

CELENT

CHANGING THE LANDSCAPE OF CUSTOMER EXPERIENCE WITH ADVANCED ANALYTICS

APPLICATIONS IN BANKING, WEALTH MANAGEMENT, AND
INSURANCE

Karlyn Carnahan, Dan Latimore, and William Trout
17 October 2016

CONTENTS

- Executive Summary 1
- Introduction 2
 - Data from Multiple Sources 2
 - Dynamic Segmentation 2
 - Scalable Technology 3
 - A Roadmap for Capabilities 4
- Banking 5
 - Gathering (and Cleansing) Structured and Unstructured Data 5
 - Analyze and Synthesize 5
 - Apply and Direct 6
- Wealth Management 7
 - Dynamic Segmentation 7
 - Client as King 7
 - Personalization 7
 - Machine Learning 8
- Insurance 9
 - A Plethora of Data 9
 - Unique Insights 9
 - Getting Started 10
- Next Steps 11
- Leveraging Celent’s Expertise 12
 - Support for Financial Institutions 12
 - Support for Vendors 12
- Related Celent Research 13

EXECUTIVE SUMMARY

That timeless principle — “Know Your Customer” — has never been more relevant than today. Customer expectations are escalating rapidly. They want transparency in products and pricing; personalization of options and choices; and control throughout their interactions.

For a financial institution, the path to success is to offer those products, choices, and interactions that are relevant to an individual at the time that they are needed. These offerings extend well beyond product needs and pricing options. Customers expect that easy, relevant experiences and interactions will be offered across multiple channels. After all, they get tailored recommendations from Amazon and Netflix — why not from their bank, financial advisor, or insurance company?

Financial institutions have all the data necessary to know the customer deeply. It's there in their financial transactions: the credit card purchases and checking account transactions showing they've purchased baby furniture or sent a tuition check to a university. It's there in the public data showing the purchase of a new house or a marriage. It's there on Facebook and LinkedIn as customers clearly talk about their life changes and new jobs.

One of the newest trends is dynamic segmentation. Institutions are pulling in massive amounts of data from multiple sources, creating finely grained segments and then using focused models to dynamically segment customers based on changing behaviors.

This goes well beyond conventional predictive analytics. The new dimension to this is the dynamic nature of the segmentation. A traditional model uses demographics to segment a customer into a broad tier and leaves them there. But with cognitive computing and machine learning, an institution can create finely grained segments and rapidly change that segmentation as customer behaviors change.

To pull off this level of intervention at scale, an institution needs technology that works simply and easily, pulling in data from a wide variety of sources — both structured and unstructured.

The technology needs to be able to handle the scale of real-time analysis of that data and run the data through predictive and dynamic models. Models need to continuously learn and more accurately predict behaviors using cognitive computing.

Doing this well allows an institution to humanize a digital interaction and, in a live channel, to augment the human so they can scale, allowing the human to focus on what they do best: build relationships with customers and exercise judgment around the relationship.

Whether a bank, wealth manager, or insurer, sophisticated financial institutions are using advanced analytics and machine learning, as a powerful tool to find unexpected opportunities to improve sales, marketing and redefine the customer experience. These powerful tools are allowing institutions to go well beyond simple number crunching and reporting and improve their ability to listen and anticipate the needs of customers.

INTRODUCTION

That timeless principle — “Know Your Customer” — has never been more relevant than today. Customer expectations are escalating rapidly. They want transparency in products and pricing; personalization of options and choices; and control throughout their interactions.

For a financial institution, the path to success is to offer those products, choices, and interactions that are relevant to that individual at the time that they are needed. These offerings extend well beyond product needs and pricing options. They expect that easy, relevant experiences and interactions will be offered across multiple channels. After all, they get tailored recommendations from Amazon and Netflix — why not from their bank, financial advisor, or insurance company?

What if they could get exactly what they wanted exactly when they needed it? What if financial institutions could monitor the massive amounts of data available, predict upcoming events, and proactively shape the conversation specifically to that customer’s needs?

