



kanbanize

How Can Portfolio Kanban Help Your Business?



Introduction to Portfolio
Kanban with practical
implementation examples.

CONTENTS

PREFACE	3
CHAPTER ONE	5
What is Portfolio Kanban?	
CHAPTER TWO	17
Implementing a Kanban Roadmap	
CHAPTER THREE	25
Setting WIP Limits on the Global Level	
CHAPTER FOUR	31
How To Manage Flow on the Portfolio Level	
CHAPTER FIVE	41
How To Forecast on the Portfolio Level	
CONCLUSION	48



Preface

It is often emphasized among non-active Kanban practitioners, that the Kanban method is only suitable on a team level. This false assumption is easily countered by the benefits that Portfolio Kanban brings to businesses. This book comes with the purpose to shed light on what Portfolio Kanban is, how it is different from team Kanban, how to use it, and what benefits it brings to your business.

The value of Portfolio Kanban is that it allows you to get a clear picture across multiple complex projects and improves your organization's ability to deliver. You will be able to expand your team's potential, enhance communication between management and operations, and execute sophisticated projects with ease.

Become part of the new wave of Lean management by improving your theoretical and practical knowledge of Portfolio Kanban. Join us in this journey to extreme efficiency!



CHAPTER ONE

What is Portfolio Kanban?

When teams master Kanban on the team level, they start delivering value faster than ever before. However, when all parts of a project start moving even faster, it becomes a real challenge to get the bigger picture and figure out the actual state of affairs. This increased team velocity requires a new way of tracking project status and this is where the Portfolio Kanban Management concept comes to play.

The Portfolio Kanban is a holistic method that aims to improve your organization's ability to deliver by applying the principles of visualization, limiting work in progress and flow management on a system level.

The Portfolio Kanban method is applicable across the hierarchy levels, starting from the team level, going through product management and project or program management, reaching as high as C-level strategy execution. Before presenting the details about implementing Portfolio Kanban on any of these levels, let us first clarify how the Portfolio Kanban method differs from the Team Kanban method.

The Difference between Portfolio Kanban and Team Kanban

The main difference between the Portfolio Kanban method and the Team Kanban method is in the work items that the Kanban cards represent. While the cards on a Team Kanban board represent individual tasks or user stories, the cards on a Portfolio Kanban board represent initiatives, programs, epics, projects, or features.

Important: Each company has its own terminology, but the principles of Portfolio Kanban remain applicable irrespective of whether you call a work item ‘task’ or ‘user story’ or anything else.

Throughout the rest of this book, the term Portfolio Work Item (PWI) will be used as a synonym to:

- » Initiatives
- » Programs
- » Epics

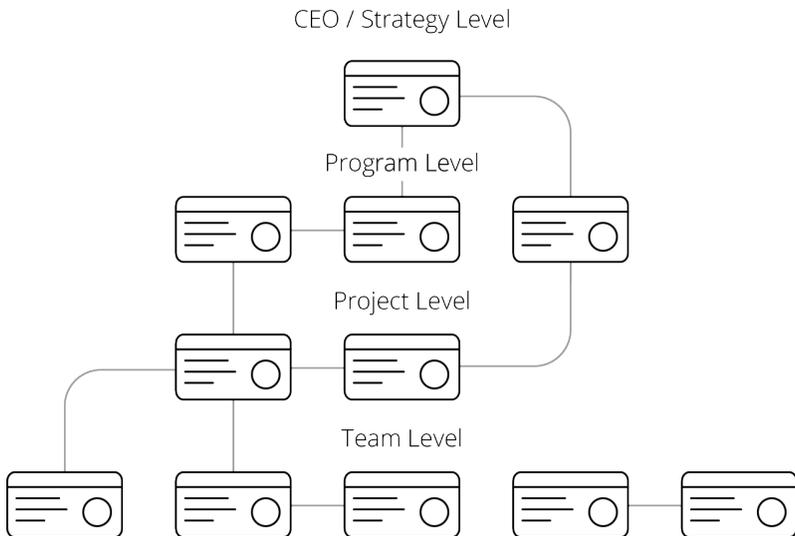
- >> Projects
- >> Features.

The term Work Package (WP) will be used as a synonym to

- >> Task
- >> User Story.

In other words, there is nothing special about the Portfolio Kanban board, because it is a Kanban board like any other. It is the work items that “apply” the meaning to it and that convert it to a Portfolio board.

Another characteristic of the Portfolio board is that it has children boards. In a company, where Kanban is used at all levels, we would have something like that:



The top-most board is for the CEO of the company and his/her peers. In this scenario, the PWIs (Portfolio Work Items) would be strategic initiatives or company-wide goals. The CEO breaks down the PWIs into programs and assigns them to program managers, who have their own Portfolio Kanban boards.

The program managers break down their PWIs (programs) into projects and assign them to the responsible project or product managers, who also have their own Portfolio Kanban boards.

The Project or Product managers break down their PWIs (projects) into work items and pass them to the Team Kanban boards, where the teams can actually work on the WPs (Work Packages).

In this context, we have a couple of team boards (the bottom-most level) and a couple of nested Portfolio Kanban boards.

It is important to mention that you don't have to start from the CEO. You can implement Portfolio Kanban on each of the levels, based on the context that you are in.

