

Applications of Artificial Intelligence In Energy Management

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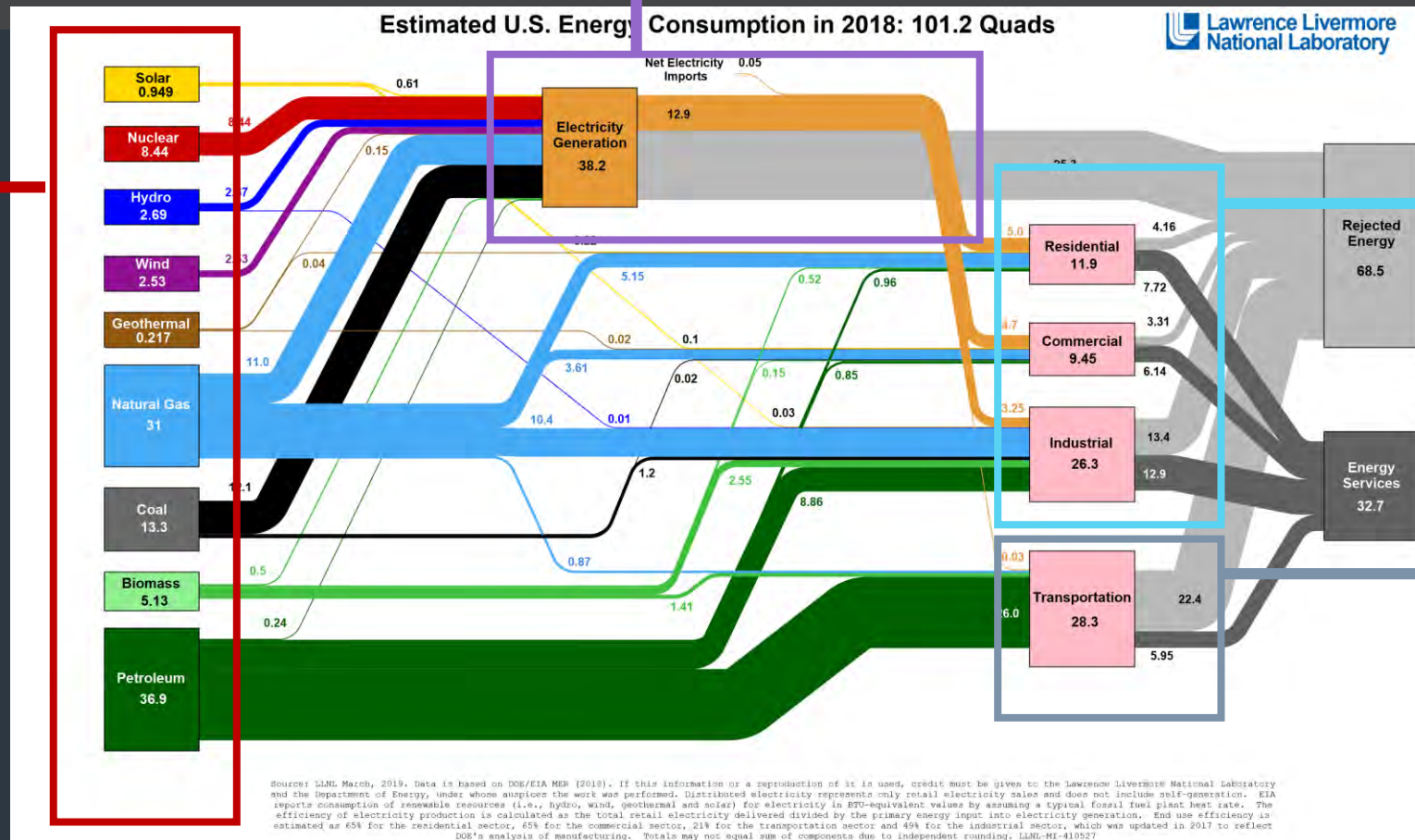
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Information (for AI) & Energy Management

