The Economic Value of Data: A New Revenue Stream for Global Custodians

Big data initiatives in the areas of cross-selling, digital experience and operational agility can yield big payoffs for global custodians by boosting revenues.

Executive Summary

With the commoditization of core services and the impact of macro forces on interest rate regimes, FX rate volatility, etc., traditional revenue streams for global custodians have dried up. Custodians are increasingly looking at new opportunities to make up for these lost revenue streams.

Among the newer revenue streams upon which some firms have embarked is to monetize the large volumes of data assets they hold on behalf of their clients to meet regulatory mandates - the maintenance of which carries a major technology price tag for custodians. Leveraging this data in aggregated form to offer time-series analysis, predictive analytics, business intelligence and visualizations provides significant insights to decision-makers at custodian firms and their operations teams. This is made possible with technology innovations in big data management and analytics.

Many global custodians have come to realize this and are now making significant investments in big data technology to generate new revenue streams. In fact, big data has emerged as one of the top investment themes in 2013 among global custodians, as the following points attest:

"Northern Trust has set aside $1.7 billion in 2013, over the rolling three years to support information delivery in the areas of asset servicing and asset management. Although reporting is considered a core proposition of custody services, there is currently very little value generated from the historical information held by the custodians. It is possible to charge additionally for value offered using this historical information through a big data solution."

"StateStreet is preparing a new business on information solutions called Global Exchange, which is going to focus on delivering data and analytics solutions to clients by 2014. They are engaged with clients in discussing possible use cases until November 2013. StateStreet spends $80 million annually on reporting."

"BNY Mellon has been leveraging big data in several key initiatives around enterprise search, internally and externally focused analytics solutions and visualizations since late..."
2012. These projects are expected to continue into 2014. Focus is on changing the user’s experience, when accessing their e-commerce platforms.\(^\text{3,4}\)

The top big data investment themes global custodians are undertaking include:

- **Data aggregation**: Focus on integrating and managing data from different sources, internal and external.

- **Risk management**: With the increase of investments in alternative asset classes, the ability to generate exposures covering basic asset classes and alternative asset classes, such as private equity, real estate, hedge funds, etc.

- **Digital experience**: Contextual user experience based on user profile and Web usage analytics across various products in the custodian’s e-commerce platform.

- **Operational agility**: Time series analysis of operational and client inquiry data to identify service patterns that can improve service levels and proactive fault identification and resolution.

- **Cross-selling**: Significant investments are being made to identify buying patterns and perform peer client group analysis among global custodians’ clients. This requires the analysis of transactional data across different lines of business to identify cross-selling scenarios.

Since big data initiatives focus on core service offering differentiation through value addition, we firmly believe that investments will help global custodians deliver better revenue streams, with more sustained return on investment, compared with newer offerings such as middle-office and collateral management services, where the gestation period is often elongated.

### The Big Deal About Data

For global custodians, big data refers to the accumulation and maintenance of transactional data, which is ever-increasing with the advent of new financial products and high frequency trading. This makes it a challenge for custodians to barely meet current state reporting requirements with conventional data management and analytics solutions. Harnessing big data to generate insights from usage-related information over time helps firms to create differentiated and value-added services effectively. This requires a very different type of solution compared to the current state of data management strategy.

Data aggregation and risk-management-related big data investments are a logical extension of global custodians’ current data management strategy. While this offers immediate alternative revenue streams, they may not generate long-term sustainable advantage because they are easily mimicked and leapfrogged by fast followers. For this reason, big data solutions should evolve beyond transactional information to become more contextual and user-centric to focus on digital experience, operational agility and cross-selling, through improved data management strategy.

According to Forrester Research,\(^\text{5}\) a holistic big data strategy should leverage all types of data, including:

- Structured data from systems of record, which remains important for decision-making.

- Unstructured data, primarily from social systems of engagement, which will help drive the customer engagement process.

Based on the New Vantage Partners Big Data Executive Survey,\(^\text{6}\) more than half of financial services firms that participated felt that their current big data solution is less than adequate to meet their analytics needs. A holistic solution could handle the explosion in data faced by global custodians, not just from the conventional transactional data, but from unstructured (e.g., e-mail) and social sources, a lot more effectively. More than 80% of Fortune 1000 companies estimate that nearly 50% of the data they handle arrives in unstructured format.\(^\text{7}\) For global custodians, this unstructured file-based data could originate from thought leadership articles and videos shared via social media and research content, as well as regulatory and agreement documents.

To generate desired value from big data, a holistic solution should address the following requirements:

- **Persistence**: Large global custodians are currently equipped only to meet the reporting requirements and maintenance of...
historical information for regulatory reasons. As a consequence, the data that is needed most for reporting is available on-demand; data that is of little use, but maintained just for regulatory reasons, is archived on slower media, such as magnetic tape. This is not ideal for analytics and business intelligence, where data value tilts toward historical information, in providing more samples for hypothesis and trend analysis (see Figure 1). The data infrastructure to enable this, therefore, should also be capable of managing current and historical data in the same way, to improve accessibility and relevance for different needs.

