



TREASURY TECHNOLOGY

ANALYST REPORT

2021

The Definitive Guide to Treasury Technology Solutions

Treasury & Risk Management

Treasury Aggregation

Supply Chain Finance & Cash Conversion

This special edition provides an exclusive look at the solution set offered by Fides.



2021 Analyst Report

STRATEGIC TREASURER, LLC

525 Westpark Drive, Suite 130
Peachtree City, GA 30269

For inquiries regarding inclusion in this and other issues of our Analyst Report, please contact us at:

analystreport@strategictreasurer.com
+1 678.466.2222

CRAIG JEFFERY

Founder & Managing Partner
craig@strategictreasurer.com

BRIAN COCHRUM

Director of Marketing
brian@strategictreasurer.com

KYLENE CASANOVA

Marketing Manager
ky@strategictreasurer.com



ADVISE



ASSIST



RESEARCH



INFORM

Welcome to the 2021 Treasury Technology Analyst Report, the definitive guide for smart financial stewardship in the digital age. Our team created this report as a tool for you to explore how treasury technology meets treasury needs.

Treasurers considering digitizing their processes often face a learning curve as they approach the complexity of many categories of treasury technology, the alphabet soup of AI, ML, API, RPA and many other technological terms, and the difficulty of navigating selection, buy-in and implementation efficiently. This report can help.

NAVIGATING THE DIGITAL REPORT

Please note the following tools, which we hope will make it easy and convenient for you to reach different parts of the report quickly and cross-reference other sections as needed:

CLICKABLE TABLE OF CONTENTS: *This isn't new, but you can use the table of contents (page 3) to click to each section.*

"CONTENTS" & "VENDORS" BUTTONS ON EVERY PAGE: *Every page after this one has two tabs along the left or right margin with buttons reading "Contents," which will pull you directly back to the table of contents, and "Vendors," which will direct you to the beginning of the vendor coverage section. If at any point you find yourself somewhat lost for the section you wanted to reach, you can return to the table of contents and click to the page you want.*

COLOR-CODED SECTIONS: *Each sub-report or tech type has its own color. You can see this in the table of contents, and colored tabs on each page of the sub-reports will help you to identify which section you're currently reading.*

LINKS: *Some words throughout the report are linked either to related material elsewhere, such as on the Strategic Treasurer website, or to other relevant pages within the report. We are not able to include links returning you to the page you clicked from, however, so please note the page you will need to return to before clicking away.*

Copyright © 2021 by Strategic Treasurer. All Rights Reserved. Reproduction by any means in whole or part without permission is strictly prohibited. The information contained in this report has been prepared by Strategic Treasurer unless otherwise noted. We make no representations, express or implied as to its accuracy or completeness. Opinions expressed herein are subject to change without notice. This is a report meant for informational purposes. It should not be construed as offering legal, financial, or other advice.

Contents

INTRODUCTION	05	Rates of Growth: Staffing vs. Demands	16	Who Needs a TMS?	26
About the Analyst Report	05	Fraud	16	The Problems & the Solution	27
Why the Combined Report.....	05	The Compliance Burden	17	Efficiency for Overwhelmed Treasury	
THE TREASURY TECHNOLOGY LANDSCAPE	06	Big Data, Complexity & the Need for Internal & External Visibility	18	Departments	27
Categories of Solutions	07	The WFH Shift: COVID-19 As an Accelerator	19	Data & Analytics Mindset: Supporting the Single Source of Truth.....	27
History of Treasury Tech	07	GENERAL PRINCIPLES FOR TREASURY TECHNOLOGY SELECTION & IMPLEMENTATION	20	Front-Office & Back-Office Integration & STP	28
Connectivity.....	07	The Business Case	20	Streamlining External Connectivity.....	29
Data	08	Getting Key Stakeholders on Board.....	20	Consistency & Scalability in Combatting Fraud ..	29
Processing Power Efficiency.....	08	Making the Strategic Case	21	BCP, WFH & Economic Volatility.....	30
Hosting Models	08	Selection	21	Emerging Technologies: TMS Applications	31
Democratization of Technology.....	09	Looking for a Strategic Partner	21	AI/ML.....	31
The Future of Treasury Technology	09	Putting Your Time Where It Counts.....	22	BI	31
Application Programming Interfaces (APIs)	09	Implementation	22	API	31
Big Data & Business Intelligence (BI).....	10	Being a Realist	22	Selecting & Implementing a TMS	32
Artificial Intelligence (AI) / Machine Learning (ML)	10	Phasing Your Implementation with Banded Timeframes	23	Selection.....	32
Robotic Process Automation (RPA)	11	TREASURY MANAGEMENT SYSTEMS	24	TREASURY AGGREGATORS	34
Blockchain & Distributed Ledger Technology (DLT)	11	What Is a TMS/TRMS?	24	What Is a Treasury Aggregator?	34
Shifts in Solution Categorization & a New Solution Type: Enterprise Liquidity Management	12	The Types of TMS/TRMS & Its Place in the Ecosystem.....	24	Technology Infrastructure	35
The Power & Value of Networks	15			Differentiation from Other Solutions.....	35
CHALLENGES DRIVING ADOPTION	16			Signs You Might Need a TA	36
				Treasury Complexity: Who Needs Aggregation?	37
				How Aggregated Data & Centralized Payments Help	37
				Narrowing the Front in the War on Fraud	37

Payment Types & Changing Formats 38

Global Expansion 38

Bank & Bank Account Complexity 38

Cash Position & Visibility Reporting 39

Payments Intensity & Complexity 39

Heightened Compliance Expectations..... 39

A Tool for Understaffed Treasury Teams 40

Looking Forward: The Future of Treasury Aggregation 40

Implementing & Using a Treasury Aggregator 41

Internal Systems Integration 41

Bank Onboarding 41

Employee Training 41

SUPPLY CHAIN FINANCE / CASH CONVERSION CYCLE 42

Treasury, Working Capital, the CCC & SCF 42

Defining Working Capital, Cash Conversion Cycle & Supply Chain Finance 42

Optimizing Working Capital..... 42

Cash Conversion Cycle Solutions 43

The Stakeholders & Their Challenges..... 44

Order-to-Collect Solution Landscape 44

Procure-to-Pay Solution Landscape 45

Accelerated Adoption Amidst Disruption 46

The Future of CCC Solutions 46

Supply Chain Finance Solutions 47

Liquidity Challenges & the Limitations of Traditional

Payment Terms 47

SCF Models & Techniques..... 47

Who Needs SCF? 50

The Future of SCF..... 51

Selecting & Implementing an SCF Solution 52

Leading Practices for Working Capital Initiatives 54

Create or Consult a Working Capital Council..... 55

Understand the Other Perspectives 55

Establish a Single Set of KPIs & Objectives..... 55

Monitor & Refine the Approach..... 55

FIDES 56

WORKS CITED 60



TECHNOLOGY SOLUTION CATEGORY: TA



Founded:
1910



Founder/CEO:
Andreas Lutz



Headquartered:
Zürich, Switzerland



Ownership:
Credit Suisse Group

Introduction

I About the Analyst Report

WHY THE COMBINED REPORT

In 2015, Strategic Treasurer came out with its first Treasury & Risk Management Analyst Report. The following year, the Treasury Aggregator Report was added, and then the Supply Chain Finance (SCF) Report, which has now been expanded to cover both SCF and cash conversion cycle solutions.

As we contemplated the addition of new solution types in the future, we realized that the number of documents readers would have to download or carry might get a little out of hand. In addition, many of the tech types bear some overlap. Some solutions on the market are difficult to confine to one strict category, and certain overarching concepts, ideas and recommendations apply to each type.

With the reader's convenience in mind, we decided to combine the reports into one. You will still find the familiar topics and tech types—TMS/TRMS, TA, SCF & CCC—grouped as you are accustomed to in the “sub-reports” within this document and preceded by an overview covering general treasury technology information. Vendor coverage continues as usual after each sub-report.

➤ TREASURY & RISK MANAGEMENT SYSTEMS

➤ TREASURY AGGREGATORS

➤ SUPPLY CHAIN FINANCE & CASH CONVERSION CYCLE

The Treasury Technology Landscape

Treasury's interests intersect with financial technology at multiple different levels. As the stewards of the organization's liquid assets, treasury takes an interest in 1) technology that directly assists with managing liquid assets, 2) technology that helps with efficiency and

operations in ways that impact liquidity directly or indirectly and 3) technology that impacts the security of liquid assets. The types of technology (whether complete solutions like a TMS or innovations like APIs) that fall into one or more of these groups are numerous, but this report covers

several of the top solution categories as well as the innovations impacting them.

The treasury technology landscape can be viewed from different angles. Traditionally, we have portrayed the landscape with a diagram like [Figure 1](#). It shows a sample infrastructure and some of the flow of data that might occur between systems. While this still represents a framework comparable to those in many treasury departments today and helps give an idea of how the pieces might fit together, it should be noted that it is a sample and a somewhat rudimentary one in a growingly complex and varied landscape.

Sample Technology Infrastructure

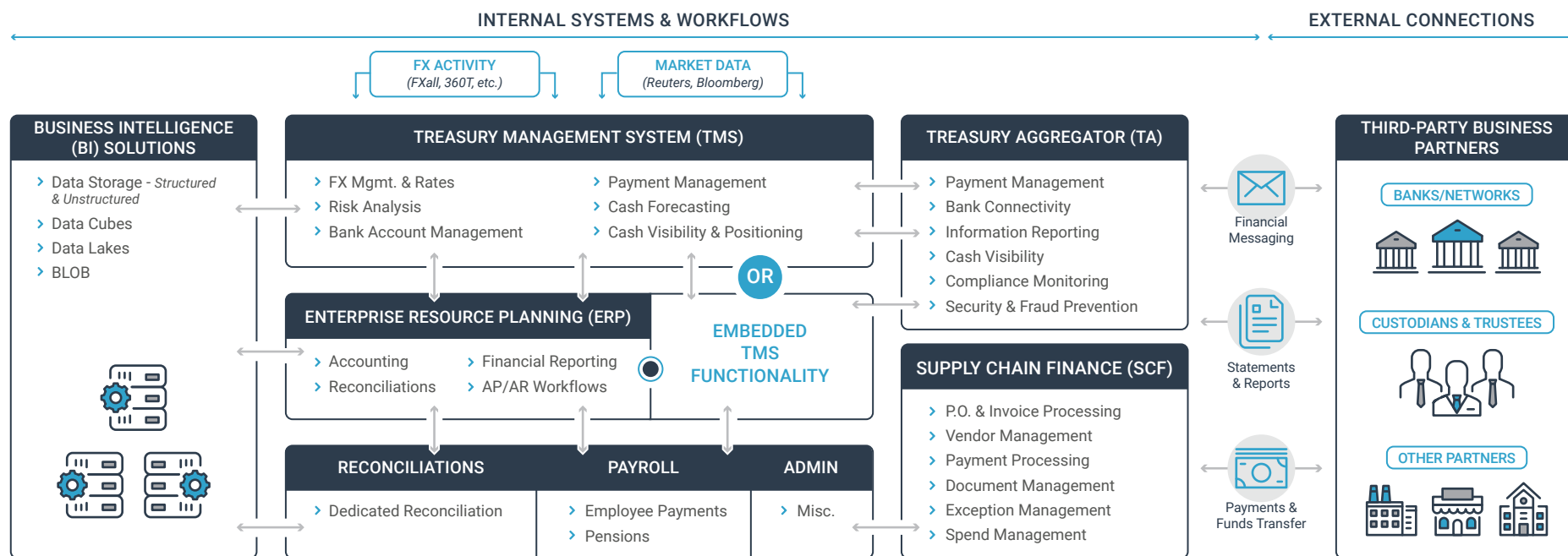


Figure 1

As vendors increasingly leverage open, connected and cloud-native technologies, they are finding new ways of combining functionality and data. We anticipate some fundamental shifts over the coming years, likely including shifts toward “microservices”—layered, cloud-native functionality in increasingly small packages—and toward more comprehensive views and solutions for everything from liquidity to payments to data. For a deeper look at the shifting angles of approach, see the discussion of enterprise liquidity management (ELM) on [pages 12-15](#).

These changes will impact—and in some cases already are impacting—how vendors address the problems treasury and finance face, meaning that the diagram we currently use may have to be adjusted in coming years to reflect changing approaches. That said, the categories of solutions impacting treasury today are not going away anytime soon. Instead, categories are being added and ways in which they achieve their goals are changing.

I Categories of Solutions

Treasury & Risk Management Systems (TMS/TRMS)

Designed to function as the core piece of technology serving treasury’s specific needs and integrating smoothly with other tech types currently used by treasury. Most TMSs are aimed at solving treasury’s cash management troubles in medium or large corporations, coming into use when Excel is no longer

enough to support the department’s cash positioning, visibility and forecasting needs and when tools need to integrate for workflows to run efficiently.

Treasury Aggregators (TA)

The connectivity specialists of the treasury tech space, aggregators pull bank data in, send payments out, and handle all the internal and external connections necessary to perform those actions. TAs are designed for the treasury departments whose payment activity is complex and/or high-volume, helping solve pain points around manual data aggregation, disparate payment processes and numerous file formats.

Supply Chain Finance (SCF) & Cash Conversion Cycle (CCC) Solutions

A wide range of solutions that can help with working capital management by impacting processes related to buyer-supplier liquidity, order-to-collect and procure-to-pay. SCF is aimed at helping companies whose supply chain relationships are vital and who require some level of flexibility in their payment terms or capital deployment. CCC solutions are suited for companies with bottlenecks or defect-prone processes in their CCC. Both SCF and CCC are an option to consider for those seeking to optimize working capital.

I History of Treasury Tech

Although teletype machines were bringing technology to bear on treasury’s connectivity needs as far back as the 1970s, most processes remained fully pen-and-paper manual until the 1980s, when Lotus 1-2-3 (a computer spreadsheet program) was released. In the years following, technology revolutionized nearly every corner of corporate finance: ERPs evolved from early precursors, the first treasury management systems were developed, and increasingly specialized solutions were built for more treasury-related issues.

Even for the systems that still have more or less the same functions as they did twenty or thirty years ago (the TMS, for example), the underlying technology has undergone dramatic change across multiple planes. Treasury doesn’t need expert knowledge on these issues, but a grasp of some basic ideas and trends helps give a sense of context and orientation and allows the practitioner to ask better questions and learn more rapidly when considering the use of treasury technology. With this in mind, here are some basic concepts that you will find referenced again throughout the sub-reports.

CONNECTIVITY

Connectivity has largely shifted away from direct lines toward the use of networks and APIs, although SFTP and other direct connections are still used and advisable in some situations.

DATA

Data has grown at a massive rate of 40% year-over-year, leading to “Big Data,” the situation in which companies produce enormous amounts of data. This may be a blessing and a curse: they can leverage the data with analytical tools, but they must find a way to store and manage it properly.

PROCESSING POWER EFFICIENCY

Processing power has outpaced data by doubling every 18 months. This is fortunate, as it allows technology’s ability to handle and use data to consistently stay ahead of that data’s growth. It also means that newer solutions can be significantly more powerful than older ones.

HOSTING MODELS

The models for hosting corporate software have seen major shifts over the past couple of decades:

Installed on Premises – Early corporate financial technology was installed and hosted on the company’s own servers. As valuable as these solutions were and are, on-site hosting presented some problems:

- It set the bar for obtaining these solutions rather high, as companies had to have a sufficiently large and secure server setup, as well as an IT team with the bandwidth to maintain the system adequately. Coupled with the high cost of these early solutions, this meant that only the largest companies were able to use treasury technology.
- Additionally, since maintaining the solution fell on the customer, updates were not enforced. Companies tended to put off updates until their solutions were so behind that catching up was tantamount to a reimplement.
- Even if the updates were applied quickly, however, installed solutions inevitably faced obsolescence eventually, meaning they were depreciating assets.

Q. The TMS / TRMS platform type we use or plan to use is or is expected to be:

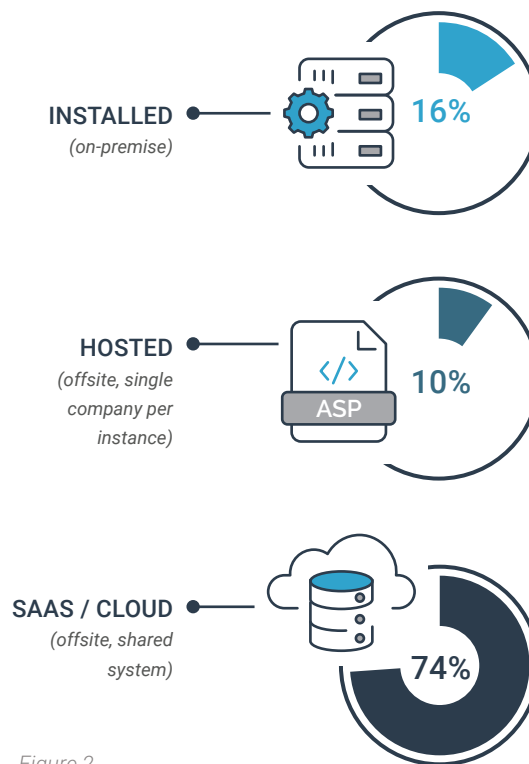


Figure 2

Application Service Providers (ASP) – The ASP model took some groundbreaking steps toward resolving the problems with installed solutions. An ASP hosted the software off-site from the customer, removing much of the server and maintenance burden. Unlike modern cloud solutions, ASP offered a single instance of the hosted system, attempting to offer customers the ability to customize the solution without the burden of managing it directly. This model, while innovative, did not fully resolve the issues with installed solutions. Upgrades were still not enforced, and solutions continued to fall behind and grow obsolete even with all updates applied. As a result, the model never thoroughly took over the market.

Software as a Service (SaaS) – The SaaS model offers multi-tenant cloud-hosted solutions. The software is not a one-time purchase, but rather a subscription, and the solution is able to grow and adapt over time to avoid obsolescence. Updates are automatic, and the customer carries little to none of the “care and feeding” or maintenance burden. It should be noted that new advances in cloud hosting and in the use of cloud-based technology have begun to impact treasury technology. Notably, “cloud-native” architecture is on the rise. This is a more modern architecture with hyper scalability that is built for (or “native to”) the open, cloud world. It is well prepared for the challenges of Big Data and supports the high connectivity and flexibility needs of modern corporations.

For most of the tech types discussed in this report, SaaS is currently the standard, and some

are only available via SaaS. See the sub-reports for each category for further information (when relevant) on which hosting models are available.

DEMOCRATIZATION OF TECHNOLOGY

As time goes by, technology becomes 1) more powerful and 2) more affordable, meaning that an increasing amount of digital functionality is available to an ever-broadening pool of customers. For example, when treasury management systems were first introduced, they were too expensive to be worth the purchase for all but the largest companies. Today, however, TMSs with more functionality and power than those early solutions are affordable enough that companies in the \$100-500mm range are now regularly buying them. We refer to this phenomenon as the democratization of technology. It results from several factors, including the rise of SaaS, increases in processing power, and many other innovations, and we expect it to continue for the foreseeable future.

The Future of Treasury Technology

Many technology types that are emerging today are likely to impact the treasury technology stack in many ways. Some will contribute to democratization, some will enhance or expand the functionality of various solutions, and others may compete with solutions or lead to adjustments in the infrastructure. The following are several emerging technologies or areas of growth that we expect to impact or continue to impact treasury solutions.



APPLICATION PROGRAMMING INTERFACES (APIs)

APIs are revolutionizing connectivity both internally and externally. APIs are programs designed to run between systems, fetching and delivering data on command and providing integration and efficiency. They have already seen widespread use in the commercial sector, where they allow customers to perform multiple actions without having to switch apps. For example, the Uber mobile app is able to show the location of the driver and to take payment by integrating with GPS and payment services via APIs. In addition to their consumer uses, however, APIs are seeing rapid adoption in finance and treasury for facilitating “open banking” and “open treasury.”

“Open banking” refers to the integration between bank systems and their customers’ technological solutions. “Open treasury” describes the internal integration of treasury’s various systems, such as the connections between a TMS and an ERP. In both cases, the goal is for the user to be able to access and work with data seamlessly and securely without needing to switch applications. PSD2, a European directive requiring banks to allow and facilitate integration with their customers’ technological solutions, drove heavy adoption of APIs in the region. This, in turn, led to increased adoption worldwide. While APIs have had significant forward momentum for some years now, 2020 saw a much higher adoption level within one year than would normally be expected within two years. We are now reaching an inflection point, with almost half of banks offering APIs for payment origination and a total of 72% planning to offer them by 2023.

With the ability to provide connectivity between treasury systems and to help systems pull in data from banks and other sources, APIs have a high impact potential for treasury technology in

Q. What is important to you in product development:

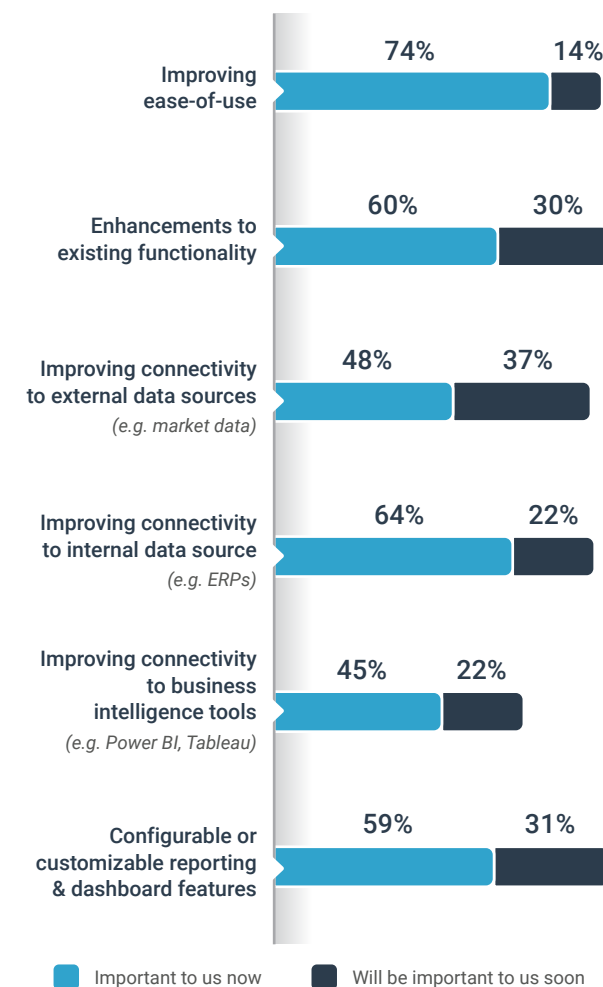


Figure 3



BIG DATA & BUSINESS INTELLIGENCE (BI)

With massive amounts of market data available for purchase as well as internal organizational data generated and tracked constantly (this latter type is sometimes referred to as “exhaust data”), companies are now faced with what is both a challenge and an opportunity: leveraging “Big Data.” This is the field of business intelligence (BI), and the technological tools that make such largescale data analysis possible are seeing consistent and significant growth.

Some fintech players are making inroads into leveraging BI integration in their platforms, and many more are expected to follow. Indeed, those that fail to develop a gameplan for an interconnected world with integrations for BI have a limited and shrinking future—and fintechs are not the only ones who need to prepare for this. Treasury departments will also need to consider how their technology architecture can support BI initiatives in the long-term and take this into account as they select solutions and providers.

Treasury should also be cognizant of the developing concepts of “alternative data” and “lag data.” While an [entire book](#) has been written on these topics, we will briefly define them here.

Alternative data refers to datasets other than those that traditionally inform the market but that can be leveraged to gain insights that would otherwise be unknown or discovered too late to be of use. This brings us to lag data—data that becomes available too late to be of much practical use.

Both of these concepts were brought into sharp relief during the pandemic. In a rapidly changing environment, many traditional datasets involved too much lag, giving insights on yesterday that could not help with anticipating tomorrow. Out of necessity, many began looking for more current data alternatives, such as satellite imagery of parking lots and mobile location data, to help show more current factors impacting the economy during lockdown.



ARTIFICIAL INTELLIGENCE (AI) / MACHINE LEARNING (ML)

The industry has yet to reach a full consensus on the definitions of AI and ML, especially as they relate to and contrast with each other. For our purposes, however, we will define ML as a subset of AI. Both involve the use of technology that is not directly programmed for each task it performs, but is rather programmed with general principles by which it approaches the tasks it is assigned. With ML, this narrows down to the program having a specific goal and a limited set of parameters for its method of reaching the goal. It accomplishes the goal by a trial-and-error type of experimentation and “learns” what methods best accomplish the set task.

