A holistic approach to ensure product security

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Ericsson PSIRT

Agenda

- Ericsson at a glance
- Our perspective on Security
- SRM, this is how we do it
- PSIRT
- Vulnerability Management
- Conclusion – Next Steps

Ericsson at a glance

Enabling the full value of connectivity for service providers

Business areas:

— Networks
— Digital services
— Technology and emerging business
— Managed services

By the numbers:

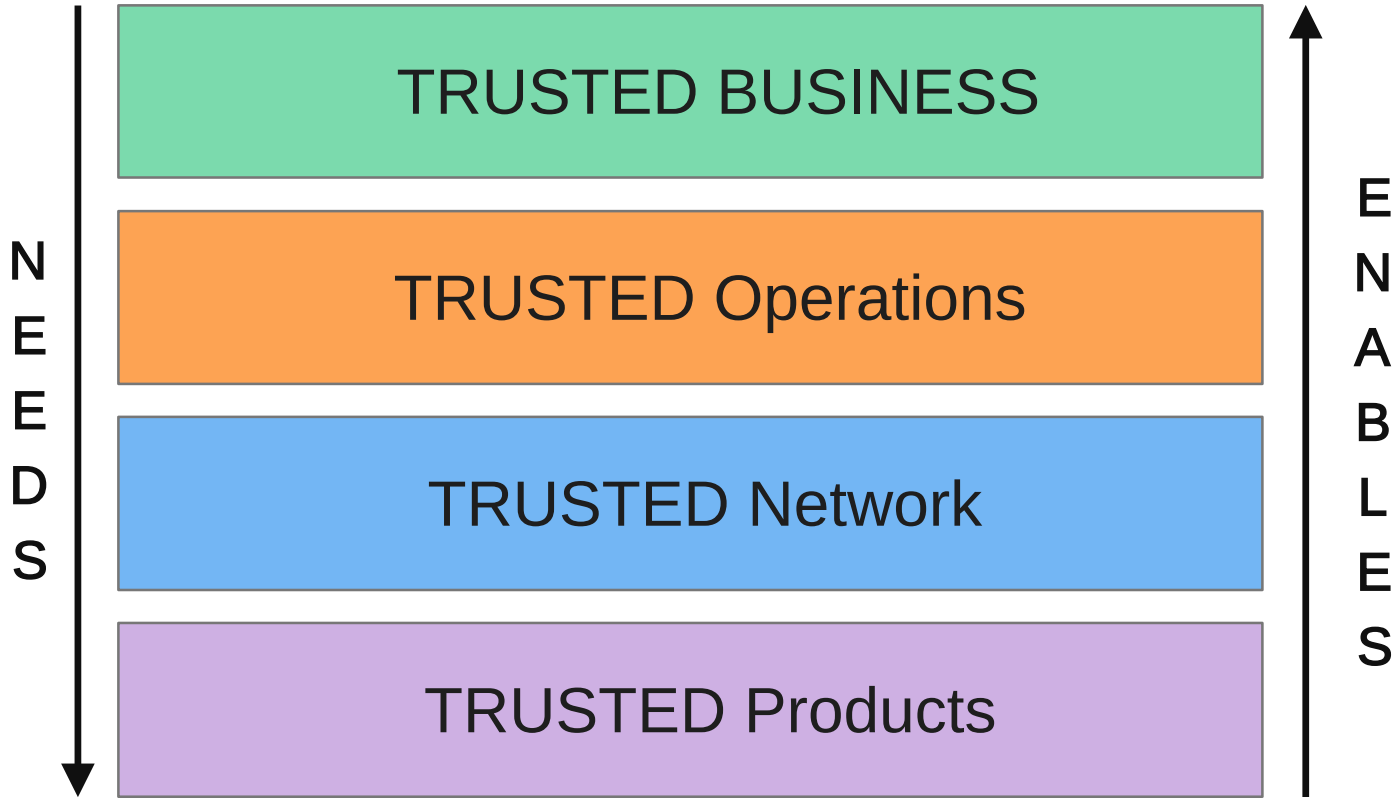
— 180+ countries
— 201.3 b.sek in sales
— 100,700 employees
— 45,000 patents

