Kanban: Diversity and Optimization of Knowledge Working Teams

A Modus Cooperandi Board Walk White Paper
by Jim Benson – January 2013

Background

A few weeks ago, I spent some time with a client I first visited over a year ago with Derek Wade (www.kumido.com). When he and I arrived, teams were dedicated but disgruntled. Projects were delayed, people’s work-in-progress was out of control, and team leaders were unsure what decisions they could make and when. The customers of these teams weren’t much better off – when customers submitted a project to IT, they had no idea when they would see any product whatsoever. That uncertainty led to a strange phenomenon: everyone overloaded the developers.

Customer Overload I – Flooding. The customers were putting in requests for projects constantly because they couldn’t get anything out of the system at all. This meant that they were totally unsatisfied and simply looking for satisfaction – any satisfaction. Unfortunately, their drive for more satisfaction (putting in more projects) overloaded the system and ensured they would remain unsatisfied.

Customer Overload II – Porkbarreling. When customers put in requests for projects, they knew they only had a certain chance of IT even starting on it. So, they would add every feature, perk, and gizmo they could think of onto the work request. Customers reasoned, “If I can only get one project in this year, it better have everything!” Overloaded projects ensured large, confusing, and time consuming feature sets where high value items were stymied by low value wish list items.

Management Overload – Efficiency Audits. Since projects had slowed to a crawl, both corporate and IT management was asking for reasons why. This led to more metrics, more meetings, more questions, and more distractions for the teams to take on.

Team Overload – Personal Gratification. My personal favorite. Teams and individuals were taking on rogue work from other parts of the organization – simply so they could finish something... anything. Individual contributors want to feel they were actually supplying their company with some value, so they would take on secret short projects “as a favor” to their customers. This work was unrecorded, but took time. It let everyone feel like they were at least getting something, but it totally destroyed IT’s ability to deliver on big-ticket projects.
No one in this situation felt their interests were being served. In-house customers felt that they had little chance of their projects being taken on. Further, they felt that any project that was accepted would be egregiously delayed. Programmers and IT staff felt overloaded, overworked, and underappreciated. The management felt attacked by both sides as complaints continued to rise.

Fast forward to December 2012: Teams are cheerful, not overloaded, and getting work done. Their relationships with customers are improving. They are managing their projects with individualized kanban boards.

*Quite a shift!*

My first day back at this company was spent doing a “Board Walk”, meaning we systematically walked though each of the kanban the company way using and talked with each of the teams about their boards, their projects, and how things were going. While it was like speed dating and I really did want more time, there was one obvious and striking thing:

15 teams, 15 boards, **15 different designs**

This was an exciting development. Diverse teams in the company had adopted kanban and Personal Kanban, each in ways that related specifically to their particular business needs.

**Minimal Constraints**

When we build a management system, we want it to include minimal, but functional constraints. These constraints should apply just enough pressure and just enough structure to see us through to our goals. The constraints *define* our system.

Constraints are like glue for our management model. Too few constraints and we have no system definition (or no system at all) the model falls apart under its own weight. Too many constraints and our parts don’t move, we seize up.

But we like rules, we feel safer with them around. And we like predictability - that makes us feel like our projects will actually be completed. And this is all an understandable need. However, we walk a fine line between setting process and sewing our own management straightjacket.

**Optimization and Standardization**

We often confuse these two terms.

**Standardization** is the creation of a set of practices that do not appreciably vary from one instantiation to another.

**Optimization** is the tailoring of a set of practices to operate at peak productivity, efficiency, and effectiveness in one specific instantiation.
What we don’t understand is that each instantiation (e.g. a software project or a software development team) varies. Context in product development, schedule, partnerships, team members, funding, competition, and regulations (and that’s just scratching the surface) greatly impact the optimal product development process. Variation from team to team or project to project requires unique process optimizations. If we over-standardize the processes from team to team we reduce our ability to optimize.

In a highly variable world like software development, optimization is a key component of success.

