Adoption of OSPOs or similar programs has risen to 50% of respondents, **THE HIGHEST LEVEL IN 5 YEARS.**

OSPO GROWTH

65% of organizations that frequently contribute code upstream **HAVE A FORMALLY STRUCTURED OSPO.**

OSPO STRUCTURE

More than ever, **SUCCESS IS MEASURED** by the volume of contributions and contributors coming from outside the organization.
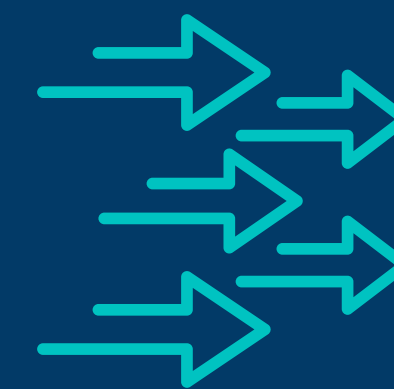
OSPO SUCCESS

83% of respondents said their organization's programs had a **POSITIVE IMPACT ON SOFTWARE PRACTICES.**

OSPO SUCCESS

Organizations that maintain the most projects are **LEADING THE CHARGE** to require a Developer Certificate of Origin (DCO).

SECURITY POLICY

49% of Asia-Pacific-headquartered organizations cite **TIME & RESOURCE CONSTRAINTS** as a reason why they do not have an OSPO.

BARRIER TO OSPOs

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Contents

Methodology & Demographics

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Methodology

The 2022 Open Source Program Office (OSPO) Survey was fielded by the TODO Group, Linux Foundation Research, and partners between June 21 through August 1, 2022. The goal was to gauge prevalence and outcomes of open source programs and similar open source initiatives operating across the globe.

Respondents were solicited via social media and with emails with the following partners: LF Training and Certification, api7.ai, Futurewei, Ovio, Salesforce, VMware, and X-Labs.

The first section of the survey was completed by 1,048 respondents affiliated with an organization that is involved with open source to some extent. After minimizing the number of duplicate organizations, the sample size for much of the study drops to 950, with 628 respondents completing every question.

Notes about sample and variation over time

Time Series

- We chose to compare current results versus 2020 data in many cases because 2021's sample was not as comparable.

- In 2021 only 36% of the sample were these tech companies but that rose to 41% in 2022, which is on par with the 40% level seen in 2020. Since this temporary decline in the sample may be partly responsible for variation in some of the 2021 data points, several charts show long term trends by comparing findings across every other year's results.

- The percentage of respondents working for tech companies rebounded from 36% in 2021 to 40% in 2022, which is close to the 41% seen in 2020. IT management level (e.g., CIOs, CTOs) participation in the study fell to 10%, down from 22% in both the previous two years.

Data Cleaning

- Twenty-eight respondents were excluded from much of the analysis because they represented a duplicate organization based on their IP address or organization name. When there was one more than one respondent, who chose which to include in the sample based on: 1) seniority; 2) completeness of response; 3) who submitted the survey first.

- It is still likely that some respondents work at the same company.

- 94% of respondents took the survey in English, 4% in Chinese and 2% in Japanese.

- The publicly available data file has had all personally identifiable information removed.

Notes about open source programs or initiatives

Does your organization have an open source program or open source initiative?

In 2022, two small changes were made to this question. First, it divided the "Yes" answers between those with formal and informally structured programs.

In addition, the following introductory text providing additional information about OSPOs was inserted before the question.

An open source program office (OSPO) or similar open source initiative is designed to be the center of competency for an organization's open source operations and structure. This can include setting code use, distribution, selection, auditing and other policies, as well as training developers, ensuring legal compliance and promoting and building community engagement that benefits the organization strategically.

To a certain degree, any organization calling itself an OSPO (or similar open source initiative) likely indicates that the organization has reached a maturity stage and critical mass, where OSPOs share key characteristics:

- Employees are tasked with fostering open source usage.

- Formal policies exist about the use and production of open source software.

- Executives recognize open source software and openness more broadly as important strategic assets.

- Processes, procedures, and tools are in place to streamline and facilitate open source consumption and participation.

- Significant numbers of employees contribute code to open source projects.

Selected Demographics and Segmentation

Region of Organization's Headquarters

Q55: Sample Size = 628
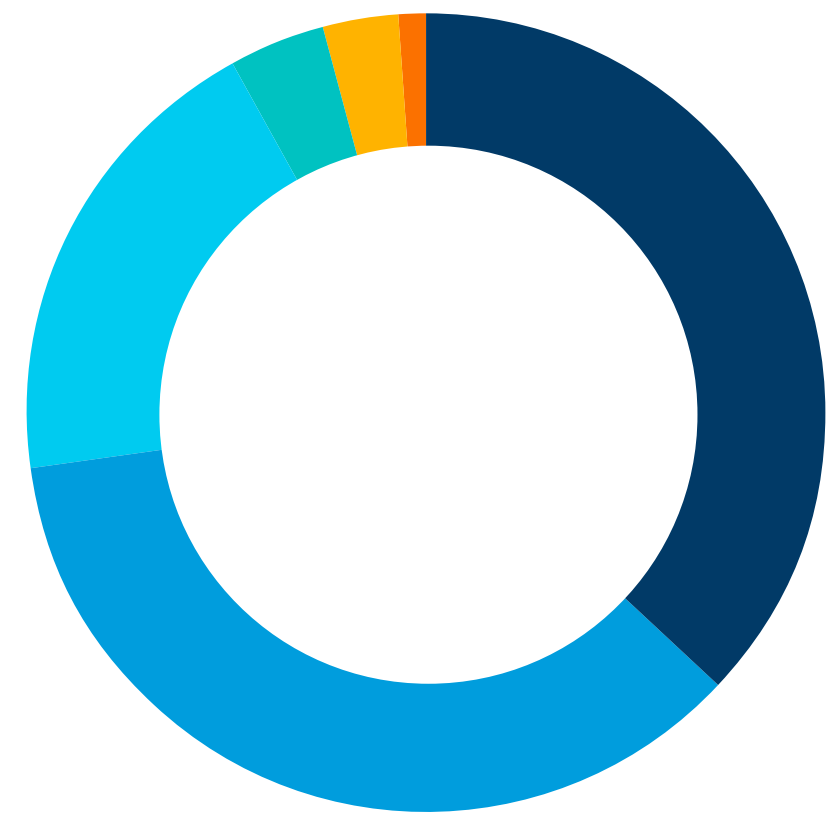
- **37%** United States or Canada
- **36%** Europe
- **19%** Asia-Pacific (including Oceania)
- **4%** Mexico, Central America, the Caribbean, and South America
- **3%** Africa
- **1%** Don't know

Organization Contributes Code Upstream

Q4 Sample Size = 950

- **27%** Frequently
- **25%** Sometimes
- **26%** Rarely
- **15%** Never
- **7%** Don't know

Organization's # of Employees

Q2: Sample Size = 950

- **17%** Under 10
- **12%** 11–49
- **26%** 50–999
- **21%** 1,000–19,999
- **24%** 20,000 or more

Industry of Organization

Q54: Sample Size = 628
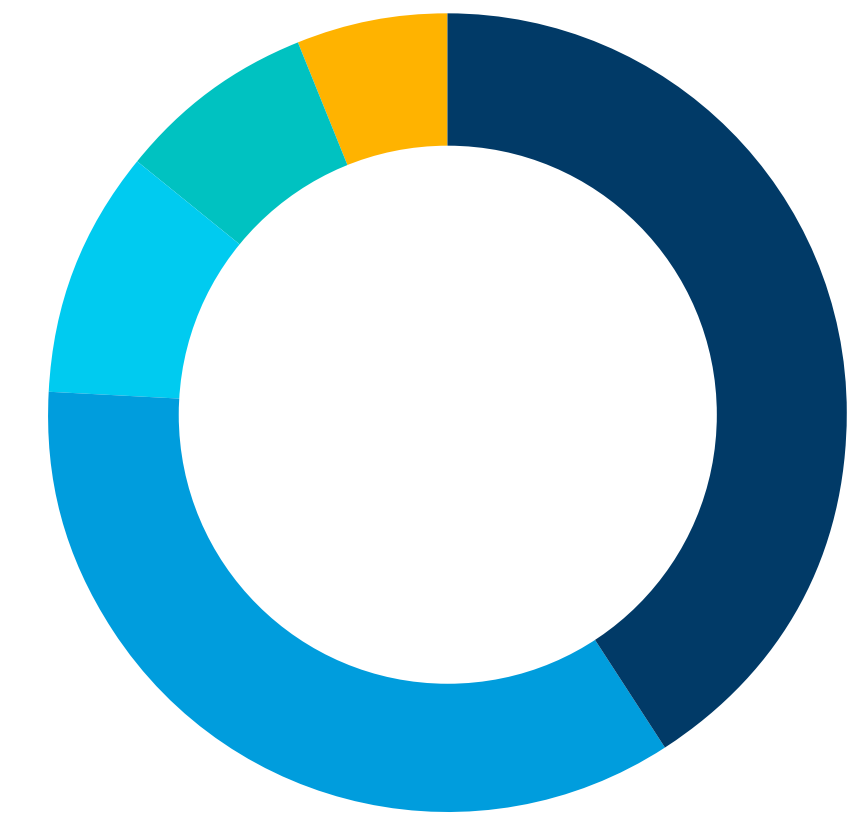
- **41%** Information Technology (IT vendor, service provider, or manufacturer)
- **35%** All Other Industries
- **10%** Government or Education
- **8%** Financial Services (Banking / Insurance / Securities)
- **6%** Telecommunications / Internet Service Provider (ISP) / Web Hosting

Key Findings

Key Findings

More Structured OSPOs

- Adoption of OSPOs or similar programs has risen to 50%, the highest level in 5 years. Professionalization continues among OSPOs, as 60% of the programs are formally structured with dedicated person-hours, reporting structure and/or job titles structured, up from 54% two years ago.

Benefits

- Software practices continue to see gains. Climbing to the highest level in the study's history, 83% of respondents said their organizations programs had a positive impact software practices.

- Open source is the life-blood for many of the small businesses represented in this study. OSPOs continue to be seen as extremely or very critical to the success engineering or product teams. However, respondents at organizations with less than 50 employees are twice as likely to believe the efforts are extremely critical as compared to those at organizations with 1,000 or more employees.

- Increased influence in open source communities rose several places to become #2 on the list of areas where organizations have benefited most from OSPOs. Increased innovation fell to #4 but continues to be the top benefit among organizations with less than 10 employees.

Big Organizations Stand Apart

- OSPOs at organizations with more than 20,000 employees continue to stand apart. They represent 47% of all the formally structured OSPOs in the study. License compliance and general awareness and use of open source dependencies are the top ways they benefit from OSPOs.

Organizations Without an Open SourceProgram or Initiative

- There is an opportunity to create new OSPOs in the Asia-Pacific region. Half of the participants without plans for an OSPO think it would benefit their company.

Europe and Asia-Pacific Organizations

- European-headquartered organizations are often not training, recruiting and hiring developers to work on open source projects. For example, 44% of European organizations never recruit or hire developers to work on open source projects vs the study average of 27%.

- 51% of respondents at Asia-Pacific organization believe an OSPO would be beneficial as compared to 35% of those based in North America. Recruiting and retaining developer talent is the top challenge Asia-Pacific organizations face.

Gauging Participation in Open Source Ecosystems

- Almost half of the organizations that have an open source program/initiative (46%), regardless of its formality, have reviewed or audited contracts as way to gauge participation in open source ecosystems. That compares to 28% of everyone else.

- Along with contracts, open source disclosure documents supplied by third-party vendors can be used to gauge "community citizenship". However, 55% of the study did not know if their organization collects, verifies, grades and then publicly shares this information. Among those that could answer the question, publicly sharing the findings is even less common.

OSPO adoption rose to the highest level since study's inception

Does your organization have an open source program or open source initiative? (select one)

Q6: Sample Size: 2022 = 950; 2020 = 876; 2018 = 676.
Before 2022, the question wording was "Does your organization have a management initiative or program (either formal or informal) around open source?"

Yes
- 2022: 50%
- 2020: 42%
- 2018: 38%

No, but planning one
- 2022: 14%
- 2020: 17%
- 2018: 14%

No
- 2022: 37%
- 2020: 41%
- 2018: 48%

Legend:
- 2022
- 2020
- 2018
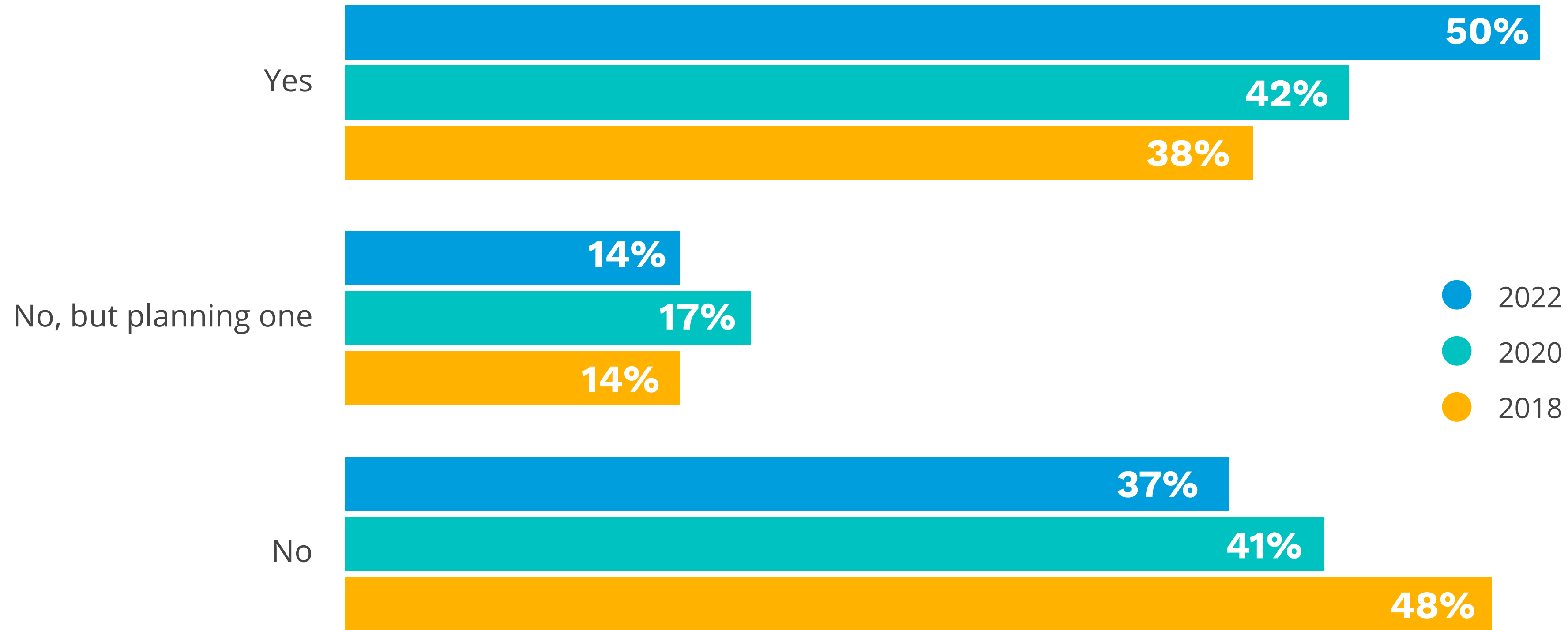
In 2022, 30% "Yes, and its is formally structured with dedicated person-hours, reporting structure and/or job titles. 20% answered "Yes, and it is informally structured, part-time and/or virtual.

So, 60% are formal, up from 58% in 2021 and 52% in 2020, as we had collected this information later in the survey in past years.

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Formally structured OSPOs are commonplace when code is frequently contributed upstream, especially among the largest organizations

Does your organization have an open source program or open source initiative? (select one) by How many people work for your organization?* by How often does your organization contribute code upstream?

Q6, Q2: Sample Size = 950 | Q6, Q4: Sample Size = 950

Left chart (by organization size):

Yes, and it is formally structured with dedicated person-hours, reporting structure and/or job titles
- 19%
- 16%
- 21%
- 25%
- 59%

Yes, and it is informally structured, part-time and/or virtual
- 25%
- 23%
- 18%
- 18%
- 18%

No, but we are planning one
- 21%
- 19%
- 13%
- 12%
- 8%

No
- 35%
- 42%
- 48%
- 45%
- 15%

Legend:
- Under 10
- 11–49
- 50–999
- 1,000–19,999
- 20,000 or more

Right chart (by upstream contribution frequency):

Yes, and it is formally structured with dedicated person-hours, reporting structure and/or job titles
- 65%
- 31%
- 9%

Yes, and it is informally structured, part-time and/or virtual
- 21%
- 29%
- 14%

No, but we are planning one
- 8%
- 17%
- 17%

No
- 7%
- 23%
- 59%

Legend:
- Frequently
- Sometimes
- Rarely or never

* Respondents employed by a software integrator or consulting firm, or self employed, were asked to answer on behalf of the most current client they were primarily working for.

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Training developers to work on and contribute to upstream open source projects is less frequent than other activities

How often does your organization do the following activities? (select one per row)

Q4: Sample Size = 1,020

2% 4%

Activity	Never	Rarely	Sometimes	Frequently	Don't know
Use open source code for noncommercial or internal reasons	2%	4%	19%	71%	4%
Use open source code in commercial products	11%	8%	17%	57%	6%
Contribute code upstream	15%	26%	25%	27%	7%
Recruit and hire developers to work on open source projects	27%	20%	20%	26%	8%
Create its own open source projects	23%	24%	23%	25%	5%
Train developers to contribute to opensource projects	26%	20%	22%	25%	7%
Attend and speak at open source events or conferences	26%	20%	24%	24%	6%

● Never ● Rarely ● Sometimes ● Frequently ● Don't know

Organizations with 20,000 or more employees are more likely to frequently contribute code upstream (50% vs the study average 27%). They are also more likely to attend/speak at open source conferences/events (42% vs 27%).

Many European-headquartered organizations are never involved with training, recruiting and hiring developers to work on open source projects.

- 44% of European organizations never recruit or hire developers to work on open source projects vs the study average of 27%. Meanwhile, they are less likely to frequently train developers (15% vs 26%).

- 39% of European organizations never train developers vs the study average of 26%. Meanwhile, they are less likely to frequently train developers (10% vs 25%).

Increased adoption of formal policies correlates with maturation of formal open source programs

Does your organization have a formal policy governing use and contribution to open source projects in the following areas? (select one per row) By Does your organization have an open source program or open source initiative? by How often does your organization contribute code upstream?