Image: Ericsson headquarters, Kista, Sweden

Our perspective on Security in the networked society

- services should always be **available**
- security should require **minimum effort** from users
- communications should be **protected**
- all **access** to information and data should be **authorized**
- **manipulation** of data in the networks should be possible to **detect**
- the right to **privacy** should be protected

BuildingTrust



Business decision to accept residual risks and manage unacceptable risks

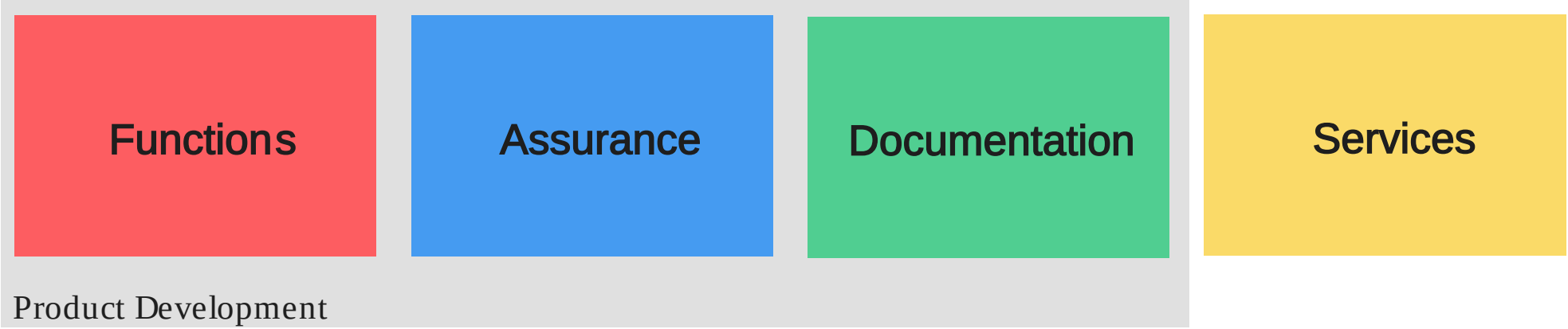
Appropriate procedures for secure operations

Sound, manageable security architecture

Devices/nodes/products without exploitable vulnerabilities

Driving & contributing to improving standards

Security Reliability Model (SRM)



Baseline Requirements & Design Rules

Baseline Security & Privacy Requirements

- both functional and non-functional requirements

Security and Privacy Design Rules

- How to implement requirements

Security Functionality areas

Security functions divided into **6 areas** based on the defence in depth.

Network Protection
- Conf & integ protection of O&M, Server side authentication

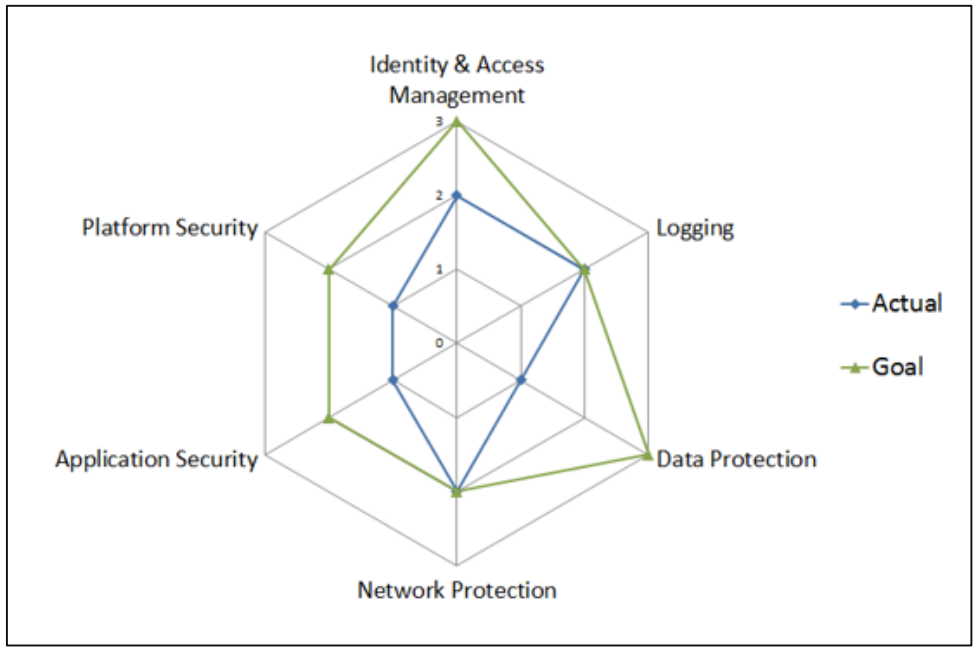
Application Security
- Software Signing, Web application security

