



## Unit 33: Supply Chain Operations

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### Delivery guidance

This unit will provide learners with the practical skills and knowledge required for working in the area of supply chain operations. They will learn about the role of logistics, the importance of supply chain operations and the impact that technology has had on the sector.

### Approaching the unit

This unit will reinforce the central role that supply chain logistics plays in the efficient and cost-effective running of a business. Learners will gain an appreciation of the complexity of ensuring that the correct items are at the correct place at the correct time.

Learning aim A is primarily concerned with understanding how the role of logistics fits in with operating an efficient supply chain management system. Learners will gain an understanding of the different aspects that make up logistical activities, including inventory management, storage and handling and transportation.

A key concept for learners to understand is that supply chains are not the same in every business. Therefore, learners are required to report on two businesses: one of which operates nationally, the other one internationally. This will involve learners researching both national and international perspectives in terms of transportation and logistics.

Learning aim B evidence will be presented in the same report as Learning aim A. Learning aim B will investigate how supply chain operations can be made more efficient by investigating upstream and downstream operations, including the components of supply chain operations, integration of supply chains, managing the supply chain and the benefits of supply chain integration. It is important that learners understand that each part of the supply chain is planned in order to link effectively with all other elements. In order to conceptualise this key learning, learners could carry out their own research or potentially visit a large organisation that is involved in supply chain operations.

Learning aim C is concerned with understanding the impact that technology has on supply chain operations. It is important for learners to gain a full appreciation of all the technologies that link together and not simply the IT systems that are used. Learners may have personal experience of using similar systems to those that are being researched (e.g. e-bidding) and these experiences should be drawn upon to develop understanding. Learners will be required to present the evidence in the form of an individual presentation, a supporting leaflet and a report which analyses how available technology can be used to support supply chain operations in two contrasting businesses.



### Assessment model (internally assessed unit)

Learning aim	Key content areas	Recommended assessment approach
<b>A</b> Examine the role of logistics operations in ensuring effective supply chain operations	<b>A1</b> Inventory management <b>A2</b> Storage and handling <b>A3</b> Transportation	A report on the operation of two supply chains, one from a growing national business and one from a growing international business.  A report suggesting how downstream and upstream supply chain operations can be improved through greater integration.
<b>B</b> Investigate the importance of supply chain organisation and operation to businesses	<b>B1</b> Supply chain components <b>B2</b> Integrating supply chains <b>B3</b> Managing the supply chain <b>B4</b> Benefits of supply chain integration	
<b>C</b> Examine the impact of technology on the efficient management of supply chain operations	<b>C1</b> Technologies <b>C2</b> Technology and supply chain components <b>C3</b> The impact of technology	An individual presentation, with a supporting leaflet and report that analyses the technology available and how it can be used to support and improve the management and operation of the supply chain for two contrasting businesses.



## Assessment guidance

This unit is internally assessed through a number of independent tasks. Learners must produce work which is their own and can be authenticated. The main sources of evidence are likely to be reports, primary and secondary research, notes from visits or potentially even work experience (but not essential).

Other relevant evidence may include analysis of published materials, diagrams, plans and exemplar documentation.

Learning aims A and B should be taught together. The assessment criteria requires learners to examine the role of logistics through investigating inventory management, storage and handling, transportation, supply chain components (e.g. warehousing, prioritising customer needs, configuration of supply chains) integrated supply chains and the management of supply chains. From the outset, learners should be presented with the opportunity of experiencing supply chain operations in the workplace, ideally in a large business. This experience would give learners the opportunity to witness supply chain operations in action and to make notes and gather evidence for the report they have to create as evidence for Learning aims A and B.

Alongside experiential workplace learning, learners should carry out sound research to back up their primary research findings. This could focus on the role of downstream and upstream supply chain management operations. Learners should investigate how a linked approach can be time and cost efficient.

For Learning aim C, tutors should focus on how technology can promote efficiency in supply chain operations. Learners need to understand how software technology (e.g. spreadsheets/databases) works alongside other technologies (e.g. RFID, GIS, GPS) so that goods in transit move smoothly and safely through the supply chain. Learners should also learn how software can help with a full range of supply chain management requirements, including data modelling and distribution. Finally, learners should research the impact of technology, including management information systems and the benefit of information through real-time systems. It would be beneficial for learners to use real-world industry experience as a vehicle for bringing their presentation to life. The experience gained from learners' own research, or even industry exposure, will give them the opportunity of using their own research (e.g. photographs) in the report and leaflet they prepare.



