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# Sustainable Supply Chain Management

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MODULE 1 Session 1

**Role of sustainability in supply chain management**

Lecture



Curriculum Development  
of Master's Degree Program in  
Industrial Engineering for Thailand Sustainable Smart Industry



# SUSTAINABLE DEVELOPMENT



Sustainable development was defined in the UN report - “Our Common Future”, which was the outcome of works of the World Commission on Environment and Development, appointed in 1983, in which it was attempted to holistically approach the problems of the modern world. The report by the World Commission on Environment and Development translates the definition of sustainable development into behavior which equally applies to natural capital and social capital since they create the future economic potential of the local government. It also draws attention to the fact that this process must meet the requirements which, among others, include satisfying growth ambitions of the present generation. To this end, it is necessary to choose a way to create the conditions which allow future generations for the implementation of identical aspirations. It is also necessary to define the level of competence validity, e.g. of management entities, which will assess the extent of social maturity oriented to the implementation of assumptions of sustainable development in the long term. The legal strengthening of sustainable development is inscribed in the Constitution of the Republic of Poland, where it guards “(...) the independence and integrity of its territory and ensures the freedoms and human and civil rights and safety of citizens, safeguards the national heritage and protects the environment, guided by the principle of sustainable development” and in the Law on Environmental Protection, where “sustainable development – is understood as the socio-economic development in which there is the process of integrating political, economic and social activities, while maintaining the natural balance and durability of basic natural processes in order to guarantee the possibility of satisfying basic needs of individual communities or citizens of both the present generation and future generations”. In view of the good of the land and organisms functioning on it, the Summit on Sustainable Development of 2015 in New York, at the United Nations, adopted the so called Plan for Sustainable Development, i.e. Agenda 2030. It was signed by 193 UN Member States and its activities include 5 key elements: people – eradication of poverty, the planet – protection against degradation, prosperity – satisfying life, peace – cooperating society and global partnership – global solidarity. The encountered problem, which has been relatively often discussed in recent years and enables the continuation of the course of sustainable development – from the perspective of the society, is associated with environmental challenges. These challenges, among others, concern air and/or water pollution, waste management, the ozone hole phenomenon. All these problems are related to the continuous climate change. The previous research e.g. Zachariadis or Wheeler and Von Braun commonly allows for the conclusion that environmental challenges are often linked with the style of our life and thus consumption. This has impact on the other two dimensions of sustainable development (i.e. the natural environment is affected by: the economic dimension and the social one). [[SOURCE](#)]

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# E-Handbook on Sustainable Development Goals Indicators



1  
NO  
POVERTY



End poverty in all its forms everywhere [\[SOURCE\]](#)

2  
ZERO  
HUNGER



End hunger, achieve food security and improved nutrition and promote sustainable agriculture [\[SOURCE\]](#)

3  
GOOD HEALTH  
AND WELL-BEING



Ensure healthy lives and promote well-being for all at all ages [\[SOURCE\]](#)





# E-Handbook on Sustainable Development Goals Indicators



4 QUALITY EDUCATION



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all [\[SOURCE\]](#)

5 GENDER EQUALITY



Achieve gender equality and empower all women and girls [\[SOURCE\]](#)

6 CLEAN WATER AND SANITATION



Ensure availability and sustainable management of water and sanitation for all [\[SOURCE\]](#)





7 AFFORDABLE AND  
CLEAN ENERGY



Ensure access to affordable, reliable, sustainable and modern energy for all [\[SOURCE\]](#)

8 DECENT WORK AND  
ECONOMIC GROWTH



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all [\[SOURCE\]](#)

9 INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation [\[SOURCE\]](#)





# E-Handbook on Sustainable Development Goals Indicators



10 REDUCED INEQUALITIES



Reduce inequality within and among countries [\[SOURCE\]](#)

11 SUSTAINABLE CITIES AND COMMUNITIES



Make cities and human settlements inclusive, safe, resilient and sustainable [\[SOURCE\]](#)

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Ensure sustainable consumption and production patterns [\[SOURCE\]](#)





