

COURSE OVERVIEW LM0103
Big Data Analytics for Supply Chain Optimization

Course Title

Big Data Analytics for Supply Chain Optimization

Course Date/Venue

April 20-24, 2025/TBA Meeting Room, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference

LM0103

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



Course Description



This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.



This course is designed to provide delegates with a detailed and up-to-date overview of Big Data Analytics for Supply Chain Optimization. It covers the key characteristics and importance of big data in modern supply chain management; the role of data-driven decision-making and challenges and opportunities in big data analytics; the big data sources in supply chain, logistics and methods for big data analysis and forecasting; the data storage and processing technologies; the importance of data accuracy, consistency and completeness; and ensuring data security and compliance.



Further, the course will also discuss the supply chain data through visualization; identifying hidden patterns in logistics and inventory and using Python and R for basic data exploration; the advanced forecasting techniques with big data; predicting stock levels and demand fluctuations and reducing stockouts and excess inventory costs; identifying and mitigating risks using data analytics; and the scenario analysis and risk prediction models, supplier risk assessment and early warning systems and real-time monitoring of disruptions.

During this interactive course, participants will learn how social media impacts supply chain decisions; the sentiment analysis tools and techniques; the digital twins and virtual supply chain models; optimizing supply chain networks using big data; the profit maximization and cost reduction, predictive maintenance and asset management in supply chain; the importance of real-time analytics in logistics and manufacturing; the AI and machine learning for supply chain decision-making; how blockchain ensures traceability and trust and the challenges and adoption barriers; the new market opportunities using analytics, designing effective supply chain KPIs, using dashboards for real-time monitoring and integrating data sources for holistic insights; the emerging technologies in supply chain analytics; and implementing big data analytics in the organization.

Course Objectives

Upon the successful completion of this course, each participant will be able to: -

- Apply and gain an in-depth knowledge on big data analytics for supply chain optimization
- Discuss the key characteristics and importance of big data in modern supply chain management as well as explain the role of data-driven decision-making and challenges and opportunities in big data analytics
- Identify the big data sources in supply chain and logistics and methods for big data analysis and forecasting
- Apply data storage and processing technologies, discuss the importance of data accuracy, consistency and completeness and ensure data security and compliance
- Carryout supply chain data through visualization, identify hidden patterns in logistics and inventory and use Python and R for basic data exploration
- Employ advanced forecasting techniques with big data, predicting stock levels and demand fluctuations and reducing stockouts and excess inventory costs
- Identify and mitigate risks using data analytics, scenario analysis and risk prediction models, supplier risk assessment and early warning systems and real-time monitoring of disruptions
- Recognize how social media impacts supply chain decisions and apply sentiment analysis tools and techniques
- Illustrate digital twins and virtual supply chain models and optimize supply chain networks using big data
- Differentiate profit maximization and cost reduction and apply predictive maintenance and asset management in supply chain
- Explain the importance of real-time analytics in logistics and manufacturing and implement AI and machine learning for supply chain decision-making
- Analyze how blockchain ensures traceability and trust and evaluate the challenges and adoption barriers

- Identify new market opportunities using analytics, design effective supply chain KPIs, use dashboards for real-time monitoring and integrate data sources for holistic insights
- Discuss the emerging technologies in supply chain analytics and implement big data analytics in your organization

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

Who Should Attend

This course provides an overview of all significant aspects and considerations of big data analytics for supply chain optimization for supply chain managers and analysts, operations and logistics managers, procurement and purchasing specialists, data analysts and data scientists, inventory and demand planners, manufacturing and production managers and those who are responsible for supply chain efficiency, data-driven decision-making and operational improvements.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures

20% Practical Workshops & Work Presentations

30% Hands-on Practical Exercises & Case Studies

20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Fee

US\$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation


Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. John Kruger, PGDip, BA, is a Senior Logistics & Warehouse Management Consultant over 30 years of extensive experience. His expertise includes Supply Chain Management, Logistics Management, Transportation Management, Warehouse & Store Management, and Material Stock Control Management, Warehouse & Inventory Control, Warehouse & Yard Operations, Supply Chain, Purchasing, Procurement, Logistics Management, Cross Cultural & Virtual Team Communication Skills, Legal Compliance & Corporate Governance, Best Practices in Corporate Governance, Commercial Negotiation, Customer Service, Corporate Communication, Public Media Communication, Electronic Communication & Collaboration Skills, Social Media Management, Effective Communication Skills, Digital Archiving & Electronic Document Management, Digital Marketing, Leadership & Interpersonal Skills, Communication Skills, Active Listening Skills, Change Management Skills, Conflict Management, Crisis Management, Crisis Communication Management, Procurement & Contracts Management, Tender Preparation, Tender Floating, Bid Evaluation, Contractor Selection, Contractors Work Supervision, Manpower & Site Permits, Building Communication & Interpersonal Skills, Active Listening, Assertiveness Theory, Leadership & Management Skills, Negotiation Skills, Presentation Skills, Cultural Management, Virtual Team Operations, Team Building, Resource Management, Performance Management, Career Development Management, Stress Management, Time Management, Research Management, HR Project Management, QA/QC, Quality Management, Project Management, Contracts & Tendering, Human Resource Management, Performance Management, Technical Management, Quality Management, Productivity & Efficiency Improvements, Time Management, Financial Management, Strategic Management, Change Management, People Management, Production Management, Toolkit Management, Public Relations & Organisational Communication, Public Speaking, Social & Environmental Projects, Business Development, Psychometric Assessment and Strategic Change. Further, his specialization covers Train-the-Trainer, Coaching, Counselling & Mentoring, Strategic Planning, Problem Solving, Decision Making, Budgeting & Cost Control, Supply Chain Management, Operational Management, Adult Education, Turnaround and Re-Engineering Projects and Macro-Economics.

During his career, Mr. Kruger has contributed his expertise and held prestigious positions for major organizations worldwide as a **Business Analyst, Business Development Manager, Project Manager, Strategic & Divisional Plan Manager, Logistics & Warehouse Manager, Supply Chain Manager, Change & Marketing Manager, Facilitation Manager, Interim OD & Development Manager, Interim Training Manager, Commercial Project & Interim Manager, TQM Manager, General Manager, Engineer, Journalist, National Broadcaster, Reporter, Sub-editor, News Editor, Leadership Development & Business Profiling Head, Deputy Director** as well the **Business Consultant, Technical & Management Coach, Consultant/Instructor, Lecturer and Facilitation & Key Note Speaker.**

Mr. Kruger has a **Post Graduate Diploma in IPM Industrial Psychology Management** and in **UNISA Advanced Leadership Programme** as well as **Bachelor's degree in Communications** from the **Northwest University**. He is a **Registered Assessor & Moderator**, a **Certified Instructor/Trainer** and a **Certified Trainer/Assessor** by the **Institute of Leadership & Management (ILM)**. Further, he is an active member of **The Institute of Management Consultants of South Africa** and he has delivered various trainings, workshops, courses and conferences worldwide.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures

20% Practical Workshops & Work Presentations

30% Hands-on Practical Exercises & Case Studies

20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: Sunday, 20th of April 2025

0730 – 0800	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	<i>Introduction to Big Data in Supply Chain</i> <i>Definition and Key Characteristics of Big Data • Importance of Big Data in Modern Supply Chain Management • The Role of Data-Driven Decision-Making • Challenges and Opportunities in Big Data Analytics</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Big Data Sources in Supply Chain & Logistics</i> <i>Internal Data Sources (ERP, WMS, TMS, IoT, RFID) • External Data Sources (Social Media, Weather, Market Trends, Sensors) • Structured versus Unstructured Data in Supply Chain • Data Collection and Integration Strategies</i>
1030 – 1130	<i>Methods for Big Data Analysis & Forecasting</i> <i>Descriptive, Diagnostic, Predictive and Prescriptive Analytics • Machine Learning and AI Techniques for Data Processing • Statistical Modeling and Pattern Recognition • Importance of Real-Time Analytics in Supply Chain</i>
1130 – 1230	<i>Data Storage & Processing Technologies</i> <i>Cloud-Based versus On-Premises Data Storage Solutions • Hadoop, Spark and Other Distributed Computing Technologies • Database Management Systems (SQL, NoSQL, Graph Databases) • Data Lakes versus Data Warehouses for Supply Chain</i>
1230 – 1245	<i>Break</i>

