

# FUTURE TRENDS IN DATA SCIENCE AND ITS IMPACT ON VARIOUS SECTORS

SHALINI KAPOOR\*

## ABSTRACT

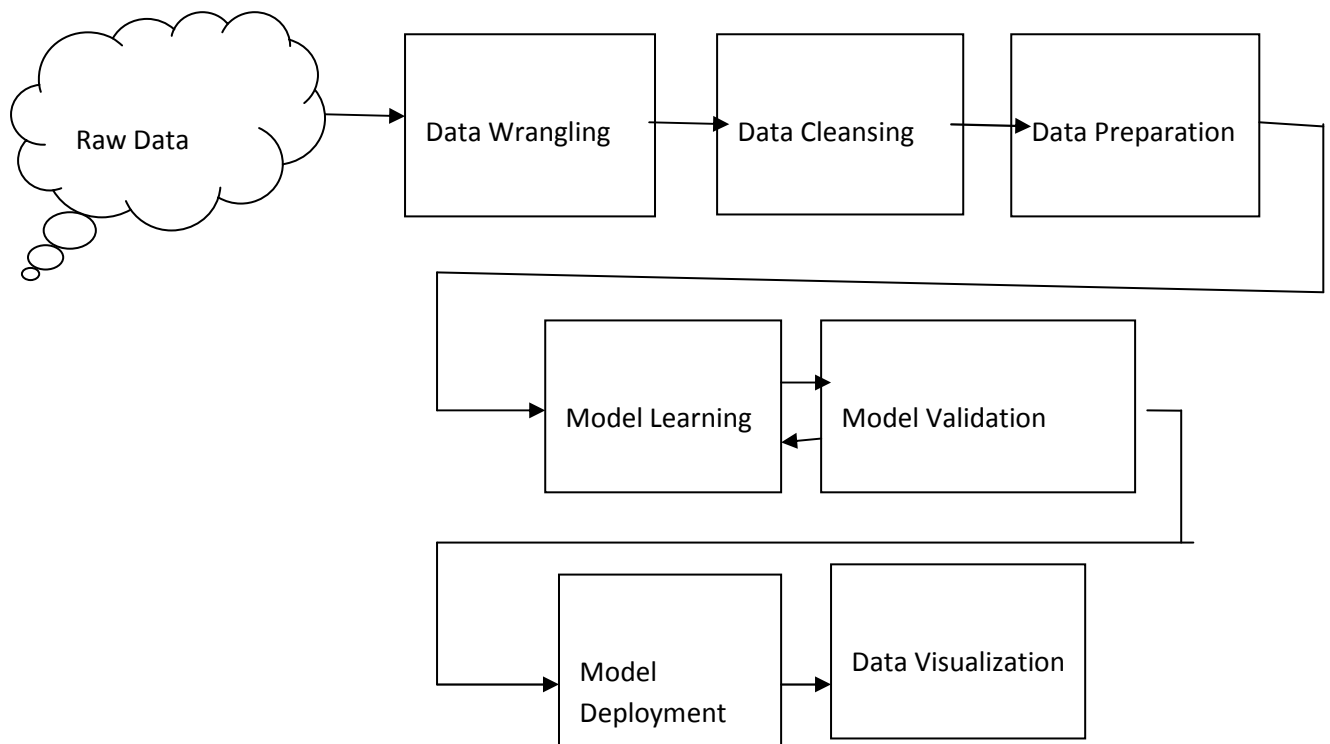
In this paper we have discussed what data science is, what is the role played by data science in present and future and how it is going to impact the different sector. Paper also throws light on unknown frontiers in field of data science.

**KEYWORDS:** Predictive Analytics, Perspective Analytics, Data Wrangling And Visualization.

## INTRODUCTION

Goal of data science is to extract value from all sorts of data whether structured or unstructured it is a multidisciplinary field. Data science is a process where you dig into the stages of processing data, from raw data sources and cleaning data to machine learning and eventually visualization, you see that unique steps are involved in transforming raw data into insight.

