

Principles of Product Development Flow

Part 1: Introduction

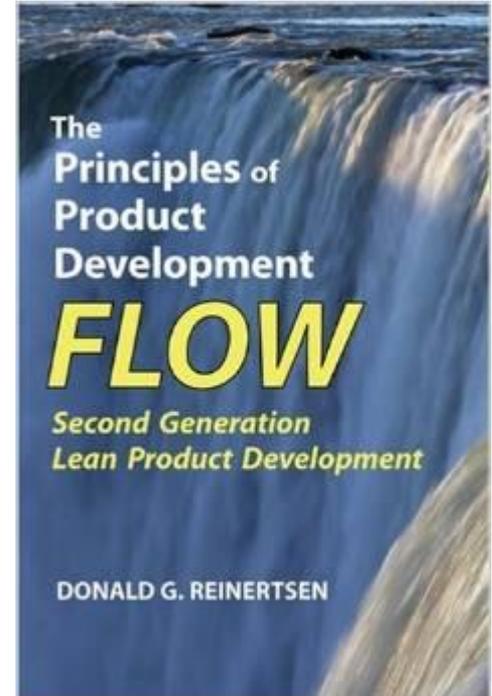
About Me

- Started programming in 1981
- Owner of Enoki Solutions Inc.
 - Consulting and Software Development
- Exposed to several industries
- Running VanDev since Oct 2010

Book:

The Principles of Product Development Flow

- ~\$45 on Amazon.ca
- Published in 2009
- Award winning
- Difficult material
- Generally ignored :(
- Awesome IMNSHO



Overview

- What is the problem?
- A possible solution
- What next

The Problem

“Today’s orthodoxy has institutionalized a set of internally consistent but dysfunctional beliefs. This has created a tightly interlocking and self-reinforcing system, a system from which it is very difficult to break free. Even when change one piece, the other pieces hold us back by blocking the benefits of our change. When our change fails to produce benefits, we revert to our old practices.”

Current Orthodoxy

- Failure to correctly quantify economics
- Blindness to queues
- Worship of efficiency
- Hostility to variability
- Worship of conformance
- Institutionalization of large batch sizes
- Underutilization of cadence
- Managing timelines instead of queues
- Absence of WIP constraints
- Inflexibility
- Noneconomic flow control
- Centralized control

Failure to Correctly Quantify Economics

“We are like the drunk under the lamppost looking for his keys where the light is best, instead of where he dropped them.”

- The proxy variables used to measure development are not tied to life-cycle profits.

Blindness to Queues

“If we ask the CFO how much inventory we have in product development the answer will be, “ZERO”.”

- We don't measure Design-in-Progress (DIP)
- High DIP -> High cycle time
- Less innovation and more imitation

Worship of Efficiency

“Large queues form when processes with variability are operated at high levels of capacity utilization. In reality, the misguided pursuit of efficiency creates enormous costs in the unmeasured, invisible portion of the product development process, its queues.”

Worship of Conformance

“Today’s product developers have deep-rooted misconceptions on how to react to variability. ... They assume that the benefit of correcting a deviation from the plan [conforming] will always exceed the cost of doing so.”

i.e.: They assume the benefits of meeting a deadline will always exceed the costs in doing so.

Institutionalization of Large Batch Sizes.

“Large batches seem attractive because they **appear** to have scale economies that increase efficiency. ... However, this efficiency gain is only an illusion.”

“They fail to recognize both the critical relation between batch size and cycle time ... and feedback speed.” [... and transactions costs]

Underutilization of Cadence

Let's say we design 200 interrelated features over a span of 10 weeks and review them all at once when they are done.

An error made on day one in the first design that would have been caught in review invalidates the other 199 designs and wastes 9+ weeks of work.

Managing Timelines instead of Queues

“Project managers create timelines. The more detailed our plans the longer our cycle times become.”

“We favor highly granular planning because we don’t understand the statistics of variability.”

Absence of WIP Constraints

“One of the most powerful ways to manage queues is to use WIP constraints. This technique is virtually absent in today’s development processes.”

Inflexibility

The pursuit of efficiency and conformity to plan leads to overall inflexibility and inability to react to changes in the market.

Noneconomic Flow Control

Project prioritization is blind to cost-of-delay because we do not measure that cost.

Centralized Control

“Our focus on centralization arises because we value efficiency more than response time. ... One of the most interesting examples of decentralized control without losing alignment is the way the **military** deals with the uncertainty of warfare.”

A Possible Solution

Themes

- Economics
- Queues
- Variability
- Batch Size
- WIP Constraints
- Cadence (Synchronization, Flow Control)
- Fast Feedback
- Decentralized Control

Economics

- Move focus away from the easily observed proxy variables of efficiency and conformance
- Measure real costs

Queues

- Expose your queues
- Quantify their costs

Variability

- Accept that variability is both inevitable and higher variability can be a good thing
- Higher variability -> More flexible -> More opportunity benefits
- Payoffs are asymmetric, making your intuition about failure wrong.

Batch Size

- More to smaller batches
- Reduces unnecessary variability in flow
- Reduces cycle-time

WIP Constraints

- Reduced inventory -> Reduced cycle time
- Faster reaction to market changes

Cadence

- Review progress regularly
- Independently of the progress itself
- React and adjust
- De-syncs can be economically beneficial in spite of re-work.

Fast Feedback

- Move fast, break things, fix them, keep going.
- Reaction time can make or break you.
- Be willing to kill it. (Not conform to the plan.)

Decentralized Control

- Balance central and decentralized control
- Centralized Alignment
- Independent Action
- Faster reaction times during execution

Conclusions

“I used to think that sensible and compelling new ideas would be adopted quickly. I believe this view is hopelessly naive.”

“Did you ever consider why American industry adopted lean manufacturing 30 to 40 years after these methods began to produce benefits in Japan? Was it because the Japanese hid this approach from Western eyes? No. American industry waited until the full-scale implementation of these ideas at Toyota could no longer be ignored. ... missing out on 30 years of economic benefit.”

Conclusions

- That was the **introduction**.
 - The book is very dense
 - I'm betting some of that was confusing
- I could easily do another 8 talks...
- You really should read the book
 - ... a few times ...

Q&A

“Manage queues; not timetables.”