Big Data Analytics: Innovations and Opportunities for a Competitive Edge

Thursday, June 12, 2014 – 11:00 AM (EDT)
Today’s Speakers

Paul Ballew
D&B Senior Vice President, Chief Data & Analytics Officer and Chief Economist

Robin Davies
Vice President – Data & Insight Innovation
Agenda

- Achieving a holistic customer view
- Improving Transparency & Foresight
- Using New Data Sources
  - Financial
  - Social
- New Business Tools
  - Viability
  - Use Cases
- Q&A
The challenging operating environment requires data & analytic solutions that offer greater precision, transparency, and foresight into future behavior.
Our content roadmap remains focused on providing the transparency and foresight companies require to survive and thrive

### Transparency on business relationships
- Providing globally-consistent data and insights
- Addressing the increasing need to have a complete and actionable view of customers and prospects

### Foresight to take proactive actions
- Leveraging advanced analytics to improve insights
- Providing consultative support to address specific business objectives
Transparency is accomplished by providing single, complete and actionable view of a business.
Foresight is accomplished by breaking down “big data” into actionable insights.
To provide indispensable content to our customers we are developing new data sources and leverage proprietary innovations such as signals and proxies.
Our focus is increasingly diverse and agnostic – in search of predictive insights and greater transparency in commercial relationships.

- **Physical Infrastructure**
  - Property
  - Real Estate
  - Equipment

- **Social / Influential**
  - Flitop
  - Twitter
  - Web traffic
  - Aggregators

- **Intellectual**
  - Patents
  - Goodwill, Intangibles
  - Future inventions

- **Financial / Transactional**
  - Spend
  - Trade
  - Logistics
  - Labor Market

- **Connections**
  - Corporate linkage
  - PitCoB
  - Shipment
  - Trade groups
  - Supply distribution

- **Corporate Responsibility**
  - Sustainability
  - Ethical
  - Recognition/Awards
  - Charity; Political
“Signals” and “Proxies” derived from innovative sources provide predictive insights into the future viability of a business or its payment behavior.

**Signals**
A single heartbeat tells very little. But a pattern derived from a series of heartbeats provides valuable insights.

**Proxies**
Measuring the frequency and levels of commercial activity can be used to predict the likelihood of a business falling into financial difficulty or paying in a delinquent manner.
Financial Strength Assessment
Financial statements provide the most robust insight for evaluating the current and future risk profile of a business.

- **Firmographics**: E.g., Start year, control year, actual employees, industry classification, UCC filings, owns/rents.
- **Commercial Trade**: E.g., 3+ trade, bad debts, collection events, % of accounts past due, % dollars past due.
- **Financial Statements**: E.g., Balance sheet, income state ratios, net worth.
We are working on multiple fronts to deepen the financial insight available on commercial entities within our database

- **Financial statements** are the foundation, and will be included when obtainable.

- **Financial attributes** like Assets or Net Worth may be available when full financials are not.

- **Financial proxies** are data elements that may assess or predict the financial health or viability of a business when financial data is unavailable. Some financial proxies may correlate with financial statements and some may not.
The current financial health of a business becomes clear when you add FiDex segmentation to the picture.

But the vision becomes increasingly more clear as you add in D&B:

- Foundational data
- AR/Trade and PAYDEX
- Standard risk score
- Composite risk score (triple play)

A credit manager may start with a blurred picture of a business (80/20 vision)...

...and finally, adding FiDex 1-9 segmentation the view of a business becomes 20/20 – crystal clear.
D&B’s brand new analytical tool FiDex assesses the current financial standing of a business, whether or not financials have been reported to us.

<table>
<thead>
<tr>
<th>FiDex Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-9</td>
<td>A descriptive measure that assesses the short term and overall financial health of a company relative to other businesses within the same industry.</td>
</tr>
</tbody>
</table>

- On businesses with financials, FiDex will leverage balance sheet ratios to determine its current financial standing.
- On businesses without financials, FiDex will utilize non-financial characteristics such as employee size, public record filings, spend behavior, business or management history and others to estimate its current financial standing.
- Can be used in conjunction with other D&B risk assessment tools to make business decisions with greater confidence.

Best

Worst
FiDex utilizes “Look Alike” modeling methodology to assess businesses without financials in D&B records.

