

AIM Evaluation: The Leading Providers of U.S. Core Banking Systems

FEBRUARY 2019

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IMPACT POINTS

- Core systems and the technologies that support them continue to be a high area of focus for financial institutions with complexity and high risks/costs often associated with their replacement.
- Leveraging the Aite Impact Matrix (AIM), a proprietary Aite Group vendor assessment framework, this Impact Report evaluates the overall competitive position of each vendor, focusing on vendor stability, client strength, product features, and client service.
- The following criteria were applied to develop a list of eligible vendor participants: (1) bank awareness of the vendor as a provider of a viable core banking offering, (2) successful implementation of a core banking solution at a minimum of one U.S.-based financial institution, and (3) the ability to provide client references.
- A total of six vendors agreed to be evaluated under the AIM framework. Several additional vendors are named as emerging competitors, non-U.S. providers vying for a larger presence in the U.S. market, and/or small regional players.
- The U.S. core banking vendor landscape is a mature one. Most of the technology providers are established vendors with strong financials and broad product portfolios. There are high barriers to entry; however, a few new players have emerged over the last few years in an effort to deliver something different to the market to better address changing market needs.
- Several trends are shaping the present and future core systems market and the ways in which the leading technology providers must serve their bank clients. Trends include rising competition from new players and expectations around user experience, a sustained preference for hosted systems and growing preference for private clouds, IT modernization being architected around integration, customer-centricity being the catalyst to the digital transformation journey, and the creation of application program interface (API) ecosystems.
- The number of new core banking system contracts continues to grow. Aite Group forecasts a slight increase in momentum over the next three years and a total IT spend of over US\$6 billion between now and year-end 2020. Approximately 637 U.S. financial institutions will sign contracts for new core banking solutions during that time.
- Achieving best-in-class status and contender status in Aite Group's AIM, a highly governed and quantitative vendor evaluation methodology introduced via this report, are Fiserv, Jack Henry, and FIS. Additional awards include CSI for the best user experience and FIS for the most advanced API strategy.

INTRODUCTION

Aite Group analysts have been stating for quite a while that it is time for financial institutions to replace the antiquated and inefficient core systems that continue to run behind the scenes at many institutions. These systems make it difficult for banks to address new customer needs and expectations for speed and agility, and make it challenging to compete in today's fierce environment. The perceived risks associated with a full core system transformation have held several institutions back, but fortunately, technological enhancements, more open and componentized architectures, and phased replacement strategies are enabling more institutions to move forward with the core system replacements they have put off for far too long.

This Impact Report explores some of the key trends within the U.S. core system replacement market and discusses how technology is evolving to address new market needs and challenges. This Impact Report also compares and contrasts the offerings and strategies of the leading vendors and highlights their primary strengths and challenges. Finally, to help financial institutions make more informed decisions as they select new technology partners, the report recognizes specific vendors for their strengths in critical areas.

METHODOLOGY

Leveraging the AIM, a proprietary Aite Group vendor assessment framework, this Impact Report evaluates the overall competitive position of each vendor, focusing on vendor stability, client strength, product features, and client services.

The following criteria were applied to develop a list of vendors for participation:

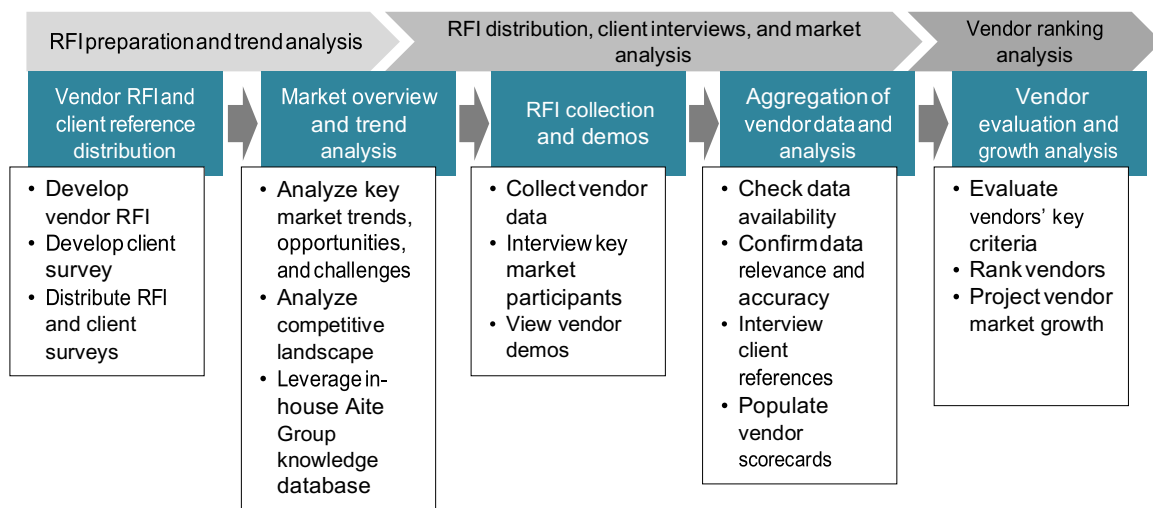
- Bank awareness of the vendor as a provider of a viable core banking system offering
- Successful implementation of a core solution at a minimum of one U.S.-based financial institution and the ability to provide client references

Participating vendors were required to complete a detailed product request for information (RFI) comprising both qualitative and quantitative questions, conduct a product demo and briefing, and provide active client references.

AIM INTRODUCED

The AIM is a comprehensive proprietary vendor evaluation process designed to provide a holistic analysis of participating vendors and identify market leaders in each evaluated vendor market. By incorporating many aspects of a vendor’s essential characteristics for success and growth, including financial and client stability, product features, and customer service, the AIM provides an actionable guide for market participants looking for viable third-party vendor solutions and services. Figure 1 highlights the key stages of the AIM methodology.

Figure 1: AIM Methodology



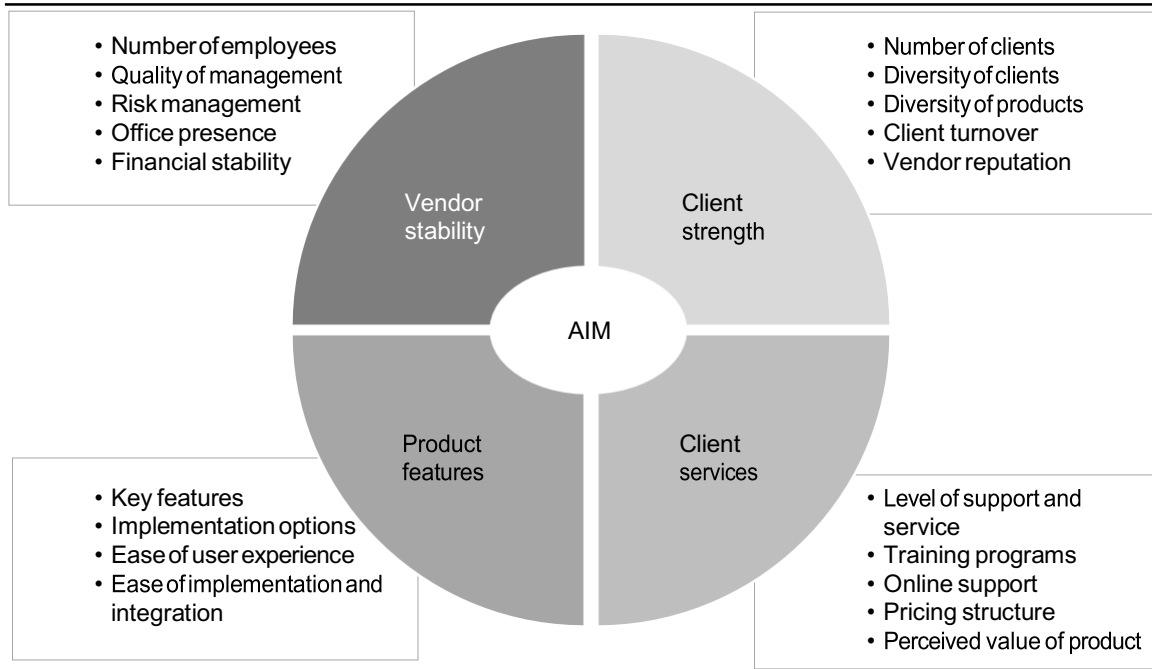
Source: Aite Group

To ensure full transparency in terms of key areas of measurement and evaluation, Aite Group shares the entire AIM with each vendor prior to publication. Each participating vendor also provides client references to measure their overall satisfaction. Details of the client reference survey and questions to be discussed with clients are shared with each participating vendor prior to the interviews. Aite Group reserves the right to identify and interview other clients that may not be recommended by participating vendors to validate certain areas of analysis.

AIM COMPONENTS

The AIM has four key components: vendor stability, client strength, product features, and client services. Examples of the criteria that could be included in each component are listed in Figure 2.

Figure 2: AIM Key Components



Source: Aite Group

VENDOR STABILITY

The vendor stability component evaluates the overall strength of the vendors in terms of financial stability, management reputation, risk management, and global presence. This component determines whether a given vendor has the basic foundation to compete and sustain its overall market presence.

CLIENT STRENGTH

The client strength component focuses on the number and diversity of customers for vendors, vendor reputation among the clients, and overall customer turnover. This component measures whether a given vendor has a strong foundation of clients and a robust client pipeline to sustain its growth trajectory.

PRODUCT FEATURES

The product features component analyzes the key features and functionality of vendor solutions and services, including implementation options, user experience, and the strength of the future product roadmap. This component measures whether the vendor offers enough key features and functionality to remain competitive.

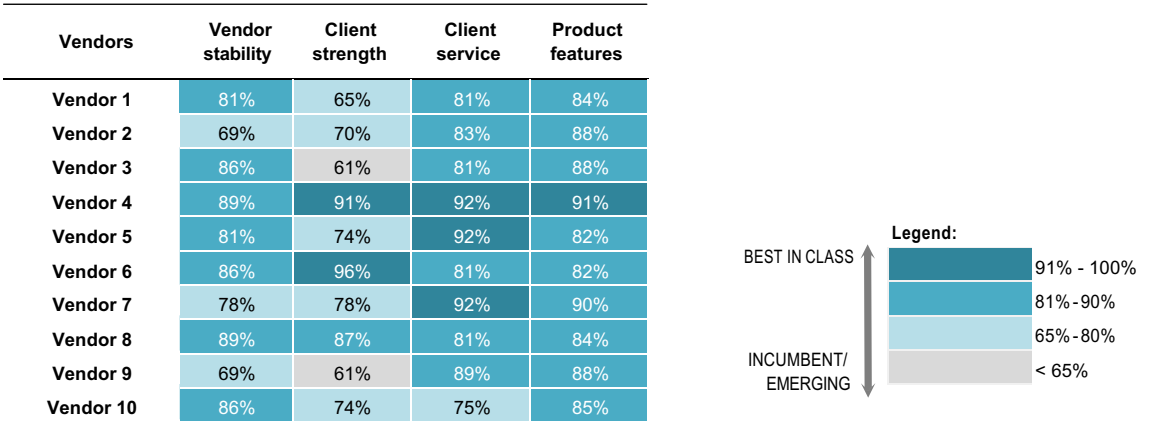
CLIENT SERVICES

The client services component evaluates the comprehensive nature of the vendor’s client support and service infrastructure. This component measures whether the vendor provides robust service and support to provide real value to the clients.

AIM

After a comprehensive analysis, Aite Group can assess participating vendors within the four key evaluation components (Figure 3).

Figure 3: Sample Assessment via Heat Map Representation

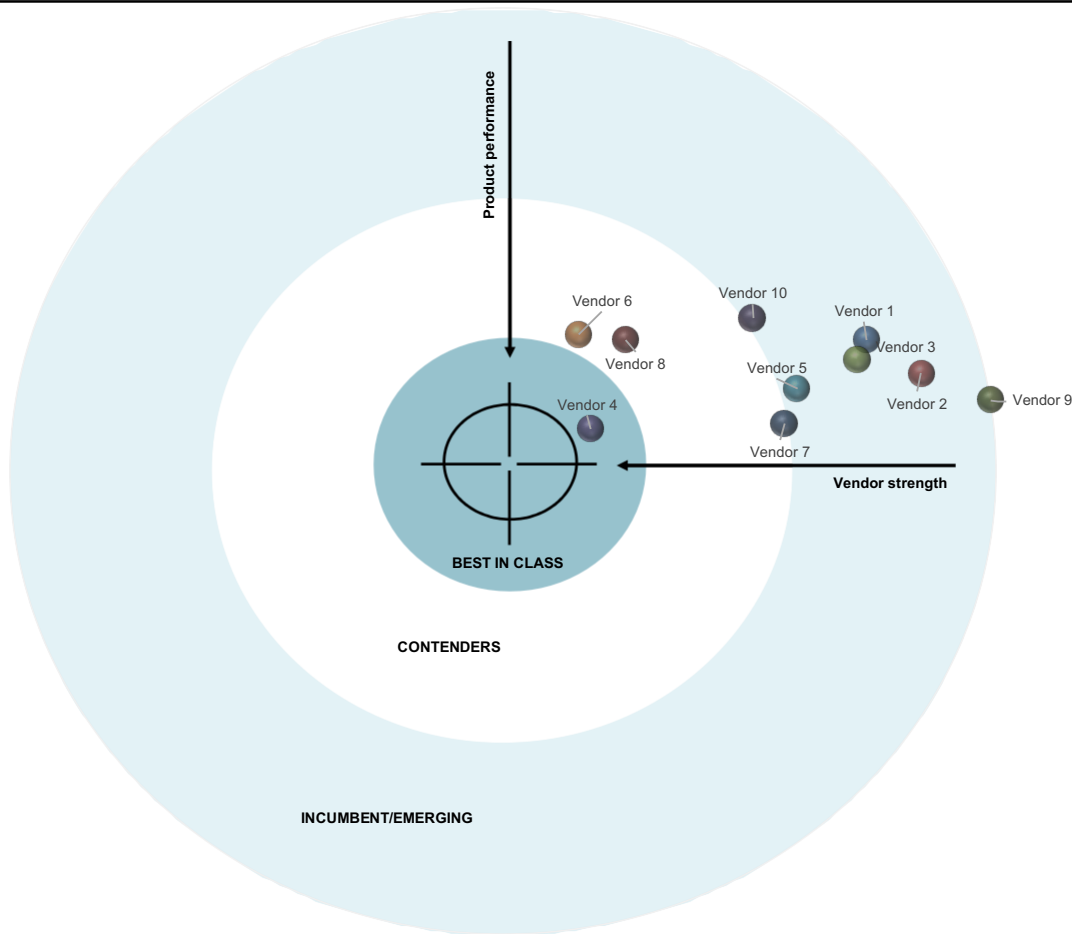


Source: Aite Group

The AIM leverages these four components to create a concise composite evaluation that identifies market-leading vendors:

- **Vendor strength:** Combining the scores from the vendor stability and client strength components, this criterion measures the vendor’s overall long-term business viability as a product and service provider.
- **Product performance:** Combining the scores from the product features and client services components, this criterion measures the product’s ability to deliver key functionality and support.

Figure 4 provides a sample output of the AIM, presenting those market-leading vendors that provide robust product performance and that showcase their ability to execute on their long-term strategies.

Figure 4: Sample AIM

Source: Aite Group

The AIM highlights three specific types of vendor groupings as a result of the analysis:

- **Best in class:** Vendors in this grouping represent the leaders in the particular vendor market, with strong financials, diverse client bases, and robust product offerings with industry-leading functionality and reliable client service. These are essentially the leading vendors that everyone else is chasing.
- **Contenders:** Contenders have created stable businesses and client bases as well as competitive product offerings. But they struggle at times to identify the next big market trend or product features, or they lack consistent research and development or IT investment, leading to a failure to update overall performance and infrastructure. Contenders' overall competitive positions will vary a bit, from vendors that are having a tough time keeping up with the best-in-class vendors—due to a lack of resources or stable but outdated technology stacks—to vendors that are just inches away from joining the best-in-class grouping if only they could properly execute on the next release or successfully capture a new client segment.

- **Incumbent or emerging:** This last grouping represents vendors that either have a large potential for future growth or are established vendors with stagnating offerings. This group may represent startups or vendors with limited resources. They may exhibit unstable business models, low client count, and limited client service capabilities. However, this group of vendors may also support innovative product features and transformative business models that will help them hone in on the AIM framework.

The relative positions of vendors that have been bucketed into these three distinct vendor groupings within the AIM are, of course, not static. In fact, an emerging vendor of today may, given the speed of innovation in recent years, find itself in the best-in-class grouping five years from now.

The beauty of the AIM is that by leveraging this framework, Aite Group analysts can pinpoint vendors' strengths and weaknesses, and vendors can utilize this framework to make sure they are on the right path to reaching the coveted best-in-class position. The flexibility of the AIM is also designed to be beneficial for those financial institutions looking to make vendor decisions tied to their unique set of internal requirements.

THE MARKET

This section provides information and analysis around the following:

- Key market trends
- Key drivers and challenges of adoption
- Key purchasing factors
- Key functionality

KEY MARKET TRENDS

The following market trends are shaping the present and future core banking system market and the ways in which the leading technology providers must serve their bank clients (Table A).

