2021 Software Adoption Trends in Local Government

CivicPulse

CivicPulse is a nonpartisan, nonprofit organization dedicated to filling the gap in high quality, publicly available data and research on local government.

Our 2021 Software Adoption Trends Report was developed in partnership with:

POWERALMANAC   route FIFTY   THE ATLAS

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Report Background

This is the second annual report that CivicPulse has written detailing trends in software adoption and decision-making in local government.

This report is based on a national random-sample survey of 823 government leaders. The survey was conducted between September and October of 2021. The sample is drawn from thirteen different positions and is representative of all county, municipality, and township governments serving populations of 1,000 or more.

Table 1: Government Positions Included in the Survey

Head Building Official	Head of Parks and Recreation
Head of Communications	Head of Planning/Zoning
Head of Finance/Budgeting	Head of Public Works
Head of Fire Protection Services	Head of Purchasing/Procurement
Head of HR	Head of Water Supply
Head of IT	Top Appointed Official
Head of Law Enforcement	

Our annual software adoption survey covers five key questions:
1. Who is adopting new software in local government, and who isn't? ("Adoption")
2. How do local officials evaluate the impact of past software adoption? ("Impacts")
3. How are local officials prioritizing software adoptions going forward? ("Priority")
4. What are the challenges to effective software adoption? ("Challenges")
5. Where do local officials turn to get information on software? ("Information")

The report is divided into two sections. Section I, **"Key Trends in Software in Local Government,"** highlights the most important findings in the 2021 survey.

Section II, **"Complete Results by Question,"** comprehensively reports the question-by-question results. For each question, we report the top-line 2021 result as well as a comparison to the equivalent question in the 2020 survey finding (where relevant).

In addition, Section II includes question breakouts by:
- Population size the local government serves (1-10k, 10-50k, >50k)
- Government type (county, municipality, and township)
- Region of the country (Midwest, Northeast, South, West)
- Department (communications, law enforcement, public works, etc.)
- Position (department head versus head of IT versus top appointed official)

Section I: Key Trends in Software in Local Government

1. Some departments are adopting new software far faster than others

Public safety departments are the local government leaders in software adoption. Over 50% of fire protection and law enforcement departments adopted a new specialized software product or service in the last three years. In contrast, only 25-30% of purchasing, finance, and zoning departments adopted new software in the past three years.

> *Public safety departments including law enforcement and fire protection were the most likely to adopt new software in the past three years.*

Importantly, lower rates of recent software adoption do not necessarily correspond with lower rates of software *use*. For example, even though finance departments have some of the lowest rates of adoption, they have some of the highest rates of software use. However, a majority of them acquired it more than three years ago (Fig. 2.2, p. 10). The complexity of financial software, which requires connections across multiple departments, likely means that governments are less willing to change systems.

Figure 1.1: Likelihood of Adopting Specialized Software in Past Three Years by Department
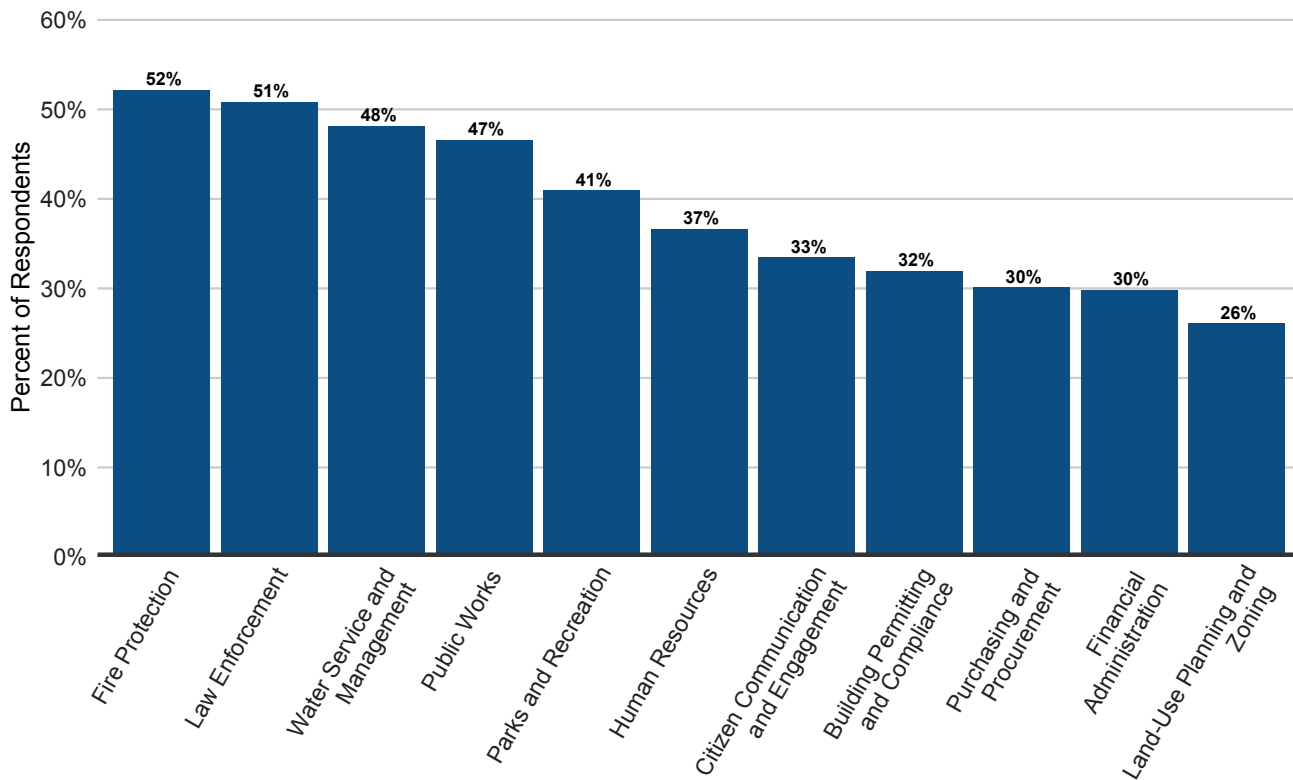
Source: **CivicPulse** (November 2021)

2. Most departments see a positive impact from software adoption

In eleven of twelve departments, local officials reported a net positive experience with new software adoption. Overall, 68% of department heads reported that the adoption of new specialized software has had positive effects on their departments. Some of the new software adopted in the past year has helped governments adapt more quickly to demands for digital services that increased suddenly during the Covid-19 pandemic.

"Our online utility billing platform really helped us during the pandemic. It offered a new payment method that really made a difference..."
- City manager in the Midwest

For the second year in a row, department heads for purchasing and procurement were the least likely to report a positive impact from the adoption of new software. In 2021, only 48% of officials reported a positive impact for purchasing and procurement software (Fig 2.9, p. 17). Given the consistent low rating for this type of software adoption, it's possible that the current software solutions for procurement and purchasing do not offer tangible benefits that move the needle on a government's processes.

Figure: 1.2: Likelihood that Software Adoption had a Positive Impact by Department
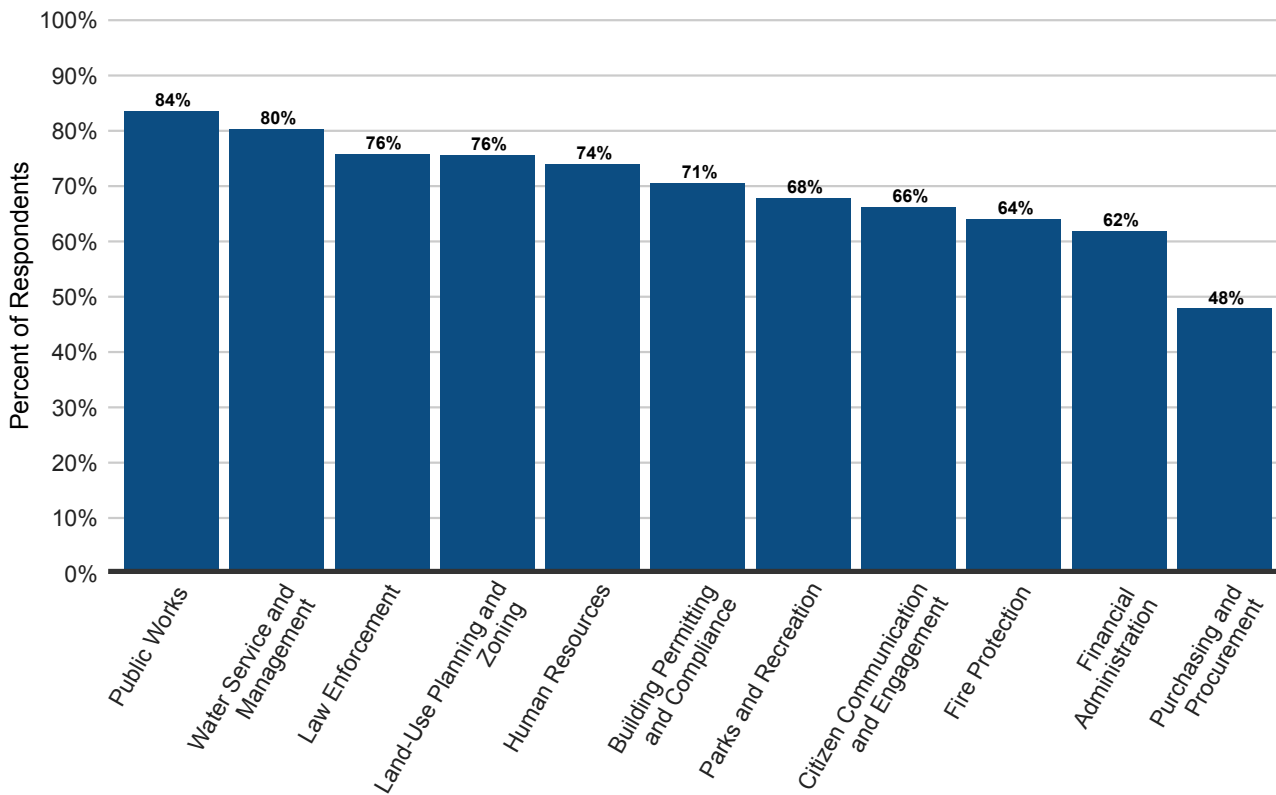
Source: **CivicPulse** (November 2021)

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3. Software has fallen as a priority for most local governments since 2020

The prioritization of specialized software declined in 2021 compared with 2020. In 2020, 32% of department heads said new software adoption was a high priority. By comparison, in this year's survey, only 21% of department heads view adopting new software as a high priority.

One possible explanation for this trend may be that the higher prioritization in 2020 was driven by the pandemic. In 2020, governments were suddenly facing the dual challenges of restricted in-person services and more remote work. However, by 2021, many governments have now either adopted the software necessary to meet new demands or found solutions that work within their existing software options.

> *In 2021, 21% of department heads said adopting new software would be a high priority in the next year, down from 32% in 2020.*

One important exception to this trend is the largest local governments (>50k). For this group, department heads slightly *increased* their expected prioritization of software adoption. 46% of them reported that adopting new software would be a high priority in the next year or so, compared with 43% in 2020.

Figure: 1.3: Likelihood that Software Adoption is 'High Priority' by Population Size and Survey Year
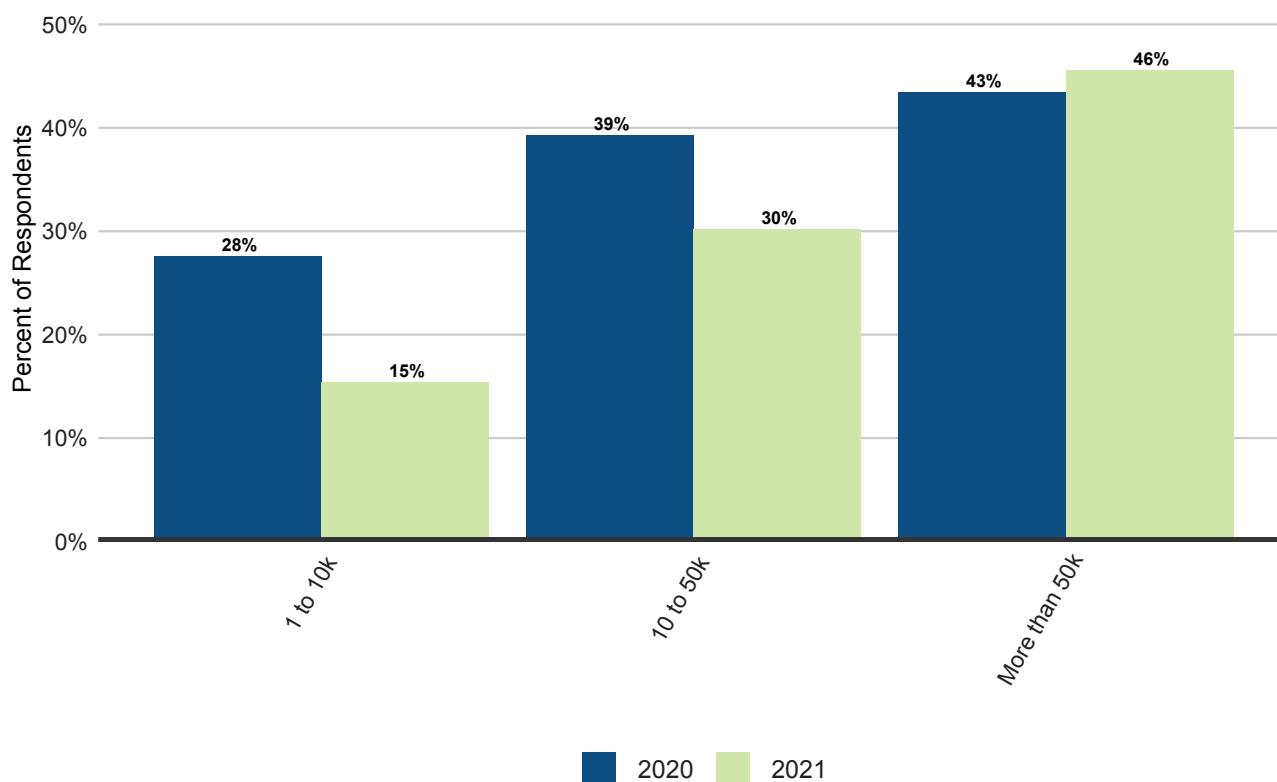
Source: **CivicPulse** (November 2021)

4. Top challenges remain financial and implementation concerns

Across all positions, the top two challenges related to the acquisition of new specialized software were financing and implementation. These two barriers were ranked first and second regardless of the size of the government or the type of government.

First and foremost, local governments face chronic financial strains. Even though some software services can help local governments cut costs thanks to increased efficiency, typically the sticker price creates a major barrier for winning budgetary approval. Across all respondents, 62% of officials reported that obtaining the financial approval or resources was a significant obstacle to new software procurement.

"Even if you arrive upon the best solution, the makeup of the workforce does not ensure they are capable of using it effectively or at all."
– Head of finance, local government in the Northeast

The second biggest challenge local officials reported was around implementation, with 39% of respondents reporting this to be an issue. Implementation concerns may include not only questions about having the right back-end systems but also the willingness or ability of the workforce to adapt to a new technology.

Figure 1.4 Challenges to Software Adoption by Position

Percent of respondents
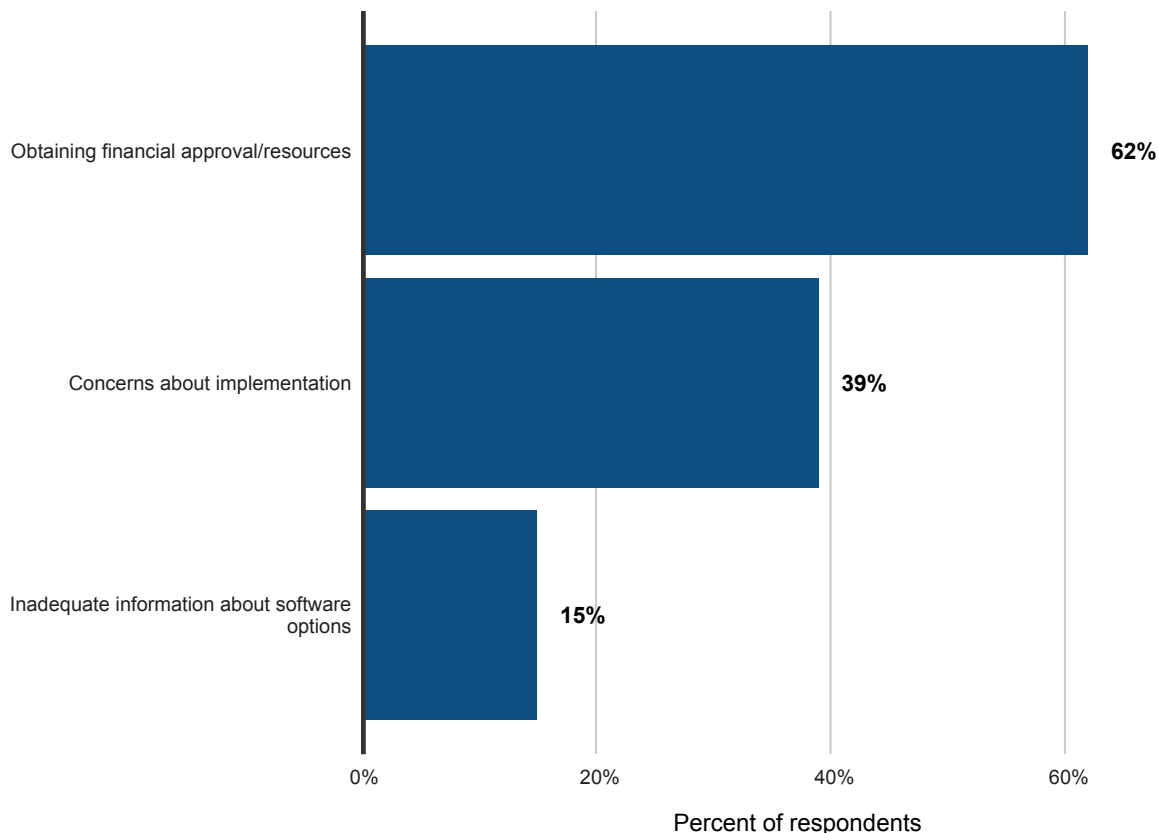
Source: **CivicPulse** (November 2021)

5. Local governments continue to look to each other to learn

The last trend we highlight in this report is about how local officials learn about new software. We find that the most common way local officials do this is by looking to other local governments. The second most common method is to turn to associations, which can include state, regional, or national groups. These trends are consistent with what we found in our 2020 survey.

Notably, heads of IT report using several other information sources more highly than their counterparts who are less focused on software as a part of their day-to-day responsibilities. For example, heads of IT are twice as likely to learn about new software directly from software vendors compared to department heads.

While local officials are most likely to turn to peer local governments to learn about software, vendors are also important sources of information, particularly for IT officials.

