AI for Manufacturing Software

HCP Team:
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Harlem Capital

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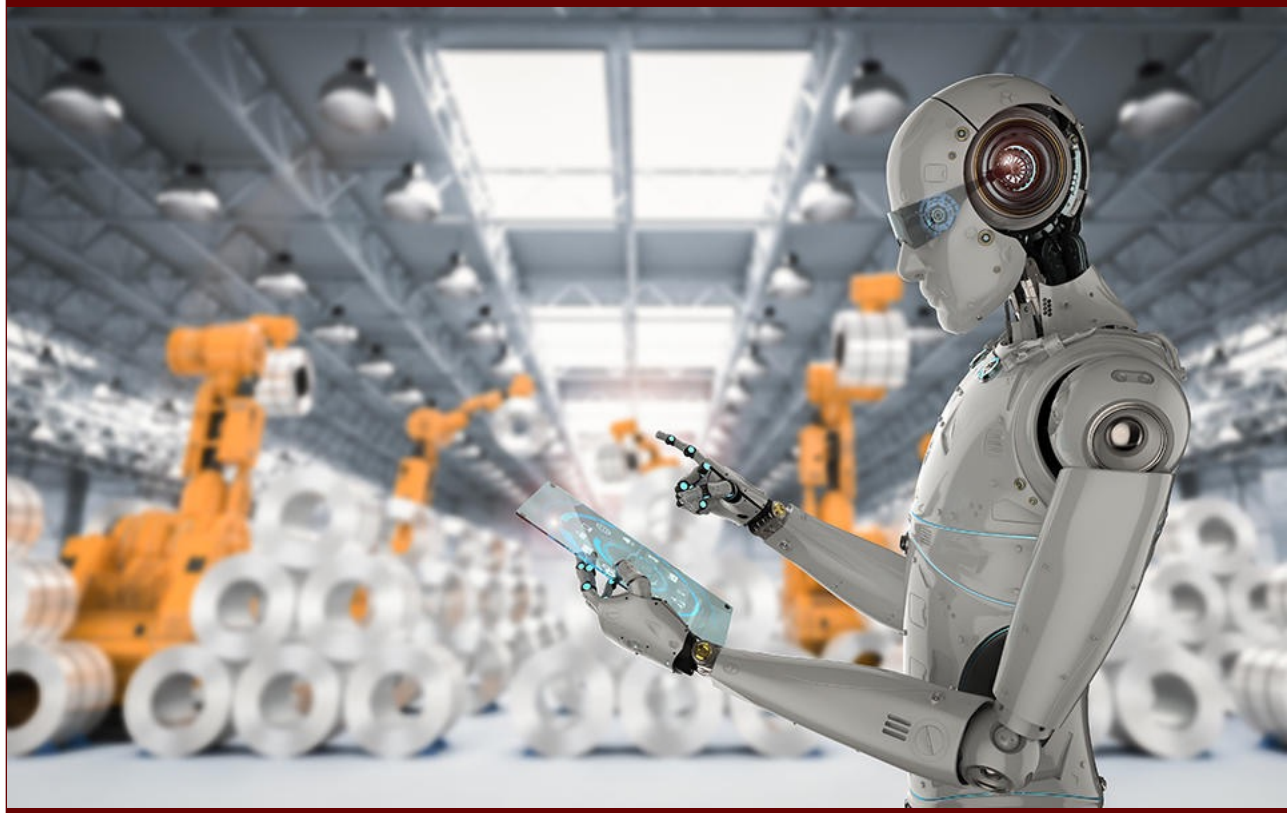


Executive Summary

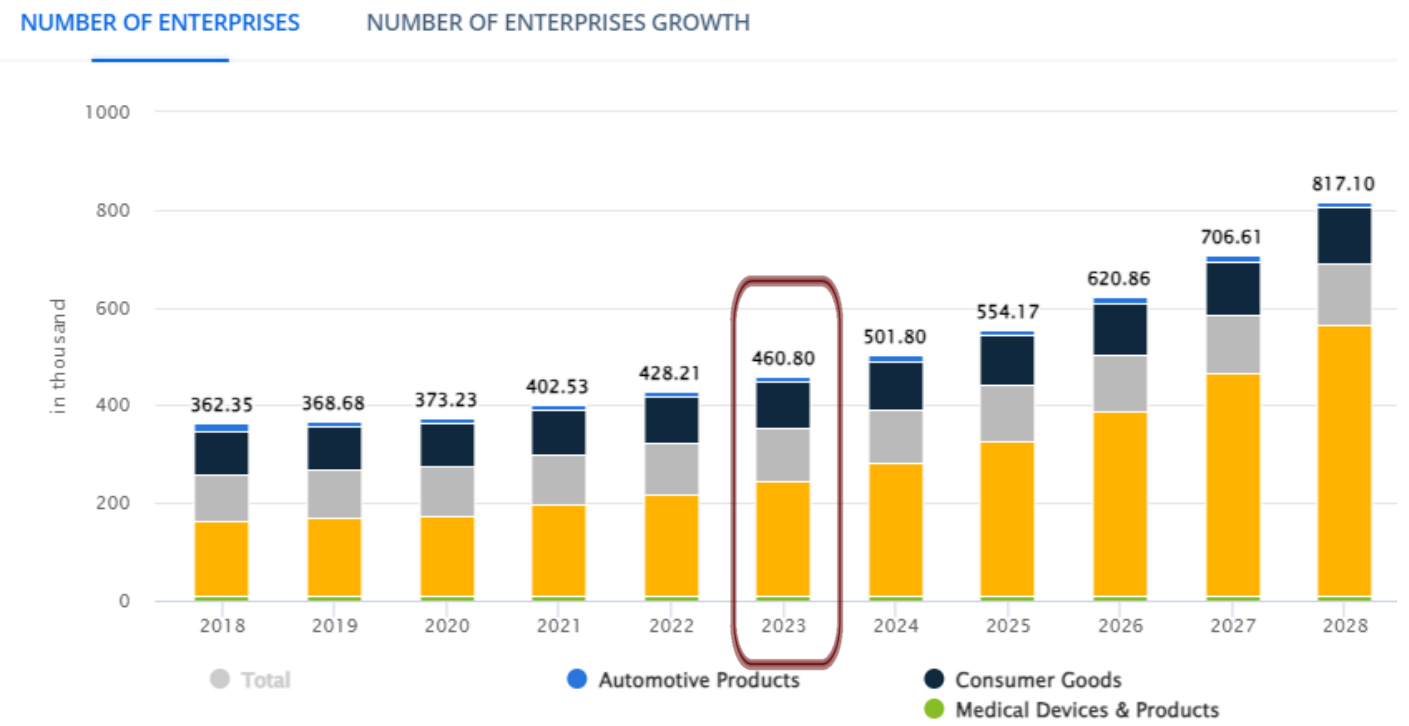
Manufacturing hasn’t had it easy lately, but its all uphill from here... Especially for those who use AI

1. Manufacturing market has faced several challenges in recent years due to geopolitical uncertainty, wars, covid, supply chain disruptions, changing consumer preferences, and increasing regulatory scrutiny.
2. Several positive factors, such as rising global demand, a shift in global trade dynamics, a few landmark US bills, and ongoing technological advancements in automation and digitalization have set the stage for a positive outlook for US manufacturing.
3. One of the technological advancements that is primed to help this growth is of course, Artificial Intelligence. Artificial Intelligence (AI) is becoming increasingly essential to the day-to-day operations of manufacturers all over the world.
4. Autonomous robots and machine learning-powered predictive analytics means companies can streamline processes, increase productivity, improve quality, ensure safety, decrease costs and reduce the damage done to the environment throughout the manufacturing process.
5. We at Harlem Capital believe there is a great opportunity to capitalize on this innovation, especially for software or low-cost hardware solutions that can apply artificial intelligence to manufacturing. Vertical applications in AI & ML address specific problems within industries and are not always AI first. Many startups can design a solution to an industry problem using software and integrate AI & ML to optimize some part of their product