# E-Handbook on Sustainable Development Goals Indicators



13 CLIMATE ACTION



Take urgent action to combat climate change and its impacts [\[SOURCE\]](#)

14 LIFE BELOW WATER



Conserve and sustainably use the oceans, sea and marine resources for sustainable development [\[SOURCE\]](#)

15 LIFE ON LAND



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss [\[SOURCE\]](#)





# E-Handbook on Sustainable Development Goals Indicators



16 PEACE, JUSTICE  
AND STRONG  
INSTITUTIONS



Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels [\[SOURCE\]](#)

17 PARTNERSHIPS  
FOR THE GOALS



Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development [\[SOURCE\]](#)







# The Sustainable Development Goals Report



2019

2018

2017

2016



[Global SDG Indicators Database](#)

## The Sustainable Development Goals Report

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- [Extracting key factors for sustainable development of enterprises: Case study of SMEs in Taiwan](#)
- [Factors of Influence on the Sustainable Development in the Strategy Management of Corporations](#)
- [Factors influencing on tourism sustainable development in Vietnam](#)
- [A Introductory Chapter: Landscape Reclamation as a Key Factor for Sustainable Development](#)
- [Analysis model of the sustainability development of manufacturing small and medium- sized enterprises in Taiwan](#)
- [Developing good practice guidance for estimating land degradation in the context of the United Nations Sustainable Development Goals](#)
- [Applications of information and communication technology for sustainable growth of SMEs in India food industry](#)





One of the earliest definitions:

„The supply chain is the connected series of activities which is concerned with planning, coordinating and controlling material, parts and finished goods from supplier to customer”.

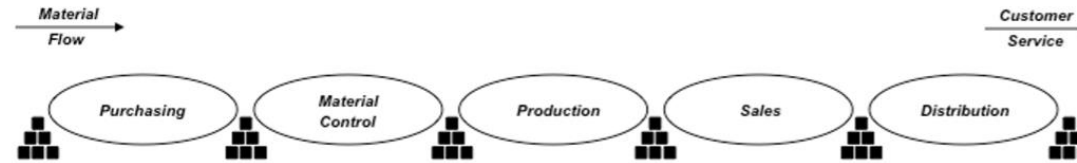
Achieving a state of “integration” required a firm to progress through a number of defined stages of development. SCM developed from a baseline of functional (independent) silos and the first level of integration was across functions (akin to process integration). Full internal integration involving a seamless flow through the internal supply chain, to external integration embracing suppliers and customers. The primary benefits were identified as improved customer service and reduced inventory and operating costs. [[SOURCE](#)]