Any financial institution that could do this would certainly be differentiated in the eyes of its customers. Retention would rise, customer lifetime value would increase, and customer churn would shrink. But here’s the catch. Delivering relevant levels of communications and engagement at scale means activating pertinent customer insights at light speed. That requires gathering, managing, and analyzing massive amounts of data. Happily, the financial services industry is awash with data; few industries are so fortunate.

DATA FROM MULTIPLE SOURCES

Financial institutions have all the data necessary to know the customer deeply, but may not be using it. It’s there in the patterns of their financial transactions: the credit card purchases and checking account transactions showing they’ve purchased baby furniture or sent a tuition check to a university. It’s there in the public data showing the purchase of a new house or a marriage. It’s there on Facebook and LinkedIn as customers clearly talk about their life changes and new jobs.

Even without using external sources of data, most firms have the potential to know a great deal about each customer, including how they interact with the firm, what it costs to serve them, what interests them, and how they spend their money.

While these specific behaviors may be obvious, more complex patterns of behaviors are not as easily identified. What if we could expand beyond traditional sources of information? What about using the tone of the voice during call center conversations?

The challenge is how to turn all this data into actionable insights. Fortunately, new technologies and advanced analytics have the power to reshape the financial services industry in ways we have only begun to tap.

DYNAMIC SEGMENTATION

One of the newest capabilities is dynamic segmentation. Institutions are pulling in massive amounts of data from multiple sources, creating finely grained segments and then using focused models to dynamically segment customers based on changing behaviors.

This goes well beyond conventional predictive analytics. The new dimension to this is the dynamic nature of the segmentation. A traditional segmentation model uses demographics to segment a customer into a broad tier of predetermined segments and leaves them there. But with cognitive computing and machine learning an institution can create finely grained segments based on data and rapidly change that segmentation as customer behaviors change. The minute the data shows that an individual is about to move, for example, the financial institution can anticipate needs such as increased credit, new insurance policies, or a shift in the investment portfolio, and push recommendations to a customer — perhaps even before the customer has even recognized the need themselves.

For example, an institution may use predictive analytics to identify those customers at a high risk of defection. However, dynamic segmentation allows more finely grained interventions. They may intervene one way if the defecting customer has a mortgage that is nearly paid off and is predicted to be retiring soon. They may intervene in a different way if the defector is a millennial with high household income that is predicted to have a new child arriving, and they may intervene completely differently if the customer is defecting due to a poor service experience.

Many organizations have tried to market to a segment of one but have found it to be cost prohibitive. Dynamic segmentation brings great accuracy to predicting groups of customers who show the same propensities and allows organizations to finely target their marketing without the high cost.

SCALABLE TECHNOLOGY

To pull off this level of intervention at scale, an institution needs technology that works simply and easily, pulling in data from a wide variety of sources — both structured and unstructured.

The technology needs to be able to handle the scale of real-time analysis of that data and run the data through predictive and dynamic models. Models need to continuously learn and more accurately predict behaviors using cognitive computing.

Doing this well allows an institution to humanize a digital interaction and in a live channel, to augment the human so they can scale, allowing the human to focus on what they do best: build relationships with customers and exercise judgment around the relationship.

Unfortunately traditional business intelligence tools simply do not have the capability to dynamically drive customer insights. Without the right data and a technology platform designed for this purpose, it is difficult for companies to implement a clear customer contact strategy split by segments, customer value, or customer behaviors. It's even harder to do this reliably, at speed, and scale. Institutions are increasingly turning to cloud offerings to get the kind of scale on demand that is required for this level of analysis.

And putting a static predictive model in place doesn't get an institution far enough down this path either. To fully take advantage of the velocity of the data available, institutions need the ability to continuously learn from customer behaviors. They need their systems to understand, learn, reason, and interact. The challenge is that most financial institutions don't have huge teams of data scientists to create these dynamic, cognitive models.

A ROADMAP FOR CAPABILITIES

Savvy companies are creating a roadmap for building capabilities that will allow them to take advantage of the data they already have and access data from new sources. Key capabilities include both technologies and skill sets. Technologies need to be open, scalable, and capable of predicting and learning, not just reporting. While some companies may build their own skill sets, others realize there is an ecosystem of potential partners who may be better at building models that can be embedded in the institution's existing processes.

