

Increasing Supply Chain Efficiency and Effectiveness through the Use of 3D Technology

*This is a group project of three members. (50 points) – including two parts: group paper submission (45 points) + individual report for self-reflection and peer evaluation (5 points)

*This project could include sustainability, inclusion, and diversity aspects, depending on students' focus.

Details:

Purpose: Analyze and evaluate specific points (e.g., manufacturing or product development) in the supply chain where efficiency and effectiveness could be improved through the incorporation of 3D technology.

Scenario: A sustainability-focused domestic fashion brand is offering moderately-priced performance apparel and footwear products with an extended size range to a diverse target market of all genders. Production and sourcing supply chain members are primarily located in Asia, with the product development process occurring between the brand's domestic office and their overseas partners. Currently, the brand does not employ any 3D technology at any phase in the supply chain; however, it is interested in incorporating mass customization strategies and shortening the lead time to market.

Steps:

1. Identity and assign specific roles and related responsibilities among the group's members to complete the project (i.e., project manager, IT manager, and operations manager) Consider removing if leadership report is used, leadership was not discussed at all in previous individual submissions, self-assigned roles were not seen as leadership.
2. Based on the brand's product offering and country of manufacturing, design and develop a traditional SC diagram for either performance apparel or footwear, which portrays specific phases in the supply chain and related time frame to complete those phases (e.g., sample lead time of 37 days in the product development phase). **Please justify your choices (e.g., single supplier, sourcing country, etc.)**
3. Identify three 3D technologies (e.g., 3D printing, 3D prototyping, virtual showrooms) and discuss the strategies of incorporating them into the brand's supply chain and evaluate potential advantages and challenges, including **1) investments needed, 2) expected**

outcomes (e.g., shorter time to market; reduced material waste, diverse needs of consumers served), and **3) the impact of adopting the technology for other supply chain members and ultimate consumers.**

4. Design and develop a *revised 3D technology-based* SC diagram that highlights specific phases with changes and improved time frame to complete those phases (e.g., sample lead time from 37 days to 27 hours with 3D prototyping technology).

What to Submit:

As a group, please submit your paper of 5-6 pages (1 inch margin, 12 font size, double space, with APA style citations) after conducting research based on the aforementioned scenario and steps. In the paper, there are two components – the main report and reflection/evaluation. The specific **bold headings** below are suggested for you to make sure that you have included and organized the necessary information for this assignment. Feel free to add subheadings when applicable.

Part I (Group Paper): (45 points)

1. **Company Background** (i.e., brand description, product categories, sourcing country choice[s]) - you can be creative and develop your own focus with justification (10 points)
2. **Description of the Existing/Traditional Supply Chain Diagram** (i.e., describe/discuss members in the supply chain, explain typical time frames between points; and discuss single supplier vs. multiple supplier choice and related justification. (10 points)
3. **Potential 3D Applications** (i.e., description of and justification for the applications; investments needed; expected outcomes such as shorter time to market, reduced material waste, diverse needs of consumers served) (10 points)
4. **Description of the Revised Supply Chain Diagram** (i.e., describe changes in the supply chain with 3D technologies implemented, including time, cost, and efficiency) (10 points)
5. **References** (include at least nine references) (5 points)

Part II (Individual Report): (5 points)

1. **Self-Reflection** (*discuss your role* and responsibilities in the project and your individual leadership experience in completing the project as a group)
2. **Peer Review** (*evaluate your group members' roles (not yours)* in the project, including respect for and open to group members' ideas; communication; timeliness; amount of ideas shared and provide constructive feedback.

Part II (Individual Leadership Report): (5 points)

1. **Self-Reflection** (*Define your leadership role using the leadership styles handout, discuss your role and responsibilities in the project, and reflect on the overall effectiveness of your leadership style in this project and future projects*)
2. **Peer Review** (*evaluate your group members' roles and leadership styles (not yours) in the project, describe how the group member's leadership styles influenced the results of the project noting on their ability to communicate, complete task in a timely manner, and collaborative effort*)

Competencies: 1) task management and completion, 2) critical decision making, 3) creative problem solving, 4) leadership