COMPUTER SCIENCE AND INFORMATION TECHNOLOGY RMIT University

Software Engineering Project Management

Chapter 9: Lean Methodology and Advanced Agile

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Course Materials

Online Course Material

Please select a subtopic to view its contents.

Additional Materials

There are no additional materials available at this time.

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Software Engineering Project Management

Chapter 9: Lean Methodology and Advanced Agile

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More on Lean practices in Project Management

Learning outcomes

Upon completion of this chapter you should be able to:

- illustrate a working knowledge of how to plan
- execute and close Lean projects
- use project management frameworks to a project management scenario
- simulate regular Lean project management meetings and record minutes
- understand Agile better

Lean principles used by Toyota

1. Base your management decisions on a long-term philosophy, even at the expense of short-term financial goals
2. Create a continuous process flow to bring problems to the surface
3. Use "pull" systems to avoid overproduction
4. Level out the workload (heijunka)
5. Build a culture of stopping to fix the problems, to get quality right the first time
6. Standardise tasks and processes
7. Use visual control so no problems are hidden
8. Use only reliable, thoroughly tested technology that serves your people and processes
9. Grow leaders who thoroughly understand the work, live the philosophy, and teach it to others
10. Develop exceptional people and teams who follow your company's philosophy
11. Respect your extended network of partners and suppliers by challenging them and helping them improve
12. Go and see for yourself to thoroughly understand the situation (management by wondering / Genchi Genbutsu)
13. Make decisions slowly by consensus, thoroughly considering all options, and then implement decisions rapidly (Nemawashi)
14. Become a learning organization through relentless reflection (Hansei) and continuous improvement (Kaizen)

Apply Lean as a methodology to Project Management

Stage 1: Initiating Phase

- Look and evaluate if the project is going to add value to the organisation
- Is it in line with vision and mission of the organisation?
- Use tools such as Project Portfolio Management
  - A very important step (why?)
  - Can be complex in case of a larger organisation
- Only if go ahead is planned, the next few activities will commence
- Commence initiate phase
  - Select project leader - a lean expert
  - Lean project manager needs to then choose the team and start documenting this- work on charter now begins
  - A governance structure chart is very important
  - A complete stakeholder map is then drawn
  - Communication plan document created
  - Project challenges, risks are discussed

- Complete Project charter output

Stage 2: Planning process

Outline structure and processes in the project

- Outline structure and processes in the project - PMO may do this in a larger organisation
- Start the cycle/discussion of how to continuously improve these processes by creating a documentation
- Although governance is important, Organisational Breakdown Structure must consist of a minimum of levels between the executers on the team and the decision-makers - each level to have a designated leader
- No overloading of leaders is allowed (we will look at resource loading as a general project management concept in next week's notes) - the decisions need to be resolved within a cluster
- Communication chart to display all the reporting process in sync with OBS (see below for atypical meeting structure workflow in a lean project)
- The meetings are scheduled in specific manner:
  - Delivery team meeting on Mondays
  - Cluster meetings on Tuesdays
  - Work steam meeting Wednesdays
  - Project Integration meeting on Thursdays
  - Service delivery meeting on Fridays
- Team to define *process landscape*
  - This mean document all the processes governance, document control, change management, on-boarding (how team members are chosen) , other planning processes *if necessary*
- This is where project manager/leader starts using a scheduling tool - *the Gantt chart*
- Figure out perquisites, deliverables, milestones, dependencies (while defining these remember an important lean principle- thing is either 0% or 100%)
- *Special note: Lean team is not obsessed with the use of a particular tool - a tool is only good if it supports the process*
- A kick-off event is now held to end this phase

Stage 3: Executing Phase

- Not much to say here, every lean project differs in this stage
- RACI matrix created and updated
- Usual lean principles are applied here at every step (remember the 5 lean principles from the previous lecture)
- Visual workflow boards used (Kanban board)
- Stand-up meetings
- Things that go hand-in hand: risk and issue management, accountable person reporting progress and quality documentation

Visual tools for Lean project management

- LeanKit
- AgileZen
- Six Sigma tools

Important note about lean execution phase[2]

- One person accountable for the team
- Culture of open communication, respect and trust
- Deviations from plan (*though rare in lean*) must be documented
- Every problem needs to be documented and tagged for escalation
- Decisions must be taken at lowest possible level - escalation is ONLY allowed if important stakeholders affected by the decision are not around the table

No such thing as external motivation team must be convinced that project is worth inputting 100% efforts - principle 12 from the Toyota lean principles applies here

- Hawthorne effect has proven effective in lean projects
- Do you know what it is?[3]
- Positive management attention, involvement coupled with good work conditions certainly helps

Stage 4: Monitoring and Control Phase

- Reporting is an important tool (Principle 7)
- Continuous improvement is the corner stone of this phase
- Various tools can be used to monitor change (Principle 8) and report to the stakeholders

Stage 5: Closing Phase

- Important documentation follows- best practices, things that worked, things that did not (Toyota Principles 6 and 14)
- SWOT analysis, cause and effect diagram (remember lecture 3: Fishbone/Ishikawa diagram)
- Brainstorming sessions held
- Team mechanics documented (who, how and why?, who worked well? who showed good instincts?) - resource table created (*does that ring a bell*)?
- Resource release document created
- Termination and Closure report
- Handing over

You should now be able to draw a Gantt chart if you were to apply Lean as a project management methodology to a scenario.

