



## Partner Use Case

# Building trust in IoT with auditable sensor data and data governance



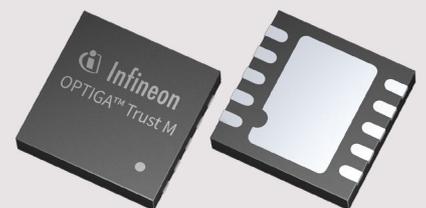
Tributech is a European DeepTech-Startup providing a data audit & sharing technology, enabling trustworthy data across companies. It enables organizations to secure and share IoT data cross-company or cross-platform in a selective, auditable way while maintaining data sovereignty. The included blockchain technology protects the data from being manipulated or corrupted.

Tributech offers its technology & services worldwide to OEMs and enterprises within the manufacturing & automotive industry. The international team is based in Linz, Vienna and Innsbruck.



## Products

### OPTIGA™ Trust M





## Use case

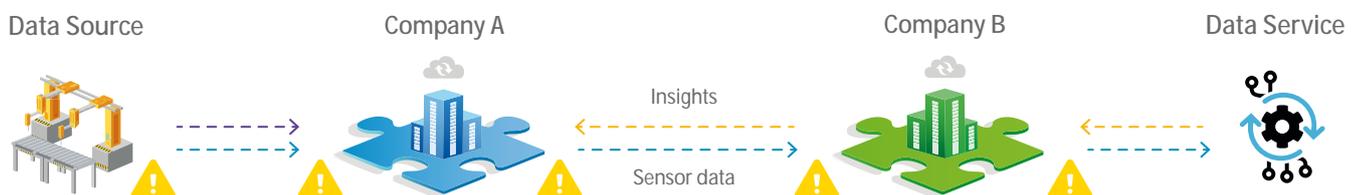
### Application context and security requirement

Due to the increasing number of interconnected value chains between companies, trends such as Industry 4.0 and the Internet of Things (IoT), a growing number of so-called data-driven business models and services are emerging and require data from third-party systems.

Because of this increasing number of data-driven models and services, companies must redefine their risk- and quality management where data integrity is a critical prerequisite. Especially new service-based models, like equipment as a service or predictive maintenance, require data that crosses system borders. Any system failure or data sabotage between the source and the consumer should be detected without caring about the intermediate systems and their reliability or security. To minimize the risk and reduce barriers, the auditability of data, starting at the source, is required so that the data along the path is trustworthy.

### Challenge

When data is collected and shared across system and company borders, businesses put themselves at risk. They must blindly trust the data provided due to the missing proofs of data's authenticity and integrity. In fact, system failures and/or intentional data manipulation along the data path can be fatal for every enterprise. As more and more critical business decisions are made based on data crossing different layers and system borders, enterprises need to think about managing these arising risks.



 ... potential risk of data manipulation



# Use case

## Implementation

The Tributech Sensor Security Module combines high-end hardware security and blockchain technology to provide auditable and trustworthy data – even when shared across companies. Infineon's OPTIGA™ Trust M is leveraged to create cryptographic fingerprints of sensor data that are stored inside a tamper-resistant blockchain layer. These fingerprints can be used to verify the integrity and authenticity of each sensor data package. Well-designed interfaces and a modular system enable an easy integration and provide an enterprise-grade solution for auditing data across systems and company borders. With the Sensor Security Module, organizations can set-up an auditable IoT data path between sensors and data consumers to build their digital services on reliable and trustworthy data. Original Equipment Manufacturers (OEM) can license the data audit and sharing technology for the integration into IoT devices and gateways for high-volume applications.

## User benefits

- › Trustworthy (IoT) data as a service with nearly zero implementation effort for the audit process
- › High scalable data audit process from data source to consumer
- › Full data governance due to selective and fine-grained data-sharing process
- › P2P data-sharing across connected platforms and clouds
- › Fully managed blockchain layer

