

Training Curriculum

A Kanban System for Software Engineering

2 Day Class Curriculum

David J. Anderson & Associates Inc.
8329 21st Ave NW, Seattle, WA 98117
email: dja@djandersonassociates.com

What you will learn

- An introduction to Lean, Pull Systems and Kanban
- 4 areas of focus to deliver success
- Value Stream Mapping
- Process Flow Tracking
- Implementing different classes of service
- Implementing a culture of continuous improvement (Kaizen)
- How established industrial engineering theory can apply to software development process
- Controlling WIP
- Identifying bottlenecks
- Classifying bottlenecks as capacity constrained resources or non-instant availability resources
- Managing bottlenecks appropriately for improved throughput
- Understanding transaction and coordination costs in a kanban process
- Defining release and input cadence for a kanban system
- Negotiating service level agreements with customers
- Using Metrics and Reporting to drive continuous improvement
- Establishing policies to prevent abuse and gaming of the kanban system

Introduction

- Introduction to Lean
- What is a kanban system – Imperial Palace Gardens example
- Background and history of approach to kanban system for software engineering

Recipe for Success (and outline for remainder of class)

- Focus on Quality
- Reduce (or Limit) Work-in-Progress
- Balance Demand against Throughput
- Prioritize
- How kanban delivers all 4 elements of the Recipe for success

Case Study – Microsoft XIT Sustaining Engineering

Value Stream Mapping and Tracking

- Defining customer-valued work items (deliverables)
- Value-stream mapping
- Work item tracking (manual and electronic)
- Daily standup meetings
- Kanban boards
- Sticky Buddies

Exercise 1 – Tracking Value Delivery

- Group Show and Tell

Qualities of Service

- Types of work items
- Expediting (“Silver Bullets”)
- Policies for processing work items

Exercise 2 – Classes of Service and Policies

Kaizen Culture

- Meaning of Kaizen
- Trust and transparency
- Alignment
- Focus on Value Delivery
- Empowerment, Delegation (Self-organization)
- Servant Leadership
- Objective Quantitative Management with simple Metrics

Industrial Engineering

- Effects of Expediting
- Bottlenecks
- Empirical observation and adjustment
- Spontaneous Quality Circles
- Kaizen events

WIP

- Setting kanban limits

Bottlenecks

- Identifying bottlenecks
- Capacity constrained resources
- Non-instant availability resources
- Improving throughput

Exercise 3 – Kanban Limits and Constraint Management

- Group Show and Tell

Examples of variants on kanban systems

- Sustaining
- Various Project Examples from Corbis
- Use outside software development
- Yahoo! Examples
- Other published examples

Scaling Kanban

- Standup meetings
- Two-tiered kanbans
- Swim Lanes

Release Cadence

- Technical transaction costs of release
- Customer transaction costs of release
- Market variation and demand for releases

Prioritization Cadence

- Feeding the input queue
- Transaction costs of item selection and prioritization

Service Level Agreements

- Striking a different bargain
- Determining a service level agreement
- Monitoring due date performance

Exercise 4 – Release and Prioritization Cadence Selection

- Group Show and Tell

Metrics and Reporting

- WIP - Cumulative flow
- Lead Time
- Waste Lead Time : Touch Time
- Open Issues and Blocked Work Items
- Lead Time Specturm Analysis
- Executive Dashboard

Exercise 5 – Metrics and Reporting

- Group Show and Tell

Gaming the System

- Collaborative Game Theory
- Kanban system robustness to gaming
- Bargaining, Democracy and Collaborative Problem Solving
- Prioritization policies to prevent gaming
- Expediting and how to avoid too many *Silver Bullets*
- Building trust through collaboration
- Building collaboration by turning the real work in to a collaborative game

Summary

- Culture
- Policies
- Cadence
- Collaboration
- Continuous Improvement

Exercise 6 – Reflection “Where can you use kanban?”

Is Kanban for you? And where would you introduce it first?