

WHITE PAPER

CONNECTED CORPORATE BANKING

Breaking Down the Silos

INTRODUCTION TO CONNECTED CORPORATE BANKING

There is a widening gap between the winners and losers in corporate banking. Three principles guide the highest performers: a focus on connecting platforms and ecosystems, the desire to embrace innovation and an obsession with the customer. To increase the corporate wallet share, digital corporate banking strategies must keep the right balance between all three.



Ben Singh-Jarrold
Strategist, Corporate Banking

Corporate and commercial banking remains attractive with good returns and solid revenue growth despite contracting margins. The latest Celent research incorporates new data from Oliver Wyman, forecasting global growth for corporate banking (global transaction banking revenue and lending revenue) of 4 percent from 2016 to 2020, doubling the 2 percent growth rate from 2010 to 2016. While many financial institutions continue to experience headwinds, transaction services and commercial lending hold the key to a US\$915BN revenue opportunity for 2020.

Growth is not a given. Bank returns on equity have risen to around 15 percent on average but leaders outperform laggards by a factor of two. In the fight for margin improvement and market share, technology is a double-edged sword. It can carve out new opportunities but must be deployed strategically to ensure competitive differentiation.

Digital Progression

The 2014, McKinsey Consensor Survey highlighted that 70 percent of banks had a digital strategy for their corporate bank, while 30 percent were developing one. At Finastra we see the many faces of digital transformation; different strategies to target different corporate segments and geographies. Finastra helps large banks looking to simplify their legacy landscape while simultaneously seeking to nurture innovation. We also help regional banks looking to expand rapidly across borders and domestic banks fighting to protect market share.

There is no escaping the fact that cost reduction remains the most tangible value-add of more digitalized corporate banking. In this report, Celent reveals Oliver Wyman analysis predicting that process automation and deep digital adoption (i.e. a dramatic shift of the operating model) could save the Wholesale Banking sector from US\$15 billion to \$20 billion between 2016 and 2020 - by enhancing and replacing human processes.

In every business case the potential for digitalization depends on the strategy but whether revenue, cost or risk is the driver, all banks seek more touch points—and the right touch points—with their corporate customers. They seek a simpler model to service the end-to-end corporate value chain more effectively, an optimized model that can turn data into dollars and an open model that creates a platform for innovation and collaboration.



Process automation and deep digital adoption (i.e. a dramatic shift of the operating model) could save the Wholesale Banking sector from US\$15 billion to \$20 billion between 2016 and 2020—by enhancing and replacing human processes.”

Sticky Business or Fast Growth

So, where do banks begin their transformation journey? There are two broad categories in this context.

First, we see developed market banks modernizing their landscape, often focusing first on best-in-class, point solutions. Here we see the digitalization of end-to-end commercial routines as a big driver for change in the lending business. Why is lending often the lever?

The Financial Conduct Authority 2016 market study on Investment and Corporate Banking¹ highlighted an interesting trend. The prevalence of cross-selling from lending to other transactional services is significantly higher where banks had provided complex loans to large corporates in the last two years. 75 percent of the time customers returned for other corporate transaction services, accounting for 76 percent of gross fees from corporate transactions.

The deployment of modernized supply chain finance and traditional trade platforms also often provide a fulcrum for transformation in these banks. Margin pressure and inefficiency is one driver, but there is also an attractive revenue growth and cross-sell opportunity. For every cross-border trade transaction, or invoice financed there is potential for new fee and interest income, from payments, cash management and hedging.

On the other end of the scale we see banks in emerging markets experiencing high growth and feeling pressure from more sophisticated, internationally active corporate customers. The promise of connected corporate banking, led by unified, international, multi-channel digital banking, provides the ability to rapidly launch or transform international subsidiaries to better service international customers and expand quickly in to new markets.

The Never-Ending Journey

Until we replace 'digital' with something else, 'digital' transformation is probably here to stay. One day we might talk in terms of cognitive transformation instead. Digital transformation use cases in corporate banking can be seen through three lenses:

• Targeted Digitalization:

One tack is to focus on a specific element of the customer experience (e.g. on-boarding), a product area (e.g. online cash management) or the digitalization of a particular role in the bank, such as the relationship manager. Example use cases we are involved in include:

- Optimizing the sales engine by delivering aggregated data and transaction based analytics across corporate banking silos to identify cross-sell and up-sell opportunities
- The digitalization of specific complex loan servicing processes with Robotic Process Automation tools to digitalize selected workflows
- The delivery of self-service channels in areas like complex lending to alleviate administrative burdens and improve the customer experience.

• Transformational Digitalization

These strategies focus more on cross-business workflows and client experiences to drive more holistic transformation within the bank's walls. Here are just a few examples:

- Extending a unified view and ability to transact and monitor positions across all corporate banking products and services from multiple channels
- The delivery of Artificial Intelligence and big data based lead generation to provide 'next product to buy' recommendations for Relationship Managers and win new business
- End-to-end workflow digitization, for example in supply chain finance, to drive STP and the flexibility needed to scale and service SCF programs.

• Expansive Digitalization

This relates to either the development of completely new corporate banking entities, or digital initiatives that seek to place a bank at the center of the digital ecosystem by driving new business models that seek to connect the world beyond the bank's walls.

- Corporate banking 'in-a-box' sought by those looking for wholesale transformation or launch of International banking entities and services to support rapid geographical expansion. Also the approach by pure-play 'digital attacker' banks. Hosted or cloud based deployment increasingly preferred, except in emerging markets.
- Digitalization driving collaborative business models and innovation—for example fintech applications like fraud detection tools developed externally via a developer portal, or the integration of third party fintech into core platforms with open APIs
- Integrating transaction services with emerging decentralized transaction networks e.g. blockchain networks, distributed ledger platforms or online B2B lending marketplaces.

¹ FCA, *Investment and corporate banking market study, Annex 6 - Cross-selling, bundling and cross-subsidization supporting analysis*, 2016

A Platform for Growth

Buy versus build? On-premise versus cloud? Integrated corporate banking, or standalone solutions for cash and trade finance? The consideration matrix is complex. In this report, Patty Hines notes that:

“At the end of the day, integration is the linchpin underlying “connected corporate banking.” The convergence of corporate banking products is fundamental to support the working capital objectives of clients and the banks winning market share in corporate banking will excel at integrating business and technology silos.”

Connected corporate banking should retain the value of ‘best-of-breed’ components, but on a *platform* that enables open integration, cross business cohesion and agility—IT agility, service agility, product agility and market agility.

The difference between a core banking solution that provides integrated corporate banking modules and a connected corporate banking *platform* is in the level of componentization. On a *platform* each component is a separately maintained application. It can be upgraded alone but will always operate in unison with the

other solutions. Think Apple iOS. Think of a bank’s digital channels solution as an app that sits on a connected corporate banking operating *platform*.

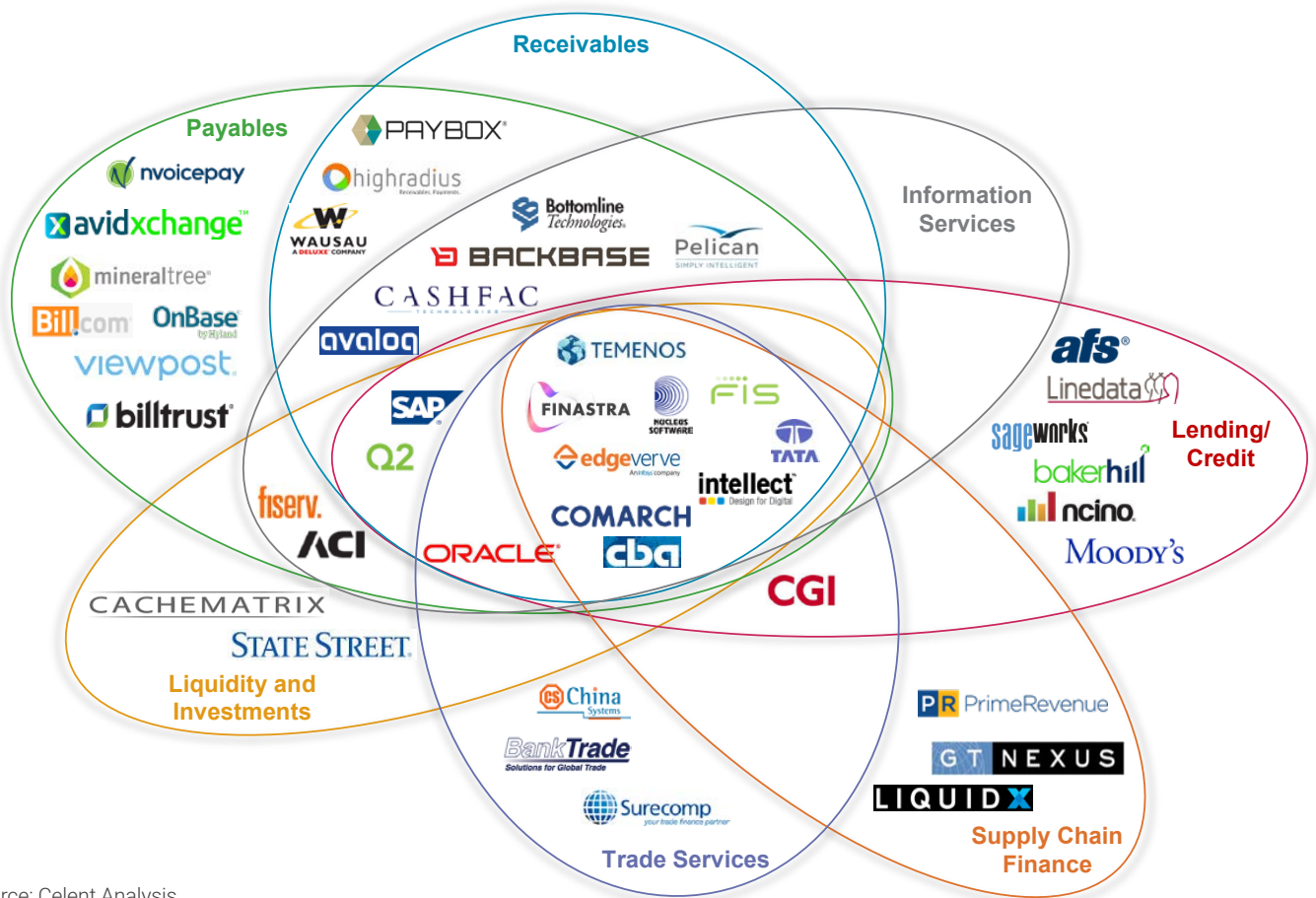
By this definition a core banking solution that provides corporate banking functionality is not a connected corporate banking *platform*. Upgrading one module means upgrading the entire infrastructure. There is also a compromise to be made as the focus of such a solution is not to deliver ‘best-of-breed’ components as well as interoperability.

Connected Corporate Banking

Celent is unique in its efforts to define the end-to-end corporate banking technology landscape. In doing so, the analyst house assessed the capabilities of 18 vendors to define which could provide integrated corporate banking offerings. Then, against a predefined taxonomy of corporate banking, they compared the level of pre-packaged modules by way of initial comparison. We are delighted to share that information first with you, here.

The World Economic Forum’s impact report, ‘Beyond Fintech—A Pragmatic Assessment of the Disruptive Potential in Financial Services’² notes that:

Corporate Banking Vendor Landscape (Not Exhaustive)



Source: Celent Analysis

2 World Economic Forum, Beyond Fintech: A Pragmatic Assessment Of Disruptive Potential In Financial Services, August 2017

Corporate Banking Solution Capabilities Comparison

	Cash Management				Trade Finance & Supply Chain Finance		Lending & Credit		Corporate to Bank Channels					Back Office & Accounting						
	Info Svces	Liquidity	Pybles	Revbles	Trade Finance	Supply Chain	Cmcl Loans	Complex	Online	Mobile	Tablet	Host to Host	Network Connectivity	Open APIs	Core Banking	Pymt Process	CRM/ CLM	Billing	Risk/ Compli	Loan Svcing
Integrated Corporate Banking Suites																				
EdgeVerve	●	●	●	●	○	○	●	○	●	●	●	●	●	●	●	●	●	●	●	●
Finastra	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FIS	●	●	●	●	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fiserv	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●
Intellect Design	○	●	●	●	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Nucleus	●	●	●	●	●	●	○	○	●	●	●	●	●	●	●	●	●	●	●	●
Oracle	●	●	●	●	○	○	●	●	●	●	●	○	●	●	●	●	●	●	●	●
TCS	○	○	●	●	●	●	●	○	○	○	○	○	○	○	●	●	●	○	●	●
Temenos	●	●	●	●	○	○	●	○	○	○	○	○	○	○	●	●	●	●	●	●
Digital Corporate Banking Solutions																				
ACI Worldwide	●	●	●	○	○	○	○	○	●	●	●	○	●	○	○	○	○	○	○	○
Bottomline	●	○	○	○	○	○	○	○	●	●	●	●	●	●	○	○	○	○	○	○
Cashfac	○	○	○	○	○	○	○	○	●	●	●	●	●	●	○	○	○	○	○	○
CBA	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
CGI	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Comarch	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Pelican	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Q2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SAP	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

- All features supported
- Not available
- All features supported with integration to separate module from vendor
- Most features supported
- All features supported with 3rd party integration
- Some features supported
- Most features supported with 3rd party integration
- Few features supported
- Some features supported with 3rd party integration
- Most features supported, mix of out of the box and available with integration
- Most features supported, mix of out of the box and available with integration

Source: Vendor RFI responses, Celent analysis

“The rise of digital interfaces and data in financial institutions means that institutions increasingly focus on developing large tech capabilities, which is accompanied by an increased reliance on large tech firms”.

The report cites major cloud players and Uber as ‘systemically important techs’. Finastra’s corporate banking applications process 25% of US wire payments, 10% of daily trade finance volume, 43% of the world’s syndicated loans and 8% of daily FX trading.

Connected corporate banking platforms are systemically important too. They are the unsung heroes of digital transformation.

By thinking about a true *platform* approach corporate banks can progress legacy and ecosystem transformation initiatives, embrace innovation and evolve by turning an obsession with the customer into the primary agent of growth. And they will be able to do so until the word ‘digital’ is replaced by something else.



By this definition a core banking solution that provides corporate banking functionality is not a connected corporate banking platform.”

CELENT

CONNECTED CORPORATE BANKING: BREAKING DOWN THE SILOS

Patricia Hines, CTP
01 September 2017

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EXECUTIVE SUMMARY

Corporate banking plays a dominant role for the largest global banks. In 2016, corporate banking was responsible for 38% of overall operating income across the 20 banks included in Celent's analysis. This report drills down into corporate banking performance and takes a closer look at segment revenue, customer segmentation, technology drivers, and software providers. Looking across the sector, we define the capabilities that banks must have to serve corporate banking customers, and how banks can achieve the scale and technology required to compete.

KEY RESEARCH QUESTIONS

- 1** *What capabilities are needed to serve corporate banking customers?*
- 2** *Will corporate banking remain an attractive market segment?*
- 3** *How can a bank achieve sufficient scale and capabilities to compete in the corporate banking segment?*

The largest corporate clients often work with more than 20 banks, relying on banks to deliver an extensive set of products and services. Thus, banks that want to attract (and retain) a substantial piece of a corporate's banking business must continue to invest in the technology infrastructure required to deliver an array of solutions across multiple corporate banking segments.

Celent has developed a corporate banking taxonomy focused on two major corporate banking segments: transaction banking and lending/credit. However, there are other products and services used by corporate and institutional clients that fall outside the traditional global transaction banking product group, notably risk management (e.g., foreign currency, commodity, and credit) and corporate finance (e.g., equity capital markets, debt capital markets, and mergers and acquisitions).

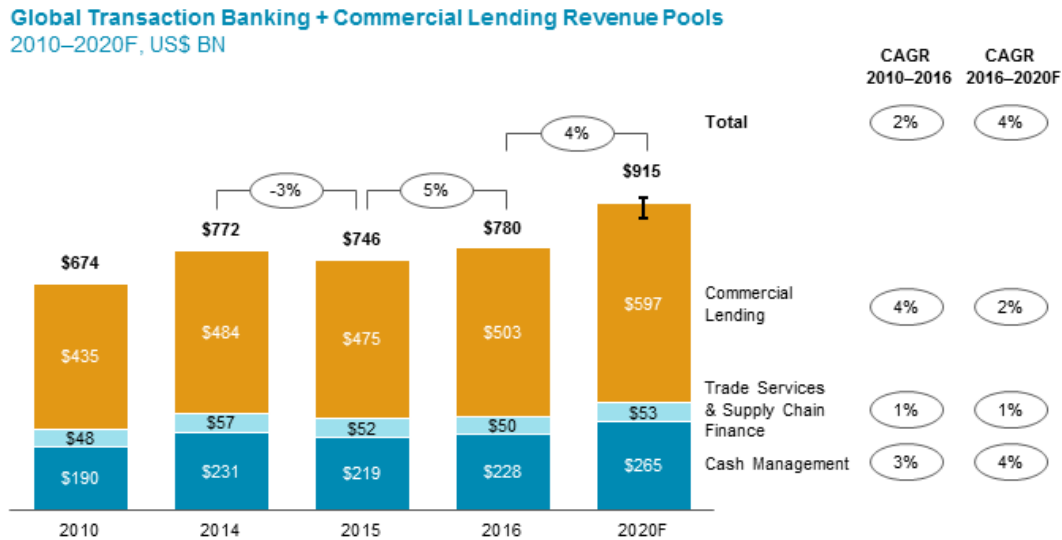
Depending on the size and maturity of the business, banking requirements differ widely, especially in use of digital channels. Depending on a firm's stage of its economic lifecycle, they use digital channels differently for bank account information, cash management services, payments initiation, and international services.

