Staying Agile Inside a Large Software Development Organization

Embrace Your Constraints

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Stefan Schonger

SAP - Financial Services
November 2009

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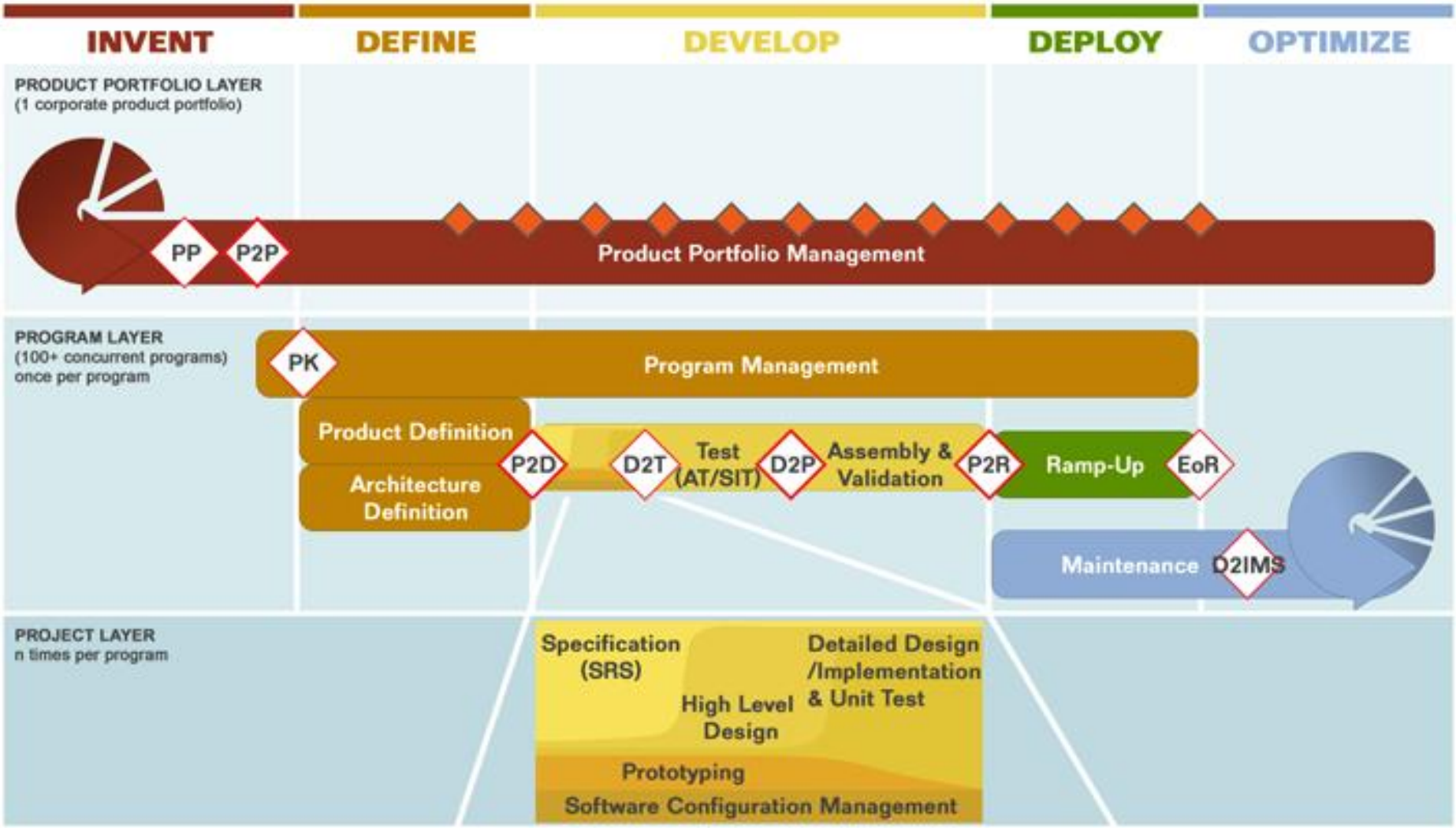
THE BEST-RUN BUSINESSES RUN SAP™

Process Innovation Lifecycle



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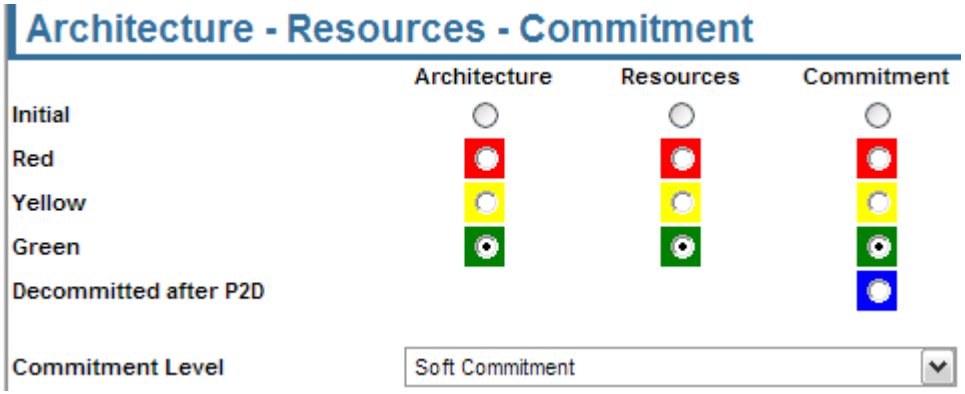
Commitments in cARC



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The Team

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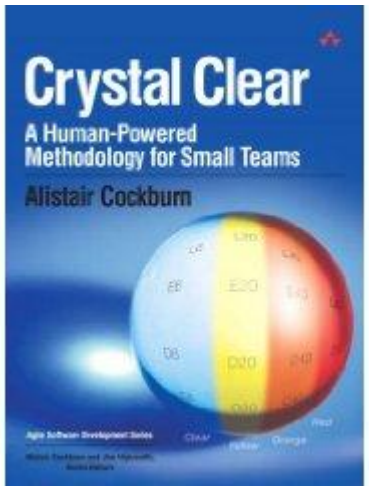
Starting Point: Agile Practices

