

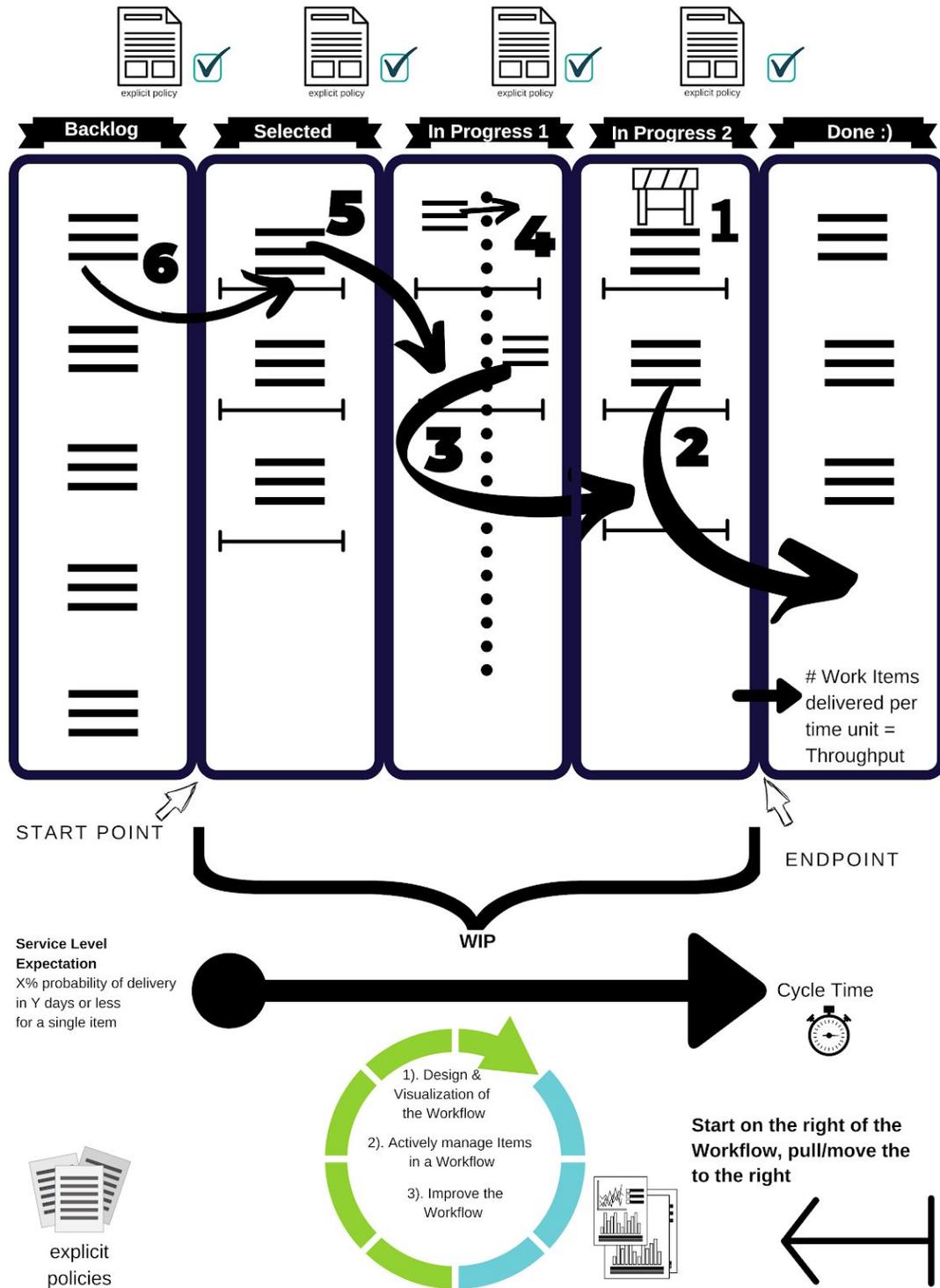
Kanban Guide

Addendum for implementation options & details

October 2020

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Kanban Guide does not lack support for ...

