Definition and Meaning of Industrial AI

The Beginnings of Industrial AI

1950s-1960s: Early Concepts and Automation

1950s: The birth of AI as a field, with initial explorations into machine learning and symbolic reasoning.

1960s: Early industrial automation initiatives focused on using computers for process control in manufacturing.

1970s-1980s: Expert Systems and Robotics

1970s: Emergence of expert systems applied to industrial settings, attempting to replicate human decision-making in specialized areas.

1980s: Advancements in robotics and machine vision led to the adoption of robots in manufacturing, initially for repetitive tasks.

1990s-2000s: Integration of AI Technologies

1990s: Growing utilization of neural networks and machine learning in industrial applications, especially in predictive maintenance and quality control.

2000s: Increased integration of AI technologies like data analytics, machine learning, and sensor networks in manufacturing processes for optimization and efficiency.

2010s: Industry 4.0 and Smart Manufacturing

Industry 4.0 Emergence (Mid-2010s): The convergence of AI, IoT, cloud computing, and big data gave rise to the concept of Industry 4.0, emphasizing smart, connected factories.

Predictive Maintenance and IoT: Expansion of predictive maintenance solutions using AI algorithms and IoT sensors to anticipate equipment failures and optimize maintenance schedules.

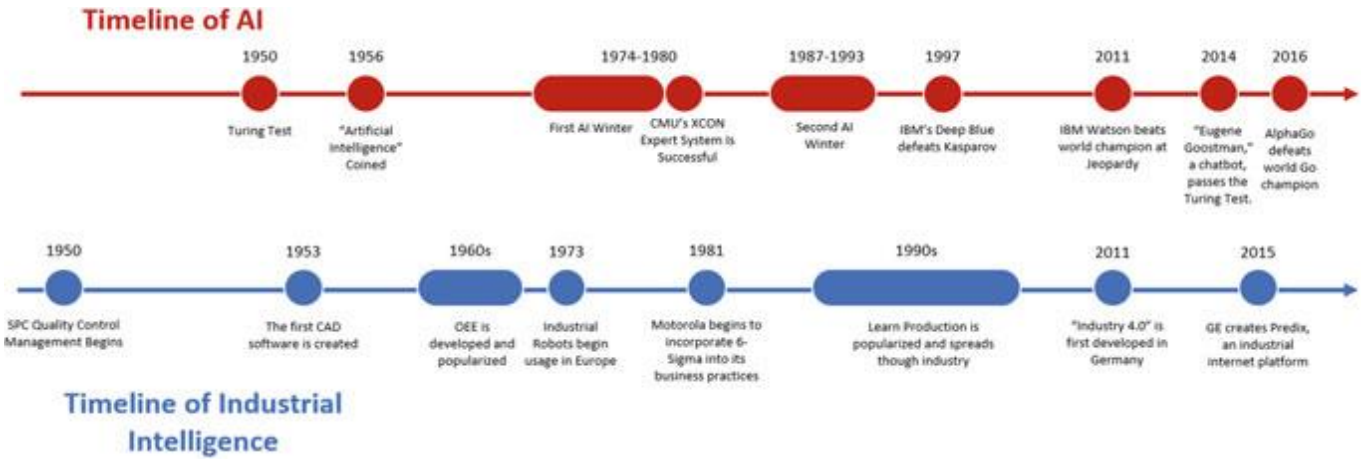
2020s-Present: AI-Driven Industrial Transformation

AI in Supply Chain Management: AI applications in supply chain optimization, demand forecasting, and logistics.

Focus on AI Safety and Ethics: Increasing attention on ensuring AI applications in industries are safe, secure, and ethically sound.

