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Empowering Engineering Effectiveness: Strategies For Maximizing Output And Minimizing Waste

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FORRESTER OPPORTUNITY SNAPSHOT: A CUSTOM STUDY COMMISSIONED BY THOUGHTWORKS | JULY 2023

Engineering Efficiency Is A Universal Requirement

As customer expectations increase and technology evolves, it has become more important than ever to deliver high quality software experiences in real time. Business agility is critical to competing in the modern business landscape, but this can be inhibited by inefficient engineering teams. Quality software development has become a requirement across all industries, and quality is increasingly synonymous with agility.

This study commissioned by Thoughtworks, explores the importance of engineering effectiveness in driving the flexibility and performance of the business. Forrester surveyed 403 software engineering decision-makers across a range of countries and industries to understand what their organizations' practices look like today, the challenges they face, and the benefits effective engineering can deliver.

Key Findings

Business agility is more important than ever, and organizations require their engineering teams to keep up: 87% of decision-makers said engineering is crucial to driving business agility.

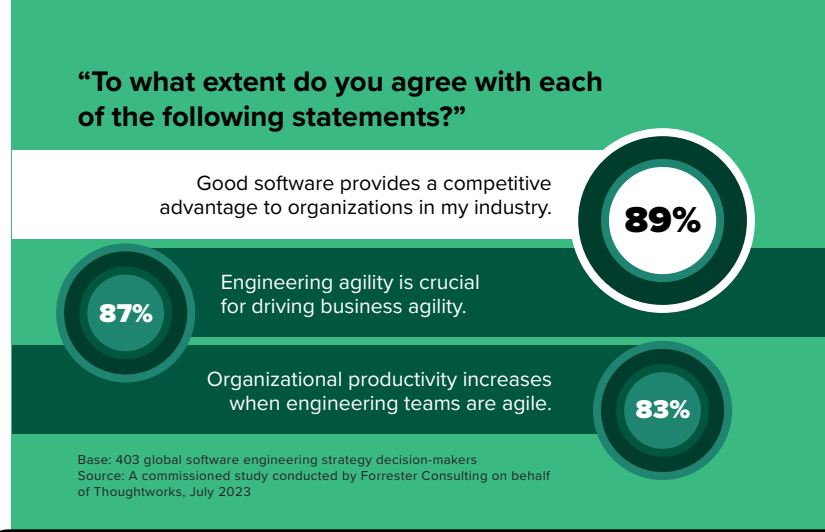
Despite this, **59% of organizations have insufficient engineering agility today.** They struggle aligning business strategy, finding and retaining top talent, and implementing modern tech stacks.

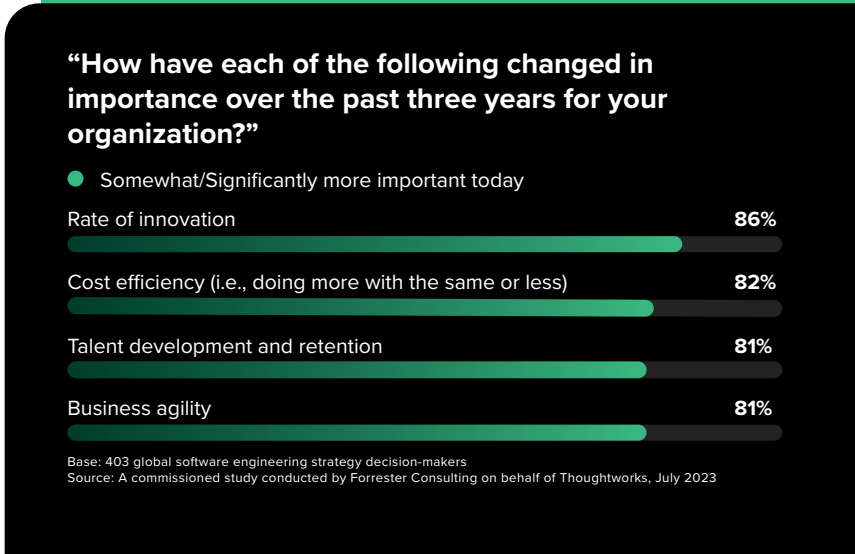
Decision-makers agreed that improving business agility can have a massive impact on performance, employee experience, and the ability to digitally transform engineering technology.

