CELENT

March 2012

XCELENT Awards 2012

Core Banking Solutions for Large Banks
A Global Perspective

This is an authorized reprint of a recent Celent report profiling and evaluating core banking system vendors. This report was not sponsored by Accenture in any way. This reprint was prepared specifically for and granted to Accenture, but the analysis has not been changed from the original report. For more information about the full report, please contact Celent through our website (www.celent.com) or info@celent.com.

Stephen Greer and Bart Narter

MARSH & McLENNAN COMPANIES

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Executive Summary

Core banking is the central processing unit of a bank. The banks, with the help of software vendors, have found the opportunity to leverage multiple channels in order to deliver products and facilitate transactions. What was once a system heavily reliant on the paper-based operations, has now been revolutionized by digital alternatives, bringing with it a new wave of automation. Efficiency and increased productivity are the standards. Branch networks are increasingly able to utilize the cohesive properties of new core systems.

The global core banking market looks mature, with a significant percentage of banks having replaced their legacy systems with more efficient and flexible core banking systems. The desire to change core generally depends on the size of the bank, with smaller seemingly more willing to undergo a switch, yet with larger banks having more capital with which to do so, increasing their momentum within the core market. The main drivers for core replacements are numerous. The most obvious is modernization: providing a more cost effective and efficient way to run core processes. The importance of analytics and its application with regard to the view of the customer and customer service can also be a subdriver for core modernization. Most emerging markets are finding core replacement a necessity to compete in an ever more competitive, and regulated banking environment, spurring lots of movement in new geographies.

Some of the other global trends among the large banks are:

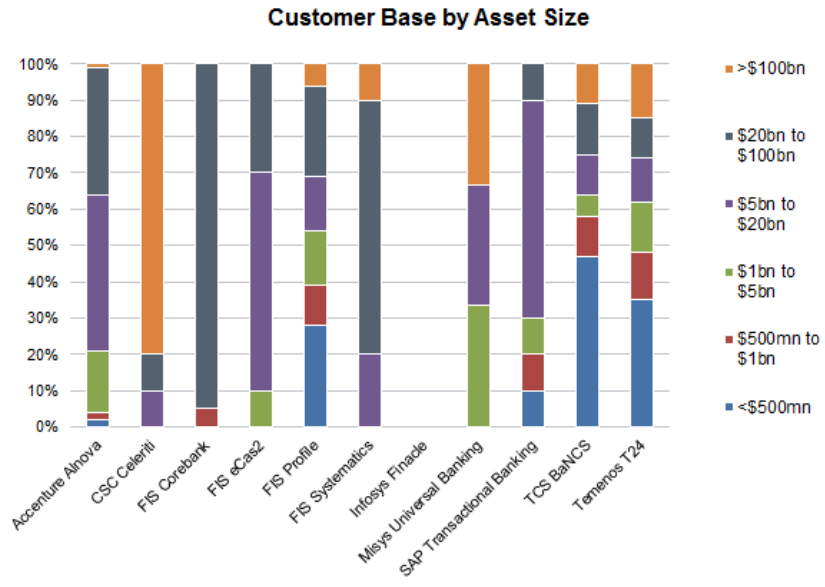
- Preference for an SOA-based system. With many large banks having a number of independent systems working from different vendors and in different environments, a service-oriented architecture can provide better integration between disparate entities.
- Analytics, customer-centricity, and multichannel technologies. Banks increasingly want a core system that utilizes data analytics to provide a more complete view of the customer, which then allows for better customer-bank communication. Multichannel options like ATM, mobile, Internet, and IVR are crucial in attracting and serving customers. Core banking solutions are also expected to facilitate product development and provide flexible customization capabilities.

- Reduced implementation time. Replacing and centralizing a new system needs to then be done in a phased but efficient way as to minimize this impact. For large banks with a lot of branches, a complete replacement with reduced implementation time would be a challenge for the vendors. Smaller banks will tend to migrate DDA accounts over to a new system at the same time, while larger institutions will first launch new products and then slowly, if at all, migrate the current accounts.
- Major preference for in-house implementation. A majority of large banks in developing countries prefer in-house implementations to hosted implementations. However, offshore branches for large institutions might opt for a hosted solution, especially when engaging in an outsourced service agreement.

In this report, Celent examines the solutions focused on the large banks around the world using Celent's ABCD Vendor View. The vendor with the most advanced technologies is TCS BaNCS. On the breadth of functionality dimension, Accenture Alnova scored over other solutions. Temenos T24 has the largest customer base, as estimated by weighted average asset size, among the solutions covered in this report. FIS Profile and FIS Systematics lead in depth of client services.

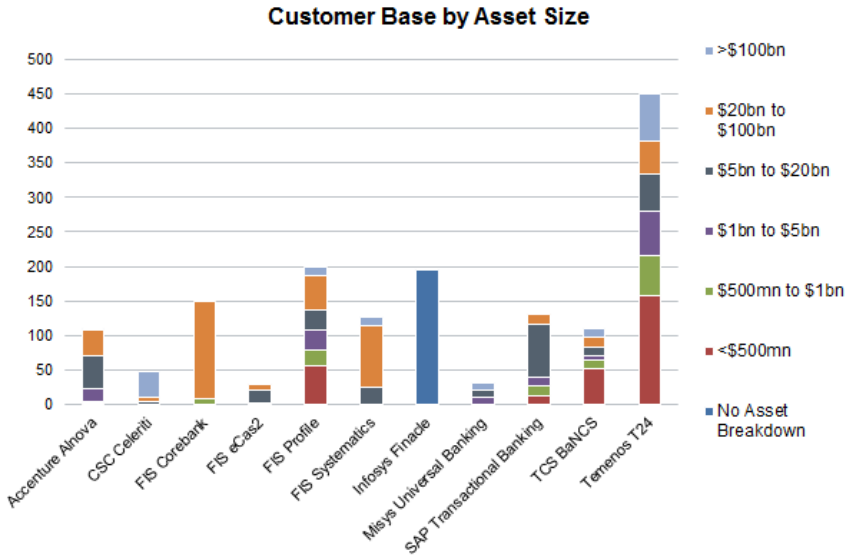
Figure 1 and Figure 2 show a breakdown of each vendors customer base by asset size, taking into account percentages and total numbers for each tier. Figure 3 on page 6 looks at each vendors' percentage of hosted vs on-premise implementations.

Figure 1: Celeriti Has the Largest Percentage of Its Customers Above $100 Billion



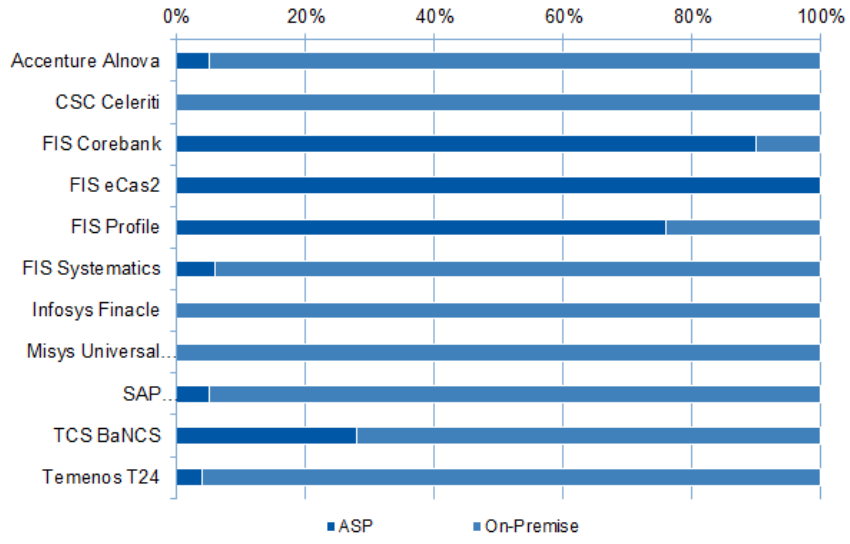
Source: Vendors
Note: The asset breakdown of Infosys customers was not available. Please refer to the vendor profile for a breakdown of customer accounts.

Figure 2: Temenos T24 Has the Largest Customer Base and Most Evenly Distributed Asset Breakdown



Source: Vendors
Note: The asset breakdown of Infosys customers was not available. Please refer to the vendor profile for a breakdown of customer accounts.

Figure 3: Implementations Are Predominantly On-Premise Among Large Banks



Source: Vendors

This report contains a detailed analysis of vendor solutions with a summary on the strengths and weakness of each product. We analyse solutions catering to large banks around the world. This report is one in a series of vendor analysis of core banking solutions. The other reports are:

- *Core Banking Solutions for Small Banks—A North American Perspective*, March 2012
- *Core Banking Solutions for Large and Midsize Banks—A North American Perspective*, March 2012
- *Core Banking Solutions for Small Banks—A Global Perspective*, February 2012
- *Core Banking Solutions for Midsize Banks—A Global Perspective*, February 2012

Classification of Vendor Solutions

Celent has broken down the core banking solutions based on the geographical location of their customer bases and the size of the banks served.

We have defined core banking solutions for large banks as those solutions who have more than 20% of their clients with more than $20 billion in assets or more than 10 clients over $100 billion in assets. In this report, we cover solutions where more than 10% of the banks are located in regions other than North America.

ABCD Analysis and XCelent Awards

Celent has developed a framework for evaluating vendors called the ABCD Vendor View. This is a standard representation of a vendor marketplace designed to show at a glance the relative positions of each vendor in four categories: Advanced technology, Breadth of functionality, Customer base, and Depth of client services. The factors used to evaluate each vendor in this report are listed in Table 1.

Table 1: ABCD Scoring for Core Banking Solutions

Category	Factors Included
Advanced Technology	■ Architecture ■ Hardware platform ■ Integration (messaging/middleware layer) ■ User interface ■ Operating systems ■ Databases
Breadth of Functionality	■ Teller/Platform ■ Internet / Mobile ■ ATM ■ Loan Origination ■ Mortgage Servicing ■ Wealth Management/Securities/ Mutual Funds ■ Letters of Credit ■ Cash Management ■ Remote Deposit Capture ■ Payroll ■ Small Business Administration (SBA) ■ Asset Liability Management ■ Bill Pay ■ Cards ■ Customer Data Analytics/ CRM ■ Data Warehouse ■ Risk Management ■ Payments ■ Transfers ■ Customization Capabilities ■ Languages Supported ■ Currency Supported

Source: Celent

Table 1: ABCD Scoring for Core Banking Solutions

Category	Factors Included
Customer Base	■ Estimated total assets of banks using the system
Depth of Client Services	■ Change management ■ Level of maintenance support ■ Releases and updates ■ Customer Feedback

Source: Celent

Advanced technology is based on the architecture of the system. Is the system written in an object-oriented language? Is a smart client used for the user interface? Can the system be ported to other operating systems and databases easily? Celent gave high marks to vendors that have incorporated recent technological advancements in their solutions.

The Breadth of Functionality dimension looks at the various front end systems and other functionalities offered by the vendor. Celent gave highest marks to vendors that offered pre-integrated features.

Customer base was estimated based on the number of banks served as well as the breakdown of customer by assets. A vendor that has 20 banks with US$200 million in assets isn't as large as a vendor that has 20 banks with US$2 billion in assets. Celent estimated an average asset size for each asset bucket in the vendor questionnaire and estimated total assets of customers using the core system.

Depth of client services measured the level of maintenance and post-implementation support offered by the vendor. Celent gave high marks to vendors that offered change management, training support, robust customer feedback options, and continual monitoring and updates.

Note that different banks have different priorities, and the banks need to consider which dimensions are important in their environments. For example, if a bank wishes to implement the core as a hosted solution, without investing in modern platforms, advanced technology might not be a priority. If the bank chose to implement a best-of-breed integration instead of a single vendor, the B dimension can be discounted.

The XCelent Awards

Within this methodology, the top performers for each category received a corresponding XCelent Award:

- XCelent Technology for the leading Advanced Technology score.
- XCelent Functionality for the leading Breadth of Functionality Score.
- XCelent Customer Base for the leading Customer Base score.
- XCelent Service for the leading Depth of Service score.

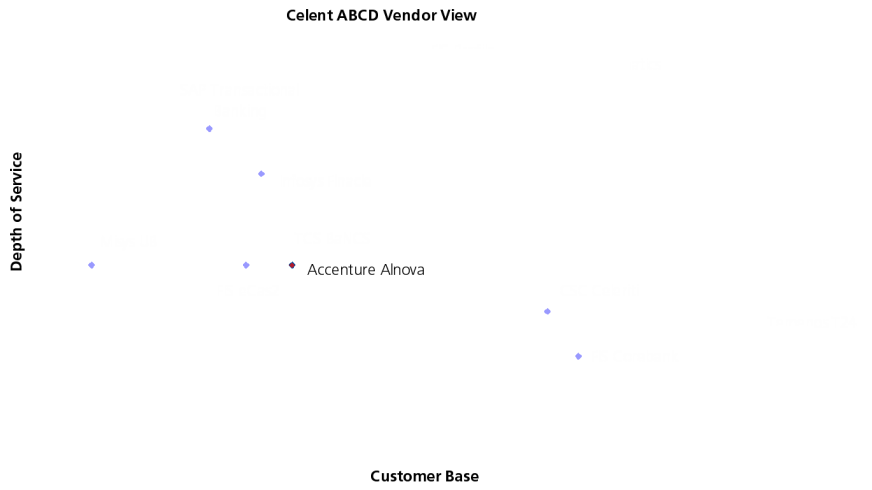
XCelent Technology and XCelent Functionality

Figure 4 positions each vendor along two dimensions: the vertical axis displaying the relative rankings for Advanced Technology and the horizontal axis showing relative Breadth of Functionality rankings.

The XCelent Technology Award is given to TCS BaNCS. TCS BaNCS runs on a multi-tiered architecture which is message-based and compatible with .NET or J2EE channel applications. Infosys Finacle and Accenture Alnova also scored well in that category, utilizing an advanced architecture developed on C++ and Java and SOA / Web services compliance, respectively.

The XCelent Functionality Award is goes to Accenture Alnova. Accenture Alnova offers almost all of their features with the core at no charge, or as an optional module that is part of the same code base. Temenos T24 also scored well in this dimension. T24 doesn't usually ship most of the modules as base core code, but offers almost all of them as optional modules that share the same code base.

