Can AI Shape the Path to a More Sustainable Energy Future?

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David Steven Jacoby

Panel Discussion at:

THE AI SUMMIT NEW YORK

CONFIDENTIAL
• Consulting in transport, logistics & supply chain (ex-Kearney)
• CEO of Boston Strategies International since 2005
• Teaches operations management and supply chain management at NYU
• Senior Fellow at Boston University’s Institute for Global Sustainability
• Author of *Reinventing the Energy Value Chain; High Cost of Low Prices*, and other books on supply chain sustainability
AI is Evolving via RPA, Cognitive Automation, and Predictive Analytics Over a 10+ Year Horizon

- COVID-19 boosted RPA and AI
- Shift away from transactional activities will continue, but expand to “smart” (cognitive) automation
- Not a separate industry from the current major players
  - Auto: Ford, Toyota, etc.
  - Equipment: Rockwell, Siemens, etc.
  - Energy Storage: ABB, Tesla, etc.
  - Medical: Phillips, GE, etc.
  - Search: Google

Estimated Penetration of AI and ML in Procurement by 2030

Source: “Artificial Intelligence in Supplier Selection and Management.” ISM World 2021. David Steven Jacoby and Francois Charvet
AI Can be Net Sustainable or Net Unsustainable, Depending on the Application

**Sustainable versus Unsustainable Applications of Artificial Intelligence (AI)**

- **Convenience & Entertainment**
  - Natural Language Processing
  - Voice Recognition
  - Weather Forecasting
  - AR/VR/Entertainment (e.g., Gaming, Music)

- **Energy Use Efficiency**
  - Adaptive solar & wind farms
  - Virtual Power Plants
  - Smart Fuel Injection
  - Thermostat Control
  - EVs and Avs*

- **Fossil Fuel Production**
  - Smart Drilling
  - Digital Oilfields
  - Variable Speed Motors

- **Production Efficiency**
  - Predictive Maintenance at Power Plants
  - Automated Trading
  - Supply Chain Control Towers

*If charged by green power*
AI Can Move the Sustainability Needle in a Strong Net Positive Direction by Powering Sustainability Information, Labeling, and Measurement

Examples of GDPa (more at davidsteven.us)

Sample D-Factor for a Smartphone

<table>
<thead>
<tr>
<th>Major Cost</th>
<th>SubCost</th>
<th>D-Factor</th>
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</thead>
<tbody>
<tr>
<td>Retail Store</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>Retail Sales</td>
<td>6.76</td>
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<tr>
<td></td>
<td>Management</td>
<td>2.25</td>
</tr>
<tr>
<td>Capital</td>
<td>Facility Overhead</td>
<td>13.51</td>
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<tr>
<td></td>
<td>Total</td>
<td>22.52</td>
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<tr>
<td>Transport, Logistics, &amp; Distribution</td>
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</tr>
<tr>
<td>Labor</td>
<td>Ship Crew</td>
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<tr>
<td></td>
<td>Truck Drivers</td>
<td>0.36</td>
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<tr>
<td>Equipment</td>
<td>Container ship</td>
<td>1.91</td>
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<tr>
<td></td>
<td>China to US</td>
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</tr>
<tr>
<td></td>
<td>Truck from Port to Warehouse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Truck from Warehouse to Retail Outlet</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.75</td>
</tr>
</tbody>
</table>

For Those Who Want to Make Near-Term Carbon Footprint Reductions, Consider the REVchain™ Master Class

Learn to Map your Net-Zero Pathway Online!

REVchain™ is a learning platform that helps companies map their pathway to Net Zero.

Know More

Overview  Scope 1  Scope 2  Scope 3