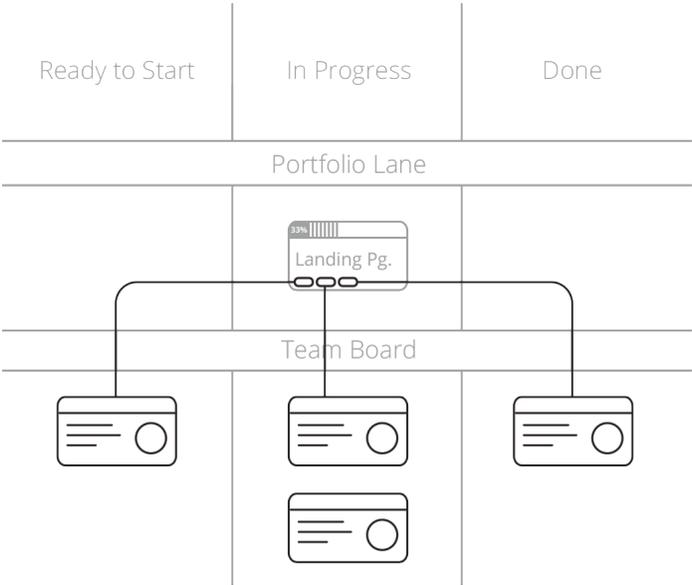
Portfolio Kanban on the Team Level

The first challenge for most teams, after mastering Kanban, is that they lose visibility into the bigger picture. Many Work Packages (WPs) get done, but the connection to the parent project or initiative is easily lost.

The usual approach in situations like these is the addition of a Portfolio Kanban lane in the Team Kanban board. This is a simplified lane at the top of your Kanban board, where important PWIs are being visualized and tracked. A good example of a PWI is the creation of a new landing page.

The landing page initiative is broken down into several Work Packages (WPs):

- >> Design
- >> Coding
- >> Testing



When we have individual WPs spread across the board, but their status is grouped under a single item in the portfolio lane, it is very easy to see the overall status and take action, if necessary.

Another great advantage of the portfolio lane is that it visualizes the total number of PWIs that the team is working on. Even if the work in progress is limited on the WP level, this might not be the case on the PWi level. Actually, it happens quite often that teams work on dozens of PWIs without realizing it.

When the status of all PWIs is visible in the Portfolio lane, then it is much easier to focus people and resources on delivering what has already been started, instead of starting something new.

Portfolio Kanban on the Project/Product Level

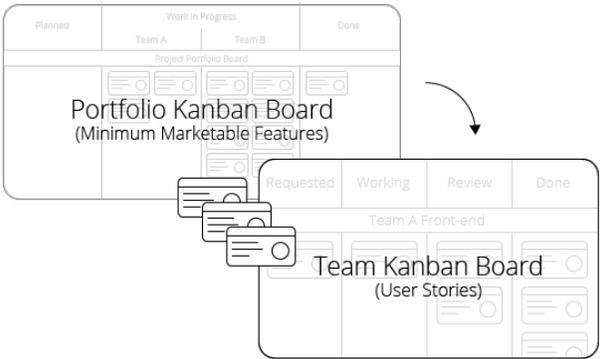
Suppose that you are a project manager at a web agency. You are tasked with a big web project that you need to execute on a tight schedule. Scheduling everything in MS Project is not going to work well—countless projects have been failed this way and you don't have to do it yourself.

As the Lean and Kanban principles suggest, establishing a constant flow of value to your customers is the best way to manage work. This means that you shouldn't plan the start date and end date of the individual Work Packages (WPs) or PWIs (Portfolio Work Items). Instead, you should break them down

into the smallest possible Work Packages and then flow them through your system.

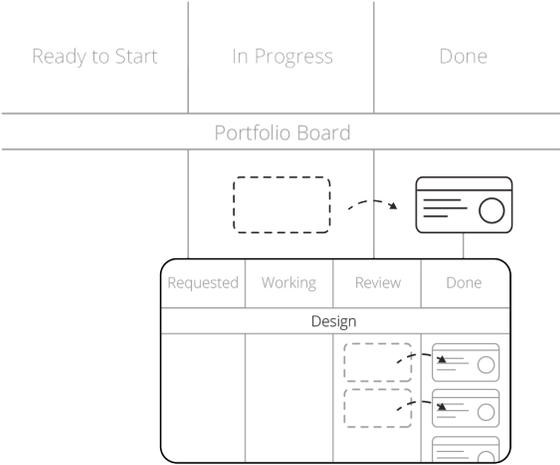
This is where the Portfolio Kanban method comes into play again. If you are on a small team, the Portfolio Kanban lane, which we talked about in the previous section, is going to be sufficient. However, if you need a more fine-grained control over the flow of PWIs, you will have to employ a dedicated Portfolio Kanban Board.

This dedicated board will not contain individual Work Packages, but only bigger work items (PWIs), which will be broken down into individual WPs later. These WPs will live in separate Team Kanban boards.



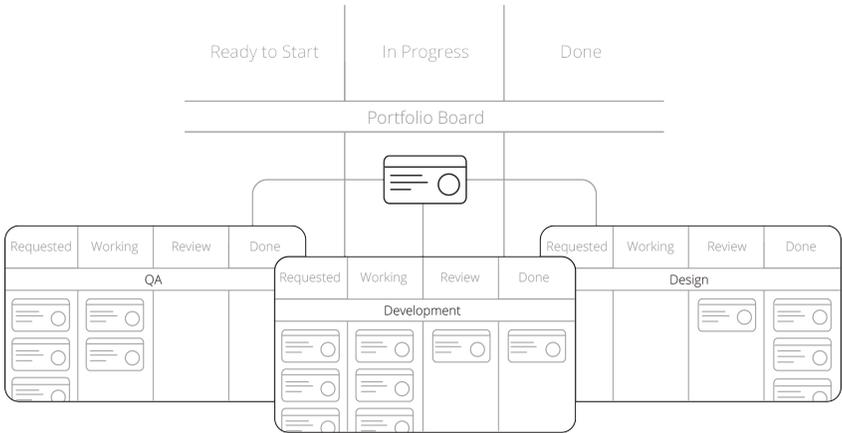
In this situation, you need to maintain a relationship between a PWi and its WPs, so that it is clear which WP contributes to which PWi. Also, you will need to base the status of the PWIs on the Portfolio board upon the status of the WP.

