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Enterprise

Keep At It!
The Most Elusive
DevOps Activities
Are Worth the Pursuit

Research White Paper

Keep at it! The most elusive DevOps activities are worth the pursuit

Executive summary

The lure of speed, efficiencies and cost savings continues to make DevOps a hot topic for software developers and business stakeholders alike. Solid empirical studies regarding the adoption of DevOps are hard to come by, and evidence regarding the effectiveness of DevOps is even harder to come by. Here we report research examining the adoption of DevOps and various DevOps-related activities, and how their use impacts several gauges of success. Results suggest that almost everyone is doing something in the realm of DevOps, from practicing it, to piloting or researching it, and that some of the most elusive DevOps practices such as trunk development, containerization, and the Scaled Agile Framework (SAFe) are the very activities that are most associated with success.

ABOUT THIS RESEARCH

We interviewed 403 Development and IT Professionals using a 15 minute online survey.

Profile of companies:
- 500+ employees in company
- All verticals except ISVs and Education

Participant's primary role in organization:
- Dev Team (n=100)
- IT Operations (n=103)
- Test (n=100)
- Project Mgmt/ Enterprise Project Management Office (EPMO) (n=100)
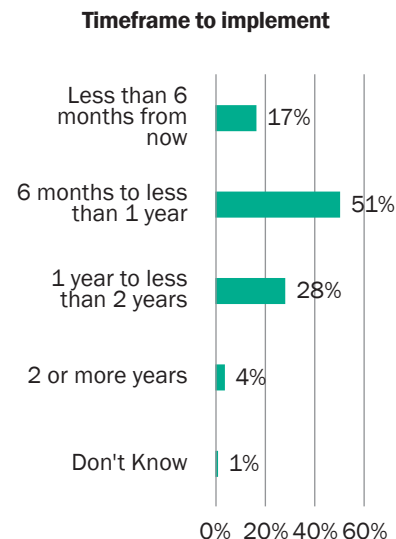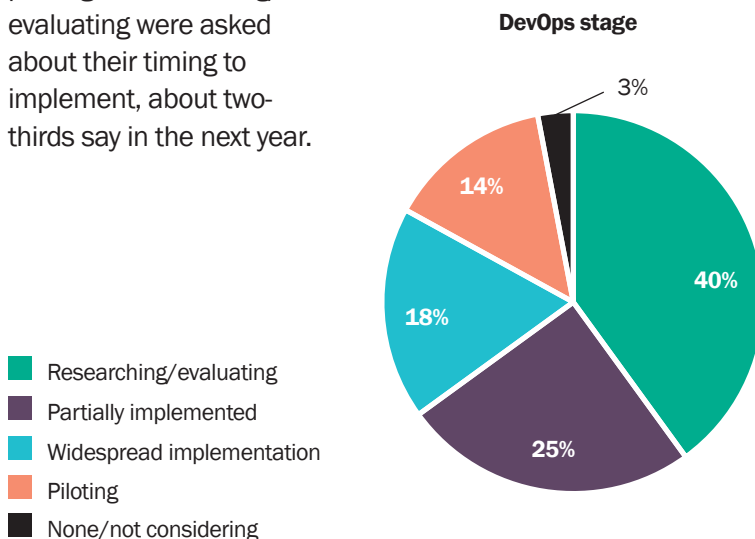
Key topic areas:
- Stage of DevOps at organization
- Dedicated vs. no dedicated DevOps
- DevOps approaches used at org
- Development practices used at org
- Success metric ratings for six key areas for a focal application worked on.

Under half say doing DevOps today, but more on way

We first wanted to get a read on what participants say they are doing in the realm of enterprise DevOps, taking into account some nuances around how extensive the implementations are, whether it involves piloting, or just research. Almost half (43%) indicated their organization has some kind of DevOps implementation, with about a quarter saying they have partially implemented it, and just under a fifth saying their org has implemented in a widespread fashion. An even larger segment – just over half, say they are still in the process of exploring DevOps, either piloting or researching/ evaluating DevOps. Collectively 97% of the orgs targeted here are doing something in the realm of DevOps, with only 3% saying they aren't doing anything today and aren't considering doing so.

When those who are piloting or researching/ evaluating were asked about their timing to implement, about two-thirds say in the next year.

