DevOps

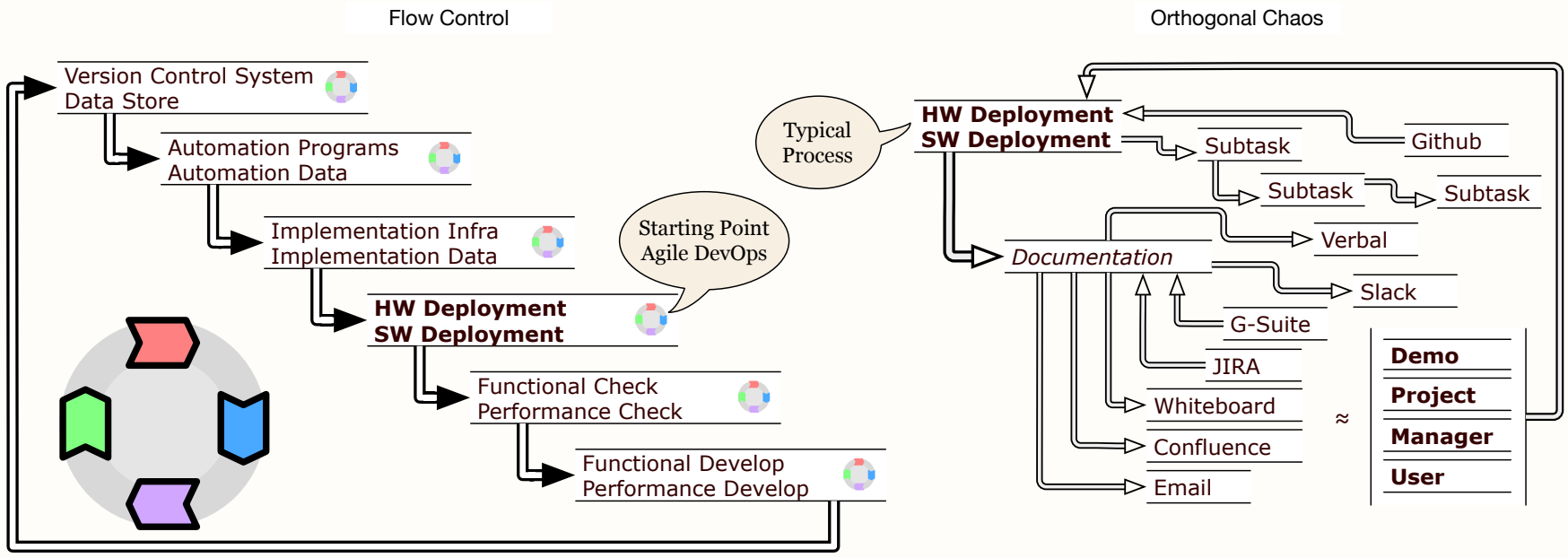
Ordinance: **Rapid Systems Implementation**

Problem: **Data, Provision, Instantiation, Management, all scale with Exponential Time**