# Stages of Supply Chain Development



Step one: Baseline



Step two: Functional Integration



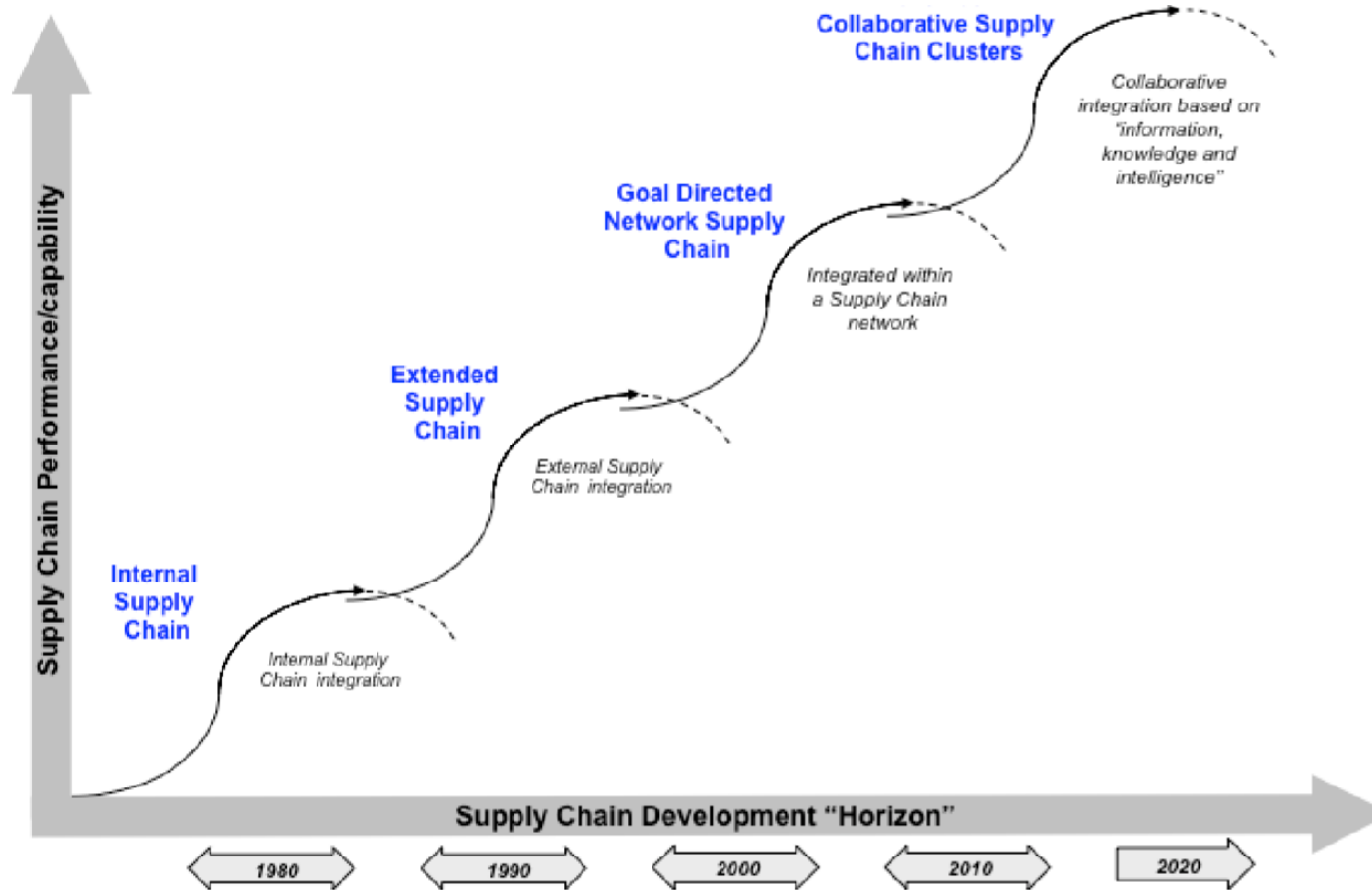
Step three: Internal Integration



Step four: External Integration



# Phases in Supply Chain Management Development





# Supply Chain – now.....in Internet



- What Is a Supply Chain?

A supply chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer. This network includes different activities, people, entities, information, and resources. The supply chain also represents the steps it takes to get the product or service from its original state to the customer. [\[SOURCE\]](#)

- 3 Things you Need to Know about Your Supply Chain (Plus an Extra One)