- Understand Where is Energy Used Across Society
- Understand Data Related Problem and Goals Requiring AI
- Understanding Need for Answers (Time and Location)
- Understanding Specific Challenges to AI Implementation in Energy

Where is Energy Used in the Economy

Electric Generation + T & D



Energy Production ('Upstream')

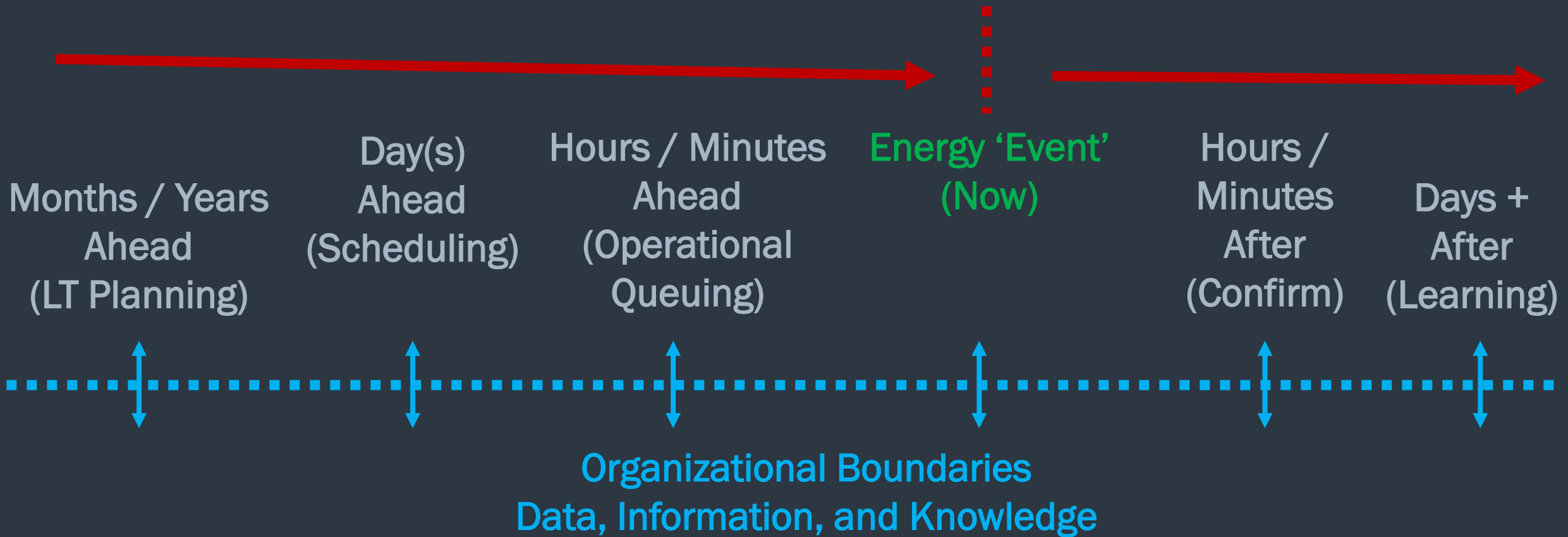
Efficient End-Use Consumption

Efficient Movement & Transit

Example Types of Energy Management Problems Related to Information and AI

- Efficient Resource Allocation and Usage (Energy Efficiency and Energy (Economic) Productivity)
- Energy Resource Sufficiency (Reliability and Planning)
- Asset Allocation (Operational, Cap-Ex and Human Capital)
- Discovery of New Opportunity or Ideas (Research and Development)
- Multiple Impact Maximization / Trade-Off Understanding (Energy, Economy, Security, Environment/GHG)
- Appropriate Use of Knowledge between Economic Parties and Stakeholders (Privacy, Security, etc)