Since past 100 years people had been using databases for solving business problems. But, currently it is inexpensive, easy, that only one person can do everything from the problem formulation, analysis, visualization, communication, to the eventual decision making as well, in a way that it just hadn't been before.[1,2,3,4,5]



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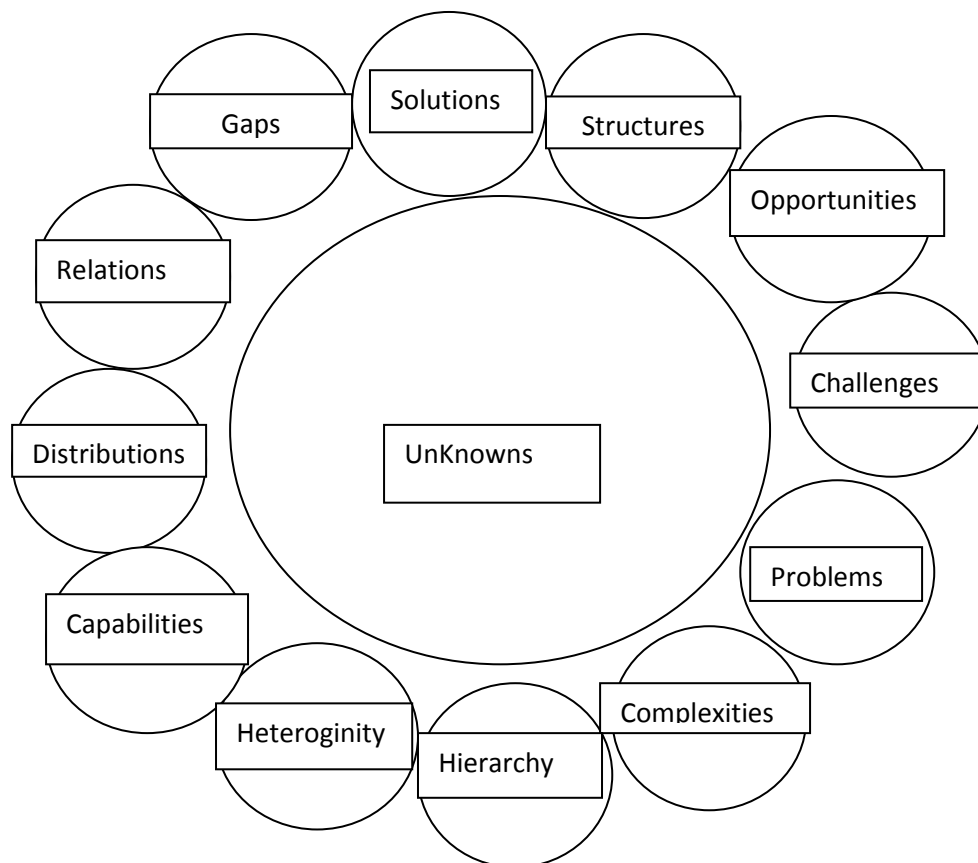
## DATA SCIENCE PIPELINE

Data that exists is growing at a rapid rate, doubling every two years, data science brings together three areas: statistics, programming, and knowledge of product." Data science deal with unstructured and structured data. Data science is the umbrella of techniques used to

provide insights into data and provide information.

## PRESENT UNKNOWN IN DATA SCIENCE

The current stage of data science capability and maturity can be explained in terms of unknown perspectives and scenarios. "Unknownness" in data science are



"Unknownness" in datascience

## THE FUTURE OF DATA SCIENCE

### BLENDING OF PREDICTIVE ANALYTICS & DATA SCIENCE

Amount of data that is being analyzed will surprisingly double by 2020. Popularity of big data analytics is increasing day by day. There is vital role played by data analytics prediction in businesses. As big data analytics is gaining popularity with every passing day, it is essential for businesses to be aware of the big data analytics predictions and stay abreast with all the latest trends. The scene is constantly changing and businesses have to be on the toes to know

what the future trends in big data analytics are. Predictive analytics can be used by companies to analyze current market trends, how data analytics can benefit them, analyzing future demands of customer. We haven't yet analyzed how big data science will become.

