WIS@ekey

Building Trust in the Connected World

ROOT OF TRUST  SECURE IDENTITY  SECURE IOT  ARTIFICIAL INTELLIGENCE  BLOCKCHAIN

August 2019
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WISEKEY COMPANY SNAPSHOT

WISEKey is a global leader in the delivery of integrated security products for the Internet of Things and digital identity ecosystems.

Over two decades of experience in developing leading-edge digital security solutions that protect users, devices, data and transactions in the connected world.

Markets Served
- Trust Services
- Secured IOT
- Brand Protection
- Trust Protocols

FOUNDED
1999

HEADQUARTERS
Geneva, Switzerland

STOCK EXCHANGE (since 2016)
SIX (SWX: WIHN)
SUMMARY

WISeKey is in the right place at the right time, with the technologies needed to address a growing market.

Technology Leadership

Core platform is fully integrated and applicable across a broad range of industries

Market Penetration

Over 20 years of experience and a large installed base of blue-chip customers

Growth Potential

Ideally positioned to maximize on the rapidly growing IoT cybersecurity market

Leadership Team

Chairman & CEO  Carlos Moreira
Chief Financial Officer  Peter Ward
SVP Sales, IoT & Semiconductor  Bernard Vian
WISEKey has created the world’s first **Cybersecurity Trust Platform** that authenticates and secures devices, people, documents, and data.

**SECURE CHIPS**
Semiconductors used for the protection of private credentials on IoT devices

**ROOT OF TRUST**
A secure trust anchor, publicly recognized by applications and operating systems world-wide

**TRUST SERVICES**
Trusted provisioning and management of private credentials
MARKET PENETRATION

3.6 Billion
Browsers (total) Root of Trust installed

1 Billion
WISeKey VaultIC IoT chips since 2010

1.6 Billion
Mobile OS (total) Root of Trust installed

250 Million
Digitally signed emails per year
3,500+ CLIENTS WORLDWIDE

Creating new avenues of business efficiencies and revenue growth for our customers in a wide range of market verticals.
MARKET LEADERSHIP

The WISeKey Cybersecurity Platform is designed to solve some of the most sophisticated security issues facing the connected world today.

WISeKey has emerged in only 3 years since our Swiss listing as one of the largest IoT listed companies in Switzerland with cc $30 million in revenue. This is an extraordinary evolution when compared with other major IoT Swiss listed companies struggling to hit USD $2 million.

SOFTWARE
Trusted provisioning and management of digital identities and transactions.

HARDWARE
Semiconductors used for the protection of digital identities on devices.

ROOT OF TRUST
A secure trust anchor, publicly recognized by applications and operating systems world-wide.
The IoT market has multiple indicators for massive growth.

The growth of the IoT market is driven by the need to connect more and more devices to cloud based applications for enhanced user experiences and the need for data to feed artificial intelligence engines and big data analytics.
IOT SECURITY IS A TOP CONCERN

Data breaches, customer credit card information, denial of service attacks, loss of consumer confidence, brand reputation, stolen intellectual property, government fines and penalties, the list goes on and on for what can keep a CISO up at night!

Headline News

**MIRAI**

2016
Simple Zombie Army Botnet Attack

**REAPER**

2017
Sophisticated Botnet Attack

**SPECTRE & MELTDOWN**

2018
Computer Chip Vulnerabilities

IOT Security Spending ($B)

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$11.2</td>
<td>$12.6</td>
<td>$14.2</td>
<td>$16.1</td>
<td>$18.4</td>
<td>$21.2</td>
</tr>
</tbody>
</table>
The path to IoT security is complex and dangerous for connected device makers.

**Vendor Landscape**

The landscape is scattered with siloed providers of IoT Security components, each one requiring separate evaluation from the device makers.

**IoT Security Components**

For a complete IoT security strategy, the device makers must select a product from each of these categories.