Q5, Q6: Sample Size = 2022 = 1,020. See Appendix for time series and chart that includesthe data with the "No" and "Don't Know" responses

Q5, Q4: Sample Size = 2022 = 1,020. See Appendix for time series and chart that includes the data with the "No" and "Don't Know" responses

Left chart:

Use of open space code in products (dependencies)
- 89%
- 69%
- 50%
- 39%

Allowing employees to contribute to non-work-related open source projects in their personal time
- 72%
- 60%
- 48%
- 33%

Releasing open source code or projects
- 85%
- 61%
- 40%
- 20%

Contributing uptream to open source projects
- 86%
- 59%
- 40%
- 21%

Sponoring open source projects, events or foundations
- 75%
- 44%
- 30%
- 14%

Contributing to third-party and other projects not considered to be upstream
- 61%
- 47%
- 24%
- 14%

Legend:
- Yes, and it is formally structured with dedicated person-hours, reporting structure and/or job titles
- Yes, and it is informally structured, part-time and/or virtual
- No, but we are planning one
- No

Right chart:

Use of open space code in products (dependencies)
- 84%
- 69%
- 46%

Allowing employees to contribute to non-work-related open source projects in their personal time
- 68%
- 61%
- 39%

Releasing open source code or projects
- 80%
- 67%
- 26%

Contributing uptream to open source projects
- 83%
- 67%
- 24%

Sponoring open source projects, events or foundations
- 71%
- 49%
- 18%

Contributing to third-party and other projects not considered to be upstream
- 58%
- 46%
- 18%

Legend:
- Frequently
- Sometimes
- Rarely or never

Drill-down on organizations with formal upstream contribution policies: 70% openly encourage; 6% are restrictive

Which of the following best describes your organization's formal policy on contributing to upstream open source projects? (select one)

Q7: Sample Size = 477

Contribution is openly encouraged — **70%**

Contribute if it is required by the open source license — **18%**

Contributions are not permitted — **6%**

Don't know — **7%**
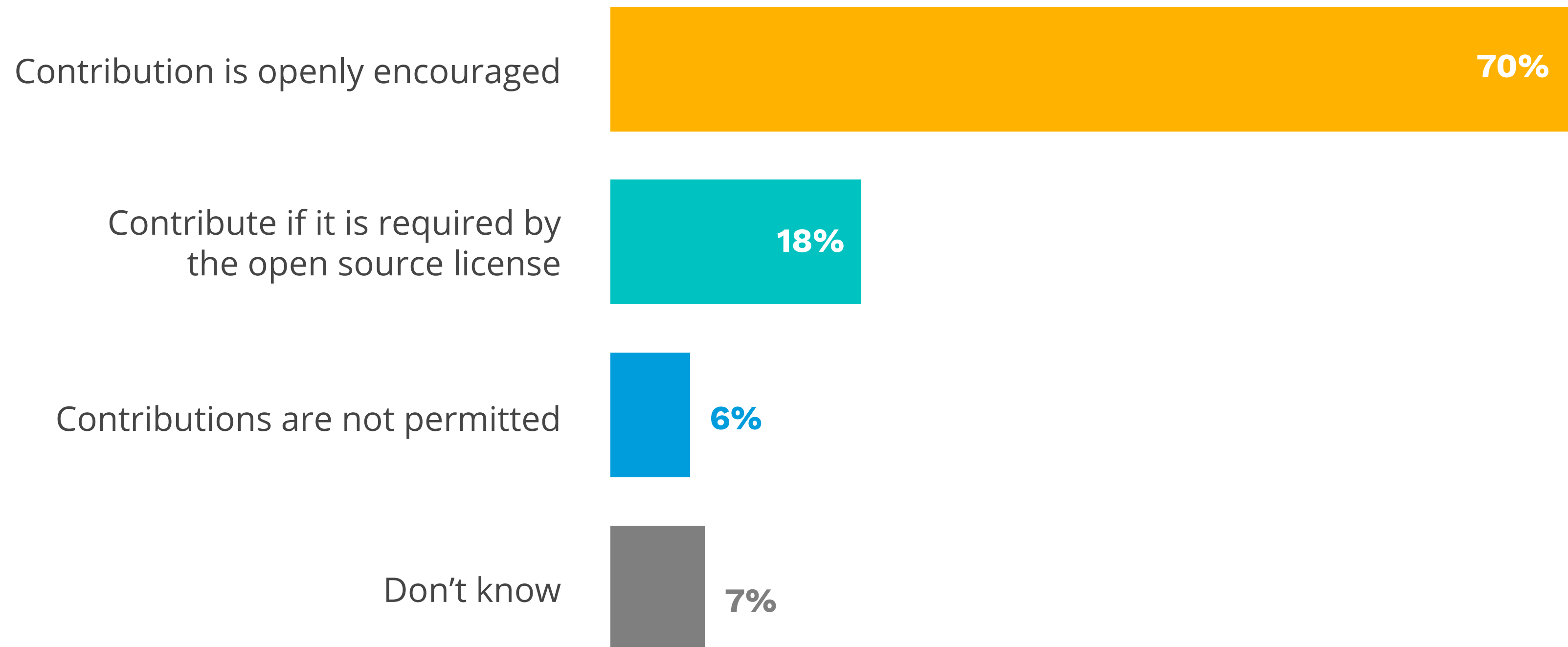
Current Open Source Programs and Initiatives

» **Structure of Programs/Initiatives**

» **Roles and Responsibilities**

» **Benefits and Challenges**

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Structure of Programs/Initiatives

Influx of newly established open source programs

How long ago was the program or initiative established? (select one) by
In which region does your organization have its headquarters? (select one)

Left chart (2022 vs 2020):

	2022	2020
0–2 years	29%	21%
3–5 years	22%	32%
6–10 years	15%	15%
More than 10 years	19%	23%
Don't know	15%	9%

Right chart (by region):

	United States and Canada	Europe	Asia-Pacific (including Oceania)
0–2 years	24%	28%	33%
3–5 years	21%	22%	25%
6–10 years	16%	21%	19%
More than 10 years	29%	13%	11%
Don't know	10%	15%	12%
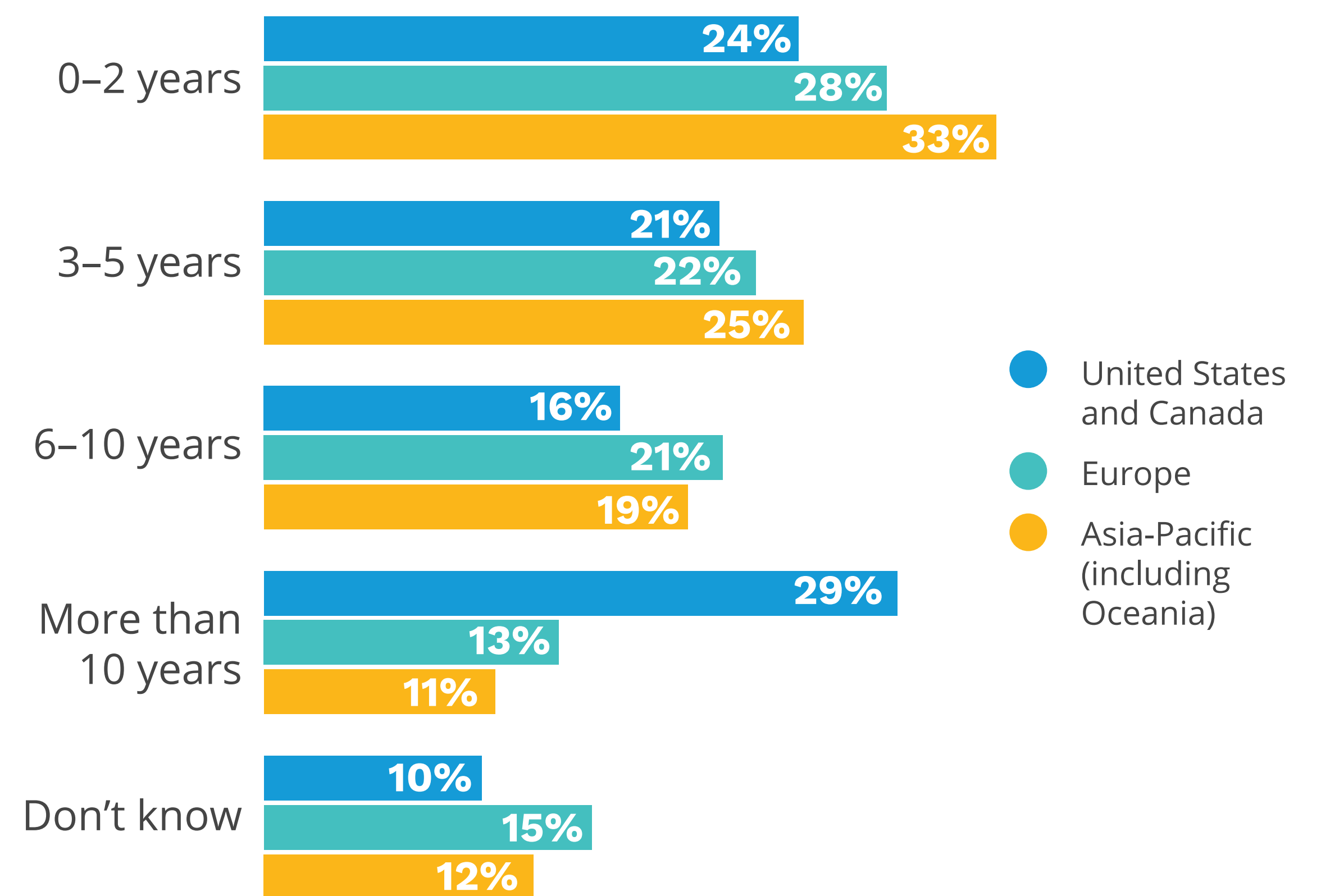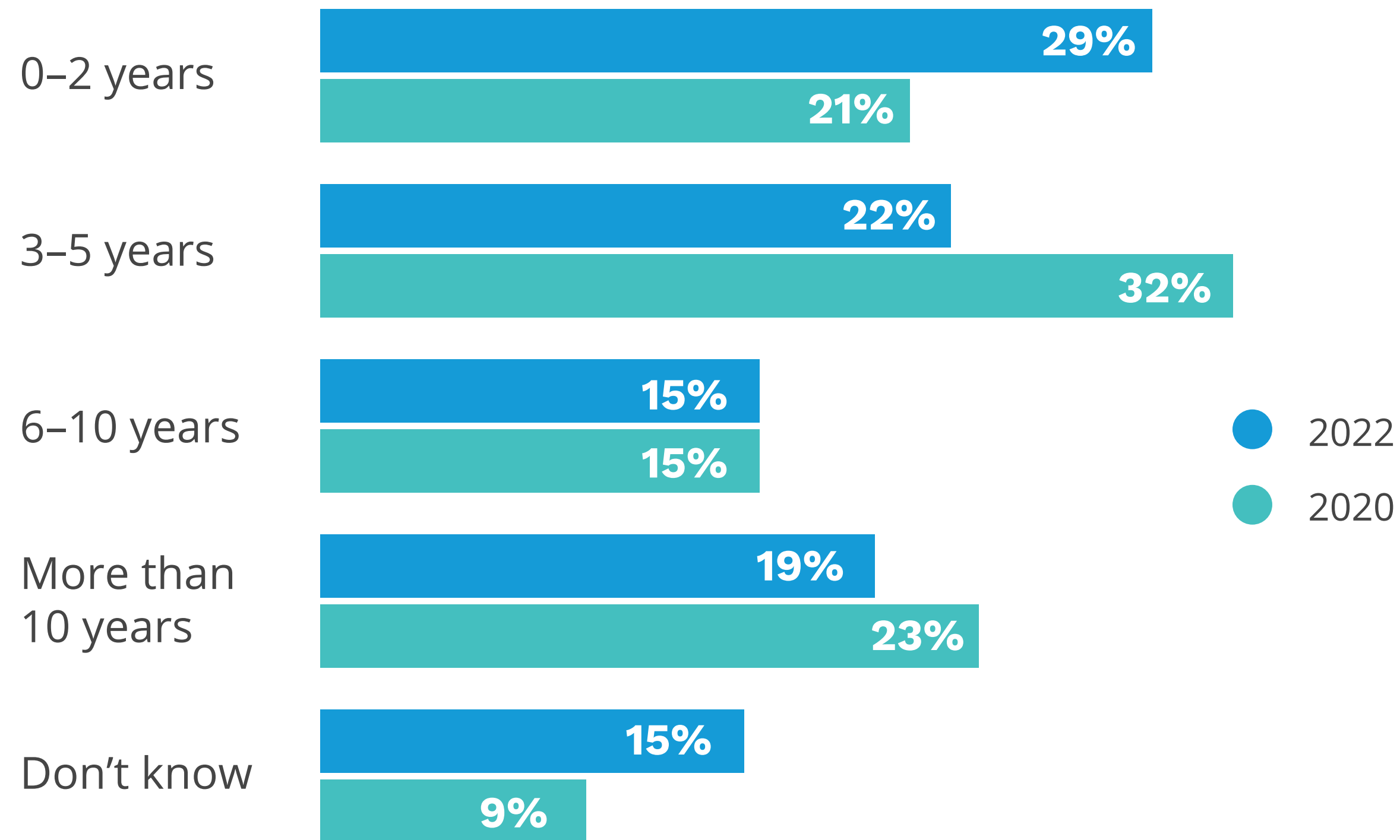
Small organizations are more likely to locate their programs in software engineering departments or teams

How many people work for your organization?* by Where is the open source program or initiative located within the organization? If the effort is informal, answer based on who the primary organizers report to. (select one)

Q10, Q2: Sample Size = 372
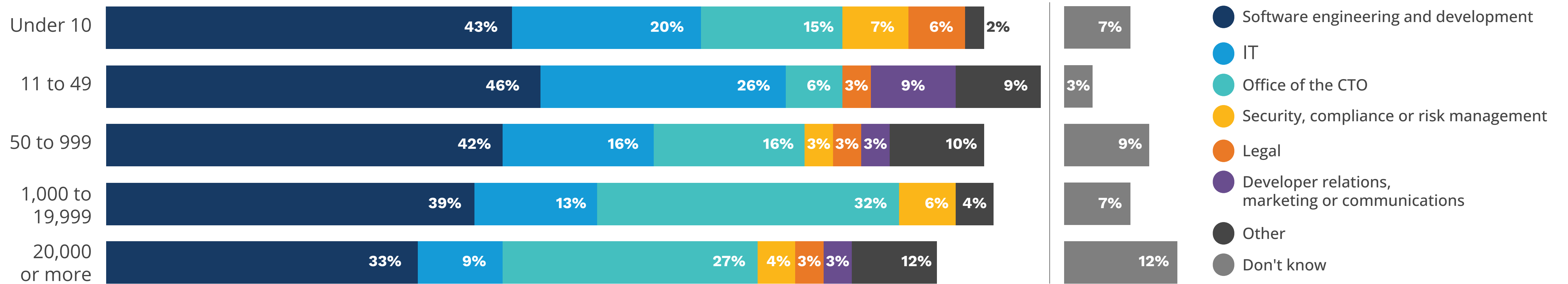
* Respondents employed by a software integrator or consulting firm, or self employed, were asked to answer on behalf of the most current client they were primarily working for.

How many employees are part of your open source program or initiative? (select one)

Q8: Sample Size = 372
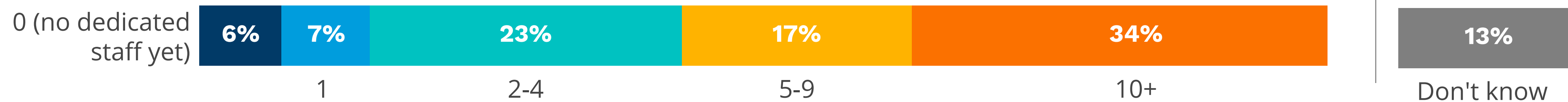
Open source programs leverage InnerSource teams or strategies

Does your open source program have an InnerSource team or strategy to drive open source culture within the organization? (select one)

Q11: Sample Size = 372

Category	Percentage
Yes, and we are the only stakeholder for the strategy	21%
Yes, and the strategy has multiple stakeholders	30%
No	29%
Don't know	20%
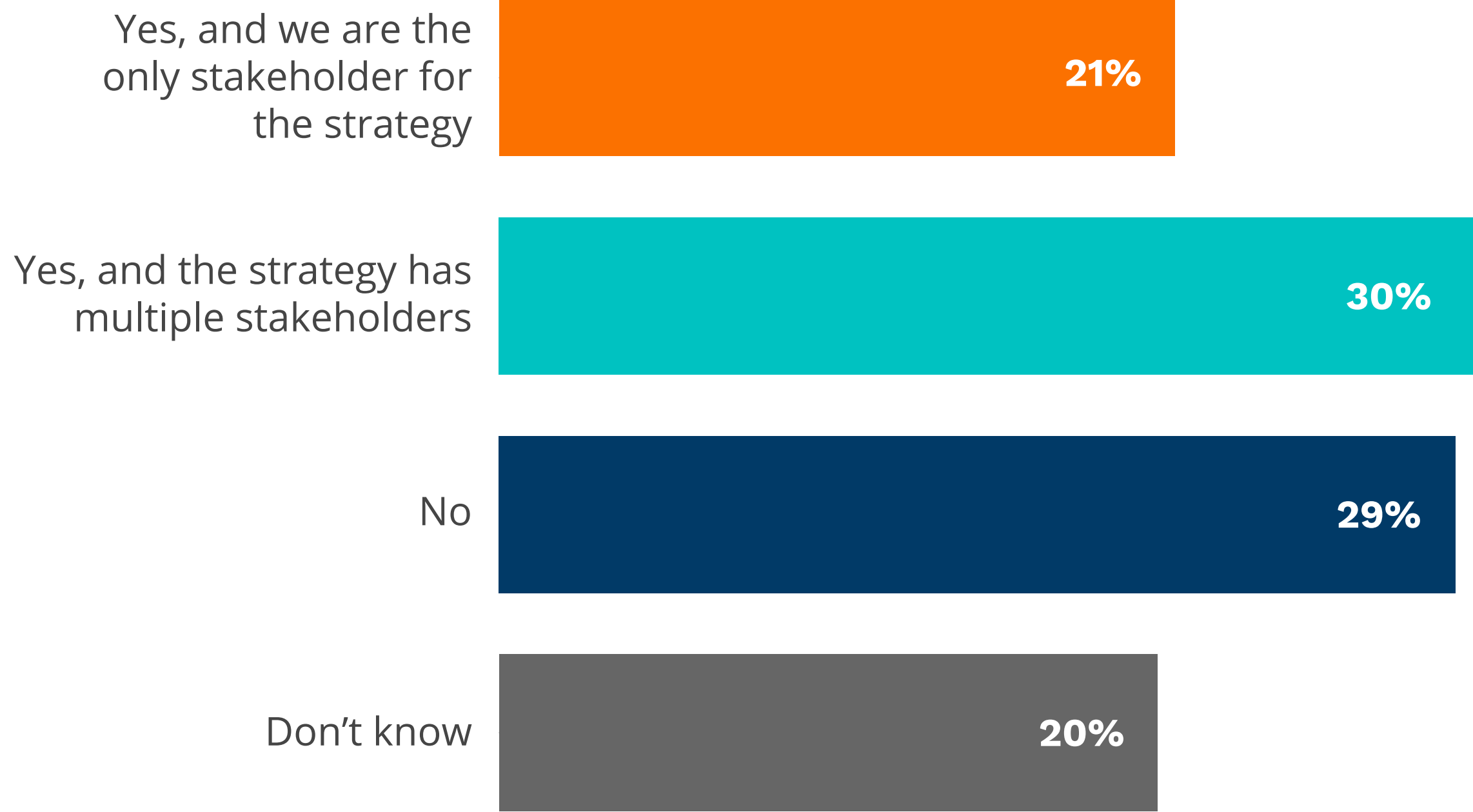
The InnerSource Commons Foundation states that InnerSource is the "use of open source best practices for software development within the confines of an organization."

Yet, a real benefit of InnerSource is the contributions internal projects receive from outside the organization.

Only 19% organizations with an open source program say a key benefit they receive from the program is increased contributions to in-house open source projects from external or third-party contributors. That figure jumps to 44% among respondents that have an InnerSource team or strategy. (Q16 asks about benefits)

Roles and Responsibilities

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Increase in formal roles, even at virtual and informal OSPOs

What is your role in the open source program or initiative? (select one)

Q13: Sample Size: 2022 = 371; 2020 = 249

Role	2022
No formal role	21%
Program manager	16%
Executive leadership or oversight (program manager reports to me)	15%
Open source developer or engineer (reporting to the open source office)	12%
Developer relations, advocacy and evangelism	10%
Committee member	7%
Engineering compliance	6%
Security	5%
Legal Compliance	4%
Other	4%

Role	2022	2020
No formal role	21%	28%
Program manager	16%	16%
Executive leadership or oversight (program manager reports to me)	15%	22%
Open source developer or engineer (reporting to the open source office)	12%	10%
Developer relations, advocacy and evangelism	10%	7%
Committee member	7%	4%
All other roles	20%	14%

● 2022
● 2020

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Consensus about top OSPO responsibilities is greater among North American organizations

What are the primary responsibilities of the open source program or initiative?(select all that apply) by In which region does your organization have its headquarters? (select one)

Q8, Q55: Sample Size = 367, Valid Cases = 367, Total Mentions = 2,035

Creating and managing open source strategy, policies, and processes continues to the primary responsibility for open source program offices.

In 2022, the question's categories were updated to match the latest version of the OSPO Mind Map's responsibilities.

In 2020, 64% of OSPOs were responsible for "Fostering an open source culture within an organization." 2022's response appended "Implement InnerSource practices" to the response option and saw the figure fall to 37%.

Supporting the organization's development activities is the top responsibility for Europe.