For instance, if one of the WPs is started, the entire PWI should be considered started. If all WPs get completed, the entire PWI should be marked as completed (moved to done).



You can do this on a physical board using strings or other visual indicators, but it is much easier to do it with a Kanban Software.

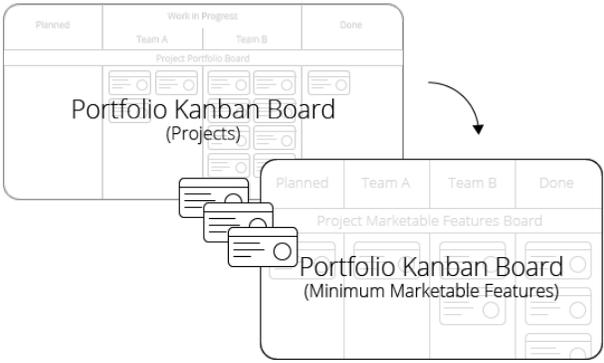
This approach becomes even more valuable when you have multiple teams and not just one. In this case, each team can have its own Team Kanban board, where the daily work is tracked. On top of that, you have the central, Portfolio board, where all the PWIs (parent projects or initiatives) are tracked and updated, according to the status of the team WPs.



With this “master view” in place, you can easily synchronize multiple teams and help them work in a much more aligned way. For example, instead of having one team working on PWI-1 and another team working on PWI-2, you can focus them to work on PWI-1 and complete it much faster. By that, you will improve the flow of value to your customers, which is the ultimate goal for applying Portfolio Kanban in the first place.

Portfolio Kanban on the Program Level

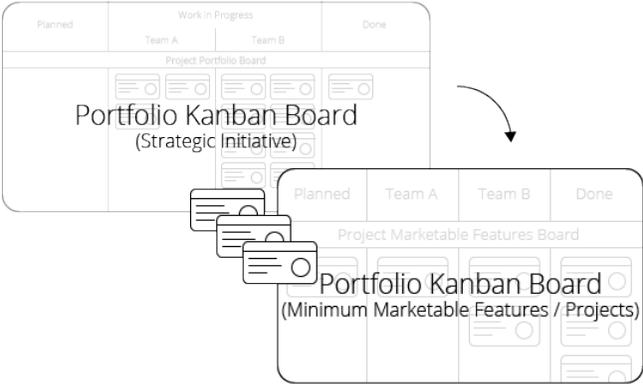
The Portfolio Kanban can be scaled on a program level too. The concept here is the same as the previous. The only thing you need to do is to add one Kanban board “above” the project/product board and link all PWIs to a corresponding PWI on the new master board (the PWI on the program level represents an entire project):



This is the beauty of the portfolio Kanban approach—you can scale it across unlimited hierarchical levels, because each Kanban board can become a Portfolio board for another board or set of boards. This provides unprecedented transparency across the entire company and helps management steer the business in the right direction.

Portfolio Kanban on the Strategic Level (C-level)

As you have guessed, the same pattern can be replicated on the strategic C-level. When the CEO has defined the strategy of the company, it can be broken down into strategic initiatives. The strategic initiatives can be further broken down into programs/projects/features, etc. (depending on the size and the type of the company).



In Summary

Portfolio Kanban management is a way of using the principles and practices of Kanban to improve the organization's delivery capabilities. Based on the company size and structure, any of the following Portfolio Kanban scenarios can be used:

- » Team Portfolio Kanban—A single portfolio lane is added to the team Kanban board, where all the PWIs are tracked.
- » Portfolio Kanban on the Project/Product level—A portfolio Kanban board contains Portfolio Work Items (PWIs), while the Team Kanban board(s) contain Work Packages (WPs).
- » Portfolio Kanban on the Program level—A portfolio Kanban board contains PWIs, which represent actual projects, while the other Kanban board(s) contain smaller PWIs, which represent the project components, features, etc..
- » Portfolio Kanban on the Strategy level—A portfolio Kanban board contains PWIs, which represent strategic initiatives, while the other Kanban board(s) contain PWIs, which represent projects or sometimes entire programs.

CHAPTER TWO

Implementing a Kanban Roadmap

Now when you know how to manage a Kanban Portfolio across different teams and hierarchical levels, it's time to talk about planning. In the context of this book, planning means sequencing work in the right order and identifying approximate time frames when a certain item could get delivered.

In some companies, planning means creating a definitive work breakdown structure and assigning start/end dates to the individual Work Packages (WPs). This is not what planning means here. By planning, we mean creating a relatively high-level overview of what next is coming up. This is usually referred to as roadmaps.

Project and product roadmaps are one of the most important artifacts that every project or product manager has to provide so

that all key stakeholders are kept informed. However, the way most professionals build roadmaps today is broken...

Challenges with Traditional Roadmap Implementations

The real problem with traditional roadmaps is that they are made deterministic, often communicating fixed dates and scope, while they should be probabilistic, communicating that there is X percent probability to deliver certain scope by a given date.

Have you ever seen a product roadmap with milestones set on a given date? How often do you see any probability attached to this date? Right, hardly ever. This is a real challenge for many companies because project and program managers work with fixed dates.

However, when you talk about the future and you are in the knowledge work business, nobody knows how long things will take. Therefore, you must never ever communicate fixed dates and milestones, unless you are 100% certain that you can do it.

If you are required to communicate fixed dates, just because nobody would ever consider your bid for the project, then do what you have to do to win it. However, the fact that you commit to a fixed date doesn't require that you execute your project in a waterfall manner.

Even when you operate within certain boundaries, you can still employ a Lean and agile approach that will dramatically increase your chances of success.

