

RFID Privacy & Security

Trevor Peirce, AVANTA Global SPRL
avanta@scarlet.be
+32 2 767 4511

RFID – The Privacy Challenges

Data Protection

Terrorism

Property Theft

Authentication

Government Databases

Identity Theft

Counterfeit – Substitution/Dilution

Commercial Databases

RFID

Smart Cards / NFC

Networks

Internet of Things

CCTV

Sensor systems



Machine-to-Machine

CONSUMER CONVENIENCE

COMMUNICATION

CONTROLS

VISIBILITY

CONSUMER CHOICE

INTEROPERABILITY

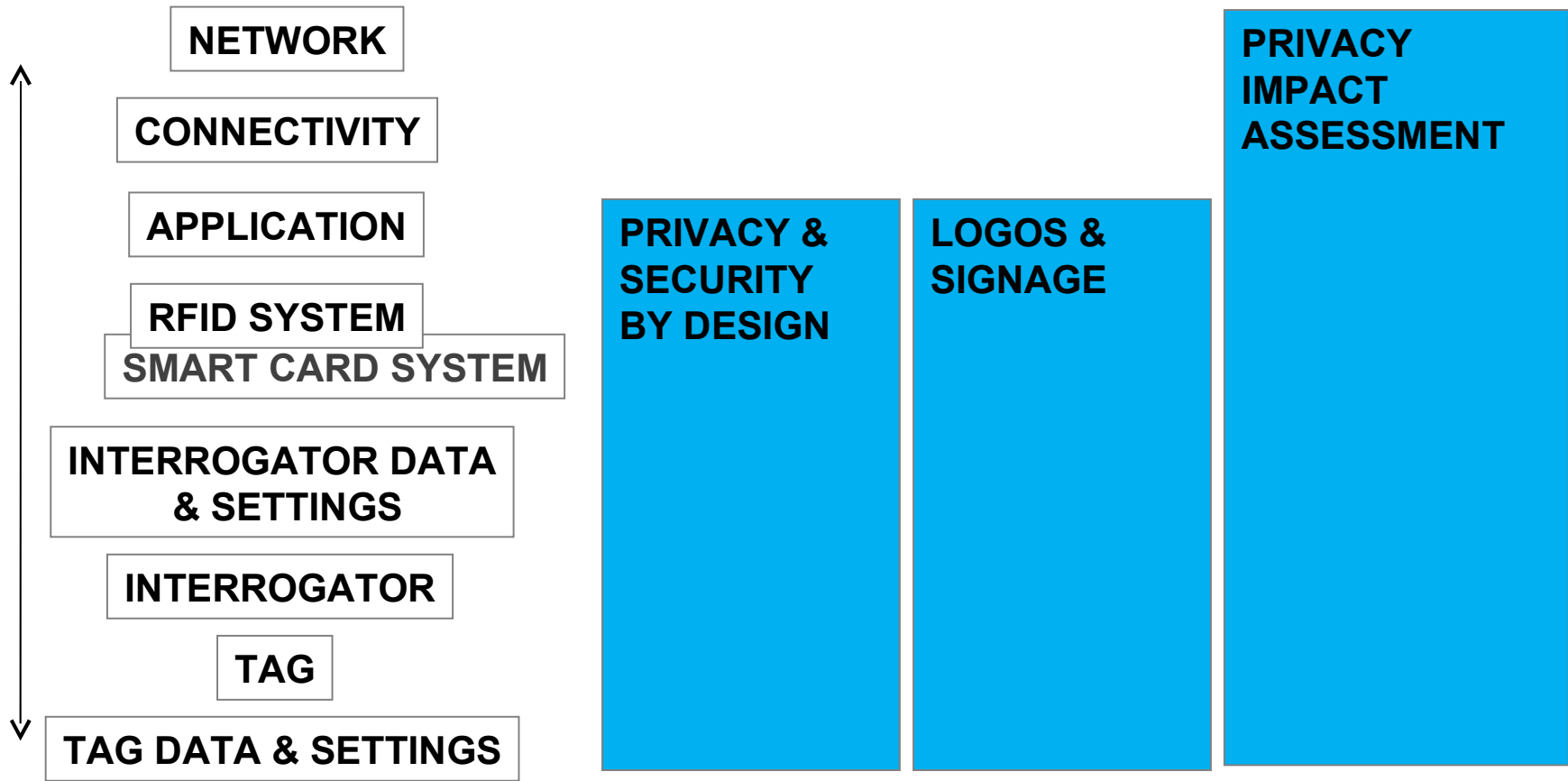
Why RFID Privacy & Security?