Develop and execute open source strategy — **60%**
Establish and improve open source policies and processes — **57%**
Collaborate with open source organizations — **56%**
Support the organization's development activities — **54%**
Advise on open source tech and projects — **53%**
Oversee open source compliance — **49%**
Eliminate friction from using and contributing to open source — **44%**
Grow and retain open source talent inside the organization — **44%**
Prioritize and drive open source upstream development — **40%**
Implement InnerSource practices and foster open source culture — **37%**
Manage open source IT infrastructure — **36%**
Track performance metrics — **23%**
Other — **3%**

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Open source funding expectations increased from 38% to 45%

In light of recent macroeconomic conditions, what is the likelihood that funding for your organization's open source initiatives will increase or decrease in the upcoming fiscal year? (select one)

Q14: Sample Size: 2022 = 372; 2020 = 248

Very likely to increase — 23% (2022), 23% (2020)
Somewhat likely to increase — 22% (2022), 15% (2020)
Neutral — 33% (2022), 39% (2020)
Somewhat likely to decrease — 7% (2022), 8% (2020)
Very likely to decrease — 3% (2022), 5% (2020)
Don't know — 12% (2022), 11% (2020)

● 2022
● 2020
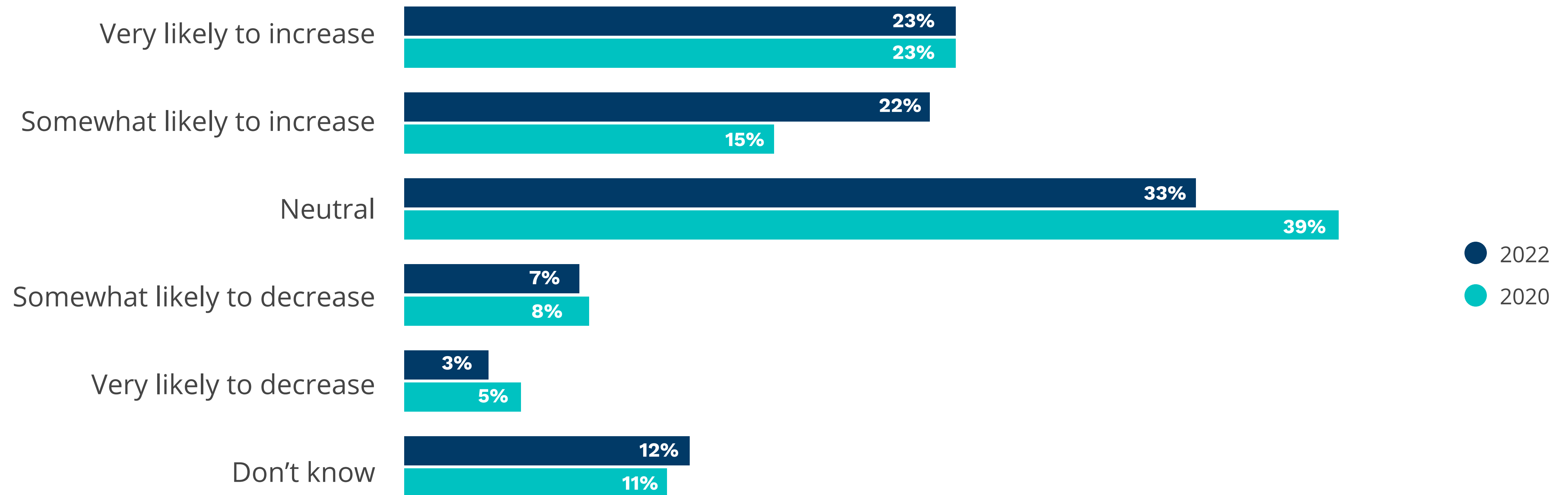
Benefits and Challenges

Community influence increasingly seen as a benefit; faster time to market and innovation saw declines

What are the areas where your organization has most benefited from the open source program or initiative? (select all that apply)

Q16: Sample Size: 2022 = 293; 2021 = 202; 2020 = 246; 2019 = 516

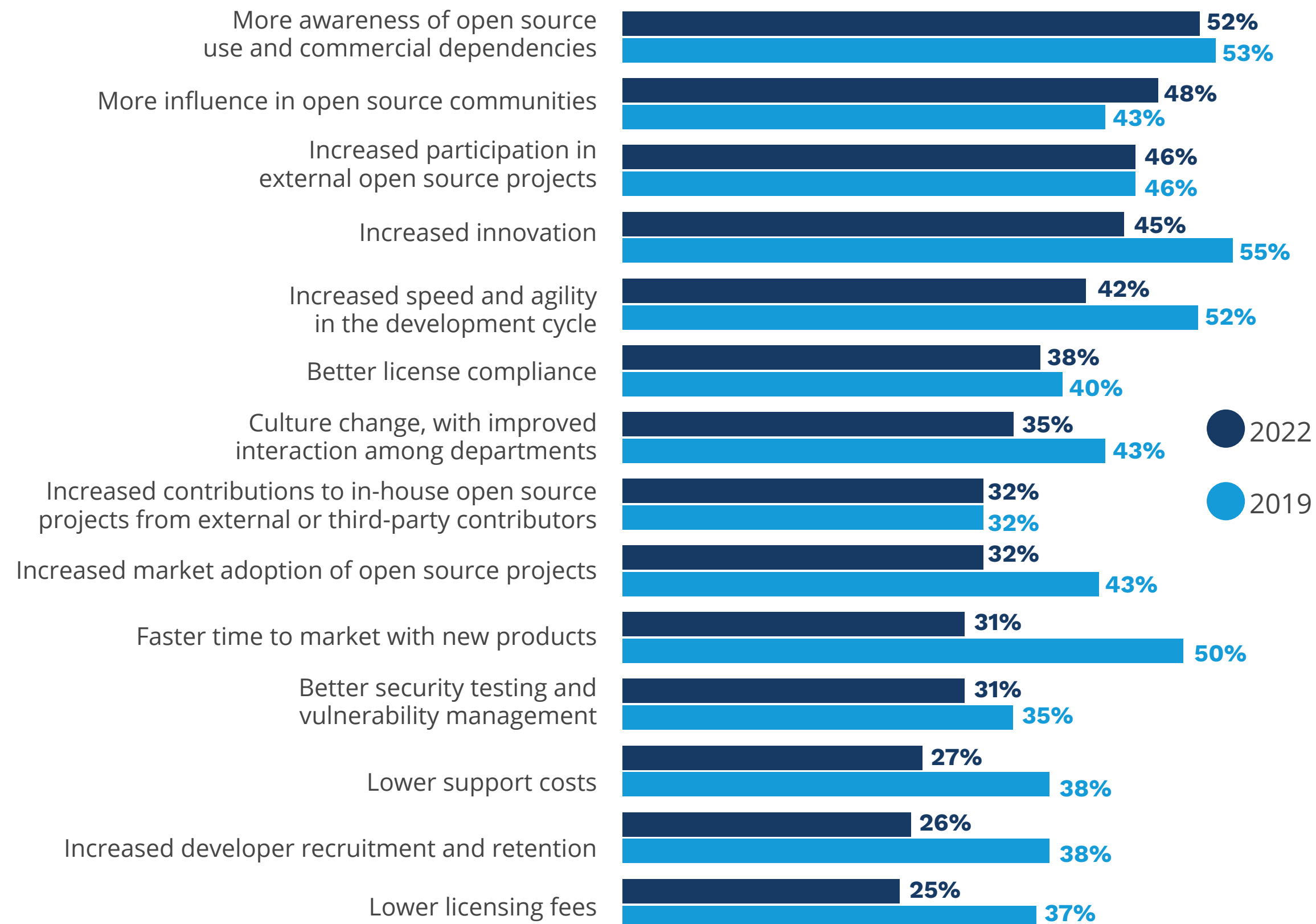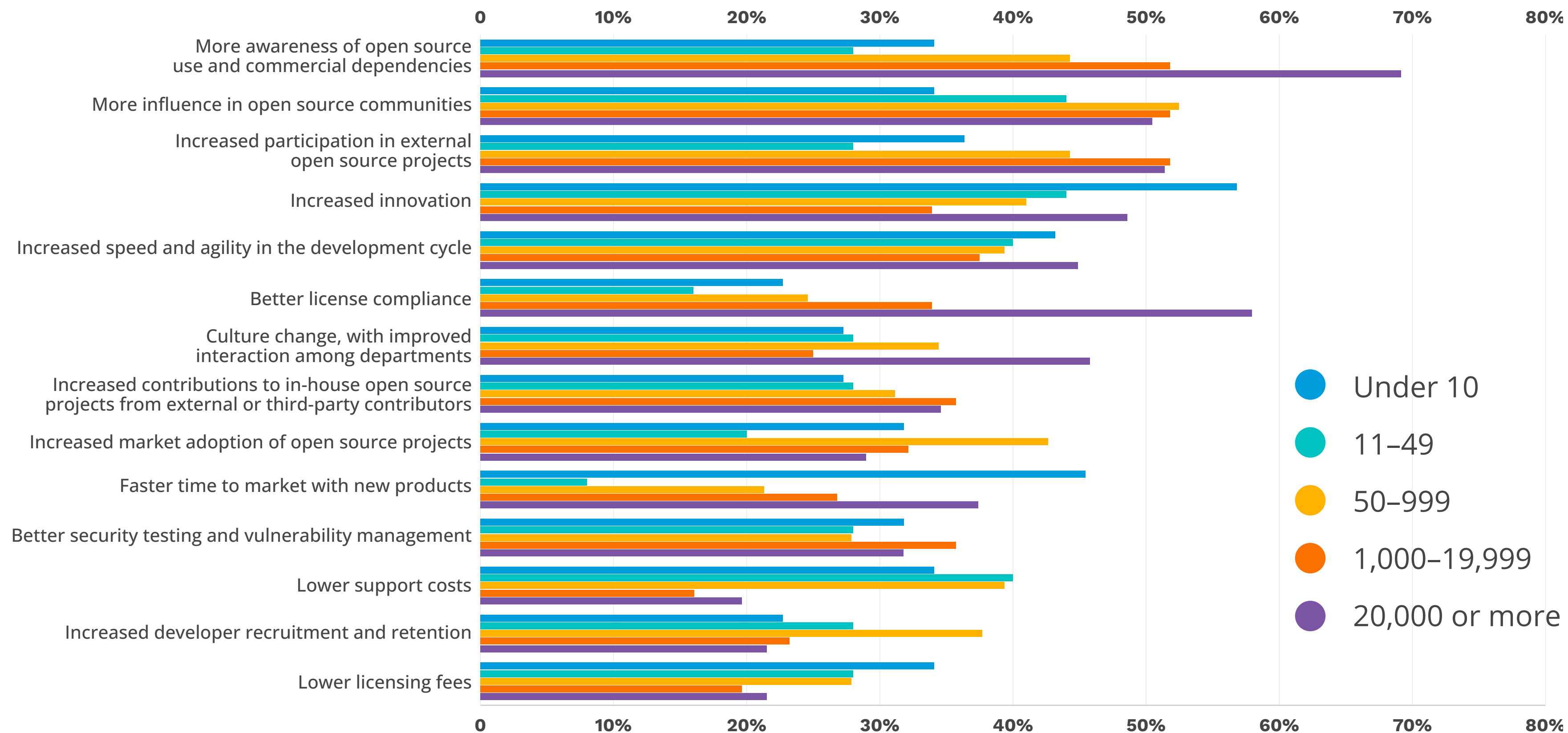| Area	2022	2019
More awareness of open source use and commercial dependencies	52%	53%
More influence in open source communities	48%	43%
Increased participation in external open source projects	46%	46%
Increased innovation	45%	55%
Increased speed and agility in the development cycle	42%	52%
Better license compliance	38%	40%
Culture change, with improved interaction among departments	35%	43%
Increased contributions to in-house open source projects from external or third-party contributors	32%	32%
Increased market adoption of open source projects	32%	43%
Faster time to market with new products	31%	50%
Better security testing and vulnerability management	31%	35%
Lower support costs	27%	38%
Increased developer recruitment and retention	26%	38%
Lower licensing fees	25%	37%

Top 10 Ways Organization Benefitted From Its Open Source Program (Rank order shown. Green indicates an improvement and red a decline in rank vs '21 and '19.)

	2022	2021	2020	2019
More awareness of open source use and commercial dependencies	1	1	2	2
More influence in open source communities	2	8	5	6
Increased participation in external open source projects	3	7	3	5
Increased innovation	4	2	1	1
Increased speed and agility in the development cycle	5	3	8	3
Better license compliance	6	6	4	9
Culture change, with improved interaction among departments	7	4	6	7
Increased contributions to in-house open source projects from external or third-party contributors	8	11	10	14
Increased market adoption of open source projects	9	12	12	8
Faster time to market with new products	10	5	7	4

OSPO benefits vary dramatically based on organization size

What are the areas where your organization has most benefited from the open source program or initiative? (select all that apply) by How many people work for your organization?*

Q16, Q2: Sample Size = 293, Valid Cases = 293, Total Mentions = 1,499

Legend:
- Under 10
- 11–49
- 50–999
- 1,000–19,999
- 20,000 or more

Categories (top to bottom):
- More awareness of open source use and commercial dependencies
- More influence in open source communities
- Increased participation in external open source projects
- Increased innovation
- Increased speed and agility in the development cycle
- Better license compliance
- Culture change, with improved interaction among departments
- Increased contributions to in-house open source projects from external or third-party contributors
- Increased market adoption of open source projects
- Faster time to market with new products
- Better security testing and vulnerability management
- Lower support costs
- Increased developer recruitment and retention
- Lower licensing fees

Large companies benefit most from 1) general awareness and use of open source dependencies, and 2) license compliance.
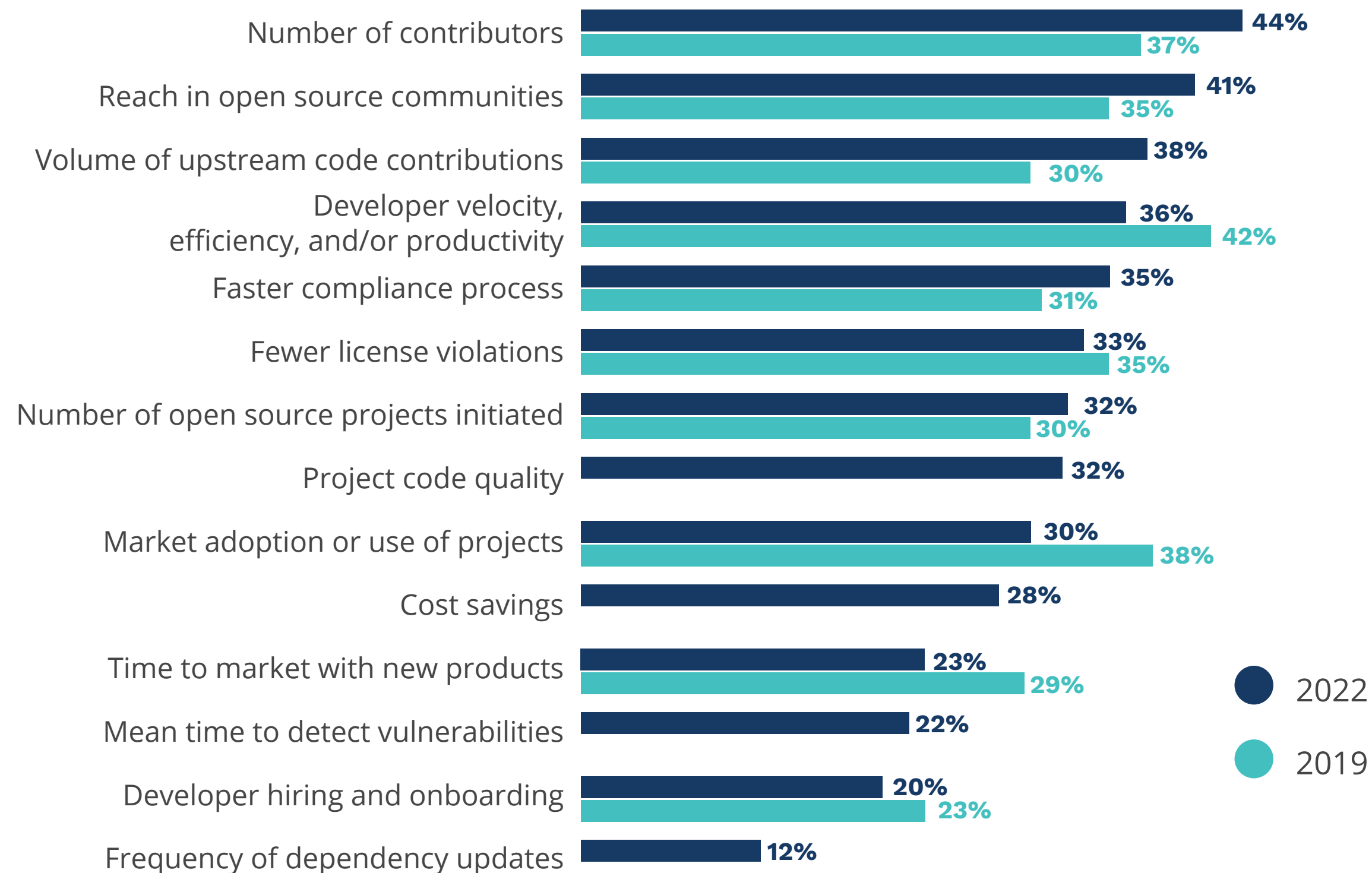
Innovation is #1 for the smallest organizations, cited by 57% as compared to the study average of 45%. These efforts may be ways to leverage the resources of larger technical communities that sometimes have financial benefactors in the form of Big Tech or open source foundations.

* Respondents employed by a software integrator or consulting firm, or self employed, were asked to answer on behalf of the most current client they were primarily working for.

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More than ever, success is measured by the volume of contributions and contributors coming from outside the organization

What are the ways your open source program or initiative quantifies success? (select all that apply)

Q17: Sample Size: 2022 = 285; 2021 = 202; 2020 = 231; 2019 = 517
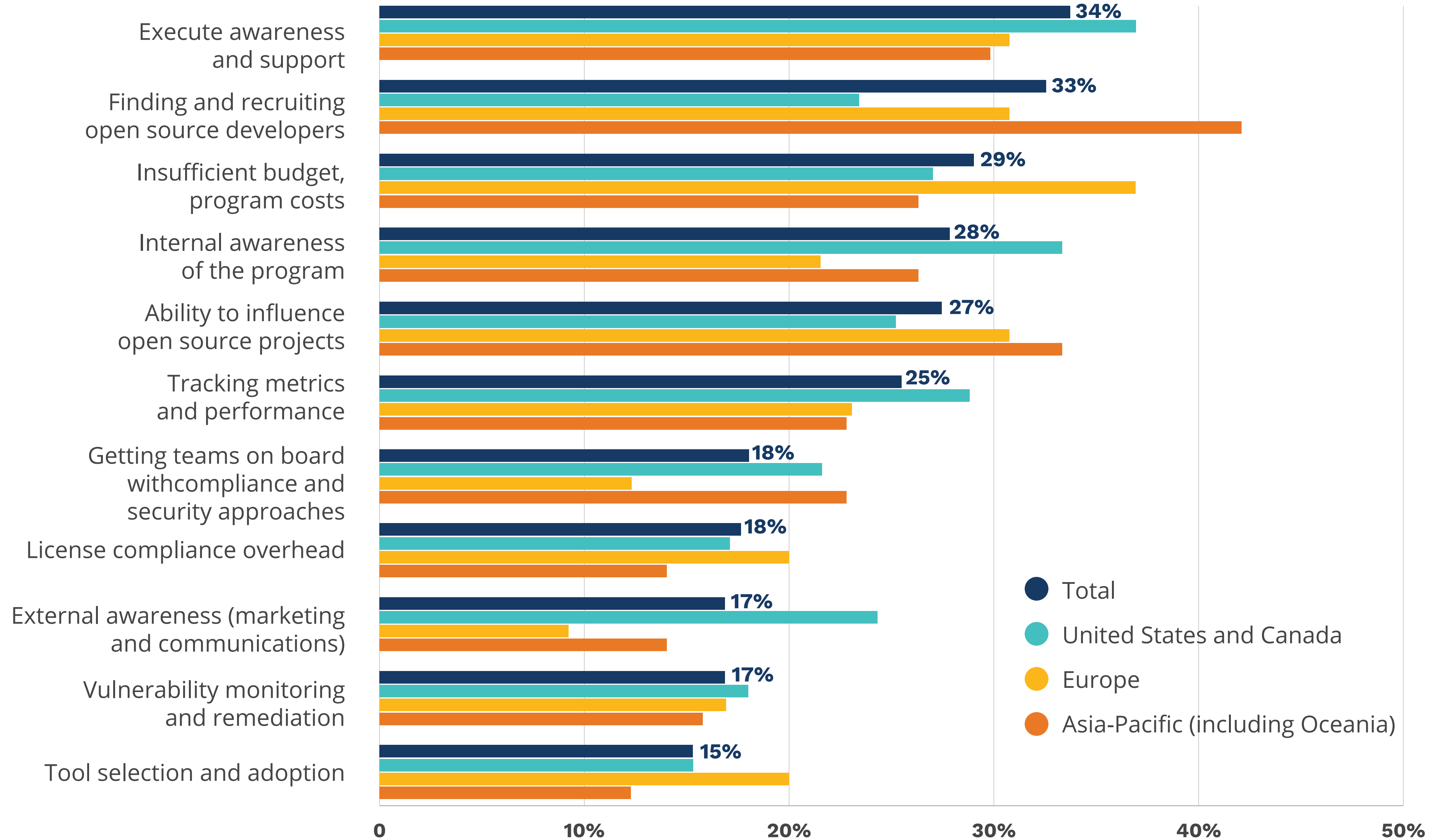Some attributes were not asked about in previous years.

Method	2022	2019
Number of contributors	44%	37%
Reach in open source communities	41%	35%
Volume of upstream code contributions	38%	30%
Developer velocity, efficiency, and/or productivity	36%	42%
Faster compliance process	35%	31%
Fewer license violations	33%	35%
Number of open source projects initiated	32%	30%
Project code quality	32%	
Market adoption or use of projects	30%	38%
Cost savings	28%	
Time to market with new products	23%	29%
Mean time to detect vulnerabilities	22%	
Developer hiring and onboarding	20%	23%
Frequency of dependency updates	12%	

Top 8 Methods for Quantifying the Success of a Program (Rank order shown. Green indicates an improvement and red a decline in rank vs '21 and '19.)

