

Finding the Yellow Brick Road: Part 2, Lions and Tigers and Bears!

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Sometimes, there is more truth in fiction than in publicly available accounts. This story by Warren B. Powell, a leading researcher of real-time routing and scheduling models and frequent consultant to the motor carrier industry, and Donald E. Mayoras, a senior transportation executive and president of a trucking company, provides a view into the discussions many carriers undertake prior to adopting an optimization model. The account is too long to appear as a single article and instead is being published in serial form. This is the second installment.

The cast: Dan Manning, President; Tom Gorman, Chief financial officer; Matt Peterson, Vice-president of operations; Ken Richards, Vice-president of sales; Bill Johnson, Vice-president of management information systems; John Breswick, Director, driver management; Michelle Corwin, Director, customer service; and Larry Michaels, Director, driver dispatch.

In our first episode, Dan Manning, president of Allegheny Motor Carriers, was struggling with the problem of steering his company back to profitability. The company had departed from its roots as a small carrier that paid a lot of attention to both its customers and its employees. Profitability was easy back then. Now it seemed as if they couldn't do anything well. Rates were

down, salespeople were chasing volume without any idea of whether they were making money, and he was having trouble coordinating the activities of different parts of the company. Growth had taken him into a highly competitive market, and he wanted to be sure to identify the important problems.

Dan is conducting a meeting of his management team, and the discussion has turned to the challenge of developing options to improve operations. Driver turnover has been identified as a problem, but the most difficult challenge has been coordinating the flow of freight into and out of each region. Each area tries to book enough freight to use all the drivers in the area, but this changes from day to day, and it is easy to flood a particular region with drivers, forcing

that region to deadhead, or reposition, drivers empty out of the region, or sit and wait for freight. The sales staff tries to keep the order books full, but sometimes it seems as if they are booking any load that comes along. Every direction they turn, there seem to be problems.

Dan looked around the room and repeated his question: "We have always been a company that provides first-rate service and takes care of its drivers. The problem is that we have to make money at the same time or we won't be able to take care of anyone. What do we do?"

After a brief silence, everyone seemed to have an idea. Matt Peterson was the first to speak up, "The biggest problem we face in operations are regions where we have more drivers than loads. A driver empties out and then sits there waiting for a new load. The dispatchers don't want to run long empties, so drivers can easily wait four or five hours before getting loads, or we finally move them empty to other regions. Sometimes that region has loads but already has enough drivers to cover them, so we have to move those drivers empty. Other places we are short of drivers, so we try to push the extra drivers in the direction where they are needed, but it can really get complicated. Can sales balance freight more?"

"We do our best," responded Ken. "But we have to go where the customer sends us. Especially when we have a big account, we have to serve its needs. We try to balance regions on average, but on any given day, it doesn't always work out."

Larry jumped in to support Matt, "We are also having problems getting the right driver for the job. We might have 10 drivers and 10 loads in the same area, but those

are 10 different drivers and 10 different shippers. Half those loads might be hot, and we have to move them fast, but we may not have the right drivers to cover the loads. The five closest don't want to go where those loads are going, and we have our new "driver home" program to get drivers home every two weeks. This was supposed to help reduce driver turnover, but it also cuts down on our flexibility in assigning drivers. Lately, it seems as if we've had so many hot loads that we've been focusing more on responding to driver requests."

"The hot loads are part of our blue ribbon service program," explained Michelle Corwin. "Sales has been very successful selling this program," she continued, "and the shippers have been willing to pay the two-cent premium for the service. If sales calls in a hot load, then we have to make sure it moves."

Michelle helped develop the customer service group in 1986 in an effort to improve on-time performance and to develop closer relationships with the shippers. Customer service was responsible for booking loads, providing on-time pickup and delivery, minimizing deadhead miles, and maximizing the loads per week per tractor. When a load was called in, a customer service rep would look at available drivers and try to block a driver onto the load, using the information provided by the dispatchers. This way it was possible to check which loads were covered. Several times a day, Michelle would get a list of all the uncovered loads and, depending on the shipper, might reassign some drivers to cover loads.