Step 1: Evaluated companies with financials

- Calculated short term and overall liquidity ratios
- Segmented ratios into quartiles

Step 2: Identified non-financial factors that differentiated between Best and Worst quartiles

Non-financial key differentiators

- Public Records
- Trade Data
- Demo-Data

Step 3: Scored each company

Financial statement data leveraged when present

Non financial factors utilized when financial statement data is absent
Spend Data is more predictive, unbiased and dynamic than Private company financials

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Information Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total $ spent in the last 12 months</td>
<td>0.690</td>
</tr>
<tr>
<td>Total # of orders in the last 12 mos.</td>
<td>0.652</td>
</tr>
<tr>
<td>Avg. $ spent per mo. over the last 12 mos.</td>
<td>0.617</td>
</tr>
<tr>
<td>Total # of online orders in the last 12 mos.</td>
<td>0.616</td>
</tr>
<tr>
<td>Avg. # of orders offline per mo. over last 12 mos.</td>
<td>0.610</td>
</tr>
<tr>
<td># of weeks since the most recent offline purchase</td>
<td>0.606</td>
</tr>
<tr>
<td>Avg. $ spent offline per mo. over the last 12 mos.</td>
<td>0.593</td>
</tr>
<tr>
<td>Total liabilities to total assets</td>
<td>0.585</td>
</tr>
<tr>
<td>Total liabilities to net worth</td>
<td>0.517</td>
</tr>
<tr>
<td>Max. avg. $ spent per mo. over the last 6 mos.</td>
<td>0.479</td>
</tr>
<tr>
<td># of suppliers over the last 6 mos.</td>
<td>0.450</td>
</tr>
<tr>
<td>Return on net worth</td>
<td>0.404</td>
</tr>
<tr>
<td>% change in net worth</td>
<td>0.364</td>
</tr>
<tr>
<td>Net worth</td>
<td>0.305</td>
</tr>
<tr>
<td>Current liabilities to net worth</td>
<td>0.286</td>
</tr>
<tr>
<td>Fixed assets to net worth</td>
<td>0.277</td>
</tr>
</tbody>
</table>

**Private Company Financials**
- Less predictive than public financials
- Biased sample – we only get the goods ones.
- Less than 200,000 available
- Updated when the business decides.

**Spend Data**
- More predictive than private financials
- Unbiased sample - We get the good and bad ones.
- Coverage on millions of U.S. businesses
- Updated frequently
- More Timely, More Coverage, More Predictive!
FiDex is a relative risk ranking tool that separates the best and the worst performers within a specific industry.

11% of entities with FiDex of 1 fall in the last quartile of the industry for current financial standing.

90% of entities with FiDex of 9 fall in the last quartile for current financial standing.

<table>
<thead>
<tr>
<th>FiDex</th>
<th>% of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11.4%</td>
</tr>
<tr>
<td>2</td>
<td>21.3%</td>
</tr>
<tr>
<td>3</td>
<td>32.2%</td>
</tr>
<tr>
<td>4</td>
<td>41.3%</td>
</tr>
<tr>
<td>5</td>
<td>49.2%</td>
</tr>
<tr>
<td>6</td>
<td>59.0%</td>
</tr>
<tr>
<td>7</td>
<td>70.4%</td>
</tr>
<tr>
<td>8</td>
<td>80.4%</td>
</tr>
<tr>
<td>9</td>
<td>90.0%</td>
</tr>
</tbody>
</table>

5.1% 15.3% 25.7% 14.4% 5.0% 9.7% 9.9% 9.9% 5.0%
FiDex is a unique D&B analytical capability that compliments other indicators of financial health and stability.

Use FiDex and DP together to assess ability & willingness to pay on time:

- **Delinquency Predictor**: What is the probability you pay 91+ days past due?
- **PayDex**: What has been your average days to pay?

Use FiDex within Paydex to assess reasons of poor past history:

- **Financial Stress Score**: What is the probability you will file for bankruptcy?
- **Financial Statements**: What are your financial ratios?

Use FiDex as another layer of insight to further segment businesses within FSS Class 4 and 5:

Use FiDex to assess ratios when financial statements are not available or as a dynamic compliment when they are.
Along the spectrum of insight innovation in the analytic space paves the way for market-sensing capabilities-- and your ability to predict future behavior and take action.
These analytic solutions range from standard scores that help you segment and prioritize, to robust, highly customized analytic engagements.