Table A: The Market

Market trends	Market implications
Rising competition from new players and expectations around user experience	Some fintech disruptors are marketing their solutions directly to consumers and small businesses and are entering the market to meet their banking needs in new and unique ways, pressuring financial institutions to transform their business model. Other industries, such as the retail sector, have already impacted customer expectations and set new standards for customer experience. Financial institutions have no choice but to place the customer and user experience at the heart of every IT decision.
Sustained preference for hosted systems and growing preference for private clouds	The sustained preference for hosted core banking solutions and growing preference for private clouds is a trend that has continued to pick up momentum. This shift has been driven by a desire to reduce overall IT footprint, lower the total cost of ownership, increase speed to market of new products, and shift internal IT staff’s focus to revenue-generating initiatives instead of infrastructure.
IT modernization architected around integration	As the need for data in banking continues to grow, it is creating manageability issues for legacy systems: Operational risk, increases in agility, and the need to generate insights are pushing financial institutions to modernize their IT and better respond to digital business demands. Integration sits at the center of it all.
Customer-centricity as the catalyst to the digital transformation journey	Customer-centricity is the catalyst of the digital transformation journey. In the long term, this transformation will create opportunities for financial institutions to better serve and deepen relationships with customers while also operating more efficiently and effectively.
Creating a unified API ecosystem	Most financial institutions are still in the early stages of determining API use cases. While they recognize the benefits for internal system integration and data exchange with vendors, they are still working toward creating an entire unified API ecosystem.

Source: Aite Group

RISING COMPETITION FROM NEW PLAYERS AND EXPECTATIONS AROUND USER EXPERIENCE

Demands and expectations around user experience in banking are rising. Other industries, such as the retail sector, have already impacted customer expectations and set new standards in the area of customer experience. Banks have no choice but to place the customer and user experience at the heart of every IT decision. The challenge for most financial institutions is that IT budgets are increasingly locked down by compliance and legacy maintenance projects, thus reducing their capacity to innovate. This forces them to prioritize their initiatives. As such, a handful of technology categories are receiving the greatest level of attention and investments today. These include regulatory compliance, fraud prevention, analytics, and digital channels/transformation. User experience sits in the center of all of them and has become a key consideration in almost every IT decision financial institutions make.

The digital revolution has also given rise to a proliferation of digital-only banks. These new players, called “neobanks” or “challenger banks,” interact with their customers over the online and mobile channels only. They can be independent fintech startups or even digital spinoffs of existing banking groups. Using modern technology and being unhindered by legacy systems, neobanks have differentiated their offering from that of traditional banking by focusing on the customer experience. By doing so, neobanks are better able to act on the trend than are incumbent financial institutions.

SUSTAINED PREFERENCE FOR HOSTED SYSTEMS AND GROWING PREFERENCE FOR PRIVATE CLOUDS

The sustained preference for hosted core banking solutions and growing preference for private clouds is not a new trend but one that has continued to pick up momentum over the last few years. Aite Group analysts first observed this trend with point solutions, such as online banking and cash management solutions, about a decade ago and saw it carry over to the core space a few years later. It is also a deployment option that was at first more highly favored by banks, but today is increasingly seen among credit unions.

The shift toward hosted solutions and private cloud-based solutions has largely been driven by a desire for the following:

- Reduced overall IT footprint with minimal installation or software upgrade
- Lower total cost of ownership
- Faster deployment/speed to market
- Less of a staffing burden
- More time to focus on banking activities, with the technology focus shifting back to providing value to customers and differentiating the customer experience rather than focusing on infrastructure
- Lower regulatory burden
- Higher levels of business continuity through vendor-run backup data centers

As a result, financial institutions don't need all the hardware and resources they once did, freeing up time and allowing IT staff to focus on revenue-generating initiatives instead. Additionally, parameter-driven solutions enable higher levels of customization without touching code; thus, hosted deployments enjoy a level of customization they once didn't, coupled with the ability to take advantage of all new releases.

IT MODERNIZATION ARCHITECTED AROUND INTEGRATION

Over the years, financial institutions have built big technology stacks that are monolithic and difficult to change. Legacy systems form an integral part of their value chain, and while some systems are being replaced, a complete overhaul of this value chain is unrealistic. The older, less flexible platforms upon which those legacy systems were built make integration and data accessibility difficult. This prevents financial institutions from having a single source for client data and results in data consistency challenges and the need to ask customers for the same information multiple times—which is frustrating for customers. Additionally, some systems are real-time while others are batch, further complicating bank goals to create a real-time environment.

Integration challenges are especially great for the financial institutions that buy most of their technology from multiple best-of-breed technology providers. Their efforts to offer best-in-class capabilities to customers have worked against them when it comes to customer experience. In an ideal world, a bank would be able to select a single vendor and require all other vendor partners to easily plug into its back-end systems. Regional and some super-regional banks are typically among the financial institutions hardest hit by integration challenges. While the largest multinational banks are not immune to it, they are more likely to have many homegrown solutions and the resources to invest to make their processes more seamless and their portal experiences more user-friendly. On the other side of the spectrum, smaller community banks and credit unions are also less challenged in this area, as they typically use fewer vendors and depend primarily on their core banking vendor to meet most of their technology needs. Such practices make them likely to have a more consistent experience across products. Financial institutions need to modernize their technology and center it around integration in order to achieve their user-experience goals.

While striving to modernize their IT and better respond to digital business demands, financial institutions should consider the following to truly modernize:

- **Reduce operational risk:** Legacy technology means a higher exposure to risk, especially due to extensive and unique levels of customization and the declining lack of knowledge within the business as to how such complex systems work. This is particularly the case in the areas of operational risk and security.
- **Increase agility:** Financial institutions need to be more responsive to changing market conditions and digital demands from the business. Setting up their third-party networks to increase innovation will be particularly effective. Financial institutions need to gain more expertise in agile development and operations skills, and to leverage the opportunities presented by API management.

- Generate insights: Financial institutions need to cope with increasing amounts of data in a variety of formats. An effective data management approach is essential to delivering compelling insights at scale. Financial institutions should leverage regulations such as General Data Protection Regulation (GDPR, which is starting in Europe but is rapidly expanding globally) as an opportunity to fund technology that will enable deeper customer understanding.

CUSTOMER-CENTRICITY AS THE CATALYST TO THE DIGITAL TRANSFORMATION JOURNEY

IT transformation is not a new trend but one that has been growing in prevalence over the last few years as more modern, flexible technology solutions have been introduced to the market. Phased approaches enable institutions to adopt a less risky technology transformation by first replacing the most urgent areas. Most financial institutions, especially the largest banks, are taking a progressive approach in their rollout of new technology solutions. In a phased approach, some choose a specific geographic area, while others base their phases on vertical domains or departments. Aite Group defines the three stages of digital transformation in Table B.

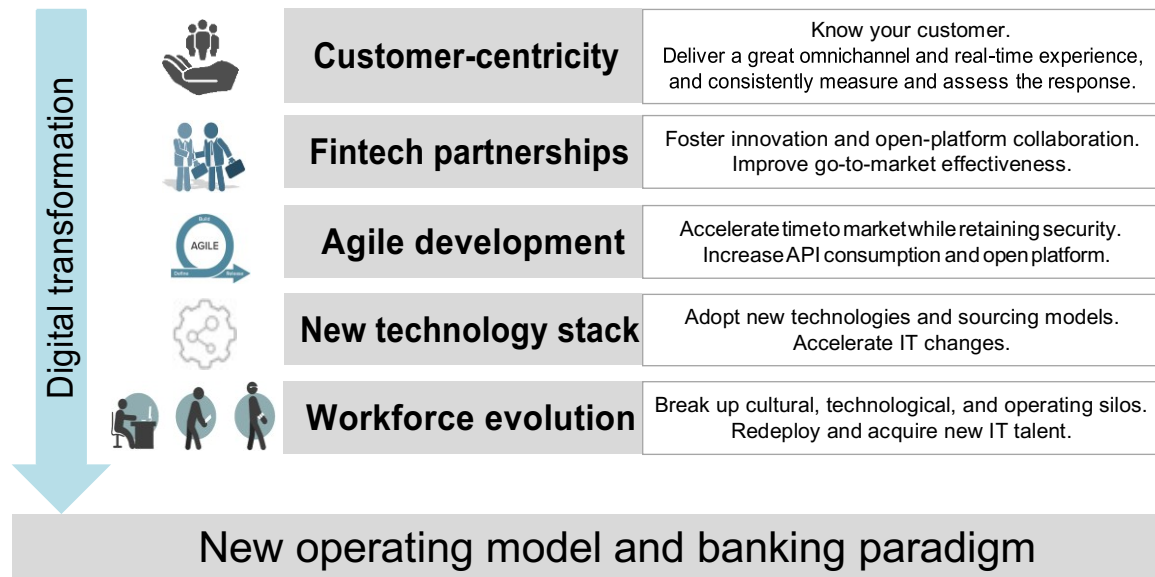
Table B: The Three Stages of Digital Transformation

Stage	Definition
1. Today’s reality: Different channels act independently in silos.	Many financial institutions have different customer experiences and products depending on the channel and the business unit, whereby the knowledge and operations exist in functional silos contributing to brand dilution. Furthermore, most architectures consist of a mix of architecture types (on-premises or Software-as-a-Service [SaaS]), in-house-oriented services, and legacy technologies that further contribute to the silos.
2. The short-term goal: Some cross-channel capabilities act as part of the same brand.	The interim step is to develop some channel-agnostic services, leading to product synergies. Many institutions overcome the challenges of legacy systems and different architectures by exporting information from them into a cloud platform and, from there, serving information to their customers. This enables greater data consistency and a better experience.
3. The aspiration: A unified and seamless experience constitutes the brand.	Banking customers experience the brand, not the channel, with one organization servicing all channels. There is a single view of the customer across all channels and better use of analytics and channel preferences.

Source: Aite Group

While transforming the financial institution to deliver the type of experience customers expect can be a lengthy and costly endeavor, successfully doing so promises to be a win-win scenario for both financial institutions and their customers. Customer-centricity is the catalyst of the digital transformation journey. In the long term, this transformation will create opportunities for financial institutions to better serve and deepen relationships with customers while also operating more efficiently and effectively (Figure 5).

Figure 5: Customer-Centricity as the Catalyst to the Digital Transformation Journey



Source: Aite Group

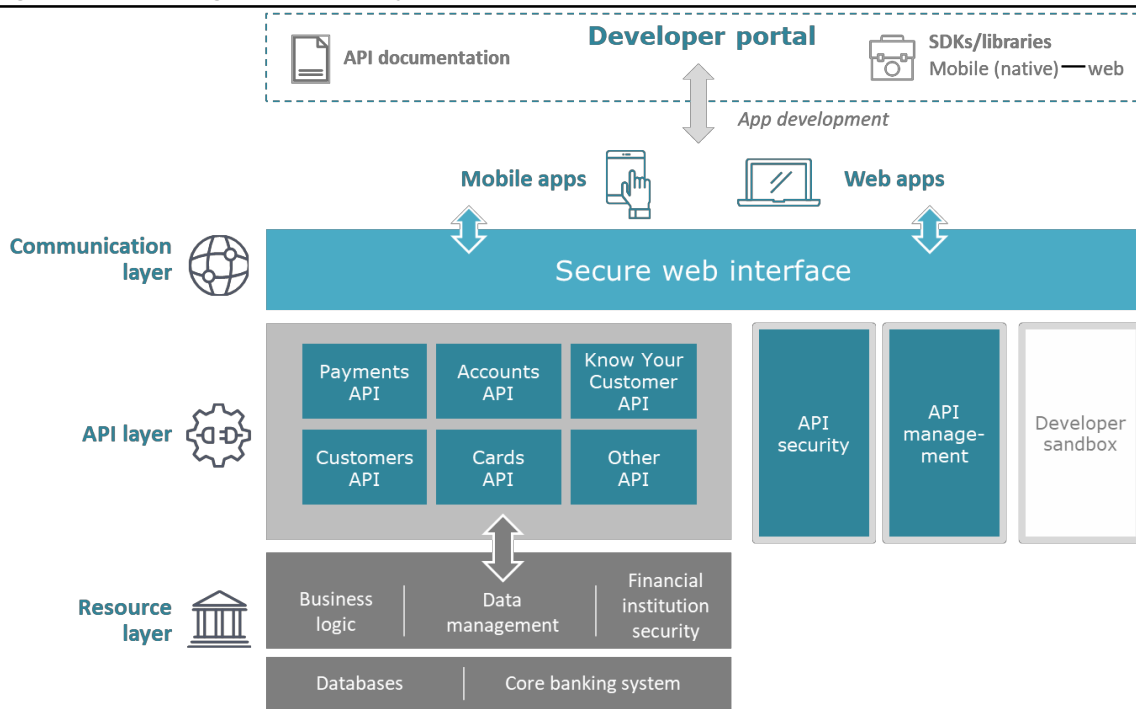
CREATING A UNIFIED API ECOSYSTEM

An API strategy is viewed as table stakes for future success. The idea of APIs is not new within the banking and payments industries. They have been used to connect with vendors for some time, and in many instances, they are a key tool for internal infrastructure orchestration between disparate platforms and services.

Financial institutions are looking for new ways to leverage increasingly standardized APIs to deliver and share information more directly within their own organizations, with partners, and even with customers. Other drivers for financial institutions to create an API strategy include the ability to build once and use many times, as well as the belief that it will lead to greater operational efficiency across the organization (i.e., common taxonomy, common infrastructure, common security, reusability).

Financial institutions also see APIs and software development kits (SDKs) as a way to provide a better user experience for their customers because the technology enables financial institutions to more easily deliver information to their customers and the external systems those customers use. Many institutions envision having a central location that customers and developers can easily access and that houses all of their APIs. For those that do not yet have a unified and centralized ecosystem for API-driven services, this is likely to occur in the future, due to broader market demands (Figure 6).

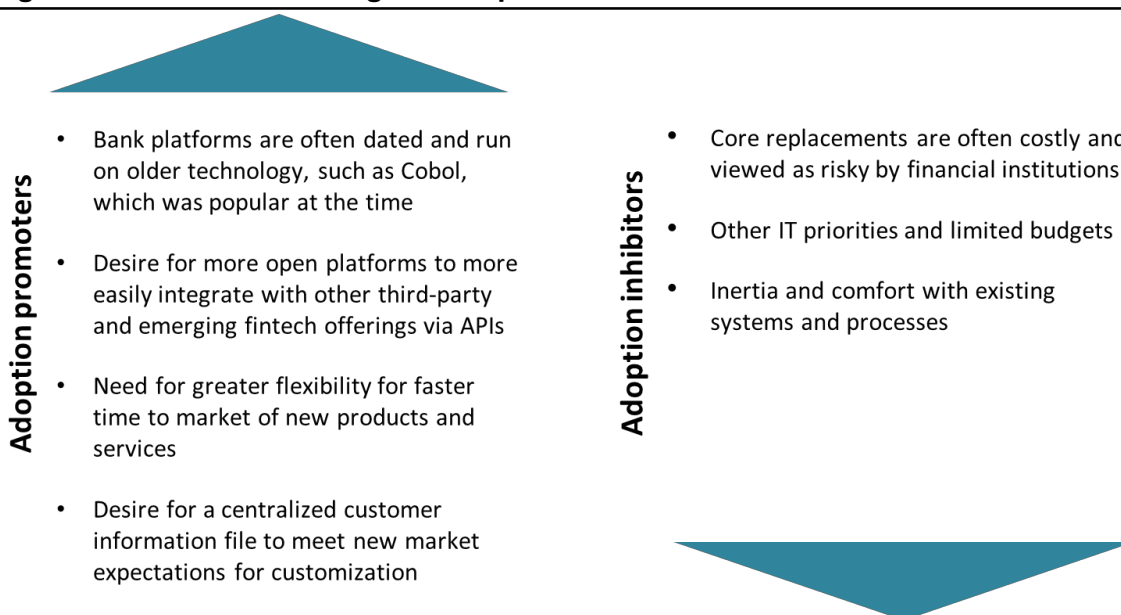
Figure 6: Creating an API Ecosystem



Source: Aite Group

KEY DRIVERS AND CHALLENGES OF REPLACEMENT

The market and customer needs are changing at a faster rate than ever before, leaving most banks with little choice but to replace their antiquated core systems. New systems provide real-time capabilities and centralized customer information files, and open architectures require financial institutions to be able to more easily integrate with and leverage the new capabilities offered by third-party providers. Figure 7 identifies the factors that are contributing to replacement as well as those that pose challenges for vendors attempting to penetrate additional prospects.

Figure 7: Factors for and Against Replacement

Source: Aite Group

Drivers for replacement are as follows:

- **Outdated systems at most banks that don't meet new market expectations:** It is not unusual for a financial institution to be running a core banking system put in place 20 to 30 years ago. Such systems not only look dated but also run on outdated technology and programming languages, such as Cobol, which make them expensive to maintain. Additionally, finding programmers familiar with Cobol is becoming increasingly difficult.
- **Desire for open platforms:** Banks are increasingly finding that they can't go at it alone. A growing number of banks are not only leveraging multiple products from traditional technology providers but are also considering partnerships with newer fintech providers. Newer, more open platforms enable easier integration with these third-party solutions and capabilities through the use of APIs.
- **Need for greater flexibility and faster time to market of new products and services:** Customer needs are evolving at a growing rate, and financial institution systems need to be able to keep up. New core systems offer greater flexibility to ease creation and rollout of new capabilities and products. In today's competitive banking market, speed and agility offer a huge competitive advantage.
- **Desire for a centralized customer information file:** As banking products become commoditized, customer experience has become a major point of differentiation for many financial institutions. Further, as consumers leverage technology more and more in their personal lives, they are increasingly expecting the type of personalized experience they get from online retailers to also be offered by their banks and credit

unions. That level of customization and ability to easily analyze an end user's specific needs requires a centralized customer information file, something older systems do not deliver.