Figure 1.5: Information Sources on New Software
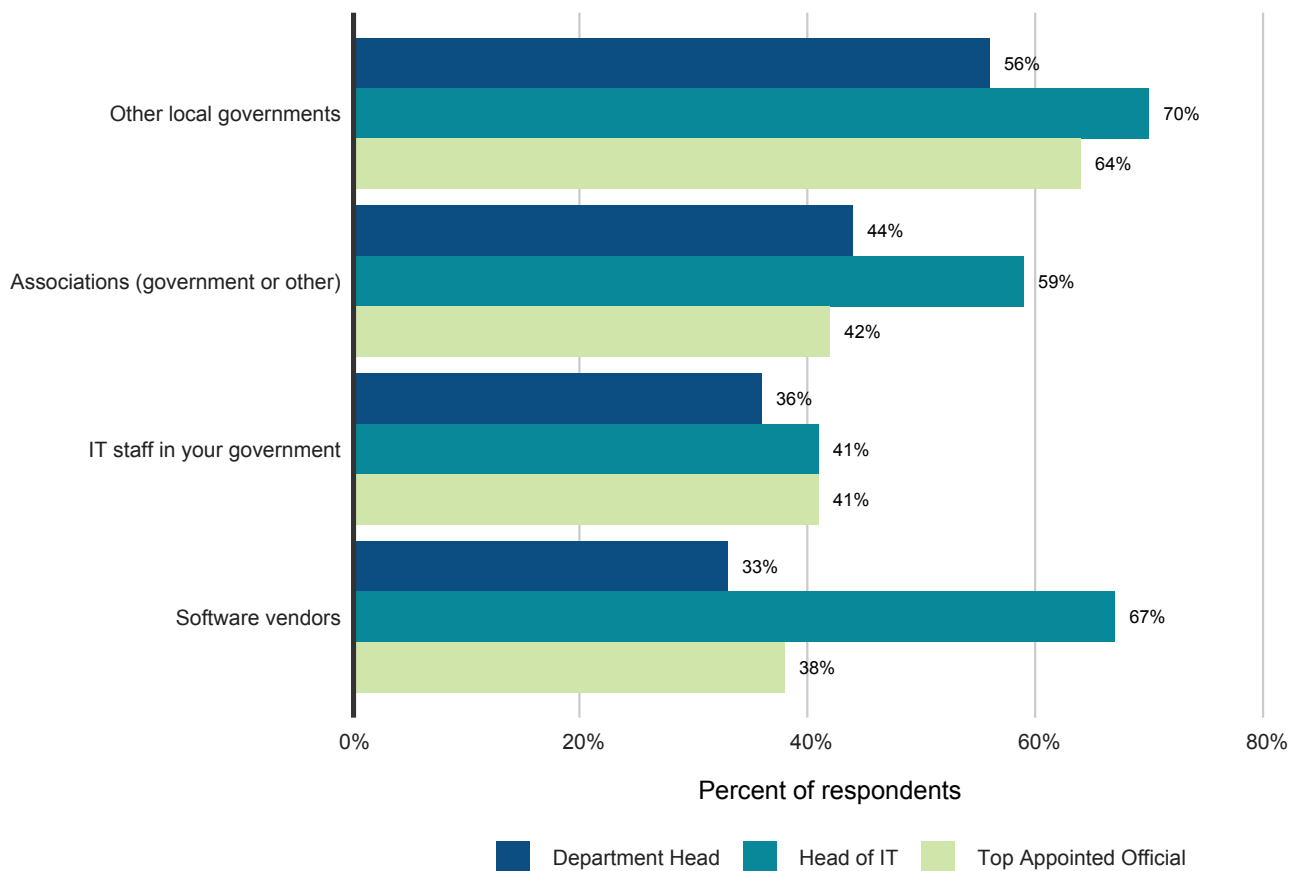
Source: **CivicPulse** (November 2021)

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Section II: Complete Results by Question

Software Adoption

We asked each department head how recently they had adopted new software for their specific department. We also asked each top appointed official and head of IT how recently their local government had adopted new software. We specified that by "software," we were asking about specialized software rather than general-use software like Microsoft Office. The full question wording can be found in the appendix.

Overall Adoption (2021)

Figure 2.1: Recent Software Adoption: Average Response Across Departments
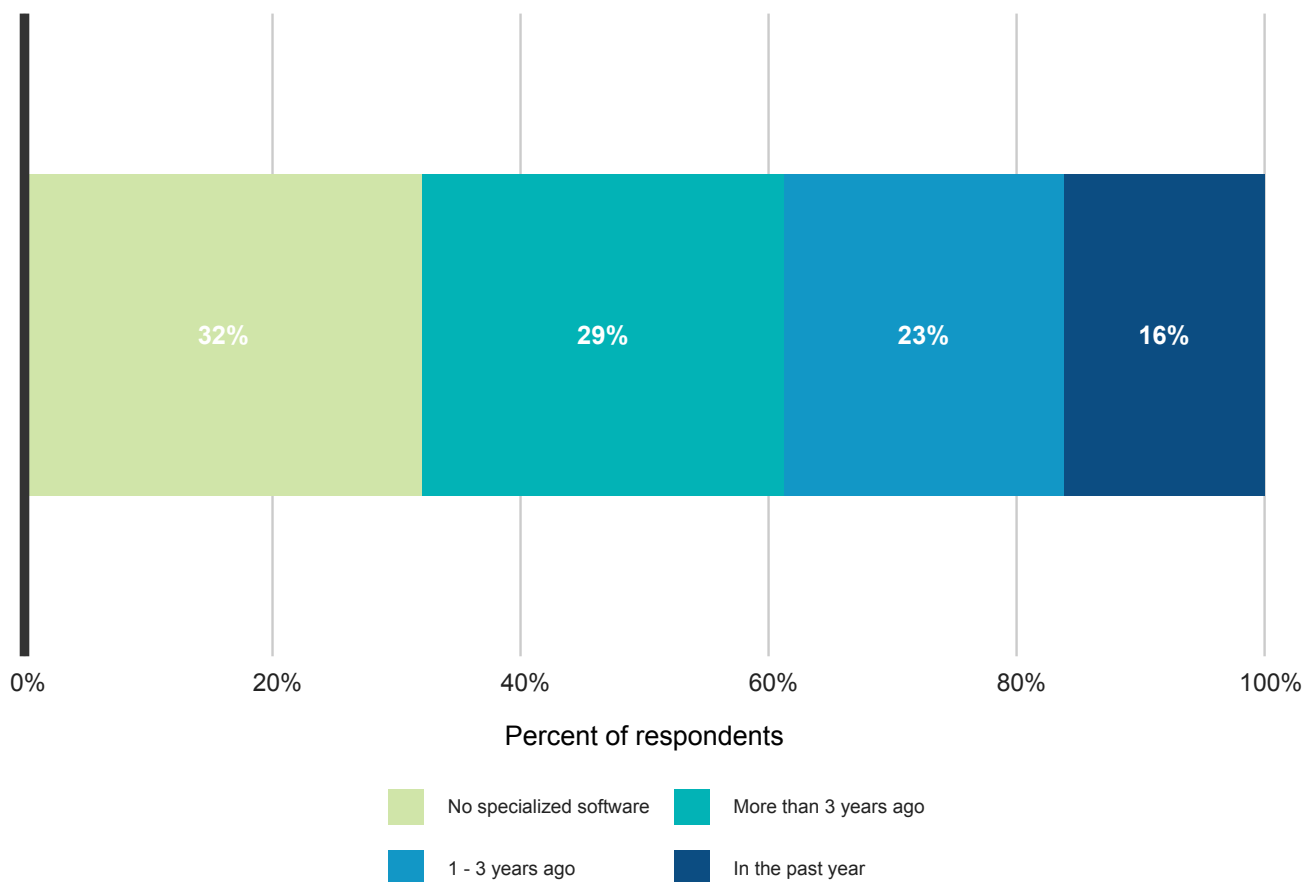
Source: **CivicPulse** (November 2021)

Adoption by Department

Figure 2.2: Recent Software Adoption: Average Response by Department

Building Permitting and Compliance: 30% / 38% / 15% / 17%
Citizen Communication and Engagement: 52% / 15% / 20% / 13%
Financial Administration: 17% / 54% / 16% / 14%
Fire Protection: 20% / 28% / 26% / 26%
Human Resources: 34% / 29% / 16% / 21%
Land-Use Planning and Zoning: 52% / 22% / 20% / 6%
Law Enforcement: 8% / 41% / 21% / 30%
Parks and Recreation: 36% / 23% / 23% / 18%
Public Works: 32% / 21% / 38% / 8%
Purchasing and Procurement: 45% / 25% / 22% / 8%
Water Service and Management: 21% / 31% / 33% / 15%

Percent of respondents

Legend:
- No specialized software
- More than 3 years ago
- 1 - 3 years ago
- In the past year

Source: **CivicPulse** (November 2021)

Adoption by Population Size

Figure 2.3: Recent Software Adoption: Average Response Across Departments by Population Size
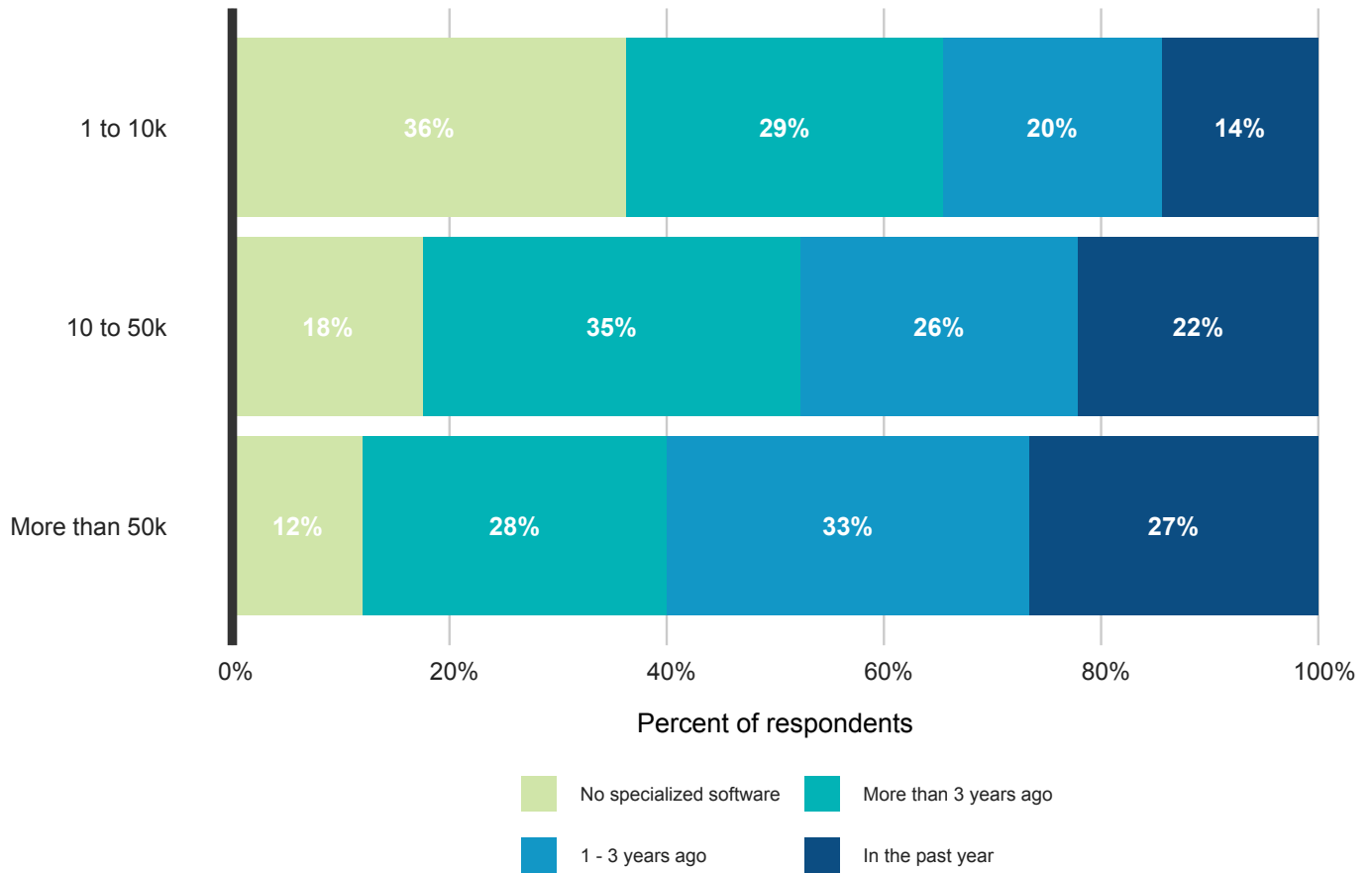
Source: **CivicPulse** (November 2021)

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Adoption by Government Type

Figure 2.4: Recent Software Adoption: Average Response Across Departments by Government Type
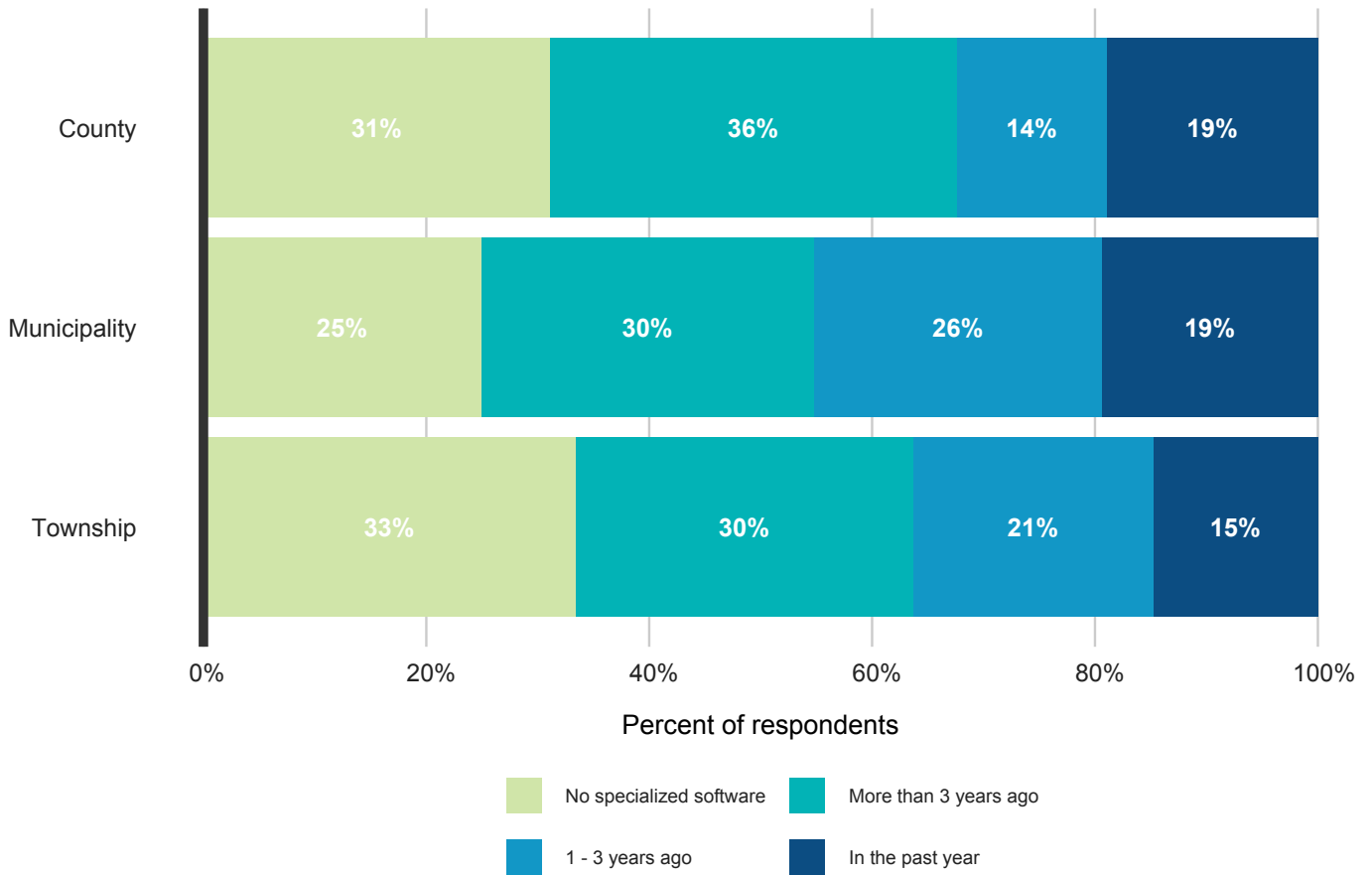
Source: **CivicPulse** (November 2021)

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Adoption by Census Region

Figure 2.5: Recent Software Adoption: Average Response Across Departments by Census Region
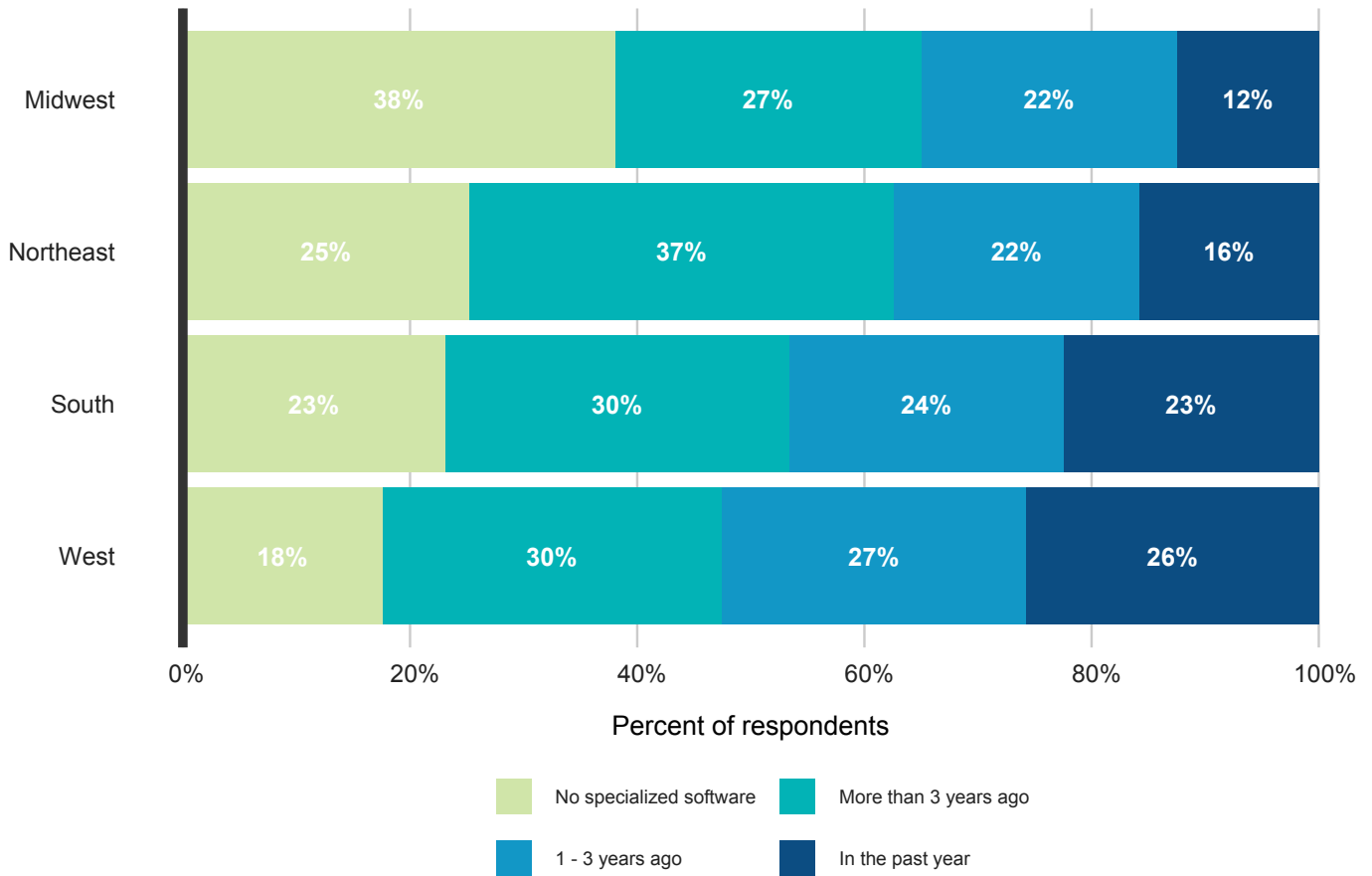
Source: **CivicPulse** (November 2021)

Impact of New Software Adoption

We asked each department head whether any software adoption in their department had a positive or negative impact overall. We also asked each top appointed official and head of IT whether software adoption in their local government had a positive or negative impact overall. The full question wording can be found in the appendix.

