



Rotman School of Management
UNIVERSITY OF TORONTO

IITM
PRAVARTAK
CATALYSING INNOVATION
Technology innovation Hub of
IIT Madras

Advanced Data Science Certificate Program

**Dual Certification Program from
Rotman School of Management (University of Toronto)
& IITM Pravartak, Technology Innovation Hub of IIT Madras**



Marketing Partner

jaro education

Reimagine growth in the most in-demand Data Science field

The digital revolution isn't coming—it's here, and a digital skill set is now more vital than ever. In today's rapidly changing business landscape, professionals with a solid grounding in data science, machine learning, artificial intelligence and an understanding of the need for digital transformation in any organisation are more likely to succeed.

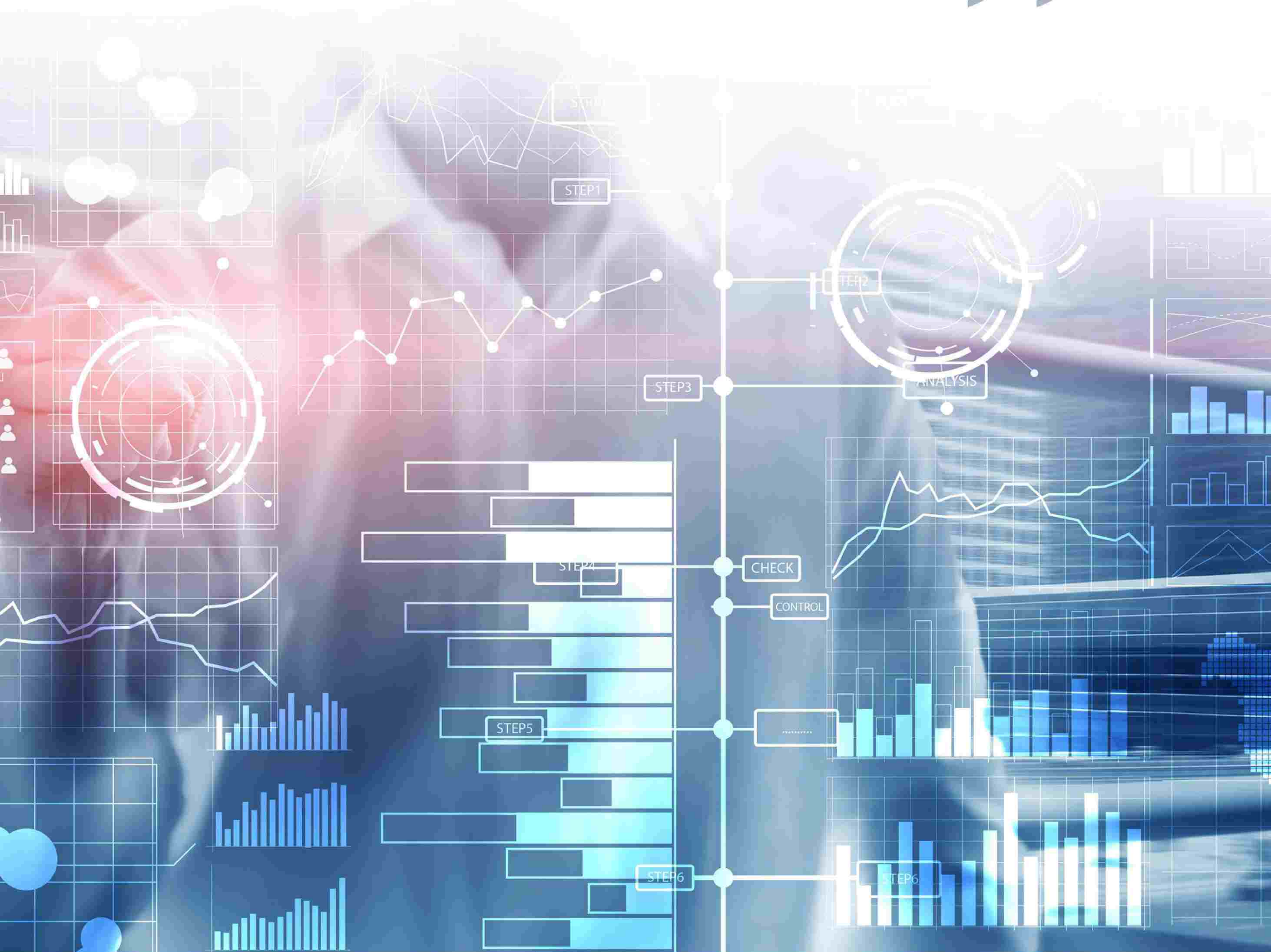
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Prediction on the future of data science

