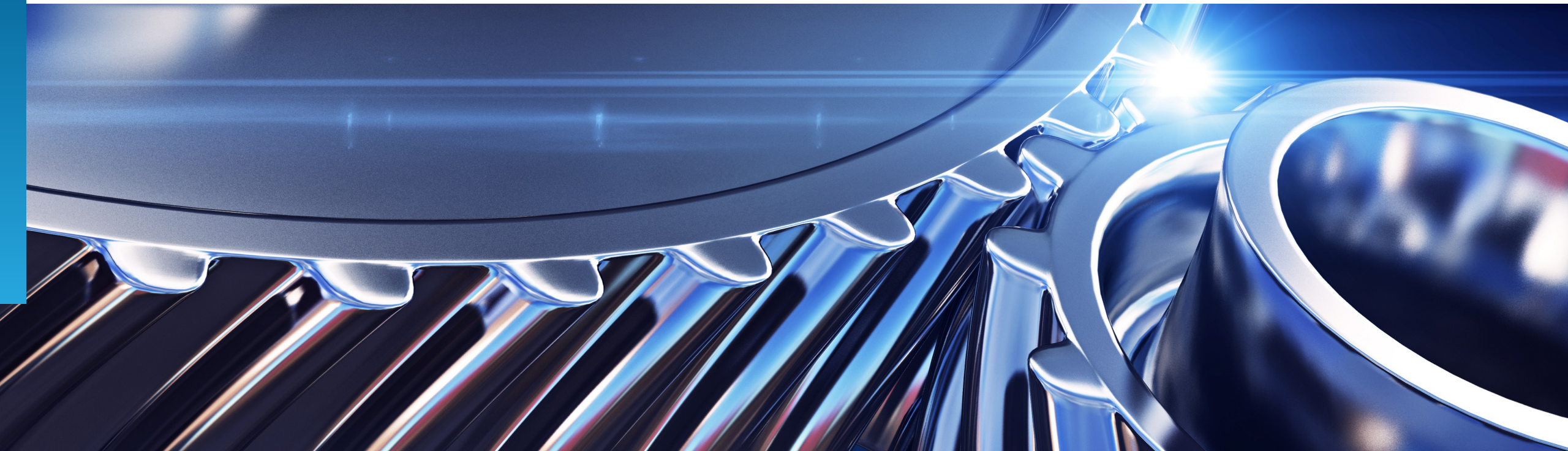# Unleashing the Era of Phygital Manufacturing – Industry 4.0 State of the Market 2023

February 2023: Complimentary Abstract / Table of Contents

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Introduction

- Industry 4.0 or the fourth industrial revolution represents a new phase of transformation in the manufacturing and related value chains. The Industrial Internet of Things (IIoT), Artificial Intelligence (AI), Machine Learning (ML), Augmented Reality (AR), Virtual Reality (VR), additive manufacturing, analytics, simulation, blockchain, cybersecurity, cloud and edge computing, digital twins and robotics contribute to this transformation, which is characterized by interconnectivity, automation and complete digital transformation

- Due to numerous advantages to businesses, including enhanced flexibility, agility, visibility, quality, efficiency, and control, Industry 4.0 adoption is gaining substantial traction on a global scale. However, enterprises are facing several challenges in scaling up their Industry 4.0 initiatives, such as the lack of a strategic approach to implementation, technological complexity, costs, and unavailability of talent. Service providers are stepping in to address these issues and provide a wide range of solutions, significantly advancing the adoption of Industry 4.0 in businesses

- This report looks at the dynamism of the global Industry 4.0 market. The scope of this report covers the segments below – market overview, emerging trends in the market, and Industry 4.0 services outsourcing landscape

Scope of this report:

Market overview

Emerging trends

Outsourcing landscape

Summary of key messages

Some of the findings in this report, among others, are:

Market overview

- Overall enterprise spend for Industry 4.0 initiatives has grown at a rate of 12-14% from US$105-110 billion in CY21 to US$115-120 billion in CY22
- Most firms are still in the early stages of adoption and are weighing the value proposition offered by Industry 4.0
- Strategic approach to I4.0, technological complexity, costs, and talent availability remain key concerns when it comes to scaling projects in this domain

Emerging trends

- Successful implementation of several I4.0 use cases requires enterprises to develop deep expertise on a multitude of technologies
- Enterprises need to comply with multiple evolving standards depending upon their Industry 4.0 technology choices
- Enterprises are seeking to create 360-degree value with circular economy and sustainability
- With the increase in adoption of Industry 4.0, security threats are increasing like never before, leading to greater investment and focus on cybersecurity

