Evidence Based Big Data Benchmarking to Improve Business Performance

BENCHMARK YOUR WAY TO EXCELLENT BUSINESS PERFORMANCE

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DataBench Webinar - April 29 2020
Today’s Program

- Big Data Benchmarking: why it is relevant
- Business KPIs
- Benchmarks by industry
- Benchmarks by company size
- Star performers
- Use cases and case studies
- Next steps: benchmarking tool
- Q&A
Figure 2 – DataBench Business Indicators

Source: D1.1 – Industry Requirements with benchmark metrics and KPIs (November 2019)
Data Sources

- 2018 CATI Survey in 11 EU MS of 700 organizations from 16 industries and 7 company size classes
- 2019 2° wave survey of 30 organizations running Big Data pilots in H2020 ICT projects

Source: IDC’s European DataBench Survey, October 2019 (N = 730)
Business Benchmarks Validation: 18 case studies

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
Big Data Benchmarking: why it is relevant

DataBench business benchmarks are:

1. Of industrial significance, because they apply to the actual and emerging needs of specific industries and specific company-size segments.

2. Of European economic significance, because they are measured for all the relevant European industries and company-size segments in which Big Data can have the highest impacts.

3. Useful for linking technical and business performance because they are measure for the main use cases.
### 8 KPIs to measure Big Data Business Impacts

<table>
<thead>
<tr>
<th>KPI</th>
<th>Definition</th>
<th>Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues increase</td>
<td>Increase in company revenues thanks to the adoption of BDA</td>
<td><strong>Benchmark</strong>: % increase measured as median of the sample</td>
</tr>
<tr>
<td>Profit increase</td>
<td>Increase in company profit thanks to the adoption of BDA</td>
<td></td>
</tr>
<tr>
<td>Cost reduction</td>
<td>Reduction in process costs thanks to the introduction of BDA</td>
<td></td>
</tr>
<tr>
<td>Time efficiency</td>
<td>Efficient use of time in business processes</td>
<td><strong>Benchmark</strong>: average rating on a scale of 1–5 based on the following ratings:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Less than 5% improvement = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 5–9% = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 10–24% = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 25–49% = 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 50% or more = 5</td>
</tr>
<tr>
<td>Product/Service quality</td>
<td>Product/Service features corresponding to users’ implied or stated needs and impacting their satisfaction</td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>A measure of customers’ positive or negative feeling about a product or service compared with their expectations</td>
<td></td>
</tr>
<tr>
<td>New Products/Services launched</td>
<td>A measure of the number of new products and/or services enabled by data-driven innovation and launched by the company after engaging in the Big Data investment</td>
<td></td>
</tr>
<tr>
<td>Business model innovation</td>
<td>Novel ways of mediating between companies' product and economic value creation (for example, moving from traditional sales to service subscription models)</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** D2.4 – Benchmarks of European and Industrial Significance (December 2019)
Quantitative Benchmarks by Industry

**Profit Increase**

- Financial Services: 6.0%
- Business/IT Services: 6.0%
- Telecom & Media: 6.0%
- Utilities, Oil & Gas: 6.0%
- Agriculture: 5.0%
- Healthcare: 5.0%
- Manufacturing: 5.0%
- Retail & Wholesale: 5.0%
- Transport & Logistics: 5.0%

**Revenue Increase**

- Financial Services: 5.0%
- Business/IT Services: 5.0%
- Telecom & Media: 5.0%
- Utilities, Oil & Gas: 5.0%
- Agriculture: 4.0%
- Healthcare: 4.0%
- Manufacturing: 5.0%
- Retail & Wholesale: 5.0%
- Transport & Logistics: 5.0%

**Cost Reduction**

- Financial Services: 3.5%
- Business/IT Services: 4.0%
- Telecom & Media: 4.0%
- Utilities, Oil & Gas: 3.0%
- Agriculture: 3.0%
- Healthcare: 3.0%
- Manufacturing: 4.0%
- Retail & Wholesale: 4.0%
- Transport & Logistics: 3.0%

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)

N.B. Average response
# Qualitative Benchmarks by Industry

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Median 4</td>
<td>25% – 49% Improvement</td>
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<tr>
<td>Agricultural</td>
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<tr>
<td>Financial Services</td>
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<tr>
<td>Healthcare</td>
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<td></td>
<td></td>
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<tr>
<td>Manufacturing</td>
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<tr>
<td>Business/IT Services</td>
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<td></td>
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</tr>
<tr>
<td>Retail &amp; Wholesale</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Telecom &amp; Media</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Transportation &amp; Logistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities, Oil &amp; Gas</td>
<td></td>
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</tr>
</tbody>
</table>