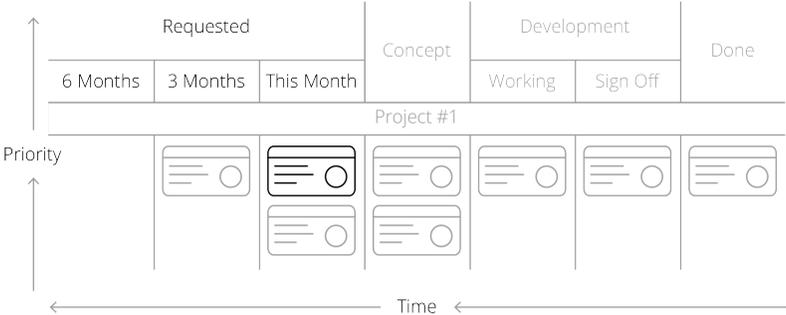
What’s the way out? Portfolio Kanban and a Kanban Roadmap.

Let’s dig into the depths of the Portfolio Kanban application for Kanban Roadmap implementations.

Portfolio Kanban and a Kanban Roadmap

To realize a Kanban roadmap, first, you need to have a Portfolio Kanban board. This board will usually hold initiatives, projects, features or other work items that bring value to the customer. As already mentioned, we call these with the collective term Portfolio Work Item (PWI).

With the Kanban board in place, you need to focus on the leftmost part of the board—the Requested area.



The Requested area contains items that have not been started yet.

As shown above, the rightmost column in the Requested area is the labeled “This Month”. The one on the left is labeled “Next 3 Months”. The leftmost one is labeled “Next 6 Months”. As you have already noticed, the combination of columns and labels forms a reversed timeline—the more you go to the left, the more you go into the future. Of course, you can choose a different time unit, based on your needs—weeks, quarters, years, etc.

When you put a work item in the “This Month” column, you basically plan it for completion this month. When you put the work item in the “Next 3 Months” column, you literally mean “I would like to get this done in the next three months, but I don’t care exactly when”.

When it comes to priority, the higher an item is within the column, the higher its priority is. If you want to re-prioritize, just drag and drop the item to its new position.

When you configure the “Requested” area of your portfolio Kanban board to go into the future, and when you plan when certain PWIs should get done, you have essentially created a Portfolio Kanban Roadmap.

What are the Benefits of a Portfolio Kanban Roadmap?

1. It is Visual—The visual nature of the Kanban roadmap allows you to easily grasp a lot of information. For example, if some of the PWIs is blocked, due to a problem in some of the teams, you will immediately see this on our roadmap in real time. The Kanban roadmap is an excellent information radiator because everyone can see it and instantly answer themselves the question “When is X going to be done?” without the need of status reporting.
2. Easy to Re-prioritize—As mentioned above, changing the priority is as simple as dragging and dropping the card to a new position. This is how you make sure that the teams will only work on the most important items first.
3. Easy to Change Due Dates—What should you do if due dates change? Well, instead of updating a three-year plan, all you need to do is change the column of some of the items. Of course, this activity requires careful analysis around capacity and throughput. We will talk about that later.
4. Supports Flow on the Global Level—Probably the most important piece is that your Kanban roadmap is not a static powerpoint presentation that nobody looks at. On the contrary—it is a living entity that constantly broadcasts information and enables flow across the organization. With this approach to roadmapping, you won’t just say when things will get done, but you’ll be able to actively monitor if they are on track and what is still left to be done.

What are the Disadvantages of a Portfolio Kanban Roadmap?

1. One of the common objections to the Kanban roadmapping approach is the lack of fixed dates—as if this could be a valid objection. Technically speaking, you could label a column with a certain date and treat it as a milestone, but this violates the flow-based approach, which Kanban is all about.
2. The second most common objection is the lack of dependency management. If you try to implement roadmap on a physical Kanban board, dependencies are going to be a problem. However, when you use Kanban software, they are a breeze.
3. To tackle this issue, Kanban Software systems employ the notion of “predecessor” and “successor” links. When a PWI is linked as a predecessor of another, then the system wouldn’t allow you to start working on the “successor”, unless the “predecessor” is marked as finished. It is pretty much the same as what you have in MS Project, but this time, applied on a visual Kanban board.

In Summary

There are a couple of major advantages to implementing a Kanban Roadmap using a Portfolio Kanban Board:

- » Thinking and working with probabilistic data, instead of deterministic.
- » Commitment is deferred to the latest responsible moment—you can start working on a PWI when you have free capacity (teams, people, resources, etc.). Until then you are free to re-prioritize as frequently as needed and add or remove work, based on the new information available.
- » Thinking in Flow—When a roadmap is based on Kanban, PWIs “flow” through the Portfolio Kanban board. This gives you the chance to embrace the Lean Kanban flow metrics, such as Cycle Time and Flow efficiency.
- » Easily extend and change—You can always add columns to the “Requested” area of the board and label them “Next 3 months”, “Next 6 months”, “Next Year”, etc. This gives you a great visual representation of what’s coming further down the line.



CHAPTER THREE

Setting WIP Limits on the Global Level

Setting up your Portfolio Kanban board and turning its “Requested” area into a Lean roadmap is just the beginning. The next phase is the real execution of the work items that need to traverse this new workflow.

One of the first questions that experienced managers usually have at this point in time is “What should I do with the WIP Limits on the Portfolio Kanban level?”. And that’s a valid question, because limiting WIP on the Portfolio level is not a common practice and requires a lot of discipline to implement.

Why Should You Care About WIP Limits?

Unless you are deliberately limiting work in progress, chances are that your company/department/team is trying to do too much at a time. When you try to do more than you can, certain patterns occur. Some of the patterns are:

- » Everything is top priority and needed yesterday
- » Quality goes down
- » People constantly switch between projects
- » You have projects that seem to be stuck forever
- » The harder you work the less work gets completed
- » Projects just get abandoned all the time

If this sounds familiar, you might want to read carefully further on. Warning, some math equations involved!