Challenges slowing down replacement for some banks follow:

- **Cost and risk:** A core system replacement is likely to be the most expensive IT initiative a financial institution will ever take on. That factor, coupled with the importance of the system and its impact on a bank's ability to run and perform daily banking transactions, causes many banks to proceed with caution when considering a system replacement.
- **Other IT priorities and limited budgets:** Most banks, especially smaller ones, have limited IT budgets, forcing them to prioritize and often table initiatives they would like to move forward with.
- **Inertia and comfort with existing systems and processes:** Change is never easy and requires strong communication from the top down to get all affected parties on board. Some banks embrace such communication, while others do not.

KEY PURCHASING FACTORS

While there are many reasons to purchase a new core banking system, the following factors represent buyers' key considerations when evaluating solutions:

- Real-time capabilities
- Modern and flexible API-enabled architecture
- Scalability and stability
- Componentization, not customization—the ability to customize without touching code, which prevents institutions from taking new releases easily; banks want to be protected from themselves
- A well-thought-out and forward-thinking product roadmap that addresses expected market needs and aligns with the financial institution's strategy
- A vendor culture that aligns with that of the bank or credit union

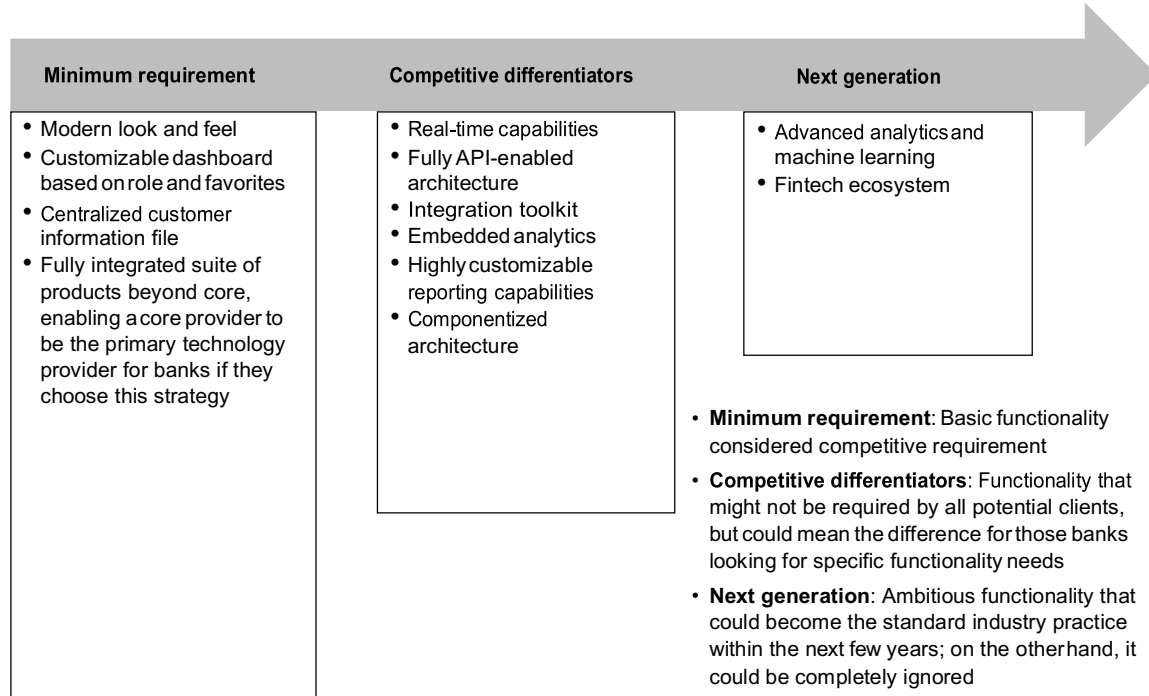
KEY FUNCTIONALITY

When it comes to key functionality, a set of minimum requirements must be met to sustain the basic needs of the clients. These minimum requirements are typically the same across regions and are found in nearly all vendors in the market.

In order to increase overall adoption and capture additional market share, vendors are focused on developing competitive differentiators. Competitive differentiators might not be attractive to all potential clients but are driving key client adoption and could mean the difference for those

banks or credit unions looking for specific functionality needs. Features noted as next-generation functionalities could become the standard industry practice over the next few years; on the other hand, they could be completely ignored. Given the limited resources within each vendor, it is imperative that appropriate investments are made across the needs of past, current, and future clients (Figure 8).

Figure 8: Key Functionality Trends



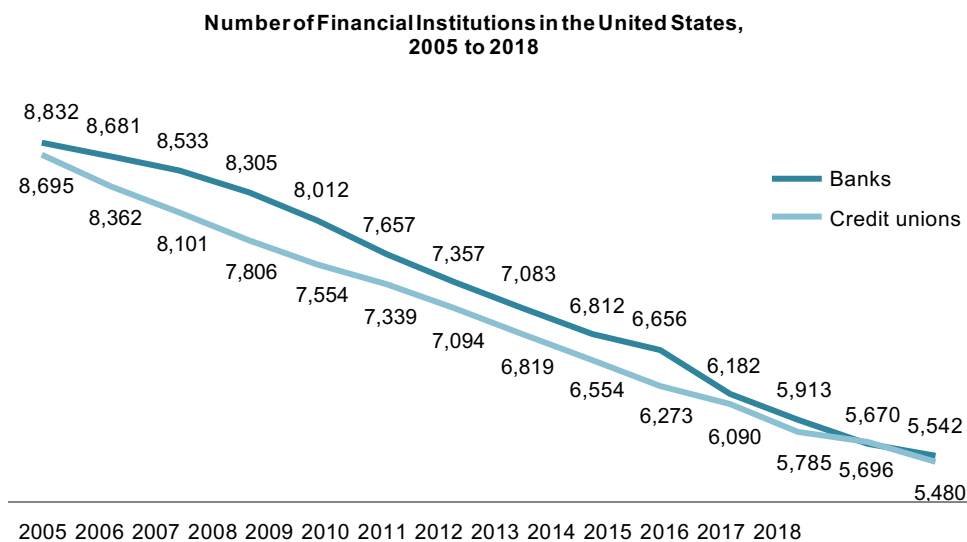
Source: Aite Group

KEY STATISTICS AND PROJECTED IT SPENDING

This section provides information and analysis on key market statistics as well as projected IT spending related to the vendor market.

While the number of bank failures has slowed in recent months, the number of U.S. financial institutions has declined from 17,527 institutions in 2005 to 11,022 in 2018, largely as a result of mergers and acquisitions, the costly burden of regulation on smaller financial institutions, and a challenging economic environment (Figure 9).

Figure 9: Number of Financial Institutions in the United States

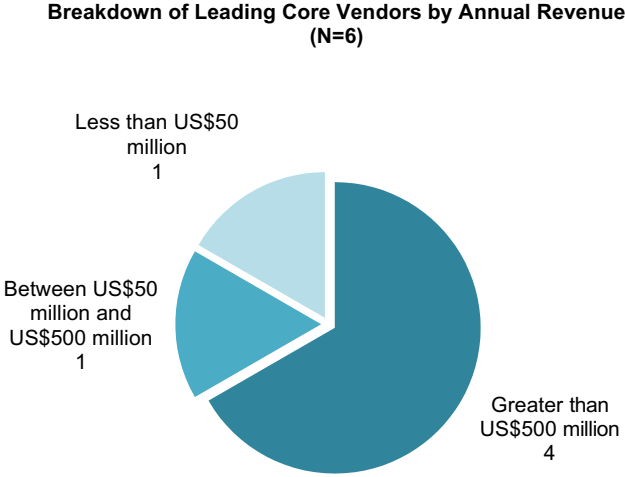


Source: FDIC, NCUA, Aite Group

ANNUAL REVENUE ESTIMATES ANALYSIS

The U.S. core banking vendor landscape is primarily composed of established players with strong revenue streams and financial viability. They are the primary technology providers for most of their bank clients, thereby requiring them to have not only a feature-rich core offering but also a full portfolio of other integrated products and services. Most of these vendors adopt a best-of-suite strategy. Though several non-U.S.-based core providers and a handful of emerging players are trying to enter this space, it is an industry with high barriers to entry, given banks' focus on vendor experience and a proven track record. Among the six leading vendors fully profiled in this report, four generate greater than US\$500 million in annual revenue (Figure 10).

Figure 10: Annual Revenue Estimates Breakdown



Source: Vendors

CLIENT BREAKDOWN BY TYPE

Most of the technology providers profiled in this report target their core banking systems at all sizes of banks; however, their levels of success within each asset segment often vary. Several vendors have multiple core offerings targeted at financial institution segments. Table C provides a high-level snapshot of each vendor’s success selling core systems to each of the key financial institution segments.

Table C: Vendor Core Client Base by Financial Institution Type

	Large banks (greater than US\$30 billion in assets)	Midsized banks (US\$10 billion to US\$30 billion in assets)	Small banks (US\$5 billion to US\$10 billion in assets)	Community banks (less than US\$5 billion in assets)	Credit unions
CSI			■	■	
Finastra		■		■	■
FIS	■	■	■	■	■
Fiserv	■	■	■	■	■
Jack Henry	■	■	■	■	■
VSoft				■	■

Source: Vendors

NUMBER OF NEW CONTRACTS SIGNED

U.S. banks are facing growing pressure to replace their core systems. Thus, many vendors have seen a consistent number of new contracts signed, as well as a number of requests for proposals received over the last few years among their primary core systems. While the total number of contracts signed has slightly increased or decreased since 2013, it has remained close to 200 during each year (with the exception of 2016, when it had a slightly larger decline). 2018 appears to be no different, with the estimated number of new contracts signed at 209.

Figure 11 shows responses from the leading U.S. vendors when asked for the number of new U.S. bank and credit union clients at each point in time.

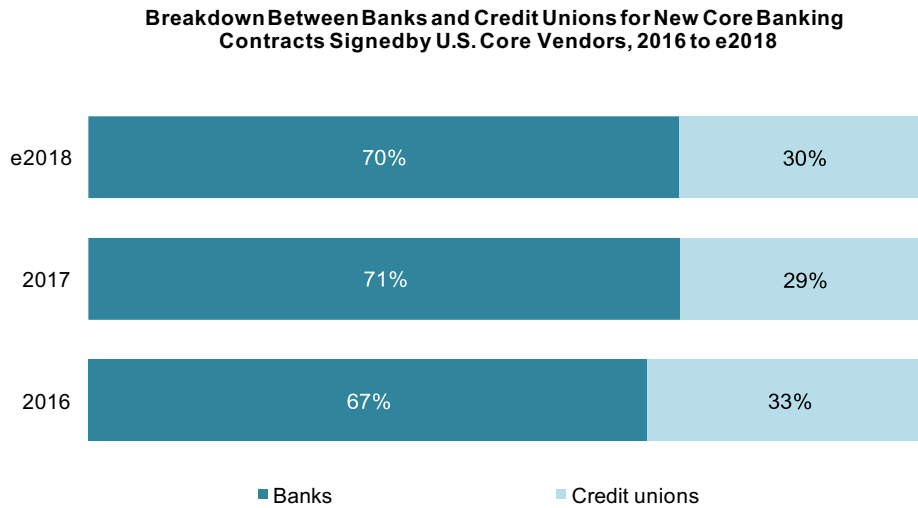
Figure 11: Average New Client Wins



Source: Vendors

Banks continue to be responsible for the majority of core system replacements and signed approximately 70% of the new core contracts with leading vendors in 2018 (Figure 12). Credit unions are also active in the replacement market, especially those looking for more business-specific capabilities, but they demonstrate a lower tendency to replace their core solutions and providers than banks. This is largely due to fewer solution options and satisfaction with existing platforms.

Figure 12: Breakdown of Recent U.S. Core Replacements by Institution Type



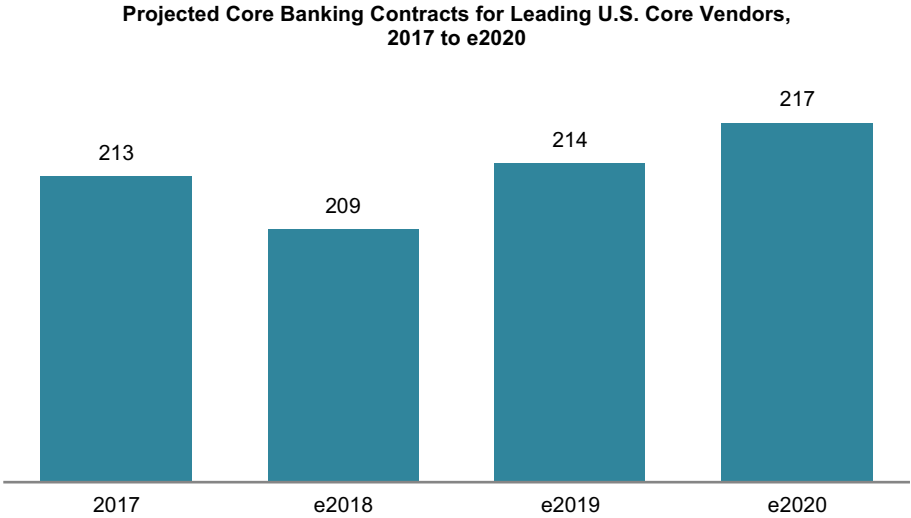
Source: Aite Group

FORECAST MOMENTUM AND IT SPEND

The trend to replace core systems is expected to continue in a steady flow from prior years, increasing slightly during 2019 and 2020. Among the leading core technology providers profiled in this report, many reported to Aite Group analysts that they are seeing an increased number of U.S. banks in the market for a new core solution compared with two to three years ago. While the need to replace exists, the cautious pace financial institutions exercise for core replacements is likely to remain.

Based on their feedback and our own knowledge of the market, Aite Group forecasts 640 U.S.-based banks and credit unions will sign a new core banking system vendor contract between 2018 and 2020 (Figure 13).

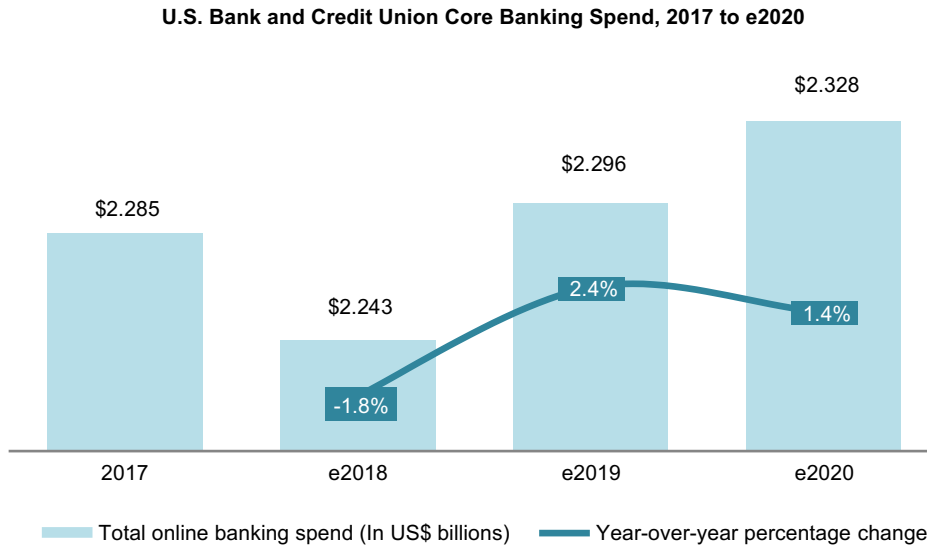
Figure 13: Forecast Number of New Contracts Signed



Source: Aite Group estimates

Given the slightly lower number of core contracts signed during 2018, Aite Group estimates that the 11,022 banks and credit unions in the United States spent roughly US\$2.24 billion on new core banking solutions in 2018, a decrease of 1.8% from 2017. This only includes new core contract hardware and software costs and does not include investments in existing systems. It also assumes only standard functionality is included and excludes costs over and above the base license fees, so substantial modifications and/or customizations are not included. It does not include any ancillary services or optional systems, such as digital banking channels, payments systems, remote deposit capture, or banking security initiatives, as these typically belong to other product lines. The total core banking spend among U.S.-based banks and credit unions is expected to reach over US\$2.3 billion by 2020, with higher rates of growth in 2019 and 2020 (2.4% and 1.4%, respectively; Figure 14).

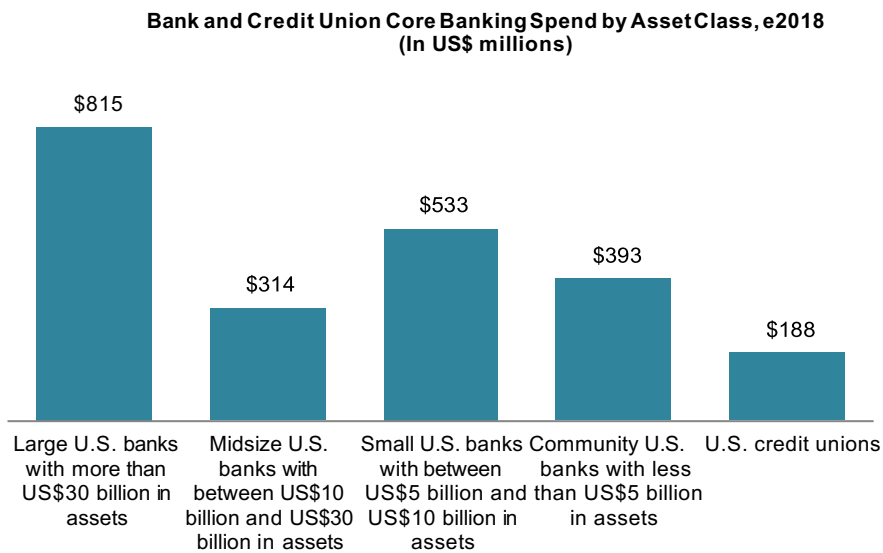
Figure 14: Estimated Spend on New Core Banking Systems by U.S. Financial Institutions



Source: Aite Group estimates

The 100 largest banks in the United States (ranked by asset size) will spend more than US\$815 million on core banking in 2018. U.S. banks with US\$10 billion to US\$30 billion in assets won't spend nearly as much, investing just US\$314 million in core banking. In turn, the smaller banks with less than US\$10 billion in assets will spend a total of US\$926 million, with credit unions spending the remaining at US\$188 million (Figure 15).

