Optimizing the Labor Supply Chain

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Optimizing the Labor Supply Chain

Introduction

Most companies have known for some time, albeit at an intuitive level, that supply chain excellence can deepen market penetration, improve sales performance, and increase end-to-end process efficiency, from supplier to customer. However, in 2003 an international research team determined that a clear and direct relationship exists between an organization’s financial success and the depth and sophistication of its supply chain.\(^1\) Savvy companies are constantly looking for additional opportunities to make their supply chain more efficient.

One significant cost element that seems to get little attention in this process is labor. This paper will discuss the impact that labor has on the overall cost of the supply chain, and the solutions available for optimizing labor’s impact.

Look Beyond Inventory

Labor is traditionally the largest component of a company’s distribution and other fulfillment cost, typically ranging between 35 and 65 percent. In fact, in most fulfillment operations the cost of labor is greater than inventory. Nevertheless, the concept of supply chain management has historically been synonymous with inventory management, planning and optimization. With increased pressure on companies to reduce costs, the time is right to examine the impact of the labor supply chain.

\[\text{Figure 1: The Impact of Labor on Total Supply Chain costs}\]

\[\text{Non-Labor: 45\%} \quad \text{Labor: 55\%}\]

\(^1\) John B. Machette and Dr. Hau L. Lee, “Leveraging the Supply Chain to Create and Sustain a High Performance Business,” ASCET, Volume 6, Montgomery Research Inc., San Francisco, CA, 2004
The Labor Supply Chain

An article by Bruce Richardson, Senior Vice President of AMR Research, noted that IBM recently completed a major overhaul of its asset-based supply chain and was now turning its focus to the “Labor Supply Chain”. The notion that supply chain principles apply to labor is an emerging, but very relevant, concept as companies continue to look for ways to leverage the supply chain to create and sustain business performance.

What is the Labor Supply Chain? It comprises all of the manual functions required to plan, source, build and deliver products from supplier to customer, as the Supply Chain Council’s SCOR model would indicate, to which we would add customer support. To effectively manage this labor supply chain requires:

- Getting the right person to the right place at the right time.
- Tracking the person throughout the day and measuring performance on individual tasks.
- Measuring the quality and safety record of each individual.
- Providing alerts when performance falls below expectations.
- Simulating impacts to labor as a result of changes to process flow or inventory.
- Providing visibility into cost and efficiency of individual employees, facilities, teams and the enterprise.

This level of management sophistication is beyond the scope of traditional approaches and systems.

Changing the Paradigm

Managing labor has historically been viewed as a Human Resources function. Investments in technology that enable companies to manage labor have been lumped into the HR or Human Capital Management (HCM) categories. Operations people worried about inventory and HR people worried about labor. These functional silos prevented the integration of leading edge labor management concepts into distribution and other fulfillment operations.

This is not to say that distribution and other fulfillment operations did not adopt meaningful solutions for measuring employee performance. Many of these operations have implemented best practices such as engineered standards to provide an objective measure of individual performance, or incentive programs to reward high performance employees. Some fulfillment operations implemented Labor Management Systems (LMS) to enhance the solution. Typically, LMS have provided out of the box capabilities such as Performance Reports, Planning and Goal Time Calculation.

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2 Bruce Richardson, “The View Inside IBM’s Supply Chain,” AMR Research Alert, June 25, 2004
However, other labor related capabilities, such as Time and Attendance, Workforce Scheduling, Incentive Management and Payroll calculation, were left in the hands of the HR, Finance or other front-office functions that had little understanding of what was required in Operations. The result was disparate systems that were either standalone or held together through expensive integration technology with multiple sources of data and very little visibility from one system to the next. Clearly what is needed is an integrated approach to labor management that supports the requirements of both functions simultaneously.

