Stellarix

eBook

AI Readiness in Manufacturing: Assess, Prioritize, and Act



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Adoption of AI in Manufacturing – Current status of the industry

The manufacturing sector is undergoing a significant industrial transformation. Over half of global manufacturers are currently engaged in smart manufacturing initiatives, with approximately 20% shifting from pilot programs to large-scale deployment. An additional 20% are planning future investments, underscoring the growing momentum in this area.

Key trends include a 12% growth in the adoption of generative and causal AI, as well as a 14% increase in sustainability-focused efficiency programs. The demand for AI and analytical skills among manufacturing leadership is also on the rise, elevating smart manufacturing from an IT function to an executive priority.

The majority of the value of the AI market in manufacturing is concentrated in predictive maintenance and quality control, which collectively account for over 60% of the market. These industries are implementing diverse AI applications, such as computer vision for quality control, simulation in design, and process optimization. This widespread adoption demonstrates that AI is being integrated across the entire manufacturing landscape, not just in high-tech facilities.

Manufacturing Industry Sub-Sectors with AI Adoption Status

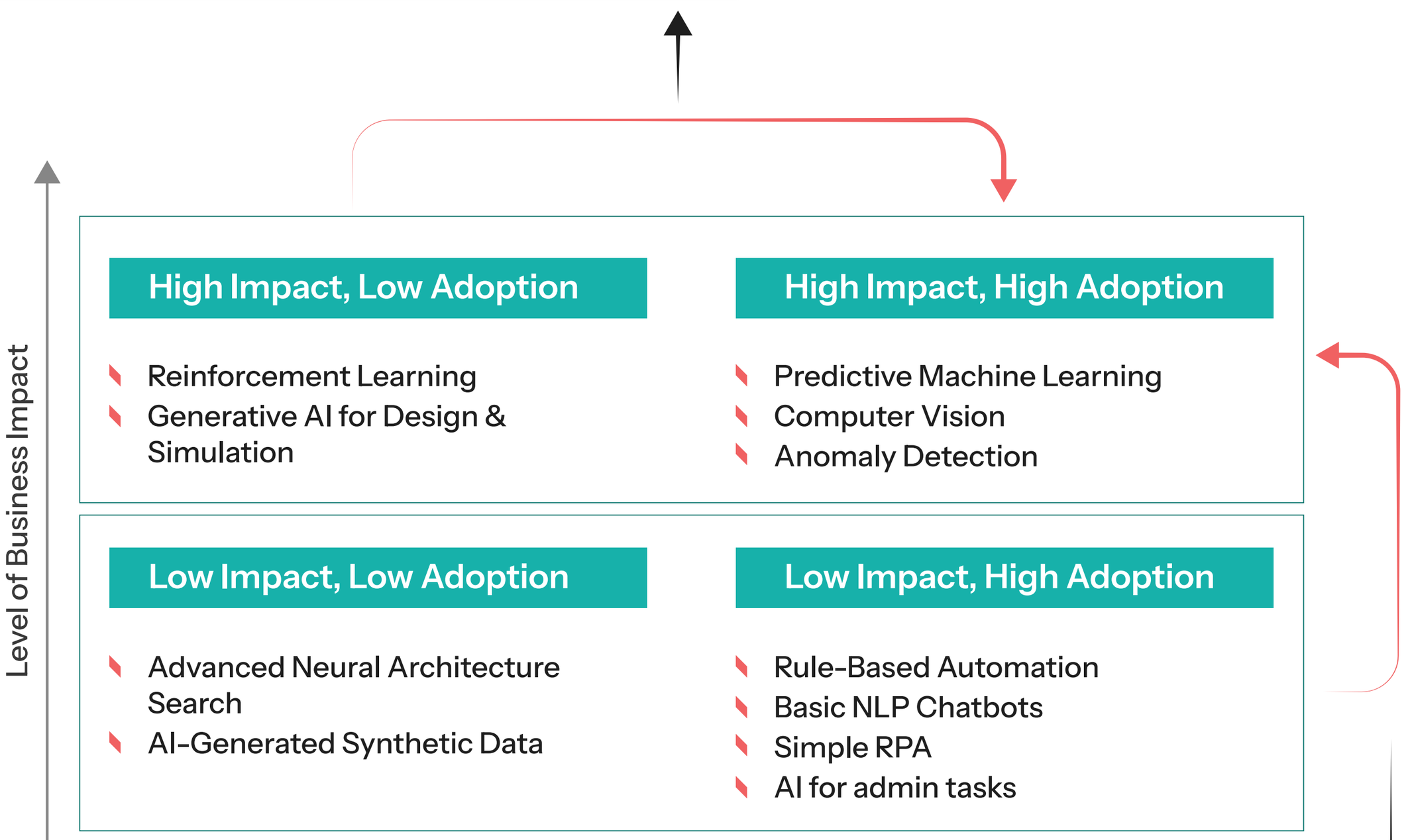
Relative Adoption Scale



High Impact, High Adoption Areas of AI in Manufacturing

How to turn potential into
proof without betting the factory?

