Introduction to Industry 4.0 & Metaverse

Duration: 6 Hours, One Day Workshop

MARKET

The **global artificial intelligence** (AI) market size to grow **USD 58.3 billion in 2021** to **USD 309.6 billion by 2026**, at a Compound Annual Growth Rate **(CAGR) of 39.7%** during the forecast period. Various factors such as growth of data-based AI and advancement in deep learning and need to achieve robotic autonomy to stay competitive in a global market are expected to drive the adoption of the AI solutions and services.

The **augmented reality (AR) and virtual reality (VR)** market size was **$37.0 billion in 2019**, and it is expected to reach **$1,274.4 billion in 2030**, while progressing at a **CAGR of 42.9%** during 2020–2030. The increasing demand for AR and VR technology is one of the major factors propelling the market growth.

Based on the technology, the market saw maximum growth in the artificial intelligence and augmented reality segment in 2019. Factors such as new AR VR product (hardware and software) launches, growing adoption of AI in different application areas, and rising funding and investments in AI, AR technology are fueling the growth of the segment.

Asia Pacific countries dominated the market with a **37% share in 2021.** Factors such as the presence of key vendors, the growing industry in Asia, especially in Japan, China, and India, and rising investments in AI and AR technologies in different fields are driving the growth of the AI and AR market in
 Asia Pacific countries.

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TECHNOLOGY BRIEF

AUGMENTED REALITY

Augmented reality (AR) is an interactive experience of a real world environment where the objects that reside in the real world are enhanced by computer generated perceptual information. AR is a system that fulfills three basic features; a combination of real and virtual worlds, real time interaction and accurate 3D registration of virtual and real objects.

The overlaid sensory information can be constructive (i.e masking of the natural environment), or destructive (i.e Masking of the natural environment). This experience is seamlessly interwoven with the physical world such that it is perceived as an immersive aspect of the real environment.

VIRTUAL REALITY

Virtual Reality (VR) is the use of computer technology to create a simulated environment. VR places the user inside an experience. Instead of viewing a screen in front of them, users are immersed and able to interact with 3D worlds. By simulating as many senses as possible, such as vision, hearing, touch, even smell, the computer is transformed into a gatekeeper to this artificial world. VR offers users an immersive experience that allows them to connect with a product in a new way.

In Virtual Reality, the computer uses similar sensors and math. However, rather than locating a real camera within a physical environment, the position of the user's eyes are located within the simulated environment. If the user's head turns, the graphics react accordingly. Rather than compositing virtual objects and a real scene, VR technology creates a convincing, interactive world for the user.

TECHNOLOGY BRIEF

MIXED REALITY

Mixed Reality is a blend of physical and digital worlds, unlocking the links between human, computer, and environment interaction. This new reality is based on advancements in computer vision, graphical processing power, display technology, and input systems.

Mixed Reality is the merge of real and virtual worlds to produce new environments and visualizations where physical and digital objects co-exist and interact in real time.

ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving.

The ideal characteristic of artificial intelligence is its ability to rationalize and take actions that have the best chance of achieving a specific goal. A subset of artificial intelligence is machine learning, which refers to the concept that computer programs can automatically learn from and adapt to new data without being assisted by humans. Deep learning techniques enable this automatic learning through the absorption of huge amounts of unstructured data such as text, images, or video.

TECHNOLOGY BRIEF

BLOCKCHAIN

Blockchain is a shared, immutable ledger for recording transactions, tracking assets and building trust. Discover why businesses worldwide are adopting it. Virtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved.

Why blockchain is important: Business runs on information. The faster it's received and the more accurate it is, the better. Blockchain is ideal for delivering that information because it provides immediate, shared and completely transparent information stored on an immutable ledger that can be accessed only by permissioned network members. A blockchain network can track orders, payments, accounts, production and much more.

NFT

A non-fungible token (NFT) is a financial security consisting of digital data stored in a blockchain, a form of distributed ledger. The ownership of an NFT is recorded in the blockchain, and can be transferred by the owner, allowing NFTs to be sold and traded. NFTs can be created by anybody, and require few or no coding skills to create NFTs typically contain references to digital files such as photos, videos, and audio. Because NFTs are uniquely identifiable assets, they differ from cryptocurrencies, which are fungible.

TECHNOLOGY BRIEF

DIGITAL TWIN

A digital twin is a virtual representation that serves as the real-time digital counterpart of a physical object or process. Though the concept originated earlier (attributed to Michael Grieves, then of the University of Michigan) the first practical definition of a digital twin originated from NASA in an attempt to improve physical-model simulation of spacecraft in 2010. Digital twins are the result of continual improvement in the creation of product design and engineering activities. Product drawings and engineering specifications have progressed from handmade drafting to computer-aided drafting/computer-aided design to model-based systems engineering.

IoT

The **Internet of things** (**IoT**) describes physical objects (or groups of such objects) with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks. Internet of things has been considered a misnomer because devices do not need to be connected to the public internet, they only need to be connected to a network and be individually addressable

COURSE DETAILS

COURSE HIGHLIGHTS

- One Day 6 Hours Duration

- Certificate course

- Video Demonstrations

COURSE CONTENTS

Sr. No.	Time	Topics
1	45 Mins	Introduction to Industry 4.0
2		Digitalisation & Digital Businesses
3		Technologies & Us
4	30 Mins	Industry 4.0, Evolution, Need, Relevance
5	60 Mins	Web 3.0
6		Big data
7		Cloud Edge Computing
8	60 Mins	Block Chain
9		Digital Currency
10		NFT
11	45 Mins	AI/ML
12		IoT
13	60 Mins	Digital Twin
14		AR
15		VR
16		MR
17	30 Mins	Applications in Industry
18		Applications in B2C segment
19	30 Mins	Integrations & Summary

TRAINER

ABOUT TRAINER

Amey Pangarkar

Trainer, Co-Founder, Business Head Aespaes Lab Pvt Ltd.,

Click here for Profile

- Envisaged experiential reality-based products for corporates, education, sports and theme parks industry
- Closely associated with National Institute of Technical Teachers Training & Research, Worcester Polytechnic Institute for setting up AI-empowered AR/VR excellence centres
- Associated with former ICC umpire, Simon Taufel for developing real-time ball tracking AR goggles for on-field Cricket umpires
- Executed Virtual reality and 3D hologram projects for educational sector
- Proud member of Google RARE Leadership Academy
- Certified Facebook Blueprint Master, YouTube marketer, Google Adwords practitioner, Google Analytics Power user & Course completion - Strategic Digital Marketing, IIM - Bangalore
- Avid advertising Professional & Marketing Communication Consultant
- Recipient of Best Digital Marketer - India Education Awards, 2019
- Gold Medallist – MBA Marketing and BE Electrical
- Have handled 30+ B2B, 15+ B2C, 2 feature films, 6 web series marketing campaigns in past 10 years
- Experience of working on 300+ websites, 175 + digital marketing campaigns and 40 + Xr projects

THANKS!

For more details

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