This is directly from my After Action Report for this particular visit:

**Management Tools in Use**

Each of the teams was using a healthy mixture of standardized tools (like Sharepoint) and individual tools. The latter here was most obviously exemplified by the structure of the kanban boards themselves. Every board I saw was different in some way. ... I’d like to note that all the teams are highly aware of the structure of their work. They understand how they, as a team, are providing value and are exploring the best ways – at a team level – to express that value delivery strategy.

The boards, in this regard, can be seen as flexible standardized tools. The boards themselves all had common standardized components: Value stream, work in progress limiting strategy, visualization of work in progress, visualization of backlog. **This is appropriate standardization.**

The next impetus would be to make all the boards look or flow the same – indeed this is what most companies try to do. **This is inappropriate over-standardization.**

What is exciting here is that teams have been given the freedom to operate in ways that allow them to explore continuous improvement. If teams over-standardize, they inhibit the ability to customize – and it’s this customization allows teams to adapt to their own specific needs.

So these teams were standardized in their processes – as far as was prudent. After that, teams had freedom to self-optimize.

What follows is an anonymized case study, the pictures are all real as are the team names, but the actual client information is not provided.

So, let’s take a look at these kanban, shall we?

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1 Those of you who were part of the Agile movement will note that “self-optimize” looks suspiciously like “self-organize”. For years as an Agile practitioner, the phrase “self-organize” always bothered me. Agile teams rarely, if ever, self-organized. But ... they did self-optimize often.
The Iteration 10 Board

Here we have a board with two concurrent value streams in a very large enterprise scale project. This team moved from a Scrum-iterative model to a kanban-flow model with two-week releases (which they continue to call iterations).

The top of the board (the largely unpopulated part) holds the actual feature sets that are in-progress for the next release. The bottom part of the board has bugs and specific tasks (this project requires a lot of research concurrent with the coding work). The upper portion is largely empty because the team was near their next release and had completed almost all the scheduled work and was focusing on unscheduled work.

Due to the large number of moving parts in this project, the team created their own convention. If you look closely, you can see some of the tickets in the “In Progress” area of the board at the bottom are turned on their sides. This identifies tickets that need to be discussed or verified in the next standup.
This board, which I nicknamed “naked men board” (and which will probably make them turn it into robots very soon), is for a small strike team of three guys that only work on small projects. Their board is optimized for working on specific projects, satisfying demands outside their group, and release. Here you can see some important things:

- **These guys are serious** – They are actively tracking their technical debt, they are differentiating between project and non-project work, and they are visibly noting release packages. They have a huge note to themselves noting that validation means doing the right thing while verification means doing the thing right. These guys aim to do both.

- **These guys are having fun** – Seriously. Just start running around the board. It’s funny everywhere.

- **These guys are not afraid to be serious or have fun** – Their value stream is their own, the penchant for bloodsports movies is their own, and their inside jokes are their own. There are erase marks where the value stream was changed, indicating the change was important – but presentation was less so. They want to get the work done.

- **The board is a WALL** – This company literally writes on all its walls. In a wonderful bit of kaizen, they had painted their previous space entirely with white board paint. This made the whole workspace seem like an asylum. Bright white everywhere – it was totally...
overwhelming. So, when they moved, they just used the clearcoat. Now they have walls painted like real walls, but every wall is a whiteboard. (Indicating the company as a whole is not afraid to be serious or have fun).
Team ATNA (Another Team Name Acronym) brandishes the somewhat painful yet effective inspirational slogan of “more cowbell” above their window-based kanban. Each time a user story is ready for release, they ring the cowbell. They also look for other reasons to assault their colleagues with joyous cowbelling.

What we notice from this board:

- **More Team Individuality** – no one else (thank god) is into heavy cowbelling.
- **No Surface is Safe** – Mary! There’s kanban everywhere! Even on the windows!
- **The Danger of Even Semi-Permanence** – you can see that there are a few columns with nothing in them. The team noted to me that they found that they put in those columns because they seemed like good process at the beginning of the project. As they project went on they found those two testing columns were very rarely used. “We’d remove them,” one team member said, “But the tape’s already up.”
- **Obvious Work Item / Task Types** – The development in progress has one large User Story ticket and then several smaller task tickets.
Here we have the board used by the systems architecture group. The architects are wrestling with limiting their WIP. They appropriately have their fingers in every project underway at the company. This unique board design lets them track what is currently active for each architect, and what is taking up none, some, or lots of their time. What’s most important about this board is that it is clearly in early development, but is still useful to the architecture team. They are experimenting with ways to visualize and manage their unique workload.

