elabor8

Ditch intuition for insight: why you need to switch from estimating to forecasting and how to make it easier

Introduction

Estimating and planning processes are hampering speed and agility

The solution is a shift from relying on intuition and faith, to forecasting using historical data with a statistical and probabilistic approach.

The challenge to do more with less has never been greater. The impact of COVID-19 and the ongoing economic uncertainty has put leaders under scrutiny as they're tasked to deliver increased efficiency and performance, often with fewer people.

As an agile leader, this means greater pressure to make the right decisions at all levels, from tasks to projects and products. But without true visibility into team performance, delivery, and cost, ensuring effectiveness becomes a struggle.

Estimating, which was traditionally an essential component of planning and prioritisation, is a key part of the problem. Approaches are often laborious, inaccurate, and undermine agile principles, leading to frustration and loss of trust between teams and leadership.

We believe the solution is a shift from relying on intuition and faith, to forecasting using historical data with a statistical and probabilistic approach.

Although forecasting has been difficult and time consuming in the past, new tools automating the process now make it easier than ever to:

- Improve transparency so you can make better decisions about where interventions are needed.
- Understand how people need to be allocated.
- Quickly obtain evidence-based data to help you manage upwards.
- Enhance flow and focus on the delivery of value

In this paper, we'll examine the case for switching to forecasting, look at where it fits into the evolving area of value stream management (VSM), and show you how to make the transition to forecasting easier.

Section 1

Traditional approaches to estimating

In software development, effort estimation plays an integral role in planning, prioritisation, decision making (feasibility), setting service level expectations, and making business commitments. While there are a variety of approaches, some of the most widely used are:

Expert guess

Expert guess, or expert opinion as it's also known, is simply an expert's estimate of how long a task will take or how big it'll be. Its accuracy typically depends on the expert's prior experience in a similar piece of work. Perhaps the least analytical and fastest approach to estimating, this method is primarily based on intuition or heuristics.

Story pointing

The most popular approach in use today is story pointing. Collaboratively, teams examine the work required and assign story points—a relative measure of the effort required to complete a backlog item.

Story points are assigned based upon relative sizing regarding the effort to complete the work: allowing teams to estimate quickly without having to specify the exact number of hours or days.

To use story points for planning, you need to know the team's velocity, which is simply the average of story points delivered over the past few iterations.

T-shirt sizing

An extension of story pointing, T-shirt sizing—as the name suggests—provides a relative measure of story size based on T-shirt sizes, for example, XS, S, M, L, or XL. A simpler method than story pointing, T-shirt sizing may be used by teams that are new to relative estimation, but this technique makes it difficult to measure velocity.

Section 2

The problem with estimating

Although approaches to estimating have progressed over the last decade (from hours to relative estimation), it remains notoriously difficult and ineffective.

Various agile practitioners have noted a number of drawbacks, resulting in a lively debate within the industry around the merits of estimating with some arguing that it's actively harmful.

From our perspective, each approach has its pros and cons but overall, we agree that estimating causes a variety of problems for agile organisations:

It's inaccurate and unreliable

Humans are inherently subject to cognitive biases and heuristics that drive our decisions. This means when estimating we tend to rely on shortcuts, such as assuming situations will mirror related events, rather than using rational information to make a more educated guess. Furthermore, we tend to underestimate the work required, even when there's no pressure to do so.

Estimates aren't effective in complex systems or those with many elements which may interact with each other in a disordered way

Part of the complexity of software development is that sometimes you don't know what you don't know. If you've done something in the past, you're better at estimating but the conditions in which they are doing the things are unique every time. So, you're forcing people to put numbers together on something they haven't done before, which forces the baseline, and then everything is compared to that baseline. It doesn't work.

Inaccurate estimates cause a ripple-effect of pain for individuals, teams, and leadership — including frustration, loss of credibility, lack of trust, (which leads to micromanaging to regain control), and decreased team morale.