Figure 4: Technology and Breadth of Functionality



Source: Celent

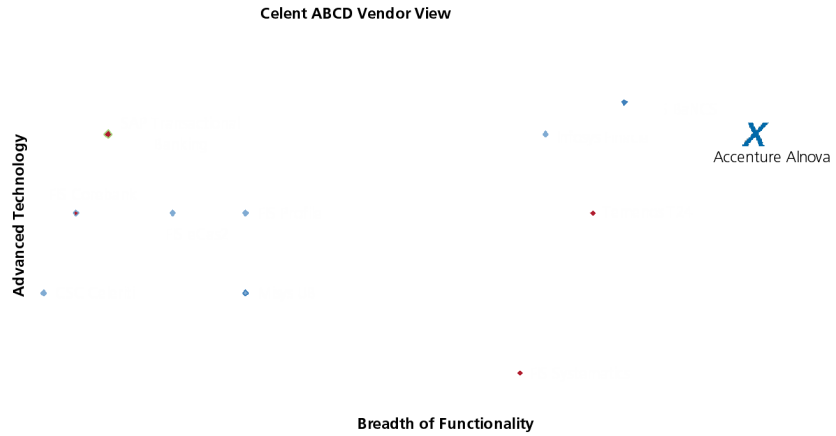
XCelent Customer Base and XCelent Service

Figure 5 on page 12 positions each vendor along two dimensions: the vertical axis displaying the relative level of depth of customer service and the horizontal axis displaying the relative customer base.

The XCelent Customer Base Award goes to Temenos T24, showing a wide geographical spread of their customer base, and a large number of customers across the globe. The next in customer base are FIS Corebank, CSC Celeriti, FIS Systematics.

FIS Systematics and FIS Profile were the winners of the XCelent Service Award. FIS Profile and Systematics provide a wide array post-implementation management consulting, training, and continuous system monitoring tailored to the individual needs of the bank clients. They also include a number of faculties which support customer feedback.

Figure 5: Customer Base and Depth of Service



Source: Celent

Banking Features

Table 2 on page 12 and Table 3 on page 13 summarize the different front end systems supported by the core banking solution. In this segment, the banks would prefer not to invest in a wide range of modules, but instead would be selecting appropriate modules based on their specific needs. Therefore, while almost all the channels are supported by the core banking systems, they are offered as optional modules.

Table 2: Channel Support (1/2):Most Vendors Offer Channel Functionalities as Optional Modules on the Same Code Base

	Accenture Alnova	CSC Celeriti	FIS Corebank	FIS eCas2	FIS Profile
Teller	●	◔	●	●	●
Sales Platform	●	◔	◑	◕	◑
Internet Banking	●	◔	◔	◔	◕
IVR	●	◔	◑	○	◑
Call Center	●	◔	◑	○	◑
ATM	●	◔	◑	○	◑

Source: Vendors
Key: ● = Offered with the core at no charge.
◕ = Offered as an optional module, same code base
◑ = Optional module from a different code base (preintegrated or not) or a preintegrated partner module
◔ = Additional partner module (not preintegrated)
○ = Requires integration with an unrelated product or company.

Table 2: Channel Support (1/2):Most Vendors Offer Channel Functionalities as Optional Modules on the Same Code Base

	Accenture Alnova	CSC Celeriti	FIS Corebank	FIS eCas2	FIS Profile
Mobile	◕	◔	◔	○	◔

Source: Vendors
Key: ●= Offered with the core at no charge.
◕ = Offered as an optional module, same code base
◑ = Optional module from a different code base (preintegrated or not) or a preintegrated partner module
◔ = Additional partner module (not preintegrated)
○ = Requires integration with an unrelated product or company.

Table 3: Channel Support (2/2):Most Vendors Offer Channel Functionalities As Optional Modules on the Same Code Base

	FIS Systematics	Infosys Finacle	Misys Universal Banking	SAP Transactional Banking	TCS BaNCS	Temenos T24
Teller	◑	●	●	◔	●	◕
Sales Platform	◑	◑	◕	◑	●	◕
Internet Banking	◑	◑	◑	◑	◕	●
IVR	◑	◑	◔	○	○	◑
Call Center	◑	◑	◔	◑	○	◕
ATM	◑	●	◑	◔	●	◕
Mobile	◑	◑	◑	◑	◕	◕

Source: Vendors

Table 4 on page 14, Table 5 on page 14, Table 6 on page 14, Table 7 on page 15, Table 8 on page 16, and Table 9 on page 17 summarize the consumer and commercial banking products supported by the core banking systems. Features such as mortgage servicing, cash management, lines of credit, loans (traditional bilateral), loans (multicurrency)

are usually offered preintegrated with the core at no extra charge.

Table 4: Consumer Products (1/2): Mortgage Servicing Is a Popular Offering, While Other Features Are Optional

	Accenture Alnova	CSC Celeriti	FIS Corebank	FIS eCas2	FIS Profile
Loan origination	●	◔	○	◔	◑
Mortgage Servic-ing	●	●	●	●	●
Securities	◕	○	◑	●	◑
Mutual Funds	◕	○	○	◕	◑
Trust	◕	○	◑	●	◑
Wealth Management	◕	○	◑	●	◑

Source: Vendors
Key: ●= Offered with the core at no charge.
◕ = Offered as an optional module, same code base

◑ = Optional module from a different code base (preintegrated or not) or a preintegrated partner module

◔ = Additional partner module (not preintegrated)
○ = Requires integration with an unrelated product or company.

Table 5: Consumer Products (2/2): Mortgage Servicing Is A Popular Offering, While Other Features Are Optional

	FIS Systematics	Infosys Finacle	Misys Universal Banking	SAP Transaction al Banking	TCS BaNCS	Temenos T24
Loan origination	◑	◑	◑	◑	◕	◕
Mortgage Servic-ing	●	●	◑	●	◕	◕
Securities	○	◕	◑	○	●	◕
Mutual Funds	○	◕	◑	○	●	◕
Trust	○	◕	◑	○	○	◕
Wealth Management	◑	◕	◑	○	◕	◕

Source: Vendors

Table 6: Commercial Products (1/2): Most Commercial Product Modules for Accenture, Infosys, FIS eCas2, and TCS Come Preintegrated with the Core

	Accenture Alnova	CSC Celeriti	FIS Corebank	FIS eCas2	FIS Profile
Cash Management	●	●	●	●	●
Leasing	◕	○	◑	●	○
Letters of Credit	◕	●	●	●	◑
Lines of Credit	●	●	●	●	●

Source: Vendors
Key: ●= Offered with the core at no charge.
◕ = Offered as an optional module, same code base.

◑ = Optional module from a different code base (preintegrated or not) or a preintegrated partner module.

◔ = Additional partner module (not preintegrated).
○ = Requires integration with an unrelated product or company.

Table 6: Commercial Products (1/2): Most Commercial Product Modules for Accenture, Infosys, FIS eCas2, and TCS Come Preintegrated with the Core

	Accenture Alnova	CSC Celeriti	FIS Corebank	FIS eCas2	FIS Profile
Loans (traditional bilateral)	●	●	◑	●	●
Loans (trade finance)	◕	◔	◑	●	◑
Loans (factoring)	◕	○	○	●	○
Loans (syndicated)	○	●	◑	●	◑
Loans (multicurrency)	●	●	●	●	●
Remote Deposit Capture	●	◑	◑	○	◑
Payroll	●	○	◑	◕	◑
Small Business Admin-istration (SBA) Lending	●	○	○	○	◑

Source: Vendors
Key: ●= Offered with the core at no charge.
◕ = Offered as an optional module, same code base.
◑ = Optional module from a different code base (preintegrated or not) or a preintegrated partner module.
◔ = Additional partner module (not preintegrated).
○ = Requires integration with an unrelated product or company.

Table 7: Commercial Products (2/2): Most Commercial Product Modules for Accenture, Infosys, FIS eCas2, and TCS Come Preintegrated with the Core

	FIS Systematics	Infosys Finacle	Misys Universal Banking	SAP Transaction al Banking	TCS BaNCS	Temenos T24
Cash Management	●	●	●	●	●	○
Leasing	●	○	◔	●	●	◕
Letters of Credit	●	●	◑	○	◕	◕
Lines of Credit	●	●	◔	●	●	●
Loans (traditional bilateral)	◑	●	◑	●	●	◕
Loans (trade finance)	◑	●	◑	○	◕	◕
Loans (factoring)	◑	○	◑	○	◕	◕
Loans (syndicated)	◑	●	◑	○	●	◕
Loans (multicurrency)	●	●	●	●	●	◕
Remote Deposit Capture	◑	◑	●	○	●	◕

Source: Vendors

Table 7: Commercial Products (2/2): Most Commercial Product Modules for Accenture, Infosys, FIS eCas2, and TCS Come Preintegrated with the Core

	FIS Systematics	Infosys Finacle	Misys Universal Banking	SAP Transactional Banking	TCS BaNCS	Temenos T24
Payroll	○	●	◔	○	●	◕
Small Business Administration (SBA) Lending	●	○	○	○	○	◕

Source: Vendors

Table 8: Other Features (1/2): Accenture Alnova Offers Most of the Other Features With the Core at No Charge

	Accenture Alnova	CSC Celeriti	FIS Corebank	FIS eCas2	FIS Profile
Asset / Liability Management (ALM)	◕	○	◑	●	○
Bill Pay	●	◑	◑	●	◑
Cards	●	●	◑	●	◕
Check Books	●	◑	◑	●	●
Compliance: KYC, OFAC, Patriot Act	●	◑	◑	○	◑
CRM Analytics	◕	●	●	○	◑
CRM Workflow	●	◑	◑	○	◑
CRM Marketing	●	◔	◑	○	◑
Data Warehouse	◑	●	◑	○	◑
eStatements	●	◔	◑	●	◑
Fraud Detection	◑	○	◑	◕	◑
Imaging/Computer Output to Laser Disk (COLD) storage	◑	○	◑	◔	◑
Payments	●	◑	◑	◑	●
Profitability	◕	●	◑	●	○
Product Management	◕	●	◑	●	○
Risk Management	●	◑	◑	◕	○

Source: Vendors
Key: ● = Offered with the core at no charge.
◕ = Offered as an optional module, same code base
◑ = Optional module from a different code base (preintegrated or not) or a preintegrated partner module
◔ = Additional partner module (not preintegrated)
○ = Requires integration with an unrelated product or company.

Table 8: Other Features (1/2): Accenture Alnova Offers Most of the Other Features With the Core at No Charge

	Accenture Alnova	CSC Celeriti	FIS Corebank	FIS eCas2	FIS Profile
Stop Payments	●	●	●	◔	●
Domestic Transfers	●	●	●	○	●

Source: Vendors
Key: ●= Offered with the core at no charge.
◕ = Offered as an optional module, same code base

◑ = Optional module from a different code base (preintegrated or not) or a preintegrated partner module

◔ = Additional partner module (not preintegrated)
○ = Requires integration with an unrelated product or company.

Table 9: Other Features (2/2): Accenture Alnova Offers Most of the Other Features With the Core at No Charge

	FIS Systematics	Infosys Finacle	Misys Universal Banking	SAP Transactional Banking	TCS BaNCS	Temenos T24
Asset / Liability Management (ALM)	◑	◑	◑	◕	◕	◑
Bill Pay	◑	◑	◑	○	◕	◕
Cards	◑	●	●	◕	◕	●
Check Books	●	●	●	●	●	●
Compliance: KYC, OFAC, Patriot Act	◑	◑	◑	◑	◕	◑
CRM Analytics	◑	◑	◑	◑	●	◕
CRM Workflow	◑	◑	◑	◑	●	◕
CRM Marketing	◑	◑	◑	◑	●	◕
Data Warehouse	◑	◑	◑	●	○	◕
eStatements	◑	◑	○	○	●	●
Fraud Detection	◑	●	◑	○	◕	◑
Imaging/Computer Output to Laser Disk (COLD) storage	◑	◔	◑	○	●	●
Payments	◕	●	●	◑	◕	◕
Profitability	◑	◑	●	◕	●	◑
Product Management	◑	◑	●	◕	●	◑
Risk Management	◑	◔	●	◕	◕	◑
Stop Payments	●	●	●	●	●	◕

Source: Vendors

Table 9: Other Features (2/2): Accenture Alnova Offers Most of the Other Features With the Core at No Charge

	FIS Systematics	Infosys Finacle	Misys Universal Banking	SAP Transactional Banking	TCS BaNCS	Temenos T24
Domestic Transfers	●	●	◑	●	●	◕

Source: Vendors

Performance Benchmarks

In Table 10, Celent lists the vendor-provided performance benchmarking data.

Table 10: Benchmarking Data

Core Banking Solution	Benchmarks
Accenture Alnova	Live test: 850 transactions per second, 20 million accounts, 25 million transactions posted per day.
CSC Celeriti	Benchmarked Celeriti architecture, customer information, and card systems using a production customer with 40 million accounts and in a lab with 100 million accounts.. Lab test: 1,500 tps, 98% completed in less than 200 milliseconds.
FIS eCas2	36 million transactions per day. 2,500 TPS on 50 million accounts. Can support 100 million accounts.
FIS Profile	Lab test: 3,200 online TPS. 28,500 batch TPS. 50 million account database.
FIS Systematics	Tested the anticipation of scaling to 40 million accounts on FIS Systematics products, IMPACS (IM DDA), Savings Time (ST), and Advanced Lending System-Servicing Manager (ALS-SM Lending): Account processing: 10 million accounts: 1 hour 16 minutes 20 million accounts: 1 hour 26 minutes 40 million accounts: 1 hour 30 minutes
FIS Corebank	Lab test at IBMs Montpellier facility on z/OS: 32 million accounts and 16 million customers.
Infosys Finacle	Lab test: 130,000 users processing 2500 tps. Can scale to 11,476 online transactions per second and 39,408 TPS for batch. Live test: 5,214 branches, 55 million customers, 74 million accounts, with an average of 3.45 million transactions per day.
Misys BankFusion Universal Banking	Lab test: 5 million customers, 12 million accounts, and a database of 30 million transactions. 600,000 online transactions per hour with 95% responding in less than 0.5 seconds, and 800,000 transactions in batch mode.
SAP Transactional Banking	Lab test: Database with 150 million accounts reached 16,388 transactions per second with online transactions and 37 million accounts balanced in an hour. Live test: largest customer 26 million deposit accounts, 10 million max daily posting.
TCS BaNCS	One of the largest bank clients runs 280 million accounts and 50 million transactions per day, with 2,000 peak TPS. Lab tests reveal 10,000 online transactions per second, and processing of 130,000 accounts per second.
Temenos T24	Customer test: 13 million accounts processing 3 million transactions per day Lab test: MSSQL2012: 25 million accounts, 15 million customers, 2000 branches. >11,500 transactions per second. Oracle: 6,000 interest capitalizations per second. Database of 15 million customers and 25 million accounts IBM System z: 1,600 transactions per second and a database of 25 million accounts.