Kanban WIP Limits and Little's Law

In general, the use of WIP limits is justified by a mathematical formula called Little's Law. Professor John Little has proven the following law:

The long-term average number of customers in a stable system L is equal to the long-term average effective arrival rate, λ , multiplied by the average time a customer spends in the system, W ; or expressed algebraically: $L = \lambda W$.

Kanban borrows this principle and transforms it as the following:

The long-term average number of Kanban cards in a stable system (WIP) is equal to the long-term average throughput multiplied by the average cycle time a Kanban card spends in the system: $\text{avg. WIP} = \text{avg. Throughput} * \text{avg Cycle Time}$ or also $\text{avg Cycle Time} = \text{avg. WIP} / \text{avg. Throughput}$.

Given that your system is stable (you start as much work as you finish and the average WIP age is not growing), you can claim that the average WIP and the average Cycle Time are proportionate. *This is a powerful concept, because it means that the lower your WIP is, the faster you will deliver.*

On the contrary, the more work in progress you allow in your system, the slower you become. That is why, when you've started too much work, you are forced to frequently switch contexts, nothing gets out, quality goes down and so on.

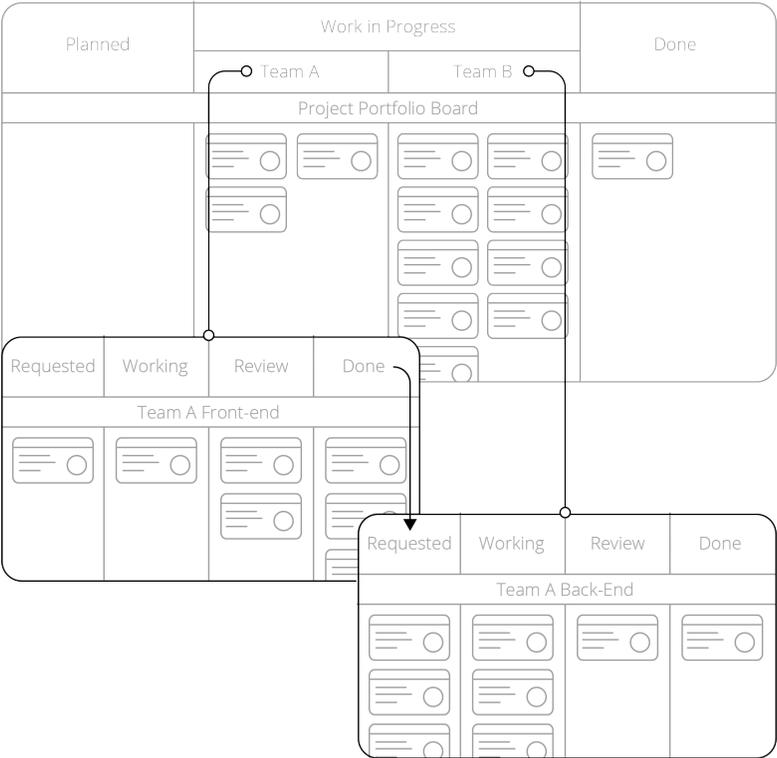
Let's keep this in mind for the rest of this chapter.

Why Team-level WIP Limits Are Not Enough

Most often, Kanban starts on the team level as a more flexible delivery method, and not directly as a Portfolio Kanban implementation. While this is a necessary first step, many

teams fall into a trap, especially when the organization is siloed and team communication is hindered.

Why is that? Let's take the example of a web agency again. If team A (design) is much faster than team B (development), you will see the following picture over time:



It is quite visible that the designers were able to complete a lot of work, but since the developers are slower, they have accumulated a lot of unfinished work.

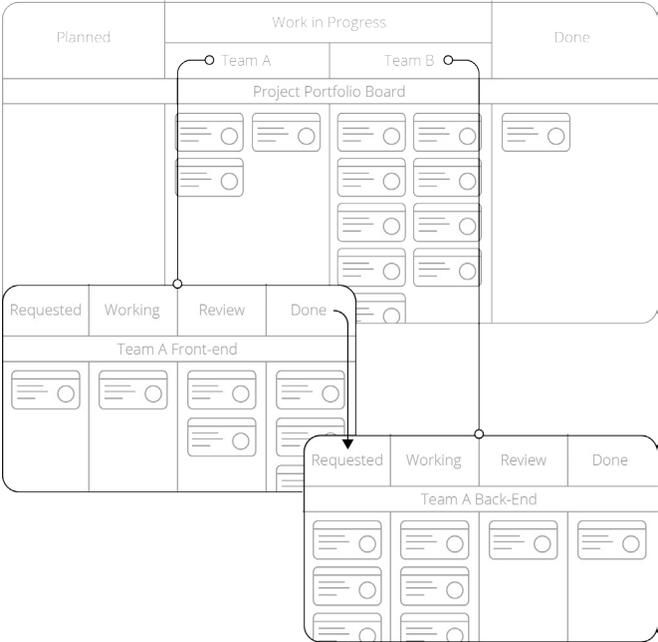
What if the designers become even faster? Then the developers

will accumulate even more unfinished work, which will force them to switch from project to project and by that, according to Little’s law, increase the overall time for delivery.

This is a typical example of a local optimization (the design team) that hurts the whole (the system). This is called local suboptimization and the only way to prevent it is to manage WIP on the holistic, system level.

Portfolio Kanban Boards WIP Limits

Considering the same example, the right thing to do would be to impose a global Portfolio Kanban WIP Limit. It will essentially prevent new projects from being started, even if team A has the capacity to do it. Then the picture would look like this:



In this case, team A is idle, which is the nightmare of each project manager. However, it is crucial to understand that having one idle team is a smaller problem compared to having a whole company stacked with started but not finished work.

If you happen to have an idle team, get them to research some new technology or tool, to develop a prototype for some future project or just attend a training. It would be a much better investment than keeping everyone busy on the local level while doing damage on the global.

