Making Analytics Actionable for Financial Institutions
(Part I of III)

To maximize ROI from their analytics platforms, financial institutions must build solutions that explicitly, visibly and sustainably enable real-time translation of data into meaningful and continuous improvements in their products, services, operating models and supporting infrastructures.
Executive Summary

Financial institutions are increasingly looking for ways to boost their competitive advantage and improve their operational maturity. In our view, emerging analytics technologies can provide new insights that drive differentiation, growth and profitability. However, the magnitude of the potential benefits that should emerge from these technologies remains difficult to forecast reliably. This uncertainty is largely attributed to fundamental gaps between the ways in which information is gathered, insights are generated, action is enabled, and learning is leveraged. Although this challenge is not unique to the financial services industry, a successful strategy for addressing it is particularly important given the industry's information intensity, as well as the negative impact of recent market structure changes on revenue and margins.¹

This white paper, the first of a three-part series, proposes an actionable analytics framework for identifying and addressing these gaps, as well as a tactical recommendation for validating the relevance and usefulness of this framework. This framework is meant to serve as an execution aid for effectively capturing and exploiting the digital footprints – what we call a Code Halo™ – that surround an institution’s clients, employees, partners and competitors.²
Beyond Commoditization

Throughout the 20th century, financial institutions were able to increase the scope, scale and profitability of the services they provided by coupling their unique ability to acquire and redistribute capital with investments in technology. The latter provided processing capabilities and information that was not readily available to the public at large, thus creating both pricing power and arbitrage opportunities.

However, during the past 20 years, advances and democratization of technology have begun to reverse this effect. Instead of acting as a source of differentiation, technology is now driving the commoditization of many financial products and services. Simultaneously, since last decade's financial crisis, regulators are placing more constraints on institutions' ability to profit from unique access to channels or information sources (increased scrutiny and reporting requirements for dark pools being one of the most recent examples). Consequently, the industry must now find new ways in which to differentiate their services.

The organization that makes a client wait the least amount of time to realize a meaningful result for a given scenario wins.

According to common wisdom, the next source of differentiation will come from achieving a unique balance of quality, speed and ease of service. Although organizations will claim that they have always pursued this balance, the basis for measurement has changed drastically in many ways:

- **The expectation is that a “service” will be more than the operational execution of a transaction; it is the delivery of a meaningful result.** This is not a trivial change in definition, because the party being served gets to determine what is meaningful based on what is important at that moment in time.

- **Quality will be measured by a wider range of attributes.** Precision and reliability used to be the sole metrics (e.g., “is the balance on my statement correct?”). Going forward, transparency or understandability will also be factors. As a result, retail and commercial banking will ultimately face the same margin challenges as securities traders did when clients experienced increased transparency. Relevance will also become an increasingly important measure of quality.

- **Speed is a relative measure.** The organization that makes a client wait the least amount of time to realize a meaningful result for a given scenario wins. In general, due to their experiences in other commercial sectors, clients are increasingly intolerant of drawn-out and bureaucratic processes for approval and dispute resolution.

- **Ease of service implies that the organization needs to increasingly accommodate the way clients want to interact.** Providing alternative channels is only the beginning of the journey, not the end destination. Retail and commercial banking customers will increasingly expect the type of targeted offers and one-click experiences to which they have become accustomed in their daily lives.

To address these new expectations and metrics at scale, financial services organizations must develop a way to make and implement decisions — both client-facing and internal — at an accelerated pace, while at the same time respecting regulatory boundaries. In effect, they must increase the timeliness and precision of their current analytics capabilities, while simultaneously eliminating the latencies between knowing what needs to be done and actually doing it.
We refer to this integrated approach as “actionable analytics.” In fact, we have already seen this paradigm implemented in niche areas within financial services firms. Examples include:

- **High-frequency trading platforms** not only determine when to initiate an order based on analytics; they then proceed to orchestrate a series of orders and cancellations that optimize returns based on a real-time assessment of the market reaction to those orders.

- **Credit fraud solutions** identify potentially fraudulent transactions and then initiate the actions required to protect both the institution and customer from losses.

It is readily obvious that, despite their algorithmic sophistication, the above examples are tightly bound in terms of the sources of data used. This constraint was largely dictated by the size and usability of the data sets that could be affordably and practically managed. However, the rapid maturation, and increased affordability, of the suite of technologies that have been associated with the term “big data” now make it possible to address scenarios that are more complex and broad in scope.

What if financial advisors were armed with a platform that was capable of dynamically rebalancing a portfolio and orchestrating a communication campaign, using a more nuanced view of an individual’s risk appetite that is based on his or her evolving personal situation and actual behavior?