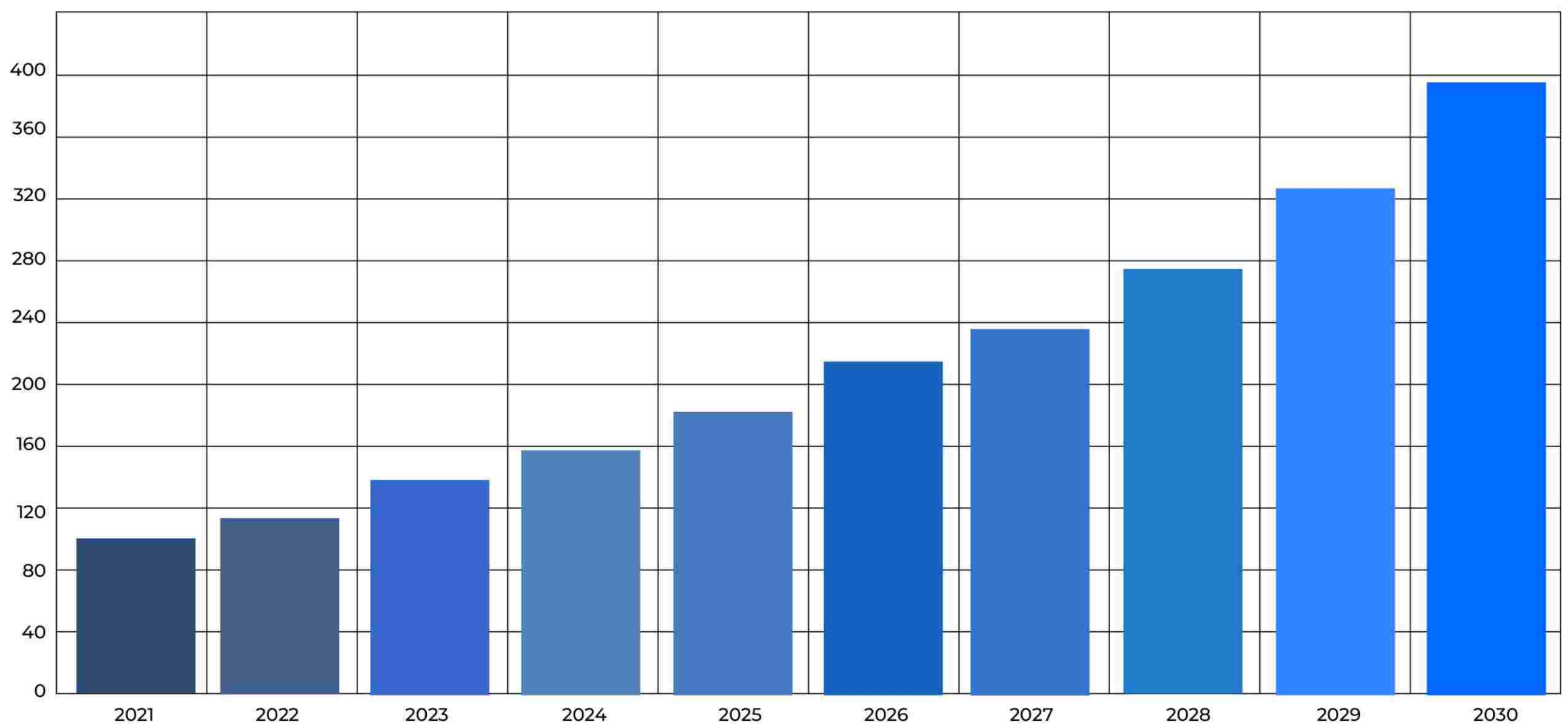
The data science platforms market size is expected to hit around USD 378.7 billion by 2030, poised to grow at a compound annual growth rate (CAGR) of 16.43% by 2030.