Q. Which of the following technologies are you using / interested in using in treasury?

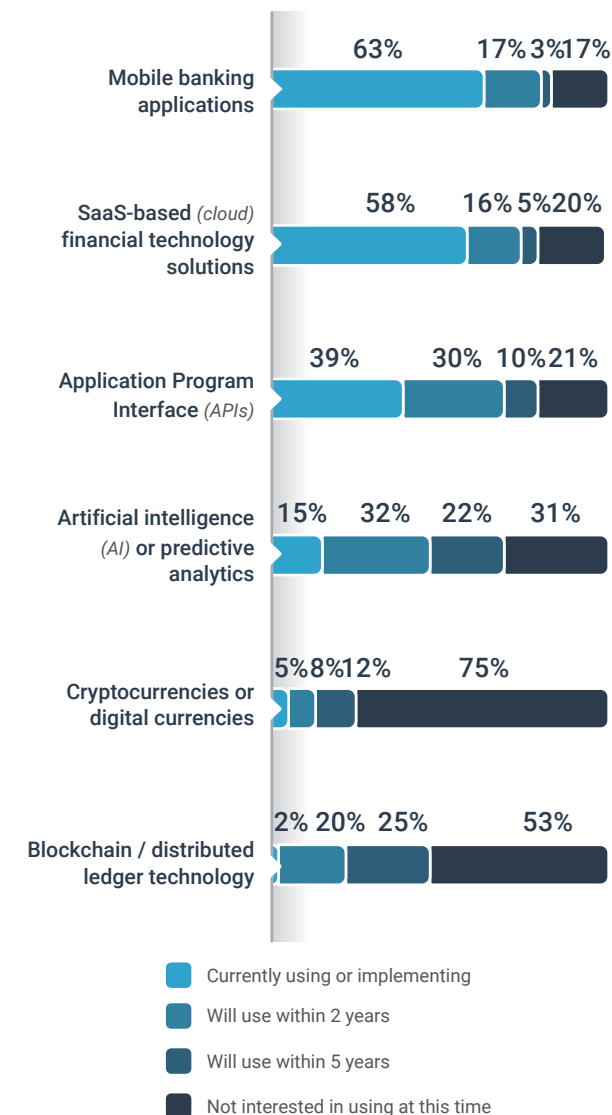


Figure 4

AI and ML have consistently shown promise for numerous types of tasks, including famous showcases in chess victories against grandmasters. Within finance and treasury specifically, AI and ML have potential roles in almost every type of solution, from detecting fraudulent activity to forecasting to identifying which customers are likely to accept a discount in exchange for early payment.



ROBOTIC PROCESS AUTOMATION (RPA)

RPA involves programming bots to perform actions

that a human would normally do, and it is frequently used to accomplish connectivity, straight-through processing (STP) and automation when other options are not available.

RPA has a few important points of distinction from most of the other tech types listed above. First, RPA bots are simple and “unintelligent.” They do not learn or come up with their own ways of performing actions like AI and ML do, nor do they automate connectivity directly in the same way that APIs do. Rather, they do almost exactly what an employee would to accomplish a task. For example, one of their most common uses is to fetch bank statements at intervals each day, but they do this by simply logging into the bank portal and downloading the statement, following the same steps as staff would.

Second, RPA sits outside of the systems in use. While most of the technologies we are discussing

Q. Select the payment-related process you would be most interested in applying artificial intelligence (AI) and / or robotic process automation (RPA) to in order to reduce manual work and achieve related benefits:

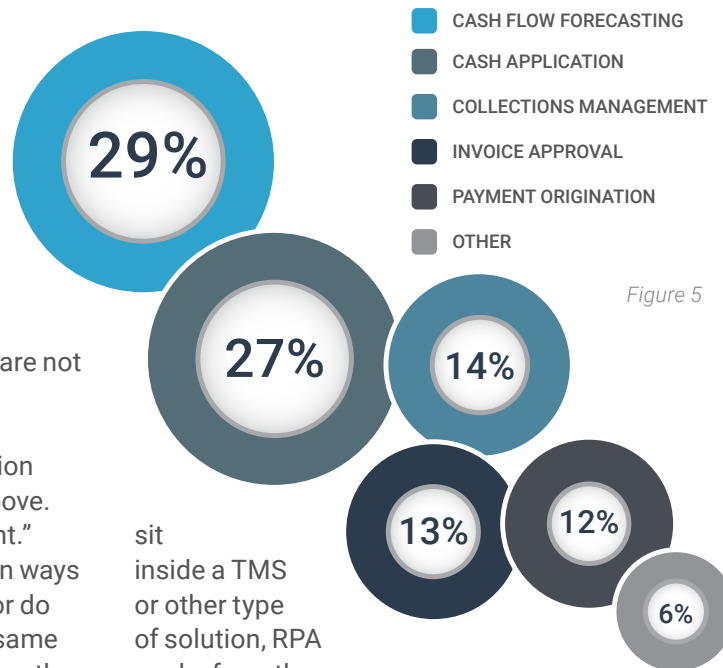


Figure 5

sit inside a TMS or other type of solution, RPA works from the outside. It is not built into a system, but approaches it from outside, as—again—a human would.

Also unlike the other emerging technologies discussed above, RPA has not seen rapid growth in the past couple of years. On the other hand, its use is not diminishing either, and it is still worth understanding and keeping in mind as an

important option for automation in many treasury departments.



BLOCKCHAIN & DISTRIBUTED LEDGER TECHNOLOGY (DLT)

While traditional databases and digital records are centralized, DLT refers to the “distribution” of records, and Blockchain, a type of DLT, refers to the linking together of those records in an immutable, chronological chain. With a clear view of what has occurred with a transaction, validated by the multiple distributed sources, these technologies have seen effective use in everything from cryptocurrencies to international shipment settlements.

While DLT is used in some treasury solutions, however, its growth rate is quite slow, and it is not projected to have much further impact on treasury tech in the near future. It may, however, be mentioned in the sub-reports as a factor impacting the usefulness of certain solutions.



REAL-TIME TREASURY

The movement to real-time treasury, real-time banking, real-time payments and real-time everything is less a specific technological innovation than a driver and use of that innovation. One might call it an “emerging mindset.” Nonetheless, its impact on the emerging technology landscape will be significant.

Various forms of real-time payments have been on the rise for some time now, and the concept

is spreading to other areas. Real-time visibility and reconciliation are becoming increasingly desirable, especially in light of current challenges, such as the growth of fraud and the growing complexity of payments and other areas. While Strategic Treasurer would sometimes prefer wording that gave less of an idea of constant synchronization and more of an idea of information that can be fetched immediately whenever you want it, the fact remains that “real-time” is a goal and a driving force in treasury technology today.

The treasury department of the future—arguably the very near future—is not so much one where treasury staff work to create visibility and then make decisions. It is more one where staff leverage intelligent technology to immediately gain visibility, using this to make decisions and advise organizational leadership on the wisest course of action given the most current data.

SHIFTS IN SOLUTION CATEGORIZATION & A NEW SOLUTION TYPE: ENTERPRISE LIQUIDITY MANAGEMENT

When we think of emerging technologies and innovations impacting treasury solutions, we typically think of individual innovations such as RPA or APIs and their uses in supporting specific tasks. Occasionally, however, innovations in technology can lead to higher level shifts that change not just the way individual tasks are accomplished, but also how we approach entire categories of technology.

Connectivity and various innovations that support it have grown significantly in the past few years, and the sophistication and prevalence of those innovations are leading to a fundamental shift in corporate financial technology. While this shift is still in the early stages, we believe that it is already beginning to have significant impacts on the treasury technology landscape and that those impacts will increase in the coming years.

Enterprise liquidity management (ELM) is a new solution type that represents this shifting perspective. That being the case, understanding ELM requires approaching the landscape from a different angle than most of us are accustomed to.

Defining Enterprise Liquidity Management

Multiple “enterprise” solutions are already in use across different organizational departments. [Figure 6 \(page 13\)](#) shows the new landscape that ELM represents and how it relates to other solution types. Its functionality (typical ELM functionality is listed along the righthand side of the diagram) stretches up out of core TMS functionality, with visibility as the base underpinning both.

From a top-down view, you can see that ELM is on a similar plane as other “enterprise” solutions but covers a different area of organizational data:

- **ERP – Enterprise Resource Planning:** The most familiar enterprise solution for treasury practitioners is the ERP, as these systems offer accounting modules (in addition to HR, production and material management and other modules), and treasury systems often need to integrate with the ERP. These

solutions help multiple departments keep track of business activities and resources—from cash to payroll to raw materials—that are relevant across multiple departments.

- **ECRM – Enterprise Commodity Risk Management:** ECRM systems help track factors that impact commodity risk. They serve a narrower but deeper niche than ERP solutions, as they are specialized systems used by commodity intensive organizations.
- **ETS – Enterprise Trading Solutions:** An ETS also serves a narrower niche of organization, helping trade intensive companies track trade activity and act on trading data.
- **ELM – Enterprise Liquidity Management:** *ELM systems help track factors across the organization that impact liquidity. From supply chain finance to payments and foreign exchange, the data that contributes to liquidity change is usually scattered across large organizations, and treasury must typically either make do with limited information or put in a great deal of manual effort to gather the data they need to adequately understand and protect liquidity.*

It should be noted that ELM functionality bears some overlap with TMS functionality. An ELM system necessarily includes the core cash positioning, accounting and other TMS modules, but its functionality extends to areas such as advanced forecasting, working capital, FX and any other factors that impact liquidity at the organization.

Treasury Technology Stack

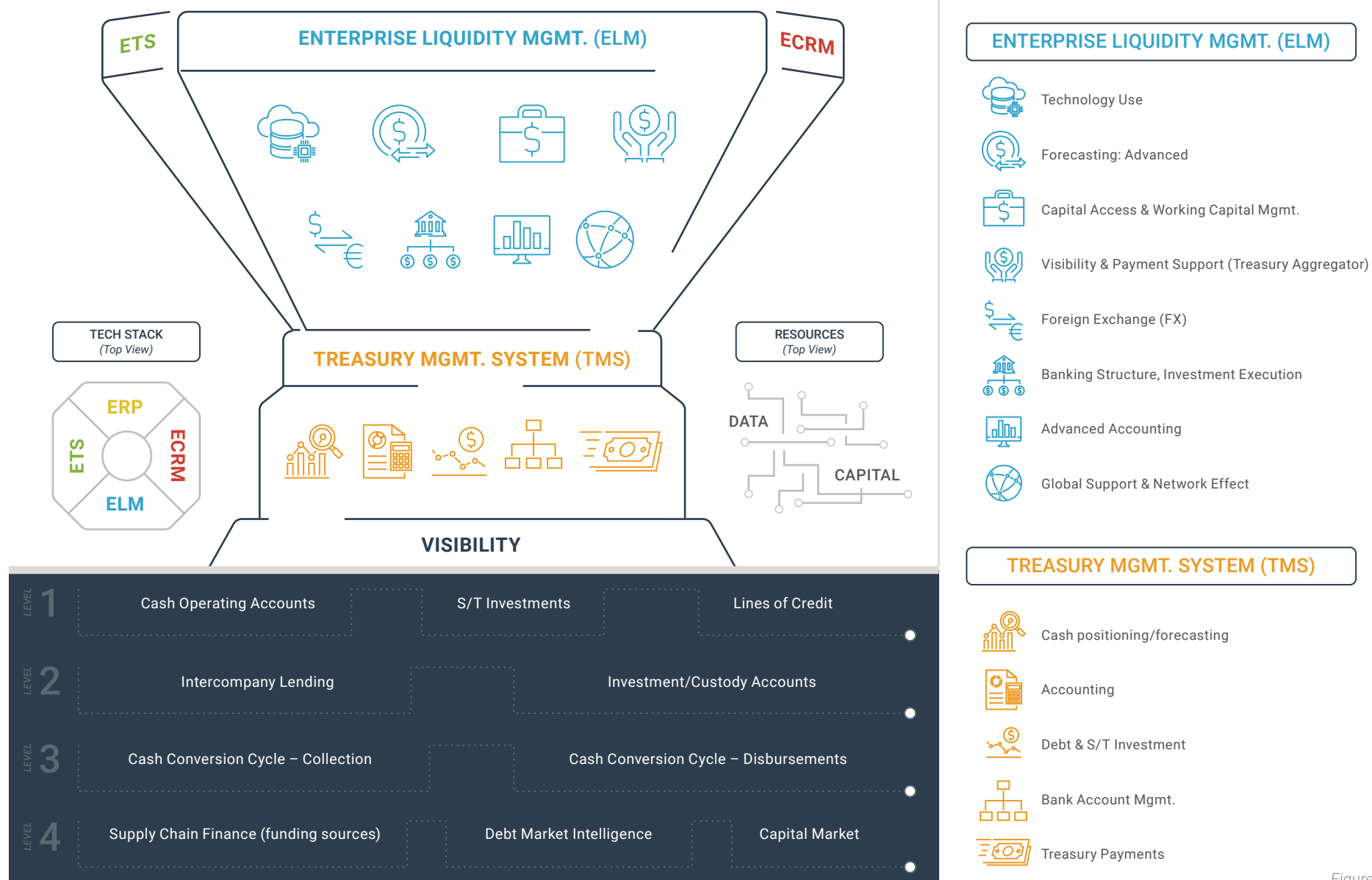


Figure 6

Currently, most of what we would deem ELM solutions are currently sold as specialized or highly advanced TMSs. Their abilities reach into other portions of the ecosystem to more effectively provide treasury with a comprehensive view of liquidity. While not just any TMS with more than basic functionality counts as ELM, we think that TMSs that cover not only their core functions but also extensive, enterprise-wide liquidity factors have become something distinct from a classic TMS.

Open Treasury: ELM & the Future of Treasury Technology

While ELM is an interesting emerging category itself, it also represents the broad impact and fundamental shift of open treasury, the move to a more fully integrated treasury department with solutions that connect seamlessly with each other and with the technology used across the organization. Open treasury prioritizes treasury staff's ability to find all the information they need and perform high-level work without manual data entry or handoffs and helps with the flow of data both in and out of treasury.

After decades of vendor focus on simply building effective functionality, treasury now has much of the functionality it needs from its solutions. Functionality is still improving and is not at all out of the spotlight, but with much of the baseline functionality treasury needs in place, there is a growing focus on how the functionality between systems and the data they need and produce interact.

This shift in perspective is mirrored in our

view of the treasury technology landscape. The illustrations we have typically used for the landscape show treasury solutions addressing well-defined areas of functionality, partitioned off from one another, with individual connections between them, external sources, and the few most relevant solutions of other departments.

The ELM landscape, however, shows a zoomed out, three-dimensional view. It takes an enterprise-wide view of the data different areas are interested in, with a more continuous view of functionality as integrations blur the lines between solution types.

The Race to Openness & Broader Community

Moving toward open treasury is a reasonable approach, and we would caution against ignoring open treasury and trying to sustain older models indefinitely. That said, there are currently multiple ways of achieving open treasury—some overlapping—and it is not entirely clear which model will come out on top.

Many vendors approach open treasury by building out their own ecosystems. They offer multiple solutions that treasury and finance need, with strong integration. This allows for a greater share of wallet for the vendor, and advantages on the buyer's end include a consistent feel across their solutions, well-planned integration, and a single vendor who is responsible for a larger set of functionality.

Meanwhile, silo specialist or “best-of-breed” vendors specialize in a particular area of functionality but are built to integrate smoothly with a variety of solutions from other vendors.

This model has the advantage of being a viable option regardless of what the rest of the buyer's ecosystem looks like.

Some take a “modified center-of-the-chess-board” position, starting with a central solution and slowly adding on functionality on an open basis. This offers many of the advantages of both best-of-breed and ecosystem approaches, and many vendors—especially those we see developing solutions we consider to be ELM—seem to be viewing it as a good option for moving forward.

Cloud-Native & Microservices

Many ELM vendors are also shifting to cloud-native solutions and microservices, which are on the rise. While many solutions have been transferred to the cloud and are now offered on the SaaS model, new solutions that are “native” to the cloud are built specifically to take advantage and work with what only the cloud can provide.

Microservices, which go hand-in-hand with cloud-native technology, are increasingly small pieces of functionality that can be layered with each other to build tailored applications. Functionality can be added and removed without disturbing the operation of other layers, making microservices highly scalable and flexible with shorter development cycles.

ELM solutions clearly have deep connectivity needs. At the same time, factors that tap liquidity across an organization are highly individual, differing both on a high level and on a detailed level from company to company, meaning ELM solutions need intense scalability and flexibility.

Cloud-native and microservice technologies are highly effective for both purposes.

These shifts—open treasury, the enterprise view of liquidity, microservices and cloud-native—are all growing in parallel. While distinct from each other, they support each other and reflect similar needs from treasury and similar mindsets growing among vendors. Where exactly these movements will lead and how quickly they will lead there is uncertain, but we advise those seeking to purchase a solution to keep an eye on these shifts and consider their potential impact on your organization's technology stack in the coming years.

THE POWER & VALUE OF NETWORKS

On the timeline of connectivity innovations, networks are among the technologies of today. Whereas direct connections (SFTP, etc.) required an added line for every contact, networks allow one "line" to reach all participating contacts.

Three main types of networks impact treasury's operations:

1. **Payment hubs** have networks that simplify compliance and counterparty identification in addition to facilitating payments.
2. **Vendor platform**

networks function somewhat like a marketplace, allowing platform members to connect and interact for multiple purposes, from finding suppliers to tracking shipping.

3. **Messaging networks** are perhaps those many of us think of first when we hear "network." These include SWIFT, EBICS, Zengin and many other regional or specific networks that all transmit payment messaging between members.

Whether directly or indirectly, developments in the network space impact other treasury technology. Many categories of treasury solutions must connect to and leverage networks either to send payments or to collect current data for cash positions and other purposes.

A network's value is built on two primary foundations: reach & functionality.

- **Size & Reach** – A network is only useful if it can connect you to enough of the right people or

organizations. For most networks, participants are at least somewhat geographically delineated, with many networks having prevalence in a specific region, such as EBICS in Europe or Zengin in Japan. While a few networks are aiming for more global participation, even the largest of these, SWIFT, has not yet seen adoption in all major nations.

- **Functionality** – As key as participants are, the functionality that draws them and allows them to interact is equally foundational. Payment messaging networks typically include ways of moving funds as well as additional security, tracking and visibility features.

Both factors are in flux. Each year, some countries and groups are joining or switching, and the capabilities of various networks are expanding and improving. Most notably, the SWIFT network's most recently announced updates are shifting their payment messaging from "serial messaging" to a "single improving version of the truth." While messaging on the platform used to involve messages running linearly from originator to bank to network to correspondent bank and to another bank before finally reaching the receiver, the new system will function more like a single bulletin board of added information that all relevant parties (and only they) have access to from the beginning of the transaction to its completion.



Challenges Driving Adoption

Technology “solutions” got their name for a reason: their aim is to solve common problems. The demand that drives the development and adoption of treasury technology comes from the challenges facing treasury departments today. These challenges abound, and while the tools to manage them are increasing, the burdens on treasury are increasing as well.

then de-emphasizing treasury again once the boat was righted.

The 2008 financial crisis, however, seems to have resulted in longer-term awareness of risks and the constant need to manage them. Since then, treasury has had corporate leadership’s attention in a way that has been rewarding and beneficial, but also challenging.

With the recognition of treasury’s importance has come an increase in demands and responsibilities. The treasurer is an increasingly valued advisor—and is therefore expected to know more with more immediacy about more things.

The COVID-19 crisis has challenged and raised the bar on treasury yet again, and through all these rising expectations and challenges, treasury staffing has grown only slightly. The gap between staff growth and demand growth has steadily widened, and many treasury departments have reached a juncture where they cannot meet demands without some strong levers, such as technological solutions and outsourcing, that extend their staff’s capacity.

Rates of Growth: Staffing vs. Demands

On a net basis, treasury departments are adding staff. The growth is simply slow. Meanwhile, however, the demands placed on treasury are growing at a much faster pace.

Treasury’s role, while consistently centered around risk management, has transformed and shifted over the years, largely in response to economic disruptions. For decades, companies seemed stuck in something of a cycle, prioritizing treasury’s role as upheaval made them acutely aware of their risks, but

Q. How large is your global treasury organization?

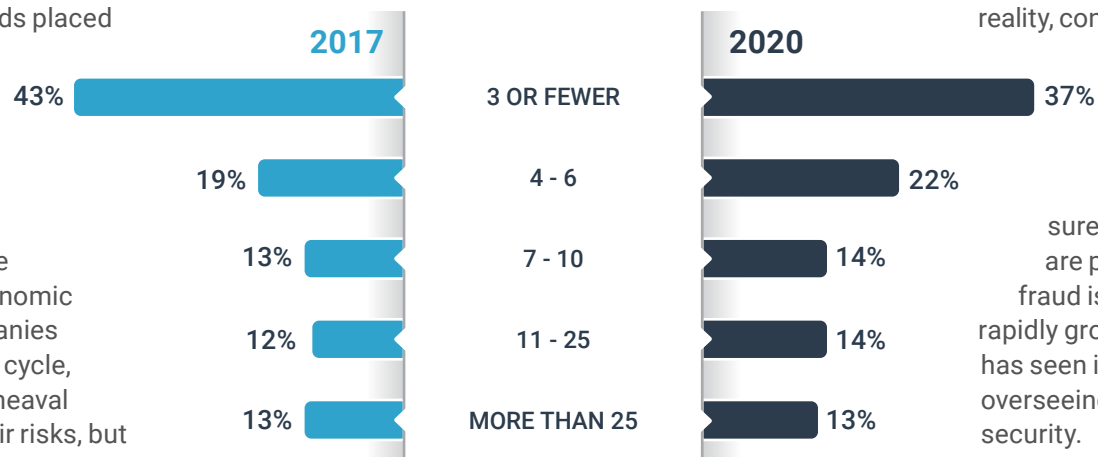


Figure 7

Fraud

The fact that fraud is growing hardly needs to be stated. If, however, you have any suspicions that the talk of fraud is hype rather than reality, consider these statistics in [Figure 8](#).

As the stewards of the organization’s most liquid assets, treasury is responsible for making sure threats to cash and payments are properly defended against. As fraud is one of the most active and rapidly growing of these threats, treasury has seen increasing responsibility in overseeing their organization’s payment security.

While most of the tasks of payment security are carried out by other departments, and treasury should by no means attempt to usurp those responsibilities, it is treasury's role to act as what may be called the "superintendent" of payment security. In this role, the treasurer may perform few if any of the tasks related to the defense, but they ensure that the proper steps are being taken and that payment processes are appropriately secure.

It is, however, becoming increasingly difficult to properly secure payment processes in a fully manual environment. Especially during the abrupt shift to work from home (WFH) in 2020, manual processes became not only unworkable but frequently impossible to secure.

Even aside from the confusion created by COVID-19 and WFH, manual processes create exposure. They do so in three primary ways. First, vulnerabilities—like defects—typically multiply with the number of touchpoints in a process, and manual processes have touchpoints in abundance. Second, controls are difficult to enforce in manual environments. Whether due to malicious intent or simply because they're in a hurry, staff can often choose to bypass manual controls, and this can open the company up to fraud regardless of the employee's intentions. Third, manual processes can do little to mitigate or reduce complexity. Complex and diverse payment processes and systems mean fighting the war against fraud on an increasingly large front with little visibility to what is happening where.

In the last 12 months, the following percentages of respondents indicated that their companies had experienced loss in each of these areas: (Only top six responses shown)

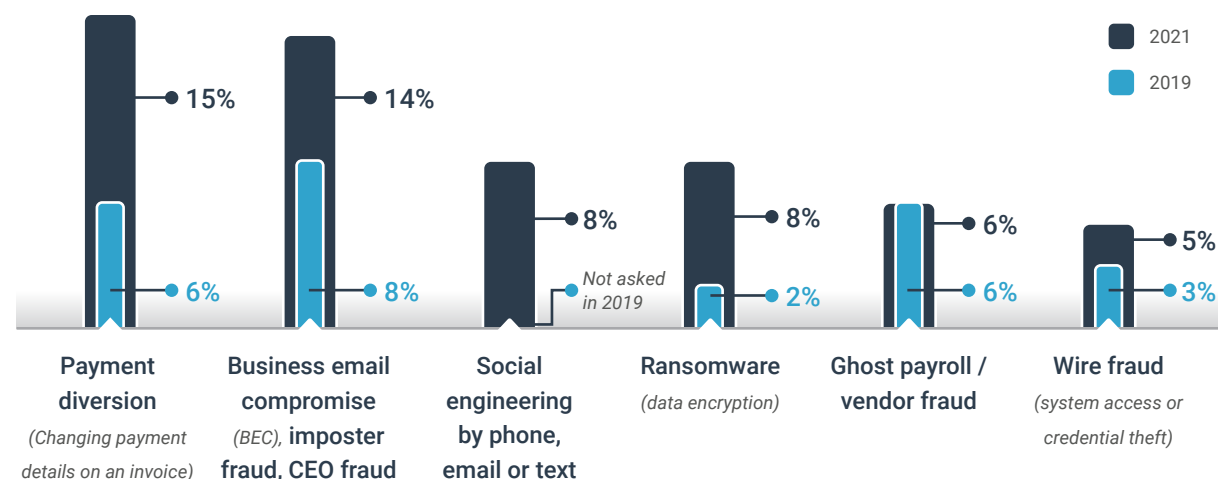


Figure 8

Digital processes address all three of these issues, and many solutions have additional monitoring and fraud prevention features. From centralizing payments through a single digital solution to built-in controls, AI-enabled fraud detection, interdiction and many more features, technological solutions can do a great deal to strengthen organizational defenses. As the pressure of external threats and the internal complexity of the payment processes both increase, more and more companies are turning to technology to help protect their payments. As the superintendents of payment security, treasury is increasingly responsible for taking an active role in obtaining this technology.

I The Compliance Burden

Another area routinely dropping additional work onto treasury's desk is compliance. Almost half of the treasury and finance professionals responding to a survey in 2020 said that compared to historical norms, the level of regulatory oversight and compliance impacting treasury was higher or significantly higher. Even more expected an increase or large increase in regulations in the near future (1-2 years).

Compliance requirements are heavily driven by the need to protect against fraudulent and other criminal activity. Much as we would wish to see a decrease or full stop of this type of activity, we

anticipate only continuations or increases. That being the case, we expect that regulations will also continue to increase as governing bodies and organizations seek to respond to this growing threat.

In a 2020 survey, KYC or “Know Your Customer” was far and away the regulation expected to have the most significant impact on treasury in the coming three years. KYC requires banks to follow certain steps to avoid offering banking services to groups with known criminal activity. As a result, organizations attempting to open and maintain bank accounts meet with extensive paperwork. Since it is such a burden, certain initiatives have begun that allow companies to compile and upload their KYC information to one platform where multiple banks can access it—most notably, SWIFT now offers this service, and it is gaining ground and seeing substantial adoption.