Extreme Programming



Crystal Clear

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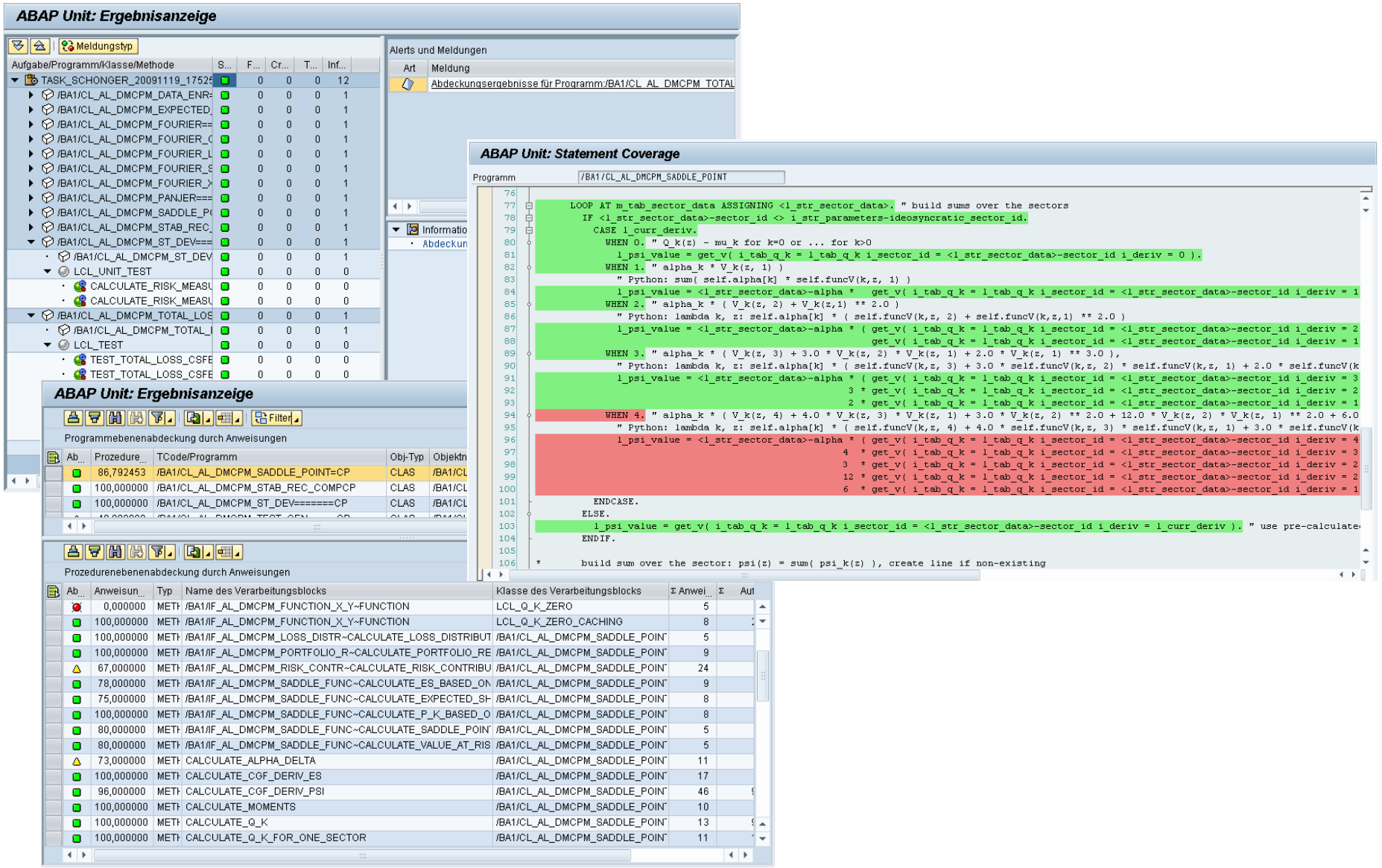
Unit Tests



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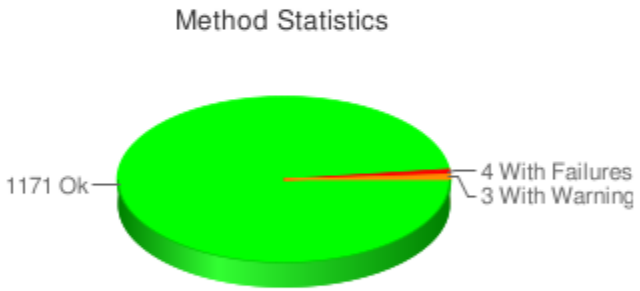
Unit Tests for One Project

------- ABAP UNIT TEST REPORT -------

Run Details	
Variant	**PA_BA_UT_RISK**
System	FPA
Client	525
User Name	AUT_PA_BA
Run Date	14.11.2009
Start Time	23:30:21
End Time	23:51:42
Overall result	Failures occured

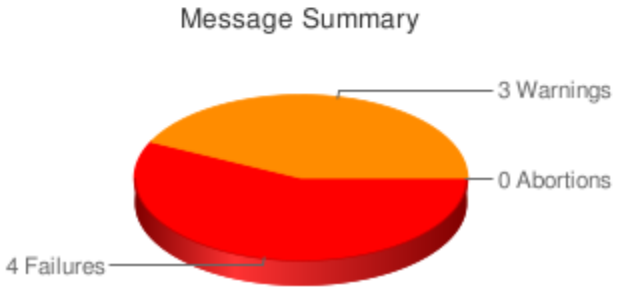
Method Statistics

Packages	Programs	Testclasses	Testmethods	OK	With Failures	With Warnings	Indisposed
35	265	299	1.178	1171	4	3	0



Message Summary

Abortions	Failures	Warnings
0	4	3



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Automated Scenario Tests

Subject: Automated Test Execution Results for Financial Services Banking in CW 47 2009

Message | Weekly_Run_Report_Bank.rar (358 KB)

Test Plan/Case	NOK	NE	OK
BA 8.0 SLS SDA	10	0	21
BA 8.0 SLS, DM & B2	27	0	93
BA 8.0 MS	7	0	15
BA 8.0 IOA	39	0	0
BA 7.0 SLS, DM & B2	19	0	118
BA 7.0 SLS SDA	7	0	26
BA 7.0 MS	2	0	22
BA 7.0 IOA	0	0	39
BA 6.0 SLS, DM & B2	31	0	129
BA 6.0 SLS, DM & B2 Add On	3	0	118
BA 6.0 MS	20	0	4
BA 6.0 IOA	5	0	0
BA 5.0 SLS & DM	2	0	76
BA 5.0 MS	1	0	44
BA 5.0 Basel	0	0	37
BP FS-PP 1.0	0	0	47

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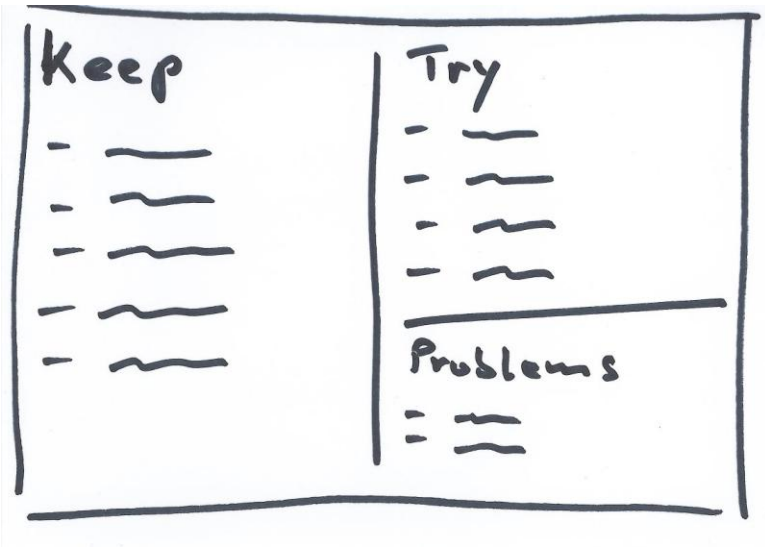
Two Main Takeaways

