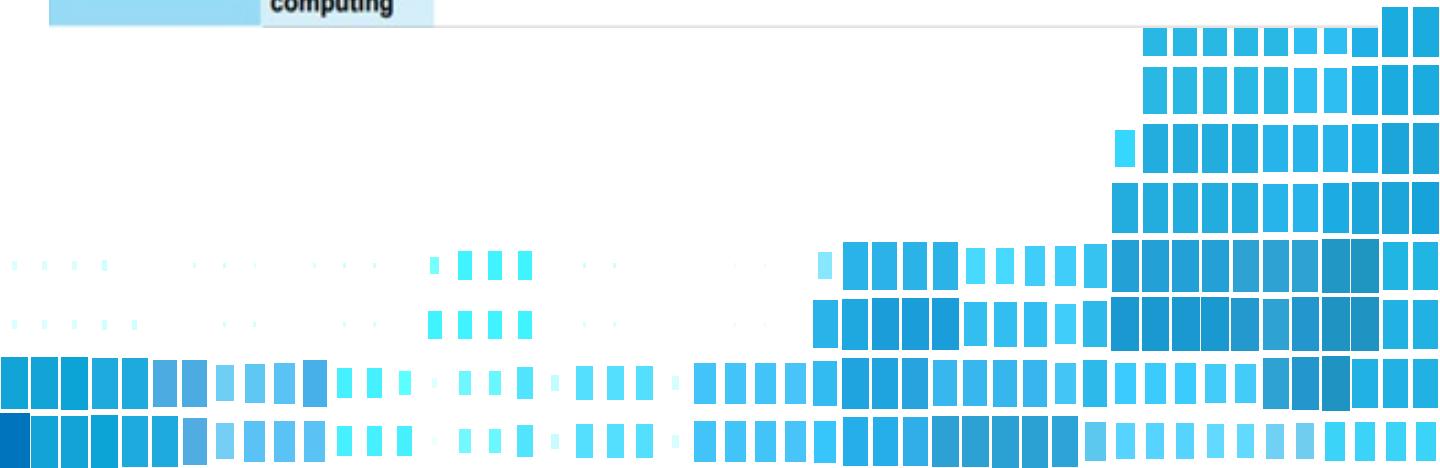# ARTIFICIAL INTELLIGENCE AND MARKET TRENDS

Introduction

Artificial Intelligence has changed the paradigm of human thinking by using the power of machine learning to aid in decision making. The stream of science which deals with the development of AI is now a very hot topic and everyone wants a piece of the action.

AI researcher predicted its need in early 1950's even before the introduction of the integrated circuits.
Now Computer scientists are working towards to fulfill infrastructure needs for Artificial Intelligence in the near future. As the world is focusing on innovation and research it's high time to move towards the AI adoption in our work flow.

Technologies and techniques		Description/examples
Artificial intelligence		Field of computer science specializing in developing systems that exhibit "intelligence." Often abbreviated as AI, the term was coined by John McCarthy at the Dartmouth Conference in 1956, the first conference devoted to this topic
	Machine learning	Subfield of artificial intelligence developing systems that "learn," i.e., practitioners "train" these systems rather than "programming" them
	Supervised learning	Machine learning techniques that train a system to respond appropriately to stimuli by providing a training set of sample input and desired output pairs. Supervised learning has been used for email spam detection by training systems on a large number of emails, each of which has been manually labeled as either being spam or not
	Transfer learning	Subfield of machine learning developing systems that store knowledge gained while solving one problem and applying it to a different but related problem. Often used when the training set for one problem is small, but the training data for a related problem is plentiful, e.g., repurposing a deep learning system trained on a large non-medical image data set to recognize tumors in radiology scans
	Reinforce-ment learning	Subfield of machine learning developing systems that are trained by receiving virtual "rewards" or "punishments" for behaviors rather than supervised learning on correct input-output pairs. In February 2015, DeepMind described a reinforcement learning system that learned how to play a variety of Atari computer games. In March 2016, DeepMind's AlphaGo system defeated the world champion in the game of Go
	Cognitive computing	Synonym for artificial intelligence