- **Completeness:** One of the biggest challenges facing global custodians is the lack of an enterprise data warehouse that provides a complete and accurate customer profile. Even in the current state, reporting is conducted in silos across various business lines from different warehouses, requiring detailed inputs from users to extract the right information. Custodians are therefore adopting a variety of approaches to address this. Among them: offering enterprise portals that can aggregate data based on predefined use cases. However, such solutions do not address the real problem of generating a 360-degree client profile and are not conducive to support analytics-based decision-making. While creating an enterprise data warehouse to generate client profile requires significant investments and business sponsorship, the onus is on IT stakeholders to demonstrate the value of consolidating data to business stakeholders and secure coordination on ownership and maintenance of this data.

- **Data governance focused on quality, ownership and stewardship is critical to maintaining an enterprise data warehouse, which cannot be achieved without business sponsorship.**

- **Context:** Context is multidimensional and is exceedingly vital to deliver relevant information. Context is inferred based on multiple sources of data - structured and unstructured.

  - **Structured:** User profile and Web usage analytics data is assembled to identify user need by assessing prior interactions with the application and inquiry analytics from a centralized platform to manage all client inquiries.

  - **Unstructured:** Content from research sources, blogs and other social media is combined to reveal insights and to provide a context to the structured information, based on user interest.

The big data solution must be capable of maintaining and analyzing contextual data, which helps in delivering a relevant digital experience to the custodian’s clients and to provide predictive inputs to the firm’s operations team to anticipate client inquiries and respond proactively.

- **Visualization:** Delivering contextually relevant information to elicit action requires the representation of information through visually recognizable patterns. There is significant research going on in this space to generate sophisticated visualization patterns, as studies

### Time Value of Data: Reporting vs. Analytics

![Time Value of Data: Reporting vs. Analytics](image)

*Source: Adapted from SGI Whitepaper: Time Value of Data. Figure 1*
have determined that human beings’ ability to perceive information through patterns is far better than their ability to process large amounts of numerical or text data, which is typically encountered in big data analytics. Visualization should also depend on context, especially on the user profile, as different information could have varying levels of importance to different users.

**Delivering the Big Value**

Once a big data strategy is defined, custodians must then focus on execution. Key use cases around data aggregation and risk management are already in use by global custodians. These include:

- **StateStreet Private Cloud** focuses on consolidating all of the clients’ information that the firm manages in a data warehouse that is available for on-demand access by their custody clients.

- **BNY Mellon Risk View** consolidates risk reporting data from client systems, its proprietary systems and third-party service providers to offer an integrated view of risk exposure across basic and alternative asset classes. These initiatives focus primarily on structured data that is generated by custodians, asset managers and third-party service providers. Even with structured data, however, challenges around standardization emerge (see Figure 2). There is significant information that can be gained by leveraging unstructured data, via a holistic big data solution.

Examples have emerged that illustrate how holistic data solutions are being applied to cross-selling, digital experience and operational agility, where unstructured data from internal and external sources is used to generate better contextual insights. All of these use cases focus on improving client service which is very important for overall client satisfaction, in line with a joint investor survey by Chatham Partners and Investment Metrics, from which client service has emerged as the top parameter used to measure client satisfaction, with 40% of the votes. Client service delivery can broadly be classified as client digital experience and operational agility, which collectively accounted for more than 70% of the responses in determining client satisfaction (see Figure 3, next page). We have developed business use cases that illustrate the big data value addition that could be generated in each of the areas identified, for improving the client service delivery and thereby the revenues of a global custodian.

In order to improve operational agility, cross-selling of services and the client’s digital experience, it is necessary that large volumes of historical structured data, around transactions and usage history, is available on-demand for analysis. In addition, unstructured information should be analyzed to provide qualitative and subjective insights beyond the analytical information from transactions and usage patterns.

- **Digital experience**: One of the wish list items that most investors/managers request from managers/custodians is the ability to view a

### Big Data and Cloud Service Offering of Global Custodians

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Custodian</th>
<th>Asset Manager Proprietary</th>
<th>Third-Party Service Providers</th>
<th>Social Media and Public Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Data Generated by the Source</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>StateStreet Private Cloud</td>
<td>In Scope</td>
<td>Not in Scope</td>
<td>Partially in Scope, Limited to Risk Reporting Data</td>
<td>Not in Scope</td>
</tr>
<tr>
<td>Holistic Big Data Solution</td>
<td>In Scope</td>
<td>In Scope</td>
<td>In Scope</td>
<td>In Scope</td>
</tr>
</tbody>
</table>

Figure 2
360-degree risk profile of all business engagements. This typically consists of structured portfolio information from a data warehouse and unstructured risk-related information from research reports and blogs. The risk-related information is analyzed for likelihood and direction of impact and is applied to the client's portfolio. The risk factor with the highest weight is visually highlighted in the tag cloud with a large font (see Figure 4). Such a 360-degree profile view of the client portfolio illustrating the impact of risk factors is a value-added offering that can be charged back to clients.