For example, mutual fund providers and financial advisors targeting the mass affluent segment tend to map their products and investment recommendations to a rather broadly defined set of client types that are primarily associated with a high-level assessment of risk appetite (which frequently fails to outperform market indices, hence the rise of ETFs). Instead, what if financial advisors were armed with a platform that was capable of dynamically rebalancing a portfolio and orchestrating a communication campaign, using a more nuanced view of an individual’s risk appetite that is based on his or her evolving personal situation and actual behavior (as opposed to his or her stated risk tolerance)? This type of actionable analytics capability is now achievable. So the question then becomes, “Why don’t we see more rapid adoption of this approach in the financial services sector?”

The simple answer is that the potential cost/benefit trade-offs of applying an actionable analytics paradigm to a broader range of business situations is not clear to many business executives. We can illustrate this point using the what-if scenario for wealth management clients noted above. Although it may intuitively make sense that a more nuanced view of the customer’s drivers, beliefs and biases may increase the quality of the relationship, it is not clear whether that would result in a sufficient increase in assets under management (AuM) for the financial advisor, or fee revenues for product providers, to justify the investment.
In contrast, the decision to provide alternative channels was a “no-brainer” (in hindsight) given that the increased customer convenience was accompanied by a reduction in transaction costs for financial institutions — a true win-win. Interestingly, it is the difference between these two scenarios that provides a basis for developing a strategy for determining how and where to target actionable analytics initiatives within financial institutions. Specifically, in order to be successful, the underlying principles need to be applied in a way that provides both a customer benefit and operational cost savings. This linkage is not just nice to have — it is a must.

To some, this might seem like a statement of the obvious. However, the reality is that the siloed nature of most financial organizations leads to a definition of initiatives that routinely ignore the opportunity or need to establish this linkage. Many customer analytics initiatives today focus on discovering more effective segmentation strategies without explicitly addressing the operational issues associated with providing better products and services to those segments. Similarly, many regulatory initiatives (where the customer is the government) continue to focus on brute force data collection and report generation without determining how to make the collection process more affordable or implementing suggested actions in a more timely, consistent and cost-effective manner.

Many regulatory initiatives continue to focus on brute force data collection and report generation without determining how to make the collection process more affordable or implementing suggested actions in a more timely, consistent and cost-effective manner.

The importance of this linkage, and the industry’s failure to fully achieve it, was underscored in a recent Wall Street Journal article indicating that non-interest expenses at the six biggest banks rose 9.6% from 2009 to 2013, while revenues declined 9.7% during the same period. More specifically, in addition to increases in technology expenditures, compensation costs for client-facing and compliance staffs also rose. For the same six banks, overall salary and benefits have risen from 29% of revenues in 2007 to 35% of revenues in 2013 despite the fact that these institutions have cut 88,110 positions (7.5% of staff) since 2011. In principle, better compensated staff, coupled with increased investment in IT, should be generating more revenue at greater efficiency either through further automation of routine activities or enhanced analytics that directly improve staff effectiveness. However, this does not appear to be the case.

Making Analytics Actionable

The actionable analytics paradigm is specifically aimed at optimizing return on investments in both staff and technology by addressing recurring gaps in understanding and ability to execute. Implementation requires that solutions are explicitly designed to reflect five key characteristics, as summarized in Figure 1 (next page).
The first two characteristics, context-aware and closed loop, form the basis for the framework that can be used to rapidly assess the completeness of any initiative that is supposed to increase the organization's ability to understand and manage its relationships and operations. In their simplest form, context-aware systems have three main elements:

- **Sensing:** Active and passive information-gathering, categorization and storage for future use.
- **Thinking:** Deriving meaning and understanding regarding topics of interest/relevance.
- **Acting:** Taking steps to make changes as required to generate a desired result based on understanding.

These elements are most effective when they are implemented in a closed loop. After taking an action, an individual or system will continue sensing what is going on in an environment to see whether the action generated the desired result. Even before that, a deeper understanding of a given issue could lead to a decision to change the focus of the sensing activities before taking action. Consequently, we refer to this construct as sensing, thinking and acting recursively (STAR).
As individuals, we embody this model; it is the way we deal with our surroundings from second to second. A more systems-oriented view is illustrated in Figure 2.