Platform Security
- Malware Prevention, Trusted state and secure boot

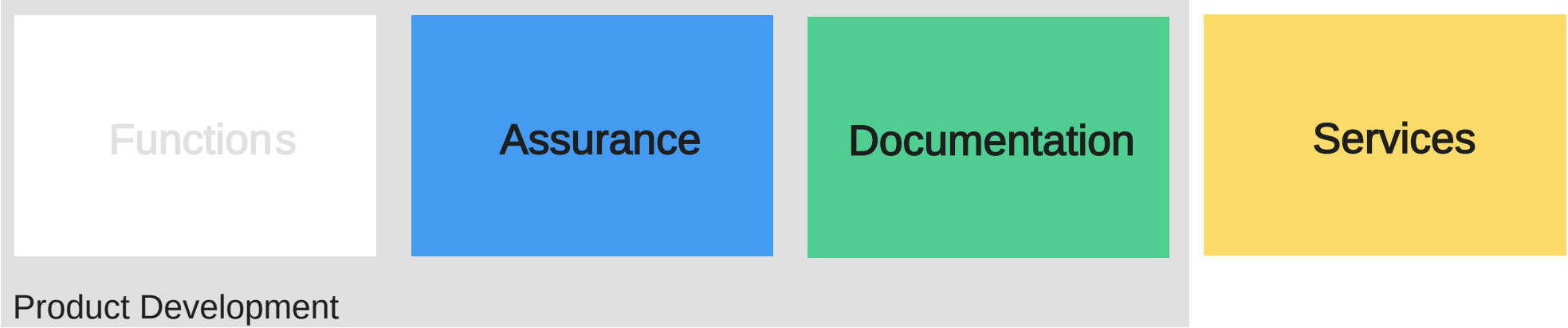
Identity and Access Management
- Enforce replacement of passwords, Support password aging

Logging
- Full Personal Accountability, Ability to Log Locally

Data Protection
- Password protection, Confidentiality and Integrity of Personal Data



Security Assurance
Security Reliability Model (SRM)