**Use Case Description**

1. List of risk factors aggregated from unstructured data.
2. Likelihood of risk and shocks to the risk factors are identified based on sentiment analyzer on data in third-party research report, blogs.
3. Apply the likelihood of the risk events and the shocked risk factors on the portfolio holdings of the client to calculate the risk exposure.
4. Size of the risk factor in the cloud would be based on the risk impact to the client.
5 Each tag allows drill down into portfolio view for that risk.

Dependencies
1 Association of risk factors to specific portfolios: machine learning.
2 Association of risk factor information sources to the particular user: blogs, reports and market databases.

- **Operational agility:** Real-time dashboards are often leveraged by operations teams to report status to custodian clients. Typically, clients tend to focus on exceptions and are interested in understanding their operational impact on other processes and portfolios as much as they are on the resolution of the exception. Based on the historical data maintained by custodians, it is possible to pictorially represent the interconnections among the processes and portfolios that are typically affected by a certain exception. The likelihood of impact could also be emphasized by the number of prior instances of such an impact. This provides the clients with a view of the potential impact, thereby reducing inquiries, and also provides the operations team an opportunity to proactively look into the interconnections for failures and plan for rectification well ahead of an SLA issue. As a consequence, SLAs could also be improved, thereby up-selling better SLAs to custodian clients at a relatively lower cost.

**Use Case 2:** Interconnection views: Depicts dependencies across different nodes to predict failure causality in operational process.

**Use Case Description**
1 Alerts on accounts frequently accessed by the user - represented by the nodes.
2 Alerts based on frequently viewed business function for those accounts - corporate action, reconciliation and performance - of a different color.
3 Alerts based on other users accessing the same accounts, potentially for the same functions or different functions.
4 Alerts based on historical interconnections between accounts and functions prone to issues, thicker interconnections indicate higher probability of impact in the other account or function. Top reasons for failure could be captured as well to provide the operations team with insights on resolution.

**Dependencies**
1 Usage pattern of user monitored - accounts accessed, functions within accounts accessed.
2 Analysis based on email threads and conversation logs between operations and clients.
3 Multichannel client-inquiry-related information.
4 Availability of enterprise warehouse consolidating all of the portfolios of the client.

- **Cross-selling services:** Cross-selling is accepted widely as an effective way to improve revenues from the existing client base. Cross-selling typically involves classification of custodian clients into different segments and comparing their footprints in terms of business value per line of business, vis-à-vis the segment’s average business values. This offers a quick insight into additional services opportunities. In addition to determining the areas, a probabilistic view of selling additional services can be generated using client data of a similar profile within the segment. The profile itself constitutes the client’s business transactional pattern across various services to accurately determine the probability of cross-selling a particular service to the client. The heat map could also factor in current macroeconomic and firm-specific news events, thereby ensuring that a cross-selling offer can be made in real time and is business relevant. This will significantly help the sales team in

**Visualization of Use Case 2**

Sources: (1) Financial graph: [https://addepar.com/technology/](https://addepar.com/technology/)

Figure 5
identifying and prioritizing sales leads and realize higher conversion rates.

**Use Case 3:** Correlation heat map: Gradient cluster view of cross-selling possibilities based on likelihood, when compared to an average value (benchmark).

**Use Case Description**
1. Identify the segment of clients (large pension funds, etc.) to be analyzed.
2. Identify the set of correlation variables (AUM, list of services subscribed, etc.).
3. Identify the unit of measurement for volume - number of accounts, number of transactions and revenue - wallet share, potential revenue).
4. Define/calculate correlation likelihood based on the segment and based on analysis of relation between the unit of measurement across different correlation variables and comparison to a benchmark or average value.
5. Plot heat map for each client segments (segmented on correlation variables of unit of measurement) based on the likelihood.

**Dependencies**
1. Availability of enterprise warehouse consolidating all of the portfolios of the client.

It is quite possible to identify several such use cases in the areas of the client’s digital experience and operational agility to derive additional revenue-generating opportunities. It is up to the imagination of the global custodians to wield the true potential of the data they hold.

**Looking Ahead**
Global custodians have already jumped on the bandwagon to exploit the revenue opportunity arising from big data analytics, and rightly so. Custodians can address the technology investment required among buy-side and sell-side participants, to leverage the business benefits that big data analytics can deliver.

Similar to the analogy in the core services, where custodians have passed the scale benefits to their clients, custodians must find the same value equation to justify their investments in big data infrastructure. As such, we believe the business opportunity arising out of big data analytics is a win-win situation for both custodians and their clients.

**Visualization of Use Case 3**

[Diagram: Heat map showing cross-selling possibilities with varying likelihood and potential revenue opportunity.]

*Size of Bubble represents current volume of business*

*Average Value*
Footnotes

5. www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=SA&subtype=WH&htmlfid=1ML14318USEN.

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