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
Top 3 Use Cases Quantitative Benchmarks by Industry (1/2)

**Agriculture**
- Precision Agriculture
  - Profit Increase: 6.0%
  - Revenue Increase: 5.0%
  - Cost Reduction: 3.0%
- Yield Monitoring & Prediction
  - Profit Increase: 5.0%
  - Revenue Increase: 2.0%
  - Cost Reduction: 3.0%
- Predictive Maintenance
  - Profit Increase: 5.0%
  - Revenue Increase: 4.0%
  - Cost Reduction: 3.0%

**Financial Services**
- Customer Scoring and/or Churn Mitigation
  - Profit Increase: 3.5%
  - Revenue Increase: 4.0%
  - Cost Reduction: 6.0%
- Fraud Prevention & Detection
  - Profit Increase: 4.0%
  - Revenue Increase: 4.5%
  - Cost Reduction: 5.0%
- Customer Profiling, targeting, optimization of offers
  - Profit Increase: 4.0%
  - Revenue Increase: 5.5%
  - Cost Reduction: 6.0%

**Business/IT Services**
- New Product Development
  - Profit Increase: 4.0%
  - Revenue Increase: 4.5%
  - Cost Reduction: 5.0%
- Customer Profiling, targeting, optimization of offers
  - Profit Increase: 3.0%
  - Revenue Increase: 5.0%
  - Cost Reduction: 6.0%
- Risk Exposure Assessment
  - Profit Increase: 4.0%
  - Revenue Increase: 6.0%
  - Cost Reduction: 4.0%

**Healthcare**
- Regulatory Intelligence
  - Profit Increase: 4.0%
  - Revenue Increase: 4.0%
  - Cost Reduction: 5.0%
- Quality of Care Optimization
  - Profit Increase: 3.5%
  - Revenue Increase: 4.5%
  - Cost Reduction: 5.0%
- Fraud Prevention & Detection
  - Profit Increase: 4.0%
  - Revenue Increase: 5.0%
  - Cost Reduction: 5.0%
- Customer Profiling, targeting, optimization of offers
  - Profit Increase: 3.0%
  - Revenue Increase: 5.0%
  - Cost Reduction: 5.0%
- Customer Scoring and/or Churn Mitigation
  - Profit Increase: 4.0%
  - Revenue Increase: 4.5%
  - Cost Reduction: 5.0%
- Fraud Prevention & Detection
  - Profit Increase: 4.0%
  - Revenue Increase: 5.0%
  - Cost Reduction: 5.0%

**Manufacturing**
- Supply Chain Optimization
  - Profit Increase: 3.5%
  - Revenue Increase: 4.5%
  - Cost Reduction: 5.0%
- Predictive Maintenance
  - Profit Increase: 4.0%
  - Revenue Increase: 4.5%
  - Cost Reduction: 4.0%
- New Product Development
  - Profit Increase: 3.0%
  - Revenue Increase: 4.5%
  - Cost Reduction: 5.0%
- New Product Development
  - Profit Increase: 3.0%
  - Revenue Increase: 4.5%
  - Cost Reduction: 5.0%

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
## Top 3 Use Cases Quantitative Benchmarks by Industry (2/2)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Use Case</th>
<th>Profit Increase</th>
<th>Revenue Increase</th>
<th>Cost Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retail &amp; Wholesale</strong></td>
<td>Supply Chain Optimization</td>
<td>3.5%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td></td>
<td>New Product Development</td>
<td>4.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td></td>
<td>Price Optimization</td>
<td>4.0%</td>
<td>4.5%</td>
<td>5.5%</td>
</tr>
<tr>
<td><strong>Telecom &amp; Media</strong></td>
<td>Product &amp; Service Recommendation Systems</td>
<td>3.0%</td>
<td>4.0%</td>
<td>5.5%</td>
</tr>
<tr>
<td></td>
<td>Automated Customer Service</td>
<td>4.0%</td>
<td>5.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td></td>
<td>Customer Profiling, Targeting &amp; Optimization of Offers</td>
<td>4.0%</td>
<td>5.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>Transport &amp; Logistics</strong></td>
<td>Logistics &amp; Package Delivery Management</td>
<td>3.0%</td>
<td>4.5%</td>
<td>5.0%</td>
</tr>
<tr>
<td></td>
<td>Price Optimization</td>
<td>3.0%</td>
<td>5.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td></td>
<td>Inventory &amp; Service Parts Optimization</td>
<td>3.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td><strong>Utilities, Oil &amp; Gas</strong></td>
<td>Risk Exposure Assessment</td>
<td>3.5%</td>
<td>4.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td></td>
<td>Predictive Maintenance</td>
<td>3.0%</td>
<td>3.5%</td>
<td>5.0%</td>
</tr>
<tr>
<td></td>
<td>Regulatory Intelligence</td>
<td>4.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
Retail, a promising increase in profits