Aligning Engineering Effectiveness To Business Strategy Is Vital For A Healthy Business

In order for organizations to keep up with rapidly evolving customer demands and changing market conditions, business agility must be at the forefront of their strategies. Eighty-one percent of respondents stated business agility has become significantly more important during the past three years. Nevertheless, this progression cannot come at the expense of innovation, cost efficiency, or employee experience, as these are simultaneously becoming increasingly crucial.

Almost 90% of leaders agreed that engineering agility is essential to driving business agility. When engineering does not keep up with needs of the business, organizations are in danger of being surpassed by their more responsive competitors.





Engineering Effectiveness Is Driven By Three Key Tenets

To drive engineering effectiveness, decision-makers must focus on three core components of their companies' engineering organizations:

1. **Business: Aligning engineering processes and strategies with the business.** More than three-fourths of respondents agreed that aligning software development priorities with business strategy is key to driving business agility.
2. **People: Promoting developer experience.** Without the right talent in place, organizations will struggle to execute their engineering strategies. The majority of engineering leaders cited that improving talent development and retention is critical for driving business agility.
3. **Technology and processes: Ensuring technology stacks and processes are set up to deliver quality outcomes while maintaining security.** Equipping developers with the right tools and engineering processes is essential to maintaining engineering effectiveness and agility.

"From an engineering perspective, how important are each of the following in driving business agility for your organization?"

(Showing percent "Very important" and "Critical")

Base: 403 global software engineering strategy decision-makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Thoughtworks, July 2023

Adoption Of Core Engineering Practices Is Low

Aiming to improve engineering effectiveness, organizations have looked to make enhancements in their engineering processes. But **less than half of organizations have adopted fundamental engineering practices like DevOps, test-driven development, and cloud-native technologies.** And less than a third have adopted basic processes like formal code reviews and continuous delivery.

Low adoption spans across all three key tenets of engineering effectiveness: from goal alignment (business) to developer portals (people) and cloud-native technology (technology).

More than half of **the leaders surveyed said their organization's engineering agility is not where it needs to be**, which could potentially lead to poor business agility and risk of falling behind the competition.

"Which of the following practices has your engineering organization adopted?"

Base: 403 global software engineering strategy decision-makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Thoughtworks, July 2023

Business Challenges: Engineering Struggles To Align Goals And Collaborate

Overall, 40% of decision-makers said their organization has trouble aligning engineering goals with business objectives. This creates friction in driving agility and effectiveness. Our study found that those that struggle to align these goals are eight times more likely to also not have engineering agility where it needs to be.

Poor collaboration and organizational silos often underlie this misalignment. Among those who said engineering and business goals don't align at their organization, 83% said their company also struggles with poor communication and collaboration between engineering and other parts of the business, while an additional **59% said engineering does not have enough of a seat at the table when it comes to strategic decision-making.**

40%

of respondents said their company has trouble aligning its engineering organization's goals with the goals of the business.

Respondents from organizations that have trouble aligning business and engineering goals are more than 8x more likely to say their engineering is not as agile as it needs to be.

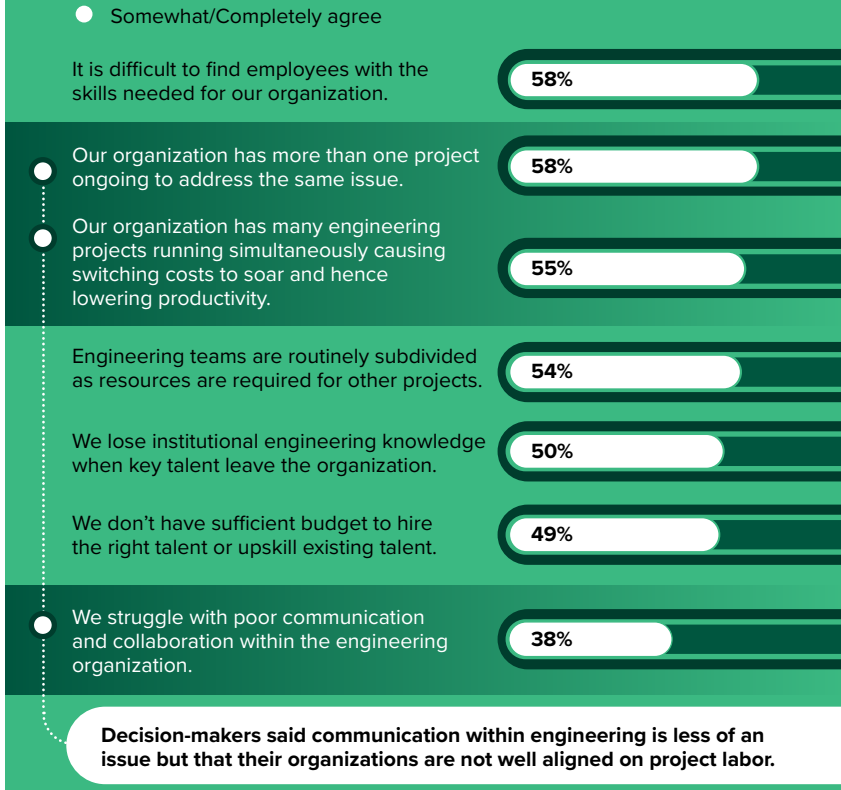
Base: 403 global software engineering strategy decision-makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Thoughtworks, July 2023

