WIBU SYSTEMS

SECURITY
LICENSING
PERFECTION IN PROTECTION

The Imperative Need to Protect Know-How

- Piracy in Germany
- Protection Technologies
- Reference Projects

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Plundering through History

Natural resources

Man-made products

Digital identities

The Parallel Evolution of Industrialization and Piracy

Industrial Revolution

- Industrial Revolution 1.0
  Mechanical: Steam and water
- Industrial Revolution 2.0
  Technical: Electricity and labor specialization
- Industrial Revolution 3.0
  Technological: IT and electronics
- Industrial Revolution 4.0
  Internet: Cyber-physical systems

Piracy

- Piracy 2.0
  Copying products
- Piracy 3.0
  Reproducing quality and functions
- Piracy 4.0
  Marketing and sales sophistication

What Changes with Industrie 4.0

Today	Tomorrow
▪ Stand-alone devices	▪ Connected devices
▪ Fixed functionalities	▪ Upgradability of functions
▪ One static sales model	▪ Additional streams of income
▪ Product and consumables	▪ Pay-per-use, pre-paid, post-paid
▪ One after-sales model	▪ New business models
▪ Repair and maintenance	▪ Shorter time-to-market, cloud
▪ Proprietary solutions	▪ Standard platforms

The Measurable Outcome of IIoT

- GE: $32.3 trillion opportunity, representing a 46% share of today's GDP
- Cisco: The Internet of Things (IoT) will increase private sector profits by 21% and add $19 trillion to the global economy by 2020
- McKinsey Global Institute: $36 trillion in operating costs of key affected industries could be impacted by IoT

The convergence of the *Internet of Things and Industrie 4.0* represents an enormous opportunity

The Many Faces of Know-how

- **Legal Know-how**
  - Property rights (patents), trade secrets (designs, brand performance), legal agreements
- **Technical Know-how**
  - Product and services (manufacturers' and customers' know-how)
- **Organizational Know-how**
  - Staff loyalty (personnel, visitors, freelancers, suppliers)
  - IT security (management of communications within the company and with the outside world)

2016 Piracy Survey in Germany (data collected in 2015)

- **70%** of companies have been affected by product or know-how piracy (-1%)
- National GDP eroded by **€ 7.3 billion** (€ 600 million less than in 2014)
- **34k** jobs lost due to piracy
- **83%** of counterfeits come from China (+11%), 24% from Germany (+1%), 19% from India (0% variation)
- Counterfeits are mainly produced by reverse engineering (**69%**), know-how theft (32%), and industrial espionage (13%)
- Multiple counterfeits per victim: Components are counterfeited by **62%**, designs by 47%, entire machines by 41%

A statement from VDMA President, Dr. Reinhold Festge

"As data is becoming the lifeblood of commercial value creation, counterfeiters and product pirates will be taking the same route. Simply copying the nuts and bolts or discrete circuitry will not be enough for them. They will be targeting digital designs, the software running on our machines, and the data stored in our databases. Let's fight back against product piracy, and start investing in digital protection!"

Hannover Messe 2016

VDMA Protect-ing Working Group

- **Marking Products**
  (In)Visible security features for product identification and authenticity verification
- **Authenticating Protected Products**
  Scanning, optical, and analytical technologies for checking authenticity
- **Tracking and Tracing Systems**
  Prevention of counterfeits infiltrating the system in the logistic product chains
- **Embedded Security in Industrial Goods and Systems**
  Protection from reverse engineering and manipulation
- **Technical Know-How Protection**
  Rights management, access protection, encryption, information security enhancement
- **Engineering and Consulting**
  Validation of usability, risk minimization, profitability and security assessments

The Value of Wibu-Systems in Know-How Protection

Turnkey Solutions for New Requirements

Where WIBU comes into the game

- Know-how Protection
  - safeguarding program code and data
- Product Protection
  - encrypted and safely stored keys
- Access Protection
  - secure key group creation for IP owners
- Integrity Protection
  - tamper resistance

Technological excellence

- Top Encryption
  - against piracy and reverse engineering
- Top Storage
  - widest array of repositories
- Top Authentication
  - limitations in usage, time, and resources
- Top Cyber-Security
  - against espionage and sabotage

3D Versatility of CodeMeter

Devices

- Personal computers
- Industrial PCs
- Embedded systems
- Mobile devices
- PLCs
- Microcontrollers
- FPGAs

Operating Systems

- Windows (also Embedded)
- Linux (also Embedded)
- VxWorks, QNX
- Android
- CODESYS, B&R