1245 – 1330	Data Quality & Governance in Supply Chain Importance of Data Accuracy, Consistency and Completeness • Master Data Management (MDM) Principles • Ensuring Data Security and Compliance (GDPR, ISO 27001) • Ethical Considerations in Data Usage
1330 – 1420	Case Study: How Leading Companies Use Big Data in Supply Chain Real-World Examples from Amazon, Walmart and Maersk • Lessons Learned and Best Practices • Interactive Discussion on Challenges and Solutions • Group Exercise: Identifying Key Data Sources in an Example Supply Chain
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day One

Day 2: Monday, 21st of April 2025

0730 – 0830	Exploratory Data Analysis (EDA) for Supply Chain Understanding Supply Chain Data Through Visualization • Identifying Hidden Patterns in Logistics and Inventory • Using Python and R for Basic Data Exploration • Hands-On Activity: Analyzing Sample Supply Chain Data
0830 – 0930	Advanced Forecasting Techniques with Big Data Time Series Analysis (ARIMA, Exponential Smoothing, Prophet) • Machine Learning Models (Regression, Neural Networks) • Demand Forecasting and Seasonality Analysis • Real-World Examples of Predictive Analytics in SCM
0930 – 0945	Break
0945 – 1100	Big Data & Inventory Optimization Predicting Stock Levels and Demand Fluctuations • Just-In-Time (JIT) and Real-Time Inventory Management • Reducing Stockouts and Excess Inventory Costs • Case Study: Using Big Data to Optimize Warehouse Operations
1100 – 1230	Supply Chain Risk Management with Big Data Identifying and Mitigating Risks Using Data Analytics • Scenario Analysis and Risk Prediction Models • Supplier Risk Assessment and Early Warning Systems • Real-Time Monitoring of Disruptions (Weather, Market Shifts)
1230 – 1245	Break
1245 – 1330	Sentiment Analysis & Social Media Monitoring for Demand Forecasting How Social Media Impacts Supply Chain Decisions • Sentiment Analysis Tools and Techniques • Case Study: How Brands Like Nike and Zara Use Social Insights • Hands-On Activity: Analyzing Twitter Data for Supply Chain Insights
1330 – 1420	Case Study & Hands-on Exercise Group Discussion on Forecasting Failures and Success Stories • Hands-On Session Using Power BI/Tableau for Supply Chain Analytics • Exploring Predictive Models Using Python or Excel • Q&A Session and Discussion on Industry Trends
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Two

Day 3: Tuesday, 22nd of April 2025

0730 – 0830	Digital Twins & Virtual Supply Chain Models <i>What are Digital Twins in Supply Chain? • Benefits of Real-Time Virtual Modeling • Technologies Enabling Digital Twins (IoT, AI, Simulation) • Case Studies of Digital Twins in Logistics and Manufacturing</i>
0830 – 0930	Using Big Data Analysis for Dynamic Simulations <i>Role of Simulation in Supply Chain Decision-Making • Discrete Event Simulation and Agent-Based Modeling • Monte Carlo Simulation for Risk Assessment • Hands-On Session: Creating a Simple Supply Chain Simulation</i>
0930 – 0945	Break
0945 – 1100	Optimizing Supply Chain Networks Using Big Data <i>Data-Driven Network Design and Transportation Optimization • Route Optimization and Last-Mile Delivery Efficiency • AI-Driven Decision Support Systems • Real-World Applications in Logistics and Distribution</i>
1100 – 1230	Profit Maximization versus Cost Reduction: A Balanced Approach <i>Identifying Cost Drivers in Supply Chain Operations • Using Analytics for Cost-Benefit Trade-Off Analysis • Balancing Service Levels with Financial Performance • Practical Example: Optimization in E-Commerce Supply Chains</i>
1230 – 1245	Break
1245 – 1330	Predictive Maintenance & Asset Management in Supply Chain <i>Role of IoT and Machine Learning in Predictive Maintenance • Reducing Downtime Through Condition-Based Monitoring • Asset Lifecycle Optimization Using Data Analytics • Case Study: Predictive Maintenance in Manufacturing and Logistics</i>
1330 – 1420	Workshop: Creating a Virtual Supply Chain Model <i>Group Activity: Designing a Virtual Supply Chain Scenario • Implementing Analytics to Improve Performance • Presenting Solutions and Discussing Improvement Strategies • Q&A Session on Real-World Implementation Challenges</i>
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day Three

