

Principles of Product Development Flow

Part 8: Using Fast Feedback

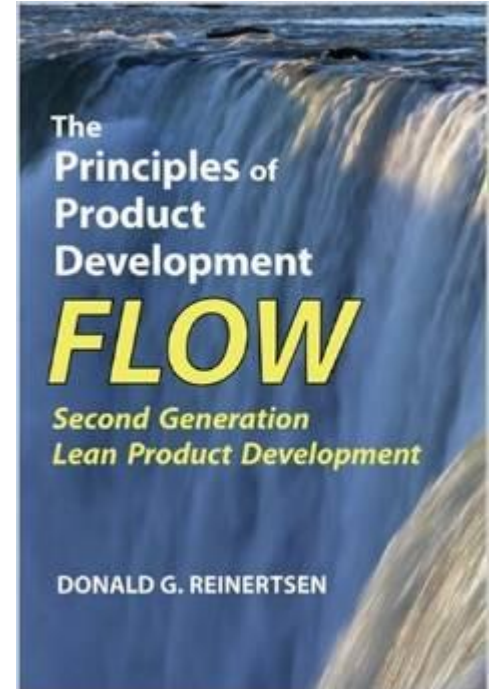
About Me

- 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



Format

- Several “Principles”
- FF - Fast Feedback
- 24

FF1 The Principle of Maximum Economic Influence: Focus control on project and process parameters with the highest economic influence.

- If a 10% increase in project expenses reduces profits by 1% and a 10% increase in unit cost reduces profits by 50%
 - Focus on controlling unit costs
- Use real costs, not proxies.

FF2 The Principle of Efficient Control: Control parameters that are both influential and efficient.

- Sale price is influential
 - Not efficient to control
- Unit cost is a nearly identical impact on profits as sale price but is more efficient to control

FF3 The Principle of Leading Indicators: Select control variables that predict future system behavior.

- Leading Indicators allow us to cut losses
- E.g. starting late vs completion time
 - High correlation between starting late and running late
 - By the time a task is running late it is too late to react
 - React at the start

FF4 The Principle of Balanced Set Points: Set tripwires at points of equal economic impact.

- In FF1 he says to watch high influence parameters
- These change over time
 - When the order changes enough react
- **Do not** watch proxy variables
 - Economic impact is what matters
 - If it doesn't measure profit, it's a proxy variable

FF5 The Moving Target Principle: Know when to pursue a dynamic goal.

- Preventing deviations from a static plan is often economically worse than changing the plan
- Adaptive control systems designed for a dynamic target differ from those used for static targets
 - Consumer preference is dynamic

FF6 The Exploitation Principle: Exploit unplanned economic opportunities.

- Car manufactures and MP3 players
 - Years late in spite of ease of adoption
 - Aftermarket sellers rejoiced
- Reaction implies **greater** deviation from plan
- Most companies manage to **less** deviation from plan and miss opportunities

FF7 The Queue Reduction Principle of Feedback: Fast feedback enables smaller queues.

- Producers wait for feedback
- WIP \sim length of feedback loop
- Faster feedback
 - short loops
 - less WIP
 - smaller queues

FF8 The Fast-Learning Principle: Use fast feedback to make learning faster and more efficient.

- Fast Feedback
 - Less accumulated variation
 - Lower in-process inventory (noise)
 - Less to consider
 - More efficient learning
 - Faster learning
- Change one input at a time
 - and the difference in the output is caused by?

FF9 The Principle of Useless Measurement: What gets measured may not get done.

- Got a bathroom scale?
 - Did you lose weight?
- Got an organizer?
 - Did you get organized?
- “What gets measured gets ~~done~~ measured”

FF10 The First Agility Principle: We don't need long planning horizons when we have a short turning radius.

- To get a shorting turning radius
 - underutilize
 - shorten queue lengths
 - automation
 - automate your automation!
 - automate the system of building automated pipelines for your builds
 - etc.

FF11 The Batch Size Principle of Feedback: Small batch sizes yield fast feedback.

