

Secure COnnected Trustable Things

Werner ROM / Michael KARNER
VIRTUAL VEHICLE Research Center, Graz/Austria



secure connected trustable things



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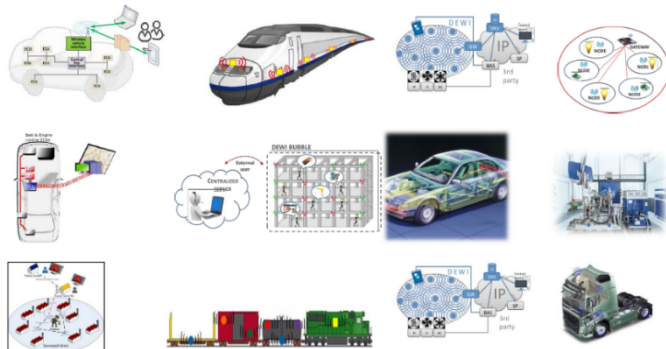


DEWI and beyond ...



2014-2017

- Applications in aeronautics, automotive, building automation, and rail
- For professional and private users
- Focus on dependability and interoperability
- Multi-domain architecture

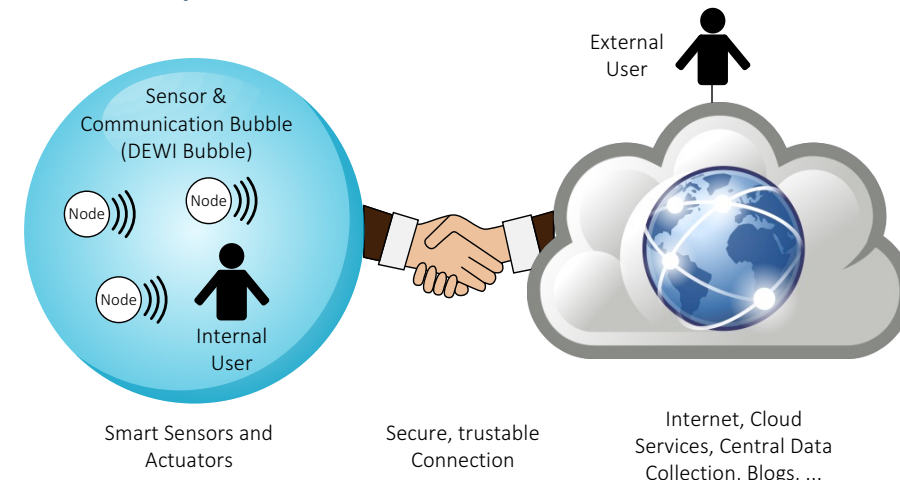


TRL 3-4(5)



2017-2020

- Applications in aeronautics, automotive, home/building automation, **healthcare**, and rail + **cross-domain**
- For professional and private users
- **Focus on (measureable) security, privacy and trustability** + Connection to the "Cloud" (5G)
- Comprehensive use of DEWI results

