Escalating agile practices in a high maturity software factory

Alejandro A. Ramírez Ramos
Ultrasist, Governance, Architecture & QA Leader

María Julia Orozco Mendoza
Ultrasist, Chief Operations Officer

Claudia Alquicira Esquivel
Ultrasist, Software Dev Process Group Leader
• Ultrasist is a Mexican Enterprise with more than 19 years of successful experience in IT Consulting and software development. As a result, Ultrasist has been certified CMMI ML5 since 2009, and CMM ML4 since 2004.

• Ultrasist is a medium sized company, focused on the delivery of quality products, based on quality processes, with the flexibility, adaptability and scalability to tackle the biggest challenges within the software and IT industries.
From enthusiasm ... to disillusion

Defect density control chart given in terms of:
Number of defects / UCP (Use Case Point)

Small agile projects results

Initial large agile projects results
Key challenges (KC) in large & complex agile projects:

- **KC1:** Lack of a release synchronization & cadence
- **KC2:** Domain and technology knowledge management through different teams
- **KC3:** Product integration issues
- **KC4:** Communication issues through different teams
- **KC5:** General agreement in priorities
- **KC6:** The lack of a clear path to agile escalation & the control of the technical debt
How to deal with “real-life” projects?

Agile Escalation Points

• For us, the main issue behind the unsuccessful implementation of agile practices in large projects was the lack of clear path to their scalability in three perspectives:
  – Product
  – Project
  – Process
How to deal with “real-life” projects?

**KC3**: Product integration issues

**KC6**: The lack of a clear path to agile escalation & the control of the technical debt

**AEP1**: Early proven architecture (Sprint0)

**AEP2**: Architecture-aware assignment of work

**AEP3**: Working software continuously delivered

Key challenges addressed
How to deal with “real-life” projects?

Project Agile Escalation Points

AEP4: Release Planning (Project and product synchronization meetings)

AEP5: One Product owner team for all teams & a QA Team

AEP6: Cadence accomplishment through team’s productivity (velocity)

AEP7: Monitoring the project through QPM* practices

KC1: Lack of a release synchronization & cadence
KC4: Communication issues through different teams
KC5: General agreement in priorities

Key challenges addressed

* Quantitative Project Management
How to deal with “real-life” projects?

**Process Agile Escalation Points**

**AEP8:** Embracing the agile practices in the institutionalized process rather than having “traditional” and “agile”

**AEP9:** Perform pilots to assess changes

**AEP10:** Select improvements based on quantifiable criteria

**KC2:** Domain and technology knowledge management through different teams

**KC6:** The lack of a clear path to agile escalation & the control of the technical debt

Key challenges addressed
“Real-life” projects experience

Large agile projects demographics:

• Number of projects: 3
  – Size: 10,000 UCP (Use Case Point)
  – Effort: 140,000 hours x project
  – Defect density in production: 0.001 defects /UCP
  – # of Sprints: 18 (1 month)
  – Team size: 150 people in 19 teams

• These results were confirmed through a hypothesis testing, showing that the p-value was less than the required significance level (5%), so the null hypothesis was rejected. The alternative hypothesis was accepted, thus the mean of the new process performance has changed, showing a true benefit.
Conclusions

• We have seen a real value while adopting agile practices for us as a software factory and for our clients, in terms of:
  – Embracing changes even late in the development life cycle
  – Focusing on value delivery as working software which increase customer satisfaction
  – Customer involvement and shared risk
  – Improving team communication and knowledge transfer

• We have proved in practice that it is possible to escalate the agile adoption for larger & complex projects

• We have successfully integrated several agile practices into our process, proving that the high maturity of an organization is reflected in the simplicity and adaptability of their practices and process rather than in complex software development environments
The quality of our work as a fundamental principle, looking for the best value for our clients.

Contact information:

Alejandro Alberto Ramírez Ramos
aramirezr@ultrasist.com.mx
www.ultrasist.com.mx