Large corporates may standardise on a global payments platform but lean on their lead transaction banks for more complex netting, intercompany lending, and foreign exchange hedging. Middle market companies with limited treasury and finance staffs value the ability to initiate and approve payments, manage exceptions, and receive alerts on smartphones and tablets when they are working outside of their corporate offices. Small-medium enterprises want simplified services that are scalable as they grow, but not "dumbed down."

Unfortunately for banks, a business customer's banking needs don't neatly follow along a maturity continuum. Depending on the company's size, industry, and geographic location, they may need a cross-section of products, and look to their banking partners to tailor solutions to meet their diverse needs.

For banks able to deliver comprehensive, tailored, and connected corporate banking products, the rewards can be substantial. According to Oliver Wyman, worldwide global transaction banking revenue was US\$278 billion in 2016, with a CAGR of 3% from 2010 to 2016. Growth was fastest in the APAC region, at 5% versus 0% for EMEA and 2% in the Americas. Commercial lending remains a significant part of the corporate banking revenue picture, with US\$503 billion in revenue in 2016, growing 2% from 2010 to 2016. Transaction banking and commercial lending combined are forecast to grow 4% from 2016 to 2020, double the combined growth rate from 2010-2016 (Figure 1).

Figure 1: GTB and Commercial Lending Forecast to Grow at 4% Through 2020



Source: Oliver Wyman GTB Revenue Pools

In a sector ripe for transformation, four trends are compelling banks to invest in corporate banking technology platforms.

- Legacy transformation.
- Customer experience.
- Regulatory and industry initiatives.
- Emerging technologies.

Being successful at serving larger commercial clients requires a commitment to technology investments, business model changes, and more complex operational processes. In the battle for revenue share, technology is both an opportunity and a challenge for differentiation.

Banks looking to capture a greater share of the global corporate banking wallet must consistently invest in updating and enhancing their corporate banking solutions to meet client demands for ease of use, flexibility, and convenience. The days of implementing a new solution and only applying mandatory maintenance patches or regulatory requirements are long gone.

To improve corporate practitioner satisfaction from a technology perspective, banks need to start with an overall digital strategy for corporate banking. The strategy will differ based on bank size, corporate banking solution maturity, and geographic expansion plans. As part of their strategy work, banks are thinking differently about build versus buy decisions, and on-premise versus cloud software deployment. There are a number of solutions to

consider when buying software — ranging from integrated corporate banking platforms to digital cash management portals, and best-of-breed capabilities to fill out a particular product segment.

At the end of the day, integration is the linchpin underlying “connected corporate banking,” and the convergence of corporate banking products is fundamental to support the working capital objectives of clients. The banks that excel at integrating business and technology silos will win market share.

As banks craft their strategies and set out to invest in differentiated capabilities, we see increased collaboration — between banks, with traditional financial technology firms, and in partnership with fintech startups. The corporate banking revenue pool is an attractive one, and high-performing banks have an opportunity to grab an outsized share of the corporate banking wallet.

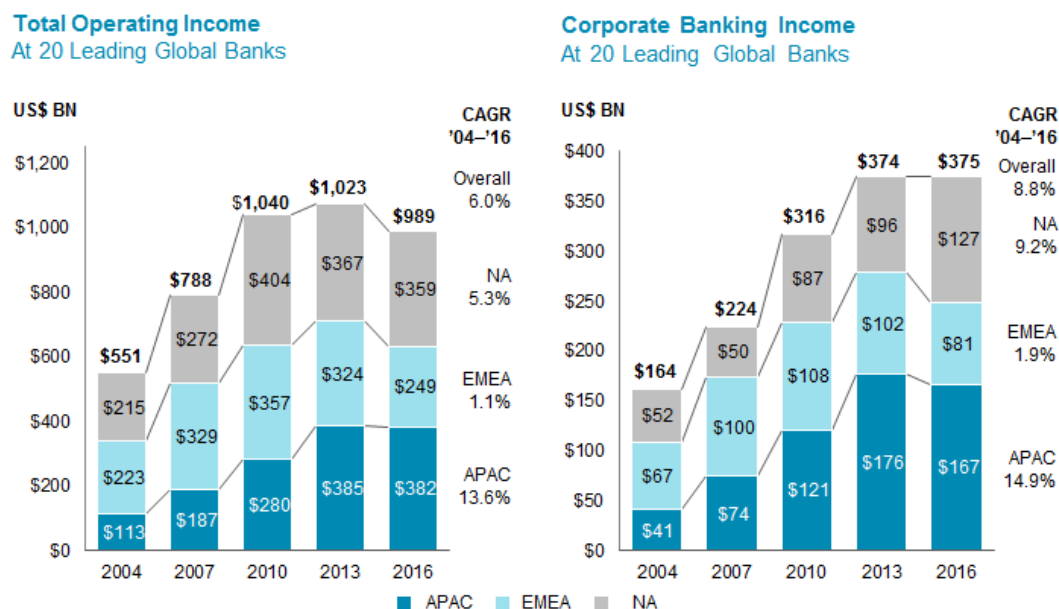
A STEADY, STABLE SOURCE OF INCOME

In September 2015 Celent published *Corporate Banking: Driving Growth in the Face of Increasing Headwinds*. The report looked at the performance of corporate banking at major global banks, the opportunities and challenges facing corporate banking, and Celent’s outlook for the sector. Almost two years later, this report builds upon that research, looking at the sector from several new perspectives. In addition to updating corporate banking performance, we take a closer look at segment revenue pools, customer segmentation, and technology drivers. Looking across the sector, we define the capabilities that banks must have to serve corporate banking customers, and how banks can achieve the scale and technology required to compete.

CORPORATE BANKING PERFORMANCE ANALYSIS

If we look at the annual reports and financial results of 20 of the world’s largest banks, corporate banking operating income growth continues to outpace total operating income (see Figure 2).

Figure 2: Corporate Banking Income and Deposits at Leading Global Banks 2004–2016



Source: Bank annual reports and financial statements, Celent

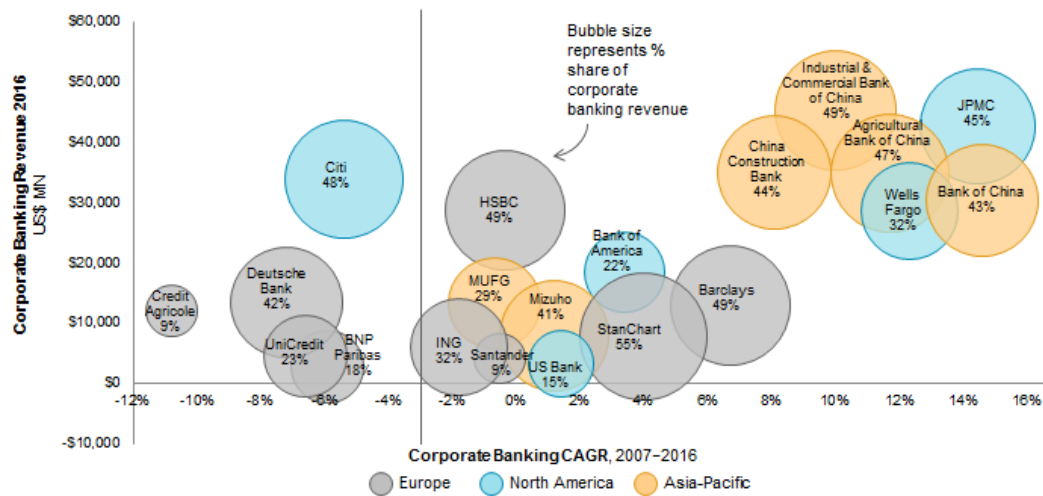
Except for 2008, the beginning of the global financial crisis, the top global banks sustained year-over-year growth in corporate banking operating income from 2004 through 2016, resulting in a CAGR of 8.8%. This growth rate compares to a 6.0% CAGR in total operating income for these top institutions.

Looking at results by geographic region, we see dramatic differences in growth. The APAC banks in the analysis enjoyed a CAGR of almost 15% while the EMEA banks grew slightly under 2%. Corporate banking performance at North American banks in the study dramatically outpaced overall North American operating income (9.2% versus 5.3%).

Taking the analysis to the bank level, Figure 3 drills down into the individual bank financials, uncovering wide discrepancies in corporate banking revenue (vertical axis), 10-year revenue growth (horizontal axis), and proportionate share of corporate banking revenue (bubble size).

Figure 3: Corporate Banking Revenue Growth and Revenue Share (2007–2016)

Corporate banking revenue growth, revenue amount and revenue share (2007–2016)



Source: Bank annual reports and financial statements, Celent

The top four global banks by assets are headquartered in China. These banks each generated 2016 corporate banking revenue in the US\$30 billion to US\$45 billion range, experienced 10-year corporate banking revenue growth in the 8% to 15% range, and depend on corporate banking for approximately 45% of their overall bank revenue. The two largest Japanese banks appear in the middle of the pack with flat revenue growth. In North America, JPMorgan Chase and Wells Fargo also enjoyed double-digit growth, while Bank of America, Citi, and US Bank did not fare as well over the period.

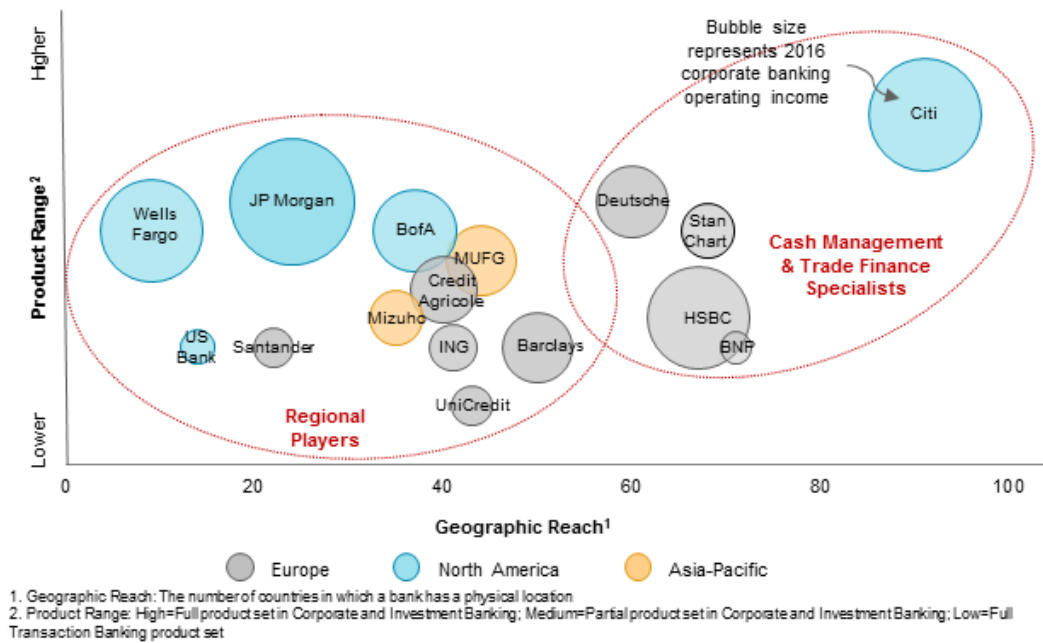
Where a bank is headquartered doesn't necessarily reflect their geographic priorities. For example, Standard Chartered is headquartered in London but earns 67% of its overall revenue in Asia-Pacific. Similarly, HSBC, another London-based bank, earns 42% of its revenue in Asia-Pacific. Of the 20 banks in the Celent analysis, corporate banking operating income averages 38% of overall operating income. However, banks are evenly split between corporate banking heavyweights (40–55% of revenue) and more retail-focused players (9–32% of revenue).

SHIFTING GEOGRAPHIC PRIORITIES

Another way of looking at these banks is by business model. Figure 4 compares geographic reach to estimated breadth of corporate and investment banking products and services.

Figure 4: Corporate Banking Business Models

Corporate banking geographic reach, product range, and operating income (2016)



Source: Bank annual reports and financial statements, Celent analysis

The large global banks follow their multinational clients' leads into new territories and then work to win business from locally headquartered firms that are expanding internationally. A large geographic footprint is the hallmark of cash management and trade finance specialist banks — seeking to serve their corporate clients as they expand across the globe. The large regional players serve clients across a smaller number of countries, and for the most part, with very competitive products and services.

Citi leads the pack with a full-service corporate banking network in 91 countries. HSBC, BNP Paribas, and Standard Chartered continue to serve an extensive geographic footprint, but all have exited several countries since the 2009 financial crisis. Barclays Bank is now focusing on four core markets: Hong Kong, Japan, Singapore, and India — countries where their large US and UK-based multinational clients are looking for growth opportunities. In 2015 RBS surprised the industry when it announced it was closing its global transactions services operations for customers outside the UK and Ireland.

As banks make strategic decisions to exit lines of business or geographic markets, often due to stricter KYC and AML requirements along with more conservative risk appetites, their clients are forced to find new providers. Clients then face onerous onboarding processes, often requiring months of effort to establish new operating accounts and services. As banks retrench, it opens the door for regional banks to expand their client base and justify investment in more robust product capabilities.

On the flip side, the *Financial Times* reported in May 2017 that Citi is expanding its corporate banking business in eight key Asian trade corridors in an attempt to capitalise

on the growth in importance of China in the region as well as fears over a retreat by the US from global trade.¹

ABOUT THE CELENT CORPORATE BANKING ANALYSIS

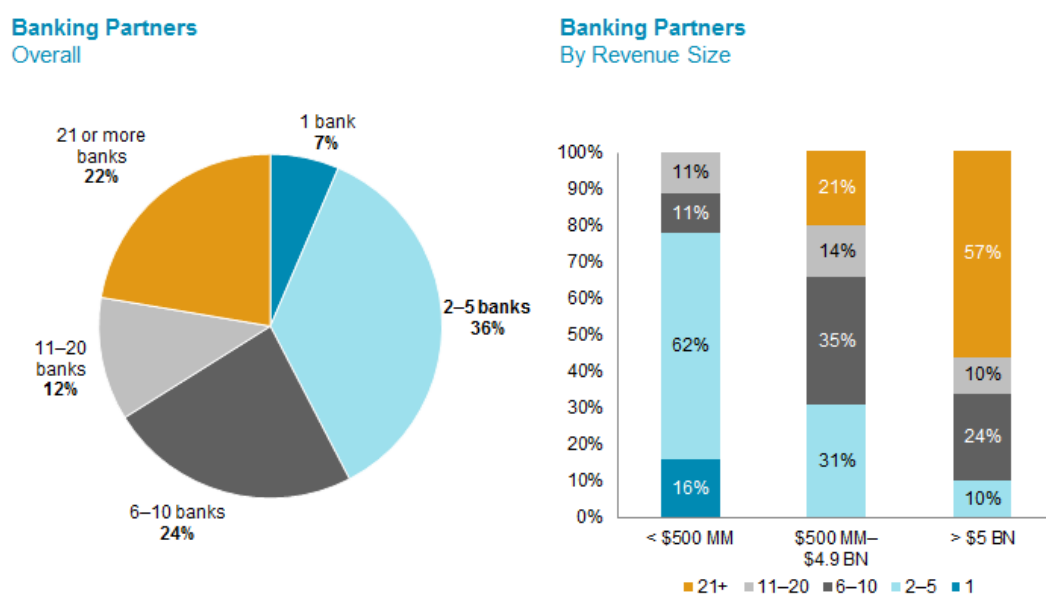
The Celent corporate banking analysis encompasses 20 of the world's largest banks, with a focus on institutions that break out financial results for their corporate banking business segments and ensuring a representative sample from each geographic region. [Appendix 1](#) lists the banks included in the Celent analysis by global asset ranking according to SNL Financial. Because banks segment their business units in a multitude of ways and frequently reorganise business units, it is difficult to construct a strict apples-to-apples comparison of corporate banking performance across time, geographies and individual banking institutions. [Appendix 2](#) lists the banks in this analysis by geographic region, showing the organizational segments included in their corporate and commercial banking financial results.

¹Citi to expand corporate banking in key Asia-Pacific corridors, Laura Noonan, *Financial Times*, May 28, 2017.

CORPORATE BANKING TAXONOMY

Many companies, even multinationals, work with only a handful of primary cash management banks for their core, domestic transaction needs. However, these companies require numerous operating accounts at regional and local banks for foreign exchange, currency services, employee payroll, and vendor payments. The CGI 2016 Transaction Banking Survey found that 34% of the largest global firms work with 11 or more banks, and 40% have more than 150 bank accounts. Even the smallest businesses usually partner with more than one bank. Only 16% of respondents reported doing business with a single bank (see Figure 5).

Figure 5: An Explosion in Banking Partners



Source: CGI 2016 Transaction Banking Survey, published by GTNews & CGI, Celent analysis

On the flip side, 22% percent of respondents reported doing business with 21 or more banks. Not surprisingly, the number of banking relationships maintained by a firm varies with size. For the largest firms, the percentage working with more than 21 banks jumps to 57%. Somewhat surprisingly, 11% of the smallest firms surveyed use more than 10 banking partners to conduct business. More than one-third of survey respondents report that their organisations maintain relationships with two to five banks, and an additional 24% partner with six to ten banks. However, while company size is a major driver, the number of banking relationships is also influenced by factors such as treasury structure, geographic presence, industry segment, and company strategy.

