

WHITEPAPER

From Crawl to Run: A Practical Guide to Software Development Metrics

A Crawl/Walk/Run
Framework for
Building a Metrics-
Driven Culture

Executive Summary

Engineering leaders today face a persistent challenge measuring the business impact of substantial software development investments and course-correcting in real time.

At Allstacks, we've identified a recurring disconnect between strategic objectives and engineering outcomes across our customer base. Many organizations still lack the visibility to see where engineering time and effort truly go.

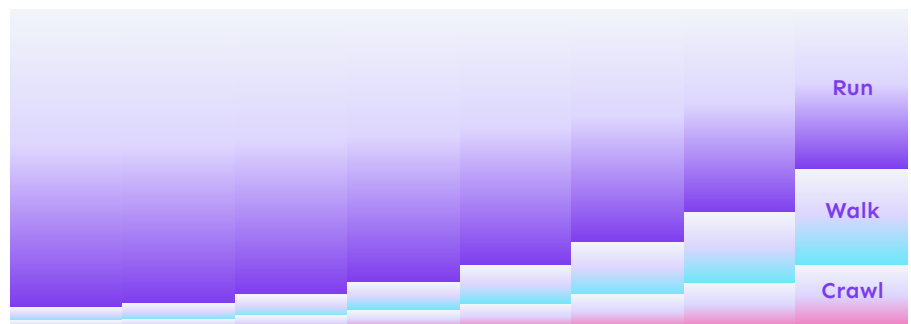
Without a structured approach to metrics maturity, teams fall into predictable traps, **like tracking everything but acting on nothing, focusing solely on vanity metrics, or missing the context to translate data into decisions**. As a result, core priorities get sidelined by firefighting, bottlenecks, and invisible work.

So, we developed Crawl/Walk/Run, a practical, scalable framework to help your engineering organization evolve its software development metrics approach without disrupting productivity.

Designed with flexibility in mind, our framework provides guidance to:

- Identify your current stage and overcome common pain points
- Establish foundational visibility without overwhelming your teams
- Shift toward data-informed planning and prioritization
- Connect engineering metrics to strategic business outcomes
- Apply best practices across teams of all maturity levels

We'll show you how to gain reliable insight into engineering investment, forecast delivery with greater precision, and align technical execution with business priorities while maintaining the quality standards your customers expect.



The Crawl Phase

Establishing Foundational Visibility

The Crawl phase marks the beginning of your metrics-driven culture. Rather than overwhelming teams with complex dashboards and KPIs, this stage focuses on creating clear baseline visibility and building trust in the data. The goal is to build early momentum with metrics that matter.

Key Elements of the Crawl Phase

This initial stage is about clarity and understanding where you are today. It builds a foundation for improvement without requiring perfection.

Choose 3-4 Key Metrics

Start with a small set of meaningful indicators that reflect your organization's current priorities. We recommend measures of velocity (e.g., cycle time, throughput) and quality (e.g., escaped defects, bug rate). Resist the urge to track everything and instead, focus on what's immediately actionable.

Baseline Current Performance

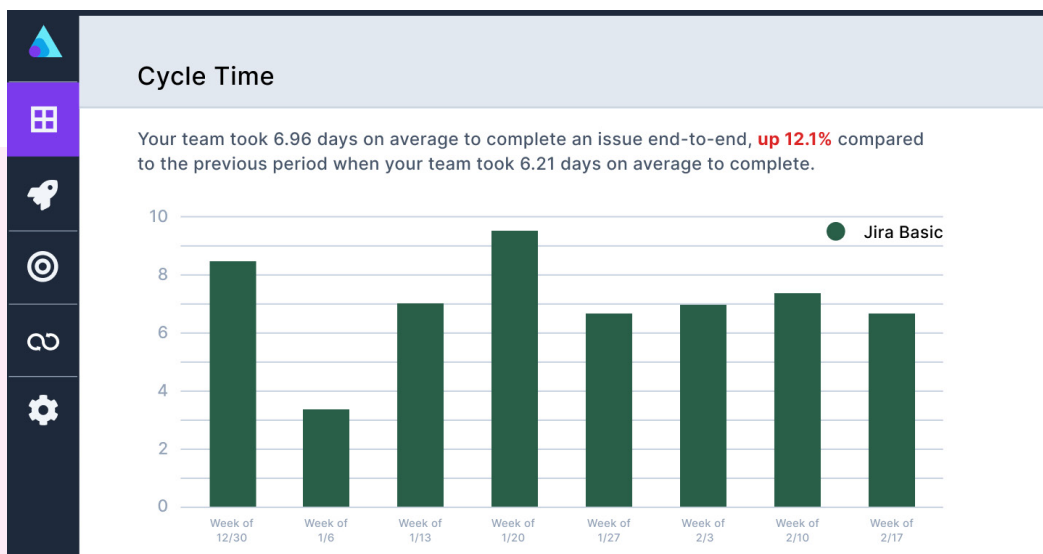
Work with teams to define what "normal" looks like today. Collect historical data where available and visualize performance trends to spot bottlenecks, outliers, and variability, even before you begin improvement initiatives.

