

# WM9QA-15 Supply Chain Digitisation and Data Analytics

**24/25**

**Department**

WMG

**Level**

Taught Postgraduate Level

**Module leader**

Ibrahim Ali

**Credit value**

15

**Module duration**

4 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

This module explores the impact of digitisation on supply chain management, uncovering how the integration of advanced technologies and analytical tools is reshaping traditional paradigms. The module critically considers the digitisation effort across different industries by expanding on the drivers and barriers of developing uniform data structures for streamlined communication across supply chain entities. Supply chains today generate a large set of data points and information where it becomes quite difficult to develop correlations between the data points for improved decision making. This module focusses on the development of data driven decision making in supply chain management through utilising data analytics to optimise operational efficiency and enhance transparency and resilience.

### Module aims

The Supply Chain Digitisation and Data Analytics Module aims to introduce learners to how supply chains have adapted and digitally matured in relation to the rapid developments in technology. The module aims to then develop learners skills in building correlations between the data to generate descriptive, predictive, diagnostic and prescriptive analytical models. The aim is to enable learners to enhance overall supply chain performance and the management of value creation through data

driven decision making. The design has been mapped against the course level learning outcomes.

## Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

- Introduction to data analytics in the supply chain
- Data collection and preparation
- Data visualization and exploratory data analysis
- Data analytics (Diagnostic, Predictive, Prescriptive)
- Machine learning and artificial intelligence
- Supply chain optimization and decision-making
- Tools and software
- Case studies and projects

## Learning outcomes

By the end of the module, students should be able to:

- Demonstrate comprehension of technologies shaping supply chain digitisation, including but not limited to blockchain, artificial intelligence, machine learning, and the Internet of Things (IoT).
- Align digital strategies with organisational goals, manage change effectively, and foster innovation within the supply chain context.
- Evaluate the choice of analytical tools depending on the specific needs and scale of the complexity of supply chain analytics tasks.
- Apply data analytics techniques to solve complex supply chain challenges to enhance operational efficiency, mitigate risks, and capitalize on emerging opportunities.
- Present and communicate complex data insights and analytical findings and suggest actionable recommendations to diverse stakeholders in a supply chain.

## Indicative reading list

- Robertson, P. W. (2020). Supply chain analytics: using data to optimise supply chain processes. Routledge.
- Vandeput, N. (2021). Data science for supply chain forecasting. Walter de Gruyter GmbH & Co KG.
- Tipi, N. (2021). Supply chain analytics and modelling: Quantitative tools and applications. Kogan Page Publishers.
- Rahimi, I., Gandomi, A. H., Fong, S. J., & Ülkü, M. A. (Eds.). (2020). Big data analytics in supply chain management: Theory and applications. CRC Press.

## Subject specific skills

Deep industrial knowledge, awareness of key practice and principles, understanding of industry structure and future challenges with a sustainable/resilient lens, ability to evaluate the role of

supply chain digitisation and data analytics. descriptive analytics, predictive analytics, descriptive analytics, data visualisation, data driven supply chain decision making.

## Transferable skills

Verbal and written communication, presentation, teamwork, reflective practice, adaptability, leadership, terminology literacy, and capability to work on and analyse databases on software.

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## Study

### Study time

Type	Required
Lectures	15 sessions of 1 hour (10%)
Seminars	15 sessions of 1 hour (10%)
Online learning (independent)	30 sessions of 1 hour (20%)
Private study	30 hours (20%)
Assessment	60 hours (40%)
Total	150 hours

### Private study description

Students will be encouraged to explore the reading list which includes essential and recommended reading material. Students will be encouraged to utilise the CPD tools and range of resources from the CILT and CIPS websites as part of their student and affiliate memberships. Students will be encouraged to trial out various data analytics and visualization software.

## Costs

No further costs have been identified for this module.

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## Assessment

You must pass all assessment components to pass the module.

### Assessment group A

	Weighting	Study time	Eligible for self-certification
Data analytics and visualization case study	25%	18 hours	No

	Weighting	Study time	Eligible for self-certification
Students will be given a case study with a data set and asked to develop a predictive model and visualise the analysis and results			
Report analysing supply chain resilience	75%	42 hours	Yes (extension)
Student will be given a case study specific to an industry with a data set looking at market dynamics in terms of supply and demand. Students will be asked to develop a risk analysis based on current and futuristic market trends. The question will have multiple sections which students will iteratively work on with formative feedback on part of it each week.			

## Feedback on assessment

There will be several opportunities to provide formative feedback on the work during the 4 week teaching block. There will be scheduled office hours for student support. Written feedback will be provided against each learning outcome in the assessments.

## Availability

There is currently no information about the courses for which this module is core or optional.