

HCLTech | Supercharging
Progress™

Reimagining industries for a meta-physical future

Industrial metaverse: A new paradigm connecting physical and virtual systems with human-centric experiences

The metaverse is arguably the fastest growing and widely discussed technology of current times. It opens up endless opportunities for enterprises across industries to create next-gen immersive experiences, foster innovation, generate new revenue opportunities and reduce costs.

Based on their use-cases and areas of application, the metaverse can be classified into three major categories:

enterprise metaverse, consumer metaverse and industrial metaverse.

The industrial metaverse is a technology that is rapidly gaining traction amongst various industries and is being heralded as the future of digital engineering. It merges physical systems and processes within a virtual setting, with human-centric experiences by combining several new-age technologies such as AR/VR/XR, IoT, AI, and so on.

40%

of large organizations are planning to adopt Metaverse based projects aimed at increasing revenue by 2027

Source: Gartner Research

Potential of Industrial Metaverse for enterprises



Enhance workforce efficiency with immersive digital experiences



Saving cost and time on worker safety and compliance



Attaining sustainability goals through innovative practices



Immersive experience of the digital twin across the design, production and operations lifecycles



Faster engineering decisions and reduced product development cycle time



Seamless collaboration among stakeholders across multiple locations

Use Cases and applications across industry verticals



Manufacturing

- Virtual simulation of production lines and equipment
- Collaboratively visualize and optimize manufacturing process
- Worker training to operate and maintenance of machineries



Medical

- Virtual simulation of medical procedure and patient care
- Medical training in realistic environment
- Patient Engagement (virtual consultation)
- Training on virtual human anatomy



Transportation

- Virtual simulation of assembly line and production environment
- Collaboratively visualize and optimize assembly process
- Collaborative design of product components



Semi

- Virtual simulation of chip manufacturing process
- Collaboratively visualize and optimize the manufacturing process
- Train the technicians to operate and maintenance



Energy and utilities

- Virtual oil and gas facility – assets and operations visualization
- Remote collaborative operations with real-time data
- Safety training on real-life situation

Our take on industrial metaverse

The industrial metaverse is truly a technology disruption and enterprises are stepping up to seize opportunities and realize its immense potential. However, while adopting industrial metaverse at scale, enterprises are faced with several challenges:



Longer development and deployment time



Security and privacy concerns



Lack of standardization and interoperability between enterprise systems and platforms



Complexities with scaling



Concerns with data availability due to presence of data in silos



Need for specialists and a multiskilled talent pool



The end-to-end **Industrial Metaverse offering from HCLTech** will help enterprises overcome these challenges and seamlessly guide them into the world of industrial metaverse. Our in-depth domain expertise, engineering DNA, transformative solution accelerators and state-of-the-art labs are designed for empowering enterprises to embark on their industrial metaverse journey.

HCLTech's service offerings to build industrial metaverse

We offer a suite of tailored service offerings across the metaverse lifecycle that can be leveraged by enterprises to build and scale their industrial metaverse solutions.



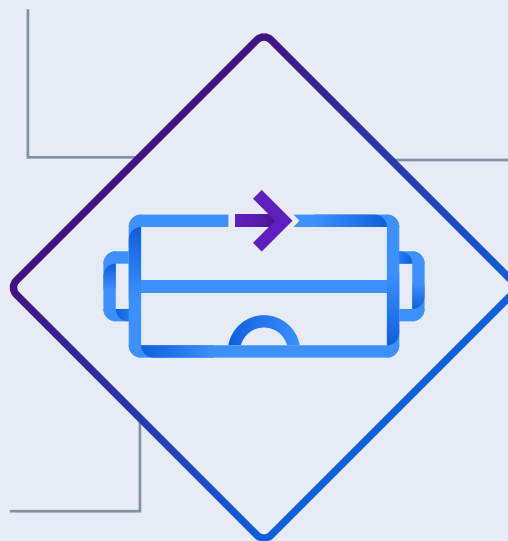
Development and transformation services

- Digital content creation and 3D models optimization
- Plant / factory visualization and 360-degree video capture
- Industrial Metaverse platform and immersive experience development (AR/ VR / MR and web / mobile)
- Digital Twin Integration (IT/OT/ET and AI/ML)



