The experiences and challenges in the journey from Agile and Lean towards XOPs and RegOps in regulated environments”

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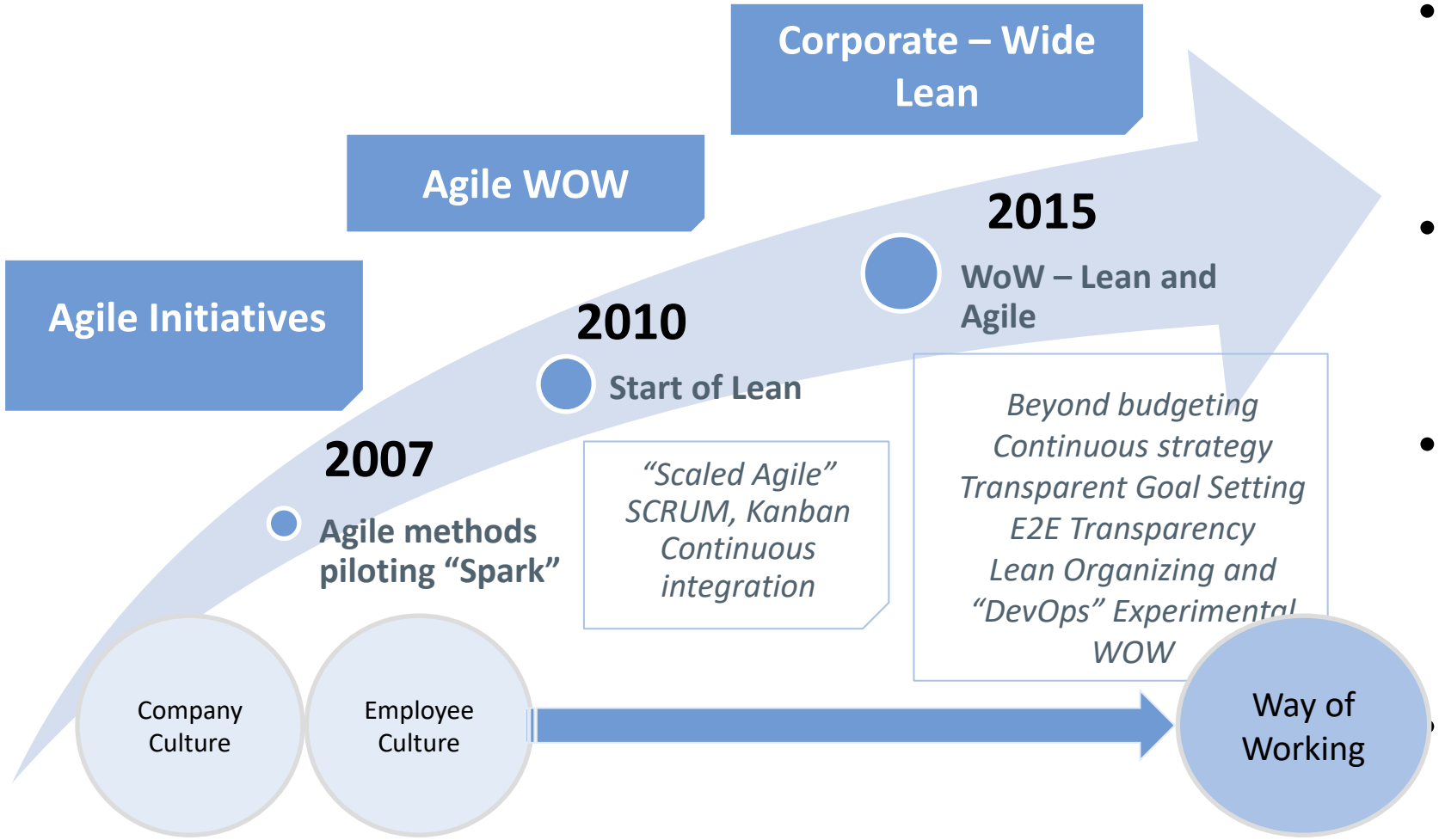
Bittium

