SP3 - Technology Line
WP22 - Development and Implementation of Technologies

Roadmap towards a more secure and privacy-aware society

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secure connected trustable things

SCOTT has received funding from the Electronic Component Systems for European Leadership Joint Undertaking under grant agreement No 737422. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and Austria, Spain, Finland, Ireland, Sweden, Germany, Poland, Portugal, Netherlands, Belgium, Norway.

SCOTT today

- Expectations when visiting our site:

- Security - “SCOTT will present a framework for security”
- Safety - “The link between Safety and Security”
- Privacy - “Privacy label? - changing the ru
- Usability - “Are solutions rea
- Trustability - “Can I t peak Norwegian?”

- ongoing work:
- 16 use cases
- >40 Buildi g Blocks
- >6 rements

Focus in SP3: High-level perspective - Roadmap for European Industry

List of Building Blocks in SCOTT [edit]

The Building Blocks are sorted along WP 22: Technology Lines. These Technology Lines are:

- WP23: **Security & Safety**
- WP24: **Distributed Cloud Integration**
- WP25: **Autonomy of Devices/Energy Efficiency of WSN**
- WP26: **Reference Architecture/Implementation**

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1 List of Building Blocks in SCOTT
1.1 Semantic Relations
2 Building Blocks involved from Norway

List of Building Blocks in SCOTT

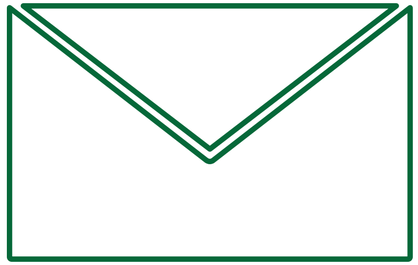
- BB23.A Dependable Wireless Sensor Network, Leader: **Teresa Riesgo**, partners: INDRA, Universidad Politécnica de Madrid, Telenor, Wolffia (BB23.A)
- BB23.B End-to-end assured QoE, Leader: **Xavier Alberti**, partners: INDRA, CIT, KLAS, VEMCO (BB23.B)
- ~~BB23.E Safety-critical applications via Satcom~~, Leader: **Xavier Alberti**, partners: INDRA (BB23.E)
- BB23.I Reinforcement of safety for traffic infrastructures, Leader: **Francisco Parrilla**, partners: INDRA Madrid, Instituto Tecnologico de Informatica, IK4-TEK, SAGOE (BB23.I)
- BB23.K Realiable Wireless PHY and MAC, Leader: **Egoitz Arruti**, partners: INDR
- BB23.R Trust Trust Anchor and Trust Indicators, Leader: **Marco Steger**, part SECURE, AIT, IMEC, Johannes Kepler Universität, SBA, Nokia, Vir
- BB3.1.B Dependable, Leader: **Thuan**, partners: UiO, Wolffia
- BB24.A Remote Configuration of Infrastructure, Lead (BB24.A)
- BB24.B Addressing and Mobility Ma Nokia, Virtual Vehicle Rese
- BB24.C Application (BB24.C)
- BB2
- partners: UiO (B
- olski, partners: PRE, Tele
- (S-ABAC), Leader: **Christian J**
- ace, Leader: **Pawel Czernecki**, partners: FEV PL,
- senger Vehicle Data Logging System, Leader: **Alexander**
- ef (BB24.K)
- L Adaptable network slicing, Leader: **Do van Thanh**, partners: Telenor, HiO
- BB26.A Autonomous Wireless Network, Leader: **Francisco Parrilla**, partners: IN KLAS, Universidad Politécnica de Madrid (BB26.A)
- BB26.B Cloud computing service platform, Leader: **N. n.**, partners: AIT, AVL, CIS Cork, Nokia, Virtual Vehicle Research Center (BB26.B)
- ~~BB26.C Smart routing for WSN on trains~~, Leader: **Xavier Alberti**, partners: INDR
- BB26.D Infrastructure design and security threat analysis, Leader: **Ramiro Roble**
- BB26.E Interoperability and secure cross-domain application development, Lead
- BB26.F Measurable security and privacy, Leader: **Toktam Ramezani**, partners:
- BB26.G Privacy labels (A-F), Leader: **Christian Johansen**, partners: UiO (BB26.G
- BB26.H Methods for wireless vehicular data links, Leader: **Thomas Zemen**, part Research Center (BB26.H)