- Privacy & Security are key factors in widening market adoption
 - Consumer trust Minimize threats to individuals without compromising end users requirements
 - End user confidence Investment risk reduction through diminishing chance of future punitive legislation
 - Positively influence future legislation Clearly separating the 'good' from the 'bad' and just plain 'ugly'
- Increasing public general awareness through:
 - Retail
 - Healthcare
 - Government documents
 - Financial instruments
 - Etc...



RFID – The Privacy Challenges

DATA PROTECTION LEGISLATION



RFID – The Mandate

- Assigned to ESOs
- Supporting the Recommendation
- Phase 1
 - Development of Recommended Steps for Phase 2
 - PIA Framework with RFID system enhancements
 - Signage & logos for application areas & system components
- Phase 2 – Creation of Missing Standards



RFID - Building Public Confidence

- Real and Effective Choice
 - Can I choose to use the RFID technology I own?
 - Can I control the access of others to the technology I own?
- Visibility
 - How can I know when RFID is invading my private space?
- Convenience
 - Are the privacy & security features a positive experience for consumers?
- Protection
 - Can I determine when I am threatened and take action when I am?
 - Can I trust that I am protected?
 - Where am I protected? [Interoperability of privacy & security features]
- Security through RFID
 - Is my RFID an effective deterrent or offer me protection from crime risks?
- Safe
 - Readers must not threaten health, particularly at risk are employees

