

Intro to Kanban-based Agile for Agile/Lean Program Offices

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SEI Agile Transformation Team



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Topics the SEI will address in this module include:

- ***Kanban Concepts and Application***
 - ***Rationale for Kanban***
- Starting Your Program Office Kanban System

Rationale for Kanban

Why Are We Doing This?

Take advantage of Lean Principles!

Leverage Small Batch

- Increase Flow
- Improve Productivity
- Deliver Quality

Visualize and Manage WIP (Work in Process)

- WIP Limits
- WIP Policies
- Visually see the work being done



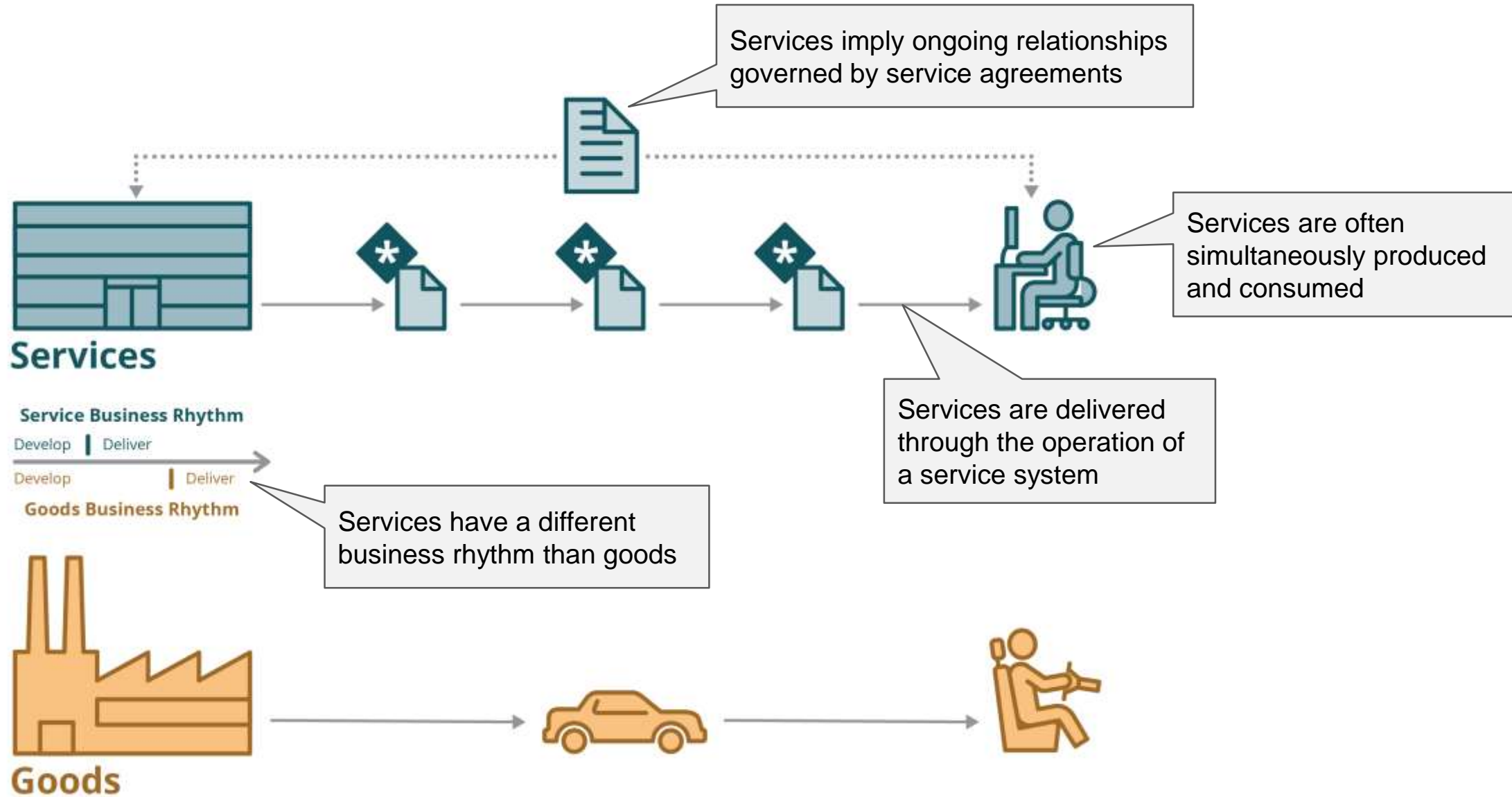
More Effectively Manage Organizations

Organizations that produce

- Products
- Services
- Both



How is Your Work like a Service?



Hallmarks of Service Delivery vs Product Development

Service Delivery

- No second chances
- Immediacy and simultaneity
- Attention to details
- Consumers noticing details immediately
- Visibility into how problems are resolved
- Real time communication
- Value strongly influenced by point of contact
- Quality can be objective or amorphous

Product Development

- Iterating toward final correct product frequently expected
- Quality frequently defined in objective terms
- Value easily connected to specific performance results, independent of point of contact
- Communication infrequently real time
- Circuitous paths from failure to producer

Exercise: use annotation to put stamps next to the attributes that reflect the bulk of your work

Kanban is an Agile Approach Most Relevant to Service Delivery Environments

Originally a “pull” method of inventory management implemented at Toyota

Fundamental visualization method for managing flow

In recent years, used extensively for visualizing and managing different types of knowledge work

- Don Reinertsen identified flow as critical to product/process development
- David Andersen (and others) applied Reinertsen’s insights to software development
- Dean Leffingwell (and others) created SAFe including both Kanban and Scrum

Many others have evolved the concepts in various ways –

We are applying them to the Program Office

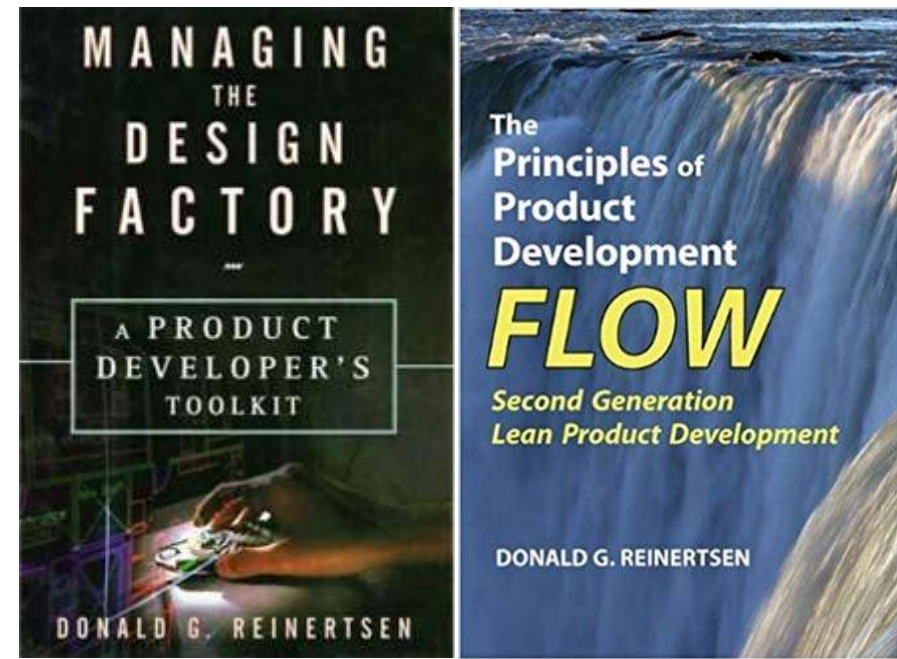
Don Reinertsen Distilled

Problems (Limitations)

- 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 Work-in-Progress constraints
- Inflexibility
- Noneconomic flow control
- Centralized control

Response Themes

- Economics
- **Queues**
- **Variability**
- **Batch size**
- **WIP constraints**
- Cadence, synchronization, and flow control
- **Fast feedback**
- **Decentralized control**



Sources of Ideas

- Lean manufacturing
- Economics
- Queueing theory
- Statistics
- The Internet
- Computer OS design
- Control engineering
- Maneuver warfare

Goals for Flow-based Methods like Kanban (derived from Reinertsen and others)

Understand the work better (flow, bottlenecks, anomalies)

Improve stakeholder management (transparency)

Decrease time and effort required to on-board members

Reliably repeat success and learn from failure

Make timely and high-quality decisions

Centralize data/information

Exercise: Use annotation to put stamps next to the goals that resonate with you.

