Delivery & Routing:

Delivering Bottom line Dollars with Real-time ERP Integration

Barry R. Rickman
North American Consulting
NetScore Technologies

NetScore

Executive Summary

The need to efficiently move goods from place to place has been a business need for centuries, and the modes of moving them have evolved. Nowadays, it is necessary to consider the interlinking of logistics (multi-modal), and many organizations have incorporated their delivery services for the "last mile." Technology solutions have also evolved with the core transportation infrastructure to include tracking of shipments and real-time proof-of-delivery. These technology solutions range from simple point-to-point single truckload solutions to highly complex ones that allow for multi-modal, cross-docking, less-than-truckload (LTL), multi-order routing, backhauling, and other options. Early technology solutions were mini-computer/mainframe-based and still required much manual input (i.e., paper-based bills-of-lading, text-based route sheets, 'hardcopy" signed proof-of-delivery that needed to be filed, etc.). Even with the advent of portable technologies (such as UPS' Delivery Information Access Device or DIAD), many initial versions were store-and-forward, so updates were delayed. The most advanced offerings have evolved into solutions that leverage mapping software and update logistics events in real-time. This paper will focus on the latest advancement: browser-based software-as-a-service (SaaS) cloud solutions tightly coupled with fully functional horizontal ERP (Enterprise Resource Planning) solutions.

Many studies have been conducted[1] on the effects of real-time, automated Delivery & Routing deployment. The most credible were able to analyze the business benefits of Delivery & Routing solutions by controlling for various variables and more accurately contrasting between a store with advanced Delivery & Routing technology and one without it. These studies focus on reducing miles driven per delivery and cite averages in the 20 - 30% range. The National Private Trucking Council (NPTC) published a recent bulletin that estimated the "per mile cost" of trucking in the US at $2.90. For an SME (small to medium-sized enterprise) with five trucks that cover an average of 150 miles per day, that equates to savings of approximately $543.75/day if you use the midpoint above of 25% (over $182,000 per year if operating days per year is 335). The analysis below provides added granularity. However, note that the specific features deployed and the company's commitment to driving adoption can influence the outcome/results.

1 Maximizing Efficiency: The Power of Analytics in Last-Mile Delivery By Sean Spector | Updated on January 3, 2024. Last-mile delivery concepts: a survey from an operational research perspective By Nils Boysen, Stefan Fedtke, and Stefan Schwerdfeger | Friedrich Schiller University | March 2021.

NetScore

Expected Savings: Delivery & Routing Tightly Integrated to ERP

There are many areas of potential savings from a Delivery solution that is tightly coupled with fully functional horizontal ERP, both indirect and direct. For simplicity, we will focus on direct quantitative savings that fall into three categories:

- **Increased Profit from Optimizing Delivery Efficiency**
- **Increased Labor Efficiency/Decrease in Labor Cost**
- **Reduction in Training Costs**

Increase in Profit from Optimizing Delivery Efficiency

A tightly integrated cloud solution will increase the number of deliveries per day per truck and reduce the delivery cost due to increased efficiency. This is accomplished by growing deliveries per trip due to consistent truck loading back-to-front efficiencies and minimizing load re-organization mid-route. Automated route planning also increases efficiency per route, which reduces delivery time.

Quantifiable benefits actual customers have experienced are as follows:

1. By optimizing the route, optimizing the load plan, allowing for stop order truck loading (back-to-front), and minimizing load re-organization time mid-route due to route/load plan errors, this should conservatively allow an SME to increase deliveries per route by two on average based on feedback from customers. Considering only labor, if the organization employs a 2-man delivery crew and the average delivery day is 6 hours, the average cost per crew per route is $180. If annual routes per year are 2,000, by increasing efficiency and delivering the same number of orders in fewer trips, the annual savings would be approximately $20,571 in labor alone. Route efficiency could also reduce gas and truck maintenance expenses by another $20,000 annually.
2. Another advantage of increased delivery efficiency is the proven effect of increasing the value per transaction and the number of orders per customer due to increased customer satisfaction. Increasing two additional transactions per customer per year is very conservative and attainable. If the company has 5,000 active customers, the average sales transaction is $346.45, and the net margin is 10%; the increase in revenue and net margin for adding two additional transactions per year per customer is $3,464,500 and $346,450, respectively.

Thus, the aggregated increase in revenue is $3,464,500, and the increase in EBITDA is $387,021.

Increase in Labor Efficiency/Decrease in Labor Cost

A browser-based cloud solution that is tightly coupled with a fully functional horizontal ERP solution is proven to decrease labor cost per revenue dollar by eliminating manual tasks such as route planning, BOL/manifest reconciliation, and proof-of-delivery (POD) retrieval/email and allowing less staff to serve the same number of customers effectively. The other benefit customers have realized is the ability to drive more revenue with the same staffing levels. Based on the experience of NetScore's customers, these savings could easily translate to support personnel such as warehouse, order consolidation, or accounting department associates because manual intervention in the delivery process is reduced substantially. A quantifiable example of the ability to provide high service levels while using less staff in delivery and routing operations is if the total annual revenue is $20M. The labor cost as a percentage of revenue is 28%, so the company should be able to reduce the overall labor cost by 2%.

$112,000 **Annual Saving**

Reduction in Training Costs

A browser-based cloud solution tightly coupled with a fully functional horizontal ERP solution has been shown to reduce training costs for customer support and delivery staff. NetScore sites have indicated that their employees have trained an average of 8 hours quicker based on ease-of-use and intuitive mobile apps. Suppose the average staffing level for a company is 20 salespeople. In that case, the average annual turnover rate is 20%, and the average hourly wage is $15, an annual savings of $480 is realistic.

Conclusion

A tightly integrated cloud solution offers an impressive internal rate of return (IRR) after accounting for the solution investment, assuming an aggregate tax rate of 40%. This IRR is based on conservative estimates of savings and margin improvements resulting from enhanced delivery efficiency, increased labor efficiency through automation and staff reduction, and lower training costs. The expected 3-year IRR is 1,592%, with a payback period of just over two months.