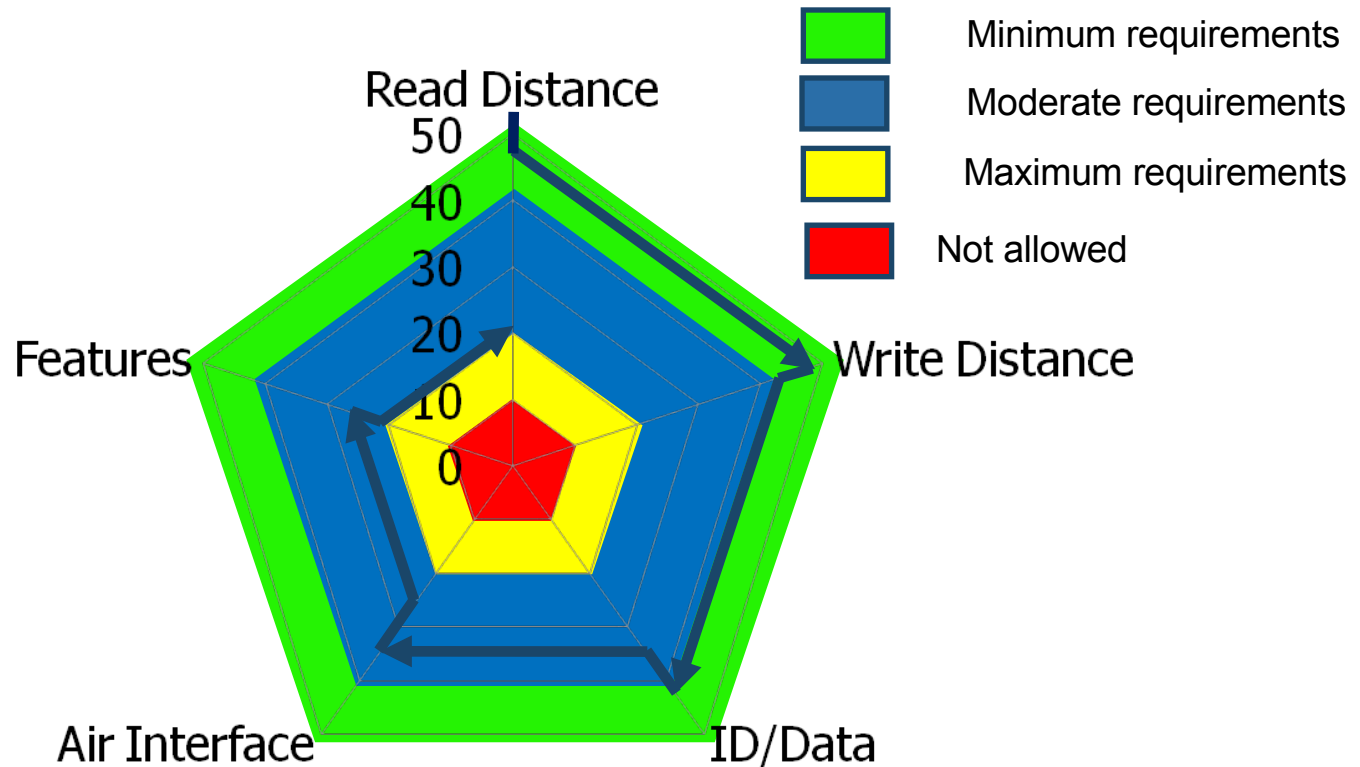
Likely threat Models & Definitions

- Message manipulation
 - Modify data or reported events to misrepresent or mislead or...
- Message masquerade
 - Pretending to be you or a legitimate process event or...
- Traffic analysis
 - Patterns in data you or an organization generates which identifies you, an item, etc..
- And so on ...
- Security is the feeling you get when there is no current known or perceived risk to your well being
 - Perceptions important as well as future risks and current threats
- Attributes we want to verify and preserve:
 - Authenticity
 - Authority
 - **Confidentiality**
 - **Integrity**