How to Determine the WIP Limits

This is a question with no correct answer. There is no formula to calculate the best number, especially when talking about a Portfolio Board. In any case, the best approach is to visualize all the PWIs that your team/company is working on, evaluate if this is a healthy number, and if not, try to reduce it. The more you are able to reduce it, without damaging the company productivity, the faster you will be.

In Summary

Whenever you have cross-team dependencies, it is a good idea to limit the WIP on the Kanban Portfolio level. It will give you:

- » The leverage to improve the flow of value through your organization
- » The ability to concentrate resources and energy only on key projects
- » Shorter cycle times, hence faster delivery (according to Little's law)

CHAPTER FOUR

How To Manage Flow on the Portfolio Level

So far in this book we talked about implementing a Portfolio Kanban board, converting its “Requested” area into a Lean roadmap and managing WIP on the holistic, system level.

Having this setup helps a great deal with visualization, transparency and overall performance, but there is a big issue that is often overlooked—it is very difficult to implement flow on the Portfolio level.

In nine out of ten companies, team 1 won’t know what teams 2 and 3 are working on. Teams usually operate in silos and they rarely have information what happens outside of their bubble.

This is, of course, a dysfunction, but it is way too common to be ignored.

Silos are not going to be a big problem if the teams work on different projects, but as soon as two or more teams start working on the same topic, things change dramatically, almost always for the worse.

Imagine a situation where four teams contribute to a PWI, which is broken down into several Work Packages (WPs), that the teams work on. If you go ahead and measure the cycle times for each WP and compare it to the cycle time of the PWI, you will discover something like this (not real numbers):

Item	Cycle Time
Work Package #1	12 days
Work Package #2	7 days
Work Package #3	9 days
Portfolio Work Item	115 days

But wait! How come the sum of the WP cycle times is 28 days (approximately 1 month), but the PWI took 4 months to complete? Well, this is a manifestation of the disrupted flow across the organization, which causes each PWI to take forever to complete.

Allen Ward and Durward Sobek provide a rational explanation for this phenomenon in their book “Lean Product and Process Development”. They talk about the three wastes in Product Development—scatter, handoffs and wishful thinking.

These three wastes are the main issue when trying to improve flow on the portfolio level, so it is imperative for every manager to study them.

Waste #1: Scatter

Scatter can be defined as the actions or inactions that make knowledge and information ineffective by disrupting its flow.

The table below, taken from the book Allen Ward and Durward Sobek’s book summarizes the most common situations that generate scatter:

	Situation	Conventional response	Scatter effect	Lean response
1	Things are going badly	Reorganize	Obsoletes interaction knowledge	Find and fix root cause
2	The project is falling behind	Add more developers to the team	Disrupts communication	Supervisors pitch in
3	The purchasing agents are slow finding suppliers	Call them more often	Distracts purchasing	Find and fix root cause
4	We keep having product failures	Add more tasks and checks to the development process	Distracts developers	Find and fix root cause
5	The customer wants something new	Add a rush development project	Overloads resources, produces new failures	Steady drumbeat of innovation
6	We’re having problems with the manufacturing system	Keep the manufacturing engineers on the project until the system is running properly	Manufacturing engineers not available for next project; problem repeats	Set-based concurrent engineering, rotation of people from plant on to the team.

With no intention of perpetuating the cliché that it's always the management's fault, when things go bad, it has to be noted that most of the Scatter is caused by bad management decisions or activities.

Reorganization

When things aren't working well, a typical response by the senior management is to reorganize the department or even the entire company. The department lead will be changed, sometimes the entire leadership team will be changed. Teams will be broken and new groups will be formed. This may be the right decision in the long run, but it creates a lot of information blockages, which in turn affect the entire business in a very negative way.

Expediting Work

Another typical example is expediting work. When you are forced to do something urgent, or when you force others to do it, scatter is inevitably created. That happens because the normal flow of work is disrupted and people have to switch contexts involuntarily. Switching context to address an expedite request, which by definition increases the work in progress, is inevitable at times. However, if it happens all the time, there's something wrong with the environment, that has to be addressed.

Adding More People to a Project

You've heard the saying that 9 mothers can't give birth to a baby in one month. This seems to hold untrue for knowledge work, where people are just numbers and should be able to jump from project to project without any loss of productivity. This is, of course, not true and is also a source of scatter.

Additional Checks & Procedures

Imposing additional checks and procedures to address quality issues, for example, might be a really bad idea. If the root cause of the issue is somewhere else, adding a checklist will likely improve the quality but will continue to waste time for the organization.

Communication Barriers

This must have happened to you. You thought you were doing the right thing, but then you suddenly realize that you've invested a lot of time in a lost cause. It happens to all of us, even if the teams that we work with are mature and well-trained.

The situation grows darker with geographically dispersed teams whose only contact is at the over-the-phone daily standup meeting. Well, the occasional chat messages don't make it any better, do they? We've all been there.

Bad Tools

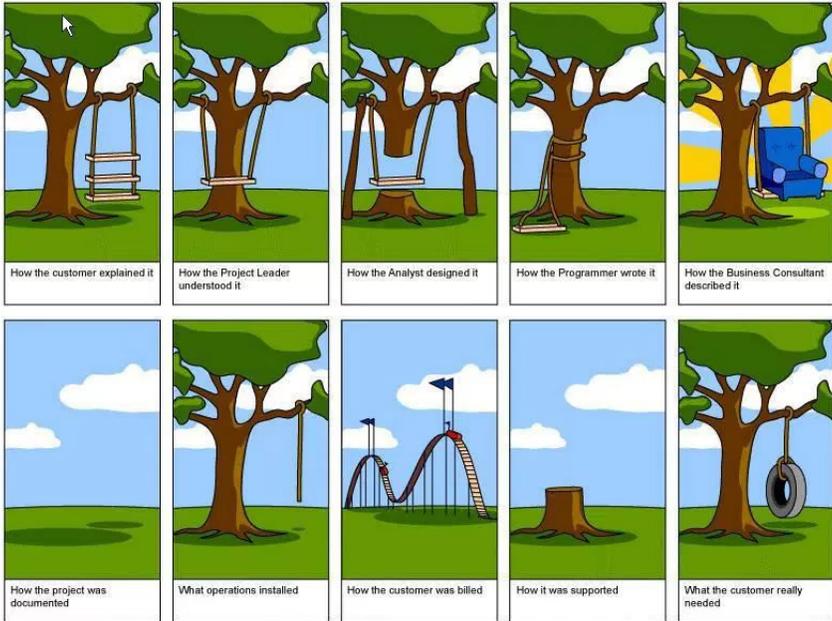
Many companies attempt to improve their delivery by adopting lean and agile methods. However, they rarely invest in changing the tooling, which is a necessary step to each reasonable agile adoption. When the teams are expected to deliver more in a much more dynamic environment, tooling turns into a problem and not addressing it, creates scatter waste.

