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CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INFORMATION TECHNOLOGY PANEL – REBUTTAL TESTIMONY

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INTRODUCTION

Q. Would the members of the Information Technology (IT) Panel (Panel) please state your names?

A. Our names are Jeannine Haggerty, Manoj Chouthai, Allisyn Glasser, James Prettitore, Mikhail Falkovich, Thomas Langlois, Frank LaRocca, Aleksandra Pooley, and Denise Reid.

Q. Have any panel members previously submitted testimony in this proceeding?

A. Yes. We submitted initial and update testimony in this proceeding.

Q. What is the purpose of the Panel's rebuttal testimony?

A. We are responding to the testimony of Department of Public Service Staff ("Staff") IT Panel, Staff Security Panel and Staff witness Srirangaram Seshadri ("Seshadri").

Q. Do the Staff IT Panel, Security Panel and Seshadri testimonies make any recommendations related to the Information Technology Panel's programs?

A. Yes. Staff adjusts numerous projects in the Company's IT request, adjusting the Company's RY1 capital request of \$471.5 million to \$354.9 million, a RY1 decrease of \$116.6 million, and as for the RY1 O&M request, adjusting the Company's \$92.08

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1 million request to \$48.46 million, a decrease of \$43.62

2 million in O&M.

3 Q. Do you agree with these recommendations?

4 A. No. The Panel's initial and update testimony requested an
5 increase to complete the significant amount of work that needs
6 to be done in the technology area, which includes work related
7 to improving and enhancing such important activities as storm
8 response and cybersecurity. While Staff proposed an increase
9 from IT's current spending, it nevertheless proposed
10 significant reductions in both capital and O&M. For O&M, Staff
11 departed without justification from Commission's rate case
12 test year policy by using a historical average instead of the
13 test year information (this departure is discussed in more
14 detail herein and in the Accounting Panel's testimony).
15 Staff's testimony regarding capital projects was similar.
16 Instead of focusing on the testimonial request, which is
17 particularly important for a growing and important field like
18 IT, Staff often relied on variations of an historical average,
19 using three or five years' worth of prior spending information
20 (and adding growth factors to prior spending levels), to
21 develop its reductions. This Panel's filed initial testimony
22 demonstrated that there is significant work that the Company
23 must complete over the next three years that will enable the

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1 Company to keep pace with this rapidly changing and growing
2 area of operations. Our initial testimony also showed that we
3 have put a sound structure in place to evaluate and prioritize
4 projects that will produce the most benefit for our customers.
5 The testimony below explains that Staff's proposed cuts are
6 unreasonable because the incremental work that needs to be
7 done must be part of our cost of service that we recover in
8 rates. This includes the need for FTEs to either perform or
9 oversee the projects that we have proposed. As is now
10 recognized throughout our industry, the IT function is just as
11 important as what has been traditionally viewed as our other
12 core operating functions, and it would be a mistake to provide
13 IT with less than the necessary funds to enable the Company to
14 provide safe and reliable service to our customers.

15 Q. How is this testimony organized?

16 A. Similar to the initial testimony, the IT Panel includes
17 testimony and exhibits explaining all Company related IT
18 projects except for customer operations projects, which is
19 covered by the Customer Operations Panel. The IT Panel
20 included all the other projects to provide a consolidated view
21 of the Company's IT spend.

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1 This testimony rebuts reductions made by three Staff
2 panels/witnesses, the Staff Information Technology Panel, the
3 Staff Security Panel and Staff witness Seshradi.

4 The testimony first addresses Staff's global non-labor and
5 labor O&M reductions for the IT group with some additional
6 limited discussion concerning specific projects and programs.

7 The testimony then rebuts Staff's reduction for each capital
8 project or program in the same order discussed in the initial
9 testimony. Where applicable, the Company also discusses
10 proposed FTE or O&M reductions associated with those capital
11 programs.

12
13 **IT NON-LABOR O&M**

14 Q. Did Staff recommend any reductions to the Company's Rate Year
15 forecast for IT's non-Labor O&M?

16 A. Yes. Staff recommended decreasing the Company's RY1 forecast
17 of non-labor O&M expense by \$39.8 million, from \$84.1 million
18 to \$44.3 million.

19 Q. Please explain Staff's justification for this non-labor O&M
20 reduction.

21 A. Staff claims (pp. 60-62) that using an average growth rate
22 based on a three year average of non-labor O&M expenditures
23 from 2018-2021 is more reliable than the Company's project by

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1 project forecast. Staff opines that the Company's actual
2 costs "significantly varied" in the last several years and
3 that an average is more appropriate than a project based
4 forecast or one based on the Test Year.

5 Staff also applied this historical average plus growth rate to
6 other projects discussed in this testimony. For example,
7 Staff's proposed non-labor reductions for CCTN and Digital
8 Factory are based on this average.

9 Q. Does the Company agree with Staff's average growth rate
10 approach to developing the rate year non-labor O&M forecast?

11 A. No. The Company's initial testimony explained that it was
12 seeing O&M increases in two areas.

13 First, there is incremental O&M for increasing maintenance and
14 support costs for the IT infrastructure.

15 Second, as projects are completed and move into production,
16 they are no longer considered capital but O&M. And when they
17 move into O&M, there are operating costs associated with
18 running these systems, including subscription, support and
19 upgrade costs.

20 Using a four year average of historical costs does not
21 appropriately consider the Company's projected O&M costs,
22 which are based on the Test Year plus forecasted increases.

23 Q. Does the average growth rate consider these factors?

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1 A. No. Using an average growth rate to develop costs assumes
2 that the past before the Test Year is the best indicator for
3 the future, which is inconsistent with the Commission's Test
4 Year policy. It also ignores known information, substituting
5 a historical average for the most recent costs for a rapidly
6 changing area of operations. Moreover, while Staff allowed
7 growth, its average growth rate assumes that growth is linear
8 and will continue at a consistent level for an area that is
9 rapidly increasing in importance.

10 Q. Why did the Company use a project-by-project forecast in
11 addition to the Test Year information?

12 A. In accordance with the Test Year policy, the Company developed
13 an accurate forecast based on what was needed for each
14 project. As the Commission determined, this approach yields a
15 more accurate and quantifiable forecast because it is based on
16 specific drivers of IT non-labor O&M costs.

17 Q. Has the IT portfolio increased?

18 A. Yes. Significantly. In 2018, the Company's capital portfolio,
19 which includes all hardware, software, subscription, licenses
20 and Managed Service Provider costs was \$186 million. It has
21 grown to \$317 million as of 2022, and is expected to grow to
22 \$538 million by 2024.

23 Q. Will the historic average consider these costs?

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1 A. No. It averages what was already being spent during the Test
2 Year with prior years and fails to consider projected
3 increases.

4 Q. Did the Company demonstrate that its costs were increasing?

5 A. Yes. The Company requested \$61.0 million in RY1. Of this
6 amount, \$22.1 million represents new IT non-labor O&M expense
7 with no historical basis. \$8.9 million of the \$22.1 million
8 in new expense is directly attributable to the completion of
9 capital projects, such as Enterprise Geographical Information
10 System (eGIS) (\$2.5 million), Cybersecurity Grid Modernization
11 related projects (\$2.0 million), and Work and Asset Management
12 Mobility Solution (\$1.1 million). The remaining \$13.2 million
13 in new expense is driven by the expansion of Infrastructure
14 and Operations support required to support historical capital
15 investments such as additional server and storage requirements
16 for AMI (\$1.0 million), increased data center support (\$7.4
17 million), and the increasing demand for IT products and
18 services to support technologies previously introduced in the
19 business, such as Digital Factory – PACE (\$2.0 million).
20 Staff's reduction does not consider or address these expected
21 costs, many of which are the ongoing O&M costs for projects
22 that Staff previously supported. We note that we provide

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1 further detail regarding these projects, as appropriate,
2 herein.

3 Q. Please continue.

4 A. By using the Test Year plus project-based approach, the
5 Company directly quantified the increases required to support
6 investments. Our approach demonstrates that the historical
7 approach does not consider the number of projects that go into
8 service in the Rate Year, nor the complexity of the support
9 required based on the functional and technological
10 requirements of a given investment.

11 Q. Are there other examples of where Staff's assumed 21%
12 historical growth factor is problematic?

13 A. Yes. The Company has committed to multi-year contracts with
14 payment terms that increase year-over-year. The Company's
15 Oracle Perpetual User License Agreement increases 49% (\$6.9
16 million) from the historic year. The Company also has
17 numerous contracts for software products that collectively
18 increase 45% (\$5.4 million) over the Test Year. Moreover, we
19 note that Microsoft Azure Cloud and VMWare are two contracts
20 in the portfolio that exceed the 21% growth rate assumed by
21 Staff (\$3.5 million).

22 Telecom increases are expected to be 63%. Telecom has
23 experienced extraordinary growth from deployment of broadband

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wireless infrastructure to support AMI, Grid Mod, CCTN fiber expansion, and converting from copper to fiber to improve safety, customer experience and operational excellence. In addition to Company growth, carriers are concurrently increasing fees, taxes, and warranties to contribute to cost increases.

Q. Were any of the Staff proposed IT O&M non-labor reductions related to specific capital investments?

A. Yes. The Panel recommended proportional non-labor O&M reductions for the Rate Year for the following capital projects: CCTN Expansion and Modernization project, Mobility - Digital Factory project, Cybersecurity, and XM-10 (Hardware Maintenance Contracts). Company rebuttal for IT non-labor O&M associated with these projects is included in the Company's rebuttal of each capital project.

IT LABOR O&M

Q. Did Staff make any IT labor reductions?

A. Yes. Staff claims that 35 of 83 requested FTEs are not discussed or justified in the Company's exhibits and removed these positions. As we will note in more detail herein, Staff ignored that the Company provided such justifications for each of the projects listed below. These justifications were

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1 provided in either initial or update testimony, exhibits,
2 workpapers or discovery responses.

3 Additionally, Staff specifically called out four projects,
4 CCTN, Data Center Improvements, Mobility – Digital Factory,
5 and PACE – Digital Factory, for reductions. As to Data Center
6 Improvements and Data Integration Modernization, Staff
7 proposes to postpone the RY1 hiring (7) for these projects
8 until RY2 (4) and RY3 (3).

9 Q. Did Staff provide any additional rationale or explanation for
10 these reductions?

11 A. No.

12
13 **Business Enablement (PACE – Digital Factory)**

14 Q. Please briefly describe the Business Enablement (PACE –
15 Digital Factory) project.

16 A. As discussed in our initial testimony, the Business Enablement
17 team, comprised of two FTEs, develops and manages applications
18 for different Company groups using various automation software
19 products to build and implement small, standardized
20 applications. These applications assist the Company in
21 completing its work and include, for example, the Damage
22 Assessor Resource Tracking System and bots that process
23 financial administrative functions systems. Our operating and

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1 financial organizations have increased their requests to help
2 develop new applications to better manage their processes.
3 The Company requested funding for a centralized team to manage
4 this increase in requests. The Company currently has 100
5 PowerApps, 30 SharePoint applications, and almost 100
6 automations and has projected growth to reach 300-400 by the
7 end of RY3.

8 Q. The Company requested six FTEs for the Business Enablement
9 (PACE – Digital Factory) project. What did Staff recommend?

10 A. Staff recommended reducing the FTEs associated with the
11 Business Enablement (PACE – Digital Factory) by three.

12 Q. What was Staff's justification for the reduction?

13 A. Only its claim that we failed to provide support even though
14 the Company did provide such support in its initial testimony.

15 Q. Does the Company agree with the recommendation?

16 A. No. The Panel's recommended reduction of three FTEs prevents
17 the Company from adequately scaling to meet growing demand for
18 low-code quick solutions. There are several hundred potential
19 projects that the group can perform. The three additional
20 personnel will assist with these projects. It is imperative
21 at this stage to formulate a proper team structure with
22 defined methodologies and processes.

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Data Integration Modernization

Q. Please describe Data Integration Modernization and what is included.

A. As discussed in our initial testimony, data integration enables applications to share data in a safe and secure way. The Company proposed a project that will implement new integration technologies, tools and infrastructure to manage the high volumes of data and meet performance and timeliness requirements. These tools will assist with many projects, including AMI and the Commission's proposed Integrated Energy Data Resource ("IEDR").

Q. What was Staff's justification for the reduction?

A. Only its claim that we failed to provide support even though the Company did provide such support in its initial testimony.

Q. Do you agree with Staff's position to move the Company's proposed addition of 7 FTEs for Data Integration Modernization from RY1 into RY2 (four FTEs) and RY3 (three FTEs)?

A. No. Staff's reduction does not consider the immediate need for this work. Use cases for the IEDR are under development and delaying hiring by one or two years will slow the Company's response to this important project for which the need is driven by the Commission's data orders.

Moreover, we note that we need seven FTEs in the near term to maintain new capabilities in the steady state: three FTEs to

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1 support Microsoft Azure Technologies, three FTEs to support
2 Oracle Integration Technologies and one FTE for opensource
3 integration technologies. Based on various inflight and
4 completed projects, we are currently implementing 16 new
5 tools, including several Microsoft projects, requiring support
6 in the integration space.

Hardware and Software Maintenance

8
9 Q. Does the Company's "Hardware and Software Maintenance"
10 whitepaper, Exhibit __ (IT-2), contain FTE requests for three
11 projects?

12 A. Yes. The \$1 million in O&M is for 10 employees for three
13 projects - Cloud Deployment, Software-defined Wide Area
14 Network ("SD-WAN") and Containerization.

15 Q. By way of background, please describe these three projects and
16 what is included?

17 A. Exhibit __ (IT-2) notes that the Company plans to continue
18 expanding its cloud adoption to leverage new technologies,
19 develop an SD-WAN communications architecture to meet FERC
20 Order 2222 and NYISO requirements, and containerize its
21 technology.

22 Q. Please describe the cloud deployment work.

23 A. The Company is significantly increasing its cloud usage year-
24 over-year (2019 - 92%, 2020 - 79%, and 2021 - 110%) and we are

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1 estimating an increase of 58% in 2022. For 2023 to 2025, we
2 anticipate cloud usage growth of 25-30% annually to support
3 planned major project initiatives and data center
4 consolidation strategies.

5 Q. The Company's filing noted SD-WAN and containerization. Please
6 explain where will this technology be used?

7 A. The Company is implementing SD-WAN technology to support
8 communications between the Company and system aggregators as
9 part of the distributed energy resource management system
10 (DERMS) based on FERC Order 2222 and the NYISO implementation
11 of the DER Aggregator Model to existing Wholesale Markets.
12 Newer projects like CORE, Work Management Systems, AMI, and
13 eGIS are implementing containerization, which packages an
14 application and all its dependencies together in the form of
15 containers to make sure that the application works seamlessly
16 in any environment.

17 Q. How many FTEs are being requested for these three projects?

18 A. For Cloud deployment, we are requesting an additional four
19 FTEs (RY1 – two FTEs, RY2 – one FTE, and RY3 – one FTE) to
20 support increased cloud usage demand to comply with corporate
21 IT cloud strategy.

22 For SD-WAN, we are requesting four FTEs (three in RY1 and one
23 in RY2) to develop and implement this communications pathway.

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1 For Containerization, we are requesting two FTEs in RY1 to
2 assist with this project.

3 Q. How did Staff respond to this request?

4 A. For Cloud, Staff proposed to eliminate four requested FTEs
5 based on a lack of support. Staff also completely removed the
6 FTEs for the other two projects based on its assertion that
7 the Company's request lacked detail and justification.

8 Q. What was Staff's justification for the reductions?

9 A. Only its claim that we failed to provide support even though
10 the Company did provide such support in its initial testimony.

11 Q. Do you agree with these reductions?

12 A. No. All three projects are necessary. Turning to Cloud,
13 Exhibit __ (IT-2) in our initial testimony provided a detailed
14 explanation of the work associated with this project. Simply
15 put, the Company is accelerating cloud initiatives and
16 additional cloud deployment support staff are required to
17 manage the growth. The Company uses several cloud providers
18 and the Company needs dedicated resources to maintain and
19 operate these environments. External contracting of resources
20 with cloud skills could fill a temporary void but comes at a
21 high cost. The FTEs, who are required to maintain and grow
22 competencies in the Company's cloud environments, are
23 necessary to support project initiatives and replace external

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resources. This work cannot be done without FTE support.

Staff's broad-brush reduction does not consider the scope of the project or the need for the work.

As to SD-WAN, FERC Order 2222 and the NYISO require communication via SD-WAN. The Company cannot meet these requirements without FTEs to assist with this project.

For containerization, the Company currently lacks container development skills and experience in-house and without the additional FTEs will not be able to provide the proper support after the projects are deployed.

Protective Relay Settings

Q. Did the Company propose an additional FTE for Protective Relay Settings?

A. Yes. As discussed in our initial testimony (Exhibit __ (IT-1)), the Protective Relay Settings project, scheduled for implementation during 2023, will house substation relay setting files to create a workflow to change settings on command. The Company owns tens of thousands of relays that will be tracked in this system. As we discussed in our initial testimony, an IT resource is needed to support the system and make sure that this database can communicate with other Company owned databases.

Q. Did Staff propose to eliminate this FTE?

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1 A. Yes.

2 Q. Did Staff provide any justification for this elimination?

3 A. Staff provided no other justification except that the Company
4 did not provide sufficient information or justification for
5 the project.

6 Q. Do you agree with this recommendation?

7 A. No. The Company is purchasing a product which it does not
8 currently have in its inventory. Without human intervention
9 and support, the product will not work as designed nor will
10 issues with the system be addressed in real time. Moreover,
11 compiling the settings into one database is a large effort and
12 it will need to be updated on a regular basis.

13

14 **Central Operations Resources**

15 Q. Please explain the need for four FTEs to support Central
16 Operations Application Development and Support.

17 A. The Company's update testimony (pp. 6-8) explained that
18 Central Operations' IT needs have increased in recent years,
19 launching 65 products in 2021 plus existing products. We also
20 expect similar deployment levels in upcoming years. This
21 growing portfolio results in the need to increase the resource
22 pool by four FTEs to manage these critical projects.

23 Q. Did Staff adjust this request?

24 A. Yes. Staff removed all four employees.

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1 Q. Did Staff provide a justification?

2 A. Nothing in addition to the previously noted statement
3 regarding insufficient information.

4 Q. Do you agree?

5 A. No. The Company's update testimony and its accompanying
6 exhibit (Exhibit __ (IT-9)) explained the volume of projects
7 that Central Operations has in its inventory and is taking on.
8 The current staffing level of two FTEs is inadequate to
9 support the organization's portfolio. The required FTEs will
10 support the insourced applications in conjunction with
11 implementing the 35 new projects. In addition, four of the
12 gold metal tier apps require 24/7/365 support. Two of these
13 applications, Outage Scheduling System and Rapid Feeder
14 Restore, are related to outages and help to improve storm
15 response.

16

17 **Construction Systems**

18 Q. Please explain the Construction Migration (Contractor Payment
19 System Work Tracking) system?

20 A. As discussed in Exhibit __ (IT-1) in our initial testimony,
21 Construction is working on establishing one work management
22 system with modules for work estimation, work initiation,
23 planning, scheduling, work lifecycle tracking, work history,
24 and payments. Work started in 2021 and is expected to be

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1 completed in early 2024. One system is consistent with the
2 Company's one enterprise philosophy and leverages the
3 enterprise IBM Maximo platform.

4 Q. Did Staff adjust the requested FTEs for this project?

5 A. The Company requested two FTEs for this project and Staff
6 removed them.

7 Q. What was Staff's justification for the removal?

8 A. Only its claim that we failed to provide support even though
9 the Company did provide such support in its update testimony.

10 Q. What will these two FTEs do?

11 A. The two FTEs will support the six hundred users plus new
12 users, including other organizations within Central
13 Operations. Many of the current manual processes will now be
14 automated in the IBM Maximo system. The level of first and
15 second level support calls for the enterprise IBM Maximo
16 system will significantly increase as the deployment and
17 adaptation of the system evolves. The requested number of FTEs
18 is consistent with other major project implementations like
19 Electric and Gas implementations.

Hitachi Password Manager

22 Q. Please explain the Hitachi Password Manager Project.

23 A. As explained in Exhibit __ (IT-2) in our initial testimony,
24 the Hitachi Password Manager application provides self-service

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1 and help desk assisted password reset and account unlock
2 capabilities for Active Directory and mainframe user accounts
3 (IMS, CIS, TSO and CICS) for employees and contractors.

4 Q. Did the Company request any FTE to support this project?

5 A. Yes. We requested one FTE. And Staff, using its lack of
6 information/justification rationale, proposed eliminating the
7 requested FTE, despite the information the Company provided.

8 Q. What was Staff's justification for the removal?

9 A. Only its claim that we failed to provide support even though
10 the Company did provide such support in its update testimony.

11 Q. Do you agree with the recommendation?

12 A. No. The Hitachi Password Manager application is a critical
13 application for the IT Service Desk providing secure self-
14 service password reset capabilities. Exhibit __ (IT-2) states
15 that ongoing operational and application maintenance support,
16 including IT labor resources, is required for application
17 stability and availability. This employee will handle calls
18 and provide system support, license compliance and upgrades.

OMS IT System Hardening Program

21 Q. What is the OMS System Hardening Project?

22 A. As we described in our initial testimony (pp. 36-40, Exhibit
23 __ (IT-1)), the Company is improving the operational
24 performance and resiliency of its outage management system.

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1 Q. Did Staff reduce the FTEs for this program?

2 A. Yes.

3 Q. What was Staff's justification for the removal?

4 A. Only its claim that we failed to provide support even though
5 the Company did provide such support in its update testimony.

6 Q. Do you agree with this reduction?

7 A. No. Despite making no comment on this critical storm related
8 project, Staff removed the one requested FTE, claiming that
9 there was no justification for this position. As we explained
10 in our initial testimony, there are significant testing
11 requirements, including end-to-end testing, for this system.
12 One FTE is needed for the planning, design, execution and
13 follow up for testing, which will occur on a routine basis
14 going forward. Staff's proposed reduction does not reflect
15 what is necessary for the Company to adequately manage the
16 growth associated with the expanded number of testing
17 environments.

18

19 **Control Center Resiliency**

20 Q. Did the Company explain its Control Center Resiliency Project
21 in its initial testimony?

22 A. Yes. We need to be able to immediately sever the connection
23 to corporate data networks to operate our control centers
24 independently in an emergency, as needed.

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1 Q. By way of background, are FTEs needed to assist with this
2 project?

3 A. Yes. We requested three FTEs.

4 Q. What was Staff's reduction?

5 A. Staff recommended reducing the FTEs associated with the
6 Control Center Resiliency Project by three FTEs, claiming that
7 there was insufficient information and/or justification for
8 the FTEs.

9 Q. What was Staff's justification for the reduction?

10 A. Only its claim that we failed to provide support even though
11 the Company did provide such support in its initial testimony.

12 Q. Are these FTEs needed?

13 A. Yes. As described in our initial testimony, there is a
14 significant amount of work to be done to enhance the system so
15 that it can be islanded and continue to operate as efficiently
16 as possible. The reduction in three FTEs does not reflect
17 what is necessary for the Company to manage the work and the
18 system growth associated for these new critical environments.

19

20 **Third Party Risk Management**

21 Q. Is the Company implementing a Third Party Risk Management
22 ("TPRM") program in Supply Chain?

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1 A. Yes. The Company's initial testimony included two exhibits,
2 Exhibits __ (IT-3) and __ (SSP-7), and a program change form,
3 which explained this program.

4 Q. Please explain the TPRM program.

5 A. The TPRM program is a new program to perform third party
6 relationship oversight and risk mitigation activities of over
7 1,300 third parties and 4,000 associated active contracts
8 managed via Supply Chain. This program is an important part of
9 our vendor risk mitigation strategy.

10 Q. Did Staff adjust this project?

11 A. While Staff did not question the overall TPRM project, it
12 removed the headcount of all five employees requested for this
13 project, claiming, as noted above, that no justification or
14 support was provided.

15 Q. Does the Company agree with this rationale?

16 A. No. Staff ignored that we provided appropriate justification
17 for these positions in our initial testimony. Our O&M
18 whitepaper, Exhibit __ (SSP-7), stated that we would be hiring
19 five FTEs to perform critical, high and medium risk
20 assessments and technology support. (Note that two employees
21 noted in the program change form as 2022 hires are already on
22 board.) Without employees to review, evaluate and follow up
23 on these assessments, the program will have difficulty meeting

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1 its goals. Additionally, the project will support the
2 vendor's risk treatment plan that will be tracked and managed
3 by employees.

MAJOR ENTERPRISE PROJECTS

Electric ARM Replacement Project

4
5
6
7 Q. Please explain the Staff IT Panel's adjustments to the
8 Electric - ARM Replacement Project.

9 A. Staff's IT Panel addresses the Electric Asset and Resource
10 Management ("ARM") Replacement Project in two places. First,
11 the Staff IT Panel removed (pp. 14-17) funding because a small
12 portion of the ARM project hinges on completion of the
13 Electric ARM Replacement Phase 0 project discussed in our
14 initial testimony, which is not yet complete. Consequently,
15 Staff claims (pp. 16-17) that they are unable to determine if
16 the requested capital budget for the Electric WMS (Work
17 Management System) migration is reasonable. Moreover, Staff
18 incorrectly justifies its adjustment by stating that the
19 current product is acceptable because the vendor continues to
20 support this product and there are no cybersecurity issues.

21 Second, Staff's adjustment inexplicably delays (pp. 32-34) the
22 Electric ARM Replacement Phase 0 by a year, claiming that it

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1 is a “prerequisite for the other electric WMS migration
2 project.”

3 Q. By way of background before you respond to Staff’s
4 contentions, please explain the Company’s overall plan as it
5 relates to Work Management systems.

6 A. As we described in our initial testimony (pp. 28-31), the
7 Company is streamlining and upgrading its separate work
8 management systems into one enterprise-wide system. This
9 project’s benefits include, for example, reduced operating and
10 support costs, cyber risk mitigation, and access to advanced
11 business capabilities offered by other platforms, such as
12 Artificial Intelligence. Most importantly, as we stated in our
13 initial testimony, the project will upgrade (pp. 30-31) the
14 existing technology to a modern, adaptive platform with
15 current functionality that will have the capability to evolve
16 as requirements change.

17 Q. Which portion of this project does Staff object to?

18 A. None. Staff does not contend that there is an issue with the
19 overall project. Instead, Staff proposes to deny virtually all
20 funding for this project, claiming that it cannot understand
21 the project until the Phase 0 study is completed. But then
22 Staff proposes to delay the \$2 million Phase 0 study to RY2

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1 for no reason. These two adjustments effectively result in a
2 three-year project delay (until at least 2026) when the
3 Company had already explained in its initial testimony that it
4 needs to start this project now to keep pace with changing
5 technology.

6 Q. Please explain.

7 A. As we explained in our initial testimony (pp. 28-31, Exhibit
8 ___ (IT-1), and discovery responses), the replacement of WMS
9 needs to proceed in a timely fashion to meet our WMS roadmap
10 strategy of employing an enterprise-wide approach, using one
11 platform, for all our work management systems. In addition,
12 because deferring the project would increase the overall cost
13 to the Company of having multiple WMS platforms, every
14 deferred year is a lost opportunity.

15 Q. With respect to your schedule, please explain why the Company
16 is planning a Phase 0 in 2023 and then moving ahead in 2024
17 with implementation?

18 A. As is included in our response to DPS 16-477, attachment 1,
19 the Company intends to upgrade the Electric WMS system along
20 with Orange and Rockland Utilities, Inc's ("O&R") system
21 together so that the Company gains synergies through merging
22 both projects into one system at the same time. The

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Commission's recent O&R rate decision approved O&R's Phase 0 study and subsequent work. Working on these projects together will help us achieve standardization as well as reduce the implementation cost. For example, we would like to have the same process for accounting for compatible units. Both companies currently follow different processes.

Q. Was the attachment 1 to Company's response to Staff 16-477 developed under the Panel direction and guidance?

A. Yes.

MARK FOR IDENTIFICATION AND EXHIBIT __ (IT-10)

Q. Is a one-year delay for Phase 0 reasonable?

A. No. Staff's explanation for the proposed delay is both illogical and circular. Staff does not deny that a study, the very same study that the Commission just approved for O&R, is needed. Its only explanation is that the study is a prerequisite for another project, which it rejected as waiting for the Phase 0.

Q. Staff claims that the limitations identified by the Company are neither security concerns nor a lack of product support and therefore Staff does not believe that an immediate replacement is warranted. Do you agree?

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1 A. No. Our initial testimony (pp. 28-31, Exhibit __ (IT-1)), as
2 well as our discovery responses, address cybersecurity
3 concerns. In addition, the current system cannot meet the
4 Company's growing needs. Staff's assumption that a product
5 that cannot keep pace with user needs is considered acceptable
6 product support does not make sense and should be rejected.

7 Q. The Staff IT Panel commented that without a Phase 0, it has no
8 way to understand the cost estimate. Please explain how the
9 Company developed the cost estimate for the Electric ARM
10 Replacement Project.

11 A. As we explained (Exhibit __ (IT-1)), the Company developed the
12 \$23.7 million estimate for RY2 and RY3 based on previous WMS
13 analyses, including benchmarking with similar CECONY project
14 implementations as well as experience with prior
15 implementations for both Work Management (Electric and Gas
16 Operations) and the Maximo platform (Substations and Steam),
17 which are representative of the staffing needed, even if the
18 specifics of the Phase 0 assessment are not yet fully defined.
19 This is standard for rate filing estimates and Staff
20 accordingly has no basis for stating that we have not provided
21 an appropriate estimate.

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Substation Technology Improvements

Q. Please explain the projects covered under Substation Technology Improvements.

A. The Company described these projects in both our initial testimony and interrogatory responses. In RY1, the Company's response to DPS-22-655 (Exhibit __ (SITP-1)) noted that three projects comprise \$2 million in spending: Asset Investment Planning, Scheduling Optimization, and Substation Equipment Electronic Tagging. The interrogatory response should have included a fourth 2023 item, funding for the remainder of MAS 8 Maximo Upgrade, which started in 2022. The Company provided an updated response, which is attached as Exhibit __ (IT-11). In RY2-3, the Company plans to front load the Substation Inspection Robotics project at a cost \$2 million in 2024-2025 to use robotic technology to minimize operating cost increases and gain sufficient experience and knowledge to identify areas to expand its use in the future prior to the next rate case period.

Q. Did the Panel develop the updated discovery response?

A. Yes. It was developed under our direction and supervision.

MARK FOR IDENTIFICATION AS EXHIBIT __ (IT-11)

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1 Q. Did Staff adjust the Substation Technology Improvements
2 project?

3 A. Yes. The Staff IT Panel recommended (pp. 20) a budget of \$1.4
4 million (RY1), \$1.5 million (each of RY2-RY3), as compared to
5 the Company's request of \$5.00 million, \$3.00 million, and
6 \$2.00 million for RY1, RY2, and RY3, respectively. Note that
7 the initial request was incorrect and should have been for \$2
8 million in each rate year.

9 Q. What is Staff rationale for this recommendation?

10 A. Staff bases (pp. 19-20) their RY1 funding on the Company's
11 initial discovery response. Their proposed RY2 and RY3
12 funding was derived by dividing the total estimated \$4.5
13 million cost of Substation Inspection Robotics by the three
14 year projected time period to arrive at \$1.5 million per year.

15 Q. Please comment on this reduction.

16 A. The updated discovery response notes that the Company will
17 spend \$2 million in 2023 for the tasks noted earlier. The
18 Company needs to front load the robotics project and spend \$2
19 million in 2024-2025 to move quicker on this project.

20
21 **WMS Sustainability**
22 Q. Please explain WMS Sustainability.

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1 A. As we discussed in our initial testimony (Exhibit __ (IT-1)),
2 WMS Sustainability is a long-term program aimed at maintaining
3 the viability of the existing Electric WMS application. The
4 Company currently sustains the system through a combination of
5 improvements to the core software, and system integrations.
6 The sustainability work the Company proposed in its initial
7 testimony is necessary for ongoing sustainability but will
8 also be done such that it can be integrated into a new WMS
9 system.

10 Q. Please discuss the Staff IT Panel's reduction to WMS
11 Sustainability.

12 A. The Staff IT Panel recommended (pp. 21-23) a budget of \$2.00
13 million, \$1.68 million, and \$1.02 million for RY1, RY2, and
14 RY3, respectively, decreasing the overall request by \$8.05
15 million over the three-year period based on the Company \$3.75
16 million annual request.

17 Staff bases its reduction on two factors. First, Staff notes
18 that the Company's historic average annual spend for this
19 project from 2017 through 2021 is \$1.97 million (but then
20 recommends less than the historic annual spend). Second, Staff
21 states that the Company's discovery response included in
22 Exhibit __ (SITP-1) only justified costs associated with
23 hardware upgrades and server costs. Staff specifically notes

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1 that a portion of the project entitled “CRMS Improvements” as
2 well as several projects noted as “TBD1” through “TBD4” are
3 not explained and therefore, removes funding for those items.

4 Q. Do you agree with the Staff Panel’s rationale for its
5 reduction?

6 A. No. This work is needed and required. The initial testimony
7 contained a list of projects that WMS Sustainability projected
8 to undertake. The Company reviews and updates these projects
9 as new work arises. We noted in the discovery response that
10 CRMS Improvements is a new project that arose between the time
11 the whitepaper was developed and the submission of the
12 response.

13 Q. Did Staff ask follow-up questions about the projects noted in
14 the discovery response?

15 A. No.

16 Q. To help understand the project, please explain CRMS and the
17 associated proposed enhancements.

18 A. The Customer Relationship Management System (“CRMS”) is an
19 existing software application in WMS that serves a variety of
20 business groups and processes.

21 These enhancements include introducing management of field
22 work pre-requisite tasks, such as receiving access during

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1 public parking restriction times, securing cone-hives and
2 flaggers for work location safety, and coordination of flush
3 activities for areas which require cleaning for work
4 execution. For these tasks, the Company will develop
5 integrations with the Electric WMS application. This will
6 minimize “false starts” at work locations, improving job
7 scheduling, and assist in storm situations. Additionally,
8 integrations around these same pre-requisite items will be
9 integrated with the Oracle EBS financials system, providing
10 improved job cost estimations.

11 Q. The Company’s discovery responses note that there are some
12 projects that are considered “To Be Determined” (“TBD”).
13 Please explain these items.

14 A. Although there are projects that must be completed to maintain
15 the viability of WMS, it is difficult to know the specific
16 projects in the outer years. Therefore, the discovery
17 response included items “TBD 1-4” as placeholders for expected
18 projects. To assist parties with understanding the actual
19 projects, the Company provides its current understanding for
20 some future projects. For example, we will undertake a
21 project to address the retirement of Field Manager 1 (legacy
22 CGI mobile WMS application), develop auto-scheduling

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1 improvements, and add an integration for pole inspection and
2 treatment.

3 Q. Please explain the need for this work.

4 A. The main contributors are:

5 (1) transition of the current mobile software version, with
6 the latest CGI product,

7 (2) planned improvements for automatic scheduling to enable
8 more efficient crew routing to jobs based on drive times and
9 job priorities; and

10 (3) technology improvements for Con Edison's pole inspection
11 and treatment program management within the Electric WMS
12 software system.

13 Items 2-3 will be available and implemented into the new
14 electric work management system. Item 1 must be completed as
15 the vendor is retiring the existing product.

16 These kinds of projects will continue during the Rate Year,
17 and during RY 2 and 3 if there is a three-year rate plan. The
18 Company proposed a reasonable increase to be able to
19 accommodate all items necessary to have a high-functioning
20 WMS, which will help the Company to efficiently perform work
21 such as storm response and restoration.

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FOUNDATIONAL IT PROJECTS

XM8

Q. Please discuss Staff witness Seshradi's reduction to this program for the Company's communications equipment.

A. Staff witness Seshradi explains the reduction as follows: "I calculated an average annual increase in actual amounts spent of 20 percent from 2019 through 2021. A three-year average of actual historical spending is a better indication of the Company's future spending for this program because it is a more recent set of historical data. Lastly, I applied the average annual increase in spending of 20 percent to estimate the Company's annual spending levels for 2023 through 2025." Consequently, Staff suggested reducing our proposed XM 8 funding by \$1.139 million in RY1, \$6.098 million in RY2 and \$5.922 million in RY3

Q. Do you agree with the Staff witness Seshradi's rationale for his recommendation?

A. No. Despite asking discovery regarding XM8 and the need to undertake incremental projects (Exhibit __ (SS-1)), witness Seshradi ignores the need for additional XM 8 projects and simply applies a three year average. Staff makes no comment on the XM 8 work itself but instead reduces funding without regard to the need for these projects.

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Q. Does Staff's proposed increase allow the Company to perform the necessary XM 8 work?

A. No. Exhibit __ (IT-2) in our initial testimony described the additional work that needs to be done, including replacing the Land Mobile Radio system, upgrading the Voice over Internet Protocol ("VoIP") infrastructure, upgrading Conference Room equipment, and upgrading the Satellite Based Tactical Communications system, which helps with items like storm response. Staff's expenditure level does not provide appropriate relief for the extra work to be done.

Q. Does Staff's average include these additional projects?

A. No. Recent years' XM 8 results do not include this additional work. In fact, the added amount of these critical projects contributes to much of the increase and consequently, comprise the bulk of Staff's reduction. The projects and their associated amounts are noted below.

PSC Cuts at XM-8 Projects	2023	2024	2025	Total
Land Mobile Radio system	\$ 200,000	\$ 1,350,000	\$ 3,350,000	\$ 4,900,000
VoIP System Upgrades - Turrets, Recorders & E911	\$ 413,000	\$ 3,325,000	\$ 2,010,000	\$ 5,748,000
Conference Room A/V Equipment Upgrades	\$ 509,000	\$ 1,360,000	\$ 570,000	\$ 2,439,000
Satellite Tactical Communications Systems	\$ -	\$ 50,000	\$ 50,000	\$ 100,000
Total	\$1,122,000	\$ 6,085,000	\$ 5,980,000	\$13,187,000

Q. Is Staff's reduction warranted?

A. No. The Company has demonstrated the need for this work on these critical systems.

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1

2 **XM 10**

3 Q. Please describe XM 10.

4 A. As discussed in our initial testimony (pp. 46-47), XM 10 is a
5 general capital budget category that purchases critical
6 components that support the computing infrastructure necessary
7 to provide secure, reliable and resilient data centers,
8 networks and devices for employees and applications.

9 Q. Did Staff propose a reduction to the Company's XM 10 budget?

10 A. Yes. Claiming that the last three years provides a "clearer
11 indication" of future Company spending and modeled in the same
12 manner as the XM 8 reduction, Staff used a three-year average
13 for XM 10 capital and O&M expenditures. Staff then recommends
14 XM 10 capital budgets of \$11.849 million in RY1, \$14.193
15 million in RY2 and \$17.001 in RY3, decreasing proposed
16 expenditures by \$12.100 million in RY1, \$11.756 million RY2,
17 and \$10.948 million in RY3. Staff's O&M recommendation is
18 \$8.250 million in RY1, \$9.702 million 15 in RY2 and \$10.802
19 million in RY3 as compared to the Company's request of \$16.676
20 million in RY1, \$17.739 5 million in RY2 and \$17.758 million
21 in RY3.

22 Q. Do you agree with Staff's proposed reduction?

23 A. No. Again, Staff ignored both our initial testimony and
24 discovery responses explaining the need for additional XM 10

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1 projects. Instead, Staff adjusted spending based on a three
2 year average that did not include additional costs. Moreover,
3 Staff did not claim that this work was not needed or required
4 but applied an accounting reduction without considering the
5 Company's evidence to the contrary.

6 Q. Has the Company explained the need for additional XM 10
7 funding?

8 A. Yes. Exhibit __ (SS-1) contains the Company's discovery
9 response to Staff 767. This response demonstrates that one
10 project is the primary driver for the increase, going from \$0
11 in 2021 to \$9 million in 2023: the increase in data storage
12 requiring expansion to an internal data center (on premises)
13 or colocation (that is, renting storage at a facility).
14 Additionally, both the whitepaper and the discovery response
15 explain the increase in costs for XM 10 products as well as
16 the need for additional devices.

17 Q. What is the project with the largest increase?

18 A. The Company requires the data center expansion - either on
19 premises or through colocation - because, as described in the
20 Worth Street project, we have seen exponential data storage
21 growth. Cybersecurity tools require a large amount of
22 capacity because of back up technology to assist in recovering
23 data in case of ransomware or viruses. We are also capturing

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1 more logs to effectively manage cybersecurity incidents and
2 processes. This has resulted in the need for 20% more data
3 center space, which is not captured in the 3-year historical
4 average. In addition, our virtual desktop infrastructure
5 (VDI) needed to support remote access has grown 500% due to
6 the pandemic and outsourcing initiatives. Further, we need to
7 build a disaster recovery environment for VDIs which will
8 double capacity.

9 In addition to seeing the growth in data storage, the
10 Company's long term plan is to retire older data centers. To
11 implement this plan, there are generally three storage
12 options: our on-premises data centers, including Worth Street,
13 rented off premises or colocation and cloud use.

14 Q. What is the Company planning for Worth Street?

15 A. Through its XM 10 budget, the Company is planning to upgrade
16 the Worth Street Data Center to address load from retired data
17 centers and other growth. The Worth Street expansion consists
18 of deploying new networking, server, storage, backup, and
19 cybersecurity equipment. (The Worth Street Project address
20 power and cooling needs.)

21 Q. Please explain the Company's colocation plans.

22 A. The Company already uses a colocation provider for non-
23 production and disaster recovery and intends to increase

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1 capacity with the retirement of older on premises data
2 centers.

3 Q. Are the data center and colocation expansion projects the bulk
4 of the difference between the Company's request and Staff's
5 reduction?

6 A. Yes. The average estimated increase in cost is \$8.8 million
7 per year. Both Worth Street and the colocation facility will
8 be state of the art, secure, reliable and resilient
9 facilities.

10
11 **CCTN**

12 Q. Did the Staff IT Panel (pp. 22-24) make any recommendation
13 related to Information Technology CCTN Program?

14 A. Based on applying an inflation-adjusted five-year historical
15 spending average for CCTN, the Staff IT Panel recommended a
16 budget reduction of \$7.85 million (RY1), \$8.03 million (RY2),
17 and \$8.20 million (RY3), for an overall program reduction of
18 \$24.08 million, which also includes two FTE reductions based
19 on its claim that the Company did not justify the proposed
20 increase.

21 Q. Do you agree with the Panel's rationale for its recommendation
22 to reduce the CCTN Program's funding for RY1, RY2, and RY3?

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1 A. No. The five-year inflation adjusted average does not include
2 a higher level of projected CCTN replacement work in RY1-RY3.
3 Adjusting for inflation only provides a nominal cost of living
4 type adjustment. The Company is not just trying to keep pace
5 with inflation but rather undertake significant levels of work
6 to address a system that is quickly becoming obsolete and is
7 critical for both daily and emergent situation needs.

8 Q. Please explain why CCTN is critical?

9 A. As we discussed in our initial testimony (p. 44), CCTN is a
10 reliable, mission critical high-speed telecommunications
11 network that maintains the Company's network telecommunication
12 needs, both on a daily basis and in emergency situations.

13 It supports the Company's voice, wireless, Supervisory
14 Control/Data Acquisition ("SCADA"), and data communications.
15 CCTN is an integral part of the Company's modernization
16 strategy for substations, control centers, data centers, and
17 corporate offices.

18 Q. Please explain the issues with CCTN that need to be addressed.

19 A. As we explained in our initial testimony (Exhibit __ (IT-2)),
20 the backbone of the CCTN system is the fiber cable, which, in
21 many cases, has been installed and operational since the
22 1980's. Based on its lifespan, the cable is aging and

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deteriorating. Moreover, certain CCTN network equipment is obsolete, having reached the end of useful life as well as vendor support.

Q. Is Staff's suggested recent historical spending level sufficient to address the needed upgrades for this critical system?

A. No. The Company plans to undertake five projects to upgrade CCTN in 2023-2025. Delaying or not undertaking these projects can, and will, affect the reliability of CCTN due to more frequent fiber breaks and equipment failures.

The Company implements CCTN cable and Network Equipment projects in a coordinated approach because of the system interdependencies and complexities. For example, upgrading the network equipment requires available working cable. To perform this work, we must sequentially install the cable while at the same time purchasing new equipment as well as preparing the communication room space and power supply for the new equipment so that the new cable/network equipment can be immediately interconnected. Piecemeal investments will make the project more complicated and reduce the operational value of the Company's work.

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1 Q. Please further explain your concern with Staff's use of the
2 inflation adjusted five-year average.

3 A. This critical work cannot continue to be addressed at the
4 level it has been over the last five years. The 35-year-old
5 cable is in disrepair and needs to be upgraded. Plus, the
6 communication equipment is old and must be replaced by newer
7 technology. We explained in Exhibit __ (SITP-1) (DPS-20-559)
8 the additional planned projects that are above the current
9 CCTN project levels.