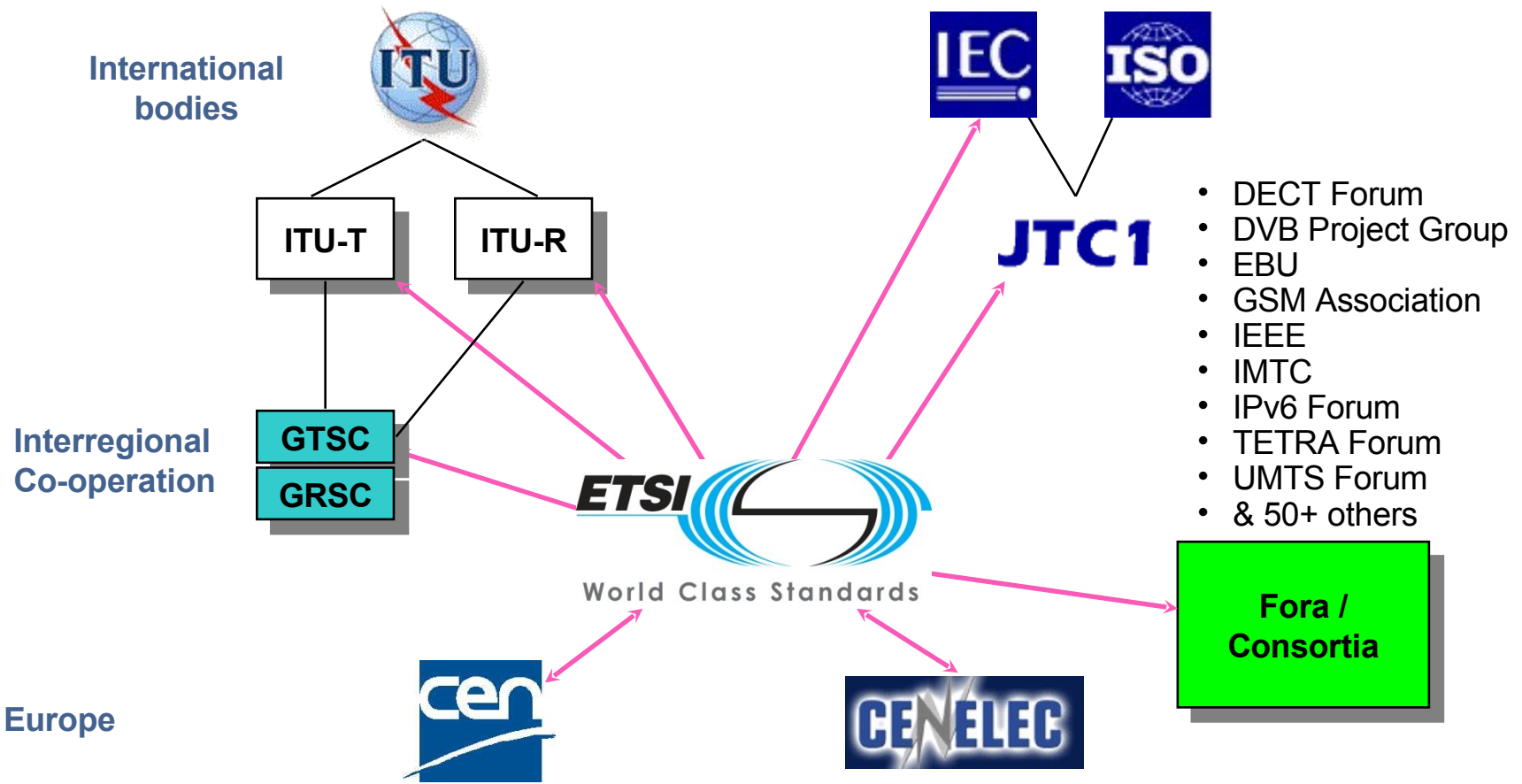
RFID System Security & Privacy

PRIVACY IMPACT ASSESSMENT (PIA)

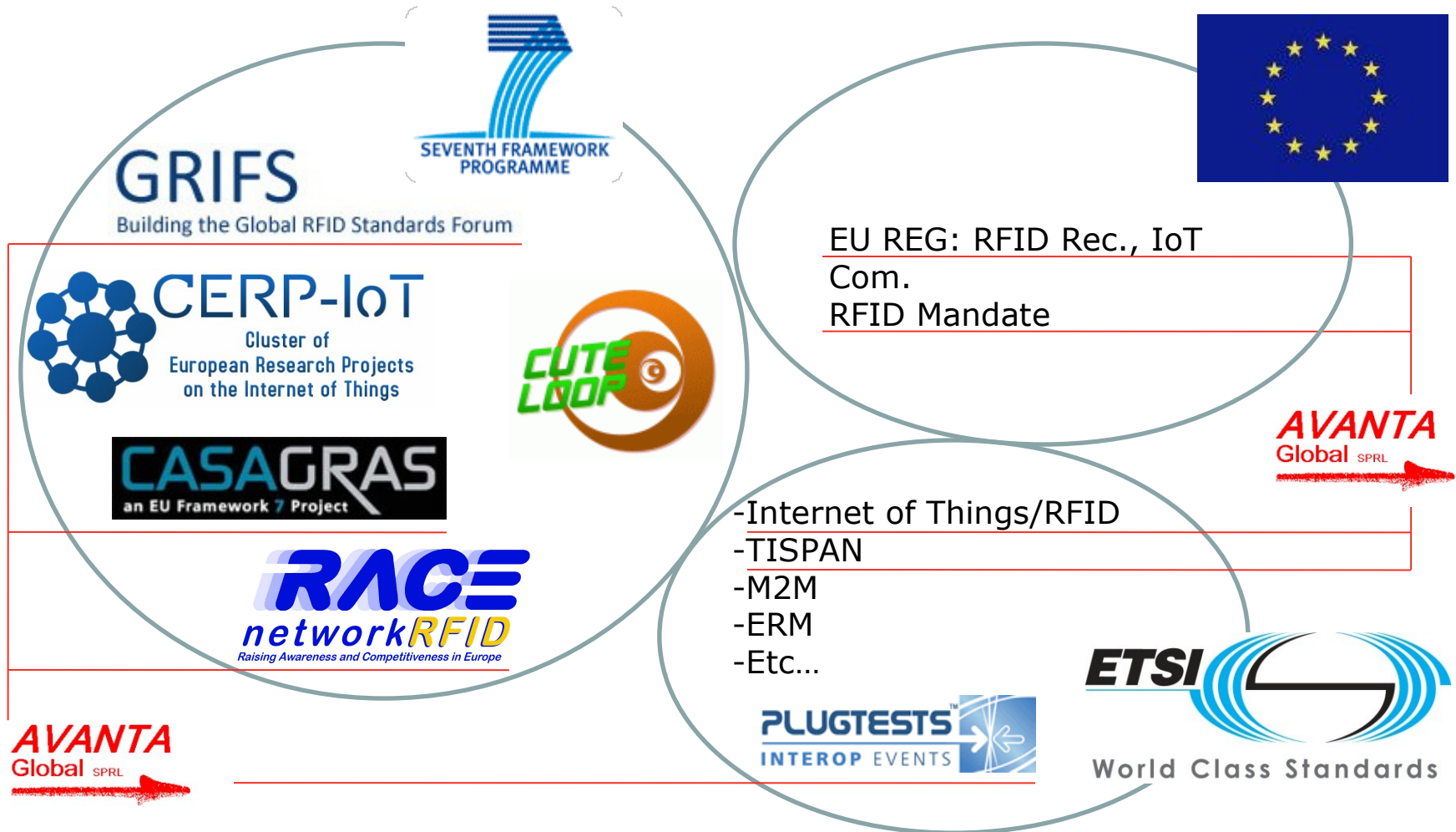
– RFID System Assessment Process (*PRELIMINARY PROPOSAL*)