Figure 15: Bank and Credit Union Core Banking Spend by Asset Class



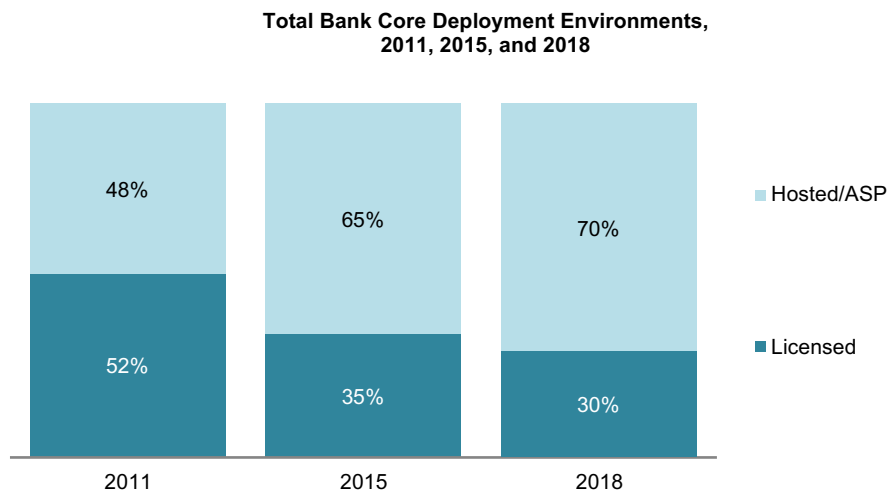
Source: Aite Group

DEPLOYMENT OPTIONS ANALYSIS

Finally, when deploying those solutions, the majority of banks and credit unions will select a hosted/on-demand option. An overall market shift in favor of hosted/on-demand deployments has been observed for the last few years and is expected to continue. In fact, with the exception of the 20 largest U.S. banks, most financial institutions prefer such a deployment over licensing the solution and running it in-house. Hosted deployments often lead to faster time to market, lower capital expenditures, and the ability to remain on new releases.

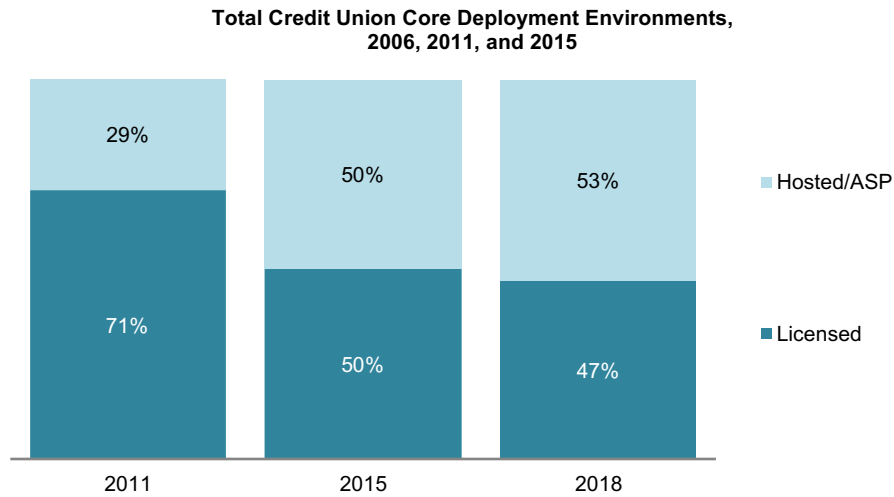
Approximately 70% of the banks running one of the major core solutions profiled in this report are running it in a hosted/on-demand environment, compared to 48% in 2011 (Figure 16). A similar trend is seen among credit unions, though the shift to hosted environments is slightly slower given the lower volume of new deployments. Approximately 53% of credit unions running one of the major core solutions profiled in this report are running it in a hosted environment compared to just 29% in 2011 (Figure 17). Given the strong preference for hosted deployments in the U.S. market, all of the vendors profiled in this report provide this deployment option, with most offering both hosted and licensed environments.

Figure 16: Breakdown of Vendor Bank Core Client Portfolios by Deployment Environment



Source: Vendors

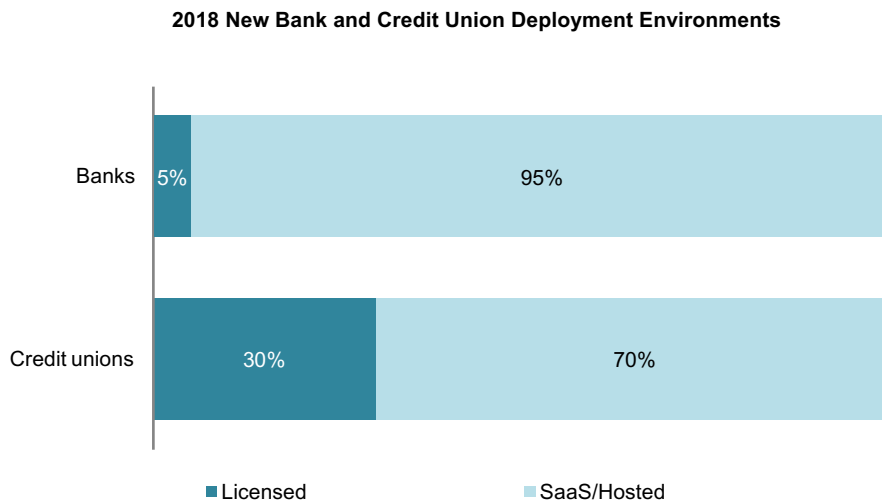
Figure 17: Breakdown of Vendor Credit Union Core Client Portfolios by Deployment Environment



Source: Vendors

In 2018, at least 95% of the new core system contracts signed by banks have been for a hosted deployment, while at least 70% of those signed by credit union have (Figure 18).

Figure 18: Breakdown of 2018 Deployments



Source: Aite Group estimates

VENDOR COMPARISONS

This section presents comparative data and profiles for the individual vendors that participated in the AIM evaluation. This is by no means an exhaustive list of vendors, and firms looking to undergo a vendor selection process should conduct initial due diligence prior to assembling a list of vendors appropriate for their unique needs. Table D presents basic vendor information for the participating solutions.

Table D: Basic Vendor Information

Company name	Headquarters	Year founded	Primary U.S. core banking target market
CSI	Paducah, Kentucky	1965	Community to regional banks
Finastra	London	2017	Community banks and credit unions
FIS	Jacksonville, Florida	1968	Community to regional to large banks and credit unions
Fiserv	Brookfield, Wisconsin	1984	Community to regional to large banks and credit unions
Jack Henry	Monett, Missouri	1976	Community to regional to large banks and credit unions
VSoft	Atlanta	1996	Community banks and credit unions

Source: Vendors

Table E presents high-level product information. New version releases are becoming more frequent as a growing number of vendors adopt agile development methodologies.

Table E: Basic Product Information

Firm	Primary core system product name(s)	Launch date	Current version	Frequency of new version releases
CSI	NuPoint	2008	N/a	Twice per year
	Meridian	2008	18.05	Three times per year
Finastra	Fusion Phoenix	1993	2017	Once per year
FIS	IBS	1980	N/a	Four times per year
	Horizon	1989	2018.06	Twice per year
	Profile	1980	7.6.1	Twice per year
	Systematics	1977	218-181	Twice per year
Fiserv	DNA	1995	4.4.1	Three times per year
	Premier	1978	9.2	Twice per year

Firm	Primary core system product name(s)	Launch date	Current version	Frequency of new version releases
	Precision	1991	18.0	Twice per year
	Signature	1983	18.1	Twice per year
	Clartouch	1982	2018 R2	Twice per year
Jack Henry	SilverLake System	1988	July 2018	Twice per year
	Episys	1985	2018.06	Twice per year
	Core Director	1999	Release 2018	Once per year
	CIF 20/20	1990	2018	Twice per year
VSoft	Wings (replacing CoreSoft)	2010	5	Twice per year

Source: Vendors

Table F presents high-level technical information associated with each product. For more detailed information, banks should consult individual vendors.

Table F: Product Technical Information

Vendor	Product	Core architecture	Programming language(s) used
CSI	NuPoint	Private cloud-based offering via SaaS architecture	Visual Basic .NET, C#, COBOL, Java, J2EE, XGEN (4th Generation Language), ALGOL
	Meridian	Service-oriented architecture (SOA)	Visual Basic .NET, COBOL, ASP.NET, Java, C#
Finastra	Fusion Phoenix	Open architecture using the Microsoft .NET framework	Visual Basic.NET, Microsoft SQL, Extensible Markup Language (XML), C#
FIS	IBS	Combination of IBS and DB2 databases accessible via a defined services layer to open systems, browser-based front-end application and user interfaces	Java, COBOL, C++
	Horizon	Open architecture based on the IBM iSeries platform	RPG, Java, JavaScript over a DB2 Universal Data Base
	Profile	Client server	C+, Java, M
	Systematics	IBM System z and Unix/Linux composed of IBM z/OS, Linux/Unix, Oracle/SQL Server, and DB2 LUW	COBOL

Vendor	Product	Core architecture	Programming language(s) used
Fiserv	DNA	Oracle database integrated to .NET N-tier user interface, and HTML5 with REST-based services	.NET, HTML5, REST, Angular 5
	Premier	N-tiered systems using browser-based user interfaces and rich-client applications	COBOL, .NET, Progress Open Edge
	Precision	N-tiered systems, using a rich client desktop application	Progress Open Edge, C#, .NET
	Signature	N-tiered systems using browser-based user interfaces and smart-client	RPG, .NET
	Claretouch	N-tiered systems using a smart-client portal and applications	Cobol, Algol and .NET
Jack Henry	SilverLake System	IBM Power System with i operating system	RPG Free Form and RPG IV
	Episys	IBM AIX, client/server	Java, C, PL/1
	Core Director	Windows server-based	C# and Synergy D/E
	CIF 20/20	IBM Power System with i operating system	RPG Free Form and RPG IV
VSoft	Wings (replacing CoreSoft)	Web-based application	Java, JavaScript, and HTML

Source: Vendors

Table G presents vendors' standard client service offerings. Most provide a breadth of offerings.

Table G: Client Service Support

Vendor	Service-level agreement	Online issue tracking	Single point of contact	24/7 support	Online training	User working groups/ client forum
CSI	■	■	■	■	■	■
Finastra	■	■	■	■	■	■
FIS	■	■	■	■	■	■
Fiserv	■	■	■	■	■	■
Jack Henry	■	■	■	■	■	■
VSoft	■	■	■	■	□	□

Source: Vendors

Key: ■ = Yes; □ = No

Table H presents each vendor's ability to support various deployment options. As mentioned previously, all of the vendors offer a hosted on-demand option within at least one of their core offerings given the observable strong bank and credit union preference for that environment. Some top 20 banks as well as a few regional players continue to prefer a licensed deployment, so many of the vendors also offer that option.

Table H: Product Deployment Options

Vendor	Product	Licensed/on-premises	Hosted/on-demand
CSI	NuPoint	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Meridian	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Finastra	Fusion Phoenix	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
FIS	IBS	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Horizon	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Profile	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Systematics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Fiserv	DNA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Premier	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Precision	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Signature	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Clartouch	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Jack Henry	SilverLake System	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Episys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Core Director	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	CIF 20/20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
VSoft	Wings (replacing CoreSoft)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Source: Vendors

Key: = Yes; = No

Most of the core solutions available in the market are either smart-client or browser-based (Table I).

Table I: Front-End Technology Support

Vendor	Product	Thick client	Smart client	Browser-based
CSI	NuPoint		■	
	Meridian		■	
Finastra	Fusion Phoenix		■	
FIS	IBS			■
	Horizon		■	
	Profile			■
	Systematics			■
Fiserv	DNA		■	■
	Premier			■
	Precision			■
	Signature			■
	Clartouch		■	
Jack Henry	SilverLake System	■	■	■
	Episys	■	■	■
	Core Director	■	■	■
	CIF 20/20	■		■
VSoft	Wings (replacing CoreSoft)	■	■	■

Source: Vendors

As stated previously, most financial institutions beyond the largest ones often look to their core providers to be their primary technology partner. As such, breadth of product portfolio is critical. Table J, Table K, Table L, Table M, and Table N compare the breadth of each of the leading vendor’s product portfolios in critical areas.

Table J: Channel Solutions

	CSI	Finastra	FIS	Fiserv	Jack Henry	VSoft
Digital corporate cash management	■	▣	■	■	■	■
Digital small-business banking	■	▣	■	■	■	■

	CSI	Finastra	FIS	Fiserv	Jack Henry	VSoft
Digital consumer banking	■	▣	■	■	■	■
Portal solution	■	▣	■	■	□	■
Digital consumer onboarding	■	■	■	■	▣	■
Digital treasury onboarding		■	■	■	■	■
Tier-1 call center		■	■	■	■	■
Branch platform and teller application	■	■	■	■	■	■
Interactive Voice Response (IVR)	▣	■	■	■	■	▣
Chatbots		▣	▣	▣	▣	■

Source: Vendors

Key: ■ = Homegrown; □ = Acquired through acquisition, ▣ = Available through third-party providers

Table K: Payment Solutions

	CSI	Finastra	FIS	Fiserv	Jack Henry	VSoft
Debit card processing	□	▣	■	■	▣	▣
ATM driving and processing	□	▣	■	■	▣	▣
EFT switching	□	▣	■	■	▣	▣
Credit card processing	▣	▣	■	■	▣	▣
Open-loop prepaid card processing	▣	▣	■		□	▣
Closed-loop prepaid card processing		▣	■		□	▣
Loyalty and reward program management	▣	▣	■	■	▣	▣
Merchant acquiring and processing		▣	■	■		■
Bill payment	▣	■	■	■	□	▣
Person-to-person payments	■	■	▣	■	□	■

	CSI	Finastra	FIS	Fiserv	Jack Henry	VSoft
Payment hubs		■	□	■	▣	■
Real-time payment solution		▣	□	■	▣	■

Source: Vendors

Key: ■ = Homegrown; □ = Acquired through acquisition, ▣ = Available through third-party providers

Table L: Business Intelligence, and Document and Check Processing

	CSI	Finastra	FIS	Fiserv	Jack Henry	VSoft
Predictive analytics for cross-sell	▣	■	▣	■	□	▣
CRM	■	■	▣	■	□	▣
Chief executive officer (CEO)/board dashboard	■	■	▣	■	■	■
Account analysis	■	■	■	■	■	■
Document imaging	□	▣	□	■	□	■
Check imaging	■	▣	□	■	■	■
Item processing	■	▣	□	■	■	■
Remote deposit capture	■	■	□	■	□	■
Mobile capture	▣	■	□	■	□	■
Branch capture	■	■	□	■	■	■
Integrated receivables		■	□	■	□	▣

Source: Vendors

Key: ■ = Homegrown; □ = Acquired through acquisition, ▣ = Available through third-party providers

Table M: Lending Solution

	CSI	Finastra	FIS	Fiserv	Jack Henry	VSoft
Consumer loan origination	▣	■	□	■	■	■
Small-business loan origination	▣	■	▣	▣	■	■
Commercial loan origination	▣	■	□	▣	■	■
Consumer mortgage processing	▣	■	■	■	■	▣

	CSI	Finastra	FIS	Fiserv	Jack Henry	VSoft
Consumer loan servicing/collections	■	■	■	■	■	▣
Commercial loan portfolio management	▣	■	■	■	■	■
Loan modification		■	■	■	■	■

Source: Vendors

Key: ■ = Homegrown; □ = Acquired through acquisition, ▣ = Available through third-party providers

Table N: Fraud/Compliance Solutions

	CSI	Finastra	FIS	Fiserv	Jack Henry	VSoft
ID verification	■	▣	■	■	▣	▣
Biometrics authentication		▣	□	■	▣	■
Predictive analytics for fraud prevention	▣	▣	■	■	▣	▣
Deposit fraud	■	▣	■	■	■	■
Card fraud	□	▣	■	■	▣	▣
Positive pay	■	■	■	■	■	■
Online fraud mitigation	■	▣	▣	■	■	■
Enterprise fraud management		▣	■	■	□	■
Anti-money laundering	■	▣	■	■	■	▣

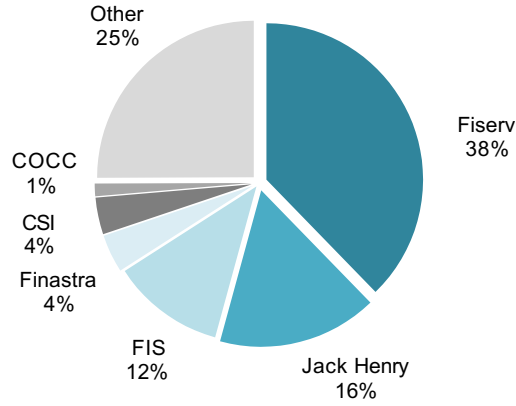
Source: Vendors

Key: ■ = Homegrown; □ = Acquired through acquisition, ▣ = Available through third-party providers

Fiserv remains the dominant leader in the U.S. core banking market, with more than 4,000 (38%) of U.S.-based financial institutions live with one of its core offerings. It has been able to maintain this share and even grow it slightly despite a shrinking potential customer base mainly due to mergers and acquisitions. In fact, most of the leading players have seen little change in their market share in the last few years (Figure 19). For a more detailed analysis of vendor clients, please refer to the Vendor Profiles section.

