RADTAC
Smarter business
through IT transformation

Agile Alliance FOUNDER · Certified Scrum Trainer · DSDM CONSORTIUM Accredited Training Organisation · PRINCE2

EXPERTISE

BRIEFING PAPER

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LEAN SOFTWARE DEVELOPMENT

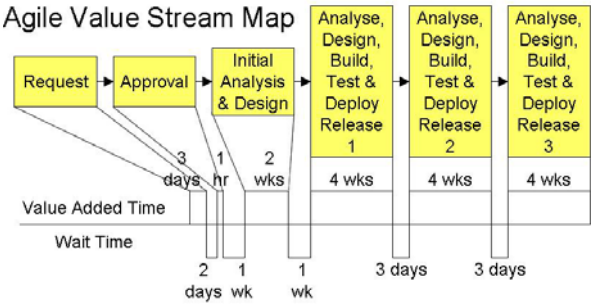
‘Lean thinking’ originated at the Toyota Production System, masterminded by Taiichi Ohno in the 1940s and ‘50s.
‘Lean Software Development’ is the application of the principles and practices of Lean production to the process of software development, and was first properly described in 2003 by Tom and Mary Poppendieck in their book ‘Lean Software Development: An Agile Toolkit’.

Lean software development consists of seven principles and a series of ‘Thinking Tools’ which can be used to apply Lean principles to software development, to maximise value and minimise waste.

Eliminate Waste

The 7 wastes of software development

- Partially Done Work
- Extra Features
- Relearning
- Task Switching
- Handoffs
- Delays
- Defects



Build Quality In

If you find defects, your process is defective

Test-driven development stops mistakes

Write executable specifications instead of requirements

Stop building legacy code

Automate all unit and acceptance tests

The big-bang is obsolete

Use continuous integration and nested synchronisation

Create Knowledge

Planning is useful. Learning is essential.

Use the scientific method

Hypothesise, conduct rapid experiments, create concise documentation and implement the best alternative

Always challenge and improve standards

Embody current best practice in mandatory standards, but encourage everyone to challenge and change them

Drive performance by feedback

Predictable organisations don’t try to plan and predict the future; they develop the capability to respond as it unfolds

Defer Commitment

Abandon complete up-front specification

Break dependencies

System architecture should support the addition of any feature at any time

Maintain options

Treat all code as experimental – make it change-tolerant

LEAN SOFTWARE DEVELOPMENT

Decide at the last responsible moment
Learn as much as possible before making irreversible decisions

Deliver Fast

Queues are buffers that slow things down

Rapid delivery, high quality and low cost are compatible
Companies that compete on the basis of speed have significant cost advantage: they deliver superior quality and are more attuned to customers' needs

Apply queuing theory to development
Focussing on utilisation creates traffic jams that actually reduce utilisation. Drive down cycle time with small batches and fewer things-in-process

Limit work to your capacity to do it
Establish a repeatable velocity with iterative development. Limit the size of lists/queues to your capacity to deliver

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

Respect People

Engaged people provide the best advantage

Teams thrive on pride, commitment, trust and applause
Members of a true team are mutually committed to achieve a common goal

Provide effective leaderships
Bring-out the best in the team

Respect partners
Allegiance to the joint venture must never create a conflict of interest

Optimise the Whole

Balance technology and opportunity

Focus on the entire value stream
From concept to cash and from customer request to deployed product

Deliver a complete product
Not just the software. Complete products are built by complete teams

Measure UP: The whole, not the parts
Measure process capability with cycle time, team performance with delivered business value, customer satisfaction with a 'net promoter' score

Further information

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About RADTAC

RADTAC provides Consulting, Training and Delivery Services for Agile Methods, Project Management, Systems Development and Process Improvement.

We provide unique in-depth expertise across a full range of services; including Certified Training in Scrum, DSDM / Atern, XP, Lean, Agile Unified Process, PRINCE2 and ITIL.