**A New Approach**

The keynote article in the 2004 ASCET report\(^3\) noted that integrating processes end-to-end from supplier to customer may be the supply chain’s most important mission. Toward that end, the labor supply chain must integrate component functionality from the HR world, such as Time and Attendance, Workforce Scheduling, Incentive Management and Payroll Calculation, with the traditional fulfillment operations capabilities such as Performance Reports, Planning and Goal Time Calculation. In this case, HR and Operations are simply two separate links along the labor supply chain. Therefore, sharing information with each other will enhance the overall value of the labor supply chain across the enterprise.

The traditional approach has two separate, often overlapping, sets of information going into two separate functions within the enterprise. In practicality, each function can leverage the information of the other to enhance the overall performance of the supply chain. The new approach to managing labor includes integrated HR and Operational functionality and makes that information available to both stakeholders.

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Assessing Your Labor Supply Chain: A Maturity Model for Productivity Management

Companies measure productivity in a variety of ways. Many of the existing Operations and HR systems, such as warehouse management (WMS), employee performance measurement (EPM) or employee incentive management (EIM), provide metrics that measure key volume indicators. This leads companies to feel they have sound productivity measures in place and they are getting an accurate picture of their enterprise productivity performance.

However, the chart in figure 4 below illustrates the expected increase in productivity a company can expect from implementing advanced productivity programs available today that cover the full spectrum of Operations and HR functionality. These savings estimates are based on the results of over 400 program implementations.

Your first questions might be: how do I determine where my company fits on the above chart and what savings potential do we have? There are a variety of models available for assessing the maturity of your company’s productivity program. RedPrairie uses the model in Figure 5 below as the first step in understanding what productivity improvements can be made, in what area, and how much savings might be achieved. RedPrairie consultants use this model as part of a Logistics Optimization Analysis (LOA) to determine the best overall solution for each client. The chart illustrates key elements that contribute to productivity that can be compared to how your company is currently performing.
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</thead>
<tbody>
<tr>
<td>Observed Level</td>
<td>30+%</td>
<td>20%</td>
<td>10%</td>
<td>Baseline</td>
<td>Baseline +5 - 15%</td>
</tr>
<tr>
<td><strong>Productivity Measurement</strong></td>
<td>* Little accountability for any productivity</td>
<td>* Individual productivity measured on units over time</td>
<td>* Introduction of engineered standards for some activities</td>
<td>* Detailed discrete engineered standards covering all activities</td>
<td>* Engineered standards that incorporate real-time environmental feeds</td>
</tr>
<tr>
<td><strong>Labor Planning &amp; Staffing</strong></td>
<td>* Processes not defined</td>
<td>* Silos of optimized effort</td>
<td>* Facility-wide planning based on experience</td>
<td>* Advanced and continuous planning by activity based on statistical data</td>
<td>* Work flow planning function taken over by LMS instruction to the WMS</td>
</tr>
<tr>
<td><strong>Labor Reporting (Facility Level)</strong></td>
<td>* None: Data not available</td>
<td>* Manual tracking of department activities</td>
<td>* Standard reports only</td>
<td>* Configurable reporting by DC</td>
<td>* Interactive holographic displays of real-time warehouse activity</td>
</tr>
<tr>
<td><strong>Network Reporting</strong></td>
<td>* Not performed</td>
<td>* Data is hand keyed into a master report</td>
<td>* Limited Data such as throughput, etc</td>
<td>* Updated information on a daily basis</td>
<td>* Real-time comparisons are made in Corporate Wide Data Warehouse</td>
</tr>
<tr>
<td><strong>Cost Tracking</strong></td>
<td>* Unknown</td>
<td>* Manual tracking of high level costs</td>
<td>* Costs broken out by departmental/functional area/shift</td>
<td>* Activity based costing at the task level becomes possible</td>
<td>* Direct billing to customer for actual true costs</td>
</tr>
<tr>
<td><strong>Simulation</strong></td>
<td>* Not conducted</td>
<td>* Calculations are performed on paper</td>
<td>* Data Spreadsheets are created</td>
<td>* Integrated with LMS</td>
<td>* System immediately recognizes best approach</td>
</tr>
<tr>
<td><strong>Time &amp; Attendance</strong></td>
<td>* No time clock is used</td>
<td>* Associates record time on paper time sheet</td>
<td>* Employee punches time clock</td>
<td>* Integrated with LMS</td>
<td>* Kiosks are used for associate interaction</td>
</tr>
</tbody>
</table>