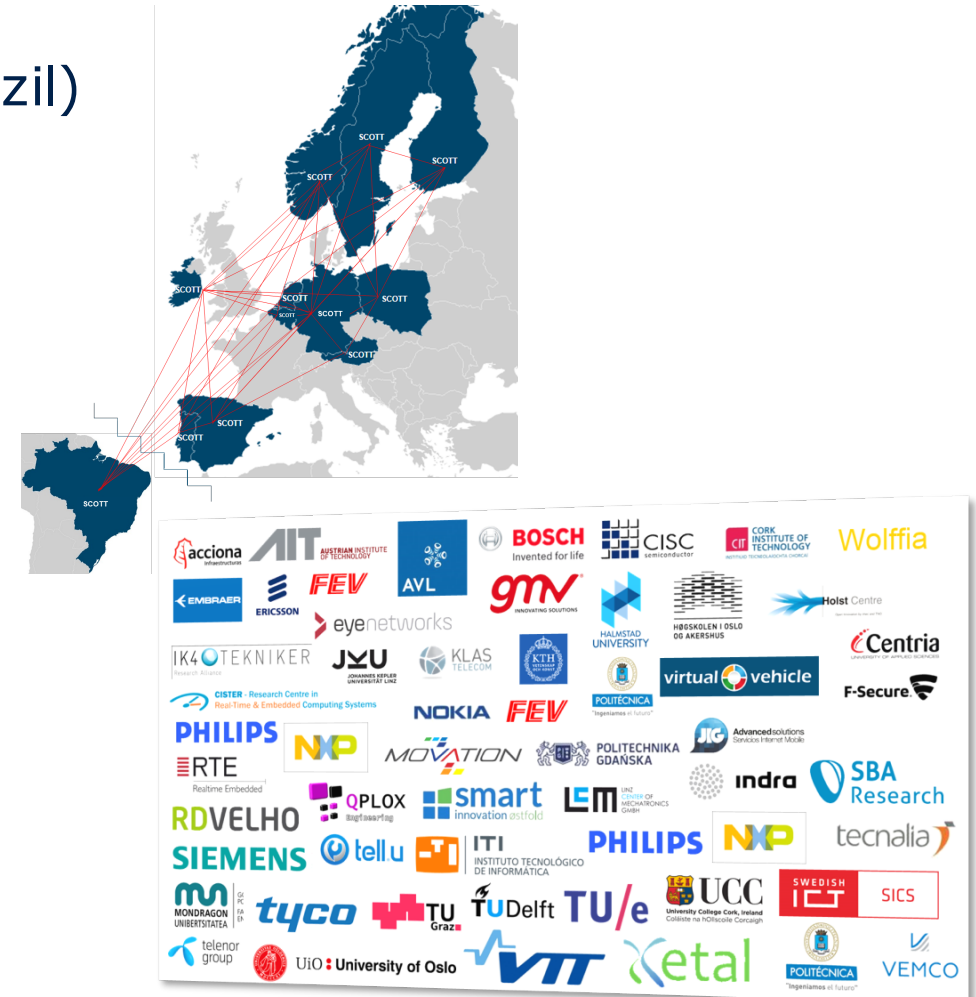


TRL 6-7

SCOTT – Secure COnnected Trustable Things

- **Coordinator:** VIRTUAL VEHICLE Research Center
- **57 Partners from 12 Countries**
(AT, BE, DE, FI, ES, IE, NL, NO, PL, PT, SE, and Brazil)
- **15 industry-driven Use Cases (TRL 6-7)**
- **50 Technology Building Blocks**
- **25 Demonstrators**
- **5 (+1) Domains:** Automotive, Aeronautics, Home/Building, Rail, Healthcare, and Cross-domain
→ truly “cross-disciplinary”
- **~40M€** Project Budget
- **2017 – 2020** (started in May 2017)
- **“more than 120 dedicated people working full-time over 3 years”**

