

DevOps Vital Signs:

Three Keys to Mastering the Metrics of Digital Transformation

In an increasingly digital world, the success of your business depends on how well you produce code.

If your business produces code well, you'll create consistently awesome customer experiences on the front end while optimizing decision-making and supply-chain value on the back end. Lag behind your competitors in code production, and you'll inevitably lose your customers, profits and brand equity.

But what does it mean to "produce code well"? And how can you measure that production?

Just as important, how do you act upon what those metrics tell you so you can more aggressively improve the ability of your business to compete against your most innovative and disruptive rivals?

The answers to these questions are critical to you as the leader of a digital business—because they are the vital signs of digital business health.

High performers vs. low performers, 2017¹

46x

more frequent
code deployments

440x

faster lead time
from commit to
deploy

96x

faster mean time
to recover from
downtime

5x

lower change
failure rate
(changes are 1/5
as likely to fail)

When it comes to digital transformation, differences in metrics between high and low performers are highly significant.

What digital winners do

Digitally successful businesses are typically most recognized by their externally visible competitive advantages: innovative mobile app features, personalized shopping experiences, attractive pricing enabled by exceptionally efficient supply chains and the like.

What universally underlies these externally visible advantages is excellence at producing the code that enables those advantages.

That excellence—the ability to “produce code well”—has several very specific dimensions:

- **Speed.** Digitally successful businesses are digitally agile. By producing new and updated code quickly and frequently, they achieve rapid time to market and respond immediately to changing market requirements—including the innovations of their competitors. Added efficiency enables them to keep costs down as they outperform the competition.
- **Quality.** Digitally successful businesses have a high level of confidence that their code will reliably do what it was intended to do—even as they accelerate continuous code delivery. This reliability helps ensure consistently positive customer experiences.
- **Safety.** Digitally successful businesses mitigate code-related risk in several ways—including cybersecurity vulnerability testing, compliance validation and ready rollback in the event a code update unexpectedly creates problems in production.
- **Alignment.** Digitally successful businesses consistently put first things first, prioritizing their resources based on what will generate the most business value in terms of customer engagement and/or critical back-office processes.

Digitally successful businesses achieve these attributes in several ways. They build cultures that support, stimulate and inspire excellence. They adopt processes and practices that promote better workflow and collaboration. They give their DevOps teams the tools they need and adaptively integrate those tools into end-to-end pipelines. They also automate as pervasively as possible to drive latency, manual inefficiencies and error out of their continuous delivery pipelines.

But every business is building culture, hiring smarter and automating. If you want to differentiate your company's ability to produce code, you must know where you stand, where you most need improvement and whether the measures you take to achieve that improvement are paying off or not.

And to do all of that, you must have the right metrics.

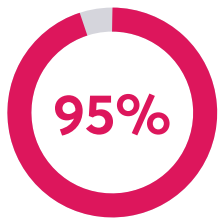
Metrics that matter for digital success

A fundamental principle of business leadership is that you can't improve what you don't measure. As IT organizations have broadly embraced disciplines such as agile, Lean, DevOps and continuous delivery, a wealth of insight has become available on the specific metrics you can use to assess your own organization's performance relative to these attributes.

Below, you'll find a sampling of the metrics available to you as you seek to ensure the competitive viability of your organization in a global digital marketplace characterized by accelerating innovation and change.

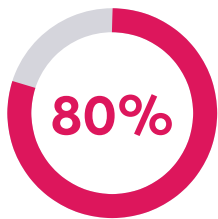
Winning at Speed

Reduction in manual process steps



Winning at Quality

Improvement in overall test coverage



Speed

Digitally successful businesses are able to do in minutes what it may take their competitors days to do, indicating that speed metrics can highlight "low-hanging fruit" where you can readily achieve substantial performance improvements.

In fact, high performers use automation 25-35 percent more than their poorer-performing peers.²

Metrics to watch can include:

- **Release cycle time.** How long does the end-to-end process take from requirements to code in production?
- **Task completion times.** How long does it take to complete specific steps in the process, such as staging release deployment or executing unit tests?
- **Release idle/wait time.** How much latency occurs between each phase in the release process—and where does it chronically occur?
- **Automation.** What percentage of tasks are still being performed manually?

Quality

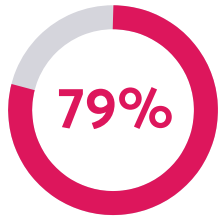
Effective continuous delivery leverages automation to safeguard quality and provides DevOps leaders with granular, actionable insight they can use to improve processes and pinpoint opportunities for additional training/up-skilling.

Metrics to watch can include:

- **Categorized failure rates.** How often does new code create problems in production—and what types of coding shortfalls are most common?
- **Rework.** How much staff time is spent on rework or unplanned work rather than creation of new digital value?
- **Risk mitigation.** How thoroughly is code tested for defects, vulnerabilities, etc. prior to go/no-go release decision?

Winning at Safety

Reduction in critical and high security vulnerabilities



Winning at Alignment

Enhancement in app revenue from on-time delivery



Three keys to mastering the metrics of digital transformation

1.

Use automation and toolchain integration to capture metrics.

There has been a lot of discussion in the industry about building quality and security into the continuous process rather than trying to fix it after the fact. The same is true of metrics. You can't effectively utilize metrics if you don't effectively capture them, and you won't effectively capture them unless that capture is built directly into your environment.

One way to ensure effective capture is automation. When an operation is automated, it becomes inherently self-measuring—because all of its measurable parameters are captured within its own log files or their digital equivalents. Manual operations, on the other hand, often escape measurement because they are not inherently captured via digital means.