- **ro Robles**, partners: ISEP (BB26.I)
- **arco Steger**, partners: VTT, AVL, Johannes Kepler Universität, TUG, UiO, irtual Vehicle Research Center (BB3.1.C)
- velopment, Leader: **Silke Holtmanns**, partners: AVL, KTH, INDRA, VEMCO, Universidad
- ka Gdanska, IT, Nokia, Virtual Vehicle Research Center (BB3.1.D)
- ecurity, Leader: **Achim Berger**, partners: AVL, Johannes Kepler Universität, SBA (BB3.1.F)
- ayer security, Leader: **Andreas Springer**, partners: Johannes Kepler Universität, Linz Center of Mechatronics GmbH,
- olitechnika Gdanska (BB3.1.G)
- BB3.1.H Real-time configuration of secure zones, Leader: **Ken Brown**, partners: University College Cork, Tyco, VEMCO, Politechnika Gdanska (BB3.1.H)
- BB3.1.J Reliable Wireless Multi-hop Communications, Leader: **Salvador Santonja**, partners: Instituto Tecnologico de Informatica, AVL, INDRA (BB3.1.J)
- BB3.1.L Routing and scheduling in real-time WSN, Leader: **Rafael C. Socorro Hernández**, partners: Tecnalia, Acciona (BB3.1.L)
- BB3.1.M Safety WSN Adapter, Leader: **Salvador Santonja**, partners: Instituto Tecnologico de Informatica, INDRA (BB3.1.M)
- BB3.1.N SCOTT Security Library, Leader: **Marco Steger**, partners: AVL, VEMCO, Politechnika Gdanska, INDRA, UiO, TUG, Johannes Kepler Universität, F-SECURE, SBA, HiOA, TU Delft, Virtual Vehicle Research Center, EyeNetworks (BB3.1.N)
- BB3.1.O Security Core - Identification, Authentication and Communication, Leader: **Silke Holtmanns**, partners: CISC, EAB, F-SECURE, Linz Center of Mechatronics GmbH, PRE, UiO, SBA, VTT, VEMCO, Nokia, Virtual Vehicle Research Center (BB3.1.O)
- BB3.1.P Spatial-based authorization and authentication, Leader: **Mateusz Rzymowski**, partners: VEMCO, Politechnika Gdanska, PRE, TYCO, University College Cork (BB3.1.P)
- BB3.1.Q Towards a Safe Virtual Coupling, Leader: **Francisco Parrilla**, partners: INDRA, Universidad Politécnica de Madrid, SAGOE (BB3.1.Q)
- BB3.2.H Mobility Prediction, Leader: **Ken Brown**, partners: University College Cork, Tyco (BB3.2.H)
- BB3.3.A Energy efficient security implementation in WSNs, Leader: **Andreas Springer**, partners: Johannes Kepler Universität, AVL, Linz Center of Mechatronics GmbH, SBA (BB3.3.A)
- BB3.3.B Energy efficient & resource optimized component concepts for WSNs, Leader: **Stefan Drude**, partners: NXP NL, NXP AT, AVL (BB3.3.B)
- BB3.3.C Energy storage for WSNs, Leader: **Rafael C. Socorro Hernández**, partners: UiO, Acciona, Tecnalia (BB3.3.C)
- BB3.3.D Energy supply to on track segment, Leader: **Javier Uceda**, partners: Universidad Politécnica de Madrid, INDRA (BB3.3.D)
- BB3.3.E Improved energy harvesting, Leader: **Rafael C. Socorro Hernández**, partners: Acciona, Tecnalia (BB3.3.E)
- BB3.3.F In-vehicle WSN, Leader: **Achim Berger**, partners: Linz Center of Mechatronics GmbH, AVL, Johannes Kepler Universität, SBA (BB3.3.F)
- BB3.3.G System level availability, Leader: **Willem van Driel**, partners: NXP AT, HH, VEMCO, Instituto Tecnologico de Informatica, Politechnika Gdanska, AVL, Tecnalia, Acciona, CISC, VTT, Philips Lightning, Nokia (BB3.3.G)
- ~~BB26.J - IoT/M2M over satellite~~, Leader: **Xavier Alberti**, partners: INDRA (BB36.J)

