CIO PULSE REPORT

TACKLING THE SOFTWARE SKILLS CRUNCH

How IT leaders grow their software engineering resources

FREEFORM DYNAMICS

CIO WaterCooler

THE SCALERS

MANAGEMENT SUMMARY

Software development is an ever more important part of IT and business, yet some countries face shortages of software skills. As well as making it harder to recruit developers, this is also pushing up salaries. Many possible solutions have been explored, often aiming to leverage other countries where there's a surplus – or at least an adequate supply – of developers and where costs are lower. They include outsourcing, hiring developers from abroad, finding a partner to help build an offshore team, and perhaps the most complex option, setting up subsidiaries in those countries.
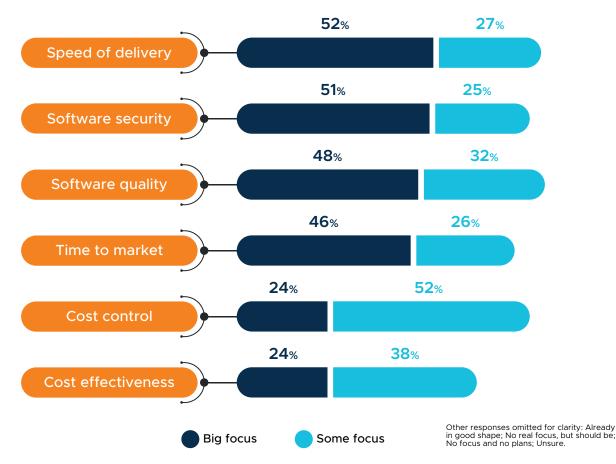
Each of these has its advantages and disadvantages for what we'll call the 'parent' organisation, of course. Against this background, the research presented in this report, based on feedback from 50 IT leaders and managers, considers how resourcing ideas and staffing solutions in this space are evolving. If you too face, or expect to face, resource challenges in software engineering, then read on to learn more.

KEY RESEARCH FINDINGS

- We surveyed IT leaders and managers whose organisations' business relies to some extent on custom software engineering and development.

- Behaviours and expectations can differ significantly depending on the size of the software team, with sizes in our survey ranging from 1-10 to 500-plus.

- Almost every team now has many of its developers working from home at least part of the time, with only one respondent saying that it never happens in their team.

- The skills crunch is real, with most teams reporting both shortages and difficulties in recruiting additional skilled staff. This may add cost, in higher salaries and greater use of expensive contract resources, or leave worrisome gaps.

- While the in-house model still dominates, with software developers as full-time staff, many organisations also use or are growing their use of remote/offshore development resources, whether via offshore staff, outsourcing, or another model.

- Organisations looking to augment their existing software development resources with remote/offshore talent face many challenges. In particular, it is vital to operationally and culturally integrate the remote team with their 'onshore' peers.

- The awareness of services that can short-cut this process is patchy, with outdated assumptions (such as offshoring=contracting/outsourcing) often being embedded.

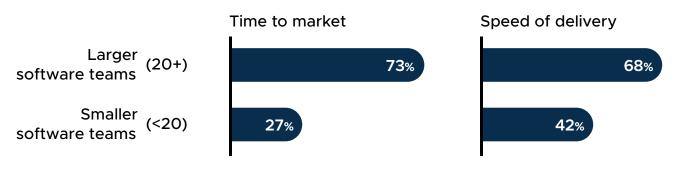## Cost matters, but speed and security matter more

When we asked IT managers and leaders about their priorities for improving software delivery, one thing became clear: cost controls and cost-effectiveness remain significant, of course, but for most organisations, the top priorities are delivering better, more secure software, faster.

How much focus does your organisation have on driving improvements in the following areas?

Area	Big focus	Some focus
Speed of delivery	52%	27%
Software security	51%	25%
Software quality	48%	32%
Time to market	46%	26%
Cost control	24%	52%
Cost effectiveness	24%	38%

● Big focus   ● Some focus

Other responses omitted for clarity: Already in good shape; No real focus, but should be; No focus and no plans; Unsure.

