Combination of Agile and Lean in Software Development
An Experience Reports Analysis

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Agile Practices

Agile Principles

Agile Values
Agile practices

- Iteration Planning
- Daily Standup
- Unit Testing
- Release Planning
- Retrospectives
- Burndown
- Continuous Integration
- Automated Builds
- Velocity
- Refactoring
- Coding Standards

- Test Driven Development (TDD)
- Open Workareas
- Digital Taskboard
- Collective Code Ownership
- Pair programming
- Automated Acceptance Testing
- On-site Customer
- Continuous Deployment
- Behavior Driven Development
- * Kanban
- * Cycle time

- VersionOne 2011 Agile Survey
Lean Practices

Lean Principles

Lean Concepts
Lean Concepts

- Value
- Value Stream
- Flow
- Pull
- Perfection
Lean Software Development Principles

- Eliminate Waste
- Build Quality In
- Create Knowledge
- Defer Commitment
- Deliver Fast
- Respect People
- Optimise the whole
The Principles of Product Development Flow

- Use an economic view
- Manage queues
- Exploit variability
- Reduce Batch Size
- Apply WIP constraints
- Control flow under uncertainty
- Use fast feedback
- Decentralize control
3 Foundational Kanban Principles

- Start with what you do now
- Agree to pursue incremental, evolutionary change
- Respect the current process, roles, responsibilities & titles
Lean Practices

- Value Stream Mapping
- Make everything transparent
- Kanban chart
- Address bottlenecks
- Defer decision making to the last responsible moment
- Move variability downstream
- Use pull systems
- Continuous improvement ("Kaizen" event)

- Avoid too much local optimisation
- Root cause analysis (The 5 whys)
- Promote a safe environment to "stop the line"
- Develop appropriate incentives/rewards
- Pragmatic governance (enable first, manage/control second)
How are agile and lean combined?
The eliminating waste principle and the seven types of waste help the company “break the silo mentality and simplify the delivery by reducing the work in progress and developing collaborative teams focused on customers’ prioritized needs”. 
Combination Type 2

Lean facilitates agile adoption:

- Lean prepares a favorable environment for a smooth agile transition.

- Lean as guiding principles during the adoption of an agile initiative, no matter it is bottom-up or top-down.

"Lean principles help agile behaviors to stick."
Combination Type 3

Lean helps to extend agile from development to neighbouring business units, or customer organisations.

“Speaking the same language and agreeing on principles like ‘build quality in’ and many more is highly needed for successful cross unit cooperation.”
“XP customer will tend to drive development without regard to how features impact the business system from a throughput perspective…. If business managers do not adopt analytic techniques that are more synergistic with XP, the developers themselves simply become a local optimization of the software development process.”
“it was fully possible to run agile software development without time-boxes by using a continuously updated work item priority queue instead”

“From a Timebox Tangle to a More Flexible Flow”
What's your story?

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