Increase knowledge and skills in using modern workflow

Applying Kanban Leverages Reinertsen Concepts

Intangible goods (professional services) can use similar visualizations to tangible goods production

Make invisible work and workflows visible

The “unit of inventory” for services and knowledge work is “unvalidated decisions”

Limiting work in process (decisions on the way to validation) is needed to keep a steady flow of work going through the service system



Start with
What You Do
Now



Improve Through
Evolutionary
Change



Encourage Acts
of Leadership at
Every Level



Understand &
Focus on
Customer
Needs



Manage the Work
and Let People
Self-Organize
Around It



Evolve Policies
to Improve
Outcomes

THE KANBAN PRIMER

PRINCIPLES

Lean Kanban Also Supports Specific Change Management Principles

Start with what you do now

- Understand current processes, as actually practiced
- Respect existing roles, responsibilities & job titles

Gain agreement to pursue improvement

- Leverage evolutionary change
- Emphasize fast feedback

Encourage acts of leadership at all levels

- Roles are flexible
- Visualizing work allows conversations among all players

These principles allow for a more incremental adoption of new practices than methods that espouse adoption of new roles, new ceremonies, new practices all at once.

Source: adapted from Kanban Master Class, Lean Kanban University, 2017.



Visualize the
Work



Limit Work in
Progress (WIP)



Manage Flow



Make Policies
Explicit



Feedback Loops



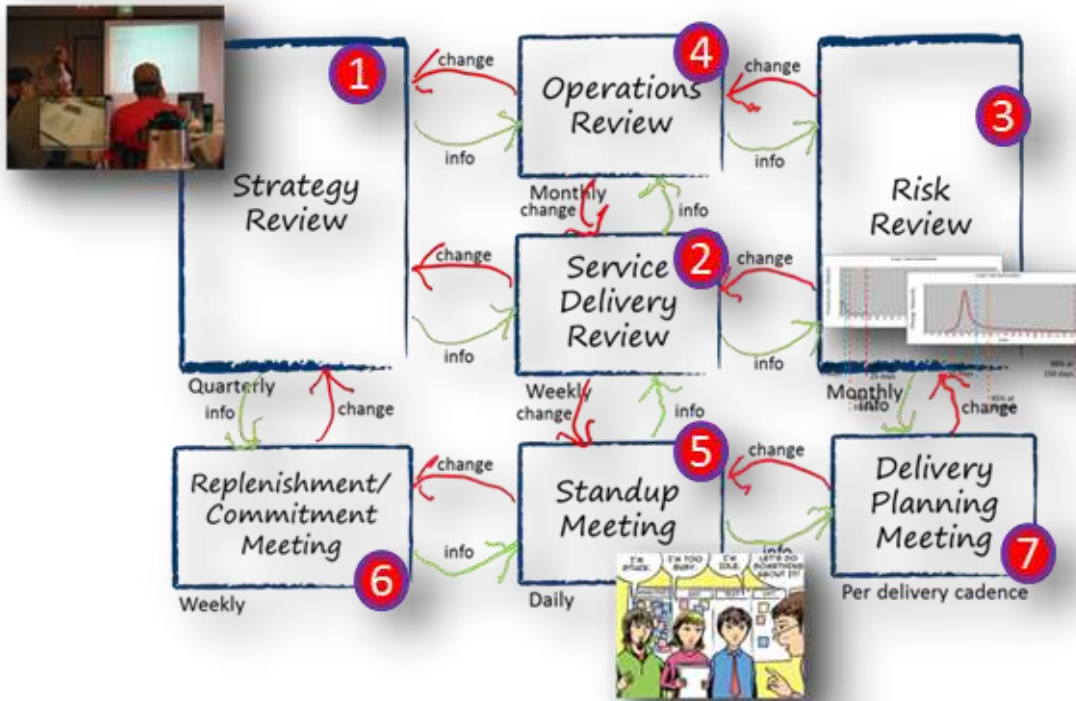
Improve and
Evolve

THE KANBAN PRIMER

PRACTICES

Kanban Can Be Implemented Top-Down or Bottom-Up

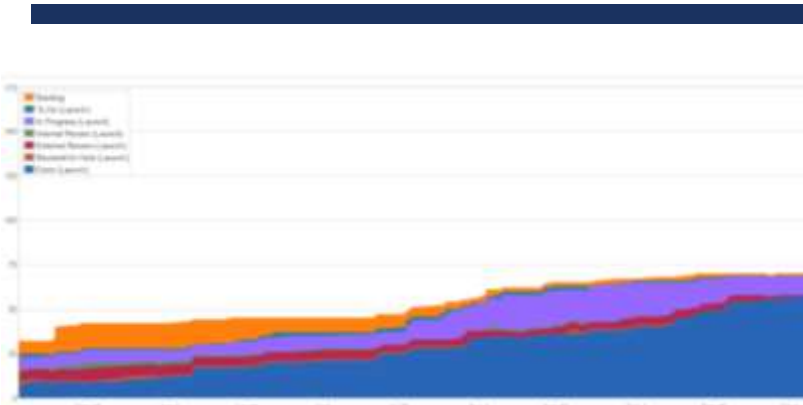
Top Down



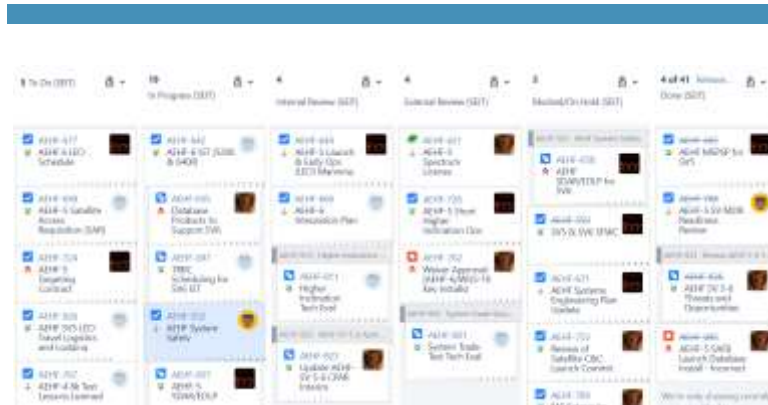
Bottom Up



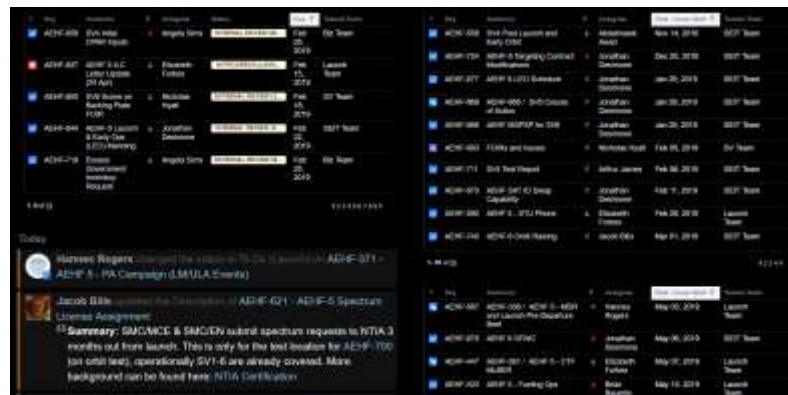
Source: Adapted from Kanban Master Class, Lean Kanban University, 2017.