**Better prediction, solving your unique business problems**

**Historical view for ‘do it yourself’ analytics teams**

**Insight into your specific account portfolio**

**‘Off the shelf’ insight to aid segmentation and targeting**

- **Complexity**
- **Business Value**

- **Custom Analytics**
- **Customized Scores**
- **Archived Data**
- **Standard Scores**
The best predictive models, like D&B Viability Rating™, offer superior segmentation which can be immediately acted on and applied in a workflow.

<table>
<thead>
<tr>
<th>Features</th>
<th>D&amp;B Viability Rating™</th>
<th>D&amp;B Failure Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
<td>All types of business closures, including those that become inactive or dormant</td>
<td>Liquidation or going out of business with outstanding trade obligations</td>
</tr>
<tr>
<td><strong>Data Inputs</strong></td>
<td>New proprietary sources of business active signals</td>
<td>Traditional data sources</td>
</tr>
<tr>
<td><strong>Customer Application</strong></td>
<td>Cross-functional use in risk, marketing, and supply chain management</td>
<td>Credit risk decisioning</td>
</tr>
</tbody>
</table>

Viability Risk Discrimination:
Bad rates range from 0.3% to 65%

Financial Stress Score Discrimination:
Bad rates range from 0.3% to 4.7%
D&B’s Viability Rating™ enables superior segmentation and risk discrimination capabilities.

### Viability Rating

<table>
<thead>
<tr>
<th>Predictive</th>
<th>Descriptive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viability comparison to all businesses</td>
<td>Depth of data D&amp;B has on the business</td>
</tr>
<tr>
<td>Viability comparison to like businesses</td>
<td>Business characteristics profile</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>7</th>
<th>C</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 9</td>
<td>1 - 9</td>
<td>A - G</td>
<td>A - Z</td>
</tr>
</tbody>
</table>

**Carving up the universe and finding the best segments**

The greater the **Data Depth**, the higher the response rates.

The lower the **Viability Score**, the higher the profitability.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lowest Risk</td>
<td>472</td>
<td>18</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>112</td>
<td>982</td>
<td>401</td>
<td>18</td>
<td>16</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>78</td>
<td>1714</td>
<td>1810</td>
<td>346</td>
<td>188</td>
<td>145</td>
<td>97</td>
</tr>
<tr>
<td>4</td>
<td>37</td>
<td>767</td>
<td>1285</td>
<td>645</td>
<td>371</td>
<td>164</td>
<td>172</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>421</td>
<td>897</td>
<td>675</td>
<td>371</td>
<td>164</td>
<td>172</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>435</td>
<td>913</td>
<td>1532</td>
<td>5052</td>
<td>463</td>
<td>3914</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>58</td>
<td>108</td>
<td>73</td>
<td>204</td>
<td>113</td>
<td>1157</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>19</td>
<td>43</td>
<td>79</td>
<td>206</td>
<td>73</td>
<td>179</td>
</tr>
<tr>
<td>9 Highest Risk</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>721</td>
<td>4418</td>
<td>5463</td>
<td>3375</td>
<td>6981</td>
<td>1205</td>
<td>6116</td>
</tr>
</tbody>
</table>

**Robust Data - Lower Risk** | **Limited Data - Lower Risk** | **Higher Risk**
Using the D&B Viability Rating™ to make better decisions across the customer life cycles

Analysis conducted across three different customer portfolios with the goal to address their unique business challenge showed the following results:

- **Data Depth** component identifies best responders
- **Portfolio Comparison** used for portfolio management - clustering Customers by write off rate
- **Overall Viability Score Bands** used for collections to identify customers with the highest recovery rate
Use case example: Large, regional telecommunications company

- Customer Goal: retain and grow market share within 19 state footprint
  - 480K Customers, 4M Prospects, Multiple Product Lines
- Direct Sales, Telemarketing, Direct Mail, Email.
- Revenue Generation: recurring billing.
  - If the company does not pay in the first month service is terminated so short term risk is fairly limited.
  - Each additional month that the customer is billed increases the value of the customer. Long term relationships are primary focus.
- Competitive pressures and aggressive win back strategy
  - Did they leave because they no longer needed service or because of competitive offer?
- Prospect selection criteria (SIC, Emp., Etc.) but have not used tradition delinquency-based prescreen - prompt payment has not been a concern as much as longevity of relationship.