**Integration Steps**

The device makers will need to invest time and money to stitch together each component and hope they didn’t introduce security flaws.
UNIFIED AND TRUSTED

The Cybersecurity Trust Platform from WISeKey removes the complexities of IoT security.

VENDOR LANDSCAPE
One vendor to manage and a single point of responsibility for security.

IoT SECURITY COMPONENTS
Individual components all come from WISeKey and can be used independently or integrated into a customer specific security architecture.

HARDWARE MICROCHIPS
SECURE PROVISIONING
SECURE COMMUNICATION
CERTIFICATE AUTHORITY
ROOT OF TRUST

SECURE CHIPS
Semiconductors used for the protection of digital identities on devices.

SECURITY BROKER
Life-Cycle control of identities, ownership changes, and device decommissioning.

TRUST SERVICES
Trusted provisioning and management of digital identities and transactions.
IOT ECOSYSTEM

From the chips that create the data through to the cloud based applications that act on it.

**COLLECT DATA**

**CHIPS**
- Microcontrollers
- Sensors
- Connectivity

**IoT DEVICES**
- Things that capture data

**TRANSPORT & AGGREGATE**

**CONNECTIVITY**
- Telecom
- Local network
- Gateways & Hubs

**NETWORK**
- Flow management
- Cloud storage
- Data integration

**ANALYZE / ACT / REPORT**

**IoT PLATFORM**
- Cloud providers
- Data analytics
- Big Data

**APPLICATIONS**
- Access control
- Authentication
- Reporting

**Partners**

**Types of Customers**

**Ecosystem Partners**

[Images of various companies such as Bosch, Cisco, Siemens, IBM Watson, Google, Alibaba Group, and others]
CASE STUDIES

A few examples of customers that are taking advantage of the combined architecture.

<table>
<thead>
<tr>
<th>CUSTOMERS</th>
<th>SMART INDUSTRY</th>
<th>SMART HOME</th>
<th>BRAND PROTECTION</th>
<th>MEDICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>World’s #1 Air Conditioning Supplier</td>
<td>Leading Provider of Small Household Appliances</td>
<td>World-leader in Sports Gear Authentication</td>
<td>Global Healthcare Solutions Provider</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NEEDS</th>
<th>SMART INDUSTRY</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Smart buildings have a huge <strong>attack surface</strong></td>
<td>Next gen (smart) appliances require <strong>security</strong></td>
<td>Desire to move from passive protection to interactive (connected) solutions</td>
<td>Connected medical devices create a safety concern for users</td>
<td></td>
</tr>
<tr>
<td>Unique ID used for device authentication</td>
<td>Secure storage of private credentials</td>
<td>Washable (encapsulated) secure chips</td>
<td>Industry standards demand certified hardware-based security</td>
<td></td>
</tr>
<tr>
<td>Certificates for <strong>roles and permissions</strong></td>
<td>Private certs for remote firmware updates</td>
<td>Certificates for fan participation</td>
<td>Privacy concerns require certificates</td>
<td></td>
</tr>
<tr>
<td>Secure provisioning during manufacturing</td>
<td>Public certs for secure web-based applications</td>
<td></td>
<td></td>
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</tbody>
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<table>
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<tr>
<th>WISEKEY SOLUTIONS</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Secure Chips</td>
<td>Device-unique private ID</td>
<td>Tamper-resistance and low-cost</td>
<td>Temp. &amp; environmental qualifications</td>
<td>Industrial certifications</td>
</tr>
<tr>
<td>Trust Services</td>
<td>Based on industrial standards</td>
<td>Multi-use certificates</td>
<td>High-volume provisioning</td>
<td>Global accreditations</td>
</tr>
<tr>
<td>IoT Platform</td>
<td>Personalization during chip mfg.</td>
<td>Provisioning &amp; lifecycle mgmt.</td>
<td>Meets volume expectations</td>
<td>Secure supply channel</td>
</tr>
</tbody>
</table>
WISEKEY SECURE IOT VALUE PROPOSITION