No surprise, the largest corporate clients demand an extensive set of products and services, and banks that want to attract (and retain) a substantial piece of a corporate's banking business must continue to invest in the technology infrastructure required to deliver an array of products across multiple corporate banking segments.

A DIZZYING ARRAY OF PRODUCTS AND SERVICES

Key Research Question

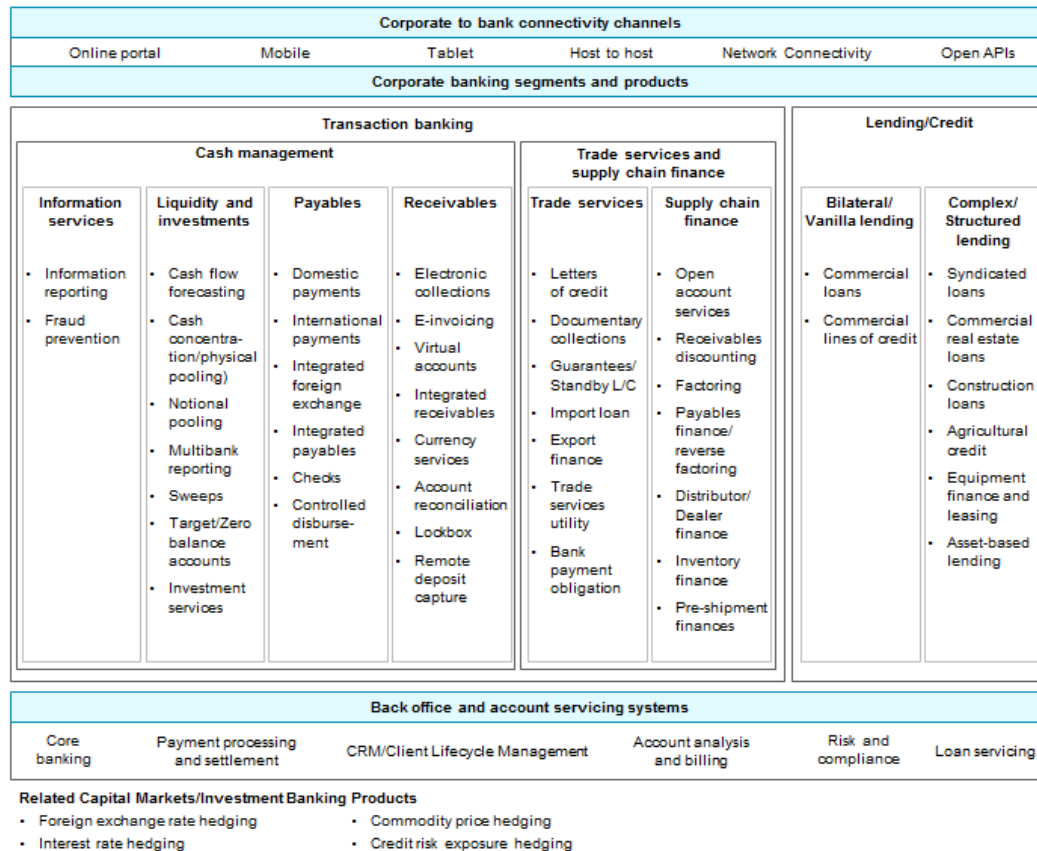
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What capabilities are needed to serve corporate banking customers?

Corporate clients demand a dizzying array of products and services, and banks that want to attract (and retain) their business must invest in a robust technology infrastructure across multiple corporate banking segments.

Celent developed the Corporate Banking Taxonomy depicted in Figure 6 to categorise the dizzying array of products and services required by corporate treasurers to manage working capital, liquidity, investments, and risk across their geographic footprints.

Figure 6: Celent Corporate Banking Taxonomy



Source: Celent analysis

The Celent taxonomy is broken down into two main product segments: transaction banking and lending/credit origination. There are other important products and services

used by corporate and institutional clients that fall outside of a traditional global transaction banking product group. Risk management includes products used by corporates to manage their risk profile such as hedging and derivatives instruments (e.g. interest rate, foreign currency, commodity, and credit). Corporate finance includes equity capital markets, debt capital markets, and mergers and acquisitions.

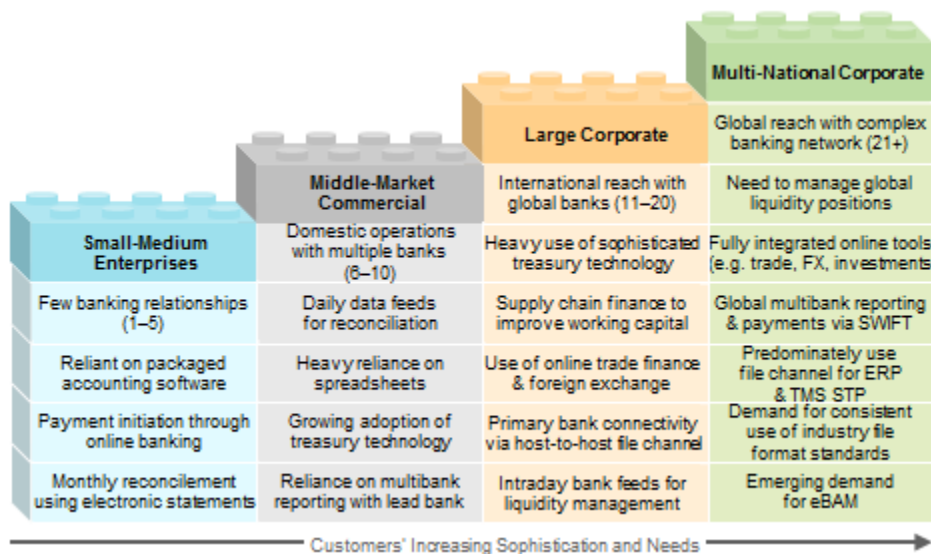
Corporate to bank connectivity channels act as the customer-facing interface. Companies use a number of channels for bank connectivity — web-based online portals, treasury workstations, host-to-host file exchange, SWIFT for Corporates, mobile/tablet banking, and paper-based/fax. Behind the scenes, bank back office systems provide the technology architecture to support specialised accounting and processing for complex corporate banking products and services.

[Appendix 3](#) provides definitions for each of the products listed in the taxonomy. But the Celent taxonomy is only a starting point. For example, the AFP Service Code standard for treasury products contains more than 800 codes for distinct banking services that are widely adopted across Europe, the Middle East, Africa, and the Pacific Rim.

ONE SIZE DOES NOT FIT ALL

Depending on the size and maturity of the business, banking requirements differ widely, especially in use of digital channels. Figure 7 depicts various stages in a firm’s economic lifecycle and their use of digital channels for bank account information, cash management services, payments initiation, and international services.

Figure 7: Customers’ Increasing Sophistication and Banking Needs



Source: Celent

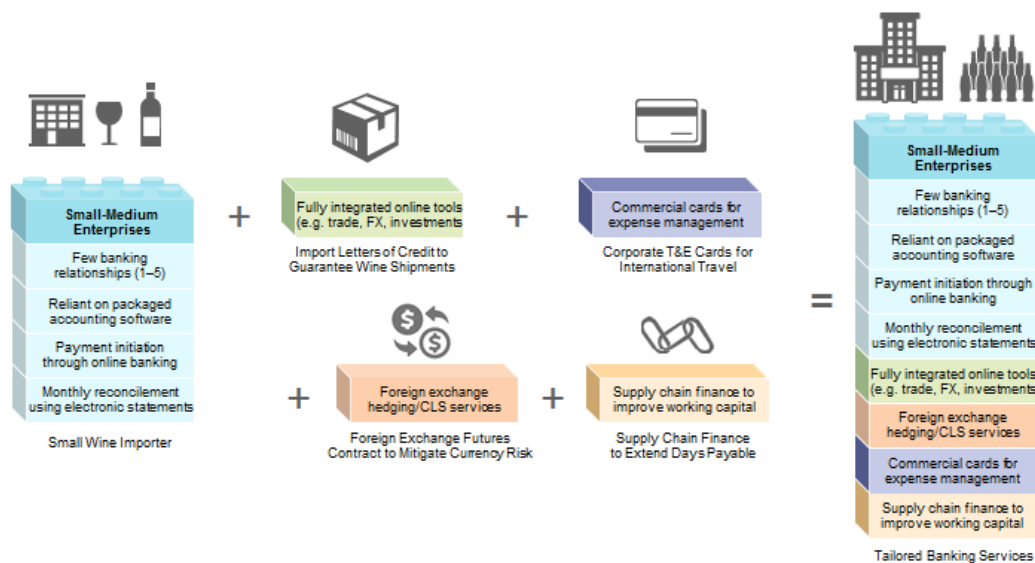
Large corporates may standardise on a global payments platform but lean on their lead transaction banks for more sophisticated netting, intercompany lending, and foreign exchange hedging. Middle market companies with limited treasury and finance staffs value the ability to initiate and approve payments, manage exceptions, and receive alerts on smartphones and tablets when they are working outside of their corporate offices. Small-medium enterprises want simplified services that are scalable as they grow, but not “dumbed down.”

Although at most banks cash management, trade services, and supply chain finance fall under the Transaction Banking banner, these solution sets often run on disparate, siloed back office platforms. To mitigate the jarring user experience of multiple logins, different user interfaces, mismatched data elements, and inconsistent entitlements, many of the largest banks continue to invest in sophisticated, integrated corporate digital front end channel solutions such as Wells Fargo CEO, CitiDirect BE, Bank of America CashPro, and Deutsche Bank Autobahn. However, many geographies have regional nuances such as the proliferation of checks in the United States, electronic billing (boleto) requirements in Brazil, and Renminbi invoicing in APAC, which may require corporates to seek tailored online, mobile, and file channel solutions from more regionally focused banks.

Many banks continue to offer their small business clients a rebranded retail online banking interface with limited cash management features. These banks underestimate the growing sophistication of SME financial needs. The world's largest corporations have been doing business globally for many years. As it becomes easier for smaller companies to work with suppliers and buyers across geographies, many more middle-market and small-medium enterprises are becoming globally active.

Unfortunately for banks, a business's banking needs do not neatly follow along a steady continuum. Depending on the business size, industry, and geographic location, they may require a cross-section of products as shown in Figure 8.

Figure 8: One Size Does Not Fit All



Source: Celent

Although banks strive for a consistent, integrated customer experience for their largest commercial clients, many banks have a separate digital platform for their small business customers. These disparate platforms limit the ability for clients to mix and match banking services across platforms. The limitations of most small business digital online banking solutions prevent users from accessing integrated cross-border payments, letters of credit, commercial card services, and supply chain finance.

THE OPPORTUNITY: CORPORATE BANKING REVENUE POOLS

As evidenced above, banks continue to be dependent on corporate banking, including global transaction banking, as a steady, stable source of fee and interest income. While other banking segments are ripe for disruption, as discussed in Oliver Wyman's *Delivering Excellence in Corporate Banking*, a number of factors mitigate external threats:

- Banks still enjoy unparalleled access to corporate clients and possess intimate knowledge and information about them; this is an asset built over decades which is hard to replicate.
- Banks have unrivalled experience in pricing, structuring and distributing assets to investors and in managing the risk associated with linking funding demand and supply.
- Banks have the ability to provide clients with access to various product categories, markets, and investors, and perform an advisory function.
- Banks provide fundamental processing capabilities and payment and account infrastructure to satisfy basic corporate needs.

Continuing a focus on global transaction banking, *Financial Times* recently observed that, "Often obscured by the more glamorous cut and thrust of M&A advisory and equity trading, transaction banking has become the place where investment and corporate banks are increasingly pinning their hopes for the future." The article also states that "Investment in transaction services is at odds with cutbacks in markets and investment banking. Even at Deutsche Bank, where billions of euros of costs and 9,000 jobs are being cut, €1 billion has been earmarked for investment in its global transaction banking division."²

LOOKING BACK — 2010 TO 2016

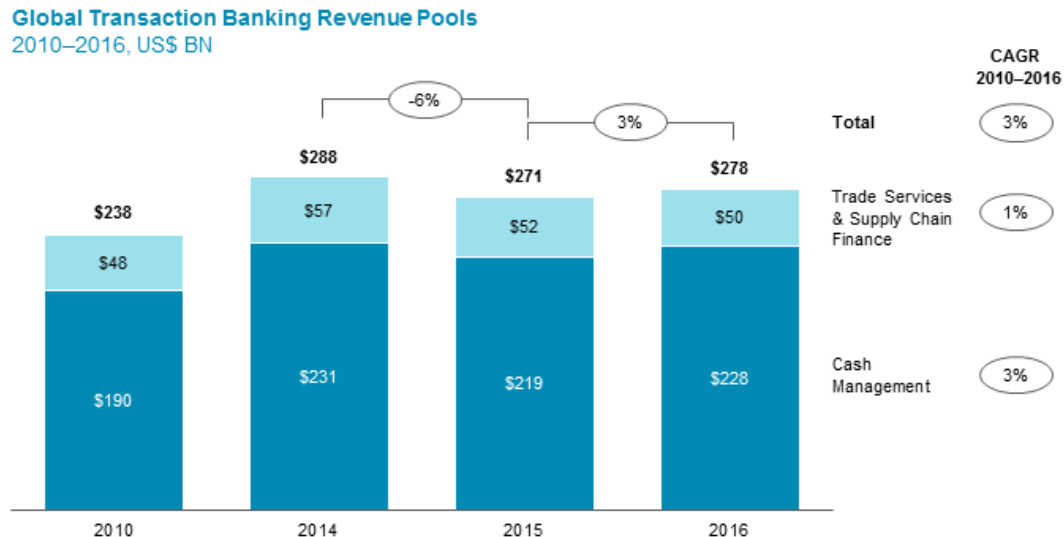
Oliver Wyman has maintained a comprehensive market sizing database for Corporate and Transaction Banking for over a decade. Oliver Wyman develops the revenue pools based on collecting proprietary bank revenue data from the leading global transaction banks, as well as analysing central bank and trade body volume data.

Global Transaction Banking Revenue

Figure 8 details Oliver Wyman GTB revenue pools from 2010 to 2016, broken out by product group.

²Talent follows the cash into transaction banking, Laura Noonan, *Financial Times*, March 6 2017/

Figure 9: Global Transaction Banking Revenue Pools by Product Segment 2010–2016



Source: Oliver Wyman GTB Revenue Pools

According to Oliver Wyman, in the early 2010's the Eurozone crisis and the slowing Chinese economy depressed overall GTB revenue growth. Although payment volumes were growing, revenue growth was sluggish given fee pressure. Corporate deposit volumes grew substantially as corporates hoarded cash and the global economy slowly started to recover from the financial crisis. A rise in globally active corporates in APAC led to an increased need for cross-border trade finance products. Banks investing and rolling out innovative buyer-led supply chain finance programmes contributed to solid growth in financial supply chain solutions.

Moving into the second half of the decade, overall GTB revenue grew approximately 2% from 2015 to 2016. Payment volumes continued to outpace GDP growth, a consistent trend, but margin compression due to fierce competition limited revenue growth. Corporate deposit balance growth over the same period was also strong, growing at 8% year over year, driving a one-year 4.7% increase in liquidity and account management revenue.

One of the drivers of corporate deposit growth is the stockpiling of cash by many corporations, especially US-based firms with global operations. According to the 2016 Global Finance Global Cash 25, the top 25 global public companies by cash on balance sheet are holding almost US\$730 billion in cash and short-term investments. Of the 25 firms, 13 are US corporations, 8 are Asian, and 4 are European. Many of these companies hold cash overseas and maintain company headquarters in countries where cash repatriation puts the company at a tax disadvantage.

Traditional trade finance continues to decline, driven by depressed commodity prices, continued contraction of international trade, and a further shift from letters of credit to open account trading. Also, the 2017 Rethinking Trade & Finance report from the ICC Banking Commission³ found an imbalance between supply and demand of trade finance services. The ICC's survey of financial institutions across 98 countries found that 61% of banks say they face greater demand for trade finance than they can supply. Over 68% of

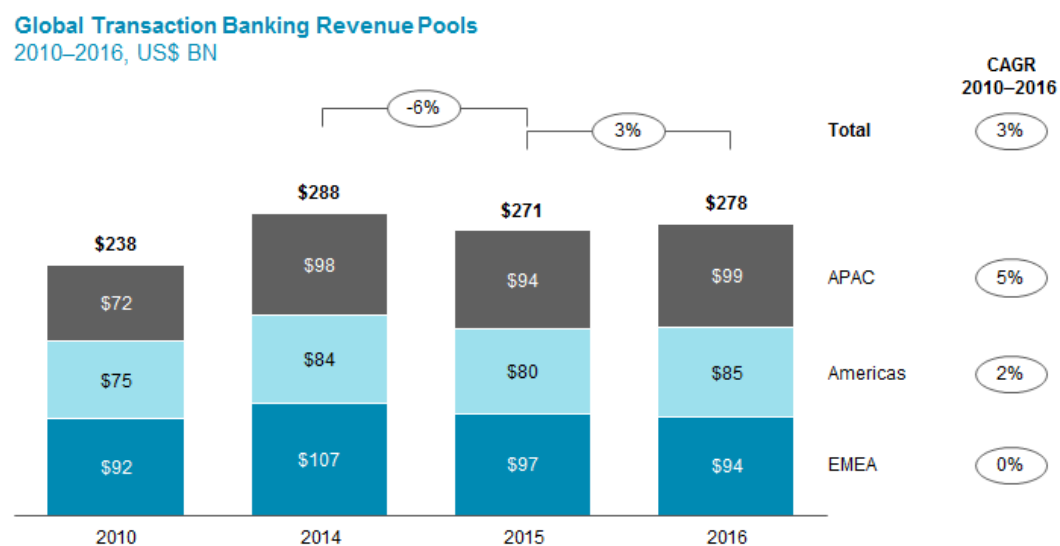
³2017 Rethinking Trade & Finance, International Chamber of Commerce (ICC).

respondents pointed to compliance and regulatory requirements such as KYC and AML monitoring as having the highest adverse impact on trade finance in the short term.