10 Q. Did Staff also propose a reduction in FTEs?

11 A. Yes. Staff proposed to eliminate two FTEs.

12 Q. Please explain if the Company agrees with this proposed
13 reduction and, if not, why not.

14 A. The Company disagrees. The Company would hire these two FTEs
15 to provide specific skills and experience with complicated
16 networking technologies that can assist with the increase in
17 CCTN projects. The new FTEs would be critical for executing
18 this work and funding should be provided for them.

19
20 **Data Center Improvements**

21 Q. Please explain the program you proposed in your initial
22 testimony.

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1 A. The Company proposed (Exhibit __ (IT-2)) several projects to
2 upgrade existing data centers. One project specifically
3 involved the Worth Street Data Center. Worth Street was built
4 to handle 375kW of computing power, which was considered a
5 significant level of computing power when it was being built.
6 The Company is forecasting that it will have additional data
7 storage demands in the next three years. These demands result
8 from the continuous need for computing capacity (e.g., for
9 servers and storage and on-premises highest-tier applications,
10 such as SCADA infrastructure). The Company therefore needs to
11 upgrade the Worth Street facility, both in terms of power and
12 cooling (as well as storage capability, discussed in XM 10).

13 Q. Please explain the increased demand for computing
14 requirements.

15 A. The additional computing power and computing capacity (250 kW)
16 will be assigned to major corporate strategic platforms
17 including Outage Management System (OMS), Enterprise
18 Geographical Information System (eGIS), Enterprise Data
19 Analytics Program (EDAP), Distributed Energy Resources
20 Management System (DERMS), Virtual Desktop Infrastructure
21 (VDI), Splunk Cybersecurity and the consolidation of control
22 center platforms (EMS/SCADA), and any additional operational

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1 growth required. We note that many of these programs provide a
2 crucial role in storm response and restoration.

3 Q. Does the Staff IT Panel make a reduction to this project?

4 A. Yes. The Panel recommends removing \$2.3 million (RY2) and
5 \$14.91 million (RY3) from the Company's Data Center
6 Improvements request.

7 Q. What is Staff's justification for this reduction?

8 A. Staff recommends this reduction based on its review of two
9 potential options to expand Worth Street's computing power and
10 cooling capacities. Staff notes that there are two "options"
11 and claims that Option 1, is sufficient.

12 Q. By way of background, please explain the Company's Worth
13 Street Data Center.

14 A. The Worth Street Data Center has a high level of redundancy
15 for IT equipment, including plant support systems, such as
16 power and cooling systems. While, in general, we are seeking
17 to store data in the cloud, some systems and applications
18 should not store their data on the cloud and must remain on-
19 premises.

20 Q. Is Staff's understanding of these "options" correct?

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1 A. No. When asked in discovery to provide detailed supporting
2 documentation for the capital funding requested in the
3 Company's whitepapers in Exhibit __ (IT-2, p. 54) for the Data
4 Center Improvement projects, the Company provided two
5 solutions that address the two required projects that must be
6 undertaken. The projects are: (1) rebalancing of the chilled
7 water-cooling system (Option 1); and (2) replacing/upgrading
8 existing critical equipment, adding new mechanical/electrical,
9 and adding new mechanical/electrical piping (Option 2).
10 Although titled as "Option 1" and "Option 2," they are not
11 mutually exclusive. Both projects must be completed.

12 Q. Please discuss Option 1.

13 A. The discovery response states that "Option 1" is an
14 improvement needed for server platform rollout and
15 requirements, meaning that to fully use the capacity of the
16 existing cabinets by optimizing the existing 375kW of power
17 and cooling, this improvement must be made.

18 Q. Please describe Option 2.

19 A. Option 2, as noted in the discovery response, is needed for
20 power distribution and cooling capacity planning, meaning it
21 is required to add additional computing capacity/cabinets and
22 to take advantage of the existing data center footprint. In

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1 layman's terms, we need to increase the overall power and
2 cooling capacity of the Worth Street Data Center to 625kW to
3 sustain the 25% annual load growth over RY1 through RY3.

End User Computing

5
6 Q. Please explain the Company's proposed End User Computing
7 project.

8 A. As discussed in our initial testimony (Exhibit __ (IT-2)), the
9 Company's proposed End User Computing Project addresses three
10 areas - Enterprise Applications, Desktop Infrastructure and
11 New Technology.

12 Q. Did the Staff IT Panel recommend reductions for the End User
13 Computing project?

14 A. Yes. Staff removes the Company's increase associated with New
15 Technology portion between RY1 and RY3, noting the
16 expenditures beyond RY1 have not been sufficiently justified.
17 The Company proposed expenditures of \$1.1 million in RY1 1,
18 \$2.26 million in RY2 and \$3.06 million in RY3.

19 Staff opines that since these pilots have not begun, the
20 funding for the feasibility and usefulness of the pilots
21 included in this project has not been sufficiently justified

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1 by the Company. Therefore, the Panel recommends keeping the
2 associated budget for new technologies at the RY1 level.

3 Q. Do you agree with Staff's positions and its rationale?

4 A. No. To begin, the New Technology category specifically
5 discusses testing of biometric devices, including virtual and
6 augmented reality projects. The Company noted (Exhibit __
7 (SITP-1), attachment 3 to Staff 33-768) that it has
8 successfully field tested both components of the biometric
9 technology, the augmented reality and virtual projects. The
10 next step is a wider pilot. Staff's logic – the Company has
11 not started a pilot and therefore should not do the pilot – is
12 confounding. We have field tested the equipment and would
13 like to see if it works on a larger scale.

14 Staff's reduction effectively immediately stops this
15 successful project without justification. These projects
16 would assist departments throughout the Company with both
17 identification and authentication as well as fundamentally
18 change how field crews both train for and perform work going
19 forward. For example, there are three types of projects being
20 tested under this umbrella. First, biometric devices, such as
21 facial/fingerprint recognition and retinal scanners, are being
22 tested for identification and authentication purposes similar
23 to an iPhone's use of fingerprint and facial recognition

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1 technology to confirm its user. Second, virtual reality will
2 allow employees working at a different location than the field
3 personnel to see what the field personal are seeing on the job
4 and be present in the situation as if they were physically
5 present. Additionally, the augmented reality technology
6 allows 3D asset blueprints to be superimposed on the real-life
7 asset, providing clear views into the as-is state and enable
8 comparisons. We note that these technology improvements will
9 help with outage restoration, which is important for work like
10 storm response and restoration.

11 Q. Does Staff's reduction criticize the technology or the
12 Company's plan?

13 A. No. It misunderstands the work already done and stops the
14 project in its tracks because the next pilot phase has not
15 started. This is not a reason for a reduction.

17 **Mobility-Digital Factory**

18 Q. Please describe the Mobility - Digital Factory project.

19 A. As discussed in our initial testimony (pp. 57-59), the
20 Mobility - Digital Factory project is a mobile application
21 development and support group that focuses on delivering
22 technology that improves high impact business processes. The

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1 Company explained in its initial testimony that this project
2 has produced successful results and it now plans to expand
3 this group's work.

4 Q. Please explain how Digital Factory brings value to the Company
5 and its customers.

6 A. The Digital Factory program started as a proof of concept in
7 2019. For the proof-of-concept project, a small team worked
8 with business owners to better understand a process and then
9 developed an application to make the process more efficient.
10 This team has implemented six projects since 2019, developing
11 products that helped teams enable the Company's safety,
12 operational excellence, and customer experience goals. Each
13 project undergoes several releases that are built upon the
14 prior release to increase the value brought to the Company.

15 Q. Have there been successful projects? If so, please provide an
16 example.

17 A. The First Responder Tool and Shunt Dashboard is a suite of
18 tools that manage temporary service lines during repairs
19 ("shunts"). The Company regularly inspects shunts while they
20 are installed on customer property. On average each year, the
21 Company installs 3,500 shunts and conducts approximately
22 19,000 inspections. This Digital Factory produced product
23 allows the Company to better control and remove shunts faster

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1 through: (1) enhanced data capture, improving hand offs
2 between emergency responders and construction teams and (2)
3 improved tracking of shunts along with metrics for time on
4 system to better prioritize shunts. This product improves
5 backlog management, enforces timelines, and reduce time
6 between handoffs. The tool also allows the Company's customers
7 to schedule an appointment on-site to have better awareness on
8 next steps. Since its introduction in 2019, the Company has
9 saved 7,000 inspections based on the information captured and
10 tracking process.

11 Q. What was the Staff IT Panel's recommended budget for the
12 Mobility - Digital Factory project?

13 A. The Staff IT Panel decreased the project's Capital and O&M
14 funding using a five-year historical inflation adjusted
15 average. The Company requested capital spending of \$13.75
16 million in each of RY1-RY3 and Staff's inflation adjusted
17 amount is \$8.60 million in RY1, \$8.79 million in RY2 and \$8.97
18 million in RY3, a decrease from the Company's proposal of
19 \$5.15 in RY1, \$4.96 in RY2 and \$4.78 million in RY3. Staff's
20 O&M reduction included (1) reducing non-labor O&M proportional
21 to the capital expenditure, which lowered the non-labor O&M
22 from \$0.971 million to \$0.607 million; and (2) reduced labor
23 O&M by one FTE. The Company's proposal included headcount and

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1 contractor resources in the capital and O&M request and
2 Staff's reduction also reduced those costs proportionally.

3 Q. What was Staff's rationale?

4 A. Staff opined that the Company's request was a significant
5 increase from the project's historical capital expenditure
6 levels. Staff also claimed that the Company did not provide
7 sufficient support for the need and costs.

8 Q. Does the Company agree with Staff's recommendation and
9 rationale?

10 A. No. Staff takes no issue with the work of the Digital Factory
11 and merely makes a formulaic reduction based on recent
12 spending that would result in maintaining the status quo.
13 Staff's reduction would only enable a few projects to be
14 developed each year. We believe the group's expansion has
15 been justified by its successful projects and we see a growing
16 need for these kinds of projects.

17 Q. Has the Company demonstrated the need for the expansion?

18 A. Yes. The proof of concept has provided several successful
19 projects. The Company wants to expand the current project and
20 build an enterprise mobile roadmap to focus on the highest-
21 impact business processes. Our white paper (Exhibit __ (IT-
22 2)) lists at least 10 use cases that we plan to develop in the
23 upcoming three years, including, for example:

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- 1 • Crew Location Management - joining live crew location and job
2 detail information to improve management oversight and provide
3 transparency on arrival time. In future iterations, this
4 could develop into detailed notifications on crew status to
5 customers for an improved customer experience and enable more
6 efficient crew routing on outage work resulting in faster
7 response times.
- 8 • Structure Inspection and Intelligence - gathering structure
9 photos and thermal readings to build structure database. While
10 building foundational information, this product could use
11 machine learning or artificial intelligence to identify
12 unsafe conditions in the field. This project could scale into
13 predictive engineering analysis to preemptively identify cable
14 or equipment failures or outage locations before they occur
15 resulting in less emergency response spend and customer
16 outages.

17 Q. Staff also proposed to reduce the number of employees that
18 will be needed to meet the proposed scaled Digital Factory
19 team. How do you respond?

20 A. As we explained in our initial testimony (p. 58), the Company
21 requested both capital and O&M funding for both FTEs and
22 contractors to work on these projects. Looking solely at a
23 discovery request related to staffing levels, Staff reduced

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1 both capital FTEs and contractors as well as one O&M FTE. To
2 scale the group and allow for additional Digital Factory
3 projects, the Company needs the requested O&M and capital.

Technology Currency & Sustainability

6 Q. Please briefly describe the Company's Technology Currency and
7 Sustainability program.

8 A. As discussed in our initial testimony (Exhibit __ (IT-2)), the
9 Company's Technology Currency and Sustainability program
10 includes capital spending on upgrades and security and
11 functionality enhancements for IT infrastructure such as
12 servers, databases, desktop operating systems and the
13 underlying technology stack of business applications. The
14 testimony noted that this program is delivering improved
15 security, performance and functionality to aid the efficiency
16 of the operations and end user tasks.

17 Q. Did the Staff IT Panel propose a reduction to this program?

18 A. Yes. The Company requested \$6 million annually for the
19 program. The Staff IT Panel (pp. 30-31) reduced the program
20 based on actual 2021 costs of \$3.64 million adjusted for
21 inflation. Staff opined that the Company's proposed 10
22 percent growth factor was unjustified because 2021 was the
23 only year with historical expenditures. Staff cut the project
24 approximately in half for each rate year.

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1 Q. Is this reduction appropriate?

2 A. No. Staff's reduction assumes that this is a longstanding
3 program and that an inflation adjusted average is appropriate.
4 This does not consider the status of this program. The
5 Company worked with a consultant to design the program in
6 2020. In 2021-2022, the Company started the program and is
7 gradually ramping up, with the goal of being at full strength
8 in the 2023-2025 timeframe. We are addressing the required
9 work but not all items were completed in 2021 and 2022. Based
10 on its analysis with the outside consultant, the Company plans
11 to update and upgrade certain technologies and proposed the
12 funding necessary to complete that work. Staff's proposed
13 reduction should be rejected.

14

15 **Cybersecurity**

16 Q. Does the Staff Security Panel propose to reduce the Company's
17 Cybersecurity capital and O&M request?

18 A. Yes. Acknowledging that there are both increasing and changing
19 cybersecurity risks that require "a high level of
20 cybersecurity monitoring and protection," Staff nonetheless
21 proposes to reduce the Company's cybersecurity request,
22 claiming that there is a lack of detailed justification for
23 these projects.

24 Q. How did Staff derive its cybersecurity amount?

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A. Staff recommends budgets based on the historical three-year average of actual capital and O&M spending from 2019 through 2021 (as provided in response to DPS-18-518, Attachment 1, contained in Exhibit ____ (SP-1)) plus a 10.4 percent inflation adjuster derived using another Staff witness's methodology. Staff also proposes to reduce the Company's cyber forensic program by \$140,000.

Q. What is Staff's recommended reduction to Cybersecurity capital?

A. Staff recommends the below capital expenditures and reductions to the capital expenditures for the rate years:

Year	Company Capital Expenditures	Staff Capital Expenditures	Reduction
RY1 - 2023	\$16.38 million	\$9.74 million	\$6.63 million
RY2 - 2024	\$16.95 million	\$9.96 million	\$6.99 million
RY3 - 2025	\$19.02 million	\$10.17 million	\$8.86 million

The Company has confirmed with Staff that amounts in Staff's Security Panel testimony for RY1 are incorrect but that Exhibit ____ (SITP-2) includes the correct amounts for RY1. The chart is the same as Exhibit ____ (SITP-2).

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1 Q. What is Staff's recommended reduction to Cybersecurity O&M?

2 A. Staff recommends an \$11.3 million O&M reduction for RY1,
3 reducing O&M cybersecurity to \$9.7 million, below the test
4 year cybersecurity O&M spending of \$11.9 million. Staff does
5 not recommend any reduction for RY2-RY3.

6 Q. Please comment on Staff's rationale for its cybersecurity
7 reductions.

8 A. Although conceding that there are cyber security risks that
9 need to be addressed, Staff's three year historic average does
10 not fully account for the reality of today's cybersecurity
11 environment. In recent years, we have seen significant
12 cybersecurity events - SolarWinds, Colonial Pipeline, and
13 Log4j, to name a few - that have caused significant disruption
14 and led to important cyber security developments. There is
15 also growing geopolitical tension with Russia and China,
16 significant cyber actors. This increases the Company's risk,
17 particularly given the prominence of its service territory.
18 Staff's reduction ignores these realities and limits the
19 Company's cyber security spending- even with the growth Staff
20 proposed - to amounts below what the Company spent in the Test
21 Year.

22 Q. Why is a three year average unsuitable for cyber security
23 spending?

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- 1 A. Cyber security is a rapidly changing frontier. As we
2 discussed in our initial testimony (pp. 60-61), adversaries
3 are developing advanced capabilities at an accelerated pace.
4 Moreover, future projections are that ransomware attacks will
5 continue to rise. For example, the European Union Agency for
6 Cybersecurity recorded a 150% increase in ransomware attacks
7 in 2021.
- 8 In this environment, the Company must be able to react quickly
9 to new and emerging threats without being hampered by
10 regulatory lag. Given the rapid pace of change and the stakes
11 of reacting too slowly, it is unsound policy to determine
12 cyber security spending by ignoring the forward-looking nature
13 of the threat.
- 14 Q. How do Staff's reductions comport with this reality?
- 15 A. They do not. Staff's assumption that cybersecurity spending
16 should be equivalent to the three-year historical average plus
17 a growth rate is unreasonable for the current and future
18 environment. While Staff alleges a lack of detail, Staff
19 ignores that the Company cannot describe every future threat
20 that it will have to face to protect its systems. As
21 discussed in our initial testimony and herein, we do know that
22 these threats will continue to increase and that the Company
23 must have a robust program to respond to them.

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1 Q. Staff states (p. 10) that the Company has “managed to
2 successfully implement its cybersecurity programs in previous
3 years with significantly less funding.” Please respond.

4 A. As described earlier and conceded by Staff, the cyber
5 landscape is changing. We invest in technologies that serve
6 their purpose for a short time and then must adopt a new,
7 improved technology when necessary. Staff notes (p. 10) that
8 the Company’s cybersecurity program must “ensure a high level
9 of cybersecurity monitoring and protection.” The Company
10 agrees, but Staff’s proposed reductions do not reflect the
11 funding required to carry out this essential part of providing
12 safe and reliable service. In fact, in response to Staff 18-
13 518 (Exhibit __ (SP-1)), the Company noted that in 2021, it
14 spent more than 200% above its capital cybersecurity budget
15 after it accelerated purchases for hardware and monitoring
16 systems to address the risks mentioned earlier. But Staff did
17 not discuss this discovery response in its testimony.
18 Moreover, Staff’s comments about implementing programs with
19 lower amounts ignores that we spent above those amounts.

20 Q. Is the Company’s increase in spending in 2021 the proper
21 metric?

22 A. Absolutely. And it would be inconsistent with the
23 Commission’s Test Year policy to use a different metric

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1 without adequate justification. Given that the Company's 2021
2 cybersecurity budget was \$5 million, there was a large
3 spending increase to meet and address the current threat.
4 This type of significant increase demonstrates the pace at
5 which projects and spending for cybersecurity are increasing.
6 And unfortunately, we do not expect that the pace will slow
7 down.

8 Q. Staff states that your request lacks detail. Do you agree?

9 A. No. The Company has described the types of projects that it
10 will undertake in RY1-RY3 in Exhibit __ (IT-7). Additionally,
11 the Company's discovery responses, including, for example,
12 Staff 20-559, provide additional background information on the
13 Company's proposed (and ongoing) cybersecurity projects.

14 Q. Did the Company note that some of the projects involve vendors
15 that have subscription costs for their products?

16 A. Yes. The Company's response to Staff 20-559 notes that there
17 are subscription, licensing and maintenance costs for vendor
18 products.

19 Q. How much are the Company's existing contracts worth?

20 A. The Company already has purchase orders and agreements for
21 these software solutions. The associated incremental O&M spend
22 is approximately \$4.7 million for RY1. These projects and

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1 spend are necessary to protect and defend the Company's
2 computing system.

3 Q. In addition to the projects recently started, what are the new
4 capital efforts planned to address the ever changing and
5 unknown threats?

6 A. As we discussed in our initial testimony, the Company is
7 constantly looking at new technologies and products.
8 These technologies and products will be a necessary part of
9 our cost of service going forward.

10 Q. Please explain why you believe Staff's proposed reduction to
11 the Company's O&M increase is incorrect.

12 A. As explained earlier, the maintenance and subscription costs
13 for implemented technology comprises 79% of cybersecurity O&M
14 increase. These costs are either existing (and increasing) or
15 expected as a new product (which will have O&M costs in
16 subsequent years). Most recent vendor offerings are
17 subscriptions or term licenses versus perpetual licenses.
18 With subscription or term licenses, the implementation period,
19 typically the first year of the investment, may be capital;
20 however, the same amount recurs year after year as O&M.
21 Vendors have changed their models in the last few years.
22 Previously, most licenses were perpetual and recurring charge
23 was only 20% of the initial investment, rather than 100% of

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1 the initial investment. The Company's O&M ask also accounts
2 for escalation to this O&M tail and cannot be based on a
3 historical average.

4 Q. Are there any future projects that are driving the increase in
5 future O&M?

6 A. Yes, as previously discussed, regarding new technology for
7 capital, there are new technology efforts/future projects that
8 are planned to address the ever changing and unknown threats.
9 The total incremental need for these future projects is \$2.802
10 million in RY1, \$4.599 million in RY2 and \$0.412 million in
11 RY3 for the O&M costs associated with capital projects
12 implemented in 2022 and beyond. Without additional O&M, we
13 will not be able to implement these new technologies, as we
14 will not be able to maintain them into the future years.

15 Q. Please provide an example of the incremental increases for
16 services in RY1.

17 A. For example, the Company is now performing annual penetration
18 testing, that is, having an entity attempt to find exploitable
19 vulnerabilities and weaknesses before the adversary does. Our
20 2020 cost was lower than will be experienced in the rate years
21 as the scope for 2020's test was limited due to COVID, i.e.,
22 we limited "in building" penetration tests.

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1 Q. Please discuss Staff's proposed reduction to labor for
2 cybersecurity?

3 A. We understand that Staff is proposing to reduce our proposed
4 headcount in RY1 from 78 to 58 full time employees, which is
5 less than our current staffing of 63 FTEs. While Staff has
6 alleged that the Company did not provide sufficient detail,
7 the Company described the need in its initial testimony and
8 its confidential response to Staff 18-519 provided the
9 detailed back up information Staff requested. The explained
10 that the need for the FTEs. Generally, we have explained that
11 the need for additional FTEs is related to implementing new
12 technologies that require personnel to maintain, operate and
13 respond to the tools.

14 Q. What is Staff's justification for this proposed reduction in
15 headcount and why do you believe it is incorrect?

16 A. Staff makes no additional comment to explain its O&M labor
17 reduction, simply noting the \$3 million labor reduction.
18 Staff simply did not recognize the work currently underway and
19 makes reductions to decrease cybersecurity spending below
20 current levels.

COMMON IT PROJECTS

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Learning and Inclusion Digital Transformation

Q. Please describe the Learning and Inclusion Digital Learning Transformation Project.

A. As discussed in Exhibit __ (IT-3) in our initial testimony, the Company is creating a new cloud-based learning platform to replace its existing 30-year-old, in house-developed Learning Management System. The goal is to establish and sustain a training culture through innovative learning solutions. To develop this system, the Company is undertaking a thorough review of existing processes/functionality, systems, and software. We are redesigning and/or replacing key processes and systems using design principles and a data driven approach.

Q. Is the Company implementing this system?

A. Yes. The project team has concluded the discovery phase and launched the project on June 3, 2022.

Q. What is the Staff IT Panel's proposed reduction to this project?

A. Staff (pp. 54-56) suggests removing the entire project, including the one requested FTE, because it was included in the Company's 2019 filing but the Company did not do the work. Staff also alleges that the Company failed to provide instances of shortcomings in the platform in recent years.

Q. Please respond generally to Staff's reduction.

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1 A. The Company developed the Learning and Inclusion Digital
2 Learning Transformation Project in 1992 and it is overdue for
3 an upgrade and replacement.

4 Q. Did the Company include this project in the 2019 rate case?

5 A. While the Company included this project in the 2019 rate case,
6 there are situations where the Company uses the flexibility in
7 its rate plans to respond to emergent issues, new laws and
8 other unforeseen changes. The project has been delayed
9 because using its flexibility to prioritize projects, other
10 higher priority projects, such as cybersecurity, were started
11 before this one in 2020 and 2021 but the Company commenced
12 working on the project in 2022. The need for the project is
13 clear and the Company has now begun implementation.

14 Q. Staff also states that the Company failed to provide instances
15 of shortcomings in the platform in recent years. Is this
16 correct?

17 A. No. As discussed in our Exhibit __ (SITP-1, response to DPS-
18 29-715), the decades-old technology platform is obsolete. In
19 addition, it is not integrated with our HR system. The
20 platform has limited mobile functionality, nor does it support
21 today's baseline of anywhere/anytime learning or digital
22 streaming. The technology platform also does not include a
23 repository for content storage or management.

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Phased Replacement of Legal technology ("PRLT")

Q. Has Staff recommended against funding for the PRLT project?

A. Yes. Staff recommended against funding the project, including the two FTEs supporting project implementation

Q. Please explain the Company's proposed Law Department project.

A. As discussed in our initial testimony, this project replaces several existing obsolete legal technologies, including the matter management system (used for profiling and tracking the 42,000 active legal matters in the Law Department), the outside counsel bill payment program (used for payments to over 80 law firms annually), and the document management system (used to capture, track, and store tens of thousands of electronic documents that are used by and provide value for both the Law Department and the Company to enable us to provide more efficient service). When the phased project is completed, the Law Department will have an Enterprise Legal Management System that is functional, current technology in line with the Company's industry peers.

Q. What are Staff's justifications for denying funding for this project?

A. Staff first assumes the vendor will continue to support the Company's end of life product without an agreement and at no cost. Second, Staff calculates a 40-year payback for the

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1 proposed project. Finally, Staff comments that the Company
2 did not request this project in the 2019 rate case even though
3 the support agreement with the vendor expired in 2021.

4 Q. Given Staff's proposed elimination of the entire project,
5 before addressing Staff's reasons, please explain the
6 information the Company has regarding the current legal
7 technology market.

8 A. The Company stated in its initial testimony that the existing
9 legal technology is obsolete, and that it should be replaced
10 with newer technology offering better solutions. Our
11 benchmarking with other legal departments demonstrates this.
12 This data indicates that very few of the Company's utility
13 sector and revenue size peers still use these obsolete legal
14 technologies. In fact, they have long ago moved ahead of the
15 Company to adopt more sophisticated tools.

16 Q. Does the Panel have any reports that contains this benchmarked
17 data?

18 A. Yes. The first report is entitled "ACC Legal Operations Who
19 Uses What Legal Technology? 2021 Survey ("Legal Tech Survey
20 Results"). The Company has included the report, released by
21 the Association of Corporate Counsel (ACC), a professional
22 association representing the business interests of general
23 counsels and corporate legal department attorneys, that

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1 provides information from legal departments throughout the
2 country on the legal technology systems they use. The second
3 report is entitled "ACC 2021 Legal Technology Report for In-
4 House Counsel" ("Legal Tech Report"). We have attached both
5 reports as a single exhibit. And it is clear from reviewing
6 the reports that the Company's current legal technology is not
7 used by other large companies.

8 Q. Were these exhibits prepared under the Panel's direction and
9 supervision?

10 A. Yes.

11 MARK FOR IDENTIFICATION AS EXHIBIT __ (IT-12)

12 Q. Did Staff attempt to determine the condition of the legal
13 technology?

14 A. No. Importantly, Staff does not question the Company's
15 description of the technology as obsolete but focused on
16 points we do not believe to be relevant in proposing this
17 project's elimination.

18 Q. Is Staff's assumption that this vendor will continue to
19 support an obsolete technology reasonable?

20 A. No. Although the vendor has been providing interim support,
21 specifically addressing issues as they arose, the agreement
22 for such support expired on December 31, 2021. And this
23 support was limited -- it did not include upgrading or

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1 patching the system. Moreover, the vendor provided this
2 support as a courtesy. Since the agreement has expired, the
3 vendor is under no obligation to continue the support and can
4 cease providing support at any time.

5 Q. Please discuss Staff's Return on Investment (ROI) calculation.

6 A. Staff used the efficiency data provided by the Company in
7 Exhibit ___ (SITP-1, DPS-29-726, pp. 273-277), to calculate an
8 ROI. Staff's calculations resulted in a 40 plus year payback
9 and its conclusion that the project is not cost-effective.

10 Q. Do you agree?

11 A. No. First, as a threshold matter, ROI is less relevant when we
12 are proposing to replace obsolete technology with standard
13 technology that is used throughout the legal industry. ROI
14 consideration should include both quantitative value
15 indicators of investing in legal technology, e.g., saved costs
16 or saved time/hours, and qualitative measures such as
17 increased capacity to do more work that enable the Company,
18 for example, to complete all the legal work necessary to
19 enable the Company to implement its clean energy projects. It
20 is this holistic approach that the Company has used in
21 determining to proceed with this project.

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1 Q. Has the Company taken another look at the cost/benefit
2 analysis since Staff raised this issue in its direct
3 testimony.

4 A. Yes. We have taken a more complete look at the efficiency
5 benefits that this new technology would provide if the Company
6 were provided funding for this project and prepared an exhibit
7 in this regard.

8 Q. Was this exhibit prepared under the Panel's direction and
9 supervision?

10 A. Yes.

11 MARK FOR IDENTIFICATION AS EXHIBIT __ (IT-13)

12 Q. Please explain what the exhibit contains.

13 A The exhibit provides our more complete "second look" at the
14 cost/benefit analysis for this project. It contains our
15 calculations regarding the ROI and payback period for this
16 project, as well as a description of the calculator tool that
17 we used and the way the calculations were performed. Under
18 this second look, the PRLT project has a 13.6-month payback
19 with an ROI of 88% (based on net annual return divided by
20 investment), which exceeds the legal industry standard of 65%
21 used by consultants, including Gartner and the HBR Consulting
22 and legal publications.

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1 Q. Are there other reasons you disagree with Staff's
2 recommendation to deny funding for this project?

3 A. Yes. Staff's priority on cost savings neglects other important
4 factors that drive technology purchases in law departments,
5 and as demonstrated above, these are valid strategic business
6 considerations in the legal industry. In the IT Panel's
7 Exhibit __ (IT-3, p. 34), the Company explained that this
8 project is essential to its strategic and long-term plans.
9 Funding of these technologies will "allow for sophisticated
10 insight into [the Company's] work for service delivery,
11 transparency in reporting to [its] internal and external
12 stakeholders and predictive analytics that would enhance [its]
13 strategic and tactical decision making." The ACC Legal Tech
14 Survey Results support this conclusion. Staff has overlooked
15 the importance of new legal technologies to improve and
16 streamline work processes and optimize efficiencies. These
17 non-financial benefits should not be undervalued.

18 Q. Please comment on Staff's statement that the Company did not
19 request this project in the 2019 rate filing despite the
20 pending expiration of the support in 2021.

21 A. The statement is irrelevant. The Company requested the
22 project in this proceeding, and it should be handled
23 accordingly.

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INFORMATION TECHNOLOGY PANEL – REBUTTAL TESTIMONY

1

2 **Cybersecurity - Forensic Equipment Program**

3 Q. What does the cyber forensics group do?

4 A. As discussed in our initial testimony, the Cyber Forensic
5 Investigation team conducts a wide range of digital forensic
6 investigations for cyber incidents, including investigations
7 within our operational technology environments (SCADA/ICS).

8 Q. Does Staff propose a reduction for this program?

9 A. Yes. The Staff Security Panel recommends a capital budget of
10 \$116,000 in the Rate Year, a decrease of \$144,000.

11 Q. What is Staff's proposed justification for this reduction?

12 A. Staff alleges that there is a lack of detail and analysis for
13 this expenditure and adjusts the program to the Company's 2020
14 costs.

15 Q. Do you agree with Staff's positions?

16 A. No, for the reasons we discussed in the cyber security
17 section. We note that Staff asked discovery regarding general
18 financial questions, for which the Company provided the names
19 of the projects and other details. Staff, however, did not
20 request additional detail on the projects themselves. If Staff
21 had done so, the Company would have provided that additional
22 detail. But we believe we provided sufficient detail in our
23 initial testimony.

24 Q. What was that detail?

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1 A. With more systems coming online internally or on the cloud,
2 more cyber security threats and investigations follow. Our
3 budget increases accounted for newer tools/devices to
4 accommodate this growing need. These tools will allow the team
5 to defend and investigate any internal incident quickly and
6 accurately.

7 Q. How does the program assist the Company?

8 A. First, we plan to develop a platform to automate cloud-based
9 forensics extractions and examinations. These platforms
10 replicate our forensic tooling within external locations,
11 allowing us to perform our initial acquisition and triage
12 within these locations, rather than transferring large amounts
13 of data out of them, reducing investigation time.

14 Second, we plan to purchase equipment for our forensic
15 laboratory that would assist us in performing investigations
16 on Industrial Control System (ICS) equipment, allowing us to
17 respond faster by having improved and tested procedures which
18 will allow faster recovery time in the event of an incident.

19 Lastly, as our Information Security teams continue to fast-
20 track their automation and expand their capabilities, our
21 investigations continue to increase. We need hardware and
22 tools to handle this increased caseload.

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ELECTRIC IT PROJECTS

Customer Business Intelligence/Decisioning

Q. Please describe the Company's Customer Business Intelligence/Decisioning ("CBID") project.

A. As discussed in our initial testimony (Exhibit __ (IT-4)), the Energy Services group's CBID project is the next phase of the CPMS Customer Knowledge Self Service project (CKSS). As part of Energy Services roadmap, CBID will take CKSS to the next level, using emerging technologies to enhance the customer experience, encourage self-service, increase productivity, reduce errors, and shorten case lifecycles.

Q. Does the Staff IT Panel propose a reduction to this this project?

A. Yes. While the Staff IT Panel supports (pp. 34-37) this project, the Panel recommended a CBID budget of \$2 million annually, as opposed to the Company's \$4 million annual request, based on using the prior project's, CKSS, three-year average spending.

Q. What is Staff's justification for this proposed reduction?

A. Staff notes that this project was consistently underspent in recent years and provides a three year average based on historical data.

Q. Does the Company agree with this justification?

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1 A. No. The three year underspend that Staff is referring to is
2 for CBID's predecessor project, CKSS. These are two different
3 projects with different scopes. Using another project's
4 historic spending, which started off at a lower amount \$3
5 million annually, is inappropriate. (See Exhibit __ (EIOP-10)
6 from Case 19-E-0065)

Engineering Equipment Upgrade Program (AutoCAD)

8
9 Q. What is the AutoCAD system and why is the Company requesting
10 additional funding?

11 A. AutoCAD is one of a suite of Computer-Aided Design and
12 drafting software applications supporting engineering and
13 construction projects.

14 Q. What is the Company proposing for AutoCAD?

15 A. The Company is implementing 3D Building Information Modeling
16 (BIM). This implementation requires servers, 3D scanners,
17 software, and training. Additionally, project costs will
18 replace obsolete Computer-Aided Design equipment such as
19 laptops and plotters over the next several years.

20 Q. Does the Company agree with the Staff's \$250,000 reduction for
21 each year of this program?

22 A. No. Staff's reduction (p. 40) assumes that the recent
23 historical spending will carry through into the rate year.
24 This is not the case as the Company is planning to do work

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1 above and beyond prior AutoCAD work. The historic year does
2 not include the cost of the 3D BIM project, which also
3 encompasses the aforementioned items such as 3D scanners,
4 servers, software, and training.

5
6 **Energy Control Center Operations Management System**

7 Q. By way of background please describe the ECC Operations
8 Management system.

9 A. As discussed in our initial testimony (Exhibit ____ (IT-4)),
10 the Operations Management Systems Enhancements program supports
11 the OMS applications at the Energy Control Center. It funds the
12 hardware and third-party support tools needed to keep the
13 multiple applications running 24/7/365.

14 Q. Did the Staff IT Panel propose reductions to this program?

15 A. Yes. Staff removed the Company's \$400,000 RY1 increase,
16 claiming that the Company did not justify or provide a work
17 plan for the increased level of RY1 spending as compared to
18 2022 (\$331,000) and RY2-RY3 (both \$366,000).

19 Q. Do you agree with this reduction?

20 A. No. This project's whitepaper discussed the scope of the
21 project included, among other things, replacing the current
22 replication system used by the Feeder Management System (FMS)
23 with Virtual Machine platforms to improve the reliability and
24 disaster recoverability of FMS. Staff states that we did not

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1 provide a “work plan,” but this is a straightforward one year
2 increase to make one capital replacement. While a “work plan”
3 may be required for a lengthy multi-year project, Staff’s
4 denial justification that we did not provide a work plan does
5 not make sense for this project. The ECC needs to perform
6 additional, immediately needed work in RY1 and then the
7 funding is expected to level off. This work encompasses
8 upgrading OMS systems immediately as they were not upgraded on
9 their five- year cycle due to pandemic related staffing issues
10 and supply chain delays.

11 We still have four OS 2008 R2 servers that are past end-of-
12 life and 6 OS 2012 servers facing an immediate end of life.
13 This increase is for one year to provide ECC with a stable
14 environment operating on current hardware platforms. We note
15 this capital project will particularly help with outage
16 management, which will improve storm response.

TNVS Web

18
19 Q. Please describe the Transmission Network Visualization System
20 (“TNVS”).

21 A. As discussed in our update testimony, its purpose is to
22 provide near real-time information about Con Edison’s
23 transmission system to operators, field crews, engineers and
24 executives. The application provides users with a graphical

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1 representation of equipment information, including substation
2 switchgear status, power flows, and Voltage levels, from the
3 Company's SCADA (System Control and Data Acquisition) system.

4 Q. Did the Staff IT Panel propose a reduction to this program?

5 A. Yes. The Staff IT Panel recommends the highest amount of
6 Company spending over a five year period for this program, or
7 \$380,000 per year. The Company had requested \$500,000
8 annually.

9 Q. Do you agree with Staff's reductions?

10 A. No. We note here, as in other areas, that Staff ignores that
11 the Company has demonstrated the need for an increased budget.
12 Using the highest amount from history does not reflect the
13 increased necessary work the Company has proposed for this
14 program. The TVNS whitepaper explains that this project will
15 provide additional functionality, enhanced situational
16 awareness and improved resiliency,

17 Q. Did Staff ask any discovery about this project before making
18 this reduction?

19 A. No. If so, the Company would also have noted that the Dark
20 Sky portion TNVS is a new program necessary to provide an
21 alternative and resilient level of backup for the catastrophic
22 loss of the primary control systems around the Company. This

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1 project will allow for continuous visibility into control
2 systems despite the catastrophe.

3 Q. Does this conclude the Company's IT Panel's testimony?

4 A. Yes.

Company Name: Con Edison
Case Description: 2022 Con Ed Electric & Gas Rate Cases
Cases: 22-E-0064 & 22-G-0065

Response to DPS Interrogatories – Set DPS-22
Date of Response: June 16, 2022
Responding Witness: Information Technology Panel

Question No. :655-Supp1
Subject: Substation Technology Improvements

1. For calendar years 2017 through 2021, provide the project's annual budget and a list of all initiatives completed under this project annually.
2. For each initiative listed in response to question 1, above, explain how it increased safety, efficiency, or reliability, and provide the total cost of the initiative.
3. For calendar years 2022 through 2026, provide a list of all initiatives planned to be completed under this project annually. Provide the cost for each initiative separately and explain how each initiative will increase safety, efficiency, or reliability.
4. Under the basis for estimate section referenced in Exhibit____(IT-1), on page 110, it states that the cost, "estimate for this project is based on the actual costs of similar initiatives previously completed." Identify the previous initiatives that the Company used for the basis of this project's cost estimate and provide their dates of completion and costs. Explain how they are similar to the initiatives planned during the rate years.

Response

This supplemental response provides an update on the 2023 funding required for the MAS 8 Maximo Upgrade, which should have been included in the original response. The updated materials are highlighted.

3. For calendar years 2022 through 2026, provide a list of all initiatives planned to be completed under this project annually. Provide the cost for each initiative separately and explain how each initiative will increase safety, efficiency, or reliability.

2022	MAS 8 Maximo Upgrade	\$3,138,099
	PM Basis	\$450,000
	Error Prevention Locks	\$1,212,168
2023	Asset Investment Planning and Scheduling Optimization	\$600,000
	Substation Equipment Electronic Tagging	\$800,000
	Continuation of MAS 8	\$600,000

	Maximo Upgrade	
2024-2026	Substation Inspection Robotics	\$4,500,000

Asset Investment Planning and Scheduling Optimization: This project will enable scheduling optimization of the Substation capital portfolio extracting efficiencies through automation and better coordination of projects. This project will result in productivity improvements.

Substation Equipment Electronic Tagging: This project will install bar codes and/or QR codes on substation equipment to facilitate lock-out, tag-out, as well as providing the ability to mine asset information from the equipment tag. These features will improve safety and productivity.

Substation Inspection Robotics: Substation inspection robots will monitor substation equipment using infrared and partial discharge equipment. Robotic inspections will be done much more frequently than current practice providing early warning of equipment issues while providing productivity improvements through the elimination of many manual monitoring activities.

2021

ACC LEGAL OPERATIONS

Who Uses What Legal Technology?

SURVEY RESULTS

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Introduction

In 2018, the Tools & Technology Interest Group of the ACC Legal Operations section distributed a survey with the purpose of providing a reference guide of the technology tools being used by members to support their legal departments' work. The positive reception that the report received and its usefulness to legal ops members paved the way to replicate and update this insightful resource in 2021.

Given the incredibly fast pace at which new technology developments occur, it is not surprising that the list of technology areas that are applicable to the legal function has increased since 2018, resulting in this survey inquiring about the following 26 technology domains – up from 22.

Artificial Intelligence (AI)	eDiscovery: Processing/Analysis	Patent Search
Board Portals	eDiscovery: Review/Production	Project Management Software
Business Intelligence (BI)	eSignature	Record Management
Compliance Office	Integration	Tracking Records & Boxes
Contract Management	IP Management	Retention Schedule Management
Corporate Secretary	Knowledge Management Software	Retention Period Enforcement
Document Comparison	Legal Hold	Remote Connectivity
Document Management	Legal Research Services	Survey/Information Gathering
eBilling	Matter Management	Workflow Tools
eDiscovery: Identification/ Preservation/Collection	Online Virtual Data Room Repositories	

In addition to providing a summary of the use of technology within legal departments, one of the goals of the report is to facilitate conversations among ACC Legal Operations members willing to discuss the utility and effectiveness of the technology tools that they are using. A directory of participants who were willing to provide their contact information is included for this purpose, as well as a comprehensive list of which companies use what technology tools to identify peers. ***This directory is for ACC members only for peer conversation purposes; it should not be forwarded to others.***

We want to warmly thank the participants in 121 legal departments who took the time to complete the survey and are willing to engage in constructive discussions on the pros and cons of such a wide range of available technology solutions to the benefit of all ACC Legal Operations members.

ACC Research
research@acc.com

Survey and Report Details

Report Structure

The report includes 26 technology areas covering diverse functions, practices, and processes in the corporate legal department. Detailed descriptions for each technology area are provided in the following section.

The technology descriptions are followed by a chart that reports the percentage of respondents that indicated using each of the 26 technology areas in their corporate legal department. Technology usage varies widely, from 77 percent of participants utilizing eSignature tools to 17 percent that reported using patent search software.

The core section of the report provides a detailed breakdown of each technology area by listing which specific tools or software participants are using. For each technology area, we also provide a comprehensive list of the tools used by participants, including which participants use each technology tool.

Survey Methodology

Survey instrument. The survey questionnaire was offered through an online survey platform. Personalized survey links were sent by email to the target population, which allowed participants to save their responses and fill out the questionnaire in more than one sitting, if needed.

Fielding period. The survey opened on October 28, 2020 and closed on December 9, 2020. Reminder emails were sent weekly.

Target population. We targeted ACC Legal Operations members.

Participation. A total of 121 legal departments participated.

Data accuracy. Not all respondents answered all questions. The percentages provided are based on the number of valid responses received for each individual question. Many survey questions offered the opportunity to select multiple response options. In those cases, percentages may not total to 100 percent. Some participants chose not to reveal their organization's name and is not listed in the "Who Uses What" section. Therefore, the number of company names listed may not always match up with the number totals listed in the preceding bar charts.

Technology Area Descriptions

Artificial Intelligence Tools: Used to discover and communicate meaningful patterns in data, and is most commonly used in due diligence, compliance, and contract and document management.

Board Portals: Collaborative software solutions that help manage and distribute board meeting materials as well as facilitate corporate leadership communication.

Business Intelligence Software: Used to gather and analyze data about your legal functions. Examples of data that can be analyzed includes legal spend, legal case data allows, and eDiscovery metrics. It typically provides dashboard, report creation, or other methods to represent data in various formats.

Compliance Office Tools: Used for policy, risk, incident and procedure oversight and management.

Contract Management Tools: Used to support contract lifecycle management, including requesting, authoring, negotiating, approving, signing, analyzing and storing contracts.

Corporate Secretary Tools: Used to manage board governance cycles including online board books, event scheduling, collaboration and reporting.

Document Comparison Tools: Used to identify changes between two versions of the same document for the purposes of document editing and review.

Document Management Tools: Used to manage, track and store digital documents and email, and reduce paper.

eBilling Tools: Used to electronically submit and review invoices from outside counsel or other external entities over the internet to organizations and support the processing of invoice payments electronically.

eDiscovery Tools - Identification/Preservation/Collection Tool(s): Used to identify, preserve, collect, analyze, process and/or review data for discovery in legal proceedings and support the phases of the Electronic Discovery Reference Model.

eDiscovery Tools - Processing/Analysis Tool(s): Used to support processing and analysis of electronic discovery in legal functions.

eDiscovery - Review/Production Tool(s): Used to support review and production of electronic discovery in legal functions.

eSignature Tools: Used for electronic sending, signing and managing of agreements.