Look closely at this one and you'll see:

- **The 4x4 Grid That Will Likely Be Edited** – This 4x4 grid is kaizen genius, though it likely won't last long. The goal of the grid was to show what was currently in progress on a continuum. The vertical axis is the amount of time left to completion for the project. The horizontal axis is the amount of attention it is currently taking up for the architect. So things in the lower right are high attention and nearing completion. I've never seen anything like it. It was working fairly well for the architecture team, but they noted a few issues they were having:
o **It doesn’t show flow well enough** – If we see that something is two weeks from completion now, we don’t know if it entered the board yesterday and is a two week project or if it’s the culmination of a long-term project or if it’s been stuck at two weeks for six months.

o **It takes some interpretation to read** – It’s not easy for a non-architect to visit the board and really know what’s going on.

- **Grooming** – Now you probably saw this on the other two boards (but Kumite called it *Groom-shaka-laka*). This is a Scrum holdover step where teams decompose larger tasks. Their backlogs can hold large and difficult items that then can be massaged as they enter their ready state. This seems to be becoming more popular with teams using kanban. It allows additional beneficial elements to the planning process:
  
  o Teams’ backlogs can remain readable
  
  o Teams can have internal conversations about the user story or epic when it enters the value stream including:
    
    - Is this still relevant?
    - Are there changes in context we need to discuss?
    - Do we need to involve the customer, product owner, etc.?
  
  o It places a high-value low-cost gate between potential work and work-in-progress
When we look at this board we quickly notice that the done “column” is a circle at the top of the wall. This initially happened because they ran out of space. But, as it happened, this means that the team members must jump up and slap done tickets in the done space – which is a sort-of celebration leap.

This board’s characteristics:

- **Personalization** – Team members work is tracked by individual. This is something I get a lot of questions about. Those questions would boil down to this: *Is this board an anti-pattern?* I would answer “not necessarily”. Personalization is fine if the work is truly personalized. So, this board is not an anti-pattern if:
  - The work each individual does is really relegated to just that individual
  - The team rarely directly collaborates on tasks
  - The work products of the team do not flow from team member to team member

- **WIP Limits Are Geometrically Enforced** – We can see that there are no WIP limits posted on this board. But one can notice that if a team member takes on more than four tickets, they’ll exceed their space and that will ... *look weird*. As strange as it might seem, our brains don’t like things to look weird. Too many stickies crammed into a space invites us to clean them up. Looking at the board, no one is breaking what we’d assume to be healthy WIP limits (3 to 5 items). So all is well with the world.
The Ops Board

The Ops team either has a straight edge or a very steady hand. They’ve drawn some very neat lines on their wall. Again, we have work meted out in a way that optimized for the Ops team and them alone. (And note that this board is literally one inch from Mike’s board – indicating that these teams really put some thought into what would work for them).

In the Ops board we see:

- **Epic Lanes** – Each lane is defined by a user story that is blown out into tasks. Tasks are then assigned to individuals on color-coded stickies. This allows the team to have a good idea not only of what major functional elements are in flight, but what each person is doing on them. This level of transparency allows for greater collaboration between team members and greater fidelity of communication with the customers.