ETSI's relations with ITU, IEC & ISO



ETSI with RFID/IoT



AVANTA Global SPRL

AVANTA Global - Expertise

Management

RFID

EPCglobal
Strategies

Process/Industrial Engineering
Process Re-Engineering
Management System
Process Controls

Project Management
[PRINCE II Qualified]
Business Case

Procurement

Number Systems
Number System Management

Supply Chain Management

Technical

RFID

Technology Selection
Standards
Systems Architecture

Bar code

Wedges & controllers
Printers
Labels
Hand Held Scanners
Unattended Scanners
Verification

Weigh scales
Volumetric Measuring

AVANTA Global SPRL

- Principle consultant Trevor Peirce since May 2006
- Current and Recent Activities:
 - Global leading Medical Device manufacturer:
 - AutoID Supply Chain Strategy Consulting
 - AutoID Programme Coordination
 - RFID Project Management
 - Standards Organization/European Community
 - CASAGRAS
 - GRIFS
 - RACE Network RFID
 - ETSI/CESI China RFID Plugtest
 - RFID Privacy & Security initiatives
 - Mandate & Recommendation response in collaboration with European Standards Organizations
 - ETSI: Next Generation Networks (NGN) RFID/Smart Card Privacy and Security Work Item
 - RFID System Provider
 - Healthcare Business Development (US & Europe)
 - EPCglobal Standards Collaboration
 - Digital Pen Solution Provider
 - Transport & Logistics Market Evaluation

RFID - Standards Director EPCglobal

2005 – 2006

- Responsible for an international team of 7 Standards Managers co-ordinating 1,500 subscribers engaged in gathering industry requirements across supply chain sectors
 - Consumer retail
 - Healthcare
 - Transport & logisticsand delivering the technical standards which define the EPC (Electronic Product Code) Network™ based upon Radio Frequency Identification (RFID) to the timing defined within the Strategic Work Plan
 - Hardware Action Group
 - Software Action Group
- Co-ordinator of relations with industry associations e.g. IATA, WCO, etc..
- Supporting GS1's 107 country Member Organizations with specific focus upon Australia, India, Hong Kong, Japan and, Singapore.

RFID - Programme Director, DHL

2003 - 2005

- Defining the future vision, direction and strategies that form DHL's RFID Program influencing RFID Projects across
 - Express (air/ground)
 - Freight
 - Solutions
 - Air & Ocean
- Co-ordinator of 1.4 MUSD DHL RFID Pilot Projects in Americas and Asia Pacific
- Technical advisor to Metro Solution Team as part of their "Future Store Initiative" (FSI)
- Responsible for technology extending beyond RFID to
 - GPS
 - mobile communications
 - IS
- Internal and external communications hub for DHL/Deutsche Post e.g. Time Magazine

Engineering Manager, DHL

2001 – 2003 Global Coordination Centre

- Manager of a global development team of 4 consisting of Engineers and Project Managers whom together have contributed to 45 million Euro savings in operational and procurement costs
- Responsible R&D projects
- RFID Project Manager securing 1.3 million Euro external funds
- Responsible for Global Air waybill numbers, procedures and systems, and critical operations supplies specifications totalling 56 million Euro
- Functional leader of 9 European country Engineers and business wide cross functional teams

1997 – 2001 Europe, Africa and Middle East Regional Office

- Project initiator and Manager of research, development and deployment of automated systems enabling a revenue improvement of 2%, justifying investment cost of 3 million Euro
- Process Improvement Project Manager for projects at DHL Oslo and Gothenburg
- Responsible for evaluation and testing of unattended bar-code scanner systems and RFID