Financial supply chain revenue was flat, despite increased investment in buyer-led supply chain finance programs by global banks. But supply chain finance now represents about 55% of the overall trade services and supply chain finance market, evidencing the secular shift to open account.

As growth differs by product segment, it also differs by geography. Figure 10 breaks down the Oliver Wyman GTB revenue pool into three regions: EMEA, Americas, and APAC.

Figure 10: Global Transaction Banking Revenue Pools by Geographic Region 2010–2016



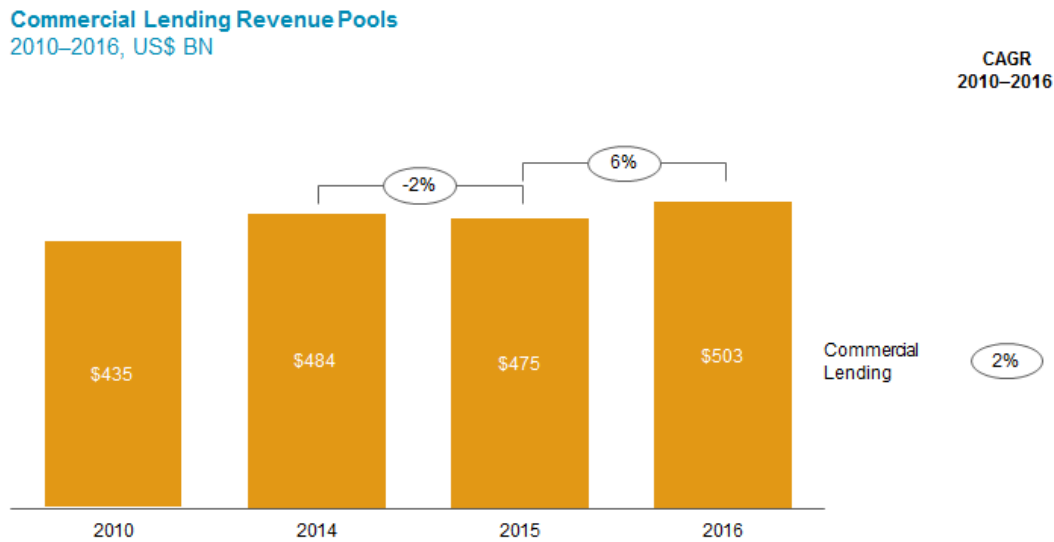
Source: Oliver Wyman GTB Revenue Pools

Overall, net interest income is on the rise in the Americas and APAC as spreads improve with central bank rate increases, but EMEA margins remain subdued by low interest rates and competitive pressures. Payment volume growth and cash balance accumulation are fuelling growth in APAC. Trade revenues declined in APAC as international trade remained depressed and in EMEA where oil-linked trade contraction in MEA added to sluggish trade performance in Europe. Financial supply chain revenue weakness in APAC was offset by strength in the Americas, especially in Latin America where receivables finance is up 5%.

Commercial Lending Revenue

Commercial lending, whether traditional vanilla or more complex structured lending, remains a significant part of the Corporate Banking revenue pool. Figure 11 shows Oliver Wyman's estimated global commercial lending revenue pools from 2010 through 2016.

Figure 11: Commercial Lending Revenue Pools 2010–2016

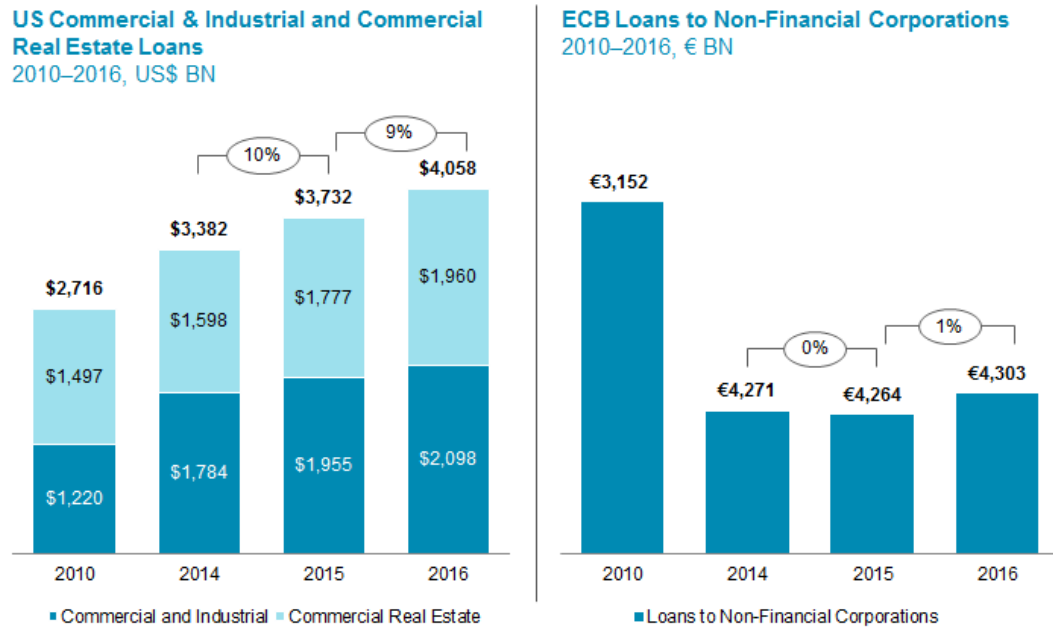


Source: Oliver Wyman Commercial Lending Revenue Pools

The US\$503 billion in global commercial lending revenue for 2016 is 1.8 times that of global transaction banking, demonstrating the continued importance of lending and credit. Commercial lending capabilities remain an important barrier to entry for fintechs hoping to capture a substantial piece of the transaction banking revenue pie, as many corporate clients continue to choose banking partners based on credit availability.

Looking at traditional bilateral vanilla lending, US Federal Reserve Data Releases show that the combination of commercial and industrial along with commercial real estate lending has seen consistent year-over-year growth, with a healthy 7% CAGR from 2010 to 2016. The Euro area is a different story. The European Central Bank statistics on loans to non-financial corporations reflects a decline of 1.4% from 2010 to 2016 (Figure 12).

Figure 12: Commercial Loans Outstanding 2010–2016 for US and ECB



Source: US Federal Reserve Data Release - H.8, ECB MFI Balance Sheets Online, Celent analysis

Another important component of commercial lending is complex lending including syndicated loans. According to Thomson Reuters' Global Syndicated Loans Review, global syndicated lending for 2016 was down 10% compared to 2015 and was the slowest annual period for global lending since 2012. Also, 2015 saw a significant decline from the 2014 peak. Although syndicated loan values are down, CAGR from 2010 to 2016 was 6.6%. Syndicated loans are commonly used for general corporate purposes, but acquisition financing drives approximately 25% of volume, with several large deals executed in 2016. JPMorgan Chase, Bank of America, Citi, Wells Fargo, and Mizuho Financial topped the 2016 global loans book runners' rankings.

In contrast, data from the Société Générale Corporate & Investment Banking Debt Capital Markets 2016 Review and 2017 Forecast shows that 2016 was an outstanding year for debt capital markets, with new records set in EUR-denominated corporate issuance and in USD-denominated issuance from financial institutions. The shift from bank syndicated lending to corporate bond issuance is driven by ultra-low interest rates, the ongoing trend to disintermediate bank markets, and strong M&A refinancing.

LOOKING FORWARD — 2020 FORECAST

Key
Research
Question

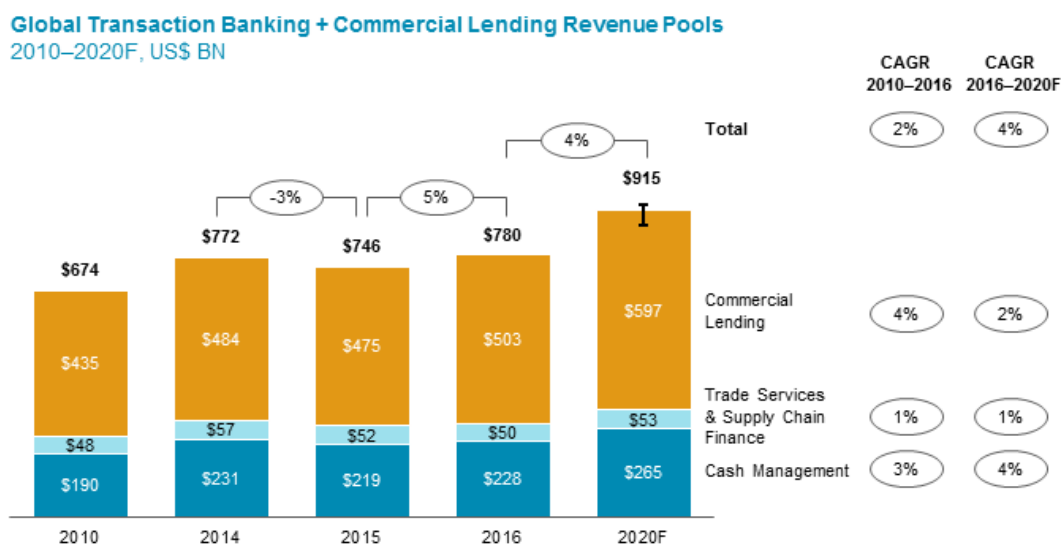
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Will corporate banking remain an attractive market segment?

While growth is slowing at many financial institutions, corporate banking remains a very attractive market segment, with transaction banking and commercial lending expected to grow at 4% through 2020.

Transaction banking and commercial lending combined are forecast to grow 4% from 2016 to 2020, double the growth rate from 2010 to 2016. While growth is slowing at many financial institutions, transaction banking and commercial lending remain attractive corporate banking segments with US\$915 billion in revenue forecast for 2020 (Figure 13).

Figure 13: GTB and Commercial Lending Forecast to Grow at 4% Through 2020



Source: Oliver Wyman GTB Revenue Pools

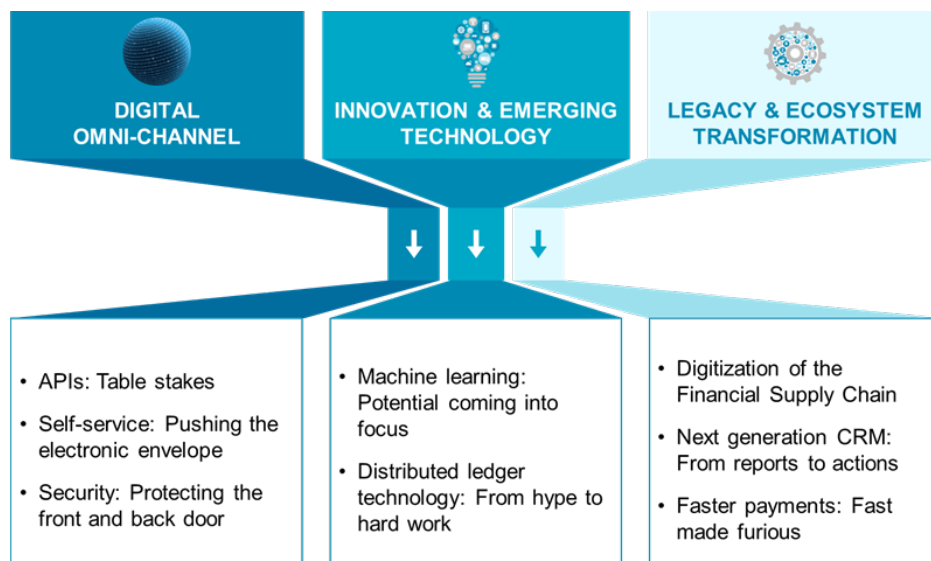
Oliver Wyman's GTB outlook is positive, but with downside risks, driven by political uncertainty. Figure 13 reflects the base case 2020 outlook, an improving global macroeconomic outlook accompanied by a gradual monetary tightening and recovery of trade volumes. As shown by the variance bar for 2020, the bear forecast of 0% GTB growth reflects disappointing global growth, prolonged loose economic policy, and continued contracting in global trade volumes. Alternatively, the bull forecast of 5% GTB growth reflects strong global growth, central bank tightening, and strong recovery in global trade.

Oliver Wyman's commercial lending outlook through 2020 is also positive, primarily driven by an improving global macroeconomic outlook. Across GTB and Commercial Lending, Oliver Wyman's base case CAGR forecast from 2016 to 2020 is 4%, slightly behind the 4.7% global GDP forecast from the International Monetary Fund.

DRIVERS OF CORPORATE BANKING TECHNOLOGY CHANGE

As outlined in Celent's *Top Trends in Corporate Banking: From Disruption to Transformation* (July 2017), the sector is ripe for disruption because of the significant revenue pools at stake, relatively high returns in select segments (e.g., liquidity and account management), and the pain points that customers, as well as bankers, experience. It is ripe for transformation because competition is stiff (and growing), and differentiation is paramount. To help banks navigate the transformation journey, the annual report hones in on eight trends that bankers should have on their radar (Figure 14).

Figure 14: Top Trends in Corporate Banking 2017–2018



Source: Celent *Top Trends in Corporate Banking: From Disruption to Transformation*

It is these trends, as well as the drivers outlined below, that are compelling bankers to invest in corporate banking technology improvements, or in some cases, entirely new integrated corporate banking platforms.

LEGACY TRANSFORMATION

The IBM mainframe celebrated its 50th birthday in 2014 and remains the processing workhorse at many large financial services firms. These firms depend on mainframes to run back office systems for such critical functions as customer information, deposit accounting, loan servicing, and payment processing. Mainframe applications are part of the foundational core technology stack for running the business and will continue to serve their purpose for many years to come. In fact, Reuters estimates that US\$3 trillion in daily commerce flows through COBOL systems.⁴

⁴"Banks scramble to fix old systems as IT 'cowboys' ride into sunset," Anna Irrera, Reuters, April 20, 2017.

As COBOL programmers retire, banks have heightened concerns about their ability to maintain long-serving back office systems as ACH processing engines and loan accounting platforms. Celent has heard anecdotally from bankers that they plan to replace these COBOL applications because of concerns with keeping them up and running. Although some systems integrators are skilling up new COBOL programmers to support enterprise applications, banks are modernising their back office architecture to improve interoperability between legacy technology and newer systems.

Many banks are using REST APIs to breathe new life into their traditional web services architecture. Used internally, APIs offer a developer-friendly toolset for building out new products and services. Similarly, we see traditional financial technology providers publishing their API specifications and documentation, making it easier for banks and other third-party partners to integrate quickly. For example, in the onboarding space, back-office APIs facilitate data transfer between internal bank systems and onboarding process orchestration tools while external APIs link to emerging KYC utilities for customer authentication.

Legacy transformation is also critical to reducing maintenance spend, freeing up “run the bank” technology budget to fund “grow the bank” innovation.

CUSTOMER EXPERIENCE

In retail banking, the product primarily drives customer experience. In corporate banking, several additional factors play a part, among them pricing, streamlined processes, operational excellence, relationship management, and international presence. With intense competition increasingly levelling the corporate banking playing field at a product level, banks have an opportunity to differentiate based on customer experience. To avoid competing purely on price for commoditised products, banks must differentiate themselves with expertise and excellence.

Simplifying the User Experience

As touched on above, even with an easy-to-use online offering for core cash management services, clients of many banks are frustrated by the requirement for separate logins and security procedures for other applications such as remote deposit capture, tax payments, investments, foreign exchange, trade finance, and commercial cards. Even with substantial digital channel investment, the largest banks often struggle with a consistent user experience crossing product silos (e.g. creating an FX contract as part of a letter of credit or cross-border payment workflows). Banks are building on their portal strategies to incorporate more product applications and to centralise entitlements so that user administration, typically a major pain point, is an easier task for the bank and clients.

Strategies for Enhancing Corporate Client Experience: The Future of Attended Channels (January 2017) discusses the consumerisation of corporate channels and client demands for a more streamlined and personalised experience. The report suggests recommended approaches to achieving a more satisfying user experience:

- Easier navigation from one module or service to another with minimal clicks and multiple navigation options.
- A personalised dashboard containing widgets that allow the user to see the most critical information after login and then drill down into details as needed.
- Consistent approval and exception management workflows across modules.
- Consistent search functionality across modules (in some cases, centralised search).
- Consistent reporting functionality that allows users to easily customise on-screen displays, report generation for printing, and data downloads.