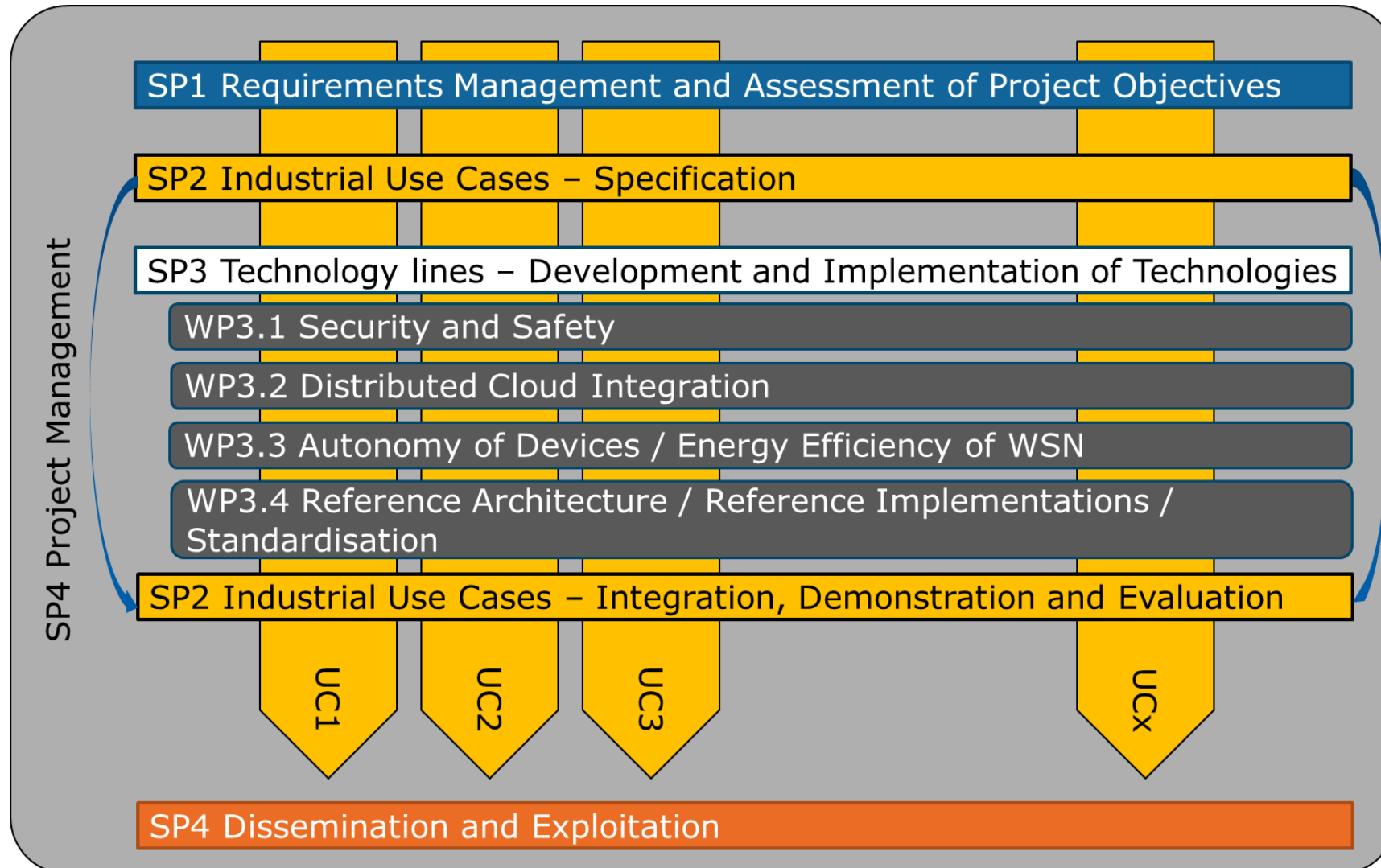
www.scottproject.eu



■ “Building Trust in the Internet of Things”

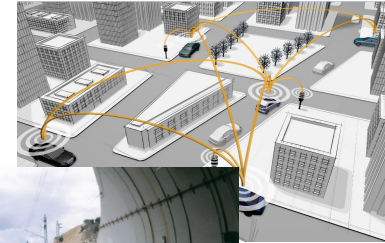
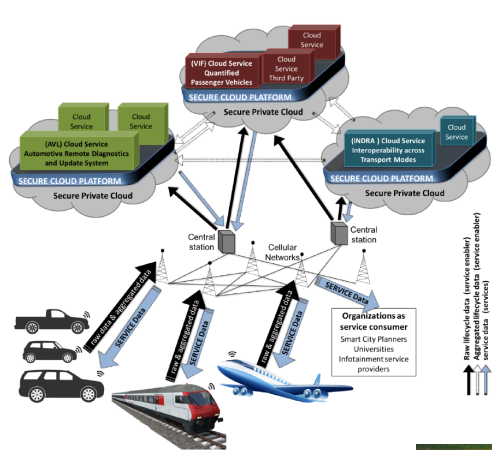
- Provide comprehensive cost-efficient solutions of wireless, end-to-end secure, trustworthy connectivity and interoperability to **bridge the gap to the market** (key enabler to exploit the full potential of IoT)
- Not deal with just 'things that are connected', but '**trustable things that are connected**',
- **Bundle the European key players from several industrial domains**
 - to make full potential of cross-domain synergies and
 - to strengthen Europe’s position in the emerging technology field of secure IoT