Secure Elements

- Dongles
- Memory cards
- ASICs
- TPMs
- Soft-containers
- Cloud-containers

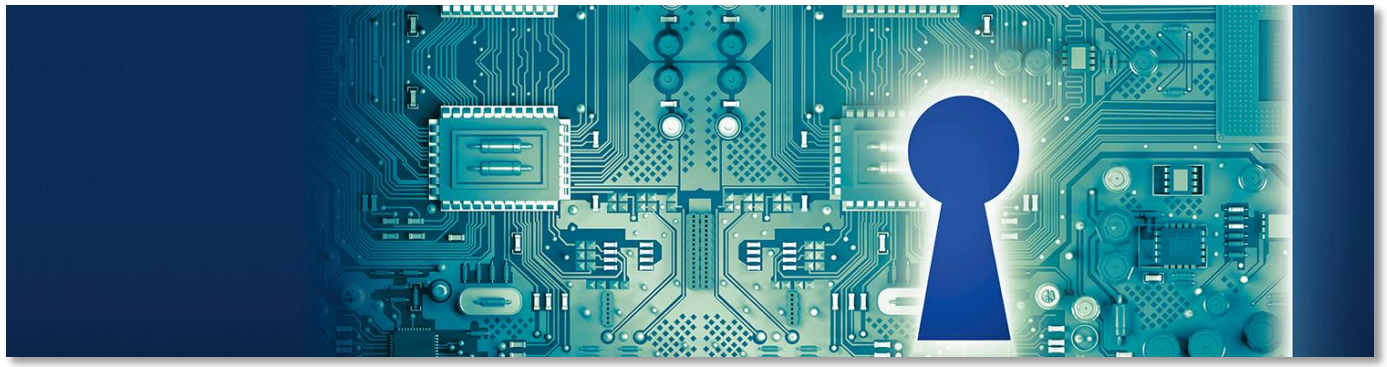
Software Protection powered by CodeMeter

- Symmetric & asymmetric encryption
- Blurry Box – a new revolutionary encryption method
- Automatic and API-based integration for code protection

Software Licensing powered by CodeMeter

- 23 preset licensing models
- Customizable end user license portal
- Straightforward integration with CRM, ERP, and e-commerce systems

End Point Security powered by CodeMeter



- Digital signatures and secure boot
- Industrial-grade components
- For brownfield and greenfield applications alike

The Future of the Global Software Licensing and Monetization Market

- Embedded software monetization is the fastest growing application of SLM technology
- Lower operating costs and optimized efficiency are major drivers of the "connect to profit" IoT paradigm
- Usage-based licensing is a key trend in the software monetization market as customers gain more say in how they want to consume and pay for their software

2016 SLM Report by Frost & Sullivan

The Core Elements of Trustworthiness in IIoT

- **Security**
  The condition of the system being protected from unintended or unauthorized access, change, or destruction
- **Safety**
  The condition of the system operating without causing unacceptable risk of physical injury or damage
- **Reliability**
  The ability of a system or component to perform its required functions under the stated conditions
- **Resilience**
  The ability of a system to avoid, absorb, and/or manage dynamic adversarial conditions
- **Privacy**
  The right of individuals to control or influence what information related to them may be collected and stored

2016 Security Framework by the Industrial Internet Consortium

IUNO – The German National Reference Project for IT Security in Industrie 4.0

accessec powerful security solutions

BOSCH

DEK

DURAVIT

IUNO

Nationales Referenzprojekt
IT-Sicherheit in Industrie 4.0

escrypt Embedded Security by ETAS

Fraunhofer AISEC

Fraunhofer IESE

Fraunhofer SIT

HOMAG GROUP

Infineon

nobilia

PHOENIX CONTACT

Rexroth Bosch Group

SIEMENS

TECHNISCHE UNIVERSITÄT DARMSTADT

Technische Universität München

TRUMPF

UNIKASSEL VERSITÄT

VOLKSWAGEN AKTIENGESELLSCHAFT

WIBU SYSTEMS

Bundesministerium für Bildung und Forschung

German Government to Support Industrie 4.0's Growth into Maturity

- **The Vision**
  Recovering dominance in manufacturing
- **The Plan**
  Smart Factories: The Internet becoming integrated in production machinery
- **The Benefits**
  Custom production, Big Data analysis, less resource-intensive
- **The Threat**
  Cyber-attacks may affect the very survival of any company
- **The Absolute Need**
  A pervasive and mature security framework for companies of all sizes

Real Life Security Implementations

Thank you!

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