It encourages bad behaviours

Estimates shift teams' focus onto output (e.g. velocity) rather than outcomes and delivering value. They may rush work or hide the true progress of projects, reducing visibility and the opportunity to intervene at a leadership level.

It undermines agile principles

Often, estimates become a measure of team productivity or commitments to hold people accountable to. This not only destroys morale but encourages teams to build padding into their estimates or try to game the numbers.

It interrupts flow

With estimates comes the desire for regular status reports to see if the team is adhering to its estimates, which in turn adds regular interruptions to the state of flow.

Estimating is time-consuming and ineffective

You may have a release planning where teams will stop for days or even weeks, just estimating how long things will take, and then, often those estimates don't hold true because people are using their availability bias (system 1) to estimate and only thinking in relation to effort, not duration. They don't take into consideration the whole system - delays, dependencies, blockers, incidents, changes of priorities, or circumstances. That's the unpredictable nature of knowledge work. So most of the time, the estimates don't hold true.

Section 3

Raise the bar with probabilistic forecasting

In a world where we now have access to rich streams of data, a far more effective alternative to estimating is probabilistic forecasting. Essentially, probabilistic forecasting uses past data to calculate (one of or continuously) the likelihood of future outcomes.

This includes possible futures that look like past events as well as the simulation of possible new futures that haven't yet occurred, with a date range and a probability for each.

This move from relying on intuition and faith to leveraging historical data to continuously simulate and run what-if analysis is far better suited to complex problems such as product development.

Forecasting also creates greater alignment with what's important to the customer. Teams and leaders can now have meaningful conversations around when work is likely to be delivered. This means a higher degree of confidence rather than managing the consequences of overly optimistic and biased estimates.

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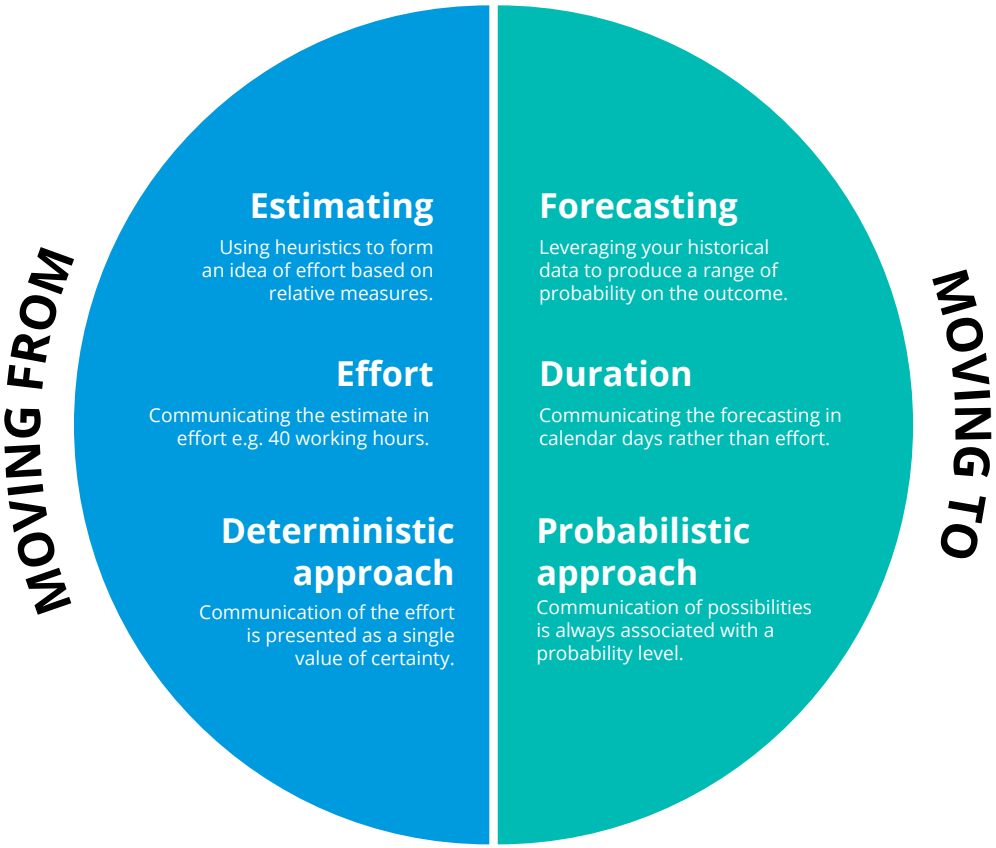