Manufacturing Market Overview

Manufacturing market is large and growing

- Output for Manufacturing is estimated at **US$6.36tn** in 2023
- The number of Manufacturing enterprises is **460k** in 2023. A compound annual **growth rate of 12.14%** is expected (CAGR 2023–2028).
- **14.7mn** employees in U.S. manufacturing in 2021, representing **9.6 % of total U.S. employment**
- U.S. Manufacturing real annual growth between 1995 and 2020 (25-yr growth) was **2.0 %**
- Including direct and indirect (i.e., purchases from other industries) value added, manufacturing contributed an estimated **24 % of GDP.**
- An August estimate by Goldman Sachs forecasts the addition of **250,000 new manufacturing jobs** in the United States in the next 2 years



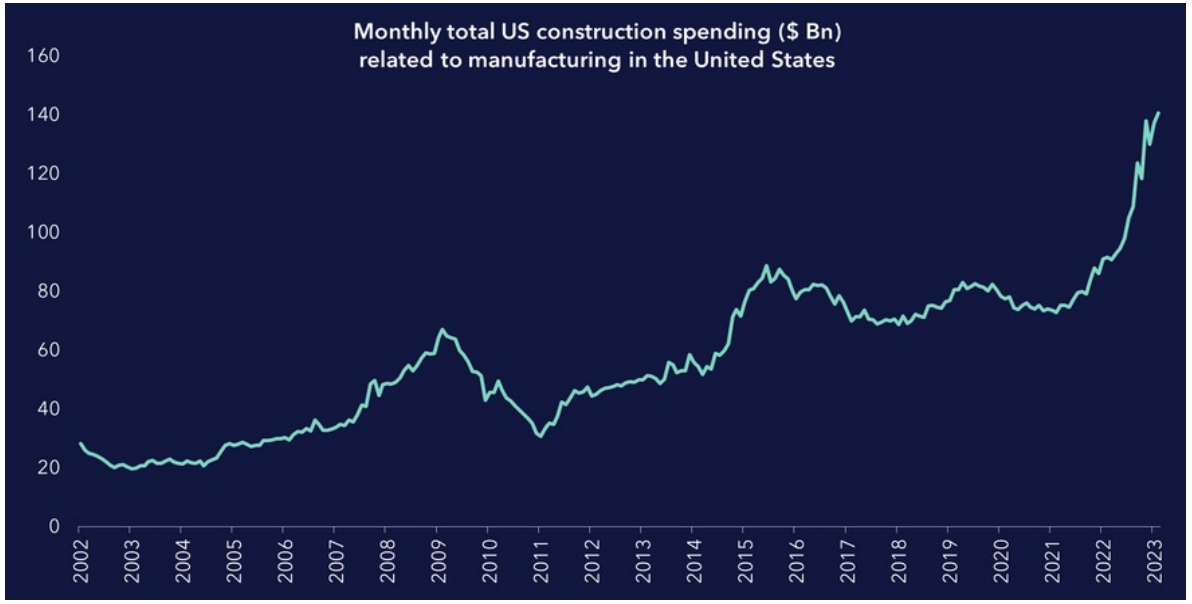
Notes: Data shown reflects market impacts of the Russia-Ukraine war.

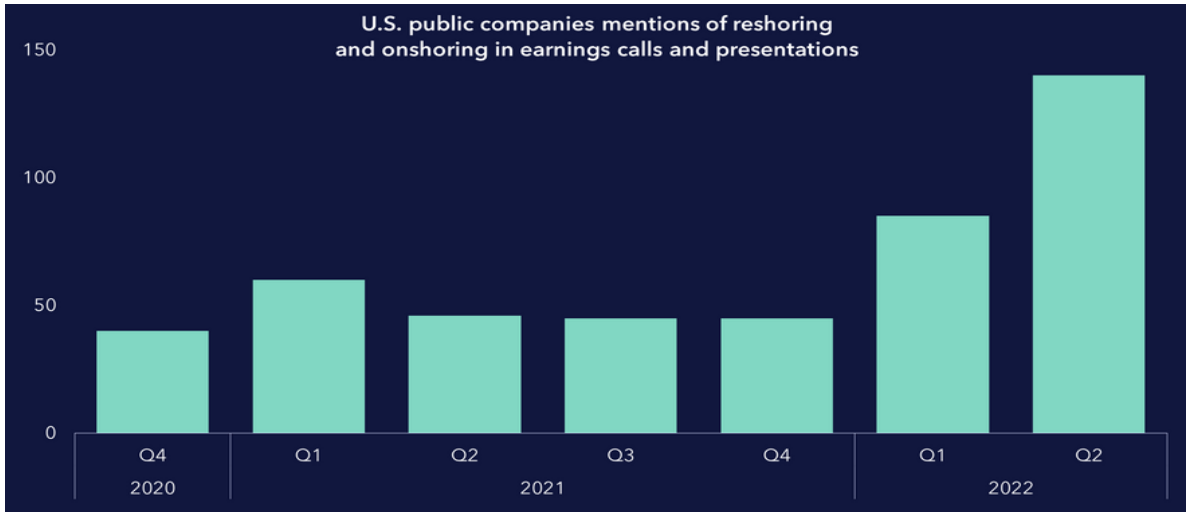
Most recent update: Sep 2023

Source: Statista, NIST, Goldman Sachs

Made in America - Bringing manufacturing home

- Firms are bringing manufacturing back to US shores in hopes of faster and more resilient supply chains.
- This trend is benefiting from **unprecedented government support**, most evident in several large legislative bills amounting to **$1.85 Tn of total spending**.
- Over the past 12 months, **US manufacturing construction spending surged over 80%,** compared to only 6% for other categories of private nonresidential building.
- Companies are mentioning “reshoring” on their earnings calls at a record rate. **Mentions of nearshoring, reshoring and onshoring grew by an average of 216%** year over year since the start of 2022.



