



**WIS@key**

NASDAQ: WKEY



# About WIS@key

The vertical digital security specialist

Over two decades of experience developing vertical digital security solutions including **secure chips, secure software, trusted services and knowledge automation** to *protect users, devices, data and transactions in the connected world.*



22

YEARS EXPERIENCE



6

GLOBAL OFFICES  
HQ IN GENEVA, SWITZERLAND



WKEY

NASDAQ  
SIX: WIHN



5B

RoT INSTALLED



1.6B

SECURE CHIPS INTO  
IOT SHIPPED and 13  
Satellites in Orbit

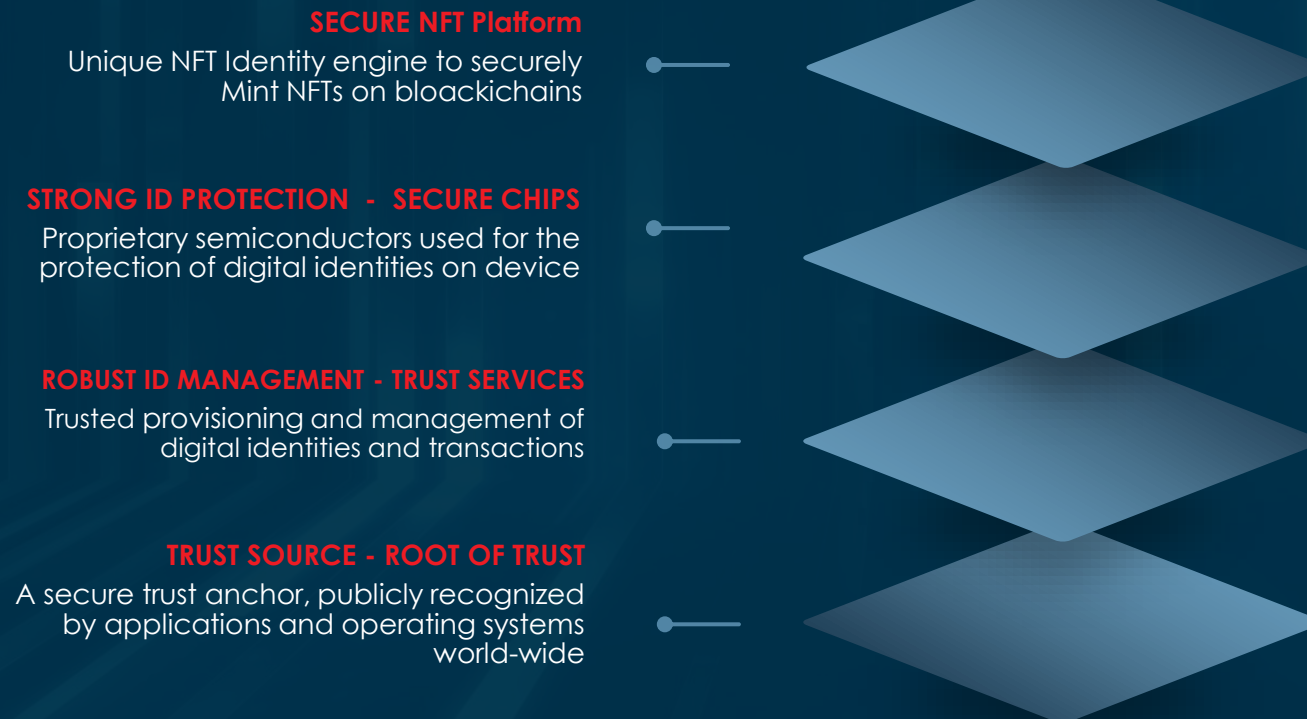


2021

Semiconductors Post-  
Quantum Development

# A Unique Vertical Model

WISeKey has built the world's first **integrated Cybersecurity Trust Platform** that uses the combination of Secure Chips, IA and Trust Services to enable, manage and automate secure transactions between people, applications or objects



