2nd Annual Edition

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Executive Summary

The Sierra-Cedar 2018–2019 Finance and Supply Chain Management (SCM) Systems Survey White Paper, 2nd Annual Edition—the latest installment conducted by the Sierra-Cedar Research Team—provides an invaluable resource by tracking the adoption, deployment approaches, and value achieved by the enterprise technology community. With this second annual report, we are continuing to see a growing interest in the strategic use of Finance and SCM technology.

This research stands alone as a critical set of data that explores how organizations are developing technology roadmaps and making decisions regarding their Finance and SCM technology purchases. Practical data on emerging and innovative technology trends provides organizations with insights on how they can potentially improve business outcomes. We openly share this research to inform the industry and assist organizations with developing systems strategies, devising plans, justifying investments, and ultimately executing on their enterprise technology visions.

The 2nd Annual Edition of this report covers adoption and trends for applications, deployment models, and value achieved for the following categories:

- Finance
- Supply Chain Management
- Projects and Grants
- Budgeting
- Business Intelligence

Additionally, we cover these insights:

- Finance and SCM Systems Strategies
- Integration and Security Practices
- Emerging Technologies and Innovations

The Survey was conducted from October through December of 2018. The Sierra-Cedar 2018–2019 Finance and Supply Chain Management Systems Survey White Paper is based on 493 unique organizations representing a total workforce of 5.3 million employees and contingent workers. For full Research Methodology details see page 42.
2018–2019 Finance and SCM Systems Survey Key Themes

Strategic Operations

- 65% of organizations are planning a major IT initiative for Finance applications in the next 12 months.
- 83% of Executives believe that the Finance function provides strategic value to their organization, compared to 56% for the SCM function.
- Organizations with an Enterprise Finance and SCM Systems Strategy achieve ~12% higher overall business outcomes.

The value of any technology investment rests on the actual adoption and use of that technology. Leaders who view any technology as a means to an end—a replaceable tool that is less important than overall business operations—quickly find that, unless technology improves the flow of information or the employees’ work experience, it is rarely used and provides little value to an organization. Running a business in today’s competitive environment requires more data, faster insights, and more reliable forecasts—and achieving business outcomes requires a more strategic approach to enterprise technology. Developing an Enterprise Finance and SCM Systems Strategy starts with establishing a clear understanding of an organization’s current technology state and any gaps it has in achieving critical business outcomes.

Digital Transformation

- Organizations are taking multiple pathways to transforming their Finance and SCM Systems Environment, with a mixture of Rip and Replace, Hybrid, Parallel/ Patchwork, and Licensed Hosted.
- Finance and SCM applications are slowly moving to the Cloud, but how quickly will organizations approach this change over the next year?
  - 38% plan to have a “Hosted” Finance application
  - 20% plan to have a pure SaaS Finance application

Organizations that have recently transformed are creating a more modern Finance and SCM technology ecosystem, architected to gather as much data as possible and manage the flow of that data across multiple applications and delivery channels. These environments provide employees, business leaders, and in some cases partners with secure system access and insights that are tailored to their individual needs. Sierra-Cedar research shows that organizations take multiple pathways towards technology transformation, leveraging a mixture of traditional and emerging technologies to create their own unique ecosystems.
Emerging Technology

Finance and SCM functions are embracing emerging technologies that are designed to provide decision-making information, reduce routine activities, and secure access to data:

- Mobile-enabled Finance and SCM applications are used by 32% of organizations.
- Robotic Process Automation (RPA) is being leveraged by 21% of organizations.
- Blockchain\(^1\) technology has been adopted by 17% of organizations.

Emerging technology is being designed to provide comprehensive information for making decisions, reducing routine activities, and securing data; it is meant to be invisible and ubiquitous in our lives and is expected to perform as an intelligent platform that can be accessed when and where needed. The issues driving this new vision for technology—social individualism, freedom of information, data privacy standards, and artificial intelligence decision making—are here to stay and should be explored by every organization planning to run a successful business.

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\(^1\) A distributed data structure that creates a digital ledger of transactions and shares it on a distributed network, blocking the ability to make retroactive alterations without changing the entire network.
Finance and SCM Technology Initiatives

Each year, organizations are asked about their top Finance and SCM technology initiatives—the areas on which they plan to spend 25% or more of their time or resources in the coming year. The most frequently reported initiative for the next year continues to be System Upgrades/Updates—with more than 40% of organizations planning an upgrade or update—followed closely by Business Intelligence, creating or developing System Strategies, and System Integrations.

**Figure 1: Top 10 Finance and SCM Technology Initiatives**

A breakout of the initiatives by organizational size shows a wide variation among the three groups. The data shows that System Upgrades/Updates, Business Intelligence, System Strategies, and System Integrations are important to Small, Medium, and Large organizations to varying degrees, but unique categories such as Mobile Enablement and Intelligent Technology Implementations show up as critical initiative areas for several groups:

- **Small** organizations are more focused on System Integrations, System Strategies, and Module/Region Expansions.
- **Medium** organizations are less focused on System Upgrades/Updates and System Strategies than the aggregate, but are investing more time in System Replacements, as well as improving Business Intelligence and Workforce Planning efforts.
- **Large** organizations are spending considerably more time than the aggregate on System Upgrades/Updates, System Strategies, System Consolidations, Mobile Enablement, and Intelligent Technology Implementations. Large organizations are nearly half as likely to replace Finance and SCM Systems than their Small or Medium counterparts.
Figure 2: Finance and SCM Technology Initiatives by Size
The Sierra-Cedar Application Blueprints were designed to capture the most common paths organizations follow when adopting enterprise-level solutions. Further, the Blueprints provide guidance on how organizations can optimize various enterprise solutions within the context of their business processes and enterprise technology standards. Finally, the Blueprints look at how organizations are most likely to connect these solutions across their businesses to achieve stated organizational outcomes.

The Sierra-Cedar 2018–2019 Finance and Supply Chain Management Systems Survey included questions about seven primary categories and 30 individual application areas referenced in the Sierra-Cedar Finance and SCM Application Blueprint. The Survey also gathered data on integration approaches, network security, mobile access, and other ways of connecting enterprise data and workflows.

Figure 3: Sierra-Cedar Finance and SCM Application Blueprint

For the past 22 years, Sierra-Cedar has conducted systems-based research and studied the enterprise system adoption patterns of organizations of all sizes and business models. Some organizations have a clear strategy for how they purchase and implement their enterprise systems, while others exhibit an organic-growth model based on immediate needs and funds.
Finance Applications

Most organizations start their journey by deploying applications that meet their Finance requirements, primarily in the form of a General Ledger with over 82% of respondents reporting this application in place. The 18% of organizations without a General Ledger are frequently Small businesses that outsource their finance and accounting function or distributed organizations that leverage their parent company’s environment. A General Ledger is the foundational Finance application that manages an organization’s chart of accounts and journal entries for auditing, reporting, and overall financial history.

Other highly adopted Finance applications include those managing basic financial areas such as Accounts Payable and Accounts Receivable. Financial and operational reporting applications are often part of the Finance environment as well, helping organizations automate the production of financial statements and disclosures for management, investors, and government bodies, depending on the various regulations that apply. Some organizations also adopt Cash Management/Treasury applications that coordinate banking and accounting processes.

