**Proposal**

* **Article**

An Integrated Load-Planning Algorithm for Outbound Logistics at Webb Wheel

* **Group members**

Shuai Pan (s1925253) Sijing Wu (s1994311) Siyu Wang (s1920930)

* **Summary**

Webb Wheel (WW) is a vehicle manufacturer of brake drums, rotors, hubs, spoke wheels etc. with two manufacturing plants located in Cullman and Siloam Springs. The research team designed an integrated model to simultaneously optimize the loading and routing decisions. The main challenge is dynamically changing and incomplete demand information. The model is divided into assignment and routing sub-problems. The assignment sub-problem resolves the mode of transport and the choice of carrier while minimizing the total setup and connection costs. Based on the results of the assignment sub-problem, the routing sub-problem is to find the drop sequence and minimize the shipment cost using a modified TSP (Travelling Salesman Problem). Through the testing of the data, the effectiveness of the model on load-planning process has been proven, and the company has saved 4.4% costs.

* **Outline**