## Getting started

**This provides you with a starting place for one way of delivering the unit, based around the recommended assessment approach in the specification.**

### Unit 33: Supply Chain Operations

#### Introduction

Learners are required to gain an understanding of the intricacies that underpin how goods arrive on time, in the right place and in the correct quantities. Research in the form of independent work or visits will help learners to write their reports and presentation plus supporting documentation for submission as evidence. The tutor should build in at least three formative assessment opportunities that check for understanding of each learning aim.

#### Learning aim A – Examine the role of logistics operations in ensuring effective supply chain operations

- For Learning aim A1, teaching should focus on the documentation, monitoring and controlling and the calculating of inventory requirements. This learning aim could be delivered by facilitating an activity that simulates those three supply chain processes. For this task, learners could produce and create the documentation for the first part of the task. The second and third parts of the task (monitoring and controlling inventory) could be delivered in a more theoretical manner by researching automated monitoring and inventory control software. Notes could be produced on all three processes and used as evidence in the report. Learning could also be consolidated through the use of learner presentations.
- For Learning aim A2, teaching should focus on the efficient design of warehouses and the systems they use. This includes palletisation, containerisation and/or barcode systems that are used to log and monitor the whereabouts of goods in the warehouse and in transit. Learners could gain an insight into LAA2 by visiting a warehouse and observing how items and goods are handled inwards and outwards. This includes logistics, purpose of inventories, types of inventory, costs, techniques used for valuing stock and calculating stock requirements.
- You could arrange a guest speaker, such as a stock controller from a medium or large business, to visit the Centre and give a talk in order for learners to gain an insight into technical logistical issues, allowing them to ask questions and make notes for their report.
- For Learning aim A3, teaching should focus on the international transportation of goods. You should focus on teaching learners about the role and purpose of incoterms and what is included in them. Learners must also understand the principle of reverse logistics (i.e. return of goods, packaging refurbishment and safe disposal and the processes that are used by the supplier). Learners should carry out independent research to investigate the different methods that are used to optimise the efficiency of goods being transported over land, water and through the air. Research should also investigate the process by which goods are returned and the documentation that is used for international freight movement.
- As a formative assessment activity, you could set an online quiz using, for example, Kahoot! or Qzzr.com, which will check learners' understanding of Learning aim A.
- Ensure that sufficient time is allocated for learners to begin their summative assignment report for LAA and LAB. This involves writing two reports on the following:
  - the operation of two supply chains, one from a growing national business and one from a growing international business



- how downstream and upstream supply chain operations can be improved through greater integration.

### **Learning aim B – Investigate the importance of supply chain organisation and operation to businesses**

- For Learning aim B1, teaching should focus on the practical aspects of supply chain organisations, including how materials are handled, packaged and kept secure whilst in the supply chain.
- You could arrange a visit to a large warehousing organisation to give learners the opportunity to recognise different warehouse configurations, including how the design of the supply chain impacts on the effectiveness of it. Learners need to understand that the layout and design of a warehouse plays a significant part in how efficient the business is. Learners could obtain plans of warehouses and compare different designs through evaluation.
- For Learning aim B2, teaching should focus on recognising the correct supply chain strategy that a business should use, including the objectives and structures that are in place to avoid barriers in the functionality of the supply chain. This should include how technology can support integrated supply chain management.
- Learners could undertake research into the commonly available systems used within supply chain operations with a focus on how they enable communication and help to support agreed quality standards.
- You should explain to learners that the objectives that a business sets itself are dependent upon the technology that is available to it. Learners could investigate the types of technologies that were used in supply chain management in the past, comparing them with equipment that is used in a modern system.
- For Learning aim B3, teaching should focus on the Key Performance Indicators (KPIs) that are used within supply chain operations and the sources of information that are accessible to businesses to give insight into the efficient running of an organisation involved in supply chain operations.
- Learners also need to understand how businesses manage the risk to supply chains, including natural and technical disasters.
- You could arrange for a guest speaker, such as a warehouse manager from a local, national and/or international freight organisation to come to the Centre to give a talk.
- Learners need to understand why a supply chain organisation sets itself KPIs and what the targets indicate to the business. Customers may also be interested in looking at the KPIs of a supply chain organisation. This information could be researched via a visiting speaker or through online research. Learners should make notes on the meaning and purpose of KPIs being used which they can use to help with their summative assignments.
- For Learning aim B4, teaching should focus on the integration of supply chains, including how technology can improve reliability and reduce errors and how the automation of the process can reduce personnel costs and improve resource allocation.
- Learners could conduct independent research into warehouse automation processes by finding relevant videos online, before sharing their findings with the rest of the class in a group 'show and tell' session.
- As a formative assessment activity, you could set an online quiz using, for example, Kahoot! or Qzzr.com, which will check learners' understanding of Learning aim B.
- Ensure that sufficient time is allocated for learners to complete the writing of their summative assignment reports for LAA and LAB.