Cumulative Flow Diagrams



Kanban Boards



Dashboards



Automated Messages

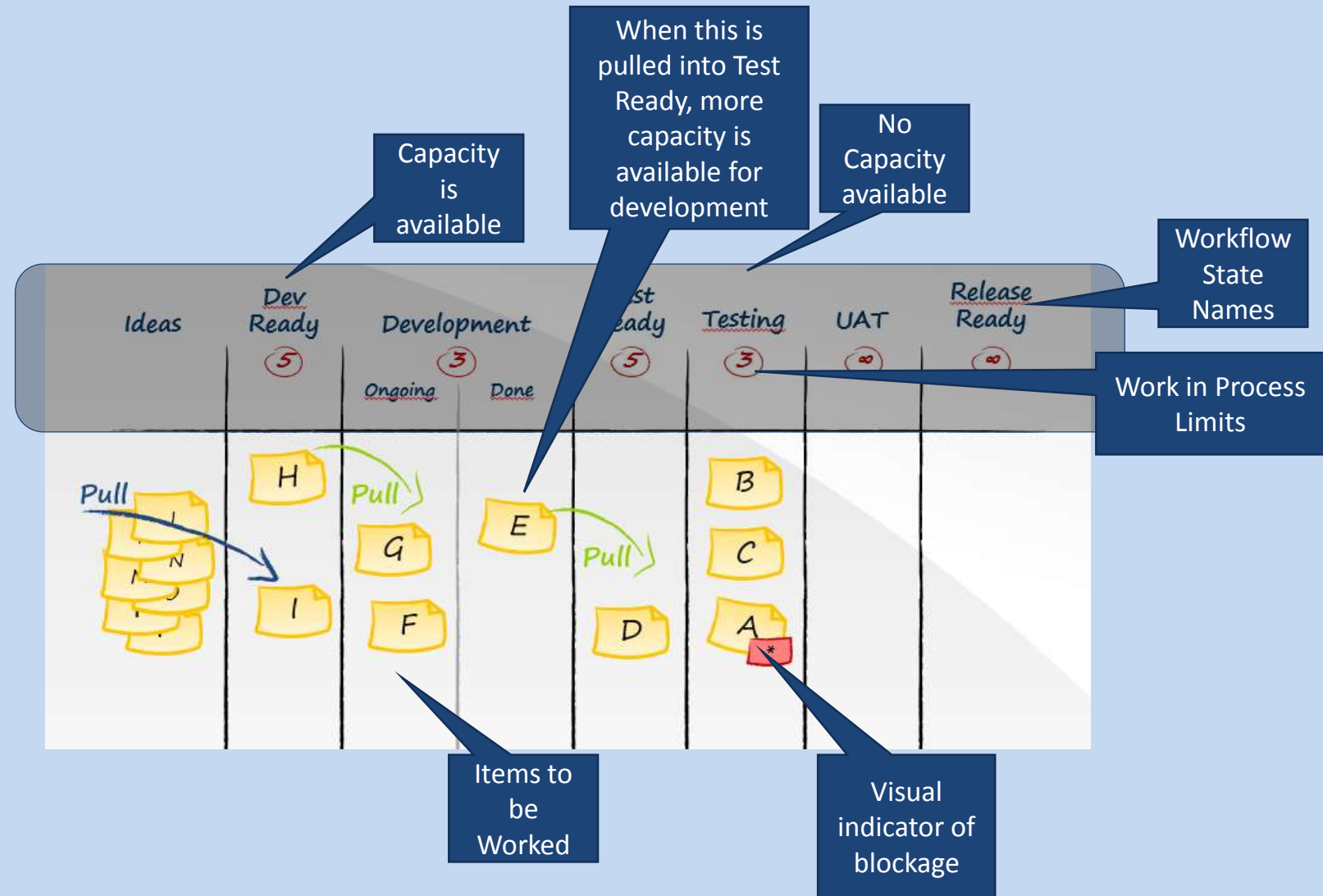
THE KANBAN PRIMER

VISUALIZATION TECHNIQUES

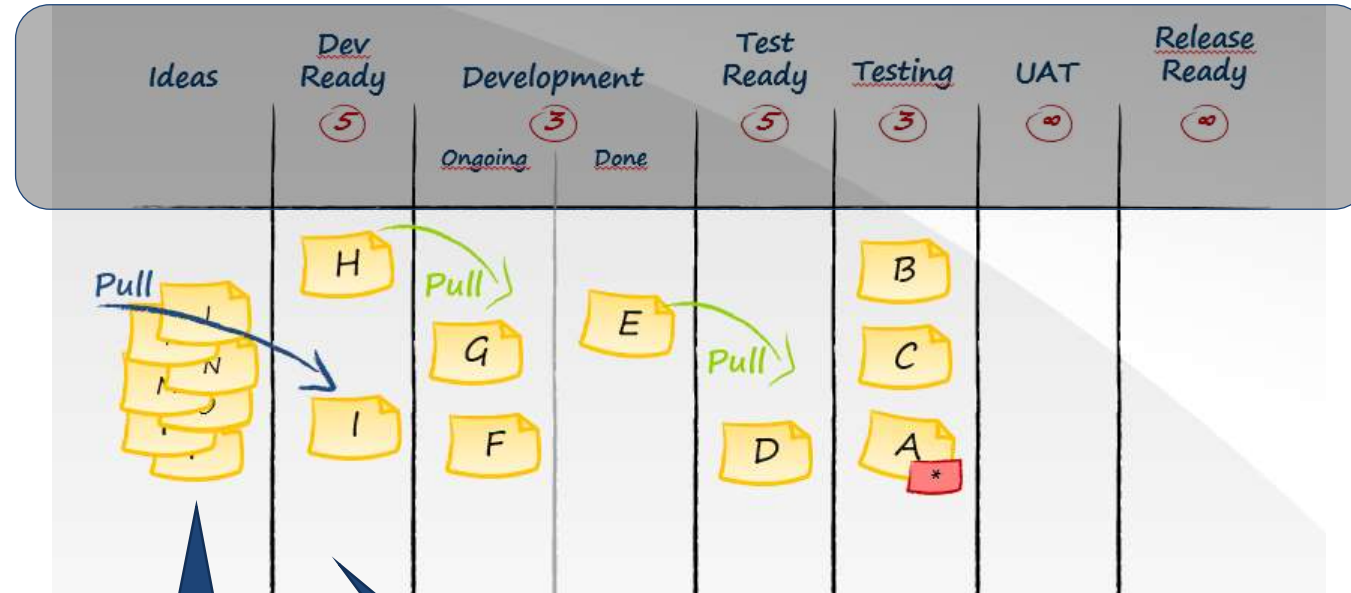
Anatomy of a Development-Focused Kanban Board

Many Kanban examples focus on development. How would the workflow states differ for systems engineering, or contracting services?

