

RESHAPE YOUR BUSINESS THROUGH THE ADVENT OF ARTIFICIAL INTELLIGENCE

AJIT C VICHARE*

INTRODUCTION

Artificial intelligence has become a buzzword in the industry. Thanks to the enhancements in machine learning. AI is a transformative technology, which is changing the way companies interact with the customer. It also includes intelligence to the business services and product through a new vision currently hidden in pools of data. Leading companies including Facebook, Google, Microsoft, IBM, Toyota, Renault and Volvo are active in artificial intelligence technology research and plan to invest more in the future.

Artificial intelligence technology has produced considerable achievement in several areas. the most popular are those obtaining machine learning, due to the development in multi-layered convolution neural networks, deep learning architectures, and performance of the computing systems. As such, the breadth of artificial intelligence-based applications is continuously growing. This technology possesses the undoubted potential to enhance the productivity of internal apps, reduce costs by optimizing operations, enhance revenue via improved customer acquisitions and enhanced customer interactions and improve services with smart functionality like voice and vision interaction and control. Likewise, AI can be successfully used to offer a convenient, informed, and intelligent customer experience at any point. This will result in unparalleled

customer experience along with end-to-end and more personal customer journeys, hence appears more natural to customers.

This paper provides an overview of artificial intelligence, its market trends, and its role in business.

STATE OF ARTIFICIAL INTELLIGENCE

AI is defined as the capability of a machine or a computer to perform cognitive functions, associated with human minds like perceiving, learning, reasoning, problem-solving, interaction with the environment, and exercising creativity. Computer vision, robotics and autonomous vehicles, language, machine learning, and virtual agents are the examples technologies that facilitate AI to solve business issues.

Artificial intelligence technology is valued for its versatility in a broad range of business areas from customer relationship management as it turns CRM tools into a self-updating system to cyber security due to scale and enhancing complexity to finance by merging AI into normal banking operations like mortgage loans. In the future, artificial intelligence-based applications will transform each and every software category with AI-enabled functionalities from security software to enterprise apps like ERP and marketing tools.

*Principal Solutions Architect, Digital Supply Chain-AI, ML, RPA, Analytics, Author and Thought Leader.

Correspondence E-mail Id: editor@eurekajournals.com

Using AI, tech providers will focus on areas like advanced analytics, AI-powered and increasingly autonomous business processes and AI-powered conversational and continuous interfaces.

DETAILED BENEFITS OF IPAAS

Artificial Intelligence works by combining the immense amount of data with rapid interactive processing as well as intelligent algorithms, enabling the machine to learn automatically from features or patterns in the data. There are some major subfields under the term AI, as you will see below:

- A. **SMARTER INTEGRATION:** Machine learning is an application of AI that offers a system with the power to learn automatically and enhance from experience without having pre-programmed rules. It employs methods from statistics, neural networks, physics, and operations research to determine the hidden insides in data. It has made possible AI tools for handling compliances and risk.
- B. **NEURAL NETWORK:** This subfield includes interconnected units like neurons that process data by reacting to external inputs. This process evaluates data several times in order to find the association as well as derived meaning to such undefined data.
- C. **DEEP LEARNING:** This part of AI uses extensive neural networks with several stages of processing units and advanced computing techniques to figure complex data and understand data patterns. With the model of human neural nets, deep learning offers predictions about data sets. Some standard applications include image and speech recognition, cognitive computing, and natural language processing.

- D. **NATURAL LANGUAGE PROCESSING:** It is the competency of computers to evaluate, understand, and produce human language. In addition, to enable computers to understand human language, as it is spoken or written, NLP is moving forward to enable natural language interaction. This next stage allows the human to interact with computers using in normal language to accomplish tasks.
- E. **COGNITIVE COMPUTING:** It makes the natural, human-like interaction with computers on machine possible. Together with cognitive computing, artificial intelligence stimulates human-like processing and behaviors by the way of interpreting speech and image and then response logically.
- F. **COMPUTER VISION:** It attempts to determine pictures of objects that can be seen. This subfield also attempts to use pattern recognition and deep learning to detect patterns in data like seismographic readings that humans can't see.

GLOBAL ADOPTION OF ARTIFICIAL INTELLIGENCE

In the age of rapidly changing technology and digitization, AI technology becomes a fast-evolving field across the world. AI Technology includes vast applications in a broad range of sectors like healthcare, manufacturing, and supply chain. Artificial intelligence includes the potential to upturn various industries by minimizing human effort and enhancing productivity.