1. **Device authentication**
2. **Secure key storage**
3. **Digital certificate storage**

**Secure Chips**

**Security Broker**

- **Digital certificate provisioning**
- **Remote (OTA) firmware updates**
- **Threat analysis and reporting**

**IoT Platform**

- **Artificial Intelligence**
- **Data Analytics**
- **Device Connectivity**
- **Predictive Analytics**
- **Infrastructure Connectivity**
- **Decision Making**

**Applications**

- **IoT Edge Gateway**
- **Threat analysis and reporting**

**Trust Services**

- **Managed PKI vs. on-premises**
- **Tailored to IoT ecosystem standards**
- **Trust options: private vs public**

**Authentication** extends all the way from the device through to the application, providing device and message integrity.

**Life-Cycle control** of identities, ownership changes, and device decommissioning all inside a single, secure platform.

**Device and data security**, confidentiality, and non-repudiation are anchored through the Trust Services.

*Integrated w/ IBM Watson, ready for integration w/ AWS, Azure, and others.
IOT SECURITY AS A PLATFORM

WISeKey’s integrated suite of hardware, software, and services creates trusted connectivity from Chip-to-Cloud.

CLOUD SERVICES

Device onboarding and life-cycle control based on a PROTECTED connection to a trusted device increases the confidence of decisions made in the Cloud.

SOFTWARE

Software designed to leverage secure elements and CERTIFICATES creates the strongest bond between the hardware and software layers.

HARDWARE

IDENTITIES stored in tamper-resistant chips provide the foundation of trusted connectivity.
CASE STUDIES

What brings customers to WISEKey IoT and what are we selling them?

**NEEDS**
- Government-level encryption
- Digital IDs for anti-counterfeiting
- Chip customization for unique applications
- Anti-counterfeiting of cartridges
- Unique IDS used for device authentication
- Secure chips needed to store UID
- Safety for electronic components
- High-speed certificate generation
- Private “in-house” security

**CUSTOMERS**
- World’s #1 Supplier of Networking Equipment
- Leading Supplier of enterprise printing solutions
- Large European Luxury Auto Maker
- World’s #1 Supplier of Networking Equipment
- Leading Supplier of enterprise printing solutions
- Large European Luxury Auto Maker

**WISEKEY SOLUTIONS**
- Certificates
- Digital Identities
- Secure Chips
IOT CUSTOMERS

Creating secure connections for a wide range of companies and products.
“Together, the negative impacts of counterfeiting and piracy are projected to drain US$4.2 trillion from the global economy and put 5.4 million legitimate jobs at risk by 2022.”

Losses due to counterfeiting and piracy by 2022

$4.2T

5.4M

Legitimate jobs lost by 2022

(3) International Chamber of Commerce, iccwbo.org
Process Digitalization

Digital tags equipped
Online traceability
Transparency
Interoperability
Compliance with regulations GDPR
Digital payments
CRM Enrichment
New connected (NFC*) tags are turning static products into communication channels. OEM apps deliver instant product authentication, product registration and consumer engagement to Android and iOS mobile devices users. Your consumer engagement program and application can be customized with rewards programs, incentives, product feedback and more.

CUSTOMER INTELLIGENCE
Improves direct marketing campaigns.

GEOLOCATION
Creates relevant, regionally focused products.

COMMUNITY
Builds loyalty and connection with the brand.

*Near-field Communication protocol.
Authentication with Open Detection

Digital tags equipped with open detection seals can now tell if the bottle has been tampered with or give details of the history of the journey that it has made.

With the use of cryptography standards that can scale in both cost and strength the right cost trade-off for the manufacturer can always be met.

01 Generate a unique digital ID (UID) and store it on a secure chip.

02 The personalized chip is built into a product specific NFC tag configuration.

03 The NFC tag is loaded with product specific data and built into the product label.
WISeID & WISePhone Suite of Mobile Applications

WISeID is an innovative solution from WISEkey for mobile identity and information security.