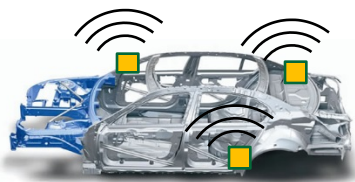
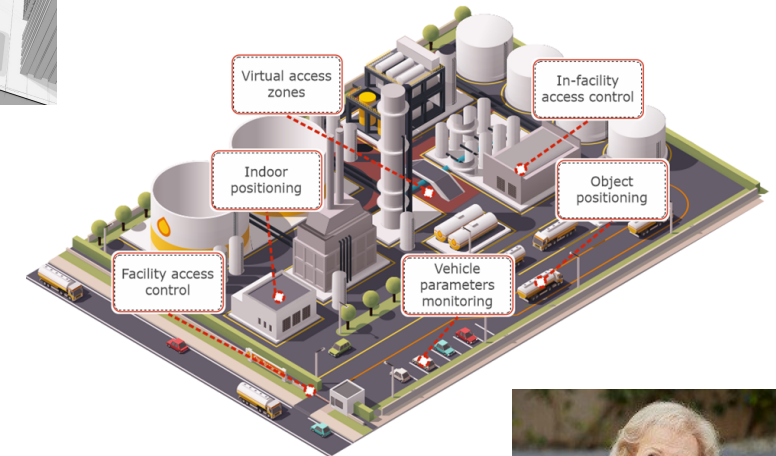


SCOTT – 15 Use Cases from European Industry

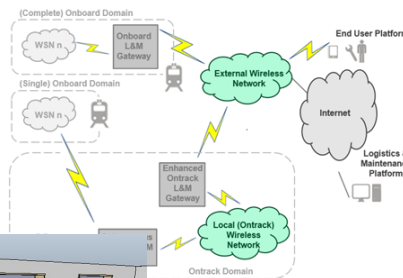
■ Aeronautics, automotive, home/building automation, healthcare, rail + cross-domain



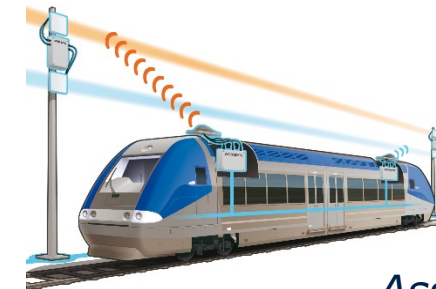
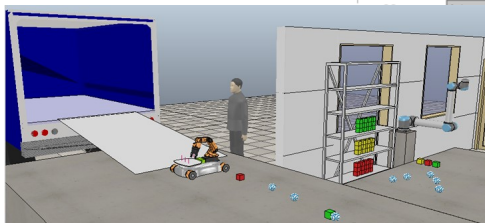
Vehicle-as-a-sensor within smart infrastructure



Trustable wireless in-vehicle communication network



Air quality monitoring for healthy indoor environments



Assisted living and community care



Framework for Building Trusted Systems

- Building trusted systems is a **complex issue of technical and non-technical** factors
- Trust is different from system acceptance
- Trust **calibration** is essential, not just trust vs. no trust
- There are **plenty theories and knowledge** about trust
 - How do we translate this into system design?
 - How can we create generalizable lessons learned?
- The central concept in our framework are **„trust issues“** which are the specific, contextualized concerns that a system does not meet the trustors goals