Business KPI: Piloted in one shop: 5% increase of margins (equivalent to roughly €5 million/year)

- Based on the idea of using machine learning to optimize assortment selection and automated fulfilment at an individual shop level
- Complex AI system, including machine learning (sales prediction)
- Run on Spark in Amazon cloud, €100 per run, per category, per shop
- Full project deployment currently on hold due to IT’s lack of economic scalability

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
Quantitative Benchmarks by Company Size

<table>
<thead>
<tr>
<th>Company Size</th>
<th>Profit Increase</th>
<th>Revenue Increase</th>
<th>Cost Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 – 49 Employees</td>
<td>6.0%</td>
<td>5.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td>50 – 249 Employees</td>
<td>5.0%</td>
<td>4.0%</td>
<td>3.5%</td>
</tr>
<tr>
<td>250 – 499 Employees</td>
<td>5.0%</td>
<td>4.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>500 – 999 Employees</td>
<td>5.0%</td>
<td>5.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>1,000+ Employees</td>
<td>6.0%</td>
<td>5.0%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
# Qualitative Benchmarks by Company Size

<table>
<thead>
<tr>
<th>Median 2</th>
<th>Median 3</th>
<th>Median 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% – 9% Improvement</td>
<td>10% – 24% Improvement</td>
<td>25% – 49% Improvement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10 – 49 Employees</th>
<th>50 – 249 Employees</th>
<th>250 – 499 Employees</th>
<th>500 – 999 Employees</th>
<th>1,000+ Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td># of New Product/Service Launched</td>
<td># of New Product/Service Launched</td>
<td># of New Product/Service Launched</td>
<td># of New Product/Service Launched</td>
<td># of New Product/Service Launched</td>
</tr>
<tr>
<td>Time Efficiency</td>
<td>Time Efficiency</td>
<td>Time Efficiency</td>
<td>Time Efficiency</td>
<td>Time Efficiency</td>
</tr>
<tr>
<td>Biz Model Innovation</td>
<td>Biz Model Innovation</td>
<td>Biz Model Innovation</td>
<td>Biz Model Innovation</td>
<td>Biz Model Innovation</td>
</tr>
<tr>
<td># of New Product/Service Launched</td>
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<td># of New Product/Service Launched</td>
<td># of New Product/Service Launched</td>
<td># of New Product/Service Launched</td>
</tr>
</tbody>
</table>

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
Top 3 Use Cases Quantitative Benchmarks by Company Size

**10 – 49 Employees**
- Risk Exposure Assessment: 3.5%, 5.0%, 7.0%
- Regulatory Intelligence: 3.0%, 4.0%
- Price Optimization: 3.0%, 4.0%, 5.0%
- New Product Development: 5.0%, 4.0%, 5.0%

**50 – 249 Employees**
- Risk Exposure Assessment: 4.0%, 4.0%, 3.0%
- Regulatory Intelligence: 3.0%, 4.0%
- Price Optimization: 4.0%, 4.0%, 3.0%
- New Product Development: 4.0%, 4.0%, 3.5%

**250 – 499 Employees**
- Risk Exposure Assessment: 3.0%, 4.0%, 5.0%
- Regulatory Intelligence: 4.0%, 5.0%
- Price Optimization: 3.0%, 5.0%
- New Product Development: 4.0%, 4.0%, 5.0%

**500 – 999 Employees**
- Risk Exposure Assessment: 3.0%, 4.0%, 5.0%
- Regulatory Intelligence: 3.0%, 5.0%
- Price Optimization: 3.0%, 5.0%
- New Product Development: 3.0%, 5.0%

**1,000+ Employees**
- Customer Profiling, Targeting & Optimization of Offers: 4.0%
- Regulatory Intelligence: 4.0%, 5.0%, 6.0%
- Price Optimization: 3.0%, 5.0%, 6.0%
- New Product Development: 4.0%, 5.0%

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
Star Performers

Who are they?