Whether a bank, wealth manager, or insurer, sophisticated financial institutions are using advanced analytics and machine learning as powerful tools to find unexpected opportunities to improve sales, enhance marketing, and redefine the customer experience. These powerful tools are allowing institutions to go well beyond simple number crunching and reporting and improve their ability to listen and anticipate the needs of customers.

BANKING

It would seem that banks and credit unions should know a lot about their retail customers. The primary bank account is, after all, where most significant transactions flow. And yet, banks and credit unions have to date done relatively little with the wealth of information that they possess, particularly when companies like Google have built business entirely on the monetization of data.

At the same time, customers outside of banking have experienced a huge increase in service levels, customization, and value, all of which can be considered part of an enhanced customer experience. It's hard to engage people with their finances; they've demonstrated time and again that only a small percentage are eager to actively manage day-to-day financial matters; we estimate that only 10–12% actively used traditional personal financial management (PFM). Many who don't plan their financial lives find the process too cumbersome or uncomfortable.

The confluence of unmet customer needs and technological advances presents an enticing opportunity for banks. Tapping into the power of new technologies — cloud, analytics, cognition, and big data, for example — gives banks and credit unions the chance to offer particular customers, quickly segmented in new and relevant ways, insights and offers that five years ago were only the dreams of financial futurists. These insights can be used not only for selling, but also for building and enhancing the customer relationship through a series of ongoing touchpoints that are finally economically feasible. Every part of this strategy is built on data.

GATHERING (AND CLEANSING) STRUCTURED AND UNSTRUCTURED DATA

Banks possess an immense amount of data, much of which isn't adequately used today. Using that is critical. Banks and credit unions can also add unstructured data to the mix. Ingesting news feeds and social media, understanding and reasoning about it, and then combining it with enterprise data will set leading banks and credit unions apart from the competition. When building a foundation for predictive analytics, more data is better. It includes, but isn't limited to, elements such as:

- What they spend.
- Who they spend it with.
- When they spend it.
- How they spend (i.e., what interactions — cards, checks, ACH).
- When patterns change (pay raise, new recurring payments, adding/deleting payees).
- Life events (e.g., marriage, birth of a child, retirement).
- Impending changes, expressed or unexpressed (e.g., moving or taking a new job).

The first step in using the power of analytics is to assemble the totality of data about a segment of customers. That foundation is then used to not simply assemble a history, but instead to make targeted predictions.

ANALYZE AND SYNTHESIZE

Once a bank or credit union has assembled the data into a usable and accessible form, it must analyze it and develop relevant insights. Historically the domain of highly trained data scientists, data analysis is becoming easier for less technical people to perform as user interfaces improve to make the analysis more accessible. It's analogous to bank customer service representatives moving from green-screen interfaces in the call center

to more intuitive graphical dashboards. Today a marketer can use dashboards with intuitive graphical user interfaces to identify trends.

Business analysts, marketers, and even executives don't have to rely solely on their own skill and intuition. Software firms have already built banking-specific analytic models that can be adapted for a bank's or credit union's specific needs. Another approach is to take tried-and-true methodologies (e.g., behavioral or demographic segmentation) and apply the new generation of analytics tools to them, saving time and reducing the need for specialized expertise.

APPLY AND DIRECT

The insights that have been developed now need to be put into action. There are two avenues to the customer: via the banker, and direct.

Bankers may receive their insights through dashboards designed to convey key points in an easy-to-follow graphical presentation supplemented by key prose bullet points. Predictive analytics let bankers generate insights about future customer behavior in real time. Examples of potential insights are.

- Foreseeing cash flows and overdrafts.
- Compiling next best offers.
- Anticipating life events.
- Forecasting churn/attrition.
- Improving targeting.

The insights derived now let the banker design new programs that can provide innovative offerings, identify cross-sell opportunities, or initiate retention programs. New analytics can be built into small batches of these programs and refined iteratively, shortening the test and learn cycles and improving overall success rates.