Unit Tests

Retrospectives



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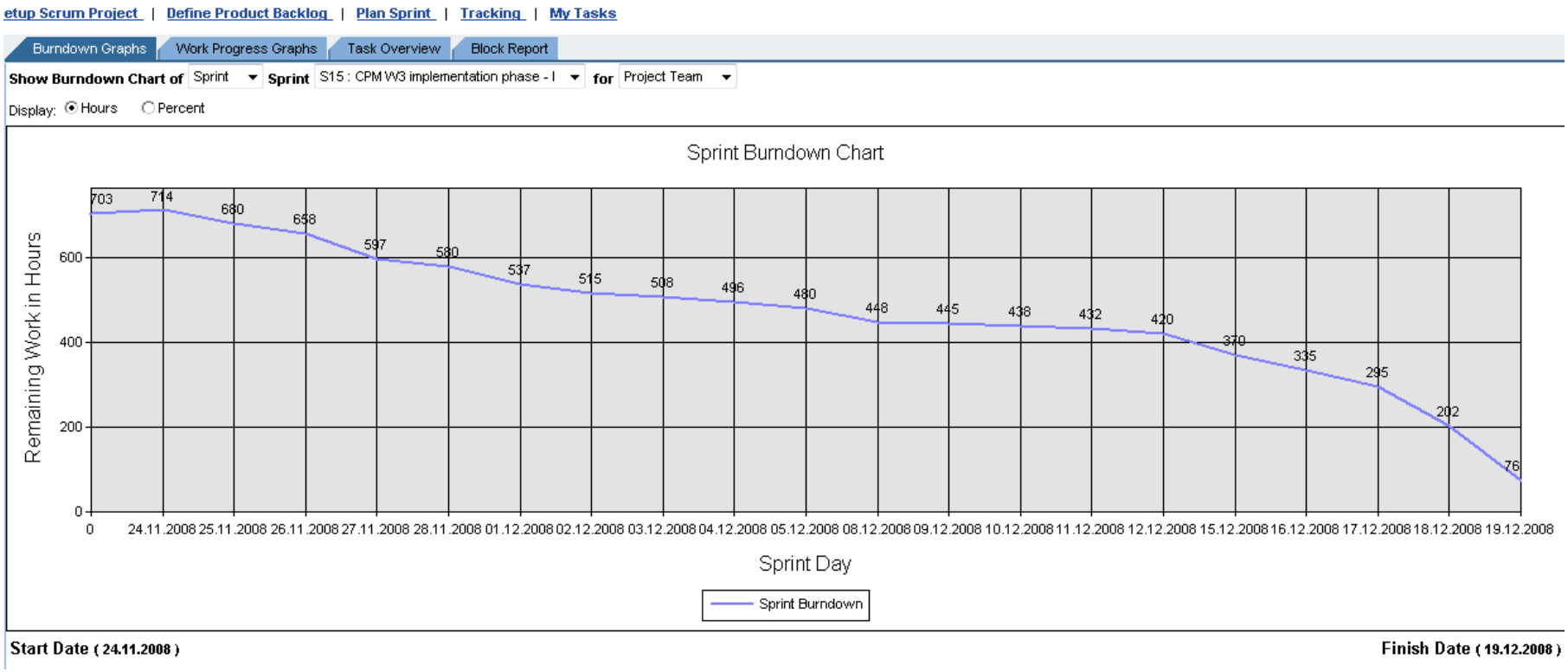
Scrum – Burndown Chart



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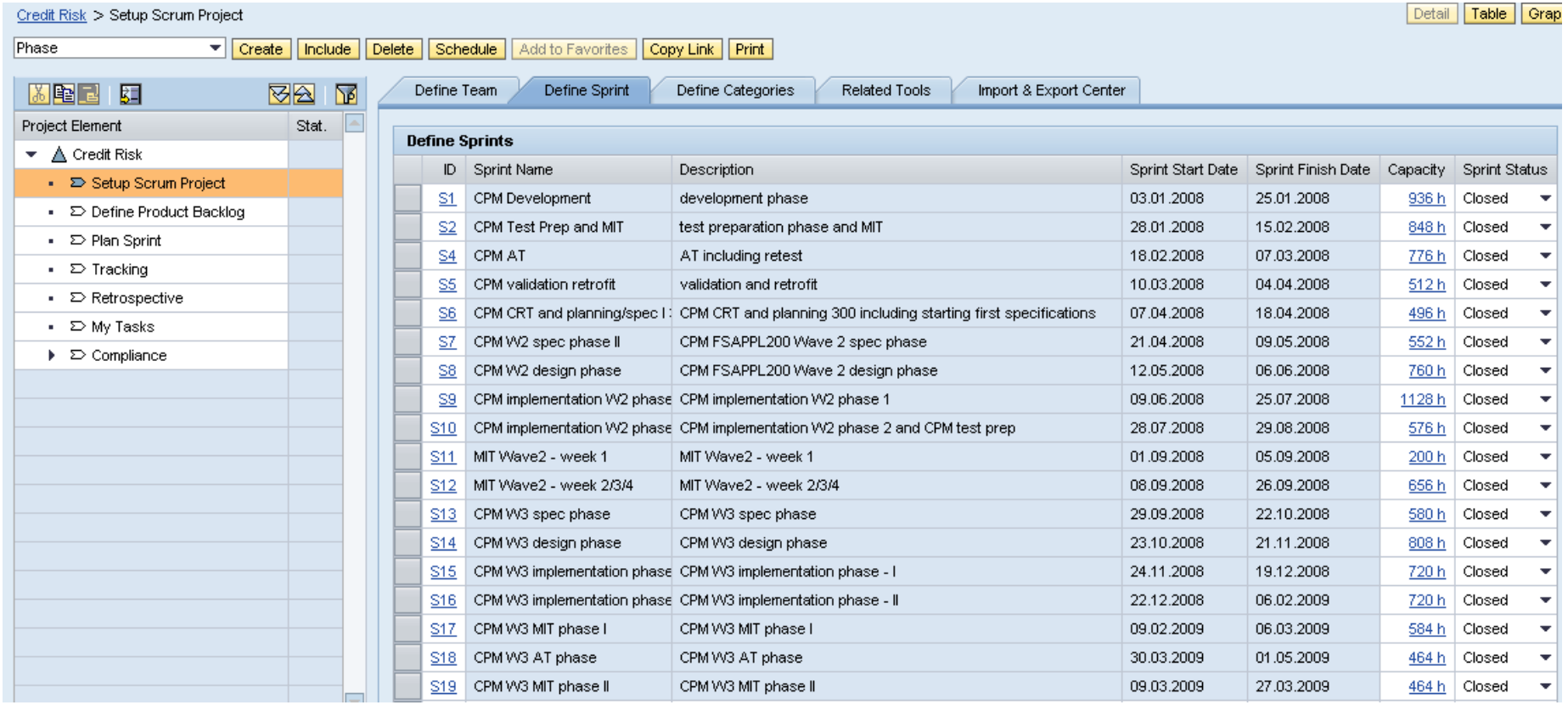
Scrum – Sprints



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Constraints

- **fixed release date**
- **commit features for one release**
- **write and review specs and designs first (and use the template)**
- **“Fagan-style” code reviews**
  (“but the reviews are discouraged during the customer test phase”)
- **language and platform is fixed**

> Da es sehr förderlich für die Gesundheit ist, habe ich beschlossen, glücklich zu sein.
> J'ai décidé d'être heureux parce que c'est bon pour la *santé*.