Source: Vendors

Vendors

The following sections provide the reader with in-depth knowledge about each solution. The vendor profiles are the result of responses to Celent questionnaires, vendor briefings, and reference customer interviews. Vendors are listed in alphabetical order by company. There are summary tables of functional information and customer-related information. Blank rows in the tables indicate that the vendor chose not to answer those particular questions.

- Please note the following definitions for implementation types:
  - Big Bang: Implement in all branches simultaneously, common for community banks.
  - Phased: Implemented in a few locations and rolled out throughout the bank.
  - Vertical: Implementation based on the vertical domains or departments.

Accenture: Alnova Financial Solutions

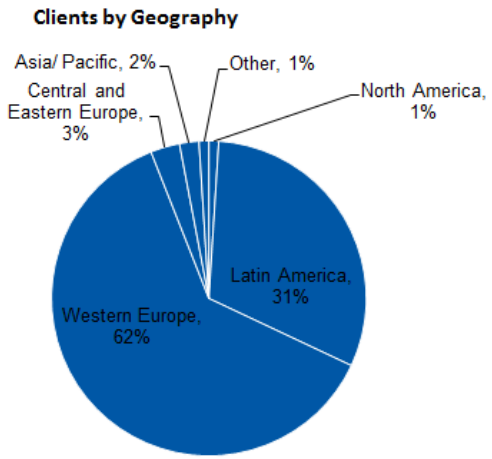
XCELENT Functionality 2012

Alnova Financial Solutions™, owned by Alnova Technologies, a subsidiary of Accenture (NYSE: ACN), is the core banking offering from Accenture. Accenture employs more than 236,000 people across the globe and had revenue of $25.5 billion for fiscal year ended August 31, 2011. The financial services group of Accenture generated around $5.4 billion in the 2011 fiscal year. Accenture has alliances with SAP, IBM, Microsoft, Oracle, and HP for technical collaboration.

The Alnova platform was created from scratch and first deployed in 1989. The system has undergone a number of iterations, the most recent being a reengineered version in 2008 that allowed different geographies to work under a single code base. Alnova recently had a win with BBVA Compass in the US.

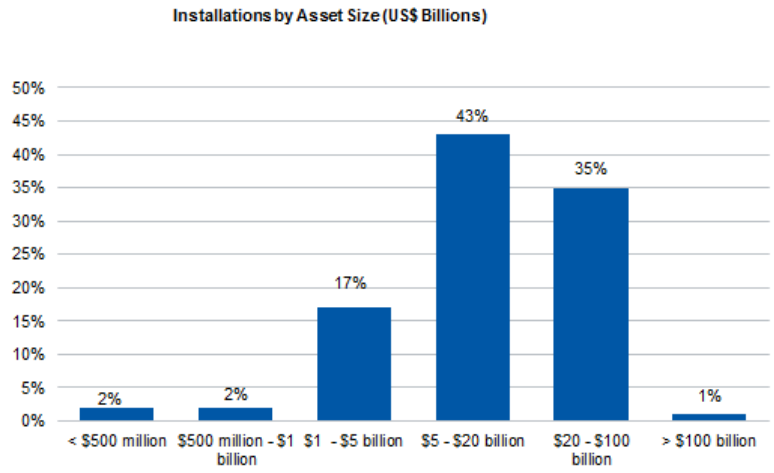
As shown in Figure 6, Alnova is implemented in 106 financial institutions, primarily in Western Europe and Latin America. Figure 7 shows the Alnova client breakdown by asset size.

Figure 6: Alnova Has Most of Its Customer Base in Western Europe and Latin America



Source: Accenture

Figure 7: Alnova Implementations Are Primarily in Banks with Assets Between $5 Billion and $100 billion



Source: Accenture

Alnova is a mainframe-based platform running a Java front end (thin and thick client interfaces) and a COBOL back end, with a shift being made toward a more Java oriented environment. The solution runs on service oriented architecture principles and offers a wide array of functionality through standards-based Web services.

Alnova is designed on a three-tier architecture:

- Front end, channel-specific architecture, which includes branch channel and call center as part of the core.
- Alnova Multichannel Server Architecture (AMTA) as the middleware layer. Based on J2EE and a thin client browser-based execution mode.
- Alnova functional modules running on the Alnova Server Technical Architecture (ASTA) as the back end layer.

The three largest financial institutions currently using the Alnova platform:

- infoCaja, Spain: $95 billion in assets.
- BBVA Bancomer, Mexico: $86 billion in assets.
- PKO, Poland: $60 billion in assets.

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Table 11: Alnova Product Information

	Alnova Response
Product Name	Alnova Financial Solutions
Current Release	Alnova back end R 5.0 Sept. 2011 Accenture Banking Multichannel Platform R 1.0 Sept. 2011
Next Release	September 2012
Language Written	COBOL 60% Java 40%

Source: Accenture

Table 11: Alnova Product Information

	Alnova Response
Hardware Supported	IBM System z (mainframe) IBM System p (Unix) Oracle / Sun servers HP Unix servers (Superdome) Windows Servers For running the Alnova solution, clients need a server/database platform which can be one of the following: System z, System p, Oracle/Sun Server, HP Servers, or Windows Server. In addition, they need a multichannel platform which can be either System p, Oracle/Sun Server, HP Servers, or Windows Server. The most common implementation is the same platform for both, with the exception of System z, which usually runs only as the server/database platform.
Operating Systems Supported	IBM z/OS IBM AIX Oracle Sun Solaris HP UX Linux Windows Server
Database Supported	Oracle IBM DB2 Microsoft SQL Server
User Interface	Browser client Web Services XML API
Transaction Handling	Real Time
Customization	Parameters Product Generation Tool Hooks for custom code Modifiable source code
ASP vs. On-Premise	5% ASP vs. 95% on-premise
Multilingual	Yes (Double-byte characters)
Multicurrency	Yes
Languages supported (out of the box)	English Spanish
Languages deployed	English, Spanish, Italian, Portuguese, German, Greek, Polish, Hebrew (right-to-left capability), Chinese, and Russian
Multibank support on the same instance of software (i.e., support shared data center)	Yes (Largest single instance is five banks)
Multicountry support on the same instance of the software (i.e., support regional hubs)	Yes
Cloud enabled	No

Source: Accenture

The Alnova pricing model includes a software license fee, service fees, and a maintenance/upgrade fee.

- The service fees depend on specific client agreement and can include different services as software installation, implementation, training, maintenance/outsourcing, etc.
- The maintenance/upgrade fee is an optional annual fee for core technical modules and operational modules that are common across implementations, which allows access to new releases of those modules.

Alnova provides the clients with the source code of the software. The client can also choose to maintain the software of operational modules on its own.

Table 12: Pricing Information

	Alnova Response
Pricing structure	Based on the total assets of the financial institution and adjusted as the bank grows. For startups, based on the number of accounts handled by the system (yearly payment).
Annual maintenance/upgrade fee as a percentage of license fee	On an average of 15% to 20% (for technical modules and those that are common across implementations). License and maintenance fees adjust as the bank grows.
Implementation fees as a percentage of license fees	

Source: Accenture

Table 13: Implementation Information

	Alnova Response
Typical implementation time	Startups: 4 to 6 months. Medium-size banks: 12 to 24 months. Very large banks: 3 years.
Implementation approach	Implementation approach varies depending on the circumstances. Key factors influencing deployment include: - Bank size - Number of modules - Development approach (traditional, delivery center—onshore, offshore) - Timelines - Current capabilities - Risk tolerance
Deployment	Self
Post-implementation—change management / training services	Yes
List number of certified professionals on this platform for each partner and self.	>2,500
Typical release frequency	Major release: Yearly Minor patches: Quarterly (or depending on needs)

Source: Accenture

Table 13: Implementation Information

	Alnova Response
Customer Feedback	User group that meets in person. Focus groups. Customer surveys.

Source: Accenture

Summary

Accenture's Alnova platform uses a solution creation methodology that engineers a differentiated core system for each client. It's one of a number of core systems owned by an IT services company, giving a "one hand to shake, one arm to break" scenario for financial institutions. A notable win is BBVA Compass, Accenture's first big US deal on its platform. Celent will continue to monitor Accenture's progress at this quite closely. Alnova won the XCelent award for functionality.

CSC: Celeriti Banking System

CSC (NYSE: CSC) provides technology-enabled solutions and services through three primary lines of business: Business Solutions and Services, the Managed Services Sector, and the North American Public Sector. CSC's offerings include system design and integration, information technology and business process servicing, applications software development, web and application hosting, mission support, and management consulting. With 97,000 employees and annual revenue of $16.2 billion for 12 months ending September 30, 2011, CSC provides software solutions and services for all sectors of the global financial services industry.

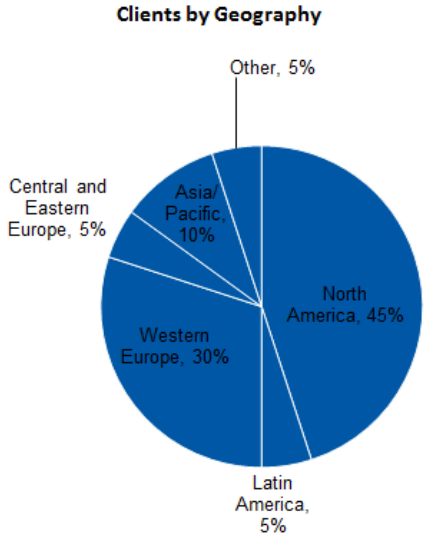
In 2010, CSC acquired Vulnerability Research Labs (a cyber threat intelligence firm). CSC also acquired Covansys (an Indian IT company) in 2007, Object Builder Software (a Bulgarian IT services firm) in 2008, and VIXIA (an IT consulting firm in Latin America) in 2011.

CSC has partnerships in banking with IBM, Communication Intelligence Corporation (CIC) (eSignature solutions), and CallMiner (enterprise speech analytics) for technology and functionality enhancements. Additionally, CSC is an IFX Board member and acquired a Brazil-based financial services consulting firm, VIXIA, to focus on the Latin American financial market.

Celeriti from CSC is a service-oriented customer-centric application suite with products offering payment, lending, card, merchant, and deposits solutions. In 2010, Celeriti was introduced as a new end-to-end suite of products, components, and Web services leveraging intellectual property from the Hogan core banking suite. First Tennessee Bank recently implemented the Celeriti Bank suite, upgrading from the Hogan legacy platform.

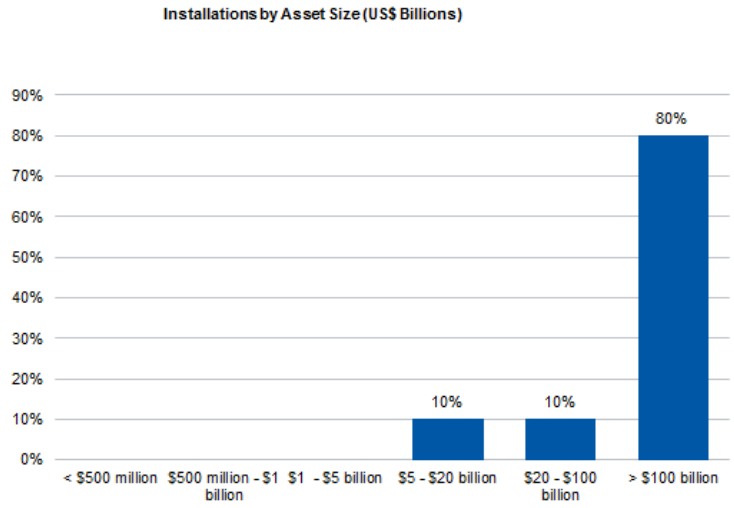
As shown in Figure 8, The Hogan/ Celeriti system is implemented and supported in 48 financial institutions around the world. Figure 9 shows the Hogan/ Celeriti client breakdown by asset size.

Figure 8: Hogan/ Celeriti Core Banking System Has Presence Mainly in Western Europe and North America



Source: CSC

Figure 9: Hogan/ Celeriti Core Banking System is Implemented in Banks with More Than $5 Billion in Assets



Source: CSC

Celeriti is an integrated banking suite available on IBM System z/OS, z Linux, UNIX and Windows. CSC acquired Hogan suite of banking applications when it acquired Continuum and Hogan Systems in 1996. The

platform was originally created from scratch in 1981. In 2010, CSC introduced Celeriti as a new end-to-end enterprise suite, leveraging Hogan's functionality, yet adding numerous new components. Celeriti is considered an upgrade for the previous Hogan suite, and as such, is only live with a fraction of Hogan's current client base.

The Celeriti suite is built on a Service-Oriented Architecture, including IFX 2.x Web services and business processes. It also features a data warehouse, business intelligence, a new Web portal based user interface, and business rules and parameters for product and system configuration. The suite includes Celeriti Customer, Celeriti Deposits, Celeriti Loans, Celeriti Cards, and Celeriti Merchant. It utilizes IBM WebSphere, InfoSphere, and Cognos middleware applications, and is available on the mainframe as well as a range of distributed platforms.

Celeriti is designed to run on multiple platforms (all of those listed in the table below) or a combination of platforms (a hybrid approach). For example, a bank could run their Web Portal on Windows, their SOA and Web Services on z Linux, and their core processing on z/OS.

Three of the largest financial institutions using Hogan/Celeriti:

- Wells Fargo, San Francisco, CA: $1.2 trillion in assets—Hogan Customer Information System and Hogan Integrated Deposit Systems.
- Westpac Bank, Sydney, Australia: $700 billion in assets—Hogan Customer Information System and Hogan Integrated Deposit Systems.
- U.S. Bank, Minneapolis, MN: $290 billion in assets—Hogan Customer Information System and Hogan Integrated Deposit Systems.