*GlobeNewswire

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DATA SCIENCE PLATFORM MARKET SIZE (USD Billion)

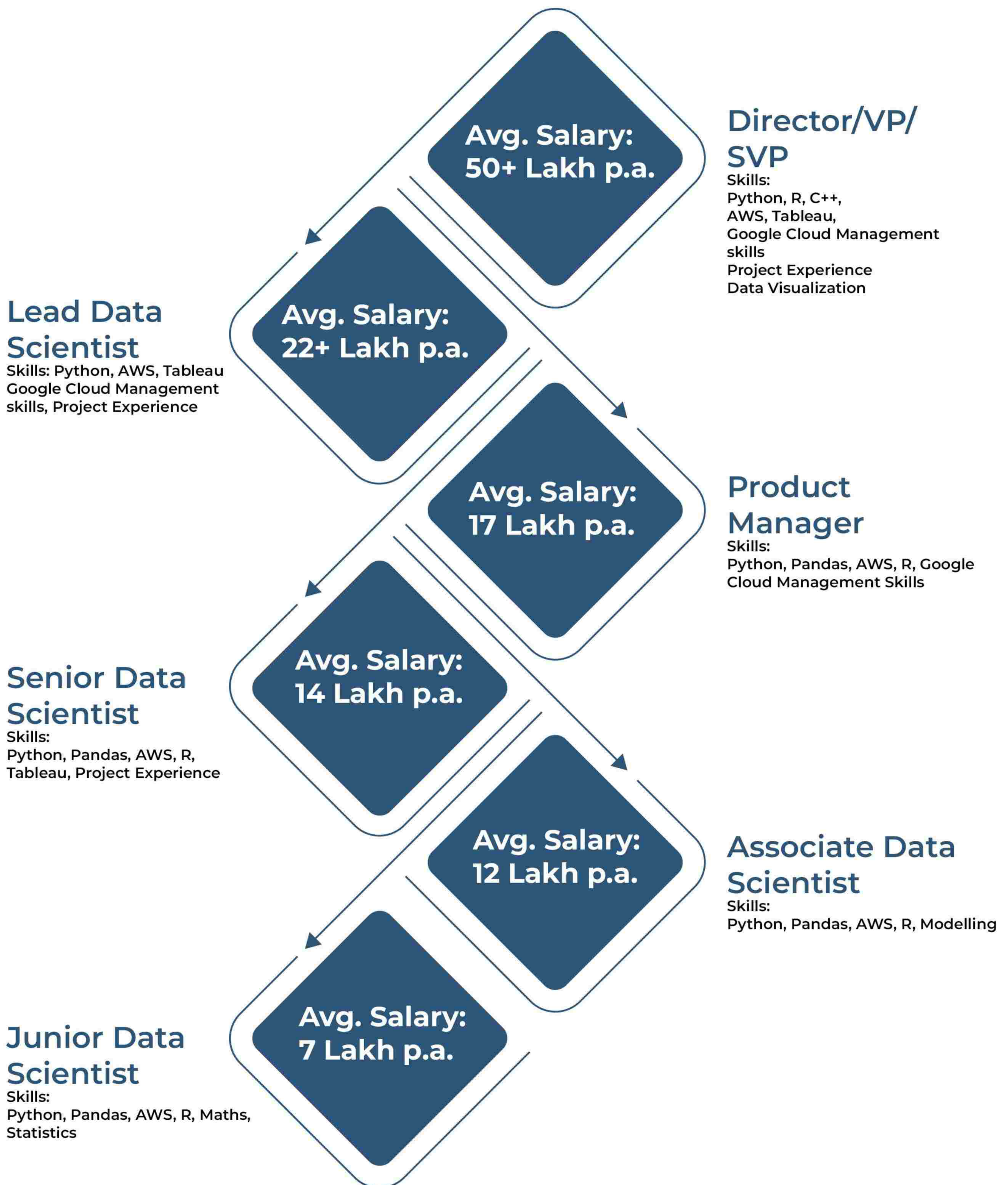


As per a report by the US Bureau of Labour Statistics, the rise of data science needs will create roughly 11.5 million job openings by 2026. The World Economic Forum predicts that by 2022, data scientists and analysts will become the number one emerging role in the world. Data science experts are needed in virtually every job sector, not just technology. In fact, five of the world's biggest tech companies — Google, Amazon, Apple, Microsoft, and Facebook — contributing to over 52 per cent of the world's market capitalisation globally, are the biggest employers of data scientists and engineers. Machine learning, big data, and data science skills are the most challenging to recruit for and potentially can create the greatest disruption to ongoing product development and go-to-market strategies if not filled.

*Precedence Research,
World Economic Forum



Data Science Career Path



*This data is based on primary research conducted by GL and AIM