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Software Engineering Project Management

Chapter 9: Lean Methodology and Advanced Agile

Advanced Agile Concepts

Criticism of Lean

- Lack of consideration of human aspects
- Lack of creativity
- Promotes culture of incrementalism
- Coping with variable nature of project management
- Does not apply to every project

Miscellaneous Agile concepts

- We will talk about various agile concepts during this part of the lecture.
- These topics have not been covered during the previous discussions on Agile.

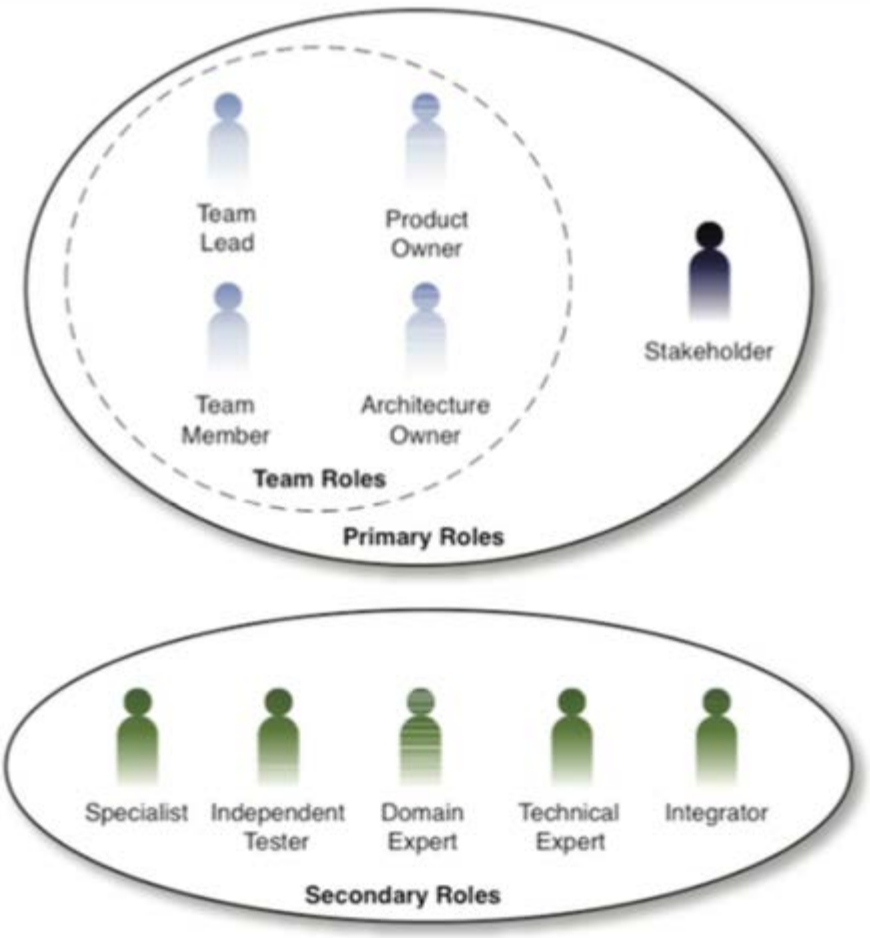
#1: Agile practices found in industry[4]

- *Cross-functional teams*: Instead of setting up a team of analysts, a team of developers, and a team of testers, try to make a team of 59 people that includes analysts, coders, and testers. Then ask them to collaborate and produce working software together every couple of weeks, which will probably force the analysts to do some testing or the testers to do some coding.
- *Iterative and incremental development*: Instead of building block A, and then block B, and then block C, only to find out that nothing really works until block Z is in place, try to deliver a small working version of the system as soon as possible.
- *Feature-Driven Development*: If we have to deliver working software every 2 weeks or so, a high stress has to be put on developing working features as a whole, instead of spending some months designing the architecture, then another few months developing the core, then application logic, then user interfaces.
- *Planning game*: Agile teams participate as a whole in project planning, as everyone will have valuable information in his part of the project. The use of games like planning poker[5], story points, or workshops to create user story maps is frequent in Agile teams.
- *Co-Location*: This refers to co-location of cross- functional team together.
- *Pair programming*: This practice started among developers, but it is gradually being applied by other members of the team. For example, developers and testers are pairing, so code is easier to test. And analysts and coders are pairing so coders better understand what they need to solve, and also produce more readable code. When two people pair, only one computer is used. While one of them is at the keyboard, the other plays the navigator or observer role.