Overall Impact (2021)

Figure 2.6: Impact of New Software: Average Response Across Departments
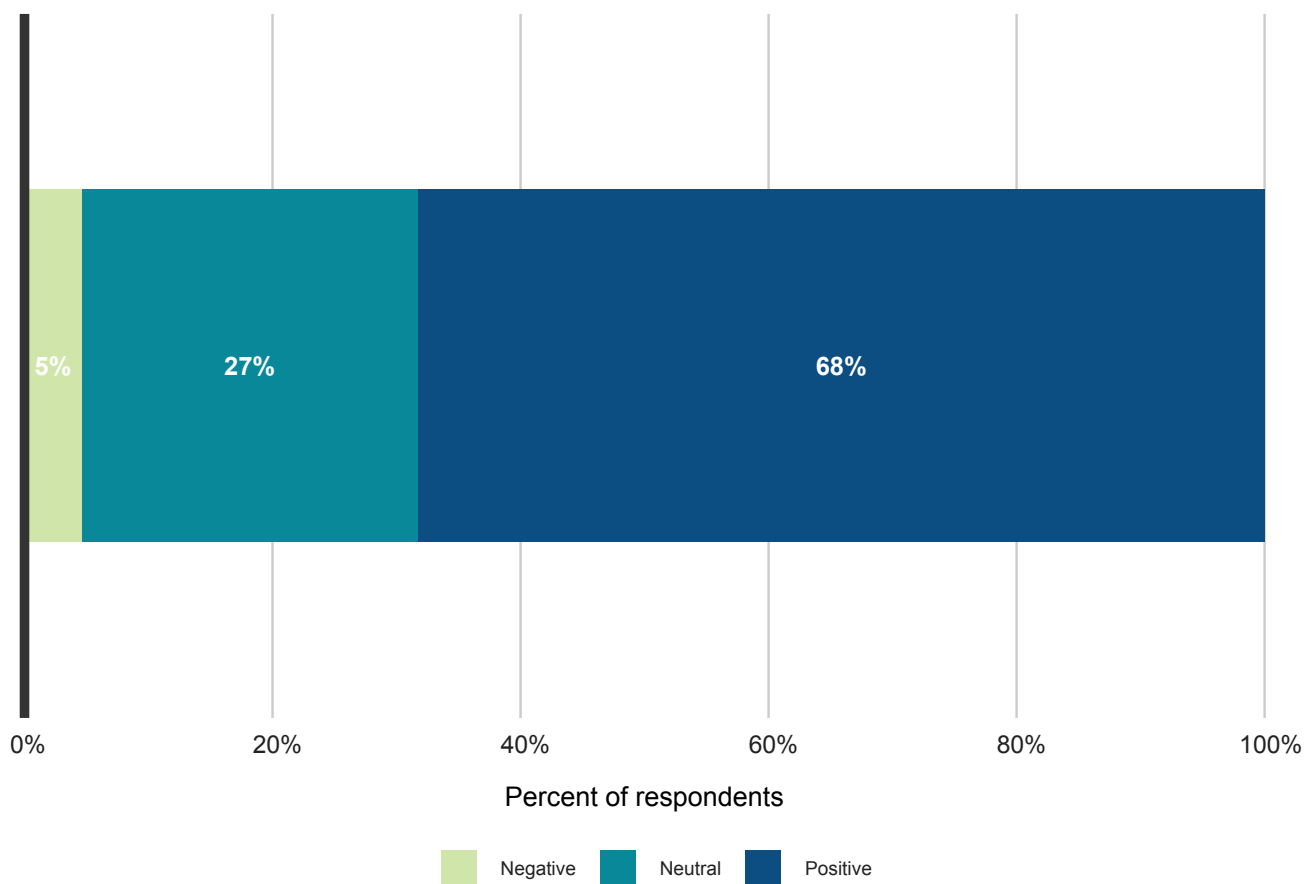
Source: **CivicPulse** (November 2021)

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Overall Impact by Survey Year

Figure 2.7: Impact of New Software: Average Response Across Departments by Survey Year
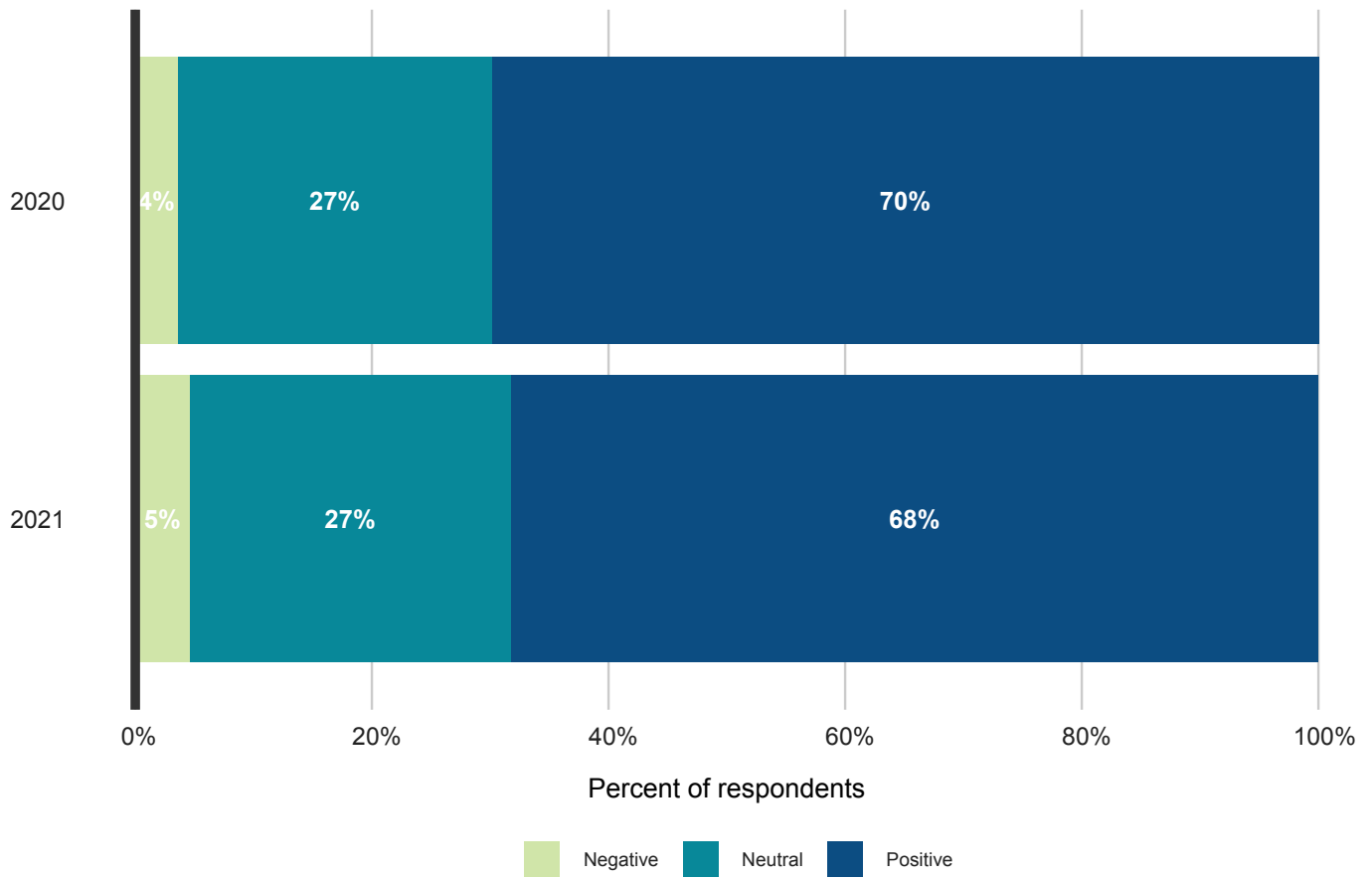
Source: **CivicPulse** (November 2021)

Impact by Department

Figure 2.8: Impact of New Software: Average Response by Department
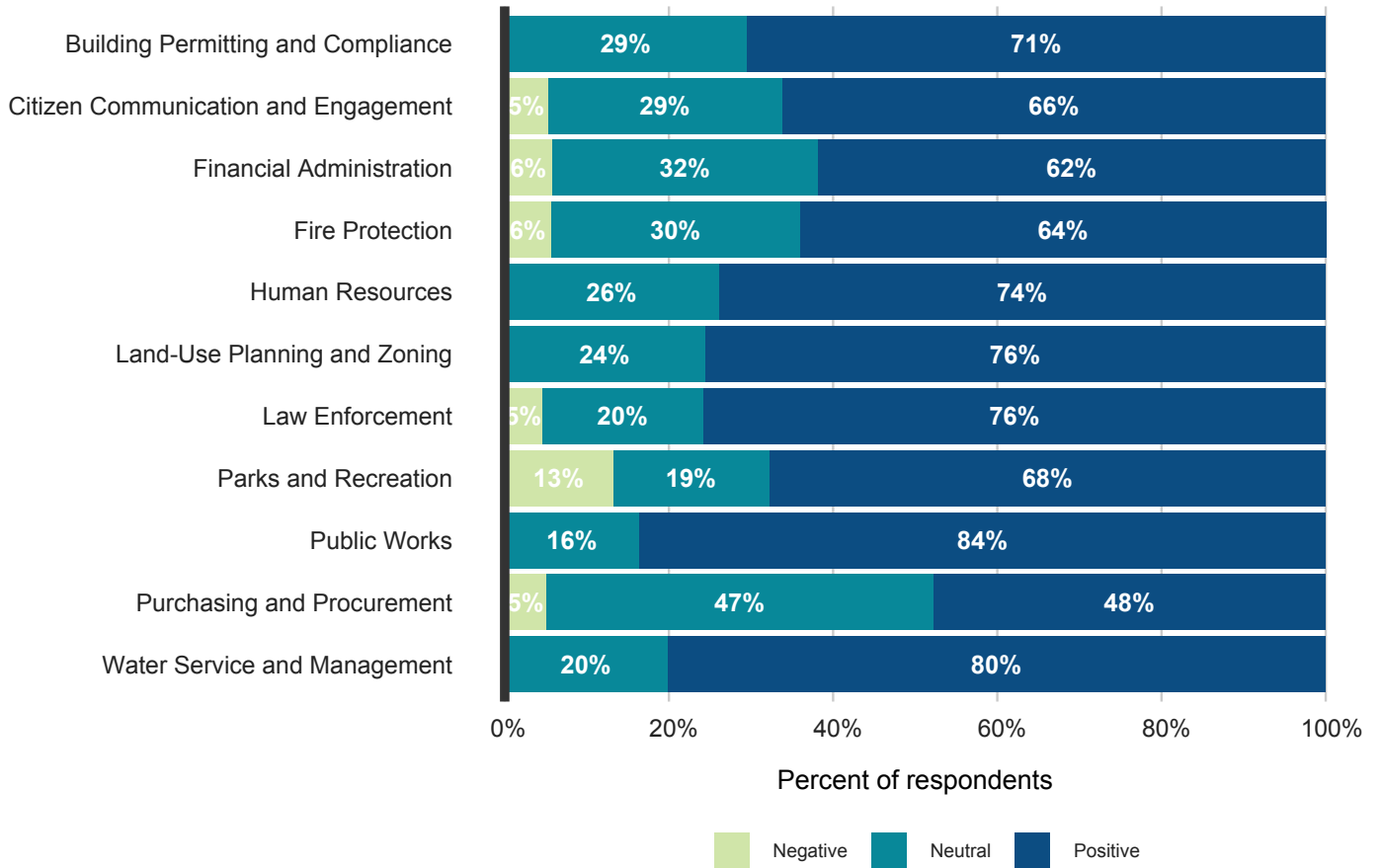
Source: **CivicPulse** (November 2021)

Impact by Department and Survey Year

Figure 2.9: Impact of New Software: Average Response by Department and Survey Year
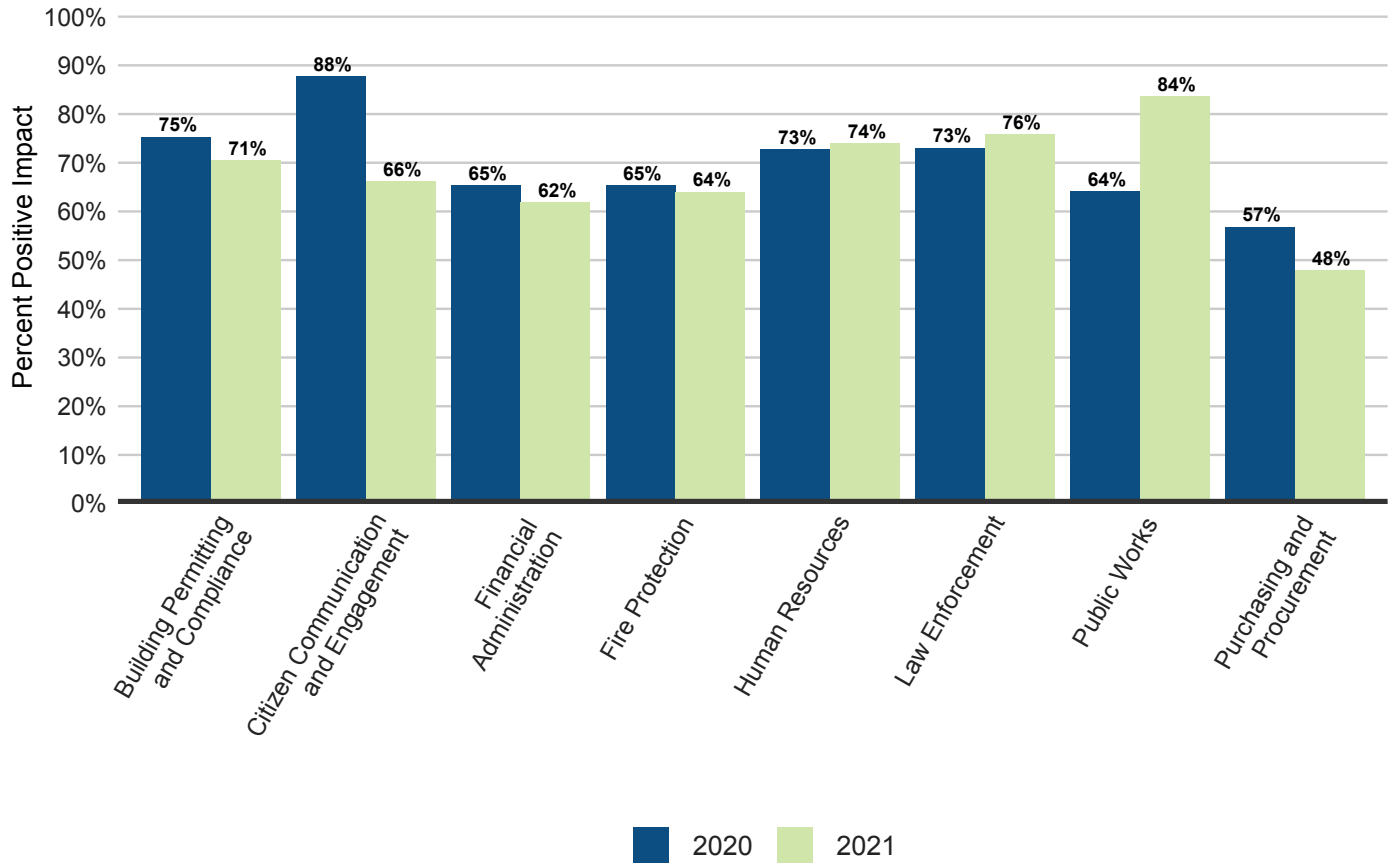
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Impact by Position

Figure 2.10: Impact of New Software: Average Response by Position Type

Source: **CivicPulse** (November 2021)

Impact by Population Size

Figure 2.11: Impact of New Software: Average Response Across Departments by Population Size
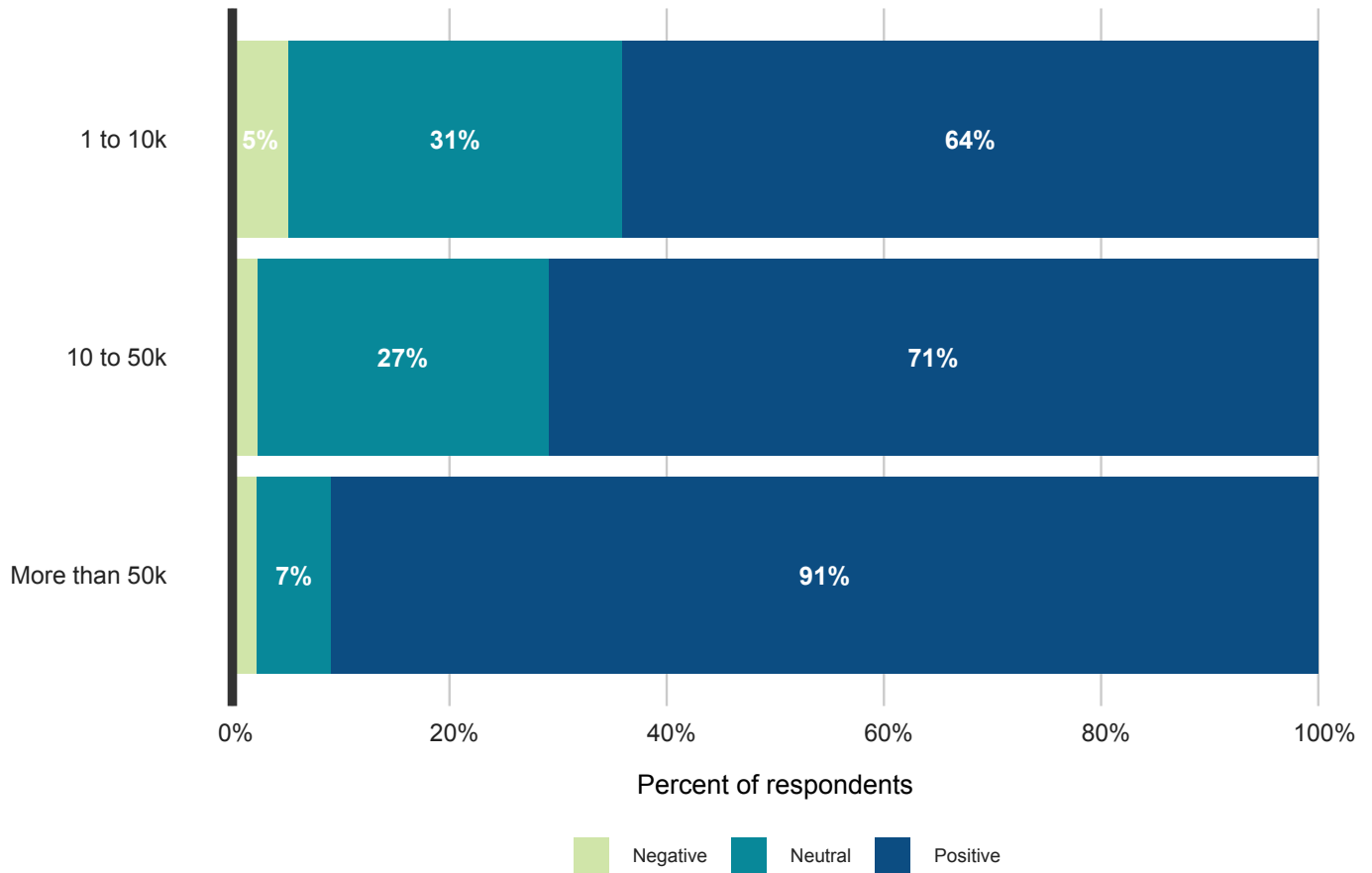
Impact by Government Type