- **The Barrier Lane** – This is the “hold” or “waiting” lane. This team found that they had tasks or user stories waiting on outside resources that tended to stay on hold for a long time – so their barrier lane is outside the value stream – rather than inside it. We can make all sorts of judgments about whether this is appropriate for a flow system – but, right now, the appropriate question to ask is ... how is that working for you?
Team Dactta and Team Phoenix
The Dactta (Deliverables Are Closer Than They Appear) team and Team Phoenix boards sit side-by-side. Notice the similarities in work flow and structure. What was most interesting here was that, out of all the boards, these two were the most similar. The value streams for these boards are very logical and will likely never be changed. That is:

**Requirements** (Grooming and Ready for Dev)

**Development** (Dev in Progress, Ready for QA, QA in Progress, and Ready for UAT)

**UAT** (In Progress, Ready for Deployment)

**In Production**

Both of these teams have much the same type of work. Whereas the Iteration 10 board was focusing on work as part of a very large project and Team Kumite was focused on very small projects – both of these teams have very similar mid-sized projects for similar clients. There may well be a case here that these two projects would actually share the same value stream and board design.
This board focuses on getting work ready for specific teams. Since the BA’s have two major roles at this company, there are two main areas of focus on their board. First, the left side of the board from “New Request” to “Approved” is where the BA receives a request for work, they set to work giving it a rough estimate of effort and refining the business need (what they call “Standardizing”), then get comments and buy-off on their work (Input from Council). If all that happens, the request is approved and they channel the work to the backlog of the appropriate team who pulls the work (or is pulled by the work) when appropriate. You can see here that each ticket is well annotated with both individuals who touch the ticket and the times at which the ticket reaches a notable point in the process.

The various ticket colors denote the customer for that particular work request. Operations, Production, Sales, Legal and others are all requesting work from the BA team at any point-in-time. Much like the architects, the BAs are satisfying a wide-array of customers and have multiple items to track – even though they may be only personally working on a very few of them at any point-in-time. Therefore, it is also necessary to track more institutional work-in-progress on the right side of the kanban than would otherwise be tolerated by a strict WIP limit.
Team Kanban Jovi

Yes, it is true. These people may be a little out of control in the team naming department, but so far no one has been injured.

Another of the “olive wall” boards, this team dutifully put their explicit WIP limits in each column and proceeded to limit well beyond those limits. We’ve been noticing this phenomenon often. Advanced kanban users will have limits and policies explicitly stated on their board – but they will often exceed or self-optimize beyond the policies. At present, this is the amount of work that is comfortable for the team to complete with quality – so they are only working on these items.

The letter-sized pieces of paper taped to the wall on the lower left are the metrics for the team. They are measuring cycle time, lead time, tickets completed per release, and others. This team has cards for each type of work that they encounter – but my two favorite here are the technical debt and expedite cards. Each card (which is printed and stuck to the wall with tape) are then put into the backlog and prioritized. The system is horizontal and allows for three simultaneous backlogs. Highest priority is to the right, lowest is to the left. When I asked the team if they rearrange the cards, they said, “All the time.” The priority lanes are there to help the team organize their work, not dictate what to pull next.
What we can quickly see here is that new client requests and work from investment banking are clearly currently taking priority over technical debt tasks. This is a visible manifestation of reality. If it causes strife, then that strife can be discussed. The multiple stakeholders for this team know when and where there is work is being done as well as why their work may be waiting on other work. They can have conversations if this becomes uncomfortable.

What we can also see is there is a quiet revolution on this board. Despite the fact that they painstakingly created square cards that were color coded to the type of work, we see that people have been simply printing out feature requests directly from Sharepoint, highlighting them with a marker (in this case purple for New Client Work) and putting them on the kanban.

Also, in the lower left, you might not be able to see that the team has recorded their kaizen activities from their last retrospective. You might guess that I’d like to see those as tickets in a backlog, and you’d be right. But I’m happy to see them on a board (or at least near a board) at all.
Team ISE (pronounced “ice”) has adorned their board with Vanilla Ice images and quotes. *Who knew he was so inspirational?*

When I was writing this section I noticed the picture I took of this board was unreadable. So I asked them to send a new phone. This board had already changed in the two weeks since I left them. Again, these teams are continuously improving and experimenting.

This board was one of the few to hold on to the “ambient work” stream that we had at the start of this journey 14 months ago. When we first started, major projects were well behind schedule – so far behind, in fact, that no one on the teams believed they would actually finish them. But the developers were and are professionals. Professionals live to see their work completed and meaningful. So, most, if not all, the developers were taking on undocumented small tasks (or favors) for the rest of the organization. We came to term this “ambient work”.