- New sources of data.
- Tools emerging to make things that are difficult today much easier.
- Data science and quantitative methods becoming distributed throughout roles rather than concentrated in a single role or department.

**FUTURE TRENDS IN DATA SCIENCE [6,7,8,9,10,11,12]**

<p><b>Machine Learning will be the Next Big Thing in Big Data</b></p>	<p>Whether it is health, education, trade or the environment, statistical machine learning allows to analyse and give insight in different use cases even further</p>
<p><b>Privacy Will Be the Biggest Challenge</b></p>	<p>Big Data mostly contains vast amounts of personal particular information and thus it is a huge concern to maintain the privacy of the user.</p>
<p><b>Chief Data Officer: A New Position Will Emerge</b></p>	<p>Exponentially growing volumes of information have become overwhelming and unusable for enterprises, making it necessary to have designated staff in the organization to lead data strategy and decide how to manage the digitization of the customer</p>
<p><b>Businesses Will Buy Algorithms, Instead of Software</b></p>	<p>The machine-learning techniques that would later evolve into today's most powerful AI systems followed the latter path: the machine essentially programs itself.</p>
<p><b>Investments in Big Data Technologies Will Skyrocket</b></p>	<p>According to IDC analysts, "Total revenues from big data and business analytics will rise from \$122 billion in 2015 to \$187 billion in 2019."</p>
<p><b>More Developers Will Join the Big Data Revolution</b></p>	<p>According to statistics, there are six million developers currently working with big data and using advanced analytics. This makes up more than 33% of developers in the world.</p>
<p><b>Prescriptive Analytics Will Become an Integral Part of BI Software</b></p>	<p>Today, businesses demand single software that provides all the features they need and software companies and giving them that. Business intelligence software is also following that trend and we will see prescriptive analysis capabilities added to this</p>
<p><b>Big Data Will Help You Break Productivity Records</b></p>	<p>Organizations that invest in this technology and attain capabilities to analyze large amounts of data quickly and extract actionable information can get an extra \$430 billion in terms of productivity benefits over their competitors.</p>
<p><b>Data Will Be Replaced By Fast and Actionable Data</b></p>	<p>Having tremendous amounts of data will not give you a competitive advantage over your competitors but how effectively and quickly you analyze the data and extract actionable information from it will.</p>

## THE IMPACT OF DATA SCIENCE

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**THE IMPACT OF DATA SCIENCE**

Areas in which Data science is going to impact	Impact
Pharmaceutical	<ul style="list-style-type: none"> <li>• Use predictive modeling to qualify a particular drug for a patient based on the patient’s genetics, diseases or disorders and lifestyle.</li> <li>• method that predicts drug toxicity in compounds</li> <li>• By sharing information with insurance companies and providers in their network, a pharmaceutical company can widen its database for future clinical trials and predictive modeling.</li> <li>• Big data analytics. Pharmaceutical representatives can focus on specific physicians in a geographical area with patients most likely to need the promoted medication based on predictive analysis</li> <li>• Pharmaceutical companies can now build a relationship with consumers through social media platforms and digital apps.</li> </ul>
healthcare space	<ul style="list-style-type: none"> <li>• Improving profits and cutting down on wasted overhead</li> <li>• To predict epidemics, cure disease, improve quality of life and avoid preventable deaths.</li> <li>• Models of treatment delivery are rapidly changing</li> <li>• Picking up warning signs of serious illness at an early enough stage that treatment is far more simple</li> </ul>
understanding your audience	<ul style="list-style-type: none"> <li>• What sector you are trying to serve?</li> <li>• What community are you serving?</li> <li>• What medium does your project use?</li> <li>• The choices you make now will have an outsized impact on your ability to communicate using data.</li> </ul>
generating celebrity gossip	<ul style="list-style-type: none"> <li>• Visitors to the site who searched for a name would trigger the script to automatically fabricate a story about the person. I included on the site a disclaimer, saying the site contained meaningless text and made-up “facts.”</li> </ul>
Reporting on Fashion	<ul style="list-style-type: none"> <li>• Fashion industry is an extremely competitive and dynamic market.</li> <li>• Retailer studies the choices and preference of the customer to create a collection catering their tastes.</li> <li>• Designer targets a different demographic or gender to increase their popularity or sales.</li> <li>• Trends on the runway are exaggerated and too over-the-top for retail</li> <li>• The designers need to understand the prices the customer would be willing to pay given the quality, style, popularity and the brand value.</li> <li>• <i>Uncovering new product categories</i></li> </ul>