While KYC was rated as nearly twice as impactful as the runners-up, many other regulations on the list still contribute to the overall burden of compliance. The sheer number of regulations on the list in [Figure 9](#) gives an idea of the burden, and new requirements are added as more events prompt them.

Some impact certain industries or types of companies more than others. Foreign Bank Account Reporting (FBAR), for example, has more impact on international companies, while the security-related PCI-DSS applies to all companies that handle consumer credit card information, but does not apply to any other organizations.

The regulatory environment drives technological adoption in two ways. First and most significantly, many solutions assist with aspects of compliance. In some cases, there may be a module specifically aimed at streamlining compliance with a certain regulation built into the solution. In other cases, the visibility and rapid access to accurate information goes a long way in speeding a regulatory process. Second, some regulations—especially those aimed at preventing cyberfraud—have specific technical requirements that may be difficult or impossible to satisfy without certain types of treasury technology.

Big Data, Complexity & the Need for Internal & External Visibility

Progress seems to find an almost constant companion in complexity. The growth of an organization into new regions brings new banks, new currencies and new payment rails. More partners and customers result in more transactions to track. Better technology processes and creates more data. Enriched payment messaging formats add to the list of formats companies must be able to process.

Although they accompany positive changes, these increases in complexity can be troublesome for treasury. They need ways of managing and leveraging Big Data. They need technology that helps simplify and strengthen the defense against fraud on the ever-expanding

Q. Select the three (3) regulations or security / compliance components that you feel will have the most significant impact on treasury operations over the next 1-3 years:

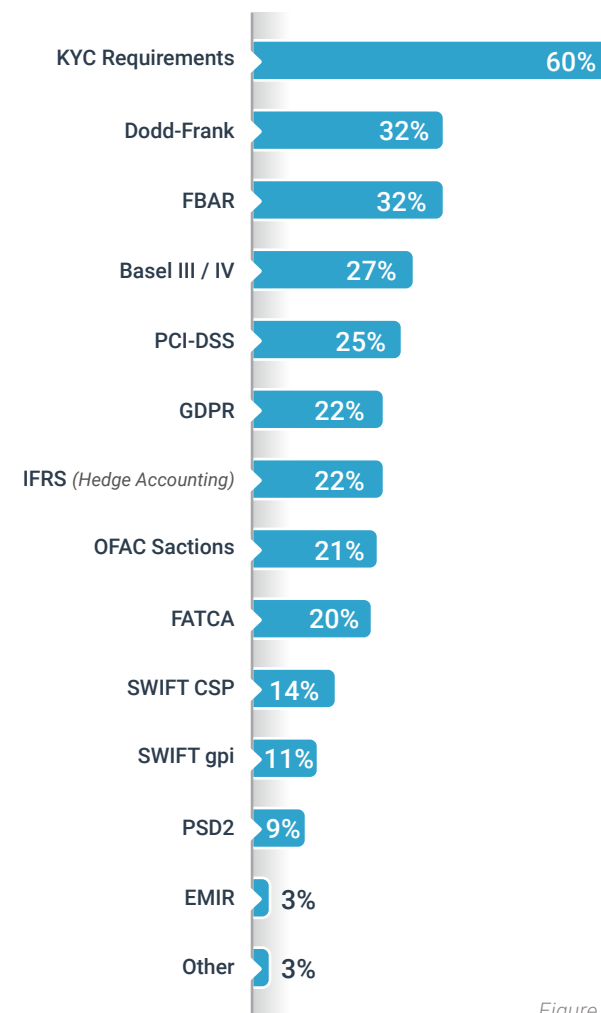


Figure 9

front. They need tools that can help them achieve visibility—not only across multiple banks and accounts, but also into the organization's own Big Data.

As information increases both in volume and complexity, it also tends to become scattered. Integration does not usually happen without a conscious effort. Even though no one, as far as we know, believes that data silos are a good thing, they tend to crop up like weeds. In many companies, the system of data that needs to be a freely flowing river is instead full of dams, stagnant pools, and odd mixes of fresh and saltwater, clean and unclean.

From new payment formats to numerous bank accounts and data silos, pulling accurate data out of this environment of complexity and informational blockages strains treasury's already tight resources. In response to this growing pain point, many are looking to technology to help with external connectivity, internal connectivity, visibility, data management and BI.

The WFH Shift: COVID-19 As an Accelerator

In 2020, the world moved home. With that sudden shift, many companies discovered that their business continuity plans (BCP) lacked adequate coverage for certain key processes, most notably payments. With regular processes impossible in many cases, businesses had to find alternatives. Some were quick to seek out technological

solutions for their payments and other disrupted processes. Others held off and put makeshift processes in place to keep operations running. For this latter group, however, opportunistic criminals—leveraging the confusion and companies' willingness to accept unorthodox procedures in this situation—provided additional impetus to make the switch to automation.

In addition to the issues brought on by WFH, COVID-19 also strained financial operations by creating an unpredictable economic environment. Liquidity tightened across the world, payment terms were pushed and pulled, interest rates sank, and forecasting was both more important and more difficult.

It would be hard to say how much each of these factors contributed to the rapid digital adoption that took place in 2020, but what is easy to say is that rapid adoption occurred. Escalated adoption rates especially appeared in AP, where much of the disruption was concentrated.

Survey data from 2020 showed approximately 2.5 times the expected amount of growth in electronic processes.

Coming out of the pandemic, businesses find themselves in a more automated world, and

treasury should keep in mind that expectations have shifted. Paper and manual processes that may have been only somewhat outdated in 2019 may be dramatically out of date in 2021. Especially with regards to fraud, being among the tail end of digital adoption can be risky and should be approached with awareness and careful planning.

Q. In response to the COVID-19 pandemic, have you considered the following: (Select all that apply)

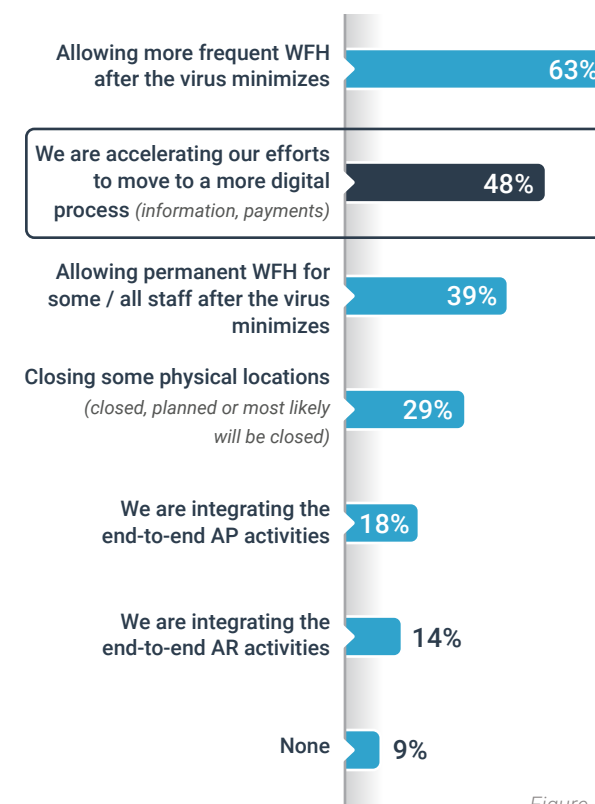


Figure 10

General Principles for Treasury Technology Selection & Implementation

While the sub-reports will address more solution-specific recommendations, many of the leading practices for choosing and putting in place a technology solution apply across the board. In this section, we will cover the basic guiding principles for each phase: the business case, the selection and the implementation.

I The Business Case

The first hurdle to be passed when seeking a solution is making the business case to obtain buy-in and funding from those outside of treasury. Multiple groups are typically all bidding for funding at any given time, and treasury must compete well to win its solution. The following two steps can make a significant difference

in how treasury's case is perceived by the decision-makers.

GETTING KEY STAKEHOLDERS ON BOARD

While getting key stakeholders on board may seem like the entire goal rather than a step along the way, the stakeholders are many, and the process must begin early. Stakeholders do not just include management, but also all the groups and individuals who will be affected by the new solution and the accompanying change in processes. Depending on the solution type, this may include accounting, AP, AR, IT and so on. Having the support of these groups can go far in obtaining funding.

How is it done? Perhaps most importantly, treasury must avoid starting by trying to convince the stakeholders to support the solution. Instead, treasury's first step is to **listen**.

Seek out each stakeholder and ask them about their concerns regarding a new solution and their

Developing a Realistic & Comprehensive Roadmap

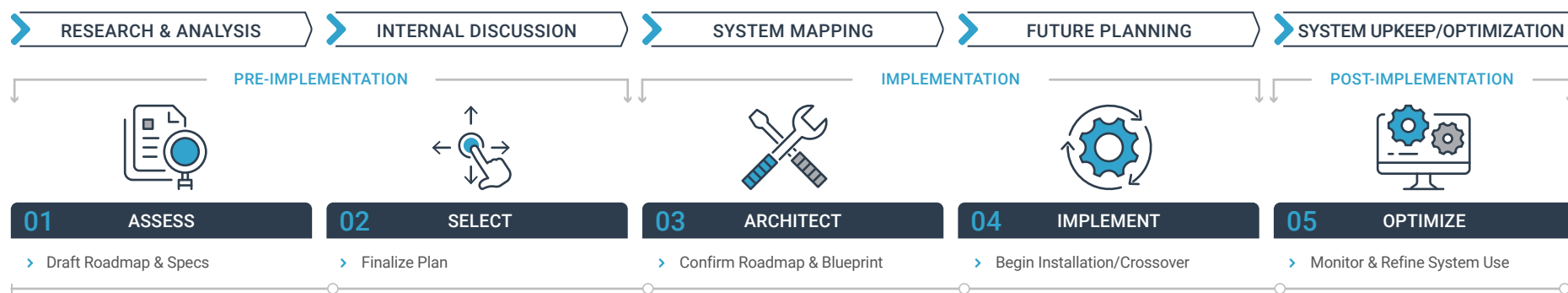


Figure 11

pain points with current processes. It's important that you both truly understand their situation and concerns and that you communicate that understanding. Work to ensure that the proposed solution addresses not only treasury's own pain points, but also the larger pain points of the organization and, insofar as the solution reaches, of the other departments involved.

This leads into the second leading practice for the business case:

MAKING THE STRATEGIC CASE

Presenting a strong return on investment (ROI) as part of the business case is standard procedure. While showing the realistic financial benefits of the solution is important, it is no less important to show the strategic benefits.

Having listened to other departments and to organizational leadership itself, treasury should have a good grasp of the organization's overarching mission, short- and long-term goals, pain points and impediments. A solution that properly supports treasury's operations or concerns should support the organization on this more strategic plane as well as having a solid ROI.

Depending on the particular solution type as well as the organization's specific pain points, the strategic case might vary significantly. In one situation, it may mean a modern TMS empowering accurate, timely forecasting while also freeing up treasury to provide strategic guidance to the C-Suite. It may mean an SCF solution helping strengthen the supply chain while freeing liquidity and unburdening AP. Whatever the case, ensure

that these strategic benefits are presented clearly in terms that are well-understood to management and the other departments involved.

I Selection

Deciding you need a solution is, in many ways, the easy part. Deciding which solution and which vendor is typically much more difficult. While the selection process is necessarily unique to each organization, a handful of principles can help guide you to the best selection for your situation.

LOOKING FOR A STRATEGIC PARTNER

While we may refer to technology partners as "vendors," the relationship should be more of a partnership. The vendor mindset is transactional. A solution is sold to those who will buy it, and any further support and relationship remains focused on offering a service for a price.

A partner mindset, on the other hand, focuses on an ongoing relationship between provider and customer. Transactions must obviously still occur, but the partner is interested in finding out ways to meet the needs of the customer over time. They listen and problem-solve, and the result is that their solution grows and adjusts to the environment their customers face.

In the short-term, a vendor mindset can easily offer a strong solution, but a treasury technology solution selection must contemplate the long-term. The solution you implement should typically continue to serve your organization—not hinder it—for a decade or more. With the growing

Q. When looking at TMS / TRMS systems, how important are the following categories in your buying decision?

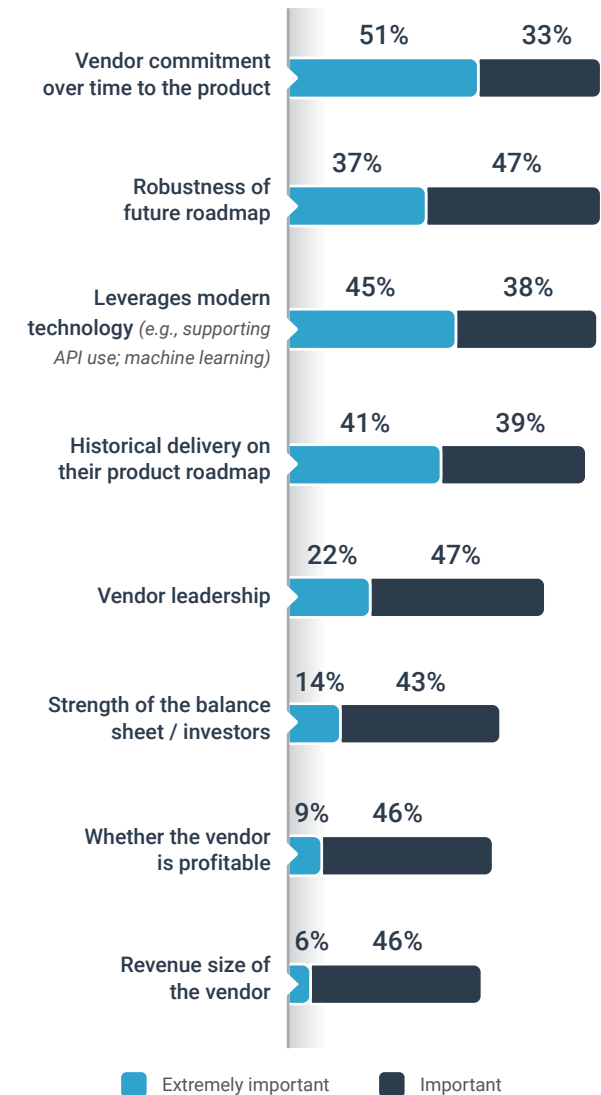


Figure 12

popularity of SaaS and cloud solutions, the longevity may rise even further.

Your needs now are likely far different than they were a decade ago, and they will likely be quite different in another ten years. Find a strategic partner in your technology provider who will invest in meeting your needs down the road as well as today.

PUTTING YOUR TIME WHERE IT COUNTS

Depending on the solution type you need, you may find yourself overwhelmed by the broad pool of options available. Conducting proper due diligence on each vendor takes a good amount of time, and time is at a premium.

To put your time where it counts the most, start by narrowing down to a short-list of a few vendors and solutions you can spend more time investigating. Establish your business requirements based on your operational needs, your industry and complexity, and the

conversations you’ve had with your team and your key stakeholders. If you have a clear list of functionality and parameters necessary for your solution, it will be much easier to cross off those that wouldn’t be a fit without spending time in the weeds.

On the flip side of not spending too much time on vendors that can’t possibly meet the stated needs, do take your time on the short-list. You want this solution to serve your organization well for many years to come, so dig deep, plan your questions carefully, and script demos that ensure you see the solutions’ capacities.

Setting up for a strong relationship with your potential partners is important, but don’t compromise on getting answers. Politely press for exact information and demonstrations if you meet with vague or uncertain responses on an issue.

Implementation

With your solution funded and selected, one major hurdle remains before you can reap the benefits: implementation. From taking longer than anticipated to missteps that require rework, implementing a solution comes with a long list of pitfalls and potential problems. Being a realist and phasing your implementation can help keep your project on track.

BEING A REALIST

The core principle behind many leading practices for implementations is simple: approach the project realistically. Simple, however, doesn’t mean easy.

Most organizations are aware that implementations are liable to drag on longer than anticipated. Many are tempted to respond by trying to brute force a rapid project. Without regard to how long each part of the project must take, they decide to allot only a small amount of time for the full implementation.

Implementation Phases with Banded Timeframes

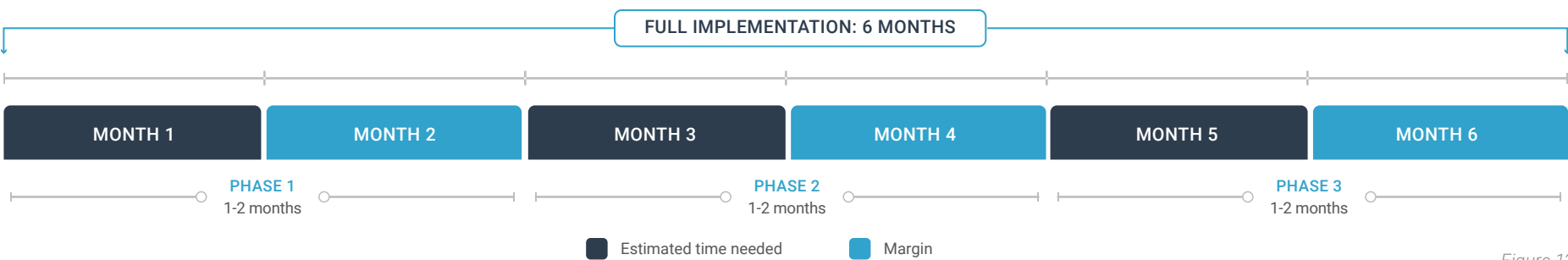


Figure 13

Treasury must simply “make it happen.” This approach is often termed “aggressive.”

Ironically, this approach to implementations tends to result in delays. Certain tasks simply cannot take less time, no matter how many staff are putting their full effort into it. Assigning ten people instead of two makes no difference when you must wait for the bank to test a connection on their end. Careful planning that anticipates and works around these issues, not brute force, is the right tool for this type of job, and projects take less time when you use the right tools.

In addition, when speed is prioritized over proper setup, elements may be implemented only partially or incorrectly. If the solution is to truly meet the need you purchased it for, substantial rework may have to be done to correct faulty setup, resulting in the extended implementation you sought to avoid.

A realistic approach to the implementation should not only contemplate the amount of time you will need, however, but the resources you will need as well. While implementing a solution “off the side of your desk” may seem like a wise way to keep the budget low, few treasury departments have the time, staffing and expertise to accomplish this in any effective way. Consider, too, the realistic bandwidth of your IT department and the support your selected vendor can provide. If you need more assistance, third parties that provide implementation support can help your project stay on track and within budget.

As you plan every aspect of your implementation, keep realism as a top priority. While your implementation timeline may look less impressive at the beginning, your end result will be a project fully and effectively completed on time and within budget, allowing you to build a respectable track record with company leadership.

PHASING YOUR IMPLEMENTATION WITH BANDED TIMEFRAMES

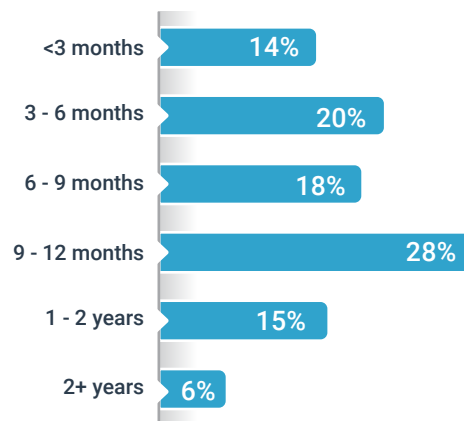
Most successful implementations follow a phased timeline. This approach involves breaking the project into logically ordered phases and planning a banded timeframe with built-in margin for each, resulting in multiple benefits:

1. With this approach, staff and support can give their undivided attention to ensuring that each part of the solution is working properly before moving on to the next.

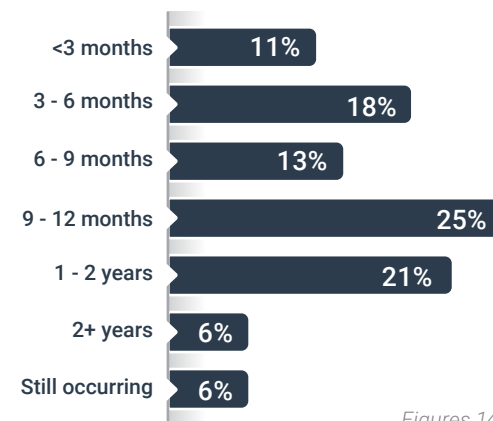
2. The margin in each phase creates a flexible plan. When problems and delays arise—as they inevitably will—the banded timeframes allow the project to stay on track to meet the final deadline.
3. Value is delivered early. Rather than a long wait for the full value at once, those observing the progress of the implementation see important elements already fully in place early on.

In the process of planning an implementation in phases, it’s important to consider the critical path items—those that must be put in place before others can function. For example, data and connections must be set up before certain testing can occur. This logical ordering must be taken into account as the phases are laid out in order.

Q. How long did you expect the implementation process to take?



Q. How long did the implementation process ACTUALLY take?



Figures 14 & 15

Treasury Management Systems

Having covered many of the common elements that apply to treasury solutions across the board on the previous pages, this sub-report will delve into the specifics of one of treasury's core tools: treasury management systems (TMS) and treasury & risk management systems (TRMS).

What Is a TMS/TRMS?

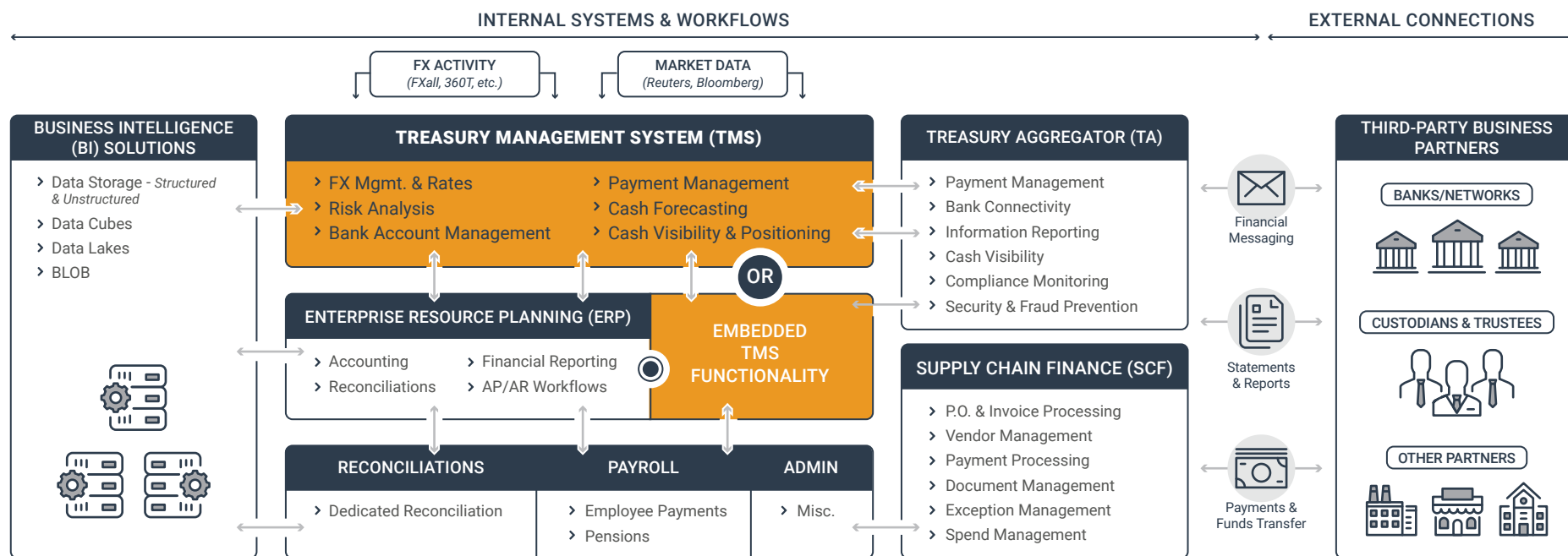
THE TYPES OF TMS/TRMS & ITS PLACE IN THE ECOSYSTEM

Treasury management systems, also sometimes called treasury & risk management systems when

solutions include more focused risk components, sit in the center of treasury's technological ecosystem. A TMS assists with treasury's core functions of cash management and positioning, visibility and forecasting, as well as having accounting features. These pieces of functionality are usually broken up into modules, and the buyer can choose which modules they wish to purchase.

The exact functionality available varies depending on the vendor and solution. Some may specialize in payments, compliance, debt & investments, risk management, FX or bank relationship management. While we would argue that some

Sample Technology Infrastructure



TMS-Figure 1

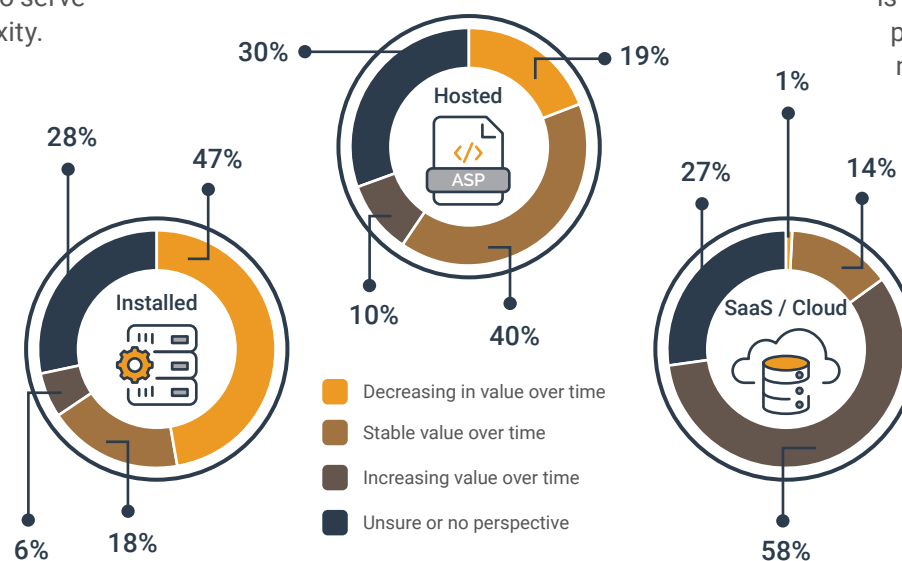
highly specialized TMS may cross over into the realm of ELM, companies considering a TMS should keep in mind that there are many options available that are suited to serve different areas of intensity and complexity.