Outsourcing landscape

- The Industry 4.0 outsourced market has grown at a rate of 14-16%, capturing a market of US$11.1-$11.4 billion in CY22
- Service providers are helping enterprises with their sourcing priorities, the top ones being competencies in emerging technologies, access to skilled resources, and cost savings
- Outcome-based pricing models have grown as |compared to last couple of years, however time and material and fixed price contracts are still the most common pricing structures
- Service providers have invested into a range of competitive investments such as partnerships, acquisitions, labs, and CoEs, to expand the breadth and depth of their offerings

This study offers some distinct chapters providing a deep dive into key aspects of Industry 4.0 market; below are four charts to illustrate the depth of the report

Enterprises investing significantly in Industry 4.0 market

Global business I4.0 spend
2019-22E, US$ billion

X% CAGR growth   X% YoY growth

13-15%
12-14%

2019	2021	2022E
80-85	105-110	115-120
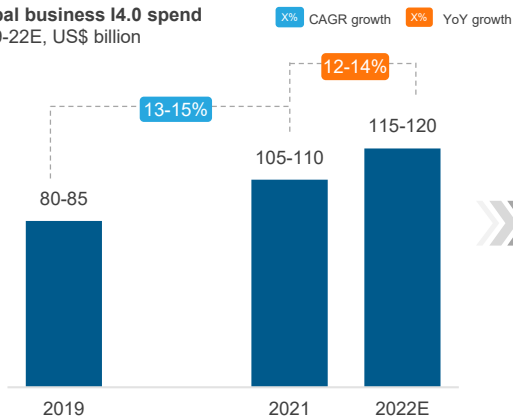
- Enterprises have identified Industry 4.0 as one of their strategic objectives - the level of adoption and spending has been steadily increasing over the past few years
- We estimate the global Industry 4.0 market to be worth roughly around US$115-120 billion in CY22. Increased adoption of digital technologies in the industrial and manufacturing landscape has played a primary role in the growth of this market, with enterprises investing heavily in cloud and platforms, connectivity, IOT, analytics, AI/ML, etc.
- There has been a slight pullback in spending in 2022, owing to recessionary concerns, primarily in Europe. Over the long term, however, Industry 4.0 continues to be one of the megatrends that will define the current decade

Overarching trends across Industry 4.0 landscape

Convergence of technologies
Successful implementation of several I4.0 use cases requires enterprises to develop deep expertise on a multitude of technologies

Sustainability initiatives
Enterprises are seeking to create 360-degree value with Circular economy and Sustainability

The Industry 4.0 standards ecosystem
Enterprises need to comply with the multiple evolving standards depending upon their Industry 4.0 technology choices