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RedPrairie – An Integrated Solution

RedPrairie’s approach includes all of the functionality required to optimize the Labor Supply Chain into a single, fully integrated solution. RedPrairie tracks and schedules the activity of all employees from the time they punch in until they punch out again. It tracks performance throughout the day, at one facility or multiple facilities, and calculates pay based on individual or team performance, taking into consideration factors such as quality, safety and customer satisfaction. In addition, the solution provides a scorecard and analytical capability that measures and reports on employee performance across the enterprise.

The RedPrairie solution provides functionality in each of the key labor management areas traditionally shared between Operations and HR. These include:

- Time and Attendance
- Productivity Measurement
- Incentives and Rewards
- Scorecard and Analytics

Within each of these functional areas are subcategories critical to optimizing the Labor Supply Chain. Figure 6 below illustrates the numerous capabilities required for a total labor supply chain solution.

Figure 6: RedPrairie’s Labor Supply Chain Solution

Having a single, integrated solution for all of these closely related labor management functions enables management to proactively plan, schedule, monitor, analyze and reward operations workers in a coordinated fashion that is fair to both the company and
employees. It puts the right information in the right hands at the time it is most needed, namely, when it can impact current operations.

Beyond the advantages of a single, integrated solution, each functional area will also benefit from the total, integrated labor supply chain approach.

**Time and Attendance**

Many companies have prospered providing time clock systems for manufacturing, distribution and other environments where large hourly workforce populations must be tracked. While successful within their limited scope, these systems fail to tie in with other labor management systems to provide a total picture of operations.

For example, the fact that an employee clocked in on time at the front door does not account for the latency of time it took to get to his/her first assignment, perhaps stopping along the way to chat with co-workers about last night’s big game. The same latency can be found when workers return from lunch and other breaks, whether these are actually clocked or not. Combining Time and Attendance with Productivity Measurement provides a single view of each individual’s performance, including all direct and indirect time, removing the blinders from latency and other non-productive time. Since companies without advanced labor management solutions on average experience 75 minutes of unproductive time per employee eight hour shift, the potential for savings is enormous.

Another problem with using traditional time clock systems for time and attendance is they are perceived as “blue collar” systems not appropriate for clerical, call center, healthcare or other “white collar” areas, regardless of the fact these may also be functions with many hourly employees. By providing more acceptable input sources, such as computer screens and personal data assistants (PDAs), and tying into other functions such as leave accounting and incentive programs, the stigma of blue collar is removed.

Beyond time and attendance tracking, having accurate information on direct and indirect time enables more accurate workforce planning to match resources with requirements based on daily order types and volumes. It also enables workforce simulation for new orders and seasonal shifts in demand.

RedPrairie’s integrated time and attendance function provides a single, accurate source for capturing and reporting all productive and non-productive time for each employee, enabling effective time management, productivity measurement, workforce planning and scheduling, and workforce simulation.

**Productivity Measurement**

Real-time productivity measurement raises fulfillment proficiency to the highest level by monitoring all productive and non-productive work, and providing feedback to workers and supervisors as activities are completed. Online reporting alerts supervisors in near real-time to bottlenecks, labor performance problems and other barriers to productivity that can quickly down grade distribution and other fulfillment performance, allowing corrective action to be taken before problems escalate.
The underlying principle required for providing this monitoring and feedback is having an accurate measure of how long each work task should take. Less advanced labor management systems rely on historical averages or aggregate measures, such as units per hour, to compare to current performance. But these fail to recognize the unique requirements of each job, and thus don’t provide an accurate standard on which to measure performance. For example, a piece pick from the chest-high golden zone is easier (and thus should be accomplished more quickly) than one from the bottom level; and replenishment of large, extremely heavy cases may take longer per case than for smaller, lighter boxes. This same process works for call centers, mobile resources and other non-distribution fulfillment activities.