Although simple, this model can be used to quickly assess how effectively any initiative — regardless of scope, scale or technical sophistication — contributes to an organization’s ability to make and execute decisions. As Albert Einstein said, “Whether you can observe a thing or not depends on the theory which you use. It is the theory which decides what can be observed.” This particular assessment looks beyond traditional throughput and efficiency metrics to determine the extent to which a function, process or operating model (using our five key characteristics) drives actionable analytics solutions and the maturity of the enabling subsystems. Representative questions include:

- **Context-awareness:**
  - For each of the three elements, what is automated, and what is not?
  - How adaptable is each of these elements?

- **Closed loop:**
  - Where do feedback loops exist?
  - Are they complete?

- **Immediacy:**
  - To what extent is information flow automated?
  - What is the time delay between feedback received and action taken?
  - To what extent is decision-making data-driven vs. people-driven? (e.g., decisions made by committee)?

- **Balance:**
  - Do recipients believe information provided is at the right level to support their activities (e.g., do they only look at one page of a 40-page report, or do they get summary data that they don't fully understand)?
How easy or difficult is it for them to understand information provided (e.g., does everything have to be moved into a rogue spreadsheet vs. used as delivered)?

To what extent do individuals have the ability to take action based on the provided information? Are they limited to certain tasks, or can they do whatever is required to generate a result?

**Trustworthiness:**

What metrics are used to measure the quality of information provided?

### Translating Gap Analysis into Action

This is not an academic exercise, nor is the point of this assessment to prove that every decision and process needs to be automated. There are many instances in which low tech is the most appropriate response based on the business context. Instead, it is meant to highlight gaps that adversely impact both customer engagement and operational efficiency in ways that are significant and measurable.

Although some would think these types of “significant and measurable” gaps would already have been identified and addressed, our experience has shown that more problems fall through the cracks than many executives realize. For example, an analysis of one organization’s call center demand indicated that a sizable portion was driven by recurring issues that would only be eliminated through modification to client-facing applications. However, despite this awareness, the necessary changes were rarely implemented, and the calls continued. Deeper analysis showed that this information was passed onto a group that did not have the perspective or authority to determine whether the impacts to customer experience and call center efficiency were significant enough to prioritize these particular software change requests over others that originated from other sources. In effect, the environment satisfied none of the characteristics of the actionable analytics paradigm. It was not:

- **Context-aware:** There was little to no context associated with change requests.
- **Closed loop:** Feedback was inconsistent.
- **Immediate:** Delays between request and action were measured in weeks and months if anything happened at all.
- **Balanced:** Information fed into the group responsible for making changes was insufficient for the group or their managers to make well-informed prioritization decisions.
- **Trustworthy:** Lack of responsiveness, either in the form of executed changes or clear rationale for not making them, led to overall degradation in trust and collaboration between groups.

It should be noted that the lack of results led the customer support organization to focus primarily on those demand drivers that were within the control of the customer support organization, thus leading to missed opportunities and ongoing ignorance regarding the potential costs of the unfilled requests.

At cost-conscious financial institutions in which teams are assigned to micro-manage phone usage and consumption of office supplies, insights regarding the potential revenue and margin leakage associated with these unfilled requests could be very valuable. However, this type of information was often viewed as simply too difficult to obtain.

This situation is now changing. Whereas creation of this type of analytics in the past would be too large of a project to justify, the emergence of various data-blending solutions would allow the concepts to be readily piloted at a smaller scale (depart-
mental or regional vs. divisional or enterprise). As a result, instances such as these can become the basis for incrementally building an actionable analytics capability that can provide both tactical and strategic value. In this case, simply by adding a decisioning capability for value-driven prioritization of change requests, the organization would be able to optimize its use of development resources to improve the client experience and operational efficiency.

This assessment approach would be just as relevant for marketing-driven initiatives that are focused on increasing customer engagement and loyalty. Many organizations, including retail banking and wealth management institutions, have initiatives to optimize clients’ multi- or omni-channel experience. There is a growing recognition that positive feedback for one channel – whether it is online, call center or branch – does not necessarily translate into an overall positive experience for the customer. This gap occurs when customers are forced to switch channels specifically because they could not achieve what they were trying to do (realize their meaningful result) on one channel.

In response, financial institutions are looking for ways to obtain a more comprehensive understanding of customer journeys as they relate to particular types of requests and the associated implications on customer revenue, profitability and loyalty. Implicit in this approach is the assumption that once reasons are identified, something will be done to address them. Unfortunately, the group responsible for follow-through is not always the same as the one that gathers the insight.

For example, analysts at CEB (aka Corporate Executive Board) reported that Fidelity developed a simple, low-cost means of gathering information on the drivers for channel-switching by arming contact center representatives with a simple question tree that quickly helps reps identify client reasons for switching (see Figure 3).6

---

**Channel-Switching Voice of the Customer Exercise**

1. “We’re trying to learn more about how our customers prefer to resolve issues. Before contacting us, did you try this online?”

