Contextualizing Payments Data
Opportunities and Challenges

Nirva Dalgin
Global Product Manager, Clearing & FI Payments
Agenda

• “Big Data” and its Applicability
• Insightful Uses of Data
• Payments Data Opportunity
• Where to Start?
• Comments
"Big Data" and its Applicability
Defining Big Data

“High-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision-making.”

- Gartner
Applicability of Big Data to Wholesale Banking

Volume
- Moderate – not on the scale of classic Big Data use cases but growing

Velocity
- Moderate – not on the scale of classic Big data use cases but growing

Variety
- Not really – almost all data in wholesale banking is structured and well known

Veracity
- Not really – data quality is generally known and managed

Conclusion:
- Wholesale Banking is not a classic source of Big Data use cases and many of the analytic needs can and are solved with more traditional techniques
- Big Data tools can be leveraged to more effectively generate Business Insights and Analytic Insights
Insightful Uses of Data
It’s about turning the data noise into a clear and actionable signal.

Bram Hechtkopf
Insightful Uses of Data

1. Price Optimization
   • Hotels correlate prices to level of activity on their websites, weather, events

2. Improved Operational Efficiency
   • UPS crafts optimal routes to reduce distance, time and fuel – delivery routes designed to minimize left turns

3. Markets of One – Ultimate Customization
   • Top US retail banks analyze customer transaction to offer retailers the ability to customize promotions right on customer’s bank statement
   • A major Indian telecom firm analyzes billions of call records daily to target customers for special offers, reducing churn and increasing loyalty

4. Know Your Customer – Better!
   • Insurance companies use real time customer driving behavior gathered through devices installed in cars – signals of high risk include hard braking, accelerating, abrupt turns, miles driven in rush hour

Polling Question #1

How far along is your organization in leveraging transactional data for business insights and decisions?

A. Very progressed and aligned with an organizational data strategy

B. Progress made through ad-hoc tools and analysis

C. Not yet using big data
Humans: 10% of Their Brain, Banks: 34% of Their Data

Banks have access to a large and valuable pool of payment and transaction data but they are underutilizing this rich asset.
Polling Question #2

Where do you see the most value for data analysis for banks?

A. Risk Mitigation
B. Enhancing the Client Experience
C. Monetizing Payments
Opportunities – Making the Most of the Payments Data

Successfully harnessing payments data can help banks achieve critical strategic objectives

Transforming Client Engagement

By really understanding their clients and presenting value added information on their flows, banks can place themselves at the core of their client’s strategy.

Monetizing Payments

Optimize the pricing strategy of your payment flows and capture incremental revenue by converting cross border payments to generate FX revenue.

Regulatory Compliance and Enhanced Risk Management

In an increasingly complex and regulated environment the ability to manage the risk is directly linked to the visibility and control you have over payment flows. Data analytics can provide this increased control, but also can be leveraged as a reporting tools for regulatory submissions.
Transforming Data into Insights

Citi processes over 6 million daily transactions across 190 countries and 130 currencies with the daily volume of $3 trillion...transforming a structured SWIFT message into field-by-field analysis.
Transforming Data into Insights

Selecting the right subset of fields to build business insights on…
Data Analytics Solutions for our Bank Clients

<table>
<thead>
<tr>
<th>Citi Use Cases</th>
<th>Description</th>
</tr>
</thead>
</table>
| **1** | **FL Insights - Payments Benchmarking**
| | Optimize the pricing strategy of your inbound and outbound payment flows to capture incremental revenue |
| **2** | **Cross-Currency Payments**
| | Convert your cross border wire transfers and generate new FX revenue streams |
| **3** | **Predictive Operational Risk Analytics**
| | Strengthen internal controls and improve safety and soundness through Predictive Operational Risk Analytics |
| **4** | **Intraday Liquidity Monitoring**
| | Citi’s Intraday Liquidity Monitoring Tool drives behavioral change for clients and counterparties and assists with regulatory reporting |

**Treasury and Payments Expert Track: Session 4 - Insights to Treasury Management**
Citi Payments Benchmarking

Compared your payment deductions to the market benchmark to optimize your pricing structure without impact on your local competitiveness.

**The Need**
- Lack of insight into payment flows in key markets.
- Unclear understanding of your pricing structure on USD payments in your market.
- Need to validate and optimize the pricing strategy of your inbound and outbound payment flows to capture incremental revenue opportunities.
- Simulate pricing by applying the market benchmark to your payment flows.

**Payments Benchmarking Key Benefits**
- Gain market intelligence around your USD payments.
- Optimize pricing of your deductions.
- Remain competitive in local markets and identify potential red-flags to avoid the risk of pricing yourself out of the market.