The desire to improve the speed of software delivery and get new features and functionality to market faster, is even greater when we look at larger (more than 20 full-time equivalents) software teams. The implication is that, as we might expect anecdotally, it is easier to get things "out of the door" quickly when teams are smaller.

How much focus does your organisation have on driving improvements in the following areas?

	Time to market	Speed of delivery
Larger software teams (20+)	73%	68%
Smaller software teams (<20)	27%	42%

Percentages relate to those declaring a 'Big focus'

The biggest problems are skill-related, but don't discount process and culture

Software teams of all sizes face skills-related challenges, although for now issues such as retention are less problematic than the shortage of skilled developers and the difficulty in recruiting more. Salaries are mostly an emerging challenge for now. We can't infer too much, given the relatively small groupings, but some differences between larger and smaller teams do appear. In particular, the latter are more likely to report deficiencies in areas such as development tools and processes, DevOps capabilities, and general awareness of the "art of the possible".

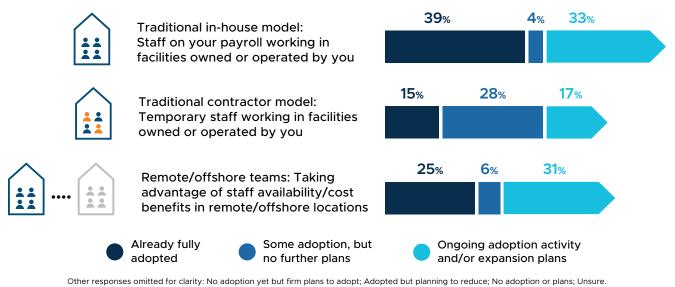### How much are the following problems for you at the moment?

RECRUITMENT AND RETENTION, ETC.

We have a shortage of skilled development staff — 50% / 32%

We have difficulties attracting skilled development staff when required — 56% / 22%

We have challenges retaining skilled development staff — 24% / 36%

Our development teams' salaries are becoming an issue — 16% / 58%

VISIBILITY, PLANNING AND OPTIMISATION

Our development tools, processes and methods are not fit for purpose — 20% / 26%

Our development lifecycle automation (DevOps) capabilities are not up to scratch — 22% / 42%

We lack sufficient knowledge of Dev programme "art of the possible" — 24% / 28%

Big challenge/ material constraint   Emerging problem

Other responses omitted for clarity: No issues; Unsure.

THE POTENTIAL WAYS FORWARD

In-house development remains the preferred option

The majority of respondents employ software developers on a traditional in-house model. Employing contract staff in-house remains common, but significant numbers of IT managers and leaders say their use of contractors will not expand, and in some cases will be reduced. Overall, the contractor model now appears less popular than the use of remote/offshore teams.
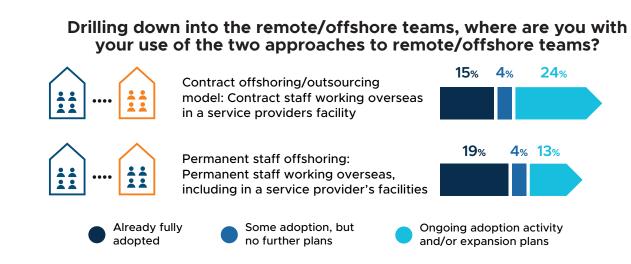
How would you describe your software development activities and plans?

Traditional in-house model: Staff on your payroll working in facilities owned or operated by you — **39%** **4%** **33%**

Traditional contractor model: Temporary staff working in facilities owned or operated by you — **15%** **28%** **17%**

Remote/offshore teams: Taking advantage of staff availability/cost benefits in remote/offshore locations — **25%** **6%** **31%**

● Already fully adopted   ● Some adoption, but no further plans   ● Ongoing adoption activity and/or expansion plans

Other responses omitted for clarity: No adoption yet but firm plans to adopt; Adopted but planning to reduce; No adoption or plans; Unsure.

Outsourcing – handing work over to a service provider – is often seen as the simplest software delivery solution, especially if your requirements are well-defined. However, it can also present challenges. For example, it can be more difficult to define needs and monitor quality, or to exert control and expect loyalty second-hand. And even an ongoing engagement may well share resources with the service provider's other projects or clients.

