The emerging Security Paradigm

Empowerment & Context Security
The Route to Growth & Security

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Priway

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Security in Context

.. because the alternative is not an option

http://www.priway.com

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Agenda

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1. Risk – linking security, privacy, economy and trust
2. The present self-destructive security paradigm
3. Empowerment & Context Security – future security
4. Problem solving using Security by Design
    1. Citizen ID – a context security adding value to National Id
    2. RFID – adapting security to the value chain requirements
5. Summary

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What is Trust?

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Trust :: **the amount of Risk willingly accepted in a context**

Technical Term
Accepted
Dependability

The Perception of Risk can in context both be overestimated (fear) and underestimated (naïve) but

Over time learning will align risk perception to reality

Except in rare cases, risks are avoided and minimised, i.e. risk involve trade-off's and compensations.

Lack of Control create resistance

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Biometrics – attackers dream

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Biometrics with foreign verification of bodily constants

- Only approximate
- Publishing passwords
- Can always be spoofed
- Cannot be revoked

Create crime / Identity Theft
- Reverse of Burden of proof
- More only worsen the problem
- Lack plausible deniability

Destroy Data Security
- Linkable across context
- Does NOT ensure consent
- Block User-centric Id mgt.

Deterministic failure
- Create uncontrollable risk
- Make Empowerment impossible
- Make Dependability impossible
- Likely fail 100% -> Feudalism

The ONLY secure Biometrics – is NOT to use Biometrics!

Reserve for Root ID, Id Device mgt, threat escalation, post-crime forensics

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Biometrics is not a solution
It is a primary threat !

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Politicians should not be asking how to promote biometrics.

Politicians have a serious problem on how to **prevent crimnal abuse of biometrics** and pervasive surveillance !

Publishing Biometrics for Plausible deniability?

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The dying Security Paradigm

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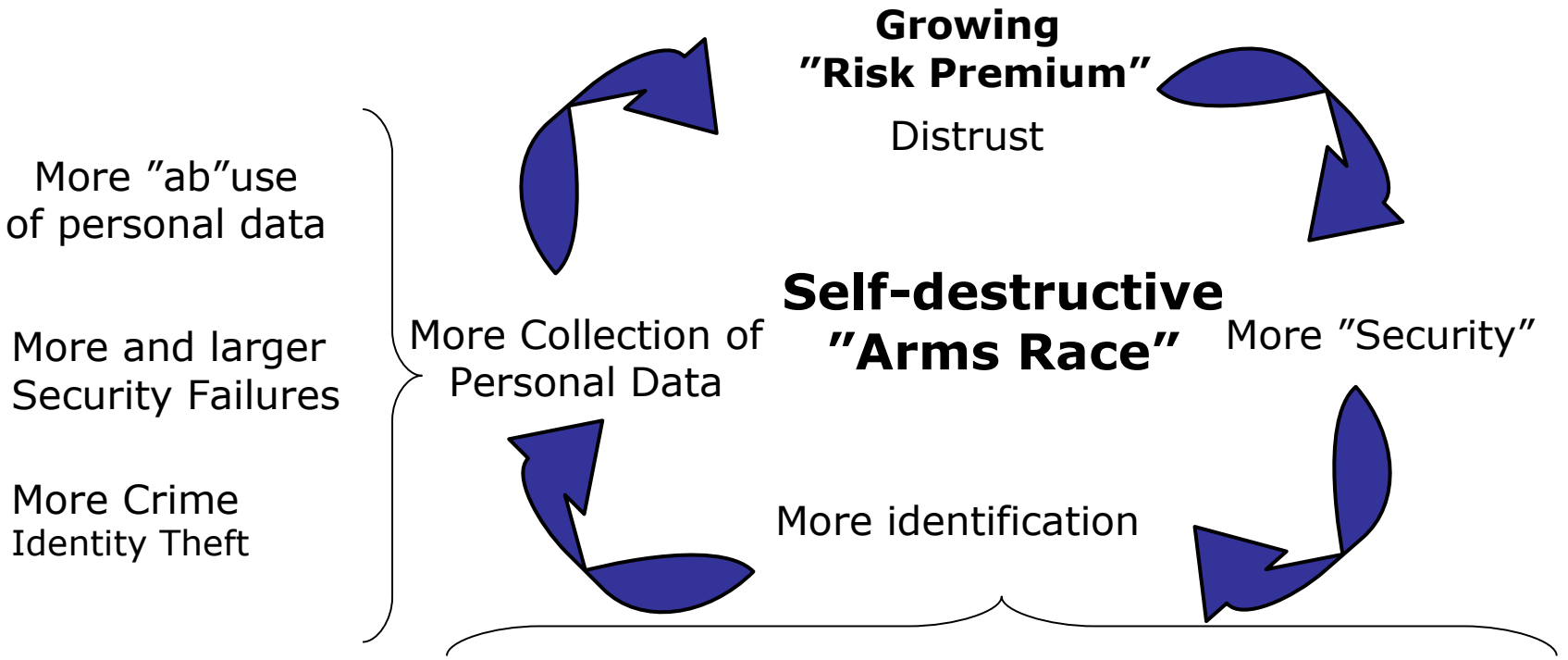