Voltaire

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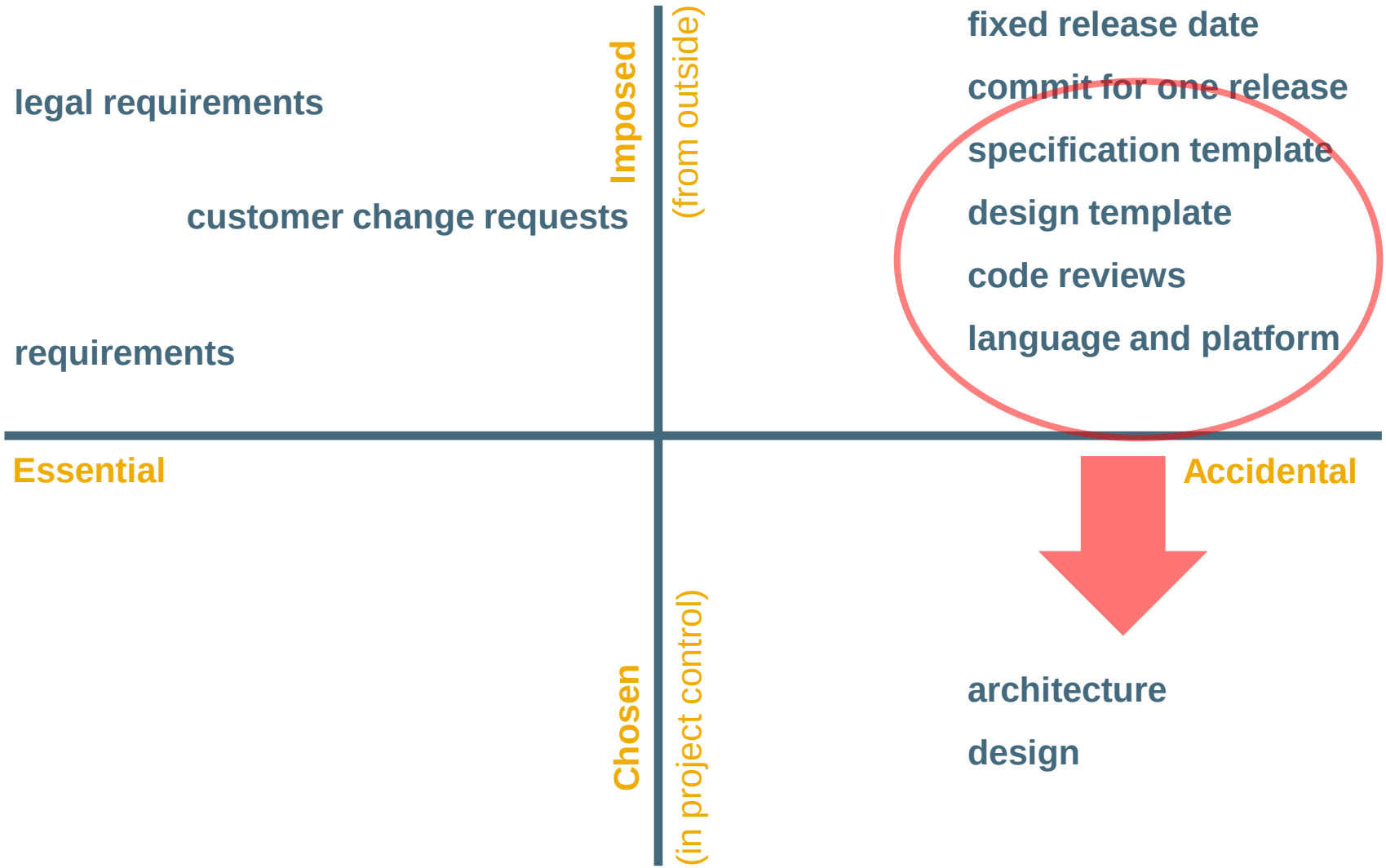
Constraints and Complexity



Inspired by “Dealing with Complexity” by Klaus Marquardt

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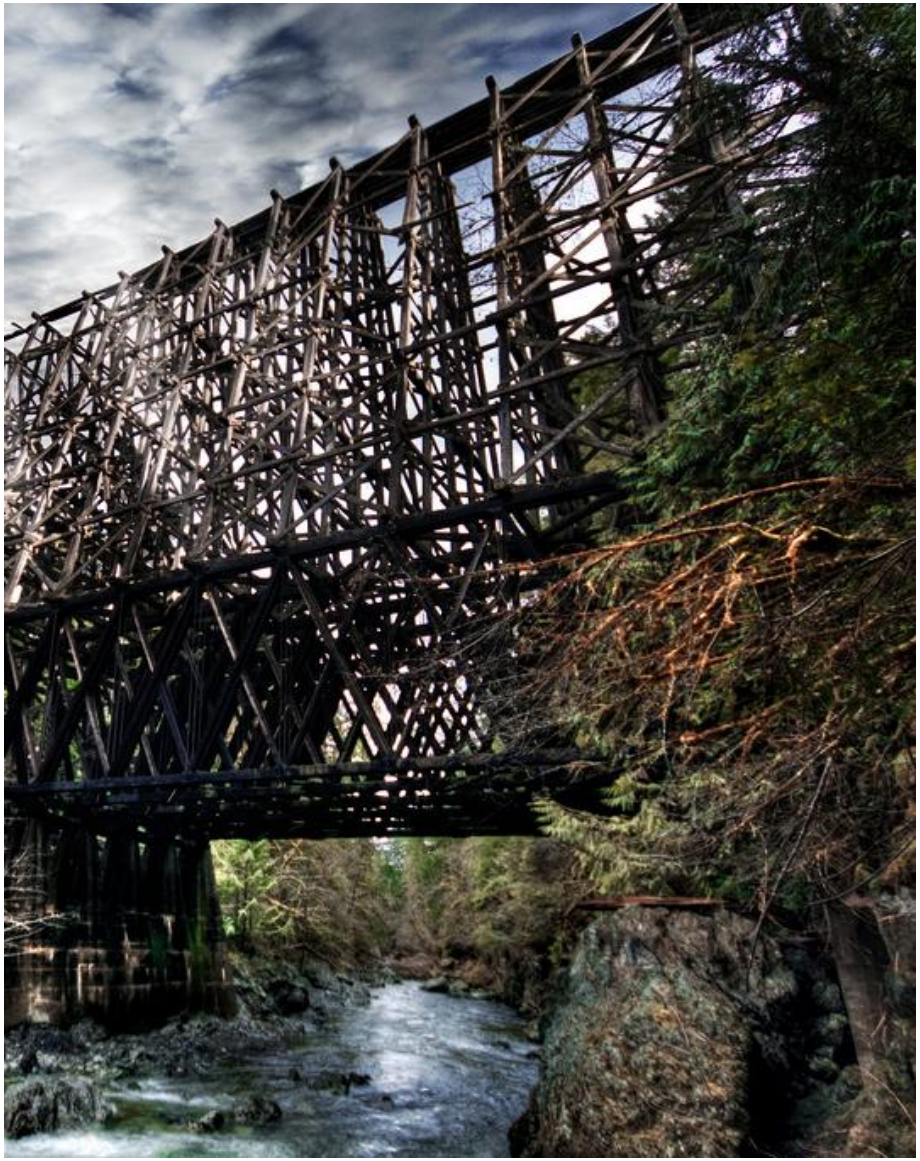
Constraints and Elegance