Figure 2.12: Impact of New Software: Average Response Across Departments by Government Type
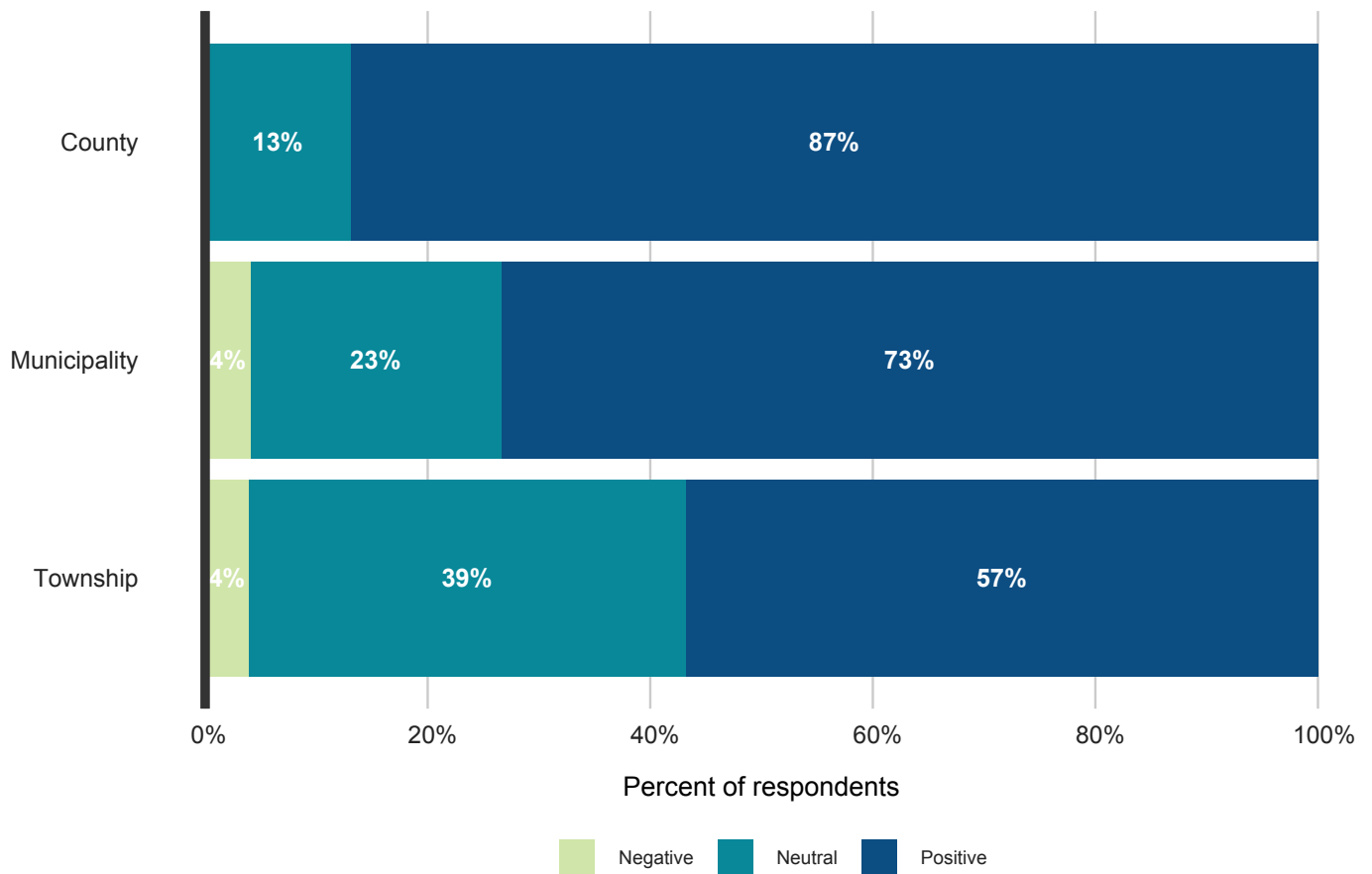
Source: **CivicPulse** (November 2021)

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Impact by Census Region

Figure 2.13: Impact of New Software: Average Response Across Departments by Census Region

Source: **CivicPulse** (November 2021)

Priority of Adopting New Software

We asked each department head whether the adoption of new software should be a priority in their department in the next year or so. For top appointed officials and heads of IT, we asked about whether software adoption should be a priority for a random selection of eight specific departments in their local government. The full question wording can be found in the appendix.

### Overall Priority (2021)

Figure 2.14: Priority of Adopting New Software: Average Response Across Departments
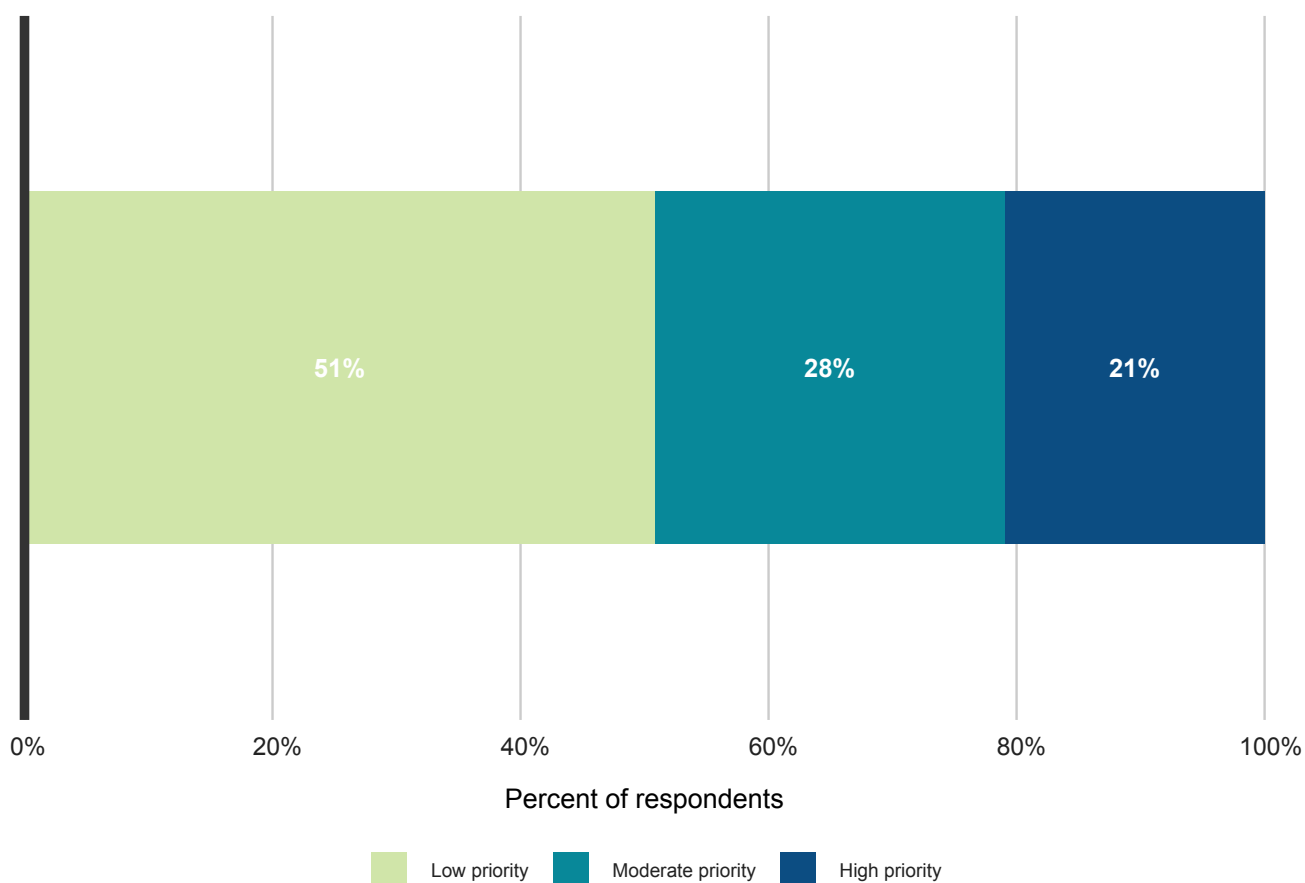
Source: **CivicPulse** (November 2021)

Overall Prioritization by Survey Year

Figure 2.15: Priority of Adopting New Software: Average Response Across Departments by Survey Year
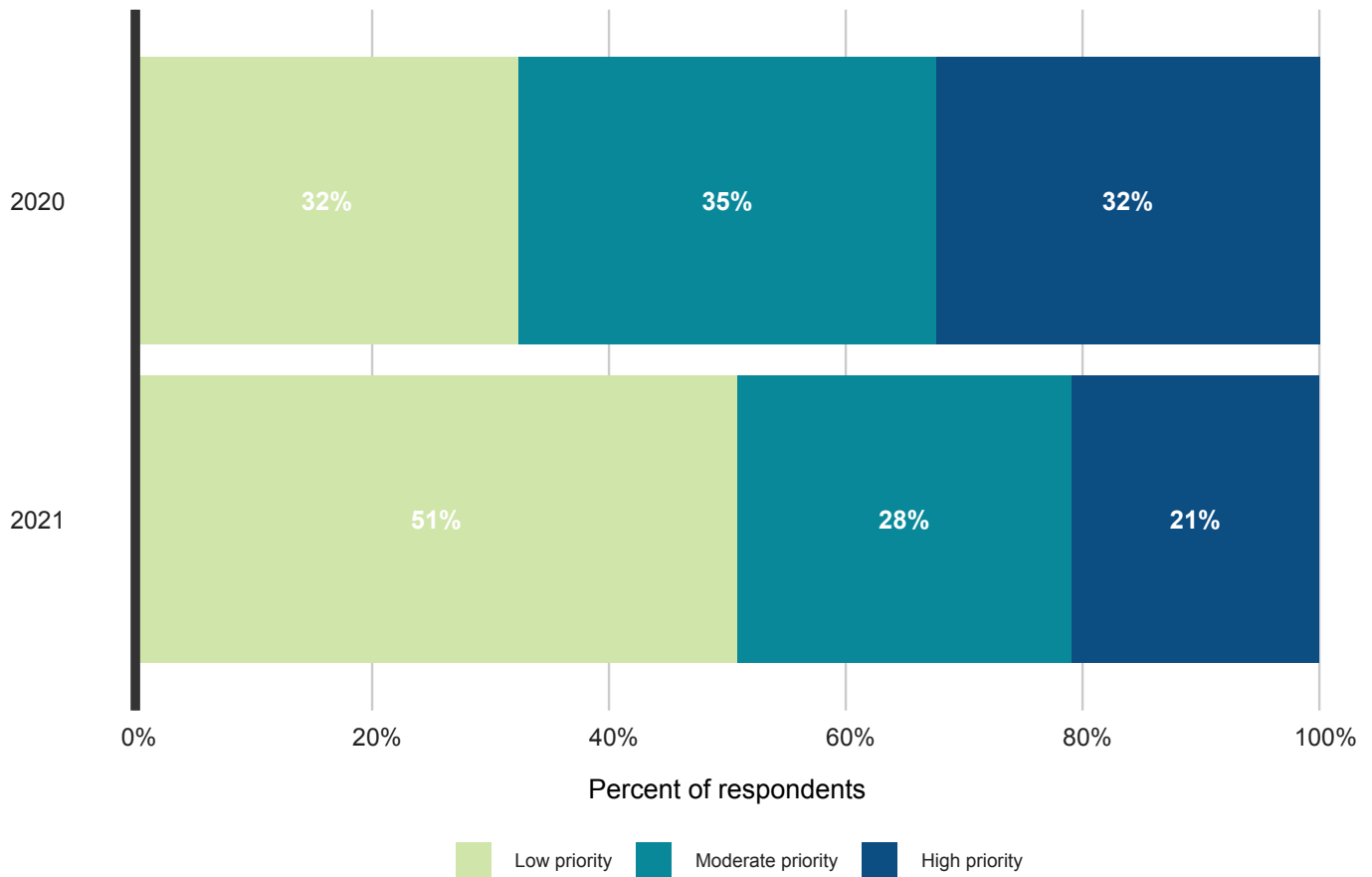
Source: **CivicPulse** (November 2021)

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Prioritization by Department

Figure 2.16: Priority of Adopting New Software: Average Response by Department

Department	Low priority	Moderate priority	High priority
Building Permitting and Compliance	43%	29%	28%
Citizen Communication and Engagement	57%	35%	7%
Financial Administration	65%	16%	18%
Fire Protection	53%	27%	20%
Human Resources	55%	28%	17%
Land-Use Planning and Zoning	45%	26%	29%
Law Enforcement	31%	33%	36%
Parks and Recreation	46%	40%	13%
Public Works	39%	37%	24%
Purchasing and Procurement	69%	10%	21%
Water Service and Management	34%	30%	35%

Percent of respondents
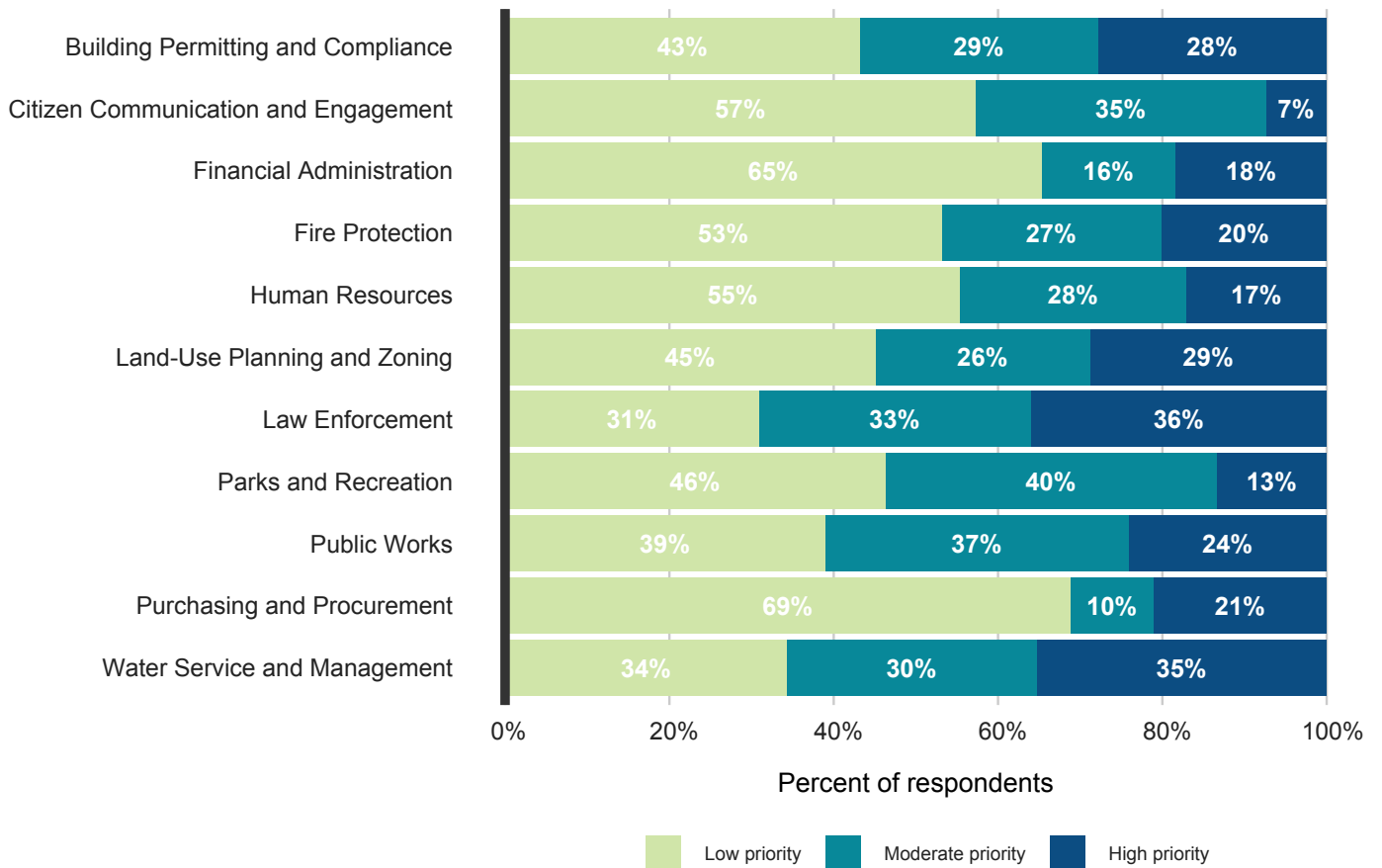
Source: **CivicPulse** (November 2021)

