



Artificial Neural Network

For Prelims: Artificial Neural Network , Big Data, Machine Learning, Cloud Computing, Technology.

For Mains: IT & Computers, Artificial Neural Network , Its Significance and Limitations.

Why in News?

Recently, the global **Artificial Neural Network (ANN)** Market report was published.

- It is an information bank that delivers comprehensive information about the market ranging from the establishment to the predictable growth trend.
- As per the current report, **ANN Market to Set Phenomenal Growth from 2021 to 2028.**

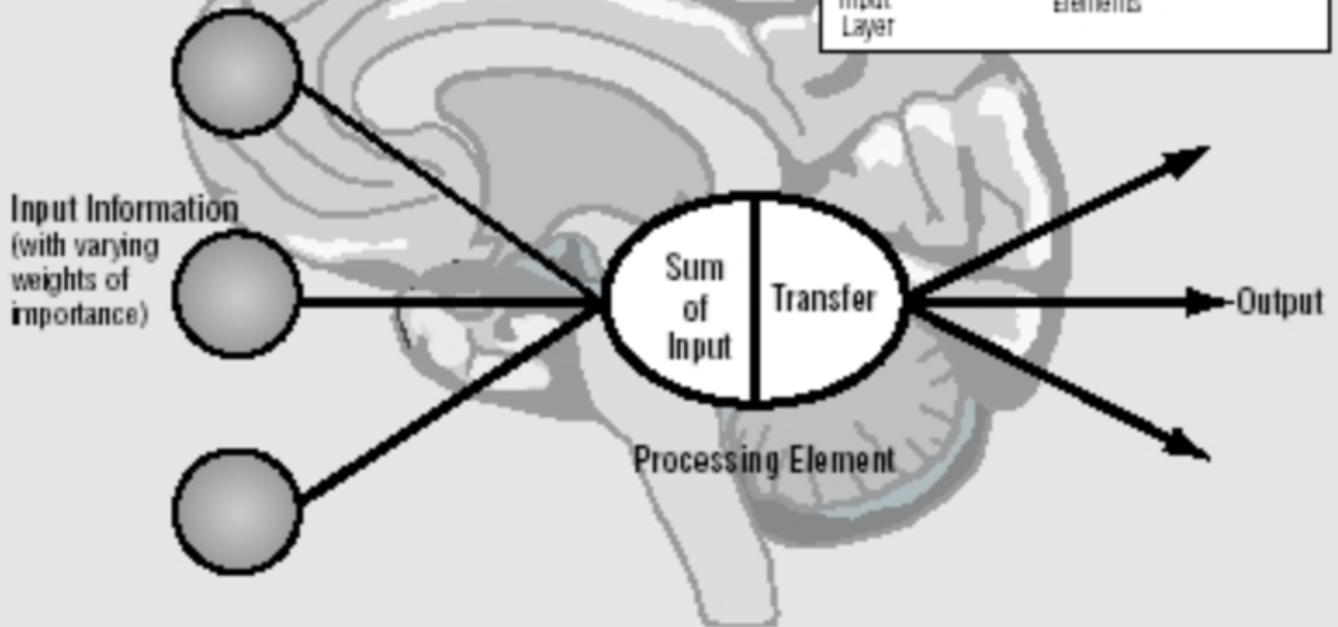
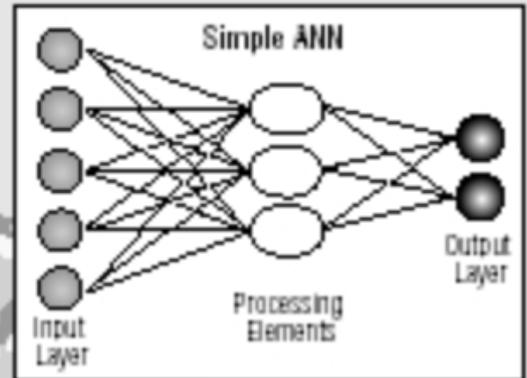
What is an Artificial Neural Network?

- It is a **vital subset of machine learning that helps computer scientists in their work on complex tasks**, such as, strategizing, making predictions, and recognizing trends.
 - It is a **computational model that mimics the way nerve cells work in the human brain**. It is designed to simulate the way the human brain analyzes and processes information.
- It is not like other machine learning algorithms that crunch numbers or organise data, **it is an algorithm that learns from experience and repeated tasks performed by its users.**
- It is also known as a Neural Network (NN). ANN is a **computational model based on the functions and structure of biological neural networks.**
- Information that runs through the network affects the structure of the artificial neural network due to the fact that a neural network learns or changes based on the input and output.
- NNs are **fed massive volumes of data in the beginning phases**. In most cases, **training is done by providing input and informing the network about what should be the output.**
 - Many smartphone makers, for example, have recently integrated facial recognition technology.