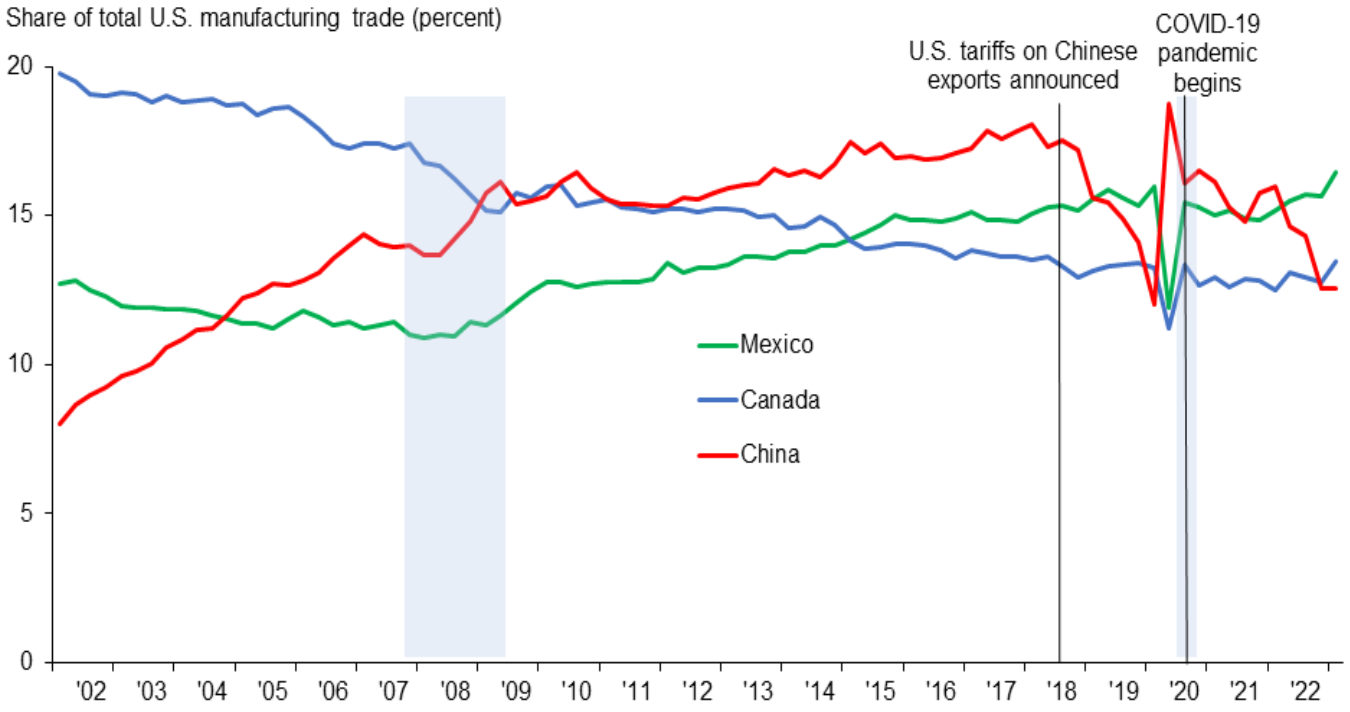


Source: The White House, Federal Reserve Economic Data, Bloomberg,

Nearshoring is happening

- Companies are increasingly looking to our Mexican and Latam neighbors down south to meet our manufacturing needs.
- **Mexico is now top US trade partner with 15.9% of trade**. Canada is a close 2nd at 15.7% as China has dropped to 3rd place.
- **USMCA agreement implemented in 2020** to further increase trade between the US, Mexico and Canada
- Tesla announced in March 2023 that they would be building a **Gigafactory in Mexico.** Tesla and its suppliers will invest **$15 billion** over the next two years into this project.
- Major iPhone manufacturer **Foxconn also established a headquarters in Mexico** in early 2023.

Mexico surpasses China as main U.S. Manufacturing Trading Partner



NOTES: Seasonally adjusted, quarterly data. Figures also include April 2023. Shaded areas denote recessions. Total manufacturing trade is the sum of manufacturing exports and imports.
SOURCE: Census Bureau.

Federal Reserve Bank of Dallas

Source: Federal Reserve Bank of Dallas, Census Bureau

AI in Manufacturing / Industrials

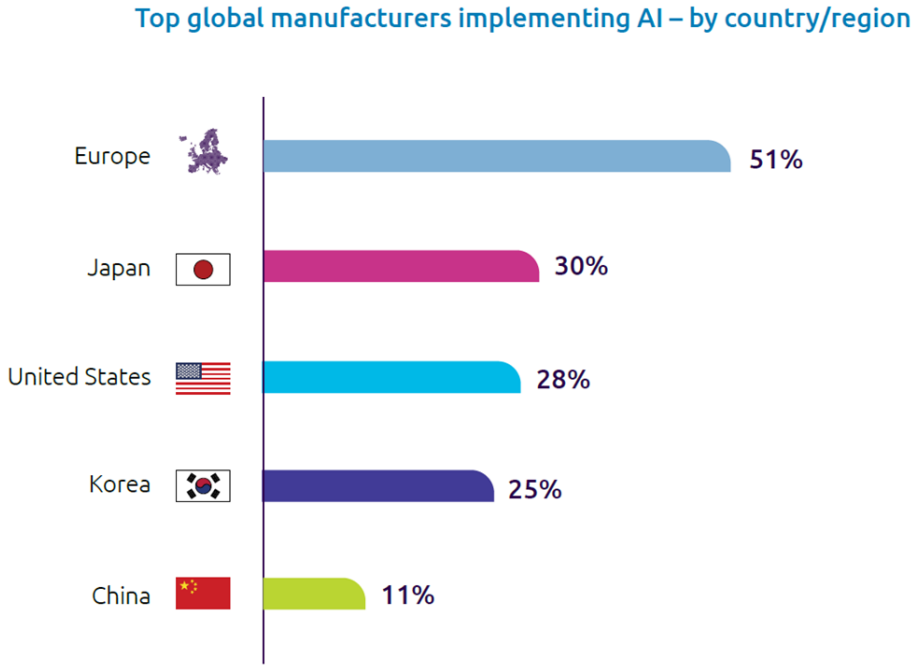
AI adoption in manufacturing is picking up

Although AI adoption remains low in the industrial sector, value is already being extracted today from existing infrastructure and will be front of mind for all manufacturing executives in the years to come.

- According to Capgemini's research, more than half of the European manufacturers (51%) are already beginning to implementing AI solutions, with Japan (30%) and the **US (28%)** following in second and third.
- The same study also reveals that the most popular AI use cases in manufacturing are improving **maintenance** (29% of manufacturing AI use cases) and **quality** (27%). However, there are **so many more untapped potential use cases** for this technology
- According to McKinsey research, operators that have applied AI in industrial processing plants have reported a **10-15 % increase in production** and a **4-5% increase in EBITA.**

Why is AI perfect for manufacturing?

- Manufacturing is **full of analytical data which is easier for machines to analyze**. Hundreds of variables impact the production process and while these are very hard to analyze for humans, machine learning models can easily predict the impact of individual variables in such complex situations.
- In other industries involving language or emotions, machines are still operating at below human capabilities, slowing down their adoption and making it harder to implement.

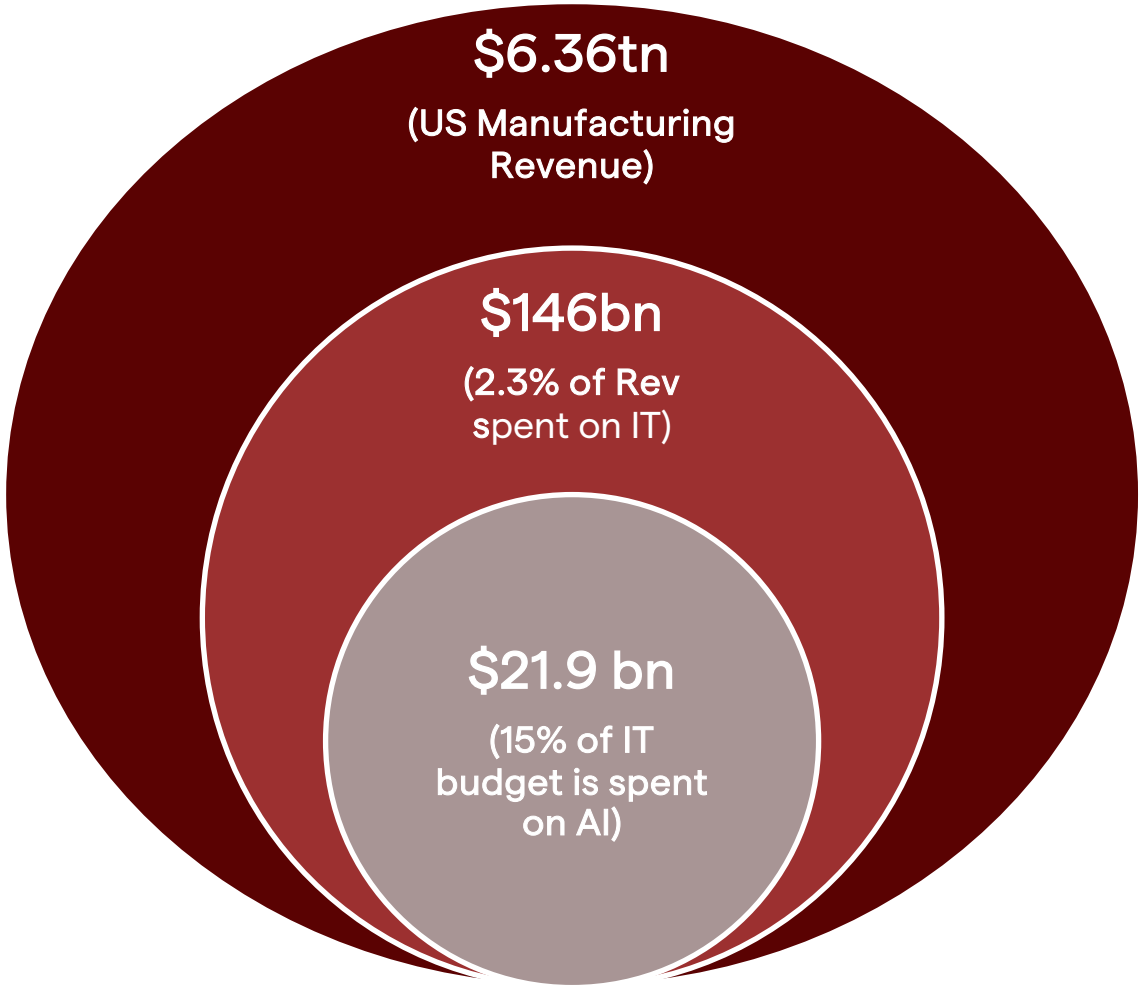


Source: - Capgemini, Scaling AI in Manufacturing Operations
- McKinsey, AI: The next frontier of performance in industrial processing plants

AI in manufacturing is a $21.9B opportunity (Top Down)

$21.9 billion

1. US Manufacturing Corporations sales in 2022 was **$6.36tn**
2. Manufacturing companies' average percent of revenue spent on IT is **2.3%.** If we multiply $6.36tn (revenue) x 2.3% (IT spent of revenue) = **$146bn** spent on IT from manufacturing industry
3. We expect at least **15%** of IT spend will go to AI and machine learning software.

