The Impact of Business Intelligence Software and Analytics Across the Supply Chain

Presented by
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www.mohrpartners.com
Data analytics is the science of analyzing raw data to make conclusions about that information.

The techniques and processes of data analytics have been automated into mechanical processes and algorithms that work over raw data for human consumption & visualization.

Data analytics helps a business optimize its performance.
Top Industries hiring Data Science positions

Healthcare
Retail
Telecommunications
Automotive
Digital Marketing
Banking
Real Estate
Sports & Entertainment
Professional Services
Cyber Security
Mining, Quarrying, and Oil and Gas Extraction
Center of Gravity – customer shipment data. Can slice the data in multiple ways and watch the center of gravity change dynamically. We then evaluate all centers to create a broad geographic study area to do a deep dive into the labor data.
**ESRI** – GIS tool and data provider that is used to visualize geographic data and analyze supply chain points (origin-destination, warehouses, ports, customers, zip codes, etc.) to conduct Center of Gravity Analysis

**Kepler.gl** – Browser-based geospatial analysis visualization tool built for Big Data. Capable of rendering variables in 3-dimensional space overlaying real-world geography and well-suited to providing a bird’s-eye-view of network performance on a continental scale and beyond.
Placer.ai – A powerful platform propelled by Big Data. Placer.ai showcases analytical solutions that assist in location analytics by providing vehicle traffic flow, pedestrian footfall, and other related demographics.

**Center of Gravity Analysis** – A visualization of distribution POI’s (ports, warehouses) and destination POI’s (customer stores, customer warehouses, Zip code or Census block Centroids) that are tied together visually by lines which estimate distances, distance costs, volume of orders or raw units
Analytics can’t unload a cargo ship stuck at sea, hire more drivers, or solve every problem caused by a pandemic and disruption.

But they can help you adapt in real-time to shifting customer demand caused by pandemics and disruption.

Pandemic- exposed the US Companies too leveraged with Asia
DAT – freight transportation data
# National Average Gas Prices

<table>
<thead>
<tr>
<th></th>
<th>Regular</th>
<th>Mid-Grade</th>
<th>Premium</th>
<th>Diesel</th>
</tr>
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<tbody>
<tr>
<td><strong>Current Avg.</strong></td>
<td>$4.331</td>
<td>$4.677</td>
<td>$4.951</td>
<td>$5.132</td>
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<td><strong>Yesterday Avg.</strong></td>
<td>$4.318</td>
<td>$4.636</td>
<td>$4.912</td>
<td>$5.058</td>
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<td><strong>Week Ago Avg.</strong></td>
<td>$3.837</td>
<td>$4.109</td>
<td>$4.382</td>
<td>$4.259</td>
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<td><strong>Month Ago Avg.</strong></td>
<td>$3.480</td>
<td>$3.821</td>
<td>$4.090</td>
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<td><strong>Year Ago Avg.</strong></td>
<td>$2.826</td>
<td>$3.138</td>
<td>$3.407</td>
<td>$3.045</td>
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</tbody>
</table>
Kepler.GL – 24-month shipping data. DC to Customer
By analyzing customer data, supply chain analytics can help a business better predict future demand.

- production volume?
- Adjustments?

It helps an organization decide what products can be minimized when they become less profitable or understand what customer needs will be after the initial order.
<table>
<thead>
<tr>
<th>City Name</th>
<th>Score</th>
<th>Wage</th>
<th># of Jobs</th>
<th>COLI</th>
<th>Ind. Rates</th>
<th>Taxes</th>
<th>Union</th>
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<td>3.60</td>
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<td>1.16</td>
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<td>Winston-Salem, NC</td>
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<td>1.06</td>
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<td>1.37</td>
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<td>1.76</td>
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<td>-1.00</td>
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<td>0.95</td>
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<td>-0.95</td>
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<td>0.96</td>
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<tr>
<td>Charleston-North Charleston, SC</td>
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<td>-2.17</td>
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<td>0.96</td>
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<td>Pittsburgh, PA</td>
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<td>-2.56</td>
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<td>0.96</td>
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<td>-0.59</td>
<td>-1.81</td>
<td>0.85</td>
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<td>Lancaster, PA</td>
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<td>-0.42</td>
<td>-0.13</td>
<td>0.96</td>
</tr>
<tr>
<td>York-Hanover, PA</td>
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<td>-5.34</td>
<td>-0.59</td>
<td>0.00</td>
<td>1.04</td>
<td>-0.13</td>
<td>0.96</td>
</tr>
<tr>
<td>Baltimore-Columbia-Towson, MD</td>
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<td>-2.56</td>
<td>1.99</td>
<td>1.54</td>
<td>-3.64</td>
<td>-1.81</td>
<td>0.85</td>
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<tr>
<td>Chambersburg-Waynesboro, PA</td>
<td>-9.70</td>
<td>-8.36</td>
<td>-0.92</td>
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<td>1.46</td>
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<td>0.96</td>
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<tr>
<td>Washington-Arlington-Alexandria, DC-VA-MD-WV</td>
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<td>-5.82</td>
<td>0.57</td>
<td>-2.25</td>
<td>0.85</td>
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</table>
## Portfolio Summary