SCOTT - SP3 - Impact from SCOTT

- Our goals with respect to impact
  - change security in Europe
  - key selling arguments for European industry
  - Attraction for SMEs

- Change Security in Europe
  - from attack-centric to security classes

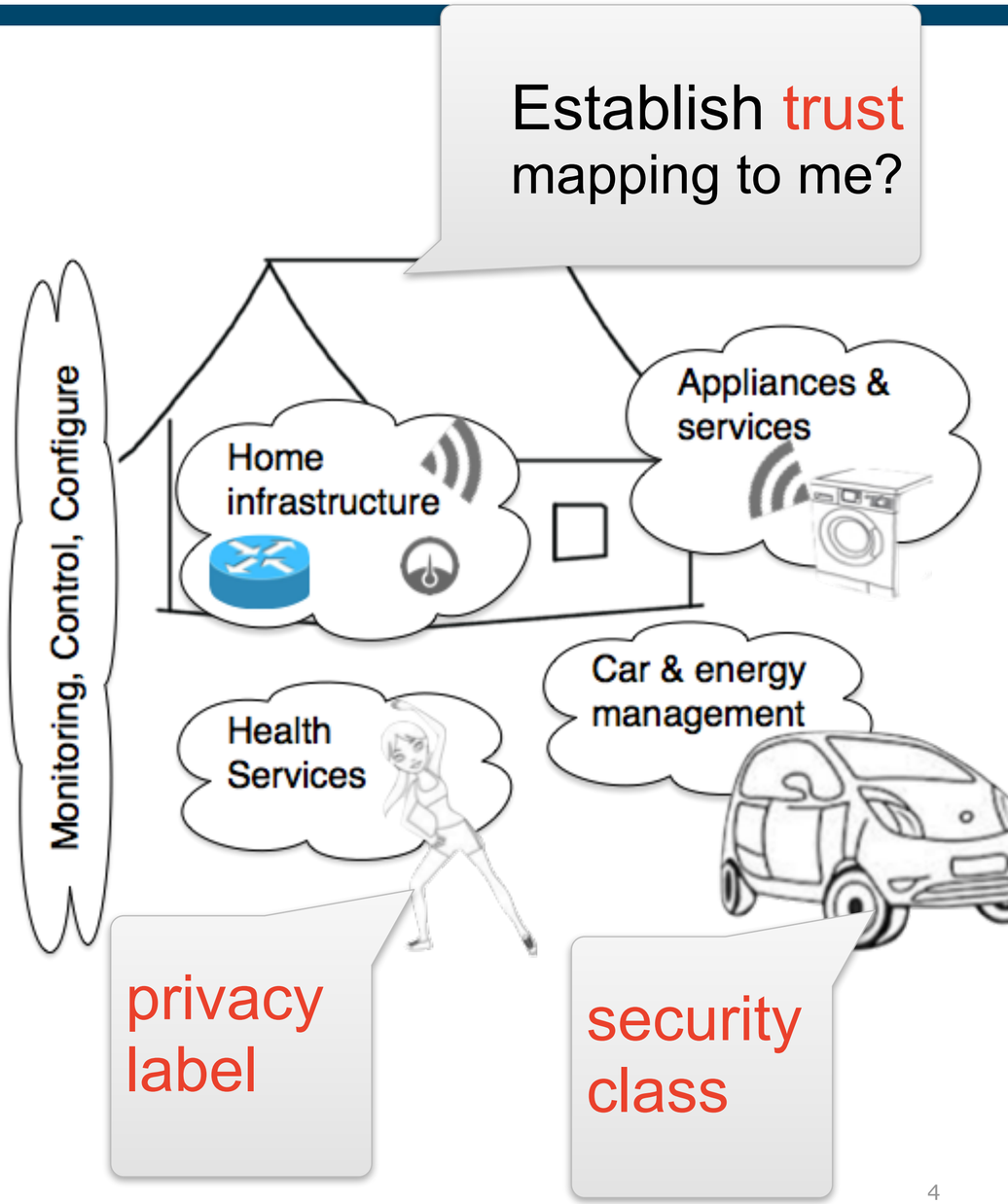


- Key selling arguments for European industry
  - applied Trust through Privacy Labels