Factor Affecting the Growth of AI

The rapid growth of the AI sector is a consequence of a perfect storm of factors described below

Technology Demands

Big Data: Today Google is best search platform to search the best and intelligent results based on the bare minimum inputs is a result of Artificial intelligence incorporation in the Google's search engine, which gives us the ability to find a needle in a haystack. Google search algorithm is based on the AI concepts for managing big data.
Traditional computer systems and processors can only process the information based on the algorithm with linear processing method. The aspects of adding human logical approach would be an add-on aspects as adding human intelligence will result in smart processing and effective utilization resulting in speeding up the whole process of innovation.
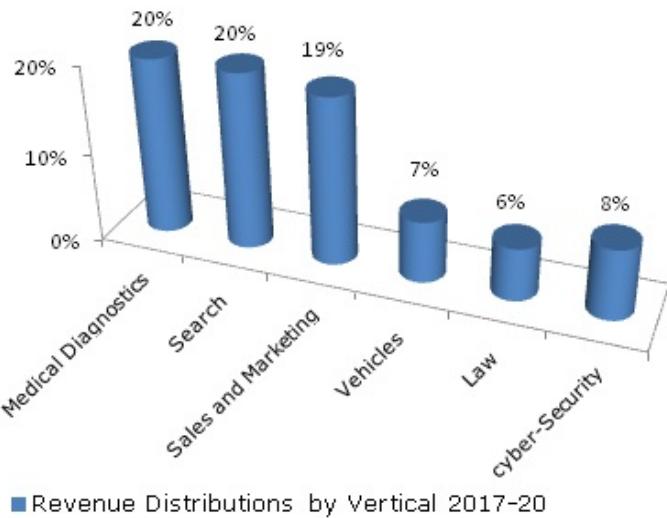
Business Demands

In last 2 decades AI has shown to be a game changer and has given rise to its own industry. Application of AI in almost each and every industry is a result of competitive needs of businesses across multiple sectors that recognize the need for AI to enhance their productivity and boost their revenue with aid of automation.
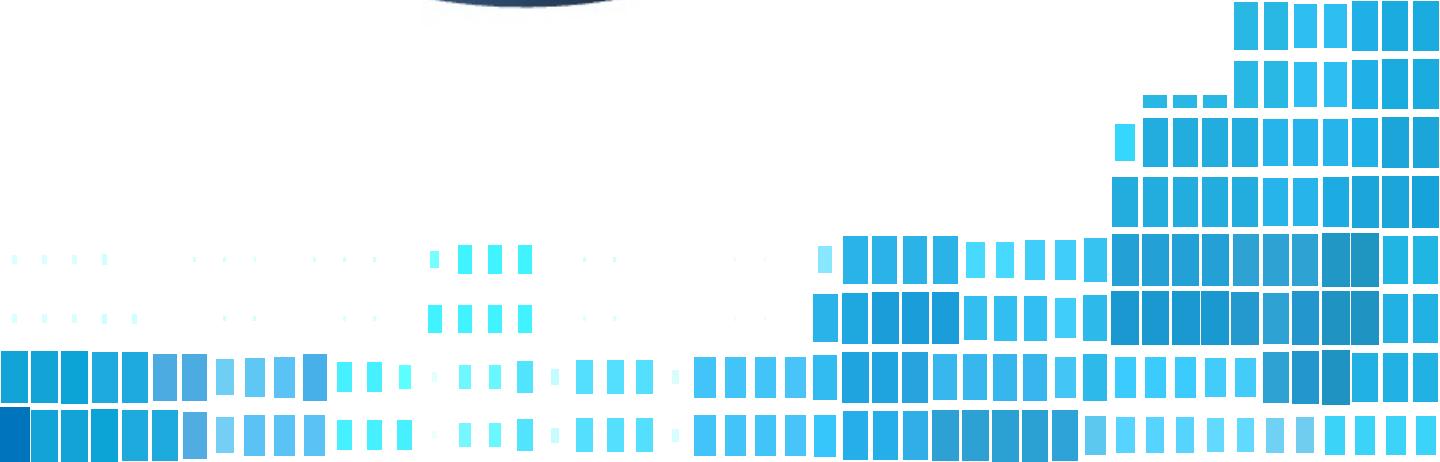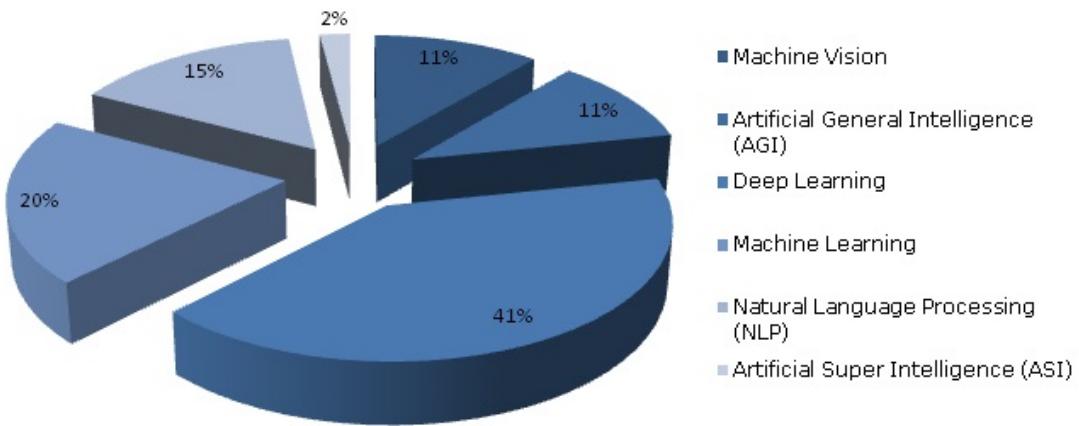
Revenue Distributions