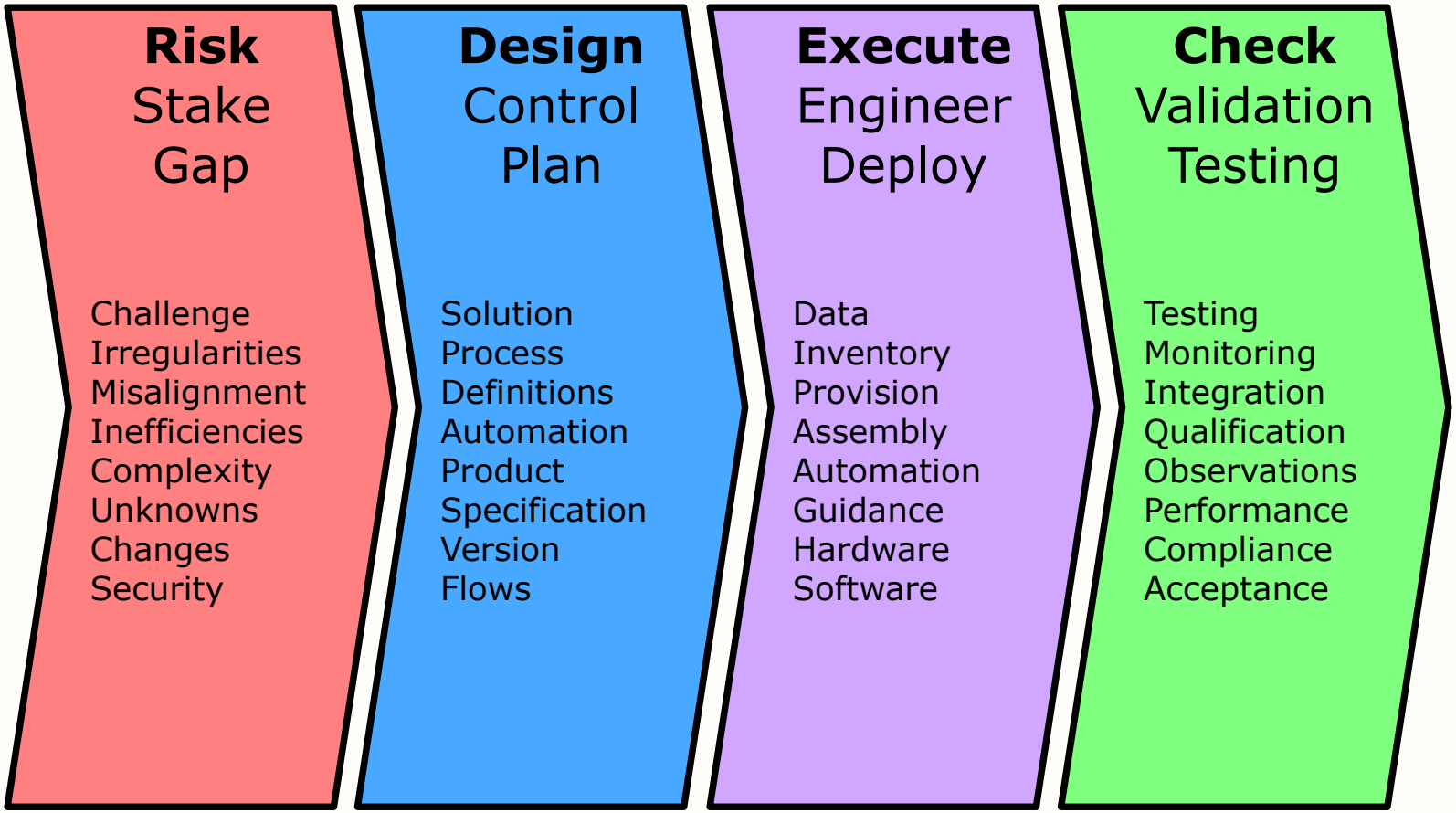
Solution: **Automation for Continuous Deployment, Hybrid Dual-Vee Checks, with Good Automated Manufacturing Practice**