People Challenges: Communication And Talent Acquisition Within Engineering May Cause Ripple Effects

Poor collaboration and communication, and difficulties finding the right talent are significant underlying problems with engineering effectiveness. While leaders did not highlight their organization's communication and collaboration ability within engineering as an issue (only 38% said their company struggles in these areas), many pointed out that their organizations often duplicate efforts and poorly allocate resources. **Fifty-eight percent of respondents said their organization has more than one ongoing project to address the same issue.**

On top of this, talent has become a large challenge. Over half of respondents reported it is difficult to find employees with the skills needed for their organization and 49% said they don't have sufficient budget to hire the right talent or upskill existing talent.

"To what extent do you agree with each of the following statements regarding issues that may limit engineering agility at your organization?"



Decision-makers said communication within engineering is less of an issue but that their organizations are not well aligned on project labor.

Base: 403 global software engineering strategy decision-makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Thoughtworks, July 2023

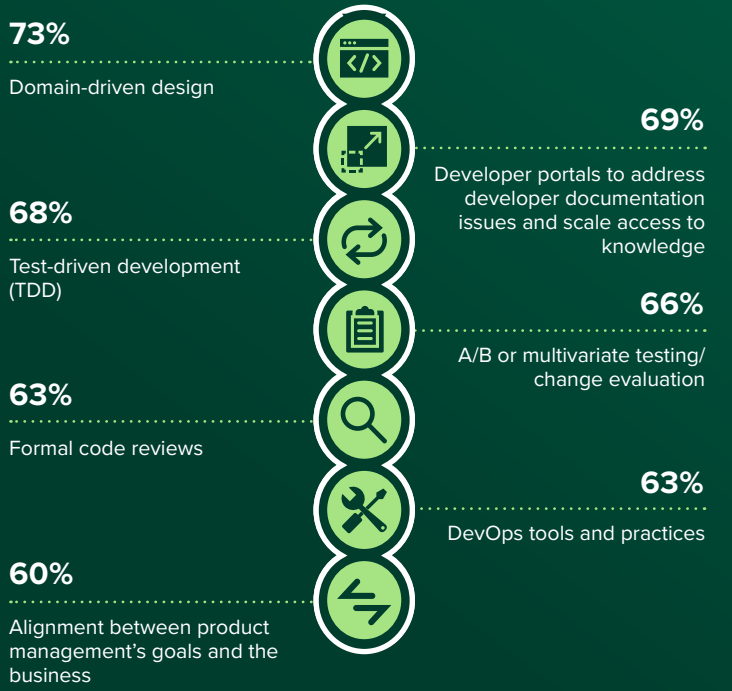
Technology And Process Challenges: Organizations Are Forced To Spend Time On Legacy Inefficiencies

On top of issues with business alignment and communication, engineering technology and processes implementation present significant challenges to organizations. Low adoption rates for key engineering practices like DevOps and test-driven development likely stem from the significant challenges organizations face during the implementation process.

From a tech stack standpoint, decision-makers who reported their organization has too many different engineering platforms were **four times more likely to say their company has insufficient engineering agility levels.** Overworked engineering teams struggle to update and consolidate inefficient legacy systems. This results in considerable technical debt as **73% of respondents said their engineers spend significant amounts of time addressing technical debt and other business-as-usual (BAU) issues.**

“How challenging were each of the following to implement and distribute throughout your engineering organization?”