Risk accumulation

Identification never perfect
More Identity Theft and
Reverse burden of proof

Digital Feudalism

Pervasive surveillance
And abuse of surveillance
Criminals can do everything
government can do

Without changing our pattern of thought, we will not be able to solve the problems we created with our current patterns of thought.
Albert Einstein

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No Security without privacy

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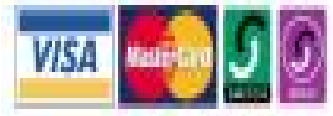
1. Challenge → 2. Challenge

Targeting
Reusing Id

Mafia Fraud Attack



PKI

"Secure Chip"/
Shipment Id

"Trusted"
Person

Log

4. Response ← 3. Response

5. Biometric
Verification

Tracking
No log security

Id Theft
Foreign reader

Triggering
User not involved

Central control is zero security

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Fribourg Privacy Diamond

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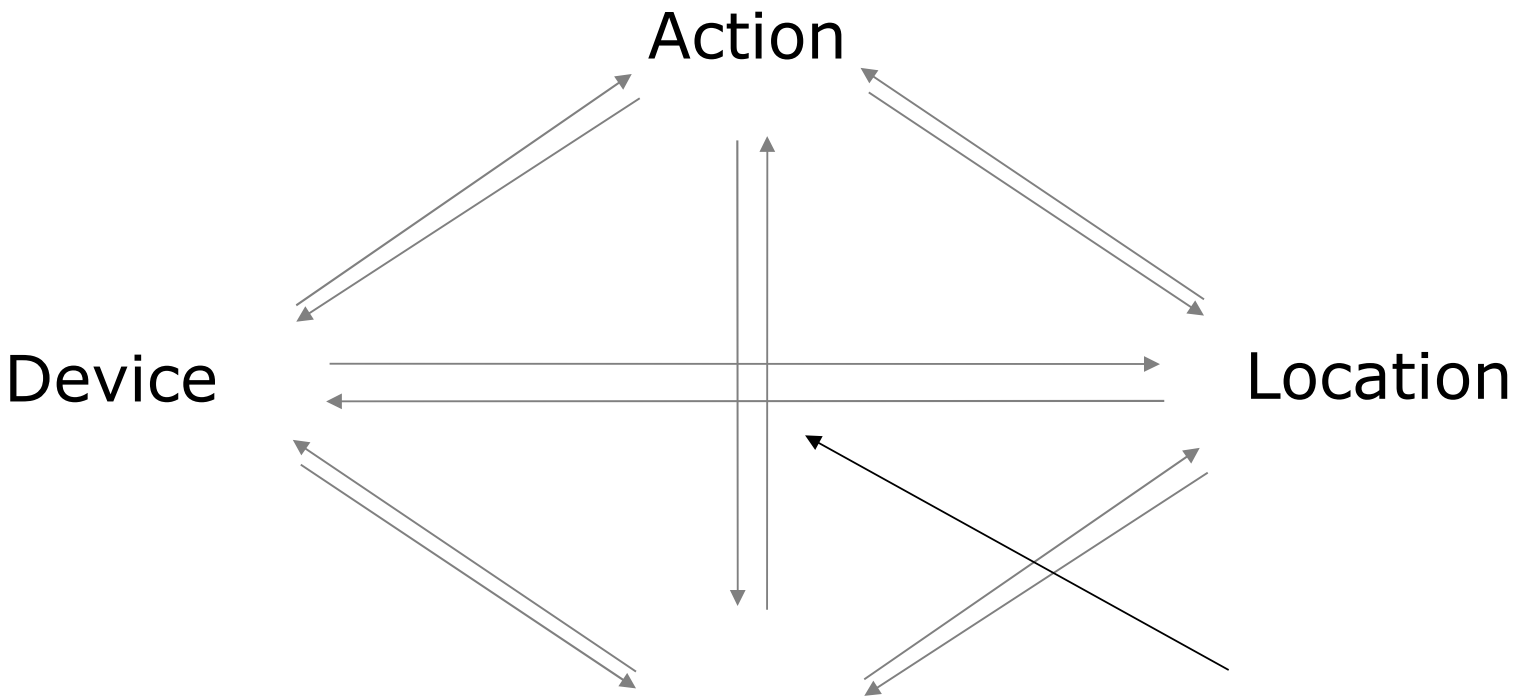

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Think new dimensions

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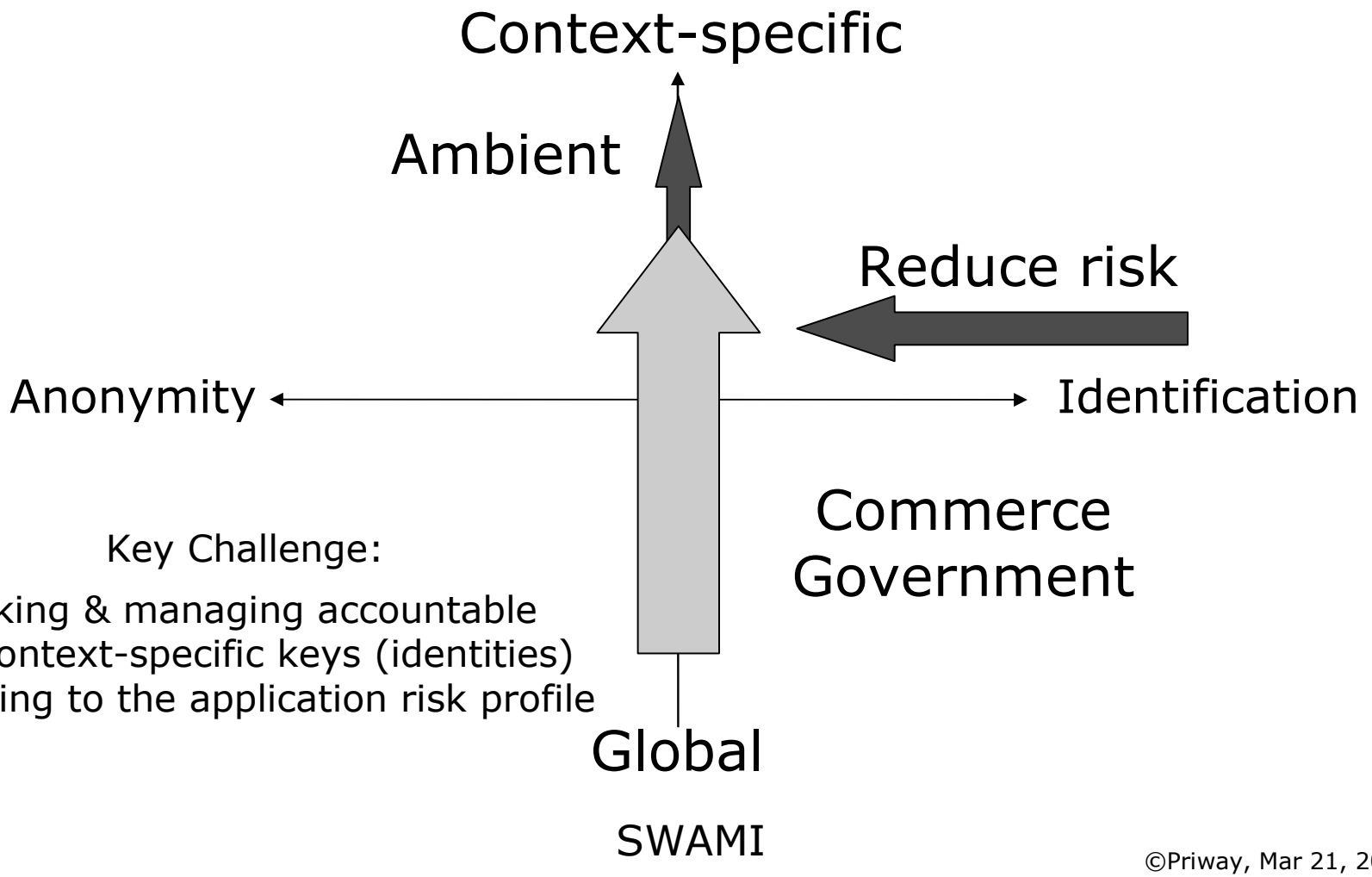
Priway Identity Model