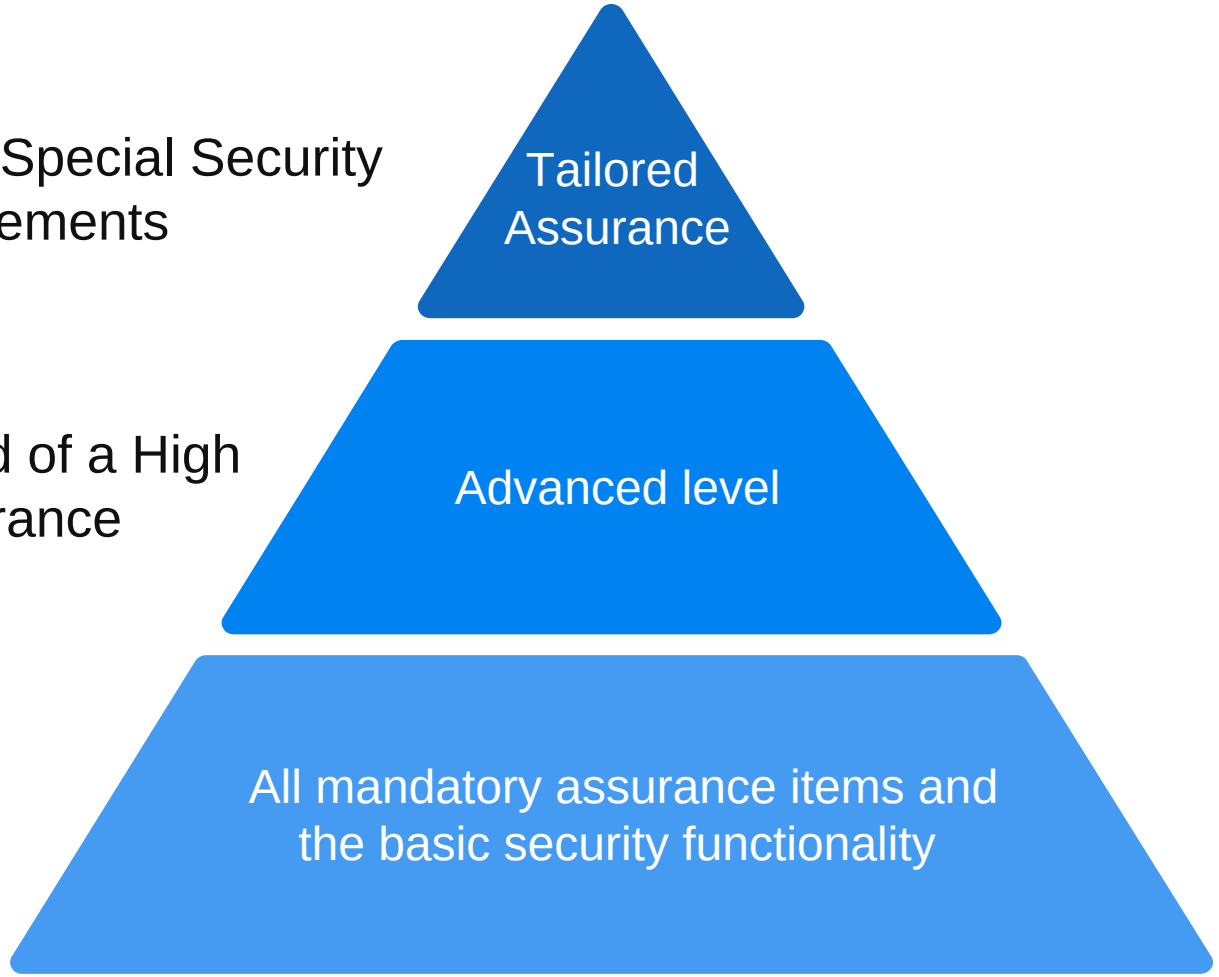


Security Assurance levels

Products with Special Security requirements

Products with Need of a High Security assurance

All of Ericsson Products



Security Assurance

Risk Assessment	Privacy Impact Assessment	Secure Coding
Vulnerability Assessment	Vulnerability Management	Hardening

Security Assurance – RA

Risk Assessment

Privacy Impact Assessment

Secure Coding

Vulnerability Assessment

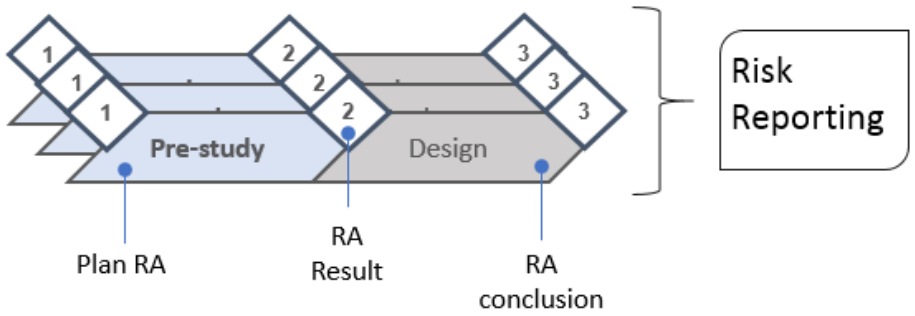
— RA for new products
- Determine the appropriate security level
- What security functions are needed

— RA in the end of development
- Costly and difficult to make changes

— Risk Assessment in Development

— Risk Assessment report
- Risk Identification
- Risk Rating (severity)
- Risk Treatment Plan

Identification – Mitigation – Verification



Security Assurance – PIA

Risk Assessment

Privacy Impact Assessment

Secure Coding

Vulnerability Assessment

— Privacy Data Classification
  - What types of data does the product handle

— Privacy Information flows

— PIA for Xaas

— Privacy impact report
  - Description of the privacy impact (threats and related risks)
  - Existing privacy design features
  - Recommendations