An intent behind *Kanban Guide* is that it does not lack support for:

- Patterns that uphold the *holistic set of concepts contained in Kanban Guide*:
 - *TameFlow as described in Tame Your Work Flow* - (Tendon and Doiron, 2020)
 - *Kanban Guide for Scrum Teams* - (Scrum.org, Vacanti, D. , 2018)
 - De-scaling patterns such as Scrum.org's Nexus (Scrum.org, 2019, 2), and LeSS (Less.works, 2019), if and only if upholding the *holistic set of concepts contained in Kanban Guide*
 - *Flow: A Handbook for Change-Makers, Mavericks, Innovation Activists and Leaders: Digital Transformation Simplified*. 1st ed.(Shaughnessy and Goulding, 2019), if and only if upholding the *holistic set of concepts contained in Kanban Guide*
 - *Scaling patterns and other Kanban/flow approaches for knowledge work that were not listed above*, if and only if upholding the *holistic set of concepts contained in Kanban Guide*
- Scrum.org's Evidence Based Management - (Scrum.org, 2020, 1)

There is an often-heard adage that “Kanban starts with what you do now” meaning that Kanban system members can evolve their practices incrementally. While that can be true, the statement can be misleading because without adopting the fundamental components, it's not Kanban (regardless of where you start). Adopting all of Kanban's practices immediately may require wholesale change to existing processes--which is perfectly fine. Without active management of WIP and compliance with Explicit Policies to support flow, all that is left is visual management, which is useful but inadequate for optimizing the flow of value.

Optional and not required

Backlog visualization options and whether it's part of the Workflow

If a Backlog exists, it is not necessary for it to be part of the Workflow. The Backlog could either be displayed in one dimension, or it could be displayed in a multi-dimensional manner to improve sense-making, e.g., story-map/impact-map.

Dependency Board

When a large number of Kanban system members collaborate, it's normal practice to either attempt to minimize dependencies and/or restructure to eliminate them. When dependencies still exist, a dependency board can be used.

Full-Kitting

“Hurry up! Wait!” It is useful to avoid work that is blocked to start through “Full-kitting”. It's partly about “making sure that all the ducks are lined up” before starting a Work Item. It is during Full Kitting that Kanban system members have the interaction with customers, end-users, and/or stakeholders, and where the definition of value is quantified, and selection, prioritization and ranking happens.

Funnel

A Funnel is an optional container for potential Work Items that have not yet been added to a Backlog. The main benefit is to prevent cognitive overload by providing a parking lot for potential Work Items.

A Funnel can also be referred to as a “hopper”.

Jobs to Be Done

Jobs to be done is an optional approach to identifying customer needs advanced by Clayton Christensen (Christensen and Raynor, 2003). Its premise is that customers frequently do not know what they want, even when they tell us they do. Ignoring this results in developing and marketing products and services that underperform.

Asking what job a particular product/service/feature does for the customer helps to identify the underlying need. For example, a taxi service with a centralized dispatch allows a customer to get from point A to point B, but might not meet the entire set of customer needs related to this transaction. What if that service can be faster, more convenient, and safer? By discovering these unmet needs, ride-hailing services such as Uber and Lyft developed peer-reviewed, transparent, friendly, traceable, cashless, and timely transportation options and disrupted the taxi industry.

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Scrum

Professional Scrum with Kanban (PSK) still requires *Scrum* as rule 0. PSK does allow for Kanban upstream and “dare we say it”, downstream. *Kanban Guide* has many differences to the *Kanban Guide for Scrum teams*; for a start, Scrum is optional and not required. Indeed other complementary practices to Scrum such as Lean UX are also optional and not required for Kanban.

Specific names for cycle times

TameFlow has a precise visualization for Flow Efficiency:

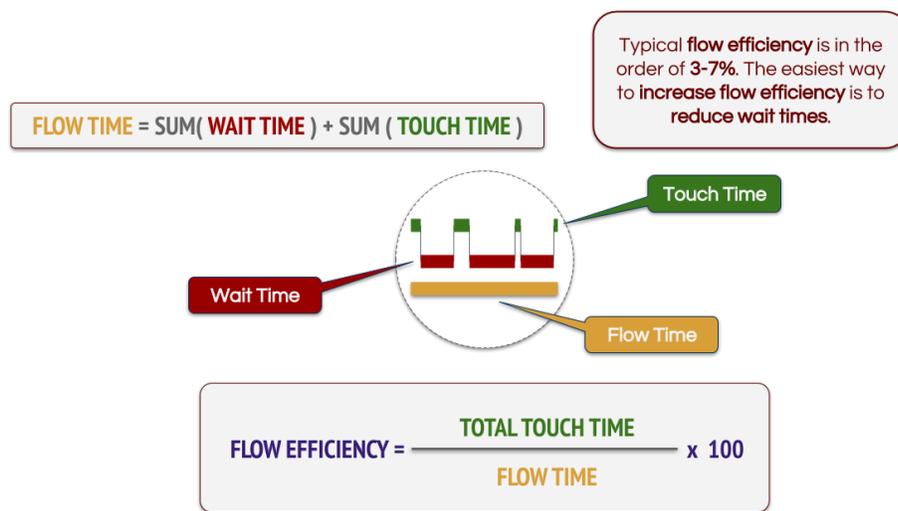


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TameFlow visualizes what Kanban Guide just calls (different types of) Cycle Time. Flow Time is a Cycle Time (in the Kanban Guide acceptance) wherein the TameFlow practitioners are measuring Flow Efficiency. All of TameFlow's Flow Times are Kanban Guide Cycle Times (given the arbitrary positioning of start point and endpoint). But not all Kanban guide Cycle Times are Flow Times because some of those time segments might not be good for Flow Efficiency metric collection. Note that this is extremely important for TameFlow. Why? Because of the way TameFlow identifies the Constraint in the Work Process: with the highest average in-state Flow Time. Naturally, if the Flow Time metric is distorted or inflated, Kanban system members will most likely misidentify Herbie. Herbie is a fictional boy scout who comes to metaphorically symbolize the constraint in a process (Goldratt, 2004). Herbie could be *anywhere*: at the start, inside or at the end of the process. But Herbie could also be outside the process entirely:

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- further upstream, like in suppliers, or sales
 - further downstream, like in the market.
 - "outside" like regulatory limitations
 - or "upstairs"... i.e. policies or management attention
- One of the most deadly constraints is making decisions due to flawed mental models.

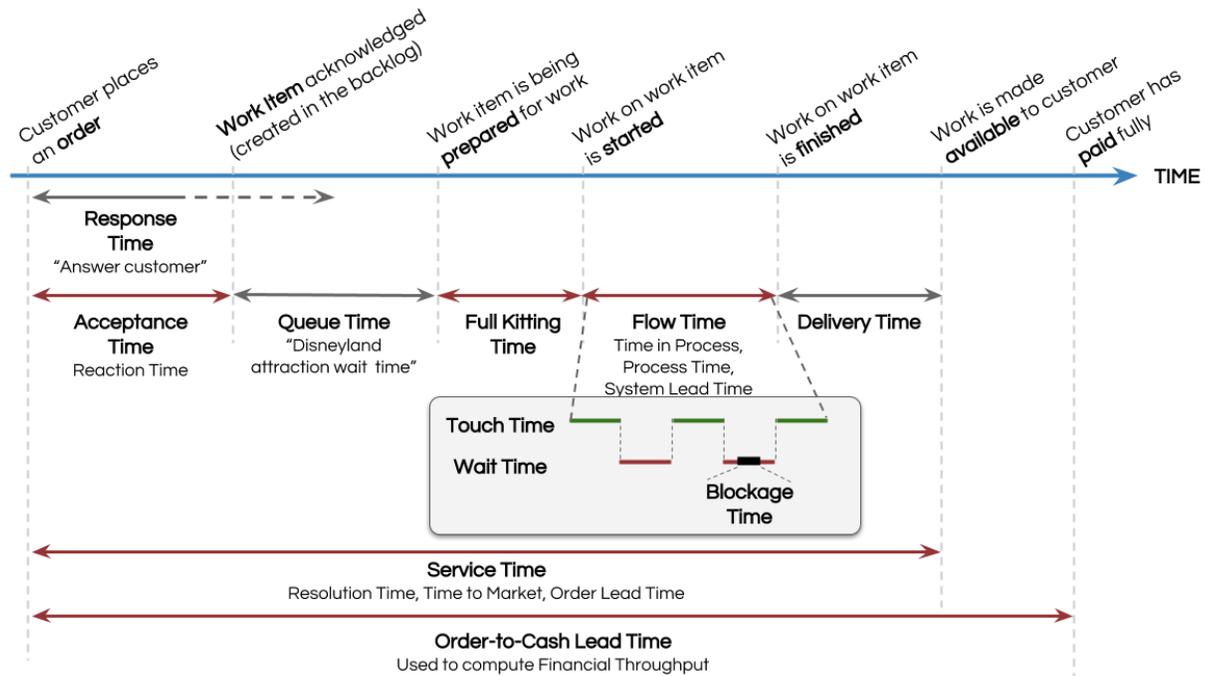


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Sprints or other Rhythmic Cycles

Kanban does not have sprints - that is true. Kanban can have the equivalent of sprints; they are optional and not required. Kanban for Complexity™ (Coleman, 2019) requires the equivalent of sprints.