Introducing Monte Carlo simulation

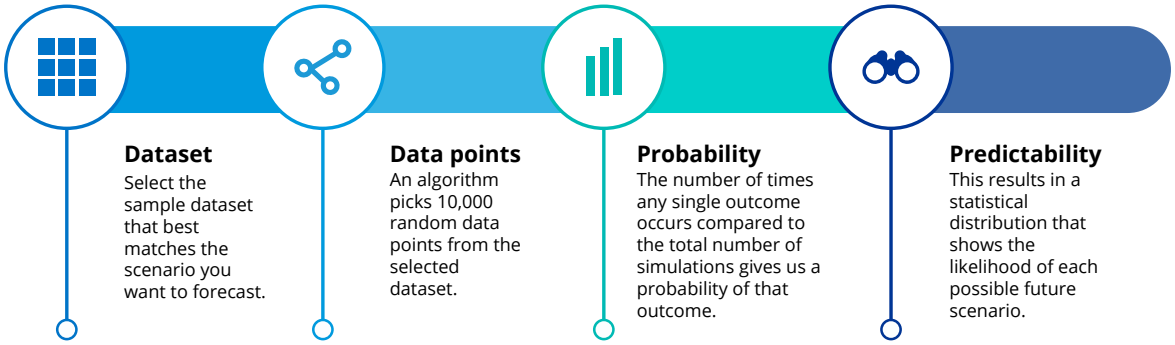
There are many methods of forecasting, but one that's gaining ground with lean and agile practitioners is Monte Carlo simulation.

In simple terms, this technique works by inputting historical performance data, such as throughput. An algorithm then runs through thousands of random simulations to predict probable outcomes (e.g. when a batch of work is likely to be completed or how much work would fit in a quarter). The results are presented as a range of possible outcomes and their associated probabilities.

Monte Carlo simulation offers a variety of advantages in agile projects. Firstly, the predictions calculated tend to be more realistic. Secondly, it gives organisations the choice to assess risk and choose a forecast that matches the nature of the work and the context in which it's being executed.

And thirdly, it allows the conversation to change from effort to duration. For example, posing questions like "I have a time box, how much can I get done?" or, "I have this batch of work, when is it likely to be done?", lead to statements such as "the team has an 85% chance of completing the release by 20 February."

PROBABILISTIC FORECASTING: How Does It Work



Dataset
Select the sample dataset that best matches the scenario you want to forecast.

Data points
An algorithm picks 10,000 random data points from the selected dataset.

Probability
The number of times any single outcome occurs compared to the total number of simulations gives us a probability of that outcome.

Predictability
This results in a statistical distribution that shows the likelihood of each possible future scenario.

