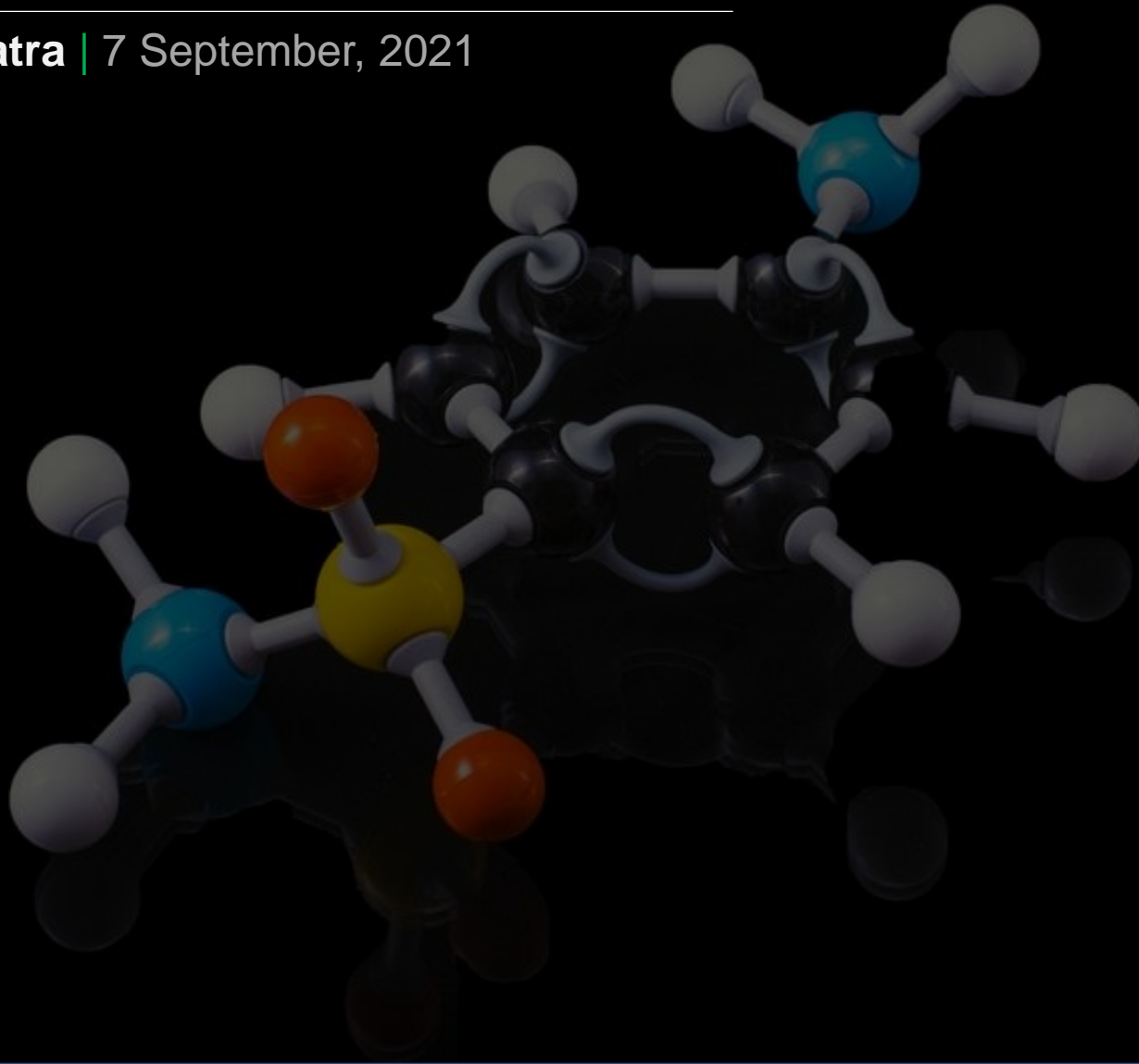


Data Science in Healthcare & Pharma Industry

Anish Mahapatra | 7 September, 2021



Agenda

- 01 Introduction
- 02 The Pharma Industry
- 03 Application of Data Science in Healthcare
- 04 The Data Science Process Flow
- 05 Use-cases for Pharma in Analytics
- 06 Q&A Session

Introduction




Senior Data Scientist 🧐

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Q. How to get into Data Science?