# Some of Our Clients

## OEMs / Brands



**TOSHIBA**



**SIEMENS**

Landis+Gyr



**IDEMIA**

**LEGIC**



**DocuSign**

**MAHLE**

**Dior**

**HUBLOT**



**iStorage**

Parrot



**klöckner & co**

## Integrators / Distributors

**AtoS**



**dentsu group**

**accenture**

**NEORIS**



**MCM Japan Ltd.**



**mojix**



**COMMIT**



**Choice WORX.AI**

**ASTUTE**

**ISMsys**



# Our Solutions & Technology

## Solutions

01. Managed PKI Services & Digital Certificates ▶

02. Device to Cloud Authentication ▶

03. Anti-counterfeiting & Consumer engagement ▶

05. Secure Application Environments ▶

06. Secure Business Process Automation Services ▶

07. Trusted NFT Marketplace

## Technology

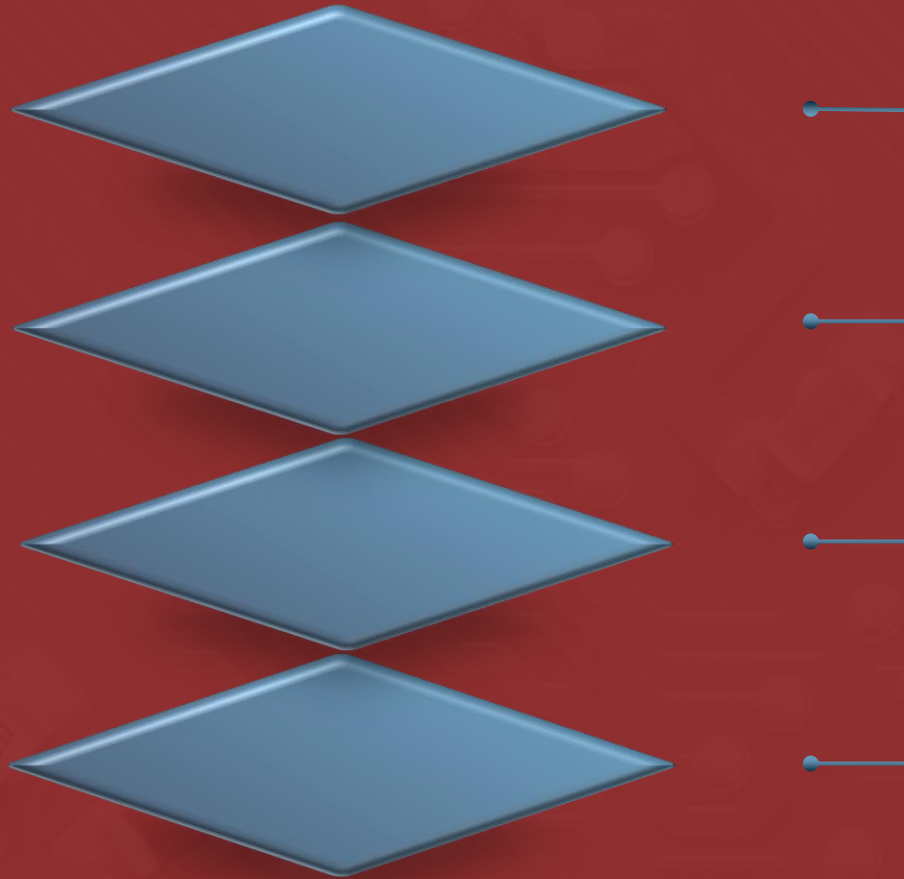
01. WIS@key Semiconductor & Embedded Security ▶

02. Semiconductor Provisioning ▶

03. Certificate Authority ▶

04. HIRO – Knowledge Automation ▶

# Wisekey Semiconductor & Embedded Software



## APPLICATIONS



### MICROXSAFE

CC EAL 5+ Certified Secure Controller family delivered with SDK for OS development

- Secure Storage
- Access Control
- Custom Application



### VAULT-IC

CC EAL4+ & FIPS 140-3 Certified Secure Controller family with Embedded Firmware designed for IoT strong authentication & secure com' channel

- IoT Security
- Device to Device Auth.
- Device to Cloud Auth.



### NANOSEAL

NFC chip with embedded firmware and closed loop back-end authentication system designed for brand protection and enhancement