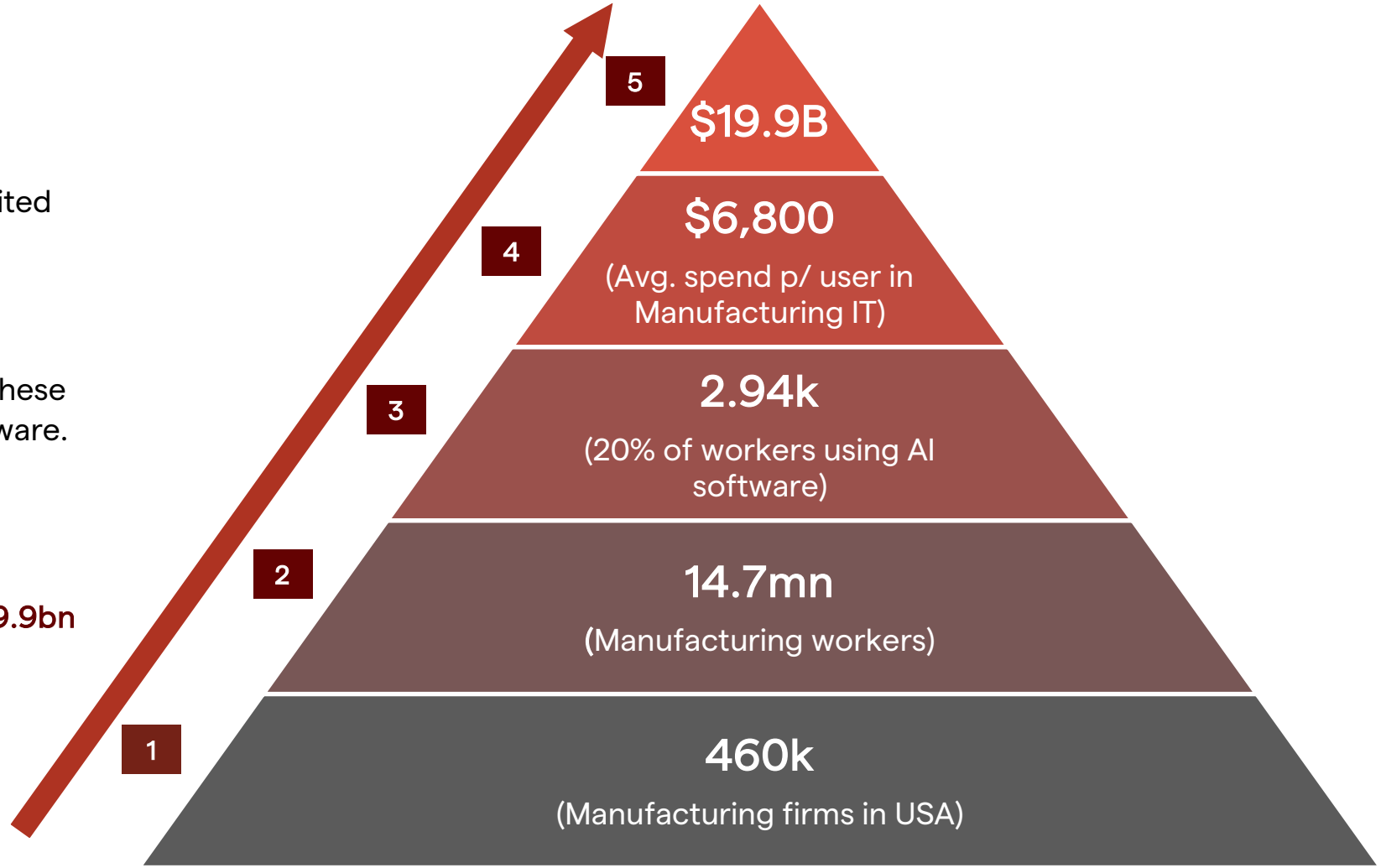


Source: Statista, Avasant Consulting: IT Spending by Industry

AI in manufacturing is a $19.9B opportunity (Bottom Up)

$19.9 billion

1. Manufacturing Firms in the United States (2023) – **460k**
2. Manufacturing Employment (December 2023) **14.7mn**
3. Assume only **20%** of these of these employees have to use AI software. (14.7mn x 20%) = **2,940,000**
4. Avg IT Spend per user in manufacturing is **$6,800**
5. 2,509,200 users x $6,800 = **$19.9bn**