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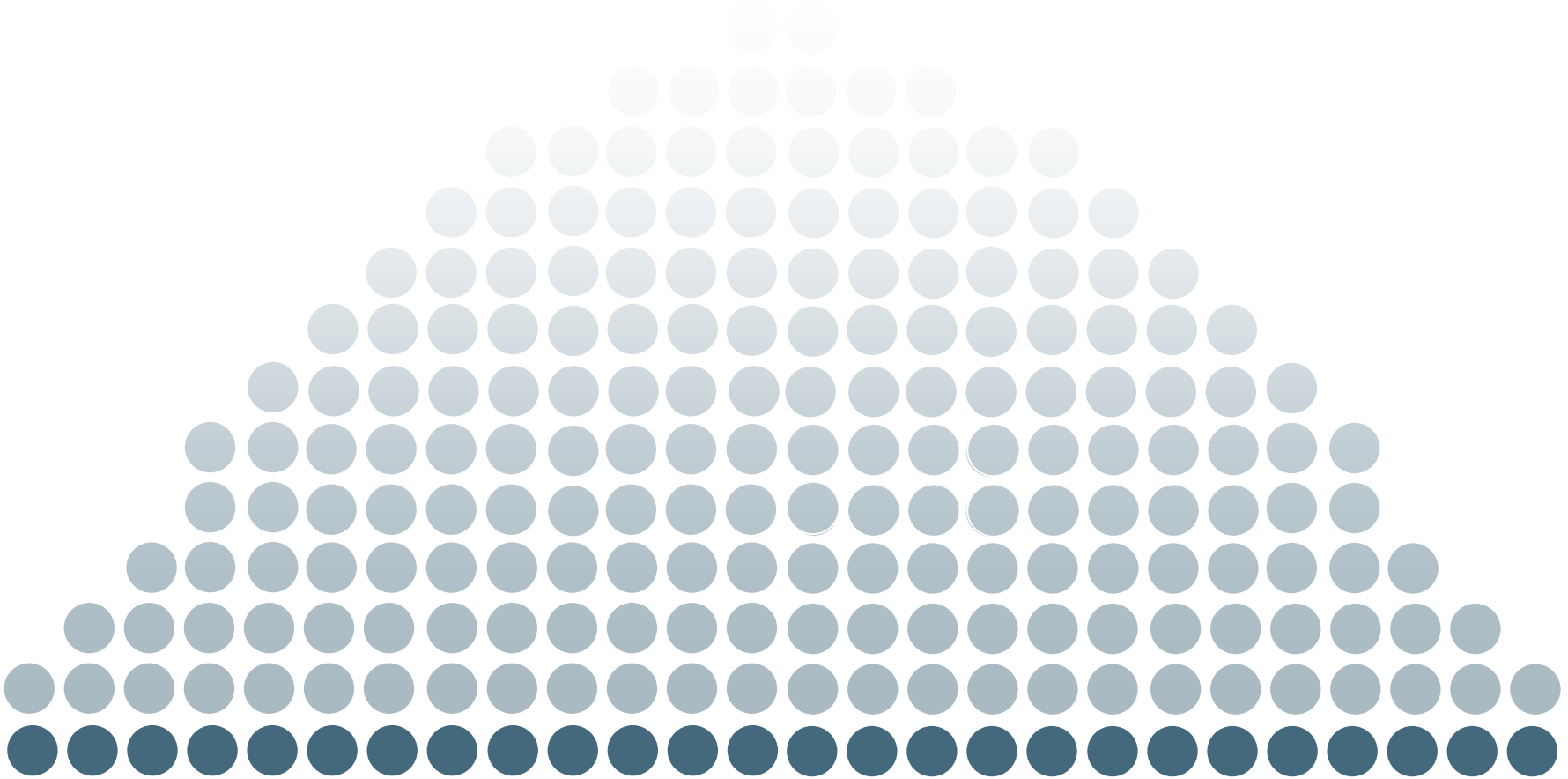
Who Immediately Understands Agile Practices



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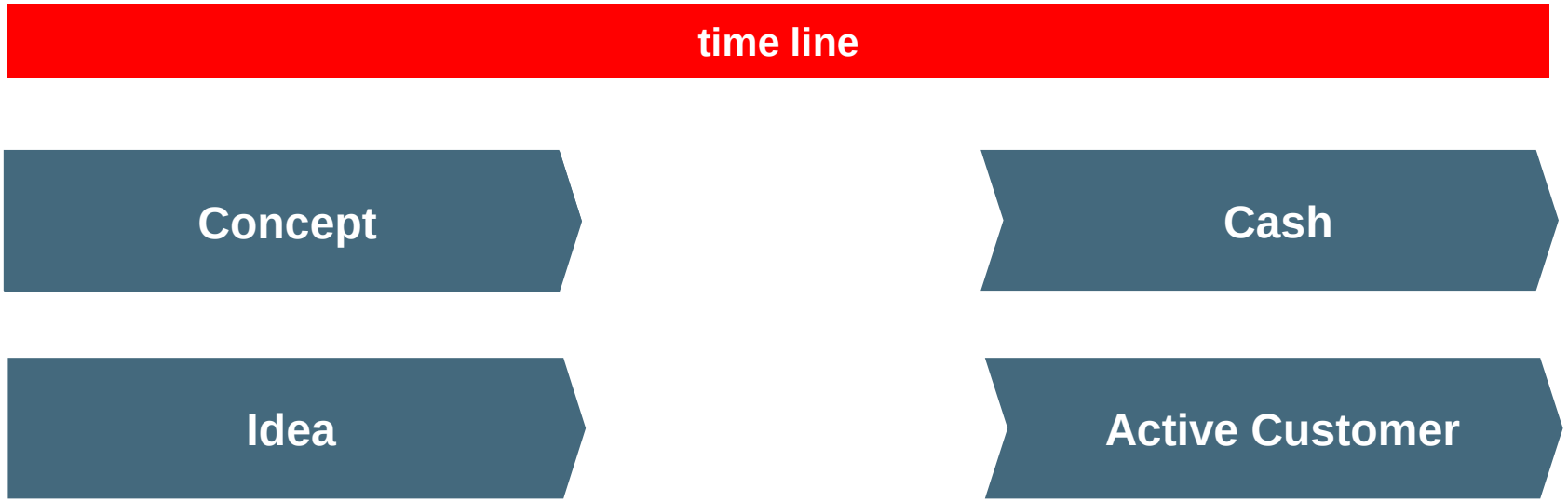
Lean