From the customer side, analytically driven interactions can be delivered through a wide variety of channels, although mobile is the one with the most immediacy today. Examples include:

- Overdraft warnings.
- Offers from merchant partners.
- Encouragement on progress toward goals.
- Spending analyses and alerts.
- Triggers to transfer excess cash to savings.
- Reminders to pay bills.
- Relevant offers triggered by life events or search queries (e.g., mortgages after web searches, or a car loan after a new auto title is filed).

Banks and credit unions have the chance to use new technologies and build on the lessons learned in other industries to develop new customer insights. These insights, in turn, can provide the foundation for a deeper and more mutually beneficial customer relationship. Done right, this new era of analytics will be a win for banks and credit unions and a win for their customers.

WEALTH MANAGEMENT

The digitization of the wealth management business, and specifically firms' enhanced ability to translate data into insights about client needs and preferences, presents new ways for firms to shape the client experience. It also affords opportunities to influence client decisions and outcomes. This section suggests ways firms can operationalize new insights and bring servicing models up to date with their more sophisticated understanding of the client.

DYNAMIC SEGMENTATION

The wealth management firm by definition has privileged access to information on clients. In recent years, structured information available in house has been augmented by a massive flow of data from social media and the Internet. The proliferation of data (and tools to process it) has had profound implications for the relationship-focused wealth management business, beginning with the ways firms segment their clients.

No longer can or should the attention a client receives be determined by the size of his wallet. Indeed, service levels and interaction should be customized to the client's unique and evolving profile. The provision of advice, whether goals based or focused on portfolio strategy, should be similarly dynamic, with financial plans and investment policy statements updated on an ongoing basis.

CLIENT AS KING

Today's consumer enjoys unprecedented information and choice, both in terms of interactions (spanning the Web to wearable tech) and access to third party or crowdsourced opinion. Higher expectations support (and in part reflect) the skepticism that to a large degree defines the millennial generation. These expectations underscore a fundamental shift in the power balance between the client and wealth manager, one reinforced by regulation such as the Department of Labor conflict of interest rule.

The ascendance of the client should be a call to action for wealth managers. Campaigns and next best sales approaches that have worked in the past (or at least well enough to encourage wealth management firms to invest man hours in their design and execution) must be brought into the digital age. Too often these campaigns are a blunt hammer: they are built to sell product and ignore the evolving needs of the individual client, as well as the multiplicity of digital touch points useful to reach her. It should not surprise that the client reacts negatively to the presumption inherent in the offers.

PERSONALIZATION

Effective marketing demands a more subtle and proactive approach. This means a shift away from product push (based on crude segmentation and response propensity) to data directed marketing based on the concept of real time optimization. The idea here is to decipher client intent and then make recommendations personalized to the needs of each client. The deciphering can now take advantage of cognitive technologies to bring tone and personalities into the insight equation.

Another way wealth managers can make their outreach more relevant and lasting is via life stage identification. New solutions in the market can be used to recognize changes in clients' lives as well as signal money in motion. Purchases may point to "nesting" behavior and the decision to have a child, which in turn opens the door to discussion around home purchase needs, life insurance, and college savings plans. Aggressive saving among certain clients portends an interest in early retirement, and thus a need for annuities or other guaranteed income streams.

MACHINE LEARNING

The wealth manager under pressure to rationalize his delivery model can use machine learning to make himself more productive. He can scale his existing business, add new (and ideally younger) clients, or more generally, figure out the best use of his time. He can use it to manage increasingly burdensome compliance requirements, identify risky behaviors, or assess the risk of client attrition. At the firm level, identifying propensities can be used to ascertain the likelihood that the adviser himself may depart.

Machine learning also has applications in the fast-growing self-directed investments business, where users tend to be digitally savvy and keen to interact with other users via discussion forums and the like. Brokerage firms and others can use online exchanges and other data points (e.g., around investor sentiment) to help understand investment theme affinities, develop new services (e.g., options trading or even education programs) and boost the participation of users.

