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Get more out of DevOps with value stream management

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Contents

Introduction	3
Part one	
Defining value in your DevOps pipeline	5
Part two	
Why is value stream management so important?	12
Part three	
The benefits of value stream management	15
Part four	
How to build value stream management into your strategy	18
Unlock more value	20





Introduction

In an age of agile software development and DevOps, a project mindset won't suffice. For organisations where individuals and teams are focused on deadlines and schedules, patting themselves on the back when they've achieved a goal, there's no clear connection between what's been achieved and whether it was useful at all. Those teams might never know whether what they've created works, works well, and whether customers even use it. There's no indication of value.

Value stream management (VSM) is about accelerating development and enabling continuous delivery of customer value. It recognises work in value streams and manages them accordingly. It incorporates value stream mapping to identify the different activities in your pipeline – and where bottlenecks and waste reside – to make delivery more efficient, maximise flow, and drive innovation. Modern VSM tools include built-in AI and ML capabilities, like predictive insights and anomaly detection tools, to make anticipating bottlenecks and streamlining flow even easier.

To deliver customer value faster, you need enhanced:

- **Visibility** – a single source of truth so everyone's on the same page.
- **Orchestration** – an organised approach to improve flow.
- **Integration** – a platform that brings toolchains together.
- **Governance** – automated checks that keep your software compliant.

For all this and more, VSM is the solution.

In this ebook, we take a closer look at your DevOps pipeline, compare value stream mapping and management, explain the importance of VSM, and look at the benefits. We'll also explore how you can get started on your VSM implementation right away to start realising more value for your customers.



Part one:



Defining value in your DevOps pipeline

What does good DevOps look like?

No matter the size of your business or your teams, succeeding with DevOps relies on three things:



Good source code management (SCM) and continuous integration (CI)



Good access to environments



Changes flowing smoothly through your organisation

Let's take a closer look at all three.



Good SCM and CI

This means keeping everything in version control systems, ready for peer review; continuous builds with small incremental changes, so it's easy to identify and fix divergences; and testing and checking changes as soon as possible so you can get the software out there and use tight feedback loops to make improvements.

The emergence of GitOps practices has revolutionised declarative infrastructure management, leveraging Git as the single source of truth for system configurations. By using Git repositories to manage infrastructure as code (IaC), teams can benefit from version control, auditability, and automated deployments. Platform engineering plays a role too, by creating self-service environments that give developers

access to standardised tools and workflows, without them needing deep operational knowledge.

Good access to environments

It's vital developers have access to an environment that looks as close to production as possible. Those environments should be an appropriate size and scale, with data masking if necessary. And devs shouldn't be waiting in a queue behind others to test their changes out because this impacts flow.

Changes flowing smoothly

Changes should flow while being well-regulated and well-controlled. Using automated testing can check real-world scenarios and keep risk to a minimum. And by reducing the number of dependencies that individual components have you can make them independently deployable, creating less friction in your pipeline.

How do we measure success in DevOps?

Now you know what good looks like, how can you be sure you're achieving it? There are well-established metrics that we can use to assess success. They include:

- **Deployment frequency** – mature deployment processes show you're willing to push change through. The more frequently you deploy, the greater the indicator of a successful DevOps organisation.
- **Lead time for changes** – how long does it take from a change being decided for that change to go into production? This shows whether teams are able to deploy changes without getting held up by bureaucratic red tape.
- **Change failure rate** – how many of those changes fail? If you're not experiencing any failures, then you're probably moving too slowly. If you're deploying frequently, you should expect the occasional failure. This indicates how successful your testing coverage is.

- **Time to restore services** – when something goes wrong, are you able to respond quickly and get that service back online? This shows how capable your organisation is at zeroing in on problems and solving them, either by fixing bugs fast or rolling back to a previous iteration.
- **Flow metrics** – introduced by the Flow Framework these metrics reflect a shift towards optimising value delivery across software value streams by focusing on the health of value streams. They include flow time (the time to deliver work from start to finish), flow velocity (the number of work items completed over a specified period) and flow load (the amount of work currently in progress).