Table 14: Celeriti Core Banking System Product Information

	Celeriti Response
Product Name	Celeriti Banking Suite
Current Release	Celeriti Customer 2.0 Celeriti Deposits 2.0 Celeriti Loans 2.0 Celeriti Cards 2.0 Celeriti Merchant 2.0
Next Release	

Source: CSC

Table 14: Celeriti Core Banking System Product Information

	Celeriti Response
Language Written	z/OS: COBOL 75% Assembler 5% Java 20% Linux/Unix/Windows: COBOL: 80% Java: 20%
Hardware Supported	IBM System z (mainframe z/OS and z Linux) IBM System p (AIX and Linux) Windows Servers
Operating Systems Supported	IBM z/OS IBM AIX Linux Windows Server 2000/'03/'08
Database Supported	IBM DB2 IBM DB2 LUW (Linux, Unix, Windows)
User Interface	Web-based Portal UI (Celeriti) Web Services
Transaction Handling	Real Time/ Batch + Memo Posting
Customization	Parameters Business Rules Product Guided Setup Hooks for custom code Modifiable source code Funded development (Customization can be done by the financial instituion, a certified SI, or the vendor.)
ASP vs. On-Premise	0% ASP vs. 100% On-premise
Multilingual	Yes (Double Byte)
Multicurrency	Yes
Languages Supported (out of the box)	English
Languages Deployed	English, Spanish, Italian, German, Japanese
Multibank support on the same instance of software (i.e., support shared data center)	Yes
Multicountry support on the same instance of the software (i.e., support regional hubs)	Yes
Cloud enabled	Yes

Source: CSC

CSC currently offers cloud services through its own network, but no financial institutions are currently using those services.

Table 15: Pricing Information

	Celeriti Response
Pricing Structure	Based on the number of customer, accounts, cards, and merchants of the financial institution
Annual maintenance/upgrade fee as a percentage of license fee	18–22% (for a five-year contract) Fees scale with bank growth
Implementation fees as a percentage of license fees	

Source: CSC

CSC handles the deployment of its banking systems through its own implementation teams, as well as IBM's. The implementation fees vary by the number of products defined, features used, application interfaces, and database conversions.

Table 16: Implementation Information

	Celeriti Response
Typical implementation time	<$20 billion assets: 6 to 9 months >$20 billion assets: 9 to 12 months
Implementation approach	CSC supports Big Bang, Vertical, and Phased approaches to rollout, with Big Bang and Phased (Called CSC's "Progressive Modernization Approach") being the most common
Deployment	Self
Post-implementation—change management / training services	Yes, provides education and training services
Typical release frequency	Major releases: every 2-4 years Minor releases/patches: bimonthly
Certified professionals on this platform for each partner and self.	
Post-implementation—monitoring period	Monitored through monthly meetings
Customer feedback	Customer surveys pushed out Other Banking: Banking Executive Forum Banking Advisory Council

Source: CSC

Summary

Celeriti is the new service-enabled core system that leverages the Hogan code base and moves it to the next generation of core architectures. Given the history of selling to $100 billion+ asset banks, the number of deals is not large, but the size of them is.

FIS: Corebank

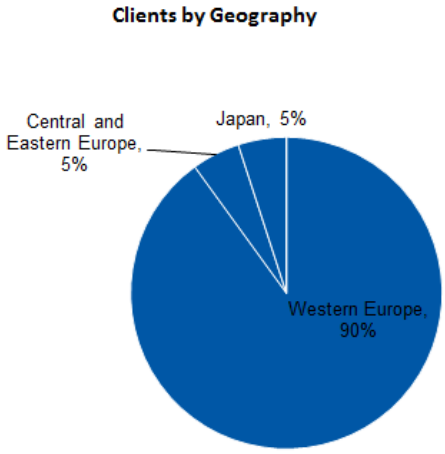
FIS (NYSE:FIS) is a technology and services provider to the financial industry with over 33,000 employees and had revenue of more than US$5.3 billion in 2010. FIS acquired Certegy in 2006, eFunds in 2007, and Metavante in 2009 to expand its offering in the banking industry. Recent acquisitions include Compliance Coach in July 2010, ValueCentric Marketing Group in October 2010, Capco in December 2010, and GIFTS in January 2011.

In this report, Celent covers the FIS products Corebank, eCas2, Profile, and Systematics. Celent covered FIS platforms Profile, and K-Core24 in the report *Core Banking Solutions for Midsize Banks—A Global Perspective*. In the Celent report *Core Banking Solutions for Midsize and Large Banks—A North American Perspective*, Celent covered FIS HORIZON, IBS, Bankway, and Systematics. In the report *Core Banking Solutions for Small Banks—A North American Perspective*, Celent covered FIS BancPac, Bankway, BancLine, HORIZON, Mercury, and MISER.

The Corebank Core Framework is a real time, platform independent banking solution based on IBM's Information Framework (IFW) Financial Services Data Model (FSDM) and aimed at client control. Corebank was developed from scratch by Skandinavisk Data Centre (SDC), a Nordic technology provider, and IBM on IFW FSDM. The solution was deployed in 1997 and acquired by FIS in 2001. In 2004, Corebank was rewritten as a J2EE compliant application running on an IBM WebSphere Application Server (WAS).

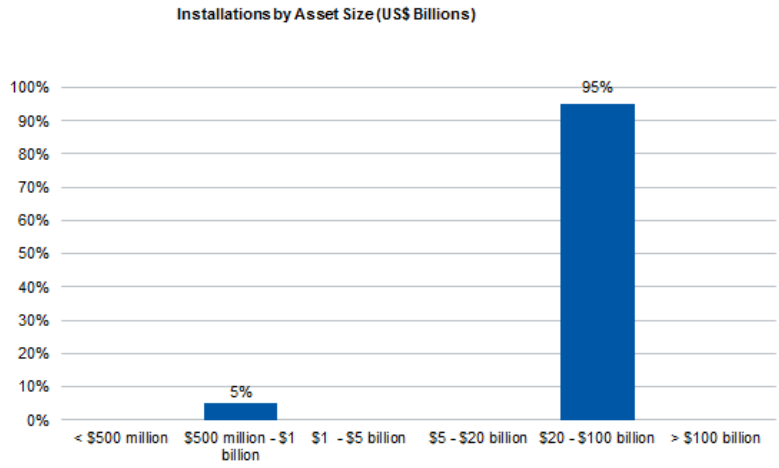
As shown in Figure 10, Corebank is implemented in more than 150 financial institutions globally. Figure 11 shows the Corebank client breakdown by asset size.

Figure 10: Corebank Is Primarily Implemented in Western Europe



Source: FIS

Figure 11: All Implementations Except Japanese Customers Are in Banks with Assets Between US$20 Billion and $100 Billion



Source: FIS

Corebank Core Framework provides a set of enterprise banking components including:

- Enterprise Customer Data provides an operational customer data store and real time master information related to customers, prospects, and other involved parties and their relationships with the financial institution.
- Product Factory manages and maintains products and product packages across the enterprise in multiple currencies to meet regional business requirements, flexible fee, and interest pricing.
- Account Processing Engine provides an account processing engine to manage the lifecycle of deposit and loan account, including real time financial transactions.

The architecture is standards-based and utilizes a multi-tiered architecture consisting of:

- API Layer; provides interface to Corebank online functions and is implemented as methods on Enterprise JavaBean (EJB 3.x).
- Business Logic Layer: implemented through Corebank controllers that incorporate the handling of domain objects such as customer, accounts, and transactions.
- Business Domain Layer: implements Corebank object servers, which incorporate the data domain such as accounts and transactions.
- Data Access Layer: provides access to the database

Table 17: Corebank Product Information

	Corebank Response
Product Name	Corebank Core Framework
Current Release	5.1 July 2011
Next Release	6.0 Q1 2012
Language Written	Java 100%
Hardware Supported	IBM System z (mainframe) IBM System i (AS/400) IBM System p (Unix) Oracle / Sun servers HP Unix servers (Superdome) Windows Servers Corebank is a Java EE application and runs entirely within the application server, isolating it from the operating system and hardware, and making it platform independent. WebSphere Application Server can run on AIX, HP-UX, Solaris, Linux, Windows, z/OS, and other platforms.

Source: FIS

Table 17: Corebank Product Information

	Corebank Response
Operating Systems Supported	IBM z/OS IBM i5/OS IBM AIX Oracle Sun Solaris HP UX Linux Windows Server 2000 / 2003 / 2008
Database Supported	IBM DB2 Other: Corebank is currently certified for DB2. If a customer should wish to implement Corebank on Oracle / Microsoft SQL there is technically nothing that would prevent this, although it has not been practiced.
User Interface	Corebank components integrate into the existing front end system XML, API, Web Services and a Windows Thick Client are also available.
Transaction Handling	Real time
Customization	Parameters. Product Generation Tool. Hooks for custom code. Modifiable source code. Funded development.
ASP vs. On-Premise	90% ASP vs. 10% on-premise
Multilingual	Yes (Double Byte)
Multicurrency	Yes
Languages supported (out of the box)	English
Languages deployed	Danish, Swedish, Norwegian, Turkish, and Japanese.
Multibank support on the same instance of software (i.e., support shared data center)	Yes Largest number of banks on a single instance: 150
Multicountry support on the same instance of the software (i.e., support regional hubs)	Yes Largest amount of countries on a single instance: 4
Cloud enabled	Yes. The architecture running on IBM WebSphere (v8) supports this type of implementation.

Source: FIS

Table 18: Pricing Information

	Corebank Response
Pricing Structure	Based on combination of components purchased, asset size, accounts, etc. including hosted model.
Annual maintenance/upgrade fee as a percentage of license fee	15–20% Fees scale with bank growth depending on the agreement
Implementation fees as a percentage of license fees	

Source: FIS

Table 19: Implementation Information

	Corebank Response
Typical implementation time	Depends on the institution and implementation size. Single components can be installed in as little as 6 months using a 'greenfield' approach
Implementation approach	
Deployment	Self, but implementation can also be done by the FI and is not reliant on FIS
Post-implementation—change management / training services	Yes There are standards training courses that can also be tailored to specific needs
Typical release frequency	Major releases come out every 12-18 months with minor enhancements being released as necessary
Certified professionals on this platform for each partner and self.	40+
Post-implementation—monitoring period	
Customer feedback	Periodic customer meetings

Source: FIS

Summary

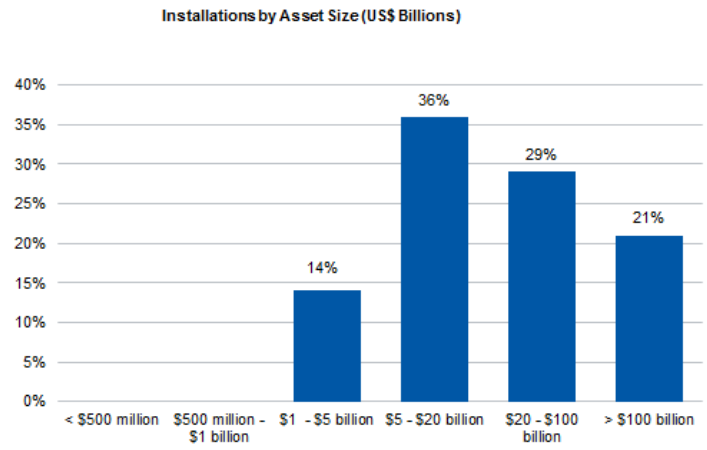
Corebank remains close to its Scandinavian roots with 90% of its customers in that area. It was built on IBM's FSDM and is one of the newest core banking systems on this framework.

FIS: eCas2

The eCas2 core platform aimed at commercial financial institutions in China. The solution originated from the Lenovo-Asiainfo company, which first deployed the system in 2002 at Bank of Jiangsu. It's currently on its third product iteration. The eCas2 platform is a real time hosted solution based heavily on FIS Profile, also featured in this report. Recent wins for the eCas platform include Shengjing Bank, the Bank of Fushun, Bank of Deyang, and the Bank of Hebei.

eCas2 is currently live at 14 institutions solely within China. Figure 12 shows the eCas2 client breakdown by asset size.

Figure 12: Most Clients Have Between $5 Billion and $20 Billion in Assets



Source: FIS

The eCas2 architecture is Cascading Style Sheets (CSS) based and written mostly in C. The back office platform uses the Service Oriented Programing platform, while the front end utilizes EUJP, and the middleware, or integrator, uses eIPP.

The three largest financial institutions running the eCas platform:

- Shanghai Pudong Development Bank, Shanghai, PR China: 2,191 billion RMB in assets.

- China Everbright Bank, Beijing, PR China: 1500 billion RMB in assets.
- Bank of Jiansu, Nanjing, PR China: 430 billion RMB in assets.

Table 20: eCas2 Product Information

	eCas2 Response
Product Name	eCas2
Current Release	eCas2 (May 2010)
Next Release	eCas3 (July 2012)
Language Written	C/C++/C# 70% Java 30%
Hardware Supported	IBM System p (Unix) Oracle / Sun servers HP Unix servers (Superdome)
Operating Systems Supported	IBM AIX Oracle Sun Solaris HP UX Linux
Database Supported	Oracle IBM DB2
User Interface	XML
Transaction Handling	Real Time
Customization	Parameters Product Generation Tool Funded development (Done by FI or a certified SI)
ASP vs. On-Premise	100% ASP
Multilingual	Yes (Double Byte)
Multicurrency	Yes
Languages supported (out of the box)	
Languages deployed	
Multibank support on the same instance of software (i.e., support shared data center)	Yes Largest number of banks on a single instance: 4
Multicountry support on the same instance of the software (i.e., support regional hubs)	No
Cloud enabled	No

Source: FIS

Table 21: Pricing Information

	eCas2 Response
Pricing Structure	
Annual maintenance/upgrade fee as a percentage of license fee	Fees scale with bank growth
Implementation fees as a percentage of license fees	

Source: FIS

Table 22: Implementation Information

	eCas2 Response
Typical implementation time	<$20 Billion: 8-10 months >$20 Billion: 12 months
Implementation approach	Phased
Deployment	Self
Post-implementation—change management / training services	The eCas team offers the following training services: - Reskilling - Technical training - Functional training - Test training - Project management training
Typical release frequency	Major release: 2 per year Minor release: 4 per year
Certified professionals on this platform for each partner and self.	
Post-implementation—monitoring period	
Customer feedback	User group that meets in person Focus Groups User group that meets virtually Customer feedback site

Source: FIS

Summary

eCas2 was developed in and for the huge Chinese market and has the largest installed base in the region of any vendor profiled.