insurance analytics	<ul style="list-style-type: none"> <li>• Customer acquisition, retention and cross-sell for good reason.</li> <li>• Predictive analytics enable better risk assessment and classification which leads to better pricing.</li> <li>• Defense against insurance claims fraud.</li> </ul>
Analyzing impacts of political protest and Activism.	<ul style="list-style-type: none"> <li>• “Measuring participation as protest activities is more likely to produce a positive effect</li> </ul>
Analyzing web chat	<ul style="list-style-type: none"> <li>• Chat is essentially a forum where consumers are discussing your products and services. Analyzing these interactions holistically with Signals can provide a window into collective issues and problems that are impacting your business.</li> <li>• Indicates customer sentiment, but can also yield insights to common themes and emerging issues that impact customer experience.</li> </ul>
Can aid conservation of Migratory birds	<ul style="list-style-type: none"> <li>• Climate change, habitat loss, and human impact on the environment all pose threats to migratory birds. Consequently, avian conservation efforts depend on understanding the spatial and temporal distributions of bird populations.</li> </ul>
Informing public health Policy with data science.	<ul style="list-style-type: none"> <li>• Statistical analysis to determine e-cigarette awareness, e-cigarette lifetime use, e-cigarette current use, and cigarette current use for all fifty states and Washington D.C.</li> </ul>
Analysing how fake news, rumour and deliberately incorrect information spread in social media	<ul style="list-style-type: none"> <li>• Scientifically understanding and controlling rumour</li> <li>• Analyzing people’s reactions to rumours, given that this would involve real-time collection of reaction as rumours unfold.</li> </ul>
Personalized marketing communication	<ul style="list-style-type: none"> <li>• Offering a personalized experience to customers</li> <li>• Knowing the behavior as well as purchase triggers for different segments of your audience helps optimize the buying process further</li> <li>• Better personalization does not just bring in higher conversion rates, but also helps you establish an emotional connect with your customers.</li> <li>• Knowing who your target audience</li> <li>• Create effective acquisition strategies and also prepare for future business growth.</li> <li>• Help in decision making, product development and marketing, market analysis, and predictive modeling.</li> </ul>
Manufacturing industry	<ul style="list-style-type: none"> <li>• Reduction of Supply Chain Risk</li> <li>• Optimization of Operations to a Higher Degree than Ever</li> <li>• Perfecting Quality as a Competitive Advantage</li> <li>• Predictive Maintenance to Reduce Costs</li> <li>• After-Sales Service Improvements</li> <li>• Mass and Individual Customization of Products</li> <li>• New Data-Driven Revenue Sources and Business Models</li> <li>• From Local to Enterprise-Level Data Analytics</li> </ul>

Retail	<ul style="list-style-type: none"> <li>• Identifying the most valuable customer</li> <li>• Personalized one to one marketing</li> <li>• Indepth analysis of client purchase behavior</li> <li>• Real Time In-store Marketing Tactics</li> </ul>
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