Waste #2: Hand-offs

A hand-off is any transfer of knowledge, responsibility, action or feedback. A typical example of a hand-off is a designer passing the design to the UI developers. Marketing handing off a piece of content for a webpage to be coded.

Hand-offs are the worst form of waste in an organization. Communication is imperfect by definition, and even very skilled individuals cannot transfer more than 30-40% of the information to another human being.

You've seen this image which is supposed to ridicule the waterfall approach to knowledge work. However, what this image demonstrates is what hand-offs do to knowledge work—results get worse with each of them.



The customer handed off their requirements to a project leader. Then the project leader handed off this information to the analyst. The analyst handed off the information to the programmer and so on...

What happens in this situation is that 50%+ of the information gets “lost in the translation” with each of the hand-offs. As a result, neither the customer is happy, nor the people involved in the process get any sense of accomplishment.

To tackle the waste caused by hand-off you should try to minimize the number of different parties involved in a PWI. If you could have one team owning the entire PWI, that’s great.

If not, you should visualize the portfolio level and monitor if all teams involved have all the information and tools available to them on time.

If you've heard about Jeff Bezos's "two pizza team", then you'd know how to form teams that won't suffer from hand-offs badly. Having a team owning the requirements, deployment and, if possible, financials is the best possible environment for a successful product/project.

Waste #3: Wishful Thinking

Wishful thinking means taking decisions based on your gut feelings or opinions, without considering data. This happens very often in organizations that develop products or services based on a predefined master plan, that is being followed blindly.

If you are in a knowledge business and you schedule work based on a detailed predefined plan, then you are operating out of wishful thinking, because these plans are never ever going to be precise.

Testing to specifications, instead of designing for failure is often neglected. When you come up with a specification, and cover it with tests (assuming product development companies), you might be setting yourself for failure. Your product may be passing all tests, but what if the set of tests is not the right one? It's always a better idea to test the limits of your product, rather than verifying that it works, in the conditions that it's supposed to work in any way.

Ignoring risks that might hurt your business is also a form of

wishful thinking. Many businesses and ventures failed, because nobody thought about the worst-case scenario. Burying your head in the sand is not going to fix things for you, so you'd better evaluate what could go wrong and have a plan to act.

In summary

Tracking and managing flow on a global level is an important prerequisite for successful and efficient work processes. However, this is a difficult job to do, because of the three major wastes in knowledge work and product development—Scatter, Hand-off and Wishful thinking. To be able to manage flow on the global level, consider the following:

- » When something goes wrong, do not add checklists and new procedures, but find the root-cause for the issue and resolve it.
- » When behind schedule, get leadership to help, do not just throw money and people on the problem.
- » Use proper tools and visual cues to ensure good communication and prevent the loss of important knowledge.
- » Prevent losses from hand-offs by concentrating knowledge, responsibility, action and feedback in a single team. Consider the two-pizza rule.
- » Take decisions based on real data, in order to avoid wishful thinking wastes caused by unrealistic deadlines or budget requirements.
- » Keep your plans simple and flexible. Test to find the system limit, instead of testing to confirm requirements.
- » Implement a regular risk-review process to ensure that imminent risks get discussed and that a viable action plan exists.



CHAPTER FIVE

How To Forecast on the Portfolio Level

You’ve come a long way reaching this last chapter of the book. You’ve created a visual management system based on Lean and Kanban principles such as visualization, limiting work in progress and managing flow. There is just one question that hasn’t been answered yet.

“When is it going to be done?” (WIIGTBD)—this is the most important question that product and project managers hear all the time. As important as it may be, it is quite hard to get an answer, especially with big projects, that are hardly ever “on time”.

There is a widely-believed myth in the project management field, that you can only forecast the completion of the project, if you have a detailed estimation of the size, start date and end date of all the work items. This is simply not true.

If you're skeptical about this statement, ask yourself the question: How did Eratosthenes calculate the size of the Earth in 240 B.C., without having sophisticated measurement tools. Did he walk around the globe in order to measure it? No, he didn't, he used a model that provided a "good-enough" answer.

The path that most project managers follow, in order to answer the "When is it going to be done?" question is equivalent to Eratosthenes walking around the earth with a meter. It would certainly work, but it would take ages and it wouldn't be of rational economic value.

How is Status Tracked in a Traditional Portfolio Management System?

In the traditional project management approach and even some of the agile frameworks, the status of a project portfolio is tracked with a set of charts and reports, such as burn-down charts, project bubble charts, Gantt charts, etc. However, they all rely on a fundamentally broken assumption, which renders them invalid most of the time. This is the assumption that we know how much time individual Work Packages (WPs) will take in the future.

All of the portfolio management tools and practices out there rely on detailed estimation. Like it or not, estimation is always inaccurate, at least when we talk about knowledge work. The more complex the project is, the less precise the estimation becomes. When estimation is not accurate, and practically speaking, it can never be 100% accurate, then we find ourselves in a dead end situation.