Figure 19: Vendor Market Share in the United States

Estimated Vendor Market Share Among U.S. Financial Institutions
(Total U.S. financial institutions at mid-2018=11,022)

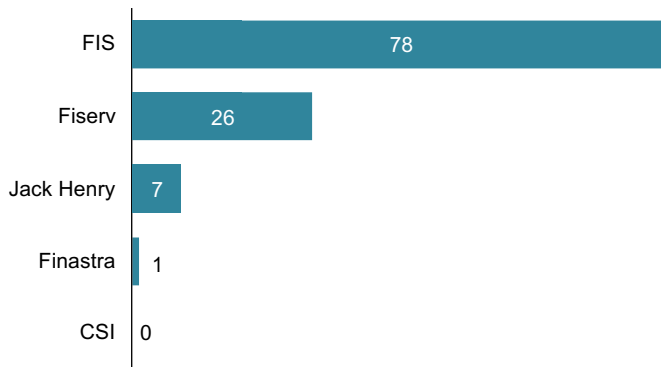


Source: Aite Group

While Fiserv enjoys the largest share of the market, FIS is the clear leader in the United States among large (greater than US\$30 billion in assets) and midsize (between US\$10 billion and US\$30 billion in assets) banks (Figure 20).

Figure 20: Total Number of Large and Midsize Bank Clients

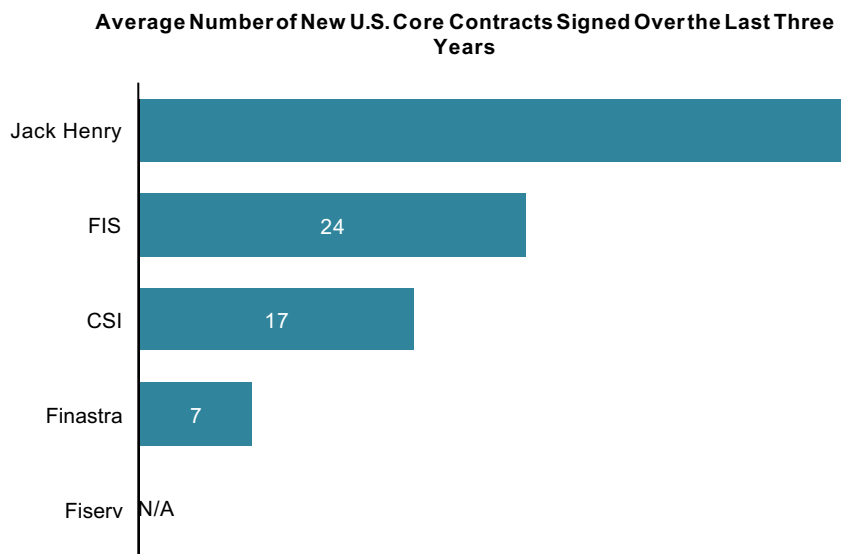
Number of Large (greater than US\$30 billion assets) and Midsize (between US\$10 billion and US\$30 billion assets) U.S.-Based Core Clients



Source: Vendors

Finally, Jack Henry is showing strong growth within its client base and has averaged approximately 44 new core clients during each of the last three years (Figure 21).

Figure 21: Average New Core Contracts Signed



Source: Vendors

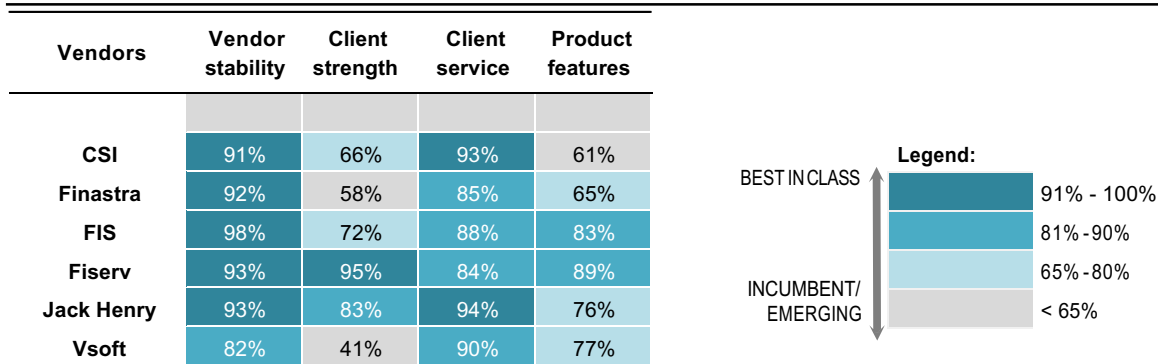
AIM EVALUATION

This section will break down the individual AIM components, drawing out the vendors that are strong in each area and how they are differentiated in the market.

THE AIM COMPONENTS ANALYSIS

Figure 22 provides an overview of how each vendor scored in the various areas of importance. Each vendor is rated, in part, based on its own data provided when responding to the RFI distributed by Aite Group as well as on product demos and follow-up discussions as part of the AIM process. Ratings are also driven by the examined vendors’ reference customers to support a multidimensional rating.

Figure 22: AIM Components Analysis by Heat Map



Source: Vendors, Aite Group

VENDOR STABILITY

The core banking vendor landscape is a stable one, composed of established players with strong financials, growth rates, and reinvestment in research and development. Not surprisingly, all vendors profiled in this report score well in this area. FIS edged out slightly ahead of its competitors due in part to its strong financials, its continued revenue growth, and the strength of its management team.

CLIENT STRENGTH

The core banking space is extremely competitive. Further, given the expenses and perceived risk associated with core system replacement, sales cycles are often extremely long. Fiserv scores highest in this category as a result of the overall size of its client base, its breadth across all financial institution asset segments, and its ability to consistently sign on a high number of new core clients relative to its competitors. The vendor also scores high for its market reputation.

CLIENT SERVICE

The scoring of this category largely depends on vendor-provided information on service-level agreements and provided support as well as on client feedback about each vendor’s ability to

deliver on promises and provide high levels of service as well as a positive cost value. Those scoring highest in this category also have strong customer advisory boards. Jack Henry came out on top in this category as a result of its strong client base, high level of customer involvement from its management team, focus on service, and clients who feel their requests are being addressed.

PRODUCT FEATURES

While this category considers feedback from clients regarding the robustness and breadth of the functionality within each of the vendor's core banking offerings, it also measures important factors, such as ease of upgrades and support for customizations. Fiserv led the field in this category based on strength in those areas.

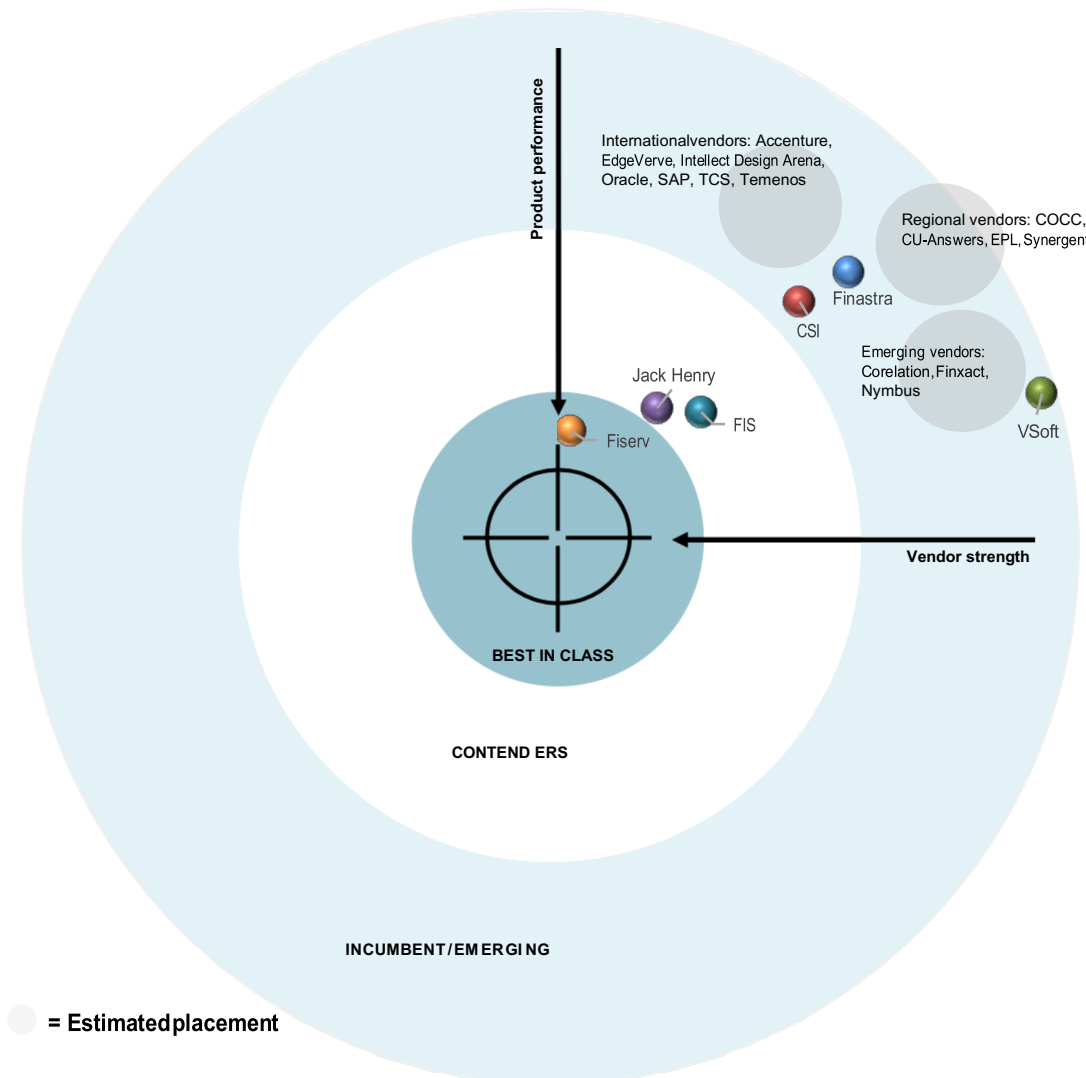
THE AIM RECOGNITION

To recap, the final results of the AIM recognition are driven by three major factors:

- Vendor-provided information based on Aite Group's detailed AIM RFI document
- Feedback from participating vendors' client references and/or feedback sourced independently by Aite Group
- Analysis based on market knowledge and product demos provided by participating vendors

Figure 23 represents the final AIM evaluation, highlighting the leading vendors in the market.

Figure 23: U.S. Core Banking AIM



Source: Vendors, Aite Group

BEST-IN-CLASS VENDOR: FISERV

This award is in recognition of a vendor’s overall experience in the core banking market, including total client base, overall client growth, and recent successes. Fiserv leads the pack from a total-number-of-deployments standpoint. There are more than 4,000 financial institutions live on its various core banking offerings. Fiserv has the ability to meet many (or most) of a financial institution’s technology and service needs. This is especially important to smaller institutions that look to their core providers to be their primary technology partners. Premier continues to represent the largest number of clients for Fiserv, and DNA continues to see great momentum in the credit union space.

LEADERS OF THE CONTENDERS: JACK HENRY AND FIS

Jack Henry and FIS both offer extensive core processing capabilities as well as a full suite of ancillary products, such as end-to-end payments, risk management, and a full range of retail and corporate digital banking offerings.

INCUMBENT/EMERGING

This field is becoming increasingly crowded with competition from strong regional, international, and emerging vendors. Some of these players are growing their customer base rapidly and raising the customer experience bar.

ADDITIONAL AWARDS

BEST USER EXPERIENCE: CSI

CSI's newly redesigned core banking platform stands out from its competition as a result of its modern look and feel, graphics, and innovative way of displaying banking relationships.

MOST ADVANCED API STRATEGY: FIS

FIS' Code Connect offers the most advanced API platform and environment of the leading U.S. core providers. It is not only being used internally by FIS but is also being leveraged by third-party providers. It provides a hub for FIS clients for API development and testing, as well as comprehensive guides, developers' documentation, frequently asked questions, and testing services.

VENDOR PROFILES

This section provides profiles of vendors that have participated in this AIM evaluation: CSI, Finastra, FIS, Fiserv, Jack Henry, and VSoft. The key strengths and challenges of each vendor are presented in Table O, Table P, Table Q, Table R, Table S, and Table T.

CSI

Paducah, Kentucky-based CSI was founded in 1965 and has approximately 1,100 employees. It offers a wide variety of technology services to U.S. financial institutions of many sizes. In addition to core processing, it offers solutions to address banking needs in regulatory compliance, document services, managed services, payments processing, digital banking, and cloud-based hosting and security.

AITEGROUP'S TAKE

CSI offers the market a broad portfolio of products and services that tightly integrate with its two core solutions targeted at banks: NuPoint and Meridian. Over the years, CSI has made substantial investments in its infrastructure that serve as the foundation for hosting and deploying secure private cloud services as well as transforming its core product offerings into a service-oriented architecture. Customers can subscribe to more than 50 cloud services for total integration with loans, deposits, time deposits, financial management, card services, ACH, payments processing, imaging, board reporting, digital banking, risk management, and compliance, as well as a long list of complementary products and services and approved third-party vendors.

In addition to its SaaS cloud solutions, CSI offers an Infrastructure-as-a-Service model for CSI affiliate companies and best-of-breed business partners for faster integration. More recently, the vendor has made significant enhancements to the user experience of both of its core banking platforms. Tight integration across its product set is a key driver for many banks selecting this vendor. Because of its SaaS offering, CSI does not maintain multiple versions of the product. This strategy vastly improves support, maintenance, and compliance of the core banking products.

The regular upgrades to the two platforms led to major changes to the middle tier and front end of the solution, implementing an SOA, and consistent development has continued since the launch of the products.

BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters:** Paducah, KY
- **Launched:** 1965
- **Number of employees:** 1,100
- **Ownership and annual revenue:** CSI is publicly traded on the Premier QX tier of the OTC Markets Group Inc. under the symbol CSVI. CSI's revenue for fiscal year 2018—ending February 28, 2018—was US\$249.6 million and rose 6.2% compared to

US\$234.9 million for fiscal 2017. Net income for fiscal year 2018 was US\$38.8 million, a 25.6% increase compared to the fiscal 2017 net income of US\$30.9 million.

- **Name of core banking solutions:** CSI offers two core solutions to the market—NuPoint and Meridian.
- **Target customer base:** Both core banking solutions are targeted solely at banks:
 - NuPoint core solution is primarily targeted at full-service community or commercial banks that desire the flexibility of a cloud-based, parameterized, flexible banking platform. It offers numerous integrated solutions and services, with many third-party connectivity options available as well. It is only available in a hosted/service-bureau environment.
 - Meridian core solution is primarily targeted at more traditional community banks. While this solution also offers the flexibility of a parameterized, flexible banking platform, it is designed to offer a one-stop solution to banks desiring a more simplified operating environment and vendor management. It is offered in a hosted or licensed environment.
- **Number of U.S.-based clients:** There are 420 banks live with one of CSI's core banking offerings. The core system client base can be broken down as follows:
 - Large banks (greater than US\$30 billion in assets): Zero
 - Midsize banks (US\$10 billion to US\$30 billion in assets): Zero
 - Small banks (US\$5 billion to US\$10 billion in assets): One
 - Community banks (less than US\$5 billion in assets): 419
 - Credit unions: Zero
- **Number of new core system clients:** CSI averages about 17 new core system client wins per year.
 - 2015: 21
 - 2016: Seven
 - 2017: 22
 - First half of 2018: 10
- **Implementation options:** NuPoint can be deployed in an ASP/on-demand environment only. Meridian can be deployed in either an ASP/on-demand or on-premises/licensed environment. Among its client base, 322 are in an ASP/on-demand environment, while 97 are licensed.
- **The three products and services offered by the company seeing the greatest demand by banks:** Mobile banking app, managed services, and fraud anomaly detection
- **The products and services offered by the company seeing the greatest demand by credit unions:** Not applicable

- **Average number of company products (in addition to core) used by core customers:** CSI's core customers use an average of 65 CSI products.
- **Approximate size (total assets) of largest core banking customer deployed in an ASP/on-demand environment:** US\$7.1 billion
- **Largest number of concurrent users its most scalable core system is supporting for a bank in a live implementation:** 1,125

SOLUTION USABILITY

In 2018, CSI went through an extensive user-interface redesign. The redesign is user-friendly and is described by its clients as easy to navigate. The dashboard page, which is the first touch point after login, brings together the features that banking employees use most often. This page acts as a launching pad that provides access to many features from one place. The tiles on the page are logically organized into main categories: customer engagement, customer experience, business analytics, and loan administration, to name a few.

Dashboards, analytics, strong reporting capabilities, and integration into Microsoft Outlook further enhance the user experience. The solution also includes a series of dashboards that incorporate a great deal of analytics, enabling users to view important metrics, customer interactions, and transactions.