Finance applications including Asset Management and Travel and Expense tend to be adopted when organizations reach a certain size and/or complexity. For example, Asset Management applications may be used when financial and business assets increase, and Travel and Expense applications may be leveraged when travel expenses increase.

Supply Chain Management Applications

Supply Chain Management needs vary widely based on industry and organization size. Applications that address these needs may be purchased as best-of-breed, part of a SCM suite, or part of an ERP environment. The Procurement application, currently In Use by 76% of respondents, helps organizations manage the entire purchasing lifecycle—from requisitions through final payments—and provide information on supplier performance. Electronic or eProcurement manages the exchange of data sharing between the customer and supplier directly or through marketplaces.

Most organizations track some level of inventory, orders, sales, and deliveries of goods and/or services. In particular, manufacturing, healthcare, and retail industries have specialized inventory management needs, but regardless of industry, most organizations benefit from an Inventory Management System. Order Management applications automate the business processes related to regular orders for goods and/or services; these systems go beyond inventory management and extend to sales and customer service.

Supplier Contract Management applications manage the contract creation and approval process for reporting and compliance needs. Some Contract Management applications provide strategic sourcing services that range from automating large sourcing or vendor lists and adhering to required purchasing regulations all the way to overseeing the entire purchasing process and optimizing inputs, outputs, and connections.

Supply Chain Management is a rapidly evolving space with many overlapping applications and feature sets. Over time, the pace should slow as technologies and processes are standardized and streamlined, leading to better forecasting and management. Further efficiencies can be realized by leveraging emerging technologies (e.g., RPA, Machine Learning, Blockchain).
Service Delivery Applications
The number of modules and self-service capabilities of Finance and Supply Chain Management applications has increased. Self-Service applications such as Vendor/Supplier Self Service and Manager/Employee Self Service drive efficiencies throughout an organization. Enterprise security structures allow organizations to control what vendors/suppliers and managers/employees can and can’t do within these tools.

Service Delivery tools will continue to expand and change in the next few years—this is due, in part, to the need to keep up with expectations for improved user experience (UX), real-time information sharing, decision making, and growing Mobile technology capabilities.

Project and Grant Applications
A key component of business-driven applications entails managing the often complex operational and spending rules associated with contractual obligations of this type of funding, as well as specialized reporting requirements. Organizations may choose to manage projects, contracts, and grants with different types of applications:

- **Project-based Accounting applications**, currently in use by 56% of respondents, allow organizations to monitor financial progress of projects that frequently cross organizational boundaries and financial periods configured in the general financial accounting software.
- **Grant Accounting applications**, currently in use by 39% of respondents, track and manage grants and awards across organization boundaries and fiscal periods.
- **Contract Management applications**, currently in use by 47% of respondents, often accompany either of these applications or are leveraged as standalone solutions for storing and managing the negotiation, modification, execution, and termination of various contracts within an organization.

Budgeting Applications
Running a sustainable business requires solid financial budgeting; this can take on many forms in an organization, but generally there is a focus in these four areas: Operational Budgets (ongoing expenses), Project Budgets, Capital Budgets (long-term investments), and Workforce Planning (people). Sophisticated applications integrate all four of these budgeting areas to provide a holistic approach to long-term company planning and insights into how changes in one budgeting area will impact the other areas. Organizations that forecast budgets several years out—with iterations based on potential internal or external changes—can leverage predictive analytics to provide an organization with the insights needed to make critical decisions for future outcomes.

Business Intelligence Applications
Over the last ten years, organizations with high levels of adoption for Finance and SCM applications have brought transactional and process information into a single environment for data analysis efforts. Today, organizations are investing in a combination of data warehouses and data lakes designed for analytics and embedded solutions across each of the primary Finance and SCM technology categories. An emergence of complex and dedicated Finance and SCM analytic solutions combine services and data technology to review and report on large amounts of enterprise data. Organizations continue to use traditional applications such as Excel and off-the-shelf statistical analysis tools in conjunction with in-house expertise. As organizations settle into the new era of automation and Artificial Intelligence (AI), they will begin to leverage new visualization, predictive, and custom programming tools for foundational analytics. These solutions provide wider access and insights into existing Finance and SCM data, optimize the enterprise efforts, and facilitate long-term scenario and workforce planning.
Connecting Enterprise Data and Workflows

As organizations build out their own Finance and SCM application blueprint, they will quickly realize that no system exists in a silo and that all applications require similar security/data privacy standards, content strategies, social environments, and workflow solutions. Developing an enterprise standard or approach to these application areas can reduce some maintenance and integration efforts. Connecting Finance and SCM systems to enterprise environments embeds tracking and planning into everyday work environments so that these worlds operate seamlessly. This will require that organizations strategize their approach to network security and define standards for access through multiple devices. To accomplish these data integrations, organizations use a variety of approaches, from PaaS and IaaS to Enterprise Integration Strategy platforms.

Finance and SCM technologies coexist in a larger ecosystem that combines other data sources such as HR or Operational data systems. When enterprise systems are integrated effectively, the aggregate data provides the best possible analytics support.
Enterprise System Strategies

As business systems shift from administrative support tools to strategic instruments tuned to engage and optimize the workforce, management, partners, and customers, organizations must develop enterprise-level system strategies for each functional area. These interlocking strategies provide insight for the adoption, integration, and configuration of these solutions.

Over the last year, overall adoption of a regularly updated enterprise systems strategy increased for both Finance and SCM Systems by 20%. By function, organizations are more likely to have a regularly updated systems strategy for their Finance applications than for SCM applications; specifically, 75% of organizations have an updated Finance systems strategy (up from 63% last year) and 54% have an updated SCM systems strategy (up from 44% last year). The majority of organizations tend to regularly update their enterprise systems strategy on an annual basis with minor adjustments made throughout the year.

Figure 4: Finance and SCM Enterprise System Strategies

ENTERPRISE FINANCE SYSTEMS STRATEGY

ENTERPRISE SCM SYSTEMS STRATEGY

Data shows organizations regularly updating enterprise systems strategies for Finance and SCM applications on average have 12% higher levels of business outcomes compared to those organizations with no plans to develop functional level system strategies. Without a regularly updated systems strategy which covers individual functional levels, organizations may make application selections within silos focusing primarily on specialized needs rather than overall long-term outcomes.

Figure 5: 12% Higher Business Outcomes with Functional Enterprise System Strategies
Elements of a Functional Enterprise System Strategy

The most common elements included in an enterprise systems strategy for functional areas are noted in the following figure. This is not an exhaustive list, but these elements should be reviewed on an annual basis, especially when making enterprise technology decisions.