Security Assurance – SC

Risk Assessment

Privacy Impact Assessment

Secure Coding

Vulnerability Assessment

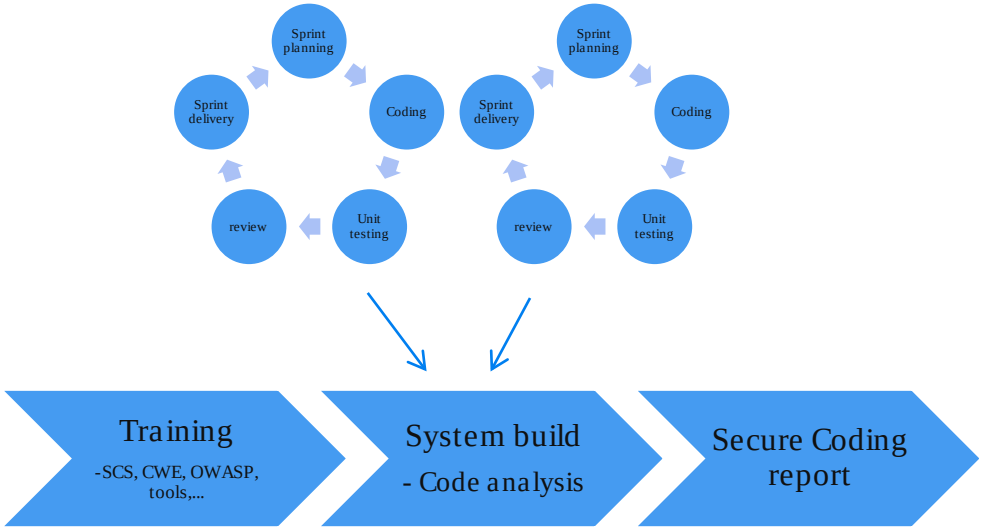
— Secure Coding Standard

— Education
- Secure coding standard training for developers & testers
- Up to date developer (programming) training
- Continuous learning

