Read the materials below in preparation for discussion in class. The questions are intended to guide your reading and thoughts, but are not the only aspects that will be discussed in class.


1. Describe the business of Allegheny Motor Carriers.

2. Why has profitability decreased?

3. What other problems was the company facing?

4. Suppose there are several deliveries in the Houston region, and not enough freight out of Houston for the drivers making the deliveries. The Texas dispatcher repositions the drivers to Lake Charles, 90 miles away. However, there already were enough drivers in Lake Charles, so the Louisiana dispatcher repositions some of the drivers in Lake Charles to New Orleans, 206 miles away. The Texas dispatcher is claiming that he is adding only 90 empty miles per driver. Is that a reasonable claim?

5. What is the “driver home” program?

6. What is the “blue ribbon service” program?

7. Describe how customer service reps and dispatchers decided on how to assign drivers to loads. What was the impact of this process on empty miles?

8. What were some of the potential advantages mentioned for computerized dispatching systems?

9. What were some of the objections raised to the proposal of a computerized dispatching system?

10. What were some of the potential advantages mentioned for satellite communication systems?

11. What were some of the disadvantages mentioned for satellite communication systems?

12. What points did the president jot down after the meeting?

13. What is the problem with decentralized decision making in the truckload industry?
14. What is the problem with standards such as “do not reposition more than 60 miles”?

15. What principal technologies for collecting and transmitting data are mentioned?

16. What distinction is made between the two types of optimization models used by truckload motor carriers?

17. Explain how the manual assignment in Part 3, Figure 1 could come about.

18. Formulate the optimization problem that produces the type of assignment shown in Part 3, Figure 2.

19. Formulate the optimization problem that produces the type of assignment shown in Part 3, Figure 3.

20. Describe the difference between the situation depicted in Part 3, Figure 4, and those in Part 3, Figures 1–3.

21. Formulate the optimization problem associated with Part 3, Figure 5. Write down the dual of the optimization problem. Describe how the numbers next to the drivers and loads in Part 3, Figure 5 are obtained from the dual optimization problem.

22. Describe how the optimal dual solution is used to rank the loads that can be handled by a driver.

23. What concerns were raised regarding the use of optimization?

24. Why do they need to forecast future “capacity”, and not only future loads?

25. What requirements are given to get a high acceptance rate for the recommendations of an optimization model?

26. What tests are described to test whether a model is “smart”?

27. At the Tuesday meeting, what arguments were presented in favor of optimization models?

28. At the Tuesday meeting, what arguments were presented against optimization models?

29. Explain, with an example, how a need for additional drivers in Atlanta may affect the assignment of drivers across the United States through “checkerboarding”. Explain, with the example, why a decentralized system in which regional dispatchers are responsible for assigning drivers in their own regions would not be able to produce the checkerboarding solution.

30. Why is it said that optimization gives a system perspective?

31. What are the “knobs” that optimization provides for setting priorities?

32. What arguments were given in favor of the system proposed by Optimization Technologies?
33. What arguments were given against the system proposed by Optimization Technologies?

34. What challenges for the implementation of an optimization based system did Merrick point out?

35. Explain the example in Part 6, Figure 1.

36. Discuss the implementation stages Merrick suggested.

37. Why is dual degeneracy a problem?

38. What factors were suggested for the optimization objective?

39. Explain the difference between replication the decisions that the decision makers are making, and recommending decisions that the decision makers will be happy with.

40. Discuss how the implementation of the optimization model changed the company’s operations.


1. What is the problem with gee-whiz OR software?

2. Tell the story of the lieutenant colonel who wanted to do a dissertation on logistics.

3. Tell the story of the captain who filed an insurance claim.

4. What is the core message of the article (in your own words)?