A high capacity for integration also allows a TMS to act as a central hub facilitating the standardization and smooth travel of data from one system to another. A treasury aggregator, for example, may pull in data from banks and then transmit it to the TMS, where the TMS's cash management functionality can be applied to the data. From there, the information may be required in accounting's ERP or in BI tools, with which the TMS also integrates. This is arguably one of the most important roles a TMS plays, as without some kind of central hub tying them all together, treasury and accounting's various tools would be far less effective, and in some cases, treasury would have little way of using much of the data they receive.

Hosting

In terms of hosting models, the TMS is an apt demonstration of the move to the cloud. Twenty years ago, SaaS TMS solutions were looked on with suspicion and disregarded as almost irresponsible. Today, however, SaaS solutions have almost three-quarters of the current and planned market share.

Q. For a TMS / TRMS by type of platform, how do you view the projected value proposition?



TMS-Figure 2

While there may be a number of factors contributing to the rise in cloud-based solutions' popularity, one of the most important is the projected value proposition as compared to other models. While most survey respondents who had an opinion on the matter saw installed TMSs as decreasing in value, and ASP/hosted solutions were most often seen as stable in value, most saw SaaS TMSs as not only stable, but increasing in value.

Presumably, this contrast is largely owed to the upgrade issues of installed solutions compared to the subscription model of SaaS solutions.

Although the installed model makes an effort to maintain value over time by providing upgrades, obsolescence is eventually inevitable with a one-time purchase of an on-premise solution. The multi-tenant cloud-hosting of SaaS, on the other hand, allows for complete, enforced updates, and the subscription model incentivizes the vendor to keep the solution current and competitive over time.

With a perception of SaaS solutions as so much more valuable in the long run, it's no wonder they hold such a large portion of the current market share. That said, installed solutions continue to serve the needs of some companies, especially larger corporations, and should not be entirely discounted when selecting a solution.

Adoption Rates

In a 2021 survey, 49% of respondents currently used a TMS or TRMS. Another 24% had plans to use one in the coming years, indicating a planned increase of almost 50% compared to the current base of use (24% growth off a base of 49% current use). As significant as this sounds, it actually likely underestimates how many treasury departments will be looking to buy a TMS in the near future, as it does not include replacement activity. Replacement activity is expected to be significant in the coming years as older installed solutions slowly reach obsolescence.

Democratization clearly applies to the progression of the TMS. When they were first introduced in the 1980s, only highly complex and large organizations had the necessary resources to support them. Over time, however, their costs and requirements have lowered as their functionality has risen, paving the way for higher adoption among smaller firms. This arguably comes just in time, as demands and challenges make it increasingly difficult for even smaller treasury departments to operate effectively with manual processes.

The statistics bear this out, with expected TMS adoption especially high among smaller firms (revenue under \$500mm). When the adoption rate data from the previous page was broken down by the respondents' organization size, 29% of small firms were currently using a TMS/TRMS, while an impressive 31% expected to start using one in the coming years, showing an expectation of more than doubled use among the demographic. Even so, democratization still has room to grow in the space, as those with no plans to use remains highest among smaller firms at 41%.

Who Needs a TMS?

At a certain level of complexity (multiple countries, divisions, banks, revenue well over \$100mm, etc.), a TMS becomes an obvious need for most organizations. However, many who don't fit this obvious picture but have certain challenges may still benefit from a TMS. There are too many scenarios to cover exhaustively here, but consider your company's unique challenges through the following lenses and see if these common categories of TMS needs apply.

1. GROWTH OUTPACING INFRASTRUCTURE.

Treasury aims to support organizational growth, but sometimes that growth exceeds treasury's capacity to manage the complexity it brings. When spreadsheets begin to hold your company back, it's time to look into a TMS to support your company's continued growth.

2. HEIGHTENED VISIBILITY NEEDS.

Regardless of size, some organizations have a heightened need for visibility and/or unusual challenges in reaching that visibility. If your company is struggling to achieve complete visibility within the timeframes you need, consider automating the process through a TMS.

3. INCREASING FRAUD THREAT.

The threat of fraud is increasing for all, not just for certain groups. However, different companies have different areas of vulnerability. Keep a finger on the pulse of your organization's defenses, and if inadequate visibility to all accounts or manual, confused, complicated or scattered processes are opening you up to threats, consider a TMS.

4. DIFFICULTY REACHING EFFICIENCY.

Efficiency challenges vary. While some smaller organizations can reach their efficiency goals by adjusting their manual processes or adding an employee, others may find that a certain area of intensity or a particular bottleneck cannot be overcome manually and that staffing cannot keep up. In these cases, a TMS should be considered.

I The Problems & the Solution

While the challenges driving general digital adoption in treasury and finance have already been discussed in the overview section of this report, there remain some TMS-specific factors to cover. In this section, we will cover the factors particularly driving TMS adoption and will consider how these solutions address treasury's pain points.

EFFICIENCY FOR OVERWHELMED TREASURY DEPARTMENTS

Treasury staff using manual processes must spend much of their time on repetitive data entry and data manipulation in order to accomplish each part of their role. For companies with few banks and accounts and otherwise low levels of complexity, manual processes are often sufficient, but as your company grows and expectations for treasury mount, things can rapidly get out of hand without some technological leverage.

With their workload growing more rapidly than their *staffing* (page 16), treasury departments need tools that can help them accomplish more in less time. This is arguably the core purpose of a TMS. By automating many of treasury's most time-consuming tasks and giving staff access to more powerful tools, a TMS can help a department cover their base duties quickly and accurately with more time to devote to their strategic and advisory functions.

A TMS shifts treasury's daily task-load away from data entry and manual processing and toward management by exception and strategic advisory functions. Rather than manually inputting and processing data before a cash position can even be created, staff are only called on to manage data and handle payments that the system flags as abnormal or defective. The visibility and cash positioning tools allow staff to see what is happening and where with less delay, leaving more time to decide what to do about it.

Forecasting tools, many of which are now enhanced with ever-improving ML capabilities, allow for more accurate and rapid cash forecasts that help staff prepare for likely upcoming circumstances. Robust connectivity reduces the need for manual entry and preparing reports for other departments, and many other areas of functionality remove bottlenecks and free staff for tasks that move the company forward instead of simply keeping operations afloat.

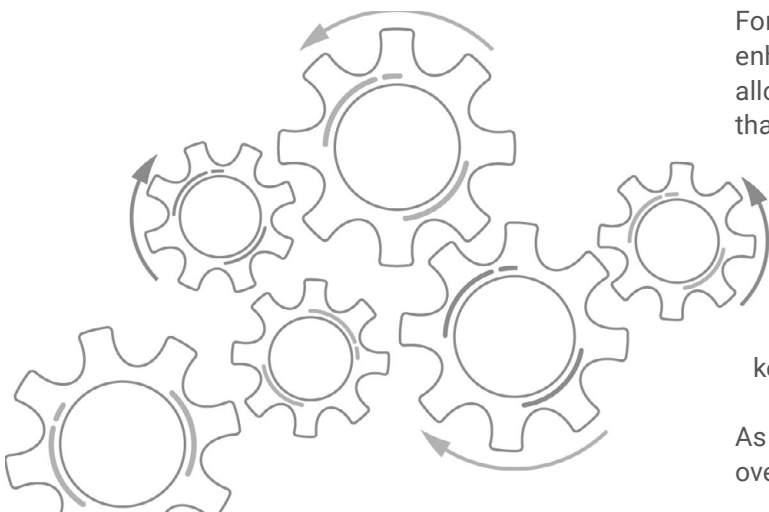
As transformative as a TMS can be for overburdened treasury departments, however,

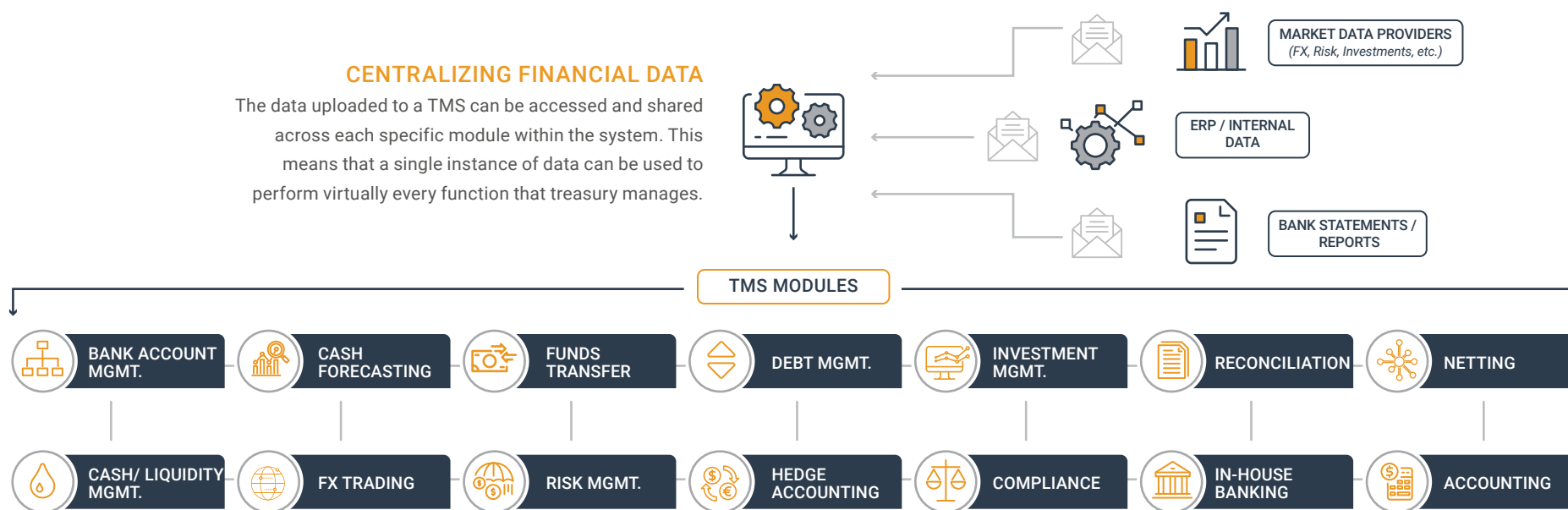
treasury should keep in mind that there will be some challenges involved in converting processes from manual to digital. While these challenges (ranging from the hard work of change management to the discovery and need to address company-wide data management issues) are far surpassed by the advantages and should not be considered a deterrent from TMS adoption, treasury should plan ahead to ensure that they are prepared to support their new system and to gain the greatest benefit from it.

One of the challenges that everyone in treasury should plan ahead for is the need to reskill due to technological advancements and adoption. Staff are sometimes concerned that technology will make them obsolete, and to be quite clear, technology can make certain roles obsolete. However, the purpose of a TMS is not to replace people, but to free them to do what only they can. If staff focus on their technology skills and strategic skills, a TMS will only make them more effective.

DATA & ANALYTICS MINDSET: SUPPORTING THE SINGLE SOURCE OF TRUTH

To make sure Big Data is a blessing, not a curse, organizations must have an infrastructure that allows for version control and excellent flow of data between systems. Various departments at many organizations are accustomed to thinking of data management only in terms of how it impacts their own functions. Whether it is accessible to BI tools or other groups in the company is not a focus, nor is ensuring that only one version of the data is in use throughout the organization.





TMS-Figure 3

Unfortunately, this results in the proliferation of data silos along with all of their organization-wide problems: repurchased data, multiple versions, financial bottlenecks and customer service problems as departments struggle to get information from each other, ill-will between departments that desperately need to work well together, storage issues and much more. No one wants this, but until departments unite with a data and analytics mindset, it is almost inevitable.

Transitioning to this mindset requires a shift from focusing on your own department's information/ data management toward a view to information flow throughout the company. It also requires setting up and supporting a "single source of truth" (or multiple sources that are thoroughly synchronized).

A TMS can function as this source of truth for much of a company's financial information. With strong connectivity options, a TMS can draw data in through APIs, SFTP connections, TAs or other options and can share that information with ERPs, BI tools, AP, AR, customer service and any other groups that require it. This not only prevents data silos, but it also optimizes data management for analytics purposes, meaning BI tools can take full advantage of synchronized and free-flowing data.

FRONT-OFFICE & BACK-OFFICE INTEGRATION & STP

This same connectivity and integration capacity means more efficiency and the ability to achieve straight-through processing (STP). The back office (accounting/reporting), middle office (settlement/

confirmation) and front office (trading) are often a hotspot for silo problems, as each one requires the same information but different tools. These tools were often implemented at different times by different groups, and their integration with each other is typically either incomplete or nonexistent. This leads to siloed data, bottlenecks in workflows, frustration and a slew of other problems. The right, highly integrative TMS, acting as a central hub to pull diverse systems together, can help disparate functions work together more efficiently and achieve STP.

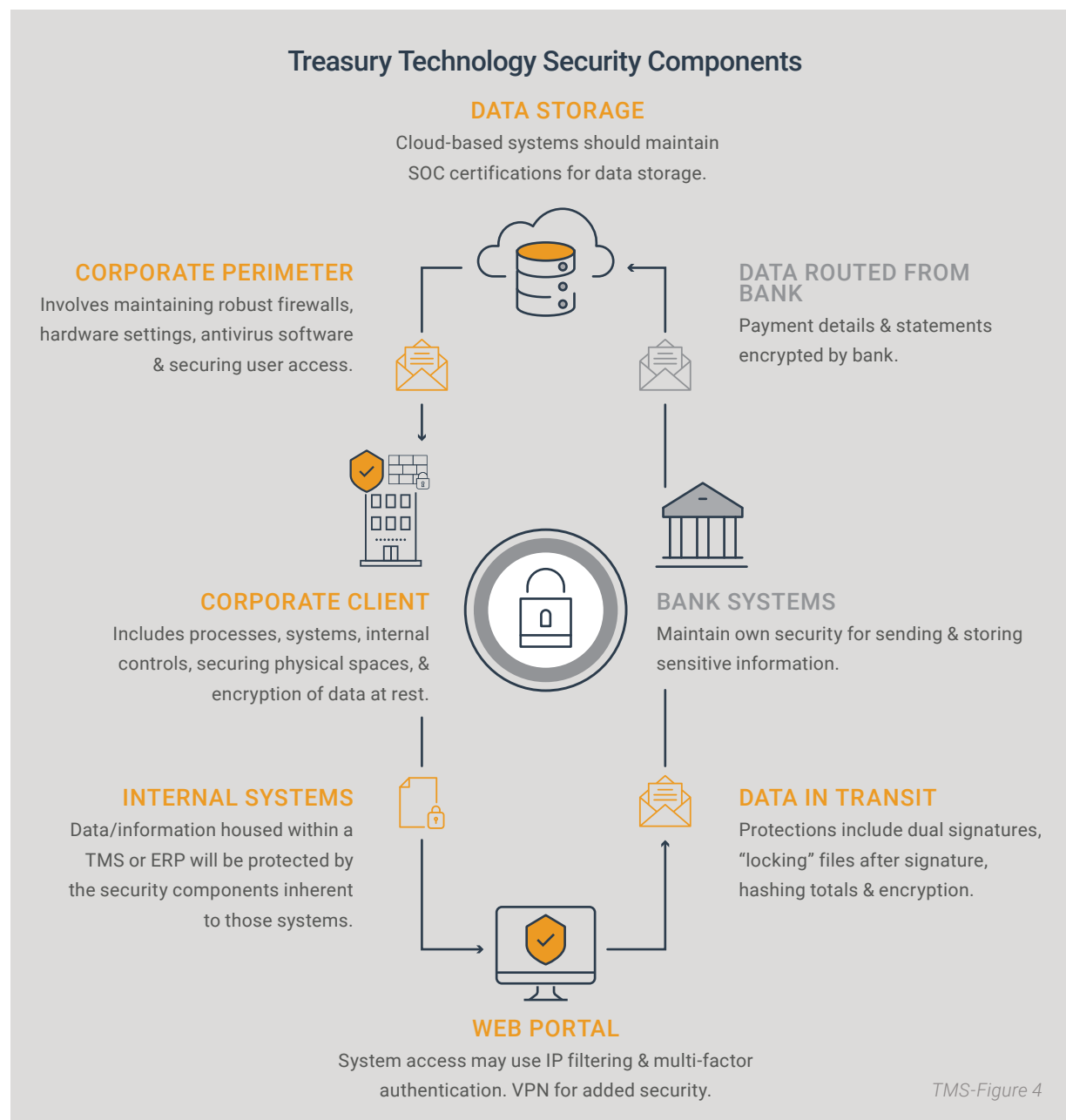
STREAMLINING EXTERNAL CONNECTIVITY

Externally, treasury's connectivity needs are no less extensive. Encompassing all banks, FX portals, SWIFT and market data sources, masses of external data are needed daily for treasury to fulfill its role. TMSs have historically come with several built-in SFTP connections to common sources such as Bloomberg and Reuters, and while modern systems usually still offer these connections, APIs have risen as the top method of connectivity between TMSs and external sources. As the open banking movement continues, API connections should become increasingly available, powering up the TMS as a source for streamlined connectivity.

CONSISTENCY & SCALABILITY IN COMBATTING FRAUD

While treasurers are fulfilling their roles as the *superintendents of payment security* (pages 16-17) throughout their organizations, they must not neglect the security of their own departments. From keeping their data secure to keeping proper controls on treasury-initiated payments, transitioning to electronic systems can help.

A TMS offers a single, secure environment where payments can be executed and initiated with the proper controls built in. Touchpoints—which multiply exposure—are dramatically reduced, there is consistency in payment processes and security measures, and the TMS can prevent a payment from moving forward unless users adhere to built-in controls.



In addition, as the TMS centralizes many elements of data management and payment processing in finance, the defense is simple but strong. It is as if the sensitive data and payment processes that treasury uses are securely stored in a single, multi-layered vault instead of haphazardly hidden in everyone's drawers.

The security features of a TMS often include system access protected not only by basic credentials, but also by multi-factor authentication (MFA), IP filtering or other features. User privileges can be easily seen and adjusted as needed, audit logs help identify suspicious activity, and data is encrypted at rest and in transit. For cloud-based solutions, SOC certifications indicate third-party verification of the vendor's servers and processes that could impact clients.

In addition, the efficiency the TMS allows to the treasury team is itself a security benefit. One of the most important elements of security that does lie within treasury's purview is proper bank account management and visibility. With a clear, same-day view of the status, activity and access in every single bank account—even those rarely used—treasury can help prevent both external and internal fraud.

Another aspect of the TMS's security is that it allows for safe scalability. As companies grow and expand their reach, more payment processes, bank accounts and regions are added. At times, a company may need to scale up in a certain area temporarily, and at other times the scale-up

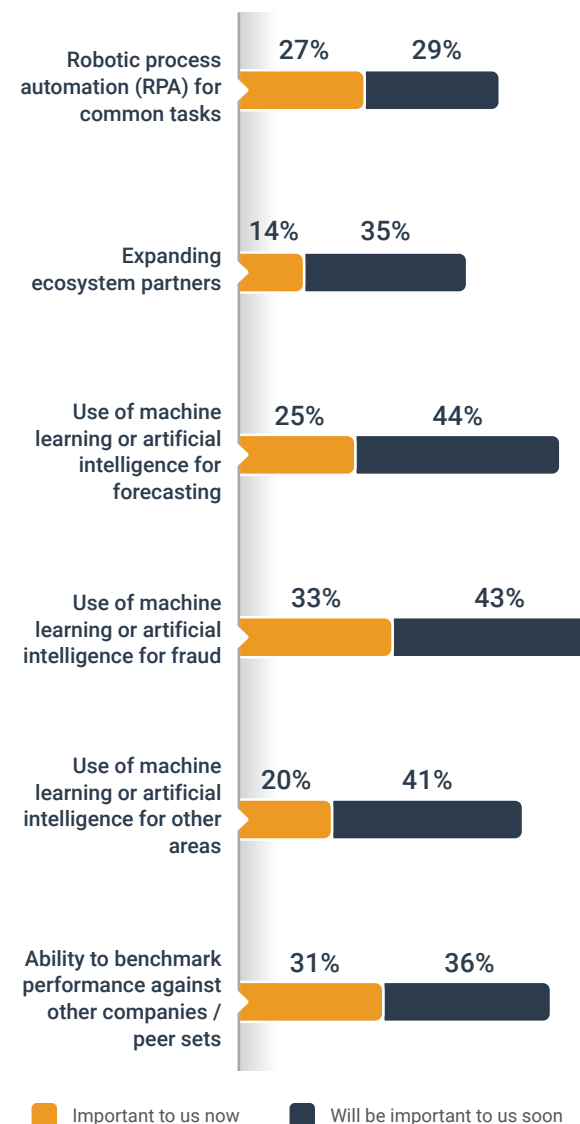
may be continuous. In either case, scaling up rapidly can prove challenging for treasury, as they attempt to maintain operations with the same level of speed and security even though the factors have become more complex. A TMS aids in keeping operations on track, consistent and secure even when scaling up or down rapidly.

BCP, WFH & ECONOMIC VOLATILITY

The global pandemic of 2020 disrupted the corporate world in multiple ways. It sent staff around the world home, which challenged business continuity planning (BCP), heightened payment security concerns and generally made manual processes more problematic. The economic disruption also challenged liquidity management and made forecasting accurately and rapidly both more difficult and more important than usual.

A TMS has long been a useful tool for helping treasury departments navigate economic disruptions, but the addition of BCP concerns and the need to move home have added even more areas in which a TMS can support treasury through difficult times. Employees are able to log into the TMS remotely and view and manage all cash from one portal. This reduces the complications and security concerns of attempting to log into multiple bank portals remotely and keeps sensitive information behind a single, secure barrier. In terms of forecasting, the cash forecasting functionality of a modern TMS, enhanced by AI/ML, is increasingly accurate, rapid and less time-consuming than forecasting using Excel.

Q. What is important to you in product development?



TMS-Figure 5

We do not know when the next crisis will hit, but we do know more crises will come—often when we least expect them. While not every crisis may involve an urgent need to accommodate changing work locations, and the urgency of forecasts may vary, what each crisis involves is a need for treasury's full attention. Perhaps the most fundamental support a TMS provides during a crisis, then, is the margin needed to assess the situation and advise organizational leadership, as well as the accurate data with which to do it.

Emerging Technologies: TMS Applications

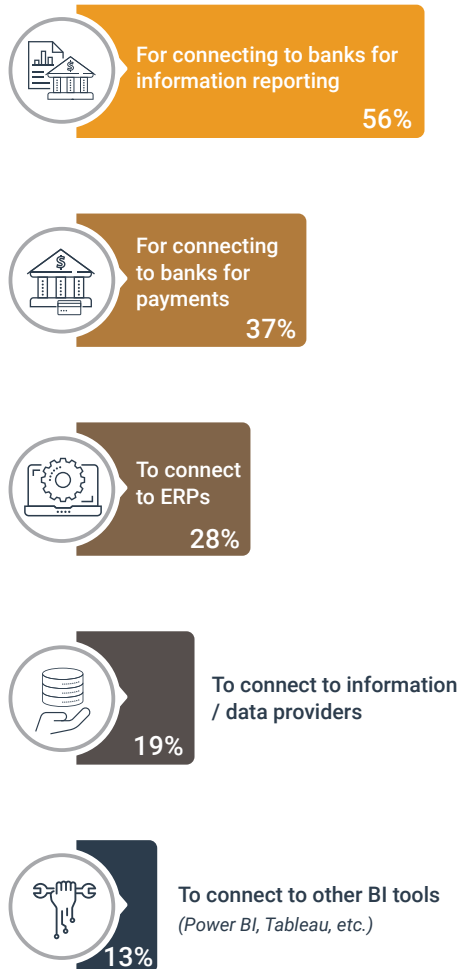
In the overview section of this report, we discussed several emerging technologies that are impacting treasury. Here, we will delve deeper into the innovations affecting the uses and functionality of TMSs.

AI/ML

TMS vendors are making excellent use of AI and, especially, ML in enhancing functionality in multiple areas. AI and ML have, for example, proven successful in flagging potential fraud by identifying anomalous behavior (logins during odd hours, unusual payments, etc.). These anomaly detection tools paired with interdiction, where the system can stop a payment it identifies as suspicious, have shown correlation to significantly lower rates of fraud loss.

Q. Through our TMS / TRMS vendor, we use APIs: (Select all that apply)

Only top five responses provided



TMS-Figure 6

While uses abound, ML's use in TMSs has seen the most rapid growth, success and excitement around one particular task: cash flow forecasting. This has been a pain point in treasury for some time, and the pandemic only served to underscore the need for more accuracy and immediacy in forecasting. Several TMS vendors have seen impressive success with using ML functionality that studies forecasting and "teaches" itself to forecast accurately, and there is likely to be more progress in this area still to come.

BI

With unprecedented amounts of data available, organizations today are eager for ways to analyze and access their data, making BI tools an increasingly important element in the modern tech stack. TMS vendors have recognized the value to treasury of BI's reporting and visualization functionality that allows staff to understand what is happening in various areas of the business. As a result, many vendors are offering their own BI tools or building out robust integration, allowing treasury to conveniently access and leverage BI insights into various elements that impact the company's liquidity.

