This project reviews the ISUCF VMB’s processes and tasks associated with the logistics of the band and the equipment used throughout their exhibitions during the 2018 season. Processes include the loading and unloading of the sousaphones after a game at Jack Trice Stadium, moving the marching band off the field after a half-time performance, and loading equipment onto the Windstar buses for away exhibitions. All the process steps were tracked with a stopwatch and the data recorded. Supply chain methods used include lean production management and task improvement strategies. These strategies were used to help reduce the time commitment for student marching band members during a Gameday.

Methods: Observing the current methods of the band, the following was implemented to assist with loading of the bus compartments during away exhibitions.
- One student worker inside cargo unit handling instrument cases.
- One student worker outside of the cargo unit moving instrument cases to cargo unit worker.
- Process is done until all instrument cases are loaded within the cargo space under the bus.

**Improvement Achieved:** 69 sec. time reduction (66% decrease)

### Factors to Consider

- **Time Variation:** Other responsibilities for the student staff are required to be completed before assisting with the processes observed.
- **Random Variation:** Each performance and process are different, creating difficulty in replication.
- **Observation Variations:** Times provided are rough estimates from stopwatch and students.

### Abstract

This project reviews the ISUCF VMB’s processes and tasks associated with the logistics of the band and the equipment used throughout their exhibitions during the 2018 season. Processes include the loading and unloading of the sousaphones after a game at Jack Trice Stadium, moving the marching band off the field after a half-time performance, and loading equipment onto the Windstar buses for away exhibitions. All the process steps were tracked with a stopwatch and the data recorded. Supply chain methods used include lean production management and task improvement strategies. These strategies were used to help reduce the time commitment for student marching band members during a Gameday.

### Improved Loading Process after Games:

- **Three student workers within the truck at a time.**
- **Two student workers worked alongside the walls of the truck moving instrument cases while the third student worker moved instrument cases in the center aisle.**
- **Ramp may only be used for instrument cases to be placed on truck during reloading process.**
- **Only may be used if student workers are concerned with safety.**
- **Student members load their own instrument.**

### Revised Unloading Process at the Communications Building:

- **Three student workers unload the ramp from the truck.**
- **Student workers leave for assigned work stations while this occurs.**
- **Three student workers stationed in truck for unloading.**
- **Similar process as the revised loading process after the game at Jack Trice Stadium.**
- **Three student workers move equipment towards the door of the Communications Building.**
- **One student worker holds the Communications Building’s door open.**
- **One student worker at the top stairwell moves instrument case down a flight of steps.**
- **Two student workers within storage room place instrument cases and equipment on shelf for storage.**

### Improvement Achieved:

- **6.85 min. time reduction (38% decrease)**

### Process Variability

The processes observed have a high amount of variability due to the nature of the events and the student workers involved. Variables include but are not limited to: weather, students participating in the work stations, and facilities during the time keeping trials. Knowing this, there will be slight variation in each observation based on these conditions. Important things to remember are included in the following:

- **Time Variation:**
  - Other responsibilities for the student staff are required to be completed before assisting with the processes observed.
  - Student workers are college students first and are creating memories, reducing the commitment to the processes.
  - Extreme heat or cold weather can affect an individual’s performance in completing these processes.

- **Random Variation:**
  - Each performance and process are different, creating difficulty in replication.
  - Variation in participants during analyzed events may skew data.

- **Observation Variations:**
  - Times provided are rough estimates from stopwatch and students.