This work was debilitating to the organization, but it was important to understand. So, we started visualizing the ambient work stream at the bottom of each team’s kanban. This way we could see the ambient and project work together and respond accordingly. The undocumented work was of such a magnitude that no projects were being completed. Everyone was doing “ambient work” –
the boards looked like they had a skirt of post-its. There were five or six project tickets in progress and literally dozens of ambient work tickets in progress.

So the teams visualized their ambient work and in a relatively short period of time it nearly disappeared. For most teams ambient work has reduced to a level near enough to zero that the teams don’t track it. The ISE team, however, still tracks theirs because their work involves a mixture of mid-term project work and fast-response requests. This mixture means that they, as a team, need to keep an eye on the amount of work each team member is taking on. As we can see, there is a piece of ambient work on the board right now – so it’s not like they forbade it. Again, these people are working in a real-world situation where we can’t legislate away inconvenient work simply because it doesn’t conform to their ideal process.

In the upper left corner, you can see they have four work-item-types. If you look closely you can see that they had three at the start. They were very official and had a very permanent looking border drawn around the original three. When a fourth one appeared, someone just wrote it below.

Under the blue line on this picture is their expedite lane. There’s four tickets in expedite right now. That’s a lot. I would rather see fewer (like one). An expedite ticket should be a “drop everything” for the team, where everyone dedicates their talents to clearing the expedite ticket.

However, their work currently in expedite doesn’t lend itself to swarming and there is no penalty for actually treating them all like simultaneous rush requests. In other words, their context supports multiple simultaneous expedites.

What this team may need is a definition of multiple
This board is also rife with policies. At the head of each column are the policies to move from one column to the next. On the right side in black are the policies for standup meetings. In red are the “walk the board” guidelines. All this is well and good, I like having that information up there. But, I also liked the conversation I had with the group.

Me: I see you have all your policies up there.

Them: Yeah.

Me: Do they all make sense to you?

Them: Yeah.

Me: How often do you ignore them.

Them: <smirking guilty silence>

Me: Good! The more you ignore them, the more you should ask if they’re really necessary. If they aren’t – get rid of them.

When you are engaged in continuous improvement – you always know you have something to improve. This company is a growth-intensive place, but they also understand that growing as an individual, as a team, and as a company brings humility. They know their process isn’t perfect, which means they always doubt.

Now, imagine those highly performing over-confident teams we like to talk about. They believe their processes are perfect. They are surprised by change. They blame others for failure. They are much less likely to improve.

The ISE team will always be confident in their ability to improve, their ability to deliver, and their ability to respond to change. But they will always doubt their process.
Last, but not least, we come to the Reports team. This is a small team of people that make the databases in this company sing. If someone needs someone to dig deep into the company’s data archives and provide a one-off or a recurring report, these guys get a sticky in their backlog.

Their work is quick-delivery, largely unexpected, but has a definite flow. The team color codes its tasks by customer with the bulk we can see going to the purple “Compliance” tickets. Since this company is in a highly regulated industry, many of the reports that are being requested are from regulators. This makes the work of reports delicate and vital – information must be correct and reports should be prompt. Tickets flow through this board fairly quickly and surprises are likely. You can see, for instance, that this board has “planned” and “unplanned” swim lanes.

And all this work makes a reports professional hungry. In the midst of this very serious work is the lower right hand corner of their board. That’s where the “Best Burgerban” rests. In that corner is an impressive backlog of uneaten burgers in the city and eaten ones. The team is committed both to quality work and ... um ... eating healthy.
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Epilogue

This Board Walk shows us how teams can not only “do” kanban, but “get it” as well. We see some very poignant lessons in these teams:

**Diversity:** The strength of these teams was shown through their diversity. All of these teams had improved performance, improved relationships, and improved morale. Not because of kanban as a methodology, necessarily, but because they, as professionals, were able to sculpt management tools that worked specifically for them and use those tools to improve process as necessary.