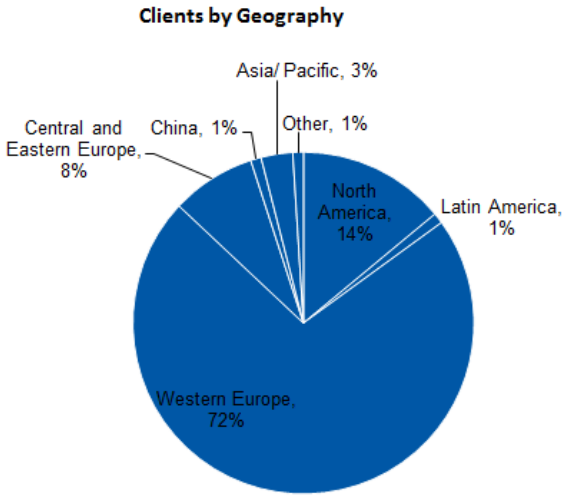
FIS: Profile

Profile is a real time, multi-tiered core platform focused on customer-centric facilities for retail and commercial banks. Profile was originally built from scratch by Sanchez Computer Associates, which was later acquired by FIS in 2004. The platform was first deployed in 1987 and has gone through a number of major rewrites since its inception. The last major rewrite was in 2006 and provided the foundation for a number of critical enhancements like certifications on z/OS, zLinux, and the DB2 database. Database independence to the solution allows Profile to run on GT.M, Oracle, and DB2. The solution can run on multiple platforms including IBM z/OS, Sun Solaris, Linux, and Unix.

Recent wins for FIS Profile include Bank of Agriculture and Agricultural Cooperatives (BAAC) in Bangkok, Thailand, Islamic Bank of Thailand (I-Bank) in Bangkok, Thailand, Beijing Infohold Information & Technology Co., Ltd. in Beijing, China, IFMR Rural Finance in Bangalore, India, and TIAA-CREF in the US.

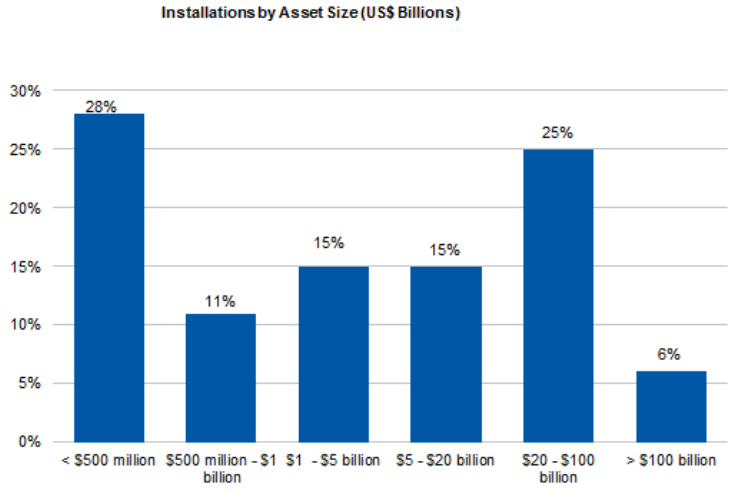
As shown in Figure 13, Profile is implemented in 199 financial institutions globally. Figure 14 on page 41 shows the Profile client breakdown by asset size, while Figure 15 on page 42 shows historic client numbers.

Figure 13: Profile Is Strongest in Western Europe, But Has a Wide Geographical Reach



Source: FIS

Figure 14: Profile Has a Distributed Customer Base Among the Various Asset Ranges



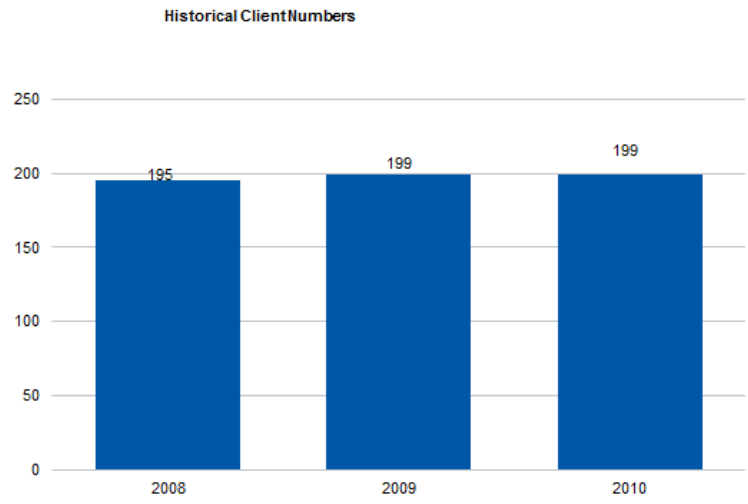
Source: FIS

Profile's architecture is multi-tiered and built upon open industry standards and platforms. Xpress provides the SOA tier which provides a web services interface derived from IFX specifications. There are two lines of channel applications offered. The TouchPoint suite offers a services based channel integrated with Profile via the Xpress services tier. The Profile Direct suite of applications does not require middleware. The server side is channel independent and can use a mixture of applications from either suite.

The three largest financial institutions running the Profile platform:

- ING Netherlands, Amsterdam, Netherlands: >$100 billion in assets.
- Sumitomo Mitsui Banking Corp: >$100 billion in assets.
- Scotiabank, Canada.

Figure 15: Profile's Customer Base Has Grown Incrementally



Source: FIS

Table 23: Profile Product Information

	Profile Response
Product Name	Profile
Current Release	7.4.2 (December 2011)

Source: FIS

Table 23: Profile Product Information

	Profile Response
Next Release	
Language Written	Java 50% Profile Scripting Language (PSL) 50%
Hardware Supported	IBM System z (mainframe) IBM System p (Unix) Oracle / Sun servers HP Unix servers (Superdome) Intel/Linux
Operating Systems Supported	IBM z/OS IBM AIX IBM zLinux Oracle Sun Solaris HP UX Linux
Database Supported	Oracle IBM DB2 GT.M
User Interface	Windows thick client Browser client Smart client 3270 terminal (emulation) Web Services XML API
Transaction Handling	Real time
Customization	Parameters Product Generation Tool Hooks for custom code Modifiable source code Funded Development Object orient extensions Configurable/ embedded rules engine
ASP vs. On-Premise	76% ASP vs. 24% On-premise
Multilingual	Yes (unicode compliant)
Multicurrency	Yes
Languages supported (out of the box)	English, Spanish, French
Languages deployed	English, French, Spanish, Polish, Hungarian, Dutch, Russian, Portuguese, Czech, Slovak, Italian, Thai, Romanian, Ukrainian, andChinese
Multibank support on the same instance of software (i.e., support shared data center)	Yes Largest number of banks on a single instance: 132
Multi-country support on the same instance of software (i.e., support regional hubs)	No
Cloud enabled	No

Source: FIS

Profile's assembly process provides the maximum amount of flexibility by allowing cross-integration between functionality and product category. Features are not locked into vertical applications or pre-defined but are available across all product types upon rollout. Profile Product Factory allows the financial institution to define a set of customizable definitions like rate tables, interest algorithms, fee calculations, etc. User exits and a Java API allow business logic to be controlled by the client.

Table 24: Pricing Information

	Profile Response
Pricing Structure	
Annual maintenance/upgrade fee as a percentage of license fee	18–20% plus CPI Fees scale with institution growth
Implementation fees as a percentage of license fees	

Source: FIS

Table 25: Implementation Information

	Profile Response
Typical implementation time	Typically, 90 days for greenfield implementations to 30 months for complex projects at large banks
Implementation approach	Usually a phased approach, others available on request
Deployment	Self
Post-implementation—change management / training services	Yes FIS provides process reengineering as an optional service. Training has been expanded since the acquisition of Capco in 2010. FIS provides a more intensive training schedule for deployment, with training programs available.
Typical release frequency	Major releases come out about twice a year
Certified professionals on this platform for each partner and self	1,200
Post-implementation—monitoring period	Continual
Customer Feedback	User group that meets in person Focus Groups User group that meets virtually Customer feedback site Customer surveys pushed out Other: Advisory Boards

Source: FIS

Summary

Profile is FIS's core for all seasons, deployed across geographies and asset tiers. It has a modern architecture, but is tied to a proprietary language (Profile Scripting Language) and GT.M, a proprietary database. FIS Profile won the XCelent service award.

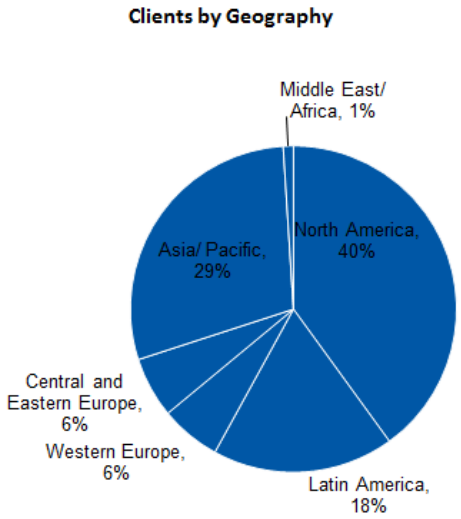
FIS: Systematics

Systematics is a suite of retail and commercial banking applications focused on serving large global financial institutions. The first platform, the Savings Time (ST) application, was developed and deployed in 1971. Systematics stresses flexible delivery models like software license outsourcing and Application Service Provider (ASP) for tier 1 banks. The core applications are mainframe-based, and the supporting applications and components are JEE-based. The lending and deposit applications have been SOA-enabled through an architecture and integration layer, while also offering a native Web services interface.

Recent wins include Citigroup (full core suite across 23 countries), ANZ New Zealand selection of Systematics after acquisition of National Bank of New Zealand, first sale of the Default Manager application to First Citizens Bank in Trinidad and Tobago.

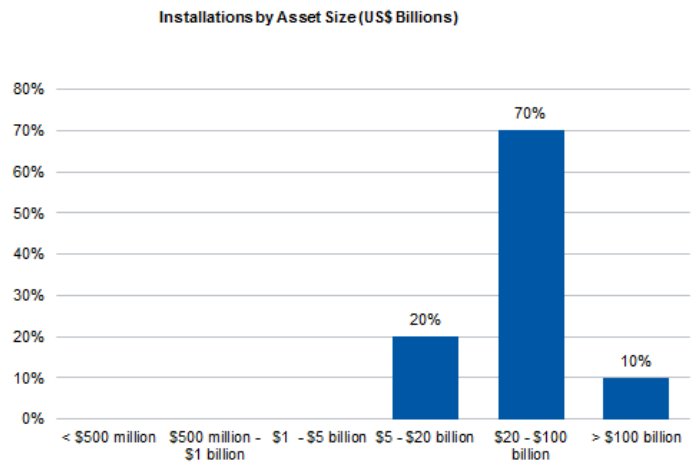
As shown in Figure 16, Systematics is implemented in 126 financial institutions around the world. Figure 17 shows the Systematics client breakdown by asset size.

Figure 16: Systematics Has Strong Presence in North America and Asia-Pacific



Source: FIS

Figure 17: Systematics Is Offered to Midsize and Large Tier Banks with Assets Above $5 Billion; With Most Having Assets Exceeding $20 Billion



Source: FIS

Systematics is the most widely adopted large-bank platform in FIS' portfolio of core solutions. Systematics can utilize FIS' SOA integration product, Xpress, which enables standards-based messaging through IFX protocol.

Systematics core products (DDA, Savings, Lending, etc.) can run solely on the mainframe. The products include an out-of-the-box native 3270 UI. The exception to this is the new data access layer or data store. It is certified on zLinux/DB2 running on an Integrated Facility for Linux (IFL) on the mainframe and on AIX/System P.

IBM System p (Unix) and Intel (Redhat EL) are optional unless Systematics Default Manager, Construction Loan Tracking, or SOA product are purchased. In addition, if the client intends to use Systematics GUI for back office, then a web server is required (Windows or Unix).

The three largest financial institutions using the Systematics application:

- Barclays $2,331 billion in assets
- Bank of America, Charlotte, NC: $2,264 billion in assets
- JPMorganChase, NY, NY: $2,247 billion in assets

Table 26: Systematics Product Information

	Systematics Response
Product Name	Systematics
Current Release	210.112 (Q2 2011)
Next Release	212.121 (Q1 2012)
Language Written	COBOL 77% Assembler 5% Java 18%
Hardware Supported	IBM System z (mainframe) IBM System p (Unix) Intel (Redhat EL)
Operating Systems Supported	IBM z/OS (Core lending and deposits) IBM AIX (Collections core and Construction budgeting application) Redhat Enterprise Linux
Database Supported	Oracle 11g IBM DB2 Microsoft SQL Server (Collections core) VSAM (operational data in deposits and lending applications)
User Interface	Browser (IE) Native 3270 terminal

Source: FIS

Table 26: Systematics Product Information

	Systematics Response
Transaction Handling	CICS Transaction Server Batch transaction processor
Customization	Parameters Configuration Files Product Generation Tool Hooks for custom code Modifiable source code
ASP vs. On-premise	6% ASP vs. 94% On-premise
Multilingual	Yes (Double byte)
Multicurrency	Yes
Languages supported (out of the box)	English, Spanish, Thai, Chinese, Portuguese, German
Languages deployed	English, Spanish, Thai, Chinese, Portuguese, German
Multibank support on the same instance of software (i.e., support shared data center)	Yes Largest number of banks on a single instance: 7
Multi-country support on the same instance of software (i.e., support regional hubs)	Yes Largest number of countries on a single instance: 7
Cloud enabled	Yes (6 clients use the private cloud service)

Source: FIS

Table 27: Pricing Information

	Systematics Response
Pricing Structure	Based on asset size
Annual maintenance/upgrade fee as a percentage of license fee	20%
Implementation fees as a percentage of license fees	

Source: FIS

FIS provides optional implementation services for Systematics. The implementation team defines methodology for conversion and customization based on the requirements of the banks. The implementation time depends on deployment options, conversion events, size, and complexity of full or partial systems replacement.