- Attraction for SMEs
  - Architecture with APIs

SCOTT vision per WP
here: WP21, elaborated from WP28

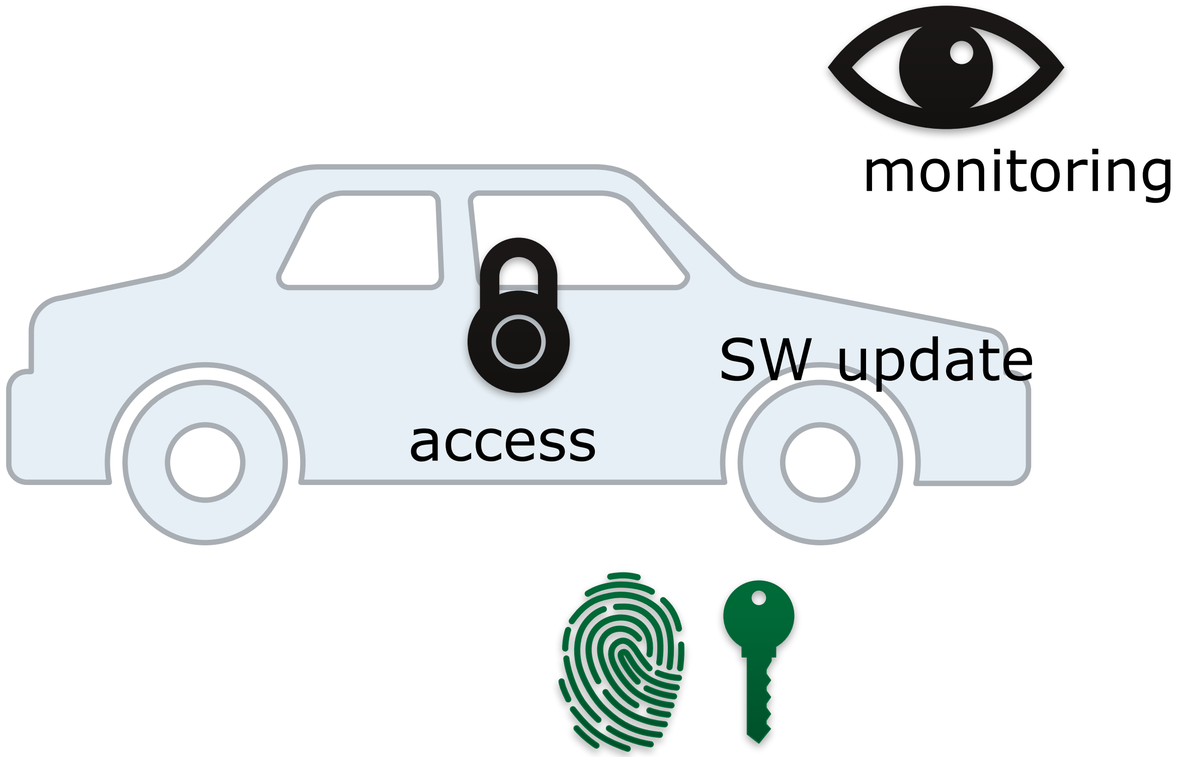
- Problem situation
  An elderly person wants to live at home but his family is concerned about him or her falling and not being able to get help.
- Basic Innovation
  The emergency unit consists of a wireless sensor that automatically detects a patient's fall along with critical body sensor information that helps neighbours, relatives or the response team to quickly respond.
- Options include:
  - provides emergency responders quick access to the patient's home.
  - is worn directly on the skin
- Why SCOTT
  - focussing on a trusted cloud environment following the user perceptions, moving away from "everything goes to the … cloud
  - TRUST, here means
    - privacy: focussing on "positive surveillance", with the user having full control on the data, storage and distribution.
    - reliability: ensuring that the person carries the sensor and that the sensor is working



