"Impact of Big data & Artificial intelligence on Fourth Industrial Revolution"

Detail of the writer

1- Dr. NEERAJ KUMAR , ASSISTANT PROFESSOR, DEPARTMENT OF COMMERCE, GOVERNMENT GIRLS DEGREE COLLEGE, BEHAT, SAHARANPUR,

2- Dr. SANTOSH KUMAR GUPTA, ASSISTANT PROFESSOR, DEPARTMENT OF COMMERCE, GOVERNMENT P.G. COLLEGE, KOTDWARA, PAURI GARHWAL

ABSTRACT

Industrial revolution is one of the biggest challenges in today's innovative and technical era so this world has gone through a series of industrial revolutions since 18th century. Fourth industrial revolution is the need of every country for the existence of big data (BD) and artificial intelligence (AI) and making a digital based impact. Today's world is the result of innovations and technological advances due to BD and AI. Every country is aiming to achieve fourth industrial revolution to empower society in a better way for the economic and social development. We are at the beginning of a fourth industrial revolution that is fundamentally changing the way we live, work, and relate to one another. Fourth industrial revolution is related with big data, artificial intelligence, robotics, the internet of things, autonomous vehicles, 3D printing, nanotechnology, materials science etc. The objective of this paper is to demonstrate and ascertain the relation & impact of big data and artificial intelligence between Individual perception & fourth industrial revolution. After study and analysis of wide literature, it is reasoned out that fourth industrial revolution has deep impact on the BD & AI. Research shows that BD & AI both are giving the pace to the fourth industrial revolution in changing the way to work, socialize, create and share information, and organize the flow of people, ideas, and things around the globe. In this context, the researcher has undertaken to analyze the Individual perception towards fourth industrial revolution on behalf of big data and artificial intelligence. The primary data was analyzed for correlation and t test to compare these two for knowing its impact on 4th industrial revolution. The secondary data is used to identify the theory of BD & AI and how it is beneficial for the fourth industrial revolution.

KEYWORDS: Fourth Industrial Revolution, Individual Perception, Technology, Big data (BD), Artificial intelligence (AI), 3D etc.

Introduction

Artificial intelligence means the techniques which gives the direction to the machine (Robot) on behalf of human brain to accomplish the targative approach. Big data means the huge collection of data which is required in ascertaining and imagine the analytical impact of any belonging. Fourth industrial revolution is one of the important aspects of digitalization and robotic world on behalf of BD & AI. Every country can't hold itself without innovation and technology through the big data and artificial intelligence. The Fourth Industrial Revolution is characterized by a fusion of technologies such as artificial intelligence, robotics, the internet of things, autonomous vehicles, 3D printing, nanotechnology, biotechnology, materials science, energy storage and quantum computing etc. Many of these innovations are in their infancy, but they are already reaching an inflection point in their development as they build on and amplify each other in a fusion of technologies across the physical, digital and biological worlds. The Fourth Industrial Revolution is signifies a series of industrial revolutions, which are characterized by their ability to transform economies, jobs and even society itself through the introduction of new technologies and processes. Fourth Industrial Revolution affects business models, it could reshape customer expectations, quality of products & services, collaborative innovation, and the Organizational forms to deliver values. This revolution has the potential to improve economic development and the quality of our life. Furthermore, it will inevitably lead to new job creation which is entirely depends on BD & AI through the robotic/machine way. The Fourth Industrial Revolution will change not only what and how we do but also who we are. After the internet and mobile internet triggered the third Industrial Revolution, artificial intelligence, technologies, driven by big data, are fuelling a Fourth Industrial Revolution**.** The rise of AI and big data started in the early 2000s. When Google and Baidu – the emerging search engines at the time – used AI-powered recommendation systems for advertising, they found that the results were much better than expected. The scientists of Stanford and Princeton universities in the United States, considered the beginning of the deep learning revolution over the BD & AI. The large amount of image data on Image Net resulted in a ten per cent drop in the rate of mis-recognition. This showed that the convergence of deep learning and big data could help master extremely complex

calculations. Intelligent feedback is generated based on the data to understand the needs of users. Users provide feedback data to the service providers, and service providers in turn provide the service data to the users. I think the future development of AI will be divided into two stages. The first stage is that all industries will attempt to use the technology. For example, security and protection services will use facial recognition technology and the second stage is that the banking sector will use AI in risk control, and so on. These are single technologies and solutions serving existing industries. BD & AI both are playing the magnificent role in upgrading the fourth industrial revolution for the economical and social development of the world.

Review of literatures

Big data repositories have existed in many forms, often built by corporations with a special need in today's challenging era. Commercial vendors historically offered parallel database management systems for big data in the beginning of 1990s. For many years, WinterCorp published the largest database report which is organized on te basis of BD & AI that these two terms will be the future.

Hard disk drives were 2.5 GB in 1991 so the definition of big data continuously evolves according to Kryder's law. Teradata installed the first petabyte class RDBMS based system in 2007. As of 2017, there are a few dozen petabyte class Teradata relational databases installed, the largest of which exceeds 50 PB. Systems up until 2008 were 100% structured relational data. Since then, Teradata has added unstructured data types including XML, JSON, and Avro.

In 2000, Seisint Inc. (now LexisNexis Risk Solutions) developed a C++-based distributed platform for data processing and querying known as the HPCC Systems platform. This system automatically partitions, distributes, stores and delivers structured, semi-structured, and unstructured data across multiple commodity servers. Users can write data processing pipelines and queries in a declarative dataflow programming language called ECL. In 2004, LexisNexis acquired Seisint Inc. and their high-speed parallel processing platform and successfully used this platform to integrate the data systems of Choicepoint Inc. when they acquired that company in 2008. In 2011, the HPCC systems platform was open-sourced under the Apache v2.0 License.