**Figure 6: Enterprise Systems Strategy Elements**

<table>
<thead>
<tr>
<th>Drivers</th>
<th>A list of prioritized business outcomes and current system gaps that impact those outcomes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture, Scale, and Scope</td>
<td>An assessment of the organization’s cultural environment (including its approach to enterprise decision making), workforce demographics (particularly of employees that require access to the enterprise system), locations, etc.</td>
</tr>
<tr>
<td>Current State Blueprint</td>
<td>A list of the organization’s current enterprise technology environment, including applications in use, vendor/supplier relationship details, and environmental factors such as integrations, infrastructure models, etc.</td>
</tr>
<tr>
<td>Benchmarking Analysis</td>
<td>Data or analyses of how the organization's current state compares to peer organizations in culture, size, industry, or complexity.</td>
</tr>
<tr>
<td>Gap Analysis</td>
<td>A comparison of the current state to the desired future state, including identifying what needs to be done.</td>
</tr>
<tr>
<td>Future State Blueprint</td>
<td>A vision of the future state of the enterprise technology environment, including recommended application adoption and changes to achieve business outcomes.</td>
</tr>
<tr>
<td>Roadmap</td>
<td>Timelines, responsibilities, communication plans, and Key Performance Indicators (KPIs) associated with any approved application changes or updates.</td>
</tr>
<tr>
<td>Governance and Change Management</td>
<td>Identified decision makers, ownership models, and guidelines for making ongoing decisions on enterprise technology environments, data management, and privacy issues. Ongoing change management and adoption efforts.</td>
</tr>
<tr>
<td>Expenditures and Budgets</td>
<td>Past expenditures and future budgets for enterprise technology environments.</td>
</tr>
<tr>
<td>Resources and Outsourcing</td>
<td>Careful account of both internal and external resources, as well as outsourcing agreements that support enterprise technology environments.</td>
</tr>
</tbody>
</table>

When working on the future blueprint, it is critical to align the system decision/change to a specific business outcome. Often organizations identify generic goals when making system changes without direct alignment to business goals. This lack of alignment often leads to poor budgeting and resource planning, both of which are required for real change.
Finance and SCM Systems Spending

Similar to last year, the majority of organizations (51%) are expecting their Finance and SCM systems spending plans to remain unchanged, with ~44% of organizations citing an increase in spending and ~5% of organizations expecting a decrease in spending.

While overall technology spend has slightly increased year-over-year, higher levels of increased spending are expected over the next few years as organizations begin to replace long-standing Finance and SCM applications. By organizational size, there are some differences in technology spend: Medium organizations are projected to increase spending 13% more than Large entities and 16% more than Small entities.

Figure 7: 2018–2019 Finance and SCM Systems Spending Trends

Small organizations are the fastest growing segment of new Finance and SCM technology buyers, but they are also the most cautious. Therefore, technology vendors will need to come to the table with a compelling reason for them to increase spending since almost 60% of Small organizations are on target to simply maintain their existing Finance and SCM application spending.

Medium organizations are the only market segment where there are more entities that plan to increase spending than those that plan to maintain current spending levels. In addition, Medium organizations are the segment with the smallest percentage planning to decrease spending.

Large organizations are usually the slowest to make major system changes, but in the last year this segment saw the largest jump in plans for enterprise technology spend, with 36% planning to increase spending (a 30% year-over-year increase).
In terms of areas of increased investment, Finance applications lead the way, followed by Business Intelligence tools and budgeting applications. By organizational size, there are some variations, with Large and Medium organizations placing a greater emphasis on Business Intelligence applications and Small companies prioritizing Budgeting applications.

**Figure 8: 2019 Areas of Finance and SCM Technology Investment**

Finance and SCM Technology Resourcing Strategies

Spending is not the only indicator of what an organization will accomplish when it comes to its enterprise Finance and SCM systems strategy. Understanding what roles will expand and contract across the Finance and SCM function over the next year is another source to understand broader business objectives.

**Figure 9: Changes to Finance and SCM Employee Roles**
IT infrastructure roles are expecting the largest headcount increase over the next year, with 56% of organizations planning to add more resources compared to 43% last year. Year over year, there has been an emphasis on increasing budgets for Business Intelligence applications; in line with this initiative, 52% of organizations plan to increase Reporting/Analytics roles, up from 50% of organizations in 2018.

By organizational size, the top planned headcount increases vary as follows:

- **Small**: 12% plan to increase Asset Management roles
- **Medium**: 16% plan to increase IT Infrastructure roles
- **Large**: 14% plan to increase Reporting/Analytics roles

Overall, the greatest change in plans to increase a role from last year to this year is for Accountants, with 42% of organizations planning to hire for this role versus 23% last year. Across the board, the top planned headcount decrease will continue to be in Time and Expense roles (21% decrease compared to an 18% decrease in 2018), followed by Accounts Payable positions (18% decrease compared to 20% in 2018). Medium organizations also report a significant headcount reduction for Inventory roles.
Finance and SCM Systems SaaS Movement

A dramatic deployment shift is taking place as both buyers and vendors/suppliers now have multiple options for SaaS-based applications across a wide spectrum of business areas, including Finance and SCM. The public Cloud services market is expected to reach $331B by 2022, with the fastest growing market segment predicted to be Cloud system infrastructure services (expected to reach $76B).¹ With these projected financial investments and the constant deluge of vendor marketing materials focusing on SaaS applications, it would be easy to conclude that everyone has already moved to these applications or at least to a Cloud infrastructure; although full SaaS conversions are a long way off, change cannot be denied in this transitioning market.

Although some vendors in the Finance and SCM application arena are still supporting and selling On Premise applications, the bulk of investments are now directed towards SaaS solutions, implying that this is the pathway forward. Many vendors with On Premise clients are continuing to make improvements in these applications because transformation isn’t only about changing technology, but also about improving business outcomes; however, some needs will eventually outpace On Premise technology capabilities.

We see organizations transforming their Enterprise Systems via one of four different strategies:

- **Rip and Replace** – move everything to a SaaS environment at once
- **Hybrid** – intentionally moving SCM and/or Travel and Expense solutions to a SaaS platform while keeping other Finance applications On Premise
- **Parallel/Patchwork** – ad-hoc mixture of Licensed and SaaS solutions resulting from as-needed replacements
- **Licensed Hosted** – a Licensed software solution that is hosted by a third party or in the public Cloud

Figure 10: Multiple Pathways to Technology Transformation

Organizations are choosing different paths to transforming their enterprise technology, highlighting that there is no right or wrong way, as each organization must base its transformation efforts on unique needs and internal requirements. When organizations transition from legacy technologies to SaaS solutions, the changes involve both technology and the experience: better data, tighter regulation management, improved experiences, and more insightful decision making should all lead to some level of improved business outcomes. Vendor solutions with high customer satisfaction ratings tend to provide the most flexibility for clients by supporting multiple deployment options, along with integration tools that allow organizations to tailor their deployment approaches to business needs.

Approximately 48% of organizations have begun to adopt SaaS Finance or SCM applications today. Large organizations are the least likely to adopt any form of SaaS Finance or SCM application, with just 33% saying they have begun to move anything to a SaaS environment. Over 50% of Small and Medium organizations have moved at least one Finance or SCM application to a SaaS platform.

**Figure 11: Organizations with One or More SaaS-Based Finance or SCM Application**

On closer examination, current deployment methods for Finance applications—along with plans for changing those deployment methods in the next 12 months—show a slow-but-steady movement to Licensed/Hosted (including both private and public Clouds) and SaaS environments. A decent percentage of organizations will continue to use and maintain an in-house tool in the next 12 Months.
Currently, only 18% of respondents have deployed a SaaS-based Finance application, while another 29% have deployed a Licensed/Hosted version in either a private or public Cloud environment. Over the next 12 Months, the largest increase is expected for Licensed/Hosted solution deployments, particularly within public Cloud environments; a slight increase is expected in SaaS-based deployments.

