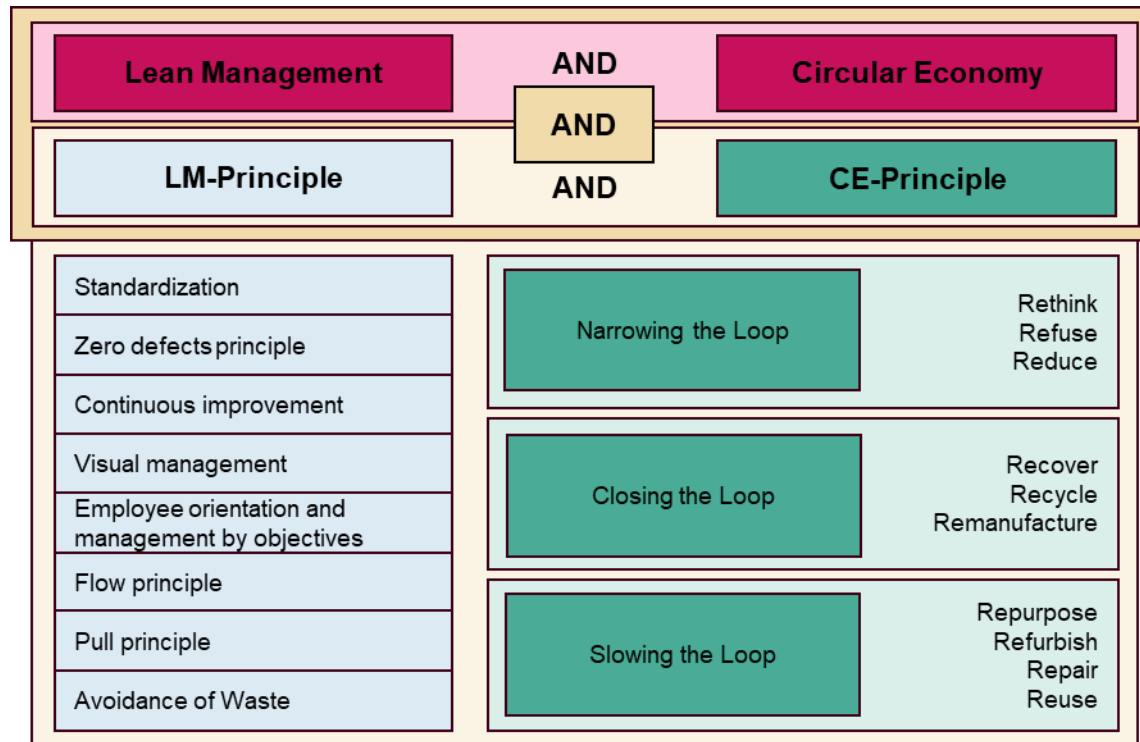


Interview

Guideline

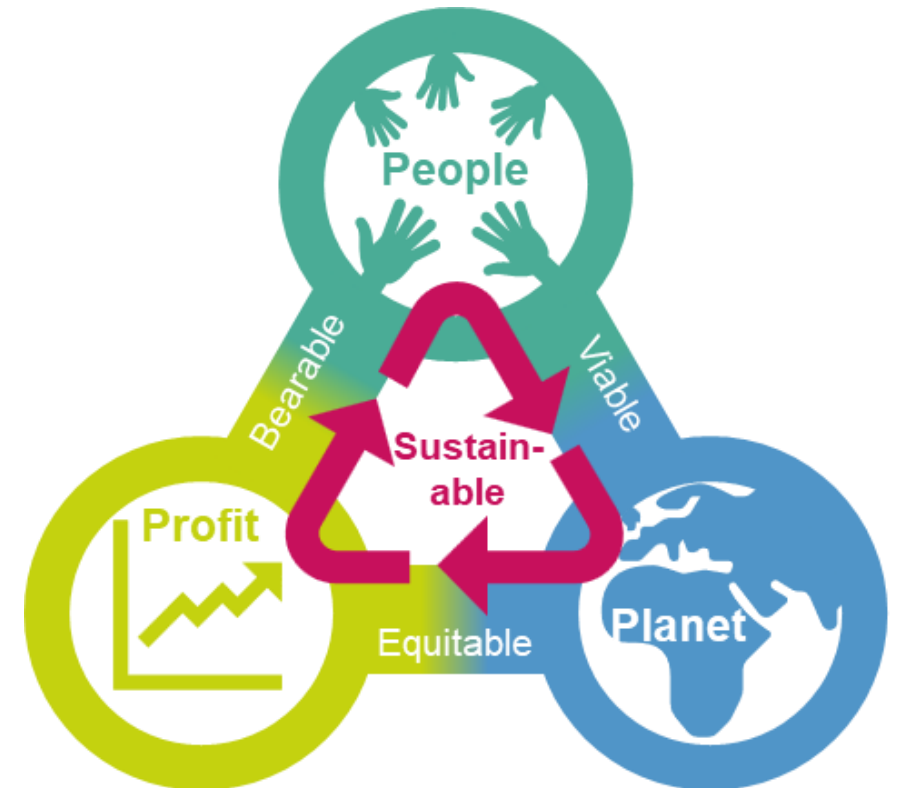
Scope of Research



- Which **similarities and differences** exist between Circular Economy and Lean Management?
- Which **synergies and conflicts** exist between Circular Economy and Lean Management?