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Artificial Neural Network (ANN)

Artificial neurons simulate the basic functions of biological neurons: input, processing, output, and passing information to other neurons. Each input is given a weight to signify how important it is compared to other input.

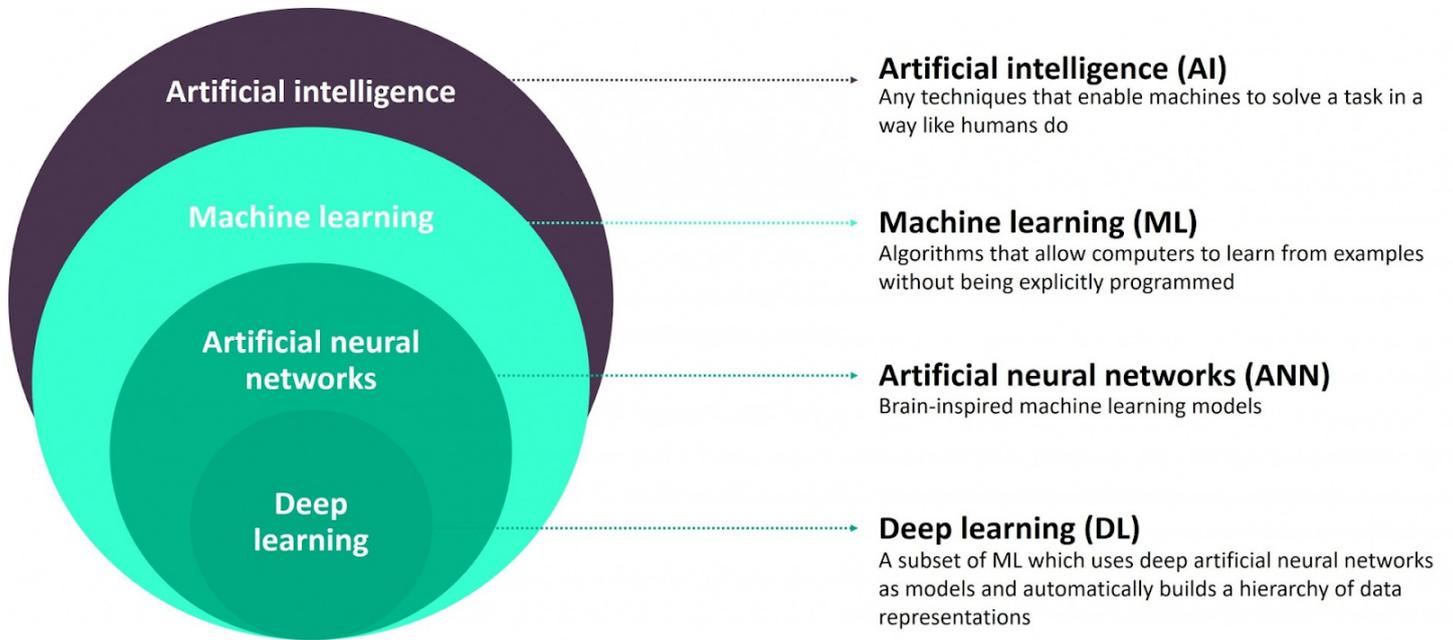


What are the Major Drivers of ANN Growth?

- Rapid digitization is anticipated to **boost the deployment of artificial neural network platforms**. Furthermore, an extensively used application of artificial neural networks is in the field of predictive analytics.
- **Predicting consumer behaviour and sales forecasting** are expected to drive the artificial neural network market during the forecast period.
- ANN helps marketers **predict the outcome of a campaign by recognizing the trends from previous marketing campaigns**.
 - While neural networks have been available for a while, it is mainly the recent emergence of [Big Data](#) that has made this technology extremely useful in the field of marketing.
 - [Cloud computing](#) also provided enormous computing resources that are needed for ANNs to “work through” massive volumes of data.

What are the Limitations of ANN?

- One of the **most significant technological hurdles is the time** it takes to train networks, which frequently demand an acceptable level of computational power for even complex tasks.
- The second factor to consider is that **neural networks are computer systems in which the user categorises the trained data and gets responses**. They have the ability to fine-tune the responses, but **they do not have access to the specific decision-making process**.



[Source: TH](#)

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