Integration and Bootstrap Development

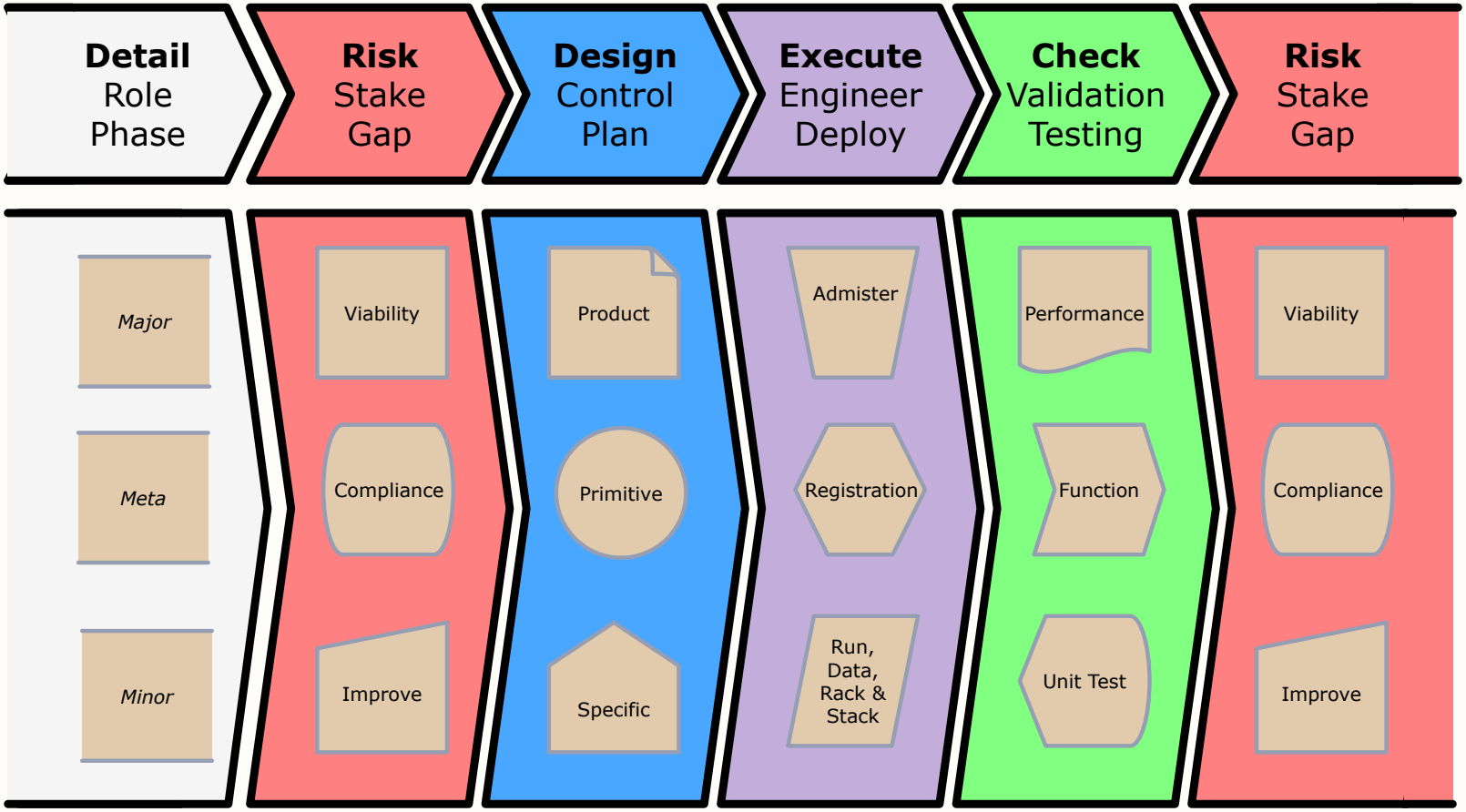
Bootstrap, Flows, Configuration, Performance, Checks