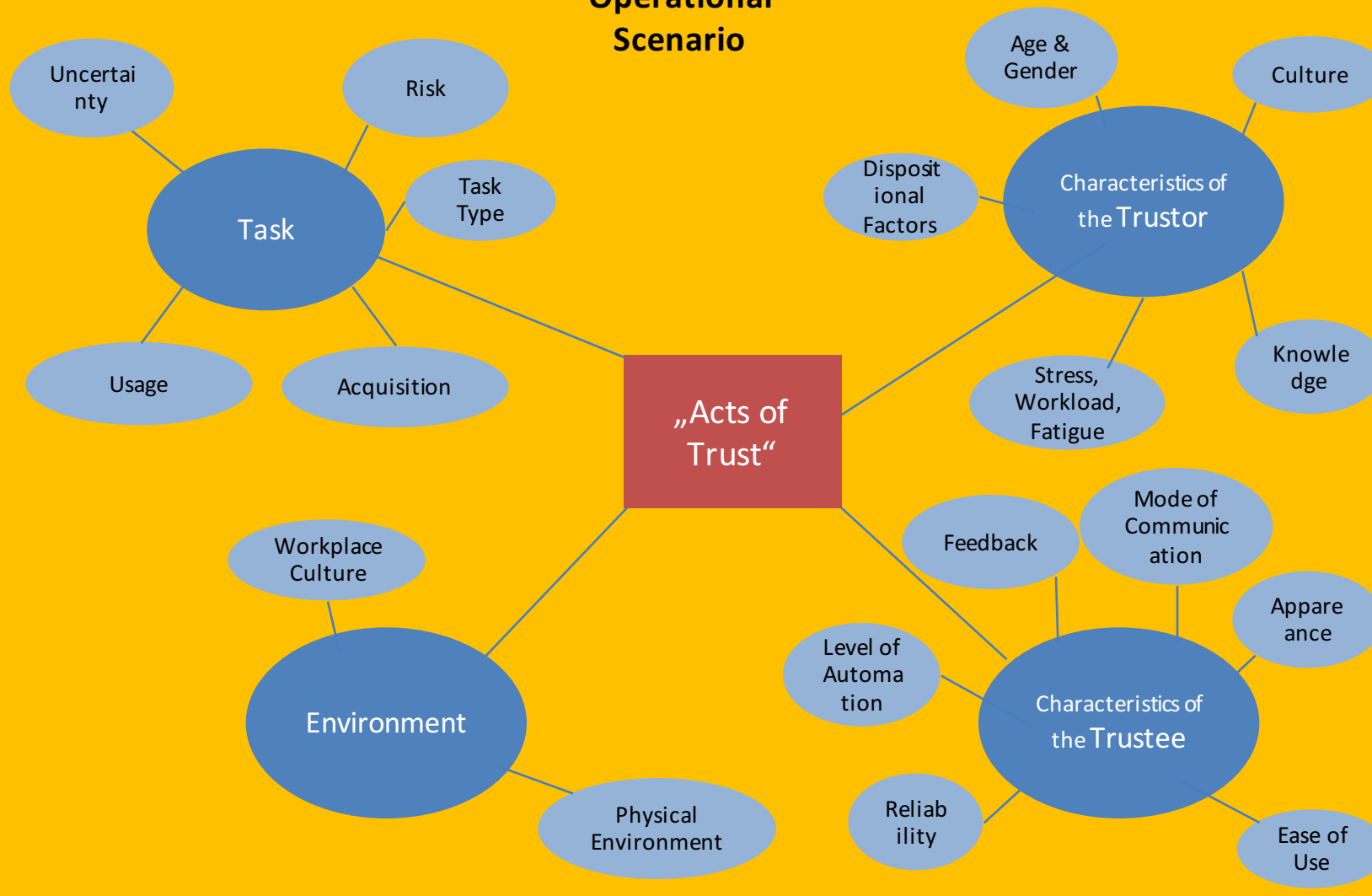
- *"Trust is the attitude that an agent will help achieve an individual's goals in a situation characterized by uncertainty and vulnerability."*
(Lee & See 2004)

If you had the choice, would you cross this bridge?



https://www.scientificcomputing.com/sites/scientificcomputing.com/files/Solving_the_Trust_Equation_Socially_Intelligent_Computers_can_turn_Difficult_Negotiations_into_Win-win_Situations_ml.jpg

Operational Scenario



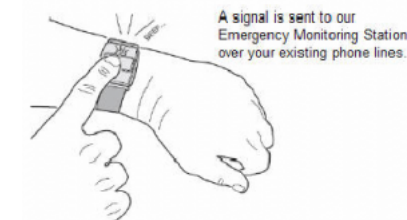
- Trust issues are concerns of users or potential buyers about aspects of the system that relate to the trustor's uncertainty and vulnerability.
 - Can concern reliability, availability, usability, security, functionality, ..
- The extraction of trust issues occurs from the viewpoint of the trustor

Trust Issues in (Virtual) Healthcare Example (1 of 2)

- Jennifer's elderly father lives alone at his home
 - This is where he prefers to live
- Jennifer is afraid that he may fall and hurt himself
 - Risk of severe complications
- Jennifer looks into emergency alert systems that would allow her father to quickly alert emergency in the case of a fall
 - Such systems generally require a transmitter to be worn
- Knowing her father, Jennifer believes that he would not wear this transmitter ("trust issue")
 - Forgetting
 - Lack of risk awareness
- The system would not provide the intended function
 - How could a system overcome such a trust issue?
 - How about a permanently wearable sensor that automatically detects falls?