Add different workflow categories in the Mural where indicated.



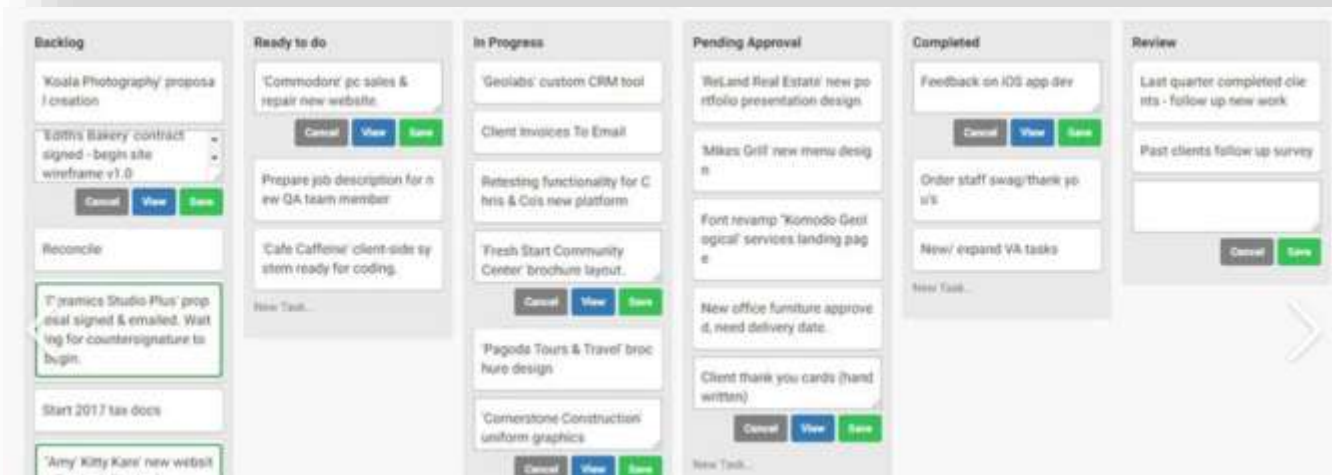
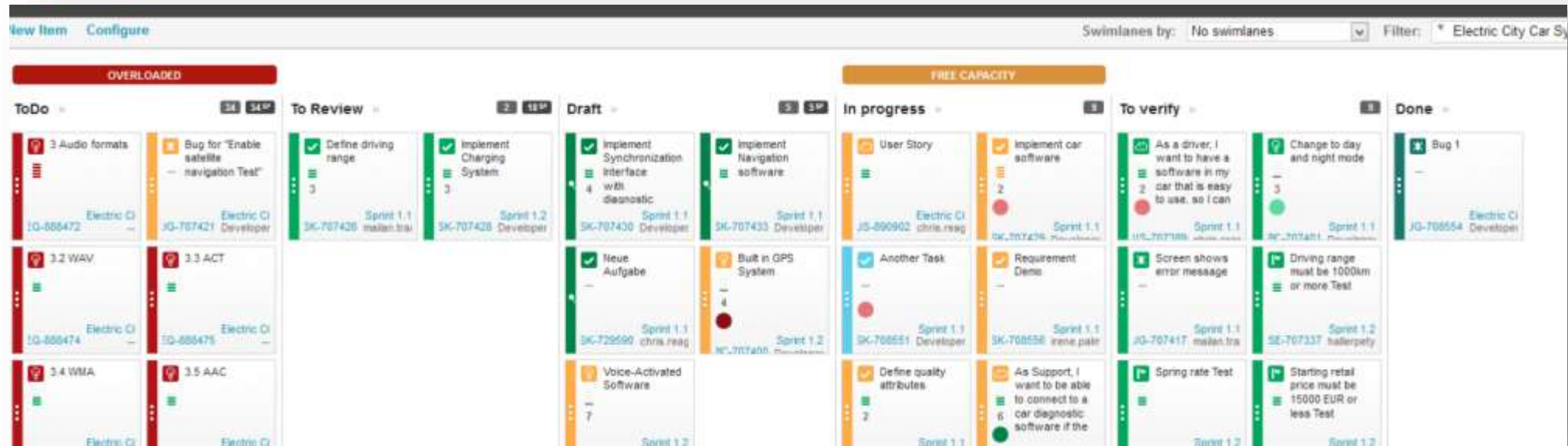
Kanban Helps to See What's Committed vs What's Desired....



The items in this backlog aren't yet committed

This is the commitment point

More typical Service-based Kanban Board



[MindManager-Kanban-Project-Management-MindManager-Blog.gif \(1920x1032\)](https://www.mindmanager.com/blog/mindmanager-kanban-project-management-mindmanager-blog.gif)