Knowledge Need / Requirements over Time



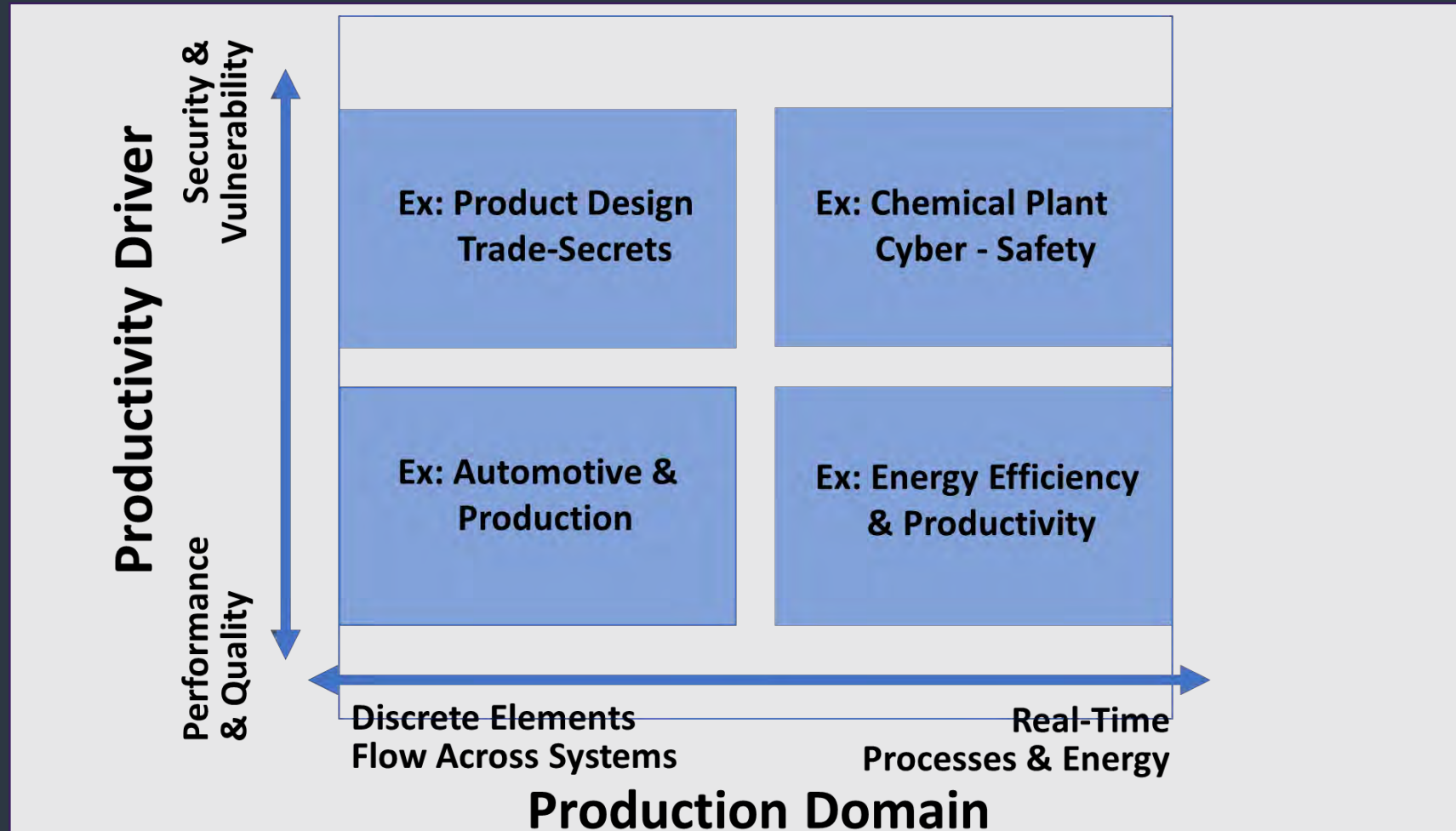
Challenges and Opportunities to AI Implementation in Energy Management

- Opportunity to Maximize Energy Use:
 - IT providing ~50% of Energy Efficiency Gains Across Economy
 - Measurement and Validation of Data Across Organization Boundary
 - Assure Security through AI
- Privacy & Security Across Data & Information Organizational Boundaries
- Discovery and Implementation of New Energy Solutions Accelerated Across Economy