**Market Charge Beneficiary Rate (CHB)**

**Market Credit Fee Deduct Rate (CFD)**
Given its global footprint, Citi is uniquely positioned to obtain and share insights into your payments business... as well as intelligently mine data to help define market-appropriate pricing strategies.

**FI Insights Features**

- Developed by the Citi Innovation Lab Miami
- Based on a Big Data model that consolidates multi-layer transaction information to drive Client Solutioning
- Provides intelligence around payment flows:
  - Originators
  - Beneficiaries
  - Value
  - Volumes
  - Trends
  - Fees
  - Peers Benchmarking
  - Best Practices
Citi’s Cross Currency Clearing combines data from multiple sources with the expertise derived from our global network to produce a best in class intelligent cross currency clearing product.

Key Solution components

- Recently developed tools for large data capture and standardization
- Cross product / flow data reference engine allows to spot patterns only visible if payments data from different sources is analyzed jointly
- Search engines allowing for usage/search in real time with unprecedented amounts of data while processing payments
If we have data, let’s look at data. If all we have are opinions, let’s go with mine.

Jim Barksdale, former Netscape CEO
3 Predictive Operational Risk Analytics

Identification and mitigation of potential risk events that can lead to financial and regulatory losses – through a predictive model that is sustainable and can be evolved over time.

**Quick Approvals Dashboard**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,500</td>
<td>0</td>
</tr>
<tr>
<td>2,500</td>
<td>0</td>
</tr>
<tr>
<td>2,500</td>
<td>1</td>
</tr>
<tr>
<td>2,500</td>
<td>0</td>
</tr>
<tr>
<td>2,500</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Framework includes:**

- Near Real-Time Integration
- Raw Data (structured & unstructured)
- Patterns and Correlation
- Objects and Events (internal & external)
- Actionable Insights

**Tracking Manual Funds Transfer Instructions**

<table>
<thead>
<tr>
<th>WOD</th>
<th>User Loc</th>
<th>SOE ID</th>
<th>5 Minute period</th>
<th>Path</th>
<th>MD</th>
<th>TIME_STAMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 02, 2015</td>
<td>IN</td>
<td>Jan 02, 2015, 07:45:00 AM</td>
<td>APPROXPX+(ACCOUNT)</td>
<td>151010030600152000</td>
<td>Jan 02, 2015, 07:18:27 AM</td>
<td></td>
</tr>
<tr>
<td>Jan 02, 2015</td>
<td>IN</td>
<td>Jan 02, 2015, 07:45:00 AM</td>
<td>APPROXPX+(ACCOUNT)</td>
<td>151010030600152000</td>
<td>Jan 02, 2015, 07:18:27 AM</td>
<td></td>
</tr>
<tr>
<td>Jan 02, 2015</td>
<td>IN</td>
<td>Jan 02, 2015, 07:45:00 AM</td>
<td>APPROXPX+(ACCOUNT)</td>
<td>151010030600152000</td>
<td>Jan 02, 2015, 07:18:27 AM</td>
<td></td>
</tr>
<tr>
<td>Jan 02, 2015</td>
<td>IN</td>
<td>Jan 02, 2015, 07:45:00 AM</td>
<td>APPROXPX+(ACCOUNT)</td>
<td>151010030600152000</td>
<td>Jan 02, 2015, 07:18:27 AM</td>
<td></td>
</tr>
<tr>
<td>Jan 02, 2015</td>
<td>IN</td>
<td>Jan 02, 2015, 07:45:00 AM</td>
<td>APPROXPX+(ACCOUNT)</td>
<td>151010030600152000</td>
<td>Jan 02, 2015, 07:18:27 AM</td>
<td></td>
</tr>
</tbody>
</table>
Polling Question #3

How important is the provision of data analytics tools as a differentiator for your corresponding banking business?

A. Very important
B. Important
C. Not a differentiator
Where to Start…
Polling Question #4

*What is the biggest challenge facing your bank to better harness payments data?*

A. Availability of investment funds

B. People – skill sets for advanced data analysis and interpretation

C. Data Quality – hard to standardize across systems for gold source

D. Organizational Readiness – end to end data strategy
Errors using inadequate data are much less than those using no data at all.

Charles Babbage, British Mathematician and Inventor
Where to Start?

- Examine Processes Carefully: data capture, validation, governance
- Start w/Advanced Analytics before you invest in Big Data Tools
- Build the Right Team: data, technology, business experts
- Avoid Analysis Paralysis – Embrace decision making
- Keep up w/Data Privacy Rules & Regulations

There are a lot of answers – the key is asking the right question!
If you torture the data long enough, it will confess to anything.

Ronald Harry Coase, Nobel Laureate in Economics
Thank you