Of the 51% of organizations that have deployed Licensed/On Premise solutions, those with High and Medium levels of customization will most likely delay the transition to SaaS-based applications that do not offer the same customization capabilities.

Organizations without a single Finance or SCM application in a SaaS environment reported that Security/Data Privacy was the top impediment for all Stakeholders for not making the move to SaaS. Executives were also highly concerned about Integration issues and overall Functionality, while Finance, IT, and Managers were all concerned about issues related to loss of system control.
Organizations that moved at least one Finance or SCM application to a SaaS platform reported that Improved Performance, Functionality, and Cost were equally responsible for making the move to SaaS. Executives and the IT function were more focused on Security/Data Privacy, while Finance was more focused on Improved Performance, and Managers were more focused on Cost.

Both managers and employees continue to raise expectations of having real-time access to their business applications, and it will become increasingly difficult to encourage top talent to overlook enterprise technology that is not as helpful and user friendly as their consumer applications. SaaS technology provides opportunities for emerging trends such as RPA, Machine Learning, and Blockchain, all of which are becoming major business differentiators.
Integration and Security

Integration and Security factors, represented in the outer rings of the Sierra-Cedar Finance and SCM Systems Blueprint, impact both end-user experience and the outcomes achieved from application adoption. Regardless of the system in use, poor integration management, security, data privacy, and standard workflow processes can quickly overwhelm even the best architected environment.

Integration

Implementing a single Finance and SCM system environment will be the goal for some organizations. These all-in-one solutions, however, may not suitable for all organizations; therefore, many vendors invest heavily in integration standards, partner marketplaces, and microservice development approaches. Although using fewer applications and supporting increased integration can facilitate better data cohesion and User Experience, some solutions will always sit outside of the traditional Finance and SCM toolset, including content providers, package services, human resources, and industry tools.

Figure 16: Enterprise Finance and SCM Systems Integration Strategy

ENTERPRISE SYSTEMS INTEGRATION STRATEGY

Approximately 56% of organizations reported having an Enterprise Integration Strategy for their Finance and SCM applications, with 17% currently developing a strategy.

An Enterprise Integration Strategy isn’t just about technology—it also includes the following factors:

- Insights into the data shared across platforms
- Clear definitions of the data not shared across platforms
- Preferred locations and ownership for master data management
- Preferred integration approaches, APIs, Enterprise Integration Platforms, etc.
- Integration tools and skillsets in-house
- Vendors pre-vetted for integration support
- Audit and risk concerns reviewed with all integration efforts
When new Finance applications are acquired, organizations are most likely to integrate them directly into existing Finance applications or they will manage the process on a case-by-case approach. Alarmingly, 20% of organizations did not know if they even had an integration strategy, pointing out that this topic requires further conversation. Managing integrations can have a major impact on Finance technology budgets: 38% of organizations report that integration maintenance consumes 10–25% of their annual Finance technology budget.

On average, organizations have 18 integration touchpoints between Finance and non-finance applications, and 11 integration touchpoints between SCM and non-SCM applications. These numbers change based on the size and complexity of the organization; for example, Large organizations have ~75 integration points.

In terms of the systems integrated with Finance and SCM applications, Human Resources leads at 46%, followed by Sales/CRM at 35%. Overall, 11% of organizations report that no integrations exist within their Finance and/or SCM systems environment.
Data Privacy, Cybersecurity, and Risk Assessments

Data Privacy, Security, and IT Risk Assessments are current topics of conversation for both Finance and IT professionals. Organizations that capture or transfer data must be aware of the latest regulations concerning Data Privacy and verify that their vendors are also compliant. Approximately 132 countries have Data Privacy regulations and ~28 countries have legislation in process.

With attention on brand management and hyper-valuation of personal data, being effective at Data Privacy processes simply isn’t enough—organizations should strive to be transformational. Organizations with an Enterprise Integration Strategy are twice as likely to already have transformational processes in place. As organizations continue to build personalized Finance and SCM environments that tailor the business experience for customers, partners, and employees, navigating data management and access challenges becomes an area of concern. Organizations can start to address these risks by having a Cybersecurity Strategy and/or performing regular IT Risk Assessments that include their entire Finance and SCM environments. Approximately 73% of responding organizations have a regularly updated Cybersecurity Strategy.

Figure 19: Enterprise Cybersecurity Strategy

Finance Systems are included 74% of the time in an organization’s Cybersecurity Strategy, HR Systems are only included 55% of the time, and Operations/Production Systems are at 49%.

Figure 20: Systems Included in a Cybersecurity Strategy

<table>
<thead>
<tr>
<th>System Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance Systems</td>
<td>74%</td>
</tr>
<tr>
<td>HR Systems</td>
<td>55%</td>
</tr>
<tr>
<td>Operations/Production Systems</td>
<td>49%</td>
</tr>
<tr>
<td>SCM/Vendor Systems</td>
<td>45%</td>
</tr>
<tr>
<td>Active Directory</td>
<td>44%</td>
</tr>
<tr>
<td>Sales/CRM Systems</td>
<td>43%</td>
</tr>
<tr>
<td>Marketing Systems</td>
<td>26%</td>
</tr>
<tr>
<td>None</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
</tr>
</tbody>
</table>
Personal Mobile devices create one of the greatest Cybersecurity risks for organizations, yet few have standardized Bring Your Own Device (BYOD) policies: 32% of organizations have a BYOD policy in place for Everyone, while 19% have one in place for Select Groups. Notably, 15% of organizations have No Official Policy but still allow employees to access the network with Personal Devices. Organizations with an Enterprise Cybersecurity Strategy don’t shy away from IT challenges or limit access to various technology environments; they are twice as likely to have a BYOD policy in place that includes Everyone.

**Figure 21: Adoption of Bring Your Own Device Policies**

**BRING YOUR OWN DEVICE POLICY**

- 35% No and Network is Restricted
- 15% No Official Policy, but Personal Devices Are Used to Access the Network
- 19% Yes, for Select Groups Only
- 32% Yes, for Everyone

Organizations with BYOD policies tend to employ standard cybersecurity tools, including Multi-Factor Authentication (MFA) and Remote Wipe Technology, to protect organizational data. Approximately 71% of organizations report using MFA for their Finance and SCM applications and 56% utilize Remote Wipe Technology.

**Figure 22: Adoption of Cybersecurity Tools**

**MULTI-FACTOR AUTHENTICATION**

- 71% Yes
- 29% No

**REMOTE WIPE TECHNOLOGY**

- 56% Yes
- 44% No
Finance and SCM Application Adoption

The adoption of Finance and SCM applications will undoubtably vary by individual organization, but the charts in this section are valuable as a benchmark for understanding current and planned use of various applications across the following categories:

- Finance applications
- SCM applications
- Budgeting applications
- Project and Grant applications

Finance Applications

Finance applications generally have the highest utilization rates by organization. General Ledger software is the most important, In Use by 90% of Large, 90% of Medium, and 70% of Small businesses.

![Figure 23: Finance Application Adoption](image)

Of the 76% of organizations that currently have an Accounts Receivable/Billing application, the preferred Billing type is Customer Contract Billings followed by Periodic/Recurring Billing.

