

Enabling digital product passports with TCS Intelligent Urban Exchange™: Driving sustainability and compliance



As sustainability regulations tighten across Europe, enterprises are facing growing pressure to ensure product traceability, transparency, and compliance throughout their lifecycle. The EU Battery Regulation (2023/1542) mandates a Digital Battery Passport for traceability, covering both industrial and electric vehicle batteries, which requires detailed data on composition, carbon footprint, sourcing, and end-of-life handling.

Challenges include:

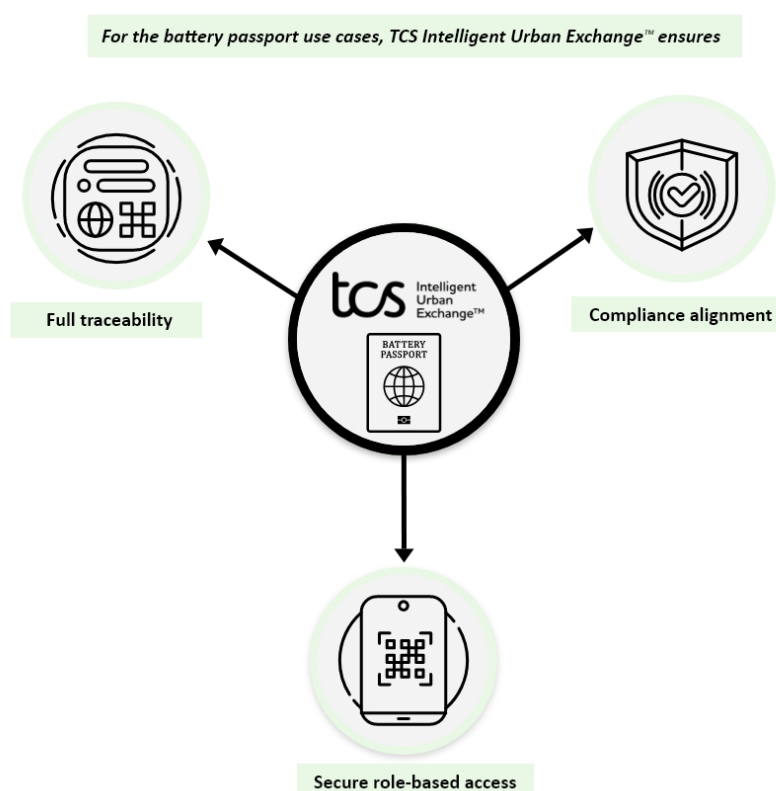
- Managing complex, multi-tier supply chains.
- Ensuring data interoperability across diverse systems.
- Maintaining secure, real-time updates throughout the product lifecycle.
- Meeting stringent EU governance and cybersecurity standards.

Digital Product Passports (DPPs) are currently known for ensuring battery traceability, but TCS anticipates their adoption will soon expand. This approach will bring traceability to everyday products, such as laptops, mobile phones, and white goods, which is why we use the term "Digital Product Passport" to encompass today's battery regulations and a broader range of future applications.

TCS Intelligent Urban Exchange™ (IUX) for sustainability is a ready-to-deploy, modular, and scalable platform designed to help enterprises create Digital Product Passports (DPP) that comply with global sustainability regulations. Built on a cloud-agnostic, standards-compliant architecture, IUX enables organizations to capture, manage, and share product lifecycle data securely and efficiently, even at the

How IUX helps enterprises

IUX acts as the digital sustainability backbone, ingesting and integrating data from multiple sources—manufacturing systems, suppliers, and regulatory platforms—into a single, interoperable ecosystem. For the Battery Passport use case, IUX ensures:



- Full traceability from raw material sourcing to recycling.
- Compliance alignment with EU Battery Regulation and DPP frameworks.
- Secure, role-based access and GDPR-compliant data handling.
- Future readiness for evolving regulations and voluntary disclosures.