API

In the wake of PSD2 and the global open banking movement, API availability and use have seen significant growth in the treasury technology space. TMS vendors most frequently offer APIs for information reporting connectivity with banks, with APIs for making payments in second place.

Following in the tracks of open banking, however, the concept of “open treasury” is picking up steam, with expanding API use powering it as well. This includes connectivity to ERPs, BI tools, transaction management platforms and more.

As APIs enable increasingly seamless integration and data flow between systems, vendors are having to make choices about how they position themselves. While some are focusing on expanding their own ecosystem of tools and working to gain more share-of-wallet, others are fighting on the integration front, endeavoring to ensure that no matter what other solutions treasury chooses, theirs is still a good option that can smoothly integrate, allowing for best-of-breed use without sacrificing the seamless internal connectivity that is becoming increasingly important in today’s treasury. This may impact the TMS in multiple ways, and treasury must take a step back and consider their tech stack in light of how integration is progressing. Buyers will wish to consider the implications of purchasing a TMS that is already part of an existing, extensive ecosystem supported by the same vendor vs. opting for a vendor offering TMS functionality with little-to-no built-in ecosystem but with high integration support. This may also be something to explore when discussing a vendor’s future roadmap.

How does information need to flow between AP, AR, accounting, treasury and any other relevant departments? What solutions do those

departments currently have, and what are all the options treasury has for achieving the necessary functionality with an eye to efficient data flow? These are questions that must be answered on an individual, company-by-company basis.

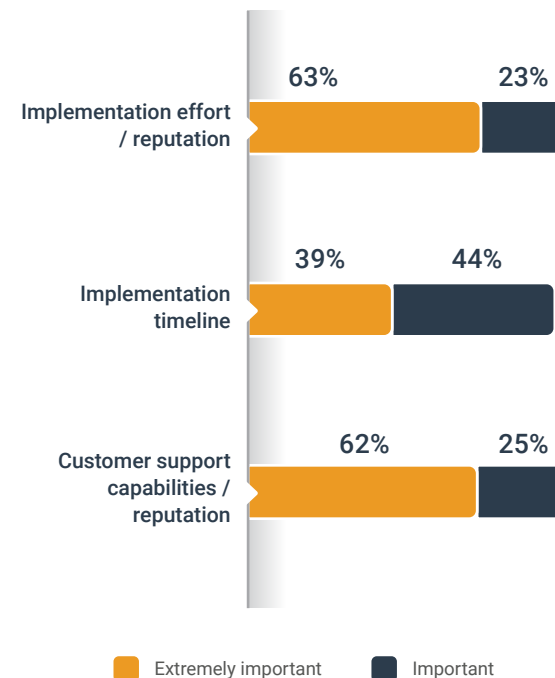
Selecting & Implementing a TMS

SELECTION

The guidelines laid out in the overview section of this report are vital to selecting a TMS. Keep in mind that this solution will impact nearly every area of your daily operations and should last for decades. This means that understanding your organization’s specific current and projected future needs is quite important, as is ensuring your vendor’s roadmap will enable them to meet your needs for years to come.

As mentioned in the API section above, the TMS options are expanding, and vendors are finding creative ways of leveraging technology to achieve the desired functionality. It can be tempting to come into a selection project with an idea already in your head about which vendor you want. Whether that’s based on a “one throat to choke” mentality or based on anecdotes or past experience you’ve had with various vendors, take care to avoid ignoring all but the “usual suspects.” Consider the full breadth of your options until you’ve narrowed down your short list based on your business requirements.

Q. When looking at TMS/TRMS systems, how important are the following categories in your buying decision?



TMS-Figure 7

IMPLEMENTATION

As the TMS sits at the center of treasury’s operations and integrates with both internal and external sources, implementing a TMS is a massive project for treasury. While the realistic

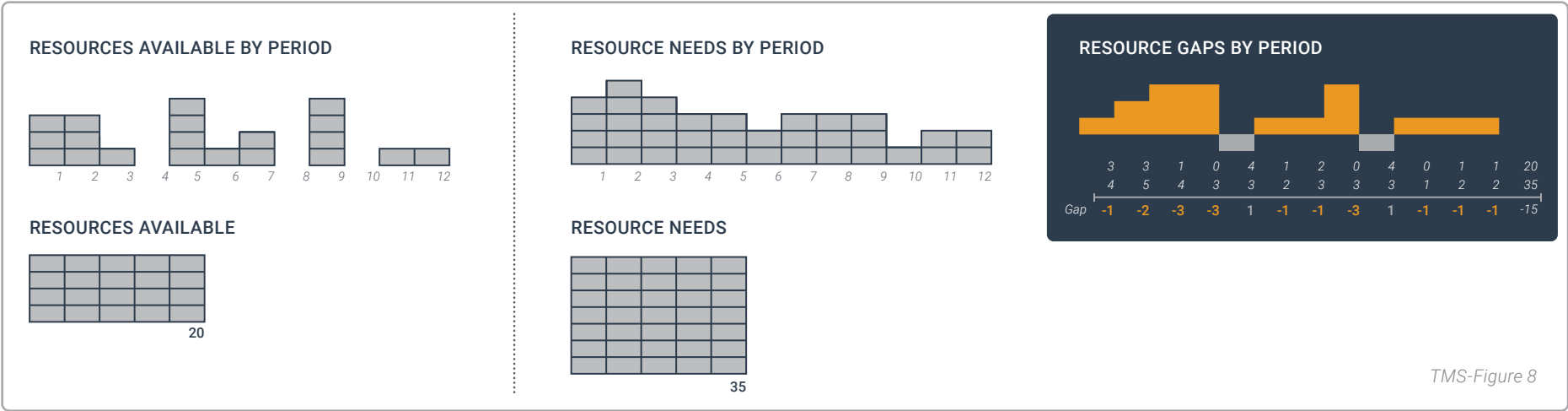
approach and scheduling in phases that account for critical path items are helpful and important to any implementation, they are especially vital in a project as extensive as a TMS implementation.

Expect that your TMS will take an investment of time and resources to implement with optimal functionality. In a 2021 survey, most respondents who had experienced a TMS implementation said that it had taken over nine months, with some taking over two years. Careful phasing that sets up each portion in a logical order and includes testing at each point will ensure that the system is implemented as quickly and effectively as possible.

In addition to the time demand, consider that the project will require fairly significant resources, with different requirements during each phase. Review the phased schedule to see when particular assistance will be needed and consult with the vendor and IT to ensure that you have a good grasp on their bandwidth to assist at each point. If the resources available are less than what is needed during any phase, adjustments will have to be made. Consider engaging a third party to support the project if needed, as these groups often have a breadth of experience that can make a significant difference in implementation planning and success.

As a final note, make sure you adjust the process to the system, and not the other way around. When implementing a new system, it's tempting to try to make its workflows conform to the processes your team is accustomed to, but this can cause problems. For one thing, the system will work best when used with the workflows it was intended to support. For another thing, translating a manual process directly into a digital process cures some of the problems of manual processes, but not all. Take a step back and consider how to adjust your processes to be most effective, efficient and secure given the new system you can now leverage.

Project Resources



TMS-Figure 8

Treasury Aggregators

What Is a Treasury Aggregator?

Treasury's connectivity needs may grow sufficiently complex and extensive to require a solution that maintains deep connectivity and payment specialization. This grouping of functionality and services is called treasury aggregation (TA). A treasury aggregator connects

to various external systems for data consolidation purposes and then provides that information to whatever other systems require this data.

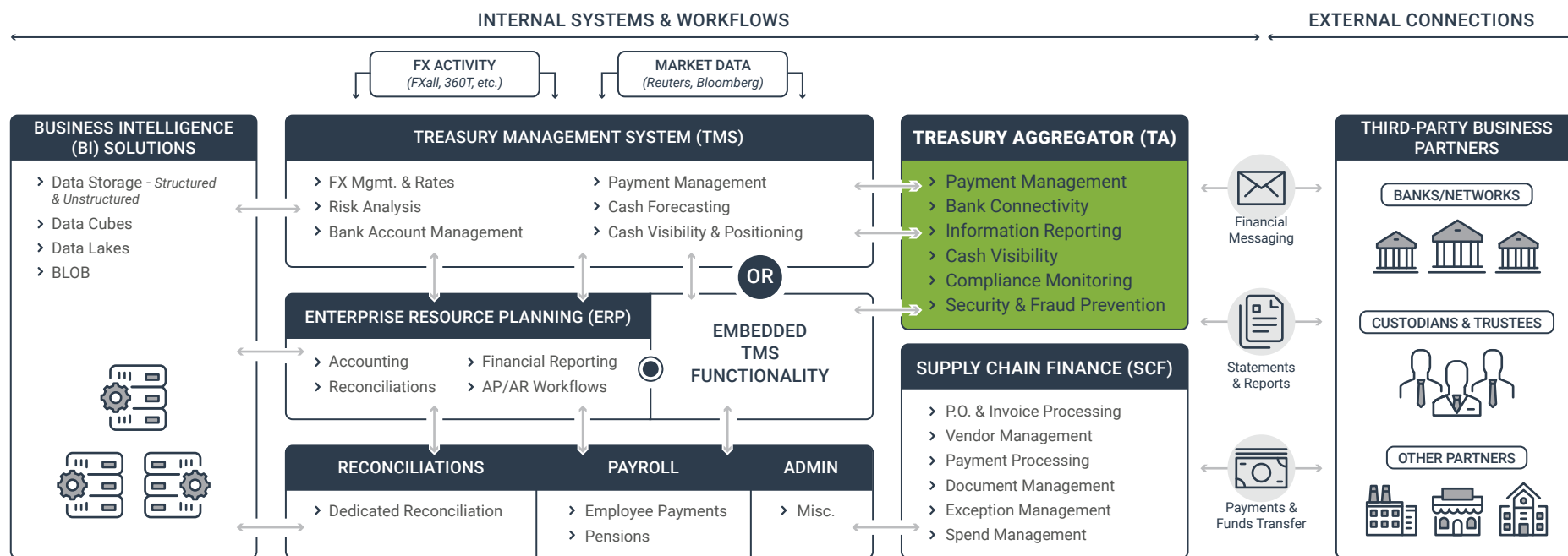
TAs perform these primary roles:

1. **Information Consolidation.** As an example, a TA may retrieve banking statements (summary and detailed information) through various

means (SFTP, API, networks) and reformat this as necessary for use by other systems such as TMS, reconciliation platforms and ERPs.

2. **Payment Hub.** The TA, like a payment hub, can take in files from other payment platforms or administrative systems to originate payments. Alternatively, a TA can have users directly enter or manage payment requests through their workflow management tools. The formatting and delivery of payment files to banks through various means (SFTP, API, networks) is strengthened through validation and confirmation processes.

Sample Technology Infrastructure



TA-Figure 1

TECHNOLOGY INFRASTRUCTURE

Many treasury departments struggle to maintain the efficiency of operations in the midst of new formats and rising demands for additional data and faster turnarounds. Each of these areas represent heightened complexity. TAs increasingly help organizations streamline the workflows, isolating the changes and complexity

into a single location. This removes many of the headaches and manual tasks from treasury, accounts payable, accounting and technical staff.

DIFFERENTIATION FROM OTHER SOLUTIONS

The function of the TA is closely related to multiple functions of other solution types. It

overlaps the functionality of payment hubs, payment factories and TMSs, but it is not the same. What differentiates it?

Differentiating TAs from payment hubs or data consolidators is fairly straightforward. Each of those only performs one side of a treasury aggregator's functions. A payment hub

Calculate Your Complexity: Two primary elements determine your need for a treasury aggregator: the complexity of your payments and the complexity of your banking information structure. To determine each, use the calculators below. The lefthand column numbered 1-9 is your score for each of the following columns (3-4 Payment Origination Areas = score of 2, 3-4 Payment Systems = score of 3, etc.). Your "Complexity Direction" should be multiplied by the sum of your score for the other columns, yielding your final result. The bolded selections for each column show a sample score, with the corresponding sample results shown below the final complexity ranges for each calculator.

Payment Complexity Calculator

9		>20		>31	>20	>30	>40		
8	>20	16-20	>20	21-30	16-20	26-30	31-40		
7	16-20	11-15	16-20	16-20	11-15	21-25	21-30		
6	11-15	9-10	11-15	11-15	9-10	16-20	16-20		
5	9-10	7-8	9-10	9-10	7-8	11-15	11-15		
4	7-8	5-6	7-8	6-8	5-6	6-10	6-10	Increasing Rapidly	x 1.5
3	5-6	3-4	5-6	4-5	3-4	3-5	3-5	Increasing	x 1.2
2	3-4	2	3-4	2-3	2	2	2	Remaining Constant	x 1
1	1-2	1	1-2	1	1	1	1	Decreasing	x 0.75
	PAYMENT ORIGINATION AREAS	PAYMENT SYSTEMS	PAYMENT TYPES	PAYMENT FORMATS	PAYMENT BANKS	PAYMENT CURRENCIES	COUNTRIES	COMPLEXITY DIRECTION	

FINAL SCORE RANGES	
HYPER COMPLEX	51 +
HIGHLY COMPLEX	37 - 50
COMPLEX	22 - 36
MODERATE	15 - 21
SIMPLE	7 - 14

Sample Raw Total	15
With Factor Applied	18

Data Aggregation Complexity Calculator

8	>20	>10	>20	>20		>20		
7	16-20	9-10	16-20	16-20		16-20		
6	11-15	7-8	11-15	11-15	>25	11-15		
5	9-10	5-6	9-10	9-10	16-25	9-10		
4	7-8	4	7-8	7-8	11-15	7-8	Increasing Rapidly	x 1.5
3	5-6	3	5-6	5-6	6-10	5-6	Increasing	x 1.2
2	3-4	2	3-4	3-4	3-5	3-4	Remaining Constant	x 1
1	1-2	1	1-2	1-2	1-2	1-2	Decreasing	x 0.75
	SOURCES OF DATA (BANKS)	SOURCES OF DATA (EXTERNAL INFORMATION)	SOURCES OF DATA (INTERNAL)	FORMATS OF DATA	RECEIPT / DELIVERY ENDPOINTS	TRANSFORMATIONS REQUIRED (INTERNAL)	COMPLEXITY DIRECTION	

FINAL SCORE RANGES	
HYPER COMPLEX	43 +
HIGHLY COMPLEX	31 - 42
COMPLEX	19 - 30
MODERATE	13 - 18
SIMPLE	6 - 12

Sample Raw Total	24
With Factor Applied	36

TA-Figure 2

handles the outbound payment management (formatting, compliance, workflow, connectivity and confirmation) as does a TA. A data consolidator manages the retrieval of banking information (connectivity, validation, reformatting, distribution) in a similar manner to a TA. The TA performs both types of functions: inbound information consolidation and validation and payment hub functionality and management.

Differentiating a TA from a TMS is slightly more challenging. Both have functionality that overlaps for both payment management and managing inbound information. The differentiation is normally focused on scale and depth between these two platforms.

The TA manages data flows and formats, while the TMS consumes this data and makes it available for work processes such as cash positioning, cash forecasting and accounting. The functionality for validation and recovery for information consolidation and for payment validation and compliance is typically more feature rich as part of the standard TA offering. Additionally, TAs normally have far more standard connections to individual banks and networks than many TMS providers.

As connections that are required in a company for information reporting and for payments increase, it becomes more likely that using a TA will make sense for that company. Once a certain level of complexity is reached, a TA can be used in conjunction with a TMS. The greater the complexity, the more value a TA provides. As noted in the TMS/TRMS sub-report, some

TMSs have advanced or extended functionality, sometimes involving payments or aggregation. As a result, there are a few TMS solutions that qualify as a TA as we have defined this solution category.

It is, then, possible for a solution to fall into both the TMS and TA categories, but that is somewhat uncommon.

Signs You Might Need a TA

1. SECURITY COMPLIANCE HEADACHES.

Complying with security and other regulations is not something treasury can afford to neglect, but they can become time-consuming and difficult. If security and compliance have become a pain point for your treasury department, or if payment process vulnerabilities are a concern, an aggregator may be a good choice for relieving the headache and tightening security.

2. EXPANSION OR ACQUISITION.

Whether your company is expanding into new regions or acquiring a new subsidiary, these positive moves can multiply everything from banks to payment rails and internal systems with little time for treasury to adjust and scale. Those experiencing or anticipating such situations might consider using a TA to simplify things back down to a manageable level.

3. FORMAT ADOPTION ISSUES.

Adapting to new payment messaging formats can become a pain point for organizations, especially those with other areas of high complexity. TAs can handle both old and new payment messaging formats, making them a welcome relief for companies that struggle with their abundance of formats.

4. SOLVING PROBLEMS REPEATEDLY.

When change occurs on the backend in an organization—such as a new backend system—that change can sometimes trickle through treasury in multiple ways and create problems that must be solved multiple times due to disparate payment channels and other complexities. Centralizing payments through a TA can help.

Treasury Complexity: Who Needs Aggregation?

Complexity is the core driver of aggregation technology. As companies grow, expand geographically and experience acquisitions and mergers, the numbers of banks, accounts, payment formats and internal systems all increase. There is a time for rationalizing many of these factors, but there are also times when rationalization is insufficient or when the extent of the organization's operations truly necessitates a level of complexity that treasury staff cannot handle manually.

No matter how efficient treasury's processes are for tasks such as cash positioning, forecasting and so on, none of those processes can be completed until all the data is in place. At a certain level of complexity, the time it takes to collect that data through error-prone manual processes can become more than treasury can afford.

Similarly, the payments side of treasury's operations can also become overly complex. With multiple systems, currencies, countries and payment types and formats to manage, disparate and non-automated processes eventually become insecure, error-prone and time-consuming.

Having established that TAs are most suited for complex organizations, however, two questions remain: 1) how do you measure your complexity and 2) what other signs can point to the need for a TA? See the calculators on [page 35](#) for #1, and the four signs you might need a TA on [page 36](#) for #2.

How Aggregated Data & Centralized Payments Help

We've discussed the core challenges driving TA adoption, and we've briefly covered the ways in which the TA solves those problems. In this section, we'll dive deeper into the relevant problems complex treasury departments face and will discuss exactly what TAs do to relieve those pain points.

NARROWING THE FRONT IN THE WAR ON FRAUD

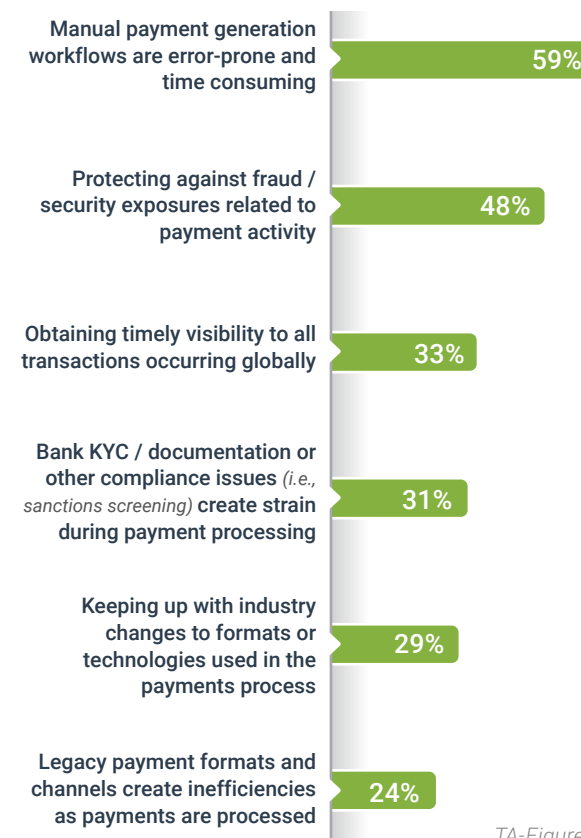
Payment fraud is not easy to defend against under any circumstances, but certain complexities take it from a challenge to nearly impossible. In particular, when multiple payment processes and channels exist throughout the organization, it means fighting fraud on multiple fronts at once.

Maintaining proper visibility to all of these channels is difficult even if you are aware of them all—and many companies, after thoroughly inventorying their payment processes, find that there were more than they realized. Controls are rarely standard across the organization, and confusion as staff switch from process to process creates errors and limits the ability to recognize fraud when it's happening. When a TA is implemented properly, all payment processes are centralized through it. While they may be initiated from other platforms (TMS, ERP, AP system, etc.), they are all driven through a single process in the TA, and in that process, they can be protected far more effectively. A strong TA solution encrypts data and uses SOC certified data centers and secure user access.

As with a TMS and other technology solutions that involve payments, a TA allows for built-in controls that staff cannot bypass. In addition, confusion masks fraud, and having a consistent process allows employees to be familiar enough with a

Q. Please select up to the top 3 challenges TREASURY experiences regarding their B2B payments: (Select no more than three)

Only top six responses provided



TA-Figure 3

stable “norm” to recognize when something is anomalous or suspicious. It’s far easier to defend on one front than on many.

PAYMENT TYPES & CHANGING FORMATS

Payment types and payment formats are both multiplying. While this is one of the more positive challenges treasury must reckon with—the new types and formats are faster and better and come with several benefits for treasury—it is still a challenge.

Between adopting various faster payments, such as Real-Time Payments (RTP) and Same Day ACH, and especially adapting to new payment messaging formats, companies have a lot to keep up with. The new does not simply replace the old. Old formats are sometimes retired, and this requires a conversion over to other formats across internal systems; for the most part, though, the number of formats that companies must handle simply increases.

Some hope to keep their operations simple by putting off the adoption of new formats, but the new formats are both helpful and will eventually become standard. XML (extensible markup language) is seeing significant implementation, and its messages are more flexible, difficult to break and informative than the predecessors. Fixed and delimited formats are both fairly prone to information loss or failure, while XML’s tagged structure allows it to convey a broad range of information reliably. Nonetheless, XML is not yet standard enough to replace fixed and delimited formats, so the modern company finds itself needing to support all types in order to effectively transact with various partners.

With multiple payment processes and systems, making sure all types are supported across the necessary channels isn’t easy, but aggregators are excellent translators. TAs maintain support for both old and new formats, effectively offloading that challenge for treasury.

GLOBAL EXPANSION

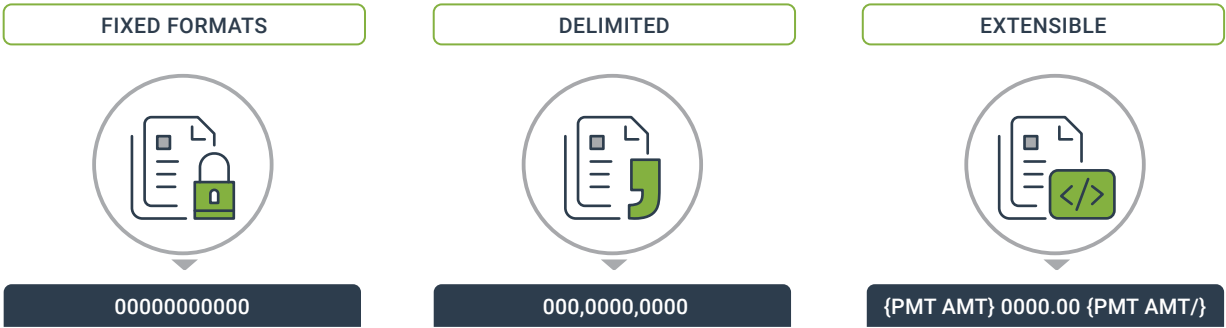
Formats and payment types are complicated enough domestically. As companies extend their operations into new countries and regions, however, they meet not only with more payment formats and types, but also more currencies, networks, regulations and methods of transmitting bank data. Geographic expansion can sometimes seem to multiply complexity almost exponentially, while treasury staffing grows only slowly in response, if it grows at all.

With robust functionality for translating across multiple currencies, formats, payment types and for connecting to networks and banks across the globe, TAs can prove a tremendous help in such situations. As connectivity specialists, they are often able to maintain or build out connections with even small banks that use proprietary formats. Taking the rapidly growing complexity of cross-border connectivity and payments out of your back office and allowing a solution to handle it for you can allow your team to focus on the tasks that truly require your expertise.

BANK & BANK ACCOUNT COMPLEXITY

The more banks and accounts, the more difficult it becomes to maintain visibility within a timely manner. Growth in the number of banks and accounts is another area, like expanding into a new country or region, where complexity multiplies rather than simply adding. When bank account complexity exceeds treasury’s ability to manually aggregate it, two problems can arise: 1) Delayed visibility. Since you can manage only what you can see, this delay creates a bottleneck in treasury operations. 2) Incomplete visibility.

Payment Formats



TA-Figure 4

Incomplete visibility is not only troublesome in that it can lead to decisions being made with incomplete data, but it is also dangerous, as it means that not all accounts are being monitored for fraudulent activity. Treasury must maintain full and rapid visibility to all accounts, no matter how small or infrequently used. Treasury aggregators can help meet this goal and can prevent visibility from becoming a bottleneck as banks and accounts increase.

CASH POSITION & VISIBILITY REPORTING

Before the aggregated bank data can do treasury much good, it has to be transferred to where treasury needs to use it. For many companies, a TMS is where the data is used for visibility, cash positioning and so on, and in these cases the TA integrates with the TMS and passes the aggregated data over. For companies that need help aggregating their data but don't use a TMS, most TAs do include basic reporting functionality to allow for visibility and show cash positions.

PAYMENTS INTENSITY & COMPLEXITY

From regional factors to industry-specific needs, the spectrum of payments intensity and complexity is broad. Whatever the reasons for it, companies on the elevated end of that spectrum face unique challenges and might benefit greatly from a TA even if their complexity in other areas might not seem to warrant it. Keep in mind as you assess your own company's position on the spectrum that

payment complexity and intensity have to do with not only the number of payments, but also the number of currencies, formats and types as well.