The problem with scaling

If you've read all that and are thinking, 'We're doing all this, no problem', then scaling is where problems might start to creep in. These ideas work well in small teams, but modern organisations need to be able to scale, and that's when the cracks begin to show. You'll probably notice silos returning, isolated departments or teams that are fulfilling specific DevOps functions, such as SCM or CI.

Specialisms aren't a problem per se, but silos inevitably cause delays, because of the lack of collaboration. Highly trained teams, who aren't working together day in, day out, and who are communicating through queues, tickets, and service desks, will create friction. They'll suffer from generalisations and conflicting objectives. Where operational teams, for example, can be measured on the time it takes to get the system back up and running after an outage or deployment, development and product teams are more focused on delivering customer value.

The Team Topologies framework is a modern approach to solve scaling challenges. It clearly defines and structures team responsibilities and aligns them with value streams, enabling autonomous delivery. It promotes collaboration, facilitation, service, and platform usage to minimise dependencies and reduce hand-offs. Team types can include stream-aligned teams, focused on delivering value for specific business areas, and enabling teams – those that support the former by providing expertise and reducing technical barriers.

What does value look like?

What you need is a consolidated view on what value each team is delivering and how it all joins up. Rather than looking at the intrinsic value of each component part of the organisation – a great cloud platform, great product design, great testing – you want to consider organisational flow. How long does it take to get an idea out into production and out to the customer? Because it's only when people can use an idea that it has any real value.

A value stream is an end-to-end sequence of activities where work, materials, and information flow in a coordinated and streamlined manner to deliver actual value (products, services, results) most effectively.

Value stream mapping helps you see how you deliver products and services that customers are actually deriving value from. It visualises how changes you might make could affect the speed and quality of the value they receive. If a customer opens a defect report, for example, which maybe takes them five minutes, but there's a week-long delay between triage of a problem and a fix being written, then it might take them two weeks before the fix is deployed to production. Value stream mapping can show you how long all the stages take and how long the hand-offs between each task takes too.

The more detail you add to your value stream map, the more improvements you can make. In fact, just making a value stream map – seeing the knock-on effect of delays, without even making any explicit changes to it – can significantly improve your process by helping people understand how value flows.



Value vs waste

Unlike the manufacturing industry, where value stream mapping originated, software development isn't achieved by physically shifting raw materials around. You're taking ideas – whether they come from customer feedback, sales requirements, or competitor analysis – and transforming them into value as new user experiences.

When a user requests a new feature, that triggers product teams to design it, engineers to design and build it, and then deployment teams to make sure it gets to the user fast and in good working order. Rather than identifying waste between the steps required to build a new piece of furniture, for example, and moving materials around the warehouse to reduce the time lag between processes, VSM helps you assess the flow between these teams and figure out where you can add measurable value.

The key types of waste found in software development are:

- **Partially completed work** – when you release software that's incomplete. This can cause a ripple effect as additional work is required to complete it later on.
- **Extra features** – those that do more work than is needed, i.e. a user hasn't requested them so they're not responding to real customer needs.
- **Relearning** – because of new tech learning curves or poor or missing documentation. Each time that problem occurs time is then spent investigating and fixing it.
- **Handoffs** – caused by a change in project ownership or roles, or employees leaving. This also relates to handoffs between teams, when poor communication causes waste.
- **Delays** – these are typically caused by pipeline dependencies – when there's a decision or resource dependency downstream that's impacted by an upstream task.

- **Task-switching** – when individuals have to switch tasks, for example engineers having to address emails or go to meetings, that impact their workflow.
- **Defects** – when bugs occur in software and delays and task switching have to happen to take care of them.

What is value stream management?

Value stream mapping creates visibility through qualitative data of what type of waste you're dealing with and where it lies. VSM helps bring that data together with process tracking data and tools to monitor what's going on, codify it, and implement improvements.