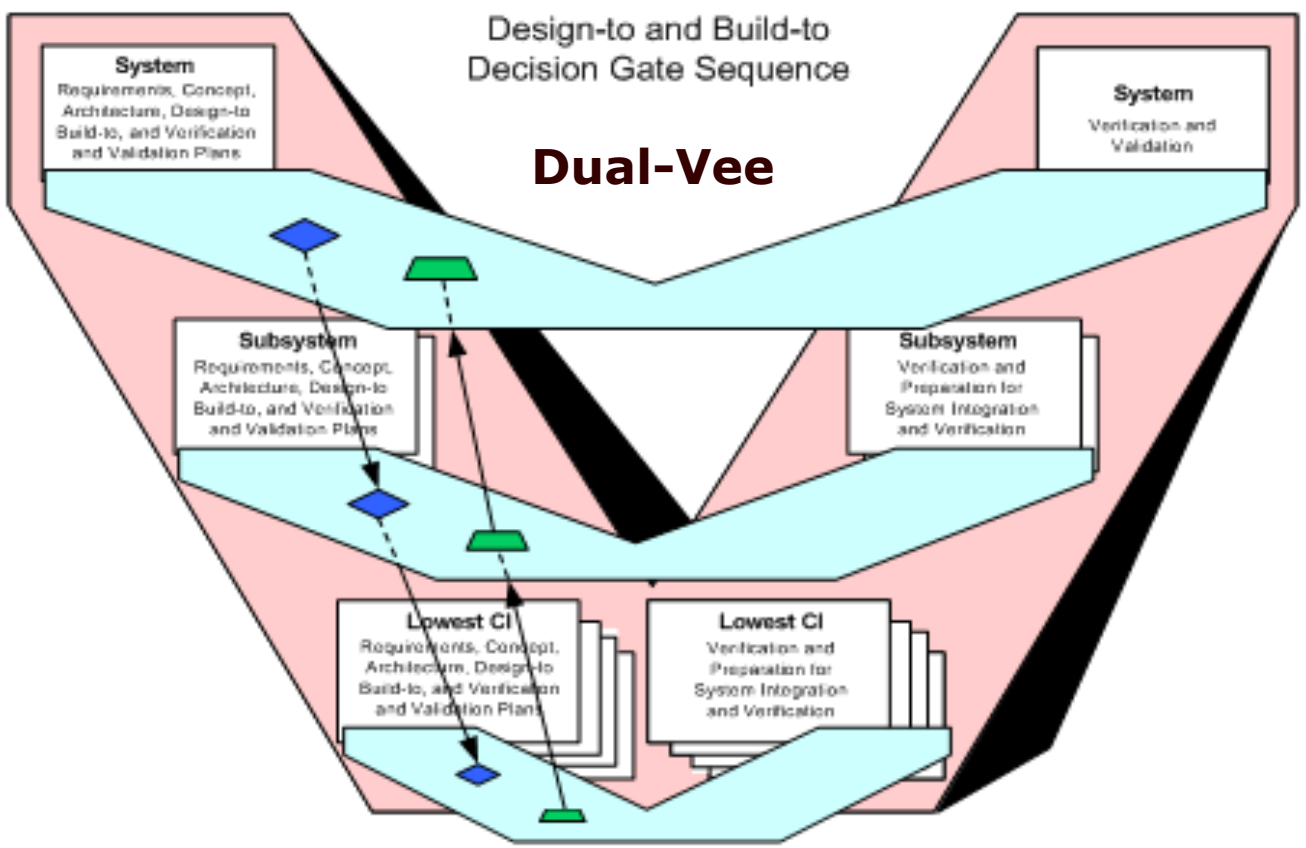


Four Pillars of Detail



Continuous Railroad

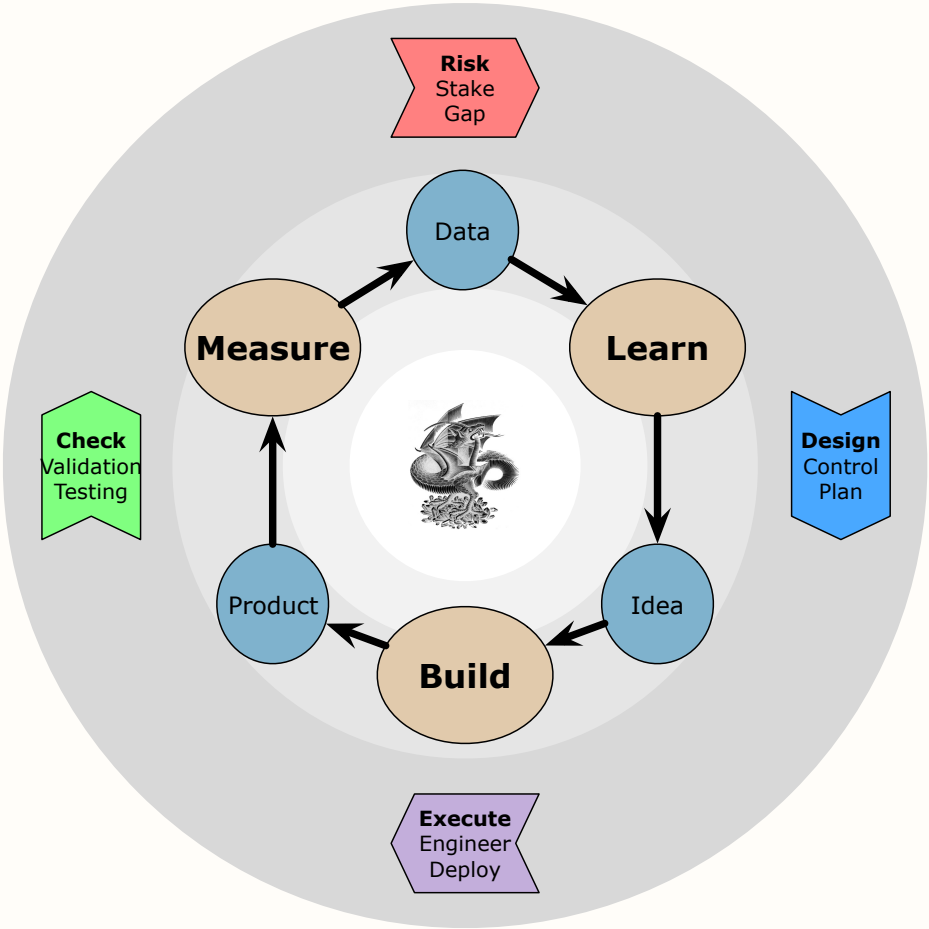