DevOps stage

- 40% Researching/evaluating
- 25% Partially implemented
- 18% Widespread implementation
- 14% Piloting
- 3% None/not considering

Timeframe to implement

Less than 6 months from now	17%
6 months to less than 1 year	51%
1 year to less than 2 years	28%
2 or more years	4%
Don't Know	1%

0% 20% 40% 60%

DevOps team members

Participants who indicated they have already implemented DevOps (widespread or partial) were also asked whether their organization has created a dedicated DevOps team, as well as about the roles that exist on the DevOps team. Roughly 9 out of 10 say they have a dedicated DevOps team. In terms of roles, almost all teams include developers, about two-thirds have operation engineers and testers, while only about a third have tool experts.

Roles on DevOps team

### DevOps structure

12%

88%

- Dedicated DevOps team
- No dedicated DevOps team
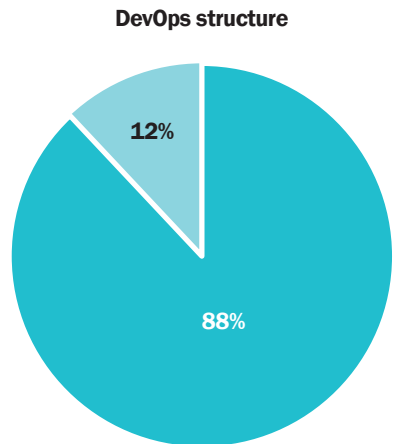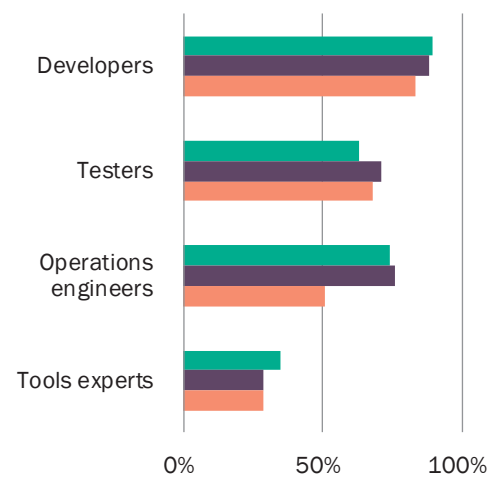
- Combo of methods/other
- Agile only
- Agile/waterfall hybrid only

Adoption of DevOps practices

We now examine some more specific DevOps and development activities to better understand *how* organizations are going about implementing DevOps, particularly given that DevOps can mean different things to different people. In the first set of questions we asked about approaches specifically associated with doing DevOps, ranging from the use of better communication tools, to the creation of formal
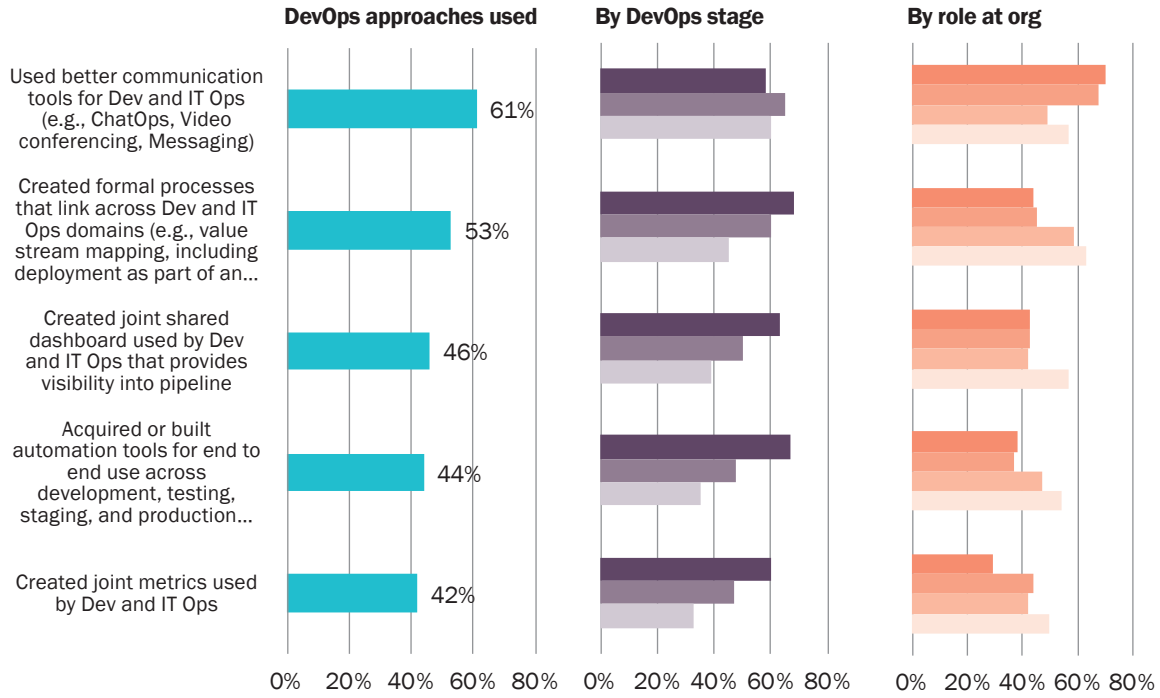
★ **Key finding**

Better communication tools, and formal DevOps processes and dashboards used most.