Projected Growth in Data Science field

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The Indian Data Analytics industry is expected to hit the \$118.7 billion mark by 2026*.

**India Brand Equity Foundation*

Premium technology and consulting firm Gartner, predicts that 70% of organisations will focus on small and wide data by 2025.

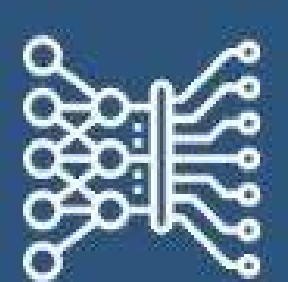
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Program Overview

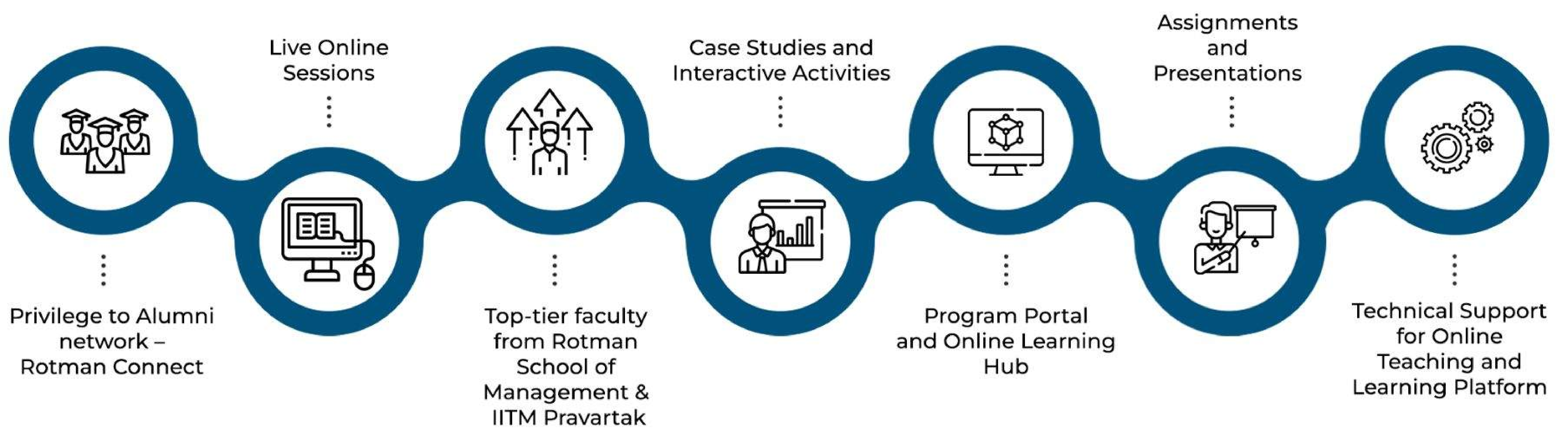
Take learning deeper with the Dual Certification Program from Rotman School of Management (University of Toronto) and IITM Pravartak (Technology Innovation Hub of IIT Madras) Advanced Data Science Certificate Program curated for talented individuals seeking a transformative learning experience in data science. The program will advance your data literacy and equip you with the dataanalytics tools and techniques to extract insights from real-world data, decipher the data to make better business decisions and cultivate critical thinking in a data-driven business world.