	2022	2021	2020	2019
Number of contributors	1	1	1	3
Reach in open source communities	2	2	4	4
Volume of upstream code contributions	3	5	5	7
Developer velocity, efficiency, and/or productivity	4	3	2	1
Faster compliance process	5	4	6	6
Fewer license violations	6	9	10	5
Number of open source projects initiated	7	10	9	8

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Insufficient funding #1 challenge for European OSPOs; talent recruitment problems top Asia-Pacific's list of challenges

What are the top three challenges your open source program or initiative faces? (select three) By In which region does your organization have its headquarters? (select one)
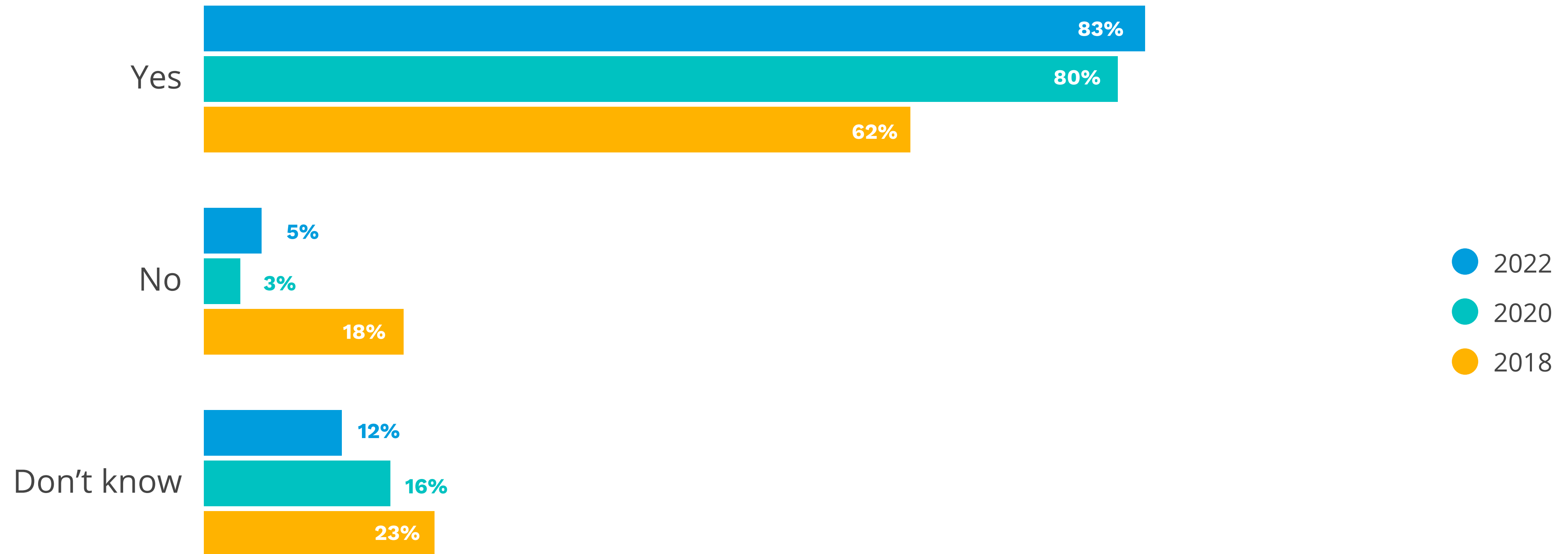
Q18: Sample Size = 255,
Valid Cases = 255,
Total Mentions = 665

Execute awareness and support — **34%**
Finding and recruiting open source developers — **33%**
Insufficient budget, program costs — **29%**
Internal awareness of the program — **28%**
Ability to influence open source projects — **27%**
Tracking metrics and performance — **25%**
Getting teams on board withcompliance and security approaches — **18%**
License compliance overhead — **18%**
External awareness (marketing and communications) — **17%**
Vulnerability monitoring and remediation — **17%**
Tool selection and adoption — **15%**

- Total
- United States and Canada
- Europe
- Asia-Pacific (including Oceania)

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83% have software practices positively impacted by their OSPO

Has the open source program or initiative had a positive impact on your organization's software practices? (select one)
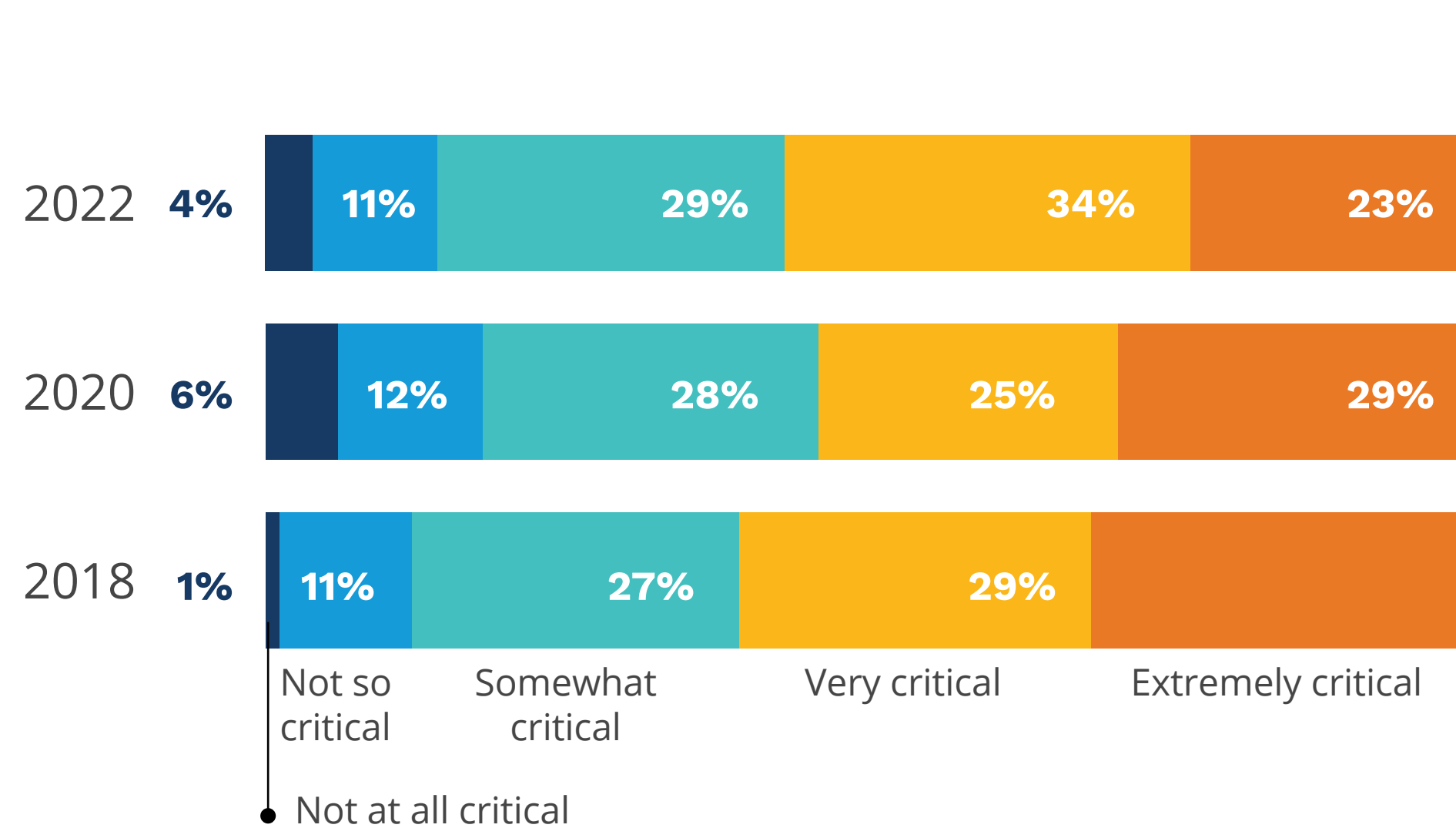
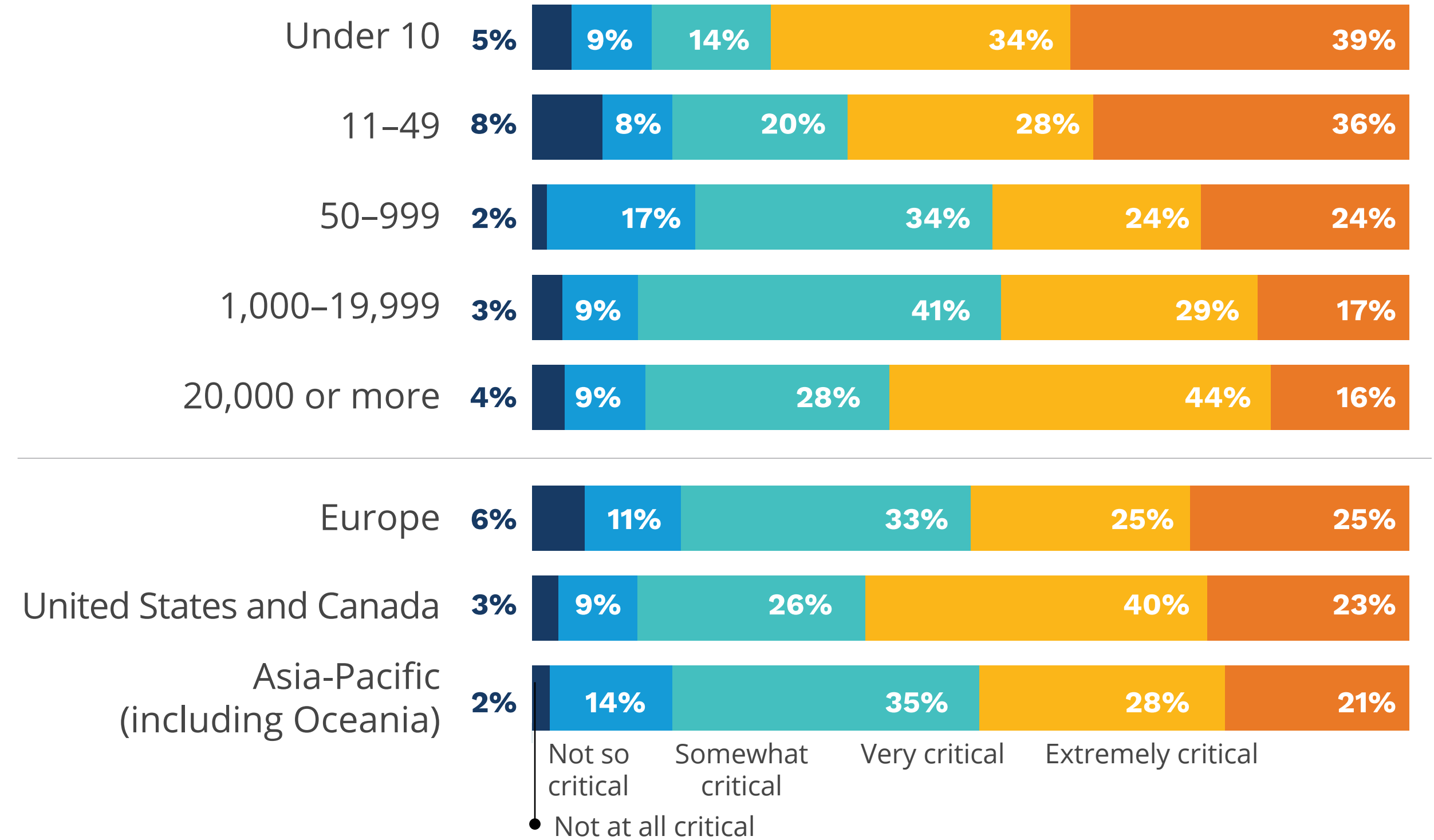Q20: Sample Size: 2022 = 297; 2020 = 250; 2018 = 148

Yes
- 2022: 83%
- 2020: 80%
- 2018: 62%

No
- 2022: 5%
- 2020: 3%
- 2018: 18%

Don't know
- 2022: 12%
- 2020: 16%
- 2018: 23%

Legend:
- 2022
- 2020
- 2018

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The smaller the organization, the more likely its OSPO is extremely critical to engineering / product team success

On a scale of 1-5, how business-critical is your open source program or initiative to the success of your engineering or product teams? (1 = extremely critical, 5 = not at all critical) (select one) by How many people work for your organization?* by In which region does your organization have its headquarters? (select one)

Q19: Sample Size: 2022 = 294; 2021 = 204; 2020 = 248; 2019 = 519; 2018 = 148

Q2, Q19, Q55: Sample Size = 294

	Not so critical	Somewhat critical	Very critical	Extremely critical
2022	4%	11%	29%	34%	23%
2020	6%	12%	28%	25%	29%
2018	1%	11%	27%	29%	

Not at all critical

		Not so critical	Somewhat critical	Very critical	Extremely critical
Under 10	5%	9%	14%	34%	39%
11–49	8%	8%	20%	28%	36%
50–999	2%	17%	34%	24%	24%
1,000–19,999	3%	9%	41%	29%	17%
20,000 or more	4%	9%	28%	44%	16%
Europe	6%	11%	33%	25%	25%
United States and Canada	3%	9%	26%	40%	23%
Asia-Pacific (including Oceania)	2%	14%	35%	28%	21%

Not at all critical

* Respondents employed by a software integrator or consulting firm, or self employed, were asked to answer on behalf of the most current client they were primarily working for.

In Their Own Words: Positive Impact on Software Practices

Please provide one or two specific examples of the positive impact the program or initiative has had on your organization's software practices.

"Our efforts have relieved our company of some of the burden of internal forks of open-source projects, thereby increasing developer productivity. Similarly, by upstreaming fixes to MSBuild and NuGet in the .Net ecosystem, we unblocked the entire company from being stuck on dotnet 5.x. **More directly, our team's work and expertise in conjunction with one our internal engineering teams is responsible for a significant amount of company revenue."**

"We open sourced many closed source products with guidance from pre-OSPO stakeholders, as a result users can extend to meet their use cases and we have received some external contributions. Hiring contractors for these projects was significantly easier and faster for projects delivered as OSS (explaining scope, onboarding like access requirements)."

"One: Development teams are making open source component choices earlier in the design cycle, enabling more runway for legal and security compliance. Two: We have successfully influenced streamlined legal compliance process requirements, **saving an estimated 5,000 engineering hours per year**."

"We were able to **respond to log4j vulnerability 48 hours before the news really broke** in a public way. We've been able to get support for engineering training and dedicated time to vulnerability response from the engineering teams and CISO office."

"Engineers participating in open source are sharpening their collaboration skills which positively affects their ability to develop software in a large organization."

Organizations Without an Open Source Program or Initiative

» **Currently Planning a Program or Initiative**

» **Not Currently Planning a Program or Initiative**

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Currently Planning a Program or Initiative
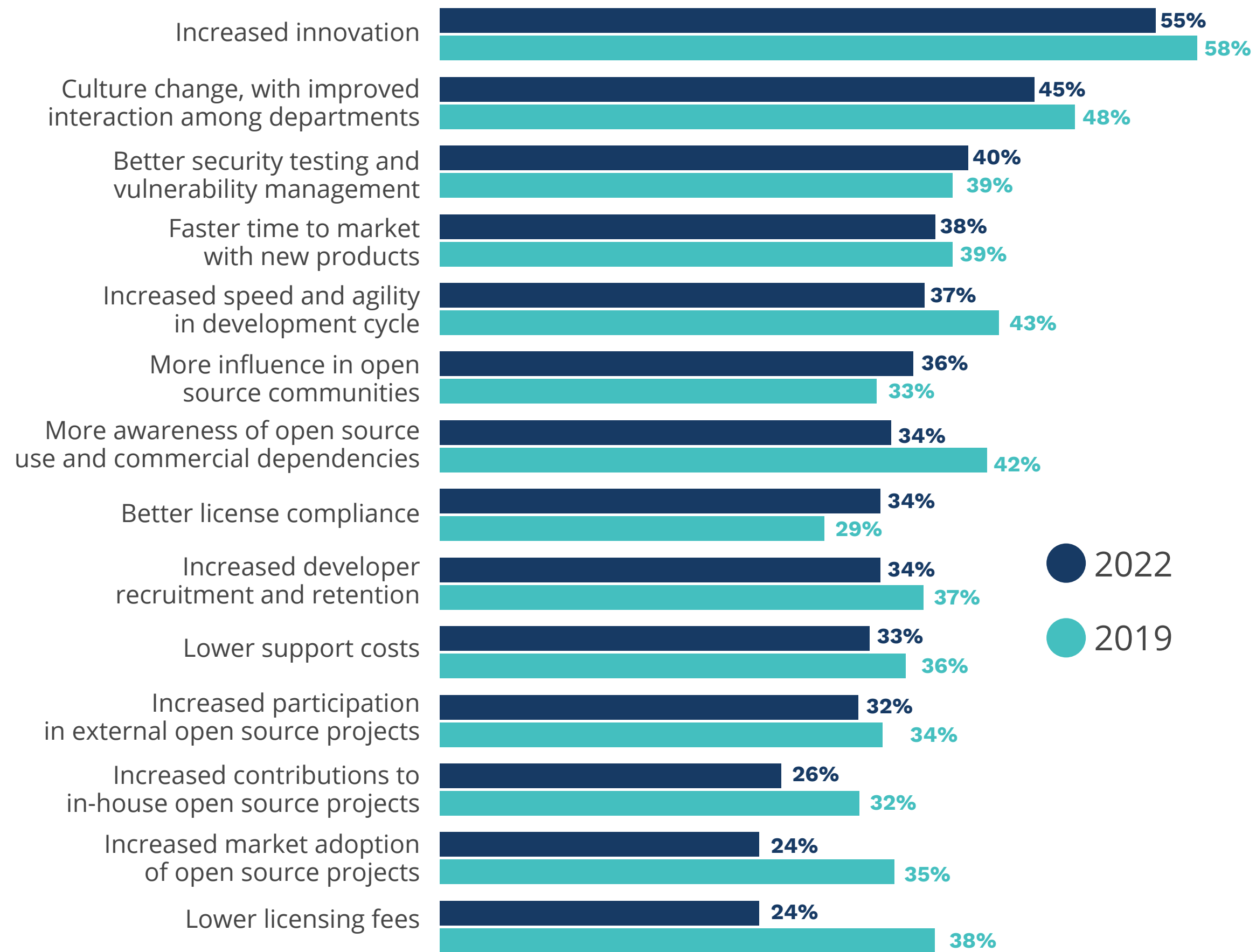
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Innovation is top aim for those planning open source programs

What does your organization aim to accomplish by starting an open source program? (select all that apply)

Q25: Sample Size: 2022 = 119; 2019 = 225
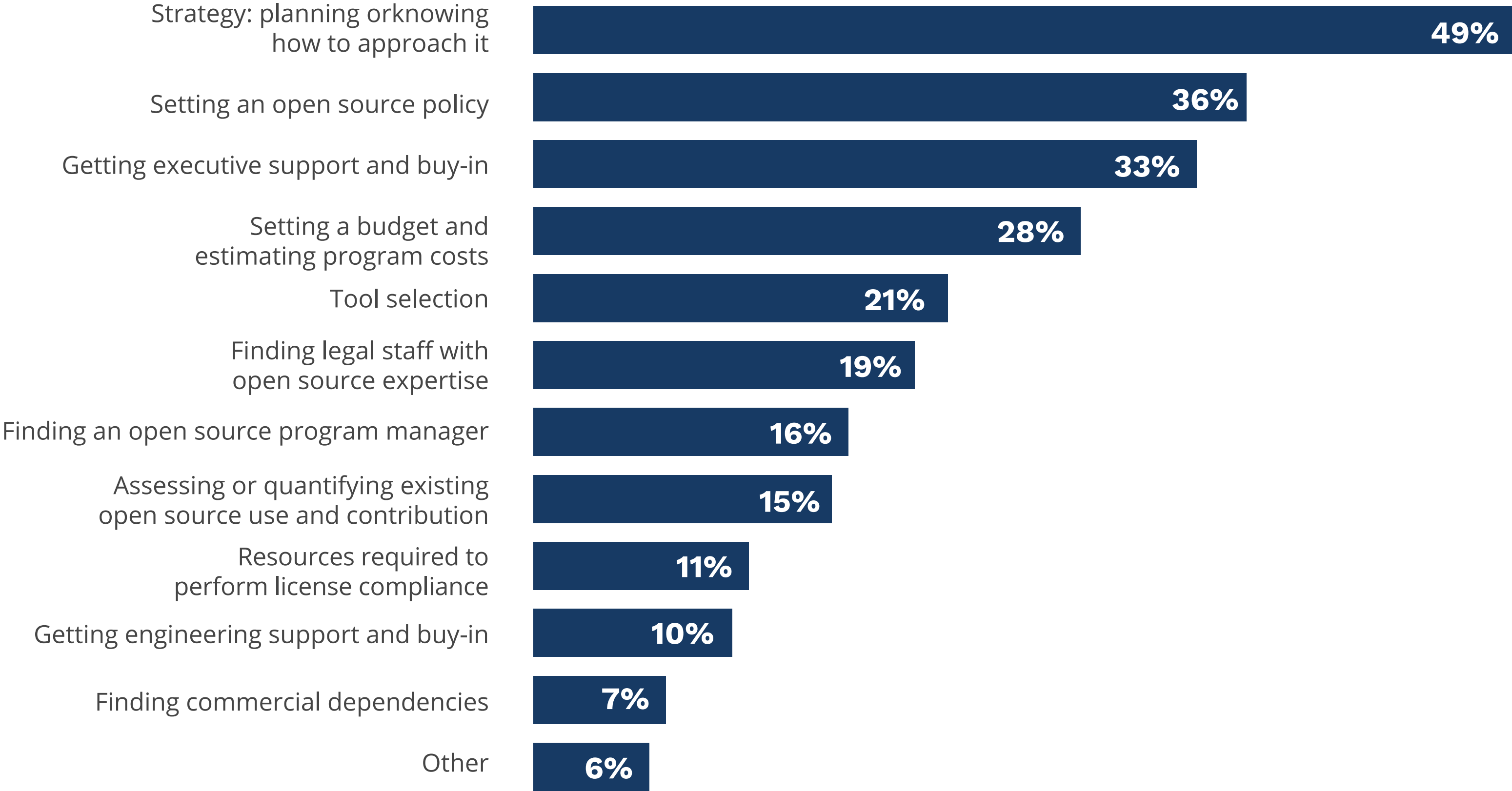Only asked if respondent is planning a program or initiative

Increased innovation	55% / 58%
Culture change, with improved interaction among departments	45% / 48%
Better security testing and vulnerability management	40% / 39%
Faster time to market with new products	38% / 39%
Increased speed and agility in development cycle	37% / 43%
More influence in open source communities	36% / 33%
More awareness of open source use and commercial dependencies	34% / 42%
Better license compliance	34% / 29%
Increased developer recruitment and retention	34% / 37%
Lower support costs	33% / 36%
Increased participation in external open source projects	32% / 34%
Increased contributions to in-house open source projects	26% / 32%
Increased market adoption of open source projects	24% / 35%
Lower licensing fees	24% / 38%

● 2022 ● 2019

Top 10 Aims for Planned Open Source Program (Rank order shown. Green indicates an improvement and red a decline in rank vs '21 and '19.)

	2022	2021	2020	2019
Increased innovation	1	1	1	1
Culture change, with improved interaction among departments	2	7	2	2
Better security testing and vulnerability management	3	4	10	6
Faster time to market with new products	4	3	7	5
Increased speed and agility in development cycle	5	5	5	3
More influence in open source communities	6	13	14	12
More awareness of open source use and commercial dependencies	7	2	3	4
Better license compliance	8	14	11	14
Increased developer recruitment and retention	9	9	9	8
Lower support costs	10	6	6	9

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Organizations need help starting new OSPOs

What have been the top three biggest challenges in establishing an open source program or initiative? (select three)

Q26: Sample Size = 120, Valid Cases = 120, Total Mentions = 300
Only asked if respondent is planning a program or initiative

Challenge	Percentage
Strategy: planning orknowing how to approach it	49%
Setting an open source policy	36%
Getting executive support and buy-in	33%
Setting a budget and estimating program costs	28%
Tool selection	21%
Finding legal staff with open source expertise	19%
Finding an open source program manager	16%
Assessing or quantifying existing open source use and contribution	15%
Resources required to perform license compliance	11%
Getting engineering support and buy-in	10%
Finding commercial dependencies	7%
Other	6%

The top three challenges for organizations creating an open source program or initiative are the same as in 2020.

