

# Supply Chain 2025/26 MOD007698– 011 Assignment

We will be using the seminar sessions to support your understanding of the assignment, please bring your assignment questions to the seminar sessions

There are three parts to this assignment, you must complete both parts of the assignment and please ensure you fully understand the marking criteria.

All names, company details are fictional and are not real companies.

## Case Study: GreenCycle Mobility

### Introduction

GreenCycle Mobility is a UK-based electric bicycle and e-scooter company founded in 2015 by engineers Aisha Patel and Daniel Romero. The company aims to revolutionise urban mobility by providing affordable, eco-friendly alternatives to cars and public transport. Starting with a single model of foldable e-bike, GreenCycle Mobility now offers a full range of electric bicycles, scooters, and smart mobility accessories.

The headquarters are located in Manchester, with design centres in Barcelona and Warsaw. Manufacturing facilities are spread across Eastern Europe and Southeast Asia. As demand for sustainable urban mobility grows, GreenCycle Mobility faces complex supply chain challenges related to scaling production, maintaining sustainability commitments, and navigating global logistics disruptions.

### Current Situation

GreenCycle's supply chain is highly fragmented. Components such as batteries, motors, and smart sensors are sourced from China, Vietnam, and South Korea, while assembly is carried out in Poland and Vietnam. The company has enjoyed rapid growth, but its operational model has not kept pace.

- Over-reliance on two battery suppliers has caused repeated production halts, due to downstream production problems such as factories going offline from environmental conditions such as floods, heavy storm causing loss of power.
- Semiconductor shortages have delayed delivery of smart sensors, significantly increasing costs and risks of sourcing.
- Inconsistent logistics partners have led to late shipments and damaged goods, with frequent reliance on air freight to meet deadlines.
- Brexit-related customs checks have disrupted the flow of products into the UK and EU markets, increasing documentation and clearance times.

A recent recall of defective e-scooter batteries has raised financial and reputational risks, highlighting the urgent need for improved quality control and risk management. Internal investigation found a poorly made high voltage wiring harness, caused a thermal event on two eBikes.

## Manufacturing and Logistics (LO1, LO3, LO4)

GreenCycle recently developed a working partnership with an organization based in Gdańsk, Poland, to serve the EU market. Although strategically located near Baltic shipping routes, it operates at only 60% efficiency due to supplier delays and labour skill shortages. The GreenCycle management are concerned about the outsourcing of the partnership strategy and how they can control the manufacturing and orders.

To keep up with seasonal demand, the company has relied heavily on air freight for batteries and electronic components, undermining its sustainability image and inflating costs. Third-party logistics partners (e.g., EuroFreight Solutions) have also struggled with on-time performance, further damaging customer trust.

long Supplier lead times

Demand uncertain. ∴ Do not use a full Push

more options

Hybrid Strategy ✓

## Inventory Management (LO1, LO3, LO5)

The company has encountered several inventory management challenges. There is consistent overstocking of low-demand e-bike models, which ties up capital, increases storage costs, and creates a risk of product obsolescence. In contrast, the firm faces stockouts of flagship models, leading to lost sales and potential reputational damage when customers cannot access the most popular products.

Compounding these issues is a reliance on manual tracking systems, which are vulnerable to human error and provide limited real-time visibility. This lack of accurate data makes demand forecasting and stock optimisation difficult, leading to inefficiencies across the supply chain.

To address these problems, the company is considering an automated inventory management system. Such technology would improve real-time data accuracy, reduce the risks of both overstock and stockouts, and support better decision-making, ultimately lowering costs and improving customer satisfaction.

Demand Planning

- SC Mgt System
- ERP System

## Sustainability and Opportunities (LO1, LO2, LO6)

GreenCycle positions itself as a sustainability-focused brand, leveraging its identity as a provider of environmentally friendly mobility solutions. However, there are growing concerns regarding the environmental footprint of its current supply chain practices, particularly the reliance on air freight for rapid distribution and the use of overseas suppliers. These practices raise questions about the authenticity of the company's green claims, as transport emissions and long-distance sourcing undermine the overall sustainability message. This creates both reputational risks and potential misalignment with consumer expectations in an increasingly eco-conscious market.