Cybersecurity trends
With the convergence of technologies, cyber threats are increasing like never before, leading to greater investment and focus on cybersecurity
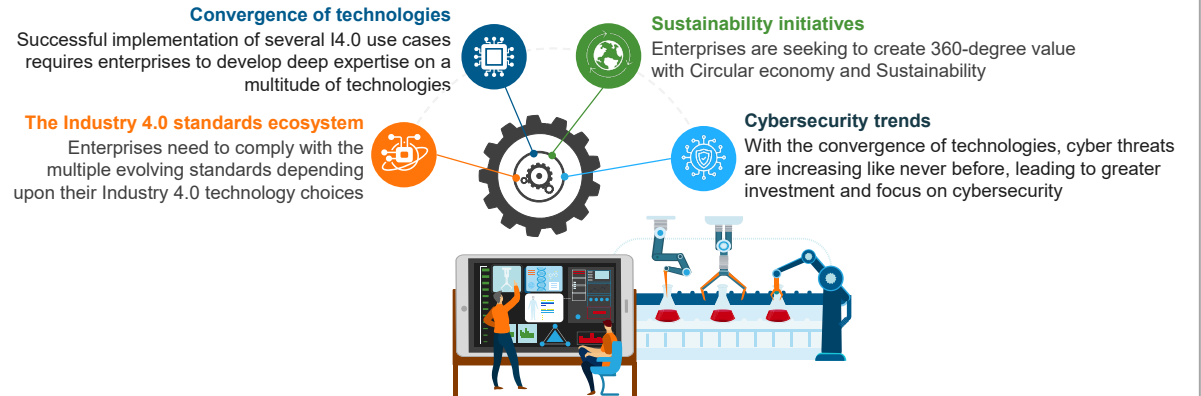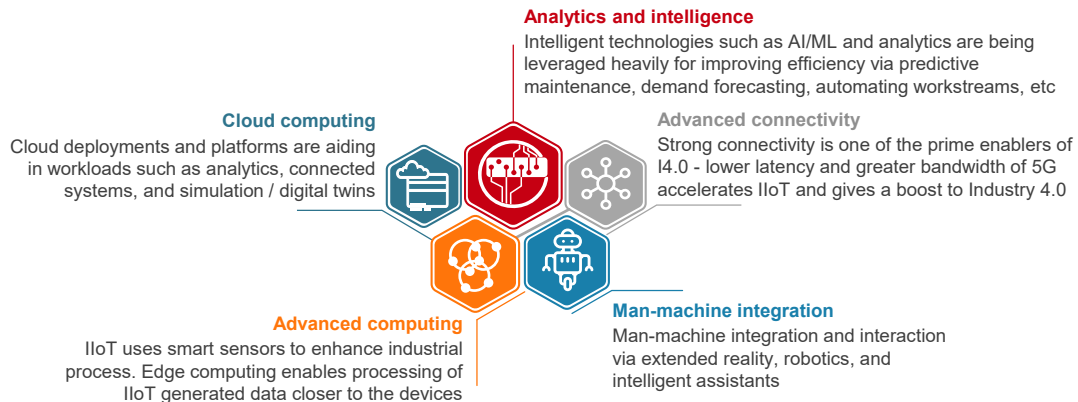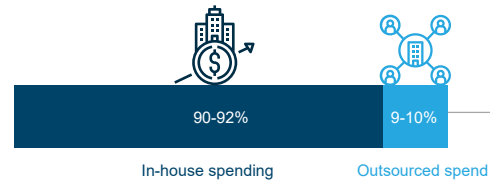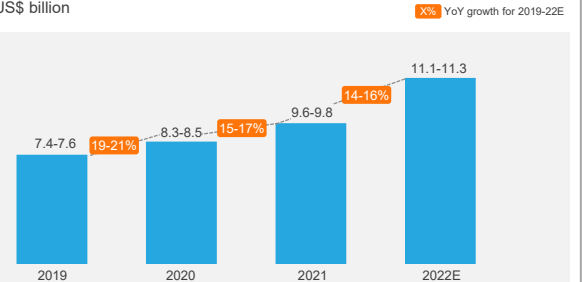
Convergence of technologies

Analytics and intelligence
Intelligent technologies such as AI/ML and analytics are being leveraged heavily for improving efficiency via predictive maintenance, demand forecasting, automating workstreams, etc

Cloud computing
Cloud deployments and platforms are aiding in workloads such as analytics, connected systems, and simulation / digital twins

Advanced connectivity
Strong connectivity is one of the prime enablers of I4.0 - lower latency and greater bandwidth of 5G accelerates IIoT and gives a boost to Industry 4.0

Advanced computing
IIoT uses smart sensors to enhance industrial process. Edge computing enables processing of IIoT generated data closer to the devices

Man-machine integration
Man-machine integration and interaction via extended reality, robotics, and intelligent assistants

Outsourcing landscape

Global business Industry 4.0 spend – share of outsourced spend
2022; percentage

In-house spending: 90-92%
Outsourced spend: 9-10%

Global business Industry 4.0 outsourced services spend
2019-22E, US$ billion

X% YoY growth for 2019-22E

2019	2020	2021	2022E
7.4-7.6	8.3-8.5	9.6-9.8	11.1-11.3

19-21%   15-17%   14-16%

- Outsourced spending is higher in comparison to many other segments within global ER&D, indicating a higher dependence on service providers for both scale and access to talent
- The outsourced services market for Industry 4.0 will continue to grow rapidly, as enterprises across industries invest into their Industry 4.0 initiatives, and scale up from pilot projects to large-scale implementation

Research calendar
Engineering Services

	Published	Planned	Current release

Reports title	Release date
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Engineering Next-Generation Digital Products: The Role of Software in Modern Smart, Connected, Autonomous Products	June 2022
Digital Twin Services PEAK Matrix® Assessment 2022	July 2022
Connected Medical Device Services PEAK Matrix® Assessment 2022	August 2022
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Industry 4.0 Services PEAK Matrix® Assessment 2022: Unleashing the Era of Phygital Manufacturing	September 2022
Leading the Pack: Trends for the Top 200 Engineering Research & Development (ER&D) Enterprises 2022	September 2022
Engineering Services Top 50	November 2023
Acing the Art of Platform-driven Growth: Software Product Engineering Services PEAK Matrix® Assessment 2023	December 2023
Unleashing the Era of Phygital Manufacturing – Industry 4.0 State of the Market 2023	**February 2023**
ER&D in 2023: Key Macroeconomic Trends that Will Shape the ER&D Industry	Q1 2023
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