Organizations with a formal policy governing contributing upstream are more likely to face challenges finding legal staff with relevant expertise (31% vs the study average of 19%). (Q5 asks about formal policies)

Finding legal staff with open source expertise is also more difficult for those with policies about the use of open source in products (27%).

Yet, the absence of such a policy increases the likelihood that setting an open source policy is challenging to 49%.

Not Current Planning a Program or Open Source Initiative

TODO

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Time / resource constraints is top reason why open source programs are not in plans

Why doesn't your organization have an open source program? (select all that apply) by In which region does your organization have its headquarters? (select one)

Q27, Q55. Sample Size = 255, Valid Cases = 255, Total Mentions = 520

Legend:
- United States and Canada
- Europe
- Asia-Pacific (including Oceania)

Time or resource constraints — 46%, 32%, 49%
Haven't considered it — 29%, 39%, 43%
Don't see the business value — 27%, 33%, 27%
Organization is too small to need one — 23%, 31%, 35%
Organization's open source use and participation is too small to need one — 18%, 8%, 27%
Have never heard of an open source program — 16%, 17%, 16%
Don't want to regulate or standardize open source practices — 11%, 14%, 8%
Want one but can't justify it — 10%, 6%, 22%
Don't use or participate in open source — 5%, 2%, 3%
Used to have one, but it ended — 2%, 2%, 3%
Other — 12%, 11%, 8%

At 38%, time / resource constraints is the top reason why open source programs are not in plans

Justifications about time and resource constraints are often centered around the size of the organization rather than assumptions about business value.

Organizations headquartered in the Asia-Pacific are twice as likely as the average organization (22% vs 10%) to want a program but not be able to justify it.

More opportunity to create OSPOs in Asia-Pacific

Would your organization benefit from an open source program or initiative? (select one) by
In which region does your organization have its headquarters? (select one)

Q28: Sample Size: 2022 = 329; 2021 = 472
Worldwide view
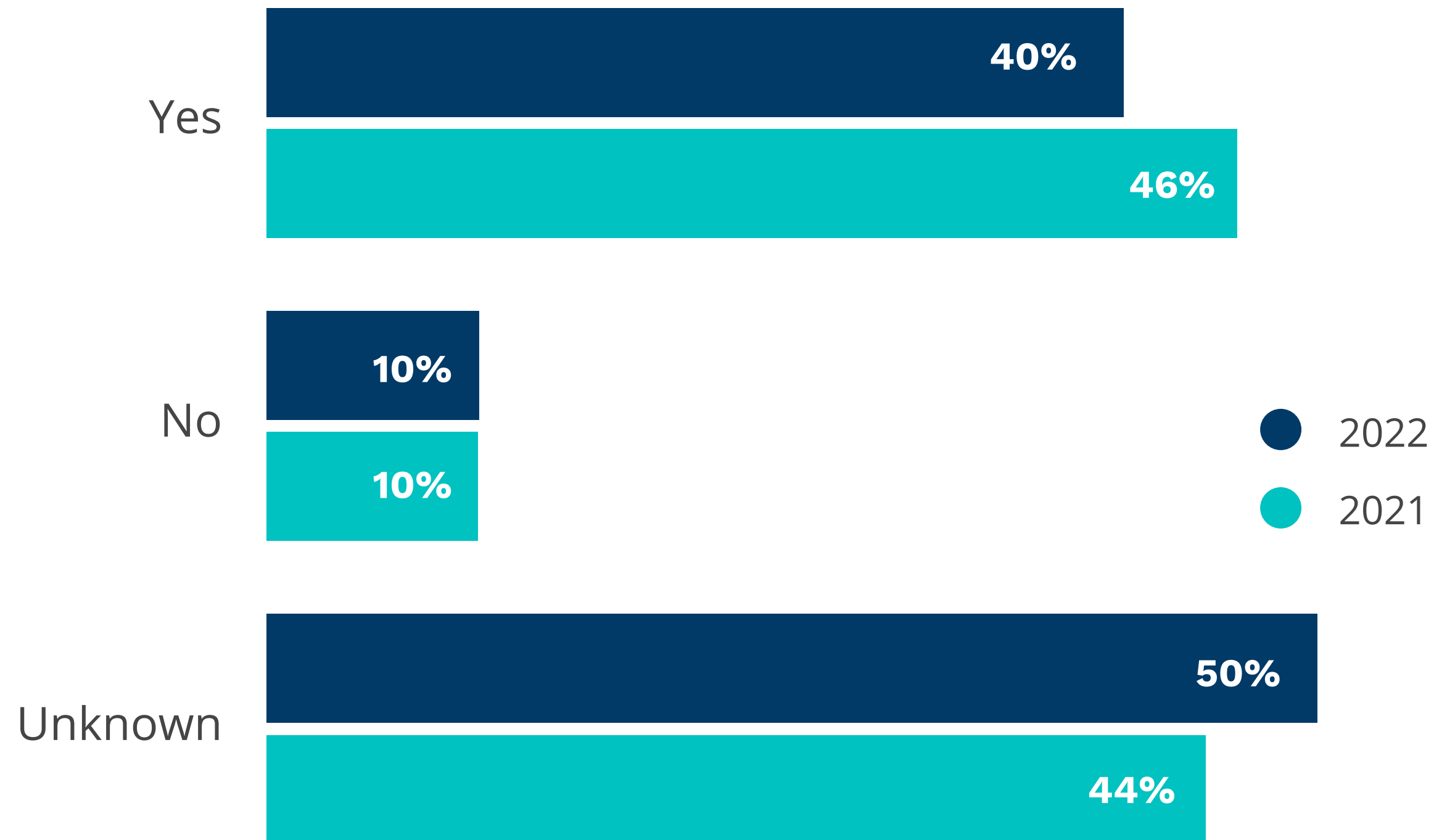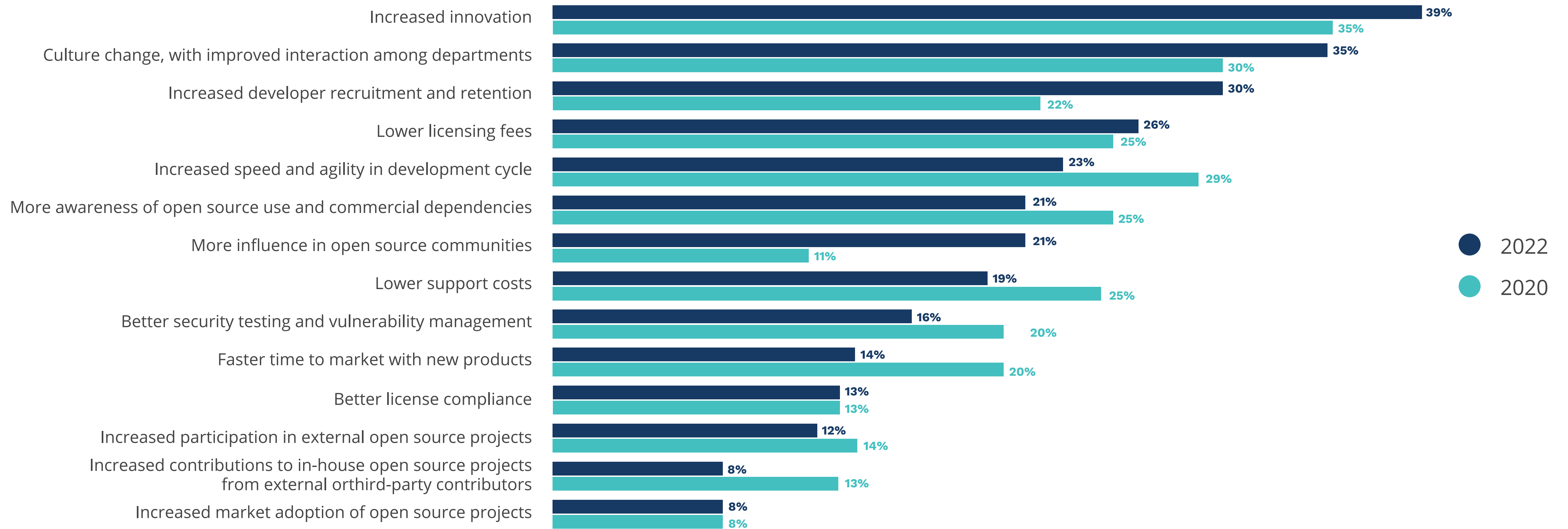
Q28, Q55: Sample Size: 2022 = 329

Yes
- 2022: 40%
- 2021: 46%

No
- 2022: 10%
- 2021: 10%

Unknown
- 2022: 50%
- 2021: 44%

● 2022
● 2021

Yes
- United States and Canada: 35%
- Europe: 38%
- Asia-Pacific (including Oceania): 51%

No
- United States and Canada: 9%
- Europe: 11%
- Asia-Pacific (including Oceania): 3%

Unknown
- United States and Canada: 56%
- Europe: 52%
- Asia-Pacific (including Oceania): 46%

● United States and Canada
● Europe
● Asia-Pacific (including Oceania)

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Developer recruitment / retention rises to #3 on list of expected OSPO benefits

What are the top three ways your organization would benefit from an open source program or initiative? (select three)

Q30: Sample Size: 2022 = 122; 2020 = 183
Respondents have no plans to create an open source program but believe their organization would benefit from one.

Benefit	2022	2020
Increased innovation	39%	35%
Culture change, with improved interaction among departments	35%	30%
Increased developer recruitment and retention	30%	22%
Lower licensing fees	26%	25%
Increased speed and agility in development cycle	23%	29%
More awareness of open source use and commercial dependencies	21%	25%
More influence in open source communities	21%	11%
Lower support costs	19%	25%
Better security testing and vulnerability management	16%	20%
Faster time to market with new products	14%	20%
Better license compliance	13%	13%
Increased participation in external open source projects	12%	14%
Increased contributions to in-house open source projects from external orthird-party contributors	8%	13%
Increased market adoption of open source projects	8%	8%

In their own words: Approaching the creation of a program or initiative

How would you approach creating an open source program or initiative within your organization?

"Establish the goals of an open-source program. Create a repository for open-source program, complete with contributing and communication guidelines, codes of conduct, templates, and maintainer guides."

"It will start with motivation to articulate the business case for open source program and then a policy will be formulated. We will then identify areas to benefit from this program."

"Need to get proper buy-in and resource commitments from executive leadership. That would probably require convincing the need for it. So far, that need hasn't been organically strong enough against current sales and business. I believe there's non-trivial value added in having something like this, if nothing else, as guidance for developers to contribute back to free / open source projects, which could bolster employee happiness."

"Workplace is a university, hence, I would motivate the program by highlighting benefits for research and students/teaching, i.e., advance education in engineering and (computer) science."

"My organization is a university. We'd likely create a community of practice."

Organization size is top reason those with no plans say an OSPO would not benefit their organization

Would your organization benefit from an open source program or initiative?
If no, why would your organization not benefit? (select all that apply)

Q31: Sample Size = 35, Valid Cases = 35, Total Mentions = 43
Respondents have no plans to create an open source program but and do not believe their organization would benefit from one.

Reason	Percentage
Organization is too small to need one	43%
Don't see the business value	23%
Don't want to regulate or standardize open source practices	14%
Haven't considered it	9%
Organization's open source use and participation is too small to need one	6%
Have never heard of an open source program	3%
Don't use or participate in open source	3%
Used to have one, but it ended	0%
Other (please specify)	14%
I don't know	9%

Value of
Open Source
Participation

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Community citizenship influences buying decisions for organizations that contribute code upstream

To what degree does a company's participation in, and contributions to, the open source community influence your organization's buying decisions? (select one) by How often does your organization contribute code upstream? by In which region does your organization have its headquarters? (select one)

Q37, Q4, Q55: Sample Size = 511
People that did not have OSPOs and did not know if an OSPO would benefit their organization were not asked this question.

	Not at all influential	Slightly influential	Moderately influential	Very influential	Extremely influential	Don't know
Study Total	13%	13%	26%	23%	13%	13%
Frequently	7%	9%	26%	25%	17%	15%
Sometimes	6%	16%	30%	28%	15%	5%
Rarely or never	23%	13%	23%	19%	8%	14%
Asia-Pacific (including Oceania)	8%	12%	32%	24%	15%	9%
United States and Canada	15%	17%	26%	17%	11%	14%
Europe	15%	11%	23%	28%	9%	15%

TODO   THE LINUX FOUNDATION | Research
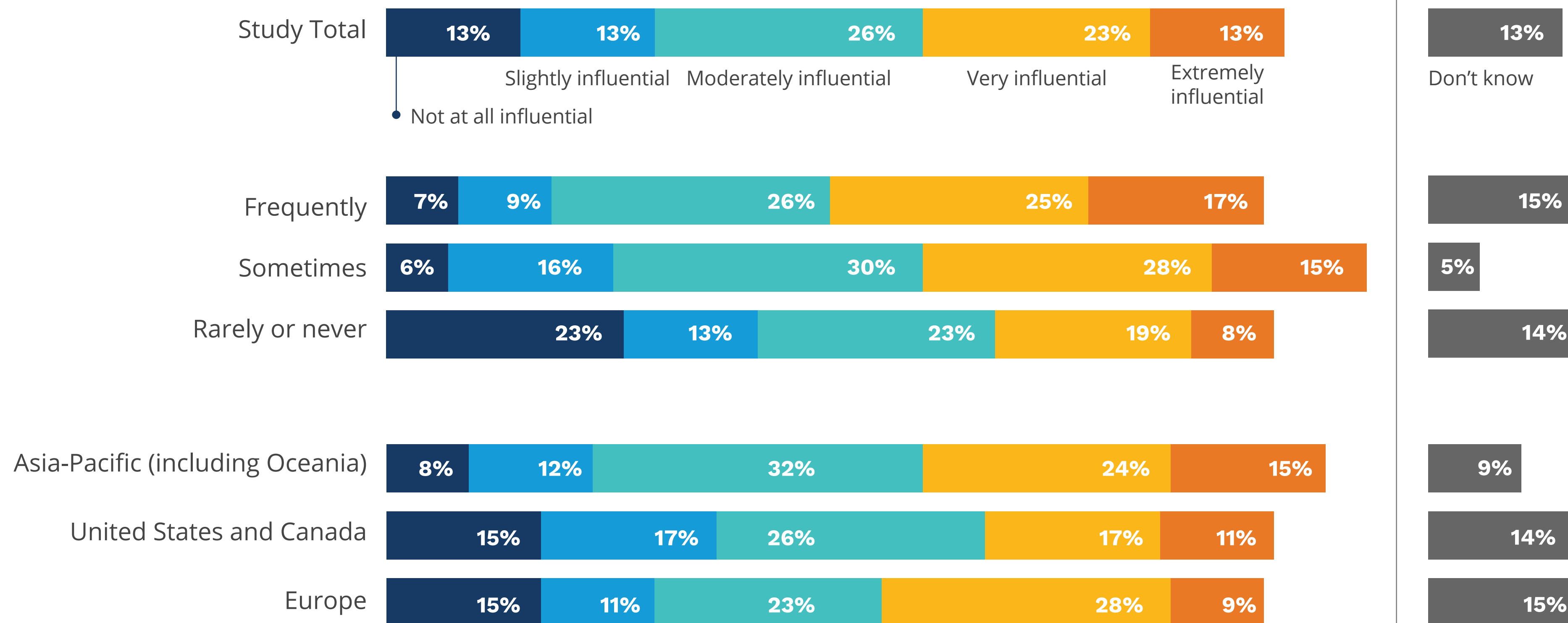
Involvement in open source ecosystems is more likely to be used as criteria for business decision making

In the last five years, has anyone in your organization included participation in open source ecosystems as criteria for the following? (select one per row)

Q38: Sample Size = 511
People that did not have OSPOs and did not know if an OSPO would benefit their organization were not asked this question.

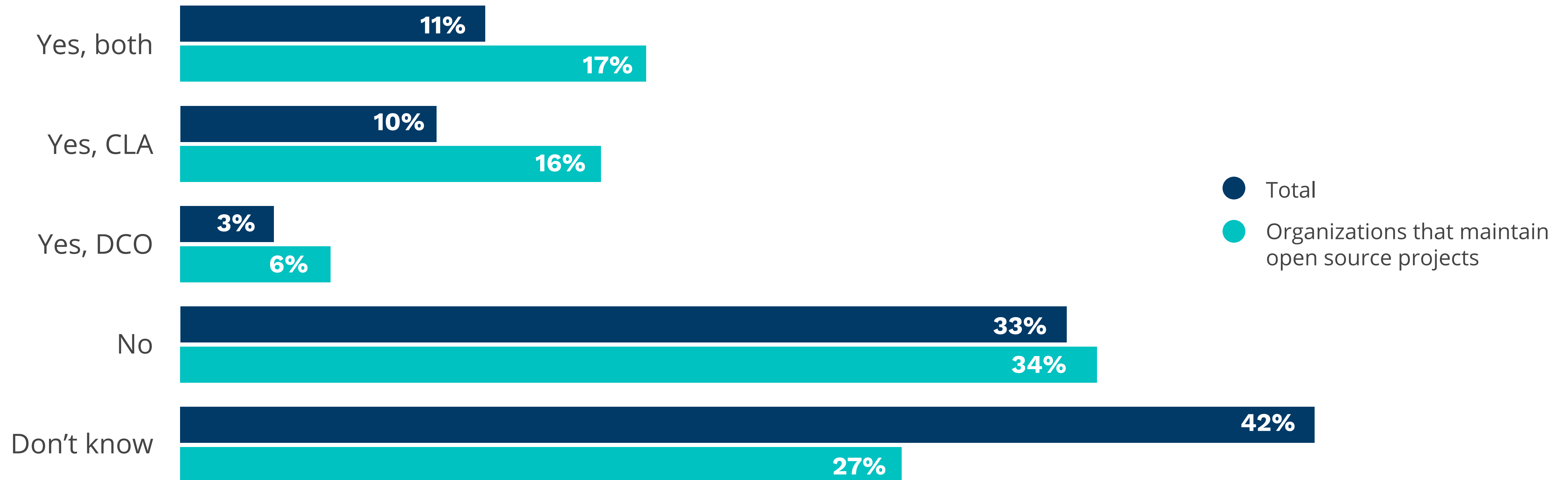|			
Decision to select a new vendor, supplier or partner	32%	24%	44%
Review or audit of software and IT vendor contracts	35%	27%	37%
Decision to discontinue a relationship with an existing vendor supplier or partner	38%	31%	31%

● Yes
● No
● Don't know
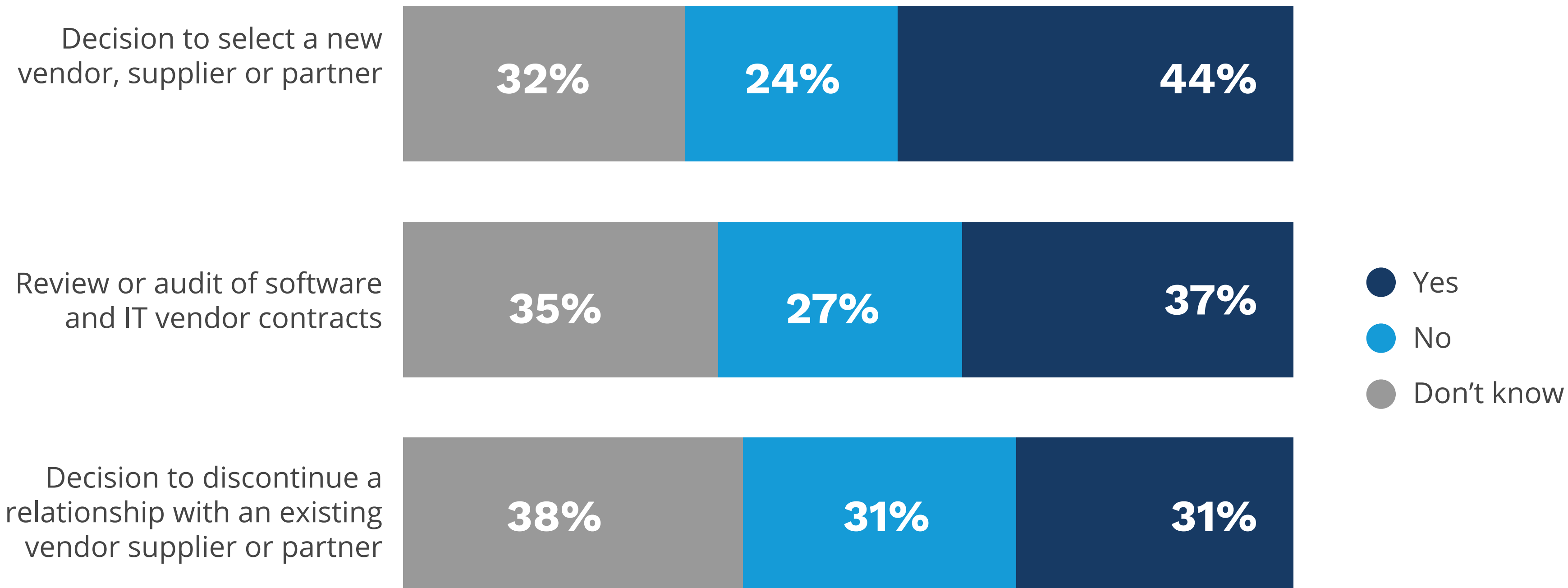
Last year, 46% of organizations used participation in open source ecosystems to make one or more of these decisions. That jumped to 55% this year.