SCM Applications

Following Finance applications, the SCM application category has the second highest overall adoption ratings, with Procurement/Purchasing solutions utilized the most across Small, Medium, and Large organizations. While Small and Medium entities also heavily rely on Inventory Management systems, Large companies place a greater emphasis on using a Supplier Contract Management system. Newer SCM applications, including eProcurement and Strategic Sourcing, tend to have the lowest adoption rates.
Figure 24: SCM Application Adoption

Of the nearly 80% of organizations that leverage various SCM applications, 66% are currently using Electronic Data Interchange (EDI) to manage and reduce paper-based communication.

**Budgeting Applications**

With respect to Budgeting applications, organizations are most likely to leverage a solution to manage their Operational Budgets. Applications for Project Budgets and Capital Budgets also have high current and future adoption rates due to their impact on a company’s bottom line. Less than 50% of Small organizations have applications to manage Capital or Workforce Planning Budgets.

The use of Workforce Planning Budget applications is strongest among Large organizations due to the number of business segments and departments that exist, as well as the sheer volume of employees.

Figure 25: Electronic Data Interchange Use

Figure 26: Budget Application Adoption
When applicable, the majority of organizations (68%) have a separate Tax Department that is responsible for managing Goods and Services Tax (GST) or Value Added Tax (VAT) requirements.

Figure 27: Management of GST/VAT Administration

GST/VAT: a noncumulative tax imposed during each stage of the production and distribution cycle for some regions.

Project and Grant Applications

Overall, Project Cost Management, Contract Management, and Grants Management applications are the least likely adopted application areas by organizations. However, an organization’s industry does play a large part in the use of these applications.

Figure 28: Project and Grant Application Adoption
Organizations adopting either a Project application or a Grant application use these systems for various types of work, often with overlapping efforts. Capital Projects are the most likely Project type tracked, while Private foundations are the most likely Grant type tracked by organizations.

**Figure 29: Types of Projects and Grants Tracked**

**Projects Tracked**
- Capital: 66%
- Internal: 50%
- Customer: 42%
- Research/Grants: 28%
- Asset: 19%

**Grants Tracked**
- Private: 73%
- Federal: 68%
- State: 67%
- Industry: 47%
Business Intelligence

Business Intelligence (BI) provides insights for organizational decisions by managing the processes created to store, govern, analyze, report, and share past, present, and future business information. These efforts are not a single project, but require constant care, rework, and data/tools management to produce an ever-evolving story. Because no single tool set, suite, or platform covers the entire function, multiple technologies are used to accomplish BI efforts:

- **Embedded Analytics**: separate modules within an organization’s Finance or SCM platform that can be turned-on/installed but are not sold outside of the application. Capabilities can vary widely by solution but may include dashboards, data modeling, and interactive reports.
- **Extraction and Analysis**: tools used to extract specific data from various systems, conduct cleansing, organize, and run separate unique analysis; e.g., Microsoft Excel or statistical applications.
- **Visualization and Sharing**: tools designed to use clean data, defined data, and very large data sets to produce images, charts, communications, and presentations; e.g., Tableau or Qlik.
- **Platform BI Solutions**: tools designed to provide data mapping, data analytics, forecasting, and visualizations of multiple data sets to produce insights for making business decisions.
- **Data Management and Manipulation**: tools designed to extract large amounts of data for storage, organization, and mapping that is then made available to individuals to run processes or algorithms; e.g., Data Warehouses and Data Lakes.

**Data Lake**: A storage repository that holds large amounts of raw data in its native format (structured and unstructured) until it is called for use.

Business Intelligence Applications

In terms of specific tools used for Finance and SCM BI, organizations almost always use Microsoft Excel in some capacity. Data Warehouse use is particularly high in the Finance and SCM industry (relative to HR), leveraged by 73% of Large organizations and 64% of Medium organizations.

While Embedded Analytics modules in Finance and SCM applications offer a great convenience for providing dashboards and interactive reporting, organizations increasingly favor Platform BI Tools, Statistical Tools, Visualization Tools (powerful in making data more appealing and help in creative storytelling), and Finance/SCM-Specific Analytics Solutions.

In the world of big data, organizations’ BI needs will only become more complex and no specific tool alone will be sufficient. Currently, usage rates of Data Lakes are low, but this will likely change over the next three to five years as organizations realize the power of storing raw structured and unstructured data in this repository.

Regardless of the BI applications leveraged, organizations must understand that analytics, in general, need to be thought of and understood as a continuous process that requires constant adjustments and not just as a one-off project.
Data Driven Business Intelligence

BI was originally seen as the domain of very large organizations; however, advances in technology, data storage, and analytic tools have made BI accessible to all organizations. In the next 12 months, ~50% of organizations plan to increase headcount for Reporting/Analytics roles. In addition to hiring for these roles and granting access to BI applications, organizations must be prepared to act on the insights provided by these tools. Access to BI is most frequently given to Finance Analysts and general Finance Staff, followed by Managers, IT Analysts, and Executives.

Figure 31: Users with Access to BI Applications
For most organizations, the idea of becoming a data-driven organization is the ultimate goal; however, the work required to become a data-driven organization is often seen as insurmountable. Organizations face major issues related to lax data input processes, siloed data environments, and limited resources who understand how to analyze and align the data to critical business issues. Application integration can address many of these issues, but organizations still need to determine what data should be integrated.

Approximately 87% of respondents integrate at least one data source into a single BI tool for the purpose of analysis, with Finance as the leading data source at 68%.

Figure 32: Data Sources Integrated into a Single BI Application

- **Finance**: 68%
- **HRMS**: 31%
- **Sales/CRM**: 29%
- **Operational**: 22%
- **Workforce Management**: 20%
- **Talent Management**: 15%
- **Supply Chain Management**: 15%
- **Marketing**: 14%
- **Safety/Audit**: 11%
- **External Benchmark**: 9%
- **None**: 13%
- **Other**: 2%

Once organizations have their data cleaned and connected, then they must develop a data-driven mindset that is supported by an enterprise level model for data analytics. The first step, defining the problem to be solved, is often the biggest hurdle for an organization:

- What questions should organizations even be asking?
- Can these questions be answered within the guidelines of data privacy?
- Is the proper information being captured in the first place?

Figure 33: Data-Driven Finance and SCM Model

Data Collection tends to be the easiest part of the Design phase, but it is ultimately useless without follow-through in the Implement phase. Data Clarification and determining actions to take is the next step before Sharing the results in a way that is easily understood, engaging, and valuable to the organization. Finally, recognizing when to Start Again or rethink the entire process with the next question is a pivotal part of the business cycle.
Voice of the Customer

To obtain an understanding of the current and future landscape of vendor solution adoption, respondents identified their provider solutions currently in use Today and specified their adoption plans for the next 12 Months for the following applications:

- Finance
- Supply Chain Management

Please note this should not be considered market size data, but rather trend data that provides insight for organizations participating in this research.

Finance Providers and Outlook

Finance applications are widely adopted enterprise applications. The relationship an organization has with its existing vendor(s) is central to its decision-making process when purchasing additional applications. Oracle, including all of its associated Finance software products (Oracle Finance Cloud, EBS, JD Edwards, NetSuite, and PeopleSoft), has the largest adoption level by respondents, which is also expected to strengthen over the next year. SAP’s applications, including all of its Finance products, also have strong adoption rates by respondents. Infor is expected to see the largest increase in adoption rates over the next 12 Months.