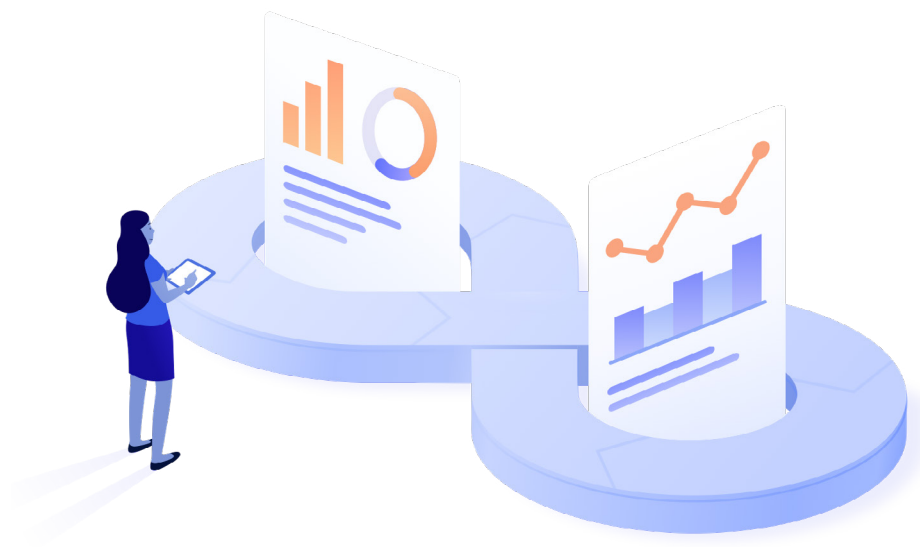
To identify waste, reduce process cycle times, and implement process improvements, you need to implement value stream management (VSM). While initial value stream maps are based on different stakeholders' thoughts and opinions, VSM seeks to codify your maps into a decision-making tool. This data is best gathered and visualised using a VSM platform.

This lean business practice determines the value of software development, and delivery efforts and resources. VSM platforms provide you with real-time data and analytical tools to improve flow and support your business's improvement initiatives.

Value stream management helps you:

- Understand how long it takes to deliver value to customers, gain insights into where you create waste, and speed up the delivery of value.
- Provide information for data-driven conversations in your organisation and ensure traceability.
- Estimate what value your work will deliver and develop thinking around future work.
- Improve and speed up feedback loops.

VSM requires you to have a continuous improvement mindset. Using this approach helps your organisation to work towards business goals, focusing on where more value can be added for your customers.



Part two:



Why is value stream management so important?

Where agile helps to increase the speed of value creation and DevOps helps to speed up design and delivery, it's VSM that helps drive business using these complex processes. By capturing data every step of the way – tracking progress, status, tasks, user stories, and artifacts in your value stream – they can help visualise your processes and offer actionable insights to guide strategic decision-making.

Is VSM suitable for my business?

Every business has value streams, which means every business can benefit from VSM. And while VSM is not synonymous with DevOps, if you're currently doing DevOps, VSM will make your digital transformation much more effective, including cloud-native adoption driven by Kubernetes and microservices architectures. To be successful in DevOps adoption, you need to constantly be improving how you assess, adapt, and connect your people, processes, and technology, and these themes are cornerstones of successful VSM.

Without it, you're going to come up against some friction, namely there will be a disconnect between your business goals and IT teams, you will struggle with visibility and traceability, and your IT teams won't fulfill their profit potential.

How does VSM improve flow?

VSM is not a fancy term for task management. It covers your whole software development life cycle (SDLC) – from idea creation to delivery – to improve flow and speed up your ROI. VSM tools can measure vital metrics, as described in part one, which then impact product development and help you prioritise and optimise your processes.

There are four key ways VSM improves flow. It helps you...

Connect

As mentioned, one of the key principles of VSM is identifying and eliminating waste. VSM tools help you to connect your DevOps tools with all participants to synchronise information exchange. This helps to remove friction and data bottlenecks.