- Authentic merchandise
- Consumer & luxury goods
- Customer engagement



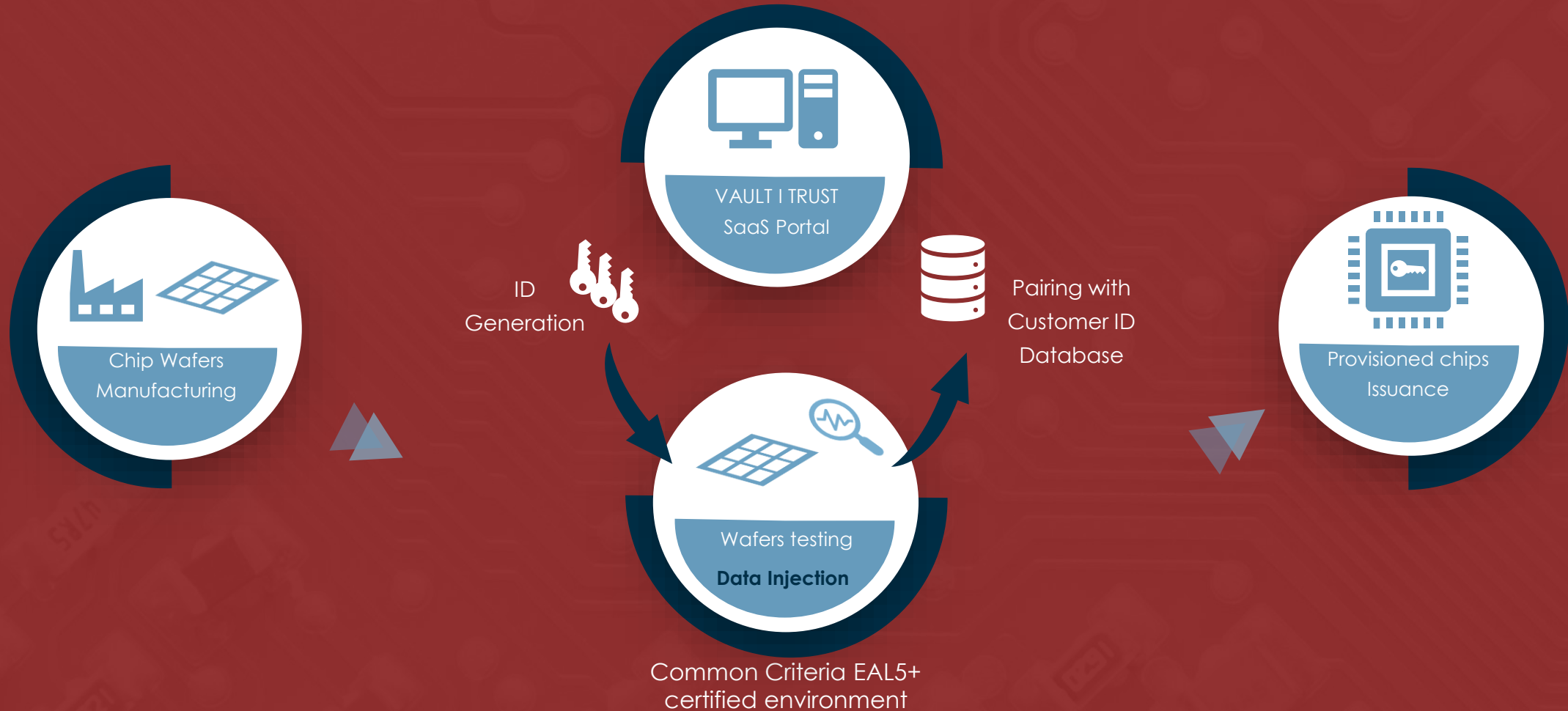
### SMARTCARD

Smartcard reader chips

- POS terminals
- Portable readers
- NFC enabled devices

# WISeKey Semiconductor Provisioning Services

A unique SaaS Platform to provision identities into secure Hardware under a certified environment



# WISeKey Trust Services

Managed PKI and Certificate lifecycle management

## WISeKey Delivers:



### Root of Trust

- ✓ OISTE CA - Publicly trusted CA  
Recognized by Browsers, Smart Phones, etc.
- ✓ Private CA(s) Corporate root of trust



### WISeID

- ✓ Digital Identity Platform (B2B & B2C)
- ✓ White Label branding
- ✓ Secure Personal Cloud Services
- ✓ MFA & API for 3rd Party integration



### INeS

- ✓ Managed PKI platform for IoT
- ✓ Node Certificates (X509)
- ✓ Lifecycle management
- ✓ API with AWS and Azure