The adoption of AI technologies is rising because of its potentials like advanced forecasting and sourcing, accelerating and automating operations, and enriching user experiences. The global market size of the artificial intelligence software system was \$2.65

billion in 2017. According to the report from QY Research, the market size is expected to reach \$78 billion by the end of 2025.

Furthermore, a trend of SMEs is being observed arriving the AI with innovative products and technologies over the period. The primary driver for the rise in market share is due to technological advancement in machine learning. In addition, enhanced investment in the progress of advanced machine learning algorithms is encouraged the growth of the market.

The following are the factors that raise the global market share of artificial intelligence software:

- Enhancing the number of startups in the AI market
- Increasing investment and funding in AI technology
- Enhanced adoption of AI for boosting customer service experiences
- Integration of big data and analytics with machine learning and artificial intelligence
- AI-driven evaluations are the new trends in boosting productivity

A recent report by Infosys called Amplifying Human Potential, found that the majority of executive believes that AI technology is inevitable to their businesses and plant to implement it in their enterprise.

The following chart depicts the maturity of AI adoption in enterprises:

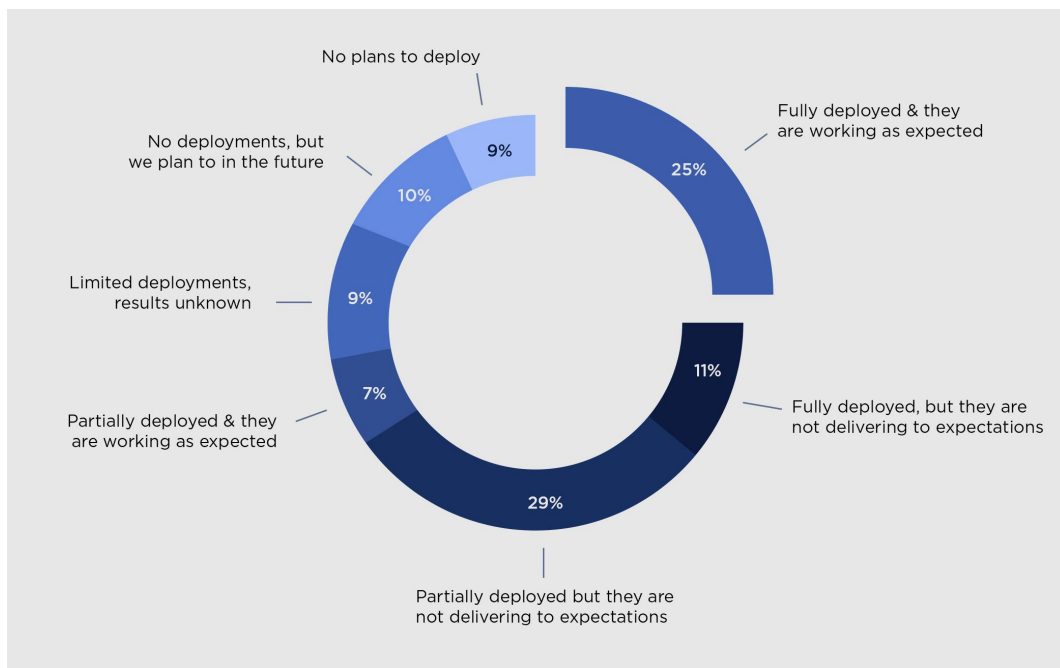


Figure 1. Maturity of AI Adoption in Enterprises

Nearly 25% of the respondent fully deployed the AI in their organization and experienced a positive delivery as up to their expectations. On the other hand, only minor enterprises, i.e., 9% express no intention to adopt AI, and they might have the possibility of being left behind. These results have proved that AI technology deployment is becoming more pervasive as organizations are quickly shifting from

experimentations and implementation in stage to measuring outcomes.

ROI OF ARTIFICIAL INTELLIGENCE

With the increased research and integration of AI in the technological sphere, there is a rapid increase in investment in this technology. The diversion in artificial intelligence technology

from automated robotics hands to neural networks has upturned the global AI software as a whole and has opened up immense opportunities for C-level executive to change their decisions and vendors

technology. According to the survey called, LennIX state of AI survey 2017, only 11% of enterprises constructively using AI while the 23% of enterprises are in the evolution phase and 33% in the prototype stage.