Program Takeaways

	Improved data literacy to thrive in today's business environment
	Advanced statistical and data engineering skills and knowledge to make data science projects successful
	Capabilities to adopt and evaluate various data analytics tools, such as dashboards, machine learning, prediction models, and regression analysis
	Visualisation techniques to represent data effectively to understand when to use and how to interpret descriptive, predictive, and prescriptive analytics
	Mindsets and techniques to apply scientific thinking to business, such as examining cause and effect in data analysis and actualizing a business idea
	A deeper understanding of how to build a data-driven organization, including managing privacy and security concerns and developing strategies for cultivating evidence-based decision-making



Program Highlights



Know the Facilitators



Prof. Walid Hejazi

**PhD, University of Toronto | MA, University of Toronto
HBA, University of Western Ontario**

Walid Hejazi is an Associate Professor of Economic Analysis and Policy and is the Academic Director of several Rotman Executive Programs. Professor Hejazi has taught extensively in areas related to Building a Data-driven Organizations, Storytelling with Data, Data-based Decision Making and Prediction, Regression Analysis and Data Modelling. He has advised corporations and governments extensively in deploying strategies which are derived from data analysis and has aided in their transformation to truly data-driven organizations. He has testified many times before parliamentary and senate committees on issues related to his research and is currently working on a series of studies with the Canadian government which shed light on the competitiveness and productivity of Canadian firms. He teaches Macroeconomics and Global Strategy in Rotman's MBA and EMBA programs, and Statistical Analysis in Henley's doctoral program. He has delivered lectures in over 30 countries.



Prof. Ganapathy Krishnamurthi

Associate Professor

Indian Institute of Technology Madras

He is a faculty in the Department of Engineering Design and associate faculty at the Robert Bosch Center for Data Science and Artificial Intelligence at IIT Madras. He earned his PhD from Purdue University, and MSc in Physics from IIT Madras. He worked as a post-doctoral research fellow at Case Western Reserve University, USA and at Mayo Clinic, USA. His research and work experience focuses on applying Machine Learning and Artificial Intelligence techniques to problems in medical image analysis, computer vision, interpretability/explainability of Deep Learning models across various applications and using deep learning to solve inverse problems in medical imaging and computer vision. His current research involves developing deep learning solutions for time series data in business, engineering and imaging applications. He has published numerous research papers pertaining to Deep Learning, and Machine Learning applied to many areas in science, engineering and technology.



Prof. Balaji Srinivasan

Professor

Indian Institute of Technology Madras

He has received MS in Aerospace Engineering from Purdue University in 2000 and PhD from the Department of Aeronautics and Astronautics, Stanford University in 2006. In 1998, he received his B.Tech in Aerospace Engineering from IIT Madras. From 2008–2016, he was serving as a faculty member in the Applied Mechanics Department at IIT-Delhi. His research interests include Fluid Dynamics, Turbulence in compressible and hypersonic flows, Computation of rarefied flows, Numerical Analysis and High Performance Computing.