Dispatch still handled the job of talking

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to the driver and making the next assignment. Most of the time, the dispatcher would simply assign the driver to the load picked by customer service. Sometimes, dispatch would ask for a change in assignment to handle a driver request. In addition, dispatch tried to make sure that drivers were getting enough miles each week. Sometimes dispatch would also be asked to route a driver back through a terminal for maintenance.

"I support the blue ribbon program," Larry returned, "but it forces you to block a load early, and some of those assignments just don't work. You've got guys going in the wrong direction, and we have to scramble some of those assignments. You can't just put a warm body on a load."

Michelle jumped in, "But you also have to look at deadhead miles. You can't run a guy empty across the country just to get him home."

"We never move a driver empty more than 80 miles without the shift manager's approval," Larry retorted.

At this point, Tom Gorman thought he should offer a suggestion that had been on his mind for awhile. It seemed clear to him that sales was focusing on covering loads, while dispatch was more oriented to handling driver requests. Both were responsible for minimizing empty miles, but this was secondary. They seemed to have little interest in reducing empties as long as each deadhead was under 80 miles. Given a choice between a 40-mile and a 50-mile deadhead, customer service would worry more about what load was being covered with what driver, and dispatch would be looking at driver pay and getting drivers home.

"I have been hearing about these new dispatch systems that optimize the assignment of drivers to loads. They will find the best driver to assign to each load to minimize empty miles. The system will cut our empty miles and allow us to dispatch more drivers with fewer dispatchers. I've heard that carriers can dispatch 75 drivers with a single dispatcher compared to the 50 that ours can handle."

Everyone started to speak at once.

Ken liked the idea immediately, "It will probably improve our on-time performance, with fewer missed loads. The computer can figure out the best way to cover each load. Our shippers are becoming very service sensitive. We lost two shippers last month because of missed loads—that's a lot of revenue. Also, we can market the system to our national accounts. They're quite impressed with sophisticated planning systems."

Matt was more dubious, "I don't think the problem is with assigning drivers. We dispatch loads within the region fine; it's just when there are more drivers than loads, and no computer model is going to solve that problem." He also had trouble believing that you could assign drivers with a computer. What would his customer service reps do? Would they be just glorified secretaries? And how could a dispatcher get to know 75 drivers? Tom was out of his league here.

John was more blunt, "How are you going to turn dispatch over to a computer? Dispatching has to be done by people who listen, feel, and understand what it's like to be behind the wheel of a truck. How is a computer going to understand when a driver has to get home because his wife is

sick or he misses his kids. A computer is going to sit there and pick loads to get the lowest miles, but how is it going to understand that a driver has to feed his family, that he can't run a short load just because it's closest? And what about the driver who has been sitting in a truck stop all day waiting for a load, and another driver empties out and gets to reload right away just because she landed in the right place? How does a computer know what is fair?"

John had said his piece. He had heard about these computer models too. But most of all he didn't like a bean counter making suggestions that affected his drivers. Somebody has to add up the dollars, but leave running the company to those who know what they are doing.

Bill had some thoughts on the matter too. He wasn't sure about a computer model, since he thought his new dispatch screens gave the dispatchers the information they needed to do a pretty good job of matching drivers and loads. He looked at Tom. "I am really interested in finding out more about these systems. But there is one problem. Our drivers don't always call in on time, and we're not always sure where they are or when they're going to unload."

Matt picked up on this point. "We don't know when they are going to be available, but the dispatchers know who is reliable and who isn't. They can make adjustments just by looking at who the driver is. We've got this one gal, Jane Bunson, who never misses an appointment. If she's coming inbound and says she'll be ready at 2:00 pm, we can bank on that. Other drivers, we just don't count them until they're on the phone, and when they do call in, we have to assign them immediately to loads."