TameFlow Kanban boards

Flow Efficiency Board

- Makes Wait Time explicit to support proper Flow Efficiency calculations
- Engages workers emotionally to makes decision in terms of Touch Time and Wait Time within each process step

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- Allows effortless flow backs. That said, TameFlow prefers to avoid flow backs altogether, and change the normative behaviour to swarm down on the blockages and never allow Work Items to return back upstream.
- Makes queues of work visible at the entry point of the individual Kanban boards in a complex Workflow
- Does not contain buffers like in traditional kanban boards where WIP and Wait Time can grow and accumulate
- Better support human interaction with processes with Wait Time and Process Time within each process step
- Does without column WIP limits
- Is more in tune with Throughput Accounting (Bragg, 2002) regarding Wait Time than traditional Kanban boards, which are more aligned with Cost Accounting regarding Wait Time.
- Reveal the constraint in the Work Process as being the step with the highest average Flow Time among all processes

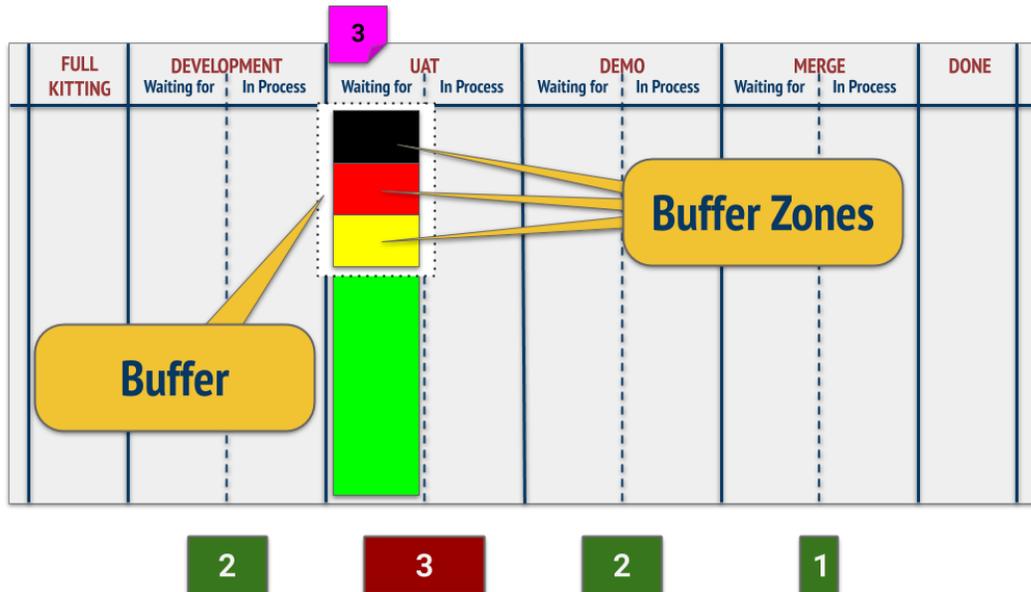


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With the traditional “Done” column, the reaction is: “Oh good... I have more stuff coming my way... I don’t have to worry to appear idle doing nothing while waiting for work” (cost accounting mindset). With the “Waiting for ...” column right before you, the reflexes are otherwise: “Oops! I need to get my stuff done ASAP, so I can take care of the next thing ASAP”.

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Pull/Push is neither determined by terminology nor structures of tables; but by behavior and decision-making made by Kanban system members. Some Definitions of Workflow and terminology facilitate the correct behavior/decision making - because of their psychological impact; not because of the structure as such.

Drum Buffer Rope Board

DBR Kanban boards with DBR scheduling

- DBR scheduling is in harmony with 'postpone commitment'
- DBR scheduling removes cognitive bias in the replenishment decision making process
- DBR scheduling minimizes WIP
- DBR scheduling is triggered on the time axis to enable Flow, as opposed to column WIP limits that are based on the space occupied within a column
- using DBR Scheduling Kanban system members will have a way to reduce Wait Time to the minimum that is necessary to prevent the Constraint from starving