Domain specific applicability: Automotive

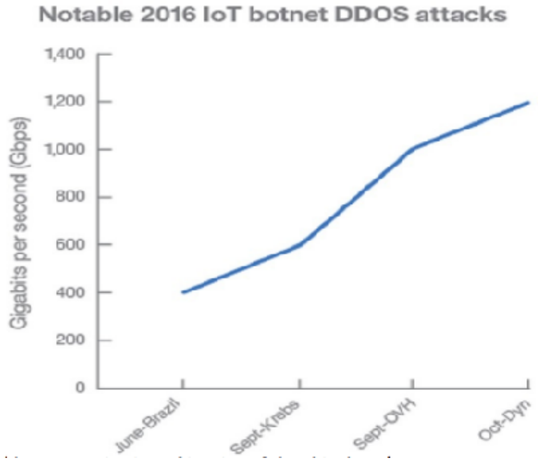
- Suggested methodology:
- The car as a system of systems

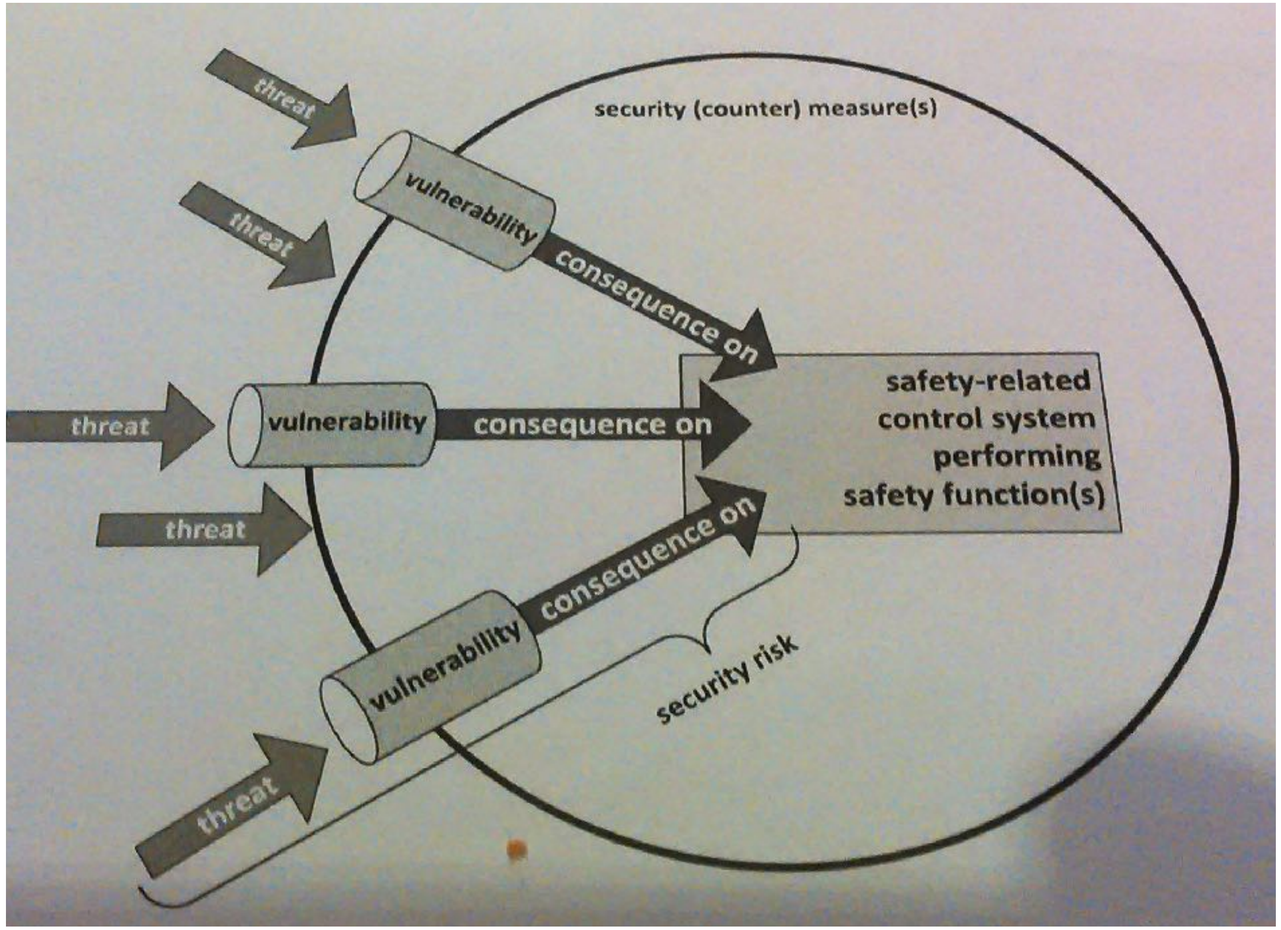
- For each subsystem, perform
- Security classes: 1-5
  - Exposure analysis of components
  - Impact analysis