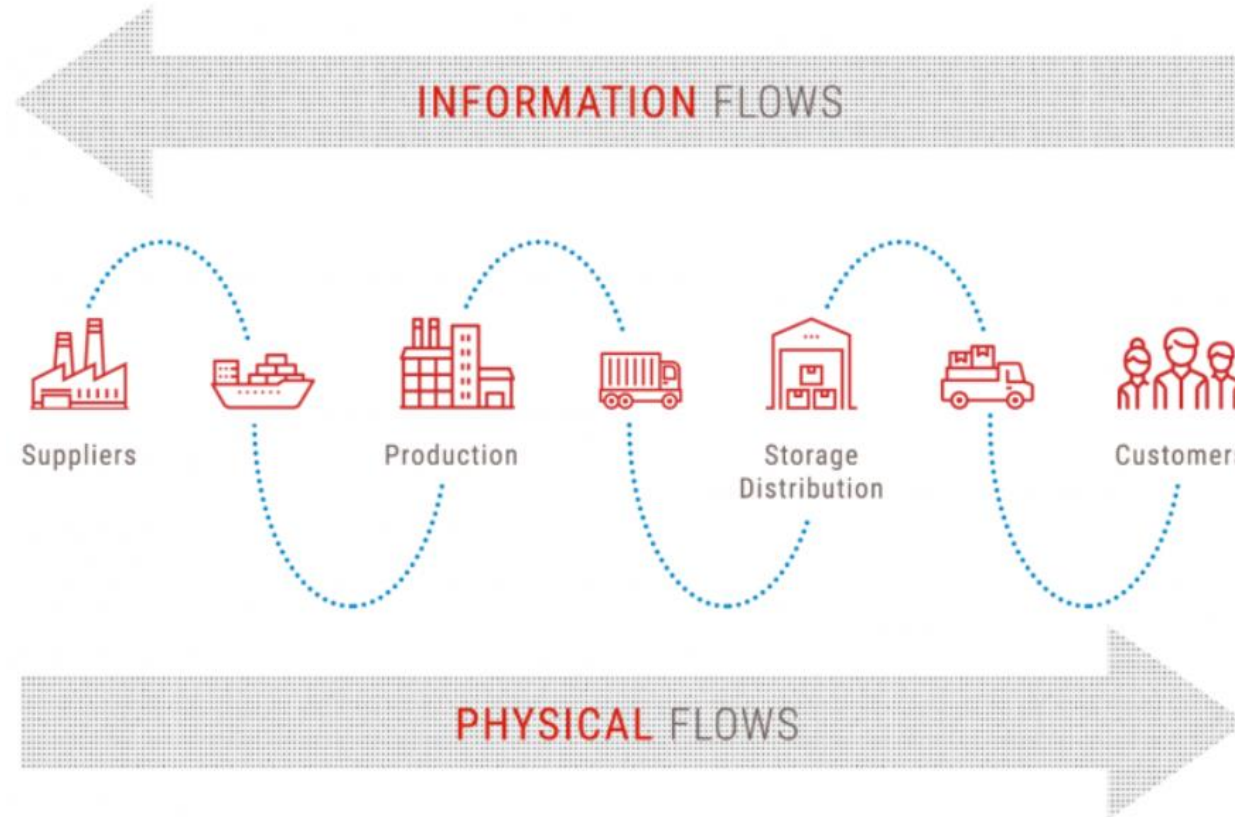
For those CEOs and other execs who don't know much about supply Chain or logistics management, I'd like to highlight the four key areas to really keep an eye on. But first, let's briefly explore why a company's supply chain is so important. [\[SOURCE\]](#)