- Small batches process faster
 - Lower overall transit time for the entire pipeline
 - Faster feedback from every stage of the pipeline
 - Less risk
 - Errors discovered invalidate less work

FF12 The Signal to Noise Principle: To detect a smaller signal, reduce the noise.

- Reduction of batch size leads to more variance
 - i.e. tossing coins; more tosses -> less variance
- Reduce sources of noise
 - automation
 - no human variance
 - repeatable environmental setup

FF13 The Second Decision Rule Principle: Control the economic logic behind a decision, not the entire decision.

- Enable faster decisions
 - Control the economics of decisions
 - Trade off equations ($\$ \leftrightarrow$ Performance)
 - Limited freedom to spend by role
 - employee (pens, etc.)
 - manager (computes, etc.)
 - Enable doers to understand the logic of the decisions

FF14 The Logical Principle of Feedback: Whenever possible, make feedback local.

- **WIP constraints do this**
 - Global constraints take longer to work
- **Large orgs Up/Down issues**
 - Two people sitting 10 feet apart working on the same product communicating via their VPs!
- **Local feedback is immediate and direct**

FF15 The Relief Valve Principle: Have a clear, predetermined relief valve.

- Feature set can grow by 5% before schedule is automatically changed
- Schedule projection can slip to 110% before features are jettisoned (bring it back to 80%)
- Server can load to 75% before autoscaling adds more servers

FF16 The Principle of Multiple Control Loops: Embed fast control loops inside slow loops.

- Short loops deal with random factors
 - Adjusting course in shifting winds
- Long loops deal with large trends
 - Taken in the sails before a storm
- Operations can deal with some bugs
- Systemic issues need rewrites

FF17 The Principle of Controlled Excursions: Keep deviations within the control range.

- Systems are stable under a certain load
- Pushing past that load will cause collapse
- e.g. QA testing queue
 - If the turnaround time exceeds a certain limit it will spiral out of control

FF18 The Feedforward Principle: Provide advance notice of heavy arrival rates to minimize queues.

- If you can predict a large arrival of work you can prepare better for it
- e.g. Lunch rushes
 - Pre-make more popular food items
- e.g. QA test queue
 - Pre-make more testing environments

FF19 The Principle of Colocations: Colocation improves almost all aspects of communication.

- Face-to-face is the fastest human communication method
- Colocation enables smaller batch sizes
- e.g. If someone is 8 hours out of sync
 - every back and forth is 1 day
 - batch sizes naturally increase

FF20 The Empowerment Principle of Feedback: Fast feedback gives a sense of control.

- Flip a switch
 - light goes on immediately
 - switch control light
 - light goes on in 10 minutes
 - switch does not control light
- Information decay
 - I care about something now
 - in 3 months I likely won't remember asking for it

FF21 The Hurry-Up-and-Wait Principle: Large queues make it hard to create urgency.

- If it takes months for my asks to be fulfilled
 - Why do my part faster?
- Large queues lead to queue hoping
 - Only tasks with an eminent deadline get worked on
 - Why finish anything early then?

FF22 The Amplification Principle: The human element tends to amplify large excursions.

- Any unrealistic goals lead to all goals being unrealistic
 - “Don’t you just love the sound of deadlines as they go whooshing by?”
- We tend to abandon lost causes
 - Those that are behind, stay behind
 - We focus on possible successes instead

FF23 The Principle of Overlapping Measurement: To align behaviors, reward people for the work of others.

- Balance local and global rewards
 - Avoids individuals from gaming their local system to maximize their reward
 - Including tiered rewards across the organization fosters cross organization support
- Better yet: **DO NOT GIVE BONUSES**
 - See “Drive” by Dan Pink.

FF24 The Attention Principle: Time counts more than money.

- Time is the most scarce resource
- What and who you focus on speaks volumes about what is important in your organization
- Consider what you spend time discussing the most at meetings?
 - Is that really the most important thing?

Conclusions

- Always bring it back to \$ and ¢
- Adapt to changing situations
- Time is your most scarce resource
- His thoughts on motivation are out of date
 - See Mastery/Autonomy/Purpose

Q&A