Building a Bridge between Technical and Business Benchmarking

By Gabriella Cattaneo, Richard Stevens, IDC

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Building a bridge between technical and business benchmarking

Main Activities
• Classify the main use cases of BDT by industry
• Compile and assess technical benchmarks
• Perform economic and market analysis to assess industrial needs
• Evaluate business performance in selected use cases

Expected Results
• A conceptual framework linking technical and business benchmarks
• European industrial and performance benchmarks
• A toolbox measuring optimal benchmarking approaches
• A handbook to guide the use of benchmarks
WP2’s role in Databench Workflow

Business Benchmarks

WP2
Economic, Market and Business Analysis

WP3
DataBench Toolbox

WP4
Evaluating Business Performance with DataBench Toolbox

Technical Benchmarks

WP1
DataBench Framework with Benchmarks and metrics

WP5
Technical Evaluation using the DataBench Toolbox

WP6
Consensus Building, Dissemination and Exploitation
Where Magic Happens


Data Management
- Data Pipes

Data Processing
- Data Pipes

Data Analytics
- Data Pipes

User Interaction
- Data Pipes

Toolbox
- TCP
- Hobbit-1
- Yahoo Streaming
- BigBench
- Hobbit-2
- SparkBench
- RIOBench
- DeepBench
- BigBench
- Hobbit-4

Data Generators

Workloads

Software Stack

Results

Metrics

Performance
- Response time
- measurement time

Quality
- failure rates

Cost
- Energy

Security
- PaaS/SaaS

Compliance
- Personal Data

Regulatory

Benchmarks

Revenue growth

Profit margin

Customer Satisfaction

Customer Loyalty

Effect

Market Share
How to link technical and business benchmarking

- Focus on economic and industry analysis and the EU Big Data market
- Classify leading Big Data technologies use cases by industry
- Analyse industrial users benchmarking needs and assess their relative importance for EU economy and the main industries
- Demonstrate the scalability, European significance (high potential economic impact) and industrial relevance (responding to primary needs of users) of the benchmarks

**Top-down**

**USE CASES = Typologies of technology adoption in specific application domains and/or business processes**

**Bottom-up**

- Focus on data collection and identification of use cases to be monitored and measured
- Evaluation of business performance of specific Big Data initiatives
- Leverage Databench toolbox
- Provide the specific industrial benchmarks to WP”
- Produce the Databench Handbook, a manual supporting the application of the Databench toolbox
# Leading Business Use Cases by Industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Top Use Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance (exc. insurance)</td>
<td>Fraud prevention and detection, Optimize price strategies, Analysis of operations-related data, Compliance check and reporting on quality of care, Customer profiling, targeting, and optimization of offers, Portfolio and risk exposure assessment, Store location (either physical or digital), Analysis of machine or device data, Organization resources utilization and turnover, Customer scoring and churn mitigation, Marketing optimization, Prevent and respond to public security threats</td>
</tr>
<tr>
<td>Accom.</td>
<td></td>
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<tr>
<td>Manuf.</td>
<td>Analysis of operations-related data, Factory automation, digital factory for lean manufacturing, Illness/disease progression, Network investment planning, Customer analytics and loyalty marketing, Field service optimization, Energy consumption analysis, Natural resource exploration, Customer data security, and privacy (fraud prevention), Predictive maintenance, Prevent and respond to natural disaster</td>
</tr>
<tr>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Telecom</td>
<td>Network analytic and optimization, Customer scoring, Logistics optimization, Customer behavior and interaction analysis, Maintenance management, Optimize price strategies and price management, Customer profiling, targeting, and optimization of offers, Personalize citizen services, Student recruiting, Back-office process optimization, Course planning and costing</td>
</tr>
<tr>
<td>Media</td>
<td></td>
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<tr>
<td>Transport</td>
<td></td>
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<tr>
<td>Utilities</td>
<td></td>
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<tr>
<td>Oil&amp;Gas</td>
<td></td>
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<tr>
<td>Retail/Wholes.</td>
<td></td>
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<tr>
<td>Prof. Services</td>
<td></td>
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<tr>
<td>Govt.</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
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</tbody>
</table>

Source: IDC’s *European Vertical Markets Survey*, November 2016 (n = 1,872)
## Preliminary Analysis of KPIs and Benchmarks