Table 28: Implementation Information

	Systematics Response
Typical implementation time	<$100 Billion: 9–12 months >$100 Billion: 18–24 months

Source: FIS

Table 28: Implementation Information

	Systematics Response
Implementation approach	Big Bang (simultaneous rollout), or others depending on requests.
Deployment	Self
Post-implementation—change management / training services	End-to-end user training is provided by FIS' training services. Each clients needs are assessed and then put through 'train the trainer' approach
Typical release frequency	Major changes to the production environment take place around 3 times per year. Minor changes can take place monthly or bi-monthly depending on the requirements.
Certified professionals on this platform for each partner and self	
Post-implementation—monitoring period	Continual
Customer feedback	User group that meets in person Focus Groups User group that meets virtually Customer feedback site Customer surveys pushed out FIS also conducts an annual user conference to discuss updates and schedules Portals

Source: FIS

Summary

Systematics is deployed in some of the largest banks in North America. It has benefited from investing to enable database flexibility, upgradability, and controlled maintainability. FIS Systematics won the XCelent awards for both service and functionality.

Infosys: Finacle

Infosys Limited (Nasdaq: INFY) is a global consulting, software and IT services company founded in 1981. Offerings of Infosys range from business and technology consulting, system integration, products & platforms, maintenance, reengineering, IT infrastructure, and business process outsourcing. Finacle is a universal banking solution from Infosys aimed at the core banking, wealth management, CRM, Islamic banking, treasury, e-banking, and mobile banking requirements of retail, corporate, and universal banks. Infosys has more than 140,000 employees in the whole company (including subsidiaries) and more than 7,500 in the Finacle division. Infosys had revenue of $6 billion in 2011, with almost $300 million of that attributed to their core banking products.

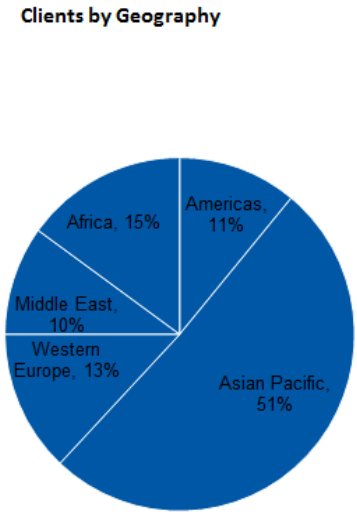
Infosys Technologies has partnerships with a number of firms which compliment Finacle's functionality. The following are companies currently partnering with Infosys:

- SAS, Surya Soft: governance, risk, and compliance
- RSA, Arcot: security authentication.
- SunTec: relationship-based pricing.
- FRS Global: regulatory Reporting.
- Customer XPS: online analytics / customer experience engagement.
- NEWGEN: document management.
- Comviva & Value First: mobile commerce.

Infosys also partners with various technological systems integrators like HP, IBM, and its own system integration team for large transformation projects. Infosys has partnerships with platform providers such as HP, IBM, Intel, Microsoft, and Oracle. Finacle also has a set of "education partners" that provide IT training in India (NIIT-IFBI, APTECH, Manipal Universal learning) for Finacle trained and certified resources.

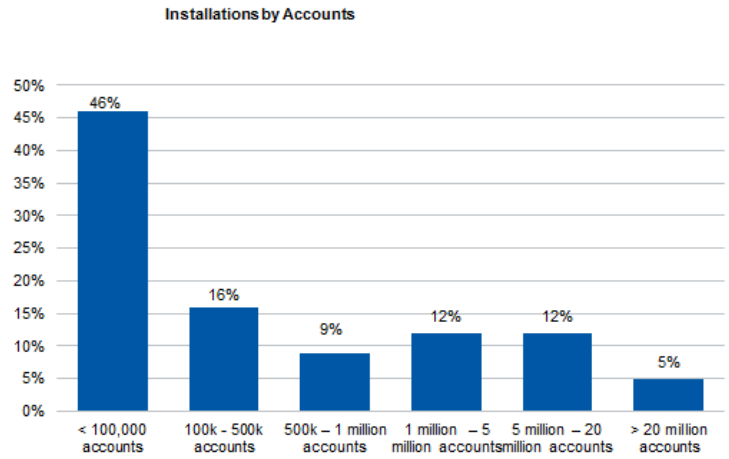
As shown in Figure 18, Finacle has 195 core banking customers, spread across 74 different countries. The majority of its clients are located in Asia-Pacific region. Figure 19 shows the Finacle client breakdown by number of accounts.

Figure 18: Finacle Has Implementations Primarily in the APAC Region, But Still Has a Wide Geographical Footprint



Source: Infosys

Figure 19: Most Infosys Clients Have Less Than 100,000 Accounts



Source: Infosys

Finacle is a multi-tiered, modularly integrated, SOA-based core banking solution developed on equal parts C++ and Java. Finacle was created from scratch in 1994 under the name Bancs 2000, later rearchitectured and branded as Finacle in 2000. Different solutions in the core

banking portfolio, such as CRM and Treasury, were added through acquisitions. The last major rewrite was done in 2008, and the latest iteration (version 10.4.01) was launched in September 2011. Recent wins for the Finacle platform include Nykredit in Denmark, Indusind Bank in India, and Housing Bank for Trade and Finance in Jordan.

Finacle is a multilayer solution consisting of:

- Operating system and database layer.
- Business services layer—system libraries with functionalities of business services.
- Process orchestration layer—allows for efficient business services processing.
- Finacle Integration Framework layer.
- Middleware layer—interfaces between components in the ESB and external process engines.
- Channel layer.
- Surrounding infrastructural layers—for localization and customization management.

The three largest financial institutions running the Finacle platform:

- Australia and New Zealand (ANZ) Regional Bank: $514 billion in assets.
- State Bank of India, India: $369 billion in assets (Overseas branches).
- Southeast Asian Bank: $255 billion in assets.

Table 29: Finacle Product Information

	Finacle Response
Product Name	Finacle Core Banking Solution
Current Release	11.1 (Aug 2011)
Next Release	
Language Written	C++ 50% Java 50%

Source: Infosys

Table 29: Finacle Product Information

	Finacle Response
Hardware Supported	IBM System z (mainframe) IBM System p (Unix) Oracle / Sun servers HP Unix servers (Superdome) Any one of the listed hardware can run Finacle.
Operating Systems Supported	IBM AIX Oracle Sun Solaris HP UX Linux - Redhat, zLinuz
Database Supported	Oracle IBM DB2
User Interface	Browser Client
Transaction Handling	Real Time
Customization	Parameters Product Generation Tool Hooks for Custom Code (Customization can be done by the vendor, financial institution, or systems integrator)
ASP vs. On-Premise	100% On-premise
Multilingual	Yes (Multi byte)
Multicurrency	Yes
Languages Supported (Out of the Box)	Multi-Byte supports all languages
Languages Deployed	English, French, German, Spanish, Simple Chinese, Arabic, Greek, Russian, Sinhalese, Hindi, Bahasa
Multibank support on the same instance of software (i.e., support shared data center)	Yes Largest number of banks on a single instance: 4
Multicountry support on the same instance of the software (i.e., support regional hubs)	Yes Largest number of countries on a single instance: 4
Cloud Enabled	Yes (Finacle Lite)

Source: Infosys

Finacle offers customizations through:

- Parameters: available at various levels such as entity, branch, product type, product code, currency, and GL.
- Finacle Solution Delivery Platform (FSDP), which provides the customization framework and GUI based tools to empower the bank to carry out customization on their own and minimizes dependency on the vendor. The customization framework offers various components which covers customization required across multiple layers of the solution. FSDP tool kit enables extensibility and customization of:
  - Business logic: Business logic customization through Finacle scripting studio.

- Business processes: Bank-specific processes and workflow can be created using Finacle PEAS modeler and execution engine.
- User interfaces: presentation layer customization through Finacle custom studio.
- Business rules: Interfaces to external enterprise level business rules engine.
- MIS Reports: Report writer utilities, interface with external reporting tools like Jasper.
- Enterprise Interfaces: To enable customization of message formats, data formats and interoperate with external enterprise tools.
- Multilingual Toolkit: literal conversion to different languages for deployment.

Finacle offers a cloud-based service under the name 'Finacle Lite'. The platform is currently available for all core banking processes across all product lines and modules.

Table 30: Pricing Information

	Finacle Response
Pricing Structure	Based on various factors like asset size, number of accounts, customers, modules / solutions chosen, named users, etc.
Annual maintenance/upgrade fee as a percentage of license fee	20-22% Fees scale as the bank grows
Implementation fees as a percentage of license fees	

Source: Infosys

Finacle engages local partners for implementations in small banks and in regions where local language and domain capabilities are important. Infosys manages the implementations in large banks through its own project teams.

Table 31: Implementation Information

	Finacle Response
Typical implementation time	< $500 million: 3- 5 months $500 million - $1 billion: 3–5 months $1 billion - $5 billion: 5–-10 months $5 billion - $20 billion: 8–-5 months $20 billion - $100 billion: 14š22 months >$100 billion: 18–30 months
Implementation approach	Finacle supports all implementation approaches. Large banks usually undergo a phased approach while smaller institutions generally opt for a big bang style rollout.

Source: Infosys

Table 31: Implementation Information

	Finacle Response
Deployment	Self and local service partners
Post-implementation—change management / training services	Yes Infosys offers business process reengineering as a value-added service to enable customers to adapt Finacle to their business processes. In addition, Infosys also offers technical consulting and application consulting.
Typical release frequency	Finacle uses four levels of updates which, from biggest to smallest, consist of Versions, Releases, Maintenance, and Patches. Versions: Every 12-18 months Releases: Every 6-9 months Maintenance: Every 3 months Patches: As needed
Certified professionals on this platform for each partner and self	4,800 through Finacle and 700 through partnerships
Post-implementation—monitoring period	Continual Infosys monitors current customers to gather inputs and feedback to define the product road map of Finacle. The product plan is then reviewed annually.
Customer feedback	User group that meets in person - Finacle Client Advisory Board Focus Groups - Finacle Forum User group that meets virtually Feedback Collected by Engagement Teams Client value survey

Source: Infosys

Summary

Finacle offers one of the most complete infrastructures for customization while maintaining the upgradability of out of the box software. The Finacle Lite solution allows Infosys to penetrate the smaller banks.

Misys: BankFusion Universal Banking

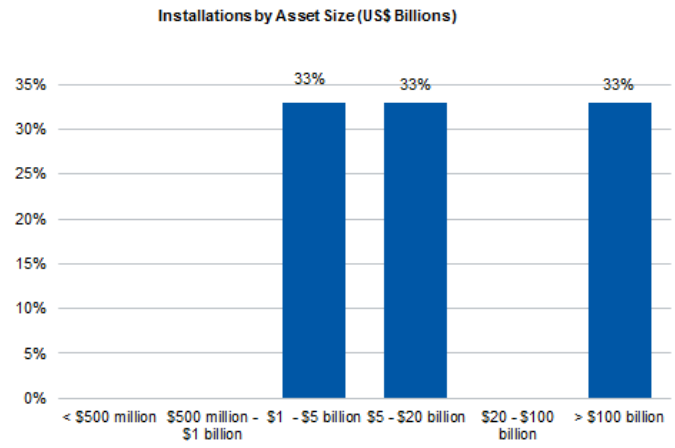
Misys (LSE: MSY.L) is a financial services software provider offering solutions for banking, treasury, and capital markets. Founded in 1979 in UK, Misys employs over 4,000 people, with around 2,000+ in the banking division. Misys reported a revenue of £370 million for the year 2010. Misys recently acquired Sophis, a rival software vendor.

- Note: The client numbers for Misys' geographical spread are for the existing banks running the previous Universal Banking platform. Currently, 11 banks have upgraded to the new solution (BankFusion Universal Banking) running on the BankFusion platform.

In this report, Celent covers the Misys BankFusion Universal Banking platform. Celent covered Misys products BankFusion Equation and BankFusion Midas in the report *Core Banking Solutions for Small Banks—A Global Perspective* (January 2012).

As shown in Figure 21, Misys BankFusion Universal Banking is implemented in around 11 financial institutions. Figure 20 shows the Universal Banking client breakdown by asset size.

Figure 20: Universal Banking Has a Large Proportion of Clients With More Than $100 Billion in Assets



Source: Misys

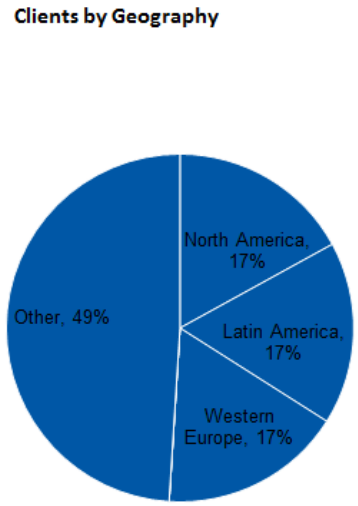
The BankFusion Universal Banking solution is an SOA Java application, created from scratch and first deployed in 2008. The multi-tiered architecture handles the data separate from the business logic, keeping it separate but easily accessed by channel applications. The tiers include:

- Data Layer: The data layer is defined at a logical and physical level so that underlying alterations to the basic data model will have minimal impact on the live application.
- Channel Layer: Enables design and deployment of products and support for areas like branch, ATM, Internet, mobile, point of sale, and call centers.
- Product and Process Layer: Provides a range of processes to support the channels.

The three largest financial institutions running the Universal Banking platform:

- SBA, Zimbabwe.
- CRDB, Tanzania.
- Actinver, Mexico.