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Priway emerging solutions

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- Zeroleak™ (Making Devices adapt to context)
  - Slave & P2P Devices & Sensors
  - Master communication Devices
  - Identity Devices

Citizen Id

- PrivacyId™ (Making Trusted parties trustworthy)
  - Privacy-enabled PKI
  - Cross-channel User-centric ID management.
- PrivacyTrust™ (Transaction in context)
  - Managed Service resolving security assertions in context

What matters is not how it works, but how it fails.
Bruce Schneier

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Priway Security Diamond

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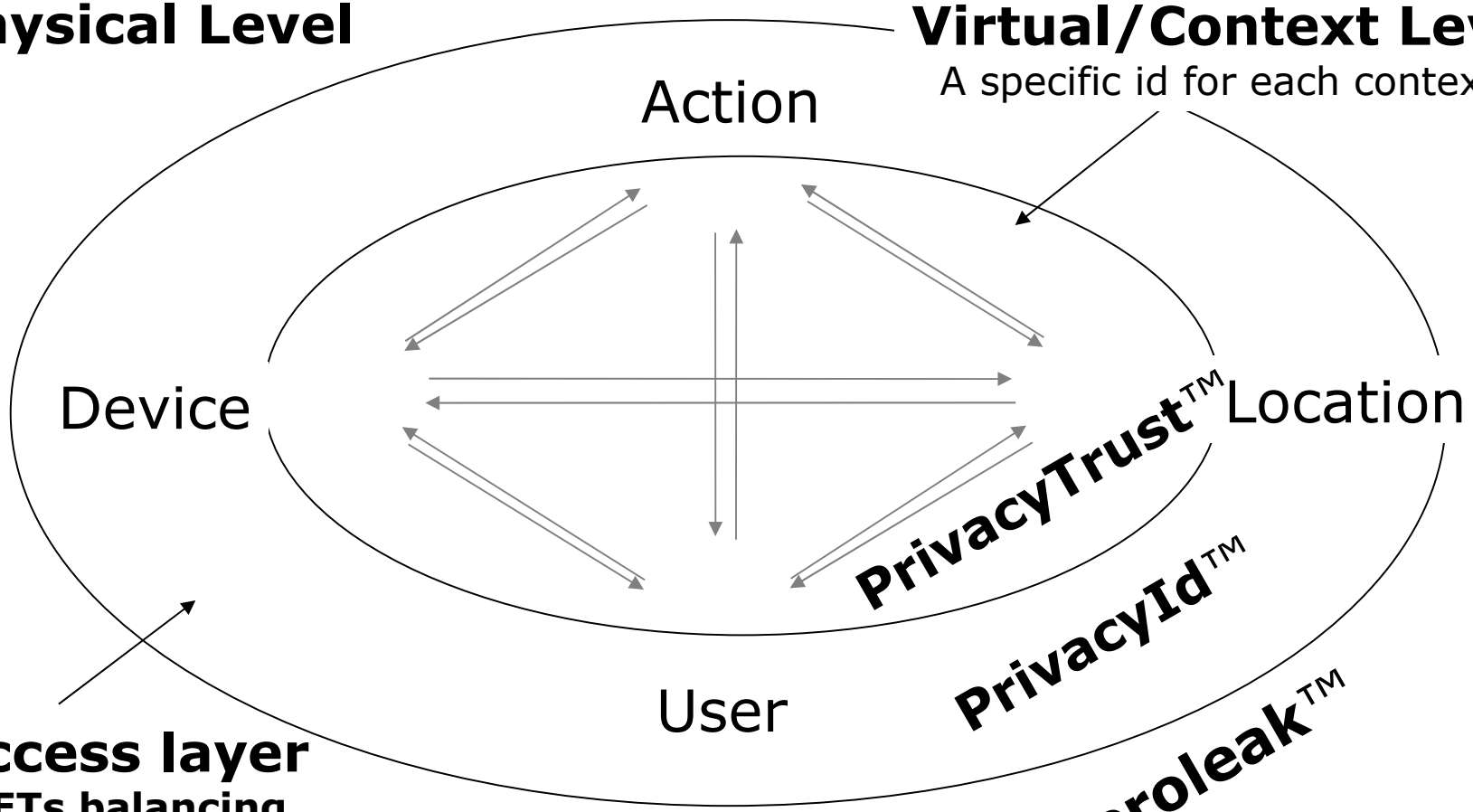

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Citizen Id is context-specific

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- Priway User-centric & anti-identity theft Devices
- Java-card or similar that
  - Detect context BEFORE it assume or create an identity
  - Making National Id a solution (instead of a problem)
  - Integrate with Channel management
  - Adapt to security requirements in context
  - Is instantly revocable by Owner
  - ONLY on-card Biometrics readers for self-protection
- Controlling a secure Master Communication device
  - E.g. mobile phone extended with Privacy Authentication
- Many additional aspects