46% of organizations that have an open source program/ initiative, regardless of its formality, have reviewed or audited contracts — that compares to 28% of everyone else.

In their own words: Suggesting how to track open vendor/supplier open source participation

If your organization has previously assessed vendor, supplier or partner participation in open source ecosystems, how would you change the process and metrics in the future? What would you tell your peers seeking to conduct similar evaluations?

"Just having an open source policy is not sufficient. Policy should have a well-defined process and continuing improvements."

"Considering open source is now part of our IT governance. It's not mandatory, but when open source is a viable option, the organization will aim to select this solution."

"Checking that use of open protocols and standards versus the supplier proprietary options does not influence costs for using services."

"Caution when approaching certain topics such as copyleft initiatives. Ideally it needs to include reuse and resubmission of modified code."

Few organizations collecting information about disclosures share those findings publicly

In regards to content and quality, does your organization collect, verify, grade, and publicly share its findings from open source disclosure documents supplied by third-party vendors? (select all that apply)

Q40: Sample Size = 511, Valid Cases = 511, Total Mentions = 731
People that did not have OSPOs and did not know if an OSPO would benefit their organization were not asked this question.

Category	Percentage
Collect	29%
Verify	29%
Grade	18%
Publicly share findings	12%
Don't know	55%
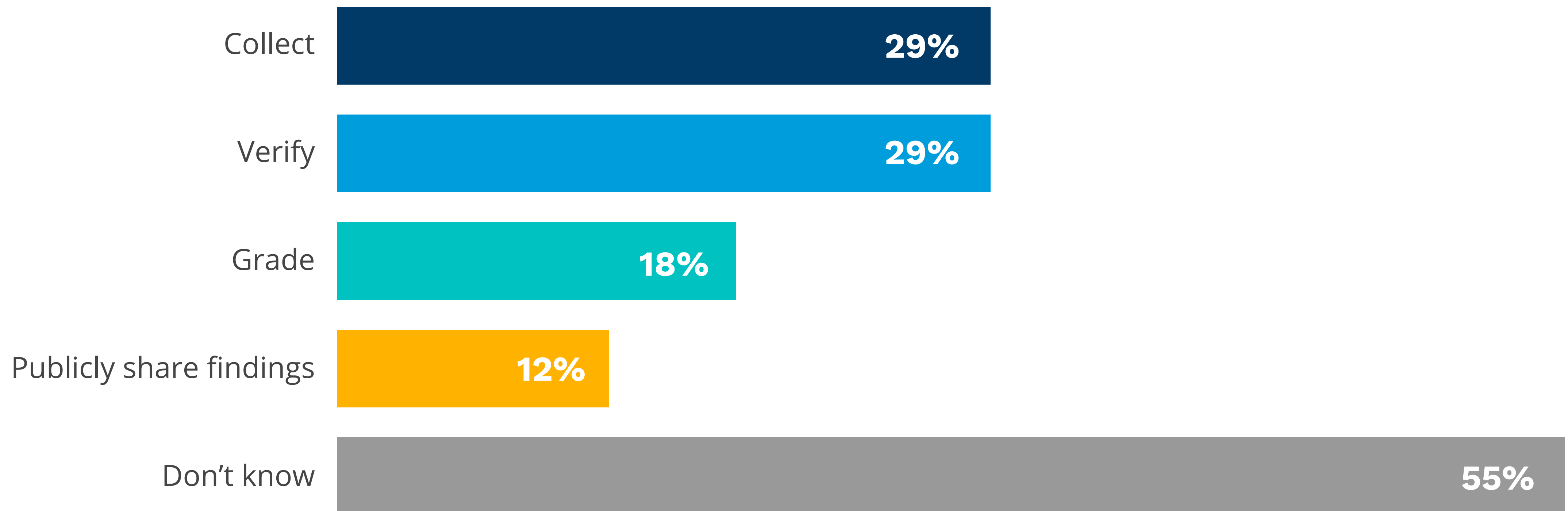
License Compliance and Security

CLA and DCO requirements for external contributions to projects

Does your organization require a Contributor License Agreement (CLA) and/or a Developer Certificate of Origin (DCO) for external contributions to your open source projects? (select one) by How many open source projects does your company maintain? (select one)

Q47, Q43: Sample Size = 658

Yes, both
- Total: 11%
- Organizations that maintain open source projects: 17%

Yes, CLA
- Total: 10%
- Organizations that maintain open source projects: 16%

Yes, DCO
- Total: 3%
- Organizations that maintain open source projects: 6%

No
- Total: 33%
- Organizations that maintain open source projects: 34%

Don't know
- Total: 42%
- Organizations that maintain open source projects: 27%

Legend:
- Total
- Organizations that maintain open source projects

Organizations that maintain the most projects lead in the requirement of a Developer Certificate of Origin (DCO)

Does your organization require a Contributor License Agreement (CLA) and/or a Developer Certificate of Origin (DCO) for external contributions to your open source projects? (select one) by How many open source projects does your company maintain? (select one)

Q47, Q43: Sample Size = 356 (1-5 projects, 164; 6-10 projects, 58; 11-50 projects, 55; More than 50 projects, 79)

Yes, both
- 13%
- 12%
- 20%
- 29%

Yes, CLA
- 13%
- 14%
- 20%
- 20%

Yes, DCO
- 2%
- 7%
- 11%
- 9%

No
- 37%
- 43%
- 29%
- 27%

Don't know
- 36%
- 24%
- 20%
- 15%

Legend:
- 1–5 projects
- 6–10 projects
- 11–50 projects
- More than 50 projects
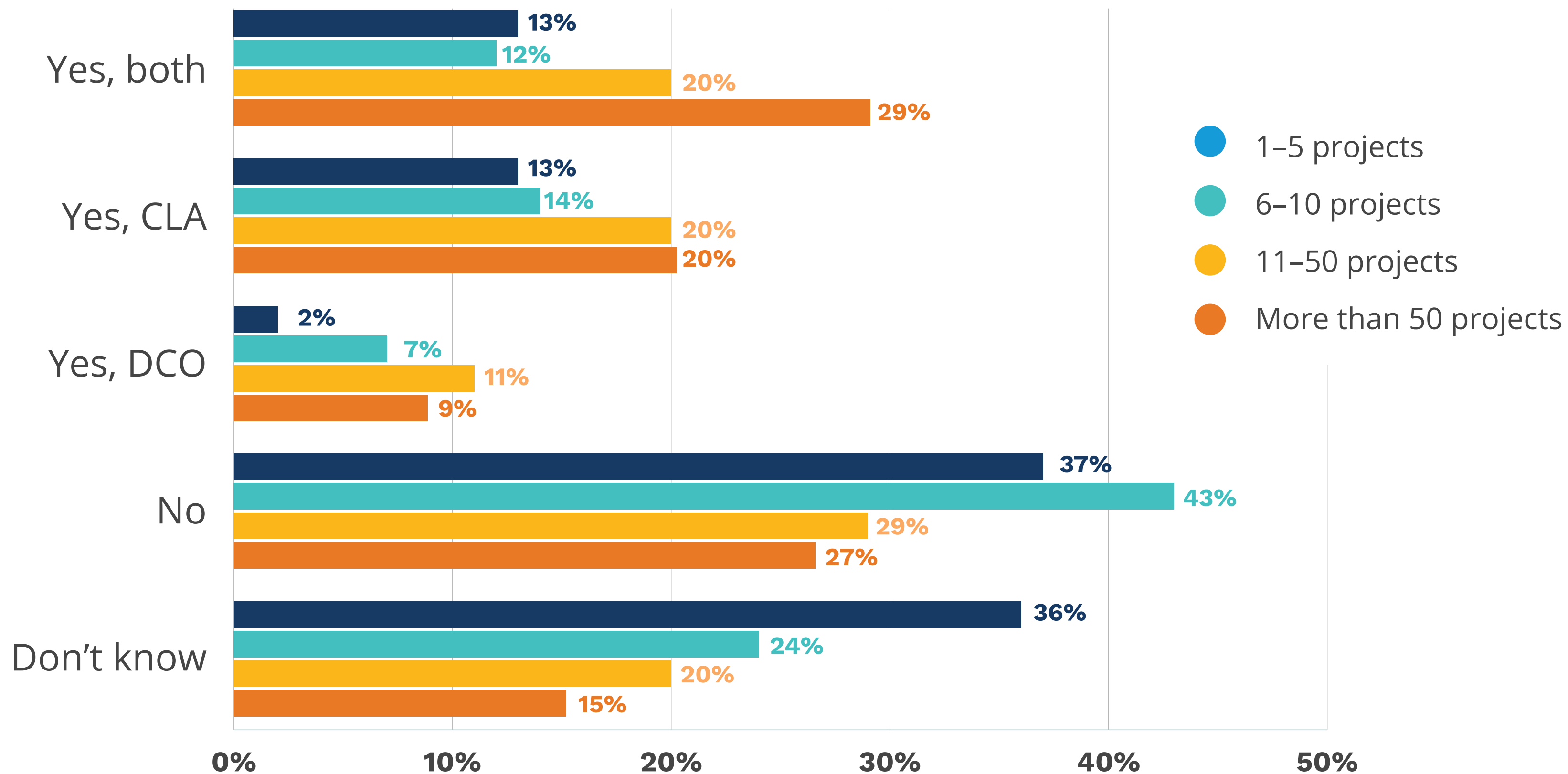
33% of organizations that maintain open source projects require a CLA from external contributors and 23% require a DCO. Only 11% require both.

Organizations that maintain more than 10 projects are more likely have one of these requirements.

Almost half (49%) of organizations that maintain more than 50 projects have a CLA requirement; 38% require DCOs.

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Automation of checks / scans is more common for security than for license compliance

How does your organization scan for vulnerabilities and open source security compliance? (select all that apply)

How does your organization check for open source license compliance? (select all that apply)

Q49: Sample Size = 658, Valid Cases = 658, Total Mentions = 905
Q50: Sample Size = 658, Valid Cases = 658, Total Mentions = 958

Automation of processes — 38% / 22%

Organizational processes — 33% / 34%

Case-by-case basis — 28% / 30%

Departmental-level processes — 22% / 17%

No processes or approaches — 11% / 13%

Don't know or not applicable — 15% / 20%

● Vulnerabilities and open source policy compliance

● Open source license compliance
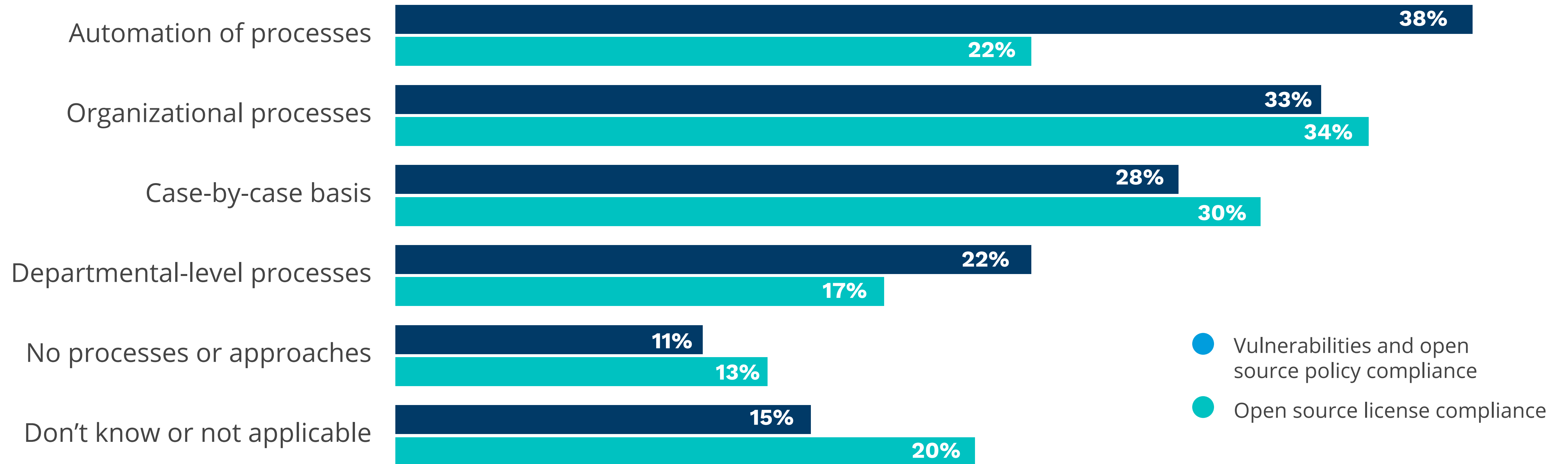
North American organizations are more likely to use process automation for security compliance

How does your organization scan for vulnerabilities and open source security compliance? (select all that apply) by In which region does your organization have its headquarters? (select one)

Q50, Q55: Sample Size = 658, Valid Cases = 658, Total Mentions = 958

Automation of processes — 38%

Organizational processes — 33%

Case-by-case basis — 28%

Departmental-level processes — 22%

Don't know or not applicable — 15%

No processes or approaches — 11%

Legend:
- Total
- United States and Canada
- Europe
- Asia-Pacific (including Oceania)
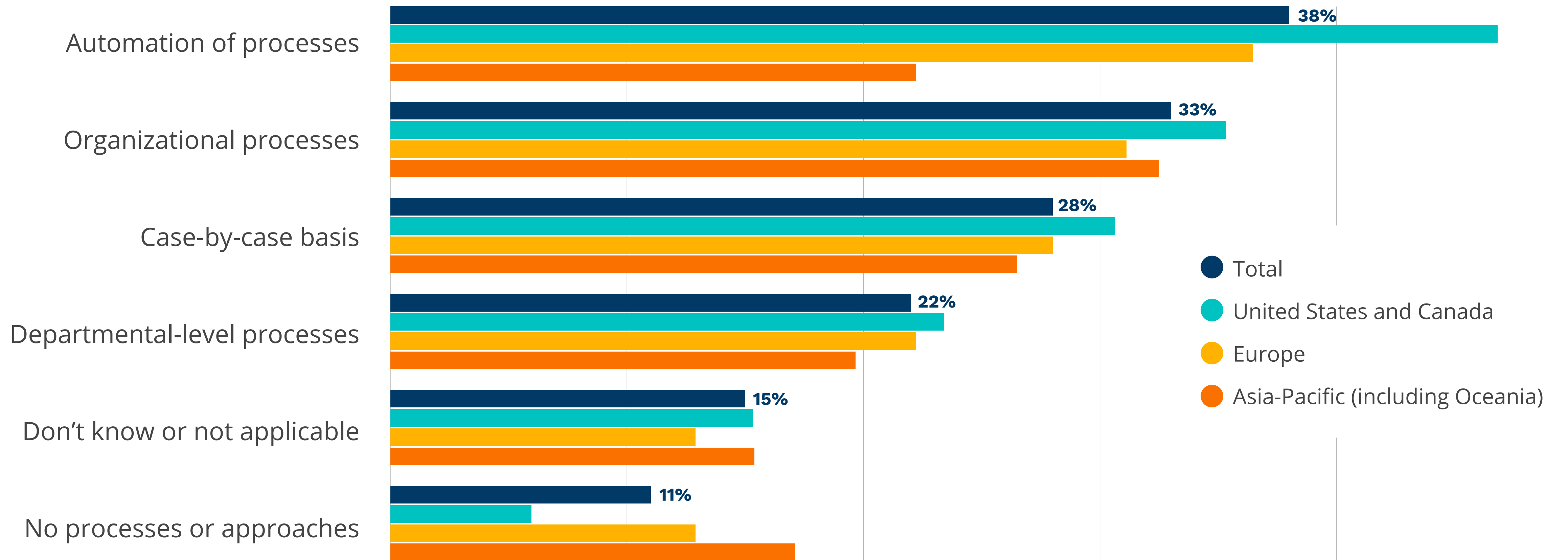
Appendix

» **Demographics and Firmographics (Q3, Q53)**

» **Maturity of Open Source Practices
and Development Metrics (Q1, Q5, Q43-Q46)**

» **Current Open Source Programs and Initiatives (Q12)**

» **Organizations Planning an Open Source
Program or Initiative (Q22-24)**

» **Organizations Not Planning an Open Source
Program or Initiative (Q28)**

» **License Compliance and Security (Q48, Q51)**

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Primary job role

Professionally, which role or field do you most closely identify with? (select one)

Q3: Sample Size: 2022 = 1020; 2020 = 585; 2018 = 455
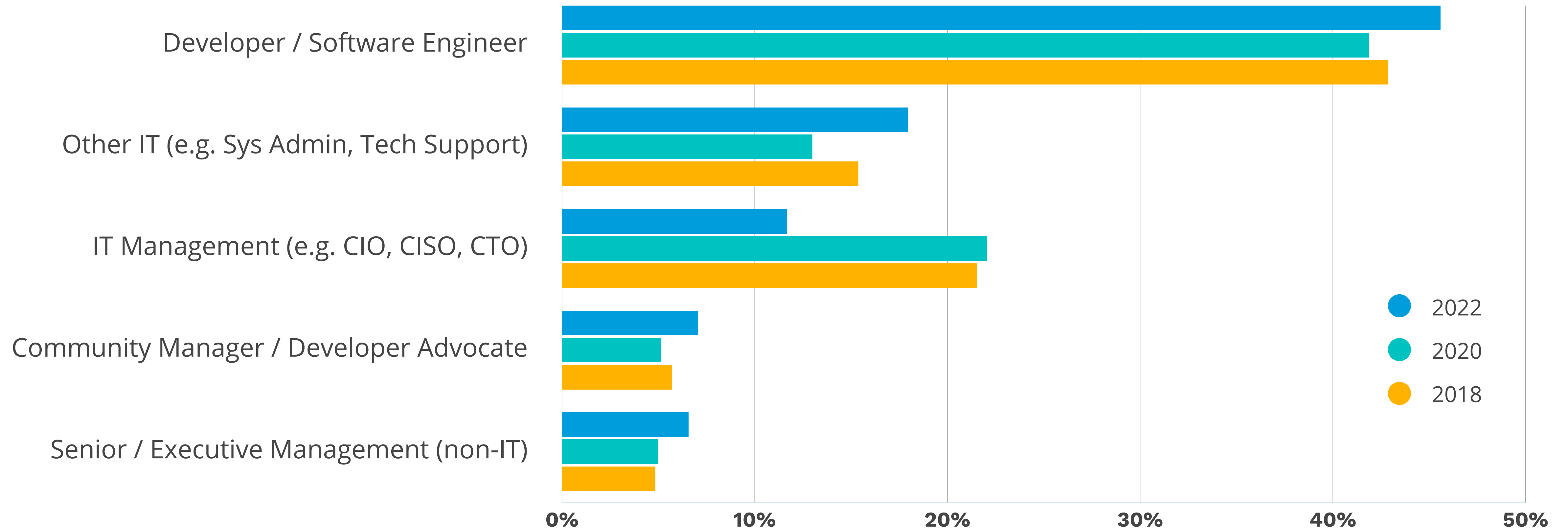
Focus of organization's open source activities

Which technology area does your organization focus its open source activities on? (select all that apply)

Q53: Sample Size: 2022 = 628; 2021 = 526

Legend: 2022, 2021

Categories (top to bottom): Containers & Virtualization, Web & Application Development, DevOps, Cloud, AI, ML, Data & Analytics, CI/CD & Site Reliability, Security, Networking & Edge, System Administration, IoT & Embedded, Storage, Blockchain, Open Hardware, Safety-Critical Systems, Other

X-axis: 0%, 10%, 20%, 30%, 40%, 50%

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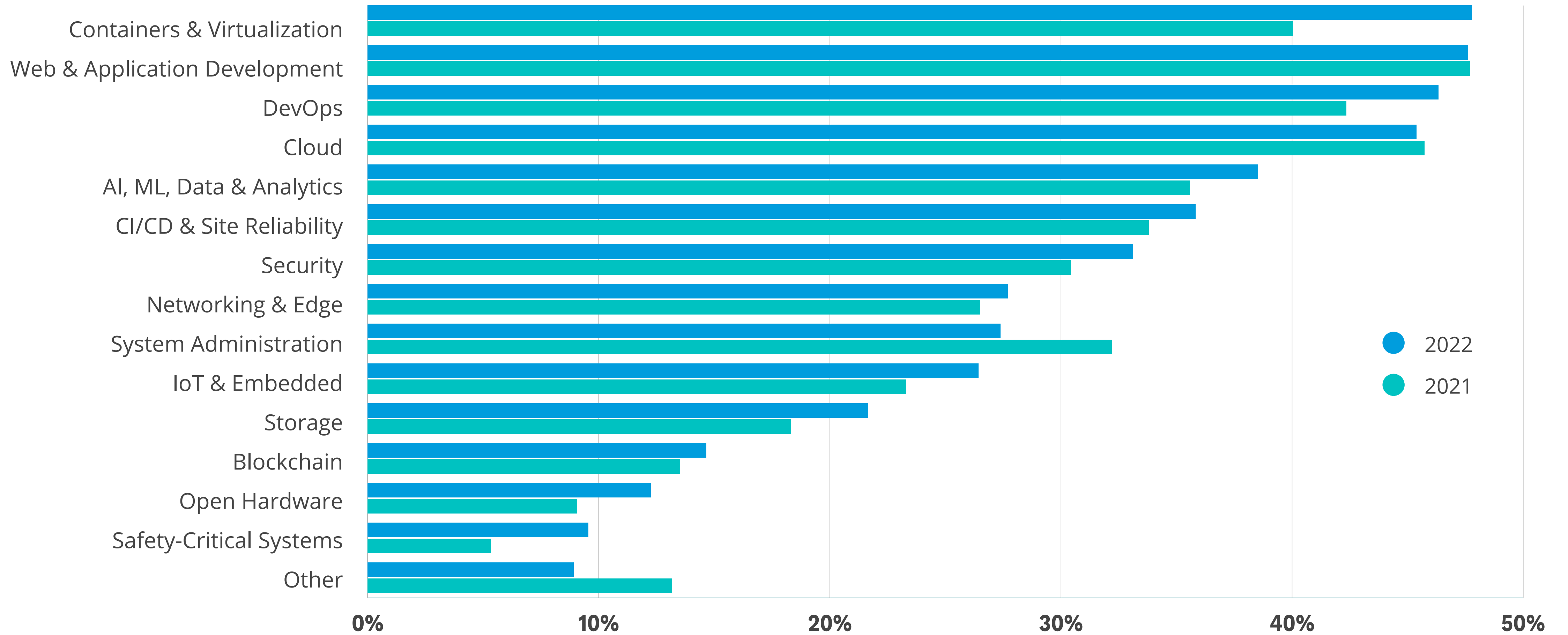
Change in open source adoption patterns