Client Lifecycle Management

Celent defines client lifecycle management (CLM) as the process of managing clients from initial onboarding through ongoing customer account and relationship management. In *“Onboarding in Corporate Transaction Banking: Prioritizing Investments for Reducing Fiction”* (August 2016) Celent stressed that improving the onboarding process from a client-centric perspective should be one of the most important priorities for transaction banking. Whether establishing a new relationship or assisting a client in expanding an existing one, implementing transaction banking services in an efficient, timely, and transparent manner can be a differentiating demonstration of a bank’s commitment to client-centric innovation. A negative client experience during the onboarding process has permanent consequences for the profitability of the long-term relationship between the bank and its client.

Bank account maintenance and service inquiries are perennial pain points cited by business. Key targets for improvement include simplifying the addition/deletion of signatories, expediting service requests (e.g., missing transaction, account analysis question) and updates, increasing transparency in billing systems, and amplifying transaction monitoring (e.g., advanced fraud alerts). Inroads in servicing include enabling customers to initiate and monitor queries through additional methods, such as real-time chat.

Successful CLM programs cross product silos, technology platforms, and delivery channel to establish (and maintain) a complete view of the client relationship. CLM technologies often include all or some of the following: business process management, electronic document management and e-signatures, multichannel visibility both internally and for client inquiry and self-service, data integration, and application integration with front and back office systems.

Despite the differentiation boost that superior client lifecycle management affords, many banks are challenged to allocate resources to fund these initiatives. The root problem lies not in making the economics work, but in the lack of a comprehensive corporate banking technology strategy encompasses customer services and workflows.

Millennials as Treasurers

Treasury staff is getting younger. In an interview conducted by AFP, two Millennials working in finance provided insight into how treasury organisations should adapt to retain millennials. One suggestion is that companies have to be innovative and that those companies that are not agile enough to innovate and implement innovation will find it hard to keep that incoming workforce. Another observation is that Millennials bring with them tech savviness that perhaps wasn’t there before. They are also able to quickly adapt to new technologies and provide better analysis to internal customers.⁵ Millennials may not remain loyal to long-standing banking relationships unless they see the banking partner as continuously improving their product offerings, either through bank-led product development or fintech partnerships.

REGULATORY AND INDUSTRY INITIATIVES

ISO 20022 and SWIFT Network Connectivity

Corporates continue to use technology to increase simplification and standardisation in digital banking services. A key example is a continuing shift from legacy file formats to ISO 20022 XML for payments, statements, foreign exchange, and trade finance. Microsoft was famously the first corporate to implement SWIFTNet connectivity in 2006 using its own environment. It also was the first corporate to implement the 20022

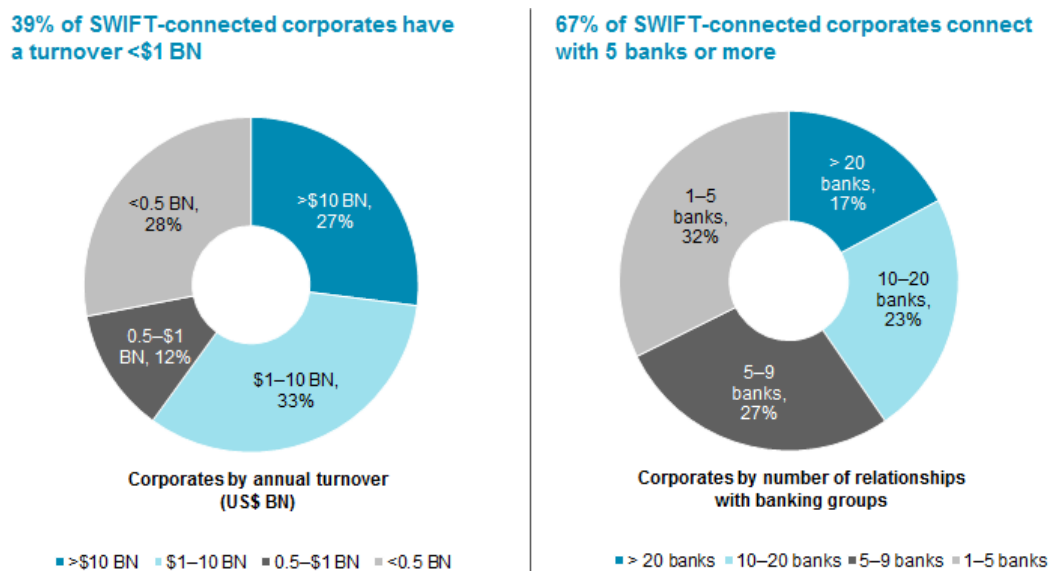
⁵What is It Like to Be a Millennial in Finance? Just Ask Them, Nilly Essaides, September 27, 2016, afponline.org

messaging standard for bank statement reporting and direct connectivity to its banks. According to SWIFT, 772 corporates are sending ISO 20022 formatted messages. This represents 45% of the 1,726 corporate groups using SWIFT.

Although ISO 20022 is an industry standard, banks use different versions and variants, limiting its ability to improve consistency. Proactive banks are upgrading legacy systems to support the ISO 20022 standard, including supporting SWIFT's MyStandards program, with its associated Readiness Portal. The program is another example of an industry initiative designed to alleviate a major pain point for banks and global corporate clients in the technical aspects of onboarding: managing variations in standards adoption and testing files and ISO 20022 messages to establish the connectivity needed for many transaction banking services.

Once the province of the largest corporates, SWIFT connectivity is increasing among smaller firms with fewer banking relationships, particularly in EMEA. Figure 15 shows that 40% of SWIFT-connected corporates have an annual turnover of less than US\$1 billion, while 32% of corporates are using SWIFT to connect to five or fewer banks.

Figure 15: SWIFT for Corporates Adoption



Source: SWIFT for Corporates Market Adoption Report for Q1 2017

With an increasing number of smaller corporates with fewer bank accounts connecting to SWIFT, banks that do not support SWIFT message formats (whether the newer ISO 20022 standard or older MT formats) are likely missing out on valuable transaction revenue.

New Payment Methods and Rails

In the cross-border payment space, new payment initiatives include SWIFT's global payments initiative (gpi), increasing the speed, transparency, and end-to-end tracking of cross-border payments; EBA Clearing's RT1, an infrastructure solution for the processing of instant SEPA credit transfers at a pan-European level; the International Payments Framework Association's (IPFA) 2.0 vision for global ACH interoperability; and the Arab Regional Payments Systems's (ARPS) plan for a regional cross-border payments and settlements system.

According to FIS's Flavors of Fast Report 2017, domestic real-time payment systems are under development in the US, Canada, the Netherlands, France, Belgium, Italy, Latvia, Hungary, Hong Kong, and Australia. As real-time domestic payments have evolved, ISO 20022 is becoming the de facto standard. As with SWIFT payments, different implementations of ISO 20022 have emerged. The UK Real-Time Payments Group (RTPG) has documented a harmonised and consistent view of ISO 20022 business processes, message components, elements, and data content across multiple markets.

Real-time and instant payments depend on open APIs for immediate single-message account to account transfers, universal access, and 24x7 availability. In contrast, large corporations depend on bulk-oriented, host-to-host file exchange and messaging to transmit payment instructions from batch-based ERP systems to batch-based back office banking systems. As discussed below, APIs are under development for corporate to bank connectivity, but treasury technology providers need to make the shift to real-time integration before corporates adopt real-time payment solutions en masse.

With a plethora of new payment methods and rails being implemented or planned around the globe, internationally active banks face tough decisions about whether, and how, to support those payment types in their digital channels. As many of the new payment methods are retail focused (e.g., US-based Zelle and Swiss-based Swish), most banks are taking a "wait and see" approach, taking the time to assess demand from corporate clients. Banks evaluating their approach to new payment methods and rails for B2B are looking at immediate fraud processes, enhanced user interfaces, enriched remittance data, and real-time capabilities of leading treasury software solutions.

Open Banking

Secure, publicly accessible application programming interfaces (APIs) have been around for more than 10 years in the financial services sector. Many popular e-commerce platforms deploy APIs, exposing various features of their underlying platform to third party application developers. These include PayPal, Stripe, Authorize.Net, and LevelUp. In fact, according to ProgrammableWeb.com, banks and fintech firms published more than 550 new payment, financial, and banking APIs since 2015.

Banks embrace internal APIs to modernise and streamline back office connectivity, especially for customer-facing digital channels. However, except for a smattering of bank API hackathons featuring mock customer account data and the well-publicized external APIs made available by digital bank Fidor, until recently traditional, brick-and-mortar banks were reluctant to publish open, external APIs for customers or third parties to access financial data.

Now, regulatory initiatives in Europe (PSD2) and the UK (Open Banking) are driving banks to create open API developer portals to allow third party access to banking services. Beyond regulatory mandates, forward looking banks are moving beyond regulatory minimums to and creating value-added services through open banking APIs. These banks want fintech developers to see them as easy to work with to spur development of new apps grounded in their banking services.

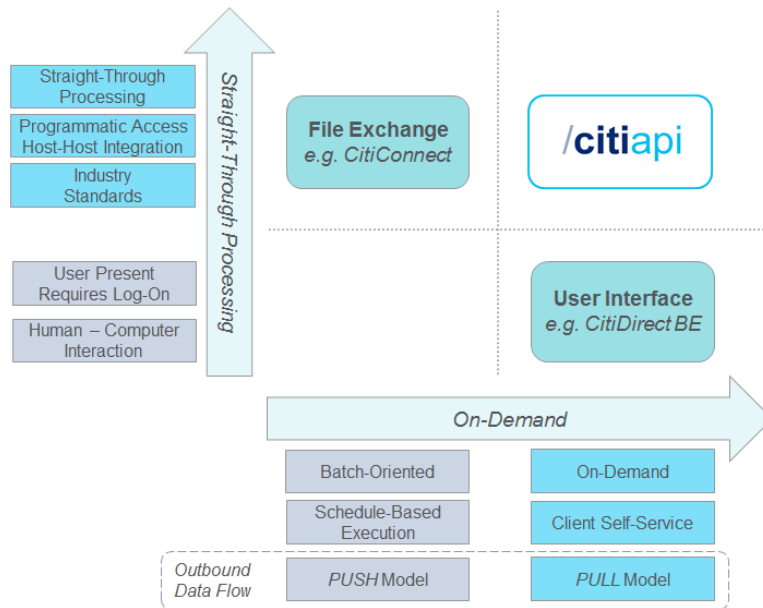
Originally focused on retail banking, banks are starting to open up API access to business accounts and transaction banking services. For corporate clients, open banking APIs represent a new channel for corporate to bank connectivity, alongside traditional digital channels and file-based messaging.

As described in *YES Bank: API Banking*, (April 2017), YES Bank, the winner of the Celent Model Bank 2017 Award for Payments Product, was the first bank in India to publish application APIs as part of its "API Banking" service. API Banking allows the client to do its banking-related activities directly from its own enterprise resource planning (ERP) system with auto-reconciliation. In doing so, it has significantly improved its clients'

businesses, enhancing end customer experience, yet at the same time reducing its own cost to serve and winning new business. Furthermore, YES Bank is working with ERP solution providers to embed its APIs within their ERP systems, which would make YES Bank's services "plug and play" for any user of that ERP system.

Another Open Banking example is Citibank, as described in [Citi: CitiConnect API](#), (April 2017), the winner of the Celent Model Bank 2017 Award for Open Banking. Figure 16 illustrates how Citi's CitiConnect API solution combines on-demand data access with host-to-host integration, improving straight-through processing while supporting industry standards.

Figure 16: Citi Channel Services for Global Transaction Banking



Source: Citigroup

Citi's use cases for transaction banking APIs are illustrative of the benefits of real-time, automated data access:

- Collect real-time account balance information and view directly in a treasury application.
- Receive real-time transaction status notifications of critical payments.
- Initiate real-time payments directly from a Treasury Workstation.
- Collect detailed account statements directly in a treasury application.

While some banks like Citi offer freely available access to their API developer portals, others banks are choosing to be selective in opening up access, focusing their limited development resources on an initial set of clients and development partners.

EMERGING TECHNOLOGIES

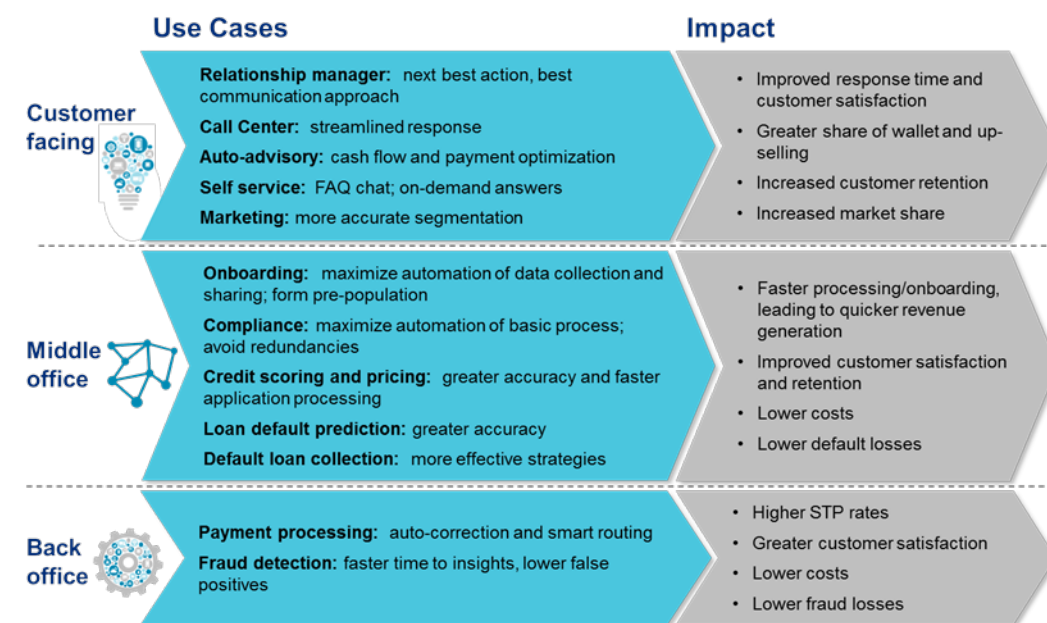
Emerging technologies can help banks burdened by complex legacy systems to modernise and streamline existing technology stacks and interfaces. Oliver Wyman predicts that process automation and deep digital adoption (a dramatic shift of the operating model) could save the wholesale banking sector from US\$15 billion to US\$20 billion from 2016 to 2020 by enhancing and replacing human processes. These opportunities centre on new technologies in data science, artificial intelligence (AI), and

robotic process automation (RPA).⁶ Distributed ledger technology also has the potential to save billions of dollars, especially in key corporate banking products and processes.

Artificial Intelligence / Machine Learning

Corporate banking has long embraced data and analytics, starting with descriptive static reports, moving up to diagnostic business intelligence, and now moving into predictive analytics and machine learning. Given the multiple revenue and cost pressures banks face, it is becoming imperative that they harness the potential of machine learning. While there has been much hype around machine learning, bankers are finding viable use cases for corporate banking and have been experimenting in several areas. Figure 17 outlines use cases across the front, middle, and back office which can improve customer satisfaction and retention, accelerate client onboarding, and lower costs and error rates, among other benefits.

Figure 17: Machine Learning Applications in Corporate Banking



Source: Celent *Top Trends in Corporate Banking: From Disruption to Transformation*

The next evolution will be prescriptive cognitive computing — optimising payment routing, preventing fraudulent transactions, and recommending liquidity actions.

Robotic Process Automation

According to *Robo Op: How Robotic Process Automation is Applied in Banking Operations*, (November 2016), robotic process automation is a set of technologies that enables the automation of processes that currently require human involvement. It is a collection of configurable tools within an enterprise management framework aimed at integrating systems by replicating the actions of the user: interpreting interfaces, transforming data, and initiating/responding to events. RPA tools seek to mimic the role of the human while making the process more automatic and less prone to error. RPA is built using the concepts of process management and orchestration. It uses various techniques to mimic human actions and does so automatically, repeatedly, and faster

⁶Wholesale Banks and Asset Managers: The World Turned Upside Down, Morgan Stanley & Co. International plc and Oliver Wyman Limited, 2017

than its human counterparts. Celent estimates that many of the best RPA solutions can perform the jobs of three FTEs at a third of the cost, giving banks a 9x efficiency gain.

In the corporate banking space, banks could apply RPA to repetitive tasks such as commercial loan credit decisioning or accounts payable workflow. On the bank side, the RPA “bot” can populate loan application data fields from several different banking applications and forward the completed application to a credit analyst for further action. For corporate payment application, a bot can match incoming payments to invoice data, identify exceptions, and update the accounts payable system, notifying the A/P manager of required follow up tasks.

Biometrics

Authentication for corporate banking accounts is a cumbersome process involving the typical username and password, plus corporate ID number and security token. Several banks have rolled out Apple’s Touch ID fingerprint authentication technology for consumer online banking login authentication, and are starting to extend Touch ID to business customers. However, as quickly demonstrated by talented hackers, Touch ID is vulnerable to various hacking methods. For this reason, banks are turning to more sophisticated biometric authentication methods for its corporate online and mobile banking applications.

The focus remains on layered, multifactor authentication, but combines authentication technologies in unusual ways. Barclays’s offering combines biometric and digital signature technology in an offering called “Barclays Biometric Reader.” To overcome limitations with traditional fingerprint scanners, Barclays is implementing Hitachi Europe’s Finger Vein Authentication Technology (VeinID), which reads and verifies the user’s unique finger vein patterns. Wells Fargo is piloting several different technologies. The latest is Eyeprint authentication, which uses eye vein scanning (as opposed to typical retina scans). US Bank is using voice authentication (“My voice is my password”). While not really a biometric solution, Citi’s MobilePASS enables you to log in to any CitiDirect BE channel using a smartphone to generate dynamic passcodes, instead of a separate physical token.