http://www.securitytaskforce.org/dmdocs/workshop2/stephan_engberg.pdf

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RFID Value Chain

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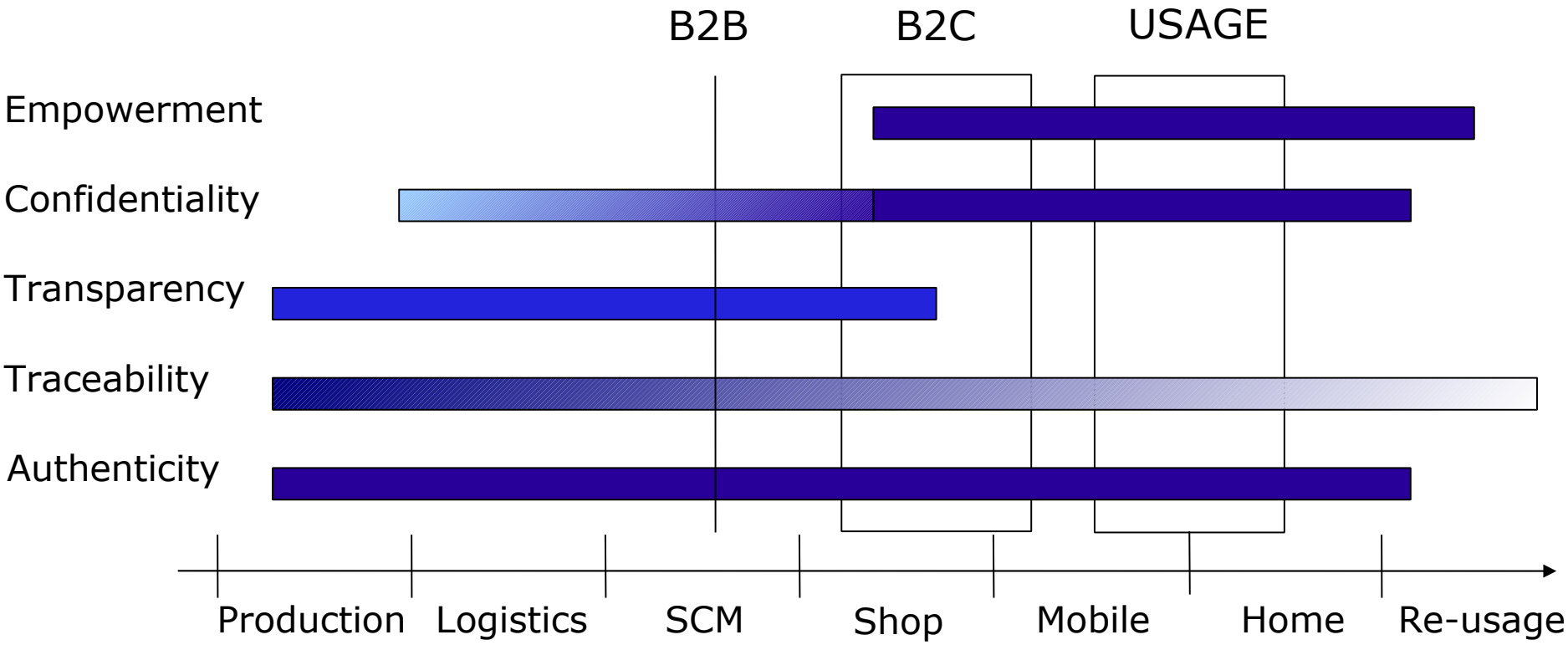
As we move closer to the end-user. Security requirements Change !!



But so does the value

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RFID security has to adapt

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- Security requirements change in the value chain
  - So device security model has to adapt accordingly
- Multiple and changing modes
  - Transparent, Encrypted, Stealth
- Multiple and Changing context
  - Dynamic Key structure, multiple keys
- Central EPC databases are zero security
  - We can not trust their confidentiality