Using the WISeID applications (available for most smartphones and desktop environments) users can:

- Generate and use a digital identity
- Access to customized services using their Id
- Protect the information stored and communicated using his smartphone

WISeID is offered in two “flavors”:

- Personal edition. Independent application that users can freely enjoy for their personal use
- Corporate edition. WISEKey provides a customized WISeID App for organizations that want to interact more securely and efficient with users and clients.
Blockchain technology and Public Key Infrastructure Synergy

**PKI**
- Regulated technology by OISTE Foundation
- Enables the issuance of Digital identities and signatures
- Ensures identity authentication of people, objects and servers in a transaction, providing legal validity of digitally signed transactions

**Blockchain**
- Peer to peer enables high performance and scalable massive transaction management
- Brings data integrity and verify transaction records

This synergy can assist in developing a better trust model to use within a distributed system and create a universal Trust Protocol.

Each BCCoE* will have a Certification Authority conforming to the OISTE Trust Model.

*Blockchain Center of Excellence*
THE BLOCKCHAIN CENTERS OF EXCELLENCE ECOSYSTEM

WISECOIN In partnership with

- Blockchain best practices
- Sharing Intellectual Property
- Public, Private and Academic collaboration
- Latest technological standards and applications
- Foster better security through OISTE Trust Model
- Accelerators for the adoption of blockchain technology
- Development of Blockchain applications focusing on cybersecurity
2018 KEY CONSOLIDATED FIGURES

- 24.6% increase in total revenue to $53.7 million
- 41% increase in total gross profit to $29.2 million
- 32.9% decrease in net losses to $16.3 million
- $11.2 million cash and restricted cash at December 31, 2018

H1 2019

- $45 million purchase price from the sale of QuoVadis Group in Q1 2019 (including $4.5 million held in escrow to be released 56% in Q1 2020, and 44% in Q1 2021)
- Repayment of $25.3 million loan made in Q1 2019
- Cash balance of $23.2 million at end of H1 2019
- $14.4 million H1 2019 revenue, down on same period 2018 due to global downturn in the Semiconductor market and demand-driven oversupply in the IoT market
2018 was a strong year for WISeKey

**Improved Gross Margins**

\[ 54.3\% \]

Up from 48.0\% in 2017

**Patent Portfolio**

\[ 88 \]

Individual Patents

**Strong Liquidity**

\[ $11.2 \text{ M} \]

Cash and restricted cash at 12/31/2018

**R&D Investments**

\[ $8.1 \text{ M} \]

Cybersecurity, IoT, Blockchain

FY 2018 Revenue by Region ($53.7M)

- Europe: 58.7\%
- North America: 36.2\%
- Asia Pacific: 4.8\%
- Latin America: 0.3\%

Revenue Growth

- $53.7M (+25%) for 2018
- $43.1M (+290%) for 2017
- $11.0M for 2016

Cash at 12/31/2017: $12.2M

Cash and restricted cash at 12/31/2018: $11.2M

Cybersecurity, IoT, Blockchain R&D Investments: $8.1M
2019 H1 INVESTMENT HIGHLIGHTS – HALF YEAR GROUP CONSOLIDATION (NON-GAAP)

H1 2019 saw WISeKey report a net income of $21.8 M, with repayment of $25.3 M of debt following the sale of the SSL / TLS PKI business.

H2 2019 will see the launch of a new product line (NanoSeal®) and listing on a US Stock Exchange.

**Strong Net Income**
$21.8 M
& Repaid in full $25.3M debt

**Profit on Disposal of QuoVadis**
$31.1 M
Disposal of SSL/TLS PKI business

**Strong Liquidity**
$23.2 M
Cash and restricted cash at 06/30/2019

**R&D Investments**
$2.6 M
Focus on IoT and Blockchain

FY 2019 Revenue by Region

- Europe: 43.1%
- North America: 11.3%
- Asia Pacific: 1.1%
- Others: 44.5%
THANK YOU