Integration Tools: Used to provide a way to connect and manage software applications and automate a variety of critical business processes.

IP Management Tools: Used to track and manage IP portfolios (Patents and Trademarks), provide deadline and docketing support, which incorporates workflow for proper IP management and process annuity payments.

Knowledge Management Software: Used to identify, save and index prior work product and knowledge, to be used as a resource for future matters and projects.

Legal Hold Tools: Used to automate and manage the entire process of legal hold notifications, and supports tracking of responses, interviews, reminders, and escalations.

Legal Research Services Tools: These assist attorneys and paralegals research case law, statutes and regulations.

Matter Management Tools: Used to manage and track legal matters, day-to-day matter work and matter budgets.

Online Virtual Data Room Repositories: Used as part of due diligence and acquisition activities to allow the secure exchange of information between the parties.

Patent Search Tools: Patent research and analytics platform which provides access to published patents and scientific literature worldwide.

Project Management Software: Tools designed to assist a project manager in developing a schedule, assigning resources to tasks, tracking progress, managing budgets, and analyzing workloads.

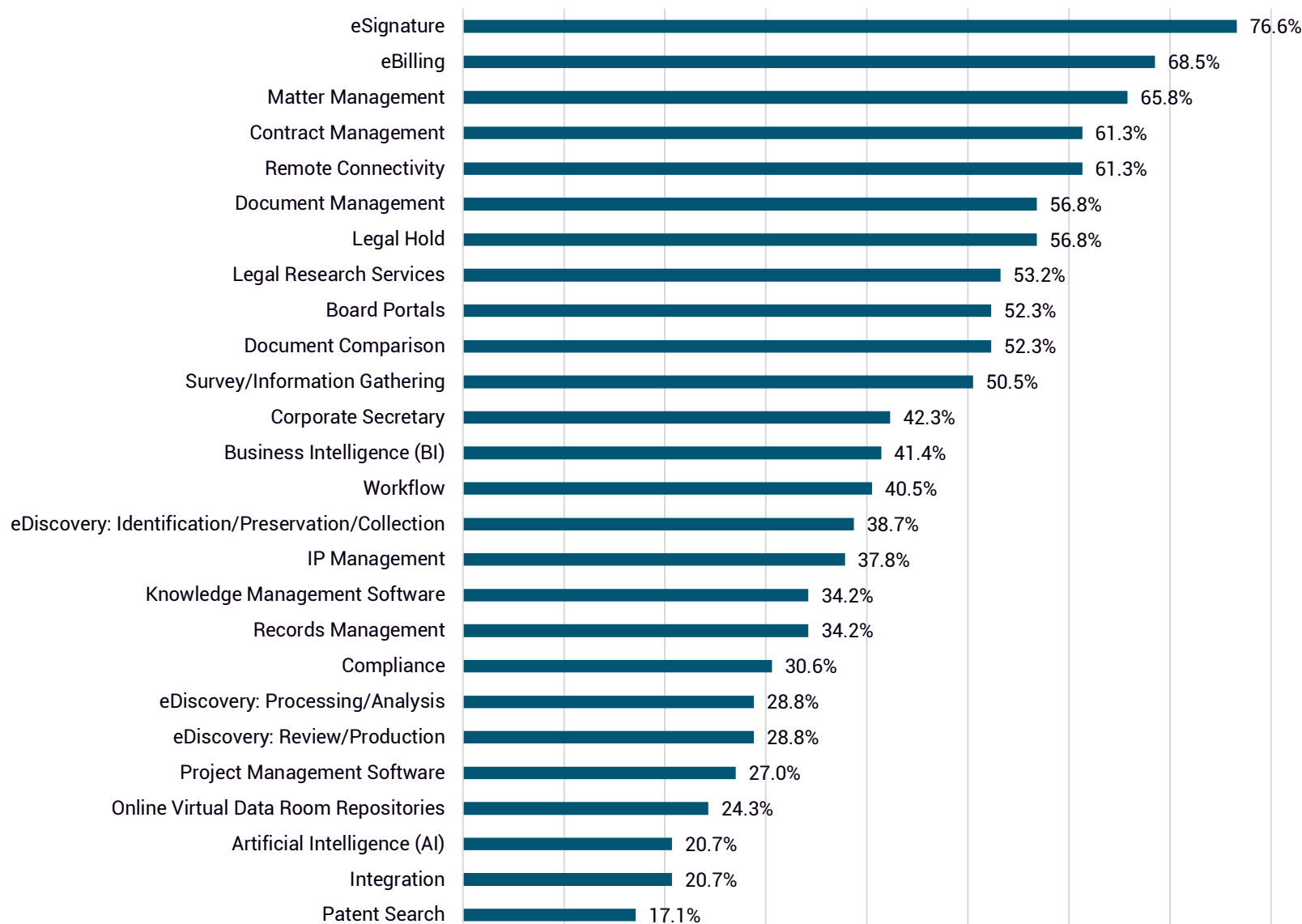
Record Management: Used to manage your inventory of records.

Remote Connectivity Tools: These allow users to communicate and access the systems they need when not physically in the office.

Survey/information Gathering Software: Used to collect information from specific groups of respondents, and usually feature software assistance throughout the process, from creation through results analysis.

Workflow Tools: Used to automate business processes.

Technology Areas Used by Participating Organizations



Technology Areas by Tools and Who Uses What

This section provides a detailed breakdown of each of the 26 technology areas that we inquired about. Each chart indicates the number of specific technology tools or software that was listed in the survey questionnaire, the number of tools selected by participants, and the number of companies that selected any of the listed tools. Participants were allowed to select more than one tool for each area to capture situations in which multiple tools are used in a particular area.

The bar charts report the list of technology tools in each area by their usage rate, sorted from the most selected tool to the least selected. We do not include in the chart the tools that were not selected by any participant, but we list them separately at the bottom of each figure.

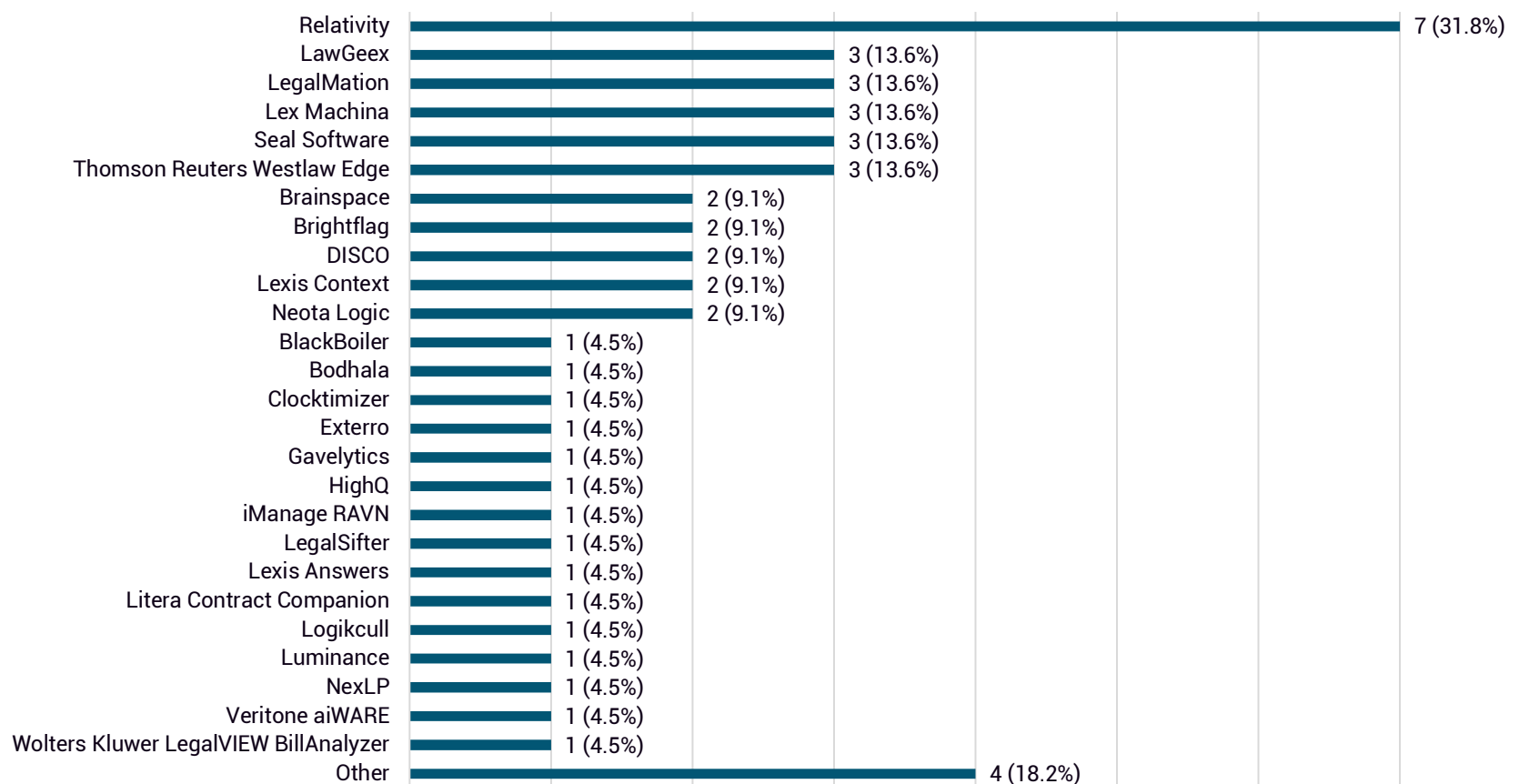
The charts report the number of companies that use each technology tool or software and the corresponding usage percentage. The percentage reported is based on the number of companies that use each technology area, not the overall respondents. For example, 22 companies reported using artificial intelligence (AI) tools and seven of them selected Relativity, which means that 31.8 percent of companies that use artificial intelligence (AI) tools use Relativity.

For each technology area, the *Who Uses What?* section provides a list of all technology tools selected by survey participants, including those who utilize other, non-listed tools. Each tool is associated with the name of participating organizations which reported using that tool. Organization names highlighted in blue indicate that the contact information for that participant is available in the organization directory included at the end of the report.

Artificial Intelligence (AI) Tools

Used to discover and communicate meaningful patterns in data, and is most commonly used in due diligence, compliance, and contract and document management.

Tools listed in the survey: **51** Tools selected: **26** Companies using these tools: **22**



Tools not selected: Ayfie, Blue J Legal, Casepoint, Casetext CARA, Digitory Legal, Docket Alarm, eBrevia, Everlaw, Headnote, IBM Watson Outside Counsel, JustisOne, Kim Technologies, Kira Systems, Legal Decoder, Manzama Insights, Mplace, Nalytics, Ping, Premonition, ROSS Intelligence, Text IQ, ThoughtRiver, vLex, Wolters Kluwer Intelligent Invoice Conversion, Zero

Who Uses What?

BlackBoiler: [TE Connectivity](#)

Bodhala: TransUnion

Brainspace: [Oracle](#), Liberty Mutual Group

Brightflag: [lopco](#), Bristol-Myers Squibb

Clocktimizer: [lopco](#)

DISCO: [Fannie Mae](#), Lyft

Exterro: [Oracle](#)

Gavelytics: Liberty Mutual Group

HighQ: [Quadspire Technologies, Inc.](#)

iManage: RAVN, [Fannie Mae](#)

LawGeex: [AbbVie](#), eBay, Inc., Liberty Mutual Group

LegalMation: [Target Corporation](#), Liberty Mutual Group

LegalSifter: Plex Systems, Inc., Liberty Mutual Group

Lex Machina: [Travelers Insurance](#)

Lexis Answers: Bristol-Myers Squibb

Lexis Context: Bristol-Myers Squibb

Litera Contract: Companion, Bristol-Myers Squibb

Logikcull: Twilio Inc.

Luminance: Liberty Mutual Group

Neota Logic: [Travelers Insurance](#), Liberty Mutual Group

NexLP: [Oracle](#)

Relativity: [AbbVie](#), [Boston Scientific](#), [Campbell Soup Company](#), [Fannie Mae](#), [International Paper Company](#), [Oracle](#)

Seal Software: [DocuSign](#), [lopco](#), Lyft

Thomson Reuters: Westlaw Edge, [Campbell Soup Company](#), Liberty Mutual Group, [Quadspire Technologies, Inc.](#)

Veritone aiWARE: [Oracle](#)

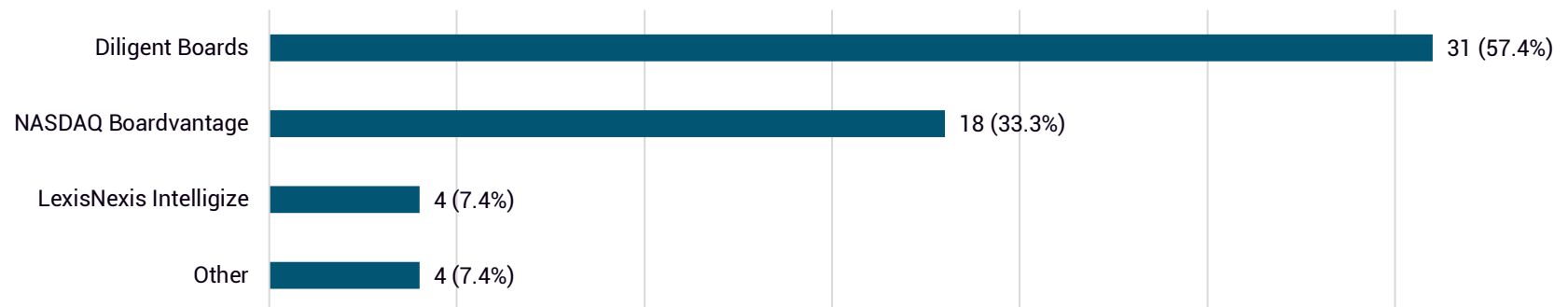
Wolters Kluwer: LegalVIEW BillAnalyzer, [International Paper Company](#)

Other AI tools reported: Home Grown (Dassault Systemes Americas Corp.), Knowable ([AbbVie](#)), LinkSquares (Twilio Inc.), Microsoft
O365 (FedEx)

Board Portals

Collaborative software solutions that help manage and distribute board meeting materials as well as facilitate corporate leadership communication.

Tools listed in the survey: **3** Tools selected: **3** Companies using these tools: **54**



Who Uses What?

Diligent Boards: Allianz Life Insurance Co. of North America, AppFolio, Inc., British Columbia Investment Management Corporation, Blackbaud, Inc., Boston Scientific, Campbell Soup Company, CoreCivic, Discover Financial Services, DocuSign, Emera, Inc., Empower Retirement, Fannie Mae, Farm Credit Mid-America, FloQast, Inc., FMC Corporation, Hagerty, Idexx Laboratories, Inc., IHG, Ingram Micro Inc., Lyft, Mass General Brigham, MassMutual, Merck & Co., Inc., Meredith Corporation, Milliken & Company, Securian Financial Group, Inc., SPX Corporation, TIAA, Twilio, Inc., US Foods, Inc., World Wide Technology

LexisNexis Intelligize: Biz Law Consult Myanmar, Mutual of Omaha Insurance Co., Target Corporation

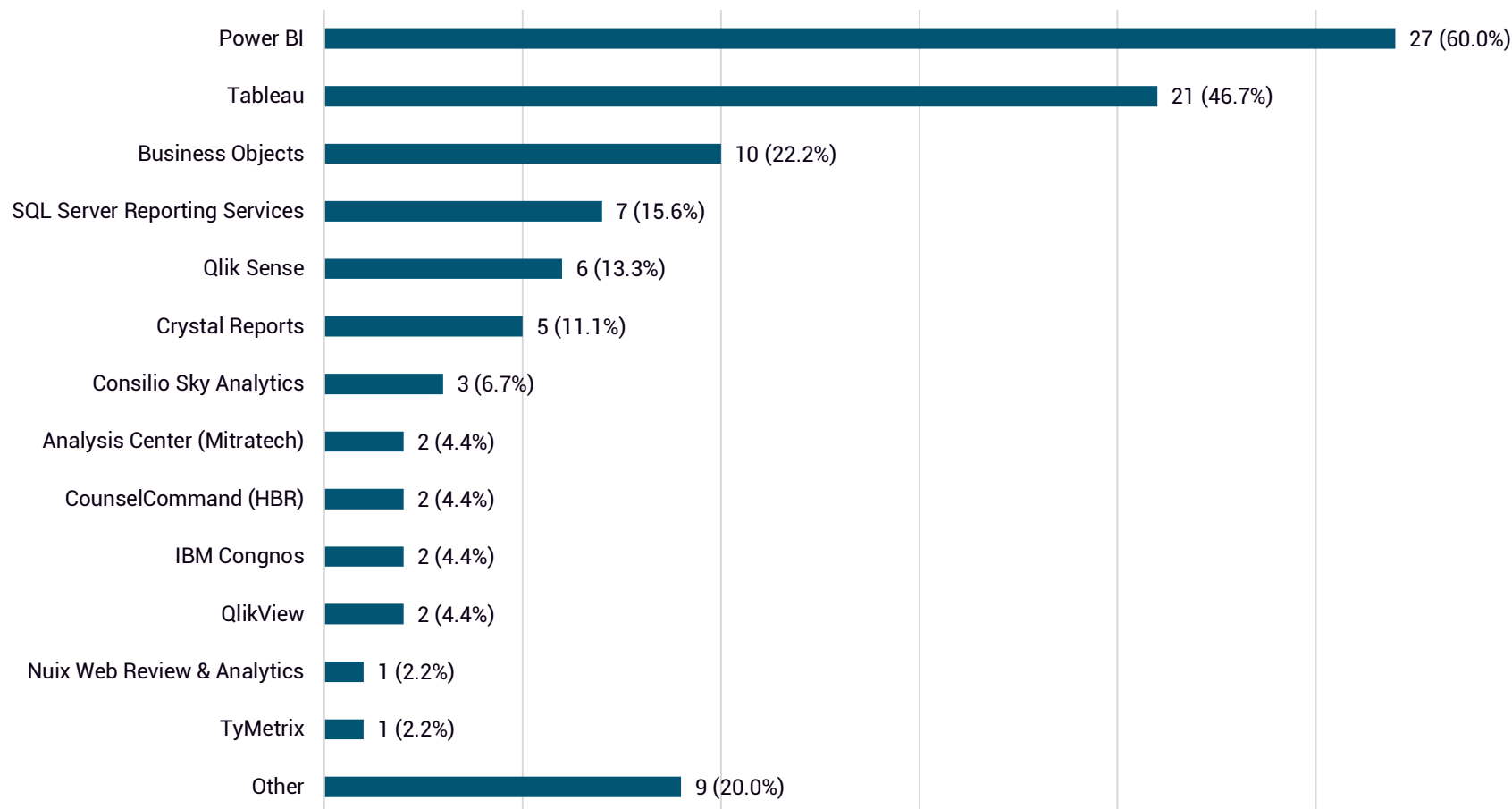
NASDAQ Boardvantage: Abbott Laboratories, AbbVie, Align Technology Inc., CDW Corporation, DaVita Inc., Hearst, Hewlett Packard Enterprise, International Paper Company, Levi Strauss & Co., McKesson, Mutual of Omaha Insurance Co., Root Insurance Co., Target Corporation, TIAA, Travelers Insurance, Walgreen Co., Xerox Office of General Counsel

Other board portals reported: Aprio (Coast Capital Savings Credit Union), BoardEffect (Western Governors University), iBabs (De Lage Landen Financial Services, Inc)

Business Intelligence (BI) Software

Used to gather and analyze data about your legal functions. Examples of data that can be analyzed include legal spend, legal case data allows, and eDiscovery metrics. It typically provides dashboard, report creation, or other methods to represent data in various formats.

Tools listed in the survey: **14** Tools selected: **13** Companies using these tools: **45**



Tool not selected: Sybase IQ

Who Uses What?

Analysis Center (Mitrtech): Abbott Laboratories, CDW Corporation

Business Objects: Abbott Laboratories, Biz Law Consult Myanmar, John Deere Financial, FedEx Ground Package Systems, Inc., Hewlett Packard Enterprise, lopco, MassMutual, Perdue Pharma LLP, Xerox Office of General Counsel

Consilio Sky Analytics: Bristol-Myers Squibb, MassMutual, TIAA

CounselCommand (HBR): Hewlett Packard Enterprise, Oracle

Crystal Reports: Abbott Laboratories, Biz Law Consult Myanmar, Electrolux Corporation, Hewlett Packard Enterprise, Purdue Pharma LP

IBM Congnos: AbbVie, Liberty Mutual Group

Nuix Web Review & Analytics: Abbott Laboratories

Power BI: Align Technology Inc., Allianz Life Insurance Company of North America, Archer-Daniels-Midland Company, Arrow Electronics, Inc., CDW Corporation, De Lage Landen Financial Services, Inc, Electrolux, Emerson Corporation, Expedia, Fannie Mae, FedEx Ground Package System, Inc., Hearst, Heico Companies, L.L.C., Hewlett Packard Enterprise, Idexx Laboratories, Inc., International Paper Company, Liberty Mutual Group, McKesson, PPL Services Corporation, PTC Therapeutics, Inc., Purdue Pharma LP, Quadspire Technologies, Inc., Resurgent Capital Services, LP, TriNet USA, Inc., UnitedHealth Group, Walgreen Co.

Qlik Sense: Abbott Laboratories, Arrow Electronics, Inc., De Lage Landen Financial Services, Inc, Hewlett Packard Enterprise, lopco, Travelers Insurance

QlikView: De Lage Landen Financial Services, Inc, Hewlett Packard Enterprise

SQL Server Reporting Services: AbbVie, Electronic Arts Inc., Hewlett Packard Enterprise, Idexx Laboratories, Inc., Resurgent Capital Services, LP, UnitedHealth Group, Xerox Office of General Counsel

Tableau: Allianz Life Insurance Company of North America, Archer-Daniels-Midland Company, Bristol-Myers Squibb, Coast Capital Savings Credit Union, Cvent, John Deere Financial, Electronic Arts Inc., Expedia, Fannie Mae, Hearst, Hewlett Packard Enterprise, Idexx Laboratories, Inc., International Paper Company, lopco, Lyft, MassMutual, McKesson, TriNet USA, Inc., UnitedHealth Group, Xerox Office of General Counsel

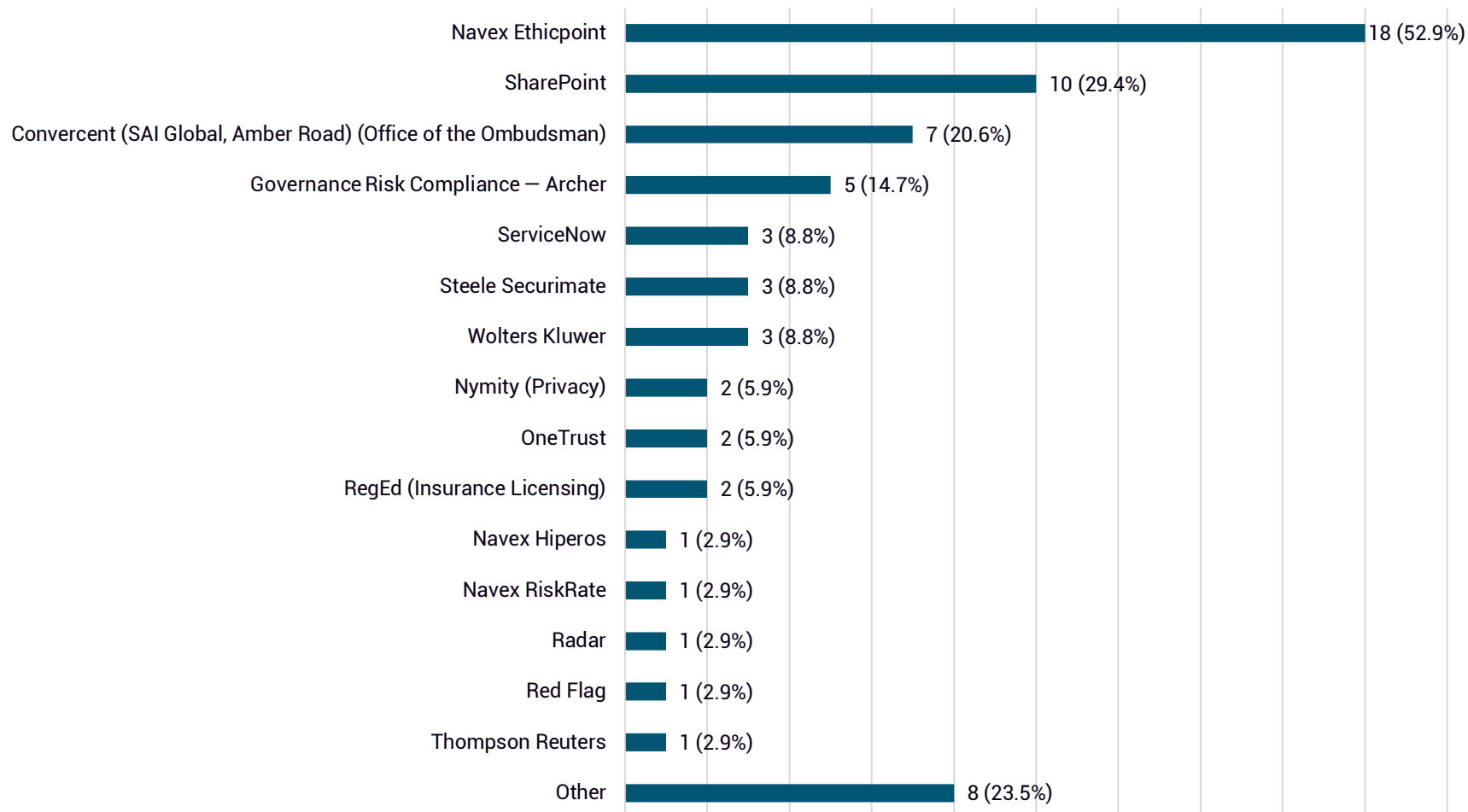
TyMetrix: International Paper Company

Other BI software reported: CounselLink (Electrolux), Domo (Target Corporation), Home Grown (Dassault Systemes Americas Corp.), Mode (Lyft), Onit (Bristol-Myers Squibb), Oracle BI (Oracle), SiSense (Xerox Office of General Counsel), TR Monitor Suite (Quadspire Technologies, Inc.)

Compliance Office Tools

Used for policy, risk, incident and procedure oversight and management.

Tools listed in the survey: **19** Tools selected: **15** Companies using these tools: **34**



Tools not selected: Assert Compliance, Insource, InTouch (Ethix360), OpenPages

Who Uses What?

Convercent (SAI Global, Amber Road) (Office of the Ombudsman): AppFolio, Inc., Campbell Soup Company, Emerson Corporation, FMC Corporation, International Paper Company, Purdue Pharma LP, TE Connectivity

Governance Risk Compliance – Archer: Emerson Corporation, Liberty Mutual Group, McKesson, Travelers Insurance, UnitedHealth Group

Navex Ethicpoint: Abbott Laboratories, Archer-Daniels-Midland Company, Align Technology Inc., Arrow Electronics, Inc., Campbell Soup Company, CDW Corporation, DocuSign, FMC Corporation, Ingram Micro Inc., Levi Strauss & Co., McKesson, Oracle, SPX Corporation, Target Corporation, Travelers Insurance, UnitedHealth Group, US Foods, Inc., Walgreen Co.

Navex Hiperos: US Foods, Inc.

Nymity (Privacy): Levi Strauss & Co., Liberty Mutual Group

Radar: Venerable

Red Flag: CDW Corporation

RegEd (Insurance Licensing): Allianz Life Insurance Company of North America, Venerable

ServiceNow: CDW Corporation, FMC Corporation, McKesson

SharePoint: Arrow Electronics, Inc., BearingPoint, British Columbia Investment Management Corporation, CDW Corporation, FMC Corporation, Ingram Micro Inc., McKesson, Oklahoma Gas & Electric Co., UnitedHealth Group, Venerable

Steele Securimate: Arrow Electronics, Inc., DocuSign, TE Connectivity

Thompson Reuters: Abbott Laboratories

OneTrust: Hewlett Packard Enterprise, Levi Strauss & Co.

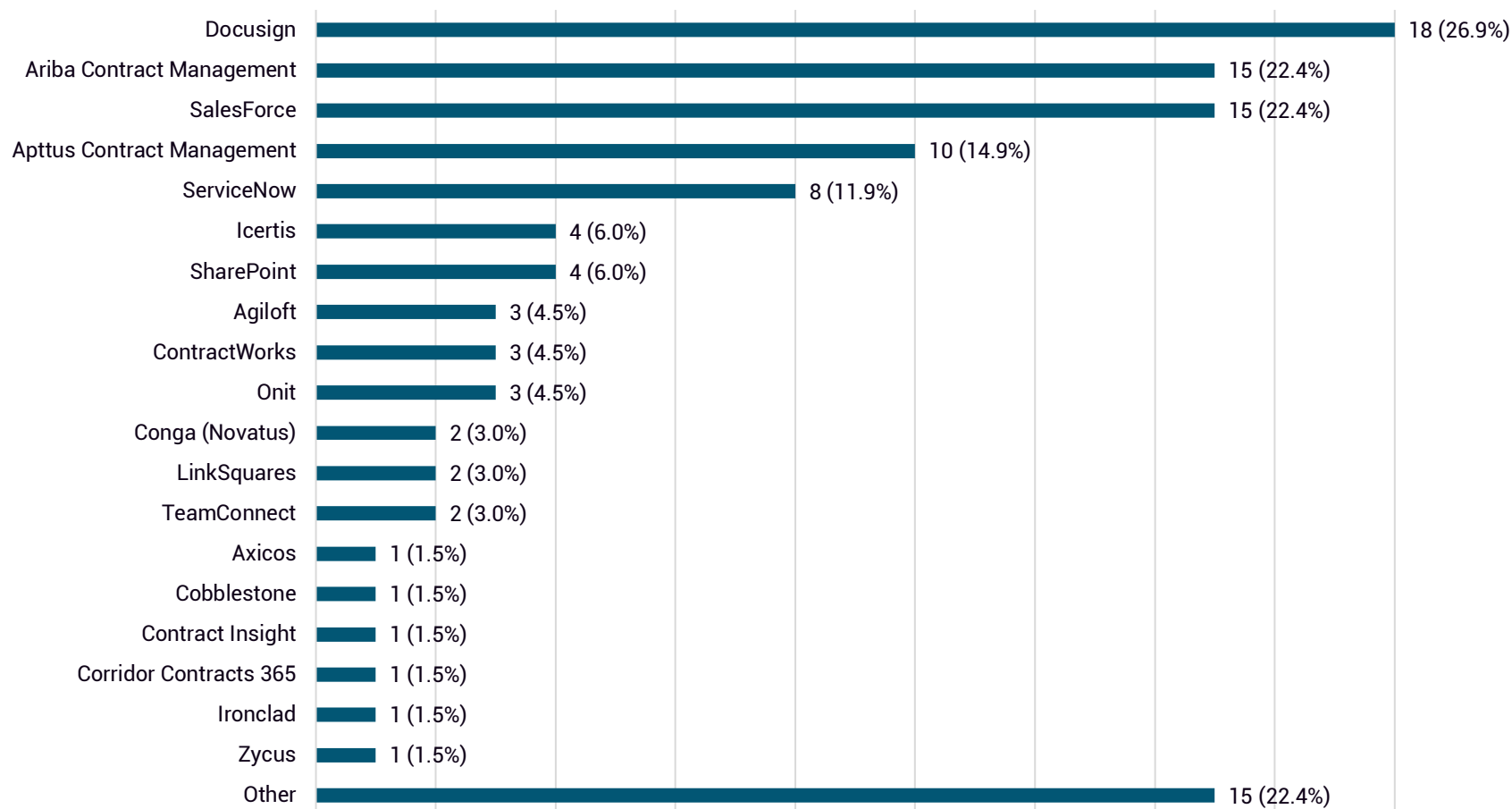
Wolters Kluwer: Allianz Life Insurance Company of North America, Liberty Mutual Group, Securian Financial Group, Inc.

Other compliance office tools reported: AuditBoard (Emera Inc.), Dow Jones (TOTAL S.A.), Dow Jones KYBP (Know Your Business Partner) (FMC Corporation), GAN Integrity & LRN Training Software (SPX Corporation), Gartner (Arrow Electronics, Inc.), Integrity Interactive (Campbell Soup Company), iSight (Hewlett Packard Enterprise), Onit (Archer-Daniels-Midland Company), RiskWorks (Fannie Mae)

Contract Management Tools

Used to support contract lifecycle management, including requesting, authoring, negotiating, approving, signing, analyzing, and storing contracts.

Tools listed in the survey: **29** Tools selected: **19** Companies using these tools: **67**



Tools not selected: Axiom/IRIS, Axserion, Beams Platform, Contract Logix, DocJuris, ICSA Software Blueprint, Laserfiche, Rights Logic, Selectica, Wolters Kluwer CLM Matrix

Who Uses What?

Agiloft: CDW Corporation, Hagerty, PTC Therapeutics, Inc.

Apttus Contract Management: Abbott Laboratories, AbbVie, CoreCivic, DaVita Inc., Hewlett Packard Enterprise, Levi Strauss & Co., McKesson, TriNet USA, Inc., Twilio Inc., Xerox Office of General Counsel

Ariba Contract Management: AbbVie, Align Technology Inc., Bristol-Myers Squibb, Boston Scientific, Campbell Soup Company, Discover Financial Services, eBay Inc., FMC Corporation, Hewlett Packard Enterprise, McKesson, Milliken & Company, Purdue Pharma LP, Travelers Insurance, Volvo Group

Cobblestone: University of Central Florida

Conga (Novatus): Venerable, Emera Inc.

Contract Insight: Biz Law Consult Myanmar

Corridor Contracts 365: PTC Therapeutics, Inc.

Docusign: Allen Institute, BearingPoint, CoreCivic, DocuSign, eBay Inc., Emerson Corporation, Hagerty, Idexx Laboratories, Inc., Liberty Mutual Group, Lyft, PTC Therapeutics, Inc., Quadspire Technologies, Inc., TriNet USA, Inc., Twilio Inc., UnitedHealth Group, US Foods, Inc.

Icertis: AbbVie, Iopco, US Foods, Inc., World Wide Technology

Ironclad: Lyft

LinkSquares: Red Canary, Inc., Twilio Inc.

Onit: Archer-Daniels-Midland Company, McKesson

SalesForce: Au10tix, CoreCivic, Elbit Systems Ltd., Electronic Arts Inc., Hewlett Packard Enterprise, Idexx Laboratories, Inc., Lyft, McKesson, Plex Systems, Inc., Quadspire Technologies, Inc., TriNet USA, Inc., Twilio Inc., UnitedHealth Group, US Foods, Inc.

ServiceNow: Align Technology Inc., Allianz Life Insurance Company of North America, Biz Law Consult Myanmar, Liberty Mutual Group, TriNet USA, Inc., UnitedHealth Group, Western Governors University

SharePoint: Allen Institute, British Columbia Investment Management Corporation, Coast Capital Savings Credit Union, Farm Credit Mid-America

TeamConnect: US Foods, Inc.

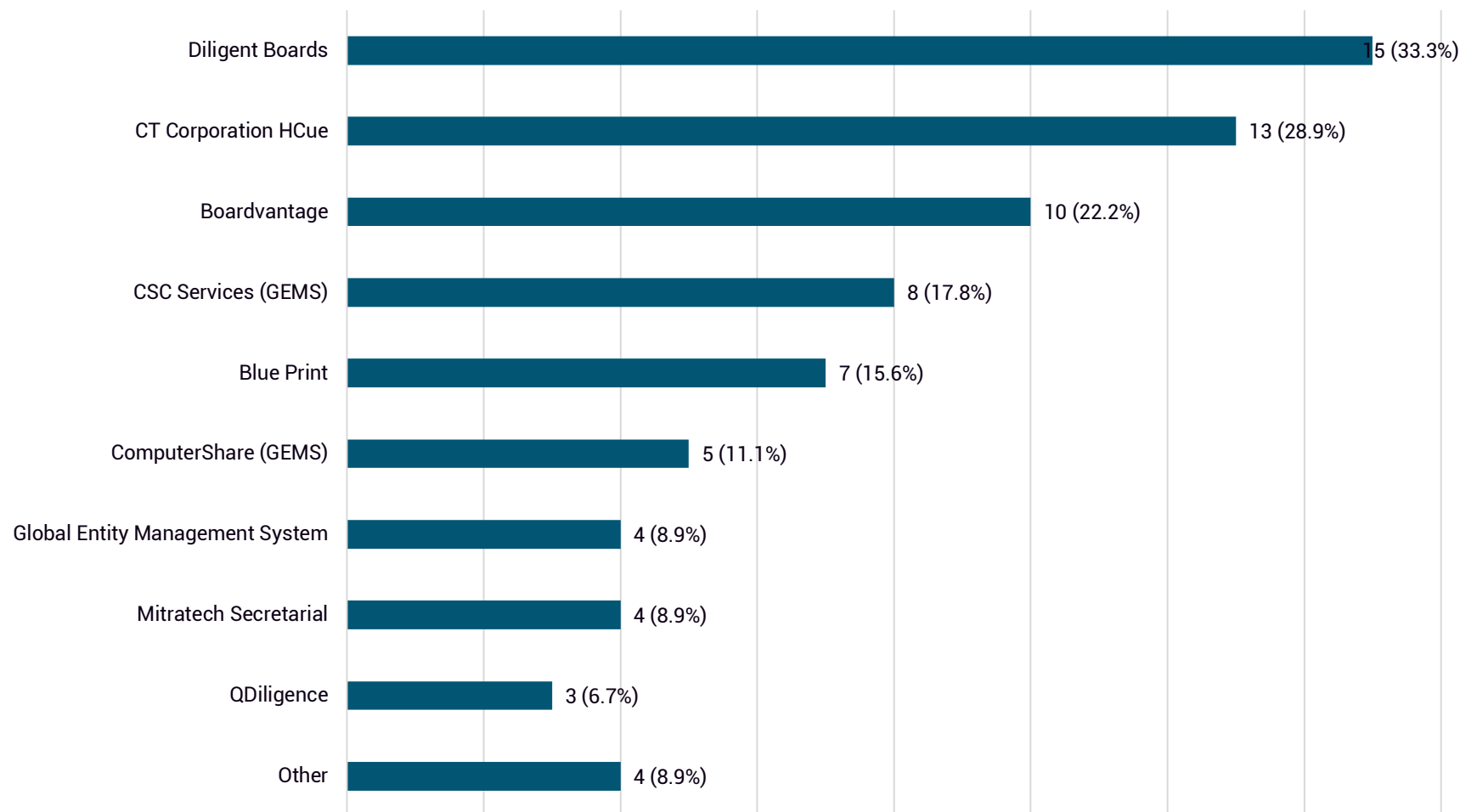
Zycus: TE Connectivity

Other contract management tools reported: ALOE, Contract Express (Quadspire Technologies, Inc.), Contract Express by Thompson Reuters, ConvergePoint (Heico Companies, L.L.C.), custom developed, EtQ Reliance, Home Grown (Expedia), Jaeger, Knowliah (European), Oracle CRM (Oracle), SAP (Target Corporation), Seal (Lyft), Spring CM, TAP

Corporate Secretary Tools

Used to manage board governance cycles including online board books, event scheduling, collaboration and reporting.

Tools listed in the survey: **10** Tools selected: **9** Companies using these tools: **45**



Tool not selected: Cogency

Who Uses What?

Blue Print: [Astellas Pharma US LLC](#), [BearingPoint](#), [Biz Law Consult Myanmar](#), [Emerson Corporation](#), [Liberty Mutual Group](#), [Lyft](#)

Boardvantage: [Abbott Laboratories](#), [CDW Corporation](#), [Emerson Corporation](#), [Hearst](#), [Hewlett Packard Enterprise](#), [McKesson](#), [Mutual of Omaha Insurance Co.](#), [PTC Therapeutics, Inc.](#), [Travelers Insurance](#), [Walgreen Co.](#)

ComputerShare (GEMS): [DocuSign](#), [Hewlett Packard Enterprise](#), [MassMutual](#), [McKesson](#), [Merck & Co., Inc.](#)

CSC Services (GEMS): [Expedia](#), [Liberty Mutual Group](#), [MassMutual](#), [McKesson](#), [PTC Therapeutics, Inc.](#), [TE Connectivity](#), [Travelers Insurance](#), [Tremont Asset Management LLC](#)

CT Corporation HCue: [AbbVie](#), [Allianz Life Insurance Company of North America](#), [CoreCivic](#), [John Deere Financial](#), [Empower Retirement](#), [FMC Corporation](#), [Heico Companies, L.L.C.](#), [Hewlett Packard Enterprise](#), [Lyft](#), [McKesson](#), [SPX Corporation](#), [Target Corporation](#), [Travelers Insurance](#)

Diligent Boards: [Allianz Life Insurance Company of North America](#), [Blackbaud, Inc.](#), [Campbell Soup Company](#), [Empower Retirement](#), [Farm Credit Mid-America](#), [FloQast, Inc.](#), [FMC Corporation](#), [Hagerty](#), [Ingram Micro Inc.](#), [MassMutual](#), [Milliken & Company](#), [Merck & Co., Inc.](#), [PTC Therapeutics, Inc.](#), [Securian Financial Group, Inc.](#), [Venerable](#)

Global Entity Management System: [AbbVie](#), [Abbott Laboratories](#), [CDW Corporation](#), [MassMutual](#), [McKesson](#)

Mitrastech Secretarial: [Au10tix](#), [AbbVie](#), [CDW Corporation](#), [Travelers Insurance](#)

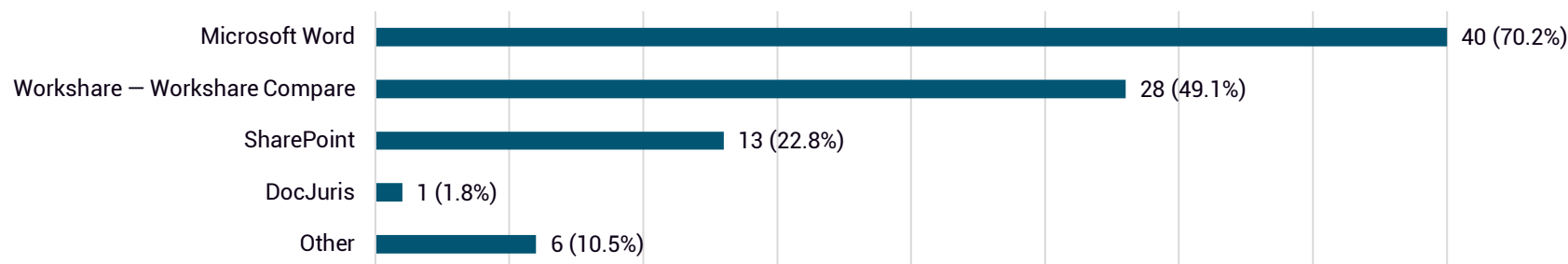
QDiligence: [Au10tix](#), [CDW Corporation](#), [Elbit Systems Ltd.](#), [Travelers Insurance](#)

Other corporate secretary tools reported: [Dilistrust \(TOTAL S.A.\)](#), [Home Grown \(Dassault Systemes Americas Corp.\)](#), [Legal Studio \(Levi Strauss & Co.\)](#)

Document Comparison Tools

Used to identify changes between two versions of the same document for the purposes of document editing and review.

Tools listed in the survey: **7** Tools selected: **4** Companies using these tools: **57**



Tools not selected: Adsensa, Ironclad, Laserfiche

Who Uses What?