A "Waiting for..." Column with visual Buffer Zones

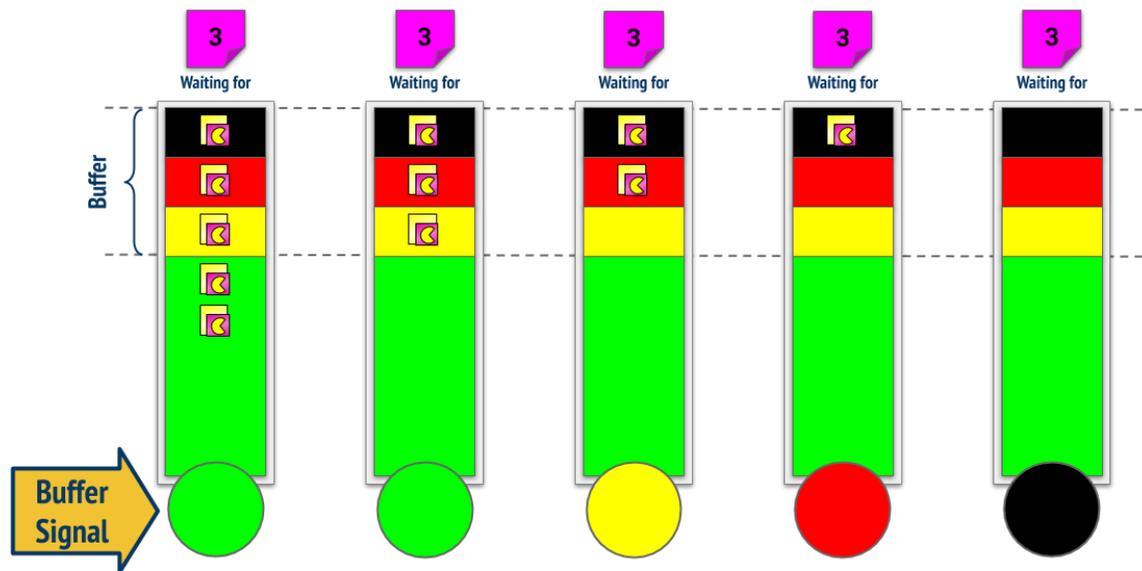


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Throughput Management Board

- Uses the same Drum Buffer Rope (DBR) scheduling system of a DBR Kanban board
- The buffer is placed at the constraint in the Work Process

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- Uses Constant WIP also known as CONWIP (leeexplore.ieee.org, 2019) encompassing the entire process
- Helps focus remedial action upstream and downstream of the constraint due to Special Cause Variation (Flow issues) with leading signals from a token system

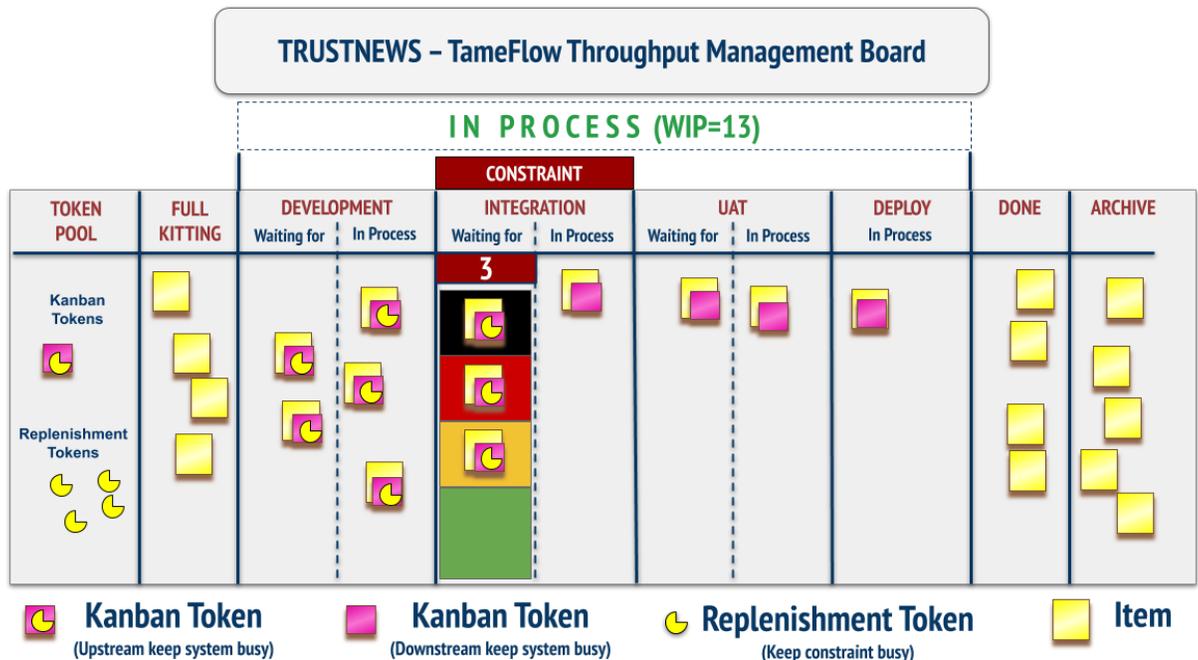


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Team

A team is a group of people that works together and cares about each other's work: teams have a synergy that allows team members to maximize their strengths and minimize their weaknesses. A team could be representative of a "team of teams" at any organizational level. It is often said that the best team is one cross-functional person, as no handover is required. Kanban system members do not have to be part of a team.