(Showing “Challenging/Very challenging”)



Base: 403 global software engineering strategy decision-makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Thoughtworks, July 2023

Lack Of Agility Can Lead To A Failure To Meet Business Needs

A lack of engineering effectiveness can have dire consequences to the product output and overall health of a business. We found that more than 75% of organizations with poor engineering agility:

- Often ship software that includes defects that had been previously fixed.
- Consistently fail on product launches due to complex systemic challenges.
- Struggle to react swiftly to regulatory changes.

With nearly one-third of leaders reporting that poor engineering agility has caused issues attracting new customers and onboarding new employees, it is clear that it has a major impact on the success of a business. This may be exacerbated by delays in digital transformation and further issues around finding and retaining the right talent.

“To what extent do you agree with each of the following statements regarding challenges with engineering agility at your organization?”

Base: 236 global software engineering strategy decision-makers who said their organization’s engineering agility is not where it needs to be
Source: A commissioned study conducted by Forrester Consulting on behalf of Thoughtworks, July 2023

Don’t Miss Out On Retention Of Business And Talent

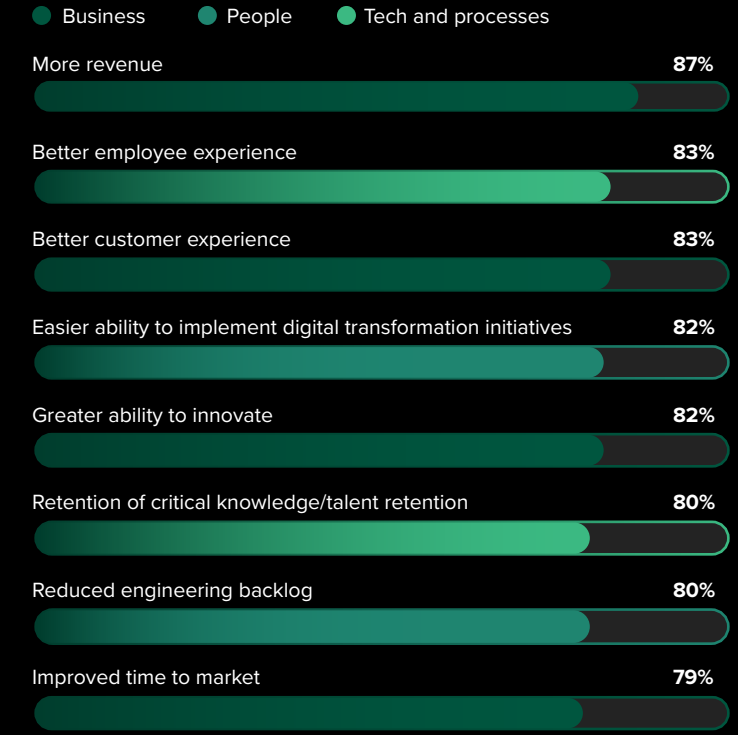
Improved agility can have a transformative impact on a business. Decision-makers cited substantial improvements, including more revenue, better customer experiences, greater ability to innovate, and improved time to market.

In addition, improving engineering effectiveness significantly helps with employee experience, resulting in greater talent retention. By retaining employees, teams are able to retain critical knowledge and talent, which may improve a product’s time to market. **Organizations that struggle to find and retain the right talent are six times more likely to have unpredictable delivery timelines.**

Finally, better agility results in significant technological improvement by alleviating challenges during digital transformation and reducing engineering backlog.

“To what extent do you believe your organization would receive the following benefits from better improving agility at your organization?”

(Showing percent “Significant”/“Transformational” benefit)



Base: 403 global software engineering strategy decision-makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Thoughtworks, July 2023