In all cases, the digital footprint left by investors affords firms a unique opportunity to better understand the needs of those they have committed to serve. In so doing, they give themselves the means to positively influence activity and engagement levels, as well as inform investments decisions. The end result for both firm and investor should be a better outcome.

INSURANCE

Insurers often struggle to differentiate themselves. With few interactions with customers, most insurers have focused their innovation on new products. But the easiest way to grow a book of business is to keep existing customers happy. An increasing number of carriers place a superior customer experience at the heart of their strategy. Sophisticated cognitive computing and advanced analytic techniques are playing an increasingly important role in defining that experience.

A PLETHORA OF DATA

External data sources provide access to a vast new feedstock of information that can provide a deeper understanding of the customer and identify new insights to drive actions. As new sources proliferate, carriers need the ability to easily ingest the data, learn from that data, and take actions based on the insights gained from that data. Actions can be subtle, yet powerful.

- Data can provide information about a customer's risk profile and attitudes.
- Data can also give early advanced warnings of life events that may drive new needs for insurance such as a new child, an empty nest, a move, or a serious illness.
- Public records can alert a carrier to new crimes in the neighborhood that may drive a client's desire for more protection.
- Status-conscious millennials with high income, no credit card debt, expensive computer equipment, or luxury cars may benefit from suggestions on new coverages or services typically provided in high net worth programs.
- Turning behaviors into data may show that mitigation is needed to retain a policyholder with a high lifetime value.

This type of information allows carriers to create a much more finely grained segmentation that allows them to treat customers individually.

UNIQUE INSIGHTS

These new sources of data can have a substantial impact on how carriers work with their customers. Dynamically segmenting policyholders allows carriers to get closer to the customer by identifying their propensity to respond in certain ways.

- *Suggest new products based on predicted life events.* Understanding propensity to buy as well as life events occurring can drive different types of campaigns. Just bought a new house and focused on service? Send them a new home maintenance schedule. That new home purchase may be due to a baby on the way. That might be a good time to offer additional life insurance coverages. As a note, this level of analysis also advises where NOT to send certain messaging, which allows a company to maximize its sales budget.
- *Tailor marketing messaging based on propensities.* Those who are more price-oriented may get messaging around the ability to choose their own coverages to pay only for what they need. Those who are more risk-averse may get messaging that touts the overall value of the different available options and services available to reduce risk.
- *Intervene prior to defection.* Use sentiment analysis techniques to identify customers with high lifetime value potential that have a high propensity to defect and the likely reasons behind that defection. Carriers can intervene earlier with appropriate actions — additional services, cost-cutting recommendations — depending on the reason for defection and the customer's risk and value profiles.

- *Take actions based on external events in the customer's community.* Increasing crime rate? A carrier can create a marketing campaign around home protection. Those who are looking for more value may be interested in home monitoring devices combined with homeowners insurance.
- *Manage the overall book composition.* Use advanced analytics to understand the composition of the book at a behavioral level. Tailor marketing campaigns to drive more customers in a desired segment using personalized sales messaging that pinpoints their buying triggers.
- *Align agent services with fine-grained segmentation.* Expand segmentation criteria to include attitudes and behaviors as well as results. Tailor support structures and service offerings based on the likelihood that these tools will drive profitable growth. The frequency of contact, the decision to extend a direct marketing program, training, additional compensation — these are areas that can be optimized using sophisticated analytics rather than the more traditional agency segmentation programs. Carriers are even using this type of analysis to better determine which agents to work with in the first place, especially when entering new territories.

While there are multiple use cases, the key to success is to use technology to learn and predict rather than report and react.

GETTING STARTED

Shifting the focus to the customer perspective allows carriers to drive new sales and impact retention. Doing this well requires a deep ability to use data to make real-time decisions. Investments in data and data tools are at an all-time high in the insurance sector, yet despite these investments not everyone is successful at utilizing customer insights to drive strategies and actions. Traditional tools have a hard time taking all this data and quickly turning it into insights.