Use of mini-Kanban-Board for each Work item

Try "Kanban Board on a Kanban Board" design to keep the focus on value delivery when sub-items get delivered, each Work Item in itself being represented as a mini-Kanban-Board on a Kanban Board so there might be greater focus on Work Item completion over completion of activities (credit to Craig Larman for passing on that idea).

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Values, principles, roles

In Kanban Guide, the following are optional and not required:

- values
- principles
- roles

Other Kanban approaches for knowledge work can/do support some or all of the above, and sometimes use different terminology, as they see fit and as is their choice.

Recommended but not required

Backlog

A Backlog is a collection of Work Items that have not started and that are known to be needed. A Backlog needs neither be ordered nor in list format. Kanban system members should be able to see any work that emerges on a Backlog. Pull/select from a Backlog does not necessarily mean pull/select from the top of a Backlog. Some Kanban system members may use similar terms of *input queue* or *pool of ideas*. A Backlog can contain a range of Work Item types. Twenty-first-century Backlogs include Work Items for initiatives such as product/service/customer discovery/construction/delivery, failure demand reduction, technical debt (Alliance, Letouzey, and Whelan, 2019) reduction, jobs to be done, or projects/programs. From a systems-thinking viewpoint, regardless of the number of Kanban system members involved, there should be no more than one Backlog. If a Backlog exists, the Kanban system members should prune it continually. Work Items could get rightsized if necessary on a just-in-time basis.

For software contexts

Avoid technical debt (Alliance, Letouzey and Whelan, 2019) / failure demand (Seddon, 2019) by considering:

1. Extreme Programming (Extremeprogramming.org, 2019) and/or Continuous Delivery (Humble and Farley, 2010)
2. Threes instead of pairs (Tricotocon - Snowden, 2019)
3. Specification by Example (Adzic, 2012), with some nuances, also referred to as Behaviour Driven Development or Acceptance Testing Driven Development
4. The DevOps handbook (Kim et al., 2016)

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5. Mob programming (Z., Baga and Lucian, 2019), and variants therefore e.g., “Mob UX”

Implementation tips

- Regardless of whether *Kanban Guide* seems like the right fit in theory for a context, *Kanban Guide* should only be used by people who fully embrace *Kanban Guide*.
- Respect “No”, even if Kanban system members desperately depend upon people who don’t embrace *Kanban Guide*, the suggestion is to use dependency management rather than bring people who say “No No” into the tent (Kotter, 2019).
- ActionableAgile provides great Kanban analytic tools (Vacanti, 2019). Other tools also exist. Avoid being a fool with a tool. With all tools, the quality of the forecast is dependent on the quality of the inputs.

Potential Explicit Policies given the absence of roles

Sometimes, if everyone is responsible, no one is responsible. Therefore, some Explicit Policies could clarify who (usually more than one person) owns each of the following, in consultation with all other Kanban system members:

- Owning the shared-purpose creation, re-alignment, and evolution
- Connecting with stakeholders
- Pruning the Backlog continually
- Redesign of Kanban Board to optimize for flow of value and to improve signaling, without tinkering
- Review of measures as per *Kanban Guide*, and review of charts with a view to optimizing the flow of value
- Right-sizing of work to match the Service Level Expectation (SLE).
- Who is on the hook for value & viability (inspired by Marty Cagan)
- Who is on the hook for usability (inspired by Marty Cagan)
- Who is on the hook for feasibility (inspired by Marty Cagan)

This is not a comprehensively exhaustive list.

Potential *Explicit Policies* to optimize *Flow*

- how far upstream and downstream the Kanban Board should go,
- how to read the *Kanban board* (for example, right to left, top to bottom, etc.), possible Work Item moves,
- which start point(s), endpoint(s), *cycle time*(s), work item age(s) & throughput(s) are measured
- level of transparency of “other work”,