In case of emergency. You press the button.
(It can be worn on the neck, wrist or belt)



A signal is sent to our
Emergency Monitoring Station
over your existing phone lines.



Trust Issues in (Virtual) Healthcare Example (2 of 2)

- The fall protection system gives emergency teams directly access to the house
 - E.g. by automatically unlocking doors
- Trust issue: Jennifer's father is afraid that a burglar could exploit the emergency alert system and that emergency crews could be given access to his home
 - Would the main user be amenable to rational explanation of system security?
 - Could additional features be helpful to address the trust issue?
 - How about integrated functionality with a home alert system?

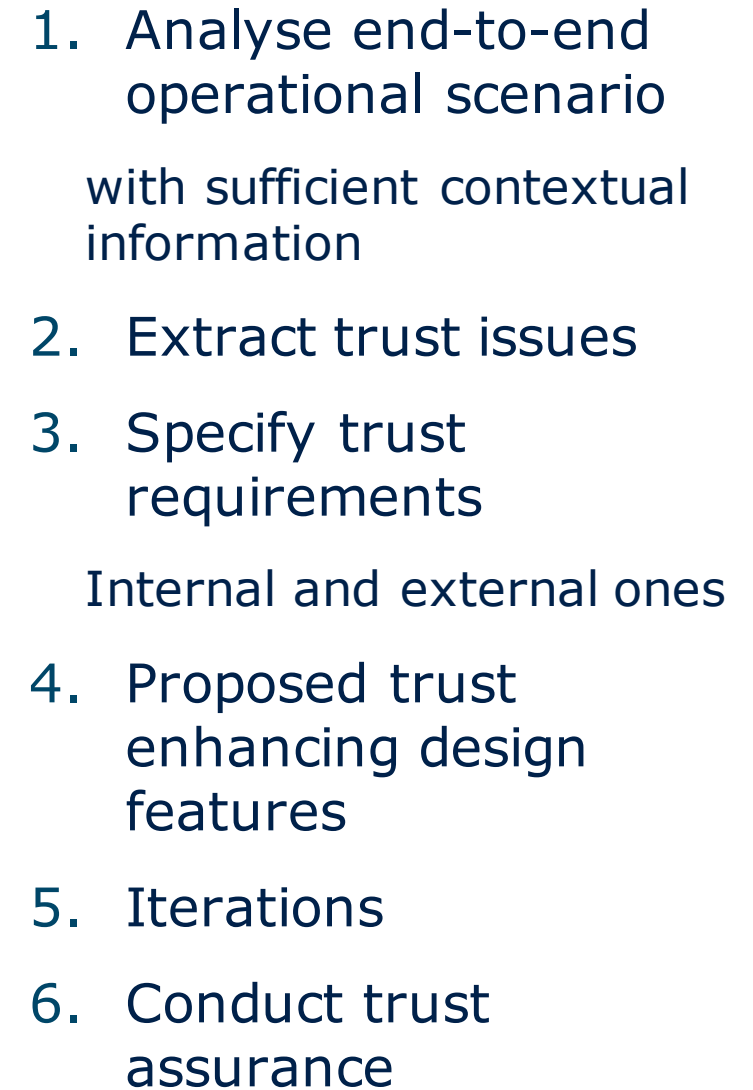




The SCOTT Trust Framework is about

- stepping back
- to see the problem situation more completely
- to understand the people who have to build trust
- consider their characteristics and constraints, and
- find solutions that address their concerns.





The Cat: Postures & Levels of Trust



The Cat: Postures & Levels of Trust



The Cat: Postures & Levels of Trust



SITTING WITH LEGS CURLED:

"...OR MAYBE A FEW MINUTES.
BUT READY TO LEAVE ANYTIME!"