Despite the enhancing research and interest in AI, there is a massive gap between the research as well as the actual beneficial usage of AI

The following details despite the uses of AI in enterprises:

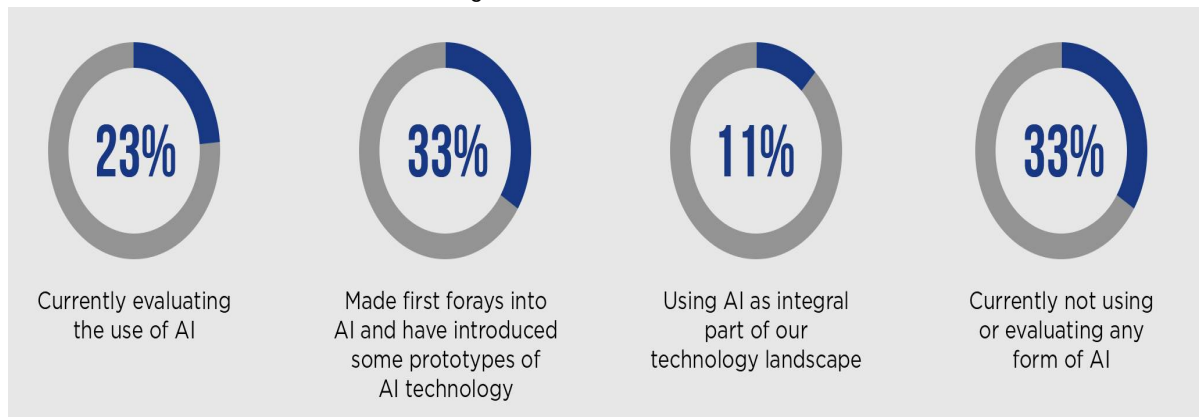


Figure 2.Uses of AI in Enterprises

Though most enterprises are still in the early stage of AI adoption, 9 out of 10 respondents in the Infosys survey reported that they have experienced measurable benefits from artificial implementations. Meanwhile, around 87% of enterprises, which are in the last stage of their

AI technology deployments, experienced significant as well as measurable benefit from this unparalleled technology.

Companies at the final stage of the AI-driven digital transformation have experienced the following outcomes:

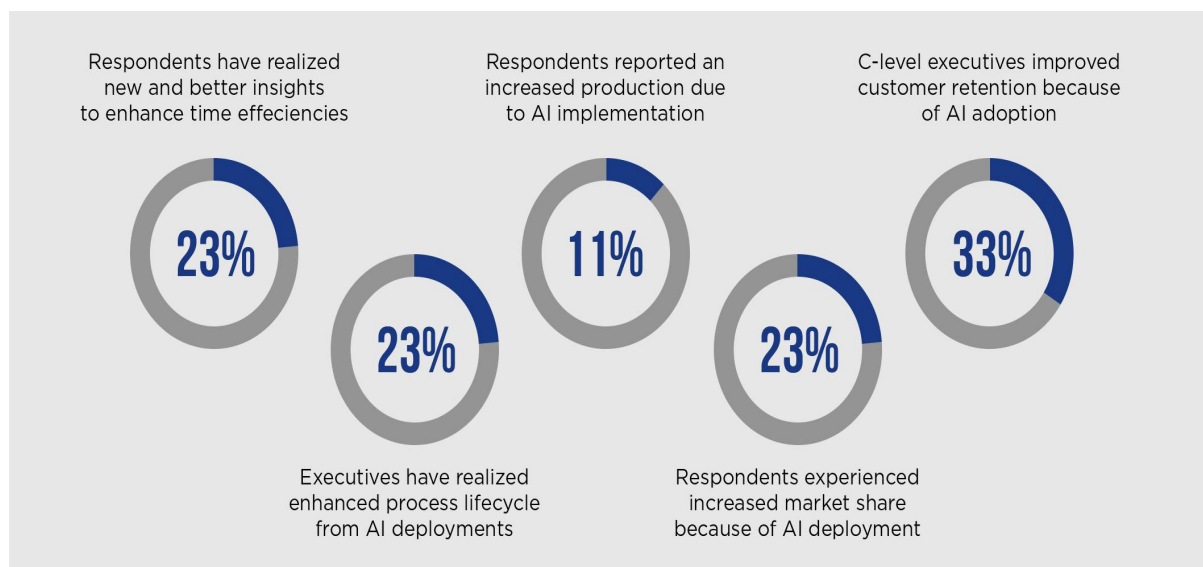


Figure 3.Outcomes of Companies at the final stage of the AI-driven Digital Transformation

As we are seeing artificial intelligence, mature and gain thrust, the research of business

intelligence found that businesses could obtain revenue benefits through AI adaption.