At the same time, the regulatory environment in the European Union is tightening, with stricter rules on battery recycling and disposal being phased in under the EU Battery Directive. Furthermore, the introduction of carbon border adjustment mechanisms (CBAM) will directly affect companies importing goods from regions with less stringent environmental standards.

Reverse-Perceive logistics

For GreenCycle, these developments will likely increase operational costs and require greater transparency and accountability across its supply chain. Failure to adapt may result in compliance penalties, reduced competitiveness, and damage to its brand image.

Despite these challenges, several strategic opportunities exist. One avenue is to expand into subscription-based “Mobility-as-a-Service” (MaaS) models, which would align with shifting consumer preferences towards access rather than ownership while also enabling more efficient lifecycle management of e-bikes. Another opportunity lies in forming partnerships with European recycling firms, strengthening reverse logistics networks to recover, refurbish, and recycle components, particularly batteries. Such initiatives would not only ensure compliance but also reinforce GreenCycle’s sustainability narrative. Finally, the development of modular battery packs with localised assembly could reduce dependence on overseas suppliers, shorten lead times, and lower carbon emissions associated with transport, while also offering consumers easier maintenance and upgrade options.

In summary, while GreenCycle faces significant sustainability and regulatory pressures, proactive investment in circular economy practices, innovative service models, and localised supply chains presents an opportunity to strengthen its competitive advantage and credibility as a genuinely green brand.

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### Inner City Mobility Solutions (LO2, LO4, LO5)

Urban centres across the UK and Europe are grappling with rising levels of congestion, air pollution, and overcrowded public transport systems. In cities such as London, Manchester, and Birmingham, average car speeds during peak times have fallen below 10mph, while local authorities continue to face mounting pressure to meet national and EU emissions targets. Traditional transport infrastructure is struggling to cope with population growth and increased demand, leading to lost productivity, commuter frustration, and public health concerns linked to poor air quality.

Within this context, GreenCycle’s products—particularly e-bikes and e-scooters—offer a compelling solution. By shifting commuters away from private car use and reducing dependency on congested bus and rail networks, e-bikes can ease traffic flows while lowering carbon emissions. Their compact size enables riders to navigate dense urban environments more efficiently, often completing journeys faster than cars during peak congestion. Furthermore, the use of shared e-bike schemes and subscription-based mobility services can increase accessibility for a wider demographic, offering flexible, affordable, and sustainable transport options to students, key workers, and low-income groups.

However, adopting e-bikes as part of urban transport ecosystems requires collaboration between businesses, governments, and city planners. Challenges such as cycling infrastructure, road safety, charging stations, and integration with public transport hubs must be addressed to maximise their effectiveness. For example, secure docking stations near train and bus terminals could encourage “last-mile” commuting, while dedicated cycle lanes could reduce conflicts with cars and pedestrians.

From a business perspective, these urban challenges create a strategic opportunity for GreenCycle. By working with local councils to pilot smart mobility solutions, such as geo-fenced e-bike sharing or dynamic pricing models, the company can position itself as not just a

product provider but a partner in solving urban mobility issues. This enhances brand reputation, creates new revenue streams, and aligns GreenCycle with broader sustainability goals such as the UN Sustainable Development Goals (SDGs) and the UK's Net Zero 2050 commitment.

Ultimately, by linking its business growth to tackling inner-city congestion, GreenCycle can reinforce its value proposition: delivering cleaner, faster, and more sustainable mobility while helping cities transition toward greener, healthier, and more liveable futures.