— Static and Dynamic analysis

— Code review

— Secure Coding Report



Security Assurance – VA

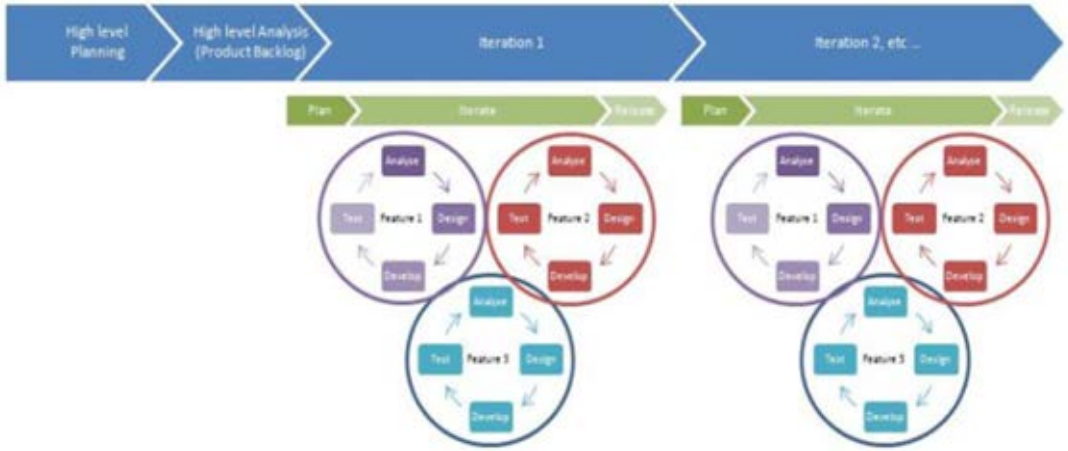
Risk Assessment

Privacy Impact Assessment

Secure Coding

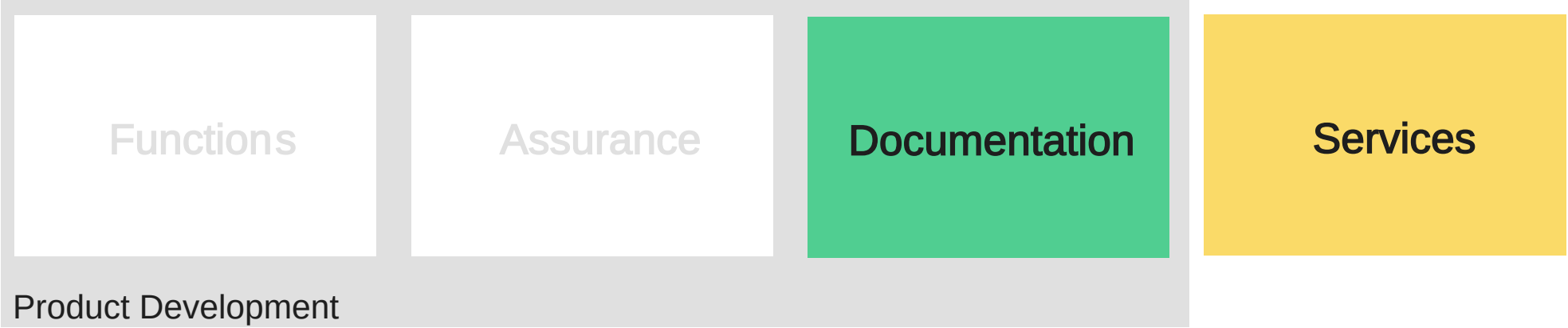
Vulnerability Assessment

- Vulnerability Assessment (VA) normally done to late!
- VA in Continuous Integration/Continuous Delivery (CI/CD)
  - Developers are the Key
  - Function testing done during development
    - Security testing
    - Verifying Hardening



Documentation

Security Reliability Model (SRM)



Documentation

Security User Guide

Describes the security operation and maintenance activities that can be performed for the product

Security Test report

Test Report for external communication

Hardening Guideline

Instruction of tailored hardening to be done during delivery

RA / PIA Report

Report of identified security and privacy risks for internal use.

VA Report

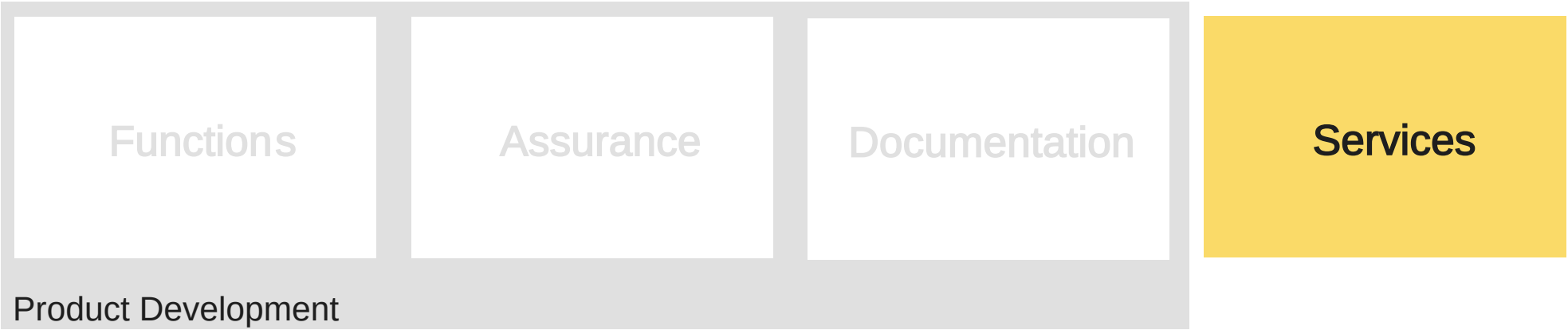
Test Report for internal communication

Secure Coding Report

Describes the Security Coding activities done during the development

Services

Security Reliability Model (SRM)



Services

Secure Deployment

Consultancy

Security Support

Security aaS

Ericsson PSIRT

Vulnerability Management

Incident Response

Security Support

VA Methods & Tools

Reporting issues/vulnerabilities in Ericsson products

https://www.ericsson.com/en/about-us/enterprise-security/psirt

Vulnerability Management

Conclusion – Next Steps

- SRM – Risk based approach
- Security awareness among developers are the key!
- Process transformation to be more lean & agile
- Improvement still needed on DaaS ways of working
- Who to contact: psirt@ericsson.com