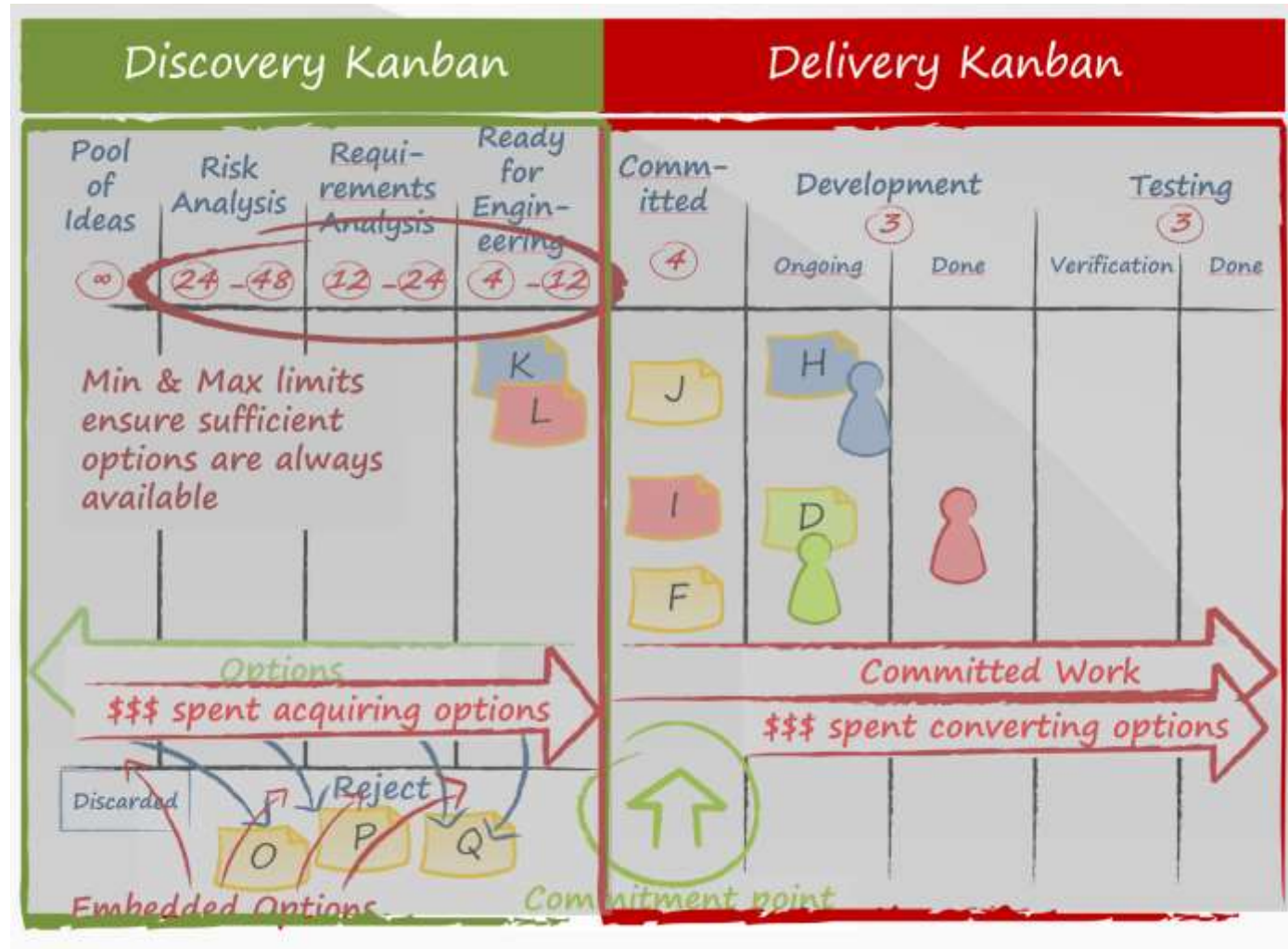
...Even the Film Industry Uses Kanban

The screenshot displays the Avaza project management interface for a project titled "Game of Thrones Season 1 Episode 1". The project status is "In Progress". The interface shows a Kanban board with 19 tasks organized into three columns: "Pre Production", "Production", and "Post Production".

- Pre Production:** Includes tasks like "Have we decided on the location for King's landing?" (dated 23 Jun) and "Finalize the timetable".
- Production:** Includes tasks like "Day 1 Shoot at Jamvaon park" (dated 07 Jul), "Day 2 shoot at narrow sea" (dated 04 Aug), and "Setup at Mar Bella beach".
- Post Production:** Includes tasks like "Poster Editing" (dated 18 Aug) and "Sound Editing" (dated Tomorrow).

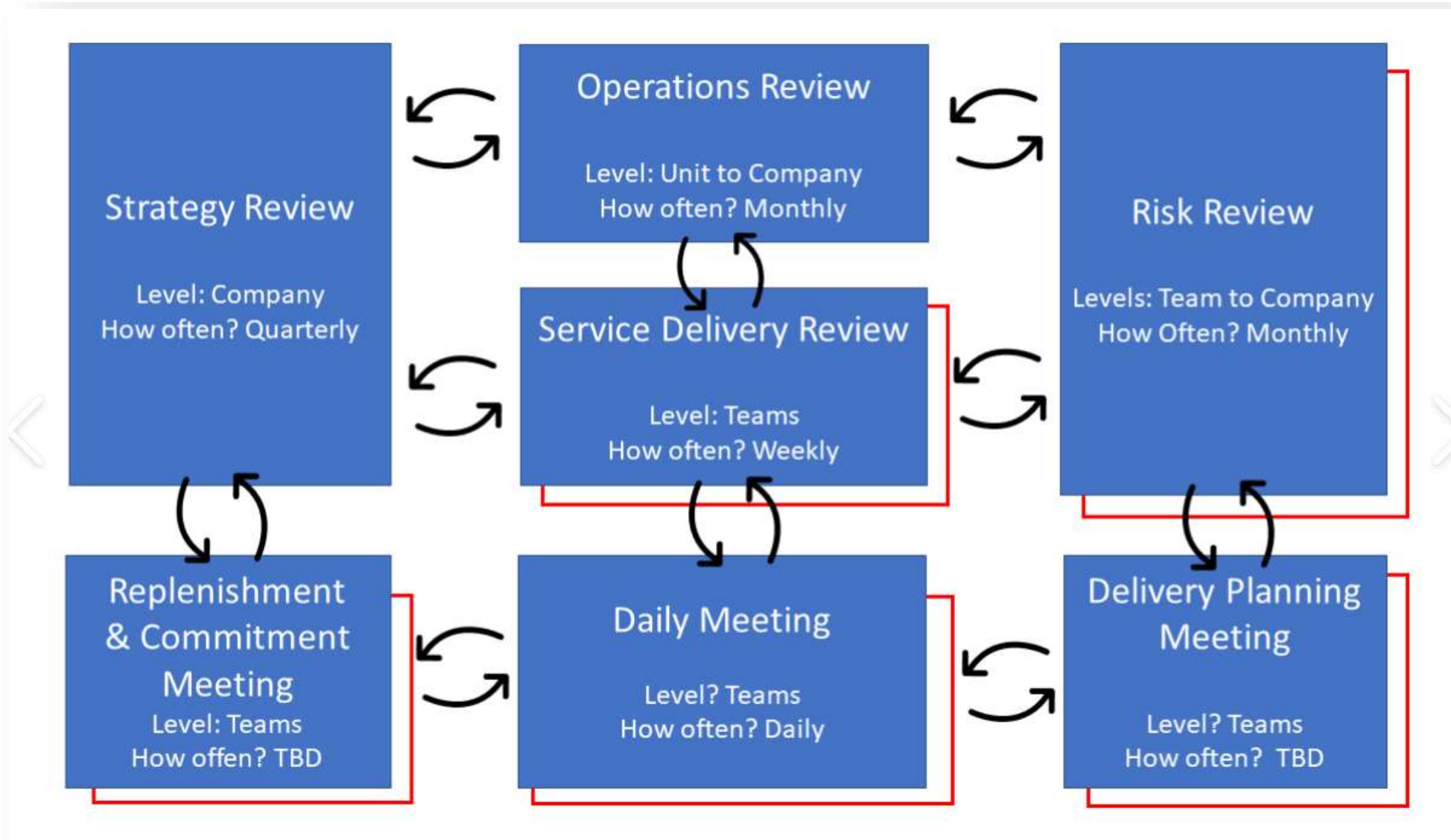
The interface also features a navigation bar at the top with "Contacts", "Projects", "Time & Expense", and "Reports". A search bar and a "Filter" button are visible below the task count. An arrow points to the "View" button in the task view selector.

Kanban Can Also Help Visualize the Analysis Process on the way to Commitment



Source: Kanban Master Class, Lean Kanban University, 2017.