DocJuris: Tasktop Technologies Incorporated

Microsoft Word: AbbVie, Archer-Daniels-Midland Company, Allen Institute, Allianz Life Insurance Company of North America, Au10tix, British Columbia Investment Management Corporation, BearingPoint, Biz Law Consult Myanmar, CDW Corporation, Chick-fil-A, Inc., Electrolux, Emerson Corporation, Fannie Mae, Farm Credit Mid-America, Hagerty, Hearst, Ingram Micro Inc., International Paper Company, John Deere Financial, Merck & Co., Inc., Quadspire Technologies, Inc., Red Canary, Inc., Root Insurance Co., SPX Corporation, Tasktop Technologies Incorporated, Travelers Insurance, University of Central Florida, World Wide Technology

SharePoint: AbbVie, British Columbia Investment Management Corporation, BearingPoint, Biz Law Consult Myanmar, CDW Corporation, Emerson Corporation, Ingram Micro Inc., John Deere Financial

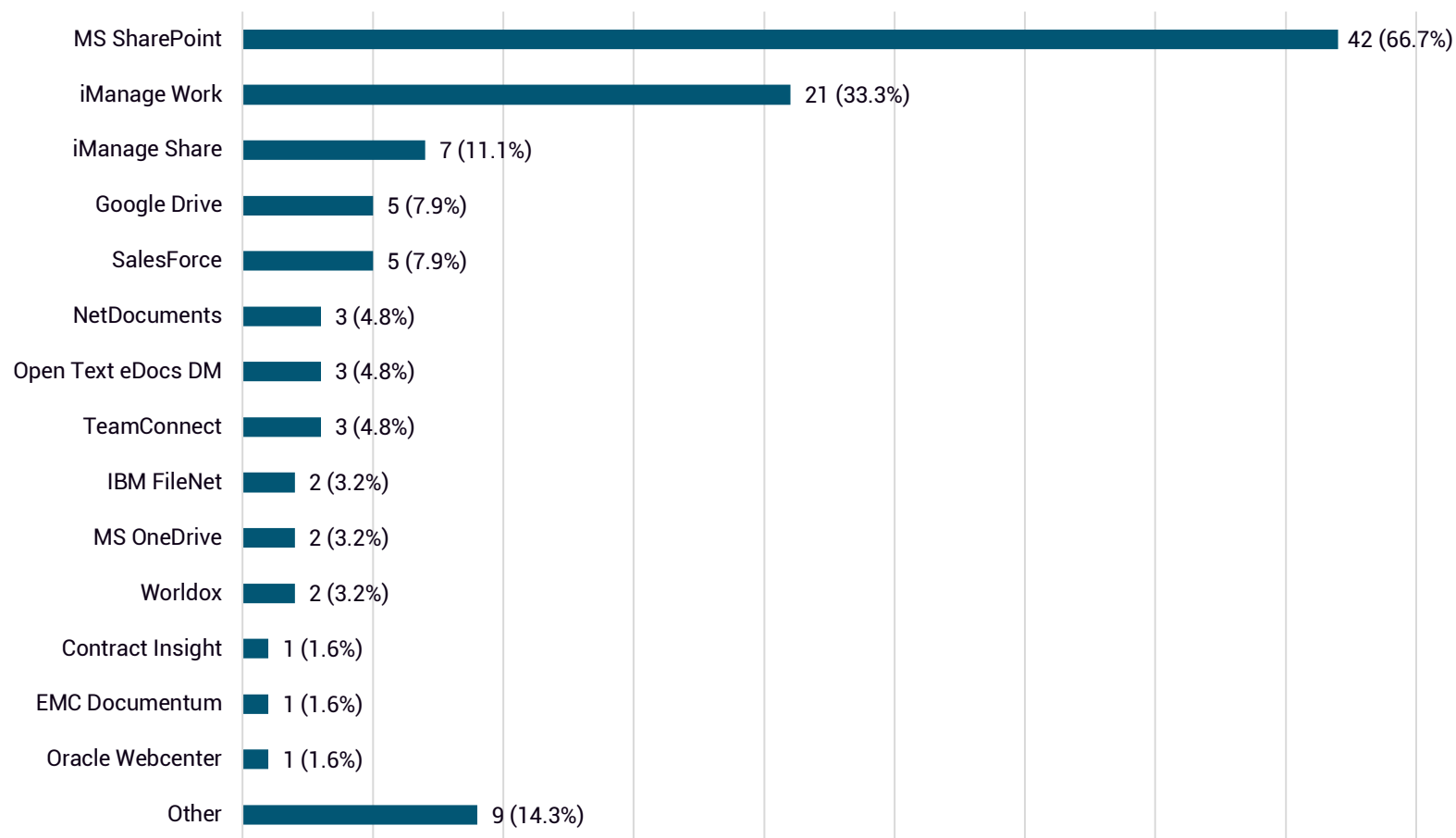
Workshare - Workshare Compare: AbbVie, Archer-Daniels-Midland Company, British Columbia Investment Management Corporation, Campbell Soup Company, Chick-fil-A, Inc., Coast Capital Savings Credit Union, DaVita Inc., Emera Inc., Fannie Mae, FloQast, Inc., Hearst, Hoar Construction, John Deere Financial, Mass General Brigham, MassMutual, McKesson, Merck & Co., Inc., Mutual of Omaha Insurance Co., Oracle, Target Corporation, TIAA, Travelers Insurance, Securian Financial Group, Inc., Volvo Group, Walgreen Co.

Other document comparison tools reported: Adobe Acrobat (eBay Inc.), Contract Express and Documill (Quadspire Technologies, Inc.), DocuSign (Idexx Laboratories, Inc.), iManage Compare Features (Travelers Insurance), Litera (DocuSign), Worldox (Electrolux)

Document Management Tools

Used to manage, track and store digital documents and email, and reduce paper.

Tools listed in the survey: **21** Tools selected: **14** Companies using these tools: **63**



Tools not selected: DM - Practice master, DocJuris, Enterprise Connect, iManage RAVN Insight, Laserfiche, Proprietary System for WORM, Quip

Who Uses What?

Contract Insight: [Biz Law Consult Myanmar](#)

Google Drive: [Biz Law Consult Myanmar](#), Electronic Arts Inc., [FloQast, Inc.](#), Tasktop Technologies Incorporated, US Foods, Inc.

IBM FileNet: DaVita Inc.

iManage Share: [Campbell Soup Company](#), [Chick-fil-A, Inc.](#), PPL Services Corporation, PTC Therapeutics, Inc., [TIAA](#), [Travelers Insurance](#), Volvo Group

iManage Work: Abbott Laboratories, [AbbVie](#), Allegis Group, Inc., [Boston Scientific](#), [Campbell Soup Company](#), [Charter Communications Legal Department](#), [Chick-fil-A, Inc.](#), eBay Inc., Electronic Arts Inc., [Fannie Mae](#), [Hearst](#), Liberty Mutual Group, [Mass General Brigham](#), [MassMutual](#), [Meredith Corporation](#), Mutual of Omaha Insurance Co., PPL Services Corporation, PTC Therapeutics, Inc., [TIAA](#), [Travelers Insurance](#), UnitedHealth Group

MS OneDrive: [Hagerty](#), Bristol-Myers Squibb

MS SharePoint: Abbott Laboratories, [AbbVie](#), Allen Institute, Allianz Life Insurance Company of North America, Arrow Electronics, Inc., [British Columbia Investment Management Corporation](#), [Biz Law Consult Myanmar](#), [Boston Scientific](#), Bristol-Myers Squibb, [CDW Corporation](#), [Chick-fil-A, Inc.](#), Coast Capital Savings Credit Union, DaVita Inc., [Discover Financial Services](#), eBay, Inc., [Electrolux](#), Emerson Corporation, [Fannie Mae](#), [Hagerty](#), [Hewlett Packard Enterprise](#), [Idemia Identity & Security USA LLC](#), [Idexx Laboratories, Inc.](#), [Ingram Micro Inc.](#), [John Deere Financial](#), [MassMutual](#), [Merck & Co., Inc.](#), Milliken & Company, Mutual of Omaha Insurance Co., PTC Therapeutics, Inc., Purdue Pharma LP, [TIAA](#), [TriNet USA, Inc.](#), UnitedHealth Group, US Foods, Inc., Volvo Group, [Walgreen Co.](#)

NetDocuments: [Iopco](#), [McKesson](#), Milliken & Company

Open Text eDocs DM: [Target Corporation](#), FedEx Ground Package System, Inc.

Oracle Webcenter: [Oracle](#)

SalesForce: Electronic Arts Inc., [Quadspire Technologies, Inc.](#), Tasktop Technologies Incorporated, US Foods, Inc.

TeamConnect: [Chick-fil-A, Inc.](#), Mutual of Omaha Insurance Co., US Foods, Inc.

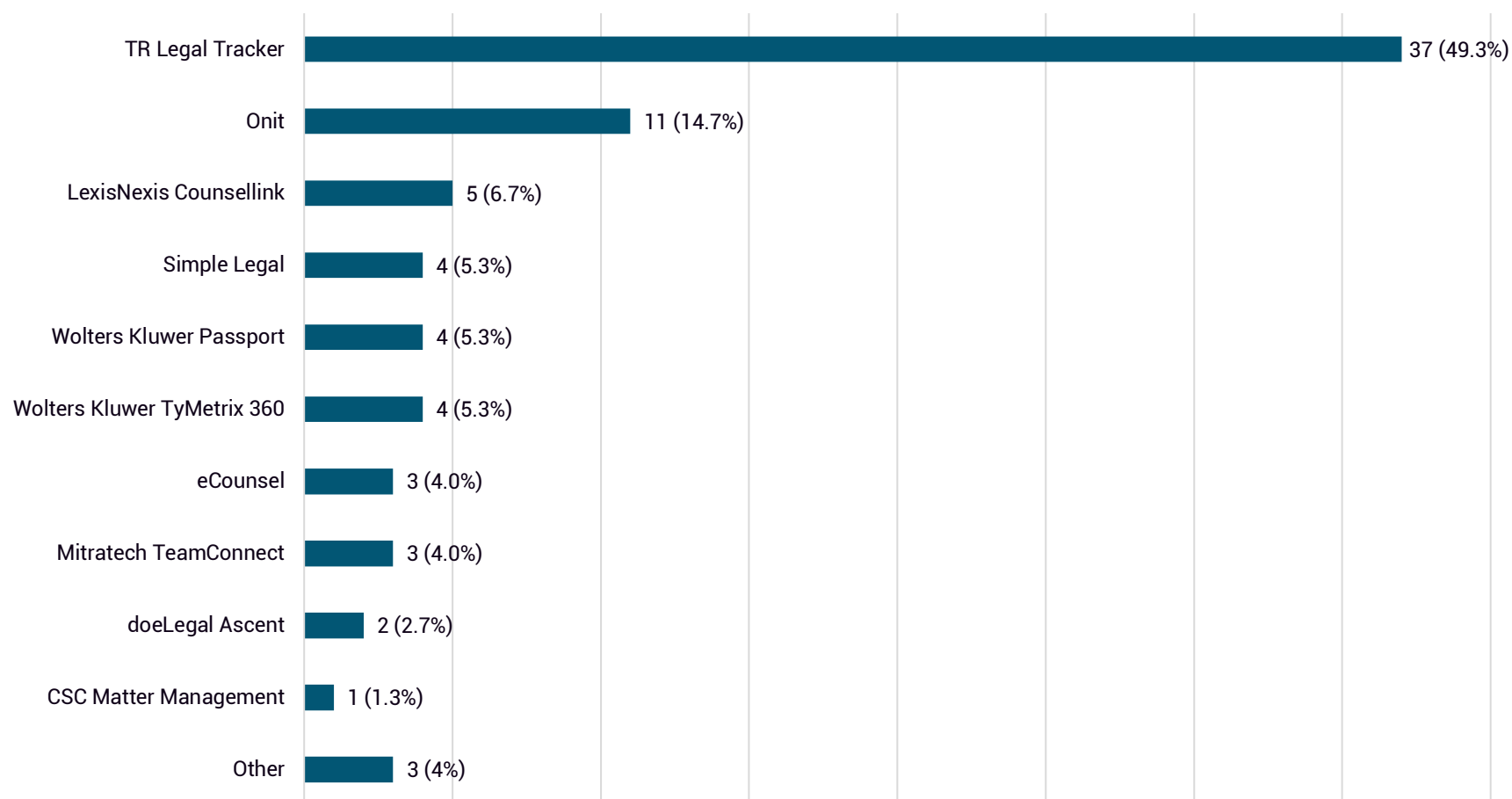
Worldox: [Electrolux](#), [Marathon Petroleum Corporation](#).

Other document management tools reported: ALOE ([Bigfork Technologies, LLC](#)) , App4legal ([Idemia Identity & Security USA LLC](#)), ContractLogix ([GOJO Industries, Inc.](#)), DocuSign ([Idexx Laboratories, Inc.](#)), EtQ Reliance ([Idexx Laboratories, Inc.](#)), Home Grown ([Dassault Systemes Americas Corp.](#)), First to File ([Bristol-Myers Squibb](#)), [Oracle UCM \(Oracle\)](#), Perceptive Content ([TriNet USA, Inc.](#))

eBilling Tools

Used to electronically submit and review invoices from outside counsel or other external entities over the internet to organizations and support the processing of invoice payments electronically.

Tools listed in the survey: **16** Tools selected: **10** Companies using these tools: **75**



Tools not selected: AIMS, Bottomline Tech, Corridor, Law Manager, Mitratesch Lawtrac, MyBuy Module

Who Uses What?

CSC Matter Management: [Ingram Micro Inc.](#)

doeLegal Ascent: [Emerson Corporation](#), [Fannie Mae](#),

eCounsel: [Abbott Laboratories](#), [CDW Corporation](#), [Marathon Petroleum Corporation](#)

LexisNexis Counsellink: [Electrolux](#), [Liberty Mutual Group](#), [Oklahoma Gas & Electric Co.](#), [Resurgent Capital Services, LP](#), [Travelers Insurance](#)

Mitratech TeamConnect: [Hewlett Packard Enterprise](#), [Purdue Pharma LP](#), [Xerox Office of General Counsel](#)

Onit: [Archer-Daniels-Midland Company](#), [Bristol-Myers Squibb](#), [DaVita Inc.](#), [Astellas Pharma US LLC](#), [Hearst](#), [FedEx Ground Package System, Inc.](#), [John Deere Financial](#), [MassMutual](#), [TIAA](#)

Simple Legal: [DocuSign](#), [GOJO Industries, Inc.](#), [Meredith Corporation](#), [Twilio Inc.](#)

TR Legal Tracker: [AbbVie](#), [Align Technology Inc.](#), [Allegis Group, Inc.](#), [Allianz Life Insurance Company of North America](#), [Blackbaud, Inc.](#), [Boston Scientific](#), [Campbell Soup Company](#), [Charter Communications Legal Department](#), [CoreCivic](#), [Discover Financial Services](#), [Electronic Arts Inc.](#), [Empower Retirement](#), [Expedia](#), [Farm Credit Mid-America](#), [FMC Corporation](#), [Hagerty](#), [Heico Companies, L.L.C.](#), [Levi Strauss & Co.](#), [Idexx Laboratories, Inc.](#), [Iopco](#), [Lifetime Products, Inc.](#), [Lyft](#), [Mass General Brigham](#), [McKesson](#), [Milliken & Company](#), [Oracle](#), [PPL Services Corporation](#), [PTC Therapeutics, Inc.](#), [Quadspire Technologies, Inc.](#), [Securian Financial Group, Inc.](#), [SPX Corporation](#), [Target Corporation](#), [TriNet USA, Inc.](#), [US Foods, Inc.](#), [Vovlo Group](#)

Wolters Kluwer Passport: [AbbVie](#), [Lowe's](#), [Walgreen Co.](#)

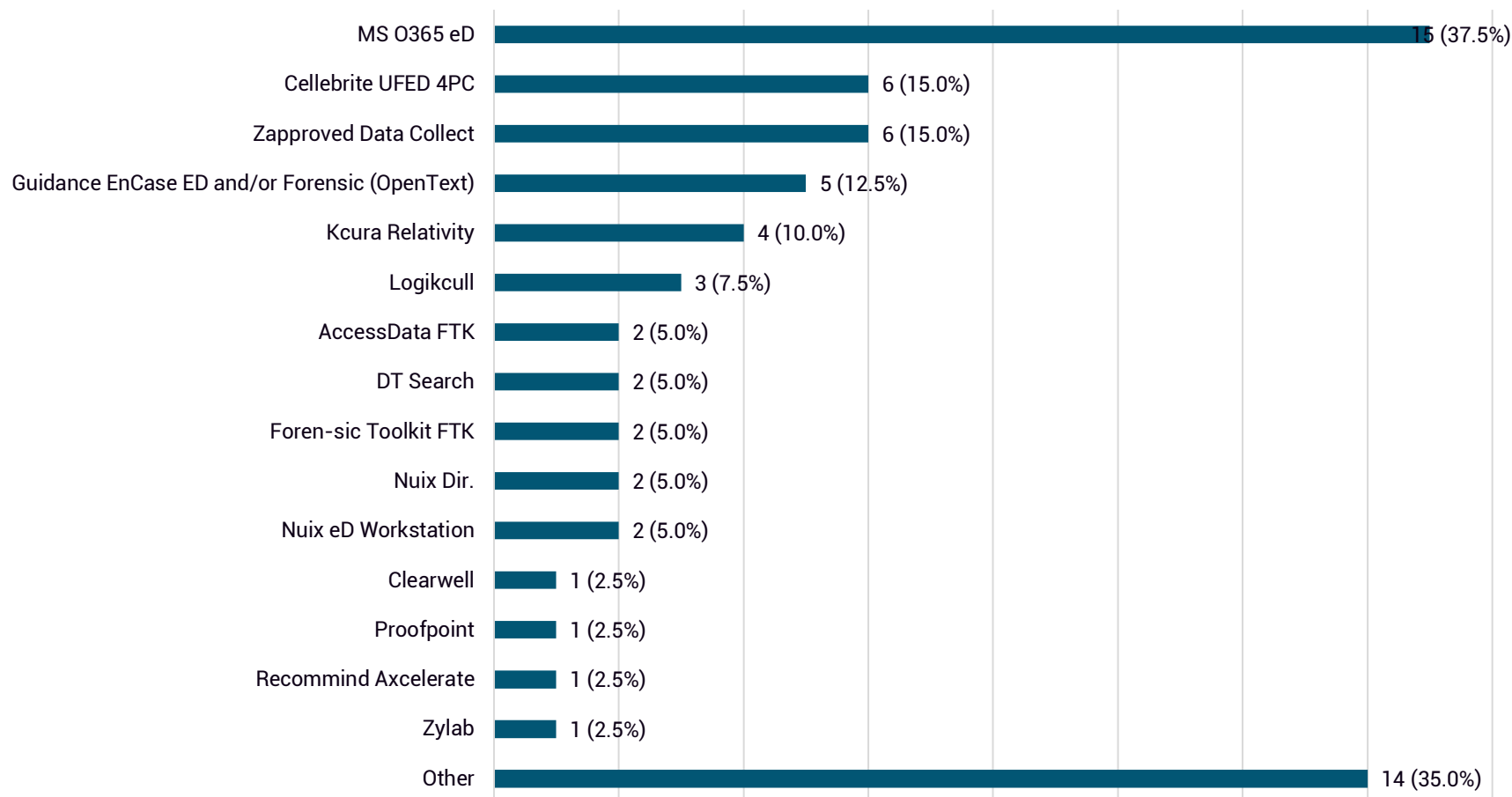
Wolters Kluwer TyMetrix 360: [eBay Inc.](#), [International Paper Company](#), [Merck & Co., Inc.](#), [TE Connectivity](#)

Other eBilling tools reported: [Busylamp \(Iopco\)](#), [Mineral Tree \(Root Insurance Co.\)](#), [MS SharePoint \(British Columbia Investment Management Corporation\)](#)

eDiscovery – Identification/Preservation/Collection Tools

Used to identify, preserve, collect, analyze, process and/or review data for discovery in legal proceedings and support the phases of the Electronic Discovery Reference Model.

Tools listed in the survey: **22** Tools selected: **15** Companies using these tools: **40**



Tools not selected: AccessData Ed, Compliance Data Solution, EMC Kazeon, Ipro, Nebula (KLDISCOVERY), Sherpa Software, Discovery Attender, X1 eDiscovery

Who Uses What?

AccessData FTK: Abbott Laboratories, [Oracle](#)

Cellebrite UFED 4PC: [AbbVie](#), [Astellas Pharma US LLC](#), Liberty Mutual Group, [International Paper Company](#), [Oracle](#), Securian Financial Group, Inc.

Clearwell: [CoreCivic](#)

DT Search: [Oracle](#), Purdue Pharma LP

Forensic Toolkit FTK: [AbbVie](#), [Oracle](#)

Guidance EnCase ED and/or Forensic (OpenText): Allegis Group, Inc., [International Paper Company](#), Mass General Brigham, [Oracle](#), [TIAA](#)

Kcura Relativity: Liberty Mutual Group, Purdue Pharma LP, [TIAA](#)

Logikcull: Purdue Pharma LP, Twilio Inc.

MS 0365 eD: [Astellas Pharma US LLC](#), Bristol-Myers Squibb, [Cvent](#), [Heico Companies, L.L.C.](#), [Merck & Co., Inc.](#), Milliken & Company, [Oracle](#), Purdue Pharma LP, Securian Financial Group, Inc., [Target Corporation](#), [TE Connectivity](#), [TIAA](#), US Foods, Inc., [Walgreen Co.](#)

Nuix Dir.: [AbbVie](#), [Archer-Daniels-Midland Company](#)

Nuix eD Workstation: Abbott Laboratories, [AbbVie](#)

Proofpoint: Purdue Pharma LP

Recommind Axcelerate: [Merck & Co., Inc.](#)

Zaproved Data Collect: Abbott Laboratories, [Boston Scientific](#), [CDW Corporation](#), [Discover Financial Services](#), [Fannie Mae](#), [Travelers Insurance](#)

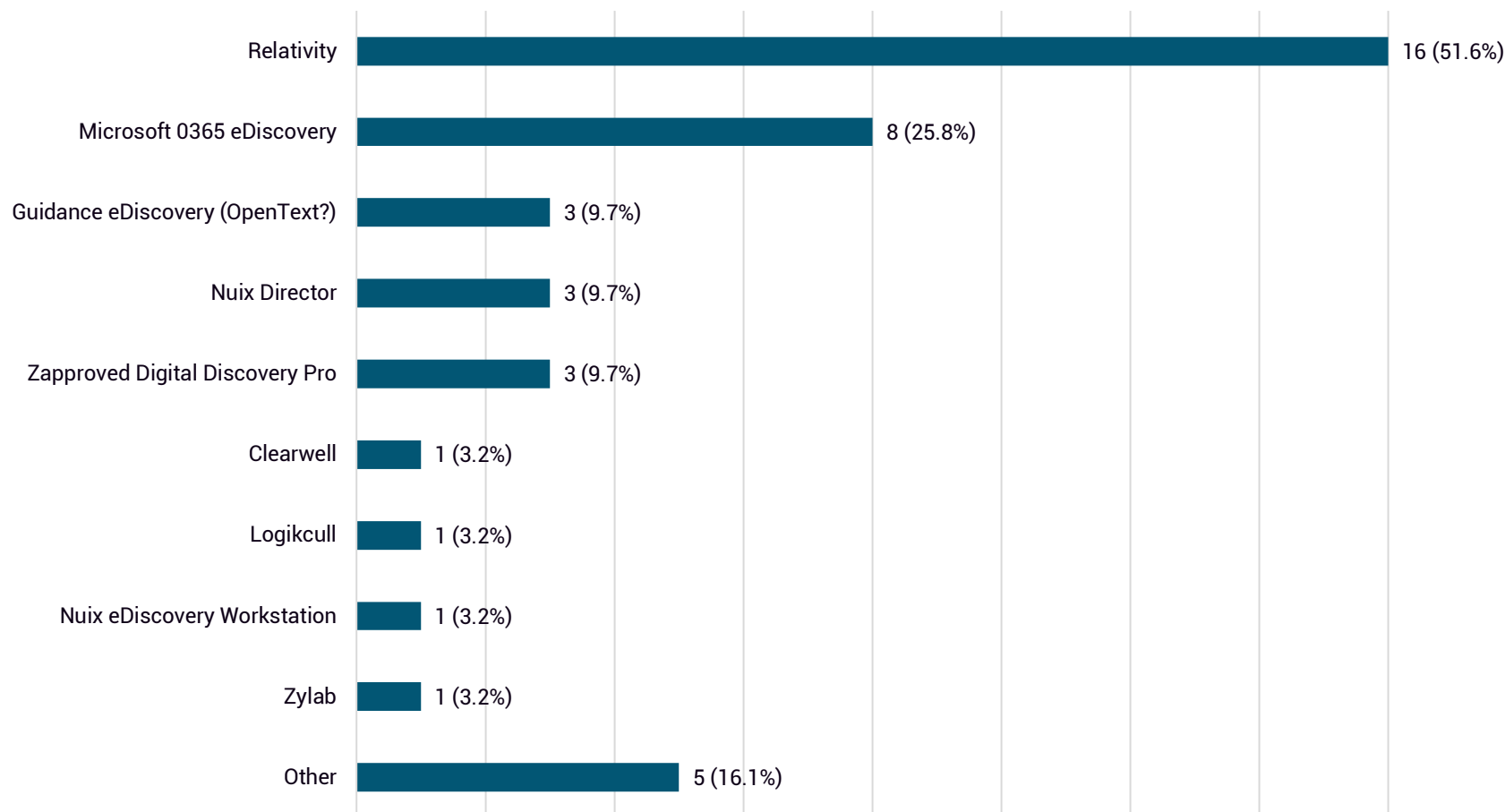
Zylab: [Campbell Soup Company](#)

Other eDiscovery – identification/preservation/collection tools reported: Exterro IPP and Collection modules ([Hearst](#)), Google Vault ([Red Canary, Inc.](#)), Harvester and Mount Image Pro (Abbott Laboratories), Legility (fka nventus) (Transunion), Legility EverLaw ([MassMutual](#)), Microsoft (Idexx Laboratories, Inc.), Microsoft PowerShell and Zaproved Legal Hold Pro ([International Paper Company](#)), Not sure ([Lyft](#)), Oxygen/Macquisition ([Oracle](#)), Relativity, Relativity One (RelOne), TR's eDiscovery Point ([Quadspire Technologies, Inc.](#)), various internally-developed tools ([Merck & Co., Inc.](#))

eDiscovery – Processing/Analysis Tools

Used to support processing and analysis of electronic discovery in legal functions.

Tools listed in the survey: **15** Tools selected: **9** Companies using these tools: **31**



Tools not selected: AccessData eDiscovery, Compliance Data Solutions, EMC Kazeon, Ipro, Nebula (KLDISCOVERY), Recommind Axcelerate

Who Uses What?

Clearwell: Boston Scientific

Guidance eDiscovery (OpenText?): Lowe's, Oracle

Logikcull: Twilio Inc.

Microsoft 0365 eDiscovery: Astellas Pharma US LLC, Milliken & Company, Oracle, Securian Financial Group, Inc., TIAA, US Foods, Inc., Walgreen Co.

Nuix Director: AbbVie, Archer-Daniels-Midland Company, International Paper Company

Nuix eDiscovery: Workstation, Abbott Laboratories

Relativity: Abbott Laboratories, AbbVie, Bristol-Myers Squibb, John Deere Financial, FedEx Ground Package System, Inc., Hearst, International Paper Company, Liberty Mutual Group, Lowe's, Mass General Brigham, MassMutual, Oracle, Purdue Pharma LP, TIAA

Zapproved Digital Discovery Pro: Abbott Laboratories, CDW Corporation, Travelers Insurance

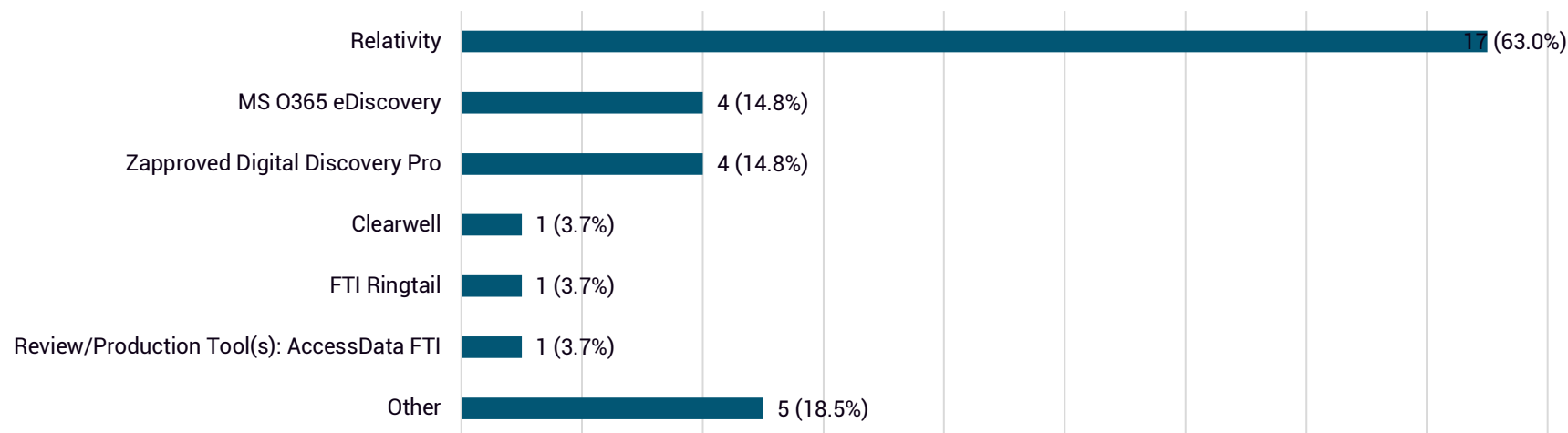
Zylab: Campbell Soup Company

Other eDiscovery — processing/analysis tools reported: eCapture (Oracle), Everlaw and Relativity via KLD (Hearst), Not Sure (Lyft), TR eDiscovery Point (Quadspire Technologies, Inc.)

eDiscovery – Review/Production Tools

Used to support review and production of electronic discovery in legal functions.

Tools listed in the survey: **14** Tools selected: **6** Companies using these tools: **27**



Tools not selected: Compliance Data Solutions, EMC Kazeon, Guidance eDiscovery, Ipro, Logikcull, Nebula (KLDDiscover), Recommind Axcelerate, Zylab

Who Uses What?

AccessData FTI: John Deere Financial

Clearwell: Boston Scientific

FTI Ringtail: John Deere Financial

MS O365 eDiscovery: Astellas Pharma US LLC, Securian Financial Group, Inc., Walgreen Co.

Relativity: Abbott Laboratories, AbbVie, Archer-Daniels-Midland Company, Bristol-Myers Squibb, John Deere Financial, Fannie Mae, FedEx Ground Package System, Inc., Hearst, International Paper Company, Liberty Mutual Group, Mass General Brigham, MassMutual, Oracle, Purdue Pharma LP, TIAA

Zapproved Digital Discovery Pro: Abbott Laboratories, CDW Corporation, Fannie Mae, Travelers Insurance

Other eDiscovery – review/production tools reported: Everlaw and Relativity via KLD (Hearst), Fusion (Marathon Petroleum Corporation), Legility (fka Inventus), Not Sure (Lyft), TR's eDiscovery Point (Quadspire Technologies, Inc.)

eSignature Tools

Used for electronic sending, signing, and managing of agreements.

Tools listed in the survey: **3** Tools selected: **2** Companies using these tools: **84**



Tool not selected: Hello Sign Integrations

Who Uses What?

Adobe Sign: [AbbVie](#), [Biz Law Consult Myanmar](#), [Blackbaud, Inc.](#), [Bristol-Myers Squibb](#), [CDW Corporation](#), [eBay Inc.](#), [Electrolux](#), [Electronic Arts Inc.](#), [Emera Inc.](#), [Expedia](#), [Fannie Mae](#), [FedEx Ground Package Systems, Inc.](#), [GOJO Industries, Inc.](#), [Heico Companies, L.L.C.](#), [Hewlett Packard Enterprise](#), [Iconex](#), [Idexx Laboratories, Inc.](#), [International Paper Company](#), [Lowe's Companies, Inc.](#), [Merck & Co., Inc.](#), [Milliken & Co., Inc.](#), [PPL Services Corporation](#), [Target Corporation](#), [TD Bank – Legal](#), [Toronto-Dominion Bank](#), [Tremont Asset Management LLC](#), [University of Central Florida](#), [Volvo Group](#), [Western Governors University](#), [Workplace Safety and Insurance Board Ontario](#), [World Wide Technology](#)

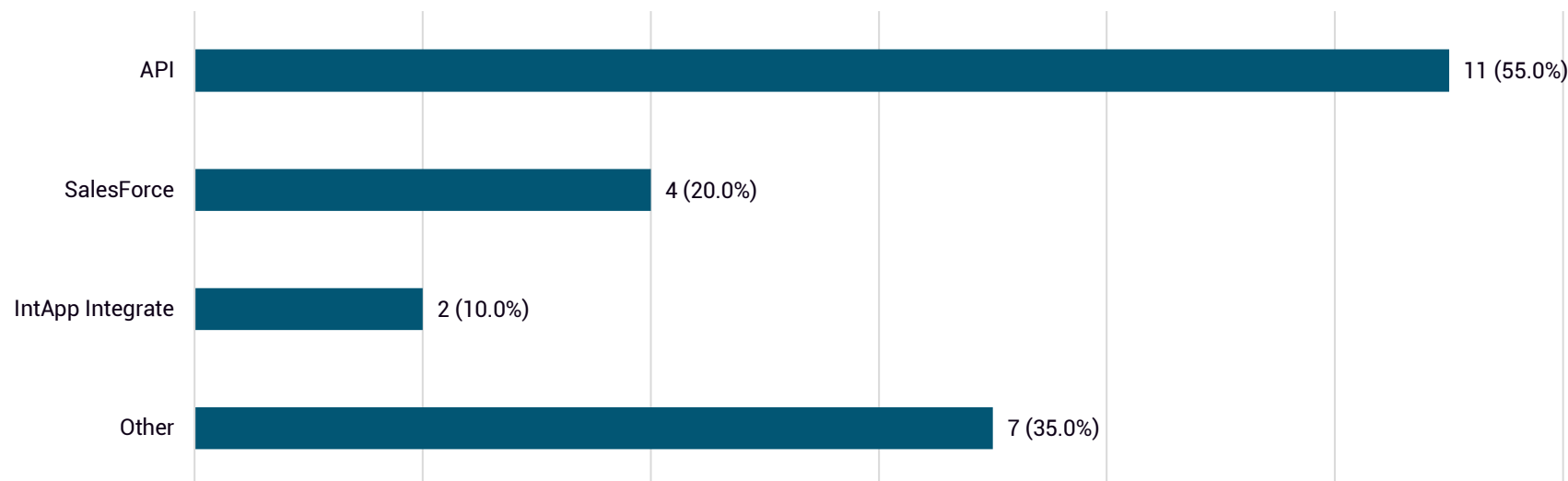
DocuSign Electronic Signature: [Abbott Laboratories](#), [Archer-Daniels-Midland Company](#), [Allianz Life Insurance Company of North America](#), [Align Technology Inc.](#), [AppFolio, Inc.](#), [Au10tix](#), [British Columbia Investment Management Corporation](#), [Bigfork Technologies, LLC](#), [Boston Scientific](#), [Campbell Soup Company](#), [Chick-fil-A, Inc.](#), [CoreCivic](#), [Cvent](#), [Dassault Systems Americas Corp.](#), [DaVita Inc.](#), [De Lage Landen Financial Services, Inc.](#), [John Deere Financial](#), [Discover Financial Services](#), [DocuSign](#), [eBay Inc.](#), [Elbit Systems Ltd.](#), [Empower Retirement](#), [Expedia](#), [Fannie Mae](#), [Farm Credit Mid-America](#), [FedEx Ground Package System, Inc.](#), [FMC Corporation](#), [GOJO Industries, Inc.](#), [Hagerty](#), [Hearst](#), [Heico Companies, L.L.C.](#), [John Deere Financial](#), [Idexx Laboratories, Inc.](#), [Ingram Micro Inc.](#), [Liberty Mutual Group](#), [Lyft](#), [Iopco](#), [MassMutual](#), [McKesson](#), [Meredith Corporation](#), [Oracle](#), [Plex Systems, Inc.](#), [PTC Therapeutics, Inc.](#), [Purdue Pharma LP](#), [Quadspire Technologies, Inc.](#), [Red Canary, Inc.](#), [Root Insurance Co.](#), [Securian Financial Group, Inc.](#), [Tasktop Technologies Incorporated](#), [TD Bank – Legal](#), [TE Connectivity](#), [TIAA](#), [Toronto-Dominion Bank](#), [Travelers Insurance](#), [Twilio Inc.](#), [UnitedHealth Group](#), [US Foods, Inc.](#), [Workplace Safety and Insurance Board Ontario](#)

Other eSignature tools reported: [Cobblestone e-sign \(University of Central Florida\)](#), [Conga \(Emera Inc.\)](#), [ContractWorks \(AppFolio, Inc.\)](#), [OneSpan \(Coast Capital Savings Credit Union\)](#), [Universign \(TOTAL S.A.\)](#)

Integration Tools

Used to provide a way to connect and manage software applications and automate a variety of critical business processes.

Tools listed in the survey: **4** Tools selected: **3** Companies using these tools: **20**



Tool not selected: SeeUnity Suite

Who Uses What?

API: [Bigfork Technologies, LLC](#), [Biz Law Consult Myanmar](#), [CDW Corporation](#), Dassault Systemes Americas Corp., Electronic Arts Inc., [Hewlett Packard Enterprise](#), Liberty Mutual Group, PTC Therapeutics, Inc., [Target Corporation](#), [Travelers Insurance](#), [Xerox Office of General Counsel](#)

IntApp Integrate: Abbott Laboratories, [AbbVie](#)

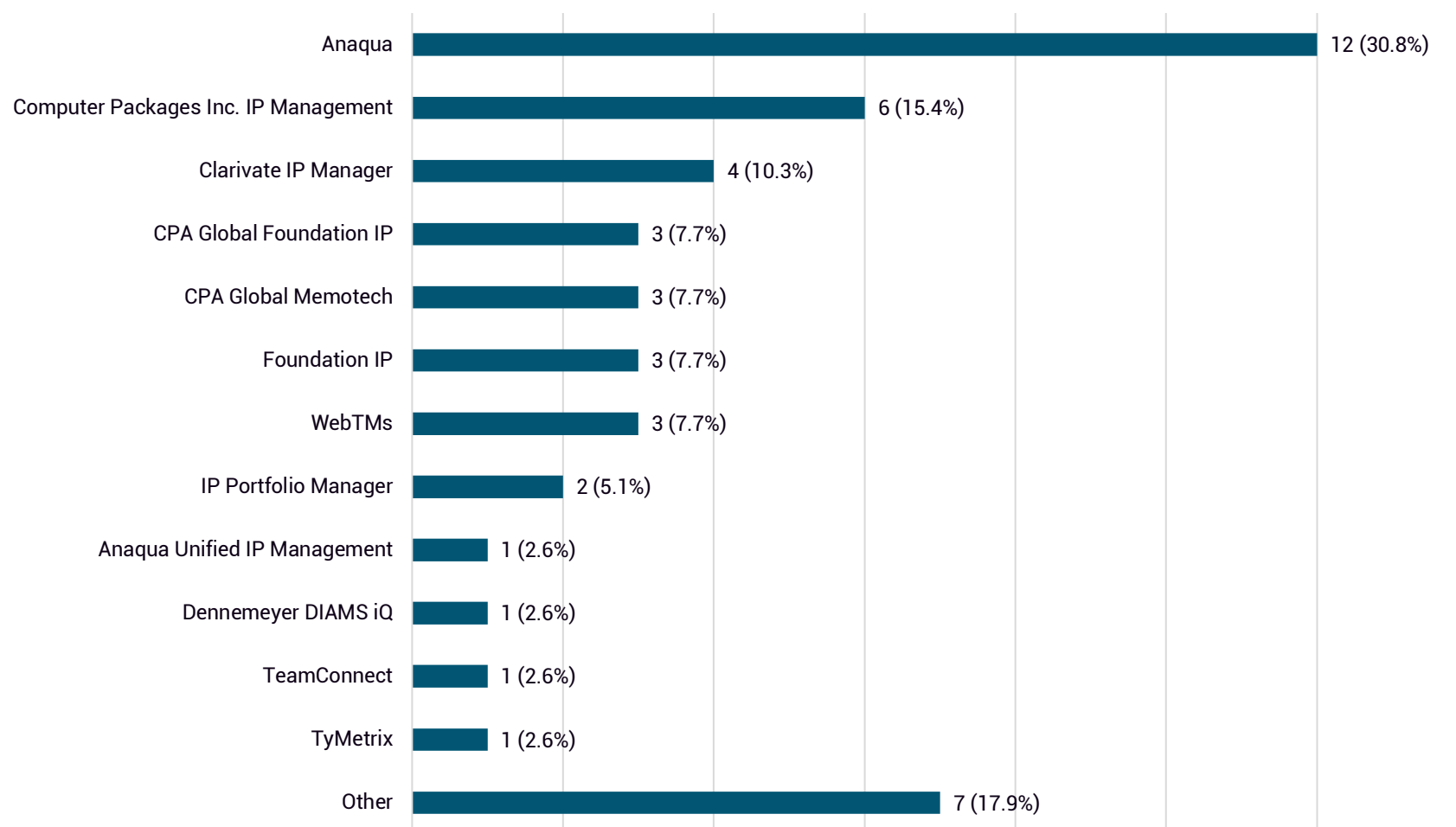
SalesForce: [Hewlett Packard Enterprise](#), Purdue Pharma LP, [World Wide Technology](#)

Other integration tools reported: ALOE and Zappier ([Bigfork Technologies, LLC](#)), ESB (Dassault Systemes Americas Corp.), Fusion Middleware (Electronic Arts Inc.), Not Sure ([Lyft](#)), [Oracle](#) tools ([Oracle](#)), ThinkSmart (Idexx Laboratories, Inc.)

IP Management Tools

Used to track and manage IP portfolios (Patents and Trademarks), provide deadline and docketing support, which incorporates workflow for proper IP management and process annuity payments.

Tools listed in the survey: **13** Tools selected: **12** Companies using these tools: **39**



Tool not selected: Patrix Patricia

Who Uses What?

Anaqua: Archer-Daniels-Midland Company, Astellas Pharma US LLC, Charter Communications Legal Department, Emerson Corporation, Hewlett Packard Enterprise, IHG, International Paper Company, Levi Strauss & Co., PTC Therapeutics, Inc., Target Corporation, Xerox Office of General Counsel

Anaqua Unified IP Management: Purdue Pharma LP

Clarivate IP Manager: Abbott Laboratories, AbbVie, Emerson Corporation, Merck & Co., Inc.

Computer Packages Inc. IP: Management, AbbVie, Bristol-Myers Squibb, John Deere Financial, FMC Corporation, Milliken & Company, Walgreen Co.

CPA Global Foundation IP: Boston Scientific, Expedia, Fannie Mae

CPA Global Memotech: Au10tix, Bristol-Myers Squibb, Elbit Systems Ltd., TE Connectivity

Dennemeyer DIAMS iQ: FMC Corporation

Foundation IP: Align Technology Inc., Oracle, Travelers Insurance

IP Portfolio Manager: Biz Law Consult Myanmar, McKesson

TeamConnect: Xerox Office of General Counsel

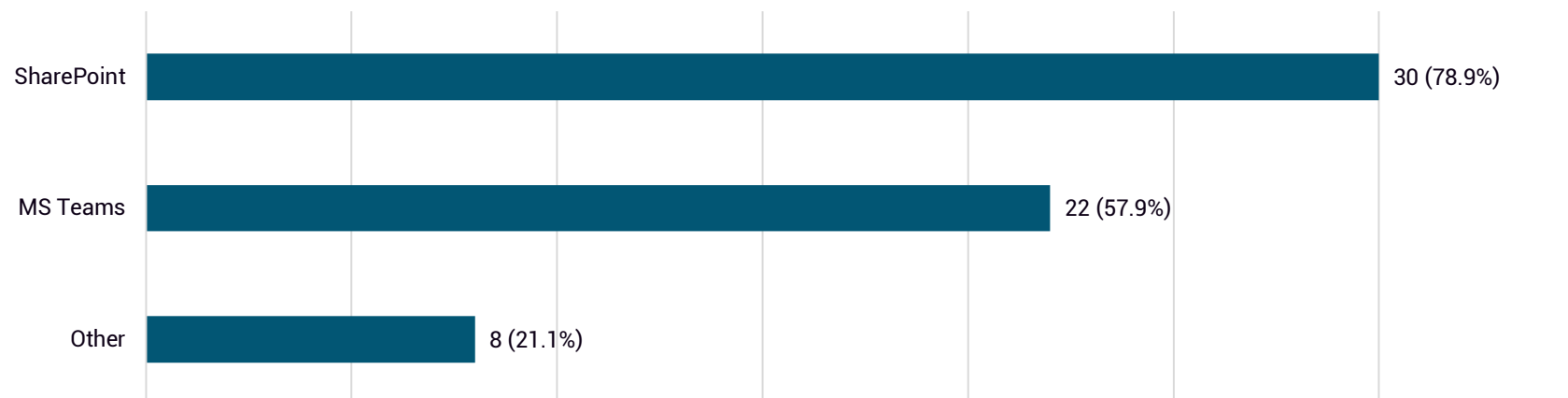
WebTMs: Align Technology Inc., Biz Law Consult Myanmar, Hearst, McKesson

Other IP management tools reported: ALOE (Bigfork Technologies, LLC), Black Hills (Iconex), CaseCentrix (DocuSign), Inteum (Allen Institute), Memotech (GOJO Industries, Inc.), Symphony (Twilio Inc.), TOPAM and TMODS (Astellas Pharma US LLC)

Knowledge Management Tools

Used to identify, save and index prior work product and knowledge, to be used as a resource for future matters and projects.

Tools listed in the survey: 2 Tools selected: 2 Companies using these tools: 38



Who Uses What?

MS Teams: Abbott Laboratories, AbbVie, Bristol-Myers Squibb, Campbell Soup Company, Chick-fil-A, Inc., John Deere Financial, Emerson Corporation, Fannie Mae, Hearst, Hewlett Packard Enterprise, John Deere Financial, Liberty Mutual Group, Marathon Petroleum Corporation, MassMutual, Merck & Co., Inc., Milliken & Company, Quadspire Technologies, Inc., Travelers Insurance, UnitedHealth Group, Volvo Group, Walgreen Co.