Measure

Data is your friend. VSM empowers your people with the information they need to make decisions. Metrics related to process, activity, and operational efficiency are not always aligned with business goals. By measuring flow metrics, you can understand how much value you're creating for your customers and basing strategic decisions on this information.

Visualise

Dashboards help you to see real-time value streams so that everyone is on the same page and issues can be resolved as soon as they arise. You can use value stream mapping to visualise the path that value takes through the organisation to figure out where work slows down and allocate resources or make process changes as necessary.

Automate

Automation has played an increasingly prominent role in modern VSM, streamlining workflows and reducing manual effort. From automated environment provisioning, which ensures you have a consistent, on-demand infrastructure, to CI/CD pipeline automation, which accelerates code integration, testing, and deployment, automation is enabling teams to deliver value faster while maintaining high code-quality standards. It also plays a critical compliance role by integrating security and governance checks directly into pipelines without slowing down delivery.

Be responsive with VSM

With business responsiveness as your ultimate goal – reducing the time between idea creation to value realisation – VSM becomes your ultimate tool. It provides the metrics and plan of action to hang your strategy on, helping you achieve your aims, from organisational-level vision to team-level goals.





The benefits of value stream management

Any new work initiative is going to be an adjustment, but if you stand to gain substantial benefits from it, it's much easier to get everyone on board. Once you've implemented a VSM approach, you're going to start to see a number of important advantages over your competitors.

One view

VSM platforms are designed around integration, bringing toolchains together into one data model. Rather than translating data between tools, collating everything into one place manually, you get end-to-end visibility across the whole value stream. As a result, you can draw on a wider, more diverse data set to gain better insights. Those insights help you make decisions and innovate faster. You can also benefit from tracking the status of creating a digital product from different angles, including business, development, and operation.

Unite teams

With everyone working from a single source of truth, you'll enjoy more seamless collaboration between teams and more effective communication to help drive process and software improvements. Everyone will be on the same page about what the goals are, where the value lies, and the changes that need to be made.

Real-time tracking

With all your toolchains in one place, your people can view how work flows through the organisation in real-time. This means engineering and product teams will have significantly more insight into their own processes than ever before. They can measure what's going on with their value streams, use built-in features to focus on the most important metrics, and analyse trends.

All the metrics you need

VSM tools help you measure the throughput and stability of your value streams. These include DevOps metrics, like deployment frequency, lead time, mean time to repair, and change fail rate, as well as flow metrics to give you even more insight into what's happening in the value stream itself. They develop the notion of a flow item – a unit of work that matters to the business – and include: flow time, distribution, velocity, efficiency, and load.

Improve compliance with automation

VSM platforms help you to elevate your software delivery when it comes to compliance. Governance can be defined in the platform, and then automated processes, such as testing that checklists have been adhered to, ensure that vital standards are met before work progresses through your SDLC. It's a continuous approach to compliance that will put your software head and shoulders above your competitors'.

Reframe release management

By being able to access the state of work in real-time, your release managers aren't lumbered with manually updating spreadsheets to understand a release. Instead they can use data to improve the value stream through planning and scoping, using automation to improve efficiency, and analysing release risk.

Eliminate test environment waste

A frequent blocker to good flow is waiting for test environments to be available. Handling requests for these can be time-consuming and problematic. A good VSM analysis will reveal this, and refining and streamlining environment creation and usage will increase flow.

Set more realistic goals

If you're looking to use VSM to reduce staff, add work without eliminating waste, or focus exclusively on the technology, you're going to be disappointed. Instead, VSM gives you the chance to balance business value with the resources you have available. That means setting more realistic goals that align with your capabilities and improving communication between teams to achieve them.

Supports continuous improvement

VSM platforms provide the big picture visibility, granular data, and actionable insights needed to help teams increase product quality and improve processes. Beyond making short-term changes, your VSM strategy will help drive continuous improvement and reach business goals.