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- use of colors, use of tokens/legends/symbols/avatars/magnets,
- use of dots or start dates & end dates,
- behavior when finished with a *Work Item*,
- advocacy/ownership of cards,
- moving cards on another's behalf (or preferably not), assignment of work,
- attitude to perfectionism,
- use of active/underway or inactive/blocked, use of queue and in-progress or in-progress and complete/done,
- handling of WIP limits & replenishment for emergencies,
- whether to use WIP-limits / CONWIP (leeexplore.ieee.org, 2019) / Drum-Buffer-Rope / frugal-replenishment. Imagine a water pipe with a valve controlled by a tap and the tap is almost closed, restricting inflow. Frugal-replenishment is the metaphorical equivalent of almost closing the tap between two states, e.g. between "Backlog" and "Selected/Ready" Work Items, effectively matching arrival rate and Throughput if appropriate. Frugal-replenishment is useful for Kanban system members that lack the discipline for WIP limits.
- If there is a stable & ridiculously expensive constraint in the Workflow, use of a buffer (or not) before the constraint,
- what is acceptable and/or not acceptable to do in slack time,
- When, if ever, to swarm,
- replenishment rules (frequency/on-demand, and how we decide what to pull/select), when to replenish/start and which item(s)
- move/pull (in-progress card move) rules, when to select/pull and logic for deciding which item(s)
- definition of a stale/risky Work Item, and what to do if a Work Item is deemed to be stale or risky,
- definition of an "emergency"
- classes of service, in particular, the use of intangible work for improving the system and/or avoiding long term work eventually becoming an emergency
- what to do with work that is not ready to pull/select,
- approach to learning new skills,
- approach to avoidance of failure demand (Seddon, 2019),
- how to visualize successful/failed probes (or any other abandoned Work Items without ruining our Kanban statistics & charts, generally better to move an item to "done", annotating it appropriately)
- if using electronic tooling, what are the shortcomings of available tools, and how do we prevent them from making our Kanban implementation sub-optimal
- review opportunities for black swan farming to "grow 100 flowers" (Kawasaki, 2019), also known as "taking a bite" (Less.works, 2019). Refer to the Maersk Cargo case study (Arnold, Yüce, 2019). In that study, some *Work Items* were 100s or 1000s of times more valuable than others, and one would only discover the value in retrospect after delivering them.

- consider the de-emphasis of the Minimum Viable Product / Minimal Outcome-Value Effort (Tendon and Doiron, 2020) concept. In particular, MVP is a good idea with a major downside. People tend to struggle with what “minimum” means, and get tied up still with large *Work Items*. “MVP” is metaphorically equivalent to laying money on 4 tables in a casino when one can instead potentially lay smaller amounts of money on 10 tables, potentially discovering that the 9th table in the sequence is where all the action is. In addition, the concept MVP is rarely understood properly.
- Approach to logging of wait time of say over one day - to log or not, how long before you log the start of wait time
- Logging of work time (preferably not)
- Approach to visualizing blocked Work Items

This is not a comprehensively exhaustive list.

Rightsizing

When Kanban system members begin to look at their next work priority, they might consider rightsizing if the Work Item does not fit the SLE. If the next Work Item is too big, it may have to be revised or decomposed (broken down). Rightsizing should be done just-in-time as there is no reward for having a Backlog full of Work Items that fit within the SLE; quite the opposite, it would be a waste to refine items we might never work on.

Optional rightsizing, refinement, and decomposition help with getting the team’s next priority to fit the SLE. Rightsizing, in particular, refers to whether Work Items:

- fit the SLE,
- are too big for the SLE and therefore require refinement and decomposition or proof-of-concept-type-research

Supplementary measures of flow for Kanban Guide

- When there is more than one active column - Relative Work Item Age: Work Item Age relative to the in-progress state.
- Flow Efficiency: The %non-waiting-time of cycle-time for Work Items that were selected.
- The number of learnings from experiments
- Failure Demand, which is caused by a failure to do something or do something right for the customer (*Seddon, 2019*)

This is not a comprehensively exhaustive list. Consider Scrum.org’s Evidence Based Management. Also, consider “what is the devil behind each measure”. In other words, how could each measure be abused (as that’s what’s likely to happen). What’s more

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important is having sincere discussions and real action in the pursuit of continuous improvement. If using Objectives & Key Results (OKRs), consider rolling up work items into Objectives & Key Results (Doerr, 2020) and strive for aspirational OKRs over committed OKRs; use committed OKRs sparingly as they reduce adaptiveness.

Work Item properties

Each *Work Item* could have the following properties:

- Name/description accountable owner (as if many are responsible, it's useful to have someone "on point" to talk about the *Work Item*)
- start date (there could be multiple of start dates for multiple start points in the Workflow).
- end date (there could be multiple endpoints).

Disincentive to collaborate

If Kanban system members have a strong disincentive to collaborate, it often makes sense to implement Kanban from a different lens / level, i.e., where there is collaborative energy.