The Cat: Postures & Levels of Trust



FRONT LEGS RELAXED:

"IN FACT, I KINDA
LIKE IT HERE"

The Cat: Postures & Levels of Trust



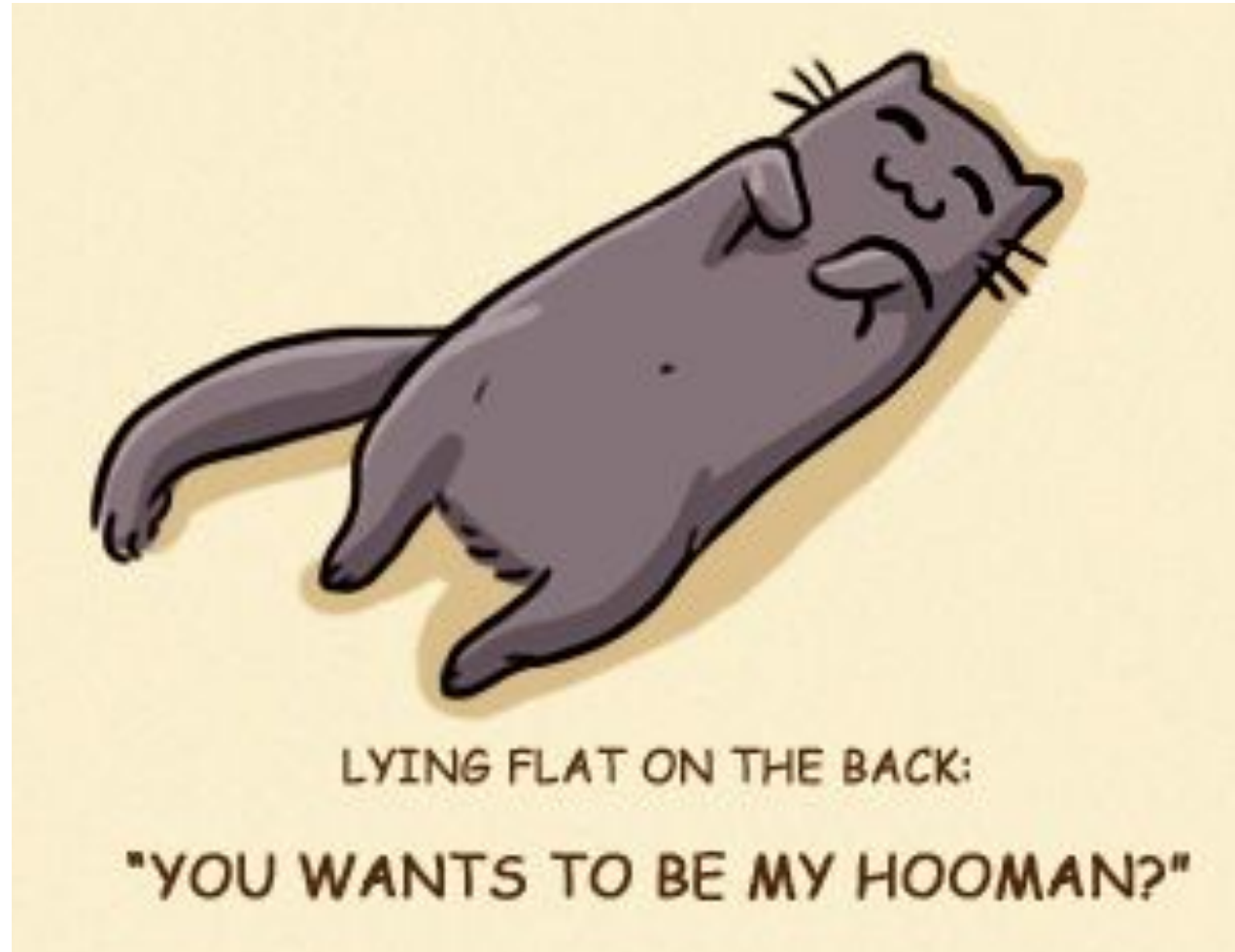
The Cat: Postures & Levels of Trust



VISIBLE BELLY, CRAZY EYES, CURLED SPINE:

"I THINK I EVEN LIKE YOU"
(MAKE A MOVE AND I'M OUT OF HERE)

The Cat: Postures & Levels of Trust



The Cat: Postures & Levels of Trust



Werner ROM / Michael KARNER

VIRTUAL VEHICLE Research Center
Inffeldgasse 21A
8010 Graz/AUSTRIA

DEWI

- dewi@v2c2.at
- www.dewiproject.eu

SCOTT

- scott@v2c2.at
- www.scottproject.eu