Operation and support services

- Industrial Metaverse platforms management and experiences upgrades
- Change management and user training
- Experiences support and administration
- XR device onboarding and management



Advisory and consulting

- Design thinking and use case definitions
- Metaverse roadmap and blueprint
- Architecture and technology selection
- UX research, persona creation and user journey mapping

Key Partnerships

AWS | Microsoft | PTC | Dassault systems | Siemens | Nvidia | Unity | Photon | CareAR | Hololight

Industrial Metaverse adoption

HCLTech MetaTwin

A platform to create custom industrial metaverse applications with digital twins of real-world physical elements in virtual spaces

XTERN SDP

An XR lifecycle management platform for accelerated development, publication and implementation of extended reality use cases and applications at enterprise-scale

MetaLabs by HCLTech

A strategic platform to incubate and ideate on establishing the enterprise metaverse experience encompassing frameworks

DECODE

Device management platform to support and manage XR devices

Intelliservice

Chatbot that integrates with AR/VR application for information retrieval

AssetTwin360

End-to-end asset management solution to improve asset performance and reduce downtime via predictive maintenance

Plant Twin solution

A solution to simplify the development and implementation of Plant Twins for manufacturing process operations



Industrial Metaverse success stories

Some large enterprises across the globe has unlocked immense business value by leveraging our Industrial metaverse services



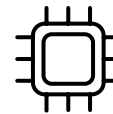
Global office equipment manufacturer

XR platform to train and assist field worker in troubleshooting and resolution of customer reported problem. Improved first time fix rate by 30-50%



Leading medical device manufacturer

Mixed Reality (MR) based virtual job to aid and remote training for onboarding new field engineers



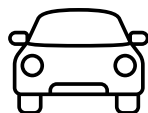
US based semiconductor equipment manufacturer

Designed HoloLens app that offers guided instructions to technician. Created 200+ mixed reality experiences using D365 Guides and HoloLens



Global pharma major

Virtual walkthrough of a pharmaceutical plant using HoloLens



Large automotive OEM

Virtual training of new service and maintenance technicians for assembly, disassembly and service

Get the HCLTech Advantage for your Industrial Metaverse



Proven solutions, IPs and frameworks

Domain-specific and industry-ready solution accelerators (XTERN), platforms and frameworks (Metatwins, Metalabs) to fast-track the adoption of metaverse ready solutions

Ecosystem partnerships:

Partnership and technology co-development engagements with the metaverse ecosystem to conceptualize and develop metaverse technologies of the future



Comprehensive digital technology expertise

Proven expertise in AR/VR/MR, Digital Twins, Cloud, 5G, IoT, AI and ML Security, Modern data warehouses, Microservices development, etc

End-to-end capabilities

Truly end-to-end "Silicon to Software" product development capabilities across industry verticals and use-cases by leveraging technology service enablers such as digital engineering, PLM, digital manufacturing, IoT and digital workplace (XR DAAS) services



Global network of innovation labs and CoEs

Dedicated investments in 11+ state-of-the-art labs, CoEs, MetaAgents and studios across the globe to build and showcase industry-ready solutions

Fostering innovation through Metaverse Incubators (METACHAMPS):

HCLTech platform to incubate ideas-to-products through industry, start up and infrastructure support





Analyst recognitions

Our leadership in AR/VR/XR and metaverse engineering is recognized by leading research and consulting firms.