Bill smiled and continued. "I think we are trying to put the cart before the horse. I think we should use optimization, but we should invest in satellite communication first. That way, we can talk to our drivers, and we will have a better handle on where they are and when they're going to arrive."

This was something that John could support. "Anything that keeps us in touch with the drivers is a plus. Also, the drivers can't hang around those phones waiting for the dispatchers to call back. And those check calls . . ." He glared at Bill. Two years ago, the company had instituted a system that required drivers to call in once a day, replacing the standard procedure of calling in only when they reached their destinations and dropped off their loads. "A guy may be making good time, and then he's got to get off the road and find a pay phone. If we knew where the driver was and could communicate with him, he could stay on the road."

Ken also liked the idea. "With satellites, we could tell the customers that we know where their loads are every minute. We could sell tracing as an added service."

"Furthermore," Bill went on, "instead of knowing where a driver is once a day, we could get hourly updates. Imagine what that would do to our ability to control the fleet."

Matt started thinking about this. "But what can we do with all that data? After we added check calls, we had to add dispatchers, and they are running flat out now. I like the idea of satellites, but we don't have the staff to take advantage of all this information."

Tom was a little frustrated that his original idea had been met with so much oppo-

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sition. To him, satellite communication was an expensive toy that would produce a lot of data without improving the process of using the data. Without the right tools, they might just speed up a defective process and make the same poor decisions . . . only a lot faster.

“Satellite communication requires a radar unit and transmitter in every cab—that’s about \$4,000 a unit, not counting the line charges. Anybody here have four million dollars? That kind of capital is not just walking around. And if we can’t even use the information effectively. . . .” He looked at Matt, “where are the savings?”

Dan sat silent through the whole discussion. He wanted to encourage input and creativity. The points being made were good ones, and they raised some issues the members of this group didn’t appreciate. He needed some time to think. The meeting wound down, and he finally brought it to a close.

After the Meeting

After the meeting, Dan retired to his office to organize his thoughts. He jotted down some of the points raised at the meeting.

- (1) Need to coordinate sales and operations.
- (2) Sales is volume driven—needs to be profit driven. How to manage this?
- (3) Need to coordinate operations in different dispatch areas.
- (4) Have to improve service. Service needs to be reliable.
- (5) Need to manage our drivers better. We are getting out of touch. Drivers don’t stay with the company like they used to.

He thought about the points Tom had made at the beginning of the meeting:

(6) Need to cut costs—get profitability up. How do we make money in this business?!!!

(7) How to reduce empty miles? Too many conflicting goals.

Then he thought of some of the specific action items raised in the meeting.

(8) Optimization model for dispatch. Will it work???

(9) Satellite tracking and communication. Costs? Benefits?

Dan had earned his MBA after he started work, attending classes at night. Although he had finished it over 15 years ago, he was careful to stay in touch with the latest management techniques and ideas. One concept that he was completely committed to was total quality management. From the beginning, he had tried to instill a sense of employee participation in the company. One of his first efforts was the Six Mpg Club—the company carefully tracked fuel mileage and relayed the results back to the drivers who were given special mileage credit when they exceeded six miles per gallon. The program was popular with the drivers and helped raise the fleet average by over three tenths of a mile per gallon, but driver turnover was eating into these gains. He had also instituted quality teams in billing to reduce billing errors and cut down on account receivables. Still, he thought he could do more.

Dan then added one more line at the bottom of the page:

(10) How do we make this fit into the quality process?

He looked up at the ceiling and reviewed the principles of total quality management he’d learned at a recent seminar. “We need to establish quality teams and get them to

define the issues, set objectives, determine alternatives, determine measures of success, and implement continuous improvement. And we have to do it fast."

He stared back at his notes, trying to make sense of them. Needing to bounce ideas off someone, he walked down the hall to Tom Gorman's office. He had brought Tom to the company because he needed a good financial officer. Over the years, he had come to respect his insights. Sometimes Tom could sound like one of his old college professors, but he had the ability to sort through and synthesize complicated issues. And Dan trusted his own ability to translate Tom's ideas back to the real world.