Section 4

How forecasting fits into value stream management

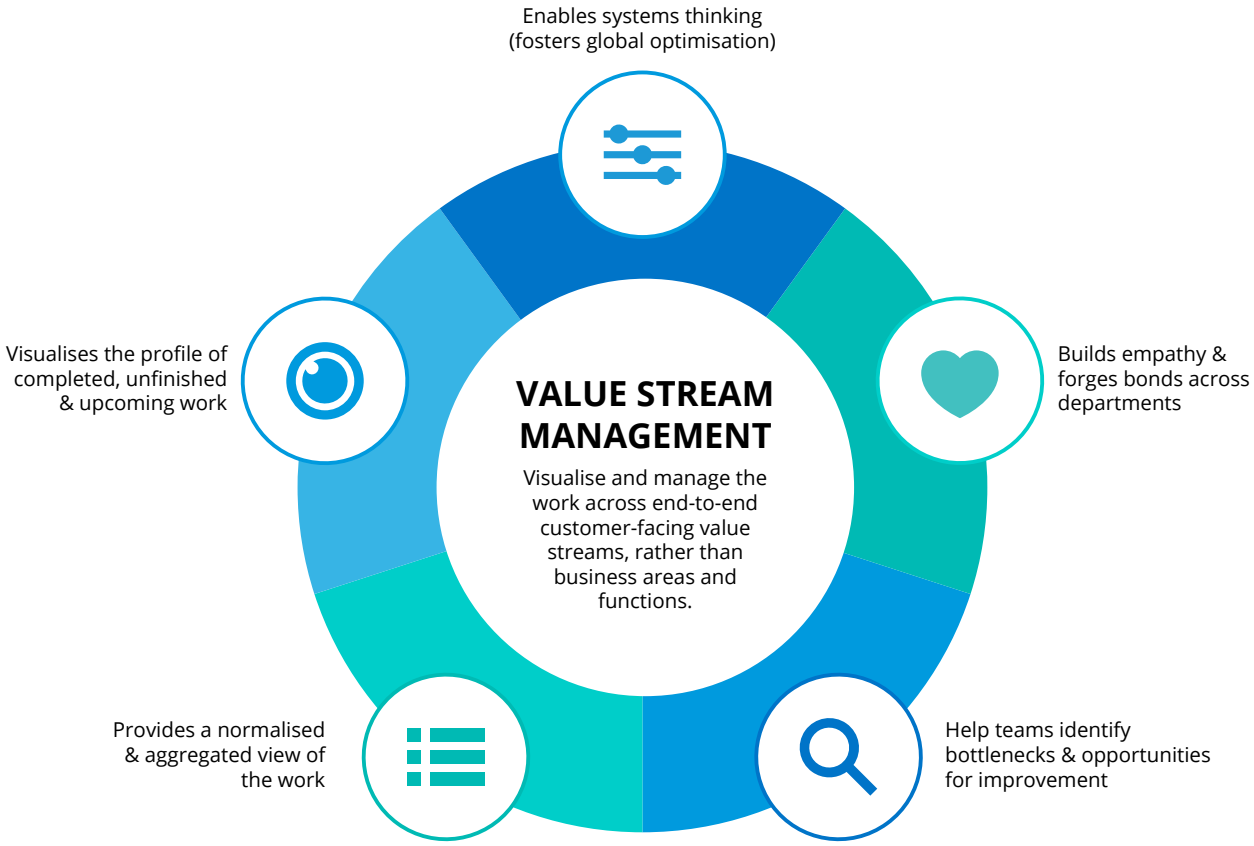
Forecasting predicts what's likely to happen soon, based on everything that's happened and is happening now. It requires continuous live data.

VSM—a new practice in software delivery—has been gathering pace over the last three years. At a high level, VSM looks at the end-to-end customer-facing value stream.

By focusing on value streams rather than business areas and functions, teams can eliminate waste and deliver greater value by viewing the software delivery lifecycle through the lens of the customer.

Since this goal is a significant objective of the agile philosophy, it makes sense that agile organisations should aim to progress towards VSM—and forecasting both supports and is supported by VSM.

Forecasting predicts what's likely to happen soon, based on everything that's happened and is happening now. It requires continuous live data. In a value stream setting, the data is already there for you—connected, normalised, aggregated, and ready to be sliced and diced. Therefore, value stream management platforms are one of the biggest enablers of forecasting.