Embeds security from the start

With a growing emphasis on DevSecOps, whereby security practices are shifted left and integrated into the value stream, VSM ensures security is treated as a continuous, proactive element, rather than a box-ticking exercise. It incorporates automated security scans, vulnerability assessments, and compliance checks into your software development pipeline. By enabling DevSecOps, you reduce risk, ensure regulatory compliance, and minimise the cost of late-stage fixes.





How to build value stream management into your strategy

Now you're aware of what VSM is, why it's important, and the benefits you stand to gain, it's time to think about implementation. Any new approach will be a shock to the system and will require a period of adjustment. But knowing the initial steps you need to take can make all the difference between a powerful progression of your DevOps practices and a buzzword that fails to take off.

More than value stream mapping

Value stream management starts with value stream mapping, as described in part one. Once you have a good appreciation of your value streams, you need to put practices in place to keep on top of changes as they occur, measure how the value stream has evolved – through metrics and KPIs – and then implement actions accordingly. This will enable your organisation to create more value and fuel continuous improvement in your DevOps and agile practices.

Value stream management is a top-down approach – it targets the way your organisation is governed, encouraging systems thinking to ensure your business strategies at every level are effective. But for it to be effective, it's vital you break down silos, encourage cross-functional team collaboration, and automate workflows.

Cultural sensitivity

Don't forget, just because VSM makes sense to you, not everyone will find this overwhelming influx of data motivating. Some people or teams might find the increased visibility intrusive and off-putting. To bring people on board and avoid stumbling at the first hurdle, you need to develop an organisational culture where people feel psychologically safe and collaboration is encouraged. Introducing value stream mapping first will also go a long way in helping people to recognise the benefits of VSM when you start to implement it.

Getting started

Getting started with value stream mapping might take a few hours with the right stakeholders in the room, but VSM is continuous – you'll need to manage, monitor, and govern your value stream regularly and keep finding ways to improve it. You can revisit your value stream map, updating where necessary and using it to realign value streams, change your baseline, or use it to prove your VSM practice is working (or not).

To get started, bring all your organisation's key stakeholders together. They should have already mapped existing processes and flow, and should be receptive to an open conversation about how work flows through the organisation and where teams experience roadblocks.

VSM doesn't depend on costly, complicated tools, but once you've made some progress, the right software can give teams a top-down appreciation of their value streams. And more recent technological developments, like AI and ML capabilities and built-in automations, make it easier to identify bottle-necks and make data-informed decisions. With predictive analysis and process optimisation, these tools can help document, analyse, and manage DevOps processes like never before. There are a number of impressive options out there, including platforms from Plandek and TaskTop, that bring your tools and teams together in one place.

This first step is crucial – it creates space to stop and assess, giving everyone the opportunity to critique the status quo. Without the opportunity VSM offers, it's unlikely everyone will have the time to analyse and improve processes. And while mapping alone does offer some of these benefits, it only reflects a value stream at a single point in time. VSM ensures continuous improvement is top of mind and value creation takes precedence.



Unlock more value

Value stream management is the next step in software development. It brings together the iterative nature of agile with the fast pace of delivery-centric DevOps to recognise and proliferate value for your customers.

It requires a collaborative and cross-functional culture, an honest appraisal of your existing processes, and a willingness to put value creation at the heart of the organisation. Incorporating value stream mapping, it uses metrics, data analytics, and visualisation tools to show correlations between work and customer benefit. It ensures there's an ongoing feedback loop between what you're making, how you make it, and what the customer gets out of it – a SDLC that's centred on continuous improvement.

We've also seen the emergence of platform engineering as a complementary practice too, particularly the use of internal developer platforms (IDPs) to streamline value delivery and enhance the developer experience. Alongside the use of GitOps, platform engineering has transformed the way teams manage infrastructure and environments, becoming an integral part of VSM and a comprehensive DevOps strategy.

If you're interested in implementing VSM thinking and technology into your organisation as part of your transformation, we can help. Find out more about our end-to-end DevOps solutions today.





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