**Cross Team Learning:** The fact that boards had common elements – but different common elements – showed that teams were in fact communicating with each other and paying attention to each other. They were learning from other’s experience – but they weren’t focused on best practices. They were not trying to boil all activity to a common corporate practice – but were all on common journeys of continuous improvement.

**Process Evolves:** Nearly every team started with a process and changed it during their project. These changes enhanced team and organizational understanding and dealt directly with improvement needs. In this way, each team became methodically better at delivering their project as the project continued. These elements of process evolution were not carried out through long meetings and structural reorganization and the purchase of new and complicated tools. These elements of process evolution merely required a hypothesis, a pen, and a white board eraser.

**Impermanence and Flexibility:** The more we lock ourselves into a rigid process mindset, with rituals, predesigned checklists, specified roles, expensive tooling, and certification – the more we work to support those rituals, roles, tools, and diplomas. We turn our focus away from the creation of a valuable product and towards the administration of the process. This is waste. It is unproductive. With a clear understanding of goals, a clearer line of communication with customers, and a simple visual control – these teams were able to set a software development process, work with it, and change it as context required. They did not try to change their context to fit their process. There are newer and better ideas of how to create and release product coming out every day, your teams will have their own very good ideas. Select process structures that enhance flexibility.
What Is a Board Walk
This Board Walk involved talking through each team’s board. We discussed their innovations and what they were doing to improve upon them. To be sure, these teams aren’t perfect, no team is. But these teams were expressing their professionalism, their personality, and their problems on their boards and letting that context guide them.

If you are in an organization that is running multiple kanban boards, we encourage the following:

1. Do not set one canonical value stream for all teams
2. Conduct an initial value stream mapping exercise with each team at the start of a project
3. At stand-up meetings encourage people to notice work that is not conforming to the current value stream map
4. Keep tickets with improvement ideas next to every board and act on them as often as possible

Beyond this, Board Walks are essential. The board is the physical manifestation of how the team views their work, their goals, and their relationships. If you are a manager, you should be doing a board walk at least once a week. Your job is to understand what your teams need and to make sure they have it before it becomes an impediment.

On a Board Walk, you should ask questions LIKE:

1. Why are you doing this work?
2. Are you satisfied with how you receive work?
3. Do your deadlines make sense?
4. When did you last update your value stream?
5. When did you last talk to a customer?

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2 This says LIKE ... it’s not a checklist. You need to be aware of what you are doing and why you are asking questions too.
Modus Cooperandi, Board Walks, and Launch Ready
Modus Cooperandi is led by Jim Benson, a kanban pioneer who began using the tool in 2005 at his software company Gray Hill Solutions. Since then, Jim has worked with world governments, Fortune 10 companies, startups and everything in between.

He has co-written *Personal Kanban: Mapping Work | Navigating Life* with Tonianne DeMaria Barry. Together, they have taken kanban from software into accounting, law, international development, consulting engineering, and more.

While this document is informational and can be applied within your organization as-is, if you’d like to retain Modus for projects of this type two offerings are highlighted here:

**Board Walks (also known as Kanban Therapy)**
These events are two days to one week in length. They involve Modus staff coming on-site to discuss the boards – much like what you have seen in this document. We lend our considerable experience both in using kanban on projects, in the theory of Lean applications to knowledge work, and in simply being immersed in kanban and Lean in over 100 institutions since 2005. We live this.

**Launch Ready**
Launch Ready is a one to three week intensive session to launch a team or an organization into production. Think of this as the zero-to-sixty event. We will:

- Train staff on Lean applications including
  - Kanban
  - Personal Kanban
  - A3
  - Five Whys
  - Kaizen
  - Kata
  - Lean Meetings
  - Understanding Your Customer
- Map out initial value streams
- Help teams and the organization understand the initial feature set
- Help teams and organizations understand how information and decision making currently flows
- Help the teams build their initial boards
- Help teams build initial policies for delivery
- Launch

We have worked throughout the US, Europe, and Asia – travel is not a problem as long as the work is interesting.
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