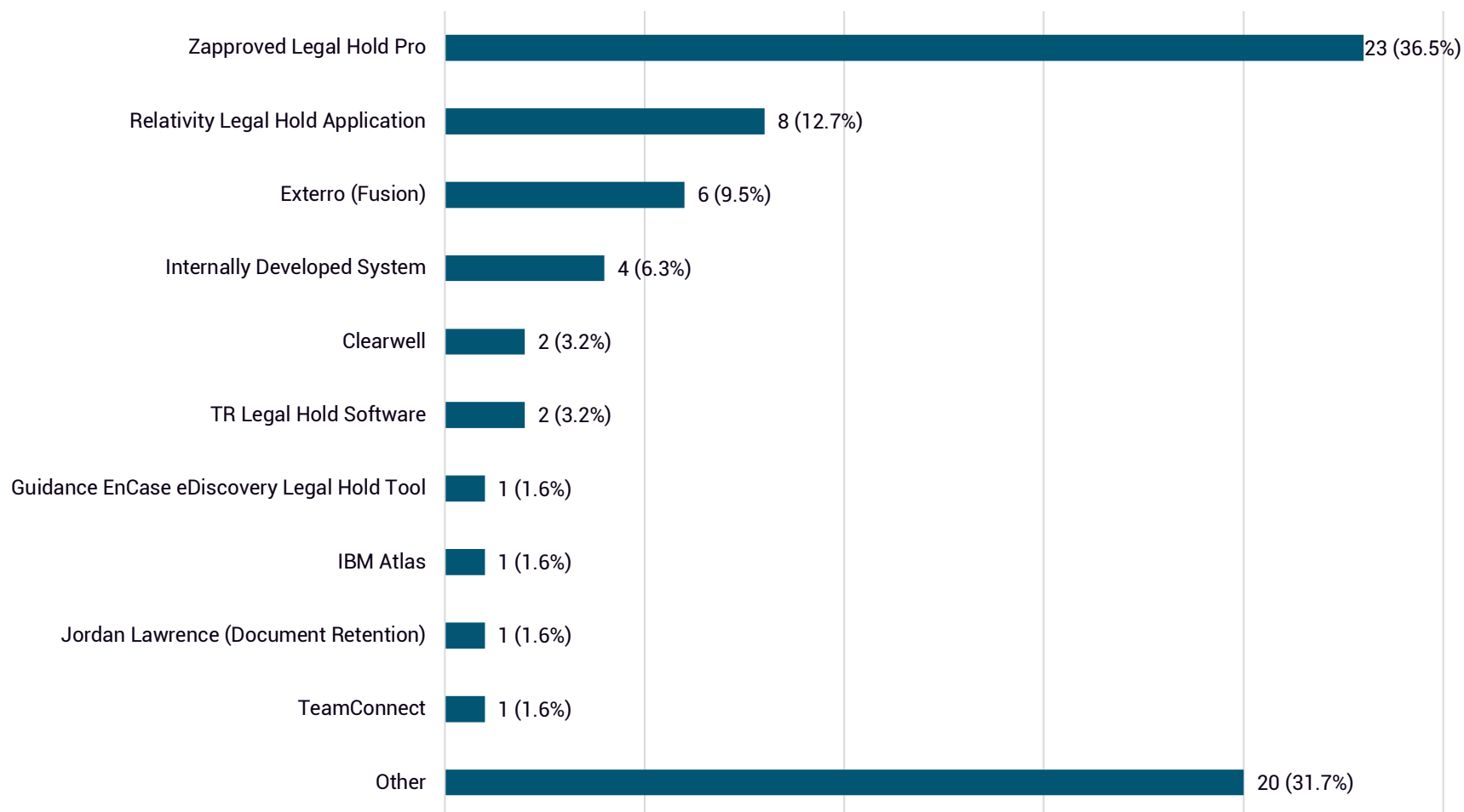
SharePoint: Abbott Laboratories, AbbVie, Bristol-Myers Squibb, British Columbia Investment Management Corporation, Campbell Soup Company, Chick-fil-A, Inc., DaVita Inc., John Deere Financial, eBay Inc., Emerson Corporation, Fannie Mae, Farm Credit Mid-America, Hearst, Hewlett Packard Enterprise, Idexx Laboratories, Inc., Liberty Mutual Group, John Deere Financial, MassMutual, Merck & Co., Inc., Milliken & Company, Quadspire Technologies, Inc., Securian Financial Group, Inc., SPX Corporation, Target Corporation, Travelers Insurance, Tremont Asset Management LLC, UnitedHealth Group, Volvo Group, Walgreen Co.

Other knowledge management tools reported: ALOE (Bigfork Technologies, LLC), Bloomfire (DocuSign), G-Drive and Sites (AppFolio, Inc.), Home Grown (Dassault Systemes Americas Corp.), Knowtools, Oracle KM (Oracle), TRIRIGA (Chick-fil-A, Inc.), Wiki Confluence (Cvent)

Legal Hold Tools

Used to automate and manage the entire process of legal hold notifications, and supports tracking of responses, interviews, reminders, and escalations.

Tools listed in the survey: **12** Tools selected: **10** Companies using these tools: **63**



Tools not selected: AccessData, Compliance Data Solutions

Who Uses What?

Clearwell: [CoreCivic](#), Dassault Systemes Americas Corp.

Exterro (Fusion): [AbbVie](#), [John Deere Financial](#), [Hearst](#), [Marathon Petroleum Corporation](#), [Oracle](#), [Target Corporation](#)

Guidance EnCase eDiscovery Legal Hold Tool: [Liberty Mutual Group](#)

IBM Atlas: [DaVita Inc.](#)

Internally Developed System: [British Columbia Investment Management Corporation](#), [Merck & Co., Inc.](#), [Purdue Pharma LP](#), [UnitedHealth Group](#)

Relativity Legal Hold Application: [Bristol-Myers Squibb](#), [John Deere Financial](#), [FedEx Ground Package System, Inc.](#), [Lowe's](#), [SPX Corporation](#), [TIAA](#)

TR Legal Hold Software: [FMC Corporation](#), [Quadspire Technologies, Inc.](#)

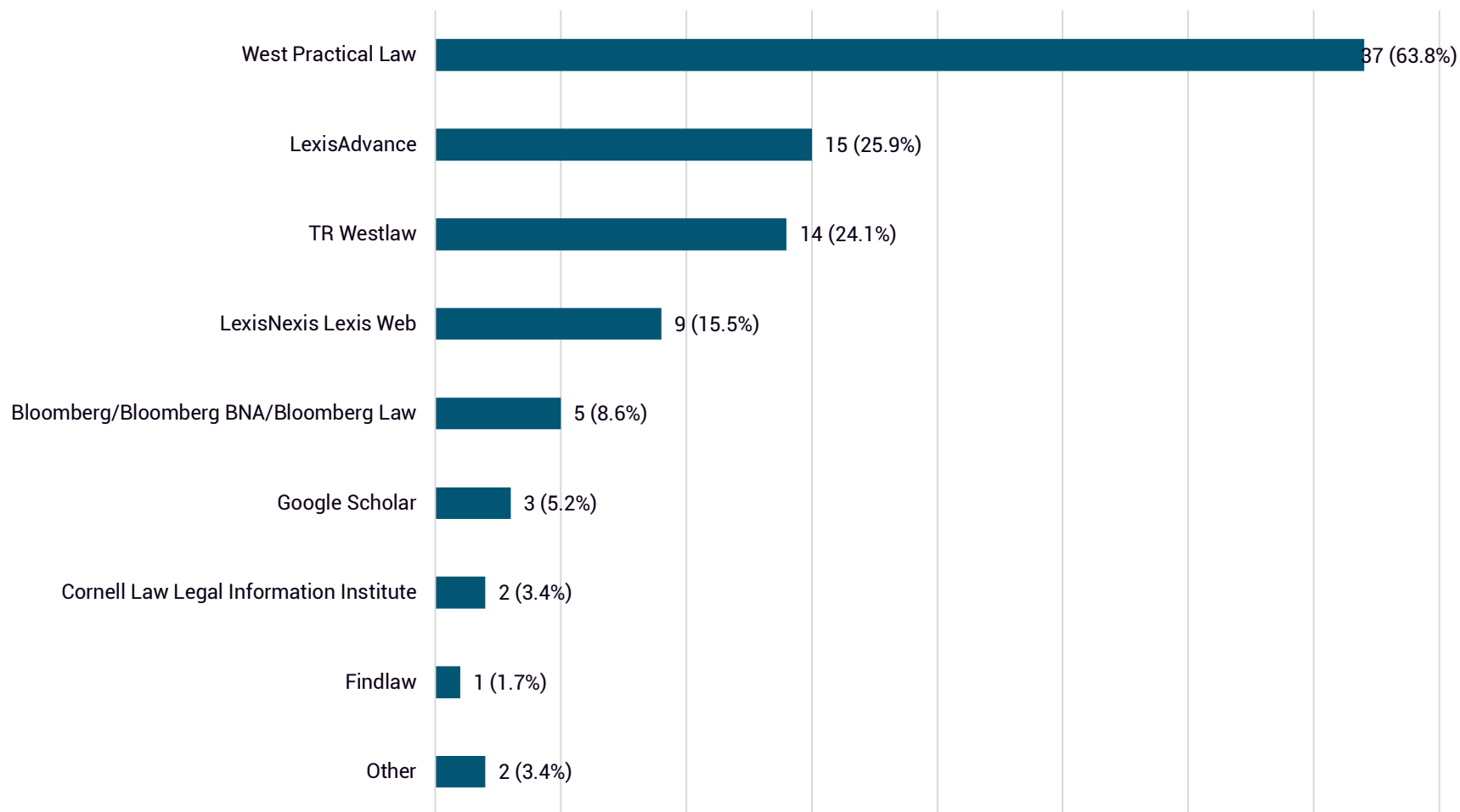
Zapproved Legal Hold Pro: [Abbott Laboratories](#), [AbbVie](#), [Align Technology Inc.](#), [Astellas Pharma US LLC](#), [Boston Scientific](#), [Campbell Soup Company](#), [CDW Corporation](#), [Charter Communications Legal Department](#), [Discover Financial Services](#), [Empower Retirement](#), [Expedia](#), [Fannie Mae](#), [Heico Companies, L.L.C.](#), [International Paper Company](#), [Mass General Brigham](#), [McKesson](#), [PPL Services Corporation](#), [Securian Financial Group, Inc.](#), [Travelers Insurance](#), [TriNet USA, Inc.](#), [Xerox Office of General Counsel](#)

Other legal hold tools reported: [Archer \(MassMutual\)](#), [Autonomy Legal Hold \(Bristol-Myers Squibb\)](#), [eMerge \(Chick-fil-A, Inc.\)](#), [Google \(Red Canary, Inc.\)](#), [Hold 360 \(Lyft\)](#), [internal application \(Hewlett Packard Enterprise\)](#), [Legility \(fka Inventus\)](#), [LexisNexis CounselLink \(Oklahoma Gas & Electronic Co.\)](#), [Microsoft \(Cvent\)](#), [O365 and Excel \(Idexx Laboratories, Inc.\)](#), [O365 Discovery \(TE Connectivity\)](#), [Office 365 Security & Compliance eDiscovery \(Milliken & Company\)](#), [Onit \(Archer-Daniels-Midland Company\)](#), [Onna \(Twilio, Inc.\)](#), [Our IT implements the legal holds on accounts \(University of Central Florida\)](#), [Proprietary \(Resurgent Capital Services, LP\)](#), [Sharepoint \(British Columbia Investment Management Corporation\)](#), [Total Discovery \(US Foods, Inc.\)](#), [Wolters Kluwer Passport Legal Hold Module \(Walgreen Co.\)](#)

Legal Research Services Tools

These assist attorneys and paralegals research case law, statutes and regulations.

Tools listed in the survey: **9** Tools selected: **8** Companies using these tools: **58**



Tool not selected: Fastcast (LoisLaw Connect)

Who Uses What?

Cornell Law Legal Information Institute: Idexx Laboratories, Inc., Tremont Asset Management LLC

Bloomberg/Bloomberg BNA/Bloomberg Law, Charter Communications Legal Department: FedEx Ground Package System, Inc., Idexx Laboratories, Inc., Liberty Mutual Group, Tremont Asset Management LLC

Findlaw: Biz Law Consult Myanmar

Google Scholar: Abbott Laboratories, Biz Law Consult Myanmar, Tremont Asset Management LLC

LexisAdvance: Abbott Laboratories, Allen Institute, Biz Law Consult Myanmar, John Deere Financial, Empower Retirement, Fannie Mae, FedEx Ground Package System, Inc., MassMutual, Mutual of Omaha Insurance Co., Resurgent Capital Services, LP, TIAA, Walgreen Co.

LexisNexis Lexis Web: AbbVie, Dassault Systemes Americas Corp., Emerson Corporation, John Deere Financial, McKesson, Mutual of Omaha Insurance Co., Oklahoma Gas & Electric Co., Purdue Pharma LP

TR Westlaw: Align Technology Inc., Campbell Soup Company, Charter Communications Legal Department, DaVita Inc., Discover Financial Services, FMC Corporation, Hagerty, Hearst, Heico Companies, L.L.C., Liberty Mutual Group, Mass General Brigham, PPL Services Corporation, Purdue Pharma LP, Securian Financial Group, Inc.

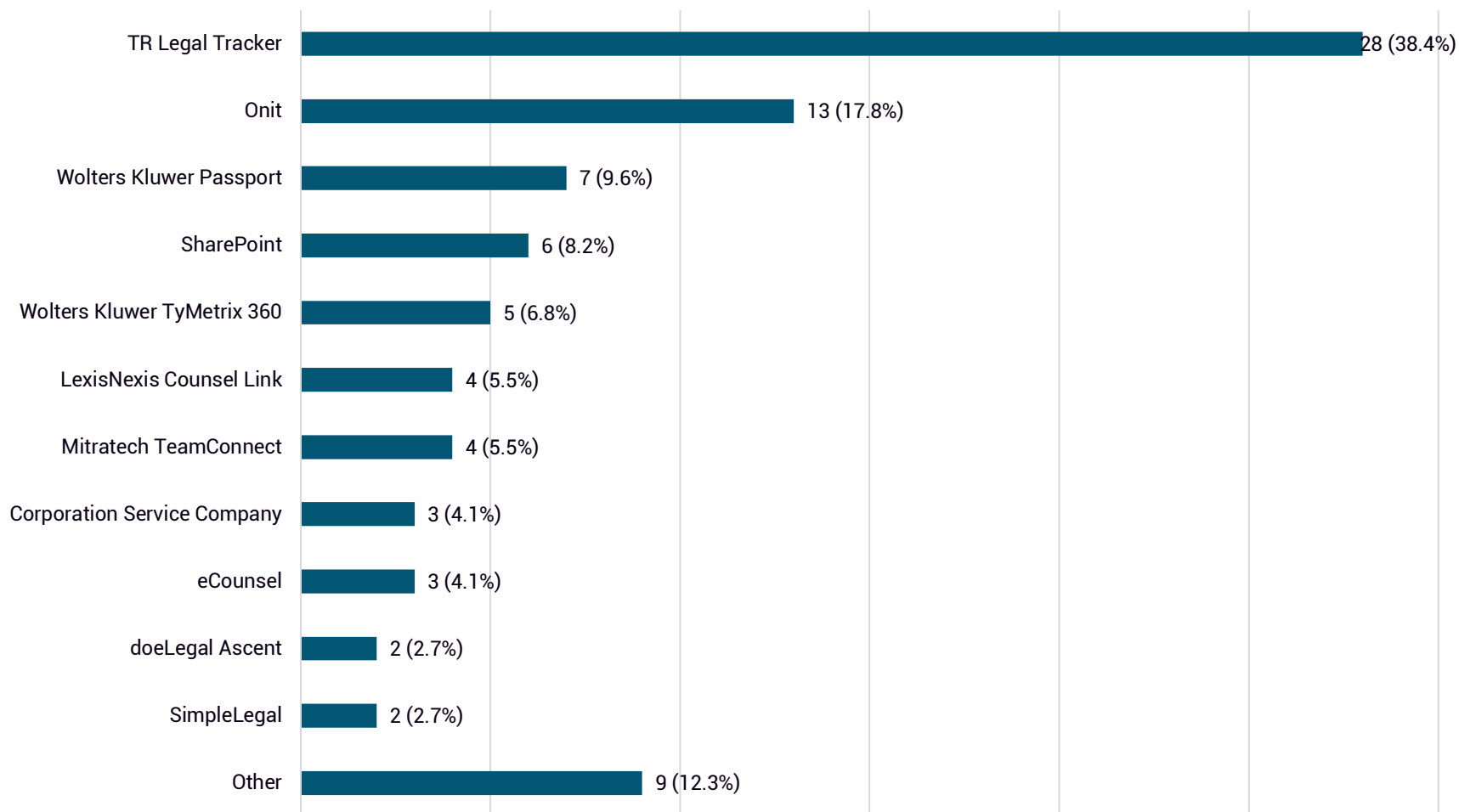
West Practical Law: Allianz Life Insurance Company of North America, Align Technology Inc., AppFolio, Inc., British Columbia Investment Management Corporation, Biz Law Consult Myanmar, Campbell Soup Company, CDW Corporation, Charter Communications Legal Department, DaVita Inc., John Deere Financial, Electrolux, Emera Inc., Expedia, Fannie Mae, FloQast, Inc., FMC Corporation, Hagerty, Hearst, Heico Companies, L.L.C., Hewlett Packard Enterprise, Idexx Laboratories, Inc., Ingram Micro Inc., International Paper Company, John Deere Financial, Kolon TissueGene, Inc., Levi Strauss & Co., Lifetime Mutual Group, Mass General Brigham, McKesson, Merck & Co., Inc., Mutual of Omaha Insurance Co., Plex Systems, Inc., PPL Services Corporation, Target Corporation, Tasktop Technologies Incorporated, Twilio Inc.

Other legal research services tools reported: PACER (GOJO Industries, Inc.), PLC UK (practical law)

Matter Management Tools

Used to manage and track legal matters, day-to-day matter work and matter budgets.

Tools listed in the survey: **13** Tools selected: **10** Companies using these tools: **73**



Tools not selected: LawBase, LawManager, Miratech Lawtrac

Who Uses What?

Corporation Service Company: Hagerty, Ingram Micro Inc., Xerox Office of General Counsel

doeLegal Ascent: Emerson Corporation, Fannie Mae

eCounsel: CDW Corporation, Marathon Petroleum Corporation

LexisNexis Counsel Link: Electrolux, Oklahoma Gas & Electric Co., Resurgent Capital Services, LP, Travelers Insurance

Mitrastech TeamConnect: Hewlett Packard Enterprise, Liberty Mutual Group, Mutual of Omaha Insurance Co., Xerox Office of General Counsel

Onit: Abbott Laboratories, Archer-Daniels-Midland Company, Astellas Pharma US LLC, Bristol-Myers Squibb, DaVita Inc., John Deere Financial, FedEx Ground Package System, Inc., Hearst, Iopco, MassMutual, TIAA

SharePoint: Coast Capital Savings Credit Union, FMC Corporation, Liberty Mutual Group, UnitedHealth Group, Volvo Group, Xerox Office of General Counsel

SimpleLegal: Twilio Inc., Meredith Corporation

TR Legal Tracker: AbbVie, Align Technology Inc., Blackbaud, Inc., Boston Scientific, Campbell Soup Company, Charter Communications Legal Department, CoreCivic, Discover Financial Services, Electronic Arts Inc., Empower Retirement, Expedia, Farm Credit Mid-America, FMC Corporation, Hagerty, Idexx Laboratories, Inc., Heico Companies, L.L.C., Levi Strauss & Co., Lyft, McKesson, Milliken & Company, PPL Services Corporation, Quadspire Technologies, Inc., Target Corporation, TriNet USA, Inc., US Foods, Inc., Volvo Group

Wolters Kluwer Passport: AbbVie, IHG, Lowe's, Walgreen Co.

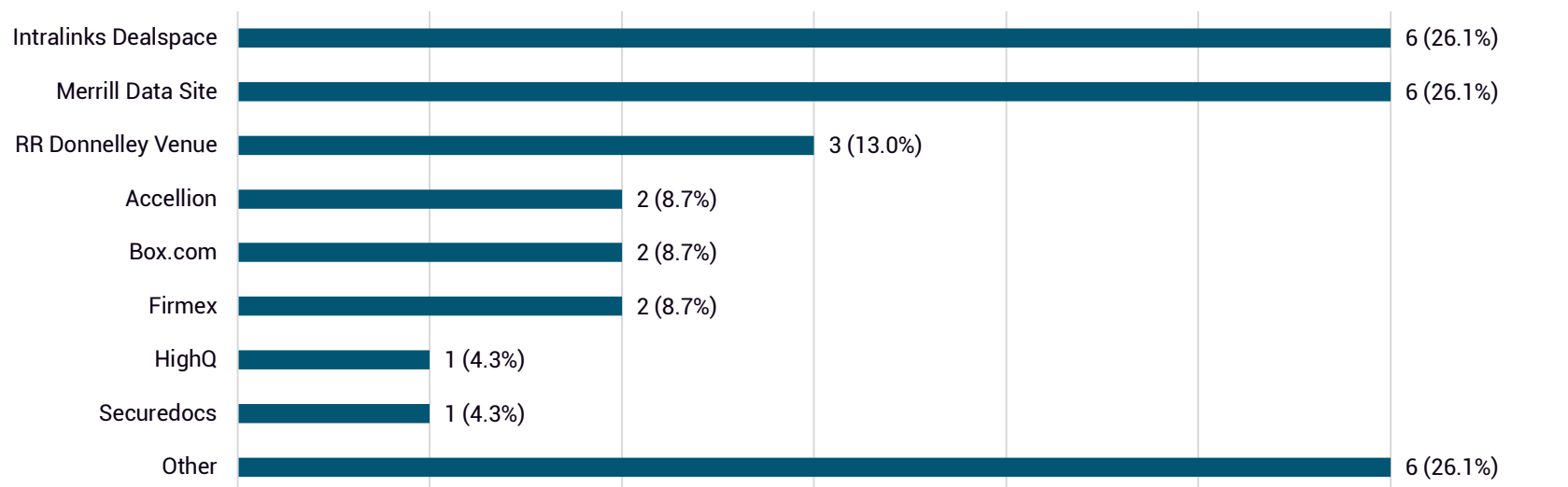
Wolters Kluwer TyMetrix 360: eBay Inc., International Paper Company, Merck & Co., Inc., TE Connectivity, UnitedHealth Group

Other matter management tools reported: ALOE (Bigfork Technologies, LLC), Excel (British Columbia Investment Management Corporation), HBR CounselCommand (McKesson), Home Grown (Dassault Systemes Americas Corp.), Jira Confluence (Cvent), LawVu (Expedia), Oracle developed (Oracle), SeyfarthLink (Dassault Systemes Americas Corp.), third party custom database (Merck & Co., Inc.)

Online Virtual Data Room Repositories

Used as part of due diligence and acquisition activities to allow the secure exchange of information between the parties.

Tools listed in the survey: **8** Tools selected: **7** Companies using these tools: **23**



Tool not selected: Citrix Share File

Who Uses What?

Accellion: Purdue Pharma LP, [Target Corporation](#)

Box.com: Bristol-Myers Squibb, [Fannie Mae](#)

Firmex: Coast Capital Savings Credit Union, [Cvent](#)

Intralinks: Dealspace, Bristol-Myers Squibb, [Meredith Corporation](#), Purdue Pharma LP, [Root Insurance Co.](#), TOTAL S.A.

Merrill Data Site: Dassault Systemes Americas Corp., [Hewlett Packard Enterprise](#), [MassMutual](#), TOTAL S.A., [Walgreen Co.](#)

RR Donnelley Venue: [CDW Corporation](#), [Hagerty](#), [Root Insurance Co.](#)

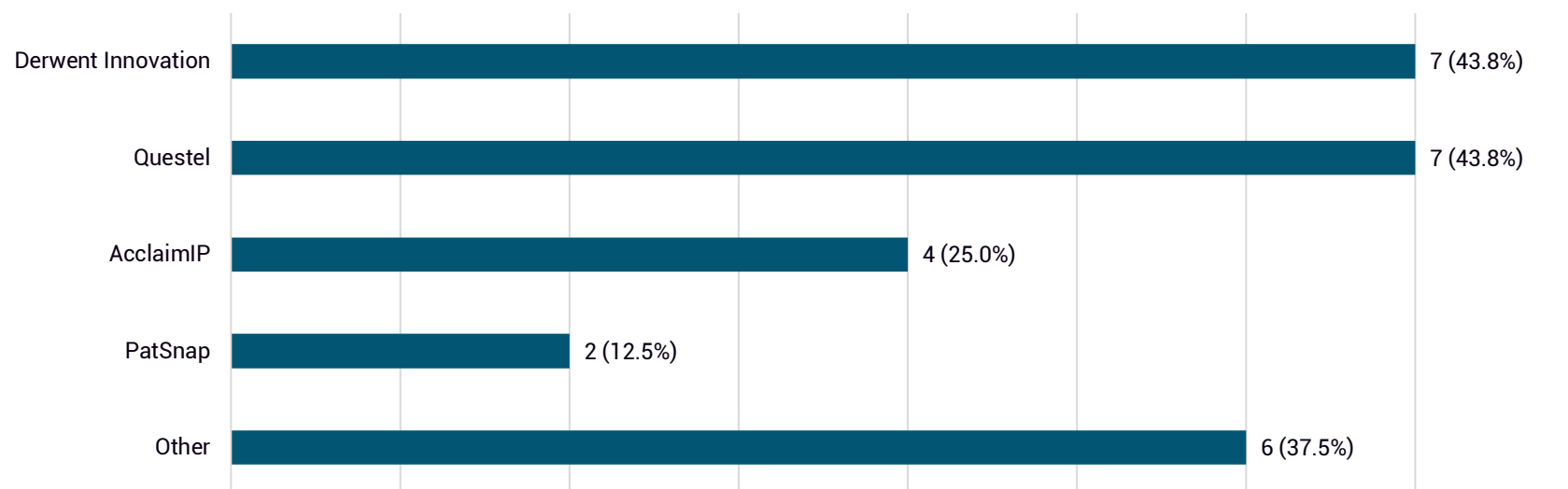
Securedocs: Emera Inc.

Other online virtual data room repositories reported: ALOE ([Bigfork Technologies, LLC](#)), Dropbox, Internal ([Lyft](#)), NA, SharePoint ([CDW Corporation](#))

Patent Search Tools

Patent research and analytics platform which provides access to published patents and scientific literature worldwide.

Tools listed in the survey: **4** Tools selected: **4** Companies using these tools: **16**



Who Uses What?

AcclaimIP: [Hewlett Packard Enterprise](#), PTC Therapeutics, Inc., Purdue Pharma LP, [Xerox Office of General Counsel](#)

Derwent Innovation: Abbott Laboratories, [AbbVie](#), [Emerson Corporation](#), [Hewlett Packard Enterprise](#), PTC Therapeutics, Inc., [Target Corporation](#)

PatSnap: [AbbVie](#), Lifetime Products, Inc.

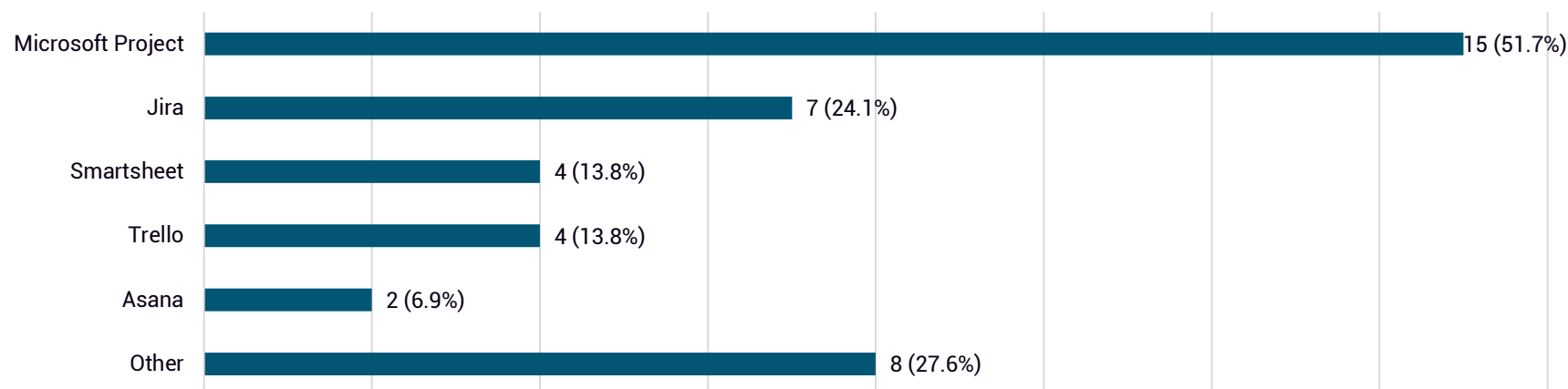
Questel: Abbott Laboratories, [AbbVie](#), Bristol-Myers Squibb, [John Deere Financial](#), [FMC Corporation](#), PTC Therapeutics, Inc., [Xerox Office of General Counsel](#)

Other patent search tools reported: Black Hills (Iconex), CAS/STN -- Chemical Abstracts ([AbbVie](#)), CPA ([Oracle](#)), Innography ([Hewlett Packard Enterprise](#)), PatBase (Abbott Laboratories)

Project Management Software

Tools designed to assist a project manager in developing a schedule, assigning resources to tasks, tracking progress, managing budgets, and analyzing workloads.

Tools listed in the survey: **5** Tools selected: **4** Companies using these tools: **29**



Tool not selected: Basecamp

Who Uses What?

Asana: Tasktop Technologies Incorporated, Twilio Inc.

Jira: [AbbVie](#), [British Columbia Investment Management Corporation](#), [Expedia](#), Liberty Mutual Group, [Oracle](#), Tasktop Technologies Incorporated, [Venerable](#)

Microsoft Project: Abbott Laboratories, [AbbVie](#), Allianz Life Insurance Company of North America, [Biz Law Consult Myanmar](#), Bristol-Myers Squibb, Coast Capital Savings Credit Union, [Expedia](#), [Fannie Mae](#), [Hearst](#), [Hewlett Packard Enterprise](#), PPL Services Corporation, [Resurgent Capital Services, LP](#), [Venerable](#), [Walgreen Co.](#)

Smartsheet: [AbbVie](#), Idexx Laboratories, Inc., [McKesson](#), [Western Governors University](#)

Trello: [British Columbia Investment Management Corporation](#), [Expedia](#), Liberty Mutual Group

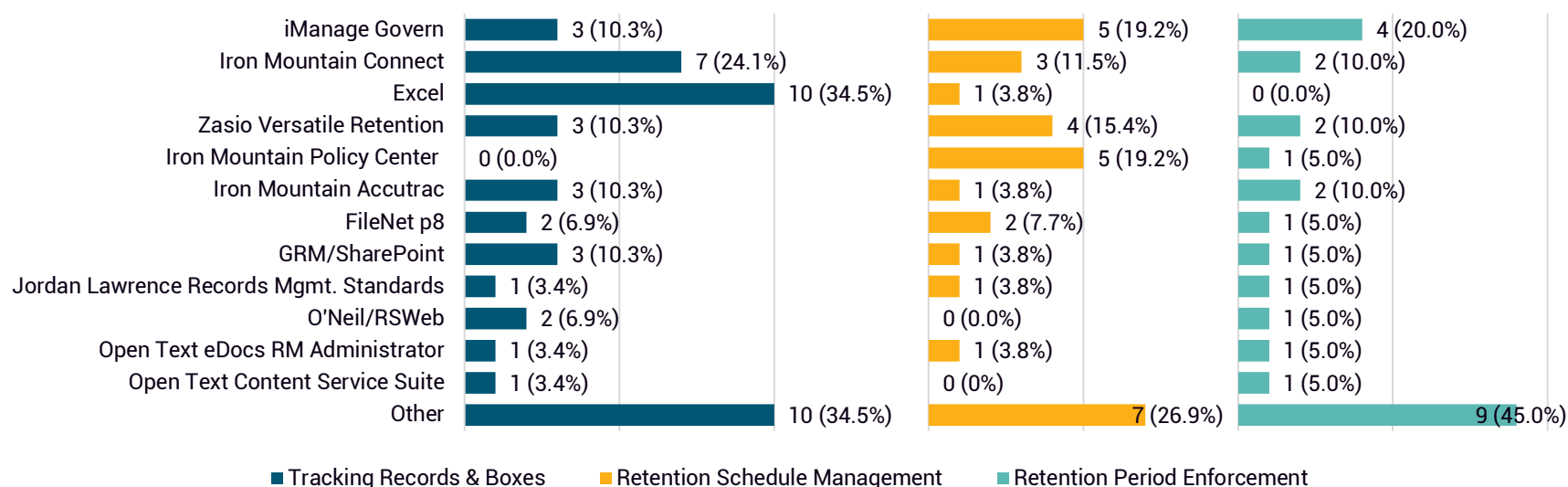
Other project management tools reported: ALOE ([Bigfork Technologies, LLC](#)), Home Grown, Midaxo ([Hewlett Packard Enterprise](#)), Monday.com ([Farm Credit Mid-America](#)), O365, Excel and MSFT, Teams ([Emerson Corporation](#)), Teams Planner ([AbbVie](#)), Wrike.com

Records Management

Used to manage your inventory of records. Record management tools may be divided into three categories:

- **Tracking Records & Boxes:** Typical items tracked include paper records, tapes, electronic media and electronic data. Items tracked can be onsite or offsite depending on the tool in use.
- **Retention Schedule Management Tools:** Search, track and retrieve records through a single interface and map the records against your records retention schedule.
- **Retention Period Enforcement:** Some tools allow for auto-notification of retention period end and identify items for disposal. RM tools provide reporting and auditing capabilities.

Tracking Records & Boxes		14		11		29
Retention Schedule Management	Tools listed in the survey:	14	Tools selected:	10	Companies using these tools:	26
Retention Period Enforcement		14		11		20



Tools not selected: **Tracking Records & Boxes:** Iron Mountain Policy Center, OmniRIM RPM, Zasio Verstaile Enterprise/LE
Retention Schedule Management: O'Neil/RS Web, OmniRIM RPM, Open Text Content Service Suite, Zasio Verstaile Enterprise/LE
Retention Period Enforcement: Excel, OmniRIM RPM, Zasio Verstaile Enterprise/LE

Who Uses What?

Tracking Records & Boxes

Excel: Abbott Laboratories, [Emerson Corporation](#), [Fannie Mae](#), [Farm Credit Mid-America](#), [GOJO Industries, Inc.](#), [Hearst](#), [Idexx Laboratories, Inc.](#), [Kolon TissueGene, Inc.](#), [PPL Services Corporation](#)

FileNet p8: [MassMutual](#), [PPL Services Corporation](#)

GRM/SharePoint: [British Columbia Investment Management Corporation](#), [GOJO Industries, Inc.](#), [Purdue Pharma LP](#)

iManage Govern: [Liberty Mutual Group](#), [MassMutual](#), [Travelers Insurance](#)

Iron Mountain Accutrac: [Boston Scientific](#), [McKesson](#), [Oracle](#)

Iron Mountain Connect: [Abbott Laboratories](#), [Hearst](#), [Hewlett Packard Enterprise](#), [Ingram Micro Inc.](#), [Oracle](#), [Target Corporation](#), [Xerox Office of General Counsel](#)

Jordan Lawrence Records Mgmt. Standards: [Farm Credit Mid-America](#)

O'Neil/RSWeb: [Oracle](#)

Open Text Content Service Suite Tracking: [Abbott Laboratories](#)

Open Text eDocs RM Administrator: [Biz Law Consult Myanmar](#)

Zasio Versatile Retention: [Allianz Life Insurance Company of North America](#), [Liberty Mutual Group](#), [Walgreen Co.](#)

Other record management – tracking records & boxes reported: [ERMS - Content Manager \(Hewlett Packard Enterprise\)](#), [HPE Content Manager by MicroFocus \(Bristol-Myers Squibb\)](#), [Xerox DocuShare \(Xerox Office of General Counsel\)](#), [Riskworks \(Fannie Mae\)](#), [TR Legal Tracker \(PPL Services Corporation\)](#), [0365 Compliance \(Hagerty\)](#), [In-house Built System \(International Paper Company\)](#), [Virgo from IGS, an Access Company \(Ingram Micro Inc.\)](#), [eDocs \(Boston Scientific\)](#), [iManage Records Manager \(Mass General Brigham\)](#)

Retention Schedule Management

Excel: Emera Inc.

FileNet p8: [MassMutual](#), PPL Services Corporation

GRM/SharePoint: Purdue Pharma LP

iManage Govern: Liberty Mutual Group, [MassMutual](#), Mutual of Omaha Insurance Co., [Travelers Insurance](#)

Iron Mountain Accutrac: [Boston Scientific](#)

Iron Mountain Connect: Idexx Laboratories, Inc., [Target Corporation](#), [Xerox Office of General Counsel](#)

Iron Mountain Policy Center: [Archer-Daniels-Midland Company](#), [Campbell Soup Company](#), [Farm Credit Mid-America](#), [McKesson](#), [Oracle](#)

Jordan Lawrence Records Mgmt. Standards: [Farm Credit Mid-America](#)

Open Text eDocs RM Administrator: [Biz Law Consult Myanmar](#)

Zasio Versatile Retention: Abbott Laboratories, Bristol-Myers Squibb, [Target Corporation](#), [Walgreen Co.](#)

Other record management – retention schedule management: [Xerox DocuShare](#) ([Xerox Office of General Counsel](#)), [Riskworks](#) ([Fannie Mae](#)), [O365 Compliance](#) ([Hagerty](#)), In-house Built System ([International Paper Company](#)), [Virgo from IGS](#), an [Access Company](#) ([Ingram Micro Inc.](#)), [eDocs](#) ([Boston Scientific](#)), [iManage Records Manager](#) ([Mass General Brigham](#))

Retention Period Enforcement

GRM/SharePoint: Purdue Pharma LP

iManage Govern: Liberty Mutual Group, [MassMutual](#), Mutual of Omaha Insurance Co., [Travelers](#)

Iron Mountain Accutrac: [Boston Scientific](#), [Oracle](#)

Iron Mountain Connect: [Oracle](#), [Xerox Office of General Counsel](#)

Iron Mountain Policy Center: [Oracle](#)

Jordan Lawrence Records Mgmt. Standards: [Farm Credit Mid-America](#)

O'Neil/RSWeb: [Oracle](#)

Open Text Content Service Suite: Abbott Laboratories

Open Text eDocs RM Administrator: [Biz Law Consult Myanmar](#)

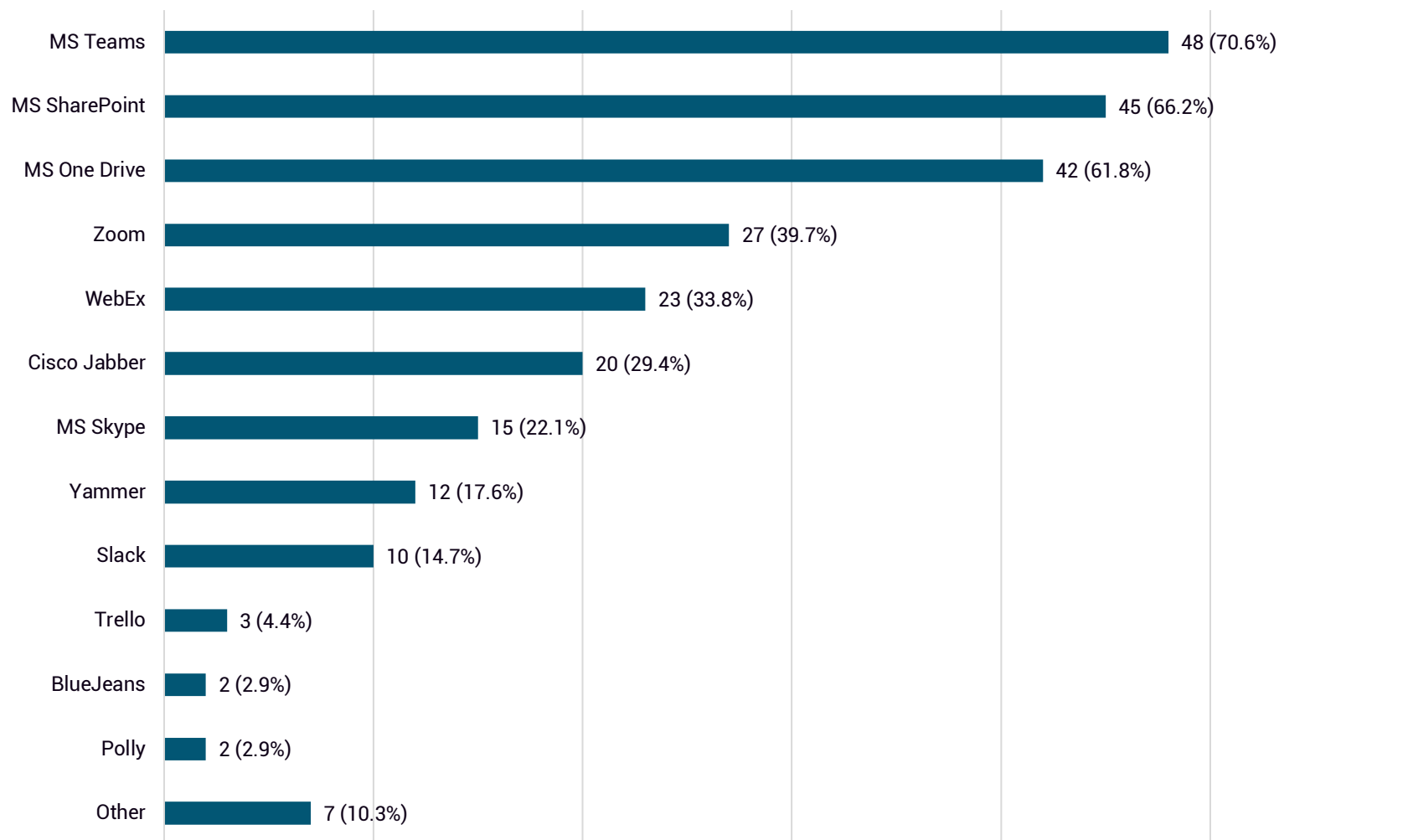
Zasio Versatile Retention: Bristol-Myers Squibb, [Walgreen Co.](#)

Other record management – retention schedule management: [Xerox DocuShare](#) ([Xerox Office of General Counsel](#)), [Riskworks](#) ([Fannie Mae](#)), [O365 Compliance](#) ([Hagerty](#)), In-house Built System ([International Paper Company](#)), [eDocs](#) ([Boston Scientific](#)), [iManage Records Manager](#) ([Mass General Brigham](#)), [ERMS Content Manager](#) ([Hewlett Packard Enterprise](#)), [TR Legal Tracker](#) ([PPL Services Corporation](#)), [Rhino integrated with Zasio](#) ([Target Corporation](#))

Remote Connectivity Tools

These allow users to communicate and access the systems they need when not physically in the office.

Tools listed in the survey: 11 Tools selected: 11 Companies using these tools: 68



Who Uses What?