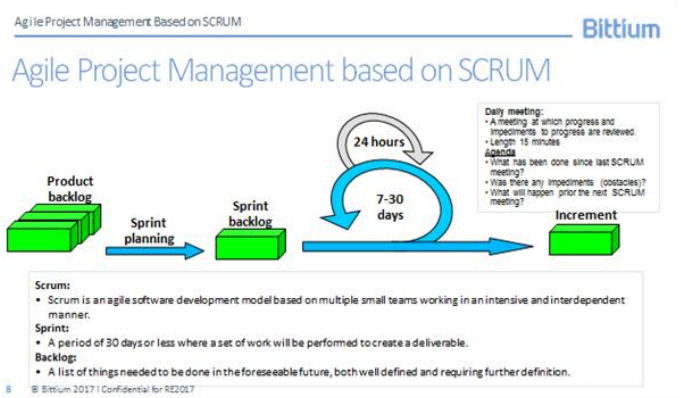
Way of Working at Bittium I Historic perspective



- During the journey >100 Certified SCRUM masters trained
- Continuous improvement of large-scale agile approaches
- Main methods used SCRUM, Kanban and adaptations of Scaled-agile (SAFE, LeSS) models
- Embedded DevOps approach incl. SW and HW

Key Approaches of Lean and Agile at Bittium

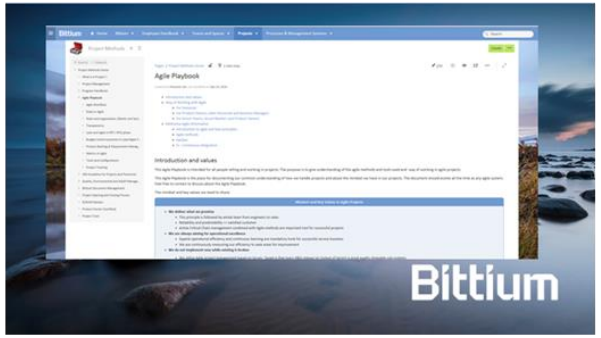
SCRUM Principles



Scaling SCRUM

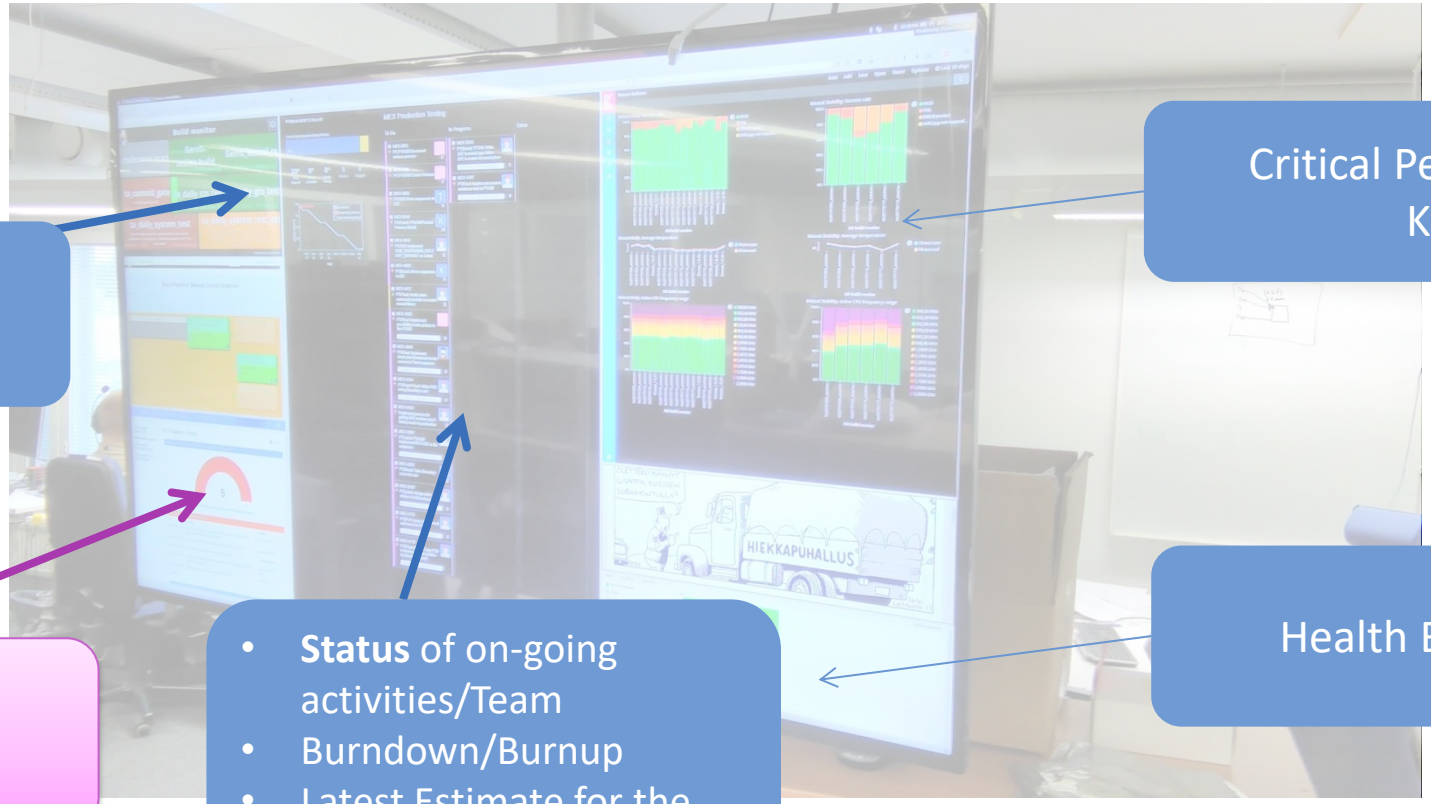
Master or **Area Product Owner** – "Owns"complete product featured towards the Customer.
System Product Owner – System team lead, creates a "Virtual System Team"