Figure 34: Vendor Adoption Rates for Finance Applications

<table>
<thead>
<tr>
<th>Provider</th>
<th>Today</th>
<th>In 12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle*</td>
<td>64%</td>
<td>76%</td>
</tr>
<tr>
<td>SAP*</td>
<td>35%</td>
<td>36%</td>
</tr>
<tr>
<td>Infor*</td>
<td>17%</td>
<td>29%</td>
</tr>
<tr>
<td>In-House</td>
<td>16%</td>
<td>21%</td>
</tr>
<tr>
<td>Microsoft Dynamics</td>
<td>15%</td>
<td>22%</td>
</tr>
<tr>
<td>Workday</td>
<td>14%</td>
<td>16%</td>
</tr>
<tr>
<td>Intuit</td>
<td>10%</td>
<td>12%</td>
</tr>
<tr>
<td>Unit4/FinancialForce</td>
<td>9%</td>
<td>13%</td>
</tr>
<tr>
<td>Epicor*</td>
<td>9%</td>
<td>20%</td>
</tr>
<tr>
<td>IFS</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>Sage*</td>
<td>9%</td>
<td>16%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

* Includes all Finance software products.  
Note: these do no equal 100% because they include multiple Finance systems.
Respondents reporting that their primary Finance application vendor meets their current organizational needs Most of the Time is exceedingly high at 60%, with 26% stating that their needs are Always met. These rates have directly contributed to lengthy system durations, with the average Finance solution in place for 9.99 years, varying very little by organizational size.

Figure 35: Primary Finance Application Vendor Meets Organizational Needs

Long system durations are common with respect to Finance applications; 17% of organizations that are planning to change their Finance application vendor in the next year have had their existing system for an average of 11.81 years.

Figure 36: Changes to Finance Application Vendor

Despite the high percentage of organizations whose needs are being met Always or Most of the Time by their primary Finance application vendor, 36% were evaluating a change—a 30% increase from last year. Approximately 80% of respondents stating that their primary Finance application vendor Sometimes or Never meets their business needs were planning a change in the next 24 months.
Organizations reporting that their primary Finance application vendor did not Always meet their organizational needs identified Reporting as the largest gap, followed by Integration, and a lack of System Knowledge.

**Figure 37: Major Gaps with Existing Finance Vendor Systems**

SCM Providers and Outlook

Beyond Oracle and SAP applications, the SCM vendor landscape is heavily dispersed, the majority of whom have been in existence for quite some time. While there is some vendor cross-over between SCM and Finance vendors, there is a high concentration of niche solution providers in the market.

Although Oracle and SAP will continue to be the preferred SCM vendors over the next year, pure-play vendors such as Descartes, Coupa Software, and Basware are expected to gain further traction in the market.

**Figure 38: Vendor Adoption Rates for SCM**

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Today</th>
<th>In 12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle*</td>
<td>39%</td>
<td>42%</td>
</tr>
<tr>
<td>SAP*</td>
<td>38%</td>
<td>32%</td>
</tr>
<tr>
<td>Infor*</td>
<td>17%</td>
<td>20%</td>
</tr>
<tr>
<td>Epicor*</td>
<td>16%</td>
<td>17%</td>
</tr>
<tr>
<td>IFS</td>
<td>12%</td>
<td>4%</td>
</tr>
<tr>
<td>Microsoft Dynamics</td>
<td>9%</td>
<td>13%</td>
</tr>
<tr>
<td>Workday</td>
<td>9%</td>
<td>4%</td>
</tr>
<tr>
<td>HighJump</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>JDA Software</td>
<td>6%</td>
<td>10%</td>
</tr>
<tr>
<td>Sage</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>Manhattan Associates</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>12%</td>
<td>9%</td>
</tr>
</tbody>
</table>

* Includes all SCM software products. Note: these do no equal 100% because they include multiple SCM systems.
Emerging Technologies and Innovations

Each year, new technologies that may impact an organization’s enterprise system decisions are tracked. These topics, largely in the early stages of adoption, include the following:

- Mobile Finance and SCM
- Storage and Application Development:
  - IaaS
  - PaaS
- Intelligent Platforms and Tools:
  - Benchmarking Databases
  - Predictive Analytics
  - Robotic Process Automation (RPA)
  - Internet of Things (IoT)
  - Sentiment Analysis
  - Blockchain
  - Machine Learning

Mobile Finance and SCM Technology

Mobile technology adoption in our personal lives is almost universal and a large part of how individuals interact and communicate with the world around them. As a result, expectations to leverage Mobile devices in the work environment is growing at a fast rate. It’s important to note that the conversation around Mobile goes beyond smartphones to include tablets, headsets, wearables, and the Internet of Things (IoT). Essentially, Mobile technology allows organizations to think less about any one device and more about the optimization of information and communication through any device.

Currently, 38% of organizations are using Mobile-enabled Finance and SCM applications, up year-over-year from 28%. At the same time, 29% of organizations have no plans to implement Mobile-enabled Finance and SCM solutions; these organizations are twice as likely to have responded that their Finance and/or SCM function is viewed as compliance focused rather than one providing strategic value to the company. While the number of organizations that are not planning to leverage Mobile technology is trending down, it remains high. Moreover, a lack of Mobile application investment has a major impact on an organization, affecting its productivity and responsiveness. By size, Large organizations are more likely to have deployed Mobile-enabled Finance and/or SCM applications.
In terms of specific Finance and SCM applications, organizations are most commonly using Mobile devices for the following activities: General Ledger, Travel and Expenses, and Financial Reporting/Analytics. In addition, Small and Medium organizations report high usage rates for Mobile-enabled Accounts Receivable, while Large organizations are heavy users of Mobile devices for managing Project Budgets.

Over the next year, Accounts Receivable and Cash Management will experience the largest overall uptick in Mobile adoption. Small organizations will also likely expand Mobile use for Asset Management activities and Medium organizations will increase Mobile use for managing Operational Budgets.

On average, organizations tend to have four Mobile-enabled Finance and SCM applications Today, with plans to increase to six over the next 12 Months.
The top barriers organizations face in enabling Mobile Finance and SCM applications include Security Concerns, Cost/Resources, Privacy Concerns, and System Limitations.

Figure 41: Barriers for Adopting Finance and SCM Technology

Storage and Application Development

Infrastructure-as-a-Service (IaaS)

Traditionally, an organization’s IT platform strategy has been the sole purview of the CIO or Technology department; however, almost every technology application in the market today offers a cloud-based option, which means that organizations should be having wider conversations around a platform strategy, especially when it comes to technology selection, integration, and data privacy issues.

As the overall cost of data storage decreases and expectations for secure access to cloud solutions increase, IT leaders and vendors are identifying that maintaining the infrastructure and hardware for cloud environments is an unnecessary expense. More importantly, scaling the structure fast enough to meet system adoptions and 24/7 demands is a constant challenge.