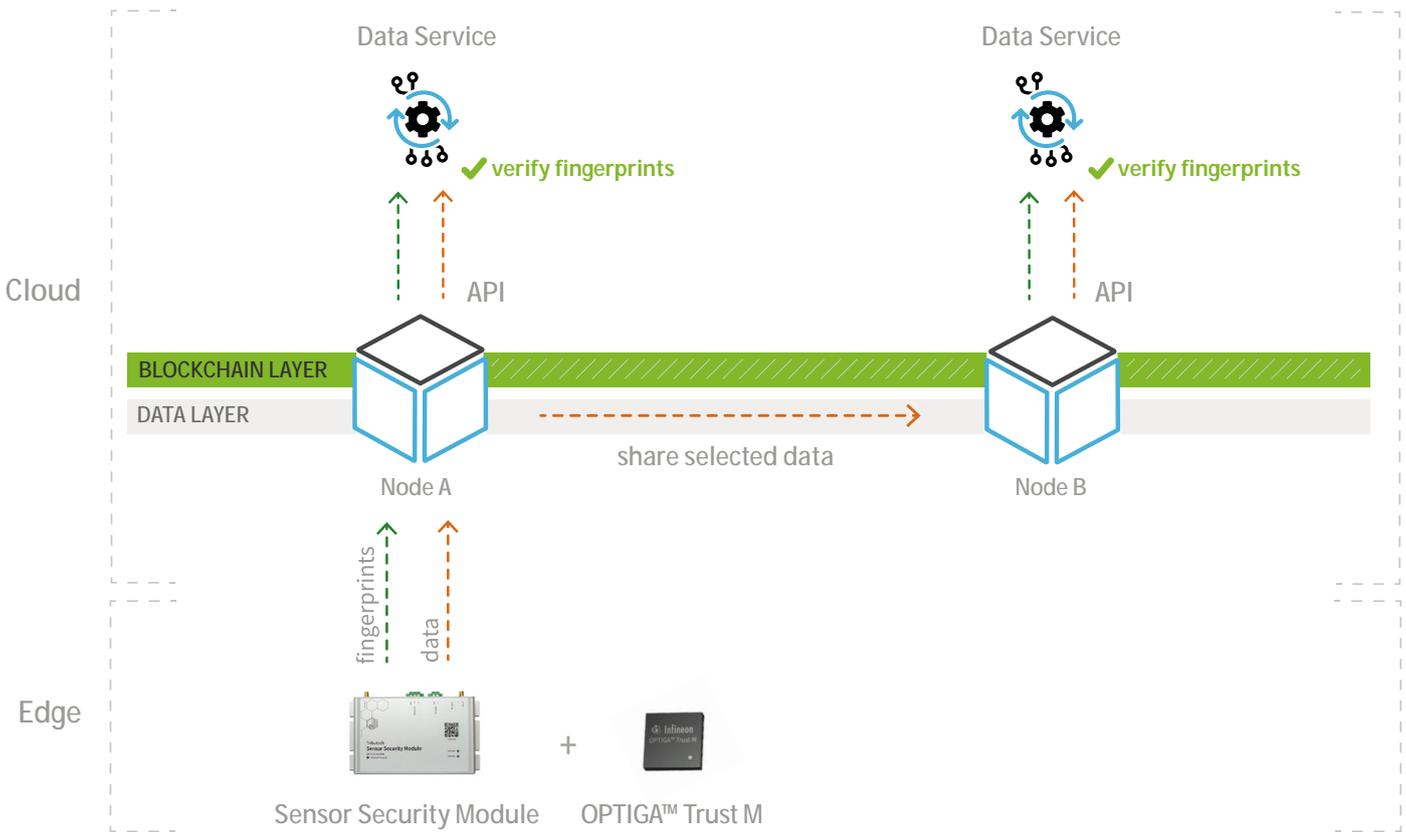


# Solution

In contrast to established verification and audit mechanisms for physical assets, these are missing in the digital world, at the latest, when the company or system boundary is reached. The Tributech Sensor Security Module uses hashing and signing operations to create a type of digital fingerprint for sensor data used to verify and audit data across system borders.

To provide a solution for auditing data integrity and authenticity, the Sensor Security Module creates cryptographic fingerprints that are stored and distributed within the blockchain layer. These fingerprints are generated for each sensor data point or package, based on SHA-256 hashing and RSA/ECC signing operations of Infineon's OPTIGA™ Trust M. To provide scalability of the system, the blockchain- and data-layer is separated, and fingerprints are stored in an efficient and scalable way in the blockchain. The solution also includes a public key infrastructure (PKI) and a secured and automated provisioning process to manage public keys within a data ecosystem.

Collected sensor data of Sensor Security Modules are stored in the data owner's system (Node A) and can be selectively shared with internal and external (Node B) data consumers. The provided sensor data can be accessed and audited via APIs by data consumers and their services.





# Solution

Tributech's Sensor Security Module provides the foundation for digital services built on trustworthy data.

The following capabilities allow the verifiability of the data:

- › Secured provisioning service for managing public keys in data ecosystems
- › Root-of-Trust by storing keys within Infineon's OPTIGA™ Trust M
- › Cryptographic fingerprints based on OPTIGA™ Trust M hashing and signing algorithms (SHA-256, RSA & ECC)
- › Blockchain technology for storing fingerprints
- › Verification of data integrity and authenticity via APIs and web UI

### **Main benefits of the Infineon products:**

The Infineon OPTIGA™ Trust M module is a high-end security solution. It acts as the root-of-trust to protect the collected data's integrity and authenticity with its hashing and signing capabilities. It securely stores the generated keypairs and other certificates needed for a continuous and secure operation. On top of that gives the module every IoT device its own identity.

# Partner



Partners from the Infineon Security Partner Network help you secure your devices and applications: understand which threats can undermine your business, propose solutions that will protect your business, build and implement such security solutions and, when relevant manage their operation. They have been selected by Infineon on the basis of their system security competence and ability to design and deliver strong and trustworthy security solutions. Their activities are diverse and include security consulting, security solution provision, electronic design, systems integration and trust services management. For some, offers are off-the-shelf; while for others, offers are custom-built.

## Tributech Solutions GmbH

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## Tributech's contribution to the Infineon Security Partner Network

Aristotle said: "The whole is greater than the sum of its parts." Tributech's expertise in cross-system security and data verification and Infineon's complementary technologies have paved the way for a secured and trusted IoT. With a vocation to turning data into facts, Tributech has accelerated the development of trustworthy data exchange, from sensor to consumer. By relying on distributed ledger technologies and cryptographic fingerprints, stakeholders can agree on auditable data exchange without third party interaction.

For their Sensor Security Module (SSM), Tributech selected Infineon's OPTIGA™ Trust M as the secure element providing the root of trust to protect the integrity of collected data across all stakeholders. In combination with Tributech's DataSpace Kit the foundation for a trusted IoT is given as it provides trustworthy sensor data. The Internet of Things is the start of a new industrial revolution and promises to transform all areas of our lives. The safe sharing of trustworthy data will be one of the essential building blocks delivering the promised business impact.

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