Prioritization by Department and Survey Year
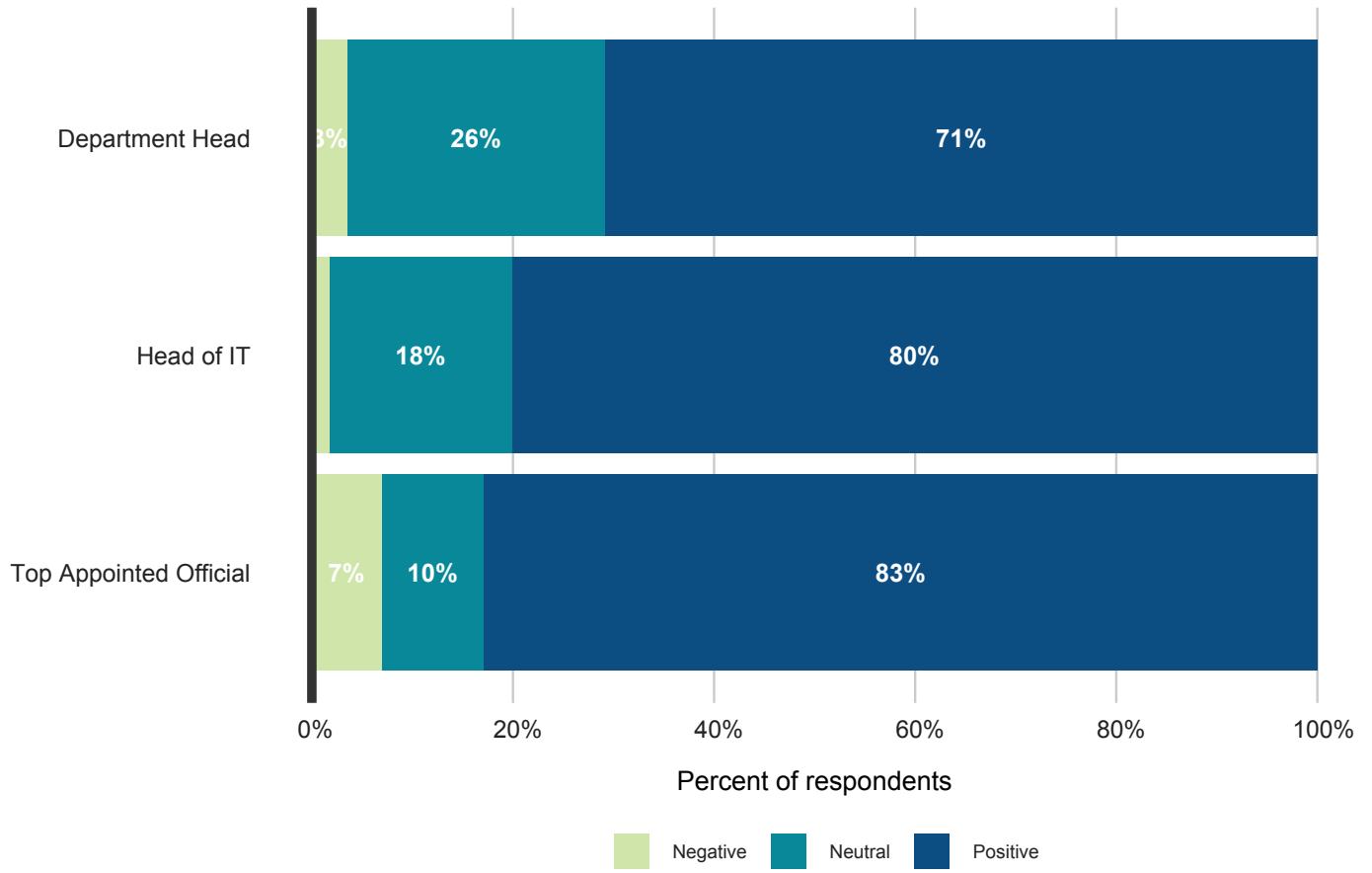
Figure 2.17: Priority of Adopting New Software: Average Response by Department and Survey Year
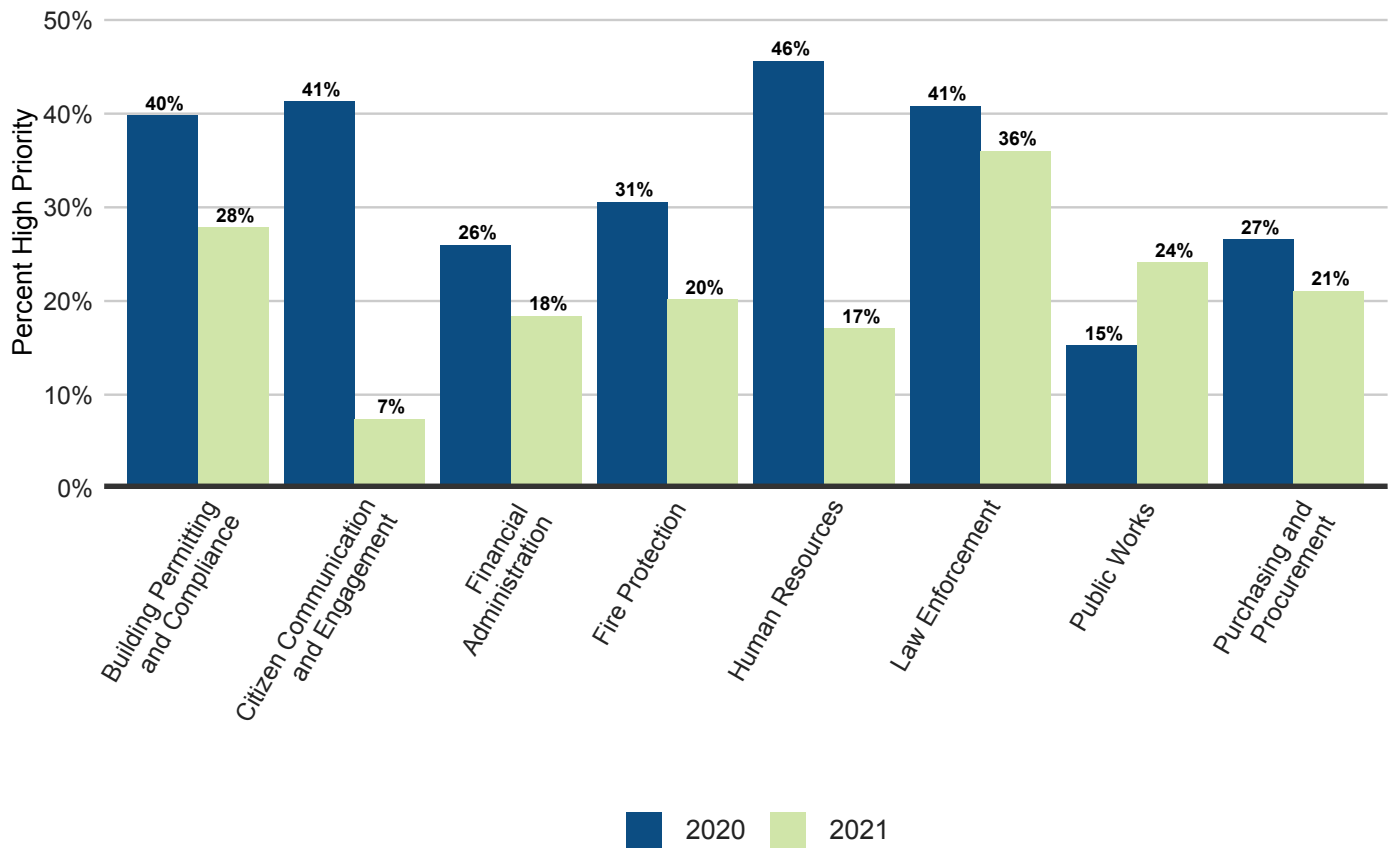
Source: **CivicPulse** (November 2021)

Prioritization by Position

Figure 2.18: Priority of Adopting New Software: Average Response Across Departments by Position Type
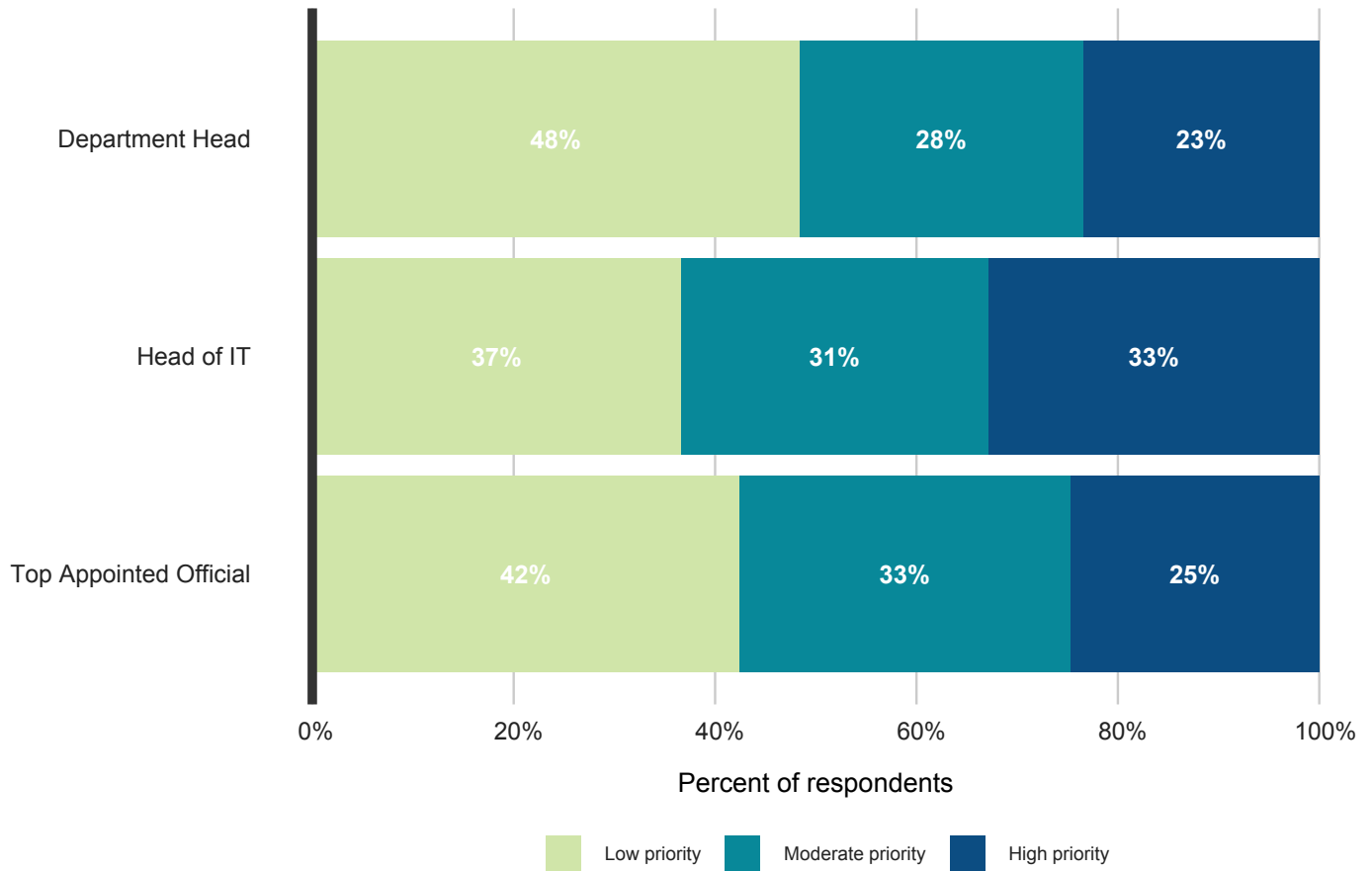
Source: **CivicPulse** (November 2021)

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Prioritization by Population Size

Figure 2.19: Priority of Adopting New Software: Average Response Across Departments by Population Size
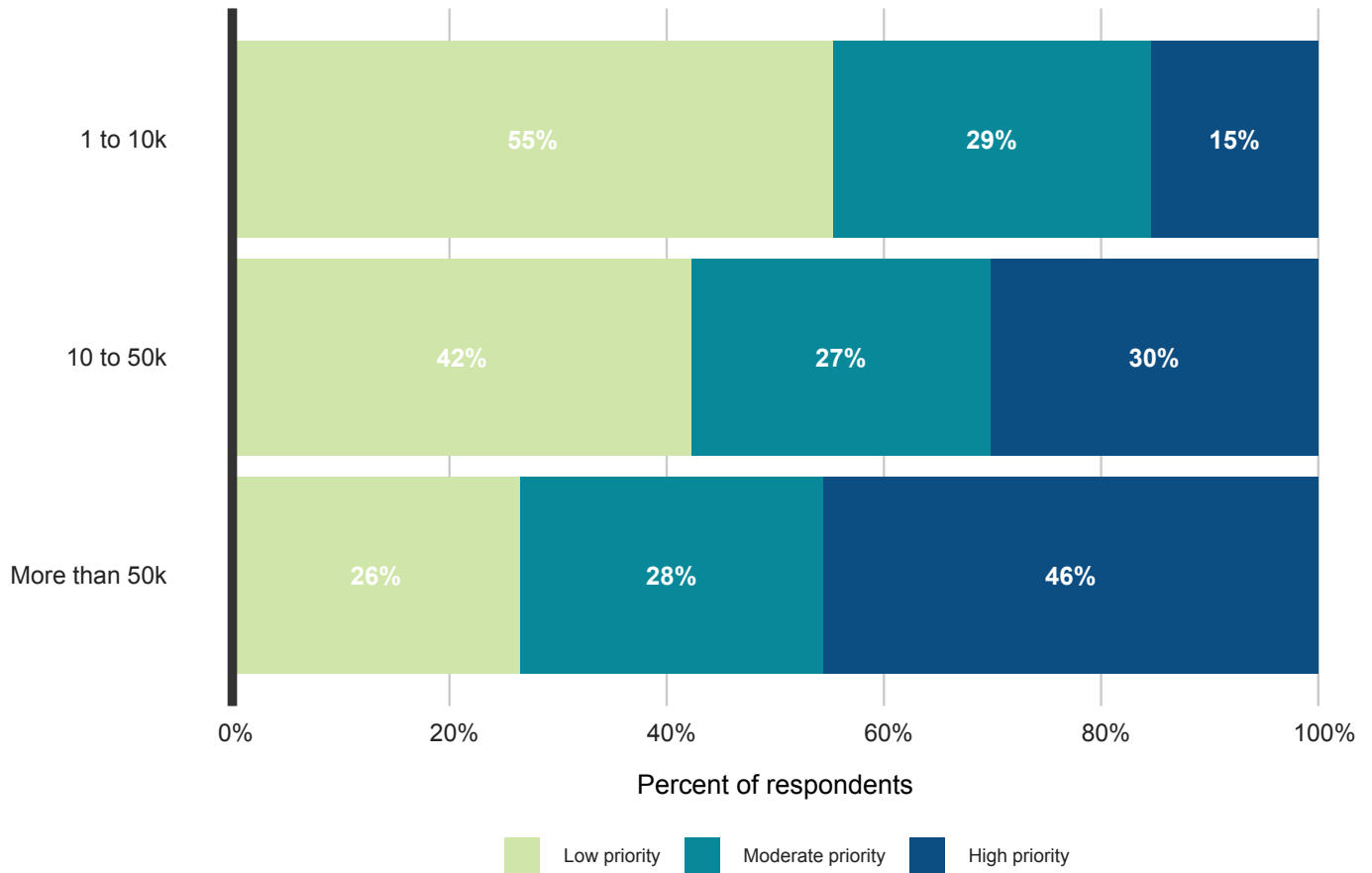
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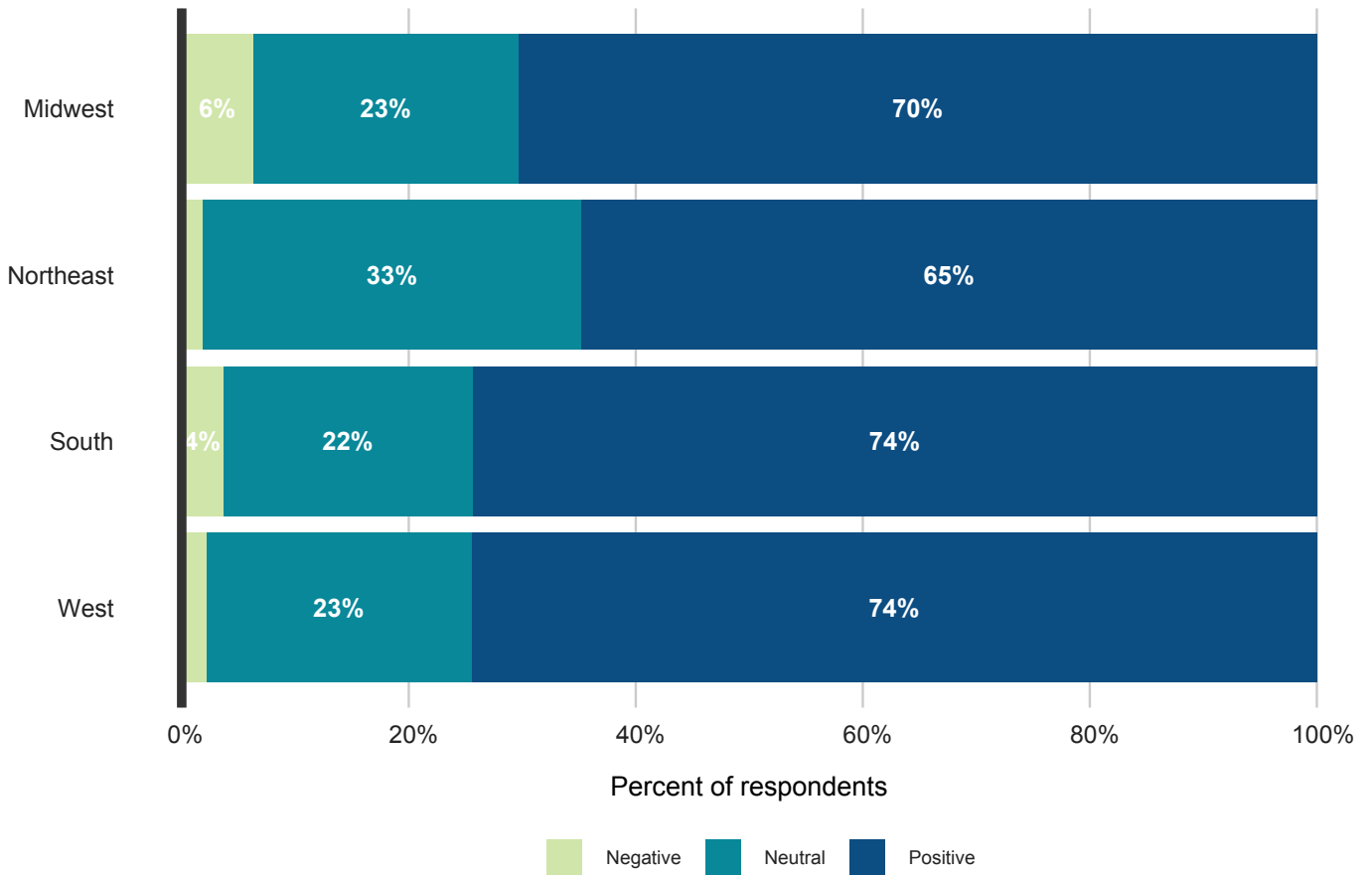## Prioritization by Government Type

Figure 2.20: Priority of Adopting New Software: Average Response Across Departments by Government Type
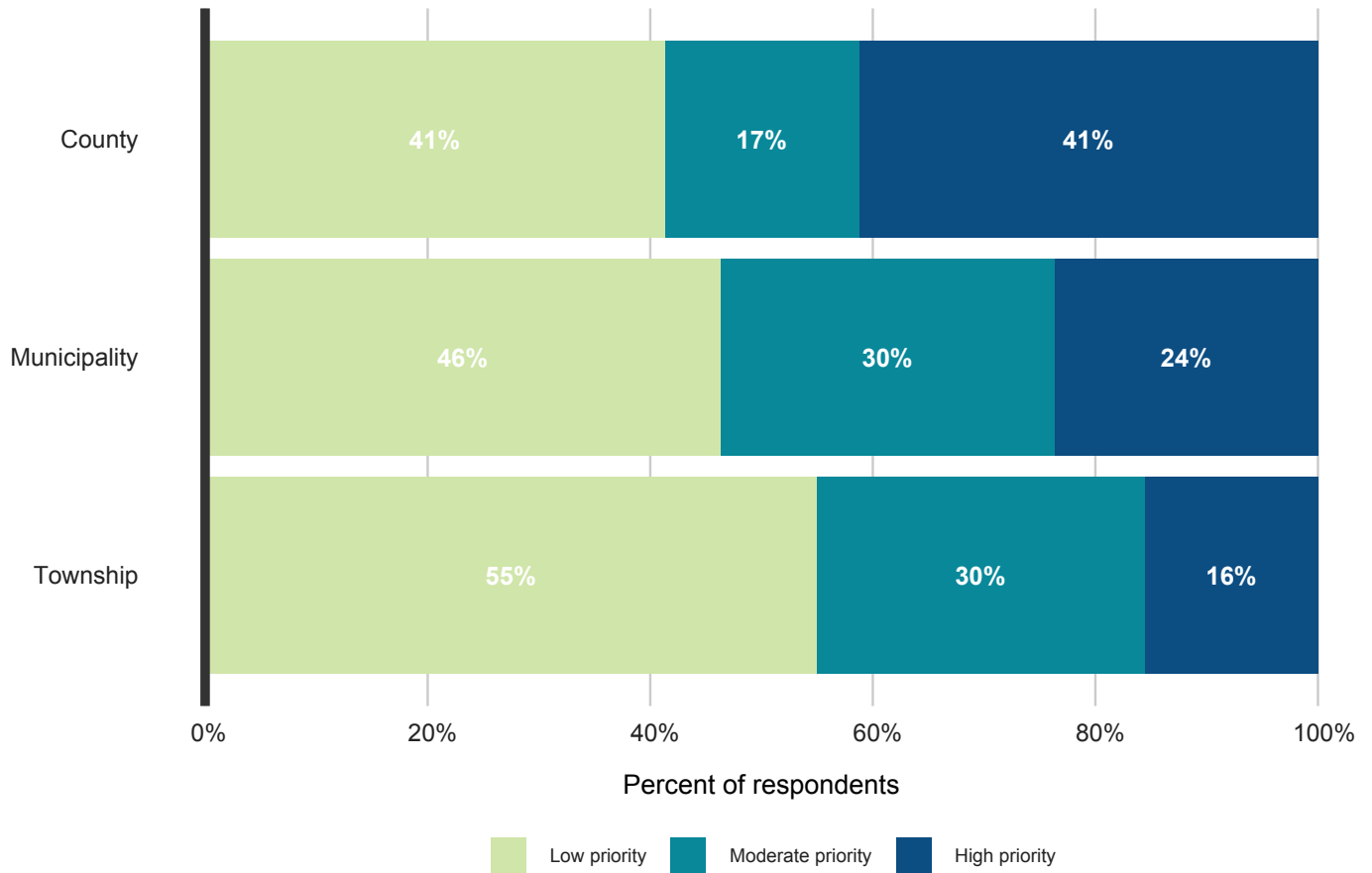
Source: **CivicPulse** (November 2021)