In addition, considerations must be made for quality and safety. The savings from increased productivity can easily be wiped out by the costs of quality problems and accidents. Therefore, quality and safety measures must be incorporated with discrete standards to provide an effective productivity measurement solution.

RedPrairie’s real-time labor productivity monitoring and reporting based on discrete standards, plus quality and safety measures, enables companies to improve all aspects of operations performance while proactively matching resources to fulfillment requirements.

**Incentives and Rewards**

Because of the difficulty in collecting and synchronizing detailed time and performance data by traditional methods, many companies have shied away from implementing incentive pay programs. Although these incentive programs can significantly increase labor productivity in fulfillment operations, while improving employee morale and retention, the administrative effort required and the questionable accuracy of the data makes implementation of these programs prohibitive.

Even companies that can effectively collect detailed time and performance data often find their payroll systems are not designed to perform the complex incentive calculations required. Therefore, they either expend considerable clerical resources to perform these gross pay calculations, or forgo using incentive programs.

RedPrairie has solved this problem by augmenting its time and attendance capability with a rules-based gross pay calculation engine that combines the accurate, detailed work performance data collected with pre-defined company pay rules to automatically compute incentive pay amounts to feed internal or external payroll systems. Clerical work and errors are eliminated, results are immediate and accurate, making incentive plans fair and effective. The result is usually a 10-20 percent increase in productivity over and above the savings attained by productivity measurement programs.

**Scorecard and Analytics**

Most of the foregoing discussion concentrated on effective performance management at a single site. However, the labor supply chain stretches across multiple sites for most organizations. Management above the fulfillment level has typically been forced to use reports that are often inaccurate, inconsistent, incomplete and arrive too late to be used for managing current fulfillment operations. Therefore, it is virtually impossible for higher
level management to spot or handle performance issues before they escalate into costly problems and/or customer service issues.

What management needs is timely access to consistent, meaningful metrics across the enterprise to detect and analyze performance issues in order to take immediate corrective action, as well as initiate and monitor continuous improvement programs.

RedPrairie’s web-based labor scorecard system provides management with near real-time access to a wide range of industry best practice and user-defined key performance indicators (KPIs) across the enterprise to make this analysis not only possible, but simple and routine. Management can easily slice and dice the performance data and perform root cause analysis at multiple levels of the organization in a format that is graphical and intuitive. Data can be aggregated at any level of the organization and views of the data can be specific to each user. The result is a complete and meaningful window to labor performance throughout the labor supply chain.

Summary

With labor being the major cost of most supply chains, it only makes sense to treat labor performance the same way you would any other key asset. Companies must plan, schedule, monitor and adjust usage of labor resources to drive the greatest value through improved productivity, quality, safety and customer service.

To create this labor supply chain requires advanced solutions that go far beyond traditional Operations and Human Resources labor management systems to provide a single, complete, accurate and timely tool for proactively managing labor across the enterprise. This includes processing for Time and Attendance, Productivity Measurement, Incentives and Rewards, and Scorecard and Analytics to give a total picture of labor’s impact on supply chain operations.

Traditional systems are not designed or equipped to handle this level of sophistication, but this is what is required to drive value and competitive advantage from your supply chain. RedPrairie’s advanced labor productivity solution does provide all of the information and tools necessary to enable your labor supply chain to be a market differentiator for cost and service. This isn’t an idle boast – we’ve been helping companies do just that for over 30 years.
About RedPrairie Corporation

RedPrairie is a leader in supply chain technology solutions that help customers transform their businesses. These global, end-to-end solutions optimize operations across customers’ extended supply networks, driving out costs, improving customer service and creating competitive advantage. RedPrairie’s RFID-enabled suite of supply chain technology solutions provide the industry's leading transportation, productivity, and distribution management capabilities, enhanced with process management and optimization components for real-time visibility, event management, sourcing, quality control, supplier collaboration and performance management. RedPrairie provides industry-tailored solutions for many markets, including consumer goods, direct to consumer and traditional retail, food and beverage, high tech / electronics