Distributed Ledger Technology

As discussed in *Beyond the Buzz: Exploring Distributed Ledger Technology Use Cases in Capital Markets and Corporate Banking*, (August 2016) distributed ledger technology (DLT) threatens to disrupt the banking sector with improved visibility, less friction, automated reconciliation, and shorter cycle times. In particular, corporate banking use cases focusing on traditional trade finance, supply chain finance, cross-border payments, and digital identity management (KYC) have attracted significant attention and investment.

We continue to see unprecedented collaboration between financial institutions and technology providers as they accelerate the development and adoption of distributed ledger solutions across financial services. In an environment of limited technology research and development budgets, the collaborative approach helps banks to take the long view by sharing development expertise and cost.

Two recent announcements amplify these collaborative efforts. Seven banks (Deutsche Bank, HSBC, KBC, Natixis, Rabobank, Société Générale, and Unicredit), joined together in early 2017, forming the Digital Trade Chain Consortium to develop and commercialise a DLT-based trade finance solution for the underserved small to medium enterprise (SME) segment. In a competitive bidding process, IBM won the contract to provide the cloud-based platform running on Hyperledger Fabric. *Emirates NBD and ICICI Bank: Blockchain Pilot Network*, (April 2017), the winners of the Celent Model Bank 2017 Award for Most Promising Proof of Concept, worked with the Infosys subsidiary, EdgeVerve, to

pilot remittance and trade finance transactions on the UAE-India trade corridor, one of the busiest for both banks.

Interoperability is a key prerequisite, not only with legacy technology infrastructure but also across DLT networks. The number of consortia and individual projects working to build independent, permissioned blockchains highlights the importance of interoperability. The hope is that interoperability among networks will be addressed by the large consortia and other industry groups, along with governance and common standards.

Particularly for payments, adopting a global messaging standard for blockchain is important. The Blockchain Community Group of the World Wide Web Consortium (W3C) is working to generate blockchain message format standards based on ISO20022, along with guidelines for storage and to evaluate new blockchain technologies. In March 2017, Standards Australia, a not-for-profit standards organisation, published its “Roadmap for Blockchain Standards” identifying technical issues, defining use cases, and prioritising standards activities. In May 2017, ANSI, the US representative to ISO, established a new field of activity, ISO TC 307: Blockchain and electronic distributed ledger, and is seeking an administrator to the newly appointed committee on the technology.

The biggest impact of emerging technologies will come from the full digital redesign of cross-functional processes. Many corporate banking activities such as customer onboarding and credit approvals move through a number of touch points across the organisation, and a piecemeal process improvement or technology refresh project will not fully capture cost savings and productivity improvements.

CORPORATE BANKING TECHNOLOGY DELIVERY MODELS

Corporate banking is an infrastructure-heavy line of business. Maintaining and building competitive offerings for the dizzying array of products and services required by corporate treasurers is a costly proposition. The largest banks have the upper hand as they invest heavily in multiproduct, multicountry, and multibank platform capabilities. But smaller banks can capture their share of the growing revenue pools by thinking differently about build versus buy and software deployment decisions.

BUILD VS. BUY

An axiom in software companies usually holds true — the biggest competitor in a banking software deal is in-house development. Looking at the decision to build corporate banking software in-house versus buying packaged software, Celent outlined four software development goals and related reasons to buy or to build in *Leveraging SaaS to Tackle the Legacy* (August 2012); those reasons still apply in 2017.

Table 1: Reasons to Build or Buy

GOAL	REASONS TO BUILD	REASONS TO BUY
MEETING BUSINESS SPECIFICATION	Keeping the system in the hands of people who know the business and the company best helps meet specific business requirements.	Benefiting from the experience of other insurance clients of an IT vendor to gain enhanced functionality and process efficiency and promote a continuous improvement approach.
COST, TIME, AND EFFORT REQUIRED	Leveraging past investments (existing IT infrastructure, for instance) and <u>shared</u> resources to maximise existing investments.	Freeing up internal resources during implementation for other IT projects. Limited effort and time needed to upgrade the system. Lack of development skills for the modern toolset or code base of internal IT staff. Better documentation of the system. The buying option is often considered the less expensive approach.
QUEST FOR SIMPLICITY	Simple pricing structure and investment calculation because of fewer or no formal license or maintenance fees as well as no legal procedures.	Responsibility of keeping up-to-date with the latest technology or other changes impacting the business is the vendor's burden.
RELATIONSHIP MANAGEMENT	Steering a vendor relationship can be a challenge, and sometimes it is difficult to make sure knowledge of the vendor is effectively transferred.	Leveraging innovation driven by a vendor or a larger user community (IT vendor insurance clients). Taking advantage of the IT vendor support services (24/7 for instance).

Source: Celent

In some cases, a bank's build versus buy analysis shows that vendors with a broad customer base and proven software already support a majority of functionality requirements, leverage newer technologies, deliver regulatory-related updates, and offer a robust roadmap for new features. When requirements cannot be met by a packaged solution or differentiation is critical, it is becoming easier and cheaper for banks to build

bespoke systems with open source frameworks, agile development, and public cloud environments. A build decision may also attract IT talent looking to shape innovative financial services products.

As outlined in Oliver Wyman's *The Future of Technology in Mortgage Originations*, (2016), an increasingly popular third option is to "buy and build." Especially when banks look to enhance existing functionality or to add ancillary services, buying a vendor-provided solution can reduce cost and time to market. But to derive the most value from an off-the-shelf solution, banks must focus on: (a) configuring the various pieces of the solution to deliver differentiation to their clients, aligned with the bank's target client segment and value proposition; (b) integrating these solutions to various internal and external systems to deliver a seamless client experience journey; and (c) configuring, customizing, or building client-facing digital interfaces where opportunity for differentiation is most pronounced.

Whatever the build versus buy approach, Oliver Wyman also recommends that financial services firms adopt a modular IT architecture which can drive down the cost of technology while making it more adaptive. Key attributes of a good target state modular architecture include API-based connectivity, service-based architecture, cloud-hosted platforms, configurable business rules, and robust data architecture.

ASP VS. TRADITIONAL SAAS VS. CLOUD SAAS

Celent believes it is important to differentiate a SaaS model from an application service provider (ASP) model, as well as to distinguish traditional SaaS from cloud-based SaaS (discussed in *Leveraging SaaS to Tackle the Legacy*). For a modern, configurable application, an ASP model can look very similar to a SaaS model in that both are hosted and maintained externally by a third party. However, the main differences between these two models lie in the licensing model and the ability to maintain a common core between clients through a multi-tenanted architecture.

ASP

ASP is the delivery of a standardised software application on an outsourced basis. ASP was historically associated with an upfront licence fee, fixed length maintenance contract, and separate client instances of the application, albeit managed from the same code base. More recently, ASP is characterised by usage-based pricing. Banks of all sizes have used the ASP model for many years, as in many cases it is the same code base as an on-premise installation, just relocated to a third party data centre.

Traditional SaaS

SaaS is typically associated with an on-demand arrangement, meaning that a user of the vendor's software pays on a per usage basis (whether linked to users, policies, transactions, or value) without a significant upfront licence fee. Differentiating itself from ASP, SaaS is typically associated with a multi-tenanted architecture where different clients can coexist using the same application with different configurations and a secure demarcation of data. SaaS has the promise to eliminate upgrade issues since the vendor manages the shared code base and allows customers to tailor deployments using configuration settings rather than software customization.

Some vendors are rearchitecting their corporate banking software solutions to run in a multi-tenant SaaS environment. SaaS can dramatically reduce vendor operating and maintenance costs, allowing providers to offer SaaS at a more competitive price point for smaller banks. However, despite the popularity of SaaS systems such as Salesforce for bank customer relationship management, many bank CIOs still express trepidation with SaaS's multi-tenant architecture for core corporate banking functions such as transaction banking, commercial lending, and digital portals. Concerns with SaaS include data security issues, implementation risk, loss of control, and inability to differentiate service offering. A SaaS application can be delivered in a range of models from the vendor's own

datacentre, to a third party data centre (traditional SaaS), to a true cloud computing environment like Amazon Web Services or Microsoft Azure with near-unlimited scalability due to the use of server virtualization (cloud-based SaaS).

Cloud SaaS

Banks such as Lloyds, ANZ, Westpac, and DSK have been moving workloads to private clouds over the past several years. A handful of banks are adopting public clouds from Microsoft (Azure), Google (Google Cloud), and Amazon.com (AWS) usually for non-client specific content such as financial research and marketing data. According to *The Banker*, Mitsubishi UFJ Financial Group (MUFG) is using the AWS cloud to support internal operations, client service, and its fintech offering. Commerzbank is moving to the cloud for client relationship management with Microsoft Dynamics running on Azure.⁷ Capital One is on a journey to reduce its data centre footprint by migrating core business and customer applications to AWS over the next five years as part of its commitment to delivering great digital experiences to its tens of millions of customers.⁸

Banks' corporate clients already are migrating to cloud or SaaS-based solutions. According to FIS's "Transform your Treasury: Corporate Treasury—Rising to the Cloud" report, 59% of treasury and finance professionals surveyed have already, are very likely, or likely to migrate to SaaS. Somewhat surprisingly for a generally risk-averse group, the survey also found that 58% of respondents view data in the cloud as very secure or secure.

Celent encourages banks to place increased attention on SaaS offerings which offer a shift from a fixed, capital cost to a variable operating expense model.

⁷Banks join the steady march to the cloud," Joy Macknight, *The Banker*, June 1, 2017.

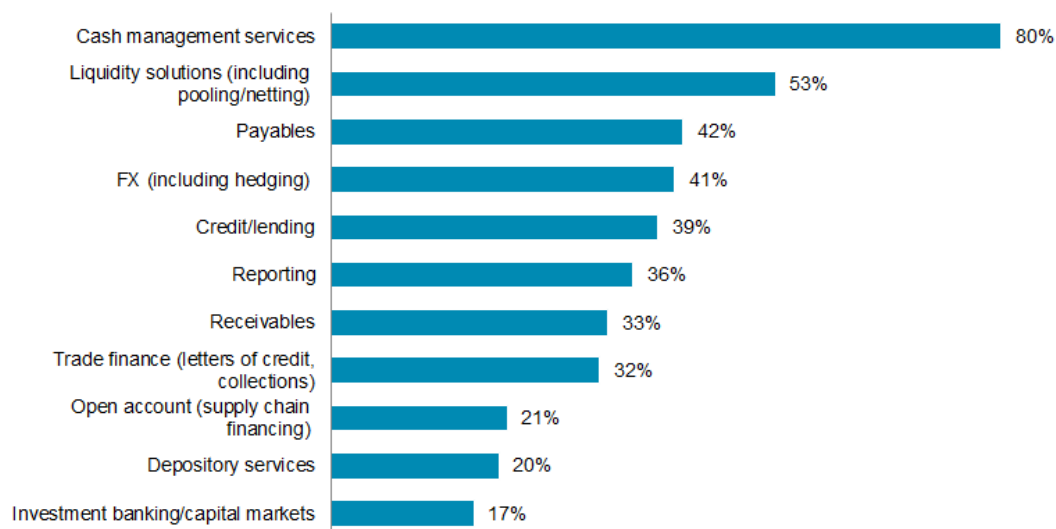
⁸"Capital One Selects AWS as its Predominant Cloud Infrastructure Provider," *Business Wire*, November 29, 2016.

CORPORATE BANKING TECHNOLOGY

Transaction banking services are operationally complex, and any technology or process failures can result in a substantial financial loss for corporate clients as well as damage to the bank's reputation in the industry. On the bright side, corporate banking products and services increase client "stickiness" because it is costly and time-consuming for a corporate customer to switch its core cash management business to a new provider.

However, "stickiness" is relative — if a bank does not continually improve and enhance its product offerings to meet client demands, while simultaneously streamlining legacy technology maintenance and operational processes to reduce costs, they risk having clients shop elsewhere. Figure 18, from the CGI 2016 Transaction Banking Survey, shows the percentage of corporate practitioners planning to assess current relationships with their main banking partners.

Figure 18: Bank Product Areas under Review by Corporate Treasury



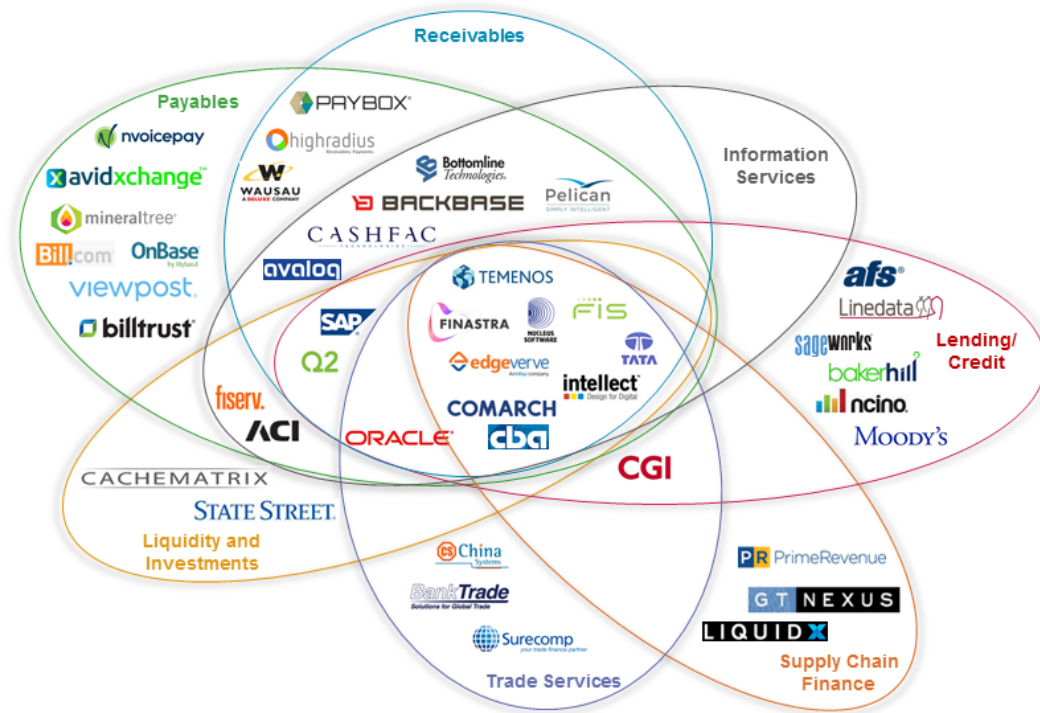
Source: CGI 2016 Transaction Banking Survey, published by GTNews & CGI

Figure 18 reinforces the importance of core corporate banking services including cash management, liquidity solutions, payables, receivables, trade services, supply chain finance, and credit/lending. With 80% of respondents planning to assess their cash management banking partners, many banks are also assessing their corporate banking technology partners and platforms.

CORPORATE BANKING VENDOR LANDSCAPE

Looking across corporate banking product categories, Figure 19 illustrates financial technology vendors specialising in one or a few segments, compared to vendors striving to deliver functionality across several (or all) segments.

Figure 19: Corporate Banking Vendor Landscape (Not Exhaustive)



Source: Celent analysis

Note that Figure 19 is not a comprehensive market scan of available solutions in each product category; it is intended to highlight the diversity of providers and solutions available to banks in the marketplace. Companies illustrated were chosen based on vendor briefings, Celent analyst feedback, and market analysis.

Best of Breed Vs. Integrated Product Suite

In a number of product segments, vendors concentrate on providing focused best-of-breed solutions with deep functionality and product expertise. In other cases, providers combine functionality across multiple product segments, striving to deliver a complete, integrated corporate banking product suite. Integrated corporate banking suites offer a promise of access to multiple products within a single online platform providing a single, seamless experience to view and initiate transactions across product groups.

As with a build versus buy decision, banks need to carefully consider their business requirements when choosing a provider. It can be a confusing choice. Many solutions focus on a particular geography and its unique requirements (e.g., check services in the United States or SEPA payments in Europe). Others may have solutions across the breadth of corporate banking, but the underlying software applications are written on different technologies with different user interfaces and limited integration between platforms. In some cases, an external third party platform contributes to an extended solution set with yet another user interface and technology stack.

CORPORATE BANKING SOLUTION PROVIDERS

With a goal of differentiating the vendors offering packaged solutions across transaction banking and commercial lending, Celent issued an RFI in May 2017. The RFI went to 23 technology providers offering solutions across Celent's Corporate Banking taxonomy; we

received responses from 18 providers. ([Appendix 4](#) lists company information about the providers that responded to the Celent RFI.)

Analysing the RFI responses, Celent separated the vendor solutions into two primary categories: 1) integrated corporate banking suites and 2) corporate digital banking solutions.

1. **Integrated Corporate Banking Suites:** The vendor supports a majority of the product features across all five of the taxonomy's broad categories (cash management, trade finance and supply chain, lending and credit, corporate to bank channels, and back office and accounting).
2. **Digital Corporate Banking Solutions:** The vendor supports product features across three or more of the taxonomy's broad categories.

Celent further analysed the features supported out of the box, with integration to a separate module from the same vendor, and with integration with a third party partner. Figure 20 compares each vendor's capabilities across the Celent Corporate Banking Taxonomy.