### CertifyID

- ✓ Managed PKI
- ✓ Personal / Corporate Certificates
- ✓ SSL



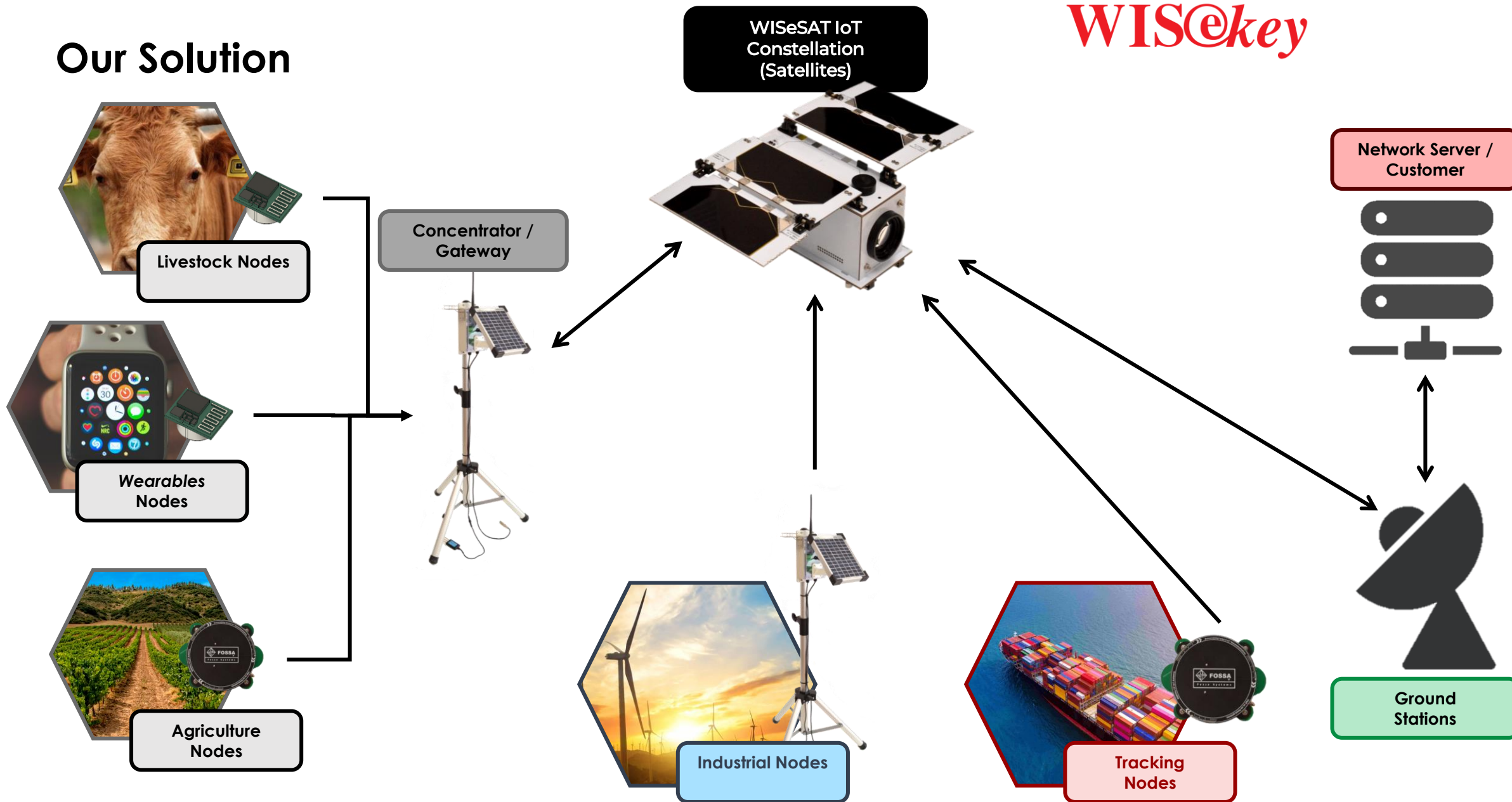
### KEY APPLICATIONS

1. **IoT:** Installed base/deployed device identity management
2. **Enterprise/IT:** User access rights management (enterprise)
3. **Applications:** Certificate server in SaaS (applications)
4. **Internet:** Publishing certificate revocation (CRL and OCSP)



# Our Solution

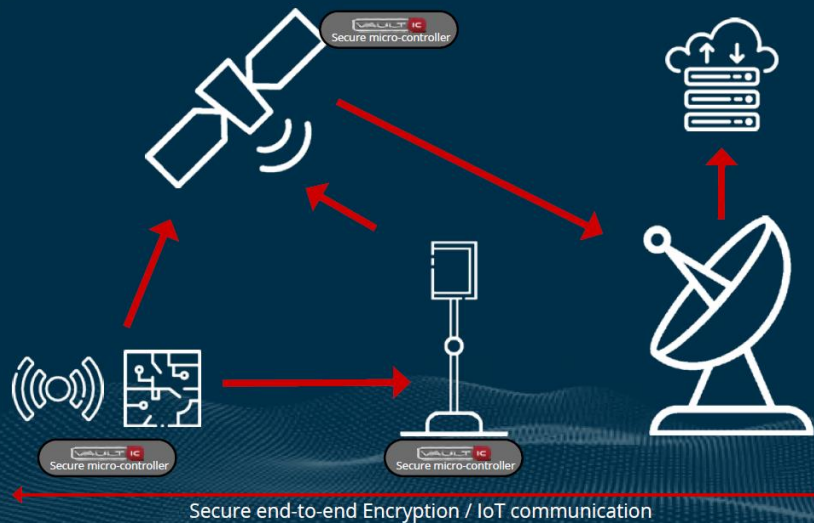
WIS@key



# WISeSAT

Secure mutual authentication and encryption trusted data exchange between IoT devices and the cloud

**WISeSat is the first cost effective and secure IoT connectivity solution anywhere on Earth using picosatellites and low-power sensors. Its aim is to answer the needs of any large IoT deployment in Smart**



1

The distributed sensors collect and encrypt the data with a secret key that only the client knows.

2

This encrypted data is sent to the satellite, where it is received and routed automatically to the ground station.

3

The ground station receives the encrypted data, and sends it to the network server.

4

The network server can decrypt the content and show the data for analysis.



## KEY APPLICATIONS

Securing IoT ecosystems :

- Energy
- Logistics
- Smart Farming
- Smart Agro
- ...



## Oil and Gas: Pipeline Management

**Use case:** In some metallic structures, such as oil and gas pipelines, cathodic protection by inducing a forced current is used as a galvanic corrosion control mechanism. In many cases, operators are sent to manually measure the voltage at the protection points monthly to control the correct operation of the pipeline. However, IoT techniques allow the deployment of devices along the pipelines, making it possible to access information and status daily. This helps avoid galvanic corrosion, anticipating damages and losses that would be potentially harmful to the environment.

### Partners



WITEKLAB

exolum

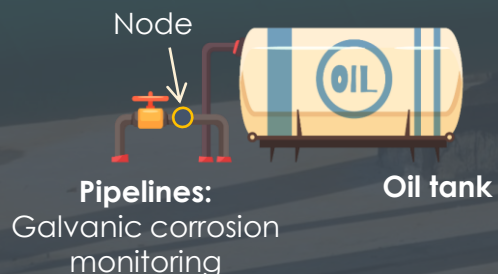
 Submétrica

### What can we measure?

- Dissolved oxygen
- Color
- Temperature
- Humidity
- Porosity
- Endurance

### Impact

Monitoring can help energy companies score big wins in 70% lesser engineering hours, 60% reduction in data interpretation time, 40% lower maintenance costs, up to 5% more production, and 30% faster delivery.