HEIGHTENED COMPLIANCE EXPECTATIONS

As treasury's overall compliance burden continues to become heavier with no sign of letting up, any area where technology can ease the burden becomes more important. Aggregators can reduce the headaches of complying with several regulation types, from security standards such as PCI-DSS to Nacha's requirements.

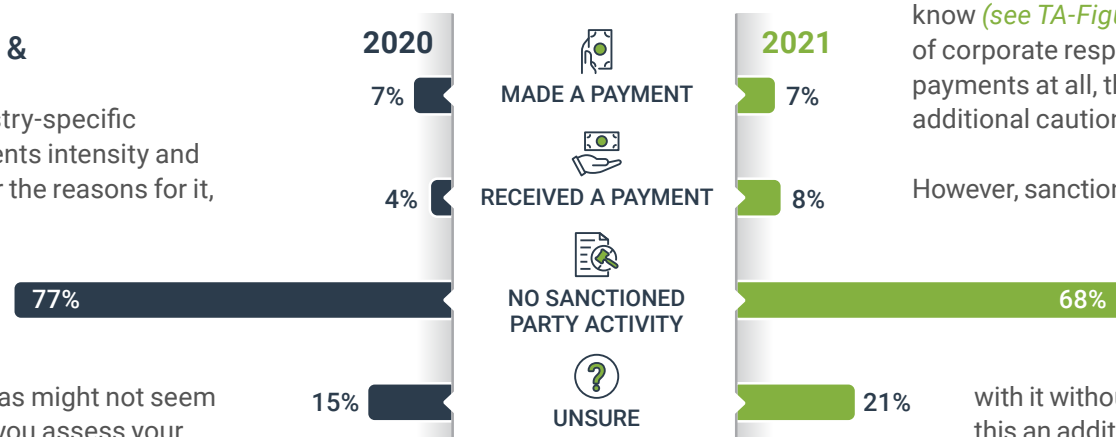
Some aggregators include additional compliance modules that assist with tracking signers and managing bank accounts, making FBAR filing a far easier task. Not all vendors offer these additional features, and the exact functionality and options varies among those who do.

Also of note, most aggregators screen payments against up-to-date sanctions lists. While sanctions screening is not currently particularly high on the corporate list of concerning regulations, that does not mean that it is unimportant or can safely be ignored.

In the past, regulatory bodies such as OFAC mostly held banks accountable for sanctioned payments, and corporations became accustomed to relying heavily on their banks to screen for them. However, this is shifting, and fines on the corporate side have risen as high as \$100mm in recent years. Combined with rising statistics of those inadvertently transacting with sanctioned parties as well as those who simply don't know (see [TA-Figure 5](#)) and the fact that 44% of corporate respondents do not screen their payments at all, this seems like an area where additional caution might be warranted.

However, sanctions lists are 1) multiplying in number, 2) growing longer and 3) changing constantly. This makes it quite difficult for companies to keep up with it without automation involved, making this an additional area where a TA can reduce risk while keeping headaches to a minimum.

Q. Have you inadvertently made a payment or received a payment from a sanctioned party in the past 12 months? (Select all that apply)



TA-Figure 5

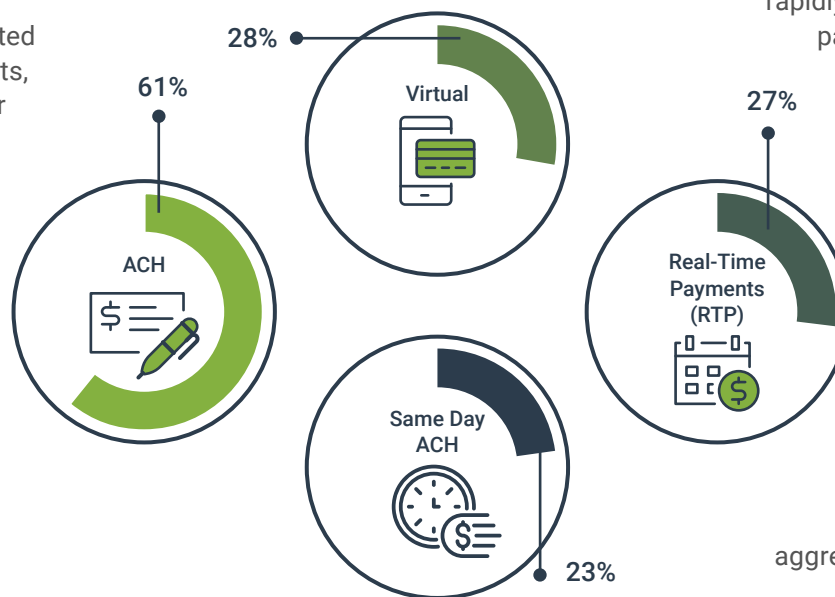
A TOOL FOR UNDERSTAFFED TREASURY TEAMS

With the overall demands on treasury growing far more quickly than treasury staffing, treasury teams need tools that can streamline their processes. Even with AI and other modern innovations, not every area can be automated or digitized. Data aggregation and payments, however, are one of the best candidates for offloading to a solution, as they are an area where manual processes are especially laborious and error-prone while digital processes are efficient and accurate. If your team is struggling to keep up, consider the impact a TA would have on your operations and time it might be able to give you back for higher level tasks.

Looking Forward: The Future of Treasury Aggregation

Changes across the treasury technology landscape are impacting connectivity, data and payments, and most elements that impact those will also impact treasury aggregators. The increasing demands, burdens and complexities placed on treasury's shoulders can also be expected to impact aggregator adoption, but in this section, we will be focused on the expected impact of shifting technologies and other external factors rather than simply the increase in demand due to steadily rising drivers.

Q. Which of the following payment types do you plan to increase your use of over the next 12 months? (Select all that apply)



TA-Figure 6

Faster, Better Payments – Similarly, improvements in payments themselves increase the benefits users can leverage through an aggregator. The corporate world is showing increasing interest in using payments that clear rapidly and/or offer enriched information on the payment's progress. Multiple faster payment options are available, including Real-Time Payments (RTP) and Same Day ACH. In a recent survey, 27% planned to increase their use of RTP in the next 12 months, 23% planned to increase use of Same Day ACH, and 11% planned to increase use of other faster payments.

Impacts of Emerging Technologies on TAs – The drivers and adoption of innovations such as APIs and BI have been discussed on [pages 9-10](#), but their impacts on aggregation should be considered:

APIs – As revolutionary as APIs are, they should not be taken as a connectivity panacea, nor will they replace treasury aggregators. APIs have limitations, and relying solely on APIs for bank connectivity would mean paying for data multiple times. As important as API connectivity will be for treasury in the coming years, a central platform such as a TA is still needed if data and connectivity are to be truly efficient and optimized.

BI – The data management benefits of TAs can do much to support BI tools and processes. By automatically sharing data with BI tools, TAs can

Networks – Network services can be leveraged through a treasury aggregator, so as networks expand and add value, this adds to the value available through the TA. While networks around the globe continue to expand their reach and improve their services, SWIFT has made headlines this year with significant service improvements and additions (see the discussion on [page 15](#)). This will add to the functionality available to corporate users of TA systems.

keep the flow of data from becoming kinked and allow for more immediate, thorough analysis.

Implementing & Using a Treasury Aggregator

In addition to standard leading practices for selecting and implementing treasury technology, treasury departments looking to leverage a TA should plan for their connectivity setup and training requirements. Keep the following in mind as you approach your project.



INTERNAL SYSTEMS INTEGRATION

Treasury aggregators must connect with multiple other systems internally—more for some organizations than for others.

To ensure that these connections are set up as efficiently and as accurately as possible, treasury should consider the following:

- **Test Early & Thoroughly** – Don't wait until the system is fully implemented and live before testing out these integrations. Some are bound to need some adjustments, and this will be much easier to handle earlier rather than later.
- **Consult IT** – Your IT department is the party most familiar with the organizational ecosystem your TA needs to integrate with. Keep them current on the status of the project so that they can advise and assist properly.



BANK ONBOARDING

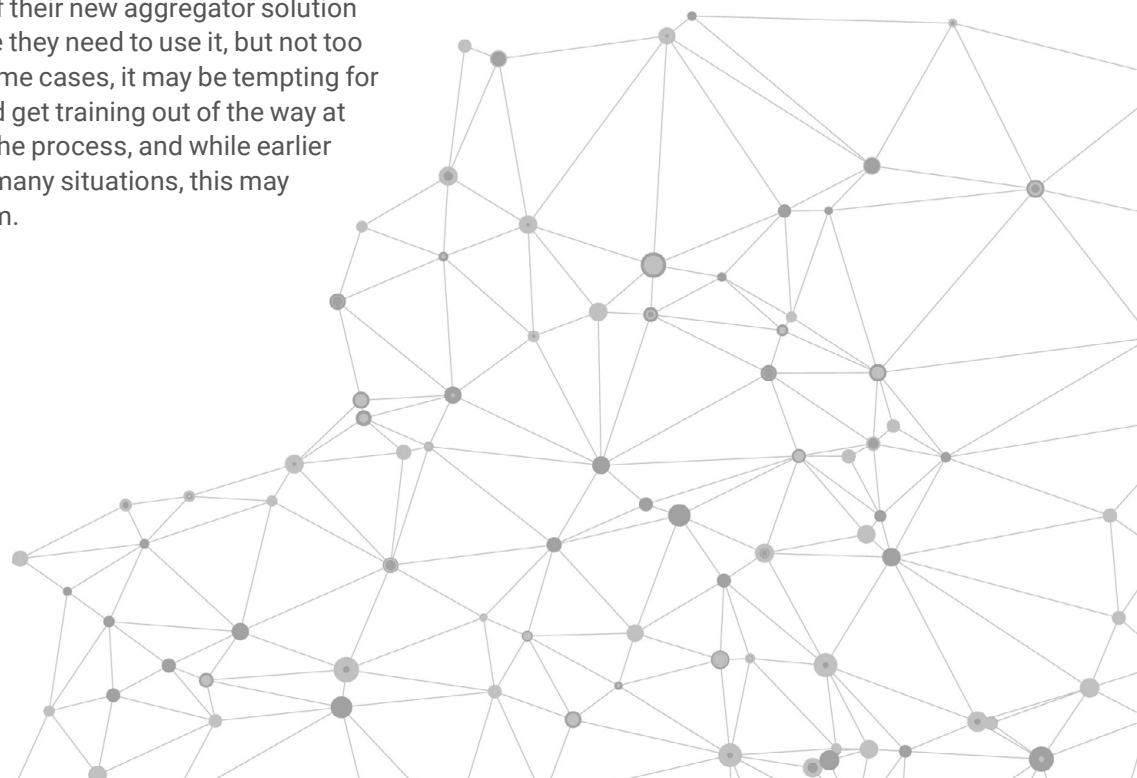
In addition to internal connectivity needs, a TA also needs connections set up with your banks. These connections will save you a great deal of time in the long run, but plan ample time for putting them in place. From finding the right contact at each bank to handling KYC requirements, delays tend to abound at this step. Build some margin into your timeline for this step and do what you can to prepare and identify contacts and critical path items ahead of time.



EMPLOYEE TRAINING

Employees should be trained on the use of their new aggregator solution before they need to use it, but not too long before. In some cases, it may be tempting for treasury to try and get training out of the way at the beginning of the process, and while earlier is often better in many situations, this may not be one of them.

As noted above, bank onboarding and internal integration can both take some time, and it's important that staff are able to use the system not long after their training to cement their knowledge. On the other hand, training after the go-live can be problematic as well, allowing for bad habits to build. Aim for the happy medium and train during implementation, not before and not after.



Supply Chain Finance / Cash Conversion Cycle

Treasury, Working Capital, the CCC & SCF

Treasurers are variously called the managers of risk, of cash and of the company's most liquid assets. As time goes on, there is an increasing awareness in the industry that certain areas of operations from other parts of the organization can significantly affect liquidity, and treasury is called on to address these factors and work alongside other departments to help improve them. One such realm of liquidity-impacting factors that the modern treasury must often take an interest in includes working capital, the cash conversion cycle and supply chain management.

DEFINING WORKING CAPITAL, CASH CONVERSION CYCLE & SUPPLY CHAIN FINANCE

Before diving into the usefulness of technology in optimizing these areas, it's important to clarify what we mean by our terms, especially since some of them are defined differently by different groups.

Net Adjusted Working Capital (WC): *Accounts receivable + inventory - accounts payable.*

When we refer to working capital throughout this document, we are using the treasury definition of working capital, which is actually "net adjusted" working capital. Note the difference from the accounting definition of working capital as current assets—current liabilities, which is also a perfectly valid definition but is less suited to treasury's purposes. Net adjusted working capital (which we will shorten to working capital throughout) is of concern to treasury as a component of liquidity that can be optimized. The solutions included in this report are partially important to treasury due to their ability to help optimize working capital.

Cash Conversion Cycle (CCC): *The measurement of time it takes to convert resources (inventory, AR, AP) into cashflows.*

This is essentially a measurement of efficiency, and the goal is to make the CCC as efficient as possible. The cycle encompasses the activities of multiple departments, so a broad variety of concerns and technologies apply to it.

Supply Chain Finance (SCF):

"The use of financial instruments, practices, and technologies to optimize the management of the working capital and liquidity tied up in supply chain processes for collaborating business partners."

- Euro Banking Association.

There are other definitions of SCF, most of them narrower in scope, but any solution that falls into the definition stated above counts for our purposes.

OPTIMIZING WORKING CAPITAL

Working capital is a significant portion of liquidity at any given time for many organizations, so properly managing liquidity requires properly managing working capital. As with any liquidity, it is vital to have enough, but having far more than you need means leaving cash that could be invested sitting idle on the table. This is an area where treasury must take ownership.

Technology is one of many ways companies can go about optimizing their working capital. How exactly different solution types help with working capital will be explored later, but to paint an overall picture, technology improves efficiency, which unlocks trapped capital. It can also offer flexibility, which allows the company to dial certain factors up and down as needed for their current capital needs. At the end of this report, we will return to this topic to discuss the common challenges of working capital initiatives and technology implementations. We will also provide some strategies for overcoming these challenges.

Cash Conversion Cycle Solutions

The CCC is an area ripe for efficiency improvements through technology in most organizations. Automating various tasks in the cycle can eliminate bottlenecks, speed cash conversion and improve accuracy, all of which can make a significant difference both for operational efficiency and for optimizing working capital and liquidity.

It should be kept in mind that although the CCC is a measurement of time, the goal in improving it is not simply to speed it up. Speed without accuracy helps no one. The ultimate goal for CCC initiatives is to improve efficiency.

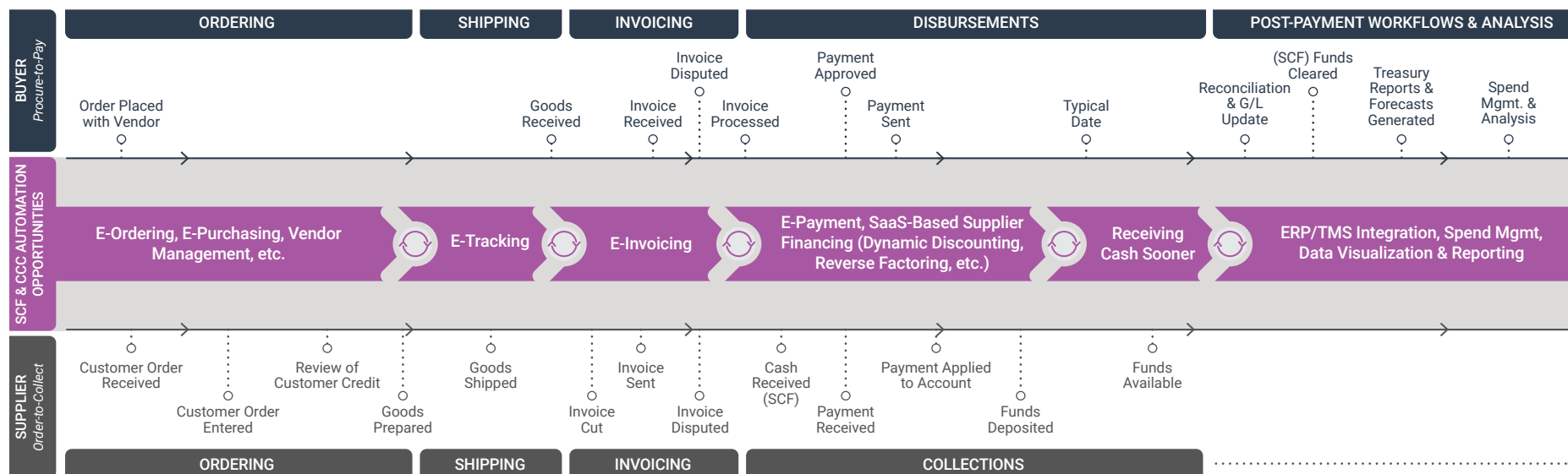
The process of converting resources into cashflows involves multiple different departments with individual concerns. In addition, not every company's CCC looks the same. For example, a company with inventory will have a different set of tasks, concerns, measurements and even departments compared to a service-based corporation.

As a result, CCC solutions are a broad and diverse set of technologies. Some assist one department directly, indirectly helping others, while some apply to multiple departments or coordinate between them. In addition, the diversity of the departments involved can make initiatives to improve the CCC complicated to implement. In order to succeed in selecting a solution that can truly benefit all involved and in order to

communicate well and obtain buy-in, treasury must understand each group of stakeholders and their unique concerns.

It is important for treasury to realize that unlike them, none of these areas are focused on ensuring adequate availability of liquidity throughout the month. Treasury has two tasks when working with these departments, neither of which can stand alone: First, treasury must understand the concerns and priorities of each of these areas and must help them to understand each other. None of their concerns or focal points are irrelevant, but none of them can be focused on to the exclusion of all the rest. Second, treasury must make itself and the organization's need for consistent liquidity understood to each department.

Cash Conversion Cycle: Automation Opportunities



SCF/CCC-Figure 1

THE STAKEHOLDERS & THEIR CHALLENGES

The areas involved in an organization's CCC vary from company to company, but an overview of the departments and areas often involved, along with their concerns and incentives, is given here:

Order-to-Collect

This area of the business encompasses every process from receiving an order to collecting and applying payment for the order, with several departments and groups involved along the way:

Credit: Those who issue credit to customers are motivated to minimize losses due to overextension of credit. This is a legitimate concern that they absolutely should attend to. However, they must be careful not to focus so narrowly on minimizing credit losses that they impede sales unnecessarily.

Sales: Meanwhile, sales is focused on maximizing the company's capacity to sell. They must be careful not to maximize sales to the point where other losses (such as those resulting from overextensions of credit) outweigh them.

Fulfillment: Fulfillment is concerned with the quality and speed with which orders are delivered.

Invoicing/Billing: As fulfillment is concerned with delivering the ordered products quickly and accurately, invoicing or billing is concerned with delivering accurate invoices in a timely manner. This is a popular area for automation, since automation can drive out defects and delays, both of which result in getting paid much later.

Collection & Credit Application: Here, the focus is on relieving accounts receivable and ensuring the "days sales outstanding" (DSO) measure is in line with the terms originally offered to the customer.

Procure-to-Pay

This area, which starts with procuring products and ends with disbursing payment to the vendor, mirrors order-to-collect but on the buyer's side of the equation.

Procurement: This department has several concerns it must balance: Providers must be stable and strong. The diversification of suppliers must be balanced with quality and reducing the number of suppliers. Costs must be kept down without compromising quality.

Accounts Payable: Often thinly staffed, AP focuses on controls and disbursements. Their concern with hitting minimum "days payables outstanding" (DPO) usually motivates them to pay slowly. However, this is balanced by their interest in taking advantage of discounts linked to early payment.

Inventory

While standing somewhat separate from the order-to-collect and procure-to-pay processes, inventory plays a vital part in determining working capital. Its concerns vary but often include pricing and maintaining adequate materials. While CCC or SCF solutions aren't usually focused on inventory management, many of them impact inventory indirectly, and inventory must be a part of the conversation as solutions and integrated KPIs are considered.

Additional areas, including financing and any supply chain finance initiatives, take an interest in the CCC and impact its operations. Financing, which is focused on the external cost of capital and on project hurdle rates, obtains capital to support the growing activities through inventory and receivables.

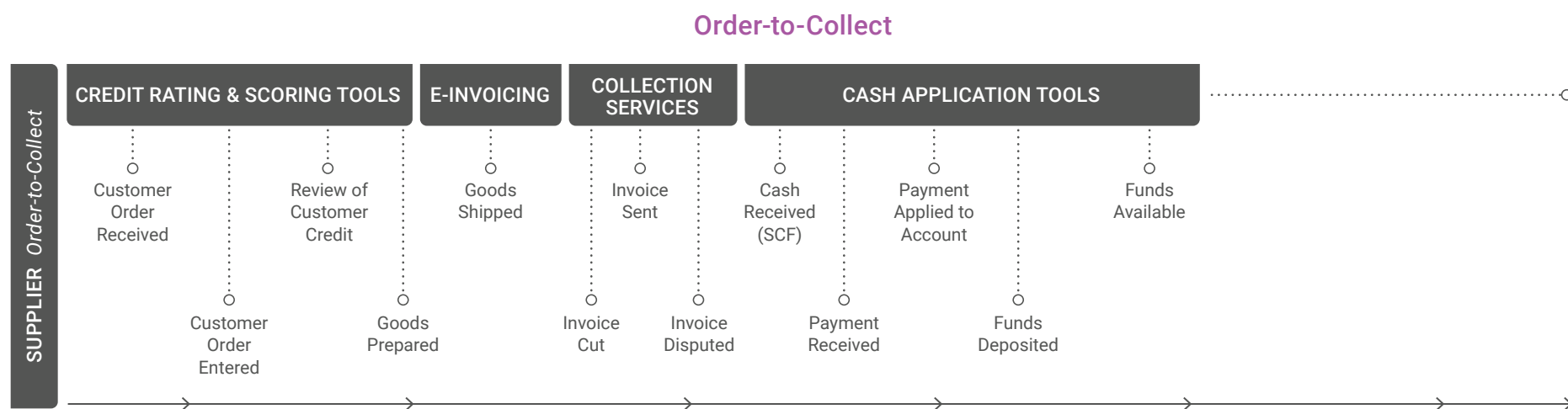
ORDER-TO-COLLECT SOLUTION LANDSCAPE

As treasury seeks to optimize working capital and increase the efficiency of the cash conversion cycle, they are looking to maximize both speed and accuracy together. Technology, as applied to various parts of the order-to-collect process, can help with both.

The continuum of solutions in this area help to automate or streamline one or more of the processes in *SCF/CCC-Figure 2*. As the order-to-collect process is itself broad and complex, differing from one organization to another, so the solutions on the market are numerous and varied, each serving different needs.

These solutions may narrow in on streamlining a specific process, or they may overlap and coordinate between multiple processes. Several may be integrated into an ERP or SCF solution. In addition, some solutions focus on addressing the unique needs of individual industry verticals, while others are general.

One of the largest areas ripe for automation in order-to-collect is accounts receivable (AR), which encompasses many smaller processes.



SCF/CCC-Figure 2

Less than one-third of AR departments reported themselves as highly automated in 2021, but many were eager for automation. A significant number are willing to move their services outside their credit facility (28% to a non-credit bank, 25% to a fintech in a “select all that apply” format question) in order to reach automation (Strategic Treasurer market research).

With such a high interest in AR automation, it’s no surprise that many order-to-collect solutions apply to specific portions of AR, but some fall outside it. These tools include but are not limited to the following:

- Credit Rating & Scoring Tools
- Shipping & Fulfillment Tools (automate or allow for easy invoicing)
- Cash Application Tools
- Collection Services

Whatever the specific task or tasks, order-to-collect solutions help companies move more efficiently through that part of the CCC. With fewer defects and delays and a streamlined process, the CCC becomes more efficient, staff can focus on what most needs their time, and capital trapped in slow or error-prone processes is freed.

PROCURE-TO-PAY SOLUTION LANDSCAPE

As with order-to-collect, procure-to-pay has a broad variety of solutions available to address its broad variety of potential problems and areas for improving speed and accuracy. In this portion of the CCC, accounts payable (AP) is the largest area for automation, including many but not all of the solution types.

Compared to AR, AP is more likely to have a mix of manual and automated processes instead of being either entirely manual or highly automated.

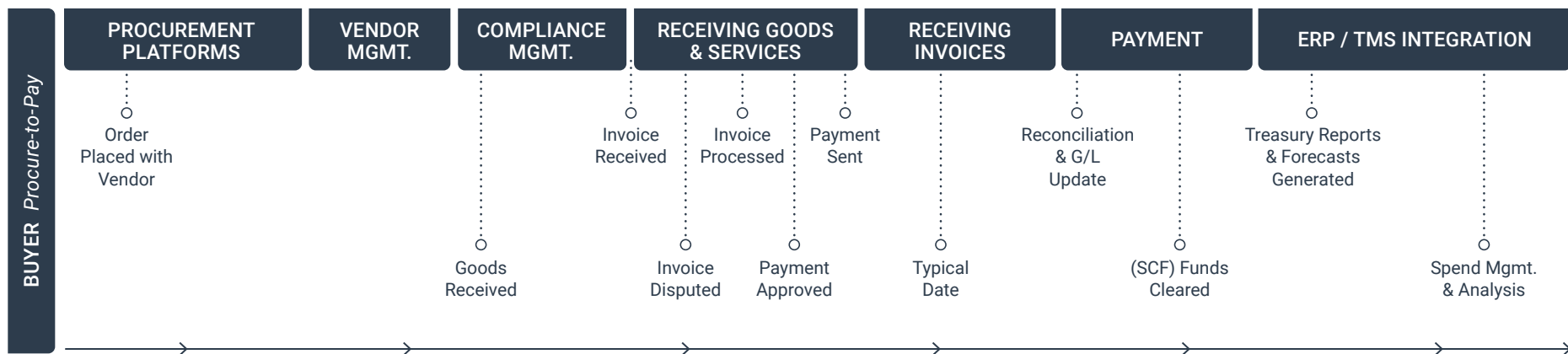
Very much like AR, however, AP is eager to reach fully electronic process automation.