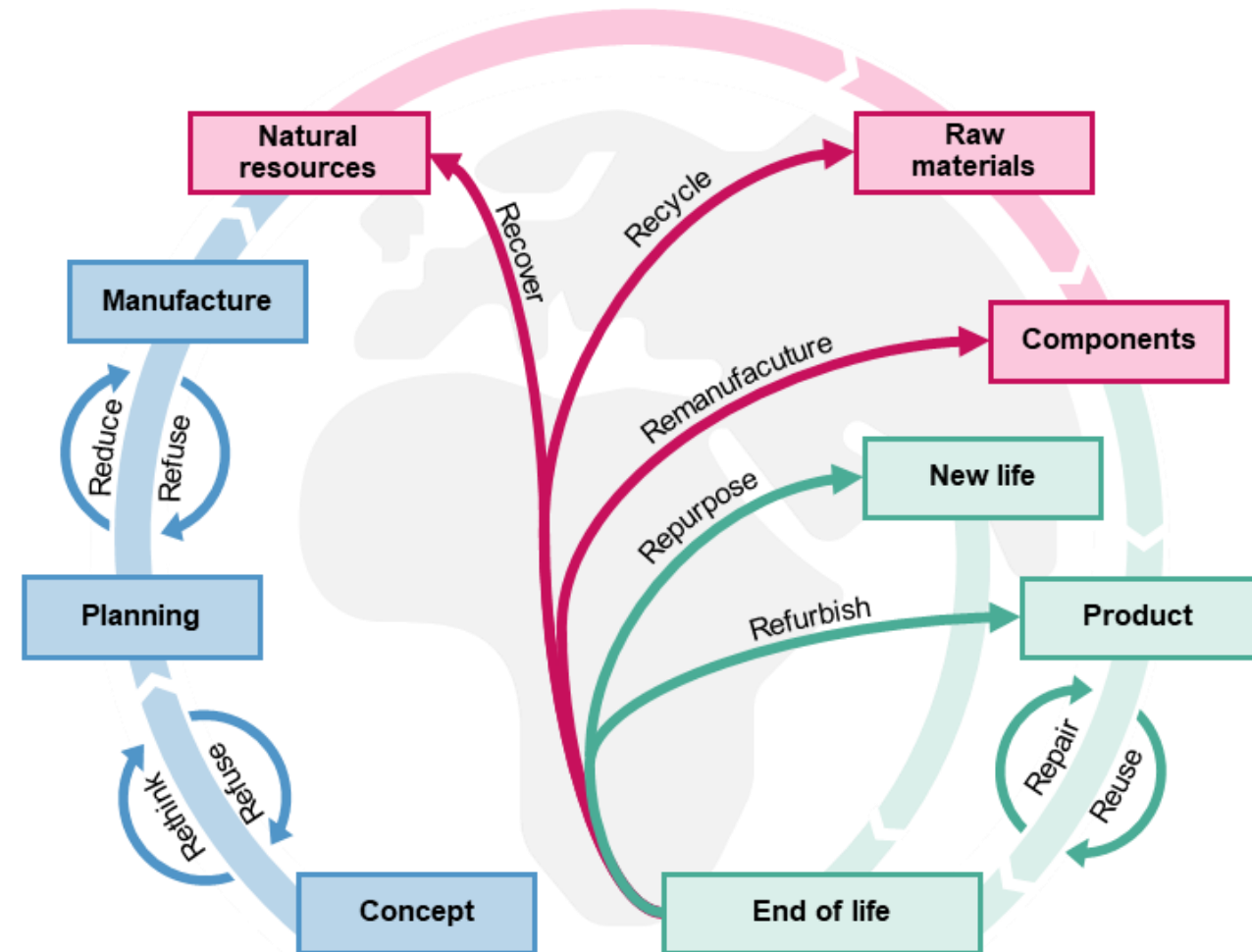
Triple Bottom Line

- **People:**
 - Impact on employees, communities, and society as a whole
 - Labor practices, employee well-being, diversity and inclusion
 - Human rights and community engagement
- **Planet:**
 - Environmental impact of a company's operations
 - Resource consumption, pollution, waste generation
 - Greenhouse gas emissions and climate change
- **Profit:**
 - Traditional financial measure of a company's economic performance
 - Revenue, expenses, and profitability



Circular Economy

- Narrowing the Loop
 - Refuse
 - Rethink
 - Reduce
- Closing the Loop
 - Recycle (Up/Down)
 - Recover
 - Remanufacture
- Slowing the loop
 - Reuse
 - Repair
 - Refurbish
 - Repurpose



Lean Management: Philosophy and Waste

■ Philosophy

- Value for the customer
- Waste Elimination
- Flow and Pull
- Continuous Improvement
- Respect People
- Teamwork
- Standardized Work
- Visual Management
- Measurement and Metrics

■ Waste

- Overproduction:
- Waiting
- Transport
- Extra processing
- Unnecessary Inventory
- Motion/Movement
- Defects

Lean Management: Principles

- **Standardization**
 - Zero Defects Principle
 - Visual Management
 - Continuous Improvement or Kaizen
 - Employee Orientation and Management by Objectives
 - Flow Principle
 - Pull Principle
 - Avoidance of Waste
- 1.1 **5S**
 - 1.2 process standardisation