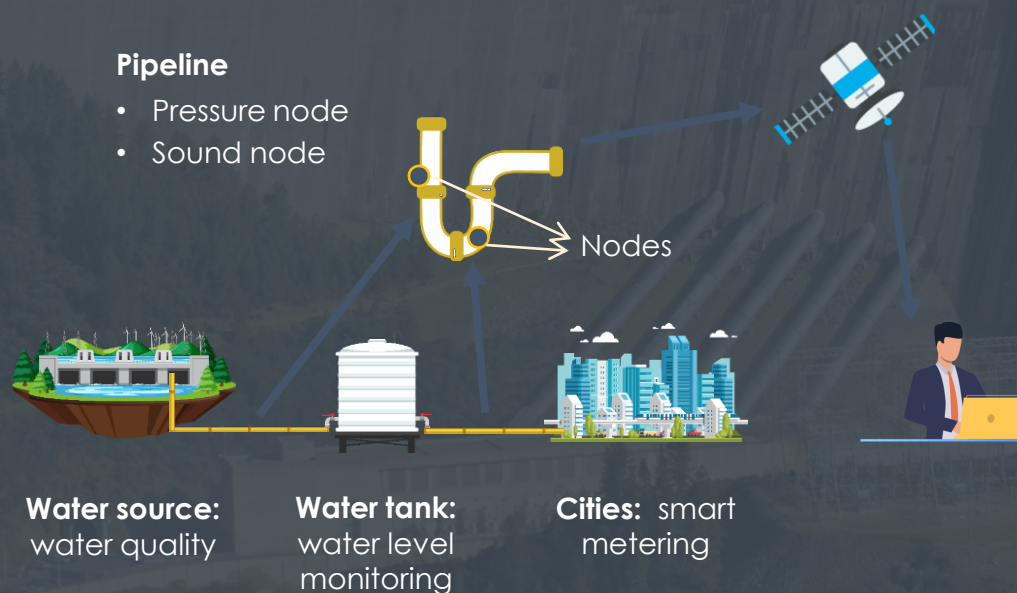


## Utilities: Energy & water distribution

25-50% of all distributed water globally is lost due to leakages, deteriorating infrastructure, incorrect water pressure management or illegal abstraction. This fact causes not only additional operating costs but also has negative social and ecological impacts.

Water and energy are very scarce commodities, so it is imperative to control and monitor all the infrastructure correctly. However, a large part of the distribution chain is not very accessible to data since it is in areas with no terrestrial connectivity. For this reason, sensitizing pipes can allow us to automate processes and avoid losses.

**Use case:** monitoring water or energy distribution chain using IoT nodes and satellite connectivity obtaining information on pipes, even in isolated areas, to control the state of the infrastructure, improve the water distribution efficiency, reduce water losses and gain resource optimization.



### What can we measure?

- Water conductivity
- Flow rates
- Pipes corrosion
- Leaks and their exact location
- Pressure control

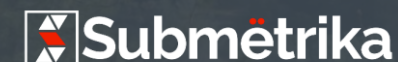
### Impact

Thanks to the constant monitoring and process automation, 1.8 petawatt-hours of electricity can be saved by 2030. And nearly 230 billion cubic meters of water can be conserved.

### Partners



**WITEKLAB**





## Logistics

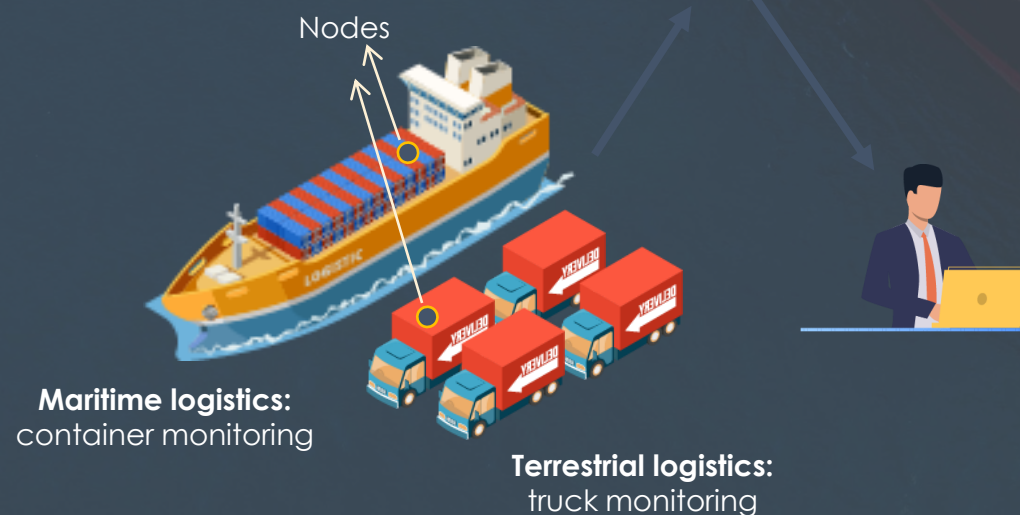
Between 2017 and 2019, an average of 779 shipping containers were lost at sea annually. In 2020 this number increased to more than 3,000 shipping containers lost at sea. Maritime and terrestrial asset monitoring regarding logistics has a huge traceability gap as there could not be any kind of terrestrial connectivity during parts of the route. There is a big challenge when controlling the condition of food chain, cold chain, management of damaged vehicles, or emergencies. This means there is a high risk of total or partial loss of containers and assets benefits.

**Use case:** Constant monitoring of the transportations that are carrying food, allows always knowing the food condition. This would avoid food waste and also allows to have precise information about its condition before arriving at the destination.

Partners

**DB SCHENKER**

**libelium**



### What can we measure?

- GPS position
- Speed
- Temperature
- Mechanical status of containers

### Impact

IoT solutions help operators make better decisions using predictive analytics. From planning ahead for smarter routes to the identification of problem areas, potential delivery issues can be tackled before they become a reality.



## Smart Farming: Livestock Monitoring

Currently, there are more than 200M heads of cattle in the World, being India, Brazil, China, and Argentina the principal countries that exploit them. These countries stand out for having large areas of land without terrestrial connectivity, where having correct control of animals (dynamic assets) is a challenge.

As the orography makes it challenging to deploy terrestrial connectivity systems for their location, the only feasible solution for the monitoring is to enable the transmission of information through satellites directly from the device.

**Use case:** place a node on the cow's collar to know its health status, its location, or if there has been any incident that requires immediate action by the farmer.