BlueJeans: Expedia, Hewlett Packard Enterprise

Cisco Jabber: AbbVie, Allianz Life Insurance Company of North America, CDW Corporation, DaVita Inc., Emerson Corporation, Fannie Mae, Farm Credit Mid-America, GOJO Industries, Inc., Idemia Identity & Security USA LLC, International Paper Company, Mass General Brigham, Merck & Co., Inc., Meredith Corporation, Oracle, Purdue Pharma LP, Travelers Insurance, Walgreen Co., World Wide Technology, Workplace Safety and Insurance Board Ontario Ontario, Xerox Office of General Counsel

MS One Drive: Abbott Laboratories, AbbVie, Archer-Daniels-Midland Company, Align Technology Inc., Blackbaud, Inc., Bristol-Myers Squibb, Campbell Soup Company, CDW Corporation, Emerson Corporation, Expedia, Fannie Mae, FedEx Ground Package System, Inc., GOJO Industries, Inc., Hagerty, Hearst, Hewlett Packard Enterprise, Iconex, Idemia Identity & Security USA LLC, Ingram Micro Inc., International Paper Company, John Deere Financial, Kolon TissueGene, Inc., Levi Strauss & Co., Liberty Mutual Group, Lowe's, Marathon Petroleum Corporation, MassMutual, McKesson, Mutual of Omaha Insurance Co., PPL Services Corporation, Securian Financial Group, Inc., Target Corporation, TIAA, US Food, Inc., Walgreen Co., World Wide Technology, Xerox Office of General Counsel

MS SharePoint: Abbott Laboratories, AbbVie, Archer-Daniels-Midland Company, Align Technology Inc., BearingPoint, Biz Law Consult Myanmar, Blackbaud, Inc., Bristol-Myers Squibb, Campbell Soup Company, CDW Corporation, Coast Capital Savings Credit Union, DaVita Inc., Emerson Corporation, Expedia, Fannie Mae, Farm Credit Mid-America, FedEx Ground Package System, Inc., GOJO Industries, Inc., Hagerty, Hearst, Hewlett Packard Enterprise, Iconex, Idexx Laboratories, Inc., Ingram Micro Inc., International Paper Company, John Deere Financial, Liberty Mutual Group, MassMutual, McKesson, Merck & Co., Inc., Mutual of Omaha Insurance Co., PPL Services Corporation, Purdue Pharma LP, Resurgent Capital Services, LP, Securian Financial Group, Inc., Target Corporation, TIAA, US Foods, Inc., Volvo Group, Walgreen Co., World Wide Technology, Xerox Office of General Counsel

MS Skype: Archer-Daniels-Midland Company, BearingPoint, Campbell Soup Company, CDW Corporation, Coast Capital Savings Credit Union, Dassault Systems Corp., Hewlett Packard Enterprise, Iconex, Securian Financial Group, Inc., SPX Corporation, Target Corporation, TIAA, Volvo Group, World Wide Technology

MS Teams: Abbott Laboratories, AbbVie, Archer-Daniels-Midland Company, Align Technology Inc., BearingPoint, Blackbaud, Inc., Boston Scientific, Bristol-Myers Squibb, Campbell Soup Company, CDW Corporation, Coast Capital Savings Credit Union, Emerson Corporation, Fannie Mae, FedEx Ground Package System, Inc., GOJO Industries, Inc., Hearst, Hewlett Packard Enterprise, Iconex, Idemia Identity & Security USA LLC, Idexx Laboratories, Inc., Ingram Micro Inc., International Paper Company, John Deere Financial, Kolon TissueGene, Inc., Levi Strauss & Co., Lowe's, Marathon Petroleum Corporation, Mass General Brigham, MassMutual, McKesson, Merck & Co., Inc., Mutual of Omaha Insurance Co., PPL Services Corporation, Purdue Pharma LP, Quadspire Technologies, Inc., Resurgent Capital Services, LP, Securian Financial Group, Inc., TIAA, US Foods, Inc., Volvo Group, Walgreen Co., World Wide Technology

Polly: [Hagerty](#), Idexx Laboratories, Inc.

Slack: AppFolio, Inc., [Cvent](#), Electronic Arts Inc., [Expedia](#), [Hagerty](#), Liberty Mutual Group, [Meredith Corporation](#), [Oracle](#), [Target Corporation](#), Twilio Inc.

Trello: AppFolio, Inc., [Expedia](#), Liberty Mutual Group

WebEx: , Abbott Laboratories, [AbbVie](#), [Blackbaud, Inc.](#), Bristol-Myers Squibb, [British Columbia Investment Management Corporation](#), [CDW Corporation](#), DaVita Inc., [Emerson Corporation](#), [Fannie Mae](#), [Farm Credit Mid-America](#), FedEx Ground Package System, Inc., Iconex, Idexx Laboratories, Inc., [International Paper Company](#), Kolon TissueGene, Inc., [McKesson](#), [Merck & Co., Inc.](#), [Meredith Corporation](#), Purdue Pharma LP, [Quadspire Technologies, Inc.](#), [World Wide Technology](#), Xerox Office of General Counsel

Yammer: Abbott Laboratories, Bristol-Myers Squibb, [CDW Corporation](#), [Emerson Corporation](#), [Fannie Mae](#), [Hewlett Packard Enterprise](#), [John Deere Financial](#), [Merck & Co., Inc.](#), [Target Corporation](#), US Foods, Inc., [World Wide Technology](#), Xerox Office of General Counsel

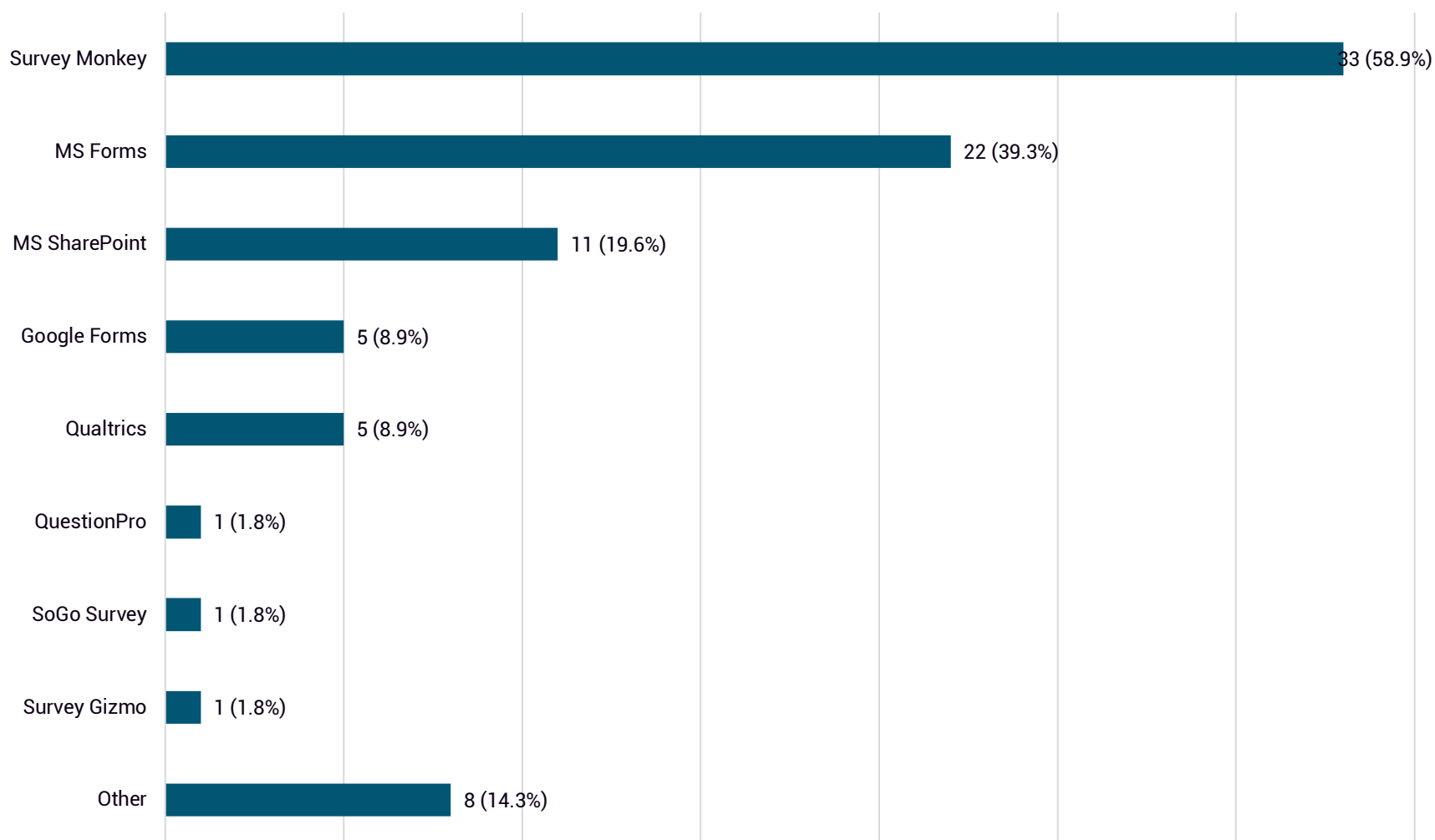
Zoom: [AbbVie](#), AppFolio, Inc., [Biz Law Consult Myanmar](#), [Boston Scientific](#), [Fannie Mae](#), FedEx Ground Package System, Inc., [Hagerty](#), [Hearst](#), [Hewlett Packard Enterprise](#), Liberty Mutual Group, [Mass General Brigham](#), [MassMutual](#), [Oracle](#), PPL Services Corporation, [Quadspire Technologies, Inc.](#), [SPX Corporation](#), [Target Corporation](#), Tasktop Technologies Incorporated, [TIAA](#), Twilio Inc., US Foods, Inc., [World Wide Technology](#), [Workplace Safety and Insurance Board Ontario Ontario](#), Xerox Office of General Counsel

Other remote connectivity tools reported: Cisco Any Connect ([Chick-fil-A, Inc.](#)), Duo ([Travelers Insurance](#)), F5 (Mutual of Omaha Insurance Co.), Home Grown (Dassault Systemes Americas Corp.), Viscosity (Twilio Inc.), Zscaler Private Access ([John Deere Financial](#))

Survey/Information Gathering Tools

Used to collect information from specific groups of respondents, and usually feature software assistance throughout the process, from creation through results analysis.

Tools listed in the survey: 8 Tools selected: 8 Companies using these tools: 56



Who Uses What?

Google Forms: AppFolio, Inc., [DocuSign](#), AppFolio, Inc., [Lyft](#), Twilio Inc.

MS Forms: Abbott Laboratories, [AbbVie](#), [Biz Law Consult Myanmar](#), [Boston Scientific](#), [Campbell Soup Company](#), [Discover Financial Services](#), [Emerson Corporation](#), FedEx Ground Package System, Inc., [Hearst](#), [Hewlett Packard Enterprise](#), [Idexx Laboratories, Inc.](#), Liberty Mutual Group, [John Deere Financial](#), [McKesson](#), [Merck & Co., Inc.](#), PPL Services Corporation, US Foods, Inc., Volvo Group, [Walgreen Co.](#), [Western Governors University](#)

MS SharePoint: [Biz Law Consult Myanmar](#), DaVita Inc., [Emerson Corporation](#), [John Deere Financial](#), Liberty Mutual Group, [McKesson](#), [Target Corporation](#), [TE Connectivity](#), [Travelers Insurance](#), US Foods, Inc.

SoGo Survey: [AbbVie](#)

Survey Gizmo: Purdue Pharma LP

Survey Monkey: Allianz Life Insurance Company of North America, [Blackbaud, Inc.](#), Bristol-Myers Squibb, [British Columbia Investment Management Corporation](#), [Campbell Soup Company](#), [CDW Corporation](#), [Chick-fil-A, Inc.](#), Coastal Capital Savings Credit Union, DaVita Inc., Electronic Arts Inc., [FloQast, Inc.](#), FMC Corporation, [Hagerty](#), [Hearst](#), [Hewlett Packard Enterprise](#), [International Paper Company](#), [Levi Strauss & Co.](#), [MassMutual](#), PPL Services Corporation, Purdue Pharma LP, [Quadspire Technologies, Inc.](#), [SPX Corporation](#), [Target Corporation](#), [TE Connectivity](#), [Travelers Insurance](#), US Foods, Inc., [Venerable](#), [Walgreen Co.](#), [Western Governors University](#), [Workplace Safety and Insurance Board Ontario](#)

Qualtrics: Allianz Life Insurance Company of North America, [TIAA](#), [Travelers Insurance](#), [University of Central Florida](#), [Venerable](#)

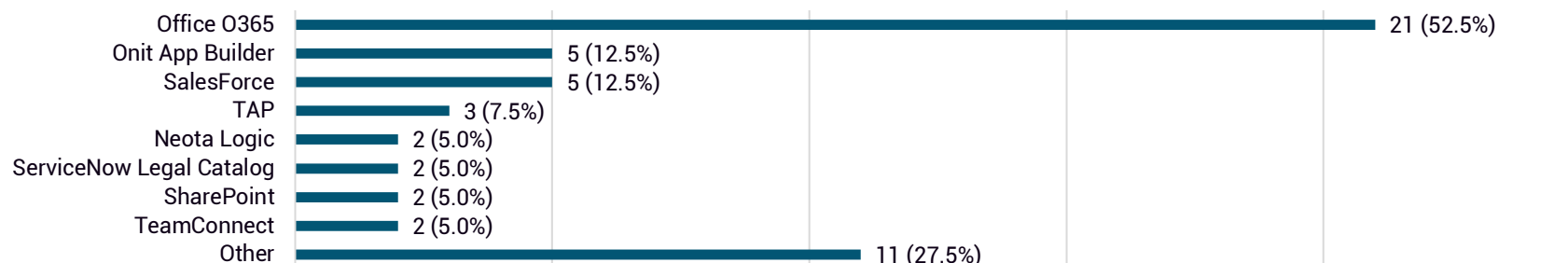
QuestionPro: [Farm Credit Mid-America](#),

Other survey/information gathering tools reported: CultureAmp & sli.do (Twilio, Inc.), [Cvent Survey \(Cvent\)](#), Doodle ([Blackbaud, Inc.](#)), Glint ([DocuSign](#)), in-house tool ([Workplace Safety and Insurance Board Ontario](#) Ontario), [Oracle](#) internal - Quicksurvey ([Oracle](#)), Survey Analytics (Liberty Mutual)

Workflow Tools

Used to automate business processes.

Tools listed in the survey: **9** Tools selected: **8** Companies using these tools: **40**



Tool not selected: Laserfiche

Who Uses What?

Office 0365: [AbbVie](#), [Align Technology Inc.](#), Bristol-Myers Squibb, [CDW Corporation](#), [Emerson Corporation](#), [Expedia](#), FedEx Ground Package System, Inc., [GOJO Industries, Inc.](#), Iconex, Idexx Laboratories, Inc., Liberty Mutual Group, [John Deere Financial](#), [McKesson](#), [McKesson Corporation](#), Milliken & Company, Purdue Pharma LP, [Quadspire Technologies, Inc.](#), [Resurgent Capital Services, LP](#), UnitedHealth Group, Volvo Group

Onit App Builder: Abbott Laboratories, [Archer-Daniels-Midland Company](#), DaVita Inc., [MassMutual](#), [McKesson](#)

SalesForce: DaVita Inc., Electronic Arts Inc., [McKesson](#), [Quadspire Technologies, Inc.](#), Tasktop Technologies Incorporated

ServiceNow: Legal Catalog, [Biz Law Consult Myanmar](#), [McKesson](#)

TeamConnect: [Hewlett Packard Enterprise](#), Liberty Mutual Group

Neota Logic: Liberty Mutual Group, [Travelers Insurance](#)

SharePoint: Allianz Life Insurance Company of North America, Coast Capital Savings Credit Union

TAP: Electronic Arts Inc., [Hewlett Packard Enterprise](#), Liberty Mutual Group

Other workflow tools reported: Agiloft & Smartsheet ([Hagerty](#)), ALOE ([Bigfork Technologies, LLC](#)), Asana (Tasktop Technologies Incorporated), Bryter ([lopco](#)), Home Grown (Dassault Systemes Americas Corp.), Internal software for specific agreements ([GOJO Industries, Inc.](#)), Jira ([Expedia](#)), MS Power Automate ([Align Technology Inc.](#)), Service Now ([Workplace Safety and Insurance Board Ontario Ontario](#)), ThinkSmart & SmartSheet & Wrike.com (Idexx Laboratories, Inc.), Tonkian ([Lyft](#))

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Reminder – for ACC member use only.

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ABOUT ACC

The Association of Corporate Counsel (ACC) is a global legal association that promotes the common professional and business interests of in-house counsel who work for corporations, associations and other organizations through information, education, networking opportunities, and advocacy initiatives. With more than 45,000 members employed by over 10,000 organizations in 85 countries, ACC connects its members to the people and resources necessary for both personal and professional growth.

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By in-house counsel, for in-house counsel.®

2021

Legal Technology Report

FOR IN-HOUSE COUNSEL

exterro®

ACC Association of
Corporate Counsel

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Executive Summary

The Association of Corporate Counsel (ACC) and Exterro, the leader in Legal GRC software, are pleased to present our *2021 Legal Technology Report for In-House Counsel*. In today's in-house legal department, technology is no longer just a nice-to-have. With growing amounts of data to review, a variety of third parties — law firms, service providers, internal business units, etc. — to work with, and an evolving set of e-discovery, compliance, incident response, information governance, and data privacy requirements, corporate counsel must leverage technology to adequately protect and serve their organization.

With survey responses from 250 in-house counsel and legal operations professionals across 18 countries, this report first provides an overview of the technology categories most often used and respondents' take on how effective they are in their intended purpose. We then present results on technology purchasing behavior—the purchasing process, which business units are involved, the factors that influence the purchase—and in which areas departments are hoping to leverage technology more effectively. Finally, we present the challenges to technology implementation and which technology areas have been most helpful in reducing legal costs. We compare the results across job role—GC, in-house counsel, and legal operations professionals—and across company size and level of legal process optimization.

We hope that this report will be useful to both legal professionals and other key stakeholders in compliance, information technology, and information security. Many thanks to all survey participants for taking the time to share their valuable experience and perspectives.

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Key Findings

Key Findings



1 Legal technology is no longer a nice to have, but a must have.

Nearly two-thirds of survey respondents report that having legal technology in-house is now a must have. Efficiency is the primary benefit legal departments are looking to extract for using legal technology, with more than 50 percent of respondents stating they are somewhat to very interested in buying legal software in the next 12 months. This finding is not surprising since sixteen percent of respondents categorize their legal department processes as ad hoc, leaving a lot of opportunity for improvement.



2 The top legal technologies that will help ensure defensibility in these uncertain times: (1) E-Discovery, (2) Matter Management, and (3) Privacy

With the COVID-19 pandemic, an increasing amount of climate changes, and a constantly evolving business and regulatory environment, in-house counsel must ensure legal defensibility for their organizations. E-Discovery technology (i.e. legal hold, data collection/processing, document review) ranked number one with matter management and privacy technology (i.e. data inventory, data retention, DSAR, incident and breach response, etc.) rounding out the top 3. The emphasis on litigation and privacy showcases in-house counsel's awareness of the increasing demands regulators and rapidly growing data volumes are putting on the organizations they are advising.



3 Matter management, e-billing, and contract management are the most effective technologies

These three areas are considered the most effective categories of technology by the legal professionals that use them. Sixty-six percent of those who use matter management tools, 64 percent of e-billing users, and 61 percent of legal operations professionals using contract management tools consider them the most effective technology areas for the legal department from a list of 14 technologies.



4

Assessment of legal technologies varies by legal department role

Lawyers aim at leveraging software more effectively primarily with regards to contracts, and privacy and compliance issues. Legal operations professionals give less importance to these two areas but are twice more likely than lawyers to say they look to leveraging technology more effectively in litigation. In order to reduce costs, lawyers say that matter management tools are the most helpful to achieve that goal, whereas legal operations professionals stress the importance of e-billing technology, likely pointing to the type of technology in which each role is most often involved.



5

Purchasing technology is a longer, more complex process in larger and optimized organizations

In companies with under \$1 billion in revenue, the purchasing of legal technology typically involves between two to five individuals, IT is the other only department that is regularly involved in the process, and the process normally lasts less than six months. In larger organizations, more than five individuals are typically involved, the purchasing process receives input from IT, procurement, and information security, and it can take from three to 12 months to finalize a new software purchase. That said, larger organizations that are focused on optimizing processes continue to apply technology, with 63 percent indicating they are “definitely” or “considering” buying new software.



6

Most departments want to leverage technology to improve contract management, data privacy, and litigation activities

Contracts is the top area where participants want to leverage software more effectively for 77 percent of the respondents, with privacy (40 percent), and litigation (25 percent) rounding out the top 3. Interestingly, legal departments which were categorized as having optimized processes were looking to focus more attention on privacy and litigation activities compared to their less mature counterparts.



7

Top challenge when using technology is lack of software interoperability

The biggest pain point in using technology is that the software applications are not connected to one another. This leads to challenges in having to learn a variety of user interfaces. All being unique, this can be confusing and cumbersome for users, particularly when many experience a lack of IT support. Many respondents indicate that they would rather have a single comprehensive and unified software platform, and this is true across legal roles.

01 Technology Use and Effectiveness

01 TECHNOLOGY USE AND EFFECTIVENESS

Survey participants were first asked to classify the operational efficiency of legal processes in their organization based on a five-point scale ranging from “ad-hoc” (Level 1) to “optimized” (Level 5). This scale measures the level of sophistication, structure, and formal implementation of projects and processes in the organization, and the overall results show a relatively even spread across levels.

One in six participants indicated that their legal processes are ad-hoc, that is, largely experimental, with no management or dedicated budget. Eight percent indicated that their processes are optimized, the most advanced state, which is characterized by strong executive team buy-in, a significant budget, and the widespread use of metrics and business intelligence for process optimization. Seventy-six percent of participants said their processes are somewhere in the middle: either defined, structured, or managed.



1 IN 6

**PARTICIPANTS INDICATED
THAT THEIR LEGAL
PROCESSES ARE AD-HOC**

How would you categorize legal processes at your organization?

LEVEL 1 – AD HOC	Experimental, ever-changing process, with no management and no budget
LEVEL 2 – DEFINED	Management is aware of the process but doesn't enforce it, only part-time resources allocated
LEVEL 3 – STRUCTURED	Formal projects with defined roles throughout the process, dedicated budget along with management buy-in
LEVEL 4 – MANAGED	Well-defined and dedicated resources to support the defined process, requirements driven along with executive sponsorship
LEVEL 5 – OPTIMIZED	Prioritized by executive team with a significant budget, staff uses metrics and other business intelligence to influence and optimize the process.

OVERALL RESULTS



01 TECHNOLOGY USE AND EFFECTIVENESS

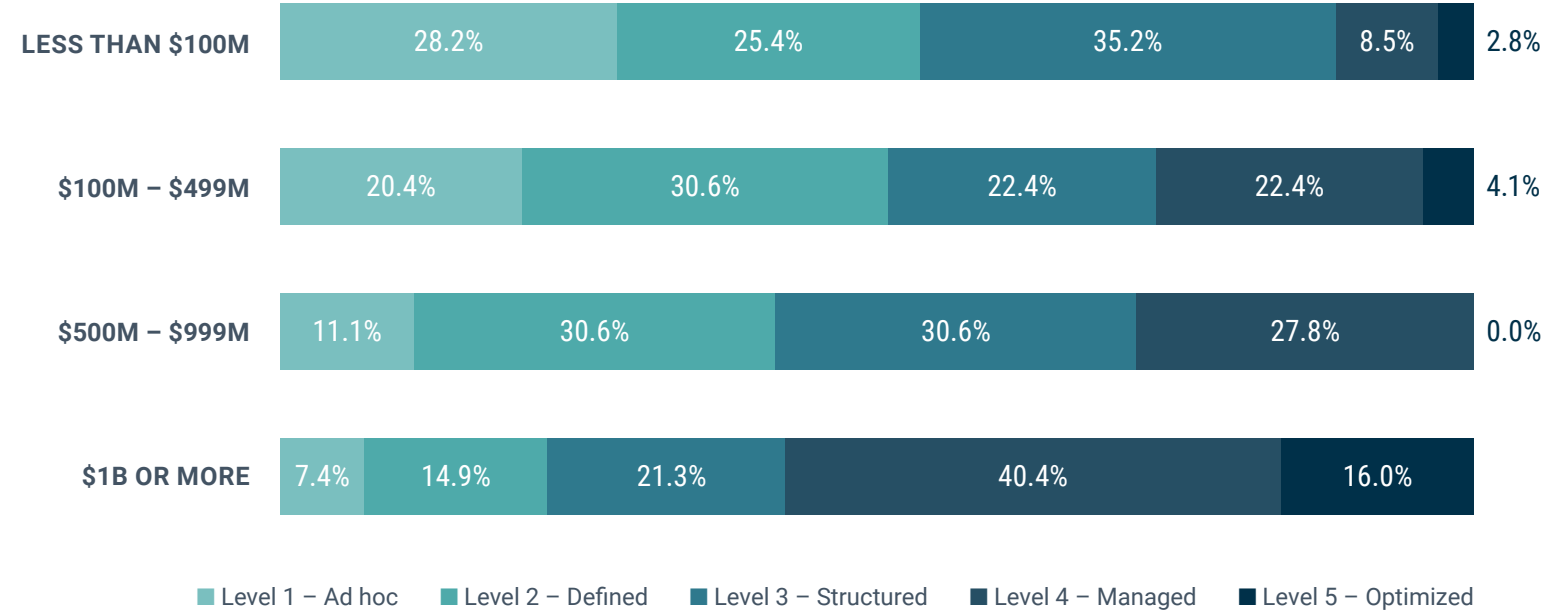
The level of legal processes is distributed quite differently, however, when taking the size of the company into account. Larger companies, as measured by annual revenue, tend to have far more optimized legal processes.

In the smallest revenue category — companies with under \$100 million — more than half of respondents indicated their legal processes to be either ad-hoc or defined (levels 1 and 2 on the scale), while only about ten percent report legal processes to be either managed or optimized (levels 4 and 5). Thirty-five percent of respondents indicated having structured processes (level 3).

Companies with more than \$1 billion in revenue report significantly larger levels of legal processes optimization. One in six claims that their legal processes are optimized (highest point on the scale) and an additional 40 percent reported managed legal processes. On the other end, only about one in five respondents in this revenue group indicate that legal processes in the organization are either ad-hoc or defined (levels 1 and 2).

This progression by company size is also exemplified clearly when considering the median. The median legal departments in the first two revenue categories — under \$100 million and between \$100 million and \$499 million — report a defined level of legal processes (2), the median department in the \$500 million to \$999 million revenue category is slightly ahead, with structured legal processes (3). Finally, the median department in the \$1 billion or more revenue group reports managed legal processes (4).

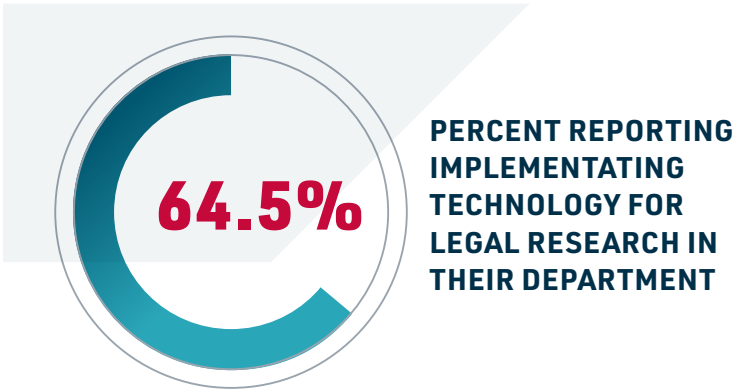
LEGAL PROCESSES LEVEL BY COMPANY REVENUE



COMPANIES WITH MORE THAN **\$1 BILLION**
IN REVENUE REPORT **SIGNIFICANTLY LARGER**
LEVELS OF LEGAL PROCESSES OPTIMIZATION.

01 TECHNOLOGY USE AND EFFECTIVENESS

We then asked what categories of technology departments are using. Technology for Legal Research is the most widely used by participants, with 64.5 percent reporting its implementation in their department, followed by document repository with 53.7 percent, and contract management with 50.6 percent. E-billing ranks fourth, and a group of four areas— matter management, legal hold, document review, and data retention — have around one-third of departments using technology to manage these.



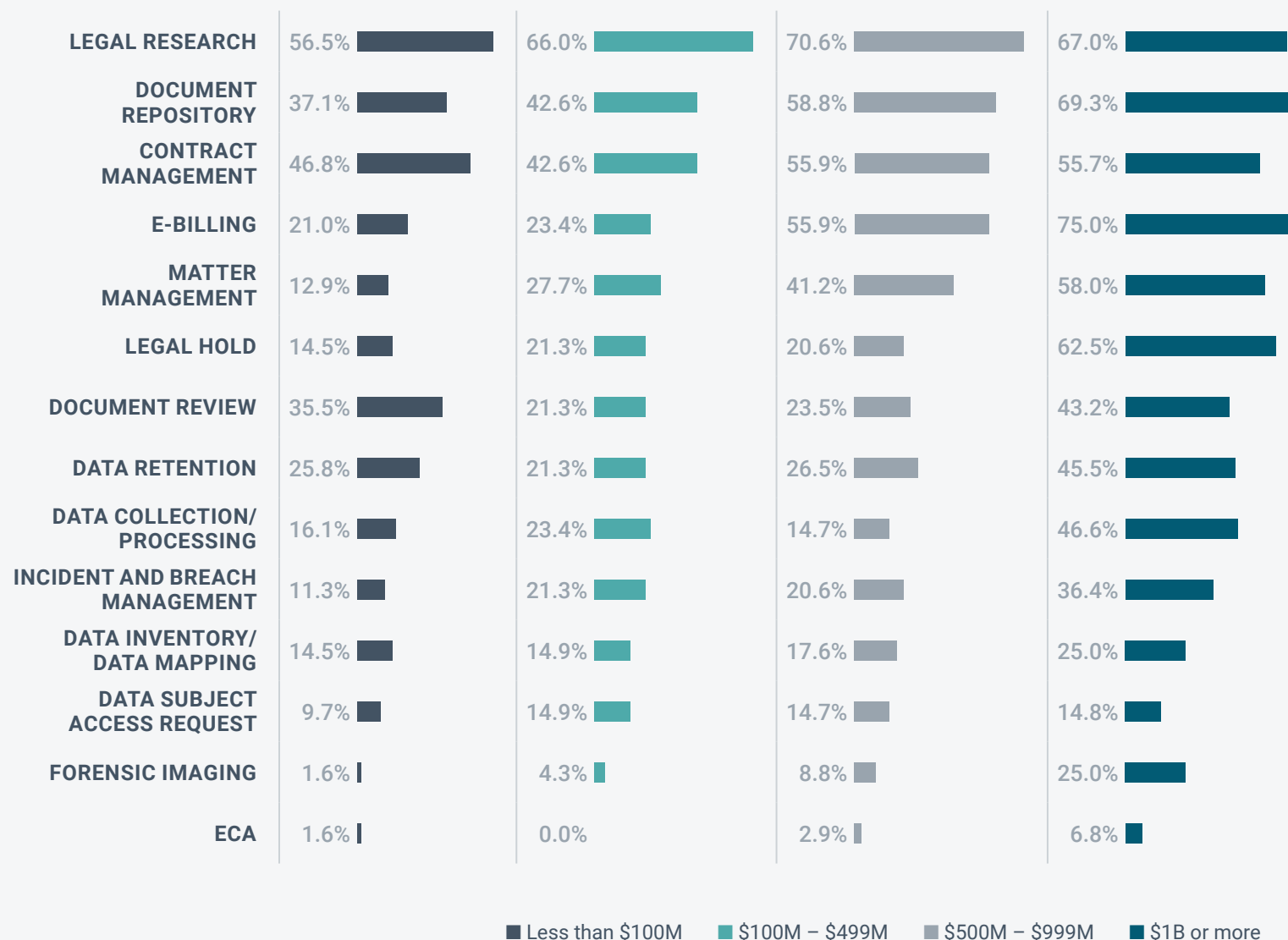
What legal technologies does your legal department use?



01 TECHNOLOGY USE AND EFFECTIVENESS

Technology use increases in larger organizations, as shown in the following chart. A higher percentage of billion-dollar companies use every category of technology listed compared to smaller \$100 million companies. In addition, the most commonly used tech areas vary across company size. For example, 75 percent of companies over \$1 billion use e-billing technology – the most used technology in this group – compared to just 21 percent of those departments in organizations with \$100 million or less. Matter management (58 percent v. 13 percent) and legal hold (63 percent v. 15 percent) also show significant differences in usage between small and large companies.

LEGAL TECHNOLOGIES USED BY COMPANY REVENUE



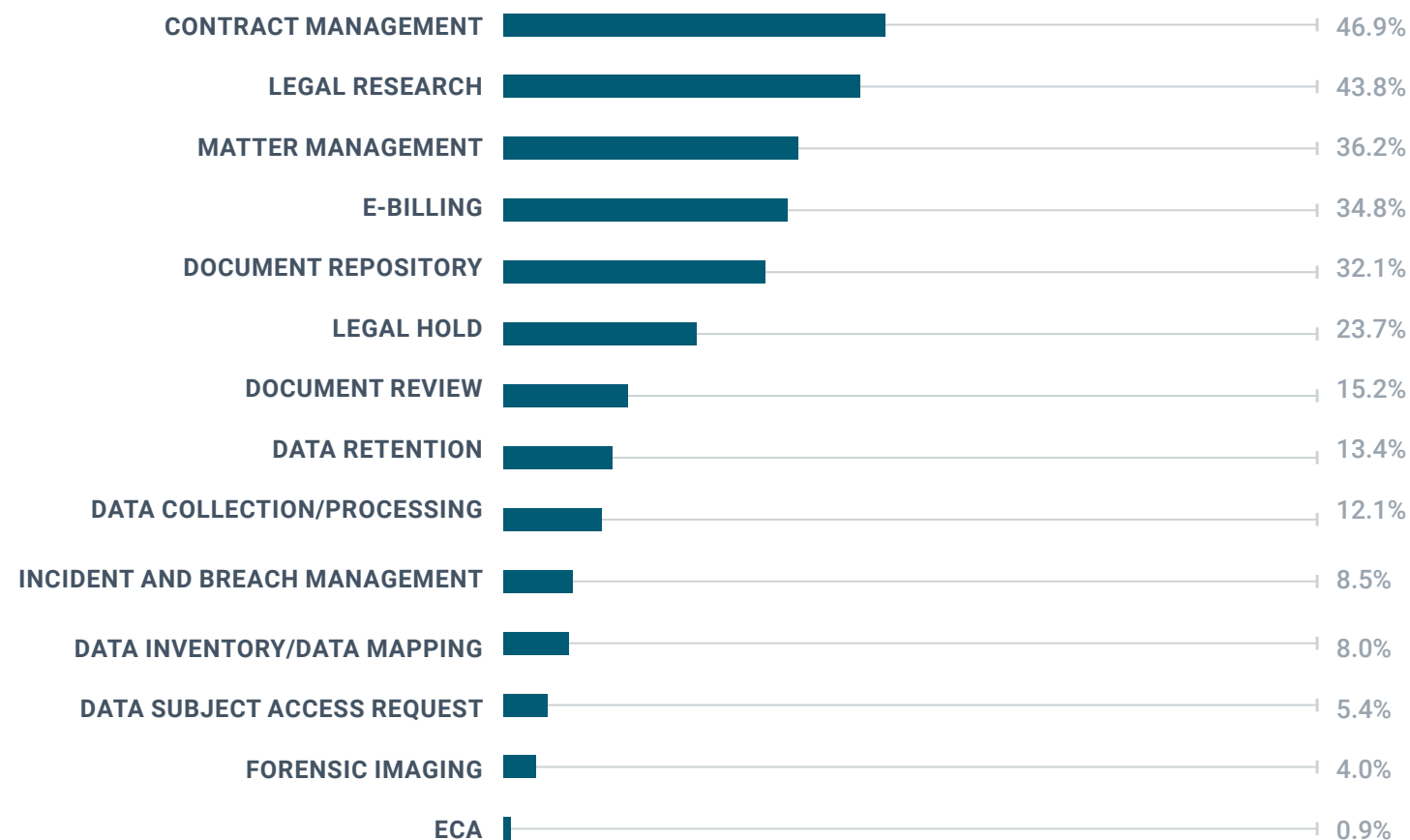
01 TECHNOLOGY USE AND EFFECTIVENESS

After identifying the tech areas currently used in the legal department, participants were asked to indicate which of the technologies they found most effective, with the possibility to make up to four selections. The following chart provides the overall results, showing that 47 percent of participants selected contract management as one of the most effective technologies, followed by legal research (44 percent), matter management (36 percent), e-billing (35 percent), and document repository (32 percent).

It is important to note that the percentages are based on all survey respondents, including many that do not use some of the technologies listed and consequentially will not be able to find it effective. The results are still valuable since they provide an overall ranking of the technology areas that in-house counsel and legal operations professionals find most effective.

What legal technology do you find most effective?

(Please select up to 4)

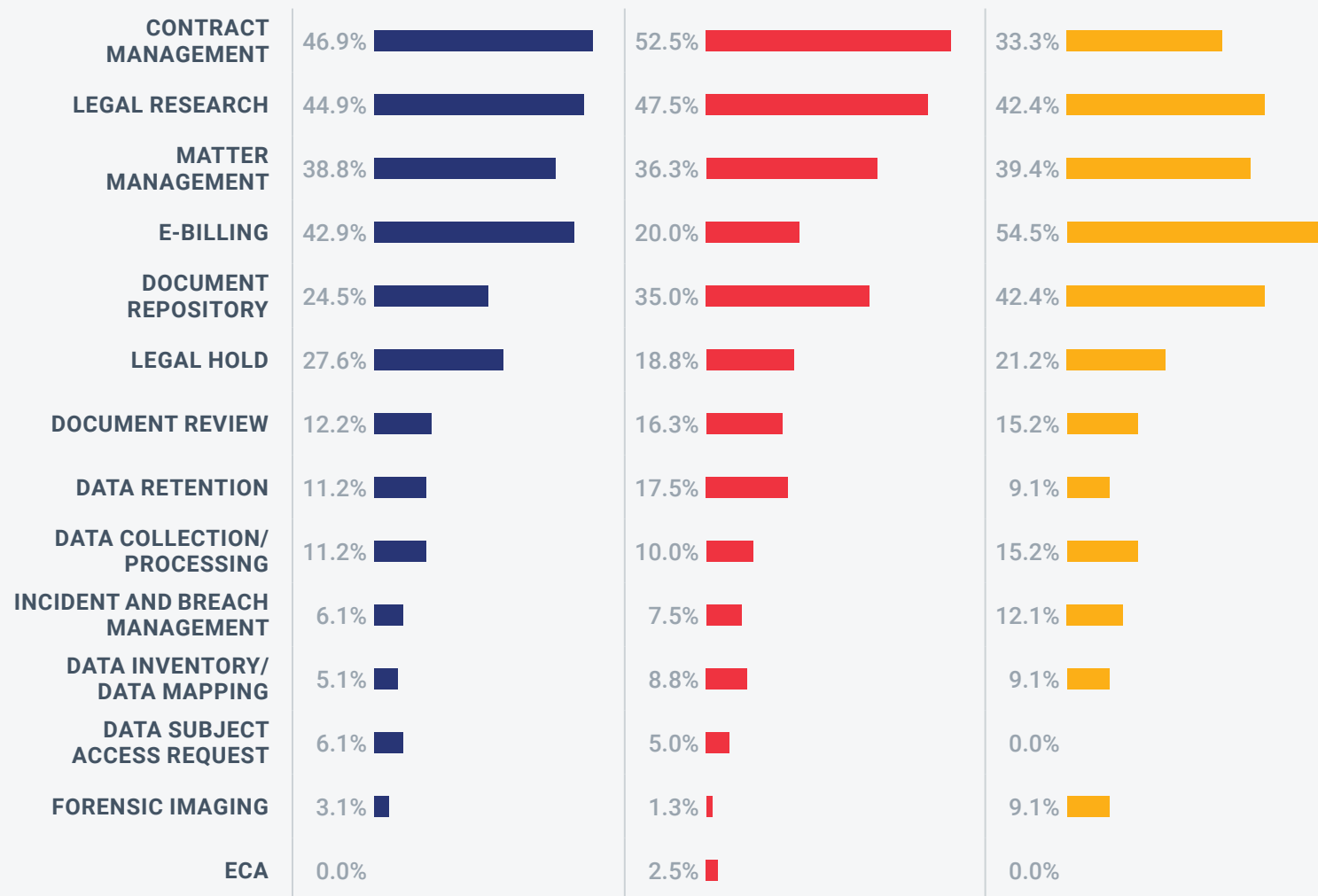


01 TECHNOLOGY USE AND EFFECTIVENESS

In fact, in-house counsel and legal operations professionals have somewhat different views on which technology areas are most effective. This chart breaks down the results by the participants primary role in the legal department: in-house counsel (non-GC), general counsel/chief legal officer, and legal operations professional.

In-house counsel find contract management to be the most effective technology – 47 percent of non-GC in-house counsel and 53 percent of general counsel – but only 33 percent of legal operations professionals find contract management among the most effective technologies. The opposite is true of e-billing, with 55 percent of legal ops considering it to be one of the most effective technologies compared to just 43 percent of in-house counsel (non-GC) and only 20 percent of general counsel. Document repository is also more often selected by legal ops professionals than in-house counsel, whereas legal research and matter management record similar percentages across legal department roles.

MOST EFFECTIVE LEGAL TECHNOLOGIES BY LEGAL DEPARTMENT ROLE



■ In-house Counsel (non-GC) ■ General Counsel/CLO ■ Legal Operations Professional

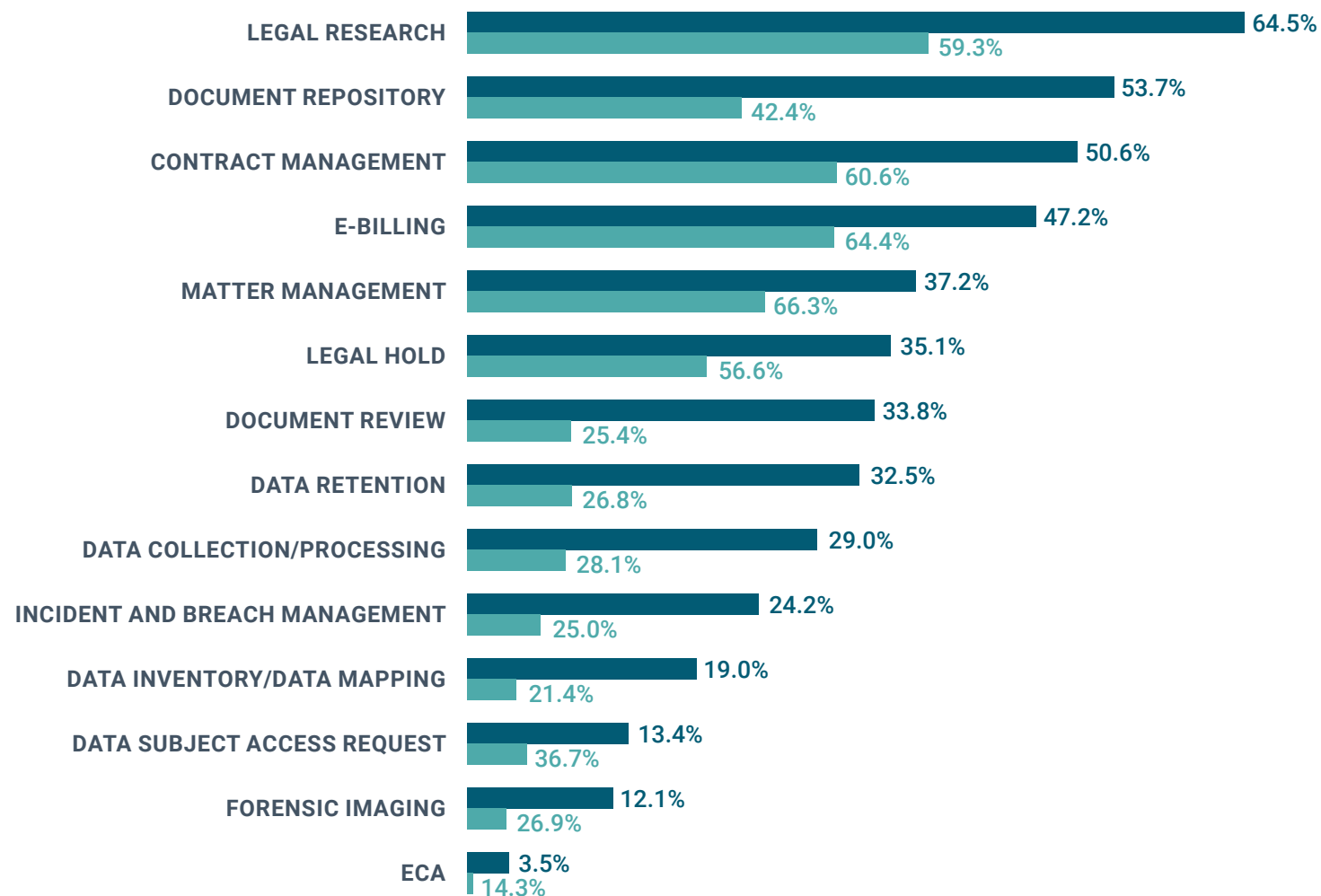
01 TECHNOLOGY USE AND EFFECTIVENESS

A different way to look at legal technology effectiveness is provided by the following chart, which combines technology use with effectiveness. The list of technology areas is ordered by the percentage of participants that reported using technology in each of those categories, from highest — legal research, 64.5 percent — to lowest — ECA, 3.5 percent.

The inner bar reports the percentage of users of that technology that selected it as one of the most effective. Fifty-nine percent of participants that use legal research technology find it one of the most effective, but three other technology areas have higher effectiveness percentages. Among those who use matter management software, two-thirds find it to be one of the most effective technologies, while the same occurs for 64 percent of e-billing users and 61 percent of participants that use contract management technology. Additionally, fifty-seven percent of those who use legal hold software find it among the four most effective technologies that they use.

Document repository technology is the second most widely used — 54 percent of respondents indicated so. However, only 43 percent of those who use it rank it as one of the most effective technologies to carry out their legal work. The remaining technologies on the list have lower effectiveness selection rates, with about one-quarter of those that use document review, data retention, data collection/processing, and incident and breach management ranking them among the four most effective technology areas.