Key features

- **Standards-based compliance:** Supports EU Battery Regulation, DIN DKE SPEC 99100, JSON/XML/CSV formats.
- **Dual traceability system:** Raw material to product and product to raw material for different stakeholders.
- **QR code integration:** Unique identifiers for each product unit, enabling easy access to passport data.
- **Advanced data management:** Metadata capture, validation, and audit trails for complete transparency.
- **Interoperability:** Seamless integration with OEM systems, EU governance platforms, and third-party partners.
- **Scalable architecture:** Flexible integration architecture supports bulk uploads and real-time updates across global operations to the data integration point.
- **Analytics and reporting:** Lifecycle insights, compliance dashboards, and export logs.
- **Role-based access:** Provision of data access according to different roles within your organization.

Outcome

- **Regulatory readiness:** Stay ahead of EU and global sustainability mandates.
- **Enhanced transparency:** Build trust with customers, regulators, and stakeholders.
- **Material traceability:** Meeting the circularity goals of an organization.
- **Risk mitigation:** Ensure data integrity, security, and auditability.
- **Future-proofing:** Adapt quickly to new regulations and sustainability initiatives, capable of adapting to evolving regulations, technologies, and market demands.

As Europe accelerates its Green Deal and Circular Economy Action Plan, Digital Product Passports are becoming a cornerstone of sustainable business. IUX empowers enterprises to lead this transformation, delivering compliance, transparency, and competitive advantage in a rapidly evolving regulatory landscape.

About TCS Intelligent Urban Exchange™ for sustainability

TCS Intelligent Urban Exchange™ (IUX) for sustainability is a robust, multifaceted sustainability solution that empowers organizations to achieve emissions reduction, cost savings, and resource conservation, while advancing corporate environmental stewardship, compliance/reporting, and social responsibility.

IUX helps organizations reduce IT-related emissions, provides region-specific strategies for data centers and tracks workplace emissions by department and persona. It measures the carbon footprint of hardware, software, and supporting infrastructure. Additionally, monitors and reports emissions from cloud operations, enabling more informed and sustainable IT management.

TCS Intelligent Urban Exchange™ for sustainability also features solutions for:

- **GHG Accounting:** Scope 1 / 2 / 3, Life cycle assessment, decarbonization management
- **Supply Chain Sustainability:** Green procurement, compliance, risk management
- **Climate Risk Management:** Physical risk, transition risk, reputational risk
- **Circular Economy Enablement:** Product eco design, digital product/battery passport
- **Green IT:** Optimize IT sustainability and reduce emissions, with precise IT carbon footprint tracking
- **Sustainability Data aggregation and disclosure management:** GRI, CSRD (ESRS), BRSR, etc.

Awards and accolades



Contact

Visit the <https://www.tcs.com/what-we-do/products-platforms/tcs-intelligent-urban-exchange> page on <https://www.tcs.com>

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About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services (TCS) (BSE: 532540, NSE: TCS) is a digital transformation and technology partner of choice for industry-leading organizations worldwide. Since its inception in 1968, TCS has upheld the highest standards of innovation, engineering excellence and customer service.

Rooted in the heritage of the Tata Group, TCS is focused on creating long term value for its clients, its investors, its employees, and the community at large. With a highly skilled workforce of over 607,000 consultants in 55 countries and 180 service delivery centres across the world, the company has been recognized as a top employer in six continents. With the ability to rapidly apply and scale new technologies, the company has built long term partnerships with its clients – helping them emerge as perpetually adaptive enterprises. Many of these relationships have endured into decades and navigated every technology cycle, from mainframes in the 1970s to Artificial Intelligence today.

TCS sponsors 14 of the world's most prestigious marathons and endurance events, including the TCS New York City Marathon, TCS London Marathon and TCS Sydney Marathon with a focus on promoting health, sustainability, and community empowerment. TCS generated consolidated revenues of US \$30 billion in the fiscal year ended March 31, 2025. For more information, visit www.tcs.com

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