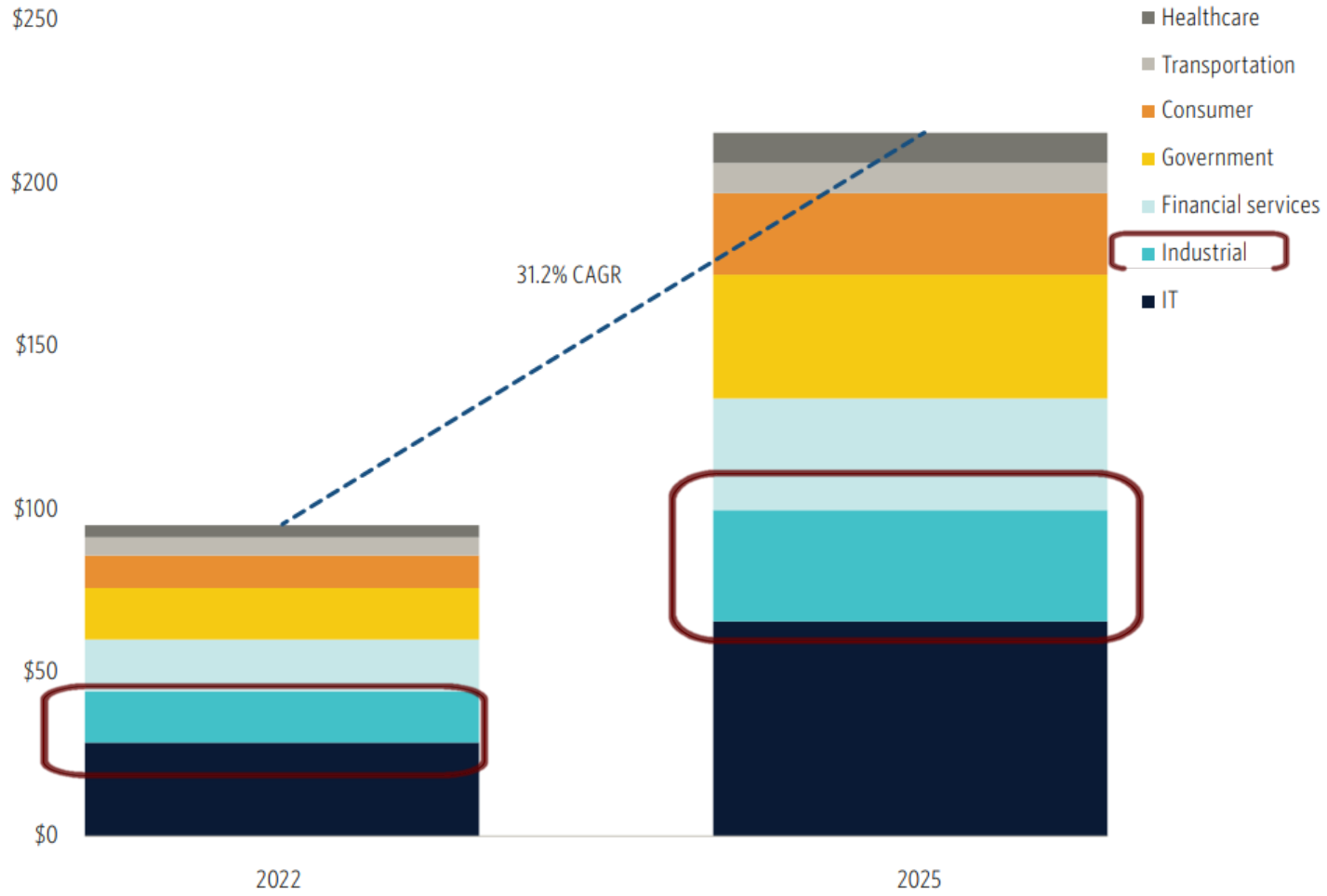


Source: Statista, Avasant Consulting: IT Spending by Industry

AI in manufacturing is a $16.3B opportunity (Pitchbook)

- Pitchbook's 2023 AI Emerging Tech report estimates the Industrial sector to be the second-biggest vertical impacted by AI, reaching a $16.3 billion TAM opportunity
- The reports says this creation of value will consist primarily of opportunities in manufacturing automation, supply chain optimization, and predictive maintenance.
- Analysts estimate the total vertical AI market reached $94.0bn in 2022, with a 31.2% CAGR out to 2025, resulting in a $212.2 billion market in 2 years time.
- Enterprise IT is the biggest opportunity at $28.6bn. Led by opportunities in sales, infosec, and human resources.

Market size for AI by Industry Vertical ($B)



Source: Pitchbook 2023 Emerging Tech Research: AI & ML Overview

How can AI be applied to the manufacturing sector?

1 Maintenance & Usage

- **Predictive Maintenance** - Using AI, factories can predict and prepare for asset failure, reducing (or even avoiding) downtime.
- **Maintenance Companions** - Digitizing paper instruction manuals / checklists and using AI to provide step-by-step, real-time instructions based on the problem at hand.
- **Energy management** - AI can provide insights in the energy use throughout the production process, resulting in reduced bills and more sustainable production.

2 Safety & Quality Control

- **Quality control** - Product quality inspections bring uniformity and efficiency in quality control. Using AI-powered vision, systems and recognize defects, pull products, or fix issues before assembling/shipping.
- **Safety** - AI can get a better understanding of risk factors across manufacturing process (ie factory floor, production lines, warehouses) and prevent accidents.
- **Regulatory/Compliance management** – Sifting through paperwork and identifying potential shortfallings. Making sure all documentation and processes are up to standard.

3 Supply Chain & Process Optimization

- **Demand planning** - AI can help with getting a better understanding of human behavior and sales patterns to improve forecasting
- **Inventory Management** - Provide a better understanding of inventory levels enabling organizations to plan and avoid stock-outs
- **Production** - **AI used** to streamline manufacturing processes, identify bottlenecks, and improve throughput.
- **Procurement and Supply Forecasting** – Solutions that can help with sourcing materials (efficient marketplaces, pricing, purchase timing etc.)

4 Product Development / R&D

- **Product development/R&D** - AI enables organizations to expediate product development and R&D by reducing the test times and driving more concrete insights from customer data and demands
- **Generative Design** - Designers simply enter parameters (desired product, materials, cost, size, weight, etc.) and the generative design algorithms spit out blueprints and instruction

Source: Capgemini, Scaling AI in Manufacturing Operations

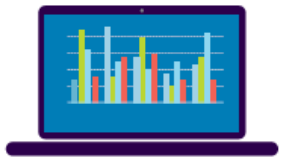
Demand Planning & Forecasting Example

- Historical sales data
- Weather data
- Third-party data e.g. social media
- financial data
- macroeconomic data

1 The AI-based system is trained using data from historical sales, local weather events, other third party data such as social media

2 The AI-based system then makes predictions for future consumer demand basis how event combinations in the past affected demand

3 | Expected benefits



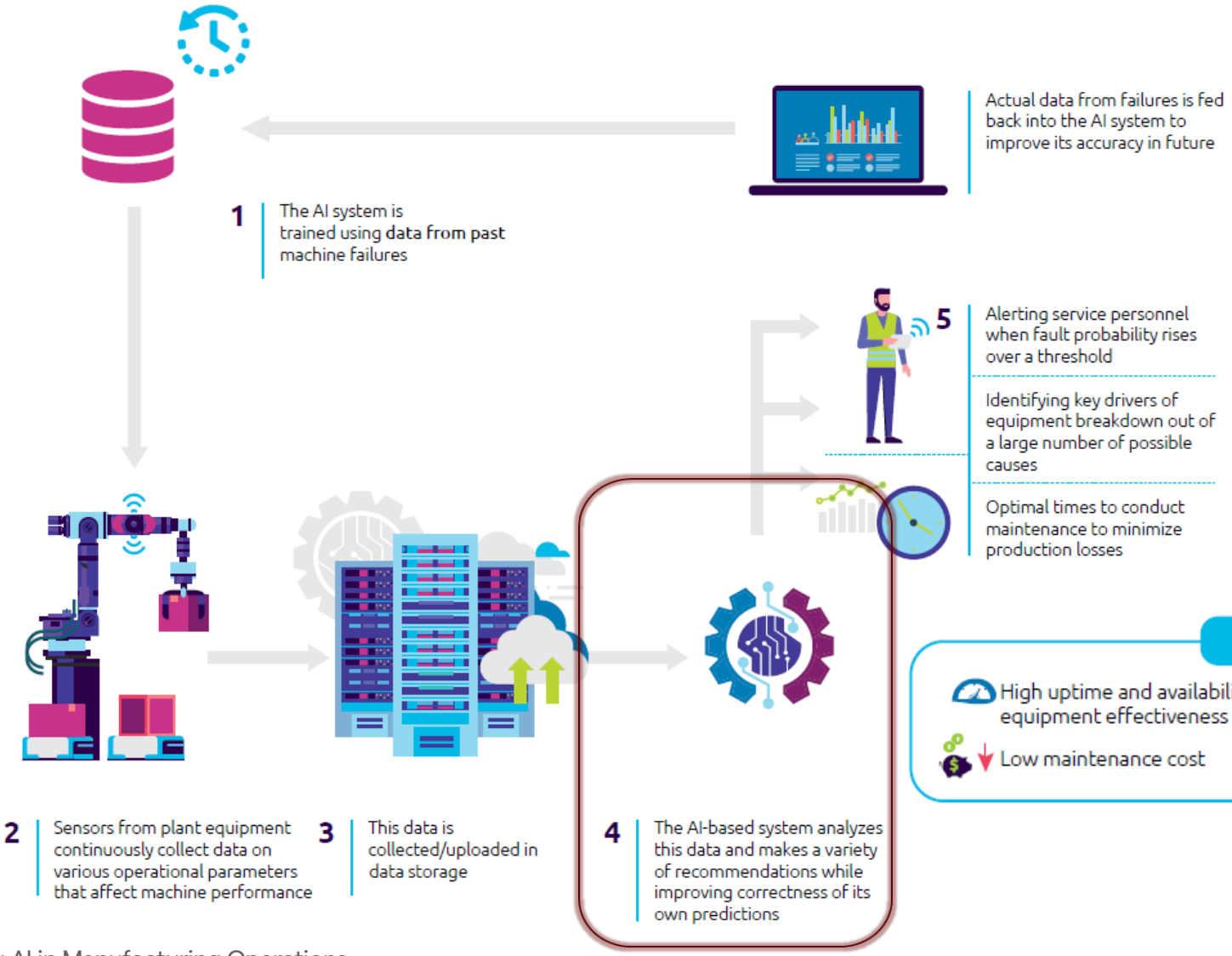
Revenue growth owing to better matching of demand and supply