To have a blocked column or not?

Having a "Blocked" active / in-progress column is usually an anti-pattern. It is sometimes good to see Work Items that are blocked from starting though, however one decides to visualize them. Full-kitting helps here. One usually needs to see where in the workflow *Work Items* are blocked and the expectation is that *Work Items* move up or down and/or left to right. Also, having a "blocked" active/in-progress column indicates that blocked is normal.

Common Myths, half-truths, and utter nonsense

- *Kanban* can only be used for clear or complicated work, and cannot be used for complex work - a myth. *Kanban for Complexity™* (Coleman, 2019) supports work in the complex, chaos, and Aporetic/Confused Cynefin domains (Snowden, D., Boone, M., 2019, 2).
- *Kanban* cannot be used when there are stable & ridiculously expensive constraints - a myth. 1). *The Principles of Product Development Flow: Second Generation Lean Product Development*. did allow for the eventuality of stable & ridiculously expensive constraints, it just didn't focus on that topic. 2). *TameFlow*(Tendon and Doiron, 2020) is true to both *the Theory of Constraints* (Goldratt, 1999) and *Kanban Guide*.

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- *Kanban Guide* describes an evolutionary change method - a myth. Kanban Guide is “what it says on the tin”, nothing more, nothing less. Active management of WIP is quite a big step. Sometimes, kaizen is not the only path, and exponential change is needed (*Buhler, 2019*) even if kaizen is often the more trodden path. A respected Kanban thought leader, Andy Carmichael, once said something like “A dinosaur would not have survived a meteor hit and Ice Age with a longer tail and sharper teeth”. Sometimes a significant change is needed in order to survive, in order to sustain, in order to be resilient, in order to be antifragile (*Taleb, 2012*). That said, Kanban Guide does support evolutionary change, such as for example asking “what is the smallest thing we can change” (Maurer and Hirschman, 2013).

An Example of Value

Let’s imagine we are a milk bottling company. Our customer is a food retail chain as they pay us for our product. Our end-user is a paying customer for our bottle of milk at the food retail chain and is not a customer of ours. We’re getting bad press about the volume of plastic in our milk bottle production, we need to cut costs, and we feel guilty about our impact on the planet.

We don’t want to go back to the bad old days of breakages. We might need to run an experiment to investigate the viability of toughened low-cost recyclable glass bottles with no foreseen public health side effects. We might have an idea to test based on new glass production technology. But we don’t want to go too far down the road with a solution without proving the concept, potentially wasting lots of money and time. So we try to prove the production technology concept and see what customers and end-users think about it. We think it is better to find out sooner if we need to persevere, pivot, or stop.

If the proof of concept does not work, the learning is knowledge value. If the proof of concept does work, the learning is knowledge value. We might need to run more experiments, eventually experimenting with our potential new glass milk bottle product with the certifying authorities with larger batches, and so on. After proving concepts, the Kanban system members can turn their focus on sorting out the problem with the implementation of that solution.

If it makes the desired impact on the customer’s desire to improve its environmental record, that would be customer value. If there is the desired impact for milk bottle purchasers, that would be end-user value. The organizational value would entail patent application, approval by certifying authorities for public safety and the environment, plus sustainable costs without unintended consequences. If the environment also improved as a result of a trend towards these new glass bottles, that would also deliver societal value. If these new bottles really catch on and we have patent protection then we might

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pivot to glass bottle production, which would generate huge customer value from customers we don't know about yet, and it would generate huge societal value as a consequence.

Sometimes, we have lots of ideas, and we need to experiment with some of them in parallel to let the data inform decision making. Whatever the outcome as long as we release to learn, there is knowledge value from running experiments.

In this case, organizational value could also be represented by improved inspiration of employees, customers & shareholders, improved financial health, and improvement in the organization's social reputation.

Does flow trump value?

Value is rarely certain, therefore flow usually trumps value (in many contexts it's close as in 51%:49%) as it's usually better to find out sooner if we're on the right track. When value is certain, trade-offs might result, but one should avoid trade-offs that harm long term flow.

Why doesn't an estimated effort match actual effort?

There is a saying "even a broken clock is right twice a day". These are some main reasons why estimated effort can differ a lot from how long things actually take:

- Waiting time -- this is usually the dominant factor
- Unnecessary complication (Rainsberger, 2019)
- Many (maybe most) people estimate sub-optimally
- Delivery risk transpiring as (blocking) issues
- Complexity (but this is not the biggest consideration in a system that has lots of waiting time)

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