Figure 21: Misys Has a Large Client Base in Africa



Source: Misys

Table 32: Misys Product Information

	Universal Banking Response
Product Name	BankFusion Universal Banking
Current Release	1.6x (Q2 2011)
Next Release	
Language Written	Java: 100%
Hardware Supported	IBM System p (Unix) HP Unix Servers (Superdome) Windows Servers
Operating Systems Supported	IBM AIX Oracle Sun Solaris HP UX Windows Server 2000/03/08
Database Supported	Oracle IBM DB2 Microsoft SQL Server
User Interface	GUI Thin Client Windows front end
Transaction Handling	Batch and real time

Source: Misys

Table 32: Misys Product Information

	Universal Banking Response
Customization	Parameters Product Generation Tool Hooks for custom code Funded development FI/ certified SI / vendor BankFusion Workbench allows for client-side customization through standard process flows.
ASP vs. On-Premise	100% on-premise
Multilingual	Yes (double byte)
Multicurrency	Yes
Languages supported (out of the box)	English Spanish
Languages deployed	English Spanish
Multibank support on the same instance of software (i.e., support shared data center)	Yes
Multicountry support on the same instance of the software (i.e., support regional hubs)	Yes
Cloud enabled	Yes Works with the Microsoft Azure platform

Source: Misys

Table 33: Pricing Information

	Universal Banking Response
Pricing Structure	
Annual maintenance/upgrade fee as a percentage of license fee	Approx. 20%
Implementation fees as a percentage of license fees	

Source: Misys

Table 34: Implementation Information

	Universal Banking Response
Typical implementation time	<$20 Billion: 9 months >$20 Billion: 12 months
Implementation approach	All approaches are used, it depends on client needs.
Deployment	Self and Partners

Source: Misys

Table 34: Implementation Information

	Universal Banking Response
Post-implementation—change management / training services	Yes Misys Academy preforms a training needs analysis to engineer a specific training template depending on the implementation. Training can be done at a Misys Training Center, at the client, or via eLearning tools.
Typical release frequency	Major: every 18 months Minor: as needed
Certified professionals on this platform for each partner and self.	
Post-implementation—monitoring period	
Customer feedback	User group that meets in person Focus Groups User group that meets virtually Customer feedback site

Source: Misys

Summary

BankFusion is the go forward platform for Misys. Customers from their previous systems (Misys BankMaster and Misys Equation) now have a clear path forward.

SAP AG: SAP Transactional Banking

SAP AG is a software development and consulting company, with 53,513 employees globally and a revenue of around $17 billion in 2010, with $2.5 billion coming from financial services. SAP offers SAP NetWeaver and SAP Transactional Banking suite of applications primarily for retail banks. SAP NetWeaver provides a platform for enabling SOA in the existing IT infrastructure.

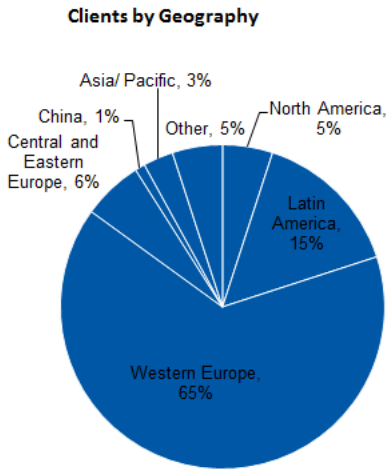
Among the major acquisitions for its banking portfolio, SAP acquired Business Objects, a business intelligence software firm, in February 2008 and Sybase, a mobile platform and database technology firm, in July 2010.

SAP has partnerships with Callatay and Wouters (core processing on SAP platform), Streamserve (automated document processing), and Hartter (branch automation) as functionality partners. SAP also partners with system integrators like IBM, Accenture, Deloite, Atos Origin, and Cap Gemini for implementation. In addition, SAP collaborates with IBM, HP, Microsoft, and Oracle for technology.

The SAP Transactional Banking suite of applications leverages SAP NetWeaver technology to provide a suite of banking applications aimed at larger global banks utilizing a complex IT framework. SAP NetWeaver provides a platform for enabling SOA in the existing IT infrastructure. SAP Transactional Banking is designed with modularity in mind, with functionality designed around simple integration into existing components. The platform was designed in the mid-nineties based on the SAP ERP architecture. Recent wins for SAP Transactional Banking include Deutsche Bank in Germany and the Royal Bank of Scotland in the UK.

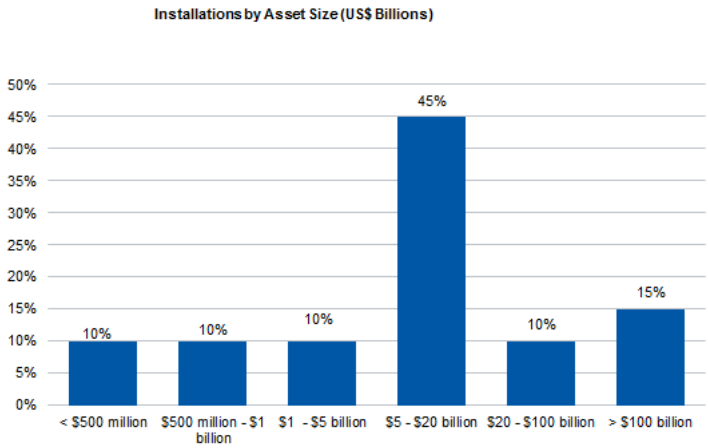
As shown in Figure 22, SAP Transactional Banking is implemented in approximately 130 banks, primarily in Western Europe. Figure 23 shows the SAP client breakdown by asset size.

Figure 22: SAP Has Significant Deployments in Germany



Source: SAP

Figure 23: SAP Is Primarily Implemented in Banks with Assets Between $5 Billion and $20 Billion



Source: SAP

SAP Transactional Banking was developed entirely by SAP and first deployed in 1997. The solution has been written in Advanced Business Application Programming (ABAP), which is a proprietary programming language created by SAP. SAP Transactional Banking has been built on the SAP NetWeaver platform, which provides the SOA architecture to the product and allows for its flexible integration across a wide range of components.

The three largest financial institutions running SAP Transactional Banking:

- UBS, Switzerland: $2,000 billion in assets.
- Commerzbank, Germany: $800 billion in assets.
- Commonwealth Bank of Australia, Australia: $700 billion in assets.

Table 35: SAP Product Information

	SAP Response
Product Name	SAP Transactional Banking
Current Release	8.0 (2011)
Next Release	
Language Written	ABAP (SAP Proprietary language) — 100%
Hardware Supported	IBM System z (mainframe) IBM System i (AS/400) IBM System p (Unix) Oracle / Sun servers HP Unix servers (Superdome) Windows Servers Hardware listed above is for the application server. A client can use one or more of hardware supported (e.g. IBM pSeries application server with an IBM zSeries database server).
Operating Systems Supported	IBM i5/OS IBM AIX Oracle Sun Solaris HP UX Linux Windows Server 2000 / 2003 / 2008 Additional operating systems are supported for the database server.
Database Supported	Oracle IBM DB2 Microsoft SQL Server Sybase ACE MaxDB

Source: SAP

Table 35: SAP Product Information

	SAP Response
User Interface	Browser Client Smart Client Web Services XML API
Transaction Handling	Real Time
Customization	Parameters Product Generation Tool Hooks for Custom Code Modifiable Source Code Funded Development (Customization can be done by the vendor, FI, or certified SI)
ASP vs. On-Premise	5% ASP vs. 95% On-premise
Multilingual	Yes (Double byte)
Multicurrency	Yes
Languages supported (out of the box)	English, Spanish, French, German
Languages deployed	English, Spanish, French, German, Russian, Chinese, Hebrew, Portuguese, Italian, and Japanese
Multibank support on the same instance of software (i.e., support shared data center)	Yes Largest number of countries on a single instance: 12
Multicountry support on the same instance of the software (i.e., support regional hubs)	Yes Largest number of countries on a single instance: 12
Cloud enabled	No

Source: SAP

Table 36: Pricing Information

	SAP Response
Pricing Structure	Based on the number of transactions and named users
Annual maintenance/upgrade fee as a percentage of license fee	18–22% Fees scale with bank growth
Implementation fees as a percentage of license fees	License/ Implementation cost ratio is usually around 1:10 but varies widely

Source: SAP

Table 37: Implementation Information

	SAP Response
Typical implementation time	Anywhere from a year to over two depending on the bank size

Source: SAP

Table 37: Implementation Information

	SAP Response
Implementation approach	Phased approach: the bank migrates to the new environment implementing modules incrementally. More complex products are usually integrated later in the cycle.
Deployment	Deployment is done either by SAP themselves or through implementation partners such as IBM, Accenture, or Deloitte.
Post-implementation—change management / training services	Yes. SAP Education provides training aimed specifically at consultants which includes solution training, online knowledge products, consultant certification, and support academy.
Typical release frequency	Release cycle—typically, once in 1.5 years
Certified professionals on this platform for each partner and self.	SAP: 350 Implementation partners: 800
Post-implementation—monitoring period	
Customer feedback	User group that meets in person Focus Groups User group that meets virtually Customer feedback site Customer surveys pushed out Individual customer feedback

Source: SAP

Summary

SAP has a strong play in the largest banks with its Netweaver platform and SAP for Banking. The company is strongest in German-speaking Europe, and the recent win at Deutsche Bank cements that leadership position.

Tata Consultancy Services: TCS BaNCS

XCELENT Technology 2012

Tata Consultancy Services (TCS) (NSE2: TCSEQ) is a global provider of technology services, outsourcing, and business solutions. TCS has over 214,000 employees and reported revenue of over $8.2 billion during the year ending March 31st 2011, $3.7 billion of which came from the Banking, Financial Services, and Insurance (BFSI) segment. TCS has over 145 offices in 42 countries worldwide.

TCS Financial Solutions, a strategic business unit of TCS, provides financial product solutions to financial institutions globally across the banking, capital markets, and insurance domains under the brand name TCS BaNCS.

TCS BaNCS is a componentized financial services platform including the TCS BaNCS Development Kit that enables the desired solution integrating the TCS BaNCS Components, in-house components and 3rd Party solutions.

TCS BaNCS is positioned as a solution to the Financial Services Industry, offering Core Banking, Payments, Treasury, Securities Processing, Corporate Actions, Insurance and Policy Administration solutions. TCS also recently introduced its TCS BaNCS Core Banking solution as a 100% Java version in the market place which is being deployed at few of its client sites.

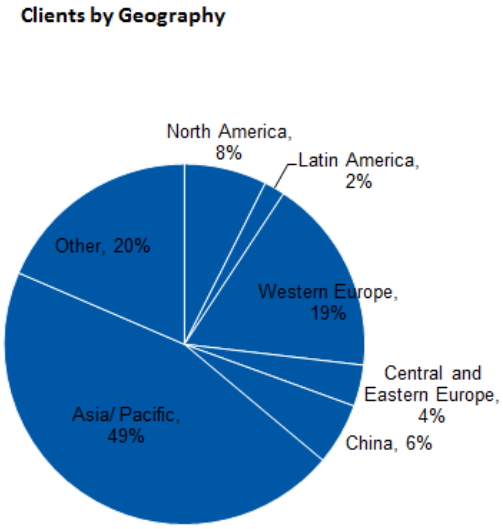
In 2008, TCS acquired Citigroup's captive BPO center in Mumbai, Citigroup Global Services Limited (CGSL). This acquisition allowed the company to expand its offerings to large financial services companies and to create banking processing platforms by integrating its products and process capabilities.

TCS has technology cooperation with IBM, HP, Sun, Microsoft, Oracle, and Microfocus. TCS works with SAS (risk management), Fermat (risk management), Fernbach (IFRS, Multi-GAAP, Risk), IISI, Smartstream (reconciliation), China Systems (trade finance solutions), Advanced

Digital Technology (front end), and Indus (remedial collection). TCS maintains partnerships with local implementation vendors in Egypt, Turkey, and Russia.

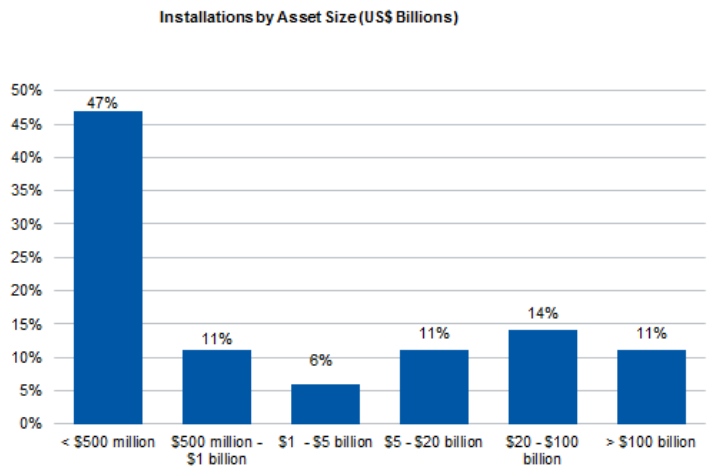
TCS BaNCS Core Banking has been deployed in over 110 financial institutions around the world. Figure 24 shows the geographical spread of TCS BaNCS, while Figure 25 shows the client breakdown by asset size.

Figure 24: TCS BaNCS Has A Sizable Global Footprint



Source: TCS

Figure 25: TCS BaNCS Has a Sizable Client Base in the Largest Asset Tiers



Source: TCS

TCS BaNCS is based on a flexible multi-tiered architecture consisting of the presentation layer, business layer, and data layer. The architecture is message based and compatible with .NET or J2EE channel applications. Both the presentation logic and the data logic are separated from the business logic through a component wrapper, allowing for business rules to be developed independent of the technology. TCS BaNCS runs on a number of environments such as IBM zSeries, Unix (IBM, HP, SUN), and Windows. The solution is SOA-enabled and optimized for SOA implementations via an ESB.

TCS BaNCS Core Banking delivers standards based services for integration using systems such as WSDL and SOAP to minimize technical dependencies. Middleware technology includes TCS BaNCS Service Integrator, IBM WebSphere, and Microsoft BizTalk.

A few of the largest financial instutions running the TCS BaNCS platform include:

- Deutsche Bank Ag , Germany: $27,410 billion in assets (core banking payments, deposits, and loans).
- State Bank of India, India: $369 billion in assets (retail and commercial deposits and loans. Implemented on domestic branches).
- Large US Bank: $147 billion in assets (payment solution).

