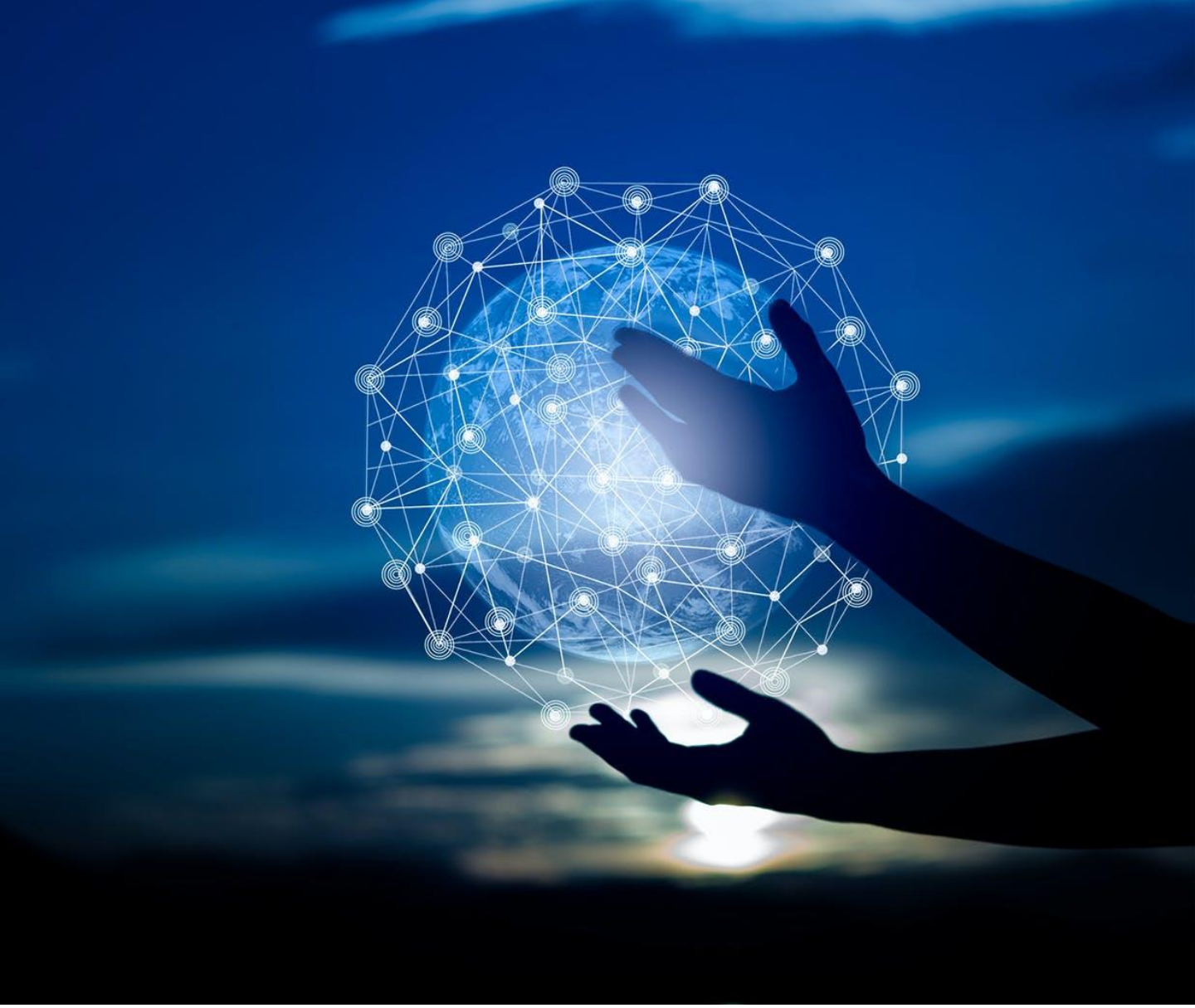

Artificial Intelligence
Intelligent Enterprise

The Next Era of Enterprise Computing…

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What is Digital Transformation
Why Your Business Needs it?

Today every business is faced with new expectations, powerful competitors, new channels, threats and opportunities more than ever.

As a result of the growth in digital economy that results from billions of everyday online connections among people, businesses, devices, data, and processes, existing business models are being radically disrupted.

Digital Companies will be the Winners of Today and Tomorrow

As the numbers of smart, connected devices from phones to cars to wearables are growing, companies that quickly deliver digitally instrumented products or services, those who reap data from market interactions, and use insights to rapidly optimize their value chain are gaining competitive advantage.

These changing business requirements drive the shift to **digitalization**.

What is Digitalization?

Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; briefly it is the process of moving to a digital business

Benefits of Digitalization

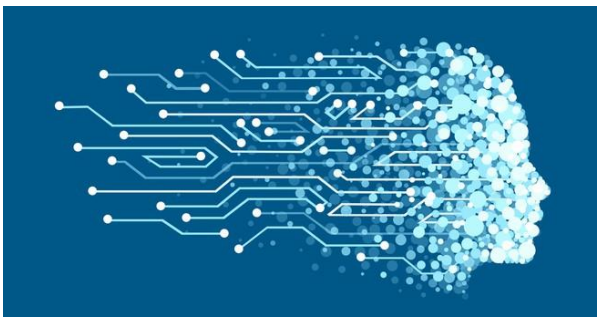
Using digital technologies and data, companies can create additional value for their customers and can increase the efficiency and effectiveness of their processes.

Trends in Digital Business

Innovations in technology introduced us the following concepts, which are trends in digital business

Internet of Things (IoT)

Artifical Intelligence (AI)



Internet of Things

The Internet of Things (IoT) is a network of physical objects that use sensors and application programming interfaces (APIs) to connect and exchange data over the Internet.

These physical objects can be vehicles, machines, connected machines in a production plant, home appliances, cellphones, wearable devices, and almost anything else you can think of.

These “things” are talking to each other, so that some people suggest that IoT should stand for the “Intelligence of Things,” rather than the “Internet of Things”.

How Internet of Things (IoT) are Helping Companies?

The IoT is disrupting traditional business models and creating opportunities for companies to create new services based on real-time data.

A few examples are given in below paragraphs about how IoT help companies. We can think of many more examples as the possibilities in IoT usage are endless like the countless smart devices streamlining our lives.

Delivering Highly Personalized Products and Services

In this way, businesses and organizations will have chance to get closer to their customers and understand their needs. For example, by collecting more accurate data by the sensors in IoT solutions, delivering highly personalized products and services to the customers is possible.

More Effective Asset Management by Using Internal Data

As well as collecting data from external sources, companies can collect and use data from their own internal sources more effectively and benefit from improved asset utilization, predictive maintenance, and security threat detection and prevention.

Deep Business Visibility and Better Decision Making

All these data analyses will help companies to make better decisions. Because, capturing real data will take assumptions out of the equation and provide deep visibility into every aspect of the business

Automation in Manufacturing Processes and Industry 4.0

IoT is used in many companies to automate business and manufacturing processes, to monitor and control the operations remotely, and to optimize supply chains. For example, smart assembly lines could report misconfigurations and errors in real time, producing higher yields and less downtime.

What is Industry 4.0?

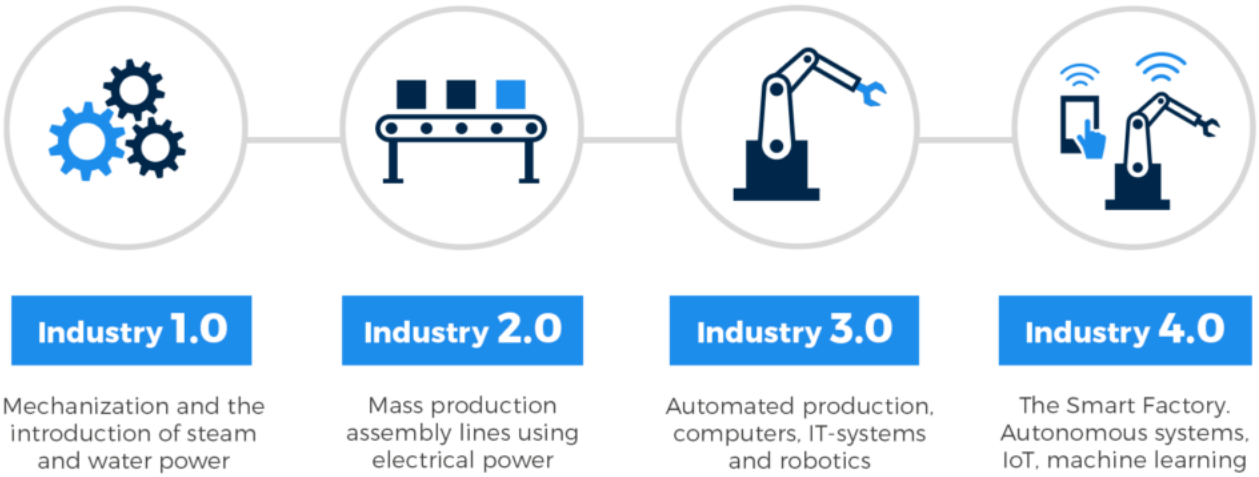
In manufacturing, instead of term IoT, the Industrial Internet of Things (IIoT) – Also known as SMART manufacturing or Industry 4.0 – is used.

The IIoT uses machine to machine (M2M) technology to manage all the processes and issues remotely, including automatic measurements (telemetry), self-monitoring, self-diagnosis, and predictive maintenance.

Industry 4.0 is the subset of the fourth industrial revolution[1] that concerns industry. The fourth industrial revolution encompasses areas which are not normally classified as an industry, such as smart cities, for instance.

Although the terms "industry 4.0" and "fourth industrial revolution" are often used interchangeably, "industry 4.0" factories have machines which are augmented with wireless connectivity and sensors, connected to a system that can visualise the entire production line and make decisions on its own.