A. Simple, ask a real-world Data Scientist.

The Pharma Industry

01

Pre-Clinical Phase

Drug Discovery & Design (Clinical Plan) followed by Formulation Design & Regulatory Approval (FDA, EMA)

02

Initial Registration

Registration of API, Regulation of Clinical Trial & Development followed by Risk Management Plan

03

Clinical Trials

Phase 0, Phase 1, Phase 2 and Phase 3 followed by evaluation of Marketing Authorization

06

Post Marketing Survey

Pharma Co-vigilance, Renewal/ Cancellation of Marketing Authorization and further development of the drug

05

Supply Chain Management

Packaging, Inventory Management, Transportation, Drug Distribution, Track & Trace and **Marketing**

04

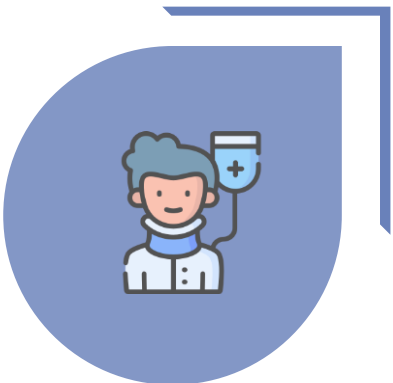
Drug Production

After successful clinical trials, MAA & NDA approvals, Drug Manufacturing is started

Application of Data Science in Healthcare

The pharma industry was valued at **\$390 billion** in 2001 and is now worth **\$1.27 trillion**.

The expected CAGR over the next decade is about 11.5%.



Patient

Advanced RWE driven Analytics
 Risk Monitoring using Digital Health (IoT)
 Electronic Medical Records (EMR)



Drugs

Yield Optimization
 E2E Digital Twin
 simulation
 Explainable AI (XAI)



Business

Market Mix Modelling
 Real-time predictive analytics
 Commercial-spend optimization



Innovation

Rapidly personalized content
 Agent Based Modelling
 Intelligent Search System

The Data Science Process Flow



Use Cases for Pharma Industry in Analytics



Accelerate Drug Discovery & Development

With the patents of blockbuster drugs expiring, pharma companies are looking to accelerate time to market leveraging innovation



Personalized & Targeted Medicine

Personalized medicine based on unique genomics to create more effective solutions for users' problems



Increase Efficiency of Clinical Trials

Leveraging multiple demographic and personalized data points can help accelerate the tedious process of clinical trials

Reduce Cost & Increase Drug Utilization

Granular cost of key metrics will help pharmaceutical businesses to make smarter decisions based on past performance



Effective Sales & Marketing

An optimized marketing mix spend along with close-range tracking of sales can help make better & faster decisions



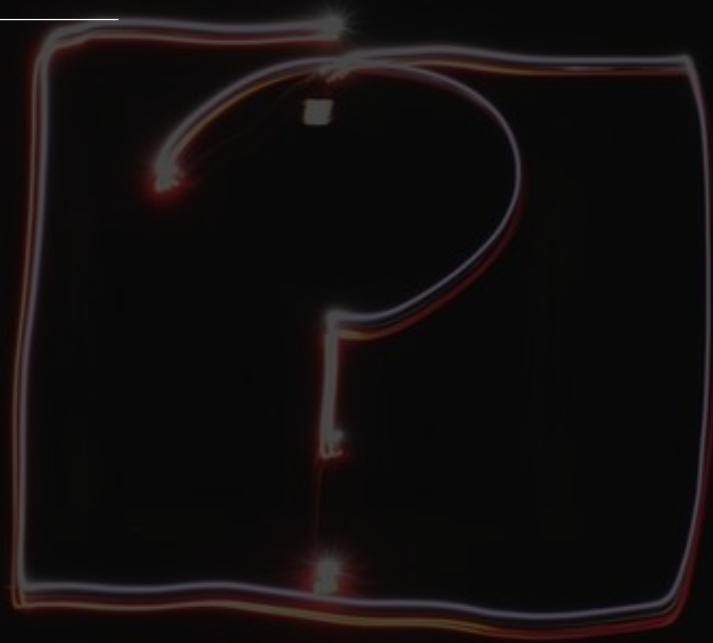
Data Mining to capture Data of Interest

Capturing competitor and product details can help the healthcare industry react better and plan for the future