# Supply Chain – now.....in Internet



- Groupe SEB



SUPPLY > TRANSFORM > STORE > DISTRIBUTE



# Supply Chain – now.....in Internet

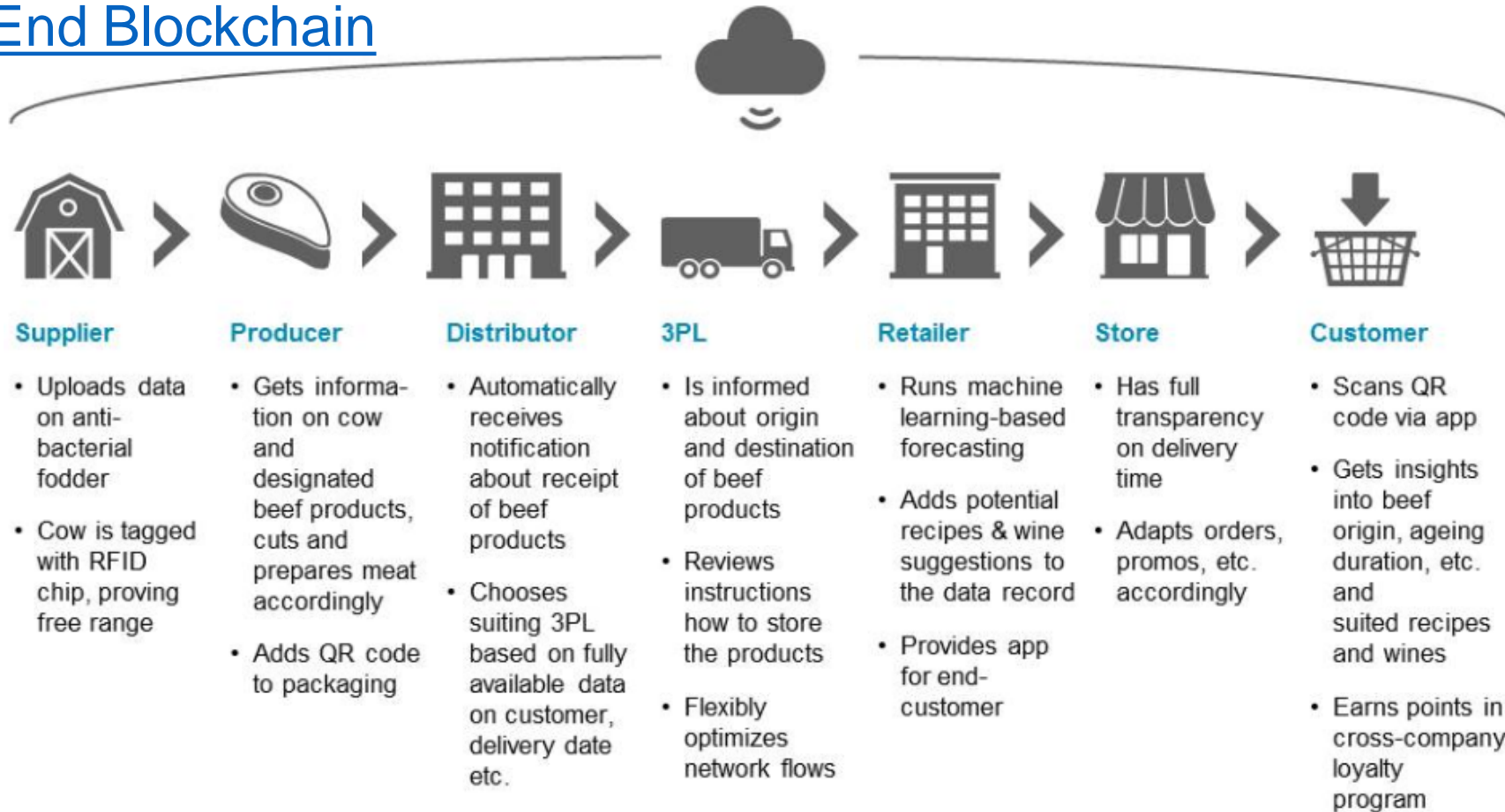


- e-Commerce Company





- End-To-End Blockchain





# Supply Chain – now.....in Internet



- [Coca Cola Supply Chain](#)
- [DHL International Supply Chain](#)
- [Amazon - Supply Chain](#)





The commonly definition:

- „The systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purpose of improving the long-term performance of the individual companies and the supply chain as a whole”.

[\[SOURCE\]](#)

- “SCM is the management of upstream and downstream relationships in order to deliver superior customer value at less cost to the supply chain as a whole”.

[\[SOURCE\]](#)





# Supply Chain Management – now.....in Internet



- What Is Supply Chain Management (SCM)?

Supply chain management is the management of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace. [[SOURCE](#)]

- What Exactly Is Supply Chain Management? 10 Different Definitions!