Roadmap for a more secure and privacy-aware society

- "Vulnerability analysis" is not sufficient
  - novel threats occur
  - installation base for 5-20 years
  - example: increase in DDoS attack capability





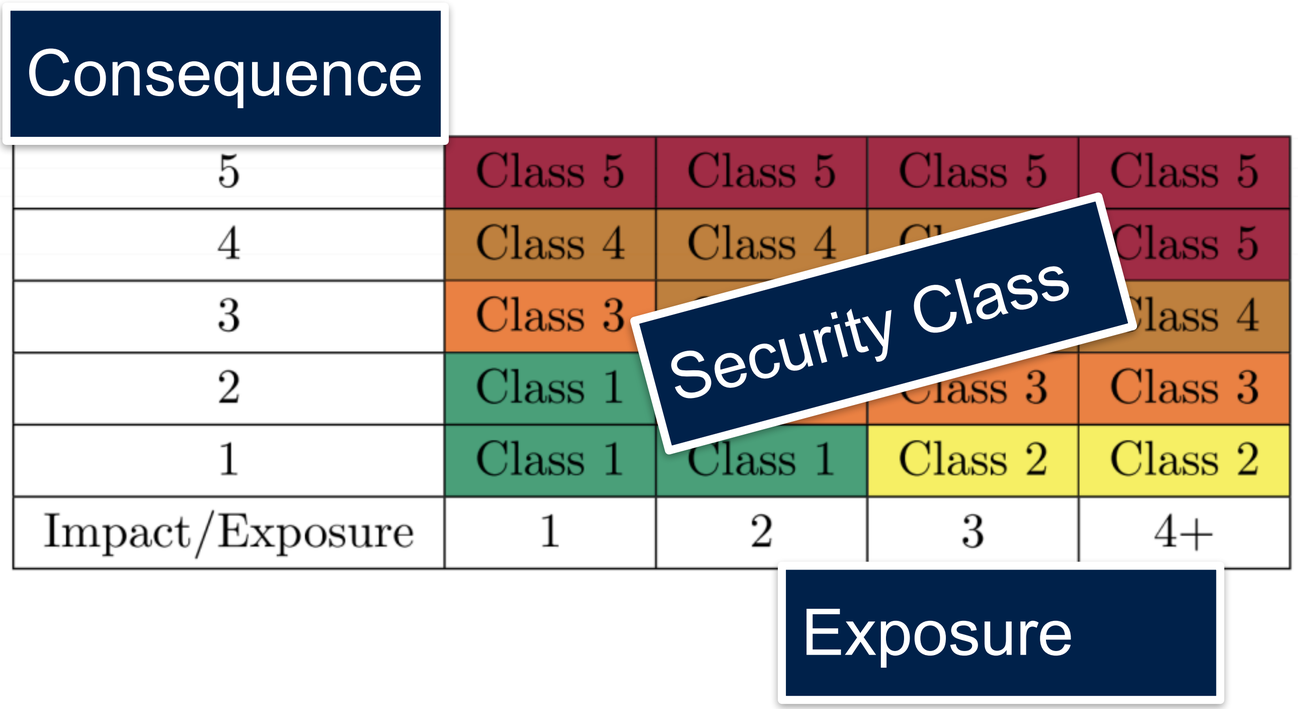
- Business advantage for European industries
  - Security classes/levels

. https://securityintelligence.com/the-weaponization-of-iot-rise-of-the-thingbots/