Set Modest Goals

Don't over-engineer change at this stage. Establish just 2-3 short-term objectives that create early wins and momentum. This could be as simple as reducing pull request (PR) cycle time by 10%.

Create Visibility Without Overload

Leverage Allstacks dashboards to centralize and surface key insights. Our visualization capabilities help your teams see patterns they couldn't identify before. But above all, make data easy to access, meaning no spreadsheets or manual reporting.



The Crawl Phase

Establishing Foundational Visibility

Common Challenges in the Crawl Phase

While the Crawl phase emphasizes simplicity and clarity, organizations may still face several obstacles as they work to establish their metrics foundation, including:

Data Quality Issues

Inconsistent tracking across tools and teams can create skepticism about metrics validity.

Resistance to Measurement

Team members may be concerned that metrics will be used punitively rather than constructively.

Analysis Paralysis

You might experience uncertainty about which metrics matter most given your specific business context.

Lack of Context

Teams often struggle to connect engineering activities to business priorities.

Allstacks addresses these challenges through intuitive dashboards that integrate with your existing tools, providing immediate visibility without disrupting team workflows. By connecting various data sources, Allstacks creates a unified view that helps you establish trusted baselines quickly.

The Crawl Phase in Practice

Organizations that apply Crawl phase principles consistently achieve tangible improvements. For example:

ShareFile

utilized Allstacks dashboards to quickly achieve a

32% 

reduction in cycle time and a

25% 

decrease in pull request response time.

Early wins like these create momentum and demonstrate the value of metrics-driven decision making. Keep in mind that success in the Crawl phase means building trust in the data, establishing shared language around metrics, and empowering conversations based on facts, not assumptions. time.

The Walk Phase

Building Predictability

After establishing foundational visibility, the Walk phase shifts your approach from reactive observation toward proactive improvement. Here, you'll deepen your use of metrics, turning raw data into actionable intelligence.

Key Elements of the Walk Phase

Once your teams are comfortable collecting and discussing data, it's time to use what you've learned in the Crawl phase to embed metrics-driven decision making into everyday operations. Here's what that looks like in practice:

Expand Your Metrics Portfolio

Organizations in the Walk phase move beyond basic velocity and quality indicators to track more nuanced metrics such as:

- **PR cycle time:** The total time a pull request spends in all stages of the development pipeline, measured from the first code commit to when a pull request is merged or closed.
- **Rework percentage:** The proportion of code or tasks that need to be redone or corrected after initial development.
- **Test coverage:** The percentage of code that is executed by automated tests.
- **Unplanned work ratios:** The proportion of work that is not part of the original plan or backlog.

This expanded view provides deeper insights into delivery effectiveness without overwhelming teams with excessive tracking.

Incorporate Qualitative Feedback

Numbers alone tell an incomplete story. Successful organizations pair quantitative data, with insights from engineering retrospectives, manager 1:1s, and internal developer experience surveys. Connecting qualitative feedback to the data visualized in Allstacks ensures metrics reflect on-the-ground realities and provides a more holistic understanding of team performance.

Compare Against Industry Benchmarks

Use Allstacks' deployment frequency, lead time for changes, change failure rate, and mean time to recovery (DORA) metrics framework and external benchmarks to understand how your performance compares to industry standards. These comparisons aren't judgment mechanisms but are instead used to set realistic, meaningful improvement targets.

Embed Metrics in Team Rituals

Leading organizations integrate metrics discussions into their routine workflows. This can look like reviewing Allstacks dashboards during standups or weekly planning meetings, and doing monthly deep-dives that help teams identify trends and take ownership of improvements.