Lean Management: Principles

- Standardization
- **Zero Defects Principle**
- Visual Management
- Continuous Improvement or Kaizen
- Employee Orientation and Management by Objectives
- Flow Principle
- Pull Principle
- Avoidance of Waste
- 2.1 5 × why
- 2.2 8D report
- 2.3 A3 method
- 2.4 automation
- 2.5 Ishikawa diagram
- 2.6 short control loops
- 2.7 **Poka Yoke**
- 2.8 **Six Sigma**
- 2.9 statistical process control
- 2.10 worker self-check

Lean Management: Principles

- Standardization
 - Zero Defects Principle
 - **Visual Management**
 - Continuous Improvement or Kaizen
 - Employee Orientation and Management by Objectives
 - Flow Principle
 - Pull Principle
 - Avoidance of Waste
- 3.1 Andon
 - 3.2 shop floor management

Lean Management: Principles

- Standardization
 - Zero Defects Principle
 - Visual Management
 - **Continuous Improvement or Kaizen**
 - Employee Orientation and Management by Objectives
 - Flow Principle
 - Pull Principle
 - Avoidance of Waste
- 4.1 audit
 - 4.2 benchmarking
 - 4.3 cardboard engineering
 - 4.4 idea management
 - 4.5 PDCA

Lean Management: Principles

- Standardization
 - Zero Defects Principle
 - Visual Management
 - Continuous Improvement or Kaizen
 - **Employee Orientation and Management by Objectives**
 - Flow Principle
 - Pull Principle
 - Avoidance of Waste
- 5.1 Hancho
 - 5.2 target management