DevOps approaches used | **By DevOps stage** | **By role at org**

Used better communication tools for Dev and IT Ops (e.g., ChatOps, Video conferencing, Messaging)	61%
Created formal processes that link across Dev and IT Ops domains (e.g., value stream mapping, including deployment as part of an...	53%
Created joint shared dashboard used by Dev and IT Ops that provides visibility into pipeline	46%
Acquired or built automation tools for end to end use across development, testing, staging, and production...	44%
Created joint metrics used by Dev and IT Ops	42%

- Widespread DevOps implementation
- Partial DevOps implementation
- Piloting/researching/ not pursuing DevOps

- Development team
- Project management/PMO
- Test
- IT ops

processes and metrics. Better communication tools was the top approach cited, with almost two-thirds indicating their organization has adopted better tools, followed by the creation of formal processes that link across Dev and IT Ops, adopted by just over half of the organizations. Of the items asked about, the creation of joint metrics that are used by both Dev and IT Ops was the least common practice. Responses varied by the stage of DevOps, with use of each practice systematically increasing as orgs get deeper into DevOps. The one exception is better communications tools, where orgs at all stages indicated similar levels of usage. Looking at the split by the participant's role at the organization, those on the Development Team or working in Project Management report particularly high levels of better communication tools. Those in IT Ops report the highest usage of joint shared dashboards.

Next we asked about a number of development practices that are often associated with DevOps, with participants asked to indicate on a four-point scale how much their organization has embraced each practice. Below we show the percent who indicated that it *definitely reflects my company's development practices*. Over half of participants indicated that *security is more important than speed* at their organization, clearly showing that while organizations are very actively pursuing the benefits of DevOps, it can't be at the expense of security. *Automated testing, coders taking more responsibility for their own testing,* and *teams build, run and own their applications/products* were

Development practices: percent definitely reflects practices at org

| Practice	Percent
Security is more important than speed	53%
Automated testing is increasing	49%
Coders are taking more responsibility for their own testing than before	47%
Teams Build, Run and Own their applications/ products (No more throw it over the wall)	46%
Shift to a product or service focus from a one-off project focus	45%
Testing is done in production environment	45%
Have testing centers of excellence on release trains that provide end-to-end testing of integrated software	41%
Our teams are seeing more engineers taking a hybrid Dev-Test role	40%
Developers and testers use the same tools for development and testing	40%
The ratio of testers to coders is decreasing (i.e. the proportion of Testers employed is smaller than before)	39%
Use of Scaled Agile Framework (SAFe)	39%
Use of containerization (e.g.Docker) in test	38%
Trunk development (as opposed to multiple release branches)	38%
Use of containerization (e.g.Docker) in production	38%

★

Key finding

Security, automated testing, coders owning testing, and no more throw it over the wall top the list of practices.

the next most common practices/philosophies. The least common practices include *use of containerization in production, trunk development*, and *use of containerization in test*. While the use of containerization being low is not that surprising given it is a newer technology, the relatively lower usage of trunk development is a bit more surprising, and perhaps disconcerting, given many experts view that as a critical part of achieving the highest levels of success.

Do development practices predict project success?

In order to better understand the impact of using the above development practices we examined whether there was any relationship between their use and several gauges of success collected about the most important application the participant worked on in the past year. Ratings related to the success of that specific project included *quality and performance, time to market, speed of delivery, scope, security,* and *cost/use of resources*. The below graph depicts the correlation between the degree to which their organization has embraced each practice with the success metric ratings collected on a 7-point scale. Several trends are worth noting. First, if you compare the general ordering of the practices here with the pattern for adoption shown earlier, it's almost like the ordering is reversed. Trunk development, the use of containerization, and the use of Scaled Agile Framework (SAFe), which had the lowest levels of adoption, are the very practices with the highest correlations. It appears the most elusive practices are those most associated with success. Second, while there is some variation by the exact type of success metrics, there is also reasonable consistency across the practices.