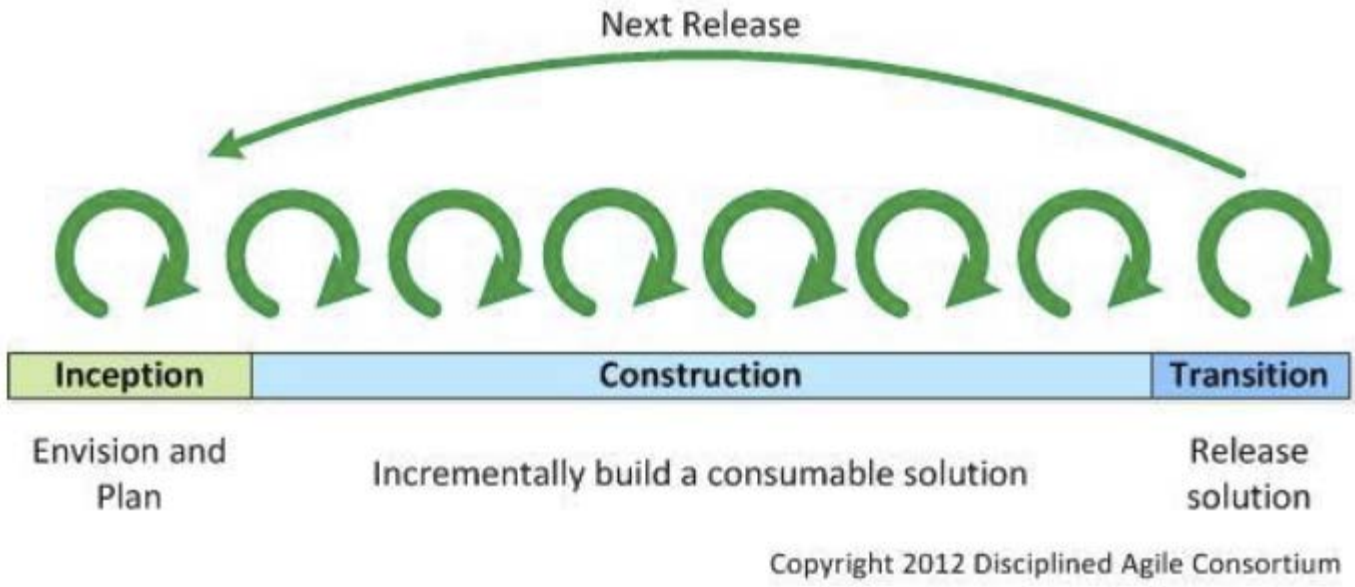
2: Disciplined Agile Delivery (DAD)[6]

- The Disciplined Agile Delivery (DAD) process decision framework is a people-first, learning-oriented hybrid agile approach to IT solution delivery.
- It has a risk-value delivery lifecycle,
  - is goal-driven
  - is enterprise aware, and
  - is scalable
- DAD is a hybrid approach which extends Scrum with proven strategies from Agile Modelling (AM), Extreme Programming (XP), Unified Process (UP), Kanban, Lean Software Development, etc.
- DAD extends the construction-focused lifecycle of Scrum to address the full, end-to-end delivery lifecycle from project initiation all the way to delivering the solution to its end users.

- Instead of the prescriptive approach seen in other agile methods, including Scrum, the DAD framework takes a goals-driven approach.
- In doing so DAD provides contextual advice regarding viable alternatives and their trade-offs, enabling you to tailor DAD to effectively address the situation in which you find yourself. By describing what works, what doesnt work, and more importantly why, DAD helps you to increase your chance of adopting strategies that will work for you.



The roles of Disciplined Agile Delivery (DAD)



- DAD lifecycle is more complex than what is shown on the previous slide:
  1. An agile/basic version that extends the Scrum Construction lifecycle with proven ideas from RUP;
  2. An advanced/lean lifecycle;

3. 3A lean continuous delivery lifecycle;

- A very detailed pictorial representation
- Video on DAD

Lesson Number 9

DAD extends beyond SCRUM!

Acknowledgement: YouTube video copyright is held by the YouTube website and the owner, it has been cited for educational purposes.

References

1. What is PPM?
2. Lean PM, the document rights are held by [www.sqs.com/], the document has been used partially for learning-purposes.
3. The Hawthorne effect
4. Lean and Agile in nutshell, Angel Medinilla Appress Inc.
5. Planning Poker
6. http://www.disciplinedagiledelivery.com/

Suggested Reading

- None in the prescribed textbook, but reading this lecture and going through associated video resources should suffice.

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