Security Classes and measurable security

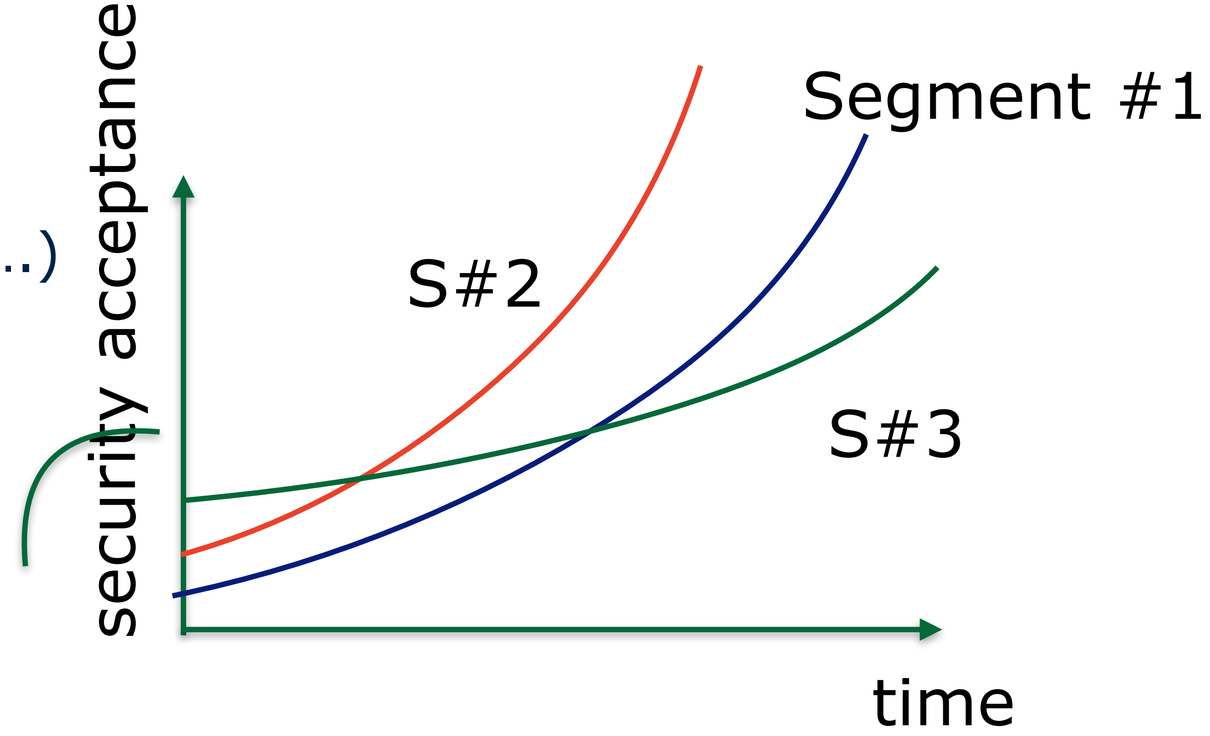
- Security Class in IoT
  - Consequence
  - Exposure
- Consequence
  - as in risk map
- Exposure
  - Physical exposure
    - people, building, physical ports,…
  - IT exposure
    - ports, firewall, connectivity

New postulate of security class



Upcoming work:
Roadmap for technologies

- Technology Roadmap for uptake
  - Segment specific (car, home, cloud, ….)
  - best praxis
  - obstacles



- Expected outcome from SCOTT
  - harmonised Security functionality
  - Privacy labelling
  - Security classes
  - increased Trust
    - how represented in the specific domains

SP3 Conclusions

- SCOTT from a helicopter perspective
  - overall vision broken down into showcases
  - interconnected activities
  - contributor to EU discussion
- Example WP21
  - positive surveillance
  - privacy-aware
  - including neighbours, family, friends
- EU-wide impact
  - competitive advantage, e.g.:
    - privacy label
    - security classes
    - security and privacy ontology
    - reference architectures for sectors

New postulate of security class

5	Class 5	Class 5	Class 5	Class 5
4	Class 4	Class 4	Class 4	Class 5
3	Class 3	Class 4	Class 4	Class 4
2	Class 1	Class 3	Class 3	Class 3
1	Class 1	Class 1	Class 2	Class 2
Impact/Exposure	1	2	3	4+