AP automation has the additional advantages of strengthening payment security and benefiting vendors as well. With fewer defects in payments and with a more efficient payment process, vendors can be paid with the least possible delay. In addition, many solutions provide vendors the opportunity to track payments, giving them improved visibility.

Tools in the procure-to-pay space include the following:

- Procurement Platforms
- Vendor Management
- Compliance Management
- Receiving Goods & Services
- Receiving Invoices
- Payment

Procure-to-Pay



SCF/CCC-Figure 3

Especially for the receiving of goods, services and invoices, there are a variety of options including outsourcing as well as internally managed services.

ACCELERATED ADOPTION AMIDST DISRUPTION

As noted in the overview section, the pandemic's disruption to the liquidity, operations and many other areas accelerated the move to digital. Payment processes and supply chains were among the most impacted areas of business. Manual payment processes failed in the WFH environment, workarounds were highly vulnerable to criminal activity, and delays dangerously strained the already tight liquidity of partners.

Many organizations had already been planning to shift to digital processes for payments, but these challenges accelerated adoption significantly. In addition, while payments take the spotlight

for both the challenges and the acceleration, other areas of the CCC were also impacted by the disruption, and the desire to move to digital is strong for AR processes as well. As treasury considers automation solutions for the CCC, it must keep in mind and make sure the other stakeholders are aware of the rapidly progressing adoption rate for automation in these areas.

THE FUTURE OF CCC SOLUTIONS

In addition to the rapid rates of adoption due to disruption, other factors are impacting the future functionality and use of solutions in the CCC arena. Emerging technologies and improving network capabilities are expanding the options and functionality available:

AI/ML: AI and ML are among the emerging technologies to watch for most solution types, and the CCC is no exception. In addition to their uses in forecasting, which impact the CCC as

well, AI/ML have proven effective in helping with several specific tasks: For the order-to-collect process, uses for these types of solutions include cash application and collection. On the disbursements side, AI/ML's uses in bolstering security and improving fraud controls are strengthening one of the most important aspects of payment solutions.

Power & Size of Networks: We've discussed how modern networks, growing in both their reach and their functionality, can simplify parts of doing business. Companies can use their networks to streamline their compliance and counterparty identification tasks, to find suppliers, to identify, send and track payments, and more. As networks grow more powerful, the tools that integrate with and leverage them within the CCC grow more powerful as well.

Supply Chain Finance Solutions

LIQUIDITY CHALLENGES & THE LIMITATIONS OF TRADITIONAL PAYMENT TERMS

In the pandemic's early months, liquidity ran tight across all sectors, and supply chains faced massive disruptions. While some industries have seen a large measure of recovery, others continue to struggle, and one need not go far to see that the impact to supply chains is far from over. Whether still in the midst of the challenges or not, much of the corporate world is more aware now of both the fragility and the vital importance of their supply chains.

The strain put on supply chains by traditional payment terms, however, is nothing new. With traditional payment terms, the supplier's receivables are in lockstep with the buyer's payables. The buyer wants to more or less maximize DPO, but the supplier benefits from a shorter DSO. While an acceptable compromise can often be reached during times of relative stability, these terms can turn into an uncomfortable or even untenable tug-of-war. As soon as one party feels a need for more liquidity, it must strain the counterparty's liquidity to keep or obtain cash. This often occurs when the buyer holds onto payment for additional time to alleviate its own strain, creating an overly long DSO for the supplier.

While suppliers may put up with this for a while, they may eventually find this a harsh enough strain to prompt them to take their business elsewhere or else go out of business. This harms

the buyer as well. Thus, this win-lose situation can rapidly become a lose-lose situation.

SCF solutions of various kinds aim to create a win-win situation instead, where the buyer and supplier are able to support each other without sacrificing their own liquidity needs. They add flexibility, in some cases breaking the lockstep and in other cases simply smoothing it out to allow buyer and supplier to support each other rather than break each other.

SCF MODELS & TECHNIQUES

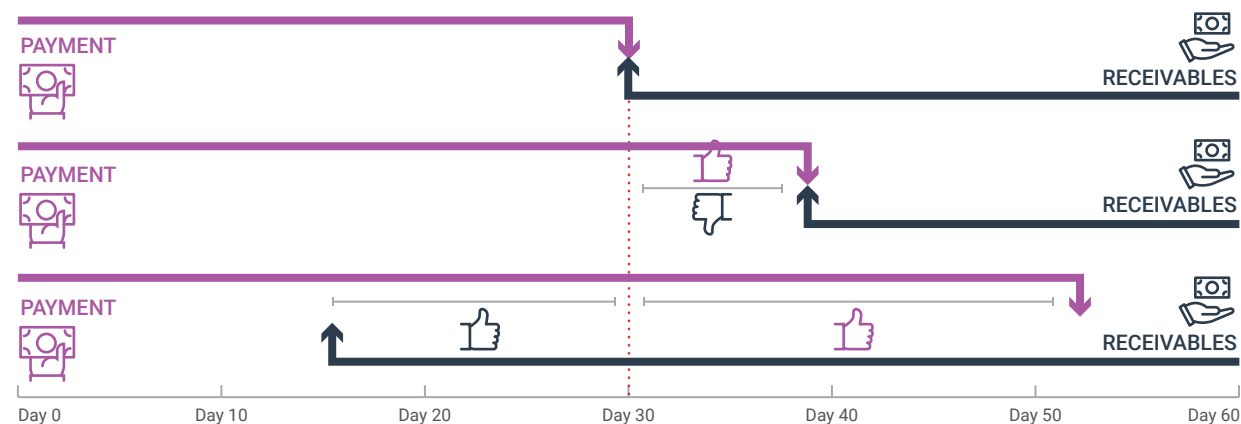
The larger umbrella of SCF covers quite a few methods. While several are supplier-led or bank-led, those we consider most relevant for this report are the primary buyer-led approaches, which are also some of the most prevalent forms of SCF: reverse factoring and dynamic discounting, along with a hybrid approach that combines the two.

The Umbrella of Supply Chain Finance



SCF/CCC-Figure 4

Payment Terms: Win-Lose vs. Win-Win



SCF/CCC-Figure 5

As buyer-led mechanisms, reverse factoring and dynamic discounting are accounts payable centric and are initiated and to some extent controlled by the buyer. Regardless of who initiates and controls the mechanism, however, SCF models and techniques are designed to strengthen and provide more options to all parties involved.

Reverse Factoring

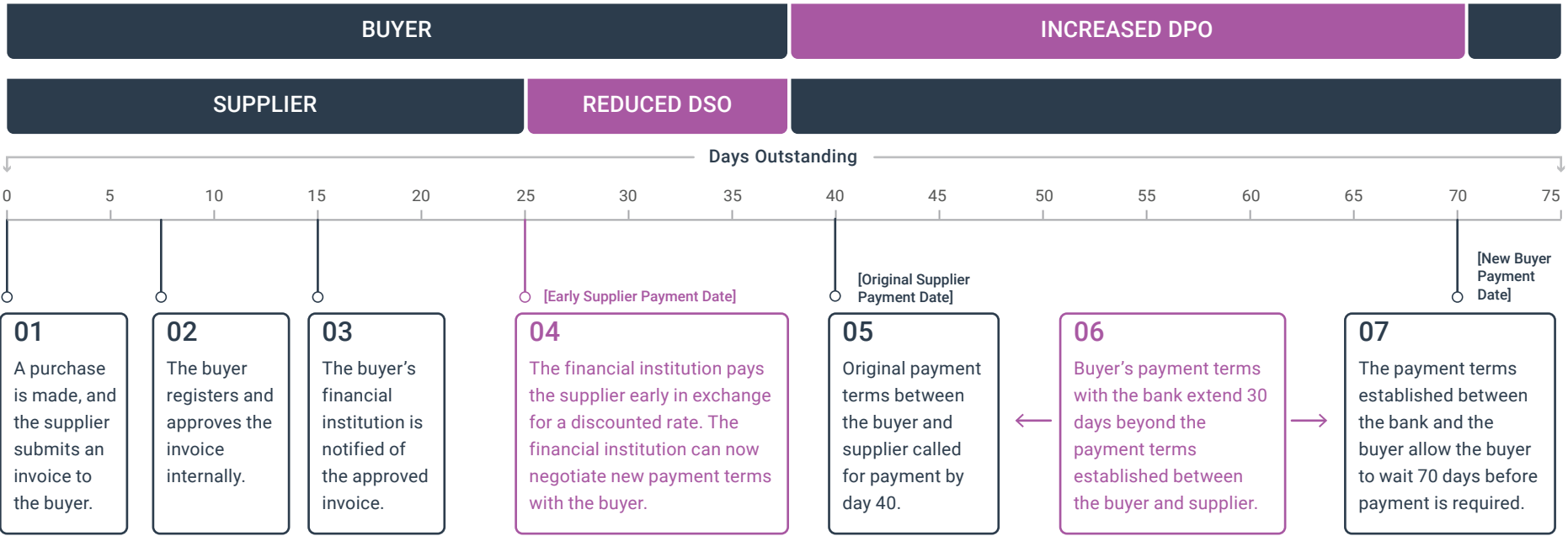
Reverse factoring leverages third-party funding to break the lockstep of traditional payment terms. It allows the supplier to reduce DSO and receive early payment while simultaneously allowing the buyer to increase DPO and hold onto cash for longer.

Suppliers are typically smaller than their buyers and have less robust credit. As a result, obtaining financing at good rates by themselves is often out of the question. In reverse factoring, the buyer uses their own stronger credit to secure funding on behalf of their suppliers from a bank or other third party. This third party pays the supplier early, often at a discounted rate. It can then renegotiate the payment terms with the buyer, who now has the opportunity to hold onto the payment longer without straining its supplier. Liquidity is strengthened and more flexible on both sides.

Dynamic Discounting

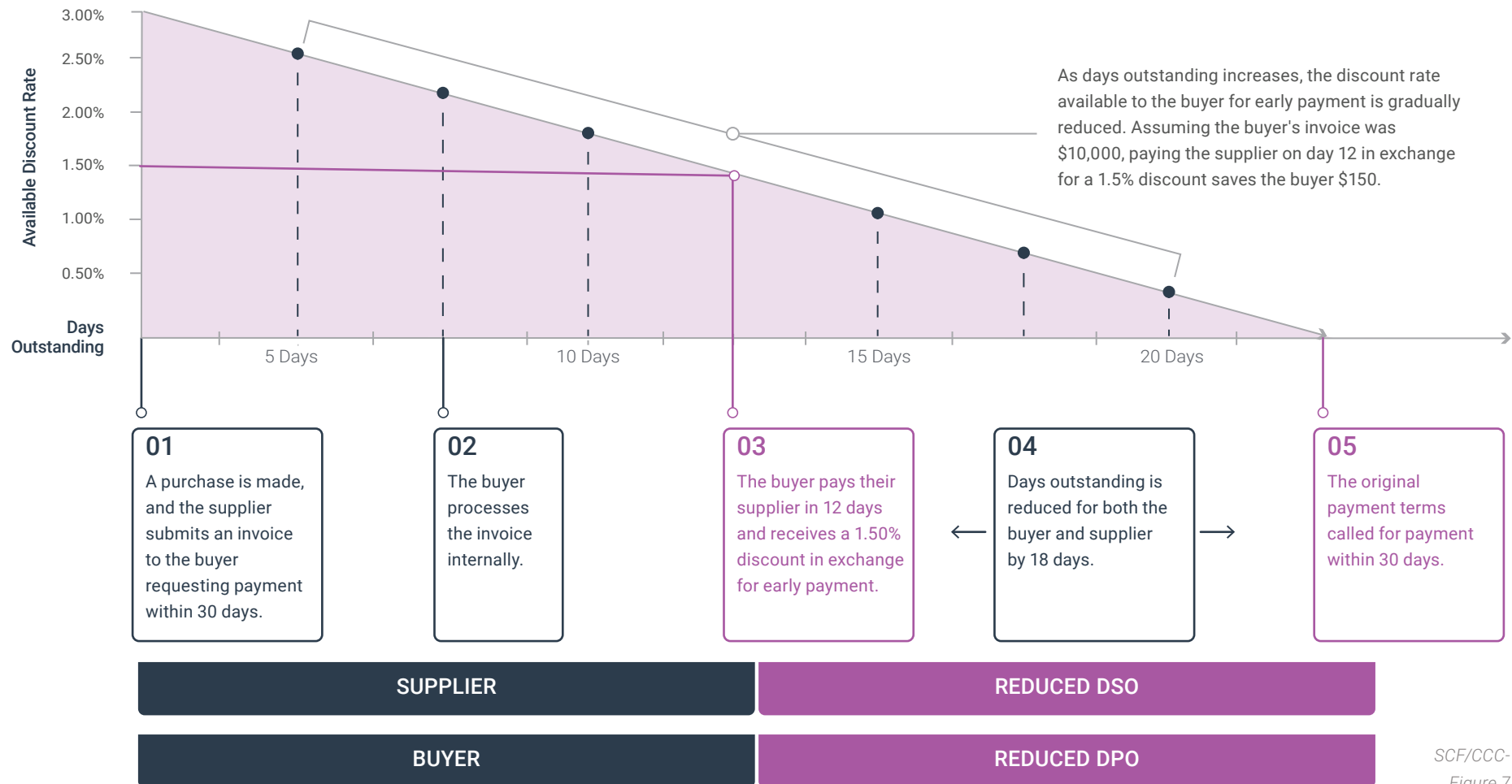
Dynamic discounting helps buyers who, instead of having too little capital, have too much. Rather than leveraging the buyer’s credit, this technique leverages that excess capital to the advantage of both parties through a sliding scale of discounts. Early payment discounts are nothing new. Traditional terms, such as 2/10 net 30, offer such discounts, but the fixed cutoff and limited options are not quite ideal. With these terms, a buyer does have some incentive for paying in the first ten days instead of waiting until thirty. However, as soon as the buyer reaches eleven days, they might as well hold onto the cash until the full thirty days.

Reverse Factoring Sequence of Events



SCF/CCC-Figure 6

Dynamic Discounting Sequence of Events

SCF/CCC-
Figure 7

This, however, is not ideal. The supplier would like to be paid as early as the buyer is willing to let go of the capital, and buyers with excess capital would like to employ it by getting as much discount as possible through early payment.

Arranging this gracefully is difficult. In dynamic discounting, buyer and suppliers can both access an SCF platform where the supplier can set discount rates on a sliding scale, and the buyer can receive a prorated discount for

whatever early payment date they choose. No third-party funders are involved, and the payment terms are still in lockstep, but the flexibility of the sliding scale allows that lockstep to move much more gracefully.

Hybrid SCF

For buyers with strained liquidity, reverse factoring works quite well. For buyers with excess capital, dynamic discounting helps them employ that capital while strengthening their supplier network. However, almost 30% of companies fluctuate between excess and negative cash (Strategic Treasurer market research). For these companies, hybrid SCF solutions can offer them the options they need in either scenario.

Hybrid SCF solutions give companies access to both reverse factoring and dynamic discounting options, offering flexibility not only in payment terms, but also in the source of funding. When buyers have excess cash, they can make good use of it by taking advantage of the prorated discounts suppliers agree to in the dynamic discounting portal. When their capital is tight, however, they can protect their own liquidity while continuing to keep their suppliers healthy by leveraging a third-party funder.

Who Needs SCF?

1. LOW SUPPLIER CREDIT.

Suppliers often have lower credit ratings than the companies that buy from them. If your suppliers need more access to capital than they can obtain for themselves, SCF can leverage your own company's credit rating or excess capital to add some flexibility and strength to your supply chain.

2. WORKING CAPITAL OPTIMIZATION.

If your company has already taken common measures to optimize working capital, but you are aiming to optimize it further, SCF should be considered. Its ability to infuse flexibility and options into the process allow for additional control and efficiency in the factors that impact working capital.

3. NET LIQUIDITY FLUCTUATION.

For the companies who move between being net borrowers and net investors, hybrid SCF solutions offer the opportunity to keep your supply chain strong when liquidity is tight while also allowing you to leverage your own liquidity when it is in excess.

4. SUPPLIERS ARE PARTNERS.

For some buyers, suppliers are interchangeable and plentiful. For many, however, the supply chain is a network of partners who are relied upon and not easily replaced. For these companies, where risk to supplier poses risk to buyer as well, SCF can be an important way of mitigating risk.

5. DIVERSIFYING CAPITAL ACCESS.

If you are seeking to diversify your company's access to capital, rather than just borrowing from your bank, adding SCF to your options could be a good choice while also allowing you more control and flexibility over your liquidity.

THE FUTURE OF SCF

From economic conditions to emerging technologies, many elements impact both the need for SCF and the functionality available. The following are a few areas currently changing the SCF landscape.

Interest Rate Volatility

Interest rates fluctuate from year to year and differ from country to country. While these regional and temporal changes are constantly taking place, what doesn't change is the gap between rates for large corporations with strong credit ratings and rates for smaller companies.

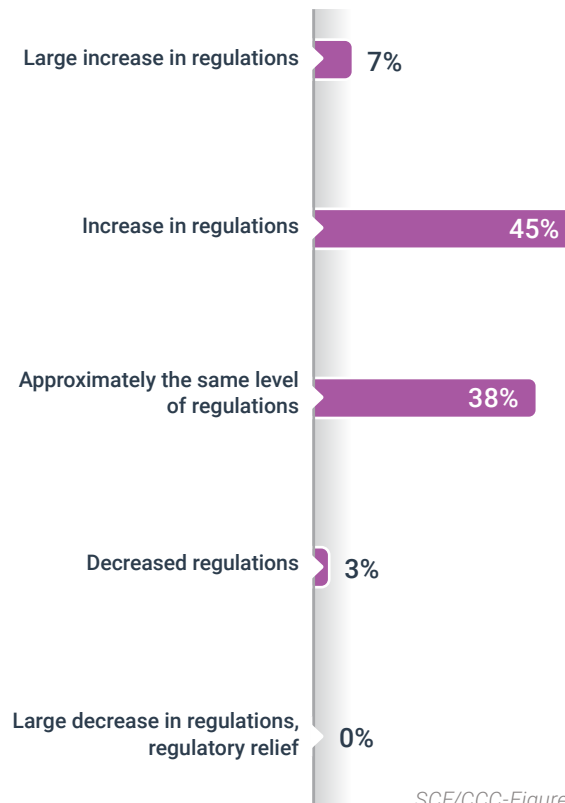
Rates may go up and down, but they will always be higher for most smaller firms, such as many suppliers, than for their larger counterparties. On top of this, companies with lower credit ratings are likely to have smaller margins for liquidity, so access to financing can quickly become essential to their survival during times of hardship.

When interest rates are high, small firms may be especially vulnerable, needing financing at lower rates than they can find. This can threaten the supply chains of larger buyers, who can in turn leverage their higher ratings or spare liquidity to finance their suppliers.

While SCF is useful in many situations regardless of the interest rates, the higher the rates, the more motivated companies and entire supply chains are to seek out alternative financing. As a result, high interest rates—and volatile interest rates that are difficult to rely on—drive interest in SCF.

Q. In the near future (1-2 years), I expect the following to be true of the regulatory environment:

Unsure responses are not included



SCF/CCC-Figure 8

Compliance

We've discussed the heavy and increasing burden of compliance for treasury and finance. SCF is among the many areas that compliance impacts, both as a factor that must be overcome and as a driver in some areas.

KYC, the regulation ranked first by a large margin in the list of treasury's expected compliance hassles, does complicate SCF to some extent. The bank processes for managing KYC are quite cumbersome, requiring more overhead than it does for fintech programs to comply, so this is especially an issue for bank-led SCF or programs offered by banks directly.

For many other regulations, however, SCF can simplify compliance. Cross-border transactions, for example, are often fraught with their own compliance hassles, and disputes over payments are difficult to resolve without clear documentation of what happened when. SCF solutions typically offer excellent visibility and documentation for both domestic and international transactions, helping speed and clarify dispute resolutions and compliance. In addition, some countries have policies requiring that buyers pay their vendors within a certain amount of time (the UK's prompt payment policy, for example), and SCF can help satisfy these requirements while also benefiting the buyer.

Networks

As with CCC solutions, expanding size and functionality of networks bring greater power to SCF solutions. Networks are central to SCF, from networks of suppliers to networks of financiers. As vendors improve the functionality offered and expand their networks, the power of SCF solutions grows. For ways of increasing the power of your own company's network of suppliers who onboard and use your SCF platform, see the recommendations on [page 53](#).

Emerging Technologies

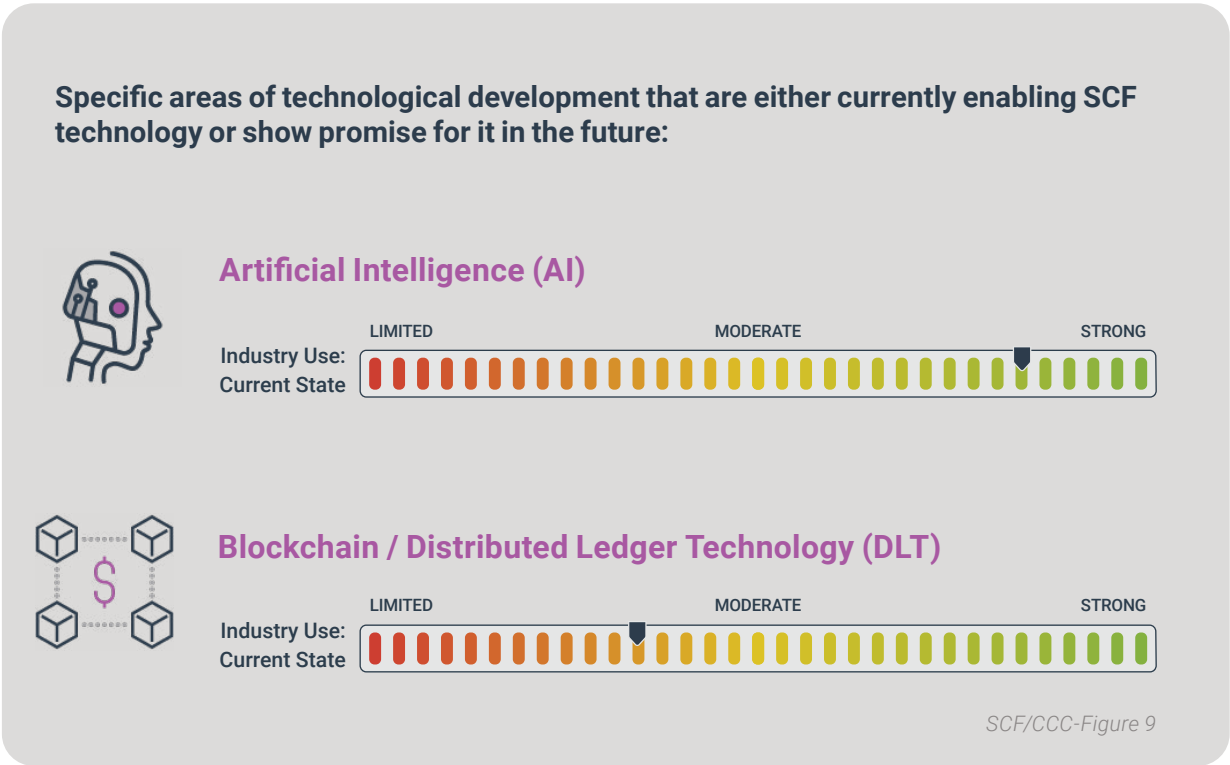
Artificial Intelligence: AI has seen increasing use in SCF solutions in recent years, and with good reason. It has proven highly effective at analyzing historical transaction data, current available rates and average DPO and DSO for specific industry verticals and using this data to predict which suppliers are likely to accept certain payment terms. This helps users optimize their payment strategies and discount terms.

Blockchain / Distributed Ledger Technology:

While the use of blockchain/DLT in SCF solutions is not strong, it is somewhat useful for disputed or complicated cross-border transactions. As discussed in the section on compliance, increased transparency into the progression of a transaction can assist with ensuring both ends of a trade are upheld in international transactions. A distributed ledger can provide that increased transparency.

SELECTING & IMPLEMENTING AN SCF SOLUTION

Companies looking to purchase and use an SCF solution have many options to sort through, quite a few factors to consider and a few specific challenges to overcome in the implementation and use of the solution. In many ways, these processes should follow the guidelines laid out in the overview section of this report, but there are certain SCF-specific guidelines to discuss, and especially in light of recent concerns, the need for due diligence must be emphasized in the selection of SCF solutions.



Due Diligence

When researching potential SCF providers, it is vital that buyers perform thorough due diligence. The insolvency of Greensill Capital, a financial services company focused on SCF, early in 2021 highlighted the risks of partnering with an SCF vendor who is anything but aboveboard, with diversified lending and clear practices. With this event in mind, some companies may be concerned about the overall advisability of SCF. The model, however, is not to blame, and thorough due diligence can help you identify

which vendors to partner with and which could prove problematic.

As with any partner you will be relying on for capital, be vigilant in your processes and investigations of potential SCF providers. Do not assume there are no risks. Understand your potential vendor's business model as well as the actual practices behind it. Greensill stated that their practices were safe, but thorough due diligence should have shown insufficient reason to believe them adequately diversified in their lending.