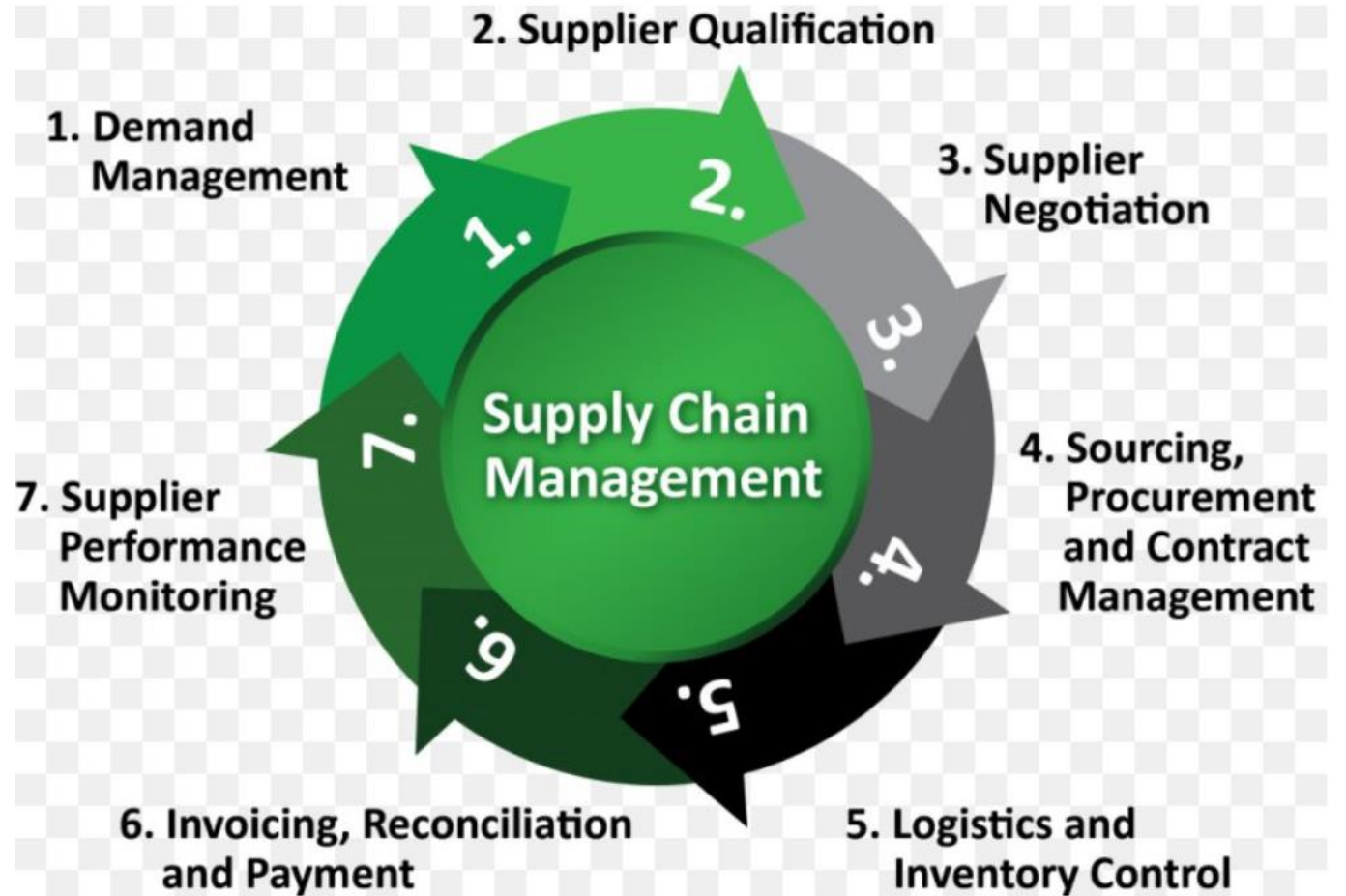
So what exactly is the definition of “Supply Chain Management”? Interestingly there are many views on how to define Supply Chain. [[SOURCE](#)]



- [VANTEC Group](#)