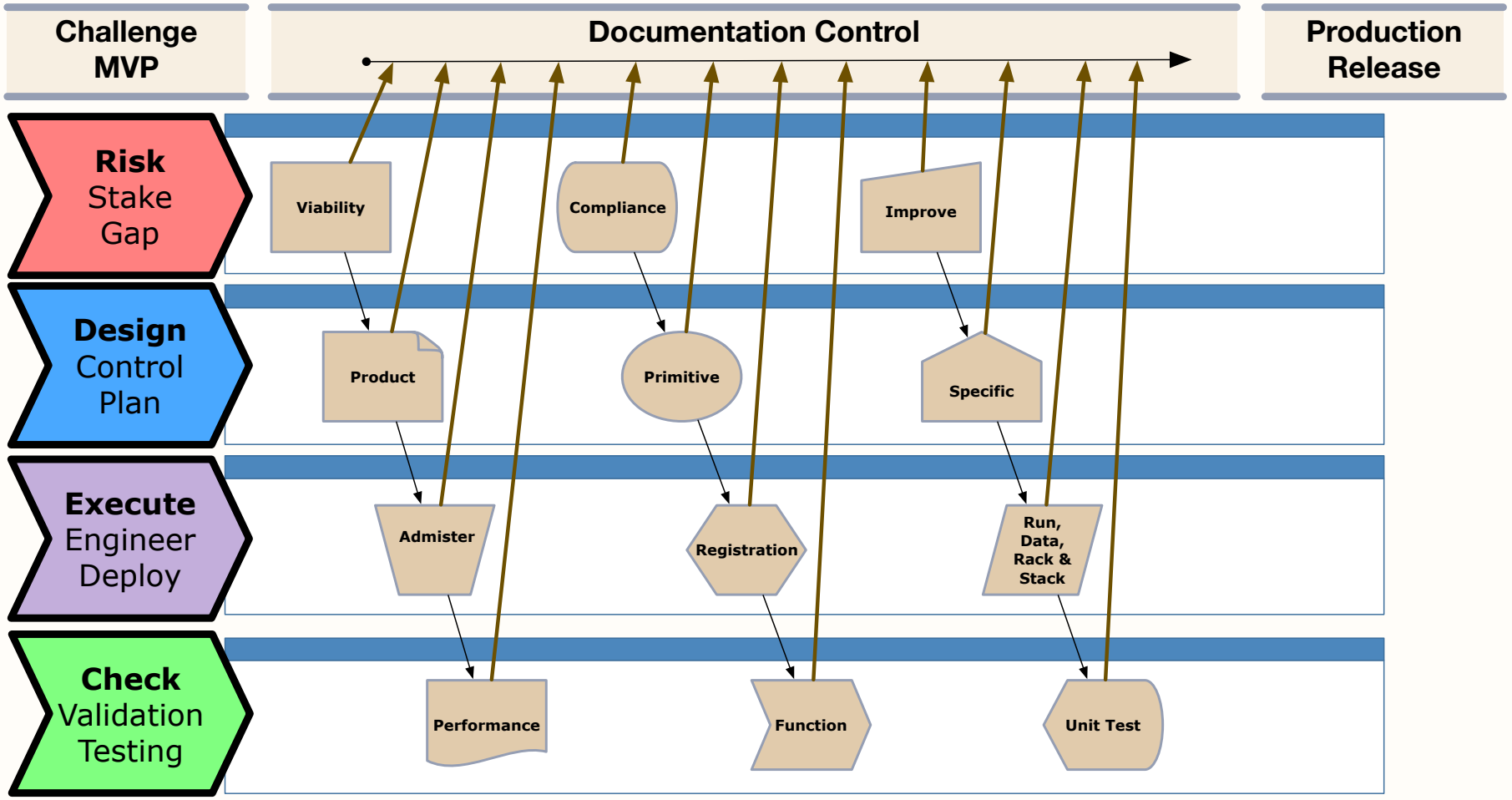
- Design-to (Preliminary Design Review, PDR)
- Build-to (Critical Design Review, CDR).