Day 4: Wednesday, 23rd of April 2025

0730 – 0830	Real-Time Big Data Processing in Supply Chain <i>Importance of Real-Time Analytics in Logistics and Manufacturing • Event-Driven Architecture for Decision-Making • Tools for Real-Time Streaming Analytics (Kafka, Flink, Spark Streaming) • Case Study: Real-Time Tracking and Monitoring in Supply Chains</i>
0830 – 0930	AI & Machine Learning for Supply Chain Decision-Making <i>AI-Driven Decision Support Systems • Reinforcement Learning for Dynamic Optimization • Chatbots and AI Assistants in Procurement and Logistics • Predicting Supplier Performance Using AI</i>
0930 – 0945	Break
0945 – 1100	Blockchain for Supply Chain Transparency & Security <i>How Blockchain Ensures Traceability and Trust • Smart Contracts for Automated Transactions • Blockchain Use Cases in Food Safety and Pharmaceuticals • Challenges and Adoption Barriers</i>

1100 – 1230	Data-Driven Market Expansion Strategies <i>Identifying New Market Opportunities Using Analytics • Competitive Intelligence Through Big Data • Dynamic Pricing Models and Customer Segmentation • Case Study: Using Data to Expand into Emerging Markets</i>
1230 – 1245	Break
1245 – 1330	KPI Monitoring & Performance Dashboards <i>Designing Effective Supply Chain KPIs • Using Dashboards for Real-Time Monitoring • Integration of Data Sources for Holistic Insights • Hands-On: Creating a Power BI Dashboard for Supply Chain Data</i>
1330 – 1420	Interactive Workshop: AI-Powered Real-Time Decision-Making <i>Analyzing Live Supply Chain Data • Predicting Disruptions and Optimizing Decisions • Group Discussions on Best Practices • Final Presentation of Group Findings</i>
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day Four

Day 5: Thursday, 24th of April 2025

0730 – 0930	Emerging Technologies in Supply Chain Analytics <i>AI and Machine Learning Trends in Supply Chain Optimization • The Potential of Quantum Computing in Logistics • 5G and IoT for Real-Time Supply Chain Management • Autonomous Vehicles and Drones in Supply Chain Operations</i>
0930 – 0945	Break
0945 – 1100	Implementing Big Data Analytics in Your Organization <i>Best Practices for Integrating Big Data Tools in Supply Chains • Overcoming Organizational and Technological Barriers • Change Management Strategies to Ensure Successful Implementation • Tools and Techniques for Measuring ROI On Big Data Projects</i>
1100 – 1230	Capstone Project: Solving a Real-World Supply Chain Problem <i>Problem Identification and Solution Development Process • Data Collection and Analysis for the Project • Developing Predictive Models and Optimization Strategies • Presenting Findings, Recommendations and Potential Outcomes</i>
1230 – 1245	Break
1245 – 1345	Hands-On Workshop: Implementing a Data-Driven Solution <i>Building a Practical, Data-Driven Solution for a Supply Chain Problem • Real-Time Data Collection and Analysis Using Available Tools • Optimizing the Solution Using Predictive and Prescriptive Analytics</i>
1345 – 1400	Course Conclusion <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course</i>
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art simulators “Vehicle Fleet Manager 4.0” software.



Vehicle Fleet Manager 4.0

Course Coordinator

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