Viability Rating used as a prescreen and segmentation solution

<table>
<thead>
<tr>
<th>Viability Score</th>
<th>30M D&amp;B Universe</th>
<th>2M Customer’s Prospect Universe</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>High Profitability</td>
<td>40%</td>
<td>Direct Sales or Telemarketing, Preferred Pricing, Extended Terms</td>
</tr>
<tr>
<td>5-7</td>
<td>Moderate Profitability</td>
<td>38%</td>
<td>Telemarketing or Direct Mail, Tailored Messaging, Traditional Terms</td>
</tr>
<tr>
<td>8-9</td>
<td>Low Profitability</td>
<td>22%</td>
<td>Eliminate from Prospect Pool</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Viability Score</th>
<th>359K Active Customers</th>
<th>37K Potential Winbacks</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-6</td>
<td>Higher Opportunity</td>
<td>49%</td>
<td>Target Marketing, Preferred Pricing, Upsell, Increased Lines, Extended Terms, Gold Service</td>
</tr>
<tr>
<td>7-9</td>
<td>Lower Opportunity</td>
<td>51%</td>
<td>BAU</td>
</tr>
</tbody>
</table>

30M D&B Universe
2M Customer’s Prospect Universe
359K Active Customers
37K Potential Winbacks
Use Case Example – Add efficiencies when mitigating supplier risk

Leverage the Data Depth Dimension from the Viability Rating™ to take action on high risk suppliers

Take immediate action on those businesses with Data Depth indicators that display high risk behaviors

• Data Depth indicator considers confirmed high risk behaviors such as: (Scale H-M)
  • Out of Business; business is either bankrupt (chapter 7) or an officer or owner of the business confirmed they no longer operate and are out of business
  • Unable to Confirm; business shows limited to no business activity & has multiple signs of inactivity (e.g. disconnected phone, vacant address, no longer in the telephone directory etc.) D&B is unable to confirm active operations
  • Bankruptcy; business has filed for Chapter 9, 11, 12, 13 bankruptcy
  • High Risk – Severe Risk; a company which displays characteristics of misrepresentation, i.e. fraud etc....
  • Business Deterioration - Severe Risk; company which displays signs of financial stress, including signs of current or imminent business failure or operating difficulty
  • Self Reported DUNS Support Record; a company that has self-requested a DUNS# and D&B has not yet investigated
Example: Profile Analysis on a file of businesses that are of interest from a supply management and business partnership prospective

- Analysis conducted on 265K businesses in the food and drug industry

- 73% have robust/decision support level of insight, therefore, predicting future performance with a high degree of accuracy is possible

- 22% have a high probability of going out of business over the next 12 months

- Based on this insight: Drive efficiencies by refining the strategy to engage with these suppliers and partners from a due diligence and risk mitigation prospective
So what’s next? How about social…. We have the ability to curate and extract relevant data from Twitter to glean tremendous insight

Results from survey conducted on our behalf, includes: tweets, re-tweets, replies

Volumes/Instances of Tweets based on specific Topical keywords inputs for 30 day period, May 2014:

<table>
<thead>
<tr>
<th>Instances</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IPO:</strong></td>
<td>242K</td>
</tr>
<tr>
<td><strong>Earnings:</strong></td>
<td>275K</td>
</tr>
<tr>
<td><strong>Supply Chain:</strong></td>
<td>61K</td>
</tr>
<tr>
<td><strong>Grand Opening:</strong></td>
<td>165K</td>
</tr>
<tr>
<td><strong>Hiring:</strong></td>
<td>1.5MM</td>
</tr>
</tbody>
</table>

Findings confirm:

- Small, private Businesses are present on Twitter
- These businesses are mentioned in daily tweets
Our commitment is to partner with you to find the insight you need to anticipate tomorrow, today.

D&B Informed Perspective

Global Data & Insight
The foundation you need to make the best decisions, backed by the D&B D-U-N-S® Number

Market-Sensing Predictive Analytics
Advanced anticipatory capabilities that empower foresight

Indispensable Guidance
Expertise from a trusted partner with unparalleled global reach

Pervasive Solutions
Connect data and insight into your workflow anywhere and everywhere you need it
Thank you for joining us today!

What Questions do you have?

Let’s continue the conversation!
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#DnBAnalytics