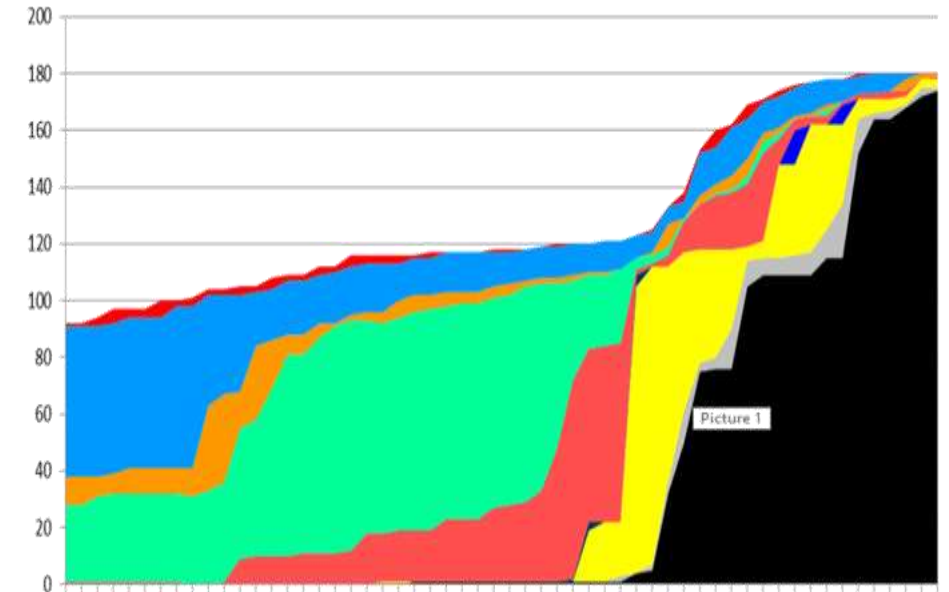
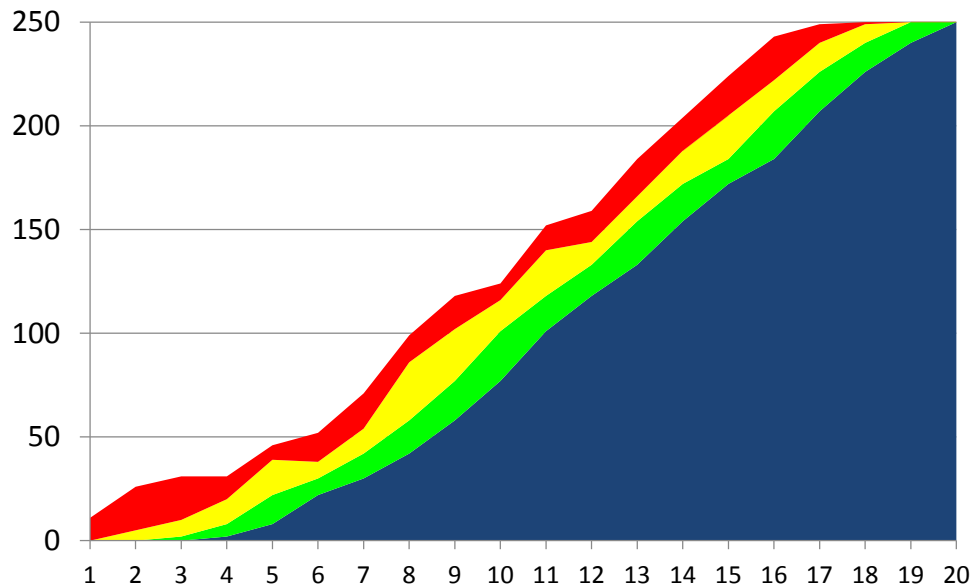
Typical Meetings Used to Support Kanban



Manage Results with Cumulative Flow Diagrams

Cumulative Flow Diagram

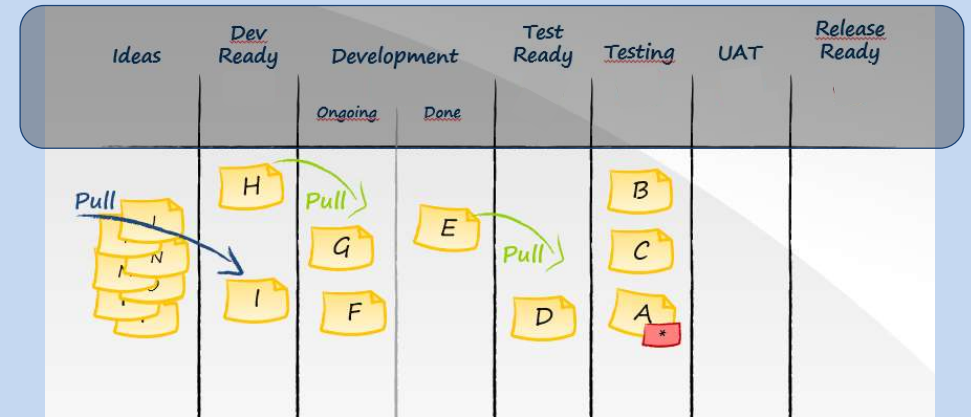
- Heterogeneous teams have different ceremonies, different policies, measures, etc.
- Common way to visualize progress
- Common way to visualize problems



Start With The Basics

Start with a basic, Proto Kanban

- No WIP management
- No sizing with timeframe
- No formal backlog
- Simple set of policies, task board and assignment
- Control Flow with entry limits
(Only let something else in when something goes out)



Remember: A Key tenet of Kanban, Start with what you do now!

Technology Support for Kanban

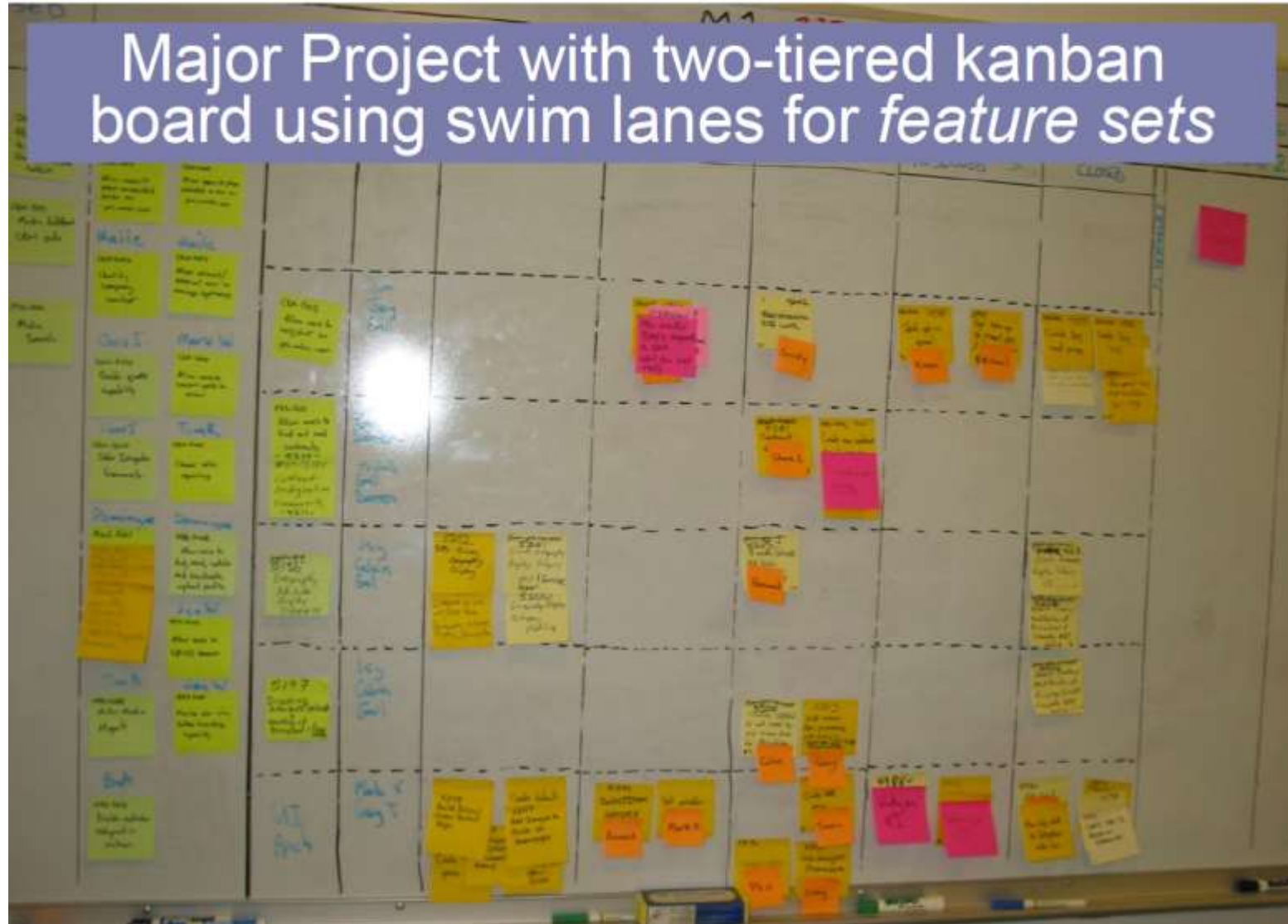
Sticky notes and a mural/white board are still a popular technology for Kanban