In 2004, Google published a paper on a process called map reduces that uses a similar architecture. The map reduce concept provides a parallel processing model, and an associated

implementation was released to process huge amounts of data. With map reduce, queries are split and distributed across parallel nodes and processed in parallel (the "map" step).

Studies in 2012 showed that a multiple-layer architecture was one option to address the issues that big data presents. A distributed parallel architecture distributes data across multiple servers; these parallel execution environments can dramatically improve data processing speeds. This type of architecture inserts data into a parallel DBMS, which implements the use of MapReduce and Hadoop frameworks. This type of framework looks to make the processing power transparent to the end-user by using a front-end application server.

Big data and artificial intelligence are playing a huge role in your life, even if you don't know it. While we're not quite to the level of "Minority Report," big data is already used to target advertising based on factors including your age, gender, shopping habits and location. Companies say they use such data on an aggregate and anonymous level, but the technology is there to target advertising specifically to you.

Objectives of the study

The present study seeks to achieve the following objectives:

- To study the correlation in big data and artificial intelligence of fourth industrial revolution.
- To study the impact of big data and artificial intelligence of fourth industrial revolution.

Research methodology

This research paper is an attempt of descriptive research based on Primary data and secondary data. Primary data was collected through well designed questionnaires and Secondary data was collected from various website, journals. The area of the research is selected in Uttarakhand for having the impact of big data and artificial intelligence in today's prospective. A total of 50 questionnaires were collected from the respondent to analyze the impact of big data and artificial intelligence on fourth industrial revolution. Correlation and paired t test was used as a statistical tool to compare these two for knowing its impact on 4th industrial revolution.

Analysis of the data

The study is based on a sample of 50 individual of Uttarakhand. Following six components as questions has been used to analysis of big data and artificial intelligence for knowing its impact on 4th industrial revolution.

1. After fourth industrial revolution individual get to use more and more efficient products.
2. Transportation and communication costs will drop and global supply chains will become more effective.
3. Cost of trade will diminish, all of which will open new markets and drive economic growth.
4. Our current education system will continue to work and prepare individuals for fourth industrial revolution.
5. The skills that fourth industrial revolution require in labour and employees will evolve relatively similarly to those of today.
6. The Fourth Industrial Revolution will lead to more equality and stability.

(Table No. 1 Score of Artificial intelligence and Big data from the Six components)

S.N.	Score of Artificial intelligence	Score of Big data	S.N.	Score of Artificial intelligence	Score of Big data
1	45	32	26	44	33
2	65	56	27	33	34
3	53	72	28	55	25
4	52	41	29	23	31
5	68	29	30	21	26
6	78	56	31	15	37
7	81	19	32	18	9

8	44	32	33	34	34
9	36	67	34	35	57
10	41	43	35	65	81
11	33	12	36	78	45
12	42	23	37	56	67
13	56	14	38	67	43
14	65	17	39	89	32
15	76	19	40	45	34
16	87	32	41	37	54
17	90	34	42	48	23
18	56	43	43	29	16
19	41	26	44	32	29
20	45	28	45	21	20
21	67	22	46	19	42
22	34	16	47	25	30
23	32	18	48	82	34
24	54	45	49	75	25
25	67	51	50	95	42

(Sources: Field survey)

The above table is formalized from the sample of 50 individual regarding the impact of big data and artificial intelligence on 4th industrial revolution which is based on six questions based competent to identify the actual result of the analysis. The scoring was given out of the hundred after asking the six questions and the answer was scored carefully to find out the relation of big data and artificial intelligence and its impact on 4th industrial revolution in today's challenging era.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Score of Artificial intelligence	50.9800	50	21.54302	3.04664
	Score of Big data	35.0000	50	16.15613	2.28482

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Score of Artificial intelligence & Score of Big data	50	.174	.227

From the above statistical calculation it is being identified that there is a positive correlation (.174) between big data and artificial intelligence and P value is .227 which is more than .05 that means Null hypothesis has been accepted. Means there is no significant difference between big data and artificial intelligence.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Score of Artificial intelligence & Score of Big data	15.98	24.57765	3.47580	8.99511	22.96489	4.597	49	.000

From the above statistical calculation it was clearly expressed that t value is 4.597 after comparing the means of big data and artificial intelligence at 49 df and its P value is .000 which

is less than .05 that indicate that the null hypothesis has been rejected. Means there is a significant difference between big data and artificial intelligence for knowing the impact of fourth industrial revolution

Conclusion & suggestions

The fourth industrial revolution presents lot of opportunity for those enterprises that are able to adapt quickly and embrace change through BD & AI. The fourth industrial revolution gives rise to vast possibilities of digitalization and robotic techniques in performing the human activities but it can also upend the status quo and create nearly as much uncertainty as it does opportunity. We have recently entered the dawn of the fourth industrial evolution, in which it differs in speed, scale, complexity, and transformative power compared to previous revolutions due to the BD & AI. This research paper has examined the individual perception towards opportunities and challenges that are likely to arise as a result of the fourth industrial revolution. In this imaginary world all the individual want to adopt fourth industrial revolution to adopt new technology. It is suggested that big data and artificial intelligence both are needed to face the challenges in 4th industrial revolution and ready for the next industrial revolution after adoption of BD & AI in more innovative and 3d technique to exist in today's era. It is also suggested that BD & AI is the combination of success for economical & social development of industrial revolution. Therefore BD & AI is playing a very crucial role in improving the industrial revolution.

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