Track Resource Allocation

With tools such as Allstacks' Portfolio Insights, you gain visibility into whether engineering resources align with strategic priorities. This capability answers vital questions like: Are top initiatives receiving sufficient engineering focus? Are teams spread too thin across too many competing priorities?

The Walk Phase

Building Predictability



Figure A

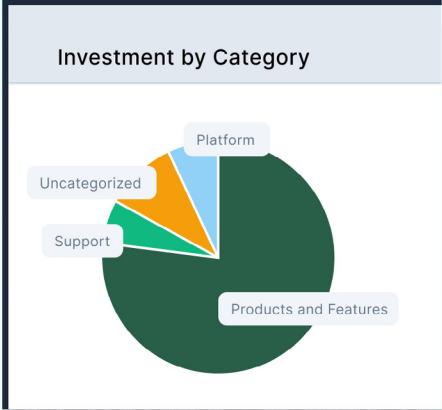


Figure B (Perceived time investments)

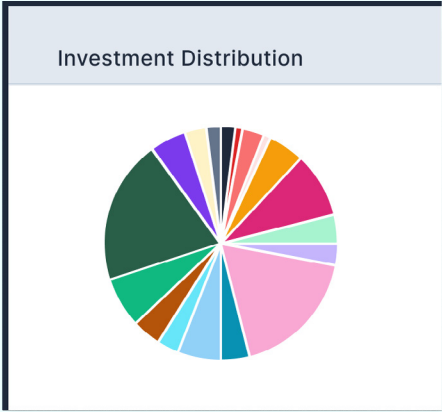


Figure C (Actual time investments)

Strategic Value of the Walk Phase

Organizations progressing to the Walk phase typically experience:

Enhanced Predictability

Clear metrics enable your teams to anticipate delivery challenges and reduce disruptions.

Improved Alignment

Metrics connect directly to strategic goals, clearly demonstrating how engineering efforts contribute to business objectives.

Data-Informed Decision Making

Regular use of actionable insights supports a culture of continuous, informed improvement.

Walk Phase Outcomes and Organizational Impact

At this stage, your teams become empowered with deeper visibility and confidence to take ownership of their processes and outcomes. Predictability and alignment become not just possibilities, but actionable realities.

Engineering teams that successfully align resources through clear, data-driven prioritization can reduce wasted effort, unlock significant productivity improvements, and drive greater organizational efficiency.

The Run Phase Strategic Advantage

In the Run phase, metrics evolve from operational measures into strategic assets, directly guiding organizational alignment, resource allocation, and investment decisions. Your engineering leaders now use data proactively, confidently linking technical initiatives to business outcomes and strategic priorities.

Indicators of Run Phase Maturity

Organizations demonstrating Run phase maturity typically excel in the following capabilities:

Connecting Engineering Metrics Directly to Business KPIs

You clearly tie engineering metrics to organizational key performance indicators (KPIs) like feature adoption, revenue growth, customer retention, and market responsiveness, creating full transparency about the impact of technical initiatives.

Investment Intelligence and Visibility

You go beyond basic capacity planning by quantifying actual engineering effort against strategic initiatives. Teams can clearly identify which projects consume disproportionate resources, uncover stealth work diverting focus, and measure opportunity costs effectively.

Prioritization and Strategic Resource Alignment

Metrics validate prioritization decisions, which means strategic initiatives receive sufficient focus. Data helps reduce context switching, so critical work isn't blocked by distractions or hidden underinvestment.

Leveraging Predictive Analytics for Strategic Planning

You utilize Allstacks' advanced forecasting capabilities to anticipate project timelines, identify potential scope creep, and proactively address risks, shifting engineering from reactive firefighting to proactive management.

Institutionalizing a Data-Driven Culture

Metrics are embedded into team processes and organizational culture, and have become integral to planning, execution, and retrospectives. Data-informed decision-making becomes a shared organizational standard rather than an occasional practice.