Avasant AR/VR/XR Services 2023
RadarView™



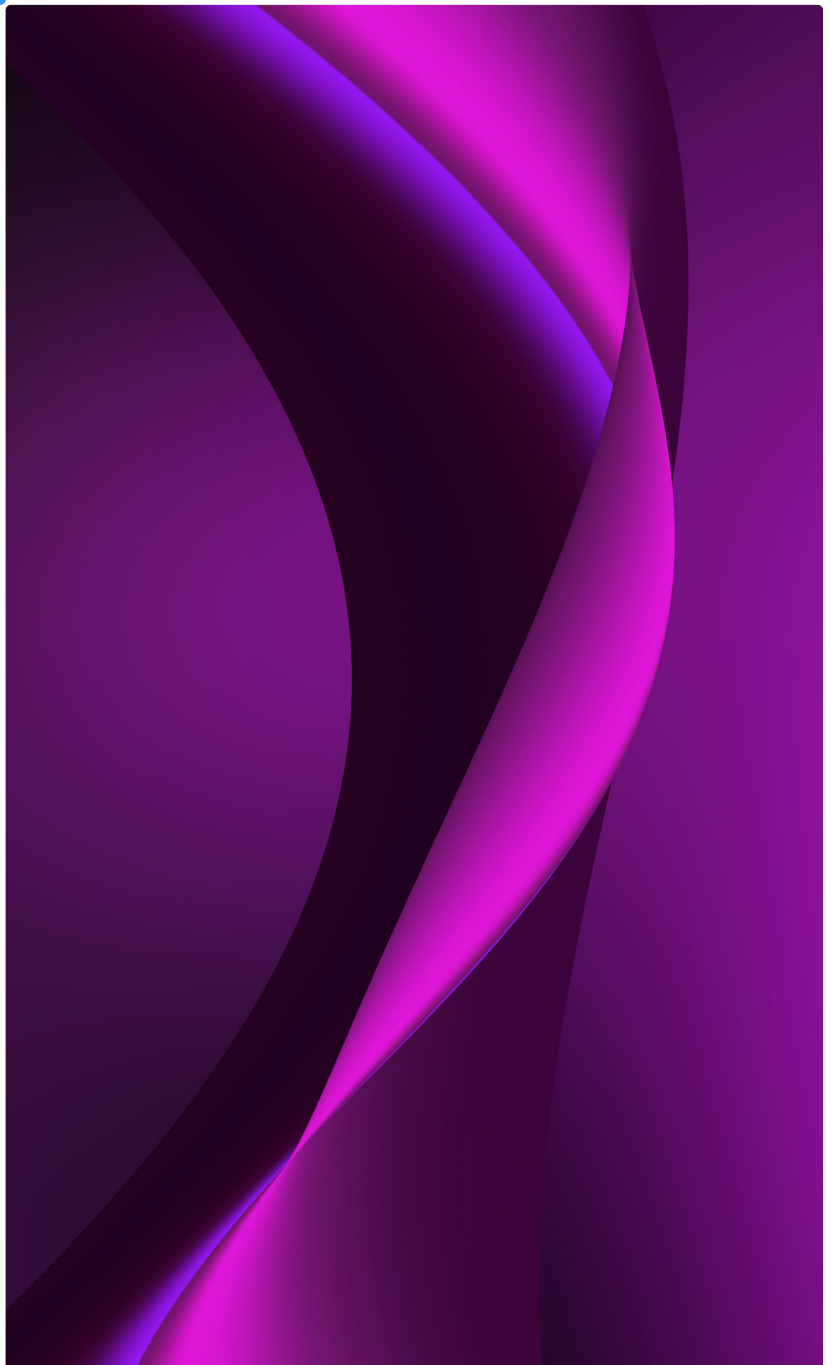
Everest Group's Digital Product
Engineering Services PEAK
Matrix® Assessment 2022



Everest Group's Digital
Twin Services PEAK Matrix®
Assessment 2022



ISG Provider Lens™ Digital
Engineering Services – Integrated
Customer/User Engagement and
Experience, U.S. 2022



HCLTech | Supercharging Progress™

HCLTech is a global technology company, home to more than 221,000 people across 60 countries, delivering industry-leading capabilities centered around digital, engineering, cloud and AI, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, Technology and Services, Telecom and Media, Retail and CPG, and Public Services. Consolidated revenues as of 12 months ending September 2023 totaled \$12.9 billion. To learn how we can supercharge progress for you, visit hcltech.com.

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