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Context security in RFID

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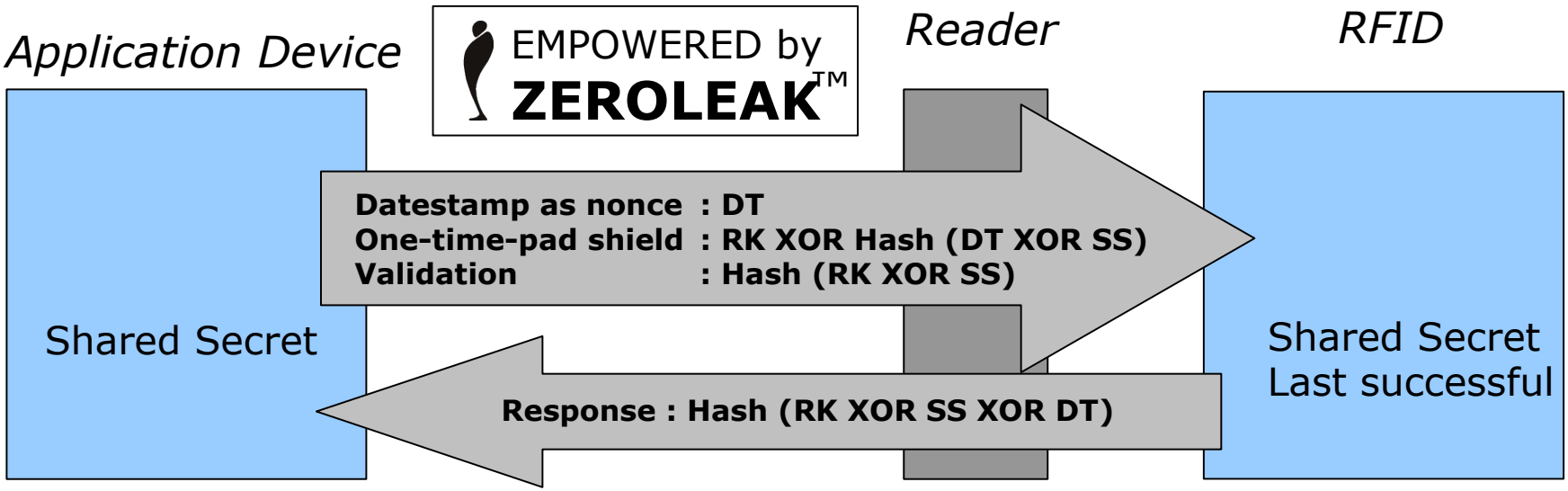

- Each RFID holds **multiple keys (typically 3-5)**
- Each key can be **verified transparently without leaking identifiers**
- RFID have **multiple modes** determining response type to a request
- **Random Session Key** used for session communication & command
- **Low-computational "overkill"** – padding random with pseudo-random
- **Many solutions** – cannot brute-force attack off-line & key changes

Moving into production → RFIDsec

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What RFID privacy problem?

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”KILL” RFID or Transfer Control

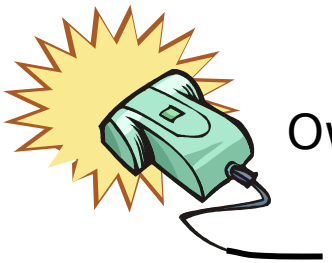
EMPOWERED by ZEROLEAK™

3. Point of Sales
New Owner Key
Swith to ”Privacy Mode”

4. Privacy AND services
Owner control RFID
Authenticity key protected

2. Logistics
EPC number transperent
Online anti-counterfeit

Consumer device



Owner Key
EPC

Owner Key
Authenticity Key

RFID Tag

1. Manufacturer
Authenticity key

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Security without Privacy? – An illusion

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Reasons for Privacy – Stakeholder security

- SECURITY — Prevent targeting, fraud prevention
- DEPENDABILITY — Security by Design, Risk reduction
- DAMAGE CONTROL — Fall-back, Context separation
- ECONOMY — Demand-Pull, Take-up
- CONVENIENCE — Adaption to context
- USABILTY — Context-awareness
- QUALITY — Customer-orientation
- EFFICIENCY — Aligning Digital Value Chains
- BASIC NEEDs — Self-determination, control, etc.
- COMPLIENCE — To law and ”principles”

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Summary

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- Trust is about real risk and perception of control
- Central Control & Surveillence destroy security
  - We cannot protect data or make secure surveillance
  - Biometrics is a serious threat to security & trust
  - Identification of people or devices create risk & distrust
  - Identity Theft force allignment of security & privacy
- Empower Citizens through context security
  - From context awareness to context management
  - Device & person id adapt to context to balance security
- Build trust by isolating risk for demand-pull growth
  - Privacy is security, security is privacy – prevent targetting
  - Using privacy as a European competitive advantage

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