Prioritization by Census Region

Figure 2.21: Priority of Adopting New Software: Average Response Across Departments by Census Region
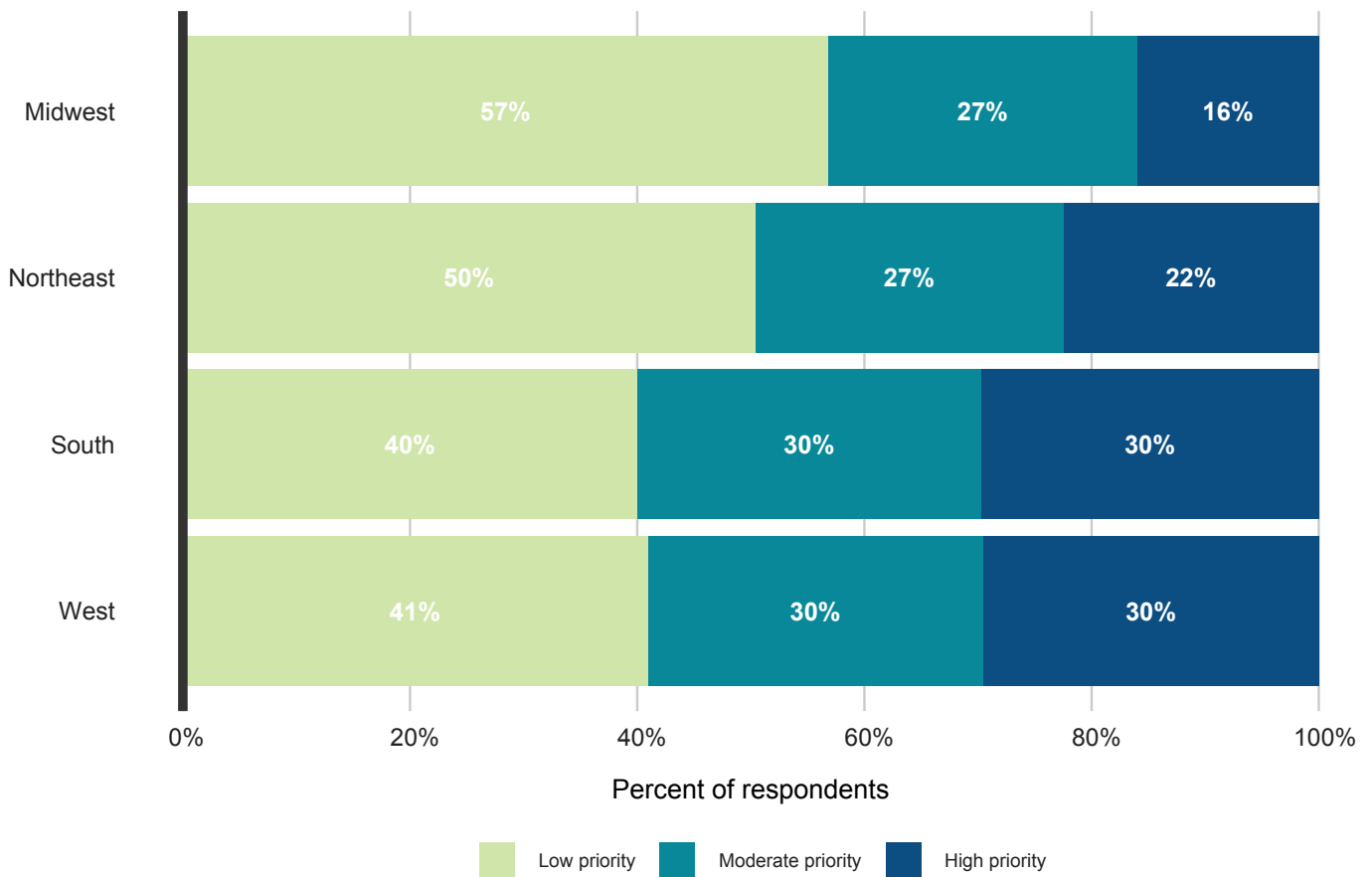
Source: **CivicPulse** (November 2021)

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Challenges to Acquiring New Software

We asked government officials to choose which challenges they have faced when they have tried to acquire new software. Officials were able to select more than one issue, so the response percentages sum to more than 100%. The full question wording can be found in the appendix.

Overall Challenges (2021)

Figure 2.22: Challenges to Acquiring Software: Average Response Across All Officials
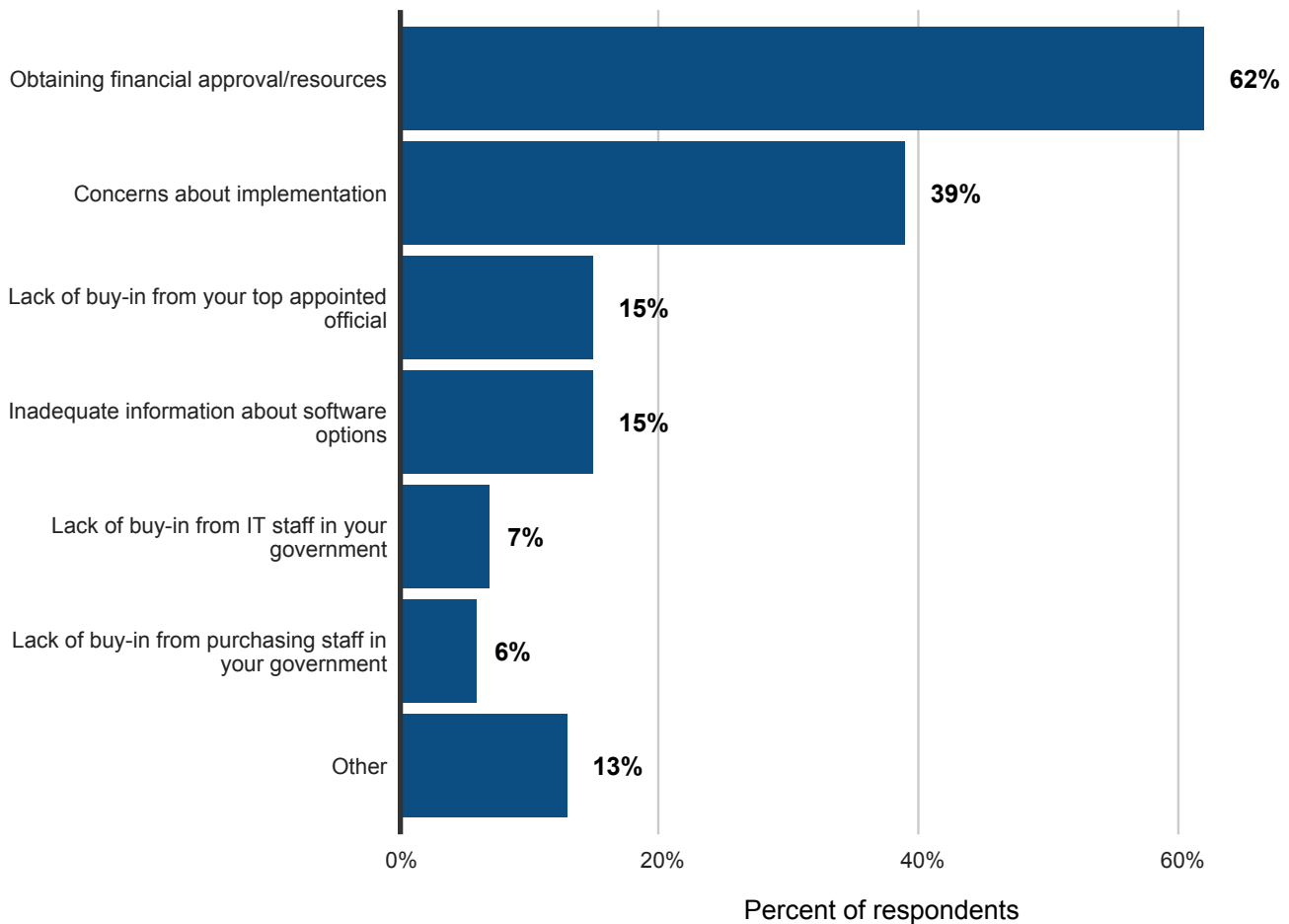
Source: **CivicPulse** (November 2021)

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Overall Challenges by Survey Year

Figure 2.23: Challenges to Acquiring Software: Average Response Across All Officials by Survey Year

Percent of respondents

2020   2021

Challenges by Position

Figure 2.24: Challenges to Acquiring Software: Average Response Across All Officials by Position Type

Challenges by Population Size

Figure 2.25: Challenges to Acquiring Software: Average Response Across All Officials by Population Size

1 to 10k

Challenge	Percent
Obtaining financial approval/resources	59%
Concerns about implementation	37%
Inadequate information about software options	16%
Lack of buy-in from your top appointed official	15%
Lack of buy-in from purchasing staff in your government	7%
Lack of buy-in from IT staff in your government	3%
Other	15%

10 to 50k

Challenge	Percent
Obtaining financial approval/resources	65%
Concerns about implementation	46%
Inadequate information about software options	16%
Lack of buy-in from your top appointed official	18%
Lack of buy-in from purchasing staff in your government	6%
Lack of buy-in from IT staff in your government	9%
Other	11%

More than 50k

Challenge	Percent
Obtaining financial approval/resources	67%
Concerns about implementation	41%
Inadequate information about software options	16%
Lack of buy-in from your top appointed official	13%
Lack of buy-in from purchasing staff in your government	5%
Lack of buy-in from IT staff in your government	19%
Other	17%

Percent of respondents

Source: **CivicPulse** (November 2021)

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Challenges by Government Type

Figure 2.26: Challenges to Acquiring Software: Average Response Across All Officials by Government Type

County

Challenge	%
Obtaining financial approval/resources	69%
Concerns about implementation	38%
Lack of buy-in from your top appointed official	15%
Inadequate information about software options	11%
Lack of buy-in from IT staff in your government	8%
Lack of buy-in from purchasing staff in your government	
Other	8%

Municipality

Challenge	%
Obtaining financial approval/resources	61%
Concerns about implementation	40%
Lack of buy-in from your top appointed official	14%
Inadequate information about software options	16%
Lack of buy-in from IT staff in your government	8%
Lack of buy-in from purchasing staff in your government	7%
Other	16%

Township

Challenge	%
Obtaining financial approval/resources	64%
Concerns about implementation	47%
Lack of buy-in from your top appointed official	27%
Inadequate information about software options	19%
Lack of buy-in from IT staff in your government	8%
Lack of buy-in from purchasing staff in your government	9%
Other	11%

Percent of respondents

Source: **CivicPulse** (November 2021)

Challenges by Census Region

Figure 2.27: Challenges to Acquiring Software: Average Response Across All Officials by Census Region
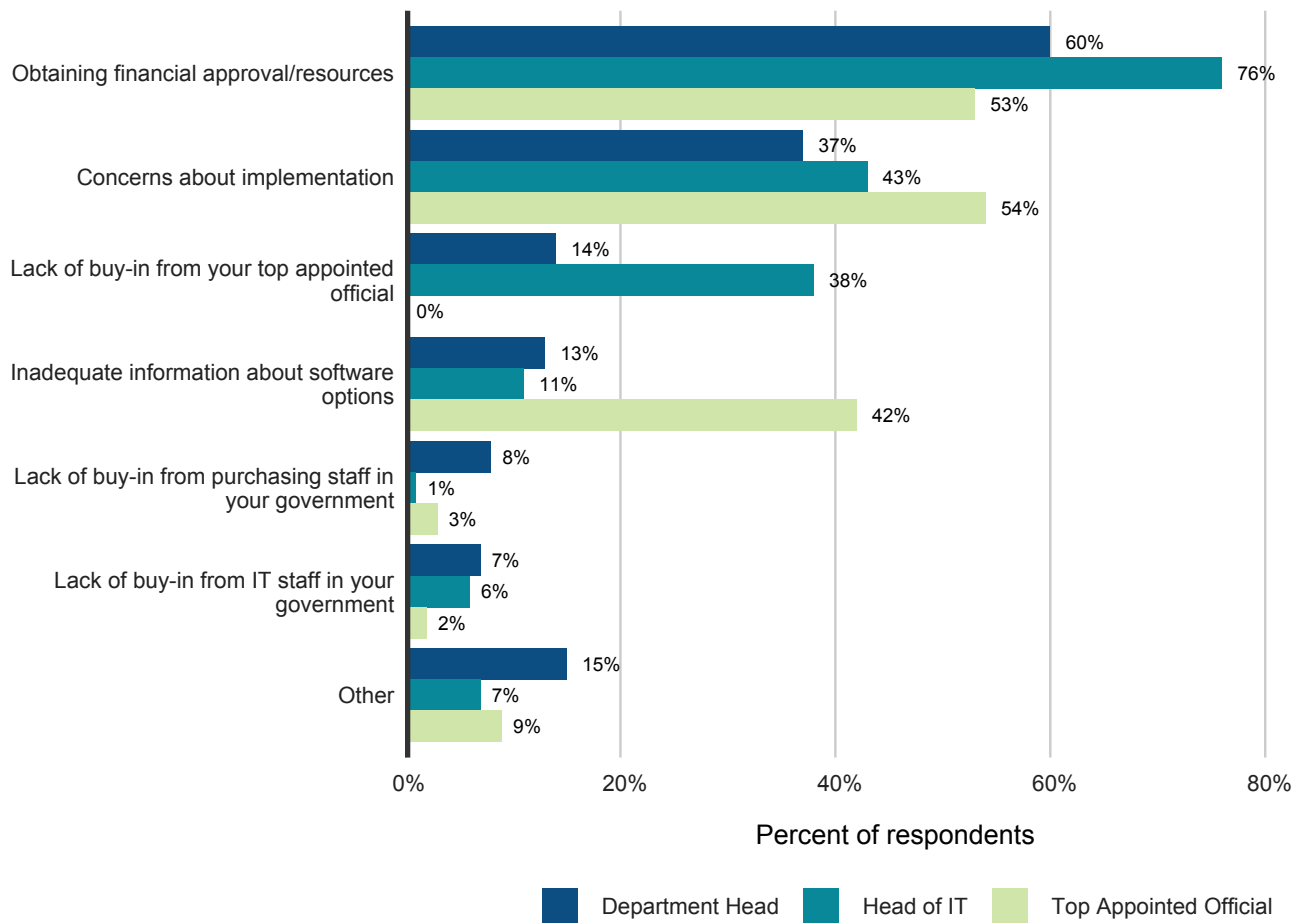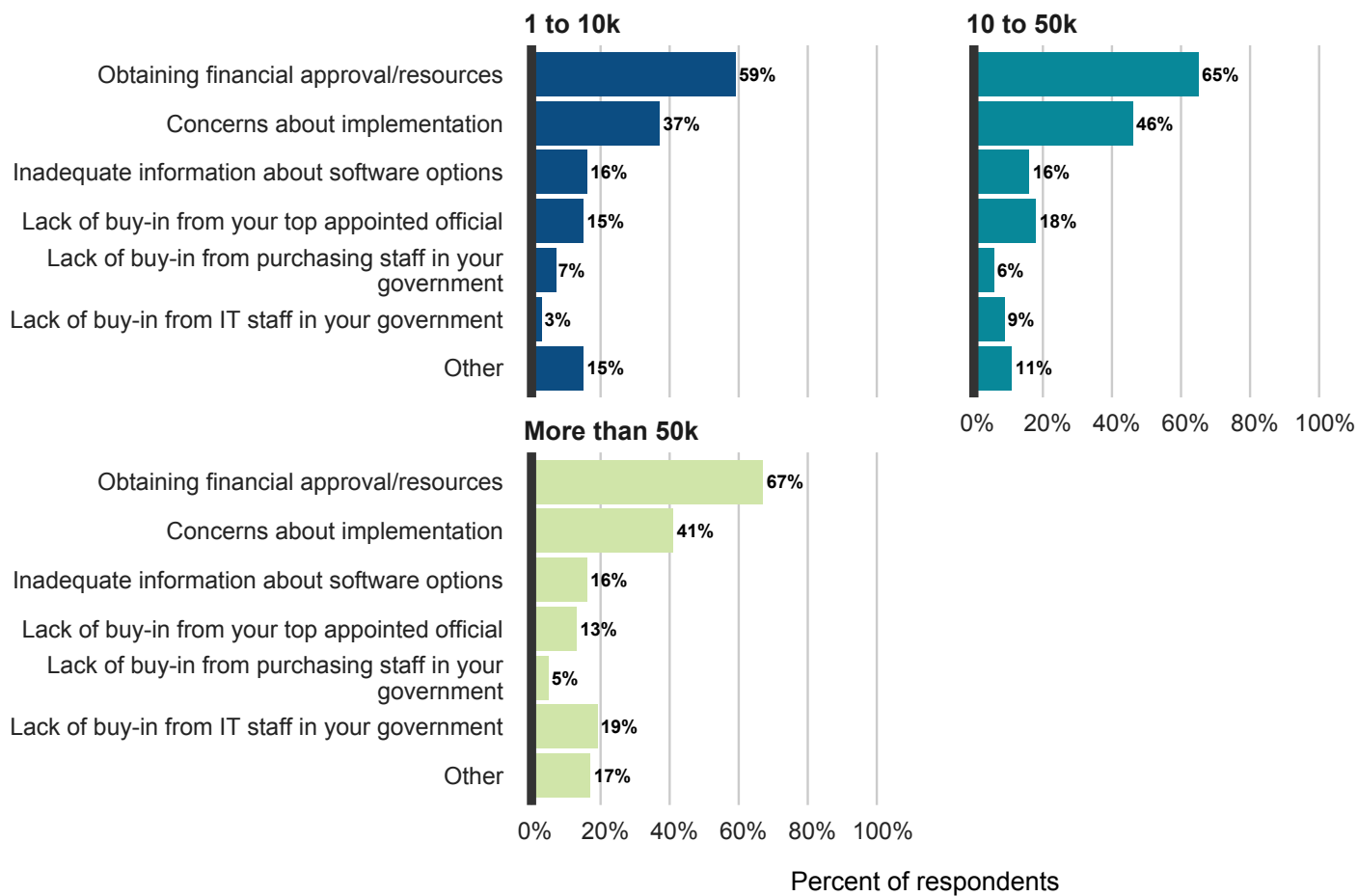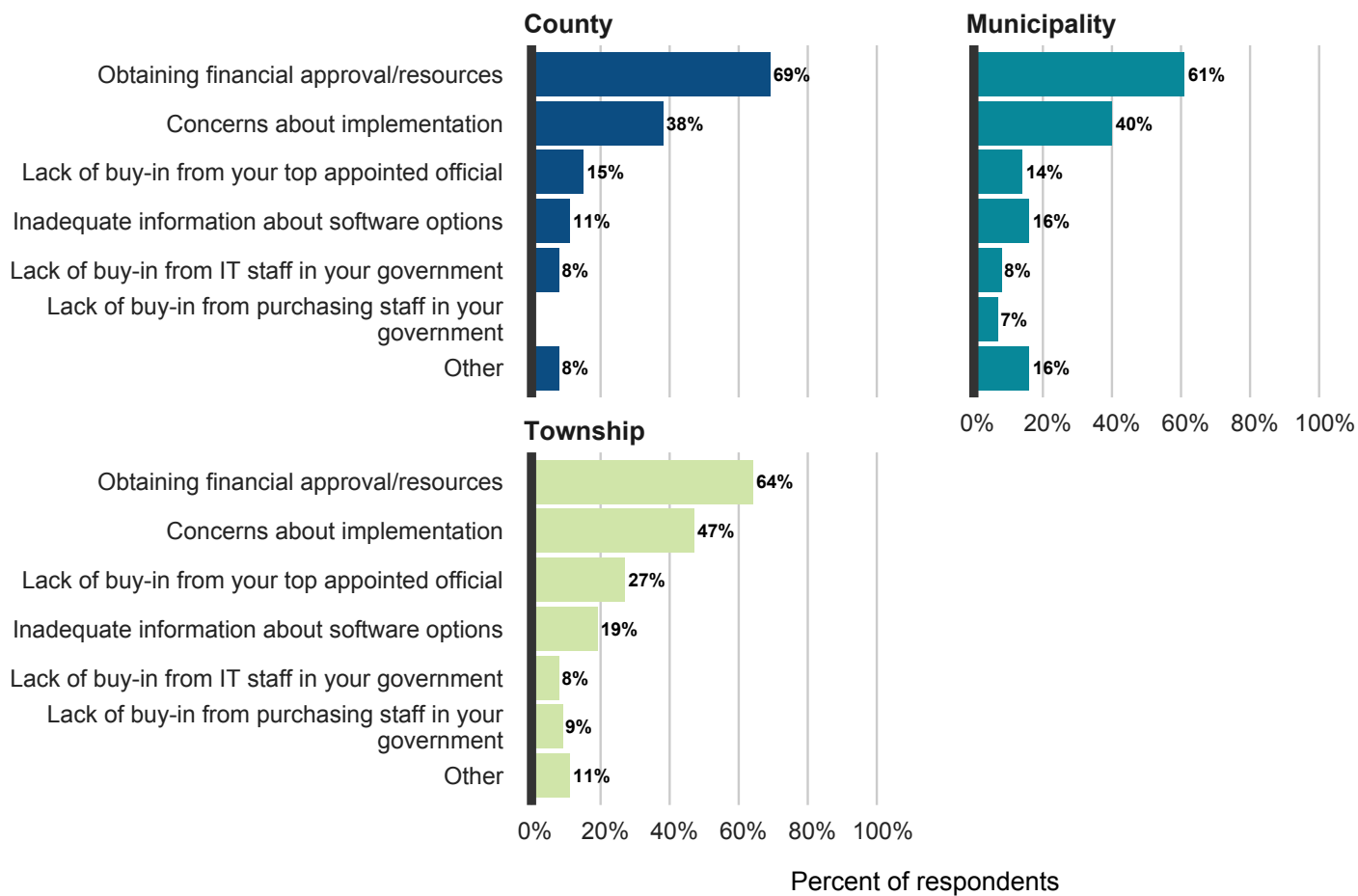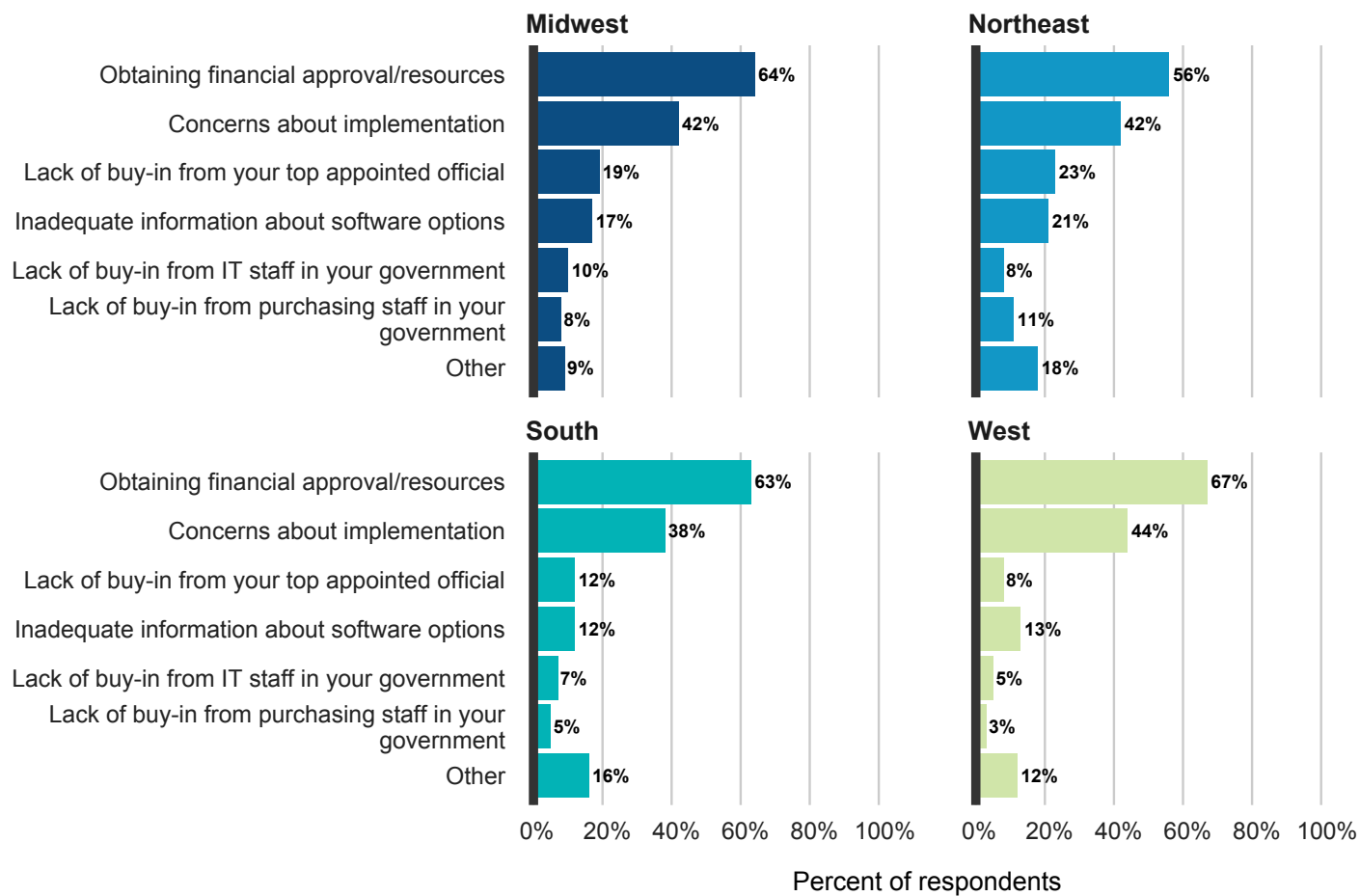