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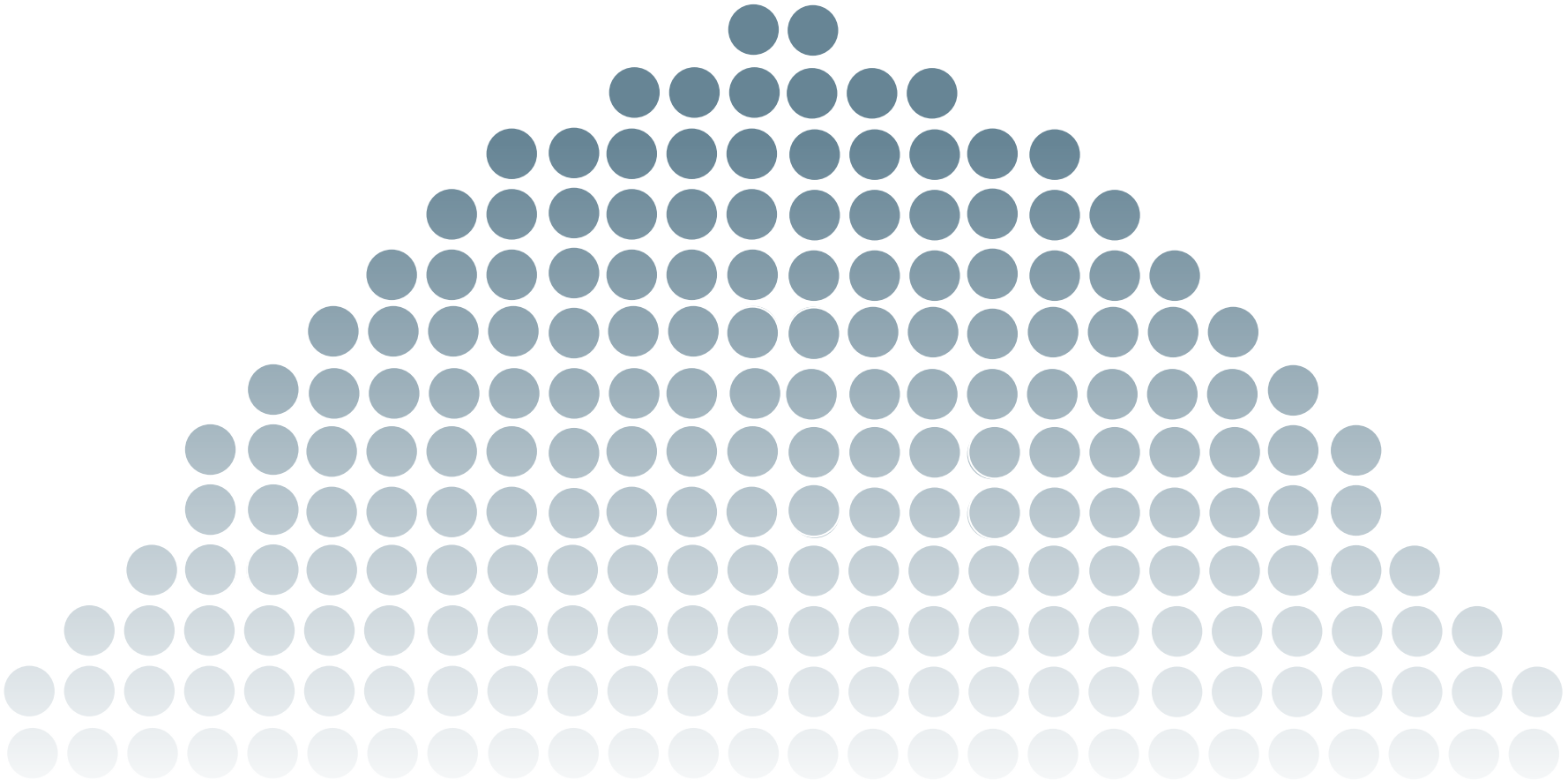
Who Immediately Understands Lean Practices



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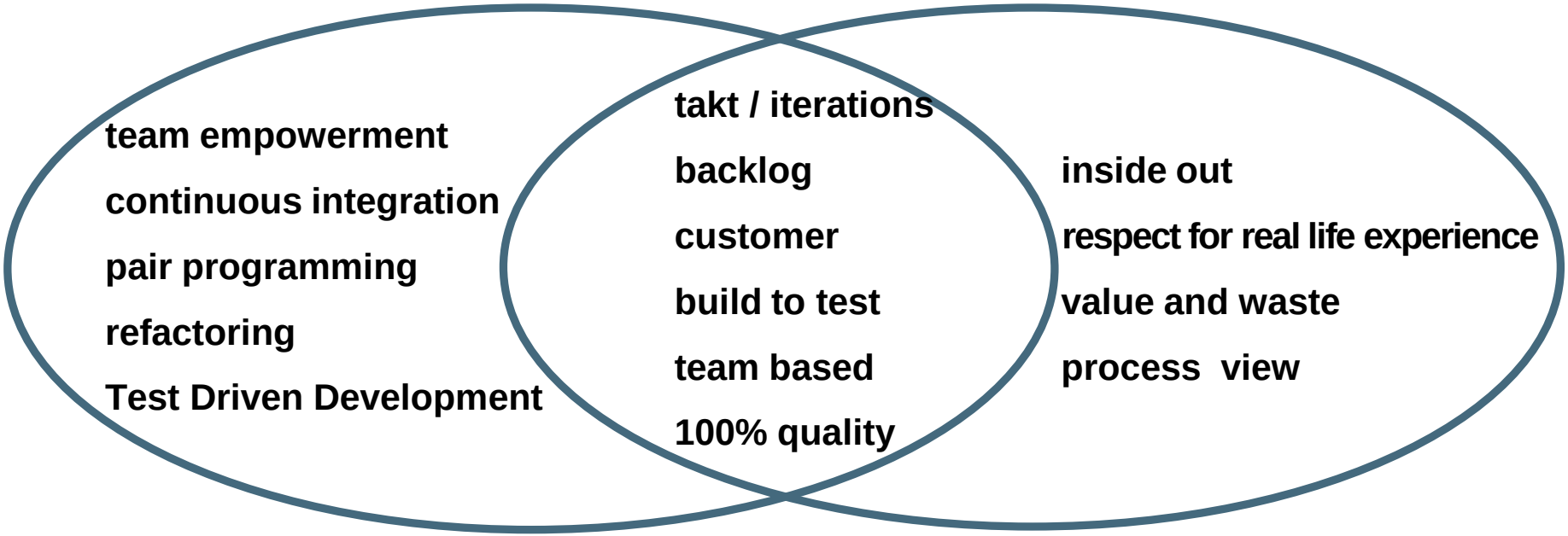
Agile/Scrum and Lean