Tom was leaning back in his chair. Dan slid his sheet of notes in front of him and settled down in a recliner in the corner.

"What do you make of all this?"

Tom read the list and leaned back.

"Look, you're dealing with the basic problem of conflicting objectives. Right now, we have a customer service group trying to offer the highest possible service and a dispatch group that has to keep drivers happy. Both are important—shippers are much more sophisticated and have rising expectations, and driver turnover is getting worse. We can't run a company without a quality workforce. In the past, expectations were lower and the company was smaller—it was easier all around. Now, we have to meet higher expectations, and as the company has grown, we have lost the ability to really manage our own operation."

Dan nodded, and Tom went on.

"Look, trucking is a process." Dan tried not to smile. Tom went on, "Booking loads,

dispatching drivers, it's all a big process. It's a lot like making a car. The hardest part is that our process is spread all over the place instead of sitting in a single plant. In that way, it's a lot like MacDonald's." Tom started to get excited, warming to the analogy. "MacDonald's is also a service, and it's also spread all over the country. But they can do something we can't—they're in control of everything that happens in the field, and we're not. Each salesperson approaches an account in his or her own way. Each dispatcher handles drivers differently. And the problem is so complicated. Even if all the dispatchers wanted to do the same thing the same way, they couldn't—there are too many decisions that need to be made too quickly and too many variables to consider."

"That seems to argue in favor of some kind of decentralization," Dan objected.

"Keep it simple and create boundaries for decisions so that everyone knows what he or she controls. Give people the right incentives and let them do their job. That's the basis of total quality management."

"True, but the difference in trucking is that what one person does in one place affects what somebody else is doing somewhere else. For example, at MacDonald's, what one franchise does won't affect any other franchise. So you can manage each one independently. In our business, if sales solicits freight into Texas, the Texas rep has to find business to move it out, or operations is stuck with empty drivers and has to move them empty and give them to somebody else. Let's say you move those trucks in Louisiana. It might be that Louisiana already has enough drivers and now has to move trucks empty over to Jackson

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and Birmingham. Now the customer service rep who's planning operations in Louisiana gets nailed with empty miles that he or she didn't really create. And the reps get evaluated based on how many empty miles they run."

Tom glanced toward the door of his office to make sure it was closed and continued. "Look, you also have to realize that you have a bunch of truck drivers or glorified secretaries trying to solve the problem of assigning drivers to loads. They talk to 30 or 40 drivers every day, most of them in the morning. How well do you think they are doing? They don't really care about the difference between a 50-mile deadhead and a 60-mile deadhead as long as the driver is happy and the shippers are served. But the difference between 50 and 60 miles is 20 percent." He pounded some numbers into a large calculator sitting on his desk. "That's over a million dollars a year for us."

Dan thought about that for a minute. "So what do you suggest?"

"An optimization model can look at everything going on in a network and make the best decision for the company as a whole. It doesn't have the problem of having different parts of the company compete against each other—sales against operations or one region against another."

"What about data problems and the other issues Matt raised?" Dan was trying to remember all the arguments raised in the meeting. "What about using satellites to get better data?"

"I don't have anything against using satellite communication to talk to drivers, but they cost a lot of money, and we have to cost-justify it. The same is true of optimiza-

tion, but the numbers are much smaller, and there is not as much risk."

"But will these optimization models work in practice? They just don't take into account everything you need to. And how can you optimize if you are not sure that the data is right in the first place?"

Tom continued to press his case, "Look, we don't really know anything about this technology. All I am suggesting is that we get some more information. I know a consultant who is an expert in this field. Let's get him in here to give us a presentation on these systems. Then we can make an informed decision."

Dan stared at the wall in front of him and then turned toward Tom, "OK, set it up."

(To be continued.)