Agile Playbook



Lean Principles

Status Follow-Up, Real-time View
(Continuously Switching views)



SW Commit
(Commit, Builds, Rapid Feedback)

Critical Topics
(Overall)

- **Status** of on-going activities/Team
- Burndown/Burnup
- Latest Estimate for the Release

Critical Performance KPIs

Health Barometer

What has changed ?

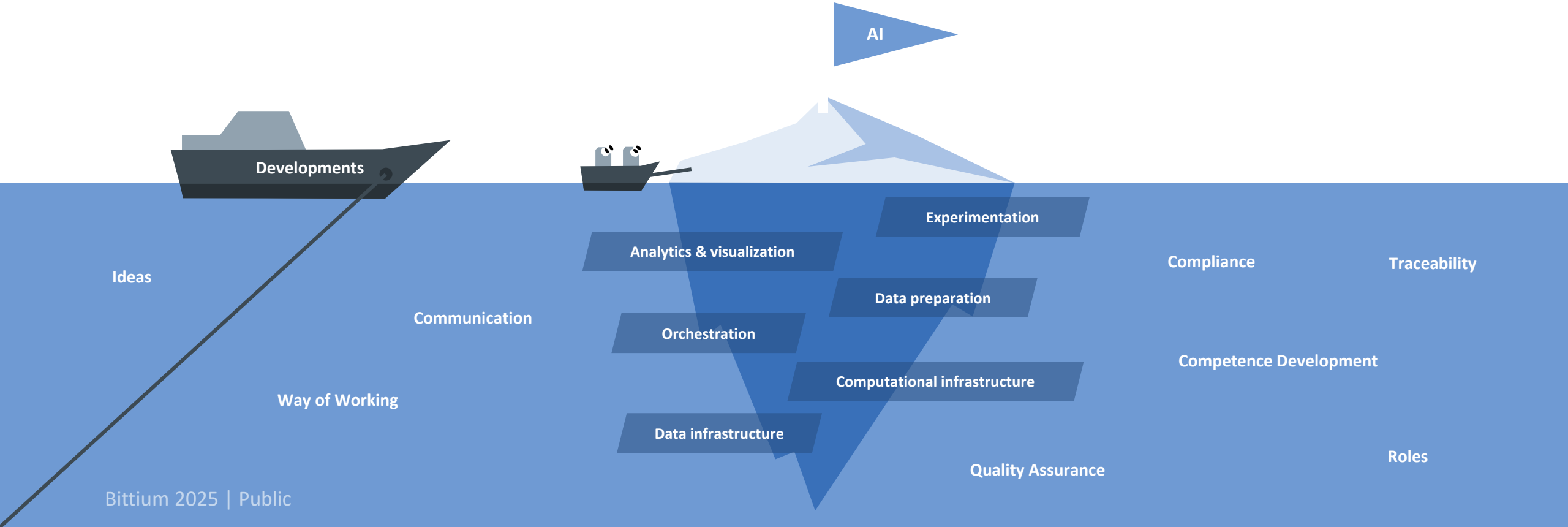
Bittium

Background

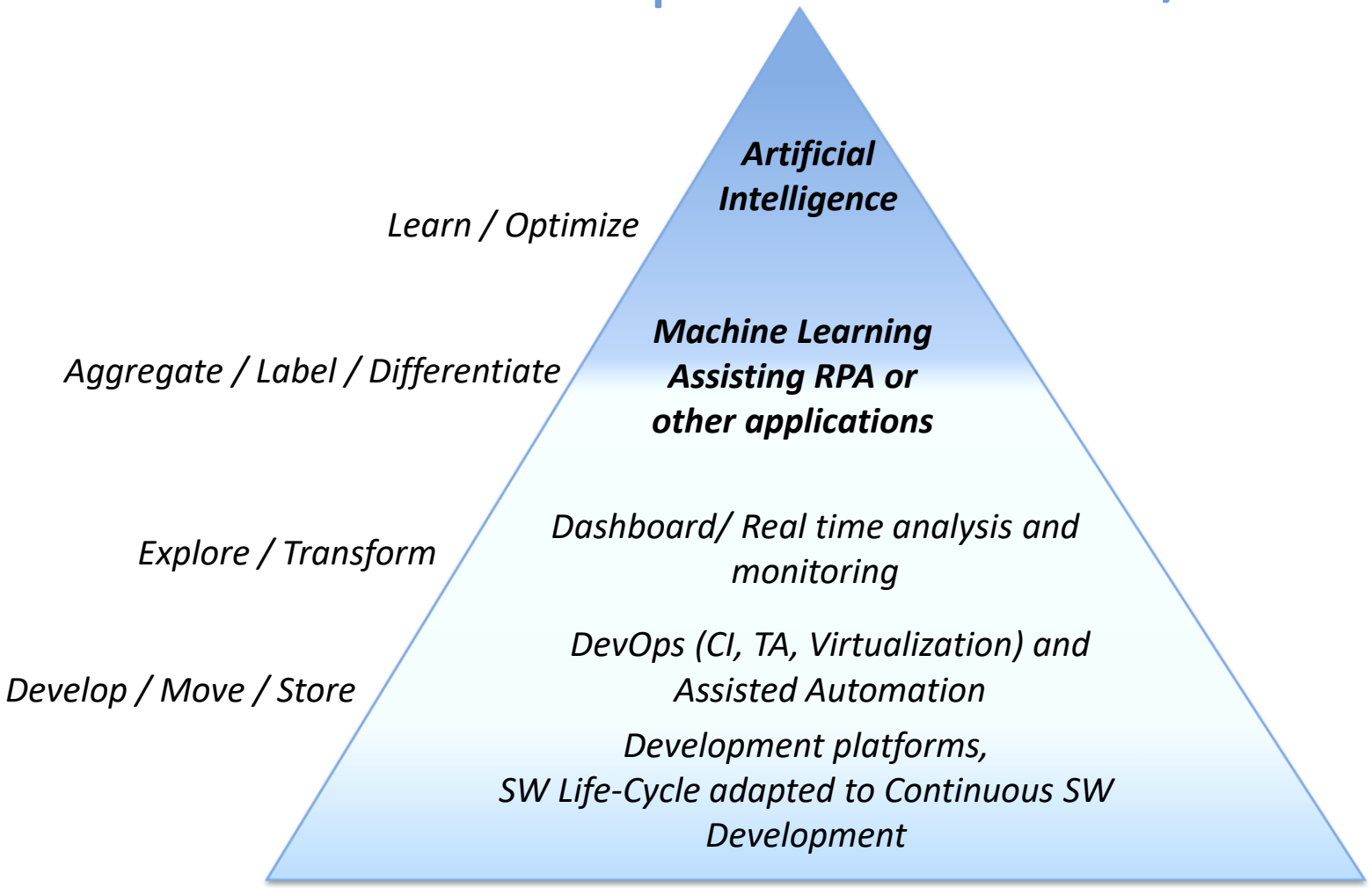
Expertise

MLOps

DataOps



From continuous SW development to ML/AI

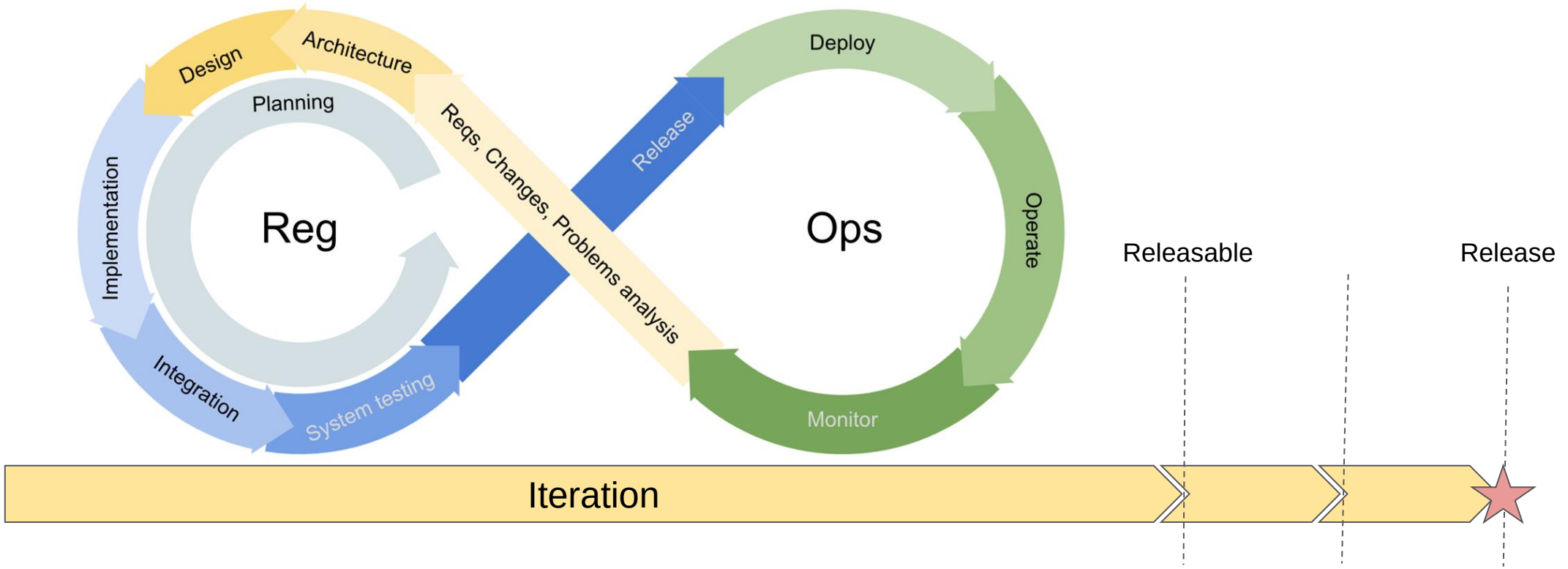


Modified by Jari Partanen (Bittium)
Adapted from Timo Seppälä and https://hackernoon.com/the-ai-hierarchy-of-needs-18f111fcc007

Perspective to development to apply RegOPS

- Methods accumulation towards XOPS including RegOps
  - DevOps – DevSecOps – DataOps – MLOps
- Amount of regulation impacting to SW development has radically risen
  - Not able to fulfill at the end => Must apply early on
  - In case of Bittium all the businesses are impacted
- Regulation Need: development approaches must fulfill also the regulative needs
- How to do it?
  - Each iteration needs to be verified against the regulative requirements => verification of the phase of the code and its adequacy to the requirements
- The challenge
  - To adapt regulative requirements the impacts has to be defined very early in requirements and user story development
  - Many times SCRUM or scaled SCRUM, LESS or SAFE approaches do not master well increased regulatory requirements during the development phase if those are not planned originally to be met
- How to incorporate this into whole Product Development Process where in addition to SW many other aspects might be applied?