### What can we measure?

- Temperature
- Disease prevention
- Geolocation
- Alert in dangerous situations
- Heart rate – death
- Birth

### Impact

Healthy animals help preserve the environment and natural ecosystems. The lower productivity of sick animals increases the need for resources to attain a given yield. It leads to needing more animals to achieve the same output, using ultimately more land and water.

### Partners

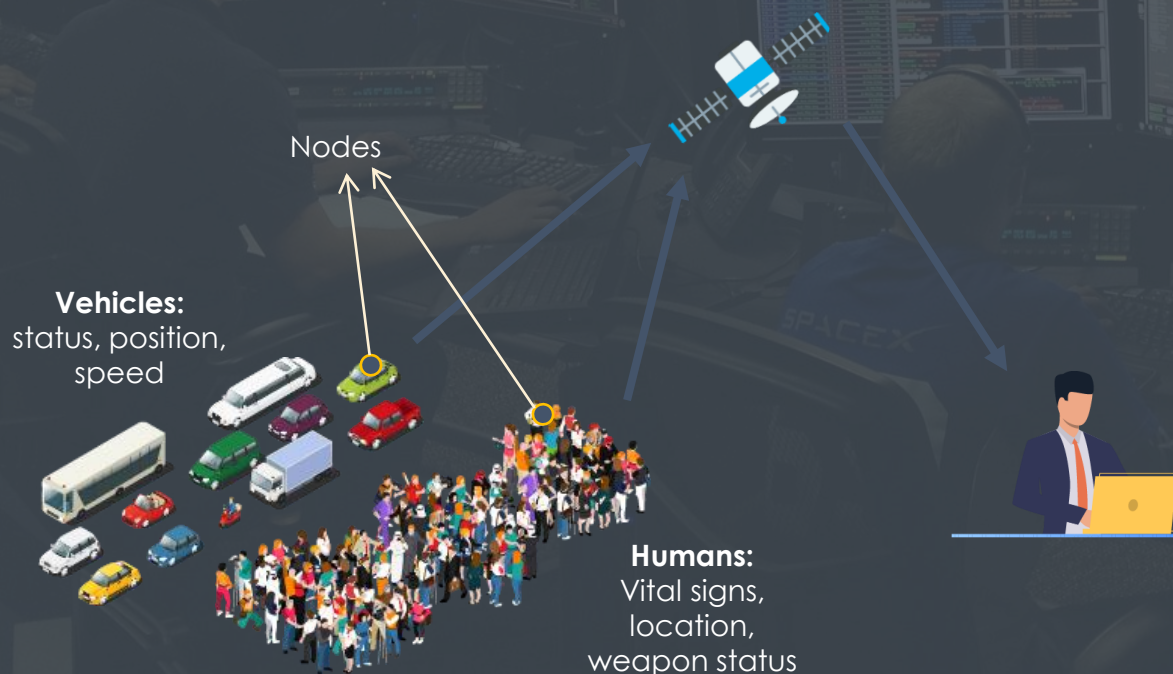




## Defense: IoBT

Modern military and defense deployments involve a wide range of assets, typically in delocalized and remote situations. The capacity to locate and understand the state of critical military assets translates into a strategic advantage regarding what decisions are made. Large assets such as ships and armored vehicles have long been monitored via SATCOM, however this has left out a range of other cost-sensitive applications such as monitoring personnel, light vehicles, shipments or even weapons. Additionally, disposable sensors can be left behind to monitor areas with sound, vibration & motion detectors. Personnel monitorization would allow real-time evolution of warfare and movements, without the need of base stations or on-site *tactical communication bubbles*.

**Use Case:** A dedicated constellation providing strategic and independent access to space communications at an accesible cost. A disposable audio sensor is placed in strategic locations as a unit advances, these sensors have an independent communications link via satellite, allowing monitorization anywhere and delivering strategic information on possible enemies. Constant monitorization of a potential supply chain, fleet management etc.



### What can we measure?

- Asset Location, Speed and Altitude
- Asset Temperature, Humidity
- Asset Vital Signs (Heartbeat, Temperature)
- Presence Detection (Disposable Sensors)
- Vehicle Status
- Weapon Status

### Impact

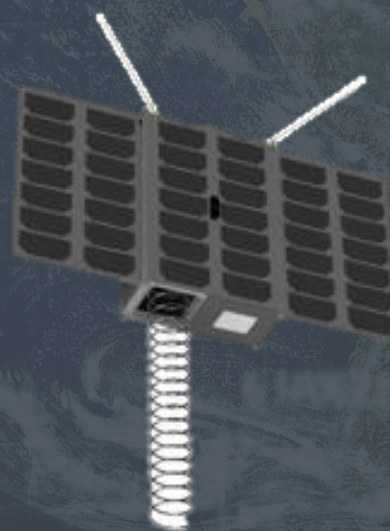
A greater understanding on the deployed assets can greatly improve the decisions taken



## Defense: 5G Communications

Independent communications systems for voice and data are strategic to operations in remote areas and outside national territory. Often remote units need to rely on expensive and bulky SATCOM communications systems or the deployment of dedicated tactical bubbles from a mobile operation center. It is crucial for countries to have dedicated military communications on a worldwide scale, and existing dedicated solutions are inaccessible. For under 2M€, a dedicated 5G based voice & data satellite can be launched to provide 8 – 20 minutes of coverage worldwide daily, serving hundreds of units.