Maximizing Supplier Participation

No matter how excellent the functionality and concept of an SCF program, it will benefit no one if your suppliers won't use it. According to survey data, getting the majority of suppliers to participate is the most important factor in the success of an SCF program by a large margin (Strategic Treasurer market research, Figure 10), and it is not always easy. When implementing SCF, the following can help maximize participation:

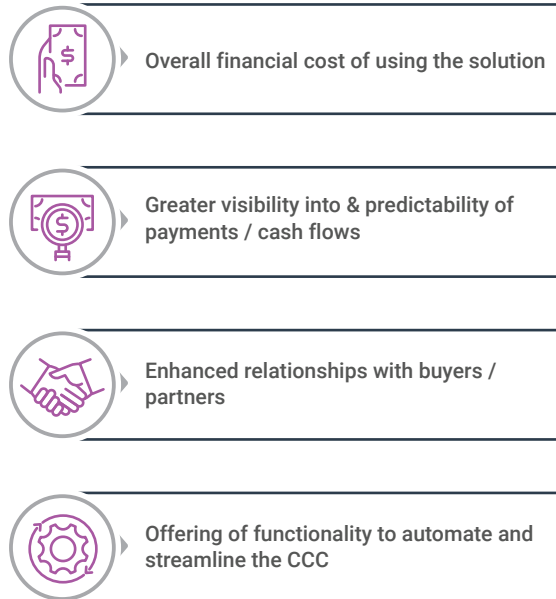
1. Communication

While the types of SCF primarily covered in this report are initiated by the buyer, they are immensely beneficial to the supplier as well. If suppliers are not made aware of this, however, they may not realize there is anything in it for them. Since there is some effort and potentially cost involved in onboarding, most suppliers need the motivation of recognizing substantial benefits to themselves in order to participate. AP and procurement, as the departments usually in closest contact with suppliers, should be aware both of the way the program works and of the importance of clearly communicating the benefits to suppliers.

2. Minimal Onboarding Cost & Inconvenience

As you go through the process of selecting and implementing a solution, make sure you find out what the onboarding process is like for suppliers. Is it a complicated process? Does the vendor provide training for suppliers or assist them with onboarding? Are they charged a fee? If setting up a solution that does charge suppliers for participation

Corporate Suppliers: Top 4 Factors Impacting SCF Participation



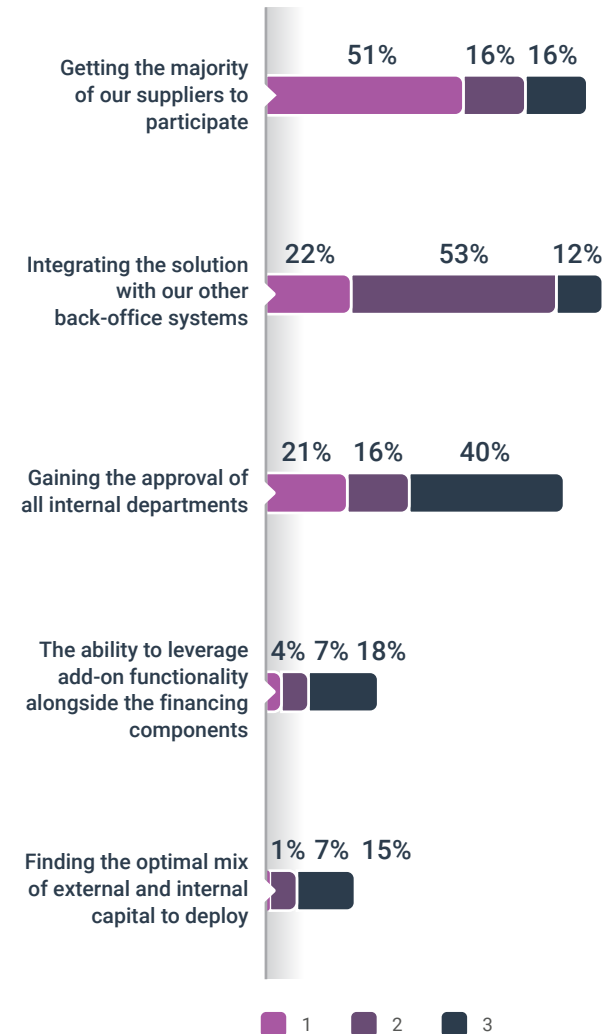
SCF/CCC-Figure 9

or for training, consider covering these costs to lower the barrier to entry.

3. Ongoing Ease of Use

Similarly, ongoing convenience or lack thereof can make a significant difference in suppliers continuing to use the system once onboarded. Buyers should consider factors such as the ease of use for suppliers and whether ongoing support is provided to them as they select a program.

Q. Corporate Buyers: Rank these factors from 1-5 according to how they impact the success of SCF.



SCF/CCC-Figure 10

Leading Practices for Working Capital Initiatives

With such a variety of groups and factors impacting working capital, implementing technological and other initiatives for optimizing working capital—SCF, CCC solutions, etc.—may prove different for each company.

However, a common challenge appears across most industries and types of organizations:

interdepartmental conflict and competing key performance indicators (KPIs).

We saw on [page 44](#) how many groups are involved in the CCC and working capital and how each has a different focus and individual goals. These departments are often in a mindset more of optimizing their own specific KPIs rather than of optimizing a broader measurement such as working capital.

Getting these departments to agree on a plan that benefits the whole, not just their part, and to work alongside other departments to carry out that plan can be one of the biggest challenges treasury faces when they attempt to implement the solution types discussed in this report or any other working capital initiative. The following steps can help treasury bring these groups together and deal with the challenges.

Forming a Working Capital Council



Q Corporates: Do you have a working capital council or committee?

18%

YES

65%

NO

16%

UNSURE

Working Capital Council [Noun]

An internal committee typically overseen by treasury that meets monthly or quarterly to discuss working capital strategies and key metrics for all associated business units.

The goal of this committee is to promote mutually beneficial working capital initiatives and eliminate competing KPIs across different departments.



TREASURY

Leads the working capital council. Treasury is typically considered the owner of working capital internally but needs buy-in from other departments in order to effectively optimize liquidity.

ACCOUNTING

Needs regular, timely reports of cash flow activity to update ledgers, perform reconciliations and generate accurate financial statements.

AP / AR

Has direct responsibility over relations with suppliers and vendors and plays a role in developing sales/credit promotions and payment terms.

PROCUREMENT

Involved in the purchase of inventory and company supplies and regularly interacts with suppliers.

LEGAL / TAX

Ensures regulatory and compliance requirements are met. Can be associated with updating supplier payment terms.

SCF/CCC-Figure 11

CREATE OR CONSULT A WORKING CAPITAL COUNCIL

If you do not yet have a working capital council, building one is the first step to overcoming the competing KPIs and interdepartmental conflicts. This council is typically led by treasury and brings together all the other departments whose operations and decisions are interwoven with working capital—accounting, AP, AR, procurement, legal, tax, etc. Here, each department can air its concerns and talk through what needs to happen and how.

Working capital councils usually meet once a month or quarter. Meeting agendas usually include items such as key metrics, strategies and projects impacting working capital. Use your working capital council to carry out the following steps as well.

UNDERSTAND THE OTHER PERSPECTIVES

The different departments in the CCC do not set out to create competing KPIs or to undermine each other. Buyers, suppliers and customers do not set out to strain each other's liquidity or cause each other problems. Nonetheless, all of these things happen constantly.

The primary causes in each case are narrow views and a focus on a part rather than on the whole. To fix this, there must be an intentional effort to promote understanding and broader thinking.

This is one of the first orders of business for the working capital council.

As the leader of the council, treasury has several things it must communicate and continually reinforce to the members of the council:

1. Treasury must communicate that competing KPIs hurt everyone—including those who created them. One department cannot thrive long-term while dragging down the overarching organization and other departments, nor can a company thrive long-term while dragging down its suppliers and other partners.
2. Treasury must communicate to each department that they are heard and understood. This requires that treasury take the time to listen carefully and ask questions until it truly does understand these perspectives.
3. Treasury must help communicate these perspectives to other members of the council. Treasury must help each group understand the concerns of the others.
4. Treasury must communicate the concerns and perspectives of external partners (suppliers, customers, etc.) and any other relevant voices who are not directly involved in the council.

ESTABLISH A SINGLE SET OF KPIS & OBJECTIVES

With a better understanding of each other and of how their narrow goals negatively impact other departments, partners and ultimately the entire organization, the working capital council can eliminate competing KPIs. However, having no goals or metrics is also unhelpful. The council's next move is to identify what goals, such as optimizing working capital, are most important. They can then establish a single set of KPIs that take the overarching concerns and goals into account.

When specific projects come up, such as implementing an SCF or CCC solution, the council can discuss these with a stronger foundation of mutual understanding. Developing shorter-term objectives together can help the council tackle these specific projects with a united front.

MONITOR & REFINE THE APPROACH

As treasury and other departments take steps and implement solutions or programs to help optimize working capital, keep in mind the need to revisit and make adjustments over time. Monitor adoption and assess effectiveness. Keep getting feedback from the working capital council, suppliers and other stakeholders, and continue to calibrate your efforts to optimize working capital and support the organization's overarching management of liquidity and risk.



fides-treasury.com

**Founded:**

1910

**Headquartered:**

Zürich, Switzerland

**Founder/CEO:**

Andreas Lutz

**Ownership:**

Credit Suisse Group

I Company Overview

SOLUTIONS & SERVICES

Fides ARS & Fides EFT

Available for installation, as managed services, or via the Fides Multibanking Suite SaaS solution. Can be seamlessly integrated with the leading TMS and ERP systems.

- ▮ Account Reporting
- ▮ Bank Messaging
- ▮ SWIFT Service Bureau
- ▮ Bank Connectivity
- ▮ File Transfer
- ▮ Payments & Cash Management

Fides enables corporates to connect to any bank, in any region, through any channel. Fides multibank connectivity and transaction communications solutions deliver critical account statement, payment workflow and reporting capabilities for treasury and finance teams. With Fides, clients can streamline their multibanking processes to achieve greater efficiency, intelligence and accuracy in their communications while securely executing and managing transactions regardless of their banking portfolio or geographic location.

Founded in 1910, Fides has been committed to helping corporations optimally connect and interact with their banks for more than a century. The company has been focused on multibanking and connectivity since 1985, when its bank account balance and transaction reporting service, Fides ARS (Account Reporting Service) was launched. The Fides EFT (Electronic File Transfer) payments solution was released a few years later. Since that time, Fides has continued to frequently improve on the functionality, feature sets and UX of its products, and to develop new services and offerings to meet evolving market needs.

Fides enables banking communications via any channel, including SWIFT, EBICS, H2H, APIs, and more. In addition to being a certified SWIFT Service Bureau, supporting SWIFT for Corporates onboarding and hosting of corporate BICs, Fides also offers a proprietary multi-network, dual-BIC hybrid service model to further streamline connectivity for corporates. Similarly, Fides supports hundreds of messaging file formats, including all SWIFT MT/MX formats, ISO20022, ACH, EDI, AFB, DTA, BAI and ABA among many others. Fides also provides conversion, validation, sanction screening and security services.

Headquartered in Zürich, Switzerland, Fides is an independently operated subsidiary of Credit Suisse. Today, Fides helps more than 3,500 clients communicate with over 13,000 banks and payment providers across 200 countries and territories. Clients can access Fides solutions through the company's secure, easy-to-use Multibanking Suite SaaS Solution, or easily integrate with any third-party ERP, TMS, and other backend systems. And with Fides, you are assured support for the newest connectivity and fraud filtering technologies, compliance with all regulatory requirements and governance protocols, and adherence to security standards that meet or exceed banking requirements.

TOP STATISTICS



Fides' payment platform processes over \$5.5 trillion every year.



More than 210,000 SWIFT messages, including batch files, are processed through Fides' system every day.



Client payment initiations have increased by 25.5% year over year.



Active Fides clients span 200 countries and territories and connect to more than 13,000 banks worldwide.

MARKET POSITION



Fides is the only multibanking connectivity provider that globally offers a unique hybrid connectivity service.



Fides is a wholly-owned subsidiary of global banking giant Credit Suisse.



Fides has more than 3,500 active customers in locations around the world.

NEWS & HAPPENINGS

Global Growth

As of September 2021, Fides had already started the implementations of more than 200 client projects, reflecting double-digit growth year-over-year.

New Projects

Fides will continue to expand its footprint of treasury and finance services through the addition of more Multibanking Ecosystem partner offerings and partnerships with TMS, ERP, and other technology providers.

Global Business Awards for Multibanking Excellence

Fides was named Best Performing Multi-Banking Solutions Provider for 2021 by The European.

This award is the latest addition to the publication's ongoing recognition of Fides as Best Performing Multibanking Solutions Provider over the past decade.

Fides received the TMI Innovation & Excellence Award for Best Bank Connectivity Solution 2020.

FIDES CLIENTS



Remitly



I Product Overview

FIDES MULTIBANKING SUITE

Centralize your bank accounts and make payments to anywhere in the world at the touch of a button, through an intuitive SaaS solution. Fides centralizes and simplifies global multibank connectivity and transaction communications. The modular Fides Multibanking Suite gives you complete visibility into and control over your banking connections and transactions, with secure access from any location. Administration and approvals are controlled through a single tool, saving time and effort while providing visibility into all aspects of workflows. Within the past year, Fides introduced dynamic grids that allow

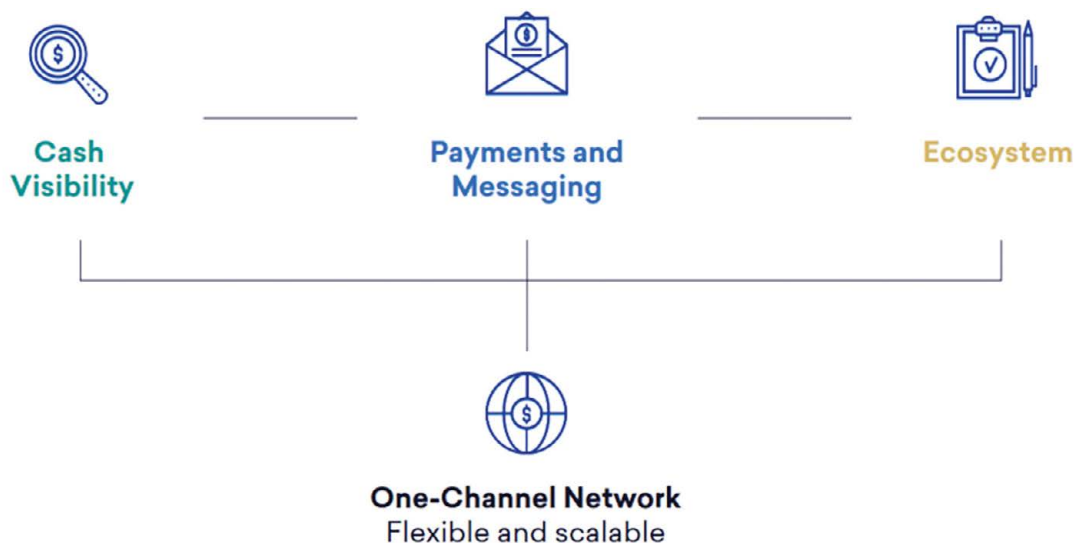
users to customize their views and apply filters on the fly, a mobile optimized sign-off process, multi-linked visualization of payment statuses independent of bank or channel, and more than 400 customer-specific improvements. The Fides Multibanking Suite includes Fides ARS and Fides EFT, and also provides access to a growing ecosystem of partner solutions for an easy one-stop-shop. In future, new Fides features and services such as cash pooling will be offered via the Multibanking Suite.

FIDES ACCOUNT REPORTING SYSTEM (ARS)

Fides ARS was designed to allow clients quick and easy access to viewing overall liquidity and

account statements from their banks at any time. Fides ARS improves upon the outdated process of manually collecting account data from a client's banks by consolidating all account information, including balances, transactions, and booking texts, and providing it centrally via a set of user-friendly dashboards. The process involves converting all messages into a standardized format, verifying the account statements, allowing the customer to choose a preferred format (MT940/42, BAI, AFB120, camt.052/053/054, etc.), and providing options for downloading data, such as in Excel or as a PDF. Fides ARS does not require any special infrastructure or installation. Updates and upgrades to the solution are performed regularly. Fides ARS can be integrated with a client's TMS/ERP system or managed through the Fides Multibanking Suite.

Fides Multibanking Hybrid Model



Key Features & Benefits:

- **Global cash visibility.** Reap the benefits of worldwide transaction transparency. Using a single source for all bank communications makes it easy to gain visibility into global cash positions and increase forecast accuracy.
- **Reduced operational risk.** Transaction data is loaded automatically, eliminating the need for treasury professionals to enter data manually.
- **Flexible authorization.** Map users and groups to accounts, account groups, banks, countries, subsidiaries and more to further automate and streamline processes.
- **Highly customizable reporting.** Extensive search, filter, sorting, display and export functionality gives you

the data you need in the format you need it—at the touch of a button.

- › **Smooth account control.** Thorough data validation capabilities and services ensure that opening and closing bank balances, statement formats and any other transaction data points are correct, consistent, and ready for your reports and daily processes.

FIDES ELECTRONIC FILE TRANSFER (EFT)

Fides EFT simplifies the global transfer of individual and bulk payments to banks and consolidates the financial messaging process so that any and all messages can be sent and received by corporates through one platform. Although the majority of clients use Fides EFT for payment purposes, it can be utilized for the full range of MT and MX (ISO 20022 XML) formatted messages, including those used for trade finance or FX trades. Fides EFT serves as a central location to manage and execute payments and provides an efficient method of monitoring all payments. Automated access is available through a client's TMS/ERP, but a client can opt to manually enter and approve payments through Fides' SaaS solution. Fides EFT is able to process and send payment orders globally to a multitude of different banks and uses enhanced data validation and enrichment processes to ensure client information is delivered securely and quickly. Updates and upgrades to the solution are performed regularly.

Key Features & Benefits:

- › **Central workflow control.** Validate, execute and monitor all transactions through a single workflow, eliminating the need for multiple processes.
- › **Flexible authorization.** Map users and groups to banks, validate payments, set up sign-off rules, four-eyes principles and more to further automate and streamline processes.
- › **Order creation options.** Create orders via ad hoc entry, templates, or file upload to meet your business and HR needs.
- › **Fast fraud detection.** As all payments are captured and managed with the same solution, fraudulent activity can be detected quickly. Leverage built-in compliance management features, rule-based checks, and profiling founded on payment history and analytics.
- › **Sanction screening.** Our modern, bank-proven sanction filtering adheres to local and international regulations to help you manage and mitigate risk.

FIDES MULTIBANKING HYBRID MODEL

The unique Fides Hybrid Model is a multi-network, dual BIC service option that allows corporate treasury teams to optimize and expand their banking reach effectively and help with banks' SCORE readiness. Fides' hybrid approach ensures that clients have access to a solution that is tailored to their individual connectivity needs. Based on requirements and communication

channels, Fides will recommend, establish and maintain the most effective multibanking connectivity configuration. These connections can be made via SWIFT, EBICS, Host-to-Host (H2H), APIs, or any combination thereof, using Fides' proprietary Hybrid Model. This ensures that clients have a multibanking model that works the way they need to conduct business. Additionally, the Fides Hybrid Model improves accuracy and consistency of payment and transaction messages by validating and correcting all files prior to release, ensuring that files are compliant and bank-ready.

Clients use the Fides Hybrid Model to:

- › Validate and comply with rigorous messaging requirements
- › Eliminate gaps in SCORE readiness
- › Ensure global banking coverage
- › Increase speed-to-market
- › Reduce costs of maintaining individual connections and SWIFT costs

The service is completely managed by Fides.

Learn More About Fides

CONTACT US

- ▮ fides-treasury.com
- ▮ hello@fides-treasury.com

Works Cited

OVERVIEW

- Figure 2, Page 8: *2021 Strategic Treasurer & GTreasury - Treasury Technology Survey.*
- Figure 3, Page 9: *2021 Strategic Treasurer & GTreasury - Treasury Technology Survey.*
- Figure 4, Page 10: *2020 Strategic Treasurer & TD Bank - Treasury Perspectives Survey.*
- Figure 5, Page 11: *2021 Strategic Treasurer & Bottomline Technologies - B2B Payments Survey.*
- Figure 7, Page 16: *2017 & 2020 Strategic Treasurer & TD Bank - Treasury Perspectives Survey.*
- Figure 8, Page 17: *2019 & 2021 Strategic Treasurer & Bottomline Technologies - Treasury Fraud & Controls Survey.*
- Figure 9, Page 18: *2020 Strategic Treasurer & TD Bank - Treasury Perspectives Survey.*
- Figure 10, Page 19: *2020 Strategic Treasurer & Deluxe - Modernizing AP/AR Survey.*
- Figure 12, Page 21: *2021 Strategic Treasurer & GTreasury - Treasury Technology Survey.*
- Figures 14 & 15, Page 23: *2021 Strategic Treasurer & GTreasury - Treasury Technology Survey.*

TREASURY MANAGEMENT SYSTEMS

- TMS-Figure 2, Page 25: *2021 Strategic Treasurer & GTreasury - Treasury Technology Survey.*
- TMS-Figure 5, Page 30: *2021 Strategic Treasurer & GTreasury - Treasury Technology Survey.*

- TMS-Figure 6, Page 31: *2021 Strategic Treasurer & GTreasury - Treasury Technology Survey.*
- TMS-Figure 7, Page 32: *2021 Strategic Treasurer & GTreasury - Treasury Technology Survey.*

TREASURY AGGREGATORS

- TA-Figure 3, Page 37: *2021 Strategic Treasurer & Bottomline Technologies - B2B Payments Survey.*
- TA-Figure 4, Page 38: *2021 Strategic Treasurer & Trovata - Partnering with IT on Your Digital Transformation Webinar (9.14.21.)*
- TA-Figure 5, Page 39: *2020 & 2021 Strategic Treasurer & Bottomline Technologies - Treasury Fraud & Controls Survey.*
- TA-Figure 6, Page 40: *2021 Strategic Treasurer & Bottomline Technologies - B2B Payments Survey.*

SUPPLY CHAIN FINANCE / CASH CONVERSION CYCLE

- SCF/CCC-Figure 8, Page 51: *2020 Strategic Treasurer & TD Bank - Treasury Perspectives Survey.*
- SCF/CCC-Figures 9 & 10, Page 53: *2019 Strategic Treasurer & Kyriba - Supply Chain Finance Survey.*
- SCF/CCC-Figure 11, Page 54: *2018 Strategic Treasurer, Bottomline Technologies, & Bank of America Merrill Lynch B2B Payments & WCM Strategies Survey.*

Strategic Treasurer Market Research

As part of our ongoing market research, Strategic Treasurer conducts 12+ industry surveys every year on a variety of topics ranging from cash management and payments to fraud and compliance. These surveys are collectively completed by several thousand corporate, banking, non-profit, government and higher education respondents annually. Below is a sampling of our current research initiatives.



**B2B
PAYMENTS**



**GLOBAL
PAYMENTS**



**HIGH VOLUME
PAYMENTS**



**TREASURY FRAUD
AND CONTROLS**



**TREASURY
PERSPECTIVES**



**TREASURY
TECHNOLOGY**



CORPORATE BANKING

Probes the perspectives and plans of bankers, with questions ranging from essential lines of business to expected growth, innovation challenges, fintech partnerships and plans to build, buy and use technology.



LIQUIDITY RISK

Analyzes organizations' short-term investment and risk management strategies to uncover trends related to how firms are optimizing their liquid assets and identifying and mitigating associated risks.



SUPPLY CHAIN FINANCE

Evaluates the use of SCF technology within the corporate environment, as well as the strategies and technologies put in place by firms to manage vendor relationships, streamline cash conversion cycles and optimize working capital.



TREASURY COMPLIANCE

Captures the macro and micro elements of the compliance landscape that are impacting treasury, identifies how new regulatory developments are being accounted for and gains insight into the various technologies and strategies leveraged by organizations for managing compliance on an ongoing basis.



MODERNIZING AP/AR

Identifies various practices and plans for modernizing and automating AP and AR processes. The influence of recent disruptions, calibration of various pain points that drive change, and other motivators to upgrade AP and AR processes will be examined.



CASH FORECASTING & VISIBILITY

Studies the operational and technological components deployed by organizations for maintaining visibility to cash positions and forecasting cash flows.

**Custom research commissions
available upon request »**

To learn
more about
our market
research, visit
our website:

**[strategictreasurer.com/
surveys](https://strategictreasurer.com/surveys)**

BANK RELATIONSHIPS

SECURITY TRAINING

BENCHMARKING

TECHNOLOGY SELECTION

RFP MANAGEMENT

BANK FEE ANALYSIS

PAYMENT PROCESSES

OUTSOURCED COMPLIANCE

CARD & VENDOR FEES

WORKING CAPITAL

CONNECTIVITY SUPPORT



LET US

REMOVE YOUR

HEADACHES



We give treasury teams confidence they're not wasting **TIME, MONEY OR TALENT** on fee management.

**LEVERAGE OUR SOLUTIONS.
HARNESS NEW EFFICIENCIES.**



Share your recent statements.



Answer a few simple questions.



Review and approve your action plan.

We understand the frustration with leaking cash in complex and growing organizations with myriad vendors and contracts to manage.

So, we built a system of efficient review and ongoing analysis on a proprietary database of benchmarked rates and have helped numerous companies, just like yours, save both time and money, freeing valuable resources needed elsewhere.

Let us review your fees today.



Schedule an introduction at
strategictreasurer.com/fees



ADVISE



ASSIST



RESEARCH



INFORM