<table>
<thead>
<tr>
<th>INDUSTRY</th>
<th>USE CASE</th>
<th>BUSINESS KPI</th>
<th>TYPE OF DATA</th>
<th>TECHNICAL BENCHMARKING AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Yield monitoring and prediction</td>
<td>Revenue Growth</td>
<td>Image (satellite) data</td>
<td>Limited time to process Very big data Quality of data (missing values, outliers ...)</td>
</tr>
<tr>
<td>Banking</td>
<td>Fraud prevention and detection</td>
<td>Cost Reduction</td>
<td>Transactional Data</td>
<td>Near real time processing paradigm</td>
</tr>
<tr>
<td>Business or Professional</td>
<td>Automated customer service</td>
<td>Revenue Growth</td>
<td>Text Data</td>
<td>Natural Language Processing (NLP) quality benchmarking</td>
</tr>
<tr>
<td>Professional Services,</td>
<td></td>
<td>Time Efficiency</td>
<td></td>
<td></td>
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<tr>
<td>excluding IT Services</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td>Energy consumption analysis and prediction</td>
<td>Cost Reduction</td>
<td>IoT Data</td>
<td>Real time streaming data processing</td>
</tr>
<tr>
<td>Healthcare</td>
<td>Quality of care optimization</td>
<td>Product/Service Quality</td>
<td>IoT Data</td>
<td>Real time streaming data processing</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Inventory and service parts optimization</td>
<td>Time Efficiency</td>
<td>IoT Data</td>
<td>Real time streaming data processing</td>
</tr>
<tr>
<td>Media</td>
<td>Social media analytics</td>
<td>Customer Satisfaction</td>
<td>Linked Data</td>
<td>Graph-processing platforms benchmarking (linked data).</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>Targeting</td>
<td>Revenue Growth</td>
<td>Transactional Data Text Data</td>
<td>IT architectural cost optimization</td>
</tr>
<tr>
<td>Transport and Logistics</td>
<td>Connected vehicles optimization</td>
<td>Product/Service Quality</td>
<td>IoT Data</td>
<td>Real time streaming data processing</td>
</tr>
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<td>Utilities</td>
<td>Field service optimization</td>
<td>Cost Reduction</td>
<td>IoT Data</td>
<td>Real time streaming data processing</td>
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Early Results from the Databench Business users Survey
Users recognize the relevance of business benchmarking...

Respondents by Type of Use of BDA

- Using: 41%
- Evaluating: 22%
- Piloting: 37%

How important is benchmarking the business impacts of BDA?

- Not at all: 5%
- Slightly important: 38%
- Moderately important: 22%
- Very important: 53%
- Extremely important: 2%

Source: Databench Survey, IDC, Interim results, 401 interviews, October 2018
Big Data is Worth the Investment

Nearly 90% of businesses saw moderate or high levels of benefit in their Big Data implementation.

Adopting Big Data Solutions increased profit and revenue by more than 8%, and reduced cost by nearly 8%.
Big Data implementation focus

Quality and Customers are the two most important KPI’s

Overall, Big Data preference is for growth – with new products and markets – rather than improve efficiency and save cost.

Source: IDC DataBench Survey, October 2018 (n=401 European Companies)
Big Data – Key Use Cases

Top 20 Use Cases by # Respondents

- Risk exposure assessment
- New product development
- Price optimization
- Regulatory intelligence
- Automated Customer Service
- Customer profiling, targeting, and
- Product & Service Recommendation...
- Fraud prevention and detection
- Supply chain optimization
- Predictive Maintenance
- Inventory and service parts optimization
- Customer scoring and/or churn mitigation
- Quality management investigation
- Asset management
- Smart warehousing
- Intelligent Fulfillment
- Connected vehicles optimization
- Network analytics and optimization
- Energy consumption analysis and...
- Field service optimization

Final results to be presented at the European Big Data Value Forum and in the Databench report due in December 2018

Respondent share by industry

- Telecommunications
- Healthcare
- Wholesale trade
- Manufacturing process
- Retail trade

Source: IDC DataBench Survey, October 2018 (n=401 European Companies)
What can DataBench do for you?

- Provide methodologies and tools to help assess and maximise the business benefits of BDT adoption
- Provide criteria for the selection of the most appropriate BDTs solutions
- Provide benchmarks of European and industrial significance
- Provide a questionnaire tool comparing your choices and your KPIs with your peers

What we want from you?

- Expression of interest to become a case study and monitoring your Big Data KPIs
- Answer a survey on your Big Data experiences
Evidence Based Big Data Benchmarking to Improve Business Performance

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