We Need to Change Something

Widely recognized as one of the best business books on estimation, “How to Measure Anything” by Douglas Hubbard talks about reducing uncertainty as a way to measure the unmeasurable.

The author provides an alternative take on measuring business risk, the value of a project, the number of fish in the sea, etc. The point that Hubbard is trying to make, and the bestselling status of the book is a testament that he is successful in doing so, is that everything is measurable.

Indeed, everything is measurable, as long as we change our way of thinking. If we can estimate how many stars there are in the universe, without counting them, we should be able to estimate a project without sizing each and every Work Package (WP).

The point is that we need to switch from a deterministic state of mind to a probabilistic state of mind. If we start estimating in

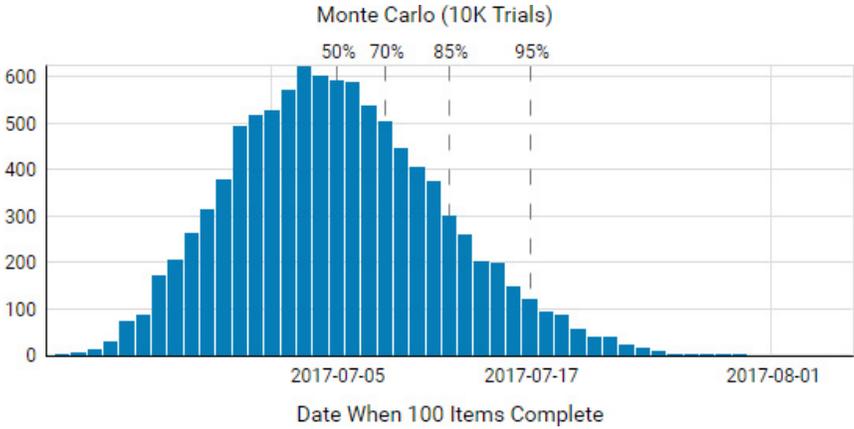
ranges, acknowledging the fact that our forecast has a certain percent of probability attached to it, then we can answer the WIIGTBD question in a few seconds time. This is useful and even mandatory to do.

Of course, having technology and computers at hand makes it much easier for us, than it was for Eratosthenes. Computers made it possible to run complex simulations, based on mathematical and statistical models, that show us the probability of a given event happening in the future. This is what the Monte Carlo simulations do for us in project management.

Portfolio Kanban Software and Monte Carlo Forecasting

A huge benefit of adopting Portfolio Kanban software is that you can use statistical analysis, such as Monte Carlo simulations, to forecast how much work you can complete in a given time period. This analysis is based on your historical data (historical throughput) and surprisingly enough, you don't need loads of it to get started.

Of course, the more data you have the more accurate the forecasting will be, but even 20-30 completed Work Packages are more than enough to start with.



One important addition, however, is that you can only forecast with a certain probability. This means, that whenever we say a date, we should attach a probability to this date. For example, we shouldn't claim that our project will be finished by the 20th of November. We should say instead: "There is 85% probability that we complete this project by the 20th of November". It's a different statement.

So, here's how it works. The simulation takes as an input your historical throughput—how much work is being completed per day. This is a sequence of numbers representing number of completed WPs per day:

Date	# work packages completed
14-08-2017	4
15-08-2017	3
15-08-2017	0
16-08-2017	1
...	...

Another input parameter to the simulation is either a deadline or a number of total WPs to be completed. Based on this parameter the simulation can answer two different questions:

1. How many WPs can be finished by the deadline
2. When are the WPs going to be completed

The last input parameter is the probability that we want to operate with. This usually varies between 75% and 95%, depending on the risk that we are willing to accept. If it must be done by a given date, then you should forecast with 95% probability or even more. If it's okay to be late 25% of the time, then operate with 75%.

With these prerequisites in place, we come to the most exciting part—the mechanics of the forecasting process. How does it work? Well, it's a bit embarrassing to reveal how simple it is, if you use Kanban software like Kanbanize (sorry for the shameless plug), but still:

1. You open your Kanban board and you count how many work items you have in the backlog.
2. You go to your analytics engine and enter this number in the Monte Carlo simulation.
3. Two seconds later, the simulation reveals the projected date with a given probability (85% or 95% is preferred).

It's hard to believe that this can work for real, but it does. As a matter of fact, Monte Carlo is the only popular scientific way to

approach estimating a project and forecasting when it is going to get done. It works much better than any human judgement, because it's not biased, relies on actual data and it's so fast, that you can do it every day.

So, even if the model is a bit off in the beginning, with more and more data being accumulated, it will become more and more accurate. This is not something that holds true for human judgement, especially if we move from one person to another.

In Summary

- » Forecasting on the Portfolio Level is possible when:
- » Project managers accept probabilistic thinking and abandon deterministic estimation and forecasting activities.
- » You have at least some historical data to base your forecasting on. You only need data for around 30 Work Packages to start.
- » Project managers do not rely on personal judgement to size a project. Personal judgement is important and should be used to verify the estimation provided by the simulation, but not to replace the simulation itself.
- » The Monte Carlo simulations need only a few data points to work: historical throughput, probability and deadline or number of WPs in the backlog.



Conclusion

Now that you know the theory about Portfolio Kanban, it's time for you to actually start doing it. Only then will you discover the true benefits of visualizing work, limiting work in progress and managing flow on the portfolio level.

But please, be warned! Do not think of Portfolio Kanban as part of a framework such as SAFe. You can do Portfolio Kanban without applying any framework whatsoever and this is actually the recommended approach. The big, clumsy, “agile” frameworks require that you do every ritual by the book and basically follow orders.

What we encourage you to do is to find what works best in your own context. Take the ideas presented in the book, experiment and learn from your mistakes. This is the only way to achieve true agility.

Good luck!