Lean Product Development ≠ Lean Manufacturing

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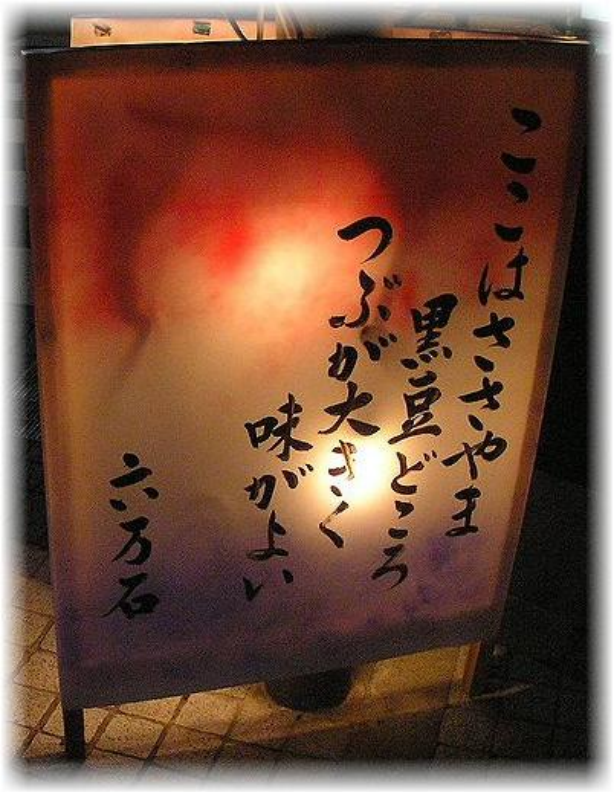
Some things just have different names
Example: “Andon Boards”

Cockburn uses a different term: “Information Radiators”



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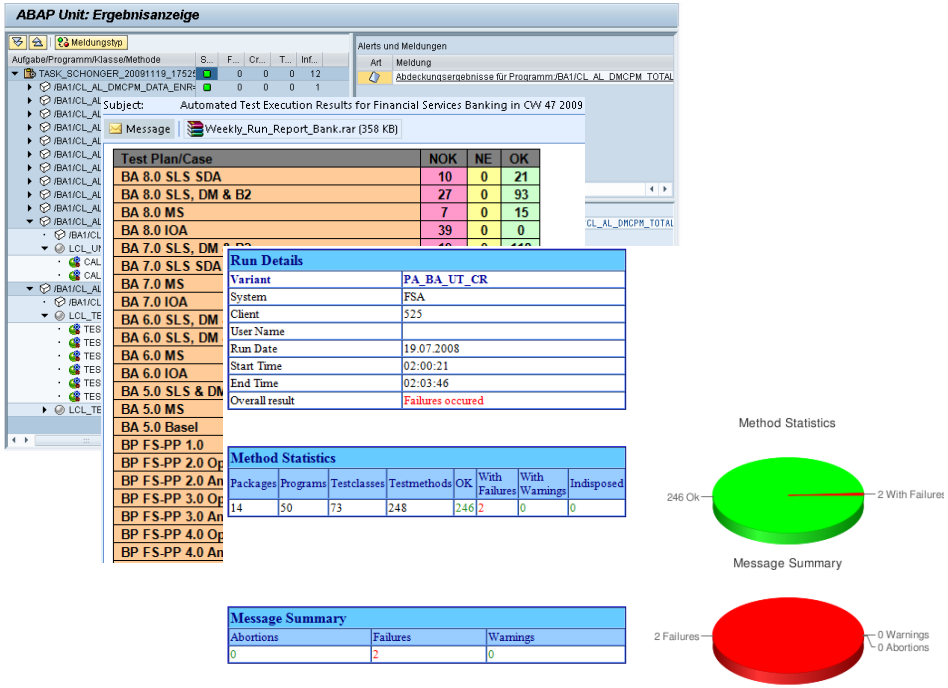

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Pipelines: Order to Cash

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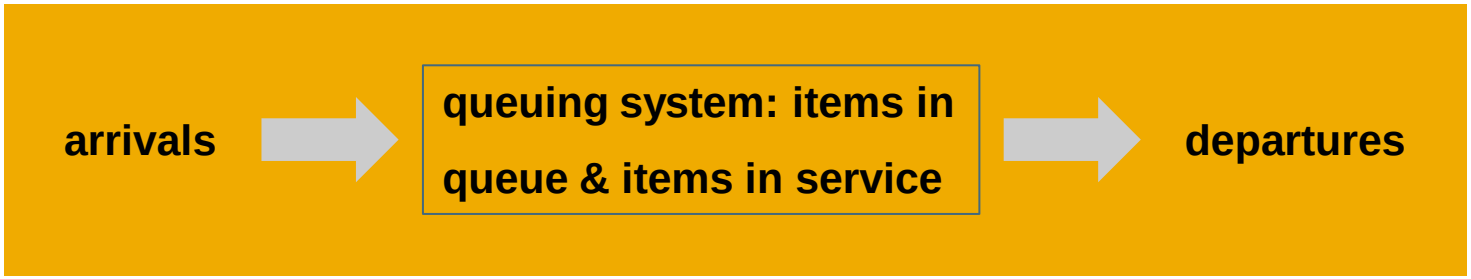
Queuing Theory



Little's law (1961, and actually a theorem)

$$\text{Cycle Time} = \frac{\text{Things in Process}}{\text{Average Completion Rate}}$$

- Independent of involved probability distributions, order of service, #servers
- Works for the queue itself, as well as the system or systems of systems
- Under certain assumptions also works if stated in terms of output
- But **only for steady state conditions**