By the same token, you're most likely to completely capture metrics across your entire environment if all tasks and tools across that environment are well integrated and orchestrated. If this integration is too brittle, however, you'll wind up having to do maintenance work every time you modify your toolchain so metrics from whatever you modify get properly funneled into your metric capture mechanism. Or,

Safety

Market leaders ensure safety-at-speed in the context of industry regulations and the risk tolerance of the business regarding data breaches, service outages, etc.

Metrics to watch can include:

- **Mean time to repair (MTTR).** How quickly can you restore service levels when a problem occurs?
- **Security shift left.** How much security testing is done within the DevOps/CD process rather than as vulnerability/penetration testing in production?
- **Compliance auditability.** Is the reporting required for audits automated, unified and complete?

Alignment

Digitally astute companies use their apps in production as "sensors" that continuously generate high-value feedback, which helps drive continuous improvements in customer engagement.

Metrics to watch can include:

- **Release frequency.** How often do you successfully deploy new code with new features?
- **Prioritization.** How consistently are high-value code changes prioritized and low-value changes deferred when appropriate?
- **Customer experience.** Does the app in production fulfill expectations for performance, reliability, ease of use and other measurable parameters?

more likely, that work won't get done right away—undermining the completeness and accuracy of your metrics.

A more accommodating, flexible approach to end-to-end orchestration better ensures full metrics capture. This could be referred to as “automating the automation.”

2. **Employ metrics selectively and judiciously.**

Well-automated, well-integrated toolchains can generate a wealth of metrics. But you must be careful about using the right metrics for the right reasons. Different metrics will be more important at different stages of your maturity—and all metrics should be viewed in the context of your particular business and industry.

For example, it may be quite tolerable—or even necessary—during a culture shift to accept a higher level of rework based on feedback from customers and internal users. This is because more iterative engagement is often characterized early on by that more frequent rework. As your teams become more mature in the way they engage with and listen to the business, rework should lessen even as deliverables start to align more closely with requirements.

Similarly, companies that lag significantly behind disruptive competitors in terms of mobile engagement may tolerate service impairments caused by code changes—especially if a relatively low percentage of customers engage via mobile—because it's more important to “catch up” quickly than it is to achieve multi-9 availability. Then, as such a company gains mobile parity, the focus can shift on lower defect rates and higher uptime.

Companies that get especially efficient at delivery may even embrace a “fail fast” strategy where error rates are less important than how quickly they can find and remediate problems. These organizations focus on quick cycle times and efficiency more than how many mistakes they make.

In other words, one size does not fit all when it comes to digital performance metrics. Good digital leaders focus on the right metrics at the right time for the right reasons.

3. **Champion a culture of metrics-based communication, collaboration and decision-making.**

Effective leaders of digital transformation don't just use metrics to make management decisions about resource allocation, skills training, retooling and process change. They also engage their teams in metrics-based discussions by sharing, socializing and publishing metrics as appropriate. This broad propagation of metrics-based insight helps transform the culture from a top-down “I found out X, so I'm telling you to do Y” to a more empowered and intellectually engaging “Here is what we know about our progress toward goal Z—what do you think?”

To effectively lead digital transformation, you'll also need to think about how you communicate metrics upwards. Executives and other line of business managers with P&L responsibilities have historically had little visibility into the inner workings of IT. That's no longer acceptable in a world where what happens in IT has a direct and profound impact on business performance. The right metrics delivered in the right format can help bridge this historical communication gap between those who budget for technology and those on whom those budgets are spent.

This kind of metrics sharing requires more than just capturing raw data. It also requires analytics, visualizations, dashboards and other tools that let stakeholders at all levels quickly and accurately understand current conditions, historical trends and progress relative to well-defined goals.

Conclusion

Digital transformation is just that—a transformation. However, while the specifics of digital radically diverge from preceding models in many ways, certain principles of business are universal to digital, industrial and even agricultural markets. You have to consistently fulfill the expectations of your customers. You have to be able to get to market quickly. You have to mitigate risks to your profits and reputation. And you have to know your cost of goods and drive it down wherever possible.

Good leaders have many tools for achieving these ends. They have their broad personal experience and well-honed instincts. They have strong communication and coaching skills. They have a contagious drive to succeed.

But to successfully lead digital transformation, you also need facts. And those facts come in the form of metrics from your “software factory.” Armed with those metrics, you can make better decisions—and more effectively communicate the rationale for those decisions to others.

To be an effective transformation leader, you need complete, accurate and timely metrics. Those metrics are the vital signs that reveal the health of your organization—and what you must do to improve and win.



**\$4.7
Million**

Low to medium performers with 250-person IT organizations can recapture \$4.7 million in staff hours for productive, higher-value work by applying the right tools and discipline.³

CA Continuous Delivery Director

CA Continuous Delivery Director empowers you to more effectively lead your organization's digital transformation through holistic release pipeline planning, orchestration and analytics. Among its many high-benefit capabilities is the ability to quickly and easily access the metrics you need to aggressively optimize your digital pipeline and maintain end-to-end business-level visibility into activities and trends across your “software factory.”

Key features include:

- Tracking, reporting and analytics for pipeline optimization
- Full visibility and reporting on what features and fixes are being delivered when
- Clear identification of release bottlenecks in the pipeline
- Early-warning risk signals based on configurable KPIs
- Integrated feedback loops at every stage, including performance in production
- Enhanced collaboration mechanisms to improve DevOps culture

CA Continuous Delivery Director helps you improve your organization's digital performance by delivering complete, accurate and up-to-date metrics to all process stakeholders—enabling your entire team to improve speed, efficiency, quality and security with every release.



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1 Puppet and DORA, "2017 State of DevOps Report," June 2017, <https://puppet.com/resources/whitepaper/state-of-devops-report>

2 Ibid

3 DORA, "Forecasting the Value of DevOps Transformation," June 2017, <https://devops-research.com/roi/>

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