- Inclusive communication mechanism – no one has to learn a new tool to use it
- Allows the full landscape to be seen at once (online tools are more limited in readability)
- Simple
- Not as readily accessible with remotely working teams

LOTS of online tools that support Kanban

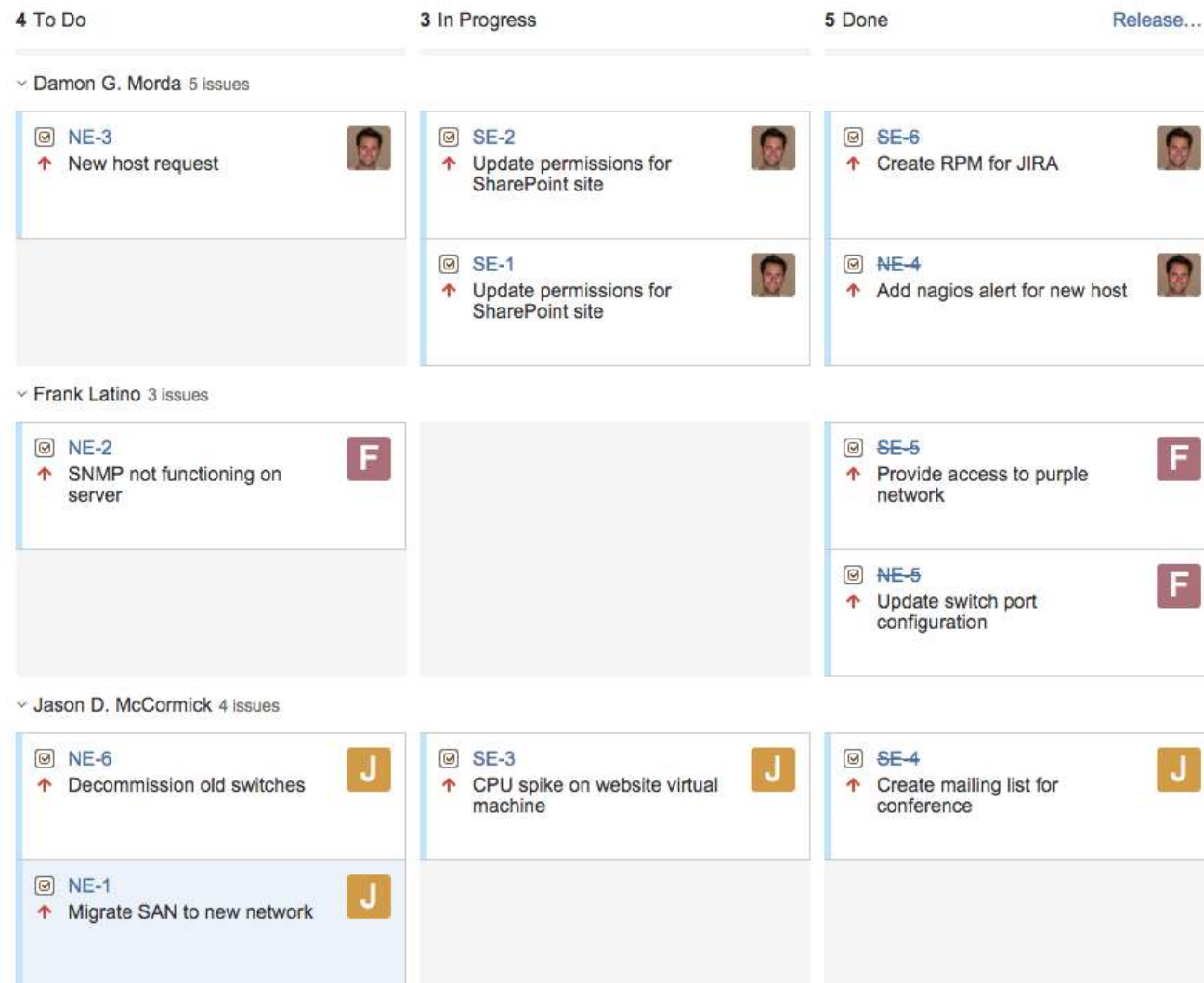
- Jira is most adopted in government
- Worth finding out what your contractor(s) are using – environment parity *might* enable transparency across some work boundaries
- Online tools typically automatically aggregate data into visualizations like Cumulative Flow Diagrams

Non-electronic Kanban Boards



From "Achieving High Maturity and Agility using Kanban," David J. Anderson, SEPG2009

Jira Example of an Electronic Kanban Board



MAY 8, 2019

Maj Matthew Getts, USAF

Mr. Bart Hackemack, SEI

#AgileInGov19

#AgileAF

#SpaceStartsHere



THE AGILE PROGRAM OFFICE:

APPLYING AGILE PRINCIPLES AND
PRACTICES IN A HIGH STAKES
ACQUISITION ENVIRONMENT

THE CHALLENGE:



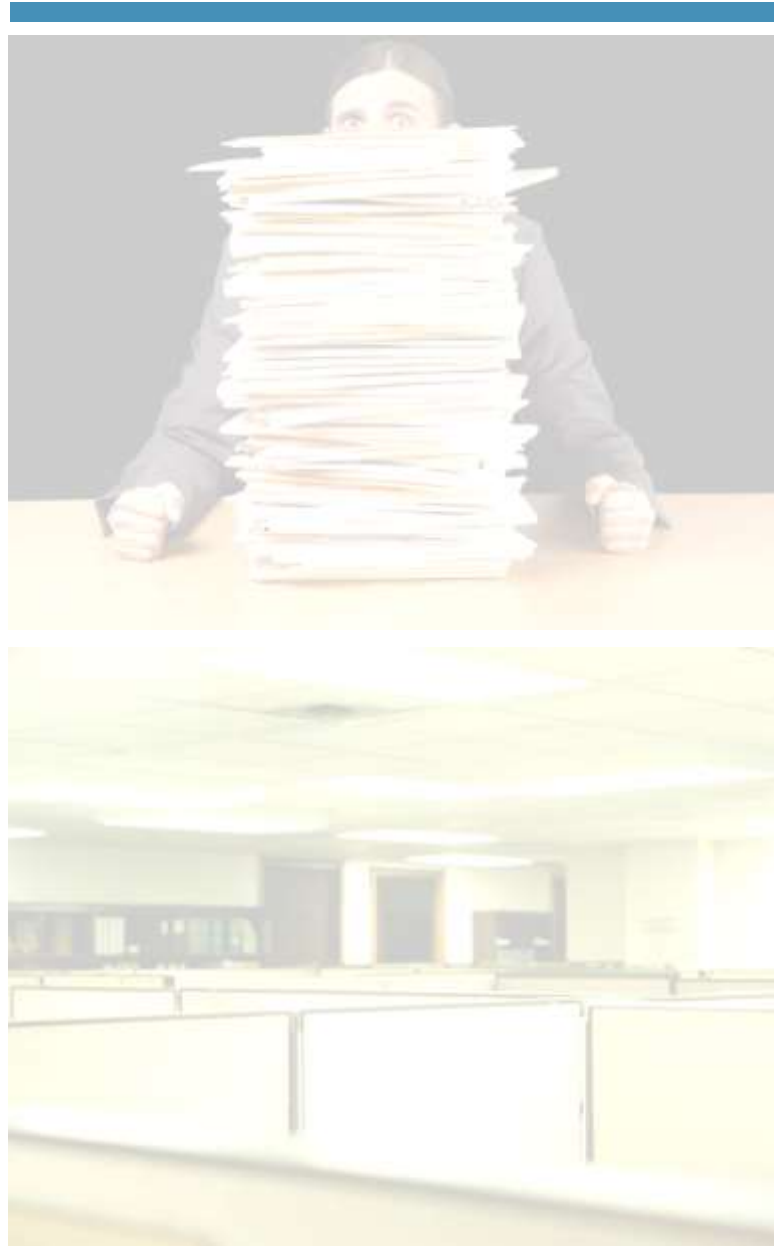
THE CHALLENGE:

THE WAY WE
STORE DATA



THE CHALLENGE:

THE WAY WE
COMMUNICATE



THE CHALLENGE:

THE WAY WE ARE ORGANIZED





**Connect People in
Meaningful Ways**



**Put Data at their
Fingertips**



**Establish Enduring
Collaboration Platform**

GOALS

A NEW APPROACH

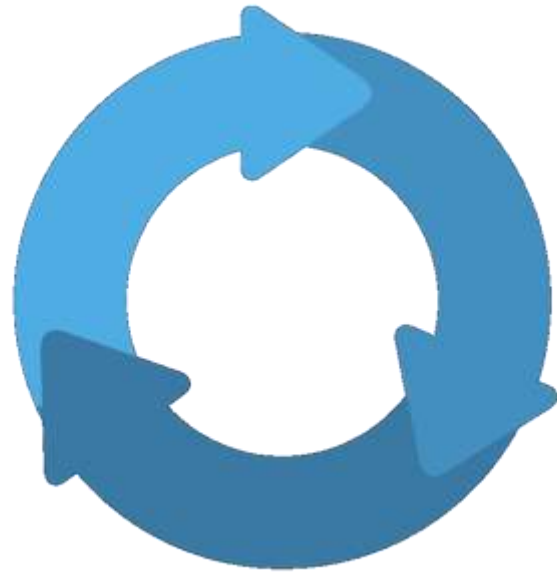


KANBAN!

THE AGILE PROGRAM OFFICE

THE RESULTS





Before

• 35 days

After

• 10 days

THE AGILE PROGRAM OFFICE

AVG CYCLE TIME

35d → 10d



THE AGILE PROGRAM OFFICE

17d TECHNICAL
EVALUATION



THE AGILE PROGRAM OFFICE

INCREASED
RESILIENCY

Truth (and) or Consequences

Be prepared...

- You may not like what you find in your visualization.
- You may more clearly see that, in the past, work was not getting done
 - Often due to lack of resources, but also due to large batch/large WIP issues, task interruptions, changing staff commitments, etc....

This gives you the opportunity to open up the discussion with easier to consume visuals rather than just talking about “being over worked”

Let's Build a Kanban Board

- 1) Separate into teams that reflect the different kinds of work you do
- 2) Each team builds an **artifacts** and **services** catalogue
- 3) With facilitator, try the workflow designed in Exercise 2 for items in the catalogue
- 4) Use swim lanes to differentiate the types of work/services that are provided
 - In systems engineering there may be swim lanes for “technical review coordination” (TIMs, IPTs, etc) and “limit functions development”
 - In contracts, there may be swim lanes for “pre-award activities” and “post-award activities”
- 5) Create sticky notes of at least 10 items from the service catalogue and post them in the correct swim lane (or create a new one if needed)
- 6) With facilitator, work through a scenario of using the Kanban board

Environment

Leverage your available cloud based platform

Creating a Jira Project or Confluence space requires <document what is needed>

- Jira Projects and Confluence spaces are then self administered. The local administrator adds/manages the group members.



TRAINING

**THE AGILE
PROGRAM OFFICE:
WHERE TO START**

I.TRAINING



The Backwards Brain Bicycle - Smarter Every Day 133 - YouTube

YouTube · SmarterEveryDay



KNOWLEDGE



UNDERSTANDING

THE AGILE PROGRAM OFFICE: WHERE TO START



COACHING

**THE AGILE
PROGRAM OFFICE:
WHERE TO START**

- 1. TRAINING**
- 2. COACHING**



TOOLING

THE AGILE
PROGRAM OFFICE:
WHERE TO START

1. TRAINING
2. COACHING
3. **TOOLING**



SPONSORSHIP



CULTURE

**THE AGILE
PROGRAM OFFICE:
WHERE TO START**

ENABLERS

Summary

Rapid success with the Agile Program office is enabled by

- Leveraging Kanban concepts (Reduce WIP, Small Batch, Visualization)
- Rapid learning to quickly begin delivering positive results
- Using relatively simple, well known tools (like Kanban, Jira and Confluence)
- Using existing cloud-based tooling environment (DI2E)
- Staffing with team that is dedicated to end goal and committed to find a better way

Think about These as Potential Deliverables from Initial Jira/Confluence Kanban Work Setup

Jira

Backlog

- Kanban Board
- Reminder reports auto generated and emailed
 - Overdue Issues, Late-To-Start Issues, Issues due within next week
- Workflow
 - Internally within the team

- Metrics

Confluence

- Team Agreements
- Dashboards

Think about These as Potential Deliverables from Adoption-2

Confluence (Wiki) Space

- Landing Page
Event Calendar, linkage to “My Tasks” and Overdue Tasks in Jira
- Explicit Kanban Policies
- Contact Sheet
- Training and Readiness Schedule
- Vision, Goals and Metrics
- Tips and Tricks

Backup Slides

What about Scrum?

Scrum – Scrum as the starting point

- **Specific formalities**
- **Specific ceremonies**
- **Tuned to DEDICATED cross functional teams**

Kanban – Start with what you do now!

- **Add formality as needed**
- **Add ceremonies when needed**
- **Useful/used by teams who have multiple responsibilities, even some outside the project being managed**

Why Agile?

Key Agile Messages

- Agile is not a Silver Bullet, but can be useful in Government development settings
- Agile is principles-based, which means there isn't only "one way" to do it correctly -- look to the principles before evaluating an implementation
- Lean engineering is closely related to Agile at the principles level, and scaling frameworks for Agile can benefit from lean principles as their basis
- Acquiring contracted systems with contractors who use Agile implies a different set of relationships and approaches to achieving oversight and insight
- OSD acquisition guidance (i.e. 5000.02) doesn't prohibit Agile, although it never mentions Agile specifically
 - There are 3 model diagrams in 5000.02 that can be readily tailored to an Agile IT environment or an Agile weapon systems environment
- Any contracting approach can be used with Agile if done with awareness of how Agile would work in that setting; however, some key elements of contracting (regardless of contract type) must be attended to

Agile/Lean Adoption Landscape is Unique to Each Organizational Setting