Figure 20: Corporate Banking Solution Capabilities Comparison

	Cash Management				Trade Finance & Supply Chain		Lending & Credit		Corporate to Bank Channels					Back Office & Accounting							
	Info Svces	Liquidity	Pybles	Rcvbles	Trade Finance	Supply Chain	Crml Loans	Complex	Online	Mobile	Tablet	Host to Host	Network Connectivity	Open APIs	Core Banking	Pygmt	Process	CRM/ CLM	Billing	Risk/ Compli	Loan Svcing
Integrated Corporate Banking Suites																					
EdgeVerve	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Finastra	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FIS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fiserv	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●
Intellect Design	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Nucleus	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Oracle	●	●	●	●	●	○	●	●	●	●	●	○	●	●	●	●	●	●	●	●	●
TCS	●	●	●	●	●	●	●	●	●	○	○	●	●	○	●	●	●	○	●	●	●
Temenos	●	●	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●	●
Digital Corporate Banking Solutions																					
ACI Worldwide	●	●	●	●	○	○	○	○	●	●	●	●	●	○	○	○	○	○	○	○	○
Bottomline	●	●	●	●	○	○	○	○	●	●	●	●	●	●	○	○	○	○	○	○	○
Cashfac	●	●	●	●	○	○	○	○	●	●	●	●	●	●	○	○	○	○	○	○	○
CBA	●	●	●	●	●	●	●	●	●	○	○	●	●	●	●	●	●	●	●	●	●
CGI	○	○	○	○	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○
Comarch	●	●	●	●	●	●	●	●	●	○	○	●	●	○	○	○	○	○	○	○	○
Pelican	●	●	●	●	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●
Q2	●	●	●	●	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SAP	●	●	●	●	○	○	●	●	●	○	○	●	●	●	●	●	●	●	●	●	●

- All features supported
- Not available
- All features supported with integration to separate module from vendor
- Most features supported
- All features supported with 3rd party integration
- Most features supported with integration to separate module from vendor
- Some features supported
- Most features supported with 3rd party integration
- All features supported, mix of out of the box and available with integration
- Few features supported
- Some features supported with 3rd party integration
- Most features supported, mix of out of the box and available with integration

Source: Vendor RFI responses, Celent analysis

Celent will publish vendor profiles based on the RFI responses in two upcoming reports; one focused on providers of integrated corporate banking suites and a second on providers of digital corporate banking solutions.

INTEGRATION IS KEY

The banks that will win market share in corporate banking over the next five years will excel at integrating business and technology silos. Whatever development approach, deployment architecture, or packaged software solution a bank chooses, integration is

critical — the ability to bring a robust, reliable, and integrated set of products to clients is a key driver for profitability. Integration is necessary on the revenue side to enhance cross-sell, and on the expense side to improve straight-through processing, for both the bank and its clients.

Whether considering a focused best-of-breed solution or broader product suite, banks must consider ease of integration — whether to back office legacy account servicing systems, regulatory reporting engines, client lifecycle management tools, or customer-facing digital portals. Many solution providers deliver integration toolsets such as API developer portals, web services libraries, and software development kits (SDKs), allowing banks (or their development partners) to act as general contractors and to take a “buy and build” approach to delivering new corporate banking solutions.

Integration is the linchpin underlying “connected corporate banking.” The convergence of corporate banking products is fundamental to support the working capital objectives of clients, whether international payments with trade services or electronic invoicing with supply chain finance.

Taking market share requires a disruptive model, one where banks that can tailor solutions — configuring the product building blocks — across business stages, industry sectors, and geographic regions will transform from corporate treasury service providers to strategic advisors.

ACHIEVING CAPABILITIES AND SCALE: LEADING WITH TECHNOLOGY

Key Research Question

3

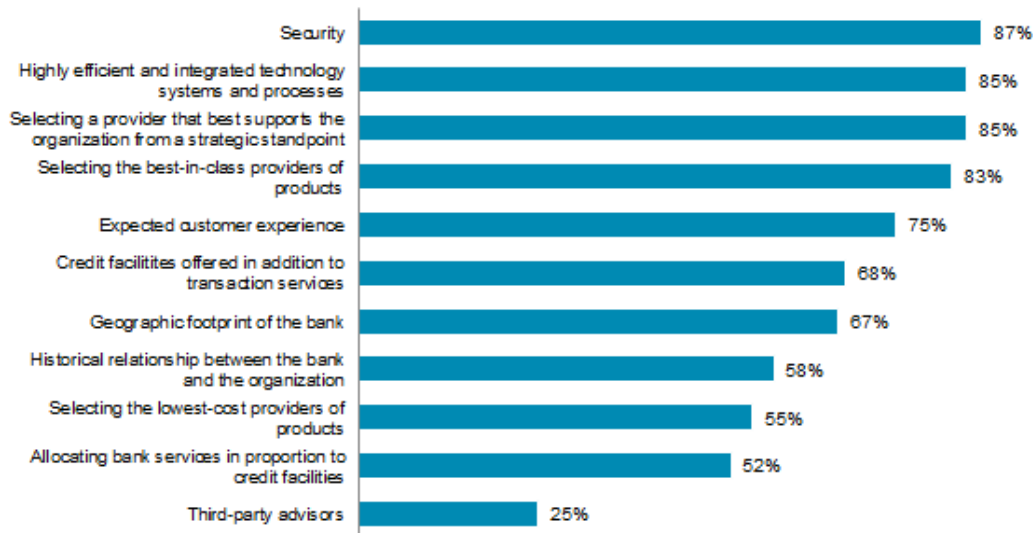
How can a bank achieve sufficient scale and capabilities to compete in the corporate banking segment?

Banks must start with a comprehensive digital strategy, incorporating the imperatives of legacy transformation, customer experience, regulatory and industry initiatives, and emerging technologies.

With large numbers of corporate clients reevaluating their banking partnerships, integrated corporate banking technology can play a significant role in whether a bank retains, gains, or loses clients. According to the CGI 2016 Transaction Banking Survey Report, 85% of North American corporates value “highly efficient and integrated technology systems and processes” as either very important or quite important.

Figure 21: Factors Considered When Organizations Establish a Banking Relationship

Percentage of Corporate Practitioners Rating the Level of Value “very important” or “quite important”



Source: CGI 2016 Transaction Banking Survey, published by GTNews & CGI

“Selecting a provider that best supports the organisation from a strategic standpoint” is also valued at 85%, closely followed by “selecting the best-in-class providers of products” at 83%.

In past reports on this topic, Celent has emphasised the importance of offering an integrated, consistent client experience across the various product silos within the corporate bank. Even with a modern, easy-to-use online offering for core cash management services, business customers of many banks are frustrated by the requirement for separate logins and security procedures for other applications such as remote deposit capture, tax payments, investments, foreign exchange, trade finance, and commercial cards. This frustration highlights the importance of best-in-class back office systems and integration frameworks to ensure end-to-end consistency and straight-through processing.

LEADING WITH TECHNOLOGY

Banks invest in very different technology projects depending on their corporate banking solution maturity and geographic expansion plans. As part of Celent's annual Model Bank program, we see a broad cross-section of innovation across bank asset size and geographies served. The winning initiatives over the past few years demonstrate innovative strategies to strengthen relationships with large multinational clients as well as domestic middle market commercial firms.

Major Global Banks in Developed Economies

Large global banks offer sophisticated integrated corporate banking solutions and face increased competition, much of it from each other, according to an article from *Financial News*.⁹ Ather Williams, BAML's head of global transaction services, said big banks are all zeroing in on a "similar client set" of high-quality companies to which they can lend and then sell transaction banking services.

To stand out in a very competitive marketplace, global banks must continually refine their offerings to strengthen and differentiate their solution sets. They usually choose to build their new leading edge products, not readily available in off-the-shelf software. Two recent Celent Model Bank Award winners provide examples of unique corporate banking products:

- [Bank of America Merrill Lynch Digital Disbursements](#) — *Celent Model Bank 2016, Part III: Case Studies in Digital Payments and Cards* (April 2016): Digital Disbursements is a new tool for the bank's corporate and government clients to provide business-to-consumer (B2C) payments by using either a recipient's mobile phone number or email address as the identifier. The funds are then placed directly into the individual's personal bank account. The solution enables corporate clients to make digital payments to their own customers, eliminating the need to issue costly checks and allowing customers to receive payments potentially within seconds instead of days. It leverages the Consumer Bank's person-to-person (P2P) technology and expands the capability to provide B2C payments.
- [CitiConnect ERP](#) — *Celent Model Bank 2015, Part 5: Case Studies of Payments Innovation in Banking* (March 2015): The CitiConnect ERP Integrator is a flexible, cost-effective, and nonintrusive solution for integration between a corporate client's ERP and Citi. It leverages existing ERP capabilities with no additional required development and enables the ERP — via a set of templates loaded into SAP — to automatically extract all required payment details in a predetermined format that can be immediately accepted for processing. The CitiConnect ERP Integrator uses the standard F110 and F111 payment processes in SAP. All payment instruments across the 90+ countries supported by Citi through the CitiConnect platform are available. This solution has allowed clients to be onboarded 60% faster since no file programming is required and there is no impact to the internal processes within SAP.

⁹"Transaction banking: A steady performer moves into limelight," Tim Burke, *Financial News*, May 12 2016.

Global Banks Expanding into Emerging Economies

As some global banks exit countries no longer considered strategic, others are taking advantage of the opportunity to expand and go head to head with leading local banks. As global banks set up shop in new locations with new payment types, regulations, and regional nuances, they often deploy technology solutions from third party providers. In this case, the buy decision allows them to quickly establish a competitive offering, likely at a lower cost and with simpler operational requirements than building out new country-level functionality in their existing technology stack.

Regional Banks in Developed Economies

Transaction banking is highly fragmented, with many smaller commercial banks prominent in their local markets. Oliver Wyman estimates that major wholesale banks make up only ~15% of the global transaction banking revenue pool.⁴ Regional banks have an opportunity to increase their competitiveness, either by leveraging emerging technologies to create new solutions or by partnering with financial technology firms to gain a foothold in new markets.

Regional banks are investing in transaction banking services, attracted by large deposits and transaction fees. Many already have competitive platforms, but others are held back by legacy commercial banking portals and platforms lacking support for key products. Celent sees continued adoption of more flexible technology platforms by regional banks that have previously found themselves at a competitive disadvantage in meeting the needs of larger commercial clients. Many of these clients are adopting either on-premise or cloud-based treasury technology and require different file formats and connectivity options to optimise straight-through processing and to automate bank reporting and transaction initiation. Much like the global banks, regional banks continue to refine their offerings, often in partnership with financial technology providers, exemplified by these two Model Bank winners.

- *Capital One: Natural Language Search Intellix Mobile - Model Bank 2017 for Emerging Technology* (April 2017): By allowing users to search like they speak (including support for speech-to-text dictation), this initiative radically improves users' search experiences by helping them find the information they need more efficiently and accurately. The premise of Capital One's natural language search is very simple: corporate users simply enter (via the mobile keyboard) or speak their text (using their keyboard's dictation button). Using a build or buy approach, Capital One sought the requisite abilities externally and found ClearGraph, a small firm specialising in natural language processing (NLP) and big data.
- *CIBC myClient — Celent Model Bank 2016, Part V: Case Studies in Cash Management and Trade Finance*: The CIBC myClient platform automates pricing, billing, and reporting for CIBC's 300,000+ business clients. It brings together disparate operational and systems processes, fixing revenue leakage, and introducing controls and supervision over the entire process. It includes a centralized product and service catalogue, increasing data availability, pricing flexibility, and billing accuracy. CIBC chose Zafin's miRevenue platform as the system of record for all product and pricing management across Business Banking.

Regional Banks in Emerging Economies

These banks often partner with vendors to create solutions to meet local market needs, leapfrogging their competitors by offering integrated, digital experiences for their corporate banking clients. For example, the 2017 Asset Client Satisfaction Index of Transaction Banks in the Asia-Pacific and the Middle East found that regional/Asian banks are now catching up in terms of client satisfaction vis-à-vis international/global banks. When looking at packaged solutions, regional banks may find that multi-tenant/SaaS platforms offer more complete functionality at a lower cost, but local data sharing regulations may restrict SaaS adoption.

With little legacy technology holding them back, several emerging market banks have chosen to partner with vendors to roll out fully integrated, front-to-back corporate banking solutions. These banks leverage commercially available software to quickly build breadth and depth in corporate banking. Three recent Celent Model Bank winners highlight the gradual levelling of the playing field with local and regional heavyweights gaining on the global giants in improved customer experience:

- ***FGB: FGB Online Connected Corporate Banking*** — *Winner of Celent Model Bank 2017 Award for Corporate Banking Digital Platform*: To sharpen the bank's competitiveness in transaction banking, FGB redefined its strategic approach to corporate banking and its operating model. With a digital-first approach and enterprise digitisation, the bank provides advanced online banking services, but also the common digital services to drive a single view of the customer across trade transactions and cash management. The bank selected the digital channels and trade finance back office components of Misys Fusion Banking Corporate as its strategic provider for a new digital platform to support the business.
- ***HBL (Habib Bank) Unified Corporate Digital Platform*** — *Celent Model Bank 2016, Part V: Case Studies in Cash Management and Trade Finance*: HBL has transformed the corporate banking offering for its clients by unifying cash management, trade services, and supply chain finance onto a single digital platform. For its integrated corporate banking platform, HBL chose FusionBanking Corporate Channels from Misys. The platform enables the bank to offer corporate customers a convenient and consistent way to oversee and manage their global financial activity and cash positions from a single portal. The portal tightly integrates with the bank's core banking and trade finance platforms, resulting in a unified digital architecture for its corporate banking clients.
- ***Mashreq Bank: Mashreq Matrix Initiative*** — *Celent Model Bank 2014, Part 5: Case Studies of Innovation in Cash Management*: Mashreq implemented an integrated global transaction banking solution to provide an integrated portal for cash management products, liquidity products and trade and supply chain products for Mashreq Bank's corporate users. The project was a complex implementation which included a parallel rollout of a new core banking system and a new middleware platform, including a "big bang" go live of all three systems (core, middleware, and integrated cash management). The solution, based on Intellect Design's iGTB platform, was one of the first integrated cash management suites in the region providing corporate users with a single view across multiple lines of business: payments, liquidity, collections and receivables, and trade.

Retaining sticky operational cash management mandates is a positive for the overall corporate client relationship and important for NSFR/LCR considerations. However, maintaining and building competitive offerings has become very expensive for smaller domestic banks. Small banks are forced to act as followers relative to global banks, which are investing heavily in multiproduct, multicountry, and multibank platform capabilities. In addition, fintech companies and accounting and tax software firms are moving into the aggregation space, de facto integrating the client coverage layer. In trade finance, the challenge for small banks is similar: they cannot afford to implement a full end-to-end process digitalization especially since more and more business is moving towards open account solutions. Timing will be a key skill for corporate banks to ensure they continue to capture attractive returns for clients that stick to a non-digital approach. As a result, we see banks increasingly looking for smart ways to provide these capabilities to clients by insourcing or partnering.

- Delivering Excellence in Corporate Banking, Oliver Wyman, 2015

THE PATH FORWARD

Since the financial crisis, transaction banking and commercial lending have gained prominence, increasingly recognised as vital, relatively stable revenue generators with a low cost of capital. Hence, competition to build relationships spanning the spectrum of transaction banking and credit products has heightened.

Corporates have multiple banking relationships, and midsize and smaller banks are increasingly winning a piece of the lucrative revenue pool. Being successful at serving larger commercial clients requires a commitment to technology investments, business model changes, and more complex operational processes. In the battle for revenue share, technology is both an opportunity and a challenge for differentiation.

Banks must consistently invest in updating and enhancing their corporate banking solutions to meet client demands for ease of use, flexibility, and convenience. The days of implementing a new solution and only applying mandatory maintenance patches or regulatory requirements are long gone. With a steep decline in corporate practitioner satisfaction with their banking partners (68% satisfaction in 2015 versus 55% in 2016), banks are hearing loud and clear that they need to improve in areas such as harmonisation of standards, seamless integration of processes, and single integrated point of entry for all services.¹⁰

To improve corporate practitioner satisfaction from a technology perspective, banks need to start with an overall digital strategy for corporate banking. It is not enough to offer the slickest, most user-friendly corporate mobile application. If the process to enroll in that channel is manual, paper-intensive, and takes weeks, you have only solved part of the problem.

Crafting an overall digital strategy for the corporate bank can be difficult – the bank must break down the product, channel, and operations silos that make it difficult for the various lines of business and support units to come together. Establishing a comprehensive strategy may mean giving up some level of control, but in the long run, provides the foundation for enhancing client satisfaction in a competitive business environment.

The digital strategy needs to incorporate the imperatives of legacy transformation, customer experience, regulatory and industry initiatives, and emerging technologies. With an adaptive, modular target state architecture in place, emerging technologies can be applied to solve business problems with minimum disruption to existing systems and processes in banks.

As banks craft their strategies and set out to invest in differentiated capabilities, we see increased collaboration — among banks, traditional financial technology firms, and fintech startups. The corporate banking revenue pool is an attractive one, and high-performing banks have an opportunity to grab an outsized share of the corporate banking wallet.

Was this report useful to you? Please send any comments, questions, or suggestions for upcoming research topics to info@celent.com.