• Enterprises currently Using BDA Technologies
• Who achieved High Level of Benefit
• Only 36 cases: 5% of the sample

Mainly from the leading industries:

- Retail & Wholesale
- Business/IT Services

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)
Star Performers Results

Quantitative Benchmarks

<table>
<thead>
<tr>
<th>Metric</th>
<th>Star Performers</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit Increase</td>
<td>8%</td>
<td>5%</td>
</tr>
<tr>
<td>Revenue Increase</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>Cost Reduction</td>
<td>4%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Qualitative Benchmarks*

<table>
<thead>
<tr>
<th>Metric</th>
<th>Star Performers</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Efficiency</td>
<td>56%</td>
<td>28%</td>
</tr>
<tr>
<td>Product/Service Quality</td>
<td>58%</td>
<td>37%</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>61%</td>
<td>37%</td>
</tr>
</tbody>
</table>

Top achievements for 3 KPIs:

Source: D2.4 – Benchmarks of European and Industrial Significance (December 2019)

* N.B: Please note that this chart displays only High level of Improvements (> 25%)
You can benchmark your performance through the self-assessment survey on the DataBench website www.databench.eu

The DataBench Self-Assessment Tool provides organisations using or planning to use Big Data and Analytics (BDA) with the opportunity to benchmark their business performance against their peers (other companies in the same industry and same company size class).

The DataBench Self-Assessment Tool addresses people who are involved, influence, or are highly knowledgeable about their organisation's approach to, and potential use of, BDA. A deep technical understanding of the use or development of Big Data systems is not required to fill in the Self-Assessment survey.

The tool is extremely user-friendly. It will take you 20/25 minutes max. to answer 20 questions.

After the finalisation of the survey, a summary report will be generated with an analysis of your answers. Your responses will be compared with responses from other organisations in the same industry and of the same company size.

The report will be also available for download in a PDF format.

Source: DataBench website (screenshot)
You can find the «Benchmarks» report on the DataBench website.

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<table>
<thead>
<tr>
<th>Deliverable No.</th>
<th>Deliverable name</th>
<th>Abstract</th>
<th>Status</th>
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<tbody>
<tr>
<td>D1.1</td>
<td>Industry Requirements with benchmark metrics and KPIs</td>
<td>Abstract</td>
<td>published</td>
</tr>
<tr>
<td>D1.3</td>
<td>Horizontal Benchmarks - Analytics and Processing</td>
<td>Abstract</td>
<td>published</td>
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<tr>
<td>D1.4</td>
<td>Horizontal Benchmarks - Data Management</td>
<td>Abstract</td>
<td>published</td>
</tr>
<tr>
<td>D2.2</td>
<td>Preliminary Benchmarks of European and Industrial Significance</td>
<td>Abstract</td>
<td>published</td>
</tr>
<tr>
<td>D2.3</td>
<td>Analysis of Actual and Emerging Needs of Industrial Users and Use Case Mapping</td>
<td>Abstract</td>
<td>published</td>
</tr>
<tr>
<td>D2.4</td>
<td>Benchmarks of European and Industrial Significance</td>
<td>Abstract</td>
<td>published</td>
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<tr>
<td>D3.1</td>
<td>DataBench Architecture</td>
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<td>published</td>
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<tr>
<td>D3.2</td>
<td>DataBench Toolbox - Alpha including Support for Reusing of Existing Benchmarks</td>
<td>Abstract</td>
<td>published</td>
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<tr>
<td>D3.3</td>
<td>DataBench Toolbox - Beta including End-to-end-scenario Tool</td>
<td>Abstract</td>
<td>published</td>
</tr>
<tr>
<td>D3.4</td>
<td>Release Version of DataBench Toolbox Including Visualization and Search Components</td>
<td>Abstract</td>
<td></td>
</tr>
</tbody>
</table>
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Source: DataBench website (screenshot)
The self-assessment tool and more benchmarking services will be available on the DataBench Toolbox.

Source: DataBench website (screenshot)
Questions and Answers

Contacts

• Richard Stevens, RD, IDC European Government Consulting, DataBench Project Manager

• Gabriella Cattaneo, AVP IDC European Government Consulting - gcattaneo@idc.com

• Erica Spinoni, IDC EMEA Research Analyst – espinoni@idc.com