The following graph presents the top areas where enterprises are driving significant

revenue from AI investments with reference to the research:

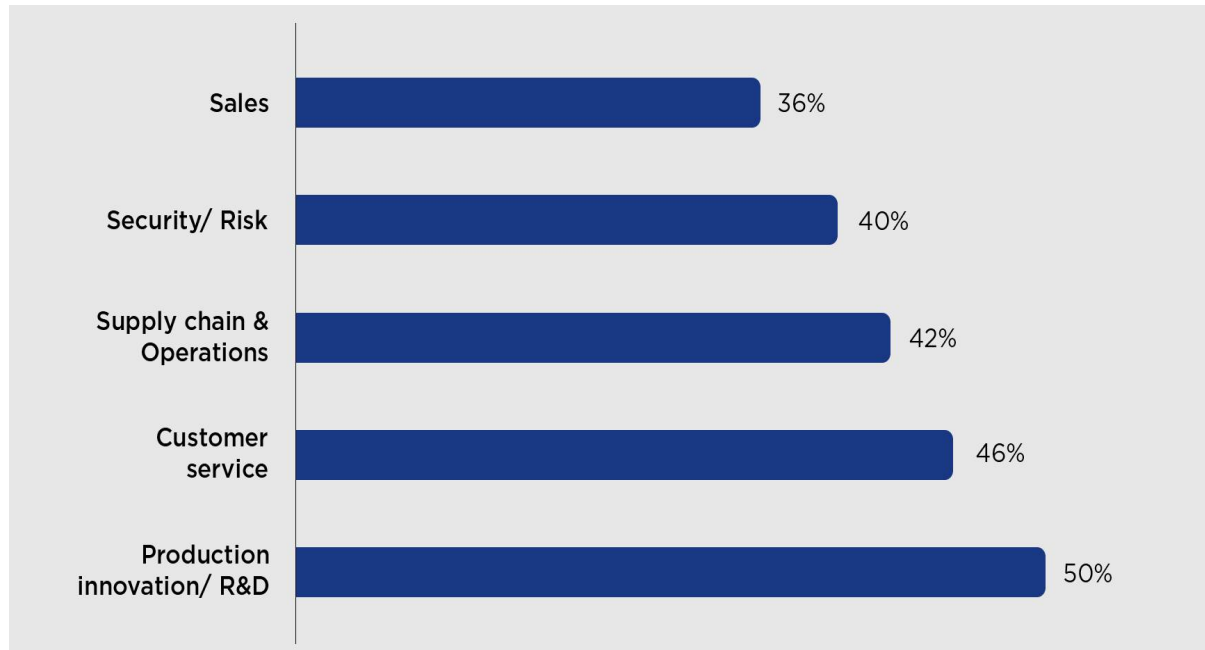


Figure 4. Top areas where enterprises are driving significant revenue from AI investments

HISTORIC DEVELOPMENT OF AI

Artificial intelligence technology is not new, but its signs of progress are moving at an unprecedented pace. Greater innovations are just around the corner. In 1951, the first AI-related program was engraved and after 65

years, in 2016, Google Deep mind achieved a landmark experience with its Alpha Go's success in an ancient Chinese board game.

There are too many to list, but the chart below highlights the notable landmarks in the development of artificial intelligence journey:

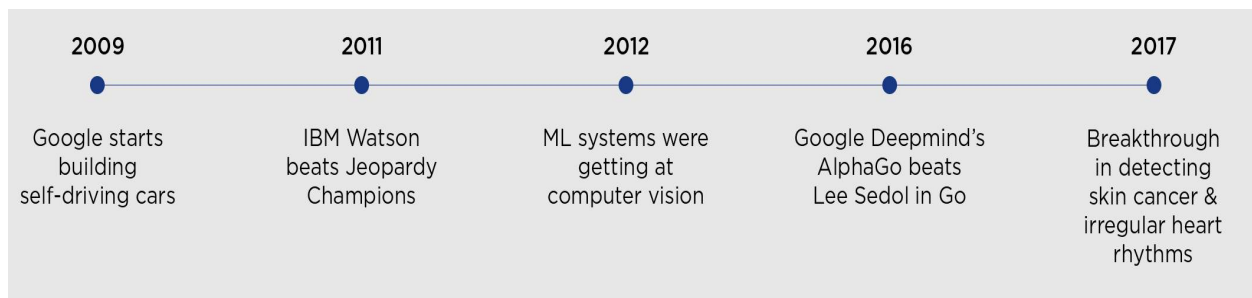


Figure 5. Historic Development of AI

BENEFITS OF AI TECHNOLOGY

It has been witnessed that is making business more productive and efficient; hence, both large and small enterprises adopting AI technology to minimize workforce, enhance work efficiency, increase market share, improve customer experiences, and save time. Artificial intelligence in the business can provide insights,