**Use Case:** A dedicated constellation providing strategic and independent access to space communications at an accessible cost based on 5G protocols. Owned and operated by the defense agency including the related ground segment. Operations worldwide can be supported, and units can communicate between them with a compact manpack / mobile 5W station or with the base station.



6U 5G-TMCS Platform  
WISeSAT

### What can we communicate?

- Voice at 2,4 kbps
- Data
- Satellite BW (10-20 Mbps)

### Impact

Strategic advantage over non-space-bearing countries regarding communications



# Our NFTs Are Minted to be Unique and Safe

Though WISeKey's unique technology an NFT becomes completely tied to a physical object, Authenticity can be proven, contracts can be included and though our green technology we make our NFTs carbon neutral.

NFTs on the WISeKey [WISe.Art Platform](#) have three compartments:



## I – Digital Asset

- ✓ The actual digital asset pack
- ✓ Digitally signed by the owner
- ✓ Irreversibly tied to the physical object



## II – Provenance and Authenticity

- ✓ Signed proof of ownership
- ✓ Signed and authenticated pack of provenance materials



## III - Contracts

- ✓ Monetization agreements
- ✓ Reuse agreements
- ✓ Trading and Steaking agreements



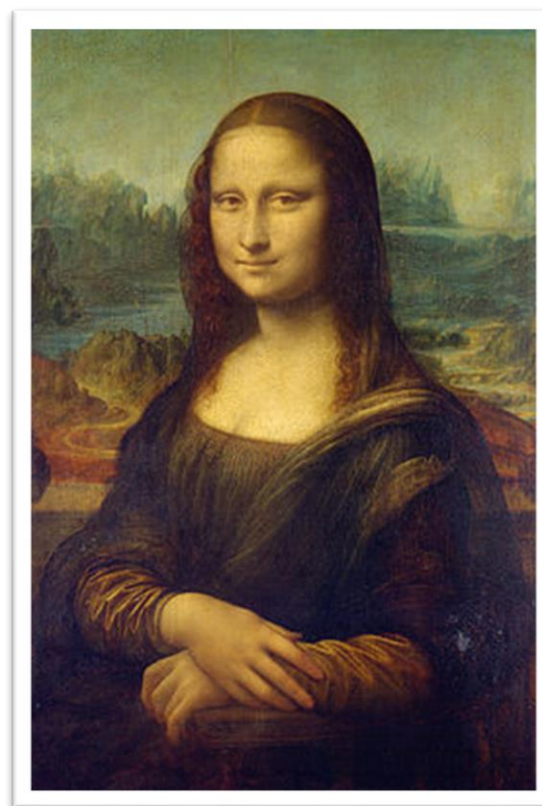
### We solve the key challenges of NFTs on a fundamental level

- Ties to existing objects – We take the thin air out of NFTs
- Provenance and authenticity – We take con-schemes out of NFTs
- Reusage – We make digital assets reusable and make monetization of follow-on use and distribution

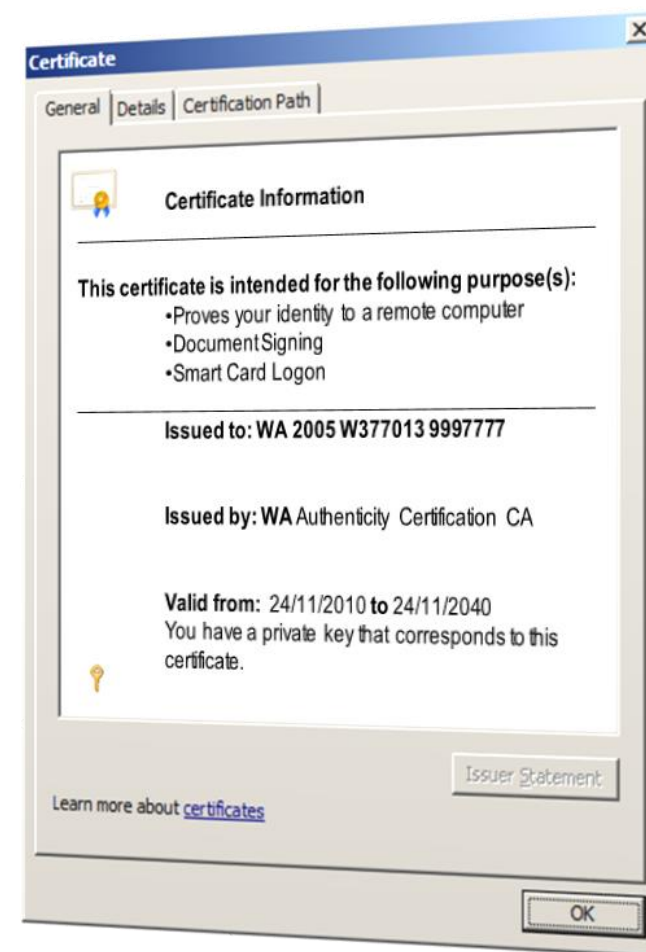
# PROVENANCE certification solution

PRINCIPLE: The digital certificate is bounded with the Item

- A Branded Digital Certification Authority issues certificates that are impossible to forge
- Can be verified online anytime/anywhere
- Owners may obtain any data on an item which your brand wishes to disclose – e.g. Story / pedigree / documentation / recommendations, etc...
- Based on PKI Infrastructure and implementing the highest level of security commonly used for National Defence, National ID or eBanking projects



Digital  
Certificate



# Patent in USA

- Method and apparatus for digital authentication of valuable goods adapted to NFT

[USPTO PATENT FULL-TEXT AND IMAGE DATABASE](#)

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( 8 of 8 )

United States Patent  
Moreira , et al.