**Supplier and Transportation Details**

| Component             | Supplier   | Location    | Distance to Gdańsk (km) | Mode        | Avg. Cost per Shipment (€) |
|-----------------------|------------|-------------|-------------------------|-------------|----------------------------|
| Lithium-Ion Batteries | PowerCell  | China       | 8,200                   | Sea Freight | 5,000                      |
| Motors                | VietMotors | Vietnam     | 9,500                   | Sea Freight | 4,800                      |
| Smart Sensors         | TechSeoul  | South Korea | 8,000                   | Air Freight | 7,200                      |
| Frames                | SteelWorks | Poland      | 300                     | Truck       | 900                        |
| Tyres                 | GripMax    | Turkey      | 2,000                   | Truck       | 1,500                      |
| Packaging             | EcoPack    | Germany     | 1,200                   | Truck       | 1,200                      |

**Assignment Task**

As an external consultant, you are asked to review and provide a clear written report on the following aspects

1. Analyse GreenCycle Mobility’s supply chain using Porter’s Value Chain or the SCOR model (only pick one framework)
2. Analyse GreenCycle Mobility’s business model including SWOT Or TOWS (only pick one framework)
3. Recommend strategies for GreenCycle Mobility to structure a global supply chain redesign.
4. Evaluate GreenCycle Mobility outsourcing vs in-house approaches.
5. Assess GreenCycle Mobility supply chain risks and propose mitigation strategies.
6. Compare Agile, Lean, and Hybrid supply chain strategies and the benefits and disadvantages this could bring to GreenCycle Mobility.

SC Strategy

7. Recommend technologies to improve GreenCycle Mobility sustainability, traceability, and efficiency.
8. Consider the impact of eMobility within inner cities and the benefits GreenCycle Mobility products could provide in reducing pollution, traffic congestion.
9. Provide conclusion and clear recommendations for the future to support GreenCycle Mobility overall business operations.

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### Marking Criteria

- Scenario Analysis – 20%
- Supply Chain Strategies – 30%
- Conclusion & Recommendations – 30%
- Academic Rigour – 10%

SW • **Scenario Analysis** - Describe the current situation with the given case study, what are their **current capabilities** for supply chain management and **detail the opportunities** for future growth of the company. (20%) [Learning outcomes L1, L2, L4, L5, L6]

SWOT

LO.T

**Supply chain strategies** - Define how the case study organisation could establish a global supply chain, making reference to one supply chain theory such as **Porter's value chain**, SCOR model, etc. and the impact on the company structure. The strategies could include references to the following [Learning outcomes L2, L5, L6] .(30%)

Consider the case study global supply chain operations i.e. manufacturing, suppliers, engineering center

The advantages and disadvantages to outsourcing key sections of supply chain

Identify key **supply chain risks** and how these risks can be managed

Benefits and **disadvantages Agile Vs lean Vs Hybrid supply chain strategy**

Impact of **future technologies** in sharing information throughout the supply chain.

Impact on future **eWaste regulations and** reverse supply chains

**Conclusion and recommendations** - Provide a clear set of recommendations defining your ideas how to establish a supply chain, based off your academic research. (30%) [Learning outcomes L3, L5]

**Academic Rigour** - Your assignment should clearly include the academic insight, i.e. the concepts and the supporting references involved, indicated in the report and listed in the references and bibliography. (10%)

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### Learning Outcomes

This assignment is designed to help students achieve the following learning outcomes:

1 Knowledge and Understanding

- Develop a systematic understanding of the relationship between strategic and operational supply chain management;

## 2 Knowledge and Understanding

- Demonstrate a critical awareness of the implications and trade-offs of strategic decisions on supply chains and how to manage associated risks;

## 3 Knowledge and Understanding

- Demonstrate systematic understanding of the relationship between supply chain processes and process improvement;

## 4 Intellectual, practical, affective and transferrable skills

- Hone effective transferable management skills: task organisation and the management of capacities in groups; analysis; communication; confidence in presentation skills and efficient time management;

## 5 Intellectual, practical, affective and transferrable skills

- Critically undertake analysis of a business scenario and develop a project plan for improvement;

## 6 Intellectual, practical, affective and transferrable skills

- Synthesise and critically evaluate the information and performance mapping of business statistics and communicate these with confidence