Cost savings owing to lower reliance on overstocking and reduced waste

Freed up time of teams to focus on building differentiated forecasting strategies and exceed customer expectations

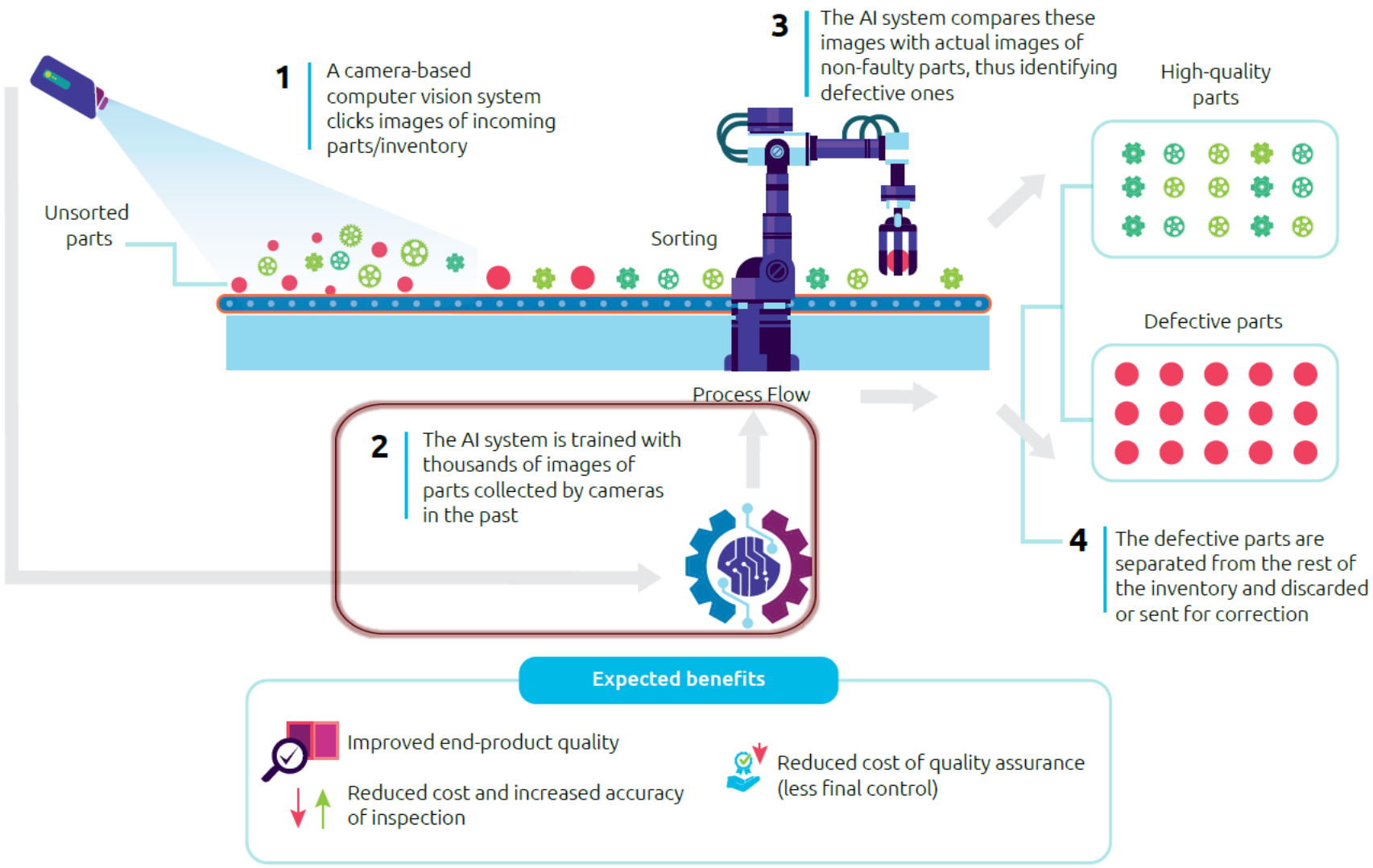
Source: Capgemini, Scaling AI in Manufacturing Operations

Maintenance Example



Source: Capgemini, Scaling AI in Manufacturing Operations

Visual Inspection and Quality Control Example



Source: Capgemini, Scaling AI in Manufacturing Operations

Tailwinds & Headwinds

Tailwinds

- **US infrastructure bill, Inflation Reduction Act, CHIPS Act-** In total, $1.85 Tn of funding has been allocated across three major bill which will drastically help manufacturing sector
- **Reshoring/Nearshoring** – Companies' need for resilient supply chains will boost local manufacturing
- **Accident Prone Industry -** Manufacturing is one of the highest risk sectors to be working in (2021 #'s: 490k injuries, 347 deaths)
- **Speed and accuracy is crucial** - Consumers demanding faster and more reliable shipping/delivery times
- **Sustainability** - Consumer & Regulatory push towards being more energy efficient
- **Downtime Frustrations** - Manufacturers about 800 hours of unplanned downtime every year (15 hours p/ week). The cost of unexpected troubleshooting, estimated at $50 billion yearly, results in lower productivity and lost revenue.

Headwinds

- **Lack of universal industrial data** - Manufacturing data is often localized or specific to a particular industry domain or a company's operations. As a result, there isn't a lot of relevant public data available for training/building AI models
- **Cyclical risk** - the industrial sector has a history of cyclical revenues and margins.

Source: National Safety Council, TechCrunch - ControlRoomsAI

Investment Landscape

Top Investors (by deal count)

INSIGHT PARTNERS

Insight Partners is a global software investor that partners with high-growth technology, software, and Internet startup companies.

- **Companies Funded** - 4
- **Invested Sectors** – Maintenance, Process Optimization, Visual Inspection

MOMENTA

Industrial Impact venture capital + growth firm accelerating digital innovation in the energy, manufacturing, smart spaces, and supply chain

- **Companies Funded** - 4
- **Invested Sectors** – Process Optimization, Maintenance, Energy Management

America's Seed Fund at the National Science Foundation awards nearly $200 million annually to startups and small businesses.

- **Companies Funded** - 3
- **Invested Sectors** – Process Optimization, R&D, Energy Management

Alumni Ventures Group provides high-quality, diversified venture portfolios to individual investors who previously haven't had access to VC. It helps accredited alums from top entrepreneurial schools invest together in the ventures of fellow alums

- **Companies Funded** - 3
- **Invested Sectors** – Safety, Visual Inspection, Production

Source: Crunchbase

Top Investors

Highlighted Diverse Founders

We identified a total of 65 startups that fall within the scope of our thesis. The top investors by deal count are:

VC:

1. Insight Partners (4)
2. Momenta Industrial Impact (4)
3. National Science Foundation (4)
4. Alumni Ventures (3)
5. CDL - Creative Destruction Lab (3)

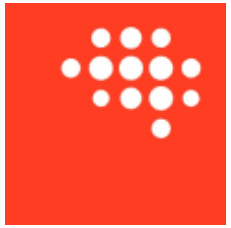
Accelerators:

1. Techstars (9)
2. Plug & Play (5)
3. MassChallenge (4)
4. Y-Combinator (3)

	Organization Name		Total Funding (USD)	Top 5 Investors
1	Blue Yonder	$	1,675,000,000	Panasonic, New Mountain Capital, Blackstone Group
2	Bright Machines	$	311,000,000	Hercules Capital, Eclipse Ventures, BAM Elevate, SVB Financial Group, Lux Capital
3	Augury	$	294,000,000	Insight Partners, Eclipse Ventures, Qualcomm Ventures, SE Ventures, Baker Hughes
4	Plex Systems	$	186,500,000	Francisco Partners, T. Rowe Price, Accel, Apax Partners
5	Tulip Interfaces	$	152,500,000	Pitango VC, Insight Partners, Vertex Ventures, Founder Collective, MIT Media Lab
6	Seeq	$	115,223,642	Insight Partners, Madrona, Next47, Saudi Aramco Energy Ventures, Chevron Technology Ventures
7	TRACTIAN	$	63,700,000	Soma Capital, Y Combinator, General Catalyst, Liquid 2 Ventures, Monashees
8	Sight Machine	$	80,400,269	FundersClub, Mercury, Momenta, DNX Ventures, E.ON
9	Landing AI	$	57,000,000	Lenovo, Intel Capital, Insight Partners, Samsung Electronics, Canada Pension Plan Investment Board
10	MaintainX	$	53,800,000	Bessemer Venture Partners, Vulcan Capital, Amity Ventures, Ridge Ventures, August Capital
11	AssetWatch	$	53,137,997	G2 Venture Partners, Monte Carlo Capital, Ikove Capital Partners, Standard Investments, OUP (Osage University Partners)
12	Decisyon	$	45,145,000	Plug and Play Ventures, Catalyst Investors, Axel Johnson
13	Guardhat Technologies	$	41,900,000	Alumni Ventures, Silicon Valley Bank, General Catalyst, Caterpillar, Revolutionâ€™s Rise of the Rest Seed Fund
14	Litmus Automation	$	40,700,000	Alchemist Accelerator, Plug and Play Ventures, Momenta, Belden, Mitsubishi Corporation
15	MachineMetrics	$	37,654,263	MassVentures, Bolt, Tola Capital, Teradyne, Firebolt Ventures
16	Phaidra	$	30,500,000	University of Washington, Section 32, Mark Cuban, Vela Partners, Mustafa Suleyman
17	Guidewheel	$	30,200,000	Gaingels, Breakthrough Energy Ventures, Mana Ventures, Greycroft, January Ventures
18	Oden Technologies	$	30,150,000	Atomico, EQT Ventures, LocalGlobe, Ion Pacific, Inbox Capital
19	Ambyint	$	29,018,997	Mercury, Builders VC, Equinor, GE Ventures, Sustainable Development Technology Canada
20	DeepHow	$	23,120,000	Techstars, Sierra Ventures, Qualcomm Ventures, Owl Ventures, LG Technology Ventures
21	Canvass AI	$	20,730,000	Creative Destruction Lab (CDL), Government of Canada, Gradient Ventures, BDC Venture Capital, Real Ventures
22	First Resonance	$	19,300,000	Village Global, Blue Bear Capital, Craft Ventures, Starburst Accelerator, Builders VC
23	Nanoprecise Sci Corp	$	18,969,710	CIBC Innovation Banking, Export Development Canada, Sensata Technologies, Honeywell Ventures, Alberta Innovates
24	Material Evolution	$	18,919,805	At One Ventures, Norrsken VC, Playfair Capital, HG Ventures, KOMPAS VC
25	Acerta Analytics	$	18,632,783	Techstars, SVB Financial Group, Plug and Play Ventures, OMERS Ventures, M12 - Microsoft's Venture Fund
26	Raven Telemetry	$	18,114,258	Export Development Canada, Tobias LÃ¼tke, Momenta, Celtic House Venture Partners, Chartline Capital Partners
27	Keychain	$	18,000,000	BoxGroup, Lightspeed Venture Partners, Afore Capital, SVA, Nitesh Banta
28	DarwinAI	$	17,831,941	Creative Destruction Lab (CDL), Obvious Ventures, BDC Venture Capital, Inovia Capital, Honeywell Ventures
29	Tignis	$	15,655,922	DN Capital, Clear Ventures, BMNT, Ashmeet Sidana, Christopher Rust
30	ControlRooms.ai	$	13,750,000	FJ Labs, S3 Ventures, Amity Ventures, Origin Ventures, Alpha Square Group

Source: Crunchbase

Top 12 Companies with Diverse Founders/Co-Founders



Bright Machines

$311mm
Total Raised*

Series B
Latest Round

QC, Process Optimization, R&D

AUGURY

$294mm
Total Raised

Series E
Latest Round

Maintenance

TRACTIAN

$64mm
Total Raised

Series B
Latest Round

Maintenance

LANDING AI

$57mm
Total Raised

Series A
Latest Round

Visual Inspection

decisyon

$45mm*
Total Raised

Series B
Latest Round

Process Optimization

Guidewheel

$30.2mm
Total Raised

Series A
Latest Round

Process Optimization

deephow

$23mm
Total Raised

Series B
Latest Round

Maintenance

Keychain

$18mm
Total Raised

Seed
Latest Round

Procurement, Product Development

Acerta

$19mm
Total Raised

Series B
Latest Round

Quality Control

CR

ControlRooms AI

$14mm
Total Raised

Series B
Latest Round

Maintenance

Koidra

$11mm
Total Raised

Seed + Grant
Latest Round

Process Optimization

THROUGHPUT AI

$11mm
Total Raised

Seed
Latest Round

Process Optimization

*Includes debt financing

Total Funding – $3.6bn

Highlighted Diverse Founders

	Organization Name	Description		Total Funding (USD)	# of Employees
1	Blue Yonder	Blue Yonder is a digital supply chain and omni-channel commerce fulfillment platform.	$	1,675,000,000	5001-10000
2	Bright Machines	Bright Machines brings together flexible factory robots with intelligent software, production data and machine learning.	$	311,000,000	251-500
3	Augury	Augury provides machine health diagnostics designed to help reduce downtime and increase supply chain resilience.	$	294,000,000	101-250
4	Plex Systems	Plex Systems delivers a smart manufacturing platform for making products.	$	186,500,000	501-1000
5	Tulip Interfaces	Tulip is empowering companies to digitally transform their operations its connected, IIoT-native, no-code frontline operations platform.	$	152,500,000	101-250
6	Seeq	Seeq is a software company that accelerates industrial process analytics for process manufacturing data.	$	115,223,642	101-250
7	TRACTIAN	Tractian is a machine intelligence company that offers industrial monitoring systems.	$	63,700,000	101-250
8	Sight Machine	Sight Machine provides analytics platform that helps address critical challenges in quality and productivity throughout the enterprise.	$	80,400,269	51-100
9	Landing AI	Landing AI applies AI and deep learning to help manufacturers solve challenging visual inspection problems and generate business value.	$	57,000,000	51-100
10	MaintainX	MaintainX is the leading maintenance and work execution software, designed specifically for industrial and frontline teams.	$	53,800,000	101-250
11	AssetWatch	AssetWatch is a deployable, remote, end-to-end condition monitoring solution providing predictive insight to enable proactive maintenance.	$	53,137,997	101-250
12	Decisyon	Decisyonâ€™s software products accelerate your IIoT data journey from aggregation to visualization, insight, analysis & decision thru action.	$	45,145,000	51-100
13	Guardhat Technologies	Guardhat is a multi-product, feature-packed intelligent safety system that integrates cutting edge wearable technology.	$	41,900,000	11 to 50
14	Litmus Automation	Litmus provides the solution to transform critical edge data into actionable intelligence that can power maintenance.	$	40,700,000	11 to 50
15	MachineMetrics	MachineMetrics is an Industrial IoT analytics and machine monitoring platform that empowers customers through real-time data.	$	37,654,263	11 to 50
16	Phaidra	Phaidra provides AI and ML solutions to accelerate performance in large-scale industries.	$	30,500,000	51 to 100
17	Guidewheel	Guidewheel is the era of AI and the industrial internet complex systems.	$	30,200,000	11 to 50
18	Oden Technologies	Oden Technologies is the intelligent industrial automation company, empowering manufacturers to achieve perfect production.	$	30,150,000	11 to 50
19	Ambyint	Ambyint provides artificial intelligence-based technologies that automates the process of companies in oil and gas industry.	$	29,018,997	51-100
20	DeepHow	DeepHow develops an AI-powered learning platform for manufacturing, service, and repair.	$	23,120,000	51 to 100
21	Canvass AI	Canvass AI is a platform that delivers industrial AI for industrial manufacturers, and oil and gas companies.	$	20,730,000	11 to 50
22	First Resonance	First Resonance develops ION Factory OS, a robust manufacturing production software that provides data insights and improves scalability.	$	19,300,000	11 to 50
23	Nanoprecise Sci Corp	Nanoprecise is an AI & IoT company that is revolutionizing the field of predictive maintenance by accurately diagnosing faults in machines.	$	18,969,710	51-100
24	Material Evolution	Material Evolution is a manufacturing company that aims to decarbonize cement industry using Artificial Intelligence and Machine Learning.	$	18,919,805	11 to 50
25	Acerta Analytics	Acerta Analytics is a software company that improves part quality in precision manufacturing through Machine Learning and AI	$	18,632,783	11 to 50
26	Raven Telemetry	A leading artificial intelligence company.	$	18,114,258	11 to 50
27	Keychain	Keychain is a CPG production platform that collaborates with retailers and brands.	$	18,000,000	1 to 10
28	DarwinAI	DarwinAIâ€™s Generative Synthesis 'AI building AI' technology enables optimized and explainable deep learning.	$	17,831,941	11 to 50
29	Tignis	Tignis develops predictive and proactive support solutions that capitalize on the profound advantages of real-time edge computing.	$	15,655,922	11 to 50
30	ControlRooms.ai	AI-Assisted Troubleshooting for Heavy Industry	$	13,750,000	11 to 50
		Total Raise	**$**	**3,677,655,143**	
		Top 50 Raise	**$**	**3,670,058,954**	
		Top 31 Raise	**$**	**3,530,554,587**	