offer remote and virtual assistant as well as analyze unstructured data. Whatever the reason for adopting AI, there is a potential to shift the way business operates. A business that embraces AI technology can reap the crucial benefits. Here we listed some of the proven use of AI with reference to the survey report 2017 from Rethink Enterprise IT:

- A. **INCREASE AUTOMATION:** There is an evolving trend in automation. AI is quickly automating service routine tasks. With AI enterprise can have a powerful workflow engine that enables companies to automate business processes without adding any code. This modern intelligent system can learn, recommend as well as automate processes after observing business behavior and patterns.
- B. **PREDICTIVE MAINTENANCE:** Today's businesses include more data at their dumping bag than ever before. Adopting AI technologies in business establishes enterprises to learn how to employ their data to analyze the past as well as predict the future. With AI and machine learning, all sorts of industries are empowered to process a massive amount of data at an extraordinary rate. This trend has opened up alternative and viable avenues for enterprises to enhance existing maintenance operations and add new predictive maintenance as well
- C. **NEW PRODUCTS, SERVICES, AND BUSINESS MODELS:** The rapidly changing customer expectations and needs not only heightened the need for enhancement of existing product, but also the design and development of new services and products. The intervention of AI in business is benefiting the product development. This platform tangibly enhances the creation of a new kind of products and development process in an innovative way. Moreover, AI technology has eliminated the repetitive and tedious works.
- D. **ERROR REDUCTION AND BETTER OPERATING TIMES:** AI solution aids businesses in reducing errors and increasing the chance of reaching accuracy. Humans can make a mistake from time to

time, but machines don't make these mistakes when they are programmed properly. Therefore, with AI, businesses can process data in a more accurate manner, regardless of how huge the dataset is. Similarly, unlike humans, the machine doesn't require breaks and refreshments as they are configured for long hours. Therefore, they can perform continuously without getting distracted, bored, or even tired

- E. **INNOVATION LEADERSHIP:** AI can give the c-level executives and decision-makers more energy and brainpower to come up with innovative ideas, which can change the world while employing fewer staff, energies, resources and times to give life to these ideas. With fewer boring tasks and smart supports to enhance creativity, visionaries enjoy more time to make new things and applications to become a leader in the market.

HOTTEST ARTIFICIAL INTELLIGENCE TECHNIQUES TO LOOK UPON

Artificial intelligence, automation, and machine learning are altering the world of technology. They are completely changing the way clients engage with enterprises along with changing the way to operate in terms of business intelligence. In order to analyze the real impact of the AI on the business, it is substantial to keep an eye on the recent application in AI technologies.

The following are the most prevalent AI technologies in business in accordance with the report called Age of AI by Infosys:

- A. **NATURAL LANGUAGE GENERATION:** Natural language generation converts data into text and facilitates computers to convey ideas with seamless accuracy. This technique is extremely effective in

customer service where there is a demand for accurate reports and market summaries.

- B. **MACHINE LEARNING PLATFORM:** As ML platforms offer algorithms, development and training tools, big data, APIs, and other machines, it is gaining more traction than ever. This technique is currently being used for classification and predictions.
- C. **AI-OPTIMIZED HARDWARE:** With AI technology, hardware becomes much friendlier than ever via new central and graphics processing units as well as processing devices precisely designed and structured to perform AI tasks.
- D. **BIOMETRICS:** Biometric technology can identify, analyze and measure human behavior as well as physical factors of the human body. It enhances the natural interaction between machines and humans, including communications associated with images, speech, touch and body language recognition.
- E. **ROBOTIC PROCESS AUTOMATION:** RPA involves methods and scripts that mimic as well as automate manual tasks to support the business processes. This technology is especially useful where employing humans for a certain task is inefficient and too expensive.
- F. **TEXT ANALYTICS AND NLP:** AI solutions include the text analytics techniques to observe the sentence structure and their meaning as well as objective through ML and statistical methods. Text analytics coupled with NLP is actively used in security systems, fraud detections, automated assistants as well as applications to derive unstructured data.