The Run Phase

Strategic Advantage

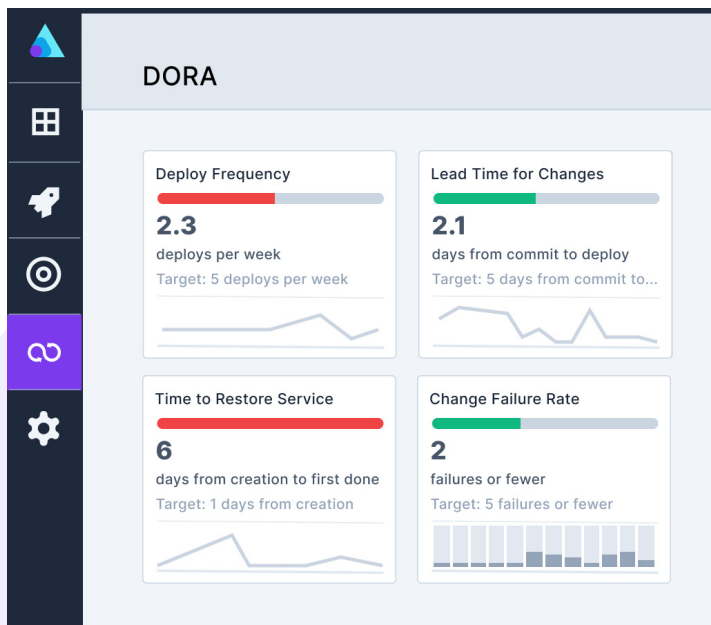
Strategic Value of the Run Phase

Organizations at this advanced stage experience seamless integration of engineering insights into strategic planning processes. This empowers leaders to:

Make informed, proactive decisions.

Continuously optimize resources and investments for maximum impact.

Drive alignment between engineering and business goals.



Velocity / Throughput:

- Jul 24: 3,000 total issues
→ Jan 25: 9,000 total issues
- A majority of this was test execution, suggesting improved test automation coverage, greater testing throughput, potentially more comprehensive quality assurance processes.
- Story, bug epic & task are relatively stable (avg. approx 2k items)

Bug Creation:

- The highest number of bug reports occurred in July 2024 and October 2024, with around 300 issues each month.
- There's been a general downward trend since October 2024 (34.5%) suggesting an improvement in quality.
- (Patient, appointment and Provider had the most created bugs).

Point Allocation:

- When looking at items across the company, there are varying point systems being used.
- There is also inconsistency in the point completion, 3's are taking longer than 5's and 8's.
- Recommendation: get the org to a uniform pointing system to help with sizing and predictability.

The Run Phase

Strategic Advantage

Recommendations for Staying Ahead of Common Challenges

To avoid common pitfalls, even highly mature organizations should:

Balance Metrics with Innovation

Make sure measurement supports innovation, creativity, and calculated risk-taking.

Foster Cross-Functional Alignment

Maintain a shared language and common understanding of metrics between product, engineering, and business teams.

Regularly Refresh Metrics

Routinely update and refresh your metrics to ensure continued alignment with evolving business strategies and technological trends.

Adapt Strategically

Effectively apply metrics frameworks to guide organizational pivots or changes in strategic priorities.

Allstacks supports these efforts with intuitive executive dashboards that clearly link engineering team performance, resource allocation, and strategic outcomes, enabling continuous metrics refinement as your organizational priorities evolve.

Expanding the Metrics Mindset

The Crawl/Walk/Run framework isn't meant to be a one-time fix. It's a repeatable, scalable model that flexibly adapts to diverse teams and initiatives across your engineering organization.

Strategic Approach to Metrics Expansion

A mature approach to software development metrics recognizes that different parts of the organization may be at different stages simultaneously and can be adapted across diverse contexts without sacrificing clarity or consistency. Here are some ways to expand your organization's metrics mindset:

Tailor Metrics to Teams & Initiatives

Different engineering teams require distinct KPIs based on their objectives. A platform team's success looks different from a product team's success, and infrastructure work demands different measurement approaches than customer-facing features. Our framework provides flexibility to meet teams where they are.

Extend Across Domains

Apply software development metrics across core development functions to quality assurance (QA), DevOps, support engineering, technical documentation, and enablement teams. Each domain can benefit from the same progressive approach by starting with baseline visibility, building predictable delivery, and ultimately connecting to strategic outcomes.

Normalize Continuous Iteration

Utilize the framework as a repeatable playbook for continuous improvement. Teams regularly revisit Crawl for new capabilities, Walk to deepen maturity, and Run to optimize strategic outcomes. This helps metrics evolve sustainably.

Support Varied Maturity Levels

Provide appropriate training, resources, and expectations to teams based on their current maturity level. Avoid the common pitfall of holding all teams to Run phase standards when some may still be building foundational visibility.

Figure A
The shorter bars indicate the teams with shorter elapsed time likely have better definition of work, better work breakdown, and tighter overall process controls vs the teams with higher bars.