CSI's newly redesigned core banking platform clearly stands out from its competition as a result of its modern look and feel, graphics, and innovative way of displaying banking relationships.

TOP PRODUCT DEVELOPMENT INITIATIVES COMPLETED OVER THE LAST 12 MONTHS

- **NuPoint:** Digital banking platform, integrated campaign management, and omnichannel digital account onboarding
- **Meridian:** Replaced customer relationship system with new system, BSALinks risk rating and exception tracking, and teller capture

TOP PRODUCT DEVELOPMENT INITIATIVES FOR THE NEXT 12 MONTHS

- **NuPoint:** CSI Bridge API marketplace, integrated device platform (ATMs and self-service kiosks), and advanced account analysis
- **Meridian:** NuFund online account opening, additional automation for BSALinks, and Master Data Management Structure for Advanced Reporter

API STRATEGY

In August 2018, CSI introduced CSiBridge, an API platform, to give banks the power to build custom technology integrations. CSiBridge provides a platform that both CSI bank clients and third-party providers can use to securely access data for ancillary solutions. CSI bank clients can take advantage of the open API platform to customize and release new services more quickly through prebuilt APIs into popular banking features.

The platform offers API integrations into a catalog of CSI’s banking infrastructure, such as ABA verification, account analysis, account opening, cards, demand deposits, loans, imaging, savings, and wires. Through this catalog of services, CSI provides ongoing updates into each API, ensuring that all integrations utilize the most recent, secure programming versions. The catalog will expand over time to provide its clients with the ongoing ability to create customizations.

CLIENT FEEDBACK

One of CSI’s key strengths is the level of service and support it provides to its bank clients. This vendor consistently gets high scores from clients for its client service and support, its reputation, and the accessibility of its management team. High levels of satisfaction have led to high client retention rates for CSI. Banks often select CSI’s core banking solutions because of its common culture centered around integrity and openness, team approach to relationship management, and tightly integrated products. The vendor also gets strong points on user experience and for becoming increasingly digitally focused.

Clients mention they would like to see enhanced functionality for the cash management solution, especially in the area of risk management reporting. Another area in which clients would like to see the vendor improve overall is in the speed of development of new products and services.

Table O: Key Strengths and Challenges—CSI

Strengths	Challenges
Long-standing and dedicated focus on the bank space	Lack of proven track record among large financial institutions
Usability and user experience of the new release	Overall product portfolio gaps, including payment processing beyond debit cards, which can be addressed via partnerships
Transparent management team and high retention rates	

Source: Aite Group

F INASTRA

Finastra was formed in 2017 by the combination of Misys and D+H. It offers the market innovative, next-generation technology on its open Fusion software architecture and cloud ecosystem. It offers a full suite of pre-integrated solutions to over 9,000 customers across the globe with products spanning retail banking, transaction banking, lending, and treasury and capital markets. Finastra serves 48 of the 50 largest banks globally and generates approximately US\$2.1 billion in annual revenue.

U.S. banks and credit unions run one of four distinct core banking solutions offered by Finastra:

- Fusion Phoenix is its flagship solution for the U.S. market and is the only one actively being sold in the States.

- Fusion UltraData is still sold and is seeing the greatest interest in Puerto Rico.
- Fusion Intrieve is a solution run primarily by thrifts.
- Fusion Sparak is a solution that has historically been targeted at the lower end of the community bank market.

Both Fusion Intrieve and Fusion Sparak are in compliant or “mature” mode, with neither actively sold in the market. As such, the vendor continues to make necessary maintenance enhancements and ensures regulatory compliance for the two solutions. They will be maintained as long as clients continue to run them, but the expectation is that the banks will eventually migrate onto the more modern and feature-rich Fusion Phoenix platform.

Finastra also offers Fusion Essence, Midas, and Equation in the global market. They are not targeted at the U.S. market and thus will not be considered for this evaluation.

AITEGROUP'S TAKE

Finastra offers the U.S. market a real-time modern and true Microsoft platform from top to bottom. It doesn't have the largest market share of the U.S. core providers, but its client base is loyal, with several clients running its core solutions for more than 20 years. Its overall product portfolio is broad and especially strong in lending. The vendor sees its strength in the lending space coupled with its ability to handle all types of loans within a single platform to be its greatest market differentiator. In fact, most recent Fusion Phoenix wins have been of banks and credit unions requiring strong lending, commercial functionality, and modern, open core banking platform capabilities.

Fusion Phoenix has historically been targeted primarily at banks and commercially focused credit unions. Recent enhancements to its capabilities have enabled the vendor to also more heavily target all credit unions, including those without a commercial focus. The vendor will continue to focus on the credit union market over the coming months to grow and expand the breadth of its client base. Credit unions live on Fusion Phoenix are happy with the platform and are helping Finastra to get more credit unions on board.

Fusion Phoenix's built-in workflow manager is a differentiator in the market. Clients have leveraged it to create many workflows to improve efficiency and streamline their processes. It allows common tasks and processes in the core to be defined and automated, ensuring policies and procedures are maintained, and consistency is applied each time a business process is initiated. That results in the ability to reduce risk and financial output, reduce employee time on mundane tasks, and give customers or members a consistent experience.

Finastra clients have experienced a great deal of change over the last few years as the company has changed hands from Harland Financial Solutions to D+H to Finastra. Given the company's headquarters and strength in Europe, it is no surprise that several clients have expressed concerns about the vendor's commitment to the U.S. market. Major efforts by the management team, as well as large investments into its U.S. products, such as Fusion Phoenix and Fusion UltraData, since the creation of Finastra have helped to ease some concerns. Finastra's recent acquisition of Austin-based Malauzai is a critical one for the vendor's success in this market. It not only further demonstrates a U.S. commitment but also provides the vendor with best-in-

class digital capabilities. While the vendor already offered digital banking capabilities through its Fusion Cavion offering, the Malauzai acquisition will enable Finastra to bring its digital banking and the digital branch to the forefront.

These recent events seem to have placed Fusion Phoenix clients back on solid ground with Finastra, which is investing a great deal of money into expanding its core capabilities and building out its overall value proposition. Additionally, its FusionFabric.cloud initiative will deliver the level of openness banks and credit unions desire to develop and more easily integrate with third-party platforms.

BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters:** London
- **Founded:** Finastra was created in June 2017 and is the result of a merger of Misys and D+H.
- **Number of employees:** Over 10,000
- **Ownership and annual revenue:** Finastra is a publicly held company generating an estimated US\$2.1 billion in annual revenue. More than 15% of company revenue is reinvested in research and development, and over 65% of Finastra customers are based in the United States.
- **Name of primary core banking solution:** As stated previously, U.S. banks run four distinct Finastra core banking options. Fusion Phoenix is its primary core offering for the U.S. marketplace, run from the Lake Mary location in Florida.
- **Target customer base:** Primarily small banks and credit unions
- **Number of U.S.-based clients:** There are 260 U.S.-based banks and 174 U.S.-based credit unions live with one of Finastra's core banking offerings. Of those institutions, 83 are running Fusion Phoenix. Only one has over US\$10 billion in assets. Fusion Phoenix users can be broken down as follows:
 - Large banks (greater than US\$30 billion in assets): Zero
 - Midsize banks (US\$10 billion to US\$30 billion in assets): One
 - Small banks (US\$5 billion to US\$10 billion in assets): Zero
 - Community banks (less than US\$5 billion in assets): 73
 - Credit unions: Nine
 - Other: One
- **Number of new core system clients:** Finastra averages about seven new U.S. financial institution core system client wins per year.
 - 2015: seven banks, one credit union
 - 2016: five banks, three credit unions

- 2017: three banks, two credit unions
- First half of 2018: three banks, two credit unions
- **Implementation options:** Fusion Phoenix can be deployed in either an ASP/on-demand or an on-premises/licensed environment. Approximately 70% of its U.S. client base is running it in an ASP/on-demand environment.
- **The three products and services offered by the company seeing the greatest demand by U.S. banks:** Fusion LaserPro, Fusion Digital Banking (powered by Malauzai, a Finastra company), and Fusion Phoenix
- **The three products and services offered by the company seeing the greatest demand by credit unions:** Fusion LaserPro, Fusion Phoenix, and Fusion Digital Banking (powered by Malauzai, a Finastra company)
- **Average number of company products (in addition to core) used by core customers:** Nine
- **Approximate size (total assets) of largest core banking customer deployed in an ASP/on-demand environment:** US\$1.5 billion
- **Largest number of concurrent users its most scalable core system is supporting for a bank in a live implementation:** More than 5,000 concurrent users, although there is no system limit

SOLUTION USABILITY

Fusion Phoenix is a user-friendly solution described by its clients as easy to navigate, particularly through its Microsoft-style ribbon-based design which is intuitive for users. The vendor is also going to great lengths to improve the overall usability across its entire product base. Integration across all Finastra products is a big area of focus for the vendor. Fusion Phoenix is an open platform that already has strong integration with key products such as Fusion Cavion and Fusion Digital Banking (powered by Malauzai, a Finastra company), but the vendor sees opportunities to create market differentiators with better integration with its lending products, such as Fusion LaserPro and Fusion Mortgagebot. Integration across its product set will be an ongoing initiative for Finastra throughout 2019. Additionally, the Malauzai platform will act as a frontend for users to enhance user experience and perform tasks such as alert enrollment.

TOP PRODUCT DEVELOPMENT INITIATIVES COMPLETED OVER THE LAST 12 MONTHS

- Functionality enhancements for universal deposit and loan servicing as well as multitransaction enhancement forteller
- Additional support for same-day ACH origination and same-day entry fee
- Middleware open API improvements
- WorldPay integration for credit card servicing within Fusion Phoenix applications

TOP PRODUCT DEVELOPMENT INITIATIVES FOR THE NEXT 12 MONTHS

- Workflow manager enhancements
- FusionFabric.cloud platform enablement to create fintech ecosystem
- Enhanced loan servicing
- Electronic signing for documents
- Middleware open API enhancements

API STRATEGY

FusionFabric.cloud is Finastra's API marketplace. While several existing bank clients will continue to interact with Fusion Phoenix through the middleware layer, FusionFabric.cloud is a more powerful tool that will be leveraged for creating the fintech ecosystem, providing many innovative solution options to meet clients' needs.

CLIENT FEEDBACK

Fusion Phoenix is a solid solution often selected for its strong lending and commercial banking capabilities. As mentioned previously, the company and its management team have gone through a lot of change over the last few years as a result of merger-and-acquisition activity. Such change has forced management to spend a great deal of time managing the transition with a little less time than usual to focus on core products. However, clients describe the vendor and its management team as moving in the right direction and delivering a message with more clarity than it has in the past. This messaging is providing clients with greater confidence in the company's future direction and roadmap investment. Clients appreciate Finastra's vision for easier integration with third parties and a better overall user experience. They are already seeing greater investment in the product than they saw from D&H and Harland Financial Solutions.

Overall, clients seem pleased with the Fusion Phoenix core platform. Several have chosen it for its Microsoft roots and find it to be intuitive and easy to navigate. Upgrades to new releases are described by client references as "pretty seamless" and don't require a lot of regression testing on the part of the banks. While clients are pleased with the Fusion Phoenix product and the vendor's larger product portfolio, they note a few areas in which improvements can be made. One client states a desire to see tighter integration with the mobile platform and a greater focus on faster payments. The vendor is already beta-testing the latter.

Finastra receives good overall scores from users for service and support. It is also described as delivering on promises for its core offering. Clients have noticed some gaps with other products in the vendor's product portfolio, such as within the Fusion Cavion online banking solution, but as stated previously, they feel that has effectively been dealt with, through the recent acquisition of Malauzai. Overall, clients are satisfied with the Fusion Phoenix product, the vendor, and its ability to meet their needs.

Table P: Key Strengths and Challenges—Finastra

Strengths	Challenges
Strong lending capabilities	Several management changes over the last few years have led to client uneasiness and a lower number of new core contracts signed
Purchase of Malauzai for digital strength and an indication of the vendor's commitment to the U.S. market	
Microsoft platform from top to bottom	

Source: Aite Group

FIS

Jacksonville, Florida-based FIS (NYSE: FIS) was founded in 1968 as Systematics and today is a leading provider of core banking, payment processing, risk management, outsourcing services, and other key technologies to the global financial services industry. It serves more than 20,000 clients in more than 130 countries and is part of the Fortune 500 as well as the S&P 500. The company generated approximately US\$9.1 billion in processing and services revenue during the fiscal year ending December 31, 2017.

FIS is one of the most global of the large U.S.-based core vendors, and plans are in place to continue to build positive momentum. FIS offers the marketplace 13 core systems, nine of which are offered to the U.S. market. Given the large install bases for each product, the vendor does not have plans to sunset any of them.

IBS, Horizon, Profile, and Systematics are its leading core banking solutions, responsible for nearly half of its total core clients.

- IBS is targeted at financial institutions with up to US\$100 billion in assets, but its sweet spot is institutions with between US\$1 billion and US\$30 billion in assets. IBS is a comprehensive, highly integrated, and flexible retail and commercial banking platform that meets each financial institution's unique go-to-market needs. It is a fully outsourced solution available in FIS' service-bureau environment.
- Horizon is FIS' leading core solution in the community banking market. It provides a broad set of functionalities for community banks. Its customers benefit from powerful commercial lending, substantial mortgage capabilities, and private banking. Horizon is offered in an in-house, service-bureau, or facilities management environment; however, close to 80% of its users have selected a service-bureau environment.
- Profile is a real-time retail and commercial banking application offered to institutions of all sizes, but especially the largest ones, around the globe. Profile is available in both a licensed and an application service provider (ASP)/hosted deployment environment.

- Systematics is offered to large international financial institutions. Systematics is a multilingual, multicurrency platform available in both a licensed and an ASP/hosted deployment environment, with most clients opting for an on-premises deployment.

AITEGROUP'S TAKE

IBS, Profile, and Systematics have the ability to fulfill the needs of financial institutions favoring higher levels of customization. While Horizon does too, most community banks leverage the bank-ready features built into the core.

IBS, Profile, and Systematics enable large banks to bring products to market rapidly through the use of extensive parameter-based configuration suites. A technology-savvy customer on either core can also leverage the innovation FIS provides relative to its solution set of ancillary technologies that complement the core, such as sales and service channels, marketing analytics, mobile banking, online banking, and a host of payment solutions FIS has integrated throughout its core solution sets.

Architecturally speaking, FIS has focused its delivery on an enterprise-wide set of common standards that allow for all cores to leverage all channel technologies via a single integration set. The result of this focus is a company-wide N-tier architecture for all cores to leverage, which can be in whole or in part what a bank leverages given its architecture—meaning FIS can complement investments for larger institutions, or function as the primary architecture component for smaller banks. This inherent open architecture gives banks that place greater value on best-of-breed solutions the ability to expose integration points, either themselves or with the help of FIS, to the non-FIS assets they wish to leverage. Inclusive in this capability is not only data for interoperation but also the ability to provide seamless support of capabilities, such as integrated single sign-on to the FIS ecosystem, as well as the ability to extend data integration for warehouse or analytics capabilities on FIS analytic assets or bank third-party warehouses of choice.

FIS has embarked on a componentized architectural strategy that represents its Modern Banking Platform. The platform comprises a set of components that cover core processing, enterprise customer, product catalog and pricing, user security and entitlements, operational reporting, and microservice access to the FIS banking ecosystem via Code Connect, FIS' API gateway enabling the full banking complement. The solution is accessible through the Digital One suite of user interfaces spanning consumer, mobile, assisted, teller, and back office.

FIS core product suites are often praised for their strong integration within the FIS product family; thus, they also strongly appeal to traditionalist institutions looking for a single vendor to meet most of their needs in a seamless, integrated environment.

BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters:** Jacksonville, Florida
- **Founded:** 1968
- **Number of employees:** 53,000

- **Ownership and annual revenue:** As a core vendor, FIS offers a full breadth of products and services capable of meeting most or all of the needs of a financial institution. Between 2% and 5% of company revenue has been reinvested in research and development during each of the last three years.
- **Name of primary core banking solutions:** IBS, Horizon, Profile, and Systematics
- **Target customer base:** All banks and credit unions
- **Number of U.S.-based clients:** There are 1,263 banks and credit unions live with one of FIS' core banking offerings. Seventy-eight of its core clients have over US\$10 billion in assets. The core system client base can be broken down as follows:
 - Large banks (greater than US\$30 billion in assets): 41
 - Midsize banks (US\$10 billion to US\$30 billion in assets): 37
 - Small banks (US\$5 billion to US\$10 billion in assets): 37
 - Community banks (less than US\$5 billion in assets): 909
 - Credit unions: 239
- **Number of new core system clients:** FIS averages about 24 new core system client wins per year.
 - 2015: 31
 - 2016: 20
 - 2017: 22
 - First half of 2018 estimate: 12
- **Implementation options:**
 - IBS: The solution is only available in an ASP/on-demand environment; therefore, 100% of its client base is deployed in an ASP/on-demand environment.
 - Horizon: Horizon can be deployed in either an ASP/on-demand or an on-premises/licensed environment. Among its client base, 79% are in an ASP/on-demand environment while 21% are licensed.
 - Profile: Profile can be deployed in either an ASP/on-demand or an on-premises/licensed environment. Among its client base, 50% are in an ASP/on-demand environment, and 50% are licensed.
 - Systematics: Systematics can be deployed in either an ASP/on-demand or an on-premises/licensed environment. Among its client base, 16% are in an ASP/on-demand environment while 84% are licensed.
- **The three products and services offered by the company seeing the greatest demand by banks:** IBS, Horizon, and Profile

- **The three products and services offered by the company seeing the greatest demand by credit unions:** Core processing, mobile banking, and Cardless Cash
- **Average number of company products (in addition to core) used by core customers:** FIS' core customers use an average of 34 FIS products.
- **Approximate size (total assets) of largest core banking customer deployed in an ASP/on-demand environment:** US\$365 billion
- **Largest number of concurrent users its most scalable core system is supporting for a bank in a live implementation:** 10,000

SOLUTION USABILITY

System modernization and solution agility are focus areas for FIS across its various solutions. FIS has deployed FIS Digital One, a platform of integrated banking modules that deliver an omnichannel banking experience for financial institutions and their customers. Digital One offers a seamless user experience and real-time access to customer, account, and transactional data across all banking channels.