As a result, large global public hosting organizations such as Amazon Web Services (AWS), Google Compute Engine, Microsoft Azure, and Oracle Cloud Platforms have become viable alternatives. These public hosting organizations initially offered cloud space for small vendors and businesses unable to pay for their own storage, but now organizations are increasingly relying on these providers for their scalability, extensibility, support, security, and unimaginable levels of space that are provided at a fraction of the cost of an organization maintaining its own data center. This category of public cloud environments is known as Infrastructure-as-a-Service (IaaS).
A usage-rate snapshot of IaaS for Finance and SCM applications revealed that 22% of organizations are operating in an IaaS environment today, with another 18% evaluating this option for future use. Organizations reported lower costs and higher levels of flexibility, meeting management needs, and security as the top benefits of leveraging IaaS.

**Figure 42: IaaS Adoption**

<table>
<thead>
<tr>
<th>Use Within HR System Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today</td>
</tr>
<tr>
<td>IaaS (Infrastructure as a Service)</td>
</tr>
</tbody>
</table>

**Platform-as-a-Service (PaaS)**

Platform-as-a-service (PaaS) was pioneered by organizations like Google with their App Engines and development toolkits. In a nutshell, PaaS increases the development of third-party applications available through existing browser-specific and technology infrastructures.

There are multiple forms of public, private, and hybrid PaaS environments. A more common model, however, for enterprise technology is rapid development PaaS, made famous by Salesforce.com and its Force.com PaaS environment, which was designed to provide licensed developers with access to the platform and tools needed to quickly create complex multitenant applications. PaaS also allows a vendor the ability to offer customizations (industry or business-need specific) to a cloud environment.

**Figure 43: Cloud Partner Marketplaces**

PaaS: a category of cloud computing services that provides a platform allowing customers to develop, run, and manage applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an application.
Of interest to organizations with highly customized on-premise solutions (which may include custom bolt-ons designed for their unique business requirements), PaaS technology provides a pathway for a potential move to the cloud while still meeting custom requirements. Today, 20% of organizations are leveraging PaaS infrastructure technology in conjunction with their Finance and/or SCM systems, with another 17% Evaluating future use. Furthermore, of those organizations leveraging PaaS, approximately half are developing in-house capabilities to work with PaaS and the remainder are purchasing those capabilities from third parties.

**Figure 44: PaaS Adoption**

<table>
<thead>
<tr>
<th>PaaS (Platform as a Service)</th>
<th>Today</th>
<th>12 Months</th>
<th>Evaluating</th>
<th>No Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20%</td>
<td>8%</td>
<td>17%</td>
<td>23%</td>
</tr>
</tbody>
</table>

**Building Blocks of Intelligent Platforms**

Innovation comes in many formats, the least of which is simply newer and bigger systems. The next generation of workplace technology is being designed to inform our decisions and simplify our activities; it is meant to be invisible and ubiquitous in our lives and is expected to continuously gather data necessary for maintaining multiple intelligent platforms, which over time will likely create an even more intelligent platform where data is housed and accessed by multiple applications.

The line between what organizations want and what they can do comes down to one simple issue: building blocks. The first building block is data. Understanding your organizational data is a critical step in developing an environment for tomorrow’s intelligent platforms. Every intelligent platform requires immense amounts of historical and current data to train and test. Although it can be tempting to buy into the vendor hype that you can leapfrog over these data requirements, just imagine your smartphone’s voice-activated digital assistant trying to explain the multiple variations of your billing process to your CEO. If that image was disturbing, think about how the intelligent platform feeding your Finance/SCM applications will need both data and time before it becomes a valuable member of your enterprise technology ecosystem.

After organizations identify, gather, and make their data accessible through a Business Intelligence application, the data must be refined, analyzed, put into context, evaluated for ethical issues, and shared in a way that provides value to the organization, creating either awareness or assistance in decision-making efforts. Using data without proper cleansing or analysis could result in catastrophic situations for an organization. Initially, accessing and leveraging data may be a risk and yield very little value, but those organizations able to harness the data will reap the long-term benefits. As organizations simplify the data collection process and build incentives for data sharing, data can become an infinite resource. Data can also be reused, recycled, and provide insights, both internally and externally, when compared to broader data sets. Our research identifies the tools using data today that are most relevant to the evolution of emerging intelligent platforms. These early technology efforts are the next building blocks for tomorrow’s intelligent systems.
Benchmarking—a comparison exercise that organizations undertake against competitors or peers—uses a data set obtained from systems, interviews, surveys, or simple observation by an entity that chooses to keep that information. One of the key benefits of using multitenant cloud technologies is that, with permission, vendors have the ability to aggregate their client data for more accurate and broader benchmarking efforts in many areas. This may include metrics, activities, usage data, or key practices.

While benchmarking is a mature activity, cloud platforms facilitate the aggregation of broader benchmarking efforts. Currently, 27% of organizations are leveraging Benchmarking Databases as part of their Finance and/or SCM technology, with another 16% Evaluating these tools.

Predictive Analytics

Predictive Analytics is a branch of advanced analytics that relies on existing data sets and statistical models to determine future possibilities. Approximately 24% of organizations currently leverage Predictive Analytics as part of their Finance and/or SCM technology, with 11% adopting it within the next 12 Months, and ~20% Evaluating future use.

While predictive models will provide actionable insights, the key is in ensuring the accuracy of the underlying data. Organizations wishing to use Predictive Analytics face many challenges, including data quality, data volume, and data bias—any one of which could derail a Predictive Analytics model.

Internet of Things

The Internet of Things (IoT) is a network of devices that are fitted with sensors and internet connectivity to facilitate the exchange of real-time data for the purpose of driving efficiency through better business planning and resource allocation. For example, warehouse storage devices with sensors can manage inventory levels and automatically submit orders to manufacturers when the need arises.

Other examples of how organizations leverage IoT in the Finance and SCM industry:

- Physical products that send out data on maintenance requests and renewal reminders
- Wearable applications that allow for automatic payment, billing, and invoicing based on actual customer or partner locations
- Facility sensors that provide constant data for budgeting, planning, and forecasting purposes

Today, 22% of organizations are using IoT technology in their Finance and/or SCM function, with another 19% Evaluating it.
Robotic Process Automation

Robotic Process Automation (RPA) software is programmed to perform routine and repetitive transactions based on a rule-based engine, essentially operating as a virtual workforce that improves the speed and accuracy of the work. The software, or bot, replicates human execution of tasks via existing user interfaces: it captures and interprets existing applications, manipulates data, triggers responses, and communicates with other systems. It can also be applied to existing applications without changing the current IT landscape.

Examples of how organizations leverage RPA in the Finance and SCM industry:

- Invoice processing
- Invoice data capture and data entry
- Reconciliations
- Supplier management and catalog management
- Customer data management

Effective use of RPA to these processes will save time and money: on average, RPA will reduce costs by ~20%. Despite its value, only 21% of respondents are leveraging some form of RPA functionality in their Finance and/or SCM environments, up from 13% year over year.

Sentiment Analysis

Sentiment Analysis, sometimes referred to as opinion mining, is the use of natural language processing tools and various forms of text-based analysis tools to determine attitudes, perspectives, and opinions of large data sets. These tools often analyze unstructured data required for Predictive Analytics over time and provide richer context to benchmarking analyses’ data and other customer or employee datasets. Today, 20% of organizations have adopted some form of Sentiment Analysis in their Finance and/or SCM function and another 16% are Evaluating their options.

Blockchain

Blockchain technology is a data structure that makes it possible to create a digital ledger of transactions and share it among a distributed network of computers. Specifically, it is a growing list of records, called blocks, that are separately encrypted. Each block contains cryptography, hash/signature (of previous block), timestamp, and transaction data.