Lean Management: Principles

- Standardization
 - Zero Defects Principle
 - Visual Management
 - Continuous Improvement or Kaizen
 - Employee Orientation and Management by Objectives
 - **Flow Principle**
 - Pull Principle
 - Avoidance of Waste
- 6.1 first in first out
 - 6.2 one piece flow
 - 6.3 quick changeover
 - 6.4 **value stream planning**
 - 6.5 U layout

Lean Management: Principles

- Standardization
- Zero Defects Principle
- Visual Management
- Continuous Improvement or Kaizen
- Employee Orientation and Management by Objectives
- Flow Principle
- **Pull Principle**
- Avoidance of Waste
- 7.1 just in time/just in sequence
- 7.2 Kanban
- 7.3 milk run
- 7.4 levelling
- 7.5 supermarket

Lean Management: Principles

- Standardization
 - Zero Defects Principle
 - Visual Management
 - Continuous Improvement or Kaizen
 - Employee Orientation and Management by Objectives
 - Flow Principle
 - Pull Principle
 - **Avoidance of Waste**
- 8.1 Chaku Chaku
 - 8.2 low cost automation
 - 8.3 total productive maintenance
 - 8.4 waste analysis

Six Sigma

- **Defect reduction:** Utilizes data analysis and statistics to minimize variation and achieve near-perfect quality.
 - **Structured methodology:** Follows a defined project framework with DMAIC (Define, Measure, Analyze, Improve, Control) phases.
 - **Typically applied in manufacturing:** Suitable for high-volume, repetitive processes.
- **Methods and Tools**
 - DMAIC
 - Design of Experiments (DOE)
 - Failure Modes and Effects Analysis (FMEA)
 - Gauge Repeatability and Reproducibility (GR&R)
 - Control Charts

Best for prioritizing **defect reduction** and achieving near-perfect quality in repetitive processes.

Lean Six Sigma

- **Combines Lean and Six Sigma:** Utilizes both waste reduction practices from Lean and defect reduction methods from Six Sigma.
- **Focuses on efficiency and quality:** Eliminates waste while minimizing defects for optimal cost-effectiveness.
- **Flexible application:** Suitable for diverse business functions beyond manufacturing.
- **Methods and Tools**
 - Value stream mapping
 - 5S
 - Kanban
 - Poka-Yoke
 - 5 Whys
 - Statistical Process Control

Best for tackling both **waste reduction** and quality improvement simultaneously, applicable in diverse settings.

Green and Lean Six Sigma

- Waste Reduction (in addition to traditional lean waste)
 - Energy
 - Materials
 - Water
 - Pollution
- Environmental Consciousness
- Resource Optimization
- Continuous Improvement
- Holistic View (Collaboration of lean, green and Six Sigma)
- Methods and Tools
 - Life Cycle Assessment (LCA)
 - Environmental Management Systems (EMS)
 - Green Design
 - Recycling and Reuse
 - Lean Energy
 - Sustainable Supply Chain Management
- Data-driven decision making
 - Statistical Process Control (SPC)
 - Design of Experiments (DOE)

Synergies and Conflicts (Philosophical Approach)

- What are the main overlaps in the objectives or principles of CE and LM?
- Are there practical examples of methods or tools that are used in both CE and LM?
- How do both approaches contribute to achieving sustainability and efficiency, and are there similar metrics to measure these aspects?
- What are the main differences in focus between CE and LM?
- Does CE emphasize environmental aspects more than LM?
- Are there inherent conflicts in the philosophical approach between maximizing resource recovery (CE) and optimizing production flow (LM)?

Similarities and Differences (Practical Approach)

- How can we effectively integrate CE principles into LM methods/ processes or vice versa?
- Are there successful examples from practice that combine CE and LM methods?
- What specific benefits could be achieved by synergising these two methods?
- Are there inherent conflicts, challenges or unintended consequences of implementing CE and LM simultaneously?
- How can these conflicts, challenges or unintended consequences between CE and LM be addressed or mitigated?
- What are important considerations for organisations that want to effectively balance and implement both approaches?

Further thoughts on strategy methods and tools

- Lean management
- Circular Economy
- R-Strategies
- Green Lean Six Sigma
- Value stream mapping
- 5S
- Kanban
- Poka-Yoke
- 5 Whys
- Statistical Process Control