Taught by IITM Pravartak (Technology Innovation Hub of IIT Madras)

- **Fundamental theory for Data Sciences**
 - Linear Algebra
 - Probability
 - Statistics
 - Linear Regression
 - Bayesian Analysis
- **Programming & Data Tools**
 - Python basics and advance to be covered for data analytics
- **Data Structure & Algorithm**
 - Python
- **Data Collection & Preparation**

*The above list is indicative and is subject to change as per the Rotman School of Management (University of Toronto) and IITM Pravartak (Technology Innovation Hub of IIT Madras) discretion.



Taught by Rotman School of Management

- **Data Visualization & Communication**
 - Principles of effective visualizations
 - Telling stories with data
 - Techniques and Tools for data visualization
 - Presenting and communicating data to different audiences
- **Machine Learning**
 - Concepts, principles and types of ML
 - Design and train ML for different tasks
 - Popular ML algorithms and techniques
 - Metrics to evaluate the ML models
 - ML real-world applications
- **Supervised & Unsupervised Learning**
 - Differences between supervised and unsupervised learning
 - Classification, regression, and popular algorithms
 - Clustering, dimensionality reduction and anomaly detection
 - Feature selection and engineering techniques
 - Practical applications of supervised and unsupervised learning
- **Artificial and Computational Intelligence**
 - AI and CI concepts, principles
 - AI and CI techniques
 - Natural Language Processing and Computer Vision
 - AI and CI applications in different industries
- **Big Data Analytics**
 - Work with large and complex datasets
 - Statistics and ML for big data analytics
 - Data tools and techniques for big data processing
 - Big data analytics in social media, healthcare, marketing and finance

Taught by Rotman School of Management

- **Building a Data Driven Organization**

- Identify and articulate business problems and design and implement data-driven processes
- Data strategy, data culture and data-driven decision making
- Leadership development in building a data-driven organization
- Measuring and evaluating the impact

- **Geospatial Data Analysis & Applications**

- Contemporary geospatial data analysis
- Geostatistics and spatial data visualization
- GIS software and tools
- Advanced geospatial & social media metrics

- **Clustering Analysis & Factor Analysis**

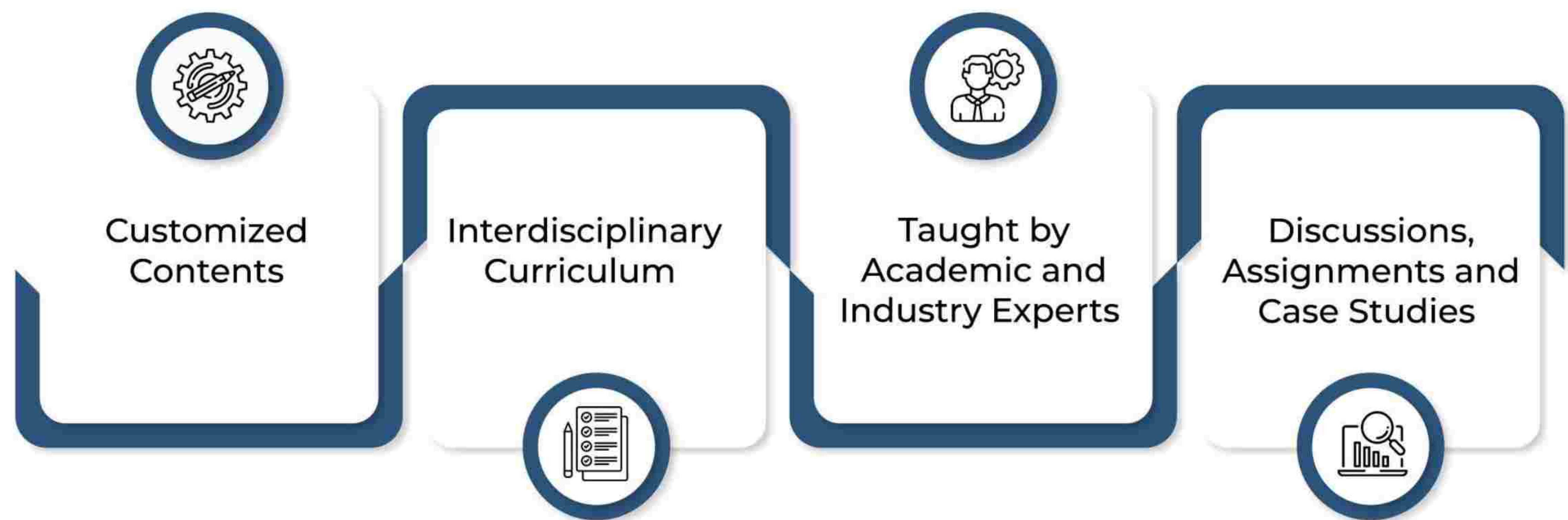
- Cluster analysis and factor analysis techniques
- Results interpretation
- The relationship between clustering and factor analysis
- Applications of clustering analysis and factor analysis