Source: **CivicPulse** (November 2021)

Information Sources for Acquiring New Software

Overall Information Sources (2021)

We asked which information sources officials use to learn about new software for their local government. Officials were able to select more than one source, so the response percentages sum to more than 100%. The full question wording can be found in the appendix.

Figure 2.28: Information Sources on New Software: Average Response Across All Officials
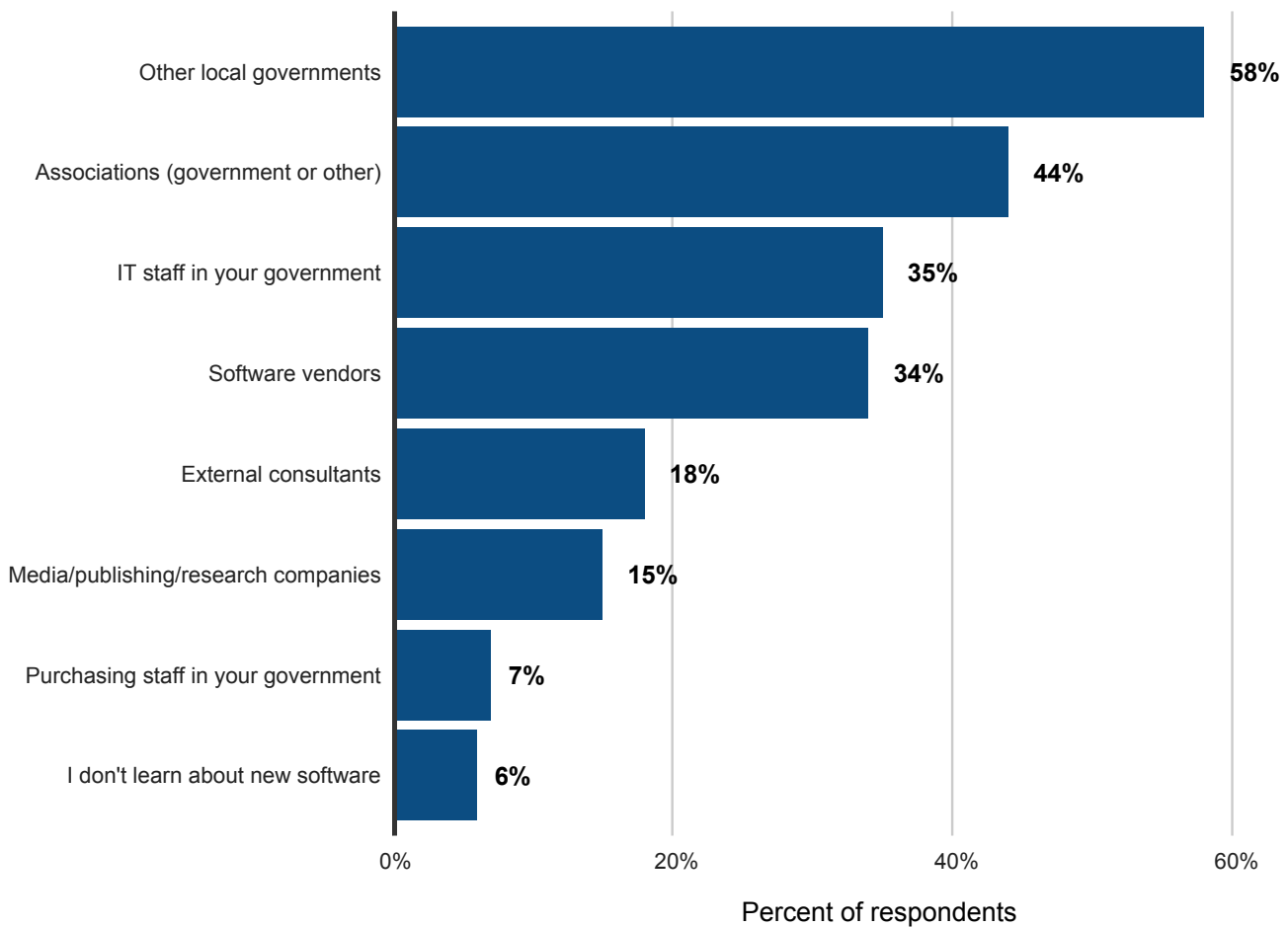
Source: **CivicPulse** (November 2021)

Overall Information Sources by Survey Year

Figure 2.29: Information Sources on New Software: Average Response Across All Officials by Survey Year
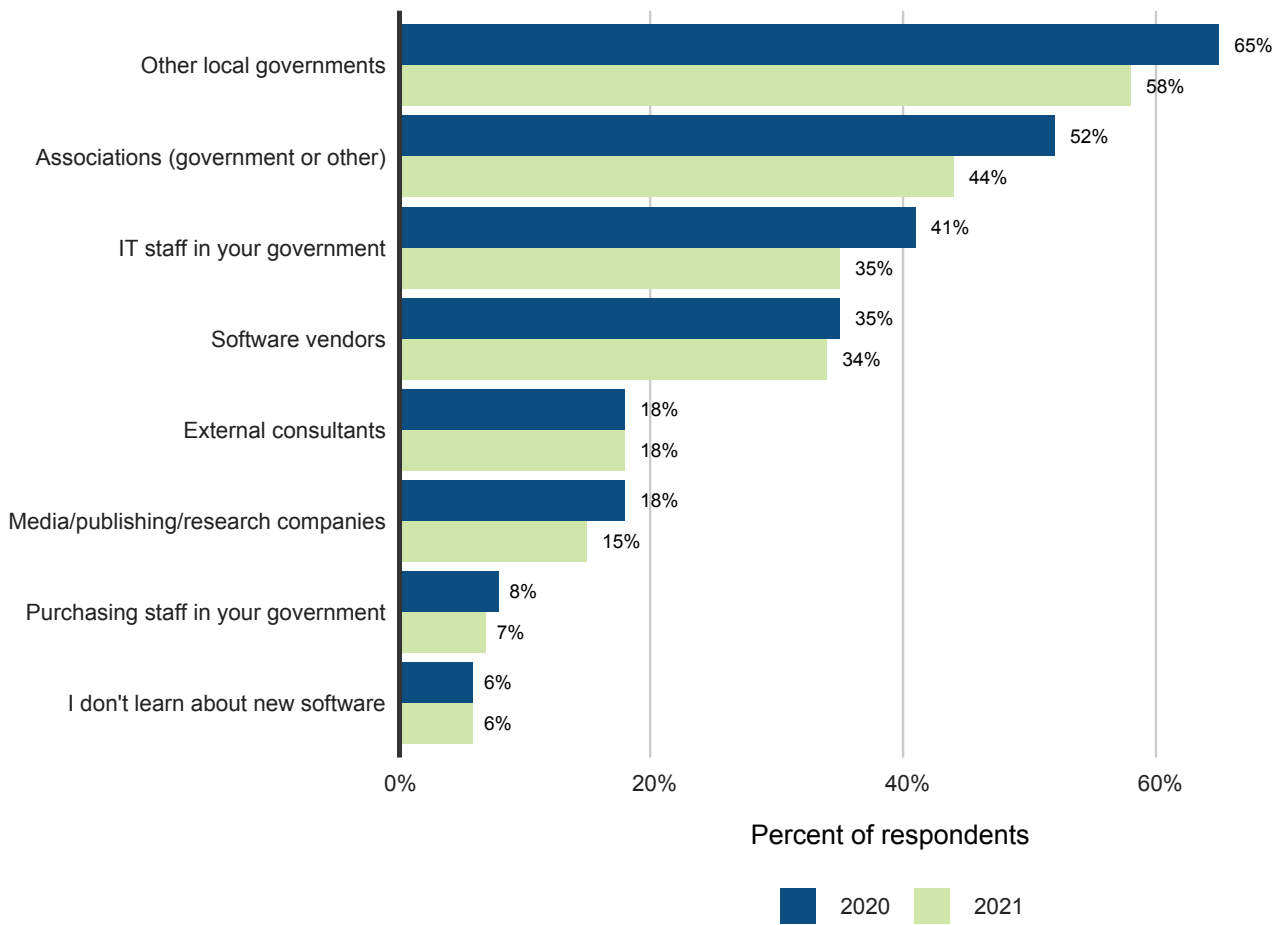
Source: **CivicPulse** (November 2021)

Information Sources by Position

Figure 2.30: Information Sources on New Software: Average Response Across All Officials by Position
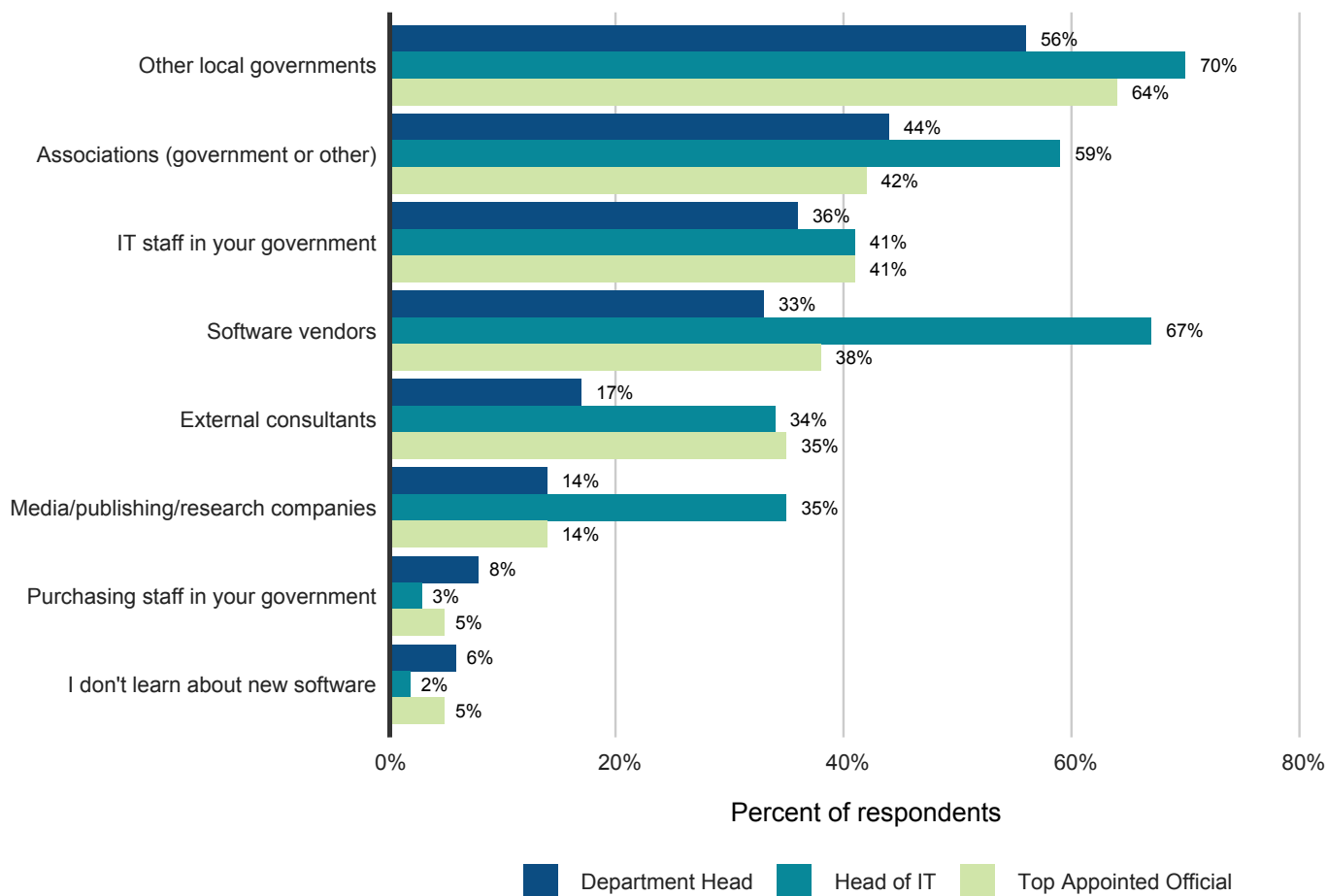
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Information Sources by Population Size

Figure 2.31: Information Sources on New Software: Average Response Across All Officials by Population Size
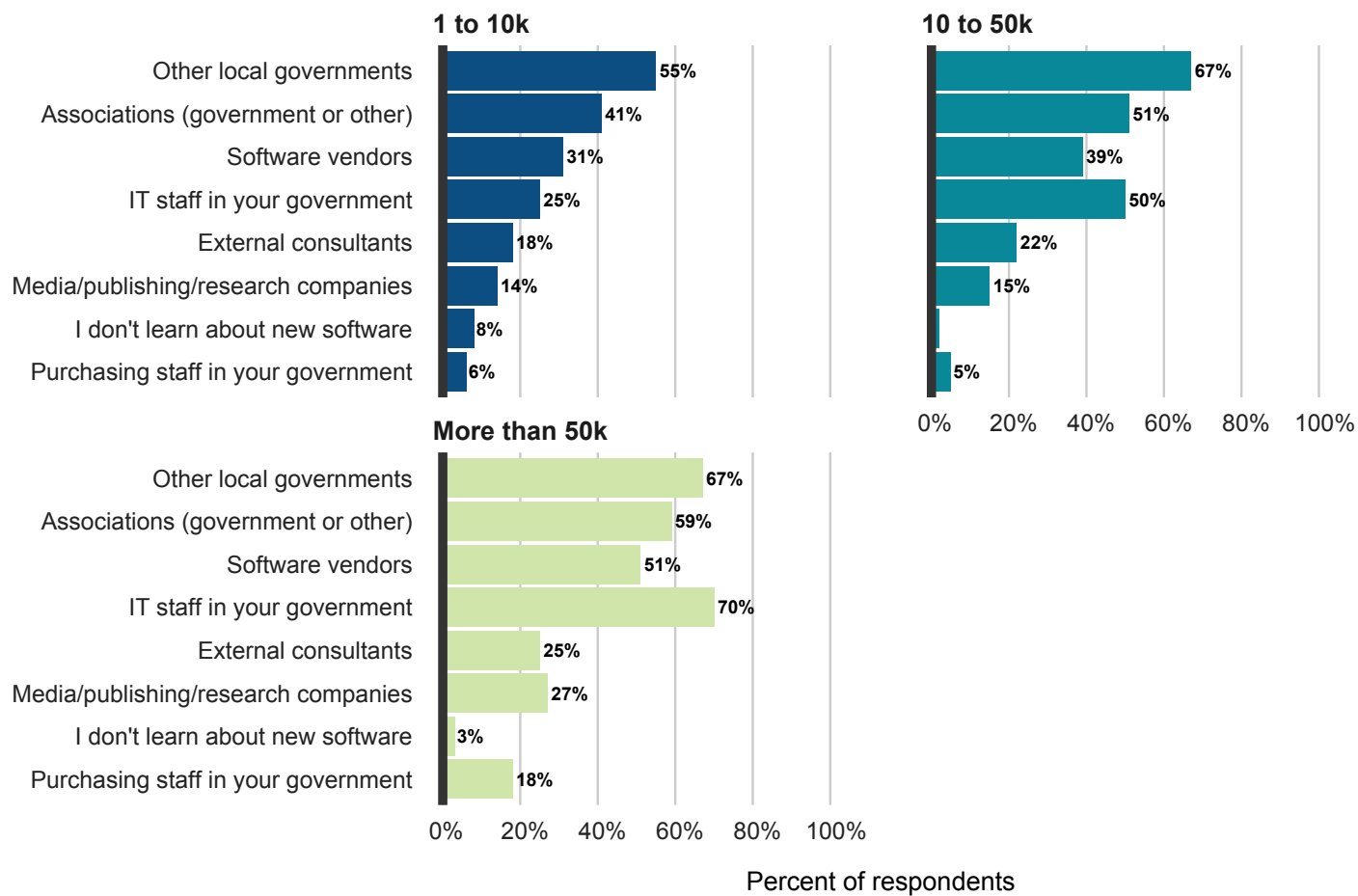
Information Sources by Government Type

