MIS5102
In-class Exercise for Week 9: Allocating Resources and the Triple Constraint

Objective: Understand the impact of changing project requirements on project performance outcomes.

Learning Outcomes
• Understand the triple constraint through a hands-on example.
• Estimate the impact of changing requirements on scope, time, and cost.
• Reconfigure the allocation of resources in order to meet goals.

Task: You will be moving M&Ms from one part of the “shop floor” to another.

Step 1: Prepare Your Team (5 minutes)
• Get into groups of four.
• Assign one person to be the team leader and timekeeper.
• Assign two people to be the M&M loaders.
• Assign one person to be the M&M unloader.

Step 2: Perform a Simple Loading/Unloading Task (5 minutes)

Before you begin, read these instructions.
• Move 100 M&Ms through the system, using the following process:
  o Each loader takes EXACTLY 10 M&Ms and places them in a cup.
  o They pass the cup to the unloader, who empties them into a bowl.
  o Stop after 5 cycles (10 x 2 x 5 = 100)
• The team leader and timekeeper will record how long this task took to complete.

Step 3: Perform a More Complex Loading/Unloading Task (5 minutes)

The scope of the task has changed. Before you begin, read the instructions.
• Based on the result in Step 2, after reading the instructions below, estimate how long you think this task will take.
• Move 100 M&Ms through the system, using the following process:
  o Each loader is assigned a color.
  o Each loader takes EXACTLY 10 M&Ms of only their assigned color and places them in a cup.
  o They pass the cup to the unloader, who empties them into a bowl.
  o Stop after 5 cycles.
• The team leader and timekeeper will record how long this task took to complete.
  o How accurate was your original estimate? If it wasn’t close, why do you think it was off?
Step 4: Further Increase the Complexity (5 minutes)

The scope of the task has changed again. Before you begin, read the instructions.

- After reading the instructions below, again estimate how long you think this task will take.
- Move 96 M&Ms through the system, using the following process:
  - Each loader takes **EXACTLY 12 M&Ms, where no more than two M&M can be the same color**, and places them in a cup.
  - They pass the cup to the unloader, who empties them into a bowl.
  - Stop after 4 cycles.
- The team leader and timekeeper will record how long this task took to complete.
  - How accurate was your original estimate? If it wasn’t close, why do you think it was off?

Step 5: Reallocate the Resources to Improve the Time (10 minutes)

- You’ve been given a mandate to reduce the time spent on the task in Step 3 (100 M&Ms, same color) by 20%.
  - You can reconfigure your team in any way you would like to accomplish this.
  - Consider who might have idle time on the team and where they could be best reallocated.
- You still need to perform the task according to the following requirements:
  - Loading two cups at a time, 10 M&Ms each
  - The M&Ms must be emptied into the bowl before starting a new cup

Step 6: Debrief and Discussion (15 minutes)

We will address the following questions:

- How good were your estimates of the task completion time for Steps 3 and 4?
  - If you were off, why do you think that was so? What did you learn?
- How did you reconfigure your team to reduce your task time by 20%?
  - Were you successful?
- How might paying your staff by the work unit (i.e., emptying a cup of M&Ms) versus by the hour change how you view the staffing for this task?