- **Network Analysis & Business Applications**

- Network properties and network path algorithm
- Algorithms to understand nodes and to identify communities in a network
- Techniques for predicting new edges in network and for node classification
- Diffusion and influence maximization

Note : *The above list is indicative and is subject to change as per the Rotman School of Management (University of Toronto) and IITM Pravartak's discretion.

Pedagogy



Tools & Languages to be covered



Fee Structure

Particular	Amount
Application Fee	INR 3,000/- + GST
Total Program Fee	INR 1,61,000/- +GST

Instalment Pattern		
Particulars	Instalment Amount	Payment Schedule
Instalment 1	INR 78,000/-+ GST	As per the date mentioned in the offer letter
Instalment 2	INR 80,000/- + GST	20th October 2023

Course Delivery & Schedule

- ▶ Duration: **8 Months (80 Hours)**
- ▶ Schedule:
 - ▶ **2.5 hours weekend classes on Saturday (6:00 pm to 8:30 pm)**
 - **2 hours lecture + 30 mins doubt solving sessions**
- ▶ Eligibility: • **Graduate/Diploma Holder**
 - **2+ years of work experience**
- ▶ No. of Sessions: **32**
- ▶ Application Closure Date: **25th July 2023**
- ▶ Program Commencement Date: **August 2023**

*Note: The schedule provided above is subject to change or update at the discretion of Rotman School of Management (UofT) and IITM Pravartak



Certificate



Rotman School of Management
UNIVERSITY OF TORONTO

University of Toronto Rotman School of Management Executive Programs

hereby certify that

Ms. Riddhi Shah

has successfully completed the

Advanced Data Science Certificate Program

Walid Hejazi

Academic Director,
Rotman Executive Programs,
Rotman School of Management

December 2022

Certificate Number :



CERTIFICATE of Completion

This Certificate is awarded to



who has completed "Foundations of Data Science Certificate Program"
held from ____ to ____
through IITM Pravartak Technologies Foundation, Technology Innovation Hub of IIT Madras

Prof. Ganapathy Krishnamurthi
Professor
Department of Engineering Design
IIT Madras

Dr. M. J. Shankar Raman
CEO
IITM Pravartak Technologies Foundation

About Jaro Education

**“INDIA’S MOST TRUSTED
ONLINE HIGHER
EDUCATION COMPANY”**



1000+

Corporate Associations

3,00,000+

Careers Transformed

2009

Enhancing Career Since

Jaro Education (est. 2009) has been India's most trusted online higher education company and a pioneer in the executive education space. Since its inception, the company has been profitable and believes in structured growth. The company aims to nurture entrepreneurs and working professionals from entry-level to C-Suite level in every field and industry by offering quality executive education programs from the world's leading institutes and universities.

Awards & Accolades



Outstanding Contribution
In Online Education



The Best ICT Enable
Higher Education
Institute Award



Most Innovative &
Successful Online MBA
Program In India



Best Digital Learning
Innovation Award



Edtech Leadership
Awards



National Best
Employer Award



Help change the world with Data



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