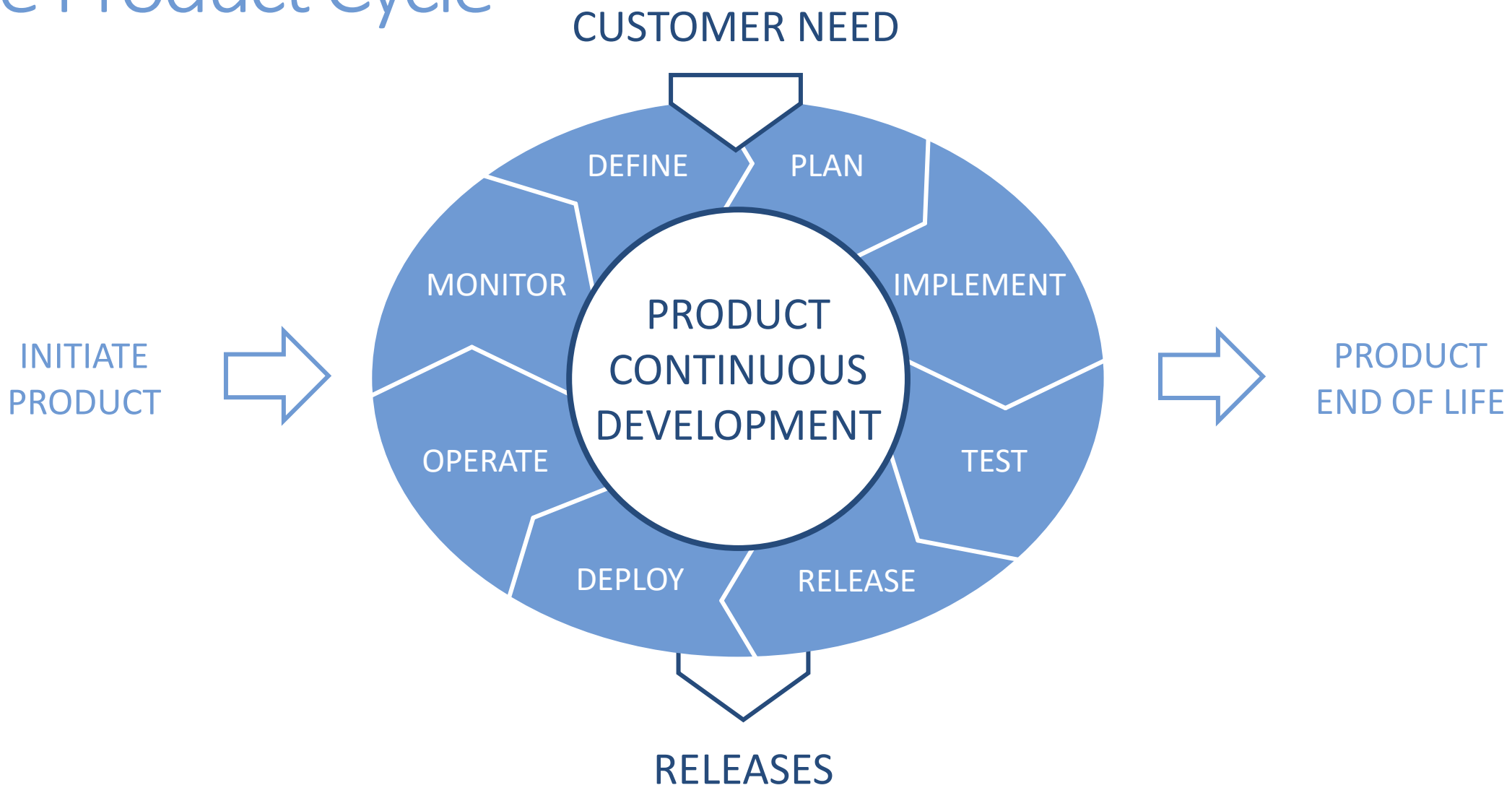
What would it take to do regulatory DevOps (aka RegOps)