Source: Wikipedia Dual-Vee

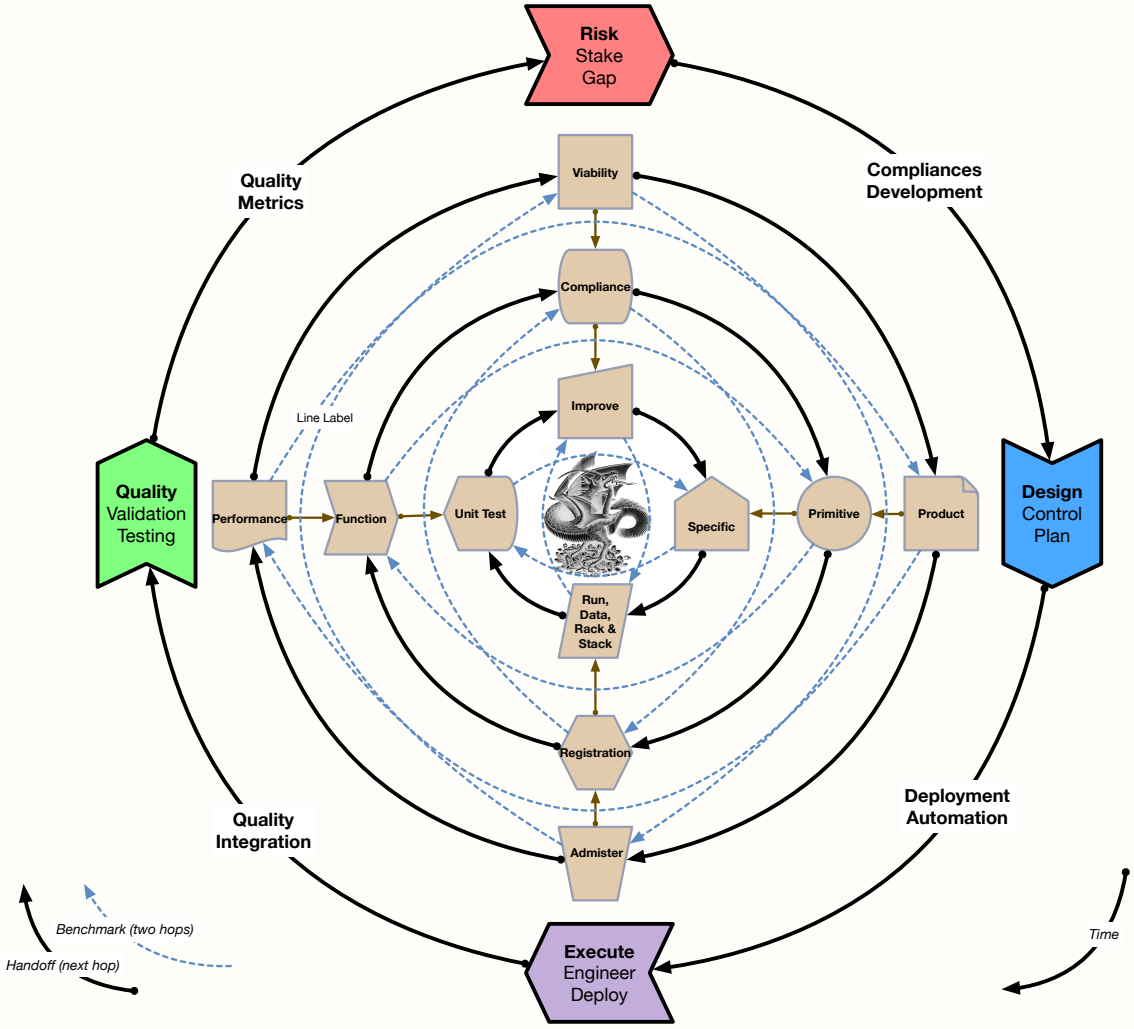
Feedback Loop



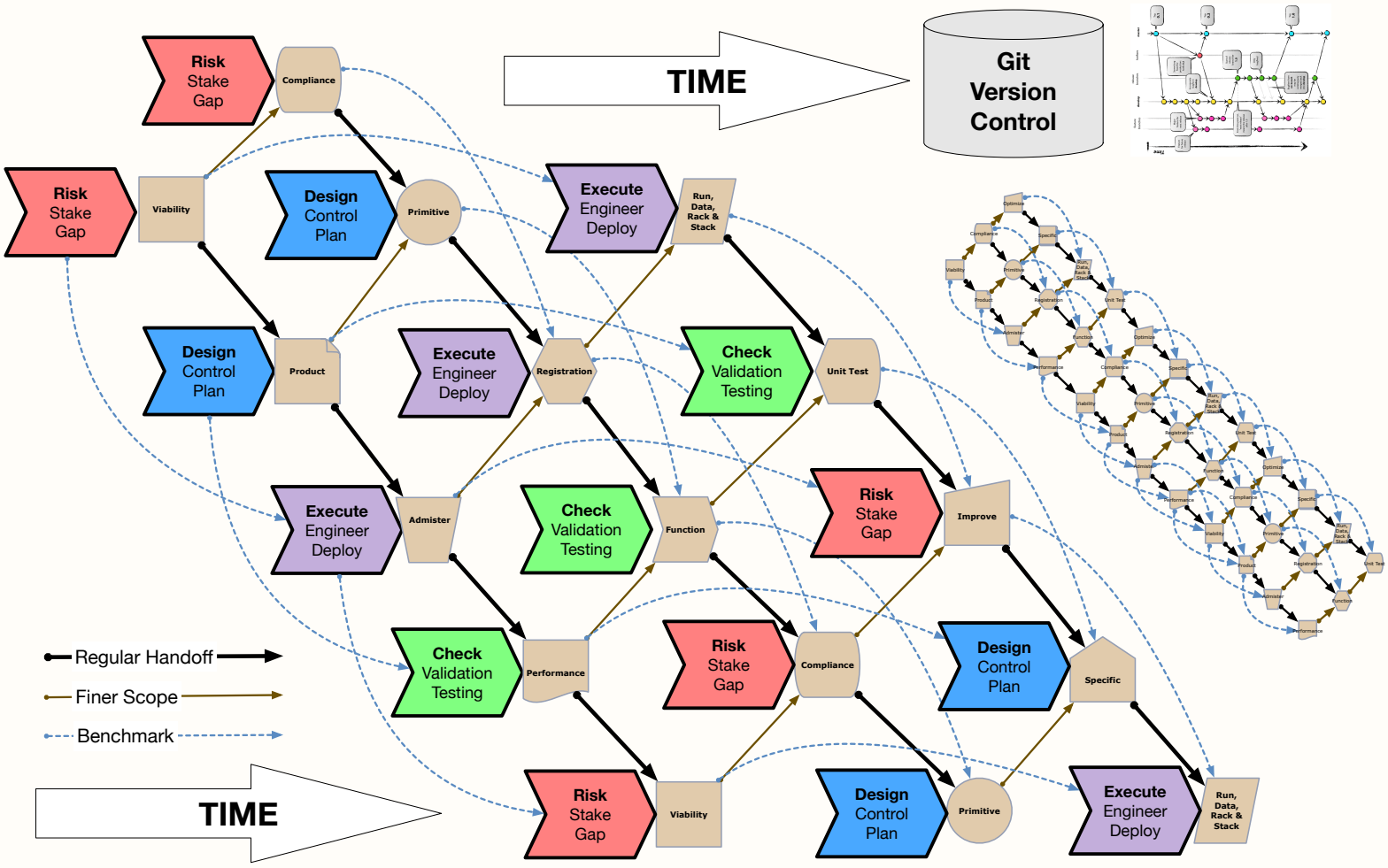
Simultaneous Swimlanes



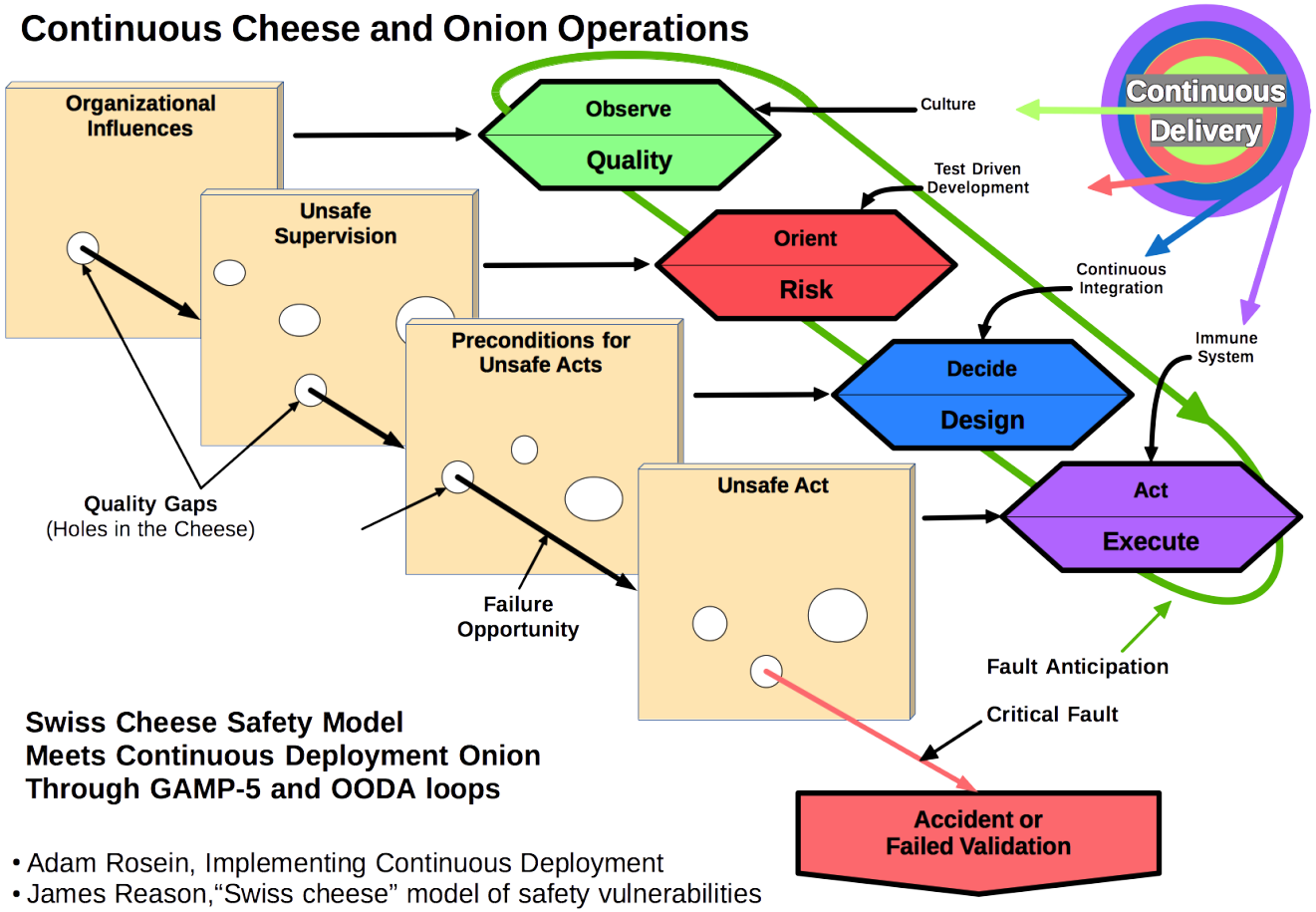
Cycle of Inputs



Entropy of Operational Readyness



Continuous Cheese and Onion Operations



Swiss Cheese Safety Model
Meets Continuous Deployment Onion
Through GAMP-5 and OODA loops

- Adam Rosein, Implementing Continuous Deployment
- James Reason,"Swiss cheese" model of safety vulnerabilities
- John Boyd, "OODA Loop": observe, orient, decide and act decision cycle
- ISPE, GAMP-5: A Risk-Based Approach to Compliant GxP Validation