TECHNOLOGY USE AND EFFECTIVENESS



■ Percentage that uses technology ■ Percentage that finds technology most effective among those that use it

01 TECHNOLOGY USE AND EFFECTIVENESS

Why do you find these legal technologies the most effective?

[OPEN-ENDED]

The following figure provides representative quotes from participants on the specific benefits of the most widely used technology areas. Participants underscore the efficiency gains brought by technology solutions and the time saved compared to manual processes as two of the main reasons why legal technologies are effective. Ease of use as well as the automation of processes enabling staff to spend more time on high-value work are qualities greatly valued.

LEGAL TECHNOLOGIES

LEGAL HOLD

"One-click legal holds that **effectively hold data behind the scenes** are best – asking people to maintain documents when they're subject to inbox size limits or when they're on an extended legal hold and might forget are recipes for disaster."

DOCUMENT REVIEW

"Document collection and review for large scale litigation is **more cost effective than manual processes** without quality compromise."

DATA RETENTION

"In a busy department with a small team matter management and data and records retention could otherwise **take a lot of time and be ineffective.**"

DATA COLLECTION/PROCESSING

"Data collection and processing is the **most powerful tool** for developing insights and making informative decisions."

MATTER MANAGEMENT

"Matter management allows tracking, reporting, and ensuring that **work gets done.**"

GENERAL COMMENTS

"Efficiency and **process consistency.**"

"Technology **increases the efficiency of the team.** It allows the lawyers to focus time on more strategic/value added work as opposed to the administrative tasks required to get the job done."

"The systems are very **user friendly.**"

"Technologies achieve the purpose, are secure, and **save time over manual processes.**"

02

Technology Assessment and Purchasing Behavior

02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

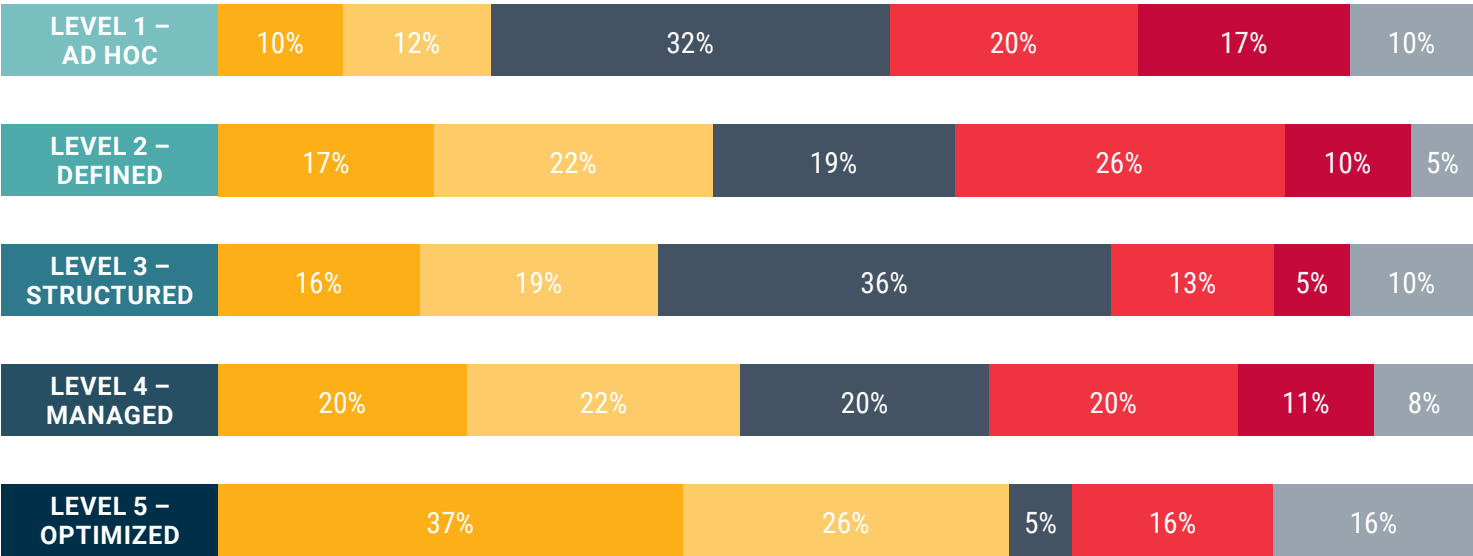
When considering expectations from survey participants on whether their legal department will invest in purchasing new technology or upgrading existing technology in the next year, 18 percent reported that they will definitely make an investment. An additional 20 percent report that acquiring new technology was being evaluated. One-quarter of participants were unsure, and an additional 20 percent responded negatively, though not decisively. Only nine percent of respondents categorically said that their legal department is not expected to upgrade their technology portfolio in the coming year. Nine percent of participants said that they are unsure.

Expectations on upgrading legal software vary, however, when we consider the level of the legal processes in the legal department. Only 22 percent of departments in the level 1, ad-hoc processes category reported their department to be considering buying or upgrading technology solutions, compared to 63 percent of departments with optimized legal processes.

Does your organization plan to buy additional legal software or upgrade legal software in the next 12 months?



PLANS TO BUY ADDITIONAL SOFTWARE BY ORGANIZATION'S LEGAL PROCESS LEVEL



Yes, definitely Yes, we are assessing Maybe, not sure No, probably won't No Don't know

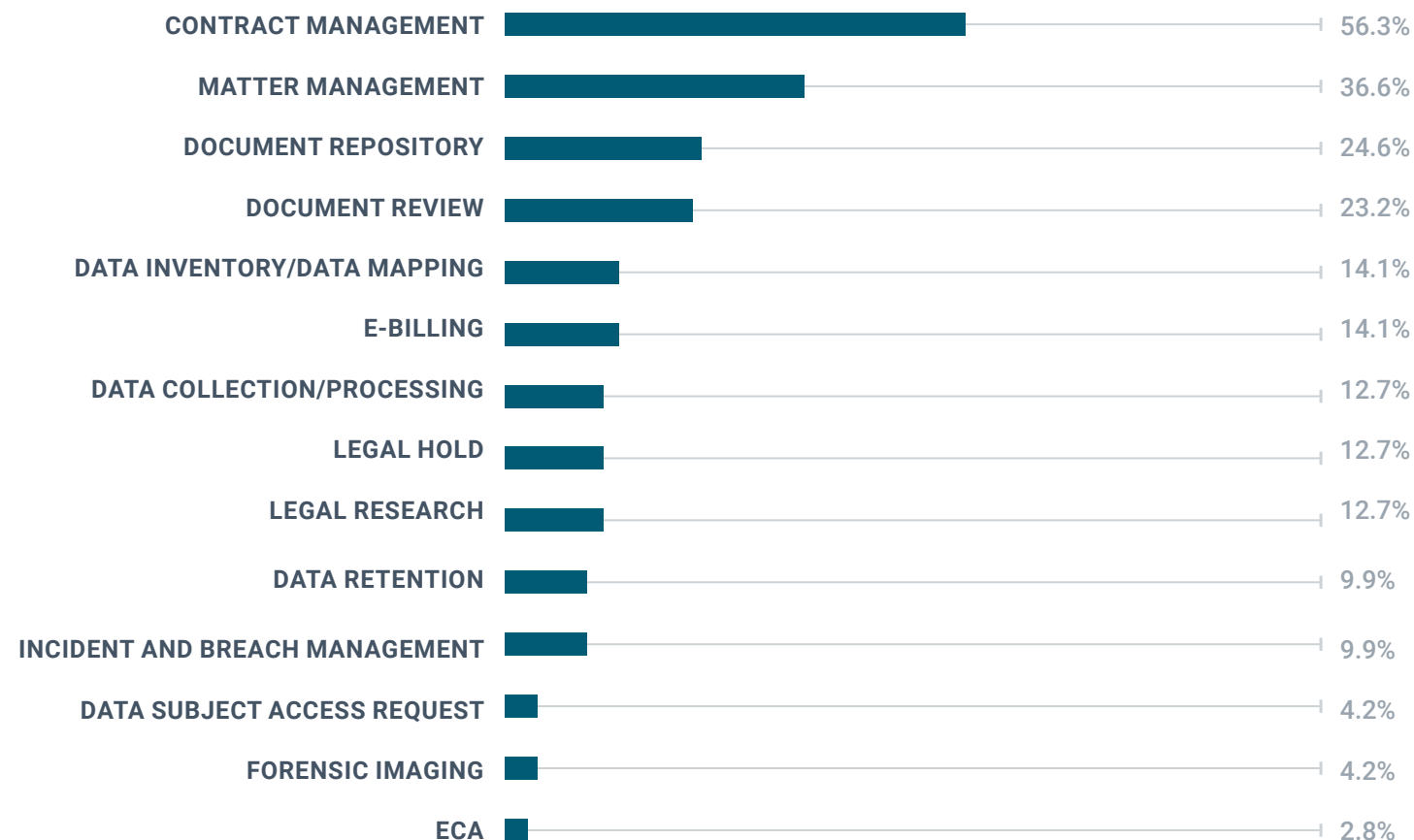
02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

Those who responded yes or maybe to the previous question were also asked about which specific technologies they were considering upgrading or purchasing. More than half reported looking into investing in contract management technology, followed by matter management (36 percent), document repository (25 percent), and document review (23 percent).



What legal technology are you currently assessing or looking to purchase or upgrade?

Only asked to those that responded yes or maybe in the previous question.

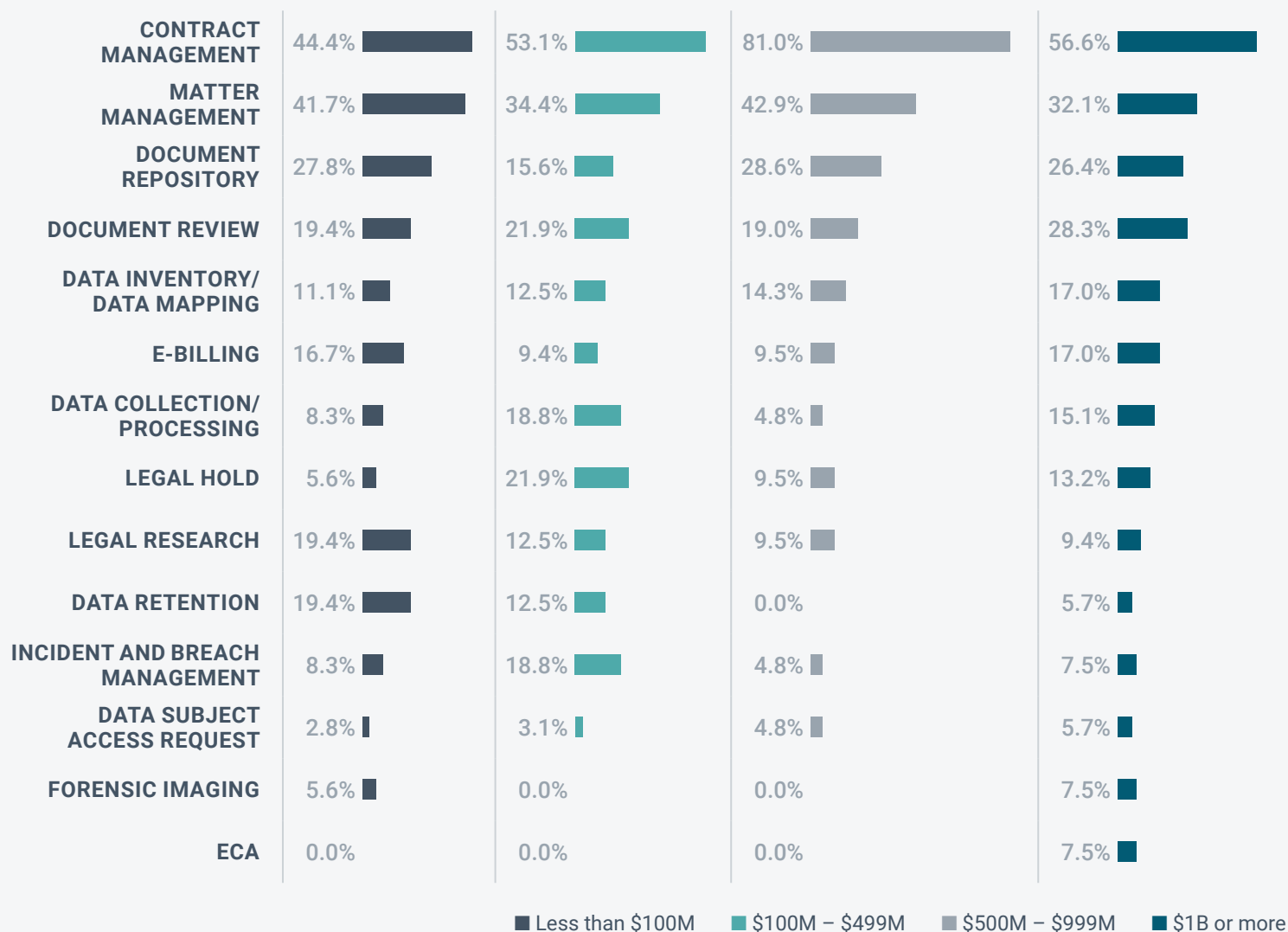


02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

Contract management is the technology that most legal departments are considering upgrading or investing in across company sizes, though with varying intensities. Forty-four percent of small companies with under \$100 million in revenue reported looking into a contract management software upgrade compared to 81 percent of those in the \$500 million to \$999 million category.

Matter management comes second as well across all company sizes, followed by document repository or document review. One in five participants in the smallest revenue range are looking into investing in legal research and data retention, while a similar share of respondents in the \$100 million to \$499 million bracket are considering an upgrade in data collection, legal hold, and incident and breach management technology.

LEGAL TECHNOLOGY ASSESSMENT TO PURCHASE OR UPGRADE BY COMPANY REVENUE



02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

Why are you looking to purchase or upgrade your selection(s)?

[OPEN-ENDED]

This word cloud summarizes the key concepts mentioned by participants when sharing their insights on the reasons behind the decision to upgrade or purchase new technology solutions. Increasing efficiencies is certainly one of the main goals, alongside improving or streamlining work processes in the legal department with the assistance of new technology.

Regarding subject matter, participants are looking to improve their contract and matter management capabilities with the help of new or upgraded tools. Some departments and organizations are also growing and expanding the use of legal technology will assist automating processes instead of doing much more manual work, and therefore save valuable time, according to several participants. Artificial intelligence was also mentioned as the way forward to achieve these goals, specially applied to contract and document management.

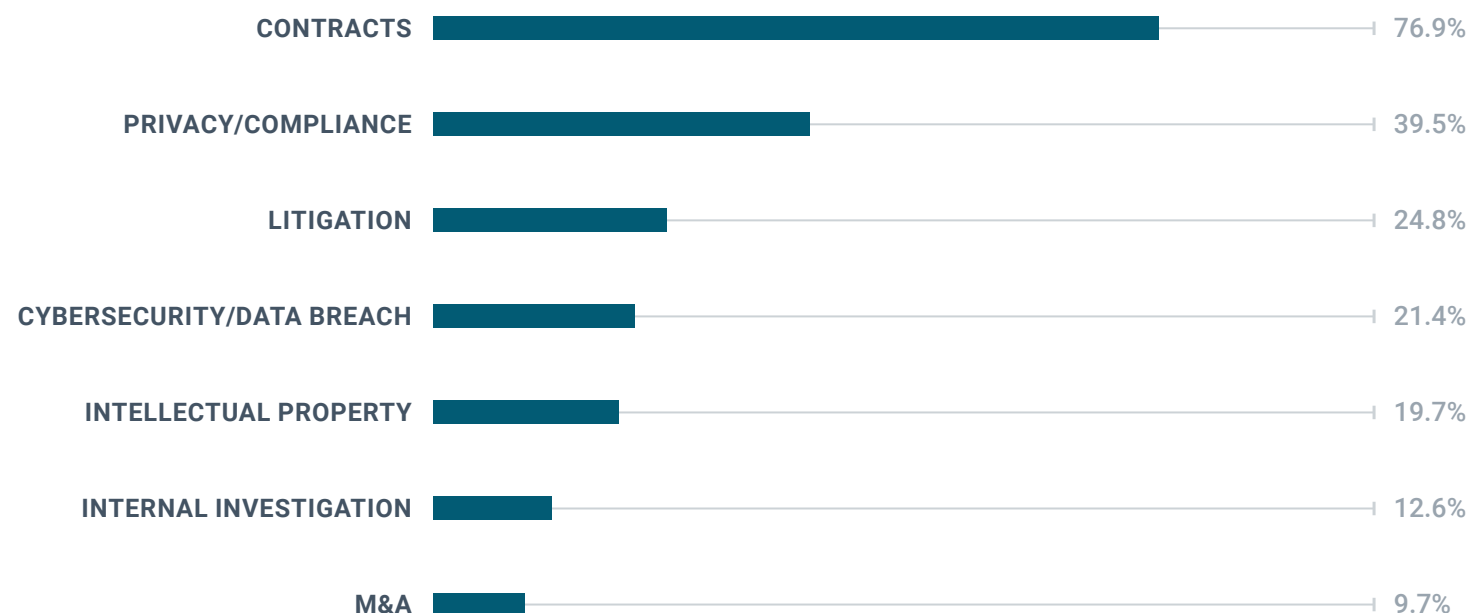


02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

The previous section reported on the technologies that participants found most effective. We also examined where existing technology might be used more effectively. Specifically, we inquired about practice areas in which participants were seeking ways to better leverage software. In a multiple-choice question which allowed for three selections, an overwhelming majority of participants (77 percent) reported that they want technology to help them improve contracts. Forty percent are also looking to leverage technology to assist with privacy and compliance issues, 25 percent selected litigation, 21 percent cybersecurity and data breaches, and 20 percent intellectual property. A smaller share of respondents indicated that technology will most effectively assist with internal investigations (13 percent) and mergers and acquisitions (10 percent).

Which areas in your legal department are you looking to leverage software more effectively?

(Please select up to 3)

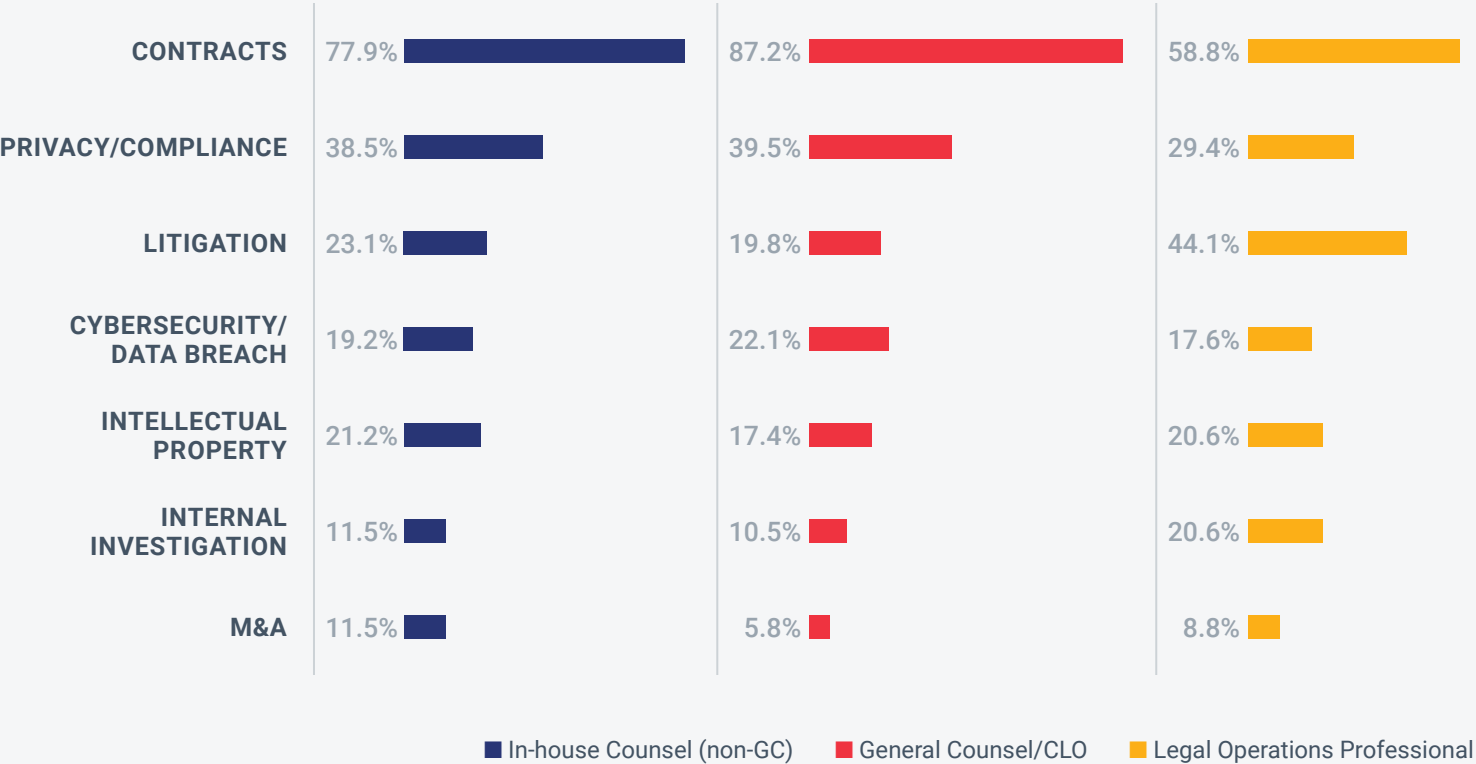


02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

We noticed some interesting variations between in-house counsel and legal operations professionals in their perceptions on how technology can most effectively facilitate legal department work. These perceptions seem to align rather well with the work nature and responsibilities of these two professional categories.

Lawyers overwhelmingly expect to leverage technology most effectively in contract work — 77 percent for non-GC attorneys and 87 percent of GC indicated so, but only 58 percent of legal operations professionals. Lawyers also place more emphasis on privacy and compliance matters — around 39 percent — than legal operations professionals — 29 percent, a ten-point difference. Conversely, 44 percent of legal operations professionals expect to leverage technology most effectively regarding litigation, practically twice that of in-house counsel. Similarly, 20 percent of legal operations professionals look to leverage technology most effectively in internal investigations, while only half that number of in-house counsel expect so.

AREAS TO LEVERAGE SOFTWARE MORE EFFECTIVELY BY LEGAL DEPARTMENT ROLE



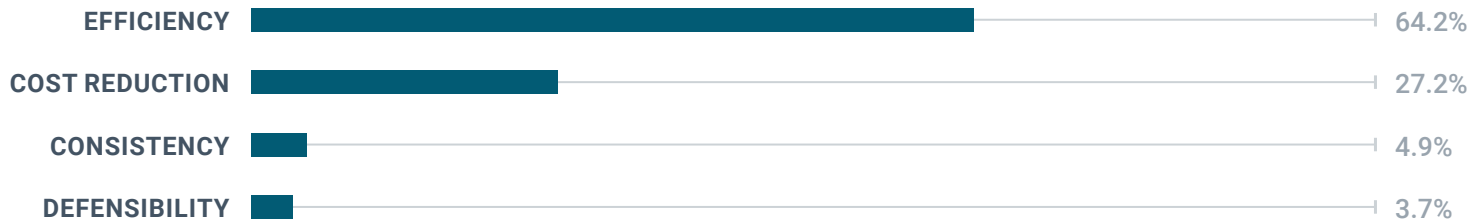
02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

Efficiency is the main factor that most departments consider when deciding on legal technology purchases. Sixty-four percent indicated this as the principal deciding factor. Around one-quarter (27 percent) selected reducing cost as the main driver for acquiring new legal technology, while consistency (5 percent) and defensibility (4 percent) are less important priorities among participants.

Efficiency is the main factor when breaking down the results by both company size and the participants' role in the legal department. Around six in ten in-house counsel in both small and large companies selected efficiency, while this is clearly the most important factor for general counsel and CLOs – 75 percent of those in small companies selected efficiency and so did 88 percent of general counsel in companies with a revenue larger than \$1 billion.

Legal operations professionals present an interesting contrast. Those in smaller organizations with under \$1 billion in revenue consider efficiency the most important factor (67 percent). However, only 31 percent of legal operations professionals in larger companies consider efficiency the most important factor, while almost half (46 percent) point instead to cost reduction.

What is the biggest factor in deciding whether your legal department will purchase legal technology?



BIGGEST FACTOR IN DECIDING TO PURCHASE LEGAL TECHNOLOGY BY ROLE AND REVENUE

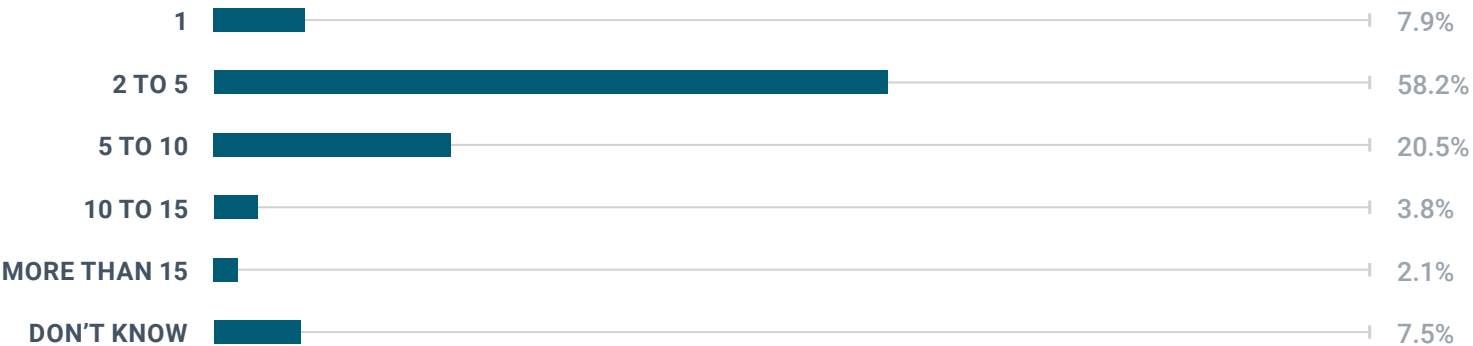
		EFFICIENCY	COST REDUCTION	CONSISTENCY	DEFENSIBILITY
IN-HOUSE COUNSEL (NON-GC)	LESS THAN \$1B	61%	35%	2%	2%
	\$1B OR MORE	59%	31%	6%	4%
GENERAL COUNSEL/ CLO	LESS THAN \$1B	75%	17%	5%	3%
	\$1B OR MORE	88%	8%	0%	4%
LEGAL OPERATIONS PROFESSIONAL	LESS THAN \$1B	67%	24%	10%	0%
	\$1B OR MORE	31%	46%	15%	8%

02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

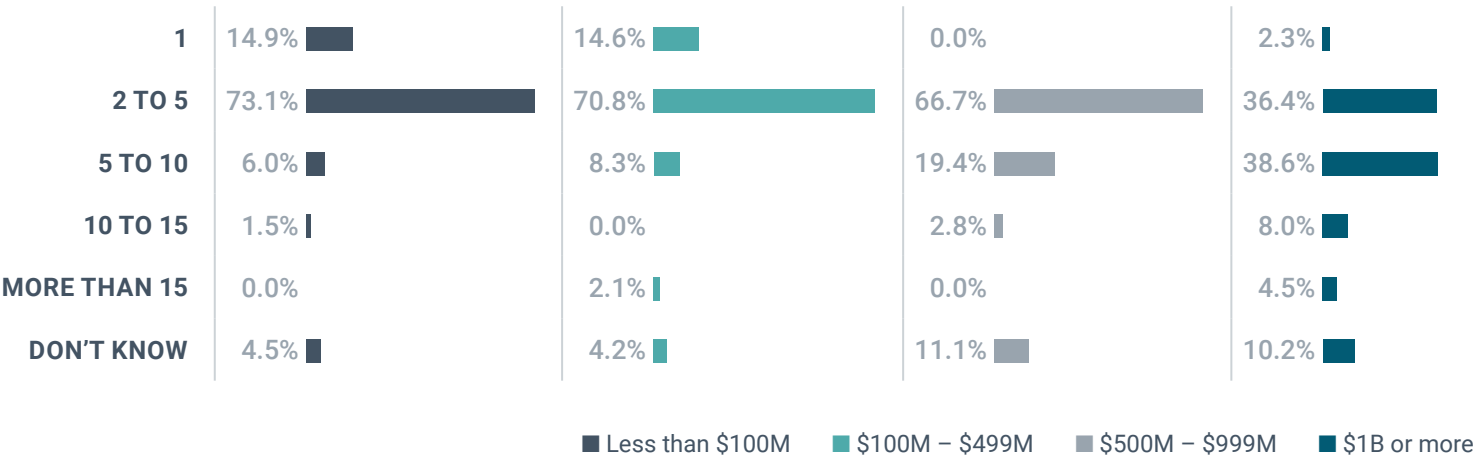
The process of buying legal technology typically involves between two and five individuals based on the survey participants' feedback. In eight percent of departments, just one person is involved, while two to five people is the most common with 58 percent. Twenty-one percent of departments reported that between five and ten people are involved, and only six percent of participants reported that purchasing technology in their organization involves ten or more individuals.

The larger the organization, the more complex processes can be, and the more people are required to provide input when purchasing legal technology. Seven in ten respondents in organizations under \$500 million in revenue report that between two to five people are involved in the process, while in larger organizations with a revenue ranging from \$500 million to \$1 billion the number of people involved increases a bit. Sixty-seven percent report that two to five people are involved in the process of buying new technology, and an additional 19 percent report that five to ten individuals are involved. In large companies with more than \$1 billion in revenue, 38 percent indicate that between five and ten people are involved and 36 percent report that two to five people decide on legal technology purchases.

How many people are usually involved in the process of buying legal technology at your organization?



NUMBER OF PEOPLE INVOLVED IN BUYING LEGAL TECHNOLOGY BY COMPANY REVENUE

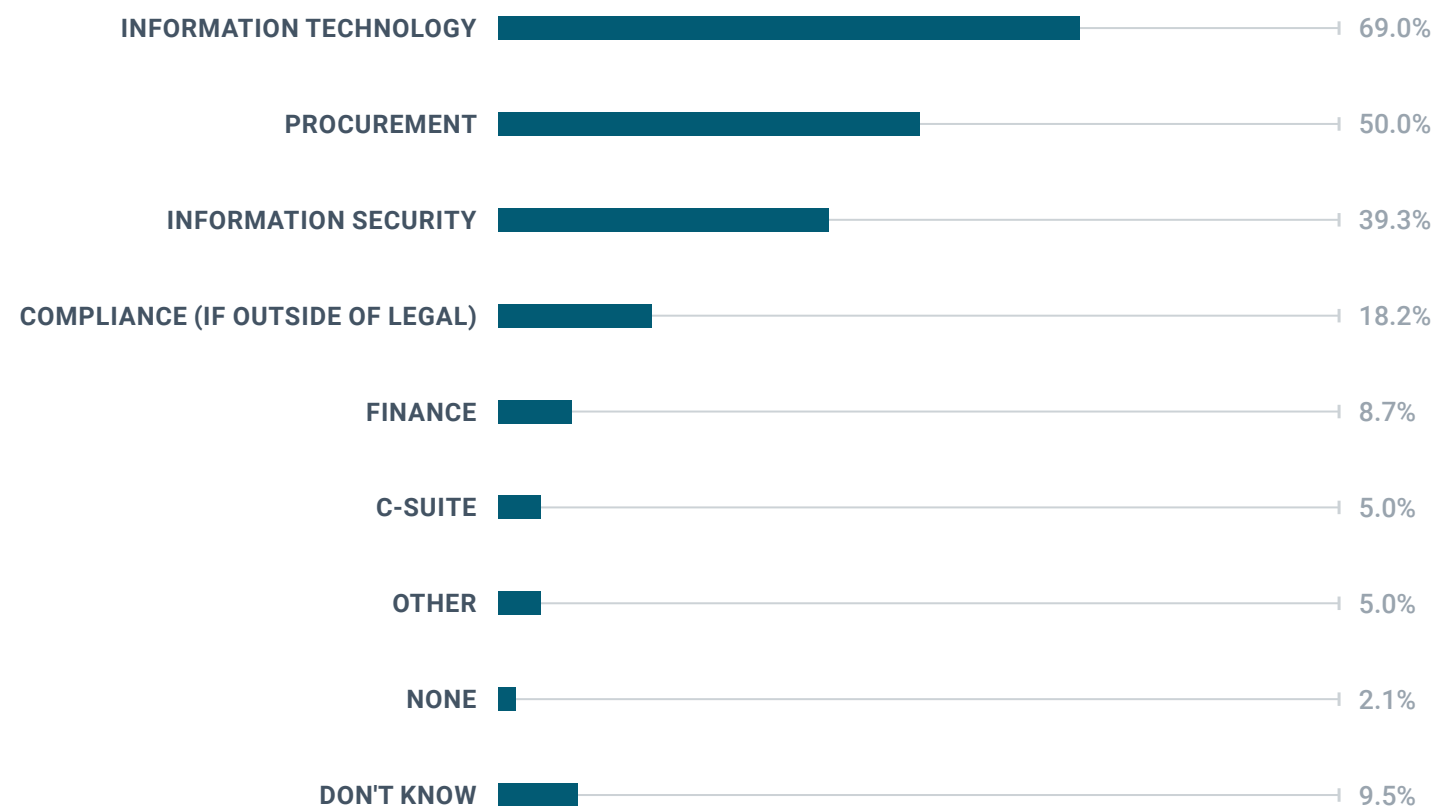


02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

In addition to asking about the number of individuals involved in the purchasing process, we also asked about the involvement of business units outside of legal. Not surprisingly, information technology (IT) is the main partner in most cases (69 percent of departments). Half of participants indicate that procurement is also involved, and 39 percent report the involvement of the compliance function, if separate from legal. Nine percent report that finance is involved, and five percent reported the involvement of some company executives, or other divisions. Interestingly, two percent of respondents indicated that no other business function is involved, other than legal, in determining whether to purchase legal technology.

Which business units outside of legal are involved in the purchasing of legal technology at your organization?

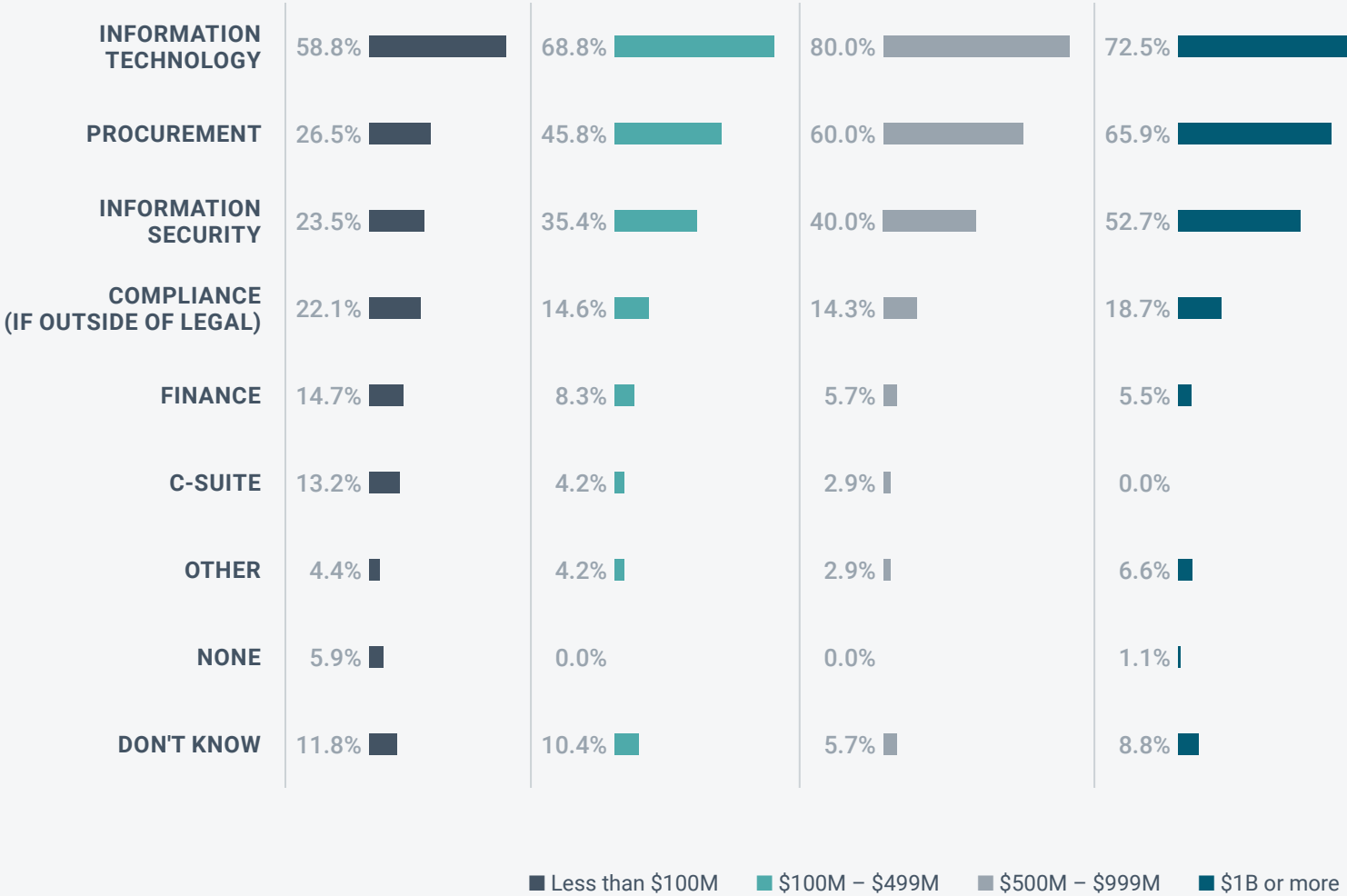
(Please select all that apply)



02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

The breakdown of the results by company size shows some interesting variations, even though the general pattern remains the same across company revenue ranges. The IT and procurement departments tend to be more involved in the purchasing process in larger organizations than in smaller organizations. The same is true for the information security unit. The direct involvement of C-suite executives and the finance department tends to go the other way and decreases when the size of the company increases.

BUSINESS UNITS INVOLVED IN PURCHASING LEGAL TECHNOLOGY
BY COMPANY REVENUE



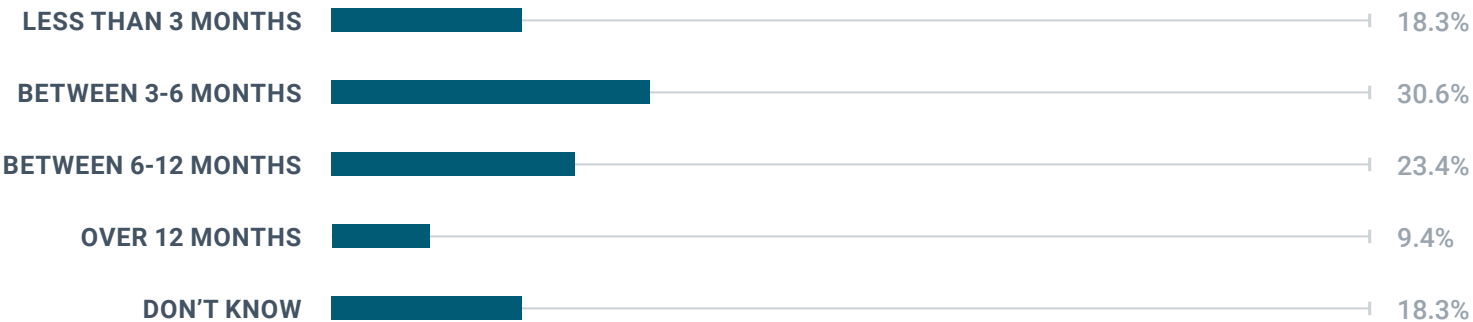
02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

So far, we have shown how many individuals are involved in the process of purchasing legal technology and which business units other than legal provide input in the process, but how long does the process take?

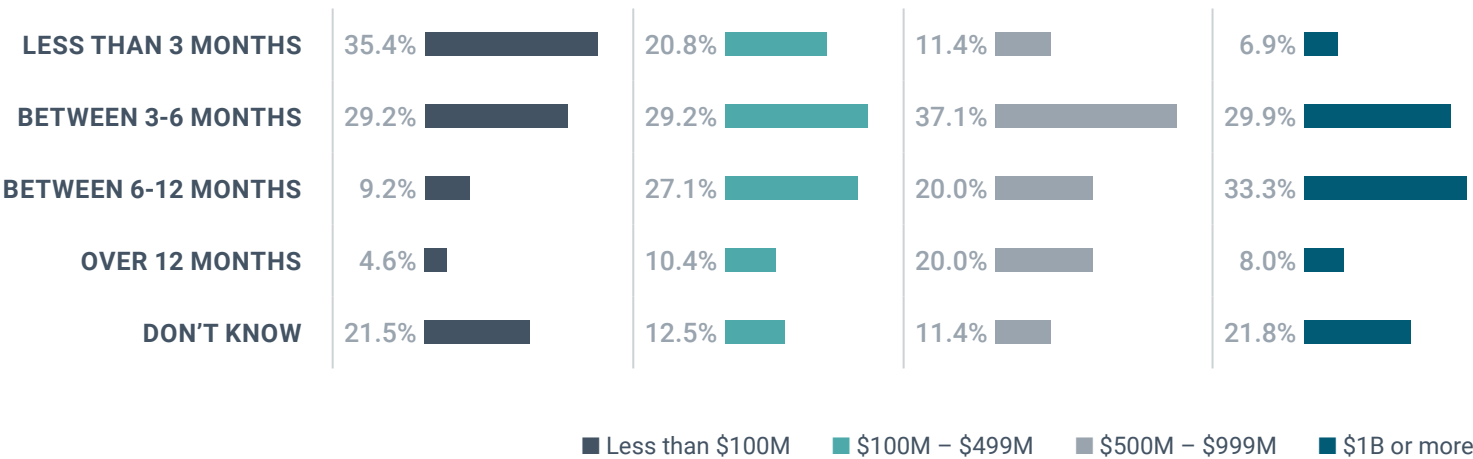
On average, our respondents say less than a year, with 18 percent saying that it can be done in less than three months, 31 percent say it takes a little longer, between three and six months, and 23 percent say that it can take between six and 12 months to finalize a technology purchase. Nine percent reported that the process takes longer than one year.

The results broken down by company revenue suggest that the purchasing process takes longer for larger companies. Around half of companies under \$1 billion reported the process to last less than six months, whereas this is the case in about 36 percent of companies with \$1 billion or more in revenue. One-third of companies in this latter category reported that the process takes between six to 12 months.

On average, how long is the buying process for legal technology at your organization?



LENGTH OF LEGAL TECHNOLOGY PURCHASE PROCESS BY COMPANY REVENUE



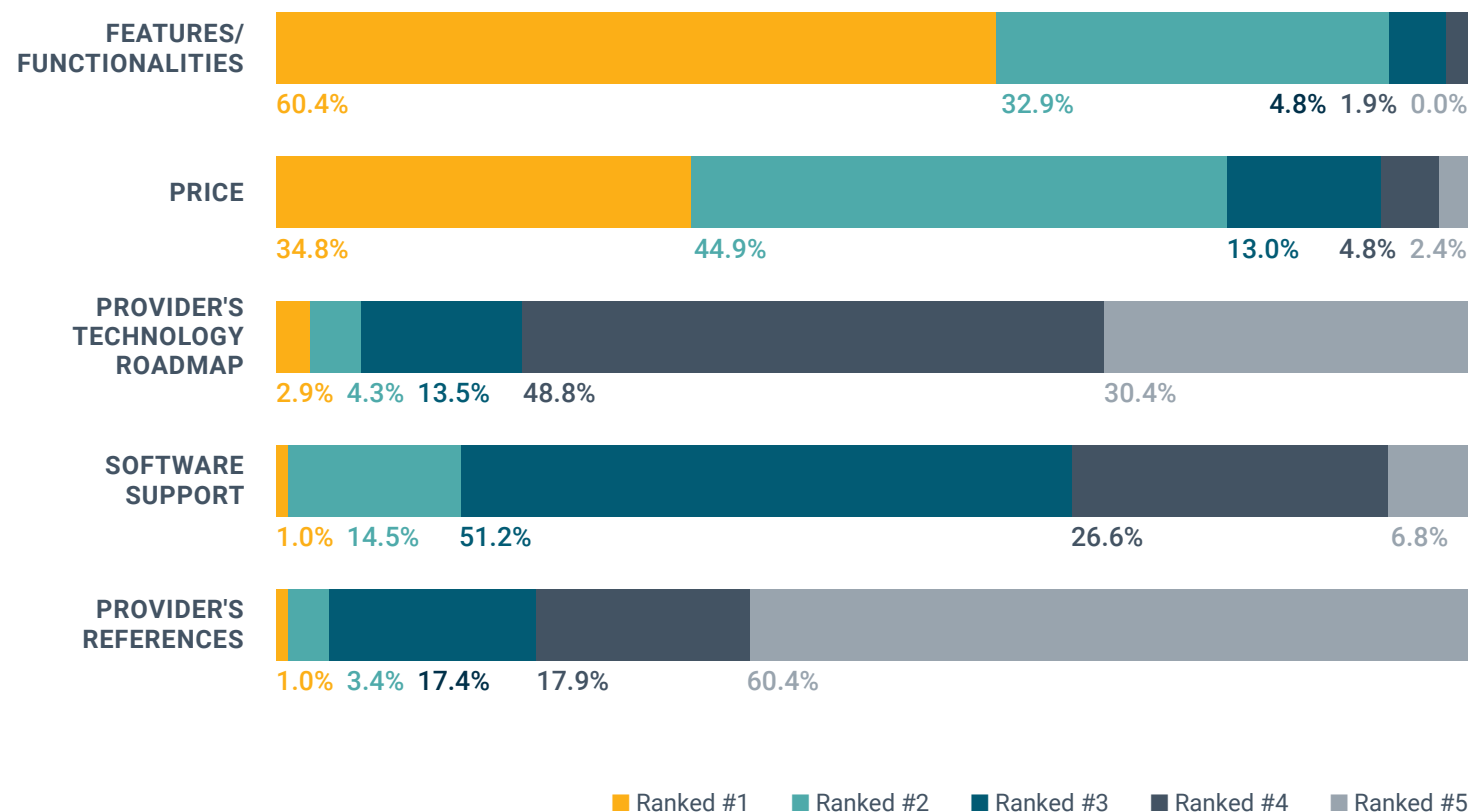
02 TECHNOLOGY ASSESSMENT AND PURCHASING BEHAVIOR

Participants were also asked to rank five factors that may influence their decision to purchase a specific legal technology software, from most important (ranked #1) to least important (ranked #5). Six in ten respondents ranked the software's features and functionalities as the most important factor, while 35 percent said that price was the main factor impacting the decision. Only a minority of respondents indicated that either the provider's technology roadmap, references, or software support were the most important factor.