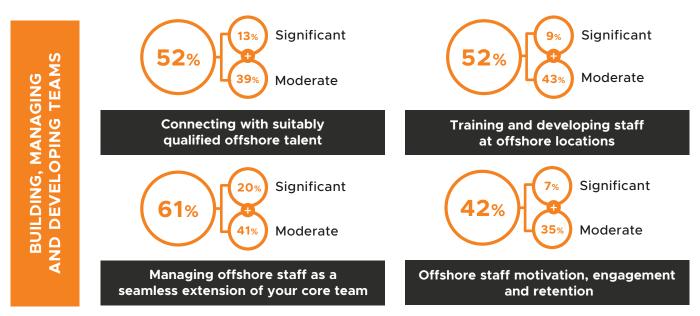## But staff expansion could shift to remote/offshore

It is no surprise then that we also see offshore work being assigned to software developers located remotely, but employed as permanent staff. This 'insourcing' approach can give access to a deeper and less expensive talent pool, but also brings its own logistical and perceived challenges.

Drilling down into the remote/offshore teams, where are you with your use of the two approaches to remote/offshore teams?

Contract offshoring/outsourcing model: Contract staff working overseas in a service providers facility — **15%** **4%** **24%**

Permanent staff offshoring: Permanent staff working overseas, including in a service provider's facilities — **19%** **4%** **13%**

● Already fully adopted   ● Some adoption, but no further plans   ● Ongoing adoption activity and/or expansion plans

Other responses omitted for clarity: No adoption yet but firm plans to adopt; Adopted but planning to reduce; No adoption or plans; Unsure.
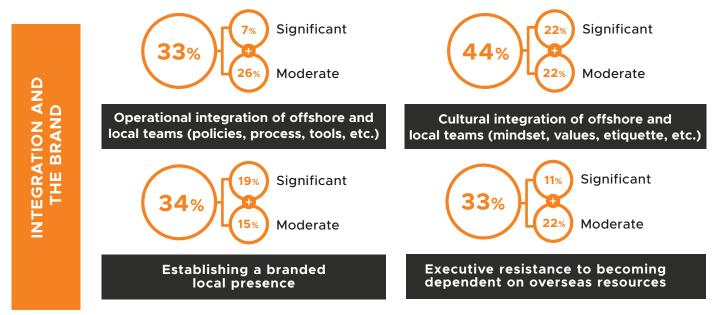
Simply navigating the cultural, legal and economic differences between countries and regions can be a major struggle. It is no surprise then that many IT leaders see challenges in recruiting, training, managing and motivating staff in remote/offshore offices. This is particularly true for those with larger software teams: they are more likely than leaders of smaller teams to have expansion plans that involve recruiting in remote/offshore locations, but they are also much more likely to have concerns around offshore team recruitment, training, management and so on.

How much of a challenge are the following, or do you perceive them to be, when building or expanding your geographically remote/offshore software team(s)?

BUILDING, MANAGING AND DEVELOPING TEAMS

52% — 13% Significant + 39% Moderate
Connecting with suitably qualified offshore talent

52% — 9% Significant + 43% Moderate
Training and developing staff at offshore locations

61% — 20% Significant + 41% Moderate
Managing offshore staff as a seamless extension of your core team

42% — 7% Significant + 35% Moderate
Offshore staff motivation, engagement and retention

Other responses omitted for clarity: Low; Not at all; Unsure.

Another notable area of concern, especially for IT leaders with larger software teams, is the cultural and operational integration of local and remote teams. Indeed, company and team culture is a more significant concern than operational issues. And at a corporate level, there can also be challenges in establishing your brand remotely and overcoming executive objections.

INTEGRATION AND THE BRAND

33% — 7% Significant + 26% Moderate
Operational integration of offshore and local teams (policies, process, tools, etc.)

44% — 22% Significant + 22% Moderate
Cultural integration of offshore and local teams (mindset, values, etiquette, etc.)

34% — 19% Significant + 15% Moderate
Establishing a branded local presence

33% — 11% Significant + 22% Moderate
Executive resistance to becoming dependent on overseas resources

Other responses omitted for clarity: Low; Not at all; Unsure.