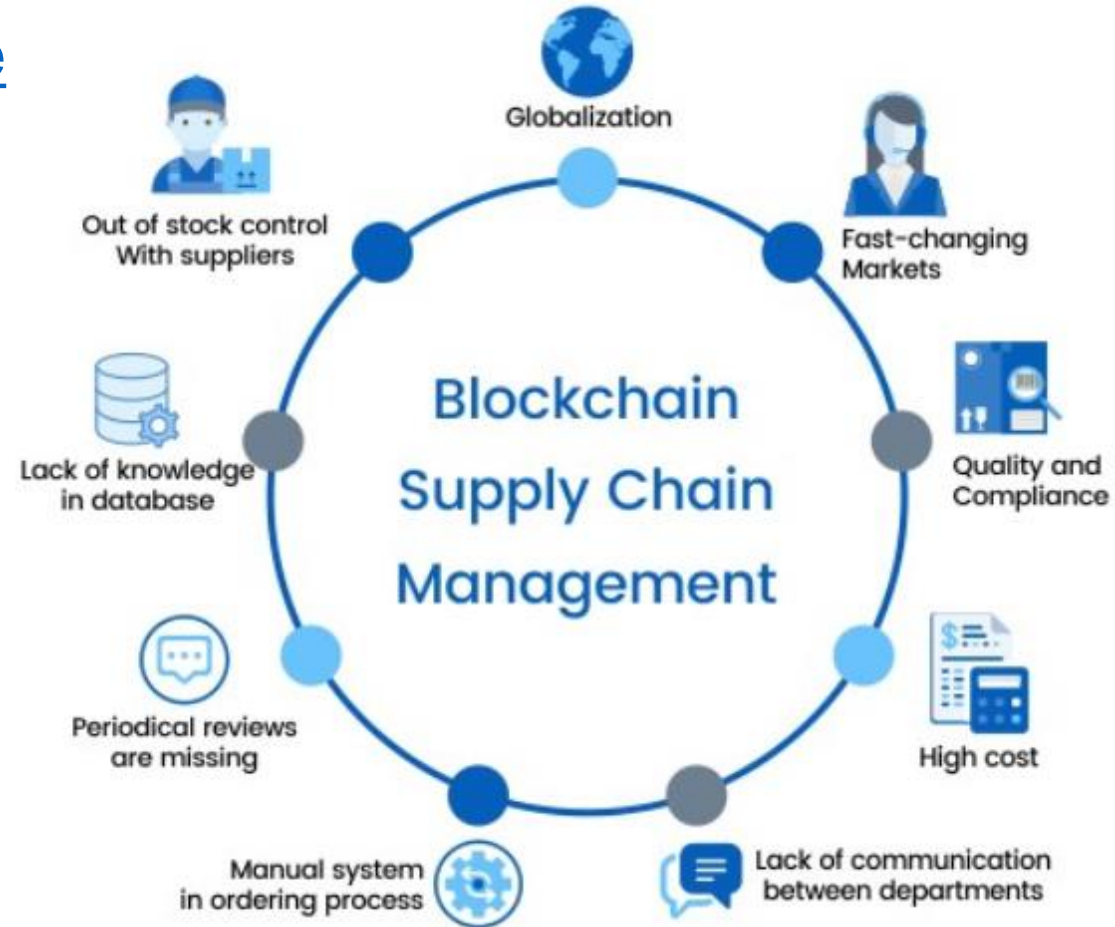


- Software Business Process





- [Blockshine Singapore](#)

