons.

In the team's example, connectors overheat at solar plants in three countries. Experts trace most failures to installation. The IEC committee investigates and sends its findings to the bodies responsible for installation codes.

What made it possible in the scenario

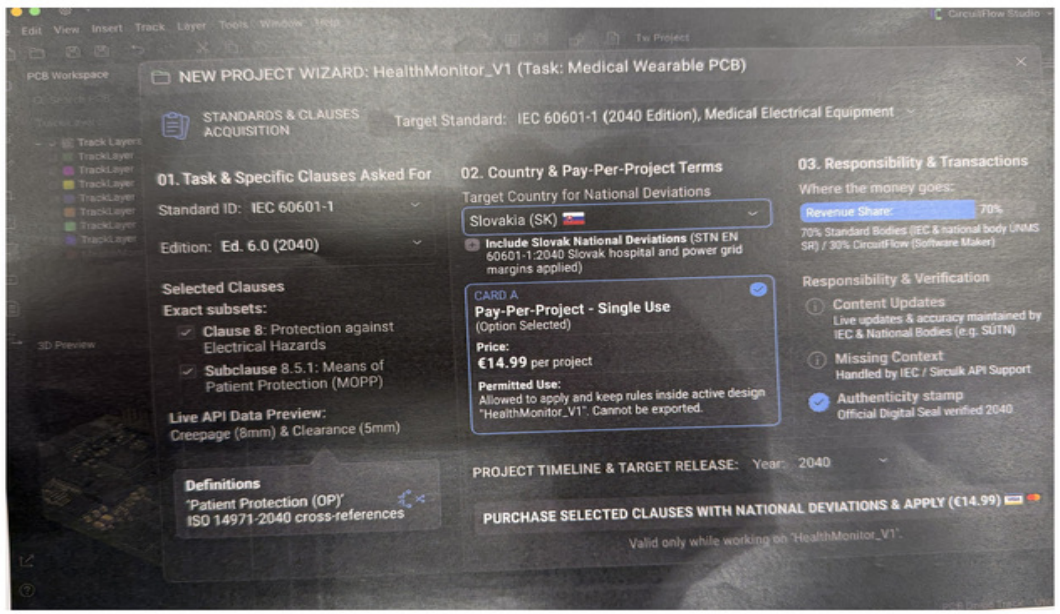
Countries agreed to share evidence. AI findings required expert sign-off. Verified contributors, equipment reporting and product passports made cases traceable. A workshop note suggests this could support wider use of digital twins by 2045.

A QUESTION FOR THE FUTURE LAB

How fast should a standard change when evidence arrives continuously, and who decides when there is enough?

2040

IEC issues its first licence for individual standards clauses



The team's fictional purchase screen shows the licence, national differences and revenue split.

Sources · Team 6A timeline worksheet · CircuitFlow Studio workshop mockup

An engineering software provider licenses the clauses its users need. Engineers get the text, edition, definitions and cross-references inside their design tool.

A licensing board sets terms and shares fees with IEC and its committees. A committee keeps the clauses linked to the context engineers need, and a help desk handles complaints.

The team's example shows a project licence for a medical wearable design, with national differences included and a fee shown before purchase.

A QUESTION FOR THE FUTURE LAB

Who is accountable if the tool displays a clause correctly but the engineer misuses it?