Source: Crunchbase

Featured Companies

Control Rooms AI (Maintenance)

Omar Talib
Co-Founder, President

$14mm
Total Raised

Series B
Latest Round

Troubleshooting for heavy industries like chemical and energy plants is “virtually the same process today as it was in 1980. The traditional alarm does not provide specific insight into what may be causing problems, so it can often result in long and inefficient searches for potential errant ‘trends.’ These traditional exercises — conducted in the spirit of troubleshooting — are exhausting and inefficient.” - Omar Talib

ControlRooms is a SaaS troubleshooting platform that helps chemical, energy, and materials manufacturers detect issues sooner and troubleshoot faster. Our AI learns your plant's behavior to surfaces issues that matter before humans or alarms detect them. Up and running in one week, ControlRooms helps your frontline find the root cause faster.

Industrial manufacturers face, on average, about 800 hours of unplanned downtime every year, or more than 15 hours per week, according to a recent report. The cost of unexpected troubleshooting, estimated at $50 billion yearly, results in lower productivity and lost revenue

In August the startup announced that it has raised an oversubscribed $10 million Series A round, led by Origin Ventures with participation from Amity Ventures, Tokyo Marine Future Fund, S3 Ventures, GTM Fund, Alpha Square Group and FJ Labs. It has now raised $13.75 million.

Keychain (Procurement & Product Development)

Keychain

$18mm
Total Raised

Seed
Latest Round

Umang Dua
Co-Founder

"Finding the right manufacturing partner is a big issue for consumer packaged goods (CPG) companies...If we can take that process from months down to days, we think we can unlock innovation in product development for this whole industry. That, in turn, will result in healthier, more affordable products on our store shelves." - Oisin Hanrahan, Co-founder

Keychain seeks to use artificial intelligence to help brands find manufacturing partners. Finding the right manufacturing partner is a big issue for consumer packaged goods (CPG) companies. If we can take that process from months down to days, we think we can unlock innovation in product development for this whole industry. That, in turn, will result in healthier, more affordable products on our store shelves.

Right now, the CPG industry operates largely offline and is dominated by trade shows and vetting via brokers. Keychain aims to have a marketplace at its core to match "over 10,000 manufacturers on one side with brands and retailers on the other," Hanrahan said.

Next, the company wants to expand to help businesses with the entire manufacturing process, including sourcing, onboarding and compliance

Guidewheel (Process Optimization)

$30.2mm
Total Raised

Series A
Latest Round

Lauren Dunford
Co-Founder

"Guidewheel allows us to track energy consumption at every one of our plants and direct production to the most energy-efficient manufacturing lines. With Guidewheel in our corner, we've got an ideal foundation for our energy, sustainability and ESG initiatives." Paul Kayser, CEO at Pretium Packaging

Guidewheel is a leader in cloud-powered FactoryOps, empowering all the world's factories to digitize their operations and reach sustainable peak performance. Guidewheel's plug-and-play platform clips onto any machine on the factory floor, delivering real-time visibility that reduces lost production and improves performance—a critical fix at a time when all eyes are on manufacturers and their impact on the global supply chain.

Guidewheel's product has been recognized with prizes from Stanford and MIT, and the team brings both manufacturing expertise and success building world-class cloud software at scale. A global software company backed by Greycroft and Breakthrough Energy Ventures, Guidewheel works with 200+ manufacturers across 7 countries and was recognized by the World Economic Forum in 2022 as one of 100 most promising companies globally poised to make a significant impact on business and society.

Acerta Analytics (Quality Control)

Greta Cutulenco
Founder, CEO

Acerta

$19mm
Total Raised

Series B
Latest Round

"Nissan recognizes the strength in Ontario's thriving automotive ecosystem and expertise in AI and manufacturing. We worked with Acerta to accelerate development of this technology. We're excited to continue our partnership." Kazuhiro Doi, Nissan Corporate VP / Alliance Global VP Research Division

Acerta's machine learning and artificial intelligence-powered solutions are transforming quality control for precision manufacturers of parts built for automotive and off-highway vehicles. Acerta translates complex product data into actionable insights for manufacturers, helping them get products to market faster with fewer defects.

Through this "Actionable AI," Acerta's ML/AI solutions help manufacturers locate the earliest indicators of future product failures, accelerate root cause analysis, reduce scrap and rework, and improve throughput. Their customers can make the right decisions fast, optimize production and improve product quality, ultimately improving profits.

Everguard (Worker Safety)

Ali Riza
Founder, CEO

EVERGUARD.ai
the future of industrial sustainability

$6,5mm
Total Raised

Seed
Latest Round

"We see proactive prevention happen daily with Sentri360. I am thrilled that we continue to take every necessary step to enhance our safety program and keep our team members safe, while preventing costly line shutdowns."
- line worker at SeAH Besteel "

Traditionally the manufacturing/industrial sectors has been limited to a reactive approach to safety, using lagging indicators to develop new protocols or take corrective actions

Everguard's Sentri360uses artificial intelligence (AI) powered by sensor fusion to gather input and data from multiple sources to continuously assess the workplace and proactively protect workers from incidents and accidents. Combining computer vision (CV) technology, sensor fusion, edge computing, and wearables, Sentri360 is the first truly proactive solution to industrial safety. For example, Everguard can help initiatives such as personal protective equipment (PPE) compliance, virtual fencing of restricted areas, crane-to-crane accident avoidance, crane-to-worker incident avoidance, cobble events, and SOS/fall detection.

SeAH Besteel and Everguard.ai announced that the top Korean special steel maker has committed to a multi-million dollar expansion of its use of Everguard's Sentri360 platform and ecosystem to continue increasing safety measures at the SeAH Besteel plant located in Gunsan, Korea.

ThroughPut (Process Optimization)

Ali Riza
Founder, CEO

$11mm
Total Raised

Seed
Latest Round

"Our collaboration with ThroughPut.ai will help supply chain networks across the world leverage data-driven decision-making aimed at anticipating and planning for the future," said Tarik Dwiek, Head of Technology Alliances at Snowflake.

ThroughPut solves the “Data-to-Dollars” Problem with it's AI Software. Leveraging your existing Data, ThroughPut AI software solves your Operational Inefficiencies across your end-to-end global Supply Chain, so your existing Teams can Increase Output, Profitability & Inventory Turns immediately.

Developer of artificial intelligence-driven supply chain optimization platform designed for companies to increase output, quality, profitability, and sustainability through bottleneck elimination. The company's platform provides real-time root cause analysis for end-to-end supply chain management using existing time-stamped data by leveraging powerful artificial intelligence algorithms and practices, enabling decision-makers to take real-time corrective measures and save time, money, resources, and brand integrity.

Let’s change the face of entrepreneurship, together.

Harlem Capital