Revenue Distributions by Vertical 2017-20

Vertical	Percentage
Medical Diagnostics	20%
Search	20%
Sales and Marketing	19%
Vehicles	7%
Law	6%
cyber-Security	8%

Revenue Distributions by Vertical 2017-20

Revenue Shared By AI Technology

Technology	Percentage
Machine Vision	11%
Artificial General Intelligence (AGI)	11%
Deep Learning	41%
Machine Learning	20%
Natural Language Processing (NLP)	15%
Artificial Super Intelligence (ASI)	2%

Industries Transformations using AI

AI is affecting all the industrial segments of the world but the top players in the industry who are transforming with the aid of AI are listed below:

Medical Diagnostics: AI penetration into this sector is expected to dramatically accelerate, as it upends the centuries-old model of one-on-one medical diagnosis wholly dependent on the knowledge of the physician.

Many medical Diagnostics are using AI for medical analysis like **Deep Genomic,** is using Deep Learning to predict the effect of alterations to a genome. **Freenome** is using AI to detect cancer from simple blood tests. **Butterfly Networks** is using Deep Learning to dramatically lower the cost of ultrasound imaging.

Pharmaceuticals: The R&D and approval process for new pharmaceuticals is extremely lengthy with hurdles at every stage, which in turn delays and narrows the future research for products in the pipeline, and leads to fewer drugs in the market. AI can also speed up the testing and approval process by finding patterns between test results hundreds of times faster than human testers can.

Computing: In addition to the high demand that AI has created for parallel computing, AI doubles back as a mechanism through which computing itself can shift into a new generation of capabilities.AI has lowered the input costs of other areas of computing.

Search Engines: Google, being the best example implementing AI. Google has applied artificial intelligence from its Deep-Mind machine learning to its own data centers, cutting the amount of energy consumed by 40 percent Deep Learning not only optimizes Google's website search through the continuous refinement fueled by the 12 billion searches conducted each day, but this has extended to images, videos, statistics, social media profiles, SMS text, patents, research papers, and even musical notes.

Sales and Marketing: AI is a trend changer for the sales and marketing front, it has completely revamped the standard sales model and is having a particularly deep impact on age-old practices, through multiple avenues such as marketing automation etc.