2a. “Sorry that this site didn’t resolve your issue. To help us improve, can you share what happened?”

2b. “Fidelity may expand our site to include this functionality. Would you be comfortable doing this online?”

2c. “For customers who like online service, we’ve put this issue on our Web site. Were you aware this functionality was available online?”

Next-Step Considerations

- Technical failure: Inform Web peers
- Insufficient information: Improve content quality
- Navigation failure: Enhance navigation
- If functionality not available online:
  - YES: Consider adding functionality
  - NO: Deprioritize
- Functionality available online:
  - YES: Develop education or incentive campaign
  - NO: Develop education or incentive campaign

*Source: CEB* 

*Figure 3*
“Next-step considerations” obviously require participation from multiple groups within the organization, especially those surrounded by dotted lines. Although the call center organization devised a pragmatic and expedient way to develop insight into switching drivers, the subsequent steps for taking action are highly dependent on the judgment and efforts of individuals rather than being enabled by an intelligent, closed-loop infrastructure that integrates multi-channel inputs, analytics, business process management and social capabilities.

As a result, although improvements in usability of the online channel and reductions in call volume were reported, it is difficult to assess the magnitude of the improvements relative to what might have been possible in terms of increased customer profitability and retention. The only way to definitively answer these types of questions is to implement an actionable analytics framework that provides traceability from identification of drivers, through implementation and monitoring of corrective action. In the absence of these capabilities, the significance of any success is open to interpretations that can range from significantly understated to greatly exaggerated.

Creating an Actionable Analytics Framework

As mentioned above, one of the major benefits of the actionable analytics framework is that it can be implemented at any level of scope and scale. This means that organizations can initially validate the potential value of this concept in a low-cost, contained manner. Similar to the Fidelity example discussed above, data can be gathered in a “low-tech” manner as long as the approach is consistent. However, unlike the above example, the focus should be on tracking the entire lifecycle from discovery of drivers, to execution of potential fixes, to correlation of those fixes, to measurable changes in the issue being addressed.

PoCs should avoid trying to address broadly defined industry issues and focus instead on optimizing more granular questions in which closer to real-time feedback could make a meaningful difference.

Identifying a proof of concept (PoC) of a pilot starts with a simple question: “What do we all agree needs to be improved, and why haven’t we been able to do it?” The quick reply typically provided by most managers is that there isn’t a business case for one of two reasons:

• The anticipated benefits are not significant enough to warrant the associated investment.
• The evidence that the investment will generate the promised benefit is not compelling enough to assume the risk.

PoCs/pilots should focus on those long-standing, chronic challenges that fall into the second category, in which “lack of evidence” clearly suggests a lack of meaningful, believable information, which is the primary objective of any analytics solution. Ideally, these PoCs should avoid trying to address broadly defined industry issues (e.g., “How do I increase customer loyalty?”) and focus instead on optimizing more granular questions in which closer to real-time feedback could make a meaningful difference (e.g., “Why does it take X amount of time to implement a new pricing
strategy?”). The best examples/opportunities involve activities that require inter-departmental coordination, including:

- Product launches.
- Responses to ad hoc regulatory requests.
- Investigations:
  - Incident/problem management.
  - Fraud.
  - Security.
  - Transaction breaks.
- IT change requests.

Once a candidate topic is identified, an assessment can then be performed using the checklist shown in Figure 4. For each subsystem listed in the table columns, the following questions would be asked to assess current compliance with the actionable analytics framework:

- **Contextual awareness:**
  - What is the quality of the available data?

---

**Actionable Analytics Assessment Checklist**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Sensing</th>
<th>Thinking</th>
<th>Acting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Channel Coordination</td>
<td>Process Monitoring</td>
<td>Log Monitoring</td>
</tr>
<tr>
<td>Contextually Aware</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Closed Loop</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Immediate</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Balanced</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Trustworthy</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Figure 4
What potentially relevant information is not currently available?
What would be “good to know?”

**Closed loop:**
- How is the subsystems output validated?
- How are adjustments/corrections implemented?
- What effort would be required to increase the level of automation?

**Immediacy:**
- To what extent is the subsystem automated?
- What effort would be required to minimize/eliminate the need for manual intervention?

**Balance:**
- Can information providers realistically provide inputs required in a timely and economical manner?
- Is the information delivered appropriate (not too dense or sparse) to support determination and execution of next-best action?