Where is your organization on its open source journey? (select all that apply)

Q1: Sample Size: 2022 = 1020; 2020 = 783; 2018 = 612
Chart omits "Don't know" responses" from the previous years' calculations. Influencing via leadership/maintainer roles was not asked about in 2018.
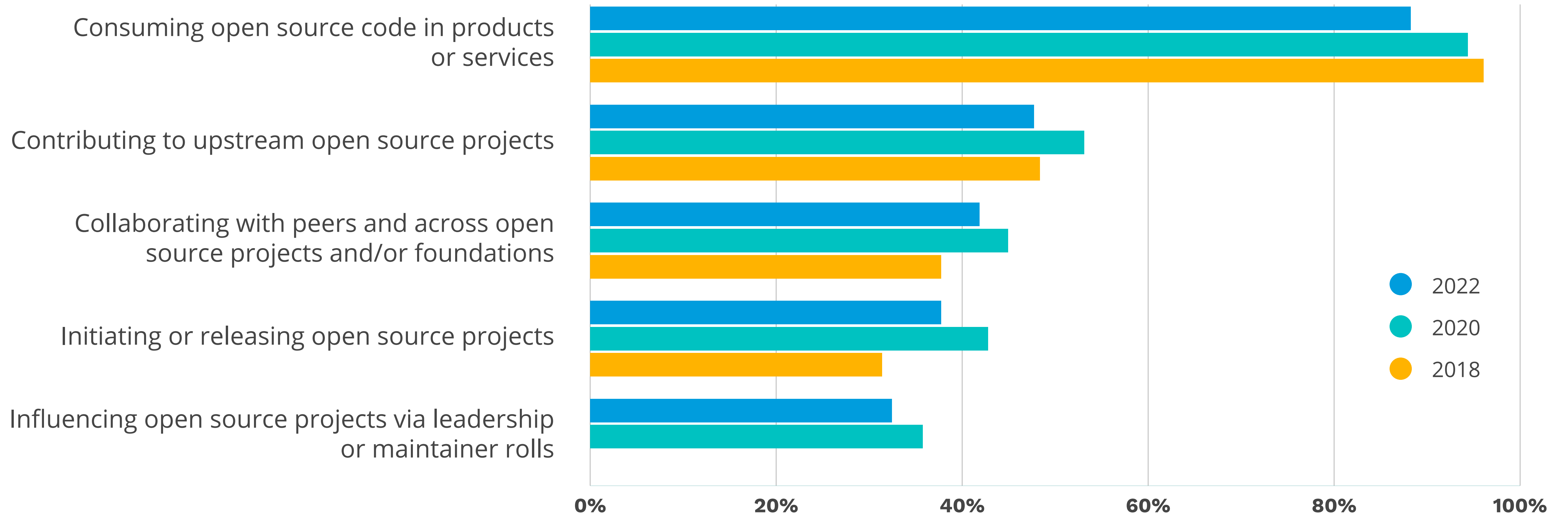
Formal policies about use and contribution to open source projects

Does your organization have a formal policy governing use and contribution to open source projects in the following areas? (select one per row)

Q5: Sample Size = 2022 = 1,020; 2020 = 783; 2018 = 612

Left chart categories (Don't know / No / Yes):
- Use of open source code in products (dependencies)
- Allowing empoyees to contribute to non-work-related open source projects in their personal time
- Releasing open source code or projects
- Contributing upstream to open source projects
- Sponsoring open source projects, events or foundations
- Contributing to third-party and other projects not considered to be upstream

Right chart categories (2022 / 2019):
- Use of open source code in products (dependecies)
- Releasing open source code or projects
- Contributing upstream to open source projects
- Sponsoring open source projects, events or foundations

Legend: Don't know No Yes

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Number of maintained open source projects

How many open source projects does your company maintain? (select one)

Number of Projects by Organization Size

Q43: Sample Size = 669.
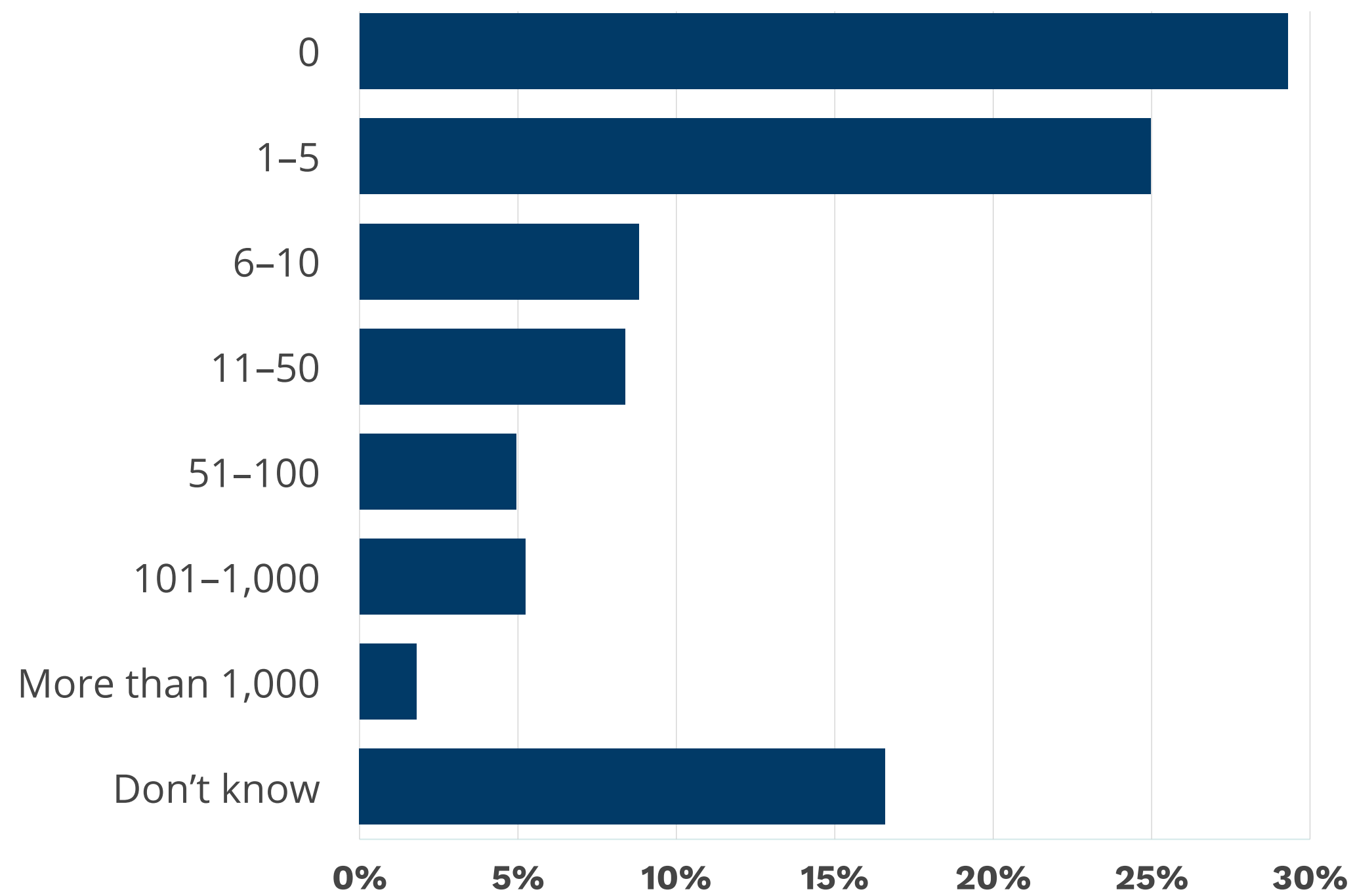
Excluding "Don't Know" Responses:
Number of Projects by Organization Size
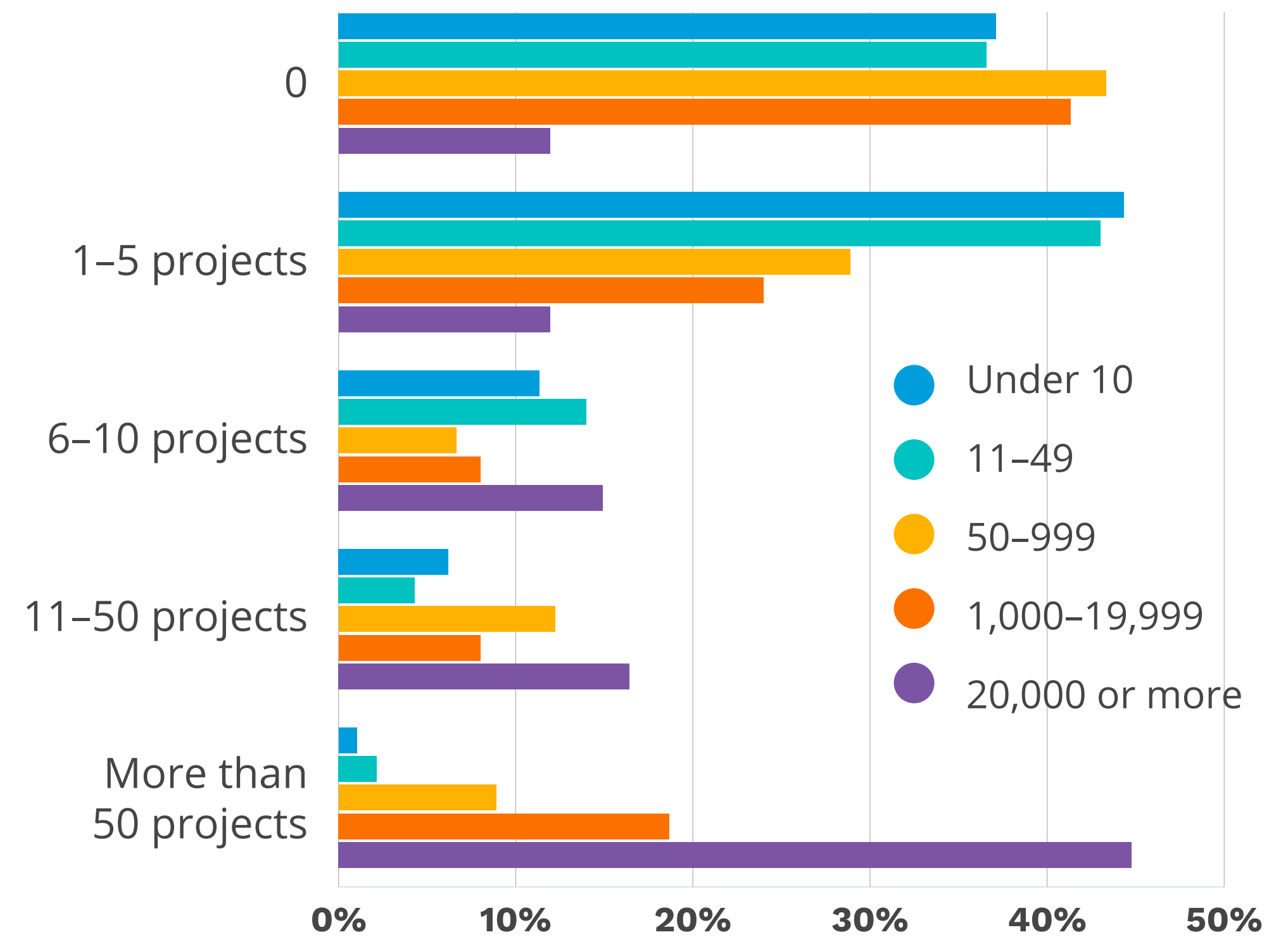
* Respondents employed by a software integrator or consulting firm, or self employed, were asked to answer on behalf of the most current client they were primarily working for.

Products that include open source components

What percentage of your organization's products include open source components? (select one)

Q46: Sample Size = 669

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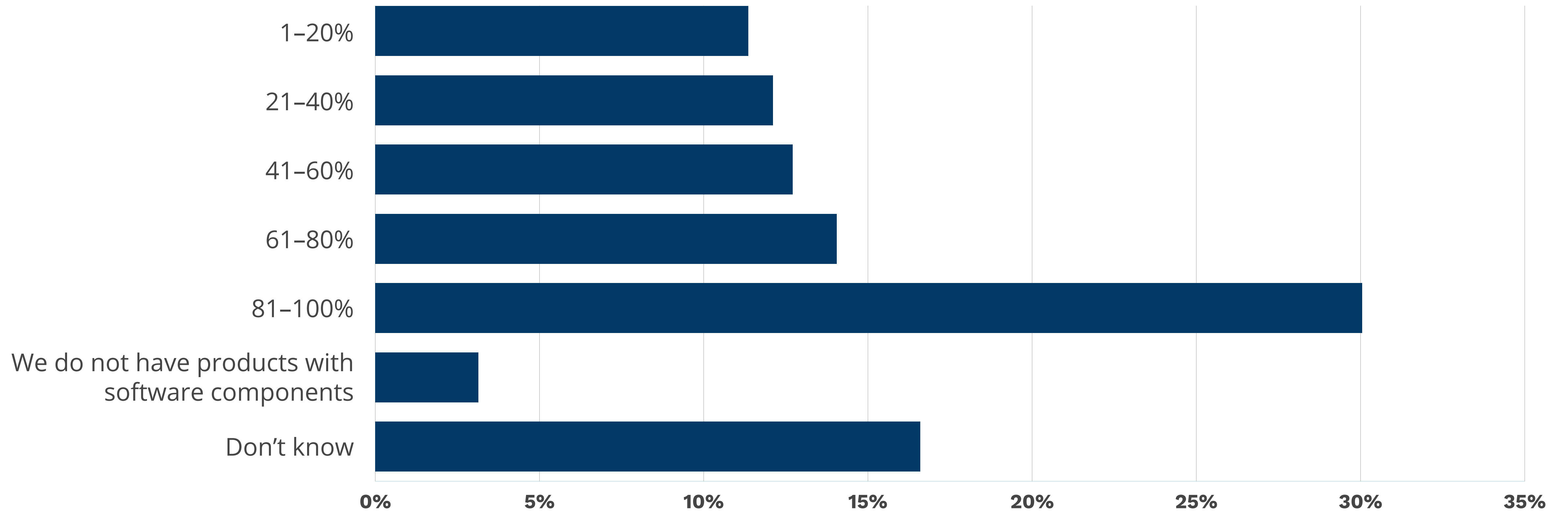
Developers contributing to relied upon open source projects

How many developers (full time or part time) in your organization contribute to open source projects you depend on? (select one)

Q44: Sample Size = 669
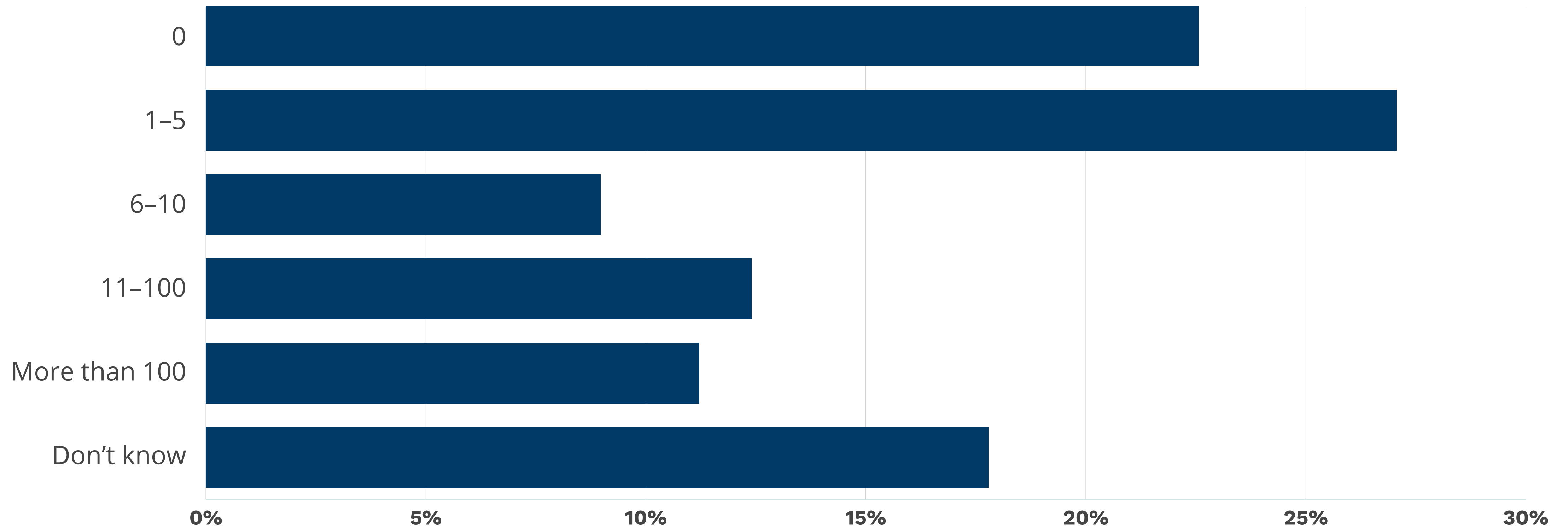
Average app dev team's frequency of code release

How often does your average application development team release code into production? (select one)

Q45: Sample Size = 669
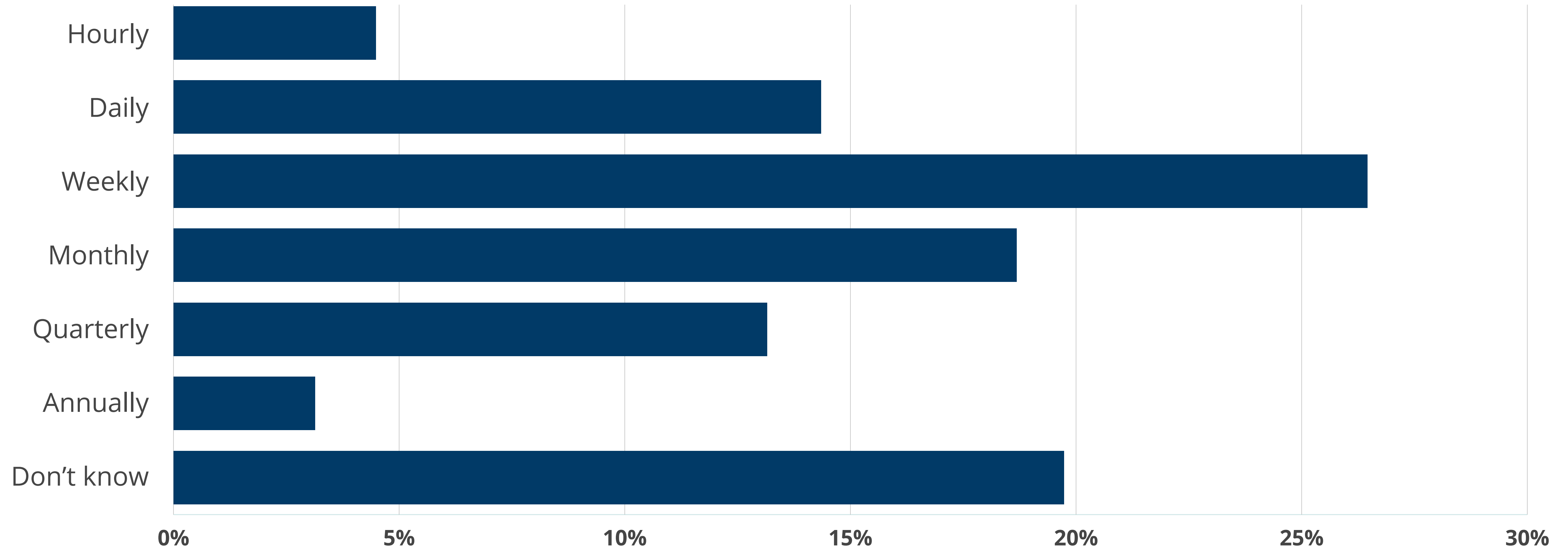
Time spent collaborating with other departments

What percentage of your open source program or initiative's time is spent collaborating with the following departments? (total can equal more than 100%) (select one per row)