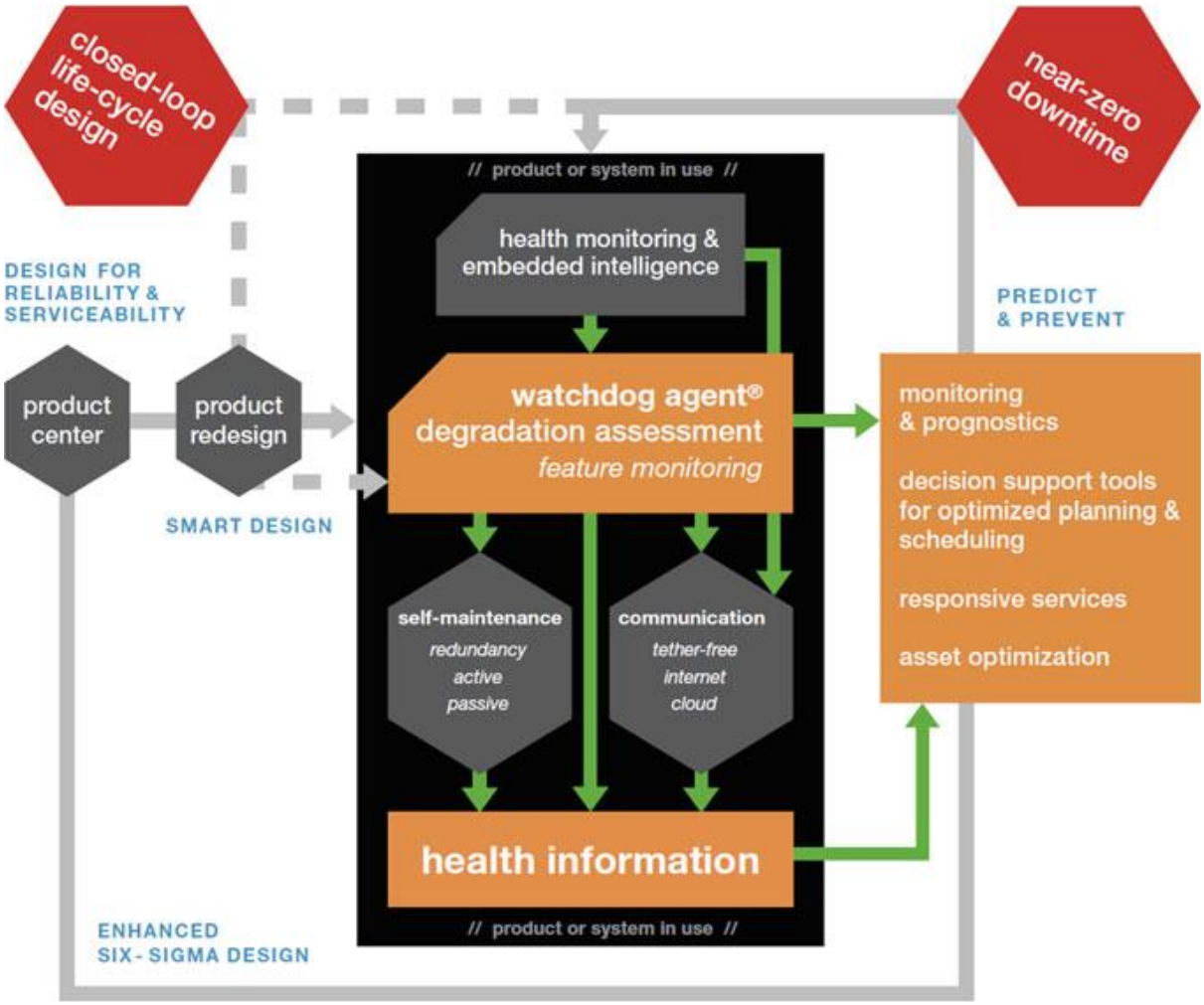
AI-Powered Production Efficiency: Further integration of AI in production processes for enhanced efficiency, energy optimization, and sustainability.

Industrial Intelligence continues to advance, leveraging AI technologies to optimize production, enhance operational efficiency, and enable more predictive and proactive approaches to maintenance and management within industrial settings. This timeline demonstrates the evolution of AI's role in transforming traditional industries into smarter and more data-driven environments.

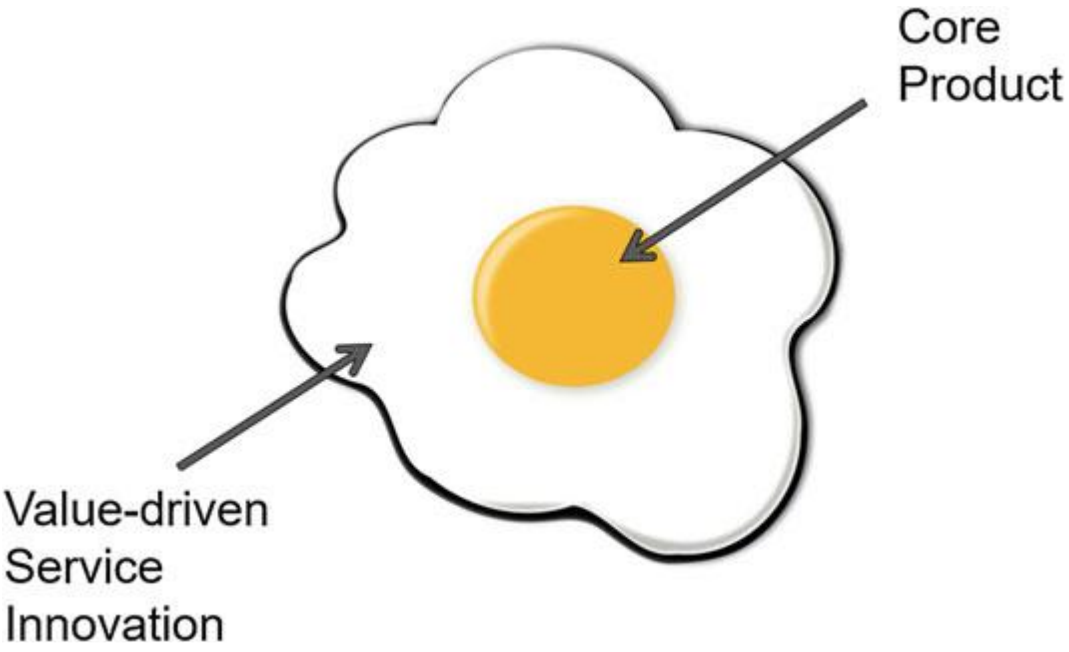


The development of AI and Industrial Intelligence

Five stages of moving toward smarter industrial systems



Future Industrial Intelligence system planning, submitted by IMS center to NSF in 2001: from problem solving to problem avoidance



Fried-egg model of industrial value: functional value and service value of products