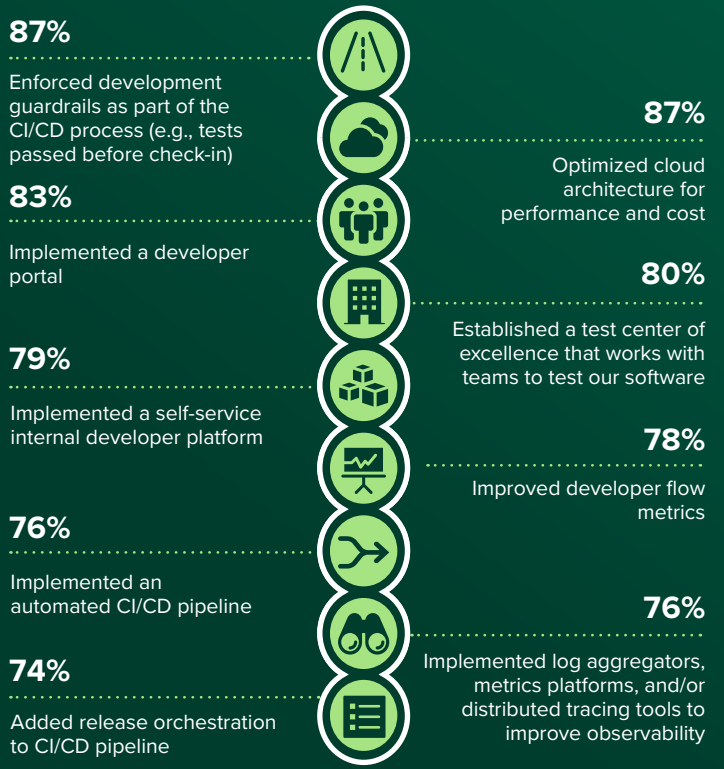
A Variety Of Practices Is Key To Improving Engineering Effectiveness

The top three initiatives decision-makers have focused on to improve effectiveness and agility revolve around engineering practices: improving developer flow metrics (35%), optimizing cloud architecture for performance (34%), and enforcing development guardrails as part of the continuous integration/continuous deployment (CI/CD) pipeline (31%). But some organizations also experimented with implementing developer portals (27%); implementing log aggregators, metrics platforms, and distributed tracing tools to improve observability (27%); and establishing a test center of excellence (27%).

No single initiative has an adoption rate higher than 35%. However, when adopted, each initiative has a significantly positive outcome. Among respondents from companies that have implemented these initiatives, more than three-quarters said they are effective or significantly effective.

“To what extent have these initiatives been effective?”

(Showing “Effective/Extremely effective”)



Base: Variable global software engineering strategy decision-makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Thoughtworks, July 2023

Focus On Developer Effectiveness

Having seen the positive effect that early initiatives had, decision-makers said they are looking to make significant changes aimed at improving engineering agility going forward. In particular, many organizations are looking to fill in the gaps by utilizing their engineering stacks while prioritizing the improvement of their internal collaboration and communication. Developer platforms and portals are a top priority: **82% of respondents said their organization plans to implement a self-service internal developer platform within the next three years**, and 78% plan to implement a developer portal within that timeframe.

In addition, their organizations are looking to automate (78%) and add release orchestration (79%) to their CI/CD pipelines, again aimed at streamlining the development process and making it as effective and consistent as possible.

Conclusion

Ensuring your engineering organization can keep up with the rest of the business is critical.

- **Align engineering teams with business results.** Engineers don't always realize their impact. Work with teams to establish KPIs that accurately reflect success and communicate proactively.
- **Empower engineering to solve problems.** Let teams own both the problems and the solutions, and give them the resources they need.
- **Realize there's no magic bullet.** Start small, build from there. No single initiative gives engineering teams effectiveness overnight. Instead, plan for continuous transformation.
- **Base decisions around your organization's needs.** Evaluate and understand your organization's maturity and its tools, talent, and business needs. Recognizing the environment you operate in and defining your investments around that will be key to success.

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Forrester's Technology, Architecture and Delivery research group

Methodology

This Opportunity Snapshot was commissioned by Thoughtworks. To create this profile, Forrester Consulting supplemented this research with custom survey questions asked of engineering strategy decision-makers. The custom survey began and was completed in June 2023.

Related Forrester Research

"Understand Developer Experience To Improve Business Outcomes," Forrester Research, Inc., June 21, 2023

"Modern Development Metrics That Really Matter," Forrester Research, Inc., July 3, 2023

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Demographics

REGION	
North America	**25%**
EMEA	**50%**
APAC	**25%**

POSITION/DEPARTMENT	
Software development	**53%**
Engineering	**47%**

COMPANY REVENUE	
>$5B	**7%**
$1.01B to $5B	**43%**
$500M to $1B	**38%**
<$500M	**12%**

ROLE	
C-level executive	**15%**
Vice president	**49%**
Director	**35%**

Note: Percentages may not total 100 because of rounding.

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