Table 38: TCS BaNCS Product Information

	TCS BaNCS Response
Product Name	TCS BaNCS Core Banking
Current Release	12 (Q3 2011)
Next Release	13 (Q3 2012)
Language Written	COBOL 40% C/ C++/ C# 5% Java/JEE 35% XML/.NET/HTML 20% TCS BaNCS Core Banking is also offered as a 100% Java version.
Hardware Supported	IBM System z (mainframe) IBM System p (Unix) Oracle / Sun servers HP Unix servers (Superdome) Windows Servers (Intel Linux) The solution supports all listed hardware.
Operating Systems Supported	IBM z/OS IBM AIX Oracle Sun Solaris HP UX Linux Windows Server 2008
Database Supported	Oracle IBM DB2 (both for Mainframes and Open Systems) Microsoft SQL Server
User Interface	Windows thick client Browser client Smart client 3270 terminal (emulation) Web Services XML API Other text terminal
Transaction Handling	Real Time
Customization	Parameters Product Generation Tool Hooks for Custom Code Modifiable Source Code
ASP vs. On-Premise	28% ASP vs. 72% On-premise
Multilingual	Yes (Double byte)
Multicurrency	Yes
Languages supported (out of box)	English, Spanish, German, French, Arabic, Russian, Chinese (simplified and traditional), Farsi, Korean, Greek, Slavic, and Bahasa
Languages deployed	English, Arabic, Farsi, Slavic, Simplified and Traditional Chinese, Korean, Bahasa, Spanish, Greek, German, French, and Russian

Source: TCS

Table 38: TCS BaNCS Product Information

	TCS BaNCS Response
Multibank support on the same instance of software (i.e., support shared data center)	Yes Largest number of banks on a single instance: 5
Multicountry support on the same instance of the software (i.e., support regional hubs)	Yes Largest number of countries on a single instance: 7
Cloud Enabled	Yes TCS BaNCS is currently offered on a private and community cloud. Currently, a private cloud implementation is being utilized by 37 different banks.

Source: TCS

Customization of a product or creation of a new banking product is designed to be carried out by defining business process rules and operational parameters. Parameters are available at various levels such as institution, branch, product, services, correspondent banks, sub-functions, calculation values, treasury, financial drivers, code descriptions, calculation values, process control, accounting, and information.

Table 39: Pricing Information

	TCS BaNCS Response
Pricing Structure	Based on size of the organization (asset size, number of branches, or number of customers for direct banking) and functional usage.
Annual maintenance/upgrade fee as a percentage of license fee	
Implementation fees as a percentage of license fees	Fees are based on actual effort involved and factors such as data migration, bank wide customer Training, Customization requirements, etc.

Source: TCS

TCS BaNCS primarily deploys its solutions using TCS implementation teams, but on a case to case basis does partner with system integrators including IBM, Innovative Digital solutions, Jade Bird, Universal Kube, and Bearing Point.

Table 40: Implementation Information

	TCS BaNCS Response
Typical implementation time	< $500 million: 6 months $500 million to $1 billion: 6 to 9 months $1 billion to $5 billion: 9 to 12 months $5 billion to $20 billion: 12 to 18 months 20 billion to $100 billion: 24 months >$100 billion: 24 months (Hosted implementations usually run for about 3 months)
Implementation approach	TCS uses all approaches depending on the implementation, including big bang, vertical, and phased.

Source: TCS

Table 40: Implementation Information

	TCS BaNCS Response
Deployment	Self System integration partners are also eligible to carry out implementations, but usually it is done by the vendor.
Post implementation—change management / training services	Yes TCS FS offers various change management services such as train-the-trainer courses, classroom training courses, and parameter workroom training courses.
Typical release frequency	TCS offers three kinds of releases: Major: every 12 months Functional: Periodically introduces new functions which do not affect the core system. Point: Periodically introduces error corrections or revisions.
Certified professionals on this platform for each partner and self	2,000–2,200 for self 50–75 for partners
Post implementation—monitoring period	Continual
Customer feedback	Input for product plans is gathered through market research from industry analysts, analysis of requirements based on client requests, person work with existing clients. TCS also takes inputs from its Customer Forum, an annual event held during SIBOS. Finterest, financial services community for TCS BaNCS customers is also used to collaborate and discuss product strategy and direction. In future the aim is to evolve Finterest into a forum for development of standards and best practices.

Source: TCS

Summary

TCS BaNCS had a huge win at Deutsche Bank this year, handling its Global Transaction Services business across the globe. Celent will be monitoring the success of the country by country rollout. TCS won the XCelent award for advanced technology.

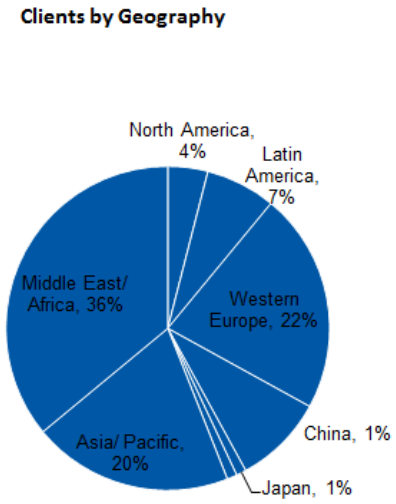
Temenos: T24

XCELENT Customer Base 2012

Temenos Group AG (Swiss Exchange: TEMN) is a global provider of banking systems, having a varied presence in over 120 countries. Temenos employs over 4,261 people and had a revenue of $447 million in 2010. With a focus on core banking solutions, Temenos has expanded by acquiring Informer Financial (core banking implementation), Lydian (business intelligence), FE Mobile (secure mobile banking), Financial Objects (banking solutions), and TLC (BASEL II application). Temenos partners with HP, IBM, Cognizant Technology Solutions, Sofgen, GFT, and Thesys Technologies as system integrators. They are also in partnership with Sun, IBM. HP, Oracle, and Microsoft for technology platforms. Other partners include EFS Technology (document management and output solutions), Syntellect (voice recognition software), Systar (Business Application Monitoring Software provider), FRS Global (risk and regulatory compliance), Validata (testing solution and data migration tools), Identitystream (biometrics), and Active Identity (security for Internet banking solutions).

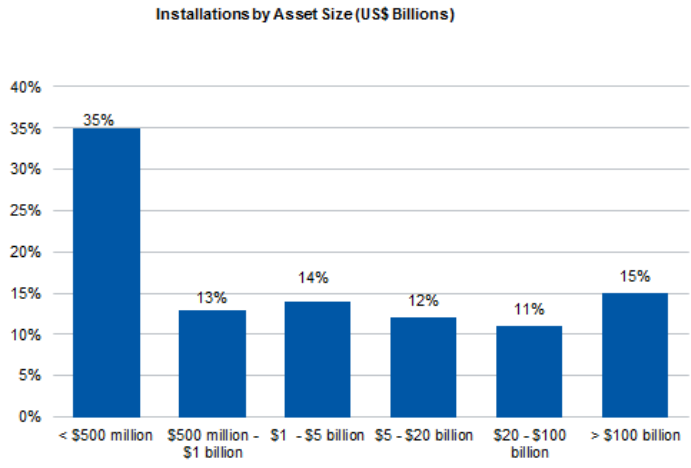
As shown in Figure 26, Temenos T24, the core banking solution from Temenos, is installed at around 450 financial institutions around the world. Figure 27 on page 74 shows the Temenos T24 client breakdown by asset size.

Figure 26: Temenos Has a Presence in Diverse Countries



Source: Temenos

Figure 27: Temenos Has Clients in All Asset Ranges



Source: Temenos

Temenos T24 is a universal core bank solution. The system is designed to run in C or Java, depending on the chosen framework, and utilizes open-standards. The solution covers various business lines including retail, universal, corporate, Islamic, microfinance, private wealth management, and community banking. The product was originally created as Globus by Ernst Hennche, formerly of Citibank and Lloyds Bank as a pure treasury back office system. In 1993, it was purchased by Temenos (then known as Conquer The World (CTW) Limited). The product was rearchitectured and rebranded to Globus and then T24 in 2004.

The T24 framework is written in C, C++, and Java. The domain specific language is their propietary language, jBC, from which Java or C can be generated depending on the nature of the implementation requirements. This allows the product to run in multiple platforms and maximizes code portability. T24 has never been rewritten, but has gone through a number of rearchitectures to add functionality.

Table 41: T24 Product Information

	T24 Response
Product Name	Temenos T24
Current Release	R11 (May 2011)
Next Release	R12 (April 2012)
Language Written	Developed in Temenos' proprietary scripting language (jBC) Runs in C or Java
Hardware Supported	IBM System z (mainframe) IBM System p (Unix) Oracle / Sun servers HP Unix servers (Superdome) Windows Servers
Operating Systems Supported	IBM z/OS IBM AIX Oracle Sun Solaris HP UX, Linux Windows Server (2000/2003/2008) T24 is a flexible and scalable system and is able to run on any of the hardware infrastructures listed.
Database Supported	Oracle IBM DB2 Microsoft SQL Server jBase (proprietary)
User Interface	Browser client Smart client
Transaction Handling	Real time
Customization	Parameters Hooks for Custom Code
ASP vs. On-Premise	4% hosted vs 96% on-premise
Multilingual	Yes (double byte)

Source: Temenos

Table 41: T24 Product Information

	T24 Response
Multicurrency	Yes
Languages supported (out of box)	English, Spanish, French, German, Arabic, Chinese, Russian, Portuguese, and Vietnamese
Languages deployed	English, Spanish, French, German, Arabic, Chinese, Russian, Portuguese, and Vietnamese
Multibank support on the same instance of software (i.e., support shared data center)	Yes
Multicountry support on the same instance of the software (i.e., support regional hubs)	Yes Largest number of countries on a single instance: 34
Cloud enabled	Supported through an Azure partnership with Microsoft and currently live on 5 FIs

Source: Temenos

T24's core is parameter driven providing scalability unimpacted by any upgrade process. Parameters are set using a combination of business rules, organization rules, and technical rules.

Table 42: Pricing Information

	T24 Response
Pricing Structure	Based on the number of modules purchased and the number of concurrent users
Annual maintenance/upgrade fee as a percentage of license fee	21%
Implementation fees as a percentage of license fees	1:1 to 2:1 depending on complexity

Source: Temenos

The implementation of T24 banking system is modular based on the requirements of the financial institution. Temenos offers the implementation of the product as T24 Model Bank, which consists of preconfigured products and processes depending on the banking sector. The change management is offered based on the "train the trainer" model.

Table 43: Implementation Information

	T24 Response
Typical implementation time	9 to 12 months
Implementation approach	If the geographical spread of the implementation is large then a phased approach is usually taken. Vertical approaches would be used in instances of large product volume or complexity.
Deployment	Self or Patners

Source: Temenos

Table 43: Implementation Information

	T24 Response
Post implementation—Change management / training services	Yes, based on train-the-trainer concept. Temenos also provides on-site classroom training and modular training for existing customers.
Typical release frequency	Major releases come out annually, with minor releases appearing periodically.
Certified professional on this platform for each partner and self	Self: 581 Partners: 1,500
Post implementation—Monitoring period	
Customer feedback	A web-based user group gives customers an opportunity to find out about new features and provide feedback. Workshops, strategy sessions, client forums, and scoring exercises also give customers the opportunity to provide additional feedback

Source: Temenos

Summary

T24 is a heavily parameter-driven system with model banks designed to narrow down the number of parameters a bank must configure. Temenos has moved to an SI partner approach in the last few years and now has over 1,500 external professionals trained in its various partner organizations. Temenos won the XCelent award for customer base and functionality.

Summary

The solutions covered in this report primarily cater to large banks around the world. Some of the notable points about the solutions covered are:

- Most of the solutions covered in this report are predominantly implemented as in-house solutions. FIS eCas2 is strictly hosted, while FIS Corebank has 90% of its customers on an ASP model. This is an interesting trend among large vendors, given the traditional preference for in-house implementations.
- The solutions vary in the technology and the language in which they are written. Alnova, Celeriti, and Systematics are primarily developed in COBOL. TCS BaNCS is developed on a combination of COBOL and Java/JEE. Profile is a Java/PSL-based solution, while Finacle and FIS eCas2 are based on Java/C++. Temenos T24 and SAP are both developed on proprietary programming languages.
- The solutions covered in this report have implementations in banks of all sizes. Celeriti, Misys Universal Banking, Corebank, and Systematics have a large proportion of customers with assets above $20 billion. Temenos has a large client base and has the highest gross number of banks over $100 billion in assets. Other solutions are distributed among all asset ranges.
- Banks switching core banking solutions are relatively higher in emerging geographies, especially in China, an area eCas2 is well positioned to grow.
- The vendor with the most advanced technologies is TCS BaNCS. On the breadth of functionality dimension, Accenture Alnova, Temenos T24, and FIS Systematics scored over other solutions. Temenos T24 also has the largest customer base, as estimated by weighted average asset size, among the solutions covered in this report. FIS Profile and FIS Systematics lead in depth of client services.

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Typical projects we support include:

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Big Leagues Table 2012: Global Core Banking Sales Ranking
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Top Trends in Banking
January 2012

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Celent, a division of Oliver Wyman

For more information please contact info@celent.com or:

Stephen Greer
sgreer@celent.com

Bart Narter
bnarter@celent.com

North America

USA
200 Clarendon Street, 12th Floor
Boston, Massachusetts 02116
Tel.: +1.617.262.3120
Fax: +1.617.262.3121

USA
1166 Avenue of the Americas
New York, NY 10036
Tel.: +1.212.541.8100
Fax: +1.212.541.8957

USA
Four Embarcadero Center, Suite 1100
San Francisco, California 94111
Tel.: +1.415.743.7900
Fax: +1.415.743.7950

Europe

France
28, avenue Victor Hugo
75783 Paris Cedex 16
Tel.: +33.1.73.04.46.19
Fax: +33.1.45.02.30.01

United Kingdom
55 Baker Street
London W1U 8EW
Tel.: +44.20.7333.8333
Fax: +44.20.7333.8334

Asia

Japan
The Imperial Hotel Tower, 13th Floor
1-1-1 Uchisaiwai-cho
Chiyoda-ku, Tokyo 100-0011
Tel: +81.3.3500.3023
Fax: +81.3.3500.3059

China
Beijing Kerry Centre
South Tower, 15th Floor
1 Guanghua Road
Chaoyang, Beijing 100022
Tel: +86.10.8520.0350
Fax: +86.10.8520.0349

India
Level 14, Concorde Block
UB City, Vittal Mallya Road
Banglalore, India 560001
Tel: +91.80.40300538
Fax: +91.80.40300400