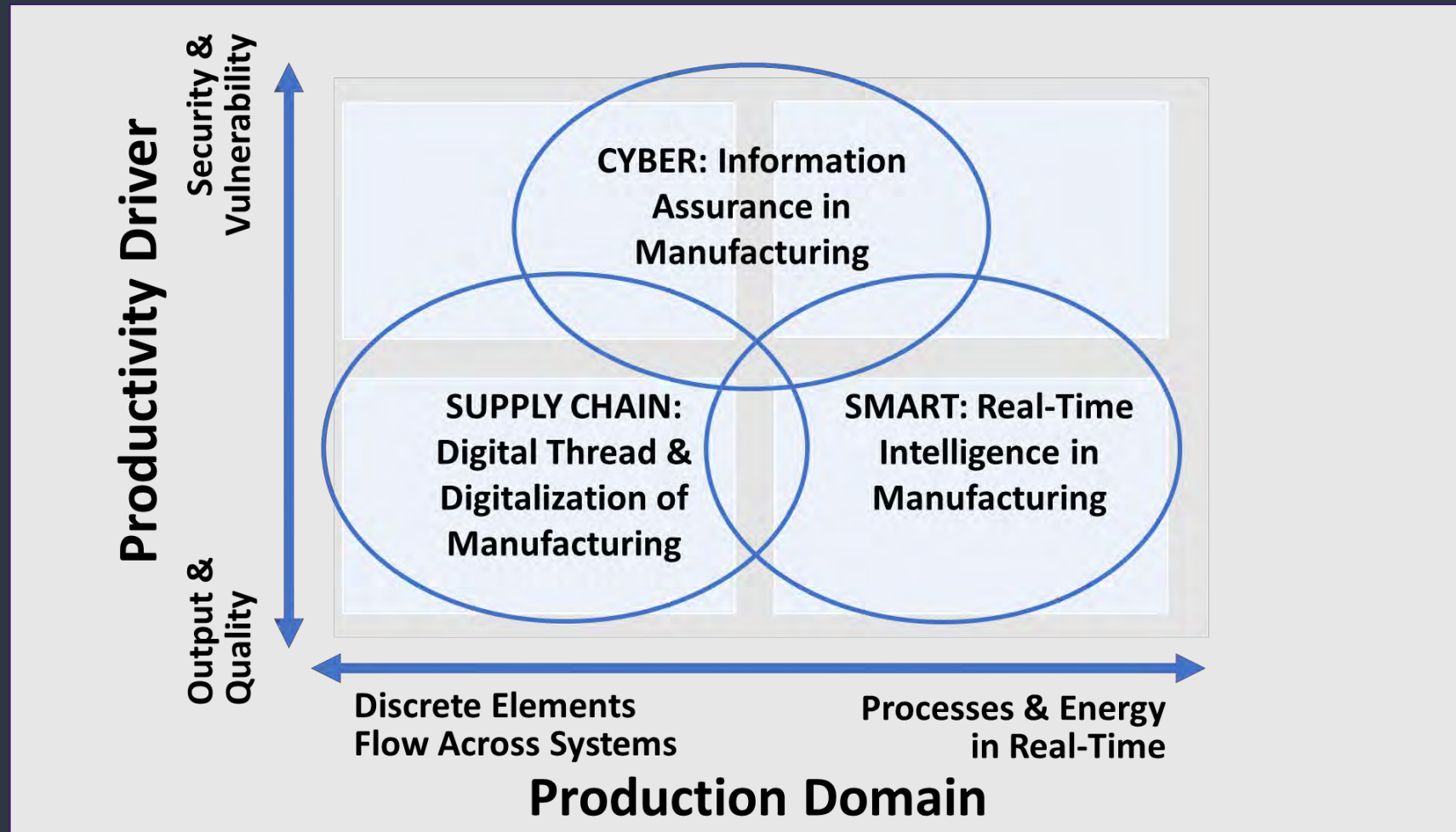
Example: Energy Technologies in Manufacturing (Industrial) End-Use



Specific Area for R&D, Deployment and Human Capital Advancement



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Thank You