<table>
<thead>
<tr>
<th>Leases</th>
<th>Building Footprint</th>
<th>Current Occupancy</th>
<th>% Occupancy</th>
<th>Base Rent</th>
<th>Rent/SF</th>
<th>OpEx</th>
<th>Opex/SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>4,765,198 SF</td>
<td>3,946,789 SF</td>
<td>82.8%</td>
<td>$17,597,613</td>
<td>$4.46</td>
<td>$3,384,096</td>
<td>$0.86</td>
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</tbody>
</table>

*Exp. in Next 36 Months*

<table>
<thead>
<tr>
<th>Leases</th>
<th>Building Footprint</th>
<th>Current Occupancy</th>
<th>% Occupancy</th>
<th>Base Rent</th>
<th>Rent/SF</th>
<th>OpEx</th>
<th>Opex/SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>2,892,878 SF</td>
<td>2,428,189 SF</td>
<td>83.9%</td>
<td>$11,772,545</td>
<td>$4.85</td>
<td>$2,786,405</td>
<td>$1.15</td>
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</tbody>
</table>

![Map of United States with various locations marked](image-url)
14630 147th Street
Lockport, IL 60441

Current Scenario

<table>
<thead>
<tr>
<th>Client</th>
<th>Occupied %</th>
<th>Occupied SF</th>
<th>LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client A</td>
<td>60%</td>
<td>178,557 SF</td>
<td>6/30/2023</td>
</tr>
<tr>
<td>Client B</td>
<td>40%</td>
<td>119,038 SF</td>
<td>4/30/2024</td>
</tr>
</tbody>
</table>

Vacant SF: 74,398

Potential Scenario

Client A wants to downsize 60K SF while Client C wants to occupy 76K SF.

<table>
<thead>
<tr>
<th>Client</th>
<th>Occupied %</th>
<th>Occupied SF</th>
<th>LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client A</td>
<td>40%</td>
<td>128,557 SF</td>
<td>6/30/2023</td>
</tr>
<tr>
<td>Client B</td>
<td>37%</td>
<td>119,038 SF</td>
<td>4/30/2024</td>
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<tr>
<td>Client C</td>
<td>23%</td>
<td>75,000 SF</td>
<td>11/30/2025</td>
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</tbody>
</table>

Vacant SF: 52,079

OBJECTIVE: Expand client occupancy after winning a new contract.

Current Occupancy: 371,994 SF
% Occupancy: 100.0%
Base Rent: $1,691,646
OpEx: $645,785
Annual Labor Cost: $1,064,888

Jobs 2015-2025

Wages 2005-2020
New Salem 85 Logistics Center.
900 New Salem Church Rd, Jefferson, GA 30548
$15,000,000 SF | $3.67/SF
Built in 2018 | 36' ceiling height

Cost Summary

Estimated Annual Labor Cost
$1,386,320
Ranks 9th in labor cost out of 12 potential sites.
*Job fairness score: $18.94/hr, which is the median hourly wage.

Estimated Annual Rent
$2,334,340
Ranks 2nd in estimated annual rent out of 12 potential sites.

Estimated Freight Cost
$5,362,299
Ranks 2nd in estimated freight cost out of 12 potential sites.
*For 44' trailers, any other freight rate is the freight rate.

Estimated Total Annual Cost
$9,082,959
Ranks 2nd in total cost out of 12 potential sites.
8 areas Analytics adds value to Supply Chain Businesses:

1) Forecasting Demand
2) Evaluating Performance
3) Deploying Prescriptive Forecasts
4) Increasing Organizational Visibility
5) Ensuring Forecast Accuracy and Optimal Inventories
6) Reducing Markdowns, Out-of-Stocks, and Returns
7) Identifying Which Machines Require Service
8) Incorporating On-Machine Data