Features and functionalities, and price were the most common second options as well, thus the former was selected among the top two most important factors by 93 percent of participants, and the latter by 80 percent. Although just one percent selected software support as the main factor, 14.5 percent of participants selected it as the second most important factor, and more than 51 percent ranked it as their third most important element to consider. The provider's technology roadmap was ranked in fourth place by almost half of participants, and sixty percent said a provider's references were the least important factor in deciding whether to purchase a specific technology.

When considering only the items ranked as the most important factor, there are no relevant differences in order when looking at the results by company revenue — features and functionalities comes first across all revenue categories, followed by price. However, there is a wide difference in the percentage of participants that favor features and functionalities over price when comparing small and large companies — 53 percent to 38 percent in small companies with less than \$100 million in revenue, and 69 percent to 28 percent in companies with \$1 billion or more.

What are the biggest factors that influence your legal technology purchases?



03

Challenges to Implementation

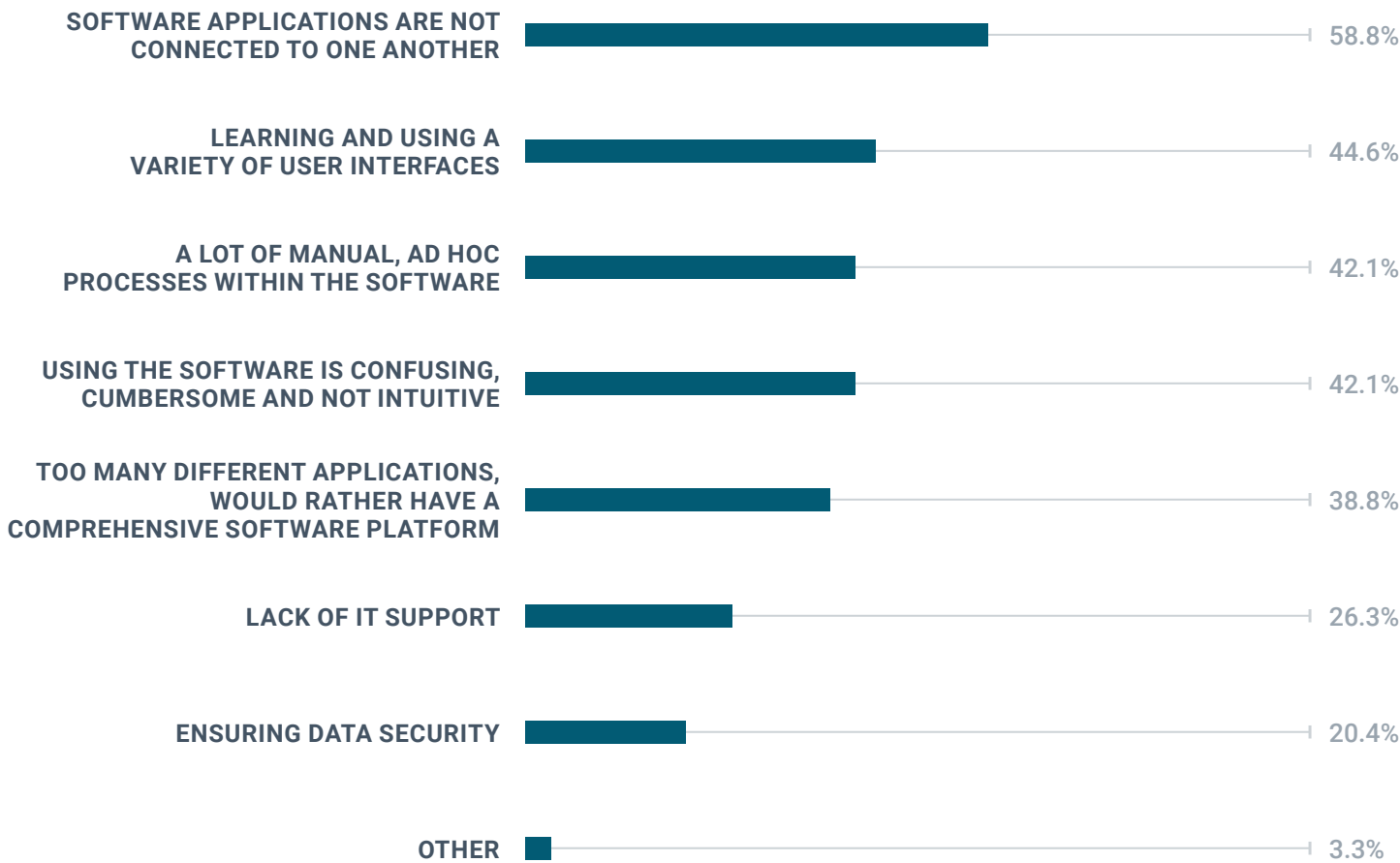
03 CHALLENGES TO IMPLEMENTATION

After asking participants to assess their existing technology and provide detail about the purchasing behavior of their organization, participants were then asked to identify the challenges in implementing new technology. Respondents were presented with a list of prospective challenges when using legal technology in the legal department. The following chart reports the percentage that each selected as their biggest pains.

The biggest issue reported is that software applications are not connected to one another (59 percent). Forty-five percent of respondents point to the challenges posed by having to learn and use a variety of user interfaces, and 42 percent report manual, ad-hoc processes related to software, and software that is confusing and not intuitive as important caveats of using legal technology for legal work. Thirty-nine percent noted that they have to manage too many different applications and would be happier if there was a comprehensive software platform that streamlined technology use.

Other issues with a slightly lower impact among our participants are the lack of IT support (26 percent) and the challenge of ensuring data security (20 percent), while three percent of participants also indicated that they face other challenges when using legal technology.

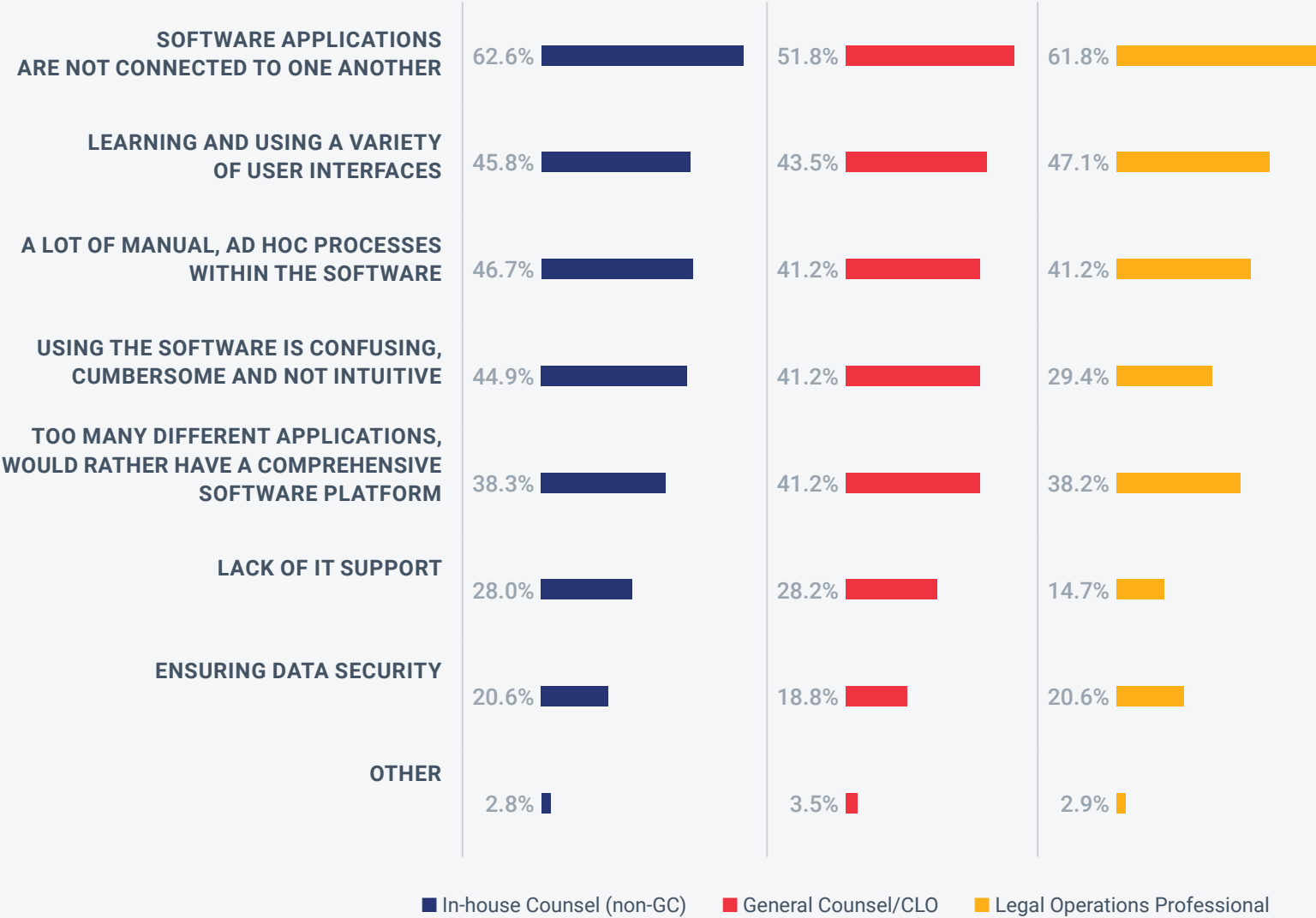
When using legal technology, my biggest pain points are:



03 CHALLENGES TO IMPLEMENTATION

In-house counsel and legal operations professionals report similar pain points, though with minor differences. A larger percentage of lawyers find software confusing, cumbersome, and not intuitive than legal ops professionals – 45 percent of counsel and 41 percent of general counsel, but just 29 percent of legal operations professionals. Similarly, lawyers are twice as likely to select IT support issues than are legal operations professionals – 28 percent to 14 percent. Interestingly, just 52 percent of general counsel reported that one of the main issues is that software applications are not connected to one another, which is 10 points lower than the percentage for both in-house counsel and legal operations professionals.

BIGGEST PAIN POINTS WHEN USING LEGAL TECHNOLOGY
BY LEGAL DEPARTMENT ROLE



03 CHALLENGES TO IMPLEMENTATION

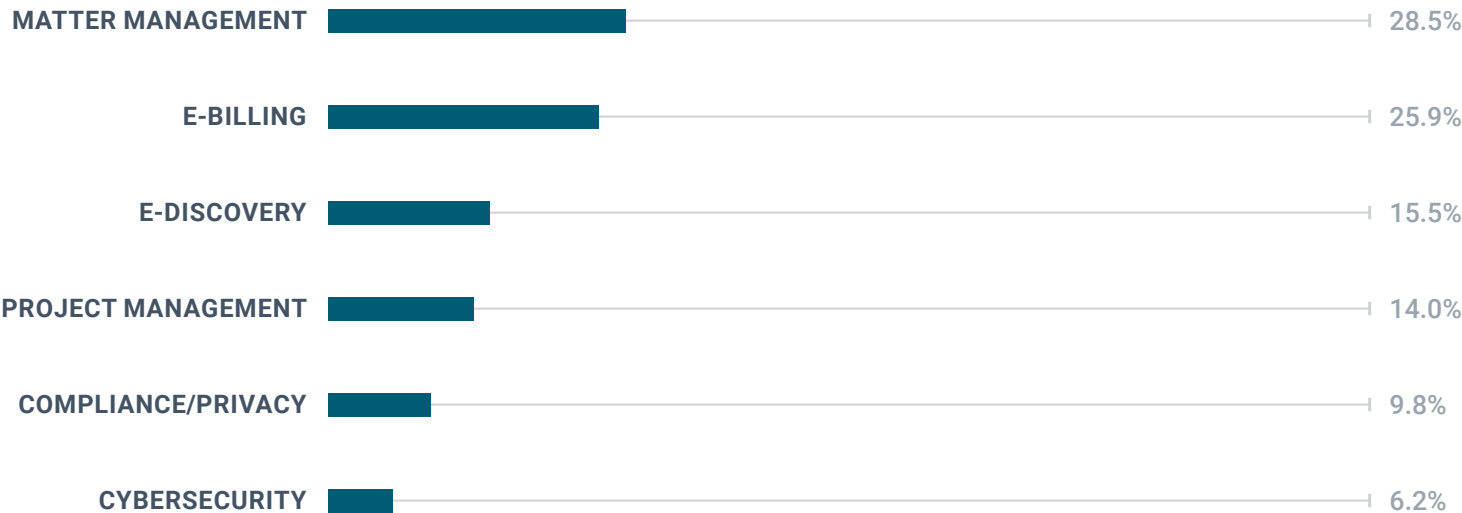
Some interesting variations appear when analyzing the participants' biggest pains points by the reported level of legal processes in the department. Although across levels the top concern is that software applications are not connected, only 45 percent of respondents in departments with ad hoc processes (level 1) reported this challenge compared to 79 percent of those in optimized departments (level 5).

Professionals in optimized departments also reported that learning and using several interfaces is a pain in fewer numbers — 32 percent compared to around 45 percent of those in the other level of legal processes categories. Likewise, those in optimized departments that reported the lack of IT support as a challenge represent a smaller percentage than those in other categories.

When presented with a list of technology areas and required to select the one type of software that has helped them the most to reduce legal costs, participants provided a rather diverse picture. Matter management came out on top with 28.5 percent of respondents, followed by e-billing with 26 percent. These two technology areas combined for more than half of respondents indicating that these help them the most in reducing legal costs.

In the third place is e-discovery (16 percent), closely followed by project management tools (14 percent), and at some distance by compliance and privacy software (10 percent) and cybersecurity (six percent).

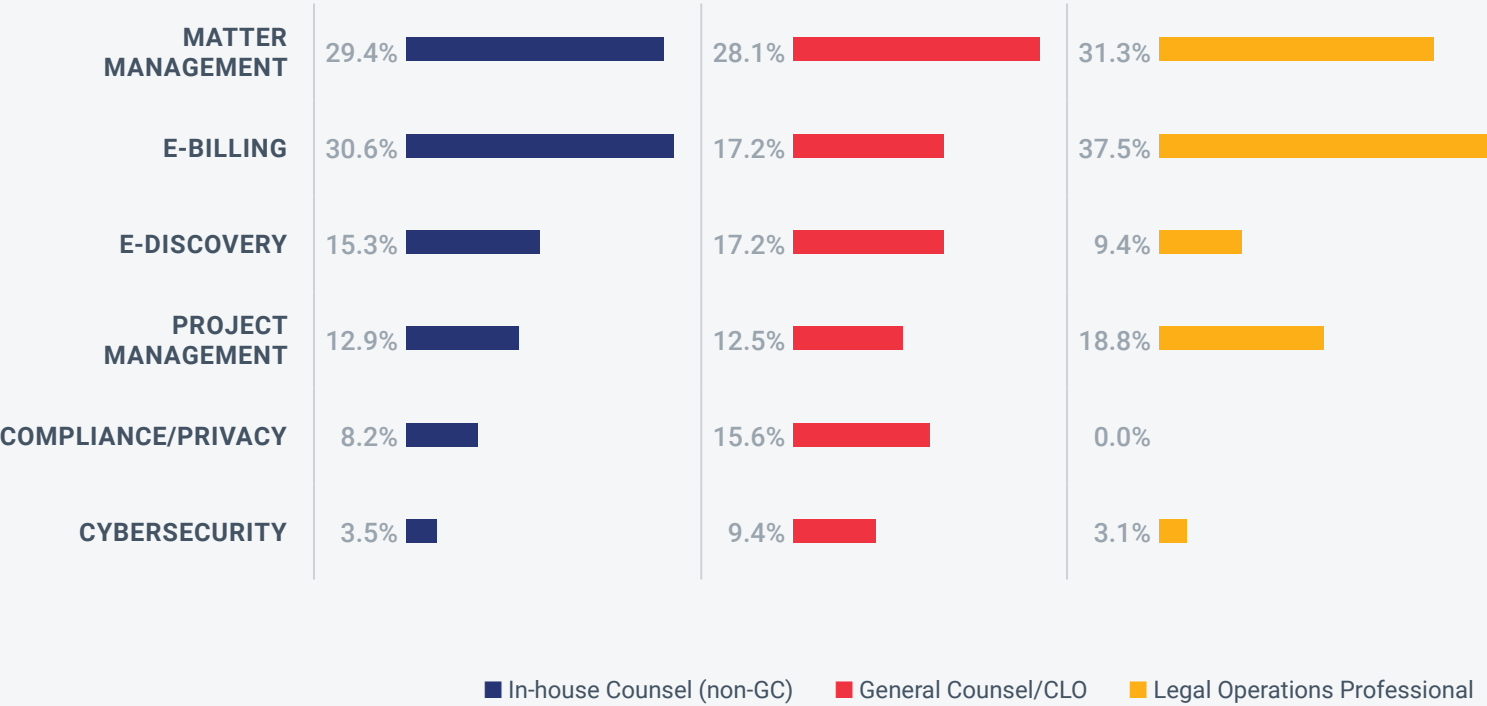
To reduce legal costs, the software that has helped me the most is:



03 CHALLENGES TO IMPLEMENTATION

Legal department role once again influences legal technology assessments. For legal operations professionals, e-billing is the first choice of technology for reducing costs (38 percent), and so is for in-house counsel (31 percent), but only 17 percent of general counsel selected it – the latter group places more emphasis on compliance and cybersecurity than both non-GC lawyers and legal operations professionals. Lawyers selected e-discovery more often than legal operations professionals, and the opposite is true for project management tools.

MOST HELPFUL SOFTWARE TO REDUCE LEGAL COSTS BY LEGAL DEPARTMENT ROLE

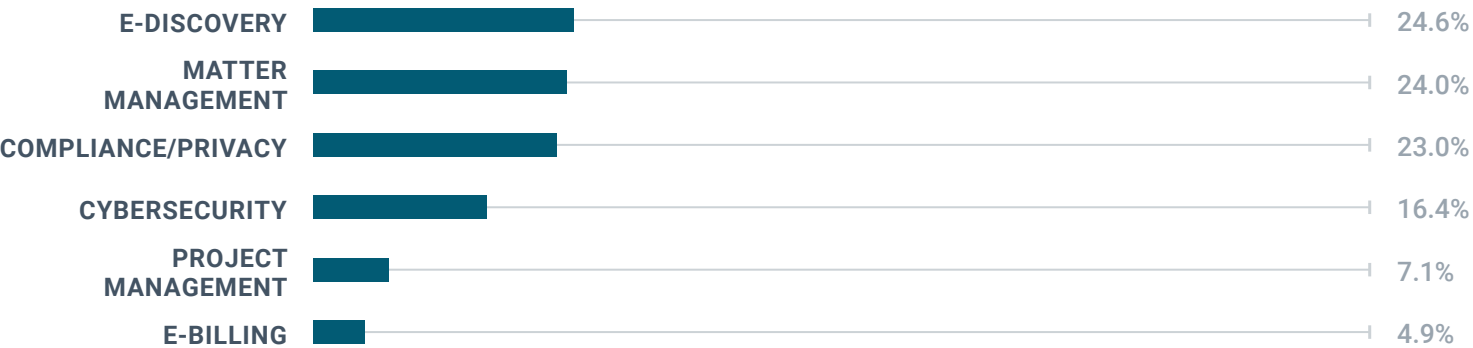


03 CHALLENGES TO IMPLEMENTATION

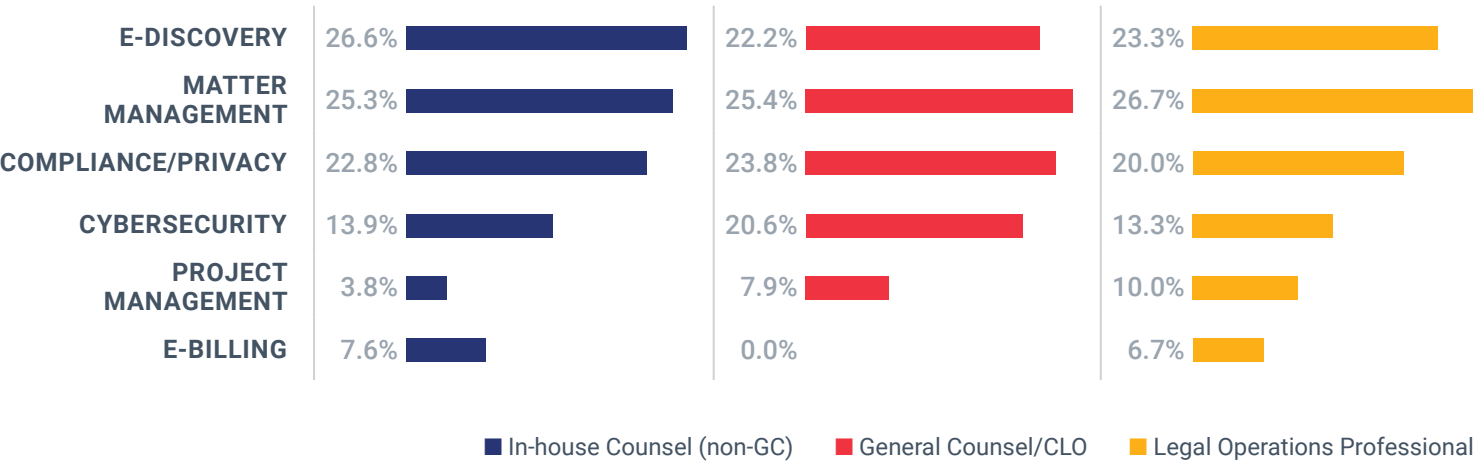
Participants are also evenly split in determining which software is the most useful to maintain defensibility. One-quarter selected e-discovery, another matter management, a third compliance and privacy software, and the rest opted for cybersecurity (16 percent), project management (seven percent) and e-billing (five percent).

In this case there are not significant differences when looking at the results broken down by legal department role. The three most selected areas — e-discovery, matter management, and compliance and privacy — are the top three types of software most appropriate to maintain defensibility across all three roles. General counsel selected cybersecurity more often compared to the other two groups.

To maintain defensibility, the software that has helped me the most is:



MOST HELPFUL SOFTWARE TO MAINTAIN DEFENSIBILITY BY LEGAL DEPARTMENT ROLE

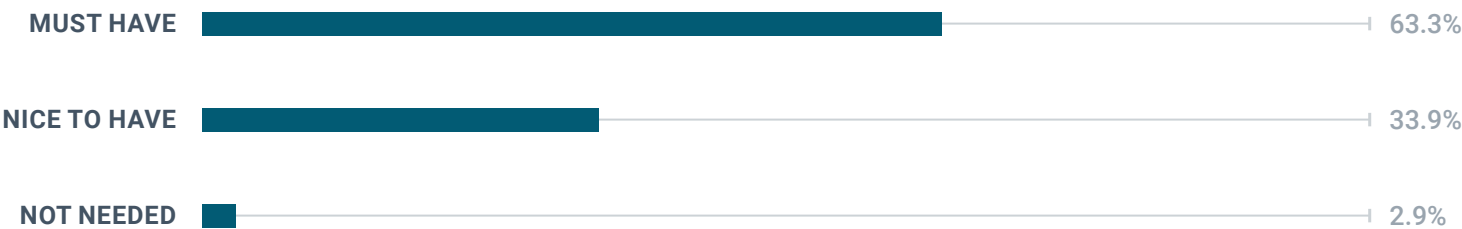


03 CHALLENGES TO IMPLEMENTATION

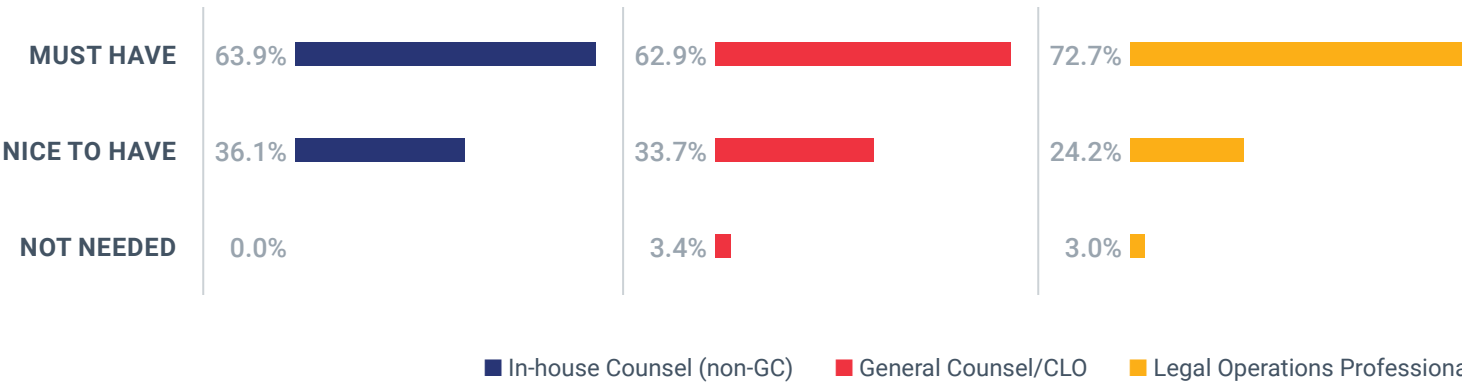
Sixty-three percent of participants believe that legal technology is a must have in the current work and legal environment, while 34 percent said it is nice to have. Only three percent of participants reported that legal technology is not needed.

When looking at the preferences by role, we observe that legal operations professionals are more likely than lawyers to say that technology is a must have in this digital age – 73 percent compared to 63 percent, a ten-point gap.

In today’s digital age, how important is it for your legal department to have legal technology in-house compared to 5 years ago?



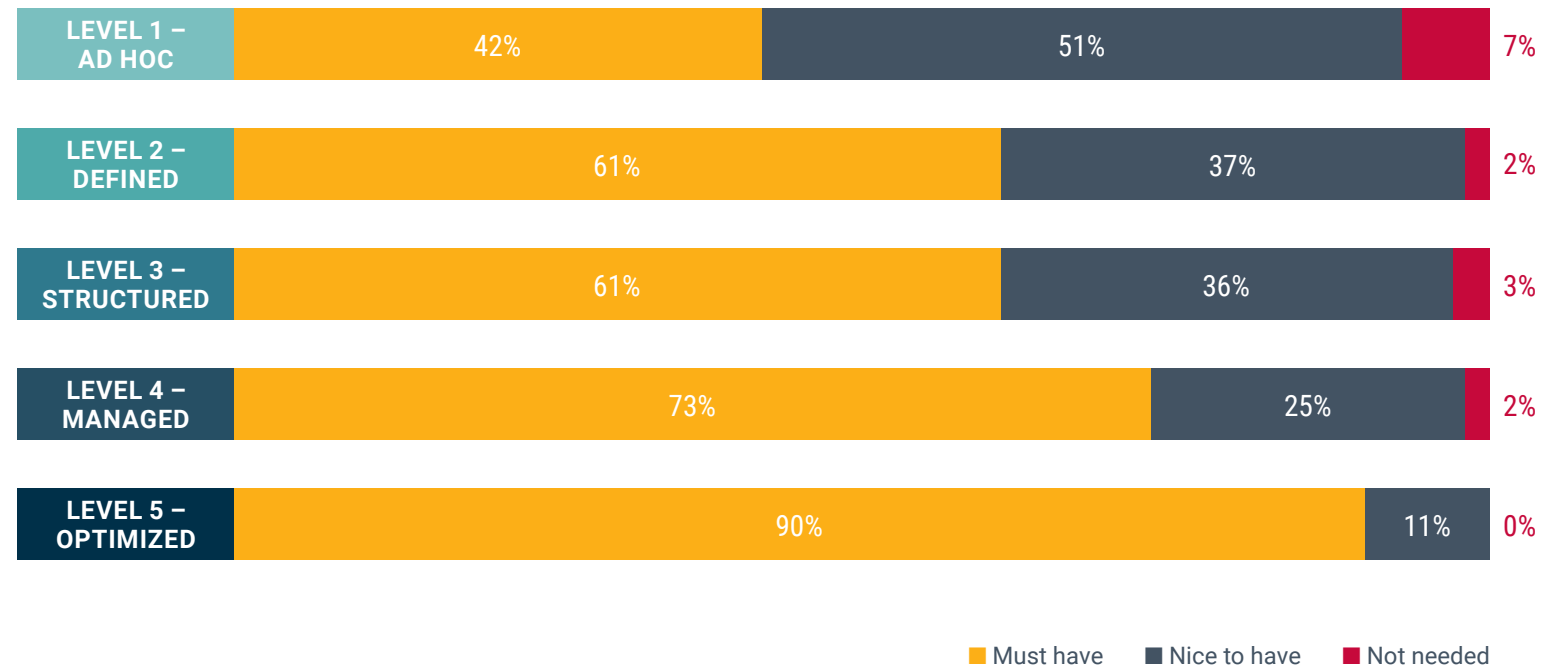
IMPORTANCE TO HAVE LEGAL TECHNOLOGY BY LEGAL DEPARTMENT ROLE



03 CHALLENGES TO IMPLEMENTATION

The level of legal processes in the legal department also stresses the differences in perception of the need to use legal technology. Just 42 percent of respondents in departments with ad hoc processes (level 1) say that technology is a must have, but this percentage increases along with the legal processes level: 61 percent for defined (2) and structured (3) departments, 73 percent for managed (4) departments, and 90 percent of those in optimized (5) departments.

IMPORTANCE TO HAVE LEGAL TECHNOLOGY BY LEGAL PROCESSES LEVEL



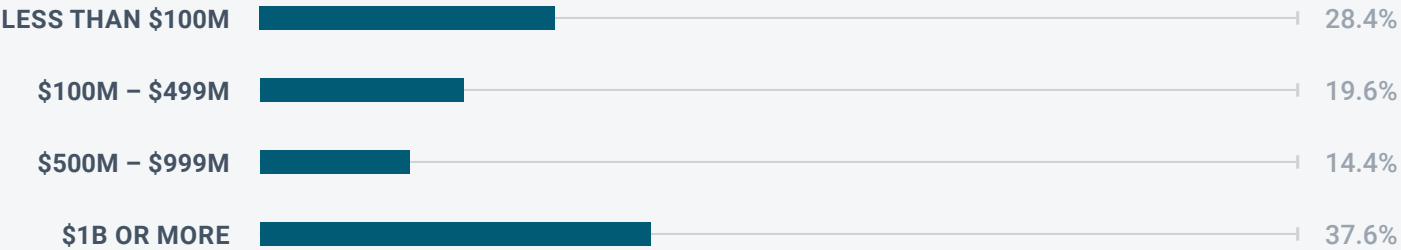


Survey Details

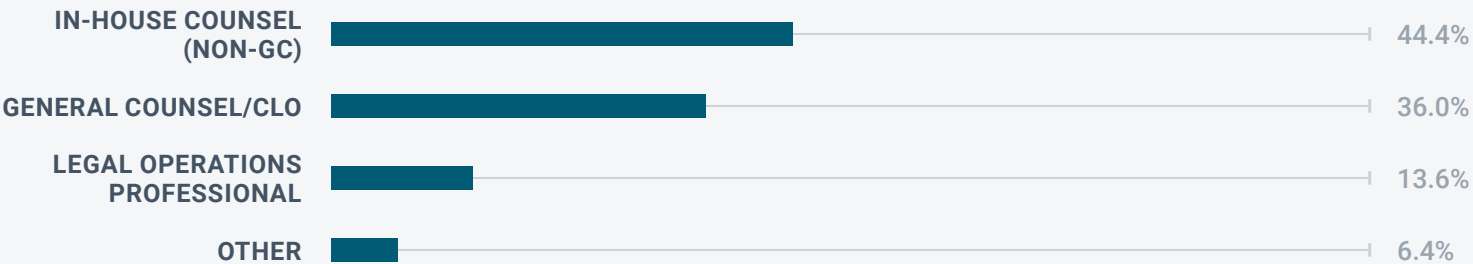
SURVEY DETAILS

Demographics

COMPANY REVENUE



PARTICIPANT PRIMARY LEGAL DEPARTMENT ROLE



SURVEY DETAILS

Methodology

SURVEY INSTRUMENT

The survey questionnaire was offered through an online survey platform. Personalized survey links were sent by email to the target population, which allowed participants to save their responses and fill out the questionnaire in more than one sitting, if needed.

FIELDING PERIOD

The survey opened on June 30, 2021, and closed on July 30, 2021. Reminder emails were sent weekly.

PARTICIPATION

A total of 250 in-house counsel, legal operations professionals, and other legal department staff participated. Apart from targeted email messages, opportunities to participate were also sent through various campaigns.

ANONYMITY

Survey responses were completely anonymous. No information is linked in any way to an individual respondent. The results are provided only at the aggregate level, and respondents' quotes from open-ended responses were carefully reviewed and edited, if appropriate, to remove any identifiable information related to respondents or their organizations.

DATA ACCURACY

Not all respondents answered all questions. The percentages provided are based on the number of valid responses received for each individual question. Many survey questions offered the opportunity to select multiple response options. In those cases, percentages may not total to 100 percent.

OPEN-ENDED RESPONSES

Several survey questions required open-ended responses. Many of the quotes and citations from participants that we present throughout the report were shortened or edited due to space or style needs.

ABOUT ACC

The Association of Corporate Counsel (ACC) is a global legal association that promotes the common professional and business interests of in-house counsel who work for corporations, associations and other organizations through information, education, networking opportunities and advocacy initiatives. With more than 45,000 members employed by over 10,000 organizations in 85 countries, ACC connects its members to the people and resources necessary for both personal and professional growth.

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ABOUT EXTERRO

Exterro was founded with the simple vision that applying the concepts of process optimization and data science to how companies manage digital information and respond to litigation would drive more successful outcomes at a lower cost. We remain committed to this vision today. We deliver a fully integrated Legal GRC platform that enables our clients to address their privacy, regulatory, compliance, digital forensics, and litigation risks more effectively and at lower costs. We provide software solutions that help some of the world's largest organizations, law enforcement and government agencies work smarter, more efficiently, and support the Rule of Law.

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research@acc.com acc.com



PRLT LegalTech ROI Calculations

Initial Investment (\$) = (Labor Hours to Implement * Cost per hour) + External Costs

Time to Implement (hrs)		Cost per hour (\$)		External cash costs (\$)		
30,000	x	\$ 190	+	\$ 5,800,000	=	\$ 11,500,000

Notes: Time to Implement based on 80% of time for people over 3 years
 Cost Per Hour based on blended rates of relevant staff, including includes overheads
 External Case Costs represent the estimated 3 year non-labor capital spend during rate case years

Annual Cost (\$) = Annual Subscription Fees to Maintain Product Use

Subscription costs per user p.a. (\$)		Number of Users		
\$ 2,667	x	150	=	\$ 400,050

Annual Time Savings (Hours) = Number of Users * Net Time Saved per Day * Total Days per Year

Number of Users		Net Time Saved per user per day (hrs)		Total Days/Yr		
150	x	0.5	x	235	=	17,625

Notes: Total Days/Yr. based on 5 days per week X 47 weeks per year (52 weeks/yr less vacation & holiday)

Time Cost Savings (\$) = Annual Time Savings * Cost per hour

Annual Time Savings (hrs)		Cost per hour (\$)		
17,625	x	\$ 239	=	\$ 4,212,375

Notes: Cost per hour based on blended attorney rate, includes overheads

Net Annual Return (\$) = Time Cost Saving + Costs Saved - Annual Costs

Time Cost Savings		Costs Saved p.a.		Annual Cost		
\$ 4,212,375	+	\$ 6,336,000	-	\$ 400,050	=	\$ 10,148,325

Notes: Costs saved p.a. = calculated using a standard overall process efficiency (OPE) formula which is the product of three factors: availability, performance, and output quality

PRLT LegalTech ROI Results

ROI = Net Annual Return / Investment

Net Annual Return		Investment		
\$ 10,148,325	÷	\$ 11,500,000	=	88%

For every dollar invested in your LegalTech project, you get back: \$1.88

Payback (in Months) = Investment / (Net Annual Return / 12)

Investment		Net Annual Return		Months		
\$ 11,500,000	÷	\$ 10,148,325	÷	12	=	13.60 months

Source: Xakia Legal Tech ROI Calculator



Demonstrate Value

It's critical to know the return on investment of your legal tech projects – and we've made it easy to calculate.

Enter information about your department, costs and projected savings, and Xakia will prepare estimated ROI and payback and send it to you in a format you can use for your business case.

- ✔ Get your results instantly
- ✔ Make smarter, better-informed decisions about your in-house legal technology

Project Details

Project name (Optional)

Stage of Project

System Implementation

0

External cash costs*

Please enter a valid number.

System Use

0

0

Savings

Net time saved per user per day (hou

Costs saved p.a. (eg. legal fees)*

Your Details

Email address*

Who am I?

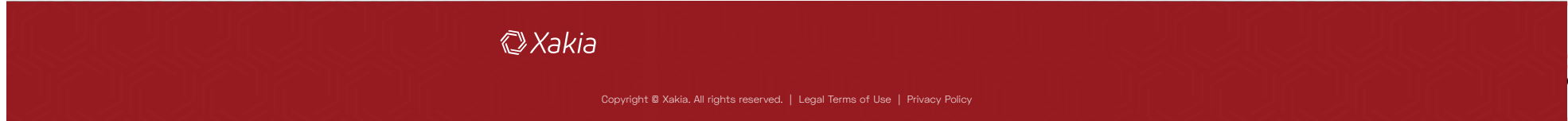
Preferred currency*

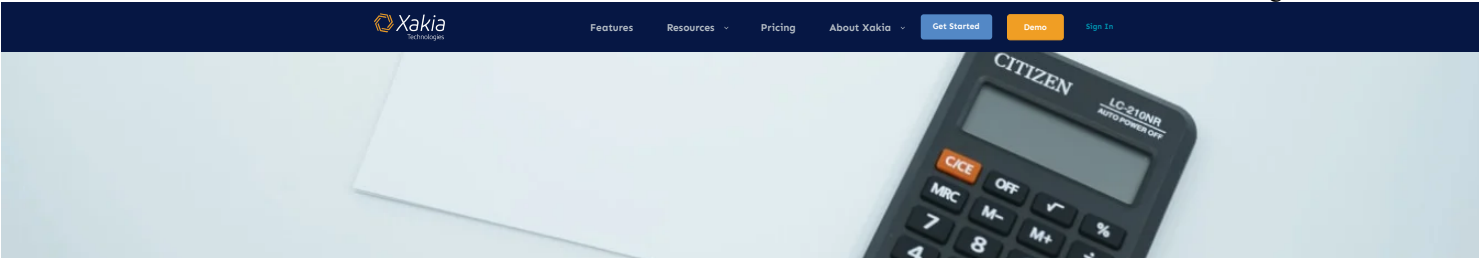
Please complete this required field.

Please select an option from the dropdown menu.

CALCULATE

Xakia will not release or sell your personally identifiable information to any third party. This calculator is offered as a tool for in-house legal departments; we will keep all your information confidential and handle any personal information in accordance with our Privacy Policy.





Measuring Legal Tech ROI

Measuring ROI may seem pretty straight-forward, but with legal technology, this can get a little nebulous. Read our blog to find out how you can measure legal technology ROI.

Jodie Baker
Aug 13, 2018

On its face, ROI seems pretty straightforward – a basic math equation that determines the ratio between an investment's profit and its cost. But with legal technology, this can get a little nebulous: Your department deals in time, not in widgets.

Perhaps that's why 74 percent of law firms in the U.K. don't even try to calculate the ROI of their legal technology projects, according to a [March 2018](#) report by Lexis Nexis. While no similar statistic was available for corporate legal departments, we'd make the educated guess that the majority aren't monitoring their legal tech return – despite the fact that, as a recent [Association of Legal Administration](#) presentation put it, "ROI is the only technology acronym that matters." Indeed, ROI is the language of the C-suite, and it's imperative for in-house lawyers to show fluency. (Recall that one-third of CEOs and directors rank "controlling legal spend" as a [top-three priority](#) for law department performance.) You need to know your ROI to demonstrate that you are a good steward of company resources, to test and validate your decision-making, and to inform future projects in your [legal technology roadmap](#).

Legal tech ROI - what you need to know

There are two factors behind legal tech ROI: time and money.

Because your department's output is units of time, your first step is to understand the cost of this time. If you have access to specific HR data, you can nail down the exact cost of your department's time spend. Without it, you can make a good estimate with industry averages.

According to [indeed salary data](#), the average salary for an in-house solicitor is £72,904, or roughly £40 an hour. (If you'd like to see salary data based on industry and experience, Hudson's [2017 Salary and Rates Guide](#) is a helpful resource).

Now that you have an estimated cost for time, consider all the ways you will spend (and save) it over the course of your legal tech project:

- How long will this take us to implement? (Consider selection, vendor negotiation, installation, testing and training.)
- How many hours will each user spend on this solution each day?
- How many hours do we think this solution will save each user each day?

When it comes to money, the questions are simple:

- How much will this cost to implement? (Account for all of the vendor's installation, maintenance and licensing fees.)
- How much will this cost per month?
- Does this eliminate work we had to pay an outside firm to complete, or save any other hard costs?

Once you have these answers, ROI is a few calculations away – no matter what stage your project is in. The formula is below – or you can try Xakia's [LegalTech ROI Calculator](#), which will do the math for you.

The legal tech ROI formula

Start by totaling the investment:

Investment, or Annual Expense = Implementation Cost + Cash Cost

Then calculate the net annual savings:

Net Annual Savings = Annual Savings – Annual Expense

Time to calculate the ROI:

Annual Return on Investment = Net Annual Savings / Investment

Your answer will show you a percentage return. For example, if you generate an ROI of 75 percent, for every £1 invested in this solution, the company will realize £1.75 in benefit each year.

What's the payback?

To determine how fast your legal tech will "earn its keep," it's helpful to calculate the payback.

Start by calculating your monthly savings by dividing the net annual savings by 12. Determine the number of months until payback by dividing the investment by the monthly savings.

(If you pursued law as a career because you were told there was no math, don't despair. Visit Xakia's [LegalTech ROI Calculator](#), which will do the calculations for you).

Beyond the math - ROI considerations

Of course, no mathematic equation can account for all of the nuances of a legal department, its processes and most importantly, its personnel.

Your ROI may be higher as you find new uses for the tool and as users become more efficient with it. Moreover, this formula only covers one year; a software solution likely would generate benefits for multiple years (but we'll spare you any "net present value" advanced calculus).

Your ROI may be lower if the technology doesn't work as expected or if user adoption stalls. Recall that user involvement is [15 times more critical](#) than having the right tools – although there's no accounting for attitude or aptitude in the ROI equation, both factors will have a major effect.

What's reasonable?

Every company will have different expectations for ROI, but it's helpful to have a target in mind. [Rhonda Robati](#), the chief revenue officer of Velpic Inc., said ROI for technology investments typically range from 47 percent to 87 percent; as a best practice, she said any technology investment should have an ROI of at least 65 percent. In other words, you want at least £1.65 for every £1 spent.

But remember to think beyond the numbers. Any quality [in-house legal technology solution](#) should bring myriad benefits that won't show up in an ROI calculation: less stress, happier staff, happier business clients and fewer missed deadlines chief among them. Numbers matter, but quality intangibles can be the ultimate return.

[Tips and Tricks](#) [Legal Budget](#)