Q12: Sample Size = 372

Legend:
- < 20%
- 21–40%
- 41–60%
- 61–80%
- >80%
- Don't know

Categories: Engineering, IT, Legal, Security, Upstream open source projects
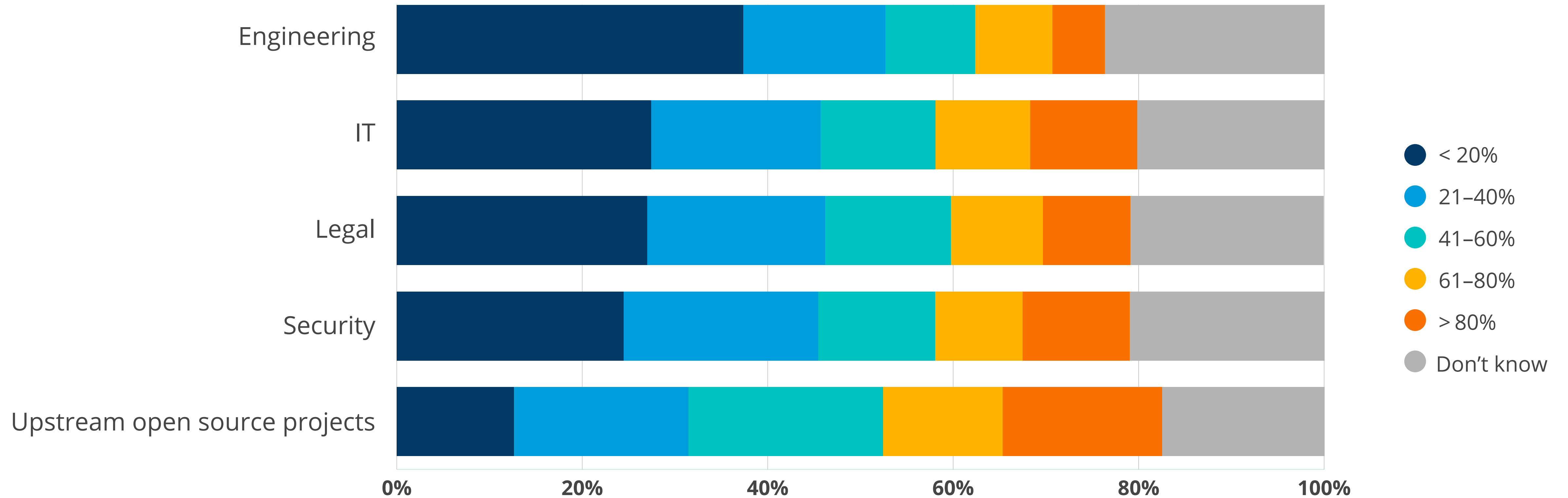
Expected location of planned open source program

Where will the open source program or initiative be located within the organization? If the effort is informal, answer based on who the primary organizers will report to. (select one)

Q24: Sample Size = 120
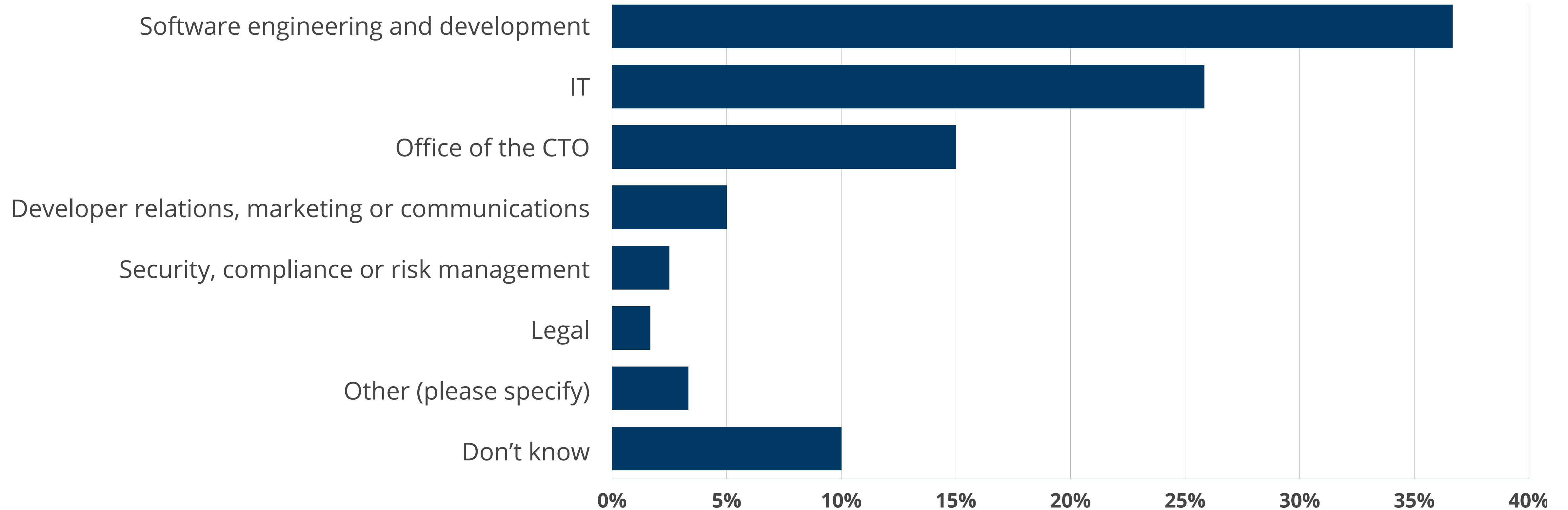
Increased indecision about whether planned OSPOs should be virtual or structured

When does your organization plan to start a program or initiative? (select one)

Q22: Sample Size = 120
Only asked if respondent is planning a program or initiative

In the next 6 months	29%
In the next year	34%
1–2 years from now	27%
Over 2 years from now	10%
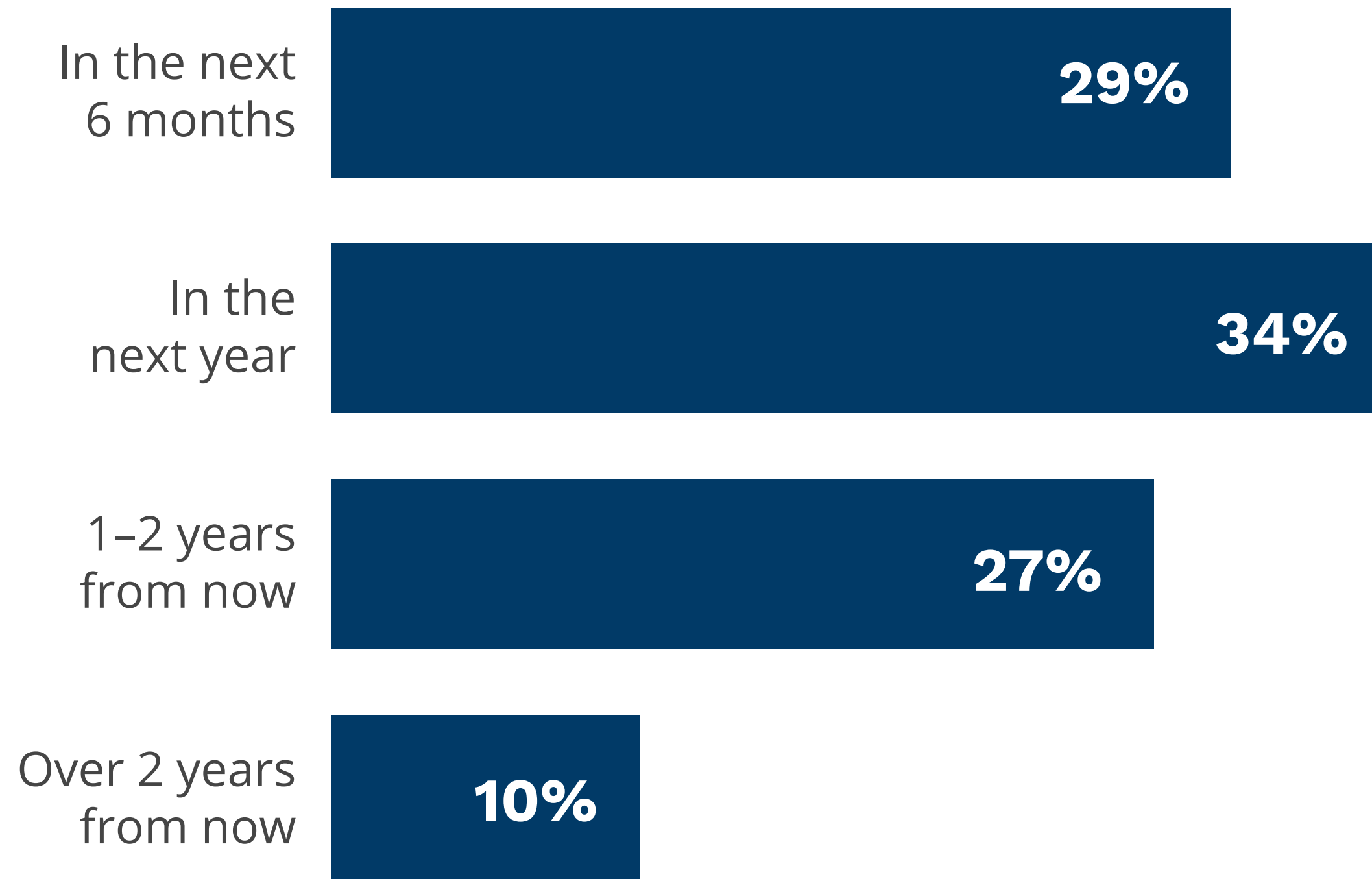
Will the program or initiative be formally structured with dedicated person-hours, reporting structure and/or job titles? (select one)

Q23: Sample Size: 2022 = 120; 2020 = 101
Only asked if respondent is planning a program or initiative

	2022	2020
Yes	28%	37%
No	21%	21%
Don't know	51%	43%

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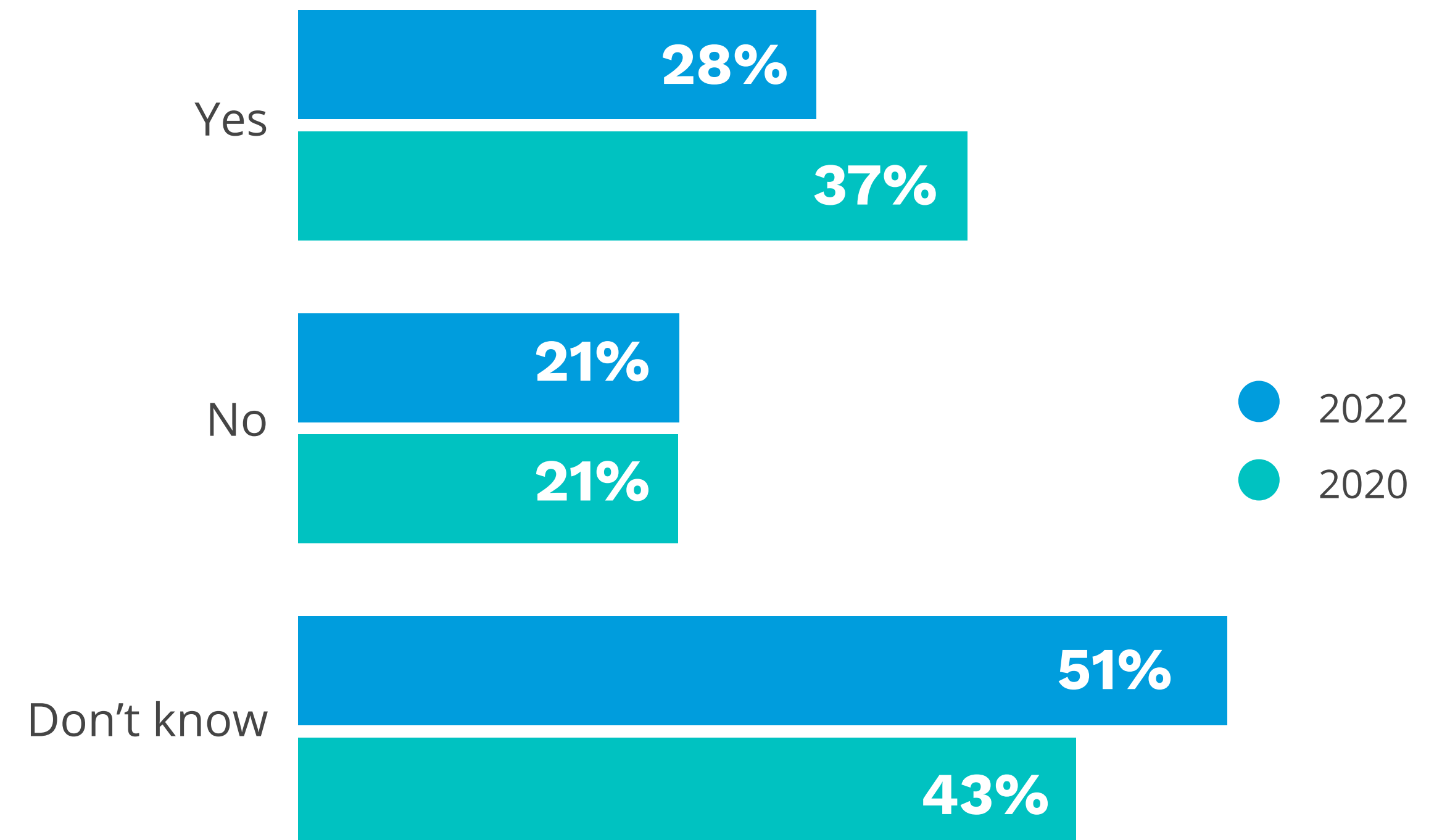
Possibility that an organization could benefit from an open source program

Would your organization benefit from an open source program or initiative?
(select one) by How many people work for your organization?*

Q28, Q2: Sample Size = 329
Only asked if respondent's organization has no plans for an open source program or initiative.
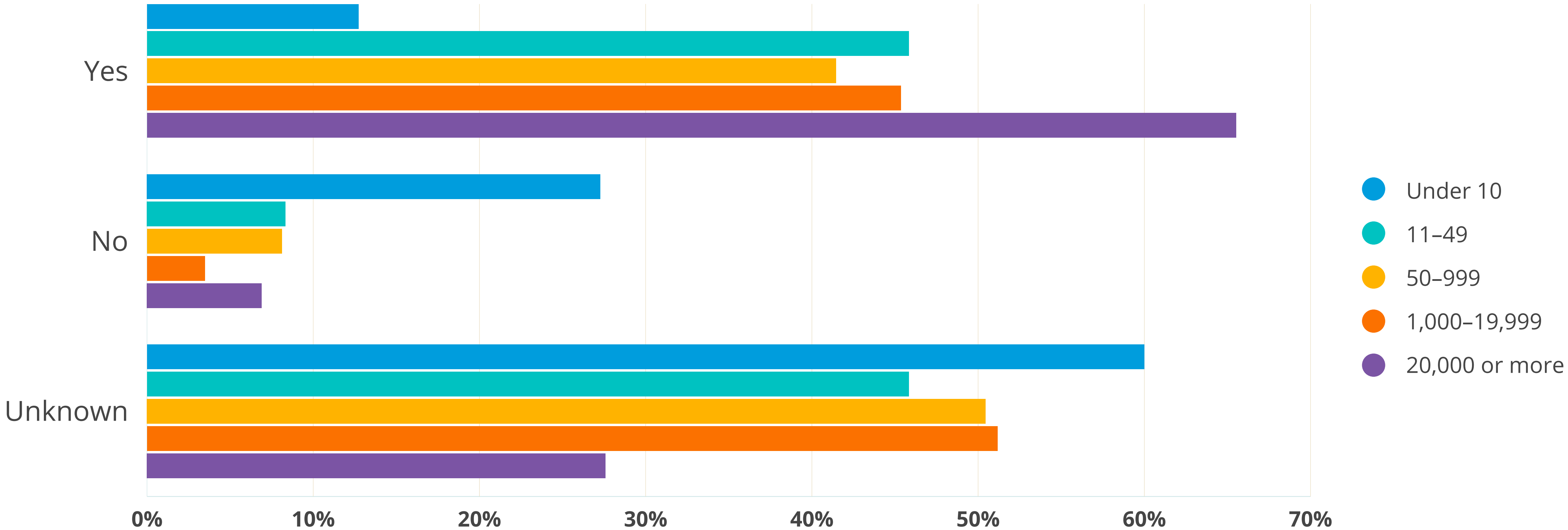
Legend:
- Under 10
- 11–49
- 50–999
- 1,000–19,999
- 20,000 or more

* Respondents employed by a software integrator or consulting firm, or self employed, were asked to answer on behalf of the most current client they were primarily working for.

Preferred license for open source projects

## What is the preferred license for your company's open source projects? (select one)

Q48: Sample Size = 658
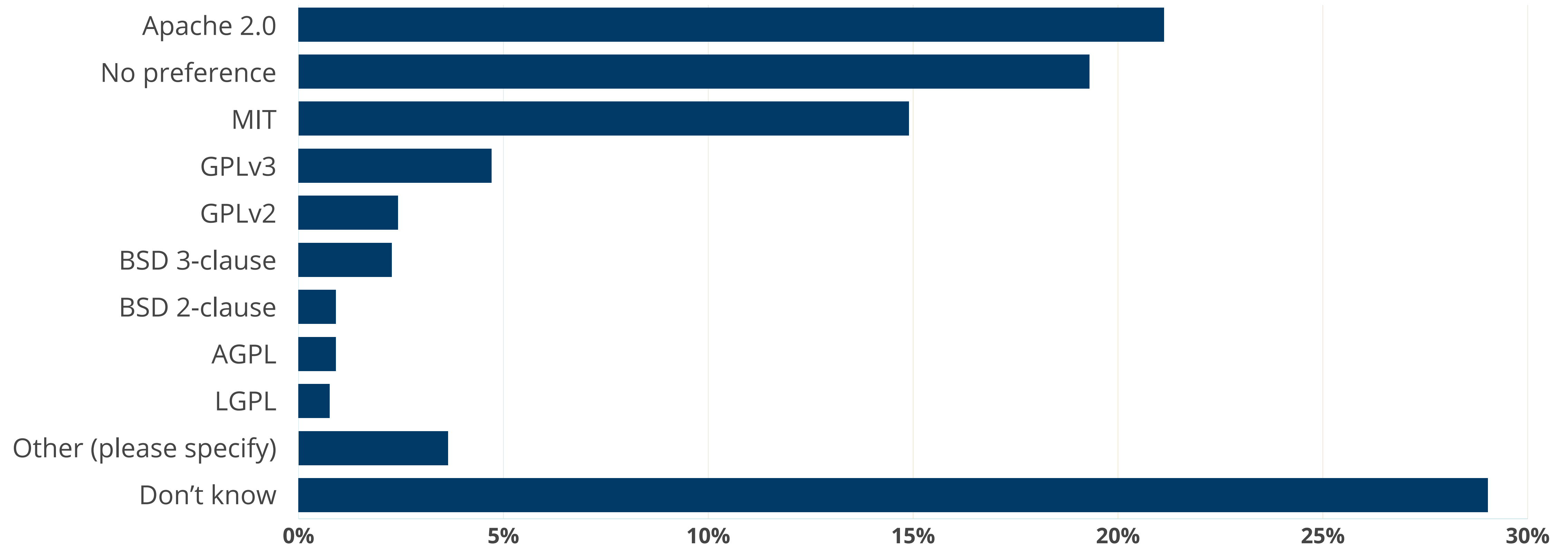
Number of tools used to automate and enforce open source license compliance

How many tools do you or your team use to automate and enforce open source license compliance? (select one)

Q51: Sample Size = 658, Total Mentions = 905

Category	Percentage
0	21%
1	12%
2	13%
3–5	15%
More than 5	5%
Don't know or not applicable	34%
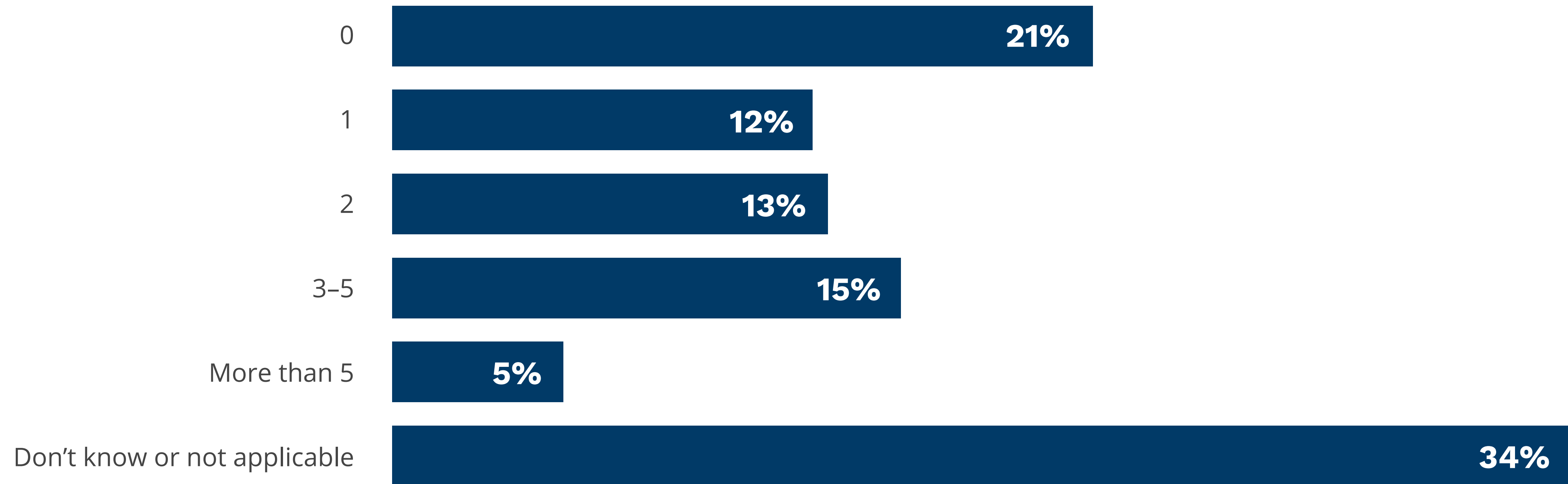
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