¹⁰CGI 2016 Transaction Banking Survey, published by GTNews & CGI.

APPENDICES

APPENDIX 1: BANKS IN THE CELENT CORPORATE BANKING PERFORMANCE ANALYSIS

Table 2 lists the banks included in the Celent analysis by global asset ranking according to S&P Global Market Intelligence's world's 100 largest banks list as of April 2017 (with the majority of banks ranked by total assets as of December 31, 2016).

Table 2: Banks in Corporate Banking Performance Analysis

GLOBAL RANK	INSTITUTION NAME	HEADQUARTERS	ANALYSIS REGION
1	Industrial & Commercial Bank of China Ltd.	China	Asia-Pacific
2	China Construction Bank Corp.	China	Asia-Pacific
3	Agricultural Bank of China Ltd.	China	Asia-Pacific
4	Bank of China	China	Asia-Pacific
5	Mitsubishi UFJ Financial Group Inc.	Japan	Asia-Pacific
6	JPMorgan Chase & Co.	United States	North America
7	HSBC Holdings Plc	United Kingdom	Europe
8	BNP Paribas SA	France	Europe
9	Bank of America Corp.	United States	North America
10	Wells Fargo & Company	United States	North America
11	Crédit Agricole S.A.	France	Europe
13	Citigroup Inc.	United States	North America
14	Mizuho Financial Group, Inc.	Japan	North America
15	Deutsche Bank A.G.	Germany	Europe
17	Barclays Plc	United Kingdom	Europe
19	Banco Santander S.A.	Spain	Europe
29	ING Groep N.V.	Netherlands	Europe
31	UniCredit S.p.A.	Italy	Europe
47	Standard Chartered PLC	United Kingdom	Europe
56	U.S. Bancorp	United States	North America

Source: S&P Global Market Intelligence, Celent

APPENDIX 2: CORPORATE BANKING LINES OF BUSINESS BY REGION

Table 3: Corporate Banking Lines of Business, by Region

INSTITUTION	SEGMENT	ACTIVITIES
ASIA-PACIFIC BANKS		
Industrial and Commercial Bank of China (ICBC)	Corporate Banking	<ul style="list-style-type: none"> – Corporate Deposits – Loan and Lease Financing – Small Business Finance – Bill Business – Settlement Service – Corporate Wealth Management – Investment Banking – Institutional Banking – Assets Custody Business – Corporate Annuity Service – Investment Banking – Financial Markets
China Construction Bank Corporation (CCB)	Corporate Banking	<ul style="list-style-type: none"> – Treasury Products – Cash Management – Trade Finance – Corporate Finance – Cross Border Finance – Institutional Products – Trustee Services
Agricultural Bank of China Ltd.(ABC)	Corporate Banking	<ul style="list-style-type: none"> – Corporate Deposits – Financial and Credit Facility – Payment and Settlement – Cash Management – Trading – Investment and Wealth Management – Investment Banking – Custody – Bank Card Business – Financial Markets – Financial Institution Business – SME Business
Bank of China	Corporate Banking	<ul style="list-style-type: none"> – Corporate RMB Services – Cross Border Services – Cash Management Services – Treasury Services – Commercial Banking – SME in One – Financial Institutions Services – E-Commerce Services – Trade Finance and Services – Custody – Investment Services
Mitsubishi UFJ Financial Group Inc.	Integrated Corporate Banking Business Group	<ul style="list-style-type: none"> – Commercial Banking – Corporate and Investment Banking – Transaction Banking – Trust Banking
Mizuho Financial Group	Corporate & Institutional Company	<ul style="list-style-type: none"> – Transaction Banking – Corporate Finance – Syndicated Finance – Structured Finance

- Institutional Services
- Advisory Services

EUROPEAN BANKS

HSBC Holdings Plc	Global Banking & Markets Commercial Banking	<ul style="list-style-type: none"> – Liabilities: Deposits, Payments & Cash Management, Balance Sheet Management – Assets: Credit and Lending, Asset and Trade Finance – Fees: Corporate Finance, Markets, Securities Services – Liabilities: Deposits, Payments & Cash Management – Assets: Credit and Lending, International Trade and Receivables Finance – Fees: Commercial Insurance and Investments
BNP Paribas SA	Corporate and Investment Banking	<ul style="list-style-type: none"> – Global Markets (Investment, hedging, financing, research) – Securities Services (Clearing and custody services, asset and fund services, corporate trust services, market and financing services) – Treasury, Finance and Advisory (Corporate trade and treasury solutions, debt financing, specialized financing, strategic, advisory, mergers & acquisitions, equity capital markets)
Barclays PLC	Corporate Banking	<ul style="list-style-type: none"> – Cash Management – Trade Solutions – Digital Banking Services – Financing – Risk Solutions
Deutsche Bank AG	Corporate & Investment Bank Private & Commercial Clients International	<ul style="list-style-type: none"> – Global Transaction Banking – Corporate Finance – Equities – Fixed Income & Currencies – Payments & Current Accounts – Investment Management – Start-up Financing & Structured Finance
Crédit Agricole S.A.	Corporate and Investment Banking	<ul style="list-style-type: none"> – Commercial Banking & Trade – Global Investment Banking – Global Markets – Debt Optimisation and Distribution – Structured Finance – Islamic Finance
Banco Santander S.A.	Global Banking & Markets	<ul style="list-style-type: none"> – Corporate & Investment Banking – Financial Institutions Group – Global Transaction Banking – Credit – Fixed Income – Foreign Exchange – Equity – Global Structuring
UniCredit	Corporate & Investment Banking	<ul style="list-style-type: none"> – Global Transaction Banking – Global Financing & Advisory – Global Markets
ING	Wholesale Banking	<ul style="list-style-type: none"> – International Cash Management – Trade Finance Services – Lending and Debt Capital – Working Capital Solutions

		<ul style="list-style-type: none"> – Treasury – Derivatives – Clearing – Securities Finance
Standard Chartered	Business Banking	<ul style="list-style-type: none"> – Transaction Banking – Financial Markets – Corporate Finance – Renminbi Services – SME Banking – Islamic Banking – Global Research
NORTH AMERICAN BANKS		
JPMorgan Chase & Co.	Corporate & Investment Bank	<ul style="list-style-type: none"> – Investment Banking and Corporate Finance Advisory – Markets: Commodities, Equities, Fixed Income – Investor Services – Treasury Services
	Commercial Banking	<ul style="list-style-type: none"> – Investment Banking – Treasury Services – Credit and Financing
Bank of America Corp.	Global Banking & Markets	<ul style="list-style-type: none"> – Global Markets – Global Research – Global Corporate Banking – Global Commercial Banking – Wholesale Credit
Citigroup Inc.	Institutional Clients Group	<ul style="list-style-type: none"> – Treasury and Trade Solutions – Capital Markets Origination – Corporate and Investment Banking – Markets and Securities Services – Private Bank
Wells Fargo & Company	Wholesale Banking	<ul style="list-style-type: none"> – Treasury Management – Asset Management and Trust – Employee Benefits – Commercial Financing – International Services – Investment Banking, Securities, and Markets
U.S. Bancorp	Wholesale Banking and Commercial Real Estate	<ul style="list-style-type: none"> – Commercial lending, equipment finance and leasing – Depository services – Treasury management – Capital markets – International trade services

Source: Bank annual reports and websites, Celent

APPENDIX 3: CORPORATE BANKING PRODUCT GLOSSARY

Table 4: Corporate Banking Product Glossary

Cash Management

Information Services

Information reporting: Prior and current day balance information, transaction detail, and standard/customized reports.

Fraud prevention (US-focused): Positive pay, reverse positive pay, ACH blocks/filters. Positive pay and reverse positive pay are disbursement services where either the bank or the client matches presented checks against checks issued by the client, with exceptions identified for further analysis. ACH blocks and filters help clients to control and monitor ACH activity.

Liquidity & Investments

Cash flow forecasting: Calculating a cash forecast using current and previous day cash positions, variance calculations, and projected cash inflows and outflows.

Cash concentration/physical pooling: Physical transfer of funds from outlying depository locations, often at different banks, to a central concentration bank account.

Notional pooling: All excess and deficit balances in the company's subsidiary accounts are virtually netted each day to calculate net interest earned or due.

Multibank reporting: Comprehensive view of transactions and balances for depository accounts, across banking entities.

Sweeps: A mechanism to transfer excess end of day funds from a depository account into an investment account.

Target/zero balance accounts: A type of depository account where the end-of-day balance is maintained at zero or other target balance, typically used for disbursements.

Investment services: Online investment and redemption of money market, fixed income, and mutual fund investments.

Payables

Domestic payments: Local ACH and market specific payment systems (e.g. SEPA credit transfers).

International payments: Payments in domestic or foreign currencies made to parties outside of the home country (except in the case of SEPA payments).

Integrated foreign exchange: Ability to execute foreign exchange flows automatically for international payments, as well as collections.

Integrated payables: Allows a company to initiate multiple types of payments in a single submission file.

Checks: Demand draft drawn against a company's current/demand deposit account.

Controlled disbursement (US-focused): Same day notification of the amount of checks that will clear against its disbursement account on a given day.

Receivables

Electronic collections: Incoming wires, ACH, direct debits.

E-invoicing: Electronic invoice presentment and payment, enabling companies to send electronic invoices and receive electronic remittances from customers.

Virtual accounts: Each payer is assigned a unique, virtual account number tied to a master account, allowing the recipient to reconcile each payment.

Integrated receivables: Combined, normalized data from incoming remittances of various types e.g. lockbox, ACH, electronic collections for streamlined posting.

Currency services: Cash vault, branch depository, courier.

Account reconciliation (US-focused): A bank service that matches check issue information to paid checks, reporting any unmatched or mismatched items.

Lockbox (US-focused): Wholesale lockboxes are used primarily for high dollar, low-volume business to business payments with retail lockboxes used to process high-volume, small dollar consumer remittances.

Remote deposit capture (US-focused): Ability to scan and image paper checks, then transmit the images to a depository bank for posting and clearing.

Trade Services and Supply Chain Finance

Trade Services

Letters of credit: A promise made by an issuing bank to pay a certain amount under specific circumstances.

Documentary collections: A payment method that processes the collection of a draft and accompanying shipping documents through international correspondent banks.

Guarantees/standby L/Cs: Serves as a vehicle to ensure the financial performance of a bank's customer to a third-party beneficiary.

Import loan: Short-term cash advance (with recourse) that bridges the gap between making payment to a supplier and receiving payment from a buyer under a letter of credit or documentary collection.

Export finance: Financial assistance to businesses for the shipping of goods internationally.

Trade services utility: Support for TSU messaging capabilities, standards, and routing.

Bank payment obligation: An interbank instrument to secure payments against the successful matching of trade data.

Supply Chain Finance

Open account services: Facilitate payments, reconciliation, and settlement of open account trade transactions (transactions not supported by any banking or documentary trade instrument).

Receivables discounting: Financing made available on the expectation of repayment from funds generated from trade receivables.

Factoring: A form of receivables finance in which the seller sells their receivables at a discount to a finance provider.

Payables finance/reverse factoring: Buyer-led program enabling suppliers the option to receive the discounted value of receivables prior to the actual due date.

Distributor/dealer finance: Financing for a distributor or manufacturer to cover the holding of goods for resale.

Inventory finance: Financing provided against warehoused goods over which the finance provider usually takes a security interest.

Pre-shipment finance: Financing provided to a seller for the sourcing, manufacture, or conversion of materials into finished goods or services.

Lending and Credit Origination

Commercial/Bilateral Loans & Lines

Commercial/bilateral loans: Loan agreement between an individual borrower and individual lender, often used to acquire capital assets such as equipment, machinery, or inventory.

Commercial line of credit: Secured or unsecured line of credit, often revolving, often used for working capital needs.

Complex Lending

Syndicated loan: Larger loans offered by a group of lenders to a single borrower, often to share the risk involved.

Commercial real estate loan: A mortgage loan secured by a lien on commercial property.

Construction loan: Loan secured by a property lien to finance a building project until completion and issuance of a long-term loan.

Agricultural credit: Any of several credit vehicles used to finance agricultural transactions, including loans, notes, bills of exchange, and banker's acceptances.

Equipment finance & leasing: Financing solutions for equipment including aircraft, construction equipment, energy systems, hardware/software, and healthcare devices.

Asset-based lending: Commercial loans or lines of credit backed by liens on specific assets of the borrowing company.

Corporate to Bank Channels

Online Portal: Web-based corporate banking portal provided by a bank with which employees of a corporate client interacts to retrieve information and conduct financial transactions.

Mobile: Native mobile app or responsive design-driven user interface.

Tablet: Native tablet app or responsive design-driven user interface

Host to Host: File-based connectivity between a bank and a corporate client supporting multiple file formats and integration with ERP/TMS solutions.

Network Connectivity: File-based connectivity to dedicated financial messaging and transaction networks such as SWIFT, EBICS, ISABEL, etc.

Open APIs: Availability of open banking APIs and a developer portal to connect with clients and third-party developers.

Back Office / Accounting / Servicing Systems

Core Banking: Current/demand deposit accounts, time/savings accounts, overdrafts, stop payments, internal transfers.

Payment processing and settlement: Broad set of processes associated with payment instructions, validation, enrichment, authorization, execution, repair, and reconciliation.

CRM/Client Lifecycle Management: Managing client interactions involved in establishing new accounts or services for new and existing clients and the ongoing maintenance of those accounts to support changes in authorized employees, limits, entitlements, and service options.

Account Analysis/Billing: A process that includes identifying customer relationships and associated accounts, along with tracking transactional activity and assigning associated fees for customer billing.

Risk/Compliance: A broad set of activities that encompasses exposure/limits management, credit risk analytics, KYC/AML, regulatory reporting, and asset/liability management.

Loan Servicing: The process by which a lender tracks loans and lines outstanding, and collects interest, principal, and other fees from borrowers.

Source: Celent analysis

APPENDIX 4: TECHNOLOGY PROVIDERS INCLUDED IN CELENT RFI ANALYSIS

Celent issued an RFI in May 2017. The RFI went to 23 technology providers offering corporate banking solutions across several geographies; 18 vendors responded.

Table 5: Technology Providers Included in Celent RFI Analysis

VENDOR NAME	HEADQUARTERS	REVENUE ¹¹ (USD)	WEBSITE
INTEGRATED CORPORATE BANKING SUITES			
EDGEVERVE SYSTEMS	Bangalore, India	\$3.3 BN	www.edgeverve.com
FINASTRA	London, UK and Toronto, Canada	\$2.8 BN	www.finastra.com
FIS	Jacksonville, FL, USA	\$9.2 BN	www.fisglobal.com
FISERV	Brookfield, WI, USA	\$5.5 BN	www.fiserv.com
INTELLECT DESIGN ARENA	Chennai, India	\$0.136 BN	www.igtb.com
NUCLEUS SOFTWARE	Noida, India	\$0.057 BN	www.nucleussoftware.com
ORACLE FINANCIAL SERVICES SOFTWARE LIMITED (OFSSL)	Mumbai, India	\$37.04 BN	www.oracle.com
TATA CONSULTANCY SERVICES (TCS)	Mumbai, India	\$17.58 BN	Sites.tcs.com/tcsbanks/
TEMENOS	Geneva, Switzerland	\$0.635 BN	www.temenos.com
DIGITAL CORPORATE BANKING SOLUTIONS			
ACE SOFTWARE SOLUTIONS (TRADING AS PELICAN)	Iselin, NJ, USA	\$0.0075 BN	www.pelican.ai
ACI WORLDWIDE, INC.	Naples, FL, USA	\$1.01 BN	www.aciworldwide.com
BOTTOMLINE TECHNOLOGIES	Portsmouth, NH, USA	\$0.343 BN	www.bottomline.com
CASHFAC	London, United Kingdom	\$0.013 BN	www.cashfac.com
CGI	Montreal, Canada	\$2.6 BN	www.cgi.com
COMARCH S.A.	Krakow, Poland	\$0.280 BN	www.comarch.com
COMMERCIAL BANKING APPLICATIONS AS (CBA)	Oslo, Norway	\$0.006 BN	www.cba.no
Q2 SOFTWARE INC., DBA Q2	Austin, TX, USA	\$0.150 BN	www.q2ebanking.com
SAP SE	Waldorf, Germany	\$26.02 BN	www.sap.com

Source: Company information, Celent

¹¹Revenue for most recently reported fiscal year.

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SUPPORT FOR FINANCIAL INSTITUTIONS

Typical projects we support related to Corporate Banking include:

Vendor short listing and selection. We perform discovery specific to you and your business to better understand your unique needs. We then create and administer a custom RFI to selected vendors to assist you in making rapid and accurate vendor choices.

Business practice evaluations. We spend time evaluating your business processes, particularly in Corporate Banking. Based on our knowledge of the market, we identify potential process or technology constraints and provide clear insights that will help you implement industry best practices.

IT and business strategy creation. We collect perspectives from your executive team, your front line business and IT staff, and your customers. We then analyze your current position, institutional capabilities, and technology against your goals. If necessary, we help you reformulate your technology and business plans to address short-term and long-term needs.

SUPPORT FOR VENDORS

We provide services that help you refine your product and service offerings. Examples include:

Product and service strategy evaluation. We help you assess your market position in terms of functionality, technology, and services. Our strategy workshops will help you target the right customers and map your offerings to their needs.

Market messaging and collateral review. Based on our extensive experience with your potential clients, we assess your marketing and sales materials — including your website and any collateral.

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