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Q&A Session

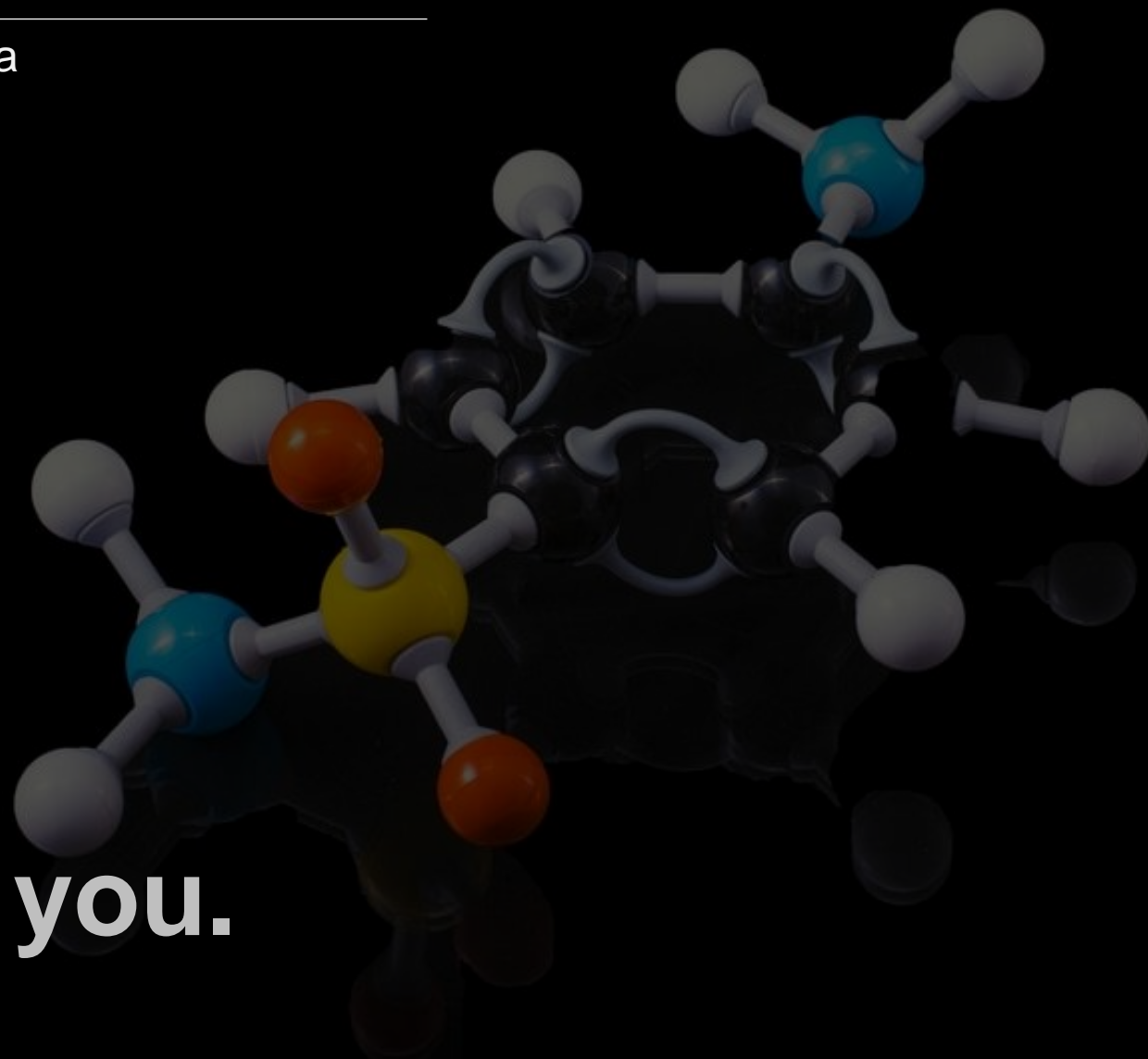
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Thank you.