In essence, industry 4.0 is the trend towards automation and data exchange in manufacturing technologies and processes which include cyber-physical systems (CPS), the internet of things (IoT), industrial internet of things (IIOT), cloud computing, cognitive computing and artificial intelligence.



The concept includes:

- Smart manufacturing
- Smart factory
- Lights out (manufacturing) also known as dark factories
- Industrial internet of things also called internet of things for manufacturing

Industry 4.0 fosters what has been called a "smart factory". Within modular structured smart factories, cyber-physical systems monitor physical processes, create a virtual copy of the physical world and make decentralized decisions. Over the Internet of Things, cyber-physical systems communicate and cooperate with each other and with humans in real-time both internally and across organizational services offered and used by participants of the value chain.

Artifical Intelligence (AI)
& Machine Learning

Artificial Intelligence was originally defined as “the science and engineering of making intelligent machines”.

Differences between Artifical Intelligence (AI) and Machine Learning

Artificial Intelligence and machine learning are often used interchangeably but actually they are not the same thing.

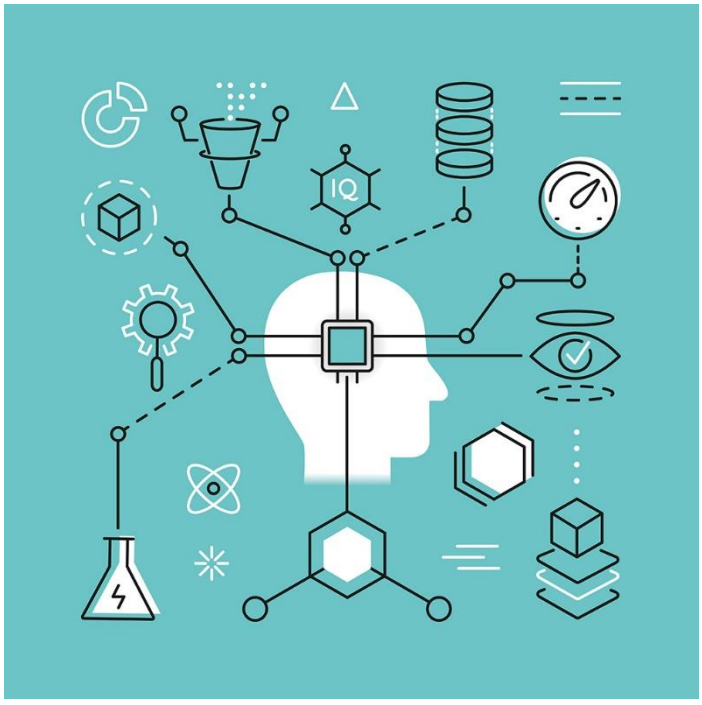
- Artificial Intelligence is the broader concept of machines being able to carry out tasks in a way that we would consider “smart”. Machine Learning is a subset of artifical intelligence, and it is the ability of computers to learn on their own (without being programmed) by using algorithms. In other words; it suggests that we should let the machines access to data and to learn for themselves. Machine learning technology teaches computers how to perform tasks by learning from data.
- AI is based on the idea that even if machines can’t (yet) duplicate the actual structures and thought patterns of the human brain itself, they can at least offer a rough approximation of important functions, such as learning, reasoning, and problem solving.. Machine learning uses sophisticated algorithms to “learn” from massive volumes of data. The more data the algorithms can access, the more they can learn.

The Use of Internet of Things (IoT) in Artifical Intelligence (AI)

The potential opportunities and benefits of both IoT and AI can be practiced, when they are combined.

AI can study from the data to analyze and predict the future actions in advance, such as failure of an equipment in an assembly line.

By connecting IoT data streams to AI systems, the data is being collected from “things”, and then the data is fed into AI system that can for example compare the condition of the “thing” to the other “things”.



Artifical Intelligence Examples

Real-world artificial intelligence examples are everywhere.

Fraud Detection Notifications

For example, after you have made an online purchase, many banks send you notifications (for e.g. via e-mail or SMS), if they think there's a chance that fraud may have been committed on the purchase by your credit card.

Artificial intelligence is often the technology deployed to monitor for this type of fraud.

In many cases, computers are given a very large sample of fraudulent and non-fraudulent purchases and asked to learn to look for signs that a transaction falls into one category or another. After enough training, the system will be able to spot a fraudulent transaction based on the signs and indications that it learned through the training exercise.

Online Shopping Recommendations

As another example, while you visit a shopping site you come accross the recommendations that you're likely to be interested in. How this is happening? The applications can make recommendations that you're likely to be interested in by monitoring the choices you make and inserting them into a learning algorithm.

Assistance in Sales – Product Finder

Imagine that you saw a dress and took the picture of it to try to find it at the department store near you. The sales people can simply use a smartphone app to snap the picture of the dress you are looking for, and the system will use machine learning to hunt through its database to find a match or the nearest equivalent.

Nixla Inc

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