Development practices: correlations with success metrics

Key finding

Trunk development, containerization, and Scaled Agile Framework (SAFe) most correlated with success
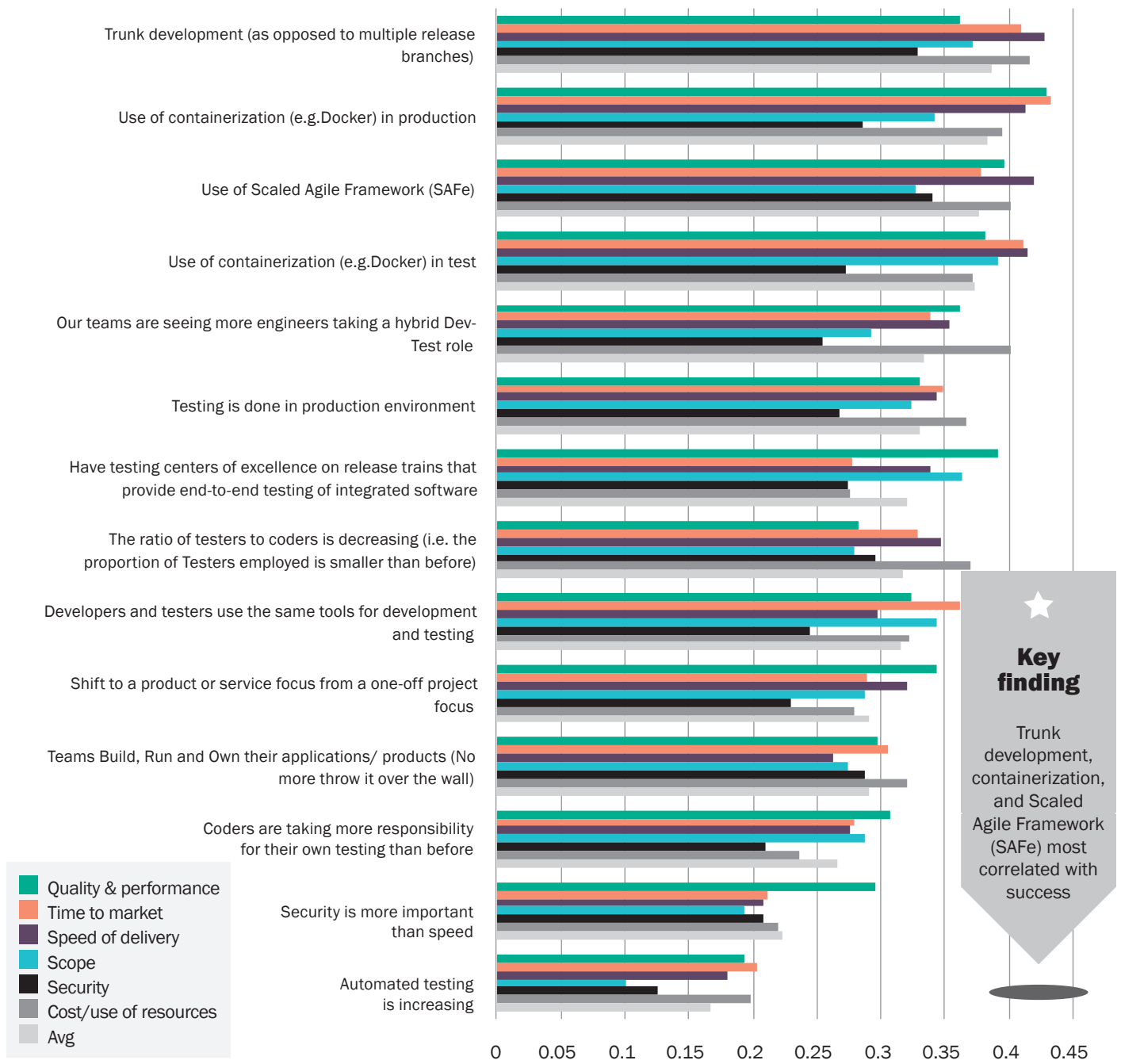
Conclusion

The continued adoption of DevOps suggests organizations are finding value in investing in this domain. Given the broad definition of DevOps, careful attention must be paid to the specific practices that lead to success, such as trunk development, containerization, and the Scaled Agile Framework (SAFe). Orgs should embrace these approaches even if they are new and/or more elusive.

HPE ALM Octane

HPE ALM Octane is an Application Lifecycle Management (ALM) software offering for Agile and DevOps environments, designed to enable software development and testing teams to harness the proven benefits of DevOps and Agile development to deliver software with speed, quality and scale. HPE ALM Octane provides insights to developers and testers, helping them deliver applications quickly, without sacrificing quality or end-user experience.

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