Digital One leverages an open, API-based framework and a common code base, thereby reducing technical investments while adding additional capabilities. The platform allows financial institutions to modernize their user experience in phases or altogether with a full deployment. These advantages align with bank strategies, allowing for a truly unified banking experience. In 2019, Digital One will continue integration into the FIS banking ecosystem via Code Connect APIs, further enabling access to a wide range of products and services.

TOP PRODUCT DEVELOPMENT INITIATIVES COMPLETED OVER THE LAST 12 MONTHS

- **IBS:** Mobile banker platform and remote electronic signature capabilities, data and advanced analytics platform, open APIs to core, and surrounds for third-party access
- **Horizon:** Deposit origination and teller solution, statistical accounting, and single sign-on
- **Profile:** High-availability enhancements, enterprise component integration, and additional REST web services inventory
- **Systematics:** Expanded alert processing, expanded web services catalog and API enablement, and enterprise componentization and integration

TOP PRODUCT DEVELOPMENT INITIATIVES FOR THE NEXT 12 MONTHS

- **IBS:** High-availability infrastructure, next-generation omnichannel sales and service user experience for bankers and consumers, and service-enabled, accessible business analytics and actionable insights
- **Horizon:** XE bank controls, loan CRA processing, and loan swap processing

- **Profile:** Continued enterprise component integration and continued expansion of web services inventory
- **Systematics:** Intraday data updates for data reporting, student lending, and data accessibility expansion with continued enterprise component integration

API STRATEGY

Launched in November 2017, FIS Code Connect is an API gateway that enables access to the full banking compliment. The marketplace includes more than 700 APIs with over another 1,000 APIs in development in areas of banking, payments, and consumer finance. Initial application use cases include enterprise customer, mobile and online banking, and account opening.

FIS Code Connect is a centralized fintech hub that gives bank developers and key fintech partners access to the FIS product catalog from one central repository. FIS' Code Connect offers the most advanced API platform and environment of the leading U.S. core providers.

CLIENT FEEDBACK

FIS clients often choose the vendor for its broad product portfolio and the ability to have a single partner able to meet most of their technology needs. For example, one client mentions that it chose FIS as a technology partner is for its ability to combine the core banking solution, the ATM switch, the debit card management system, and the digital banking platforms from one vendor in a practically pre-integrated solution set, thereby reducing the risk and integration time for the financial institution.

This vendor consistently gets high scores from clients for its reputation, proven technology, and willingness to listen and to collaborate with customers. Upgrade execution is typically good, and communication is also praised, with frequent meetings and ongoing efforts to provide market education to its clients.

Given the vendor's large size, it often takes a longer time than expected to get things done. Therefore, one area in which clients would like to see the vendor improve overall is in the ability to deliver on its roadmap, improve execution timelines, and accelerate the speed of development for new products and services. One client describes struggles with lengthy customizations of capabilities it believes should be cookie-cutter.

Overall, FIS provides a solid core banking offering as well as tight integration to one of the broadest product portfolios in the industry. That portfolio breadth and strength in the core banking space will enable this vendor to maintain a solid flow of new customers. Clients are generally optimistic about the future, and while all admit that no vendor is perfect, most view FIS as a strong partner and one they plan to stay with in the future.

Table Q: Key Strengths and Challenges—FIS

Strengths	Challenges
Global and large-bank success, in addition to community banks and credit unions	13 core banking offerings

Strengths	Challenges
Strong product portfolio, including end-to-end payments capabilities	Not always a first mover with new core product offerings
Financial viability and strong brand	
Strength of Code Connect as fintech hub	

Source: Aite Group

FISERV

Brookfield, Wisconsin-based Fiserv Inc. (Nasdaq: FISV) is a global organization serving 12,000 clients around the globe and has approximately 24,000 employees. It is a fintech giant offering a full breadth of products in areas such as payments, core processing, risk and compliance, customer and channel management, commercial services, and insights and optimization. It is a member of the Fortune 500, and it generated more than US\$5.7 billion in revenue during 2017. Approximately one in three U.S. financial institutions rely on one of its core banking platforms, thereby providing it with an organic audience for its other offerings.

Fiserv leads the U.S. core vendor market in the total number of core deployments. The vendor has also enjoyed some success overseas and in Canada. It offers banks and credit unions 18 distinct core banking offerings targeted toward unique customer bases and available in both hosted and licensed deployment environments. However, it considers the following to be its primary offerings that are actively sold in the U.S. market:

- DNA is a real-time retail and commercial banking platform targeted at both banks and credit unions. It was acquired through the company's acquisition of Open Solutions.
- Premier is known for its robust functionality and scalability and is targeted at all banks. Its clients typically have a strong commercial lending focus.
- Portico is for credit unions seeking robust capabilities, support, and services in an ASP model to reduce the total cost of ownership.
- Precision is targeted at banks and thrifts.
- Signature is designed for large banks and those that require customized solutions.
- Cleartouch is a real-time system targeted primarily at small banks that prefer a hosted deployment.

AITEGROUP'S TAKE

There is no denying Fiserv's leadership role in the U.S. core banking space from a total deployment standpoint as well as the depth of its overall product portfolio. Those are often the two primary reasons financial institutions partner with the "orange giant." For most, Fiserv is their main technology provider. The vendor continues to maintain a solid list of new core clients year after year, enabling it to hold onto its strong market share. While the majority of its clients

are small banks and credit unions, the vendor has seen success across all financial institutions, including some top 50 banks. However, like most of the vendors profiled in this report, its international footprint remains limited.

Fiserv has grown its presence in the core banking space both organically and through acquisition. The latter has resulted in it owning 18 distinct core banking solutions. While far fewer are actively sold in the marketplace, the vendor will continue to maintain all of the solutions as long its clients demand them. Running so many cores can lead to some confusion in the market as to the most appropriate solution for an institution. The vendor addresses this through a unified sales strategy across the cores. Fiserv determines internally which solutions make the most sense for clients based on their profile and deployment environment preferences, as opposed to sending in competing sales teams. Fiserv enhances, maintains, and ensures regulatory compliance for multiple solutions but primarily offers two credit union cores to the market: DNA for those credit unions looking for a highly customizable solution and Portico for those looking for more of an out-of-the-box solution with a lower total cost of ownership. While current initiatives are making it easier for Fiserv solutions to integrate more easily than ever before with other third-party offerings, the vendor also offers a full suite of solutions capable of meeting all or most bank/credit union needs.

Fiserv recognizes that success in today's market means solutions have to be real-time, secure, efficient, and always up. To that end, its overall core strategy is made up of two major components. The first component is its Enterprise Services Framework (ESF), which was built to enable an SOA foundation for API integration across its own Fiserv products as well as other third-party offerings. While integration of products within a single core product family is already often tight, integration across other Fiserv products and with third-party offerings is greatly desired by the market and is something the vendor is focusing on. The second large component of its strategy is the Fiserv Design Language, through which the vendor aspires to have a similar look and feel across all of its products and services. Responsive design and Engage are manifestations of this new design and goal of creating a new banker experience. Given the extreme importance being placed on user experience and the ability to more easily leverage emerging fintech capabilities within a single ecosystem, these initiatives are critical steps to enabling Fiserv clients to better compete in today's marketplace.

BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters:** Brookfield, Wisconsin
- **Founded:** 1984
- **Number of employees:** 24,000
- **Ownership and annual revenue:** Fiserv generated US\$5.7 billion in revenue during 2017. Less than 10% of company revenue is reinvested in research and development.
- **Name of primary core banking solution:** The vendor's primary cores include: DNA, Premier, Portico, Precision, Signature, and Cleartouch
- **Target customer base:** All banks and credit unions

- **Number of U.S.-based clients:** There are 4,100 U.S. banks and credit unions live with one of Fiserv's core banking offerings. Twenty-six institutions within its core client base have over US\$10 billion in assets. The core system client base can be broken down as follows:
 - Large banks (greater than US\$30 billion in assets): Seven
 - Midsize banks (US\$10 billion to US\$30 billion in assets): 19
 - Small banks (US\$5 billion to US\$10 billion in assets): 24
 - Community banks (less than US\$5 billion in assets): 2,164
 - Credit unions: 1,886
- **Number of new core system clients:** Fiserv did not share its average number of new core system client wins per year. Aite Group estimates the average number to be approximately 35 for banks and 25 for credit unions over the last few years.
- **Implementation options:** Fiserv's core solutions are offered in both a licensed and hosted deployment environment. Among the solutions profiled in this report, all of them are available in both deployment options, with the exception of Cleartouch, which is only available in a hosted environment.
- **The products and services offered by the company seeing the greatest demand by core customers:** Enterprise content management, retail bill payment, retail internet banking, branch check capture, and its teller solution
- **Average number of company products (in addition to core) used by core customers:** Fiserv's bank and credit union customers use an average of approximately 16 Fiserv products.
- **Approximate size (total assets) of largest core banking customer deployed in an ASP/on-demand environment:** The two largest have US\$88 billion and US\$79 billion in assets, respectively.
- **Largest number of concurrent users its most scalable core system is supporting for a bank in a live implementation:** 3,000 concurrent users (U.S. traditional bank with more than 230 branches and 2 million accounts)—this same core has been tested up to 80 million accounts, and surround products have been tested with more than 10,000 concurrent users

SOLUTION USABILITY

- The Fiserv core platforms vary in usability. For example, while navigation within the Precision platform is mostly driven by drop-down menus, DNA has a more modern look and feel. DNA also has some nice client management features, such as the ability to score clients and see statistics on their channel usage. It also offers a social media aspect enabling live feeds and ease of creating and maintaining workflows.

- Usability across Fiserv products will continue to improve as the vendor moves toward a similar design language across products. Portico and DNA are the first two cores to adopt the Fiserv Design Language in their primary teller interfaces.
- More consumable APIs and development tools will enable banks and credit unions to better meet the needs of their customers.

TOP PRODUCT DEVELOPMENT INITIATIVES COMPLETED OVER THE LAST 12 MONTHS

- **DNA:** Intelligent user experience beta, enhanced commercial functionality for large bank clients, and Notifi real-time alert integration
- **Premier:** Alert management, real-time person-to-person payments (Zelle), and commercial loan management
- **Portico:** Member experience, biometric authentication, and new mobile-first account opening
- **Precision:** Alert management, real-time person-to-person payments (Zelle), and loan renewal efficiency
- **Signature:** Alert management, real-time person-to-person payments (Zelle), and multiple promotional rates on loans, either fixed or variable, to attract new loan customers
- **Clartouch:** Alert management, real-time person-to-person payments (Zelle), and deposit dormancy/escheatment efficiency management

TOP PRODUCT DEVELOPMENT INITIATIVES FOR THE NEXT 12 MONTHS

- **DNA:** Intelligent user experience, general availability, advanced commercial capabilities, and mortgage service improvements
- **Premier:** Real-time transaction posting management, updated user-interface design and user experience, and customizable loan notices/billing statements
- **Portico:** Fiserv Design Language new teller interface, real-time person-to-person payments (Zelle), and Notifi real-time alert integration
- **Precision:** Real-time transaction posting management, updated user-interface design and user experience, and customizable loan notices/billing statements
- **Signature:** Default loan management (nonaccrual/charge off), enhanced promotional rate management, strategic investments to support real-time payment processing, customized loan notices/billing statements, and Fiserv dynamic algorithm-based overdraft limit management

API STRATEGY

Fiserv’s ESF was built to enable a SOA foundation for API integration across Fiserv products as well as third-party offerings.

CLIENT FEEDBACK

Banks and credit unions most often select a Fiserv core for the vendor’s market leadership and overall breadth of product portfolio. The vendor also receives high ratings from its clients for the quality of its management team and vendor reputation. Unfortunately, being large also has some challenges. Its extremely large client base, at times, makes it difficult to hear the voices of all of its clients and to effectively address all of their needs. While clients appreciate the strength of its advisory groups, some feel that client support and delivery of promises are areas of potential improvement for this vendor. Depending on the solution in place, feedback also varies regarding the user interface and overall solution ease of use and navigation.

Some Fiserv clients mention challenges with integration of products outside of the core product family as well as with other third-party solutions. One client reference states that one of the new core platforms could likely deliver integration faster with a better delivery strategy and resource utilization. As mentioned in this profile, addressing integration and better leveraging APIs is a key area of focus for the vendor. Other areas in which clients mention they would like to see enhanced functionality include online and in-app card management features, customer self-service options, and the ability to automate the maintenance of values on corporate relationships for multiple accounts/signers. While all systems can be improved, Fiserv core customers are, for the most part, satisfied with their offerings and decision to select Fiserv for their core partner. They view the systems as tried and true, and sufficiently able to meet their core processing needs.

Table R: Key Strengths and Challenges—Fiserv

Strengths	Challenges
Leader when measured by total number of core customers	18 core solutions
Breadth of product portfolio and strong brand recognition	Some challenges with integration across products and with third parties, but a major initiative at the company is addressing this
Proven track record	Servicing and delivery on promises can be improved

Source: Aite Group

JACK HENRY

Jack Henry & Associates (Nasdaq: JKHY) was founded in 1976 as a provider of core information processing solutions to community banks. Today, the vendor serves more than 9,000 customers across its more than 3,000 products. Its three brands—Jack Henry Banking, Symitar, and ProfitStars—support financial institutions of all sizes, diverse businesses outside the

financial industry, and other technology providers. Its ProfitStars division in particular, which offers several best-of-breed stand-alone products, continues to help the vendor move further and further upmarket to attract larger financial institutions. Jack Henry generated approximately US\$1.5 billion in total revenue during the fiscal year ending June 30, 2018—a 7% increase from the prior year.

Jack Henry offers four core banking offerings to banks and credit unions:

- SilverLake System provides highly customizable, enterprise-wide automation designed for growth-focused and commercially focused banks ranging from community banks to multibillion-dollar, midtier institutions.
- Core Director is a Windows-based banking platform that supports progressive community banks ranging from de novo banks to institutions with assets exceeding US\$2 billion.
- CIF 20/20 serves banks ranging from community banks to multibillion-dollar, midtier institutions. It is a sophisticated, parameter-driven banking platform that provides enterprise-wide automation.
- Episys is the company's flagship credit union system. It is marketed to credit unions with greater than US\$50 million in assets.

AITEGROUP'S TAKE

Jack Henry offers solid core banking capabilities to a loyal bank and credit union customer base. While the vendor has traditionally been extremely strong among smaller financial institutions, in recent years it has enjoyed growing success moving upmarket. It is also benefitting from the trend toward hosted/cloud solutions, and during its fiscal year ending June 30, 2018, its banking division successfully migrated 25 bank customers to a hosted core processing solution. This environment is now selected by about 60% of its core customers. This shift provides its customers with greater efficiency and speed to market while providing the vendor with a solid base of recurring revenue.

Jack Henry offers the market a broad portfolio of products and services that tightly integrate with its core solutions. In fact, the vendor has built all its capabilities as an extension of its core for the highest levels of integration. Tight integration across its product set is a key driver for many financial institutions selecting this vendor. In recent months, Jack Henry has also aggressively made acquisitions (i.e., Bolts Technologies and Agiletics) and investments in areas in which it felt there were gaps to further improve its breadth of offerings. Fraud and treasury services have been areas of recent focus. The launch of its new treasury management solution demonstrates its commitment to that market and offers its clients more robust capabilities to better compete against larger institutions in a critical area. The vendor also offers tools for easier integration with external third-party providers. JXchange for banks and SymXchange for credit unions provide a standard API for any third party that is interested in exchanging information with its core systems or other complementary solutions.

BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters:** Monett, Missouri
- **Founded:** 1976
- **Number of employees:** Approximately 6,500
- **Ownership and annual revenue:** Between 11% and 15% of company revenue is reinvested in research and development.
- **Name of primary core banking solution:** Jack Henry offers four core banking offerings to banks and financial institutions. They are SilverLake System (banks), Episys (credit unions), Core Director (banks), and CIF 20/20 (banks).
- **Target customer base:** The vendor is strongest among small banks and credit unions but targets all institutions. Its core solutions have seen growing success with larger banks and credit unions, while its ProfitStars division further increases its penetration among larger institutions.
- **Number of U.S.-based clients:** There are 1,736 banks and credit unions live with one of Jack Henry's core banking offerings, seven of which have over US\$10 billion in assets. The core system client base can be broken down as follows:
 - Large banks (greater than US\$30 billion in assets): One
 - Midsize banks (US\$10 billion to US\$30 billion in assets): Six
 - Small banks (US\$5 billion to US\$10 billion in assets): 14
 - Community banks (less than US\$5 billion in assets): 1,020
 - Credit unions: 695
- **Number of new core system clients:** Jack Henry averages about 25 new bank and 19 credit union core system client wins per year.
 - 2015: 17 banks, 20 credit unions
 - 2016: 25 banks, 17 credit unions
 - 2017: 34 banks, 20 credit unions
 - First half of 2018: 15 banks and five credit unions
- **Implementation options:** All four of the Jack Henry core solutions profiled in this report can be deployed in either a licensed or a hosted environment, though the vendor is seeing a strong shift toward hosted deployments. It moves about 20 to 25 existing core clients from on premises/licensed to hosted each year.
- **The three products and services offered by the company seeing the greatest demand by banks:** Enterprise payment solutions iPay Business Bill Pay, and Banno (online/mobile banking)
- **The three products and services offered by the company seeing the greatest demand by credit unions:** Episys, Banno, and iPay Business Bill Pay

- **Average number of company products (in addition to core) used by core customers:** 25
- **Approximate size (total assets) of largest core banking customer deployed in an ASP/on-demand environment:** US\$10.4-billion-asset bank and a US\$3-billion-asset credit union
- **Largest number of concurrent users its most scalable core system is supporting for a bank in a live implementation:** 880,000 customers (banking platform) and 845,685 members (credit union platform, SchoolsFirst Federal Credit Union)

SOLUTION USABILITY

- Episys offers a great user experience and tight integration across Symitar products. The solution is easy to navigate, and several enhancements have recently been made to improve its user experience and flow across solutions within the Xperience framework. This enables access to all applications and Jack Henry products through a single consolidated experience. As such, a user can easily navigate across multiple products, including reporting, marketing, core, Amazon Alexa, and online banking from a single location in a seamless experience.
- System dashboards incorporate a great deal of analytics, enabling users to view their goals and peer comparisons to see how they stack up. They can easily identify areas or products that are below target or their peers and work with marketing to launch a campaign to improve sales. Marketing also gets insights into the buying behaviors of members in an easy-to-read report. All of the information marketing needs for a successful campaign is grouped together so it can easily launch.
- SilverLake also offers easy navigation within the solution and a similar look and feel across all integrated products. Dashboards, analytics, strong reporting capabilities, and high levels of customization enhance the user experience.

TOP PRODUCT DEVELOPMENT INITIATIVES COMPLETED OVER THE LAST 12 MONTHS

- **SilverLake System:** JHA Treasury Management, DirectLine International, and JHA Enterprise Risk Mitigation Solutions
- **Episys:** Integration to Alexa, integration with Apple tablet/watch, and SymApp (online loan and member application)
- **Core Director:** Annual release 2018 enhancements delivered, expanded OFAC checking capabilities, and increased Xperience integration with multiple Jack Henry applications
- **CIF 20/20:** Expanded PMI tracking and reporting, beneficial owner support, and Xperience user interface

TOP PRODUCT DEVELOPMENT INITIATIVES FOR THE NEXT 12 MONTHS

- **SilverLake System:** Multilevel lending enhancements for complex commercial lending arrangements, expanded general ledger reconciliation options, and FAIM 4.0
- **Episys:** Mortgage secondary marketing, shadow accounting, and user-interface enhancements
- **Core Director:** Annual release 2019 enhancements, First Data/PSCU integration, and commercial cash management Nettleter integration
- **CIF 20/20:** First Data/PSCU integration, Freddie Mac investor reporting changes, and parameterized loan payment posting order

API STRATEGY

Jack Henry offers its clients a universal middleware called jXchange for banks and SymXchange for credit unions, which provides a standard API for any third party that is interested in exchanging information with its core systems or other complementary solutions. It offers a SOA on a .NET platform for open connectivity.

CLIENT FEEDBACK

One of Jack Henry’s key strengths is its people and the level of service it provides to clients. This vendor consistently gets high scores from clients for its client support, its reputation, and the transparency of its management team. Its clients often view it as a true partner with an accessible management team that listens to their needs. High levels of satisfaction have led to high client retention rates for Jack Henry.

One critical gap that Aite Group has noted in Jack Henry’s overall product portfolio in the past has been the lack of a strong treasury management solution. The vendor has recently addressed that with the rollout of a new solution to help its clients better compete with large banks and mover further upmarket to better meet the needs of larger businesses. Another area in which clients would like to see the vendor improve is an enhanced onboarding/account-opening solution and advanced person-to-person payments and digital wallet. The vendor has already addressed the onboarding concern with its acquisition of Bolts Technologies. Some clients have also noted in the past that while products within the Jack Henry product family are tightly integrated, especially with its core solutions, integration with other third-party offerings and even ProfitStars products can be more challenging. Despite some challenges, most Jack Henry clients, if given the chance to do it over again, would select a Jack Henry core system.

Table S: Key Strengths and Challenges—Jack Henry

Strengths	Challenges
High scores from clients for support and service	Some challenges integrating with non-Jack Henry products, but this is being addressed with jXchange

Strengths	Challenges
Transparent management team and high retention rates	Clients would like to see more enhanced onboarding/account opening capabilities as well as person-to-person payments and digital wallets
Broad portfolio of highly integrated solutions	

Source: Aite Group

VSOFT

Duluth, Georgia-based VSoft Corporation was established in 1996. It has primarily focused on image-based solutions since its inception and serves over 1,500 financial institutions, transaction providers, governments, utilities, telecommunication companies, and retail organizations worldwide. The vendor announced its entrance into the core banking space in March 2010.

Wings is VSoft's primary core banking offering, which has replaced CoreSoft, VSoft's legacy core banking system.

AITEGROUP'S TAKE

Wings is a platform-independent and open-system design built on leading-edge technology to provide high levels of flexibility and usability. The platform has a deeply integrated natural language processing engine and machine learning toolkit to understand the behavior of financial institutions' employees in addition to account holders. The system's parameterized back end allows financial institutions to add new products and configure the system easily and quickly without any costly professional services needed. In February 2016, Corporate America Credit Union deployed VSoft's core for its member credit unions.

Wings is a customizable, parameterized solution that allows customers to not only tailor the solution to fit their specific business requirements but to also make changes and offer new products quickly and efficiently without needing VSoft staff to intervene. The core platform was built from the ground up and was designed with open APIs.

BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters:** Duluth, Georgia
- **Launched:** 2010
- **Number of employees:** 1,682
- **Ownership and annual revenue:** Less than US\$50 million
- **Name of primary core banking solution:** Wings (replacing CoreSoft)
- **Target customer base:** Community banks and credit unions
- **Number of U.S.-based clients:** Two financial institutions are live with VSoft's new core banking offering. No client has over US\$10 billion in assets, and the core system client base can be broken down as follows:

- Large banks (greater than US\$30 billion in assets): Zero
- Midsize banks (US\$10 billion to US\$30 billion in assets): Zero
- Small banks (US\$5 billion to US\$10 billion in assets): Zero
- Community banks (less than US\$5 billion in assets): One
- Credit unions: One
- **Number of new core system clients:**
 - 2015: Zero
 - 2016: Zero
 - 2017: Zero
 - First half of 2018: N/A
- **Implementation options:** Wings can be deployed in either an ASP/on-demand or an on-premises/licensed environment. Its client base is a 50/50 split between the two.
- **The three products and services offered by the company seeing the greatest demand by banks:** OnView Payments Manager suite, Arya Digital Banking, and Atlas Payments Warehouse
- **The three products and services offered by the company seeing the greatest demand by credit unions:** OnView Payments Manager suite, Arya Digital Banking, and Atlas Payments Warehouse
- **Average number of company products (in addition to core) used by core customers:** Two
- **Approximate size (total assets) of largest core banking customer deployed in an ASP/on-demand environment:** US\$2.5 billion
- **Largest number of concurrent users its most scalable core system is supporting for a bank in a live implementation:** Not provided

TOP PRODUCT DEVELOPMENT INITIATIVES COMPLETED OVER THE LAST 12 MONTHS

- Natural language processing and machine learning engine
- User experience enhancements
- Open API architecture

TOP PRODUCT DEVELOPMENT INITIATIVES FOR THE NEXT 12 MONTHS

- Reporting and business intelligence enhancements
- Integrations

API STRATEGY

While the Wings core banking platform is based on an open architecture and was built to enable an SOA foundation for API integration, the company has not yet rolled out an API marketplace.

CLIENT FEEDBACK

One of VSoft’s key strengths is the level of service and support it provides to its clients. This vendor consistently gets high scores from clients for its service and support, and the accessibility of its management team. Clients also mention the vendor’s willingness to listen and to collaborate with customers, resulting in high customer satisfaction.

Clients also mention that they would like to see the vendor improve overall in the speed of development of new products and services.

Table T: Key Strengths and Challenges—VSoft

Strengths	Challenges
No weight of any legacy product, allowing for a modern architecture	Needs larger install base to prove scalability of its solution
	Needs to strengthen overall company awareness and brand

Source: Aite Group

EMERGING VENDORS

Despite high barriers to entry, the market has seen the entrance of several new U.S.-based vendors over the last few years. Corelation Inc., Finxact, and Nymbus have developed new core processing platforms from the ground up with no weight of any legacy product, allowing for a modern architecture, and they position their solutions as a new kind of core system.

CORELATION INC.

San Diego-based Corelation Inc. was established in August 2009 with the goal of “setting a new standard for credit union software.” While it is a fairly new player, its founding team members are known within the industry and have proven track records for success. This places Corelation at an advantage over more traditional startups and has enabled the company to quickly sign new credit union customers to its KeyStone core banking product. Aite Group estimates that approximately 60 credit unions are live with the solution. Seventeen credit unions converted to KeyStone in 2017, and the firm signed the US\$5 billion-asset Pennsylvania State Employees Credit Union and US\$2.4-billion-asset Sandia Laboratory Federal Credit Union. Some of the KeyStone core credit union clients also include US\$3.8-billion-asset Desert Schools Federal Credit Union, US\$816-million-asset USE Credit Union, US\$722-million-asset Pacific Marine Credit Union, US\$478-million-asset Capital Educators Federal Credit Union, and US\$469-million-asset People First Federal Credit Union.

F I N X A C T

Founded in 2016, Jacksonville, Florida-based technology provider Finxact is the newest player on the block. The Finxact system is being built for AWS, although it could support other options. It is meant to be real-time and event-driven. The design is centered on inventory, meaning any attribute—whether a traditional currency, an electronic currency, a security, a physical asset, etc.—rather than the customer account. In terms of openness, Finxact was the first banking system supplier to sign up for the Linux OpenAPI Initiative, which seeks to define a vendor-neutral description format for APIs. Finxact is using the Google-derived open-source Golang high-performance language and SQL alternative databases, with non-SQL options to follow. The architecture is being described as “container-based,” so the system can be implemented on the cloud and also on any machine, and is deployable in-house.

N Y M B U S

Founded in February 2015, Miami-based technology provider Nymbus also takes a modern approach to core processing with software that fuses core functionality, a suite of applications, and cloud-based infrastructure into a single solution. Developed with a strong emphasis on user experience and usability, the SmartCore software features a single sign-on to a central hub, complete with a customizable dashboard, semantic searching, reporting tools, and a 360-degree view of every customer. The company has continued to grow rapidly by expanding its capabilities, geographic footprint, and client base. In 2016, Nymbus also acquired competitor R.C. Olmstead, with its 46 core banking credit union clients, as well as credit union service provider KMR.

REGIONAL VENDORS

Formost of these vendors, the software is sold to small banks and credit unions and is offered in a service-bureau environment, giving institutions that want larger data-processing services the opportunity to outsource without going through the expense of bringing computers in-house and hiring staff. Some of these players, such as Synergent, partner with the core vendors or offer a customized version of their system.

C R E D I T U N I O N S E R V I C E O R G A N I Z A T I O N S (C U S O S)

Many U.S. CUSOs allow a credit union to conduct business it would otherwise be restricted from due to regulatory constraints. Most CUSOs are limited liability companies, which provides a measure of protection to the credit union from the actions of its CUSO; further, many provide technology services, including core processing. Examples include the Navy Federal Financial Group, Primary Financial, CU-NorthWest, and CU Source.

C O C C

Southington, Connecticut-based COCC was founded in 1967 and has approximately 425 employees. It is a client-owned company with an independent board of directors comprising institution CEOs nominated and elected from within the vendor’s client base. It was organized as a cooperative with a mission of being a client-centric service organization with a laser focus on quality service delivery over profit and shareholder gain. Insight is the vendor’s only core

banking system and serves both banks and credit unions from a single platform. It is a modern .NET solution built on an advanced Oracle database and Windows technology. Insight is a derivative of the Fiserv DNA platform and is only available in a hosted deployment environment.

COCC clients have the option of selecting a fully hosted out-of-the-box solution that is tightly integrated with a broad suite of banking products with affordable price points for all sizes of institutions. Insight's open architecture enables ancillary products to fully integrate with the products COCC licenses, integrates with, and supports. This enables COCC to offer its products while also giving financial institution clients that prefer a more customized experience the option to choose the products they want to integrate with the Insight core system. The solution has a centralized customer information file and rationalized database for a 360-degree view of customers. COCC's partnership structure also appeals to institutions looking for a cooperative environment.

CU - ANSWERS

Grand Rapids, Michigan-based CU-Answers was first started as West Michigan Computer Co-Op Inc. (WESCO) in 1970 and changed its name to CU-Answers in 2003. CU-Answers is a CUSO and a cooperative. From data processing and computer network support to image check processing and customized marketing campaigns, CU-Answers serves more than 175 credit unions nationally. CU-Base Gold, the company's core processing software, operates using the IBM iSeries hardware platform. The company also offers a wide range of complementary solutions, including CU-Base Servicer Edition, a solution specifically designed for CUSOs, and CU-Base Operator Edition, geared for the data center community. CU-Answers announced that it recently completed conversions for the US\$174-million-asset Monroe County Community Credit Union and the US\$149-million-asset Chief Financial Credit Union.

E P L

Birmingham, Alabama-based CUSO EPL has been offering its core product, i-Power, to its credit union member base since 1977. Its shareholder owners include Dedagroup NA (majority investor and North American subsidiary of Dedagroup ICT Network, an Italian software and IT services company), Alabama One Credit Union, Georgia's Own Credit Union, Legacy Community Federal Credit Union, Aventa Credit Union, Alabama Teachers Credit Union, WinSouth Credit Union, Peach State Federal Credit Union, and League of Southeastern Credit Unions. EPL's client list of 130 credit unions ranges from small, one-branch credit unions to those with more than US\$1.7 billion in assets.

SYNERGENT

Westbrook, Maine-based CUSO Synergent has partnered with Jack Henry & Associates to bring the Symitar Episys core processing platform to small credit unions in the Northeast, mainly in New England and New York. In addition to payment services, check processing, card services, and marketing services, Synergent has been delivering core processing services to credit unions since 1971. Synergent offers its core processing service to 66 credit unions.

INTERNATIONAL VENDORS WITH U. S. PRESENCE

In addition to U.S.-based vendors, several global/international core vendors are fighting for a share of the U.S. market. Some of these vendors have had a great deal of success winning the core business of banks around the globe, but their success in the United States has, thus far, been limited. While U.S. financial institutions have been willing to partner with these vendors on the IT services side and with some point solutions, the number of non-U.S. core systems deployed by U.S. banks remains low. There have been a few high-profile examples of institutions taking a chance with these solutions, but there have also been some high-profile failures. Such failed partnerships have created an even more challenging environment for these vendors in the United States, but smaller victories with other products and the size of the U.S. market continue to motivate these vendors to pursue and invest in the United States.

On a positive note, Aite Group analysts observe that some of these vendors' brands are continuing to strengthen, promising future success for those able to convince U.S. bank decision-makers that they not only understand U.S. regulations and customer needs but that they also offer compliant solutions. Table U lists some of the leading global core vendors targeting the U.S. market.

Table U: Leading Global Core Vendors With U.S. Presence

Vendor	Core solution(s)
Accenture	Alnova Financial Solutions
EdgeVerve	Finacle Core Banking Solution
Intellect Design Arena	Intellect Digital Core, Intellect Quantum Core
Oracle	Oracle FlexCube, Oracle Online Banking Platform
SAP	SAP Transactional Banking
Tata Consultancy Services	TCS BaNCS
Temenos Group SA	T24, Temenos Core Banking

Source: Aite Group

CONCLUSION

As a growing number of financial institutions look to re-evaluate their core banking strategy to determine whether their solutions have progressed with the rapidly changing environment, Aite Group recommends the following for financial institutions and vendors:

Financial institutions:

- Align your bank's IT transformation with new paradigms. These include technological agility, time to market, digital imperatives, and customer-centricity.
- Determine the infrastructure deployment model that best suits your business objectives. This includes the use of hosted, SaaS, or cloud deployments. Match your security and data requirements with the characteristics of each deployment model.
- When selecting a new vendor partner, don't just consider functionality and intuitive workflows. Vendors should also demonstrate knowledge of key market trends, a clearly thought-out and communicated roadmap, and a culture that aligns with that of the financial institution.
- Leverage standards. Financial institutions should look for a solution that can offer them an open architecture based on interoperability standards and APIs that can facilitate both front-end and back-end integration.

Vendors:

- For the more established vendors, while functionality is important, user experience is critical to financial institutions and thus should represent the greatest share of new enhancements.
- Adopt agile development methodologies and strive for smaller, more frequent releases and service packs, as opposed to larger, less-frequent releases once or twice a year, especially when it comes to enhancements of the user experience.
- Continue to build value into your core platforms. Pricing pressures from all institutions will further increase, and building value by constantly introducing new functionality will be critical to your success.

RELATED AITE GROUP RESEARCH

Top 10 Trends in Retail Banking & Payments, 2019: Disruption Is the Norm, January 2019.

Top 10 Trends in Wholesale Banking & Payments, 2019: Accelerate and Integrate, January 2019.

Large Banks and Technology Buying: An Evolving Mindset, July 2017.

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