Figure B
Bar height corresponds to the number of work items returned for quality issues per team. Teams with lower values demonstrate stronger quality control.

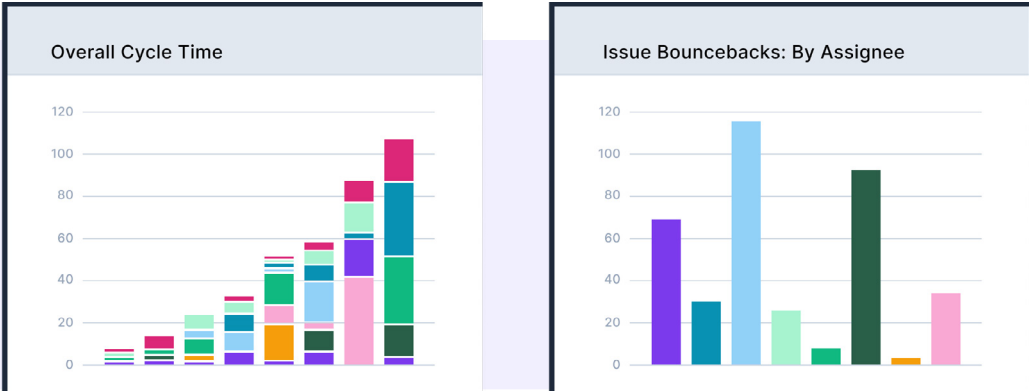


Figure A

Figure B

The Allstacks View

The Path to Engineering Investment Clarity

Building a metrics-driven engineering organization doesn't happen overnight. But with the right framework, tools, and approach, you can create lasting transformation in how engineering investments translate to business value.

Allstacks' Software Engineering Intelligence Platform

Supporting each phase of your software development metrics journey:

In the Crawl phase, we provide immediate visibility into engineering activities without disrupting existing workflows, helping your teams establish baseline metrics and build trust in the data.

During the Walk phase, our customizable dashboards and portfolio insights enable proactive decision-making about resources and priorities, transforming reactive responses into predictable delivery.

For organizations in the Run phase Allstacks delivers the investment intelligence needed to connect engineering activities directly to business outcomes, creating a strategic advantage through data-driven alignment.

When properly implemented with the right metrics framework, engineering intelligence creates a powerful competitive advantage. Teams deliver more value faster while maintaining visibility into where time, money, and effort are actually going.

As you begin your journey toward metrics maturity, remember three principles:

You can't improve what you don't measure.

Start small, stay focused, and scale intentionally.

Don't run before you crawl.

With Allstacks as your partner, you're not just collecting data, you're building a smarter, more resilient engineering organization that maximizes investment and delivers measurable business impact. Our platform helps you move from scattered insights to strategic foresight, one step at a time.

Let's bridge the gap between engineering investment and impact. Together.

Appendix

Frequently Asked Questions

Q: How long should each phase take?

A: There's no fixed timeline. Most teams spend 1–3 months in Crawl, 2–4 months in Walk, and enter Run once a data culture is embedded. The progression varies based on team size, organizational complexity, and existing metrics maturity. Revisit phases as needed because metrics maturity is an ongoing journey, not a linear progression.

Q: What's the most common mistake teams make when implementing metrics?

A: Tracking too much too soon. Focus on quality over quantity and start with just a few meaningful metrics that address specific organizational pain points. Overwhelming teams with excessive tracking often leads to metrics fatigue and abandonment. The Crawl phase intentionally limits scope to build sustainable practices.

Q: How do I get leadership buy-in?

A: Show how metrics align with business goals. Connect engineering KPIs to delivery predictability, resource efficiency, and customer impact. Demonstrate early wins that matter to executives, such as improved forecasting accuracy or better allocation of resources to strategic initiatives. Allstacks' executive dashboards help translate technical metrics into business impact.

Q: What tools or platforms do I need?

A: Allstacks supports every stage of this journey, from visualizing foundational metrics to tracking investment intelligence. Our platform integrates with your existing development tools, requiring no changes to team workflows or additional instrumentation.

Q: What if different teams are at different stages?

A: That's expected and appropriate. Use Crawl/Walk/Run as a flexible model to meet teams where they are and scale gradually. Many organizations have platform teams at Run while newer product teams may still be in Crawl. The framework provides a common language for discussing progress while respecting different contexts.