By design, Blockchain is resistant to modification of the data. It is an open, distributed ledger that can record transactions between two parties in a verifiable and permanent way. Once recorded, the data in any given block cannot be altered retroactively without changing all subsequent blocks, which requires consensus of the network majority.
Blockchain is becoming an essential innovation for any organization looking for a more secure way to manage Finance and SCM environments across multiple parties with digital tracking throughout the entire process. Although the benefits are clearly significant, only 17% of organizations have currently adopted Blockchain in their Finance and SCM technology environment, up from 10% year-over-year, while 17% are Evaluating Blockchain for future use. It is important to note, however, that Blockchain may be implicit in other adopted solutions and therefore already used by organizations even if they have not specifically implemented their own Blockchain technology.

Examples of how organizations leverage Blockchain technology:

- Cross-border payments
- Smart contracts that use computer-enforced contract agreements across legal entities
- Shipping processes that reduce middlemen and verify transactions each step of the way

Although these examples are still somewhat hypothetical, organizations continue to build business cases for future applications of this technology.

Machine Learning

Machine Learning is a type of Artificial Intelligence that allows a computer the ability to perform a specific task without precise instructions. The underlying purpose of Machine Learning is for the technology to constantly teach itself as data inputs are received. Current adoption of Machine Learning in the Finance and SCM industry is low, at 14%, but nearly 25% of organizations are Evaluating it for future deployment. Much of what is currently being called Artificial Intelligence today are early forms of Machine Learning.

Figure 45: Building Blocks of Intelligent Platforms

<table>
<thead>
<tr>
<th>Use Within HR System Environment</th>
<th>Today</th>
<th>12 Months</th>
<th>Evaluating</th>
<th>No Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benchmarking Databases</td>
<td>27%</td>
<td>10%</td>
<td>16%</td>
<td>18%</td>
</tr>
<tr>
<td>Predictive Analytics</td>
<td>24%</td>
<td>11%</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>Internet of Things (IoT)</td>
<td>22%</td>
<td>7%</td>
<td>19%</td>
<td>25%</td>
</tr>
<tr>
<td>Robotic Process Automation</td>
<td>21%</td>
<td>9%</td>
<td>16%</td>
<td>29%</td>
</tr>
<tr>
<td>Sentiment Analysis</td>
<td>20%</td>
<td>8%</td>
<td>16%</td>
<td>20%</td>
</tr>
<tr>
<td>Blockchain</td>
<td>17%</td>
<td>7%</td>
<td>17%</td>
<td>32%</td>
</tr>
<tr>
<td>Machine Learning</td>
<td>14%</td>
<td>8%</td>
<td>24%</td>
<td>23%</td>
</tr>
</tbody>
</table>
Long-Term Perspective

Twenty-two years of Survey history gives Sierra-Cedar long-term insights into the trends with staying power in today’s enterprise systems environments.

Finance and SCM technologists are facing a rapidly changing world that requires the management of an overwhelming amount of information and constant skill development. In the beginning of this research effort, our quest was to prove the value of various technology investments. Today, the need to improve business operations through system investment is no longer a debate, therefore our research focuses on helping business leaders choose, use, maintain, connect, and harness the power of various systems to achieve desired outcomes.

One machine can do the work of fifty ordinary men.
No machine can do the work of one extraordinary man.

– Elbert Hubbard

All Emerging Technologies have a place in history, but not all of them will have an enterprise-wide impact over time. This section of our research is an ever-evolving list of technology topics based on feedback we receive from our research community. We welcome input on additional Emerging Technology trends or other research areas you'd like to see included in our Survey at Finance.Survey@Sierra-Cedar.com.
Survey Methodology and Approach

Sierra-Cedar conducts the longest running, most widely distributed, and most highly participative research effort in the HR industry. Since 1997, this invaluable resource has been a catalyst for the HR technology community, providing insight and guidance to practitioners around the world. In 2017, Sierra-Cedar expanded its research to include the Finance and SCM industry and will continue this effort to provide this community with thought leadership for years to come.

The Depth and Breadth of the Research

Each year, nearly 2,000 organizations around the world complete the Sierra-Cedar Systems Surveys, providing valuable research data from organizations of all sizes and industries. Survey participants come from multiple distribution sources, with only 4% from the Sierra-Cedar client base. This outreach promotes a broad and varied audience for gathering data on technology adoption and usage metrics, while safeguarding against data bias towards any particular vendor or user community so that the data represents the overall technology environment.

Respondents answer in-depth enterprise Finance and SCM systems questions across multiple topic areas:

- Technology adoption for Finance, SCM, Budgeting, Projects and Grants, and Business Intelligence solutions
- Deployment roadmaps, resourcing, and budgeting
- Strategy, process, and security
- Emerging and innovative technology
- Enterprise outcomes and business details related to systems adoption

Target Survey participants are Functional and IT practitioners and leaders at the center of enterprise technology decisions, implementations, maintenance, or change management efforts. Many organization executives and business leaders who focus on Finance and SCM technology issues also find the Survey of interest.

Figure 46: Survey Methodology

Sierra-Cedar follows rigorous standards in the form of our nine-step Survey Methodology, independently validated by the Mercer Survey Quality Group. Each year, this annual research provides a wealth of knowledge that is shared openly with the Finance and SCM community. All participants are kept strictly anonymous, and only aggregate data is used.
2018–2019 Survey Demographics

The Sierra-Cedar 2018–2019 Finance and Supply Chain Management Systems Survey, 2nd Annual Edition was conducted from October through December of 2018. Responses are subject to an extensive cleansing process, resulting in the final totals below.

The 2018–2019 data set is based on unique organizations representing a total workforce of 5.3 million employees and contingent workers. A wide range of organizations participate in the Survey annually; the data is categorized into nine primary industries and divided into the following three organization sizes:

- **Small**: <2,500 employees
- **Medium**: 2,500–10,000 employees
- **Large**: 10,000+ employees

Figure 47: Survey Respondents by Sizes and Industries

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1 Survey data is closely aligned in both size and industry percentages with the Bureau of Labor Statistics for the U.S. Outside the U.S., data is considered indicative only due to small sample sizes.
The 493 Survey respondents represent multiple entity types.

**Figure 48: Survey Respondents by Entity Types**

The Survey respondents are primarily a mixture of Finance, Accounting, and IT practitioners, as well as leaders at the center of enterprise technology decisions, implementations, and change management efforts. These respondents are intimately involved as Finance and SCM technology decision makers.

**Figure 49: Survey Respondents by Functions and Roles**
Approximately 51% of organizations represented in the Survey have operations in multiple countries outside their headquarter country.

Figure 50: Survey Respondents by Geography

251 Global Organizations (51%)

94%
1%

3%

2%

23
Average number of countries in which global organizations have operations
About Sierra-Cedar

Sierra-Cedar helps organizations navigate their application and technology roadmap, whether modernizing an existing portfolio or moving to emerging technologies. The integration of industry knowledge, deep technology capabilities, breadth of service offerings, and a global delivery model translate into best-value solutions for your organization. Our services are categorized into industry-based consulting services and industry-agnostic shared services that focus on strategic, implementation, and upgrade services across multiple technologies.