- ✓ **Safety**
- ✓ **Effectiveness**

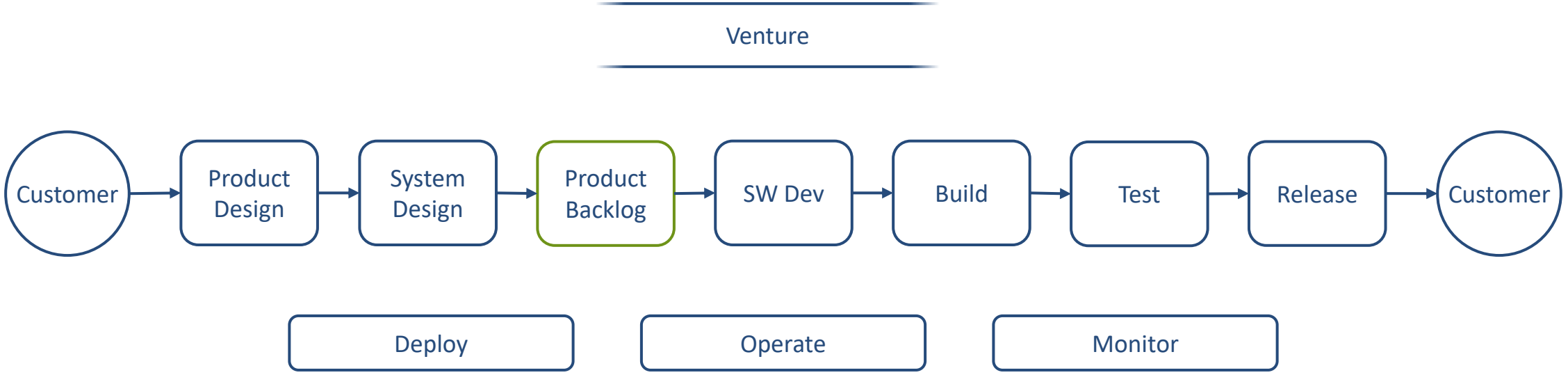
Source; Tommi Mikkonen, JYU

The Product Cycle



SW Value Stream

- The value stream presents transformation of customer needs into releasable product as a series of work phases



BITTIUM VETURI PROGRAM

Seamless and Secure Connectivity Ecosystem

BUSINESS FINLAND

Bittium

Focus Areas

Status of the Ecosystem

- ***27 finnish partners so far + over 50 international partners, totally over 50 direct ecosystem partners in collaboration discussions and potentially in projects early 2025***
- ***5** projects started, potential up to **7** early 2025, total **8** applied so far.*
- ***2** of the projects EU projects (**CISSAN** Celtic-Next), (**DistriMuse** Chips-JU), also several **Horizon Europe** and **EDF projects** either in preparation or starting related to themes. Collaboration universities e.g. UOulu, TAU, UTurku, Aalto, JYU, UH and VTT.*

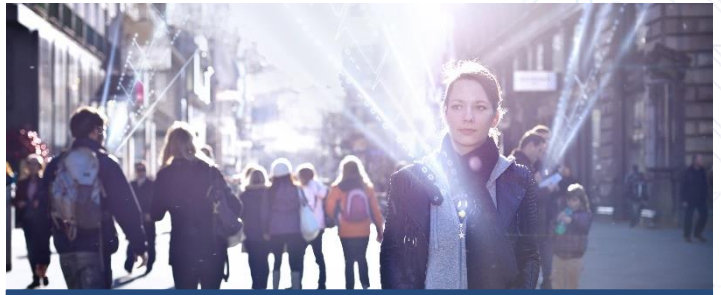
Secure Encryption Technologies

Highly Secure Communications in the Future Networks

Secure End-to-End Verticals

Scaled Sensor Fusion Applications

Significant development models improvement



Transitions from devices to E2E services

BUSINESS FINLAND

Seamless and Secure Connectivity Ecosystem

Summary

- ✓ DevOps has developed towards RegOps due to increased # of regulatory requirements and notifying the increased data, security and ML/AI development needs
- ✓ RegOps is a fundamental and *adaptive* approach for *whole product development* it is not only SW matter
- ✓ The challenge of RegOps is stepwise addition of regulatory verification steps in an efficient manner
- ✓ Traceability to ever changing regulatory impacts is the key for success
- ✓ SW value stream optimisation is also a major challenge

Questions

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