Section 5

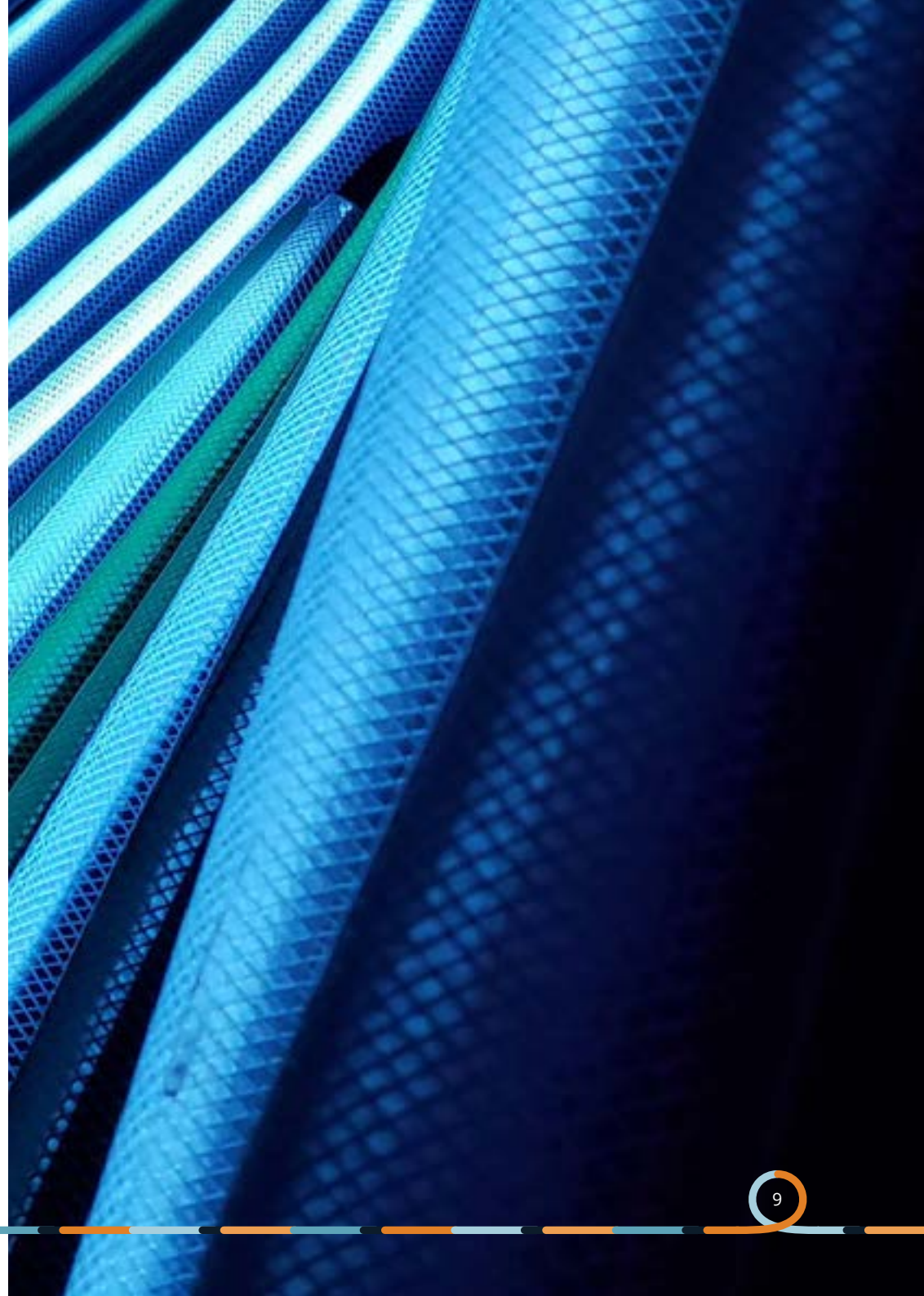
How automation is changing the game

If forecasting addresses so many of the drawbacks of estimating, why haven't more organisations adopted it? The truth is, until recently, forecasting was considered difficult and resource intensive.