- Pilot programs with narrow and high ROI targets
  (e.g., RL for robotic arm optimization in bottlenecks)
- Toolkits by hyperscalers (Microsoft, Google) to lower barriers
- Simulation sandboxes for GenAI and RL in safe environments
- Co-development with AI startups



High Impact,
Low Adoption

Pilot with high-value targets; invest in infra

High Impact,
High Adoption

Scale & embed into operations; drive ROI

Low Impact,
Low Adoption

Monitor for long-term potential; deprioritize now

Low Impact,
High Adoption

Expand scope via integration and real data

How to scale existing comfort zones
into core value drivers?

- Horizontal integration into operations (e.g., chatbots into shop-floor systems for issue resolution)
- Data enrichment for better recommendations (e.g., connecting basic NLP with real-time production data)
- Feedback loops to turn static rules into ML-based adaptive systems
- Plug-and-play AI layers over existing MES/SCADA

Case Studies



A.

Partnering with a Global Industrial Automation Leader to Unlock Flexible Manufacturing Growth

Overview:

A leading industrial automation player partnered with Stellarix to accelerate its push into flexible and autonomous manufacturing. The goal was to create a strategic roadmap for scaling advanced automation solutions worldwide.

Stellarix Approach:

The strategy framework deployed for identifying opportunities and building a future-ready roadmap for the client included:

- Evaluation of peers' strategies, solutions, and use cases in autonomous manufacturing
- Assessment of adoption triggers across key stakeholders
- Identifying the most promising verticals for automation adoption
- Deep dive into high-impact industries
- Developing a mid-to-long-term perspective on emerging opportunities

Impact:

The engagement enabled the client to prioritize investments with high ROI potential, align its automation portfolio with customer needs and regional preferences, strengthen its competitive positioning, and gain clarity on deploying advanced automation technologies.



B.

AI for Flexible ICE/EV Co-Production Lines

Overview:

A global automotive OEM engaged Stellarix to use AI to optimize existing manufacturing capacity for its electric vehicle (EV) transition. The engagement focused on avoiding over-investment in new plants and developing a strategic roadmap to balance current internal combustion engine (ICE) production with future EV growth.

Stellarix Approach:

- Analyzed leading OEMs' factories reconfiguration plans to support both ICE and EV production, and where AI was being deployed
- Built regional ICE vs EV adoption curves and tested how the client’s capacity would perform under different future pathways
- Pinpointed where AI-driven scheduling, material flow optimization, and robotic reprogramming promised flexibility
- Compared the economics of AI-enabled line flexibility with building new, EV-only plants.
- Delivered strategic recommendations on integrating AI into production systems

Impact:

The engagement provided the client with clarity on how to navigate the ICE-to-EV transition, identify potential capital savings, and adapt to real market demand.

Our Leaders



Deepak Kumar Jain

Business Leader – Industrial, Mobility, and Hi-tech

Deepak Kumar Jain, a leader at Stellarix, leverages deep expertise in industrial, mobility, and electronics to guide global clients. He specializes in technology trends, product innovation, business strategy, and competitive intelligence, heading the Industrial Mobility & TMT practice. He excels in delivering high-impact research and strategic insights to Fortune 500 companies and tech innovators.

His work, spanning automotive electronics, EVs, HVAC, semiconductors, IoT, robotics, and advanced manufacturing, is empowering innovation and strategy teams to make informed, future-ready decisions, accelerating innovation pipelines, and building competitive advantage.



Rana Mahesh Pratap Singh

Manager – Industrial & Mobility

Rana Mahesh Pratap Singh, Manager at Stellarix, brings nearly a decade of expertise across HVAC, industrial automation, renewable energy, power tools, white goods, automobiles, and heavy machinery. He specializes in technology scouting, IP intelligence, and comprehensive analysis of the technology landscape. With proven strengths in competitor benchmarking, startup scouting, and strategic technology consulting, he delivers impactful insights across key themes like digitalization, electrification, and sustainability.

His work enables R&D and innovation teams to make informed, future-focused decisions, accelerating product development, strengthening IP portfolios, and enhancing competitive positioning in rapidly evolving industrial and technological landscapes.

About Stellarix

Stellarix is an innovation and strategy consulting company focused on techno-commercial consulting services across industries and hierarchies. Stellarix offers consulting services to make businesses future-ready and improve goals, strategies with innovative solutions. With a strong technology background and business acumen, we cater to clients' needs through research-backed insights and profound experience.

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