The offshore opportunity

The fact that you can engage a services company to build and run a remote/offshore software team for you is well recognised. Every one of our survey respondents had at least heard of the idea. What appears to be missing is a deeper understanding of the many options and practicalities.

Some forms of outsourcing could be considered to fall within this category, for example, which will account for some of the IT leaders and managers who "already use such services". But there are several other ways to have staff located offshore and permanently allocated to you. You can have those offshore staff on your payroll or paid via the service company, for example, and they could be based in a shared office or in a dedicated location that carries your company's signage.

When it comes to growing your software team offshore, there are many questions to ask. For example, what level of management control will you have over the remote team? How will the offshore staff integrate with your organisation's culture and your existing team, with its processes, tools and methods? Could your organisation gain from being locally and visibly present in that offshore market - are there benefits in being seen as part of the local economy by governments, potential customers and would-be employees?
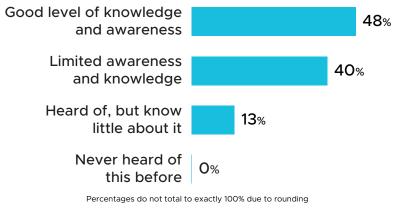
Finding a new way forward

The challenge is how to work through a third-party, yet still be able to integrate the remote/offshore team with the rest of your organisation and its processes and procedures. Traditional offshoring models can make this complex and risky, especially for smaller organisations. This most likely explains many of the 'No' and 'Probably not' responses seen here, as both awareness and current usage are higher among larger teams.
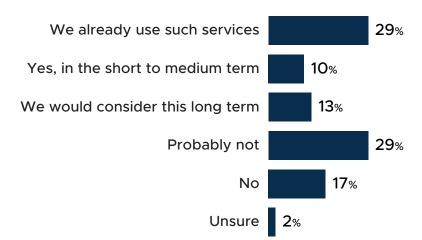
A more novel solution is that of a local long-term service partner – a kind of hybrid facilitation where you outsource the creation, staffing, maintenance and management of the remote office to local specialists, but then assume day to day control over the remote team once it is operating.

The key here is to find the model that matches your real needs. For example, many of the issues highlighted on the previous pages may be eased by having permanent staff rather than contractors or an outsourcer – assuming, of course, that your staff needs are for the long-term, not just for a single project.

How aware are you of companies that offer services to create, staff and administer geographically remote/offshore offices?

Good level of knowledge and awareness	48%
Limited awareness and knowledge	40%
Heard of, but know little about it	13%
Never heard of this before	0%

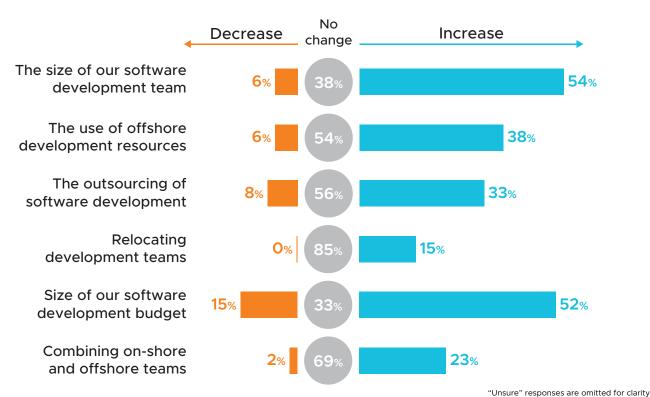Percentages do not total to exactly 100% due to rounding

If a third party like this made it easier for you to add long-term software development capacity, would this increase your use of remote/offshore teams?

We already use such services	29%
Yes, in the short to medium term	10%
We would consider this long term	13%
Probably not	29%
No	17%
Unsure	2%

Bigger teams, bigger budgets

The research highlighted that, despite the challenging economic situation, there are few signs that development teams will shrink. Indeed, most of the IT managers and leaders in our survey expect both their software development teams and budgets to grow during 2023. What's interesting is where they expect to locate the additional headcount and spend the extra budget, with much of the focus being on adding and integrating offshore software engineering resources.