8,954,742  
February 10, 2015

Method and apparatus for digital authentication of valuable goods

Abstract

A method for digital certification of authenticity of a physical object, and corresponding computer program and storage device, as well as to the use of the method for digital certification of authenticity of a physical object of value. The method includes the steps of issuing a storage device including a digital certificate of authenticity including encrypted information reflecting at least one characteristic unique to the physical object, checking, whenever required, the validity of the digital certificate of authenticity by use of a network computer, the network computer cooperating with the storage device and a validating or a certifying authority so as to output sensibly in real time the status of validity of the digital certificate of authenticity, and modifying the status of validity of the digital certificate of authenticity, whenever required.

Inventors:  
Applicant:

Moreira; Juan Carlos Creus (Bernex, CH), Darbellay; Jerome (Lausanne, CH), Blackman; Kevin (Geneva, CH), Moreno; Carlos (Petit-Lancy, CH)

Name	City	State	Country	Type
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Darbellay; Jerome	Lausanne	N/A	CH	
Blackman; Kevin	Geneva	N/A	CH	
Moreno; Carlos	Petit-Lancy	N/A	CH	

Assignee:

Wisekey S.A. (Meyrin/Geneva, CH)

Family ID:

40430104

Appl. No.:

13/056,087

Filed:

July 28, 2008

PCT Filed:

July 28, 2008

PCT No.:

PCT/IB2008/053022

371(c)(1),(2),(4) Date:

April 18, 2011

PCT Pub. No.:

WO2010/013090

PCT Pub. Date:

February 04, 2010

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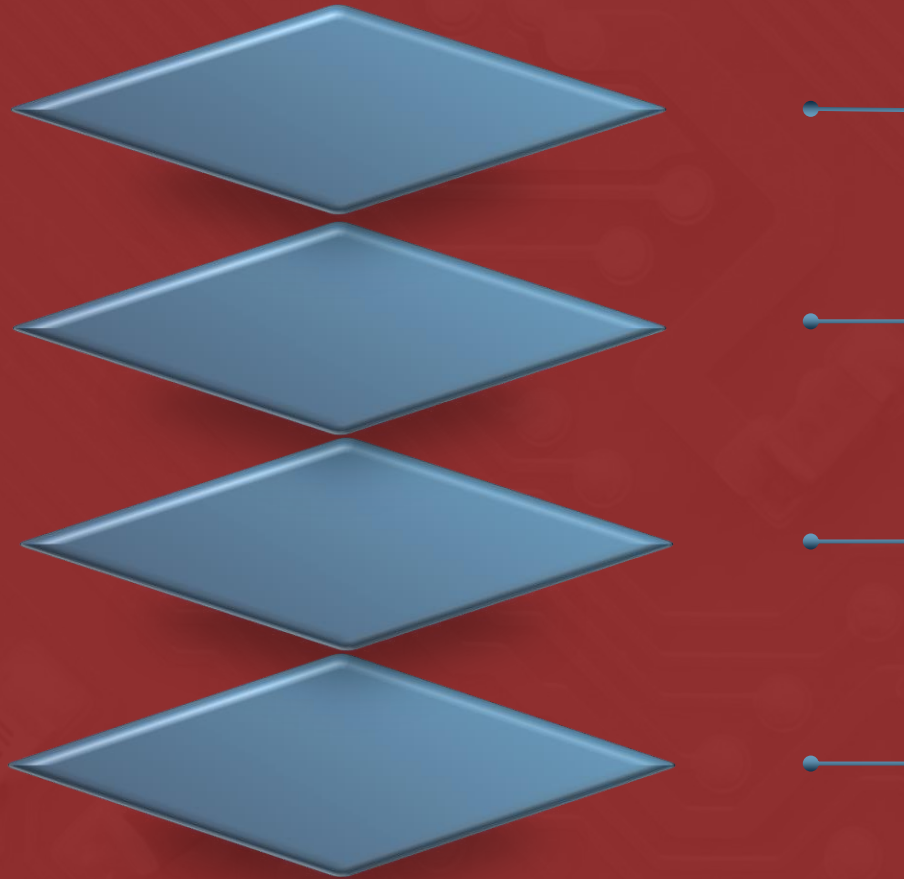
# NFT from Space Featuring Brooke Shields Photography

- NFT from the original iconic photograph from Brooke Shields' personal collection
- Minted from a WISeSat space satellite in orbit.
- As an NFT to ensure the authenticity and legacy of the original work





# Wisekey Semiconductor & Embedded Software



## APPLICATIONS



### MICROXSAFE

CC EAL 5+ Certified Secure Controller family delivered with SDK for OS development

- Secure Storage
- Access Control
- Custom Application



### VAULT-IC

CC EAL4+ & FIPS 140-3 Certified Secure Controller family with Embedded Firmware designed for IoT strong authentication & secure com' channel

- IoT Security
- Device to Device Auth.
- Device to Cloud Auth.



### NANOSEAL

NFC chip with embedded firmware and closed loop back-end authentication system designed for brand protection and enhancement

- Authentic merchandise
- Consumer & luxury goods
- Customer engagement



### SMARTCARD

Smartcard reader chips

- POS terminals
- Portable readers
- NFC enabled devices



Thank You for Your Attention