- G. **CHATBOTS AND VIRTUAL AGENTS:** NLP also provides a way for the emergence of modern chatbots and virtual agents. With the support of data troves, language processing, and reactive algorithms, these systems interact effectively with the human audience. As they are programmed to achieve more, they become more convenient and capable to achieve tasks like reading back purchase history and checking account balance.
- H. **SPEECH RECOGNITION:** This technique enables the system to recognize as well as analyze spoken words and phrases and translates them into data. Organizations apply speech recognition for voice dialing, call routing, voice searching as well as speech-to-text processing.

APPLICATIONS OF ARTIFICIAL INTELLIGENCE ACROSS VARIOUS INDUSTRIES

AI technology is about to change every segment of the economy by including human intelligence to compute and enable machines to learn automatically and produce human-like decisions. Artificial intelligence supports businesses to understand their customer by evaluating their behavior, automate routine tasks, personalize experiences as well as reduce operational costs.

When implemented strategically, AI software empowers companies to derive actionable vision across all industries including transportation, energy, research, education, healthcare, entertainment, and many more. After discussing the benefits and techniques of AI, here we look into how AI technology shapes and disrupts various industries:

A. Banking and Finance

As online transactions have become more popular today, the finance and banking sector faces complete fraud loss and identity theft cases. Artificial Intelligence can enhance financial cyber security with the deep learning technologies as they are empowered to analyze patterns and expose suspicious behavior as well as potential fraud.

B. Healthcare

In the healthcare sector, Artificial Intelligence can offer tremendous support in analyzing complex forms of medical details like in CT Scans, X-rays, and various tests and screenings. It makes the medical professionals extract data from patient summary and external knowledge sources like clinical research and build an effective personalized treatment.

C. Retail and Customer Services

AI platform is well known for its applications in the retail and customer services industries. Conversation AI supports enterprises interact with customers as well as follow up leads while analyzing and categorizing sales calls with NLP and speech recognition. Virtual assistants and chat bots facilitate retail organizations to ensure 24/7 customer services and respond to basic questions without the support of human staff.

D. Energy and Utilities

Although AI development is still in the pilot stage in the energy and utility industry, enterprises in these sectors have started investing in this intelligent technology. The industry leaders invest in AI to make their energy system cleaner in a more reliable and affordable way. Similarly, the deep learning algorithms are increasingly adopted to analyze patterns to detect and the weaknesses in a power grid.

E. Technology

Technology giants like Apple, Google and IBM acquire smaller artificial intelligence companies to attain competitive advantages. With the advent of virtual assistants and chatbots, they are enrolling the techniques like NLP and speech reorganization to make their products understandable. In addition to chatbot platforms, business leaders have also generated their own voice assistant to analyze human languages and answer appropriately. Furthermore, images and face recognition systems are excessively used by the market leaders.

CONCLUSIONS

The pace of the AI revolution brings transformation changes in how organizations software uses data to provide better results for the business. Businesses should start thinking about creating, discovering and innovating to become a leader in AI development. A focus on development time frames and measuring the AI's ROI is important to keep the current energy around the technology going forward.

AI technology will offer features like predictive analytics and anomaly detection, thereby enhancing the way the enterprises work. There are several various opportunities for the organization to innovate its businesses by expanding its business apps with AI Technology. This includes reducing human interaction and enhancing the level of automation. In addition, it also includes the potential to anticipate the business outcome, prevent fraud and enhance customer life cycle management.

REFERENCES

- [1]. Web Resource: <https://www.businessinsider.com/ai-supply-chain-logistics-report-2018-1?IR=T>.

- [2]. Web Resource: <https://www.zdnet.com/article/what-is-ai-everything-you-need-to-know-about-artificial-intelligence/>.
- [3]. Web Resource: <https://callminer.com/blog/16-examples-of-artificial-intelligence-across-6-industries/>.
- [4]. Web Resource: <https://www.infosys.com/age-of-ai/Documents/age-of-ai-infosys-research-report.pdf>.
- [5]. Web Resource: <https://www.infosys.com/aimaturity/Documents/amplifying-human-potential-CIO-report.pdf>.
- [6]. Web Resource: https://www.sas.com/en_id/insights/analytics/what-is-artificial-intelligence.html.

AUTHOR PROFILE



Ajit C Vichare

Principal Solutions Architect,
Digital Supply Chain-AI, ML, RPA,
Analytics, Author and Thought
Leader

Published on: 16th-April-2019