How much do you expect the following to change in 2023?

	Decrease	No change	Increase
The size of our software development team	6%	38%	54%
The use of offshore development resources	6%	54%	38%
The outsourcing of software development	8%	56%	33%
Relocating development teams	0%	85%	15%
Size of our software development budget	15%	33%	52%
Combining on-shore and offshore teams	2%	69%	23%

"Unsure" responses are omitted for clarity

This is especially true for leaders of larger software teams, where 60% expect increased use of offshore development resources. However, only 25% of these leaders also foresee a greater combination of onshore and offshore teams, which again suggests an under-appreciation of alternatives to outsourcing and contracting, and a consequent risk of exacerbating the "them and us" issues mentioned earlier.

Attitudes to offshore resourcing are rather different among the leaders of smaller software teams, with less than a quarter expecting increases and a few expecting decreases. The implication is that if your organisation is smaller, you may not need to go offshore at all, or if you do, then you may find it harder to overcome the many challenges that lie there.

60% Agree

We expect to increase our use of offshore development resources (larger software teams only)

FINAL THOUGHTS AND RECOMMENDATIONS

It's time to take a broader view

In today's hybrid and connected world, it should not matter so much where your software developers are based – physically, at least. After all, a large part of any software engineering project is coding, much of which is done by individuals working alone and with deep focus. However, any project will also have elements that require collaboration and teamwork, and this in turn creates a real need and opportunity for a flexible work environment that fosters company culture, team spirit and collaboration.

So perhaps what really matters is where your software engineers are 'based' mentally and culturally. Do they see themselves as part of the team, and are they treated as such? Do they understand how the organisation works and what its purpose is? Do they get the training, management and support to help them grow professionally and keep them engaged?

If you are expanding your software development team into new geographical areas, in order to reduce costs and access deeper talent pools, your answers to these questions may be critical to the success of the project. At the same time, though, geographical expansion can take you out of your comfort zone and introduce all sorts of complexities, both expected and unexpected.

Picking the right model for expansion

To add to this complexity, there are multiple ways to access remote/offshore software engineering resources, some of them better-known than others. Each has its advantages and disadvantages, so which one you choose will depend on a range of factors such as your appetite for risk, whether you need the extra resources long-term or just for a single project, and of course how well you know the offshore region in question.

One thing the decision should perhaps not be based on, though, is "We've always done it this way" or "This is what I'm comfortable with" assumptions. Our research suggests that, in many cases, these mean avoiding the perceived complexity of setting up an offshore subsidiary and opting instead for the apparently easy fix of contractors or outsourcing.

Outsourcing the complexity, not the people

But neither should you assume that, in order to access the advantages of employing full-time staff offshore, your organisation needs to do all the heavy lifting itself. After all, you may already outsource non-core functions such as recruitment, facilities management, HR, payroll and more.

Indeed, we have seen the growth in recent years of companies that can facilitate everything to do with setting up a remote software engineering office and team. Of course, this may not fit every need, but by eliminating much of the operational complexity and uncertainty, it can add significant new options to the question of how and where to expand your software development resources.

About this report

Freeform Dynamics surveyed the opinions of 50 senior IT leaders and managers via The CIO WaterCooler. Note that percentages presented in the charts may not total 100 due either to rounding or to certain responses being omitted for clarity.

About Freeform Dynamics

Freeform Dynamics is an IT industry analyst firm. Through our research and insights, we help busy IT and business professionals get up to speed on the latest technology developments and make better-informed investment decisions.

For more information, visit www.freeformdynamics.com.

About The CIO WaterCooler

The CIO WaterCooler is a free, open and supportive community that provides resources to help IT leaders develop and identify solutions, gain knowledge from their peers and build networks to support them in becoming leaders in both their industry and business.

For more information, visit www.ciowatercooler.co.uk.

About The Scalers

The Scalers help companies expand their development teams for 5-100+ engineers over the mid-long term. Our expertise in sourcing, hiring and retaining talent who become part of a dedicated offshore team has helped tech leaders in global companies overcome talent and skills shortages at home, and scale without limits.

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