Figure 2.32: Information Sources on New Software: Average Response Across All Officials by Government Type

Information Sources by Census Region

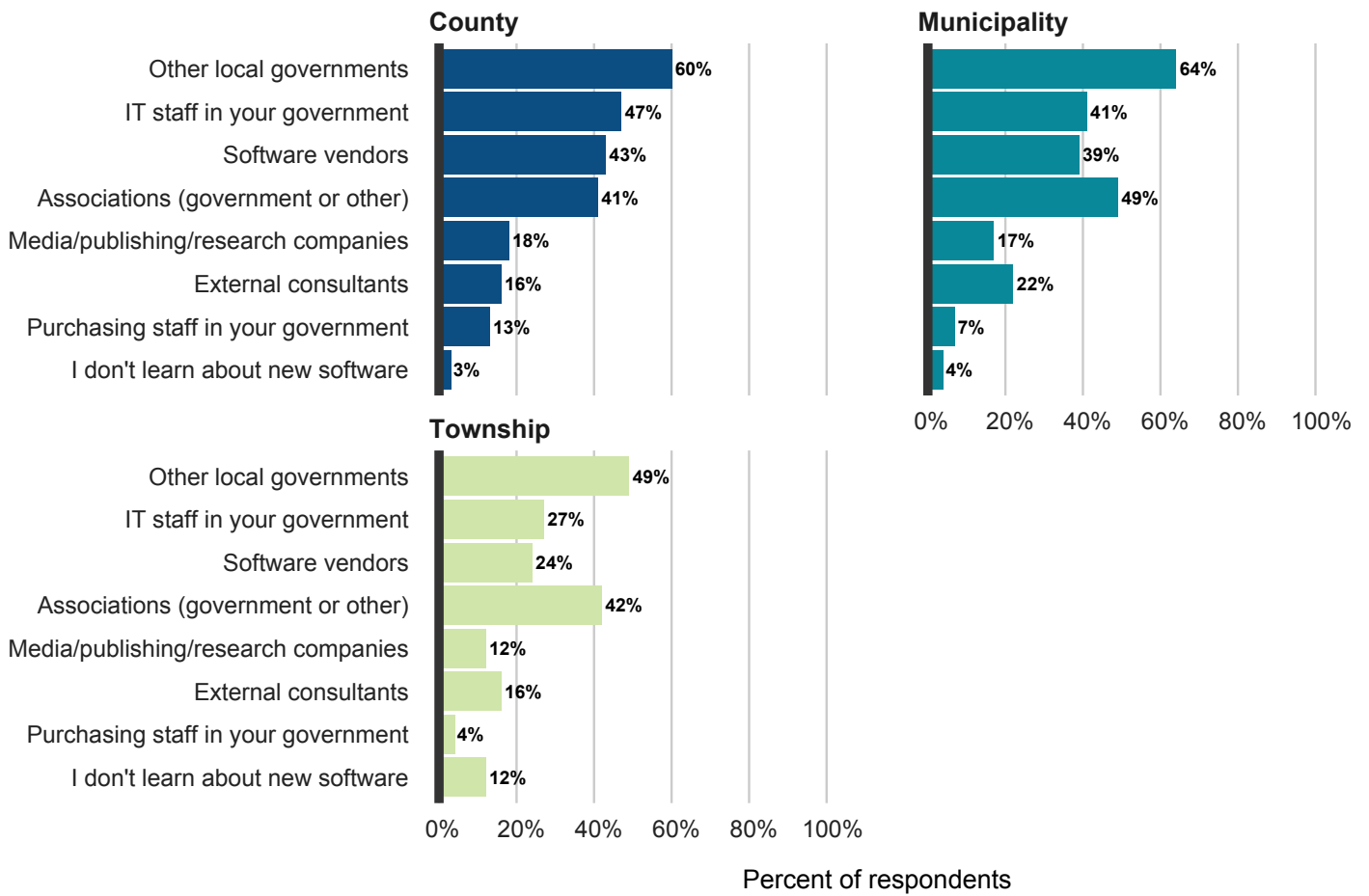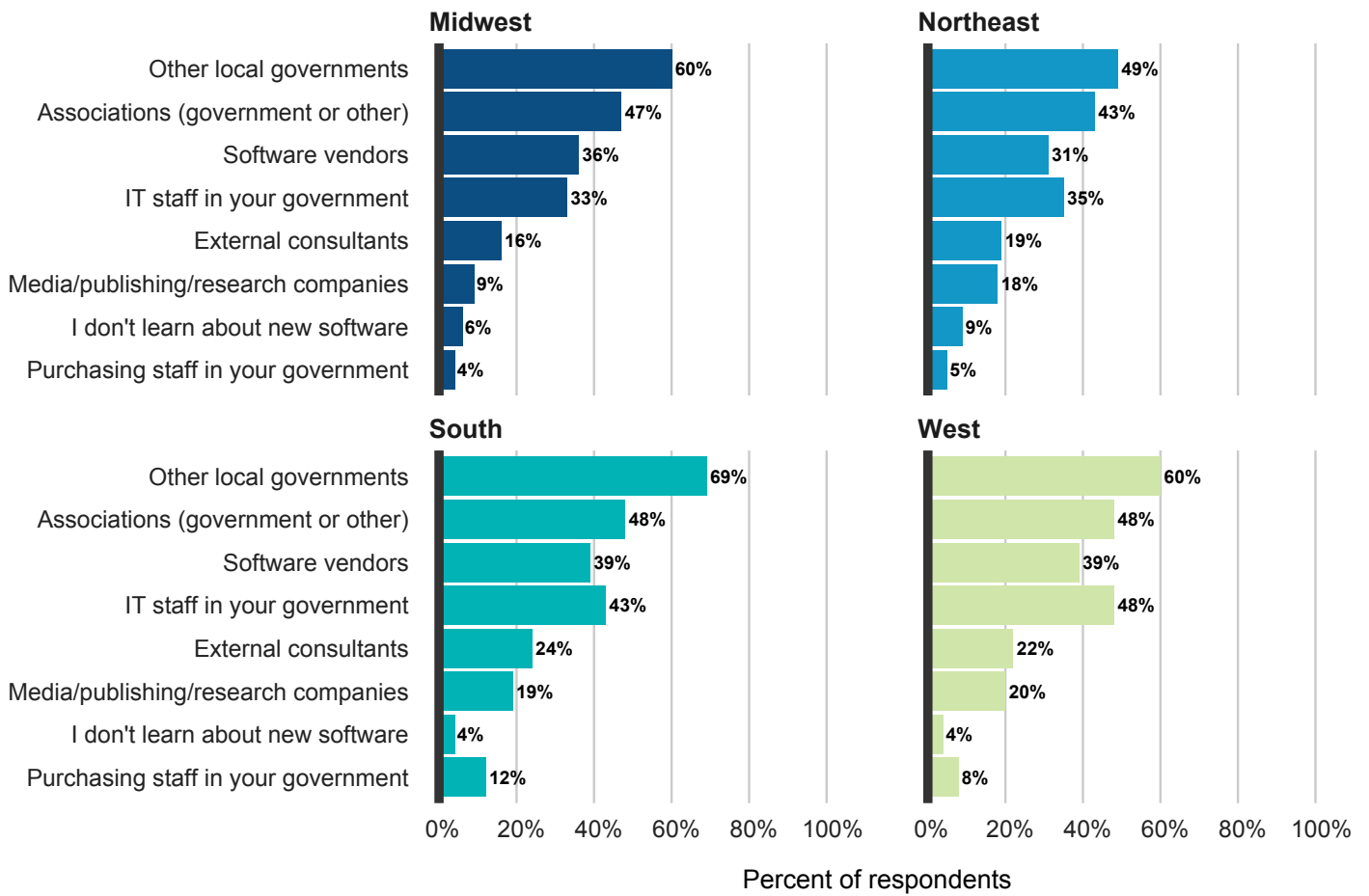**Figure 2.33: Information Sources on New Software: Average Response Across All Officials by Census Region**

Midwest

Source	Percent
Other local governments	60%
Associations (government or other)	47%
Software vendors	36%
IT staff in your government	33%
External consultants	16%
Media/publishing/research companies	9%
I don't learn about new software	6%
Purchasing staff in your government	4%

Northeast

Source	Percent
Other local governments	49%
Associations (government or other)	43%
Software vendors	31%
IT staff in your government	35%
External consultants	19%
Media/publishing/research companies	18%
I don't learn about new software	9%
Purchasing staff in your government	5%

South

Source	Percent
Other local governments	69%
Associations (government or other)	48%
Software vendors	39%
IT staff in your government	43%
External consultants	24%
Media/publishing/research companies	19%
I don't learn about new software	4%
Purchasing staff in your government	12%

West

Source	Percent
Other local governments	60%
Associations (government or other)	48%
Software vendors	39%
IT staff in your government	48%
External consultants	22%
Media/publishing/research companies	20%
I don't learn about new software	4%
Purchasing staff in your government	8%

Percent of respondents

Source: **CivicPulse** (November 2021)

Appendix
Methodology

The survey was conducted using a random sample of local governments in the United States with populations of 1,000 or more. CivicPulse creates its sampling frame using Power Almanac's continuously updated contact list of government officials from counties, municipalities, and townships. Respondents were invited to take the survey via email, and the data was collected between September 17, 2021 and October 18, 2021.

We invited local government officials from thirteen different positions to answer our survey. Respondents from two positions (top appointed officials and heads of IT) answered a version of the survey about how software is used across their entire local government, as well as in various departments. In contrast, respondents from the remaining eleven positions were asked about how software is used in the respondent's specific department only.

For some of the analysis, the data from the 2021 survey was matched with data from a similar survey conducted by CivicPulse in June 2020. For the 2021 survey, more government positions were added to the sampling frame. The full results from the 2020 survey can be found in the report *The Role of Software in Local Government*.

To better approximate the representativeness of the sample, probability weights are created using a post-stratification raking procedure based on the population, urbanicity, average education and presidential vote share for the geographic area served by a local government.

Table A.1: Survey Respondents by Position

Position	Respondents
Head Building Official	59
Head of Communications	61
Head of Finance/Budgeting	57
Head of Fire Protection Services	88
Head of HR	81
Head of IT	61
Head of Law Enforcement	80
Head of Parks and Recreation	54
Head of Planning/Zoning	43
Head of Public Works	63
Head of Purchasing/Procurement	62
Head of Water Supply	63
Top Appointed Official	51
Total n	**823**

Table A.2: Survey Respondents by Government Type

Government Type	Respondents
County	105
Municipality	547
Township	171
Total n	**823**

Table A.3: Survey Respondents by Census Region

Census Region	Respondents
Midwest	253
Northeast	180
South	263
West	127
Total n	**823**

Table A.4: Survey Respondents by Population Size

Population Size	Respondents
1 to 10k	455
10 to 50k	265
More than 50k	103
Total n	**823**

Table A.5: Sample Comparison for Municipality and Township Officials

	Sample Median	Population Median
Proportion Urban	0.97	0.72
Proportion College-educated	0.25	0.22
Population Size	7,271	3,326
Democratic Vote Share	0.45	0.39

Figure A.1: Map of Survey Respondent Locations
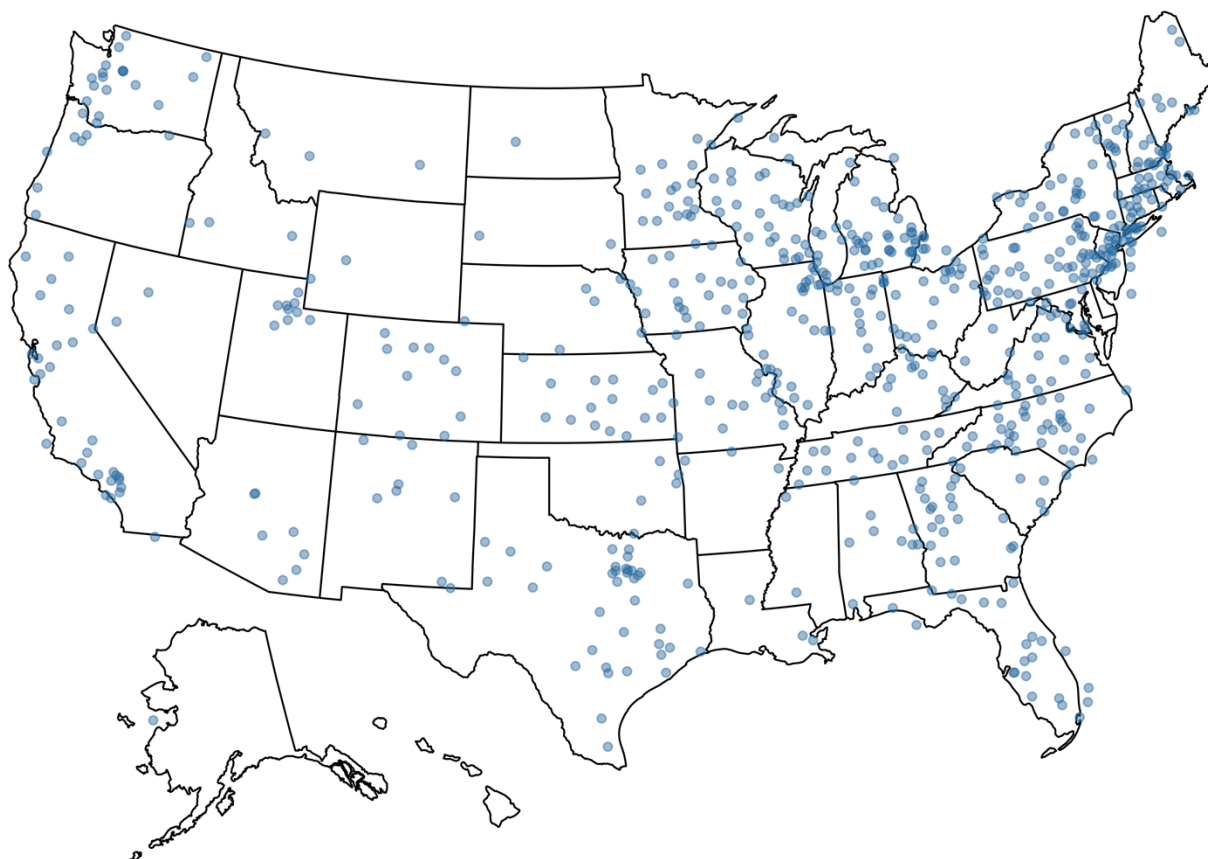
Source: **CivicPulse** (November 2021)

The geographic distribution of the survey respondents approximates the population distribution of the United States. To characterize the representativeness of our survey sample, we match these respondents to the U.S. Census data for the areas which their local governments serve. Tables A5 and A6 below compare the sample and population medians for four Census-area spatial characteristics: population size, urbanicity, the proportion of residents with a 4-year college education, and the proportion of residents who voted for Biden in 2020.

Table A.6: Sample Comparison for County Officials

	Sample Median	Population Median
Proportion Urban	0.40	0.39
Proportion College-educated	0.20	0.19
Population Size	26,478	25,754
Democratic Vote Share	0.31	0.29

Questionnaire

The questionnaire was customized so that heads of departments received specific prompts about their departments. Positions that were likely aware of government-wide impacts and strategy (e.g., top appointed officials and heads of IT) were asked slightly different versions of some questions that asked about an entire local government or multiple departments within a local government.

Question 1: Software Adoption

Shown to department heads:
Approximately how recently has your local government adopted new software for {specific_area}? (For the date of adoption, we are referring to the date the software was deployed rather than when a contract was finalized.)

- In the past year
- 3 years ago
- More than 3 years ago
- Not sure
- We do not use specialized software

Shown to top appointed official and head of IT:
Approximately how recently has your local government adopted new software? (For the date of adoption, we are referring to the date the software was deployed rather than when a contract was finalized.)

- In the past year
- 3 years ago
- More than 3 years ago
- Not sure
- We do not use specialized software

Question 2: Impact of Software Adoption

Shown to department heads:
New software can have a range of impacts, whether in terms of reliability, productivity, or user experience. Thinking about the last three years or so, to what extent has the adoption of new software had a net positive or negative impact on {specific_area} in your local government?
- Very negative
- Somewhat negative
- Neutral
- Somewhat positive
- Very positive
- Not sure
- No new software adopted in the last three years or so

Shown to top appointed official and head of IT:
New software can have a range of impacts, whether in terms of reliability, productivity, or user experience. Thinking about the last three years or so, to what extent has the adoption of new software had a net positive or negative impact on your local government?
- Very negative
- Somewhat negative
- Neutral
- Somewhat positive
- Very positive
- Not sure
- No new software adopted in the last three years or so

Question 3: Software Prioritization

Shown to department heads:
For {specific_area} in your local government, do you think the adoption of new software should be a low or high priority in the next year or so?
- Very low priority
- Low priority
- Moderate priority
- High priority
- Very high priority
- Not sure/Not applicable

Top appointed officials and heads of IT were shown eight of the following rows:
For each of the following areas in your local government, do you think the adoption of new software should be a low or high priority in the next year or so?

	Very low priority	Low priority	Moderate priority	High priority	Very high priority	Not sure/Not applicable
Building Permitting and Compliance	○	○	○	○	○	○
Citizen Communication and Engagement	○	○	○	○	○	○
Financial Administration	○	○	○	○	○	○
Fire Protection	○	○	○	○	○	○
Human Resources	○	○	○	○	○	○
Law Enforcement	○	○	○	○	○	○
Public Works	○	○	○	○	○	○
Purchasing	○	○	○	○	○	○
Parks and Recreation	○	○	○	○	○	○
Water Service and Management	○	○	○	○	○	○
Land-use Planning and Zoning	○	○	○	○	○	○

Question 4: Challenges

In trying to acquire new software for ${e://Field/area_challenges}, which of the following has been a challenge? Please select all that apply.
- Obtaining financial approval/resources
- Inadequate information about software options
- Lack of buy-in from IT staff in your government
- Lack of buy-in from purchasing staff in your government
- Lack of buy-in from your top appointed official
- Concerns about implementation
- Other (please specify)
- I have no applicable experience to answer this question

Question 5: Sources of Information

Which of the following information sources do you rely on to learn about new software for your government? Please select all that apply.
- IT staff in your government
- Purchasing staff in your government
- Other local governments
- Associations (government or other)
- Software vendors
- Media/publishing/research companies
- External consultants
- I don't learn about new software
- None of the above