**Learning aim C – Examine the impact of technology on the efficient management of supply chain operations**

- For Learning aim C1, teaching should focus on the how automation enhances the efficiency of supply chain management. Learners should understand how the following technologies link together:
  - spreadsheets/databases
  - enterprise resource planning software
  - radio-frequency identification
  - geographic information system
  - Global Positioning System (GPS)
  - procurement to pay
  - communication systems.
- Learners should carry out secondary research to understand the purpose of less common systems and how they link together. This information should form part of the summative assessment for Learning aim C.
- For Learning aim C2, teaching should focus on how, for example, goods are requisitioned and paid for by electronic methods. Learners also need to understand how computer modelling enables businesses to make and analyse decisions, as well as allowing a business to identify the locations of facilities in terms of logistics and distribution. Learners could be given the opportunity of speaking to technology business employees who develop and support the technology infrastructure of a business involved in supply chain operations.
- Learners should create a table in order to analyse and evaluate the benefits and drawbacks of technologies used in supply chain operations.
- For Learning aim C3, teaching should focus on the benefits that technology brings to a business involved in supply chain operations. This includes better communication to stakeholders, along with systems that monitor supply and demand to avoid under- or over-ordering.
- Learners also need to understand how real-time information is used to aid business decision making, along with knowing how systems are used to track the past, present and future locations of items in the supply chain. This could be taught alongside Learning aim C2, as the required information could be gained from the same contact with the technology experts.
- As a formative assessment activity, you could set a paper-based or online quiz using, for example, Kahoot! or Qzzr.com, to check learners' understanding of all unit learning aims.
- Ensure that sufficient time is allocated for learners to complete the writing of their summative assignment reports for LAC. This is an individual presentation with a supporting leaflet and report that analyses the technology available and how it can be used to support and improve the management and operation of the supply chain for two contrasting businesses.



## Details of links to other BTEC units and qualifications, and to other relevant units/qualifications

- Unit 1: Exploring Business
- Unit 15: Investigating Retail Business
- Unit 27: Work Experience in Business
- Unit 32: Buying for Business

## Resources

In addition to the resources listed below, publishers are likely to produce Pearson-endorsed textbooks that support this unit of the BTEC Nationals in Business. Check the Pearson website (<http://qualifications.pearson.com/endorsed-resources>) for more information as titles achieve endorsement.

### Textbooks

Bozarth C and Handfield R, *Introduction to Operations and Supply Chain Management (What's New in Operations Management)*, 5th edition, Pearson, 2018 ISBN: 9780134740607 – An extremely detailed text book which covers the newest innovations in supply chain operations.

Chopra S and Meindl P, *Supply Chain Management: Strategy, Planning, and Operation, Global Edition*, 6th edition, Pearson, 2015 ISBN: 9781292093567 – This book provides, in detail, everything the learner needs to know for this unit.

Stanton D, *Supply Chain Management for Dummies*, John Wiley & Sons, 2018 ISBN: 9781119410195 – This book is a very useful reference which covers all of the key content for this unit in an easily accessible format.

### Videos

'Coca Cola Supply Chain' – Contextualises the supply chain in terms of an international brand.

<https://www.youtube.com/watch?v=UBSOiHUctrY>

'VV 31 - English Vocabulary for Supply Chain Management 2' – A good overview of key vocabulary used in this unit.

<https://www.youtube.com/watch?v=rFk7AFuMjIA>

'What is Supply Chain Management? Definition and Introduction' – A really good video which gives real-life examples of the supply chain in action.

<https://www.youtube.com/watch?v=IZPO5RclZEO>

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