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Queuing Theory

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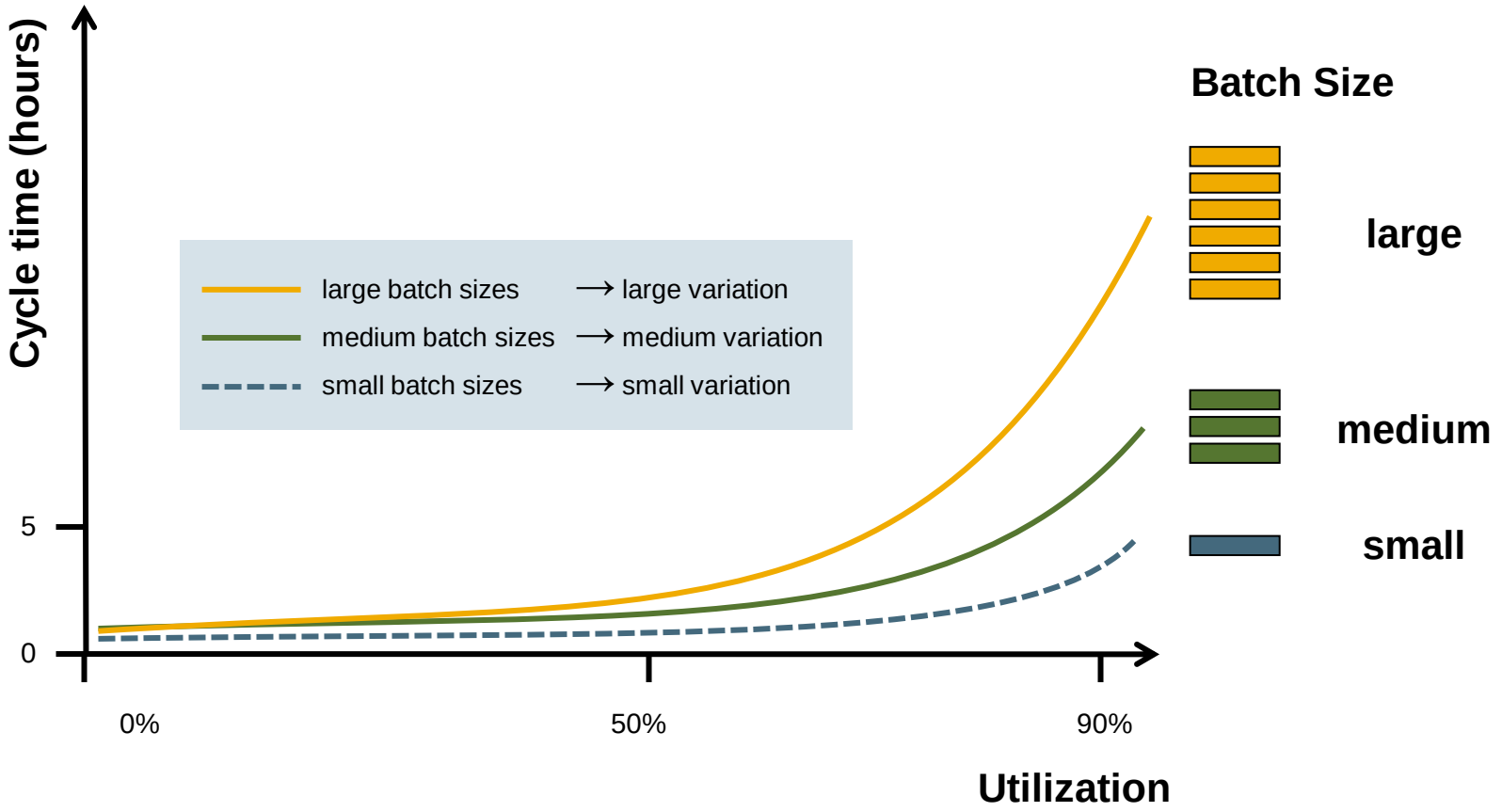
Queuing Theory – Batch Size and Variations

- with variations, the system is not in a steady state
- variation is usually correlated with batch size



(inspired by Mary and Tom Poppendieck's "Implementing Lean Software Development")

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Queuing Theory – Practical Suggestions

Queuing theory gives us six rules for reducing software development cycle time

- **Limit work to capacity**
- **Even out the arrival of work**
- **Minimize the number of Things-in-Process**
- **Minimize the size of the Things-in-Process**
- **Establish a regular cadence**
- **Use pull scheduling**

(taken from Mary and Tom Poppendieck's "Implementing Lean Software Development")

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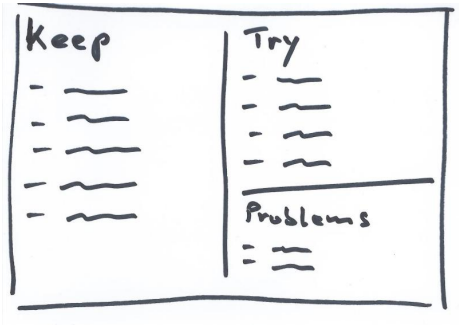
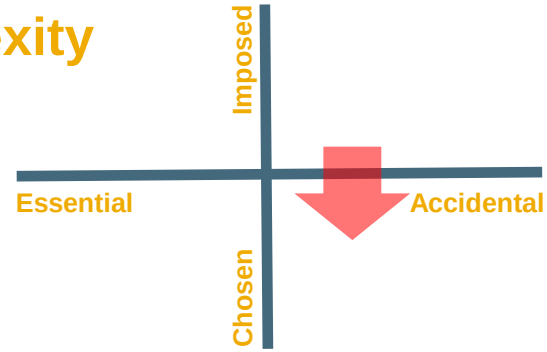
Remember

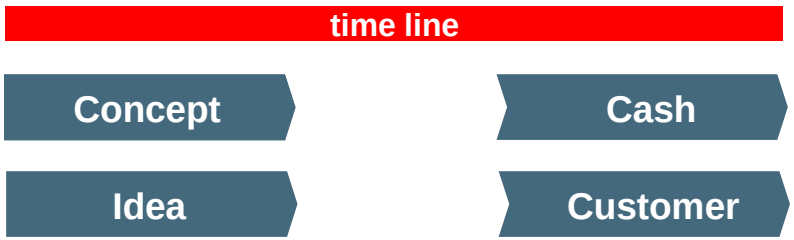
Start with agile practices

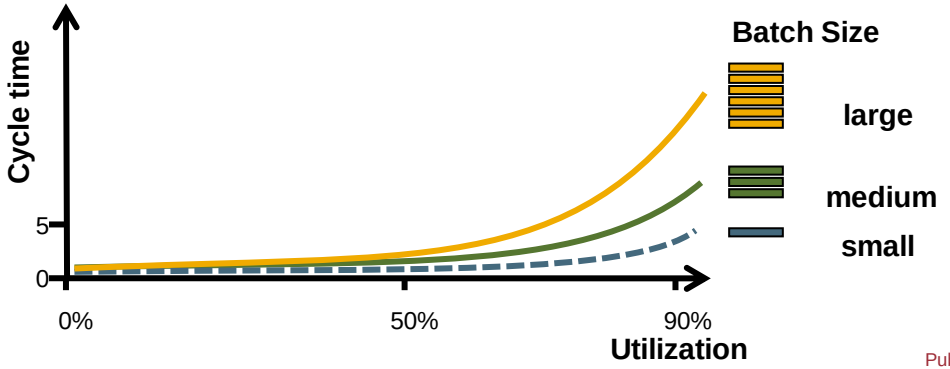


Manage Constraints and Complexity



Use Lean to Your Advantage





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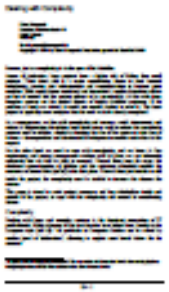
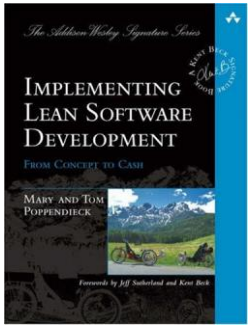
Further reading



- Klaus Marquardt, Dealing With Complexity



- Mary and Tom Poppendieck, Implementing Lean Software Development

- Introduction to Little's law

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