Successful carriers are using new tools that combine sophisticated analytic techniques with the ability to easily consume data from multiple sources. Preintegrated models can save considerable time, and can be implemented without having to hire armies of data scientists. But predeveloped models must be easily customized in order to be relevant to a carrier. Look for machine learning (also known as cognitive computing) techniques that allow the models to tune themselves as they continuously learn and improve from behaviors and results.

Any change of this type has to be carefully thought through, especially for carriers that work with independent agents. A decision of whether to take the next best policyholder action needs to be carefully coordinated with the agents. Analytics can help carriers identify which agents are most receptive to this type of intervention.

NEXT STEPS

Customer expectations are increasing, driven by experiences in other, nonfinancial sectors. The balance of power in the firm-customer relationship has shifted to the customer. The future requires a broader focus on consumer experience and engagement. This is no longer an opportunity, but a MUST-have capability. Using advanced analytics to understand customers in a dramatically different way can profoundly change a company's ability to build lasting, more profitable relationships.

Taking advantage of massive amounts of data to drive targeted actions requires a combination of technology, easy access to data, and dynamic models tailored to drive customer insights. Fortunately, advancements in analytical and modeling capabilities are making customer data more valuable than ever before.

Institutions looking to get started in an initiative to use advanced analytics and cognitive computing to drive customer engagement should focus on four steps.

- **Insights as an imperative.** Shifting customer expectations require a different approach to gathering customer insights and taking customer-oriented actions. Standing in the way of adopting an analytic approach may be a corporate culture that encourages individuals to rely on their intuition and experience when making decisions. Leaders looking to build a data-driven customer experience need to set the vision and drive change.
- **Not just an offer engine.** Companies that are looking to effectively implement an analytics initiative need to think of it as a journey rather than a one-time project. While initial efforts may focus on recommending new products, the way forward can be much more comprehensive. Define the aspirations in a roadmap that provides guidance for progress, yet leaves room for experimentation.
- **Be agile and fail fast.** Test new ideas with quick, agile pilots to be sure they'll really deliver results. Test the technology on specific problem sets, and test the outcomes on small groups to hone the processes and learn how to improve.
- **Join the ecosystem.** Data scientists are a rare commodity, and not all institutions have the resources to bring on an entire team. Companies shouldn't think they have to go it alone. There are a number of vendors with advanced technologies, unique viewpoints, and products that can be successfully implemented with relatively little effort. Look for those that invest heavily in R&D as technologies are changing rapidly, and successful use cases can generate new ideas for intervention. Consider who else can do it. It's a connected world.

Using advanced analytics to transform the customer experience can dramatically change a company's ability to build lasting, more profitable relationships. Customer insights driven by analytics are here to stay. Financial institutions must decide whether to lead or follow.

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

LEVERAGING CELENT'S EXPERTISE

If you found this report valuable, you might consider engaging with Celent for custom analysis and research. Our collective experience and the knowledge we gained while working on this report can help you streamline the creation, refinement, or execution of your strategies.

SUPPORT FOR FINANCIAL INSTITUTIONS

Typical projects we support include:

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

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

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

SUPPORT FOR VENDORS

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

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

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

RELATED CELENT RESEARCH

Tackling the Big Data Challenges in Global Insurance: Differences Across Continents and Use Cases

July 2016

Omnichannel Customer Acquisition 2.0: What It Is and How to Get There

July 2016

Reinventing Underwriting: New Ingredients for the Secret Sauce

June 2016

Getting to Digital: Assessing Banks' Progress

May 2016

Progress Towards a Digital Future: How Ready Are Insurers Today?

January 2016

Tailoring the Customer Experience: External Forces Impacting Corporate Digital Channels

January 2016

Bigger Data: A Look at How Far Insurers Have Moved to Take Advantage of Opportunities

January 2016

Let's Get Digital Already: Gearing Up for the Next Stage of Client Reporting Enhancements

September 2015

Optimizing Face-to-Face Interactions: The Missing Link in Branch Channel Transformation

July 2015

Surprises in Consumer Financial Decision Making: Practical Behavioral Economics

June 2015

Effectively Serving the Mass Affluent

March 2015

Insights on Sharing: Financial Consumers and Their Data

November 2014

Copyright Notice

Prepared by

Celent, a division of Oliver Wyman, Inc.

Copyright © 2016 Celent, a division of Oliver Wyman, Inc. All rights reserved. This report may not be reproduced, copied or redistributed, in whole or in part, in any form or by any means, without the written permission of Celent, a division of Oliver Wyman ("Celent") and Celent accepts no liability whatsoever for the actions of third parties in this respect. Celent and any third party content providers whose content is included in this report are the sole copyright owners of the content in this report. Any third party content in this report has been included by Celent with the permission of the relevant content owner. Any use of this report by any third party is strictly prohibited without a license expressly granted by Celent. Any use of third party content included in this report is strictly prohibited without the express permission of the relevant content owner. This report is not intended for general circulation, nor is it to be used, reproduced, copied, quoted or distributed by third parties for any purpose other than those that may be set forth herein without the prior written permission of Celent. Neither all nor any part of the contents of this report, or any opinions expressed herein, shall be disseminated to the public through advertising media, public relations, news media, sales media, mail, direct transmittal, or any other public means of communications, without the prior written consent of Celent. Any violation of Celent's rights in this report will be enforced to the fullest extent of the law, including the pursuit of monetary damages and injunctive relief in the event of any breach of the foregoing restrictions.

This report is not a substitute for tailored professional advice on how a specific financial institution should execute its strategy. This report is not investment advice and should not be relied on for such advice or as a substitute for consultation with professional accountants, tax, legal or financial advisers. Celent has made every effort to use reliable, up-to-date and comprehensive information and analysis, but all information is provided without warranty of any kind, express or implied. Information furnished by others, upon which all or portions of this report are based, is believed to be reliable but has not been verified, and no warranty is given as to the accuracy of such information. Public information and industry and statistical data, are from sources we deem to be reliable; however, we make no representation as to the accuracy or completeness of such information and have accepted the information without further verification.

Celent disclaims any responsibility to update the information or conclusions in this report. Celent accepts no liability for any loss arising from any action taken or refrained from as a result of information contained in this report or any reports or sources of information referred to herein, or for any consequential, special or similar damages even if advised of the possibility of such damages.

There are no third party beneficiaries with respect to this report, and we accept no liability to any third party. The opinions expressed herein are valid only for the purpose stated herein and as of the date of this report.

No responsibility is taken for changes in market conditions or laws or regulations and no obligation is assumed to revise this report to reflect changes, events or conditions, which occur subsequent to the date hereof.

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

Karlynn Carnahan	kcarnahan@celent.com
Dan Latimore	dlatimore@celent.com
William Trout	wtrout@celent.com

AMERICAS

USA

200 Clarendon Street, 12th Floor
Boston, MA 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, CA 94111

Tel.: +1.415.743.7900
Fax: +1.415.743.7950

Brazil

Av. Doutor Chucri Zaidan, 920 —
4º andar
Market Place Tower I
São Paulo SP 04578-903

Tel.: +55.11.5501.1100
Fax: +55.11.5501.1110

Canada

1981 McGill College Avenue
Montréal, Québec H3A 3T5

Tel.: +1.514.499.0461

EUROPE

France

28, avenue Victor Hugo
Paris Cedex 16
75783

Tel.: +33.1.73.04.46.20
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

Italy

Galleria San Babila 4B
Milan 20122

Tel.: +39.02.305.771
Fax: +39.02.303.040.44

Spain

Paseo de la Castellana 216
Pl. 13
Madrid 28046

Tel.: +34.91.531.79.00
Fax: +34.91.531.79.09

Switzerland

Tessinerplatz 5
Zurich 8027

Tel.: +41.44.5533.333

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

Singapore

8 Marina View #09-07
Asia Square Tower 1
Singapore 018960

Tel.: +65.9168.3998
Fax: +65.6327.5406

South Korea

Youngpoong Building, 22nd Floor
33 Seorin-dong, Jongno-gu
Seoul 110-752

Tel.: +82.10.3019.1417
Fax: +82.2.399.5534