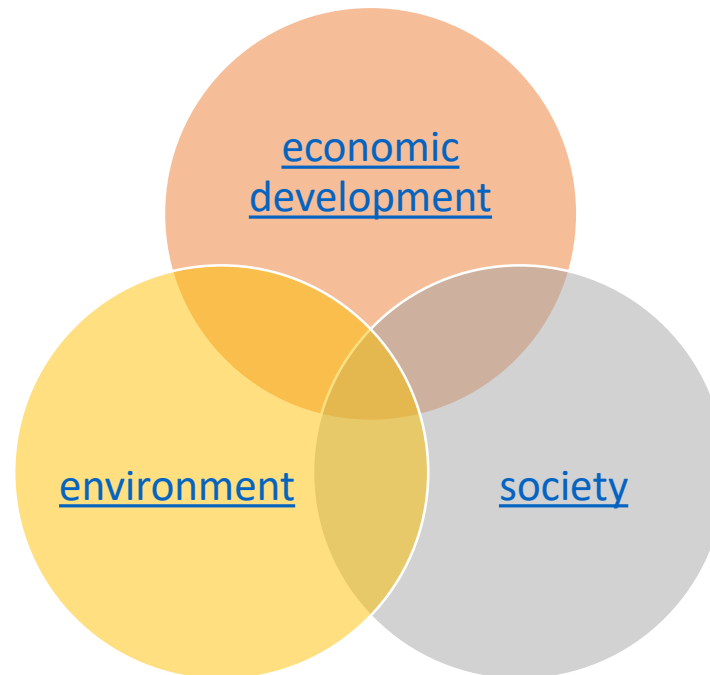


# SUSTAINABLE SUPPLY CHAIN MANAGEMENT (SSCM)



Definition:

- The elements of sustainable development in supply chain management [[SOURCE](#)]



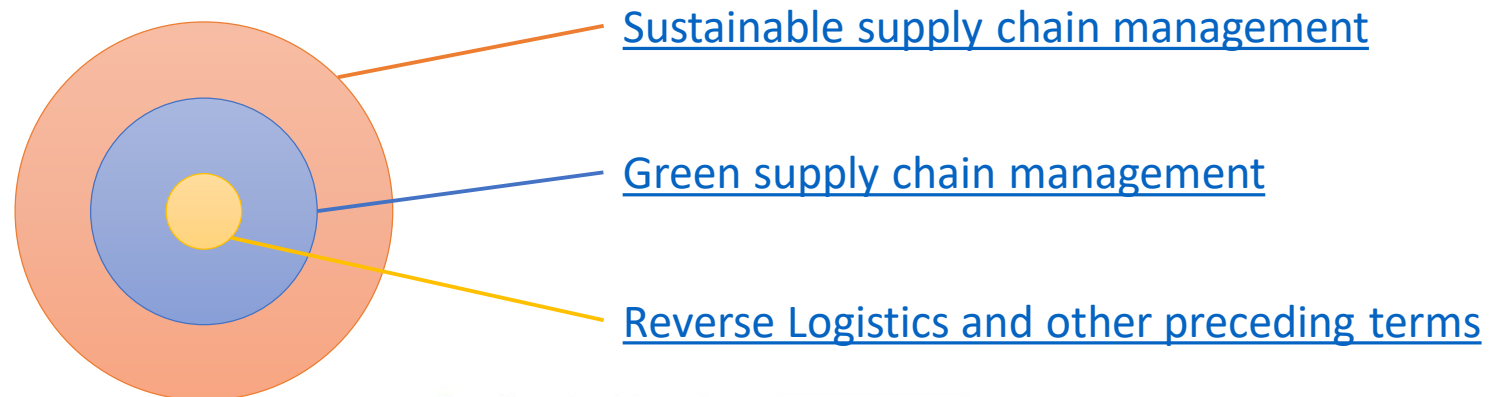


# SUSTAINABLE SUPPLY CHAIN MANAGEMENT (SSCM)



## Definition:

- The management of supply chains in a way that integrates the sustainability objectives and requirements defined by the firm, suppliers, customers and external stakeholders (e.g., consumers, policy-makers, associations). These sustainability objectives include economic, social, environmental and ethical targets that all members of the supply chain must reach in order to make the supply chain sustainable [[SOURCE](#)]





# SUSTAINABLE SUPPLY CHAIN MANAGEMENT.....in practices



- Earth Day and the Sustainable Supply Chain – IKEA [[SOURCE](#)]
- Sustainable supply chains - HSB [[SOURCE](#)]
- Building a Sustainable Supply Chain - GreenGov Symposium [[SOURCE](#)]
- How Can IoT Help to Make Supply Chains More Sustainable? - Ernst & Young [[SOURCE](#)]
- Sustainable Cosmetics Supply Chains – ChainPoint [[SOURCE](#)]
- Sustainable supply chain - Virgin Atlantic [[SOURCE](#)]

