Towards Introducing Agile Archiected in Large Companies: The Caffea Framework

* Lars Pareto passed away in June 2013. We decided to include his name since his significant contribution to the concepts in this paper and his involvement in data collection and data analysis.
Background and motivation
A Software Center* Project

Industrial participants:

- large companies, including embedded software development, employing Agile

* A consortium involving Universities and Industrial partners
Current situation of Agile in large companies

- Requirements analysis $\leftrightarrow$ Product validation
- System & architecture design $\leftrightarrow$ System test
- Module design $\leftrightarrow$ Module test
- Software coding

"The agile loop"

What about architecture and Agile?

"The agile loop"

Requirements analysis $\leftrightarrow$ Product validation

System & architecture design $\leftrightarrow$ System test

Module design $\leftrightarrow$ Module test

Software coding

What are the challenges?

Not in the Agile loop!
Research Design

Literature

“What do software architects really do?” *

literature review


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Research Design

Literature

“What do software architects really do?” *

Architecture Activities


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**Literature**
- "What do software architects really do?" *
- Literature review

**Context**

**Architecture Activities**

**Mapping**

**Roles**
- Chief Arch. (CA)
- Governance Arch. (GA)
- Team Arch. (TA)
- Product Manager (PM)
- Product Owner (PO)


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Literature

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Roles

Chief Arch. CA
Governance Arch. GA
Team Arch. TA
Product Manager PM
Product Owner PO

Activities

Mapping

RQ1

Gaps:

Context

Architecture Activities


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Context

Architecture Activities

Mapping

Roles
- Chief Arch. (CA)
- Governance Arch. (GA)
- Team Arch. (TA)
- Product Manager (PM)
- Product Owner (PO)

Gaps:
- Activities
- Roles

Solution:
- CAFFEA
- Roles
- Teams

RQ1
- CA

RQ2
- GA

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"What do software architects really do?" *

Findings – Challenges and CAFFEAE
Findings: challenges in activities

- Risk management
- Architectural decisions and changes
- Providing architectural knowledge
- Monitor the current status of the system

Short-term or long-term value delivery?
What is worth changing in our architecture?
What qualities are really important?
How much technical debt do we have?
Findings: roles in CAFFEA

- Missing activities (and needed!) due to:
  - Roles not present in the organization
  - Roles overloaded with activities
  - Roles not aware of the need for the activities

- Needed roles:
  - Governance Architect
  - Team Architect
Findings: Teams in CAFFEIA

- Risk management
- Architectural decisions and changes
- Providing architectural knowledge
- Monitor the current status of the system

Careful, we have Technical Debt!
Findings: Teams in CAFFEA

- Risk management
- Architectural decisions and changes
- Providing architectural knowledge
- Monitor the current status of the system

What to do next? Refactoring or features?

Careful, we have Technical Debt!

Governance Team

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Findings: Teams in CAFFEA

- Risk management
- Architectural decisions and changes
- Providing architectural knowledge
- Monitor the current status of the system

What to do next? Refactoring or features?

What do we really need to refactor?

Careful, we have Technical Debt!

Governance Team

Architecture Team

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Findings: Runway Team in CAFFEIA

- A feature team dynamically appointed when the architecture needs improvement

We need Refactoring of architecture!
Overall CAFFEA framework

- **Roles and responsibilities**
  - Chief Architects
  - Governance Architects
  - Team Architects

- **Teams and activities**
  - Architecture Teams
  - Governance Teams
  - Runway Teams
Next Steps
Current status of CAFFEA

- Preliminary, static evaluation very promising
- Companies involved in the project are applying the framework in practice!
- Evaluation on-going at the companies
- Preliminary results: several breakthroughs thanks to CAFFEA
  - Stay tuned 😊
Questions?

References:

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