While it was possible to prepare forecasts manually using Excel or Google Sheets, organisations needed the expertise to do it. Also, the process could take a full-time employee away from value-generating activities.

Today, new tools are available that can automate the process and you don't need to be an expert to use them. These 'plug and play' VSM platforms, such as Flomatika, support the pursuit of faster and more predictable value delivery.

With real-time, end-to-end visibility incorporated into product delivery flow, planning and prioritisation become easier and leaders can better understand what's really happening and steer the work at the team, program, portfolio, and enterprise levels.



Platforms like Flomatika give you the visibility needed to uncover hidden constraints, helping you to improve speed, increase quality, and optimise value. This level of clarity is a powerful catalyst for change, taking organisations and leaders to a point where they 'can do something about it'.

With a real-time view of activity, a VSM platform makes it easier to:

Increase efficiency and value delivery

- Find efficiencies, monitor productivity, and identify where intervention is required.
- Uncover the flow efficiency of end-to-end value streams and discover key sources of delay.
- Monitor the productivity of teams over time and take control of your speed to value.
- Understand the profile and the expected value of items on your backlog so that you know what to prioritise.

Gain visibility

- Keep an eye on the volume and profile of completed, unfinished, and future work at any point in time.
- Understand when teams are fit for purpose and meeting their customer service level expectations.

Diagnose when teams are accumulating flow debt

- Check if there are mismatches between demand and capacity.
- See how quickly you're moving through work and delivering value. Identify what your team needs to spend more or less time on for better outcomes.

Improve analysis

- Use trend analysis to determine if teams are improving, stable, or actually getting worse.
- Have a sense of the predictability levels of your teams for different types of demand.
- Perform contextual analysis of teams, projects, products, and services.

Analyse the profile of completed, unfinished, and future work

- See the impact of new approaches and interventions and show how teams and programs have progressed over time.

Conclusion

It’s time to make the shift to forecasting

The drawbacks of estimating are widely known. It’s often inaccurate and unreliable, encourages bad behaviours, undermines agile principles, interrupts flow, and isn’t effective in complex systems.

The solution is a shift from estimating to forecasting—changing the focus from effort to duration and moving from a deterministic to a probabilistic approach. Yet despite the advantages of forecasting in agile planning and prioritisation, many organisations persevere with estimating.

Until recently, forecasting was complex and resource intensive. But now, VSM platforms are automating the process, giving leaders greater accuracy and end-to-end visibility into product delivery flow. In particular, tools like Flomatika make it easier than ever to increase efficiency and value delivery, gain visibility, and improve analysis.

So, if you’re ready to make the shift to forecasting, we’re here to help. Contact us to arrange a free demo of Flomatika, and see how easy it is to raise the bar on delivery performance in your business.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About Elabor8

Elabor8 are industry-leading experts in business agility. With over a decade of experience in transforming the way digital organisations work and optimising their value chains, we know a thing or two about what it takes to achieve and sustain high performance.

Organisations need adaptive systems that meet the contextual needs of their teams. Also essential are collaboration and connection across the phases of the product development lifecycle. And teams that are inspired to learn and empowered to achieve.

We find efficiency improvements in processes and systems to give flexibility and remove barriers to business-wide agility. Our experienced consultants work from within, staying focused on the outcomes you need, for greater speed and responsiveness.

About Flomatika

Flomatika is a value stream management platform focused on helping mid-market and enterprise organisations pursue faster and more predictable value delivery.

Today, Flomatika provides real-time, end-to-end visibility into product delivery flow, helping clients understand what actually is happening and to steer the work at the team, program, portfolio, and enterprise levels. It generates actionable insights and surfaces hidden constraints hindering the ability to improve speed, increase quality, and optimise value.

This level of clarity and insight is a powerful catalyst for change, taking organisations and leaders to a point where they 'can do something about it'.