**Trustworthiness:**
- Are the derivation and relevance of outputs clearly understood?
- Is the way in which results are used to optimize future quality and efficiency of analytics and resulting actions clear and measurable?

**Looking Ahead**

The next paper in this series will walk through a detailed example illustrating how this checklist can be used to accelerate identification and implementation of solutions that effectively combine analytics, big data and business process management (BPM) technologies to deliver tangible business results. The final installment in this series will discuss a methodology and operating model for driving consistent and sustainable improvements in an organization’s ability to maximize its returns on analytics.

In our point of view, financial institutions’ current analytics initiatives remain relatively siloed and narrowly scoped. Some of these initiatives, such as high-speed trading and fraud analytics, have yielded substantial, measurable business benefits. However, many customer-facing and operational analytics initiatives have failed to realize their full potential due to the fact that the sponsoring organizations do not fully enable and track the execution of the actions to capture the opportunities identified through application of advanced analytics techniques and tools.

Although market challenges are forcing financial institutions to experiment with analytics without necessarily having clear business cases, results to date have been mixed because these organizations lack a cohesive framework. Use of our proposed actionable analytics framework during the specification and design of an analytics initiative can significantly increase the potential return on investment, while significantly reducing execution risk. A rapid assessment approach is proposed for determining proof of concept projects that are likely to yield measurable value with the lowest upfront investment.
Footnotes

1 Market structure changes are driven by a combination of regulatory change and technology innovation. Regulations are driving reduced flexibility in product innovation, pricing and capital allocation, while increasing costs in non-revenue-generating activities, such as redefining legal entity structure and compliance-related monitoring and reporting. Simultaneously, institutions must find ways to increase investments in newer technologies simply to maintain or protect their current market share.


7 Fidelity reported that this exercise resulted in site improvements that increased online PIN reset completion rates by 29% and reduced calls associated with PIN resets by 8%, translating into a 7.25-times ROI for this one project. The Effortless Experience: Conquering the New Battleground for Customer Loyalty, pages 51-52.
About the Authors

Edward Merchant is the Chief Technology Officer within Cognizant’s Banking & Financial Services Business Unit. He is responsible for advising and coaching BFS clients seeking effective and affordable ways to address chronic business and operational challenges through the creative use of both mature and emerging technologies. As the global co-lead for the BFS Technology & Architecture Office, he manages a team of solution architects and engineers responsible for converting concepts into implementable software designs. Over the course of his 30-plus year career, Ed has held a variety of systems engineering, architectural design and IT operations leadership roles within financial institutions (regional and divisional CIO positions, Global Head of IT Strategy and Architecture, and Global Head of Vendor Management) and IT services providers (sector and country BU head positions). He holds an M.S. in mechanical engineering, Fairleigh Dickinson University, and a B.S. in industrial education and technology from Montclair State University. Ed can be reached at Edward.Merchant@Cognizant.com.

Swarraj Kulkarni is Chief Architect within Cognizant’s Banking & Financial Services Business Unit. As a senior leader in the BFS Technology & Architecture Office, Swarraj is responsible for driving the creation and delivery of repeatable analytics solutions across BFS sub-sectors, with a particular emphasis on digital banking and compliance. He has 21-plus years of experience in the IT industry, focusing on architecture and design of J2EE/.NET-based enterprise applications in the banking and capital markets domains. In addition to core technologies, Swarraj has strong experience in building complex mobile, social media and analytics tools/technologies-based enterprise applications. He received a B.E. in electronics from Walchand College of Engineering Sangli and completed a senior management program at IIM-Kolkata, India. Swarraj can be reached at Swarraj.Kulkarni@Cognizant.com.
About Cognizant Banking and Financial Services

Cognizant’s Banking and Financial Services practice, which includes consumer lending, commercial finance, leasing insurance, cards, payments, banking, investment banking, wealth management and transaction processing, is the company’s largest industry segment, serving leading financial institutions in North America, Europe, and Asia-Pacific. These include six out of the top 10 North American financial institutions and nine out of the top 10 European banks. The practice leverages its deep domain and consulting expertise to provide solutions across the entire financial services spectrum, and enables our clients to manage business transformation challenges, drive revenue and cost optimization, create new capabilities, mitigate risks, comply with regulations, capitalize on new business opportunities, and drive efficiency, effectiveness, innovation and virtualization.

About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services, dedicated to helping the world’s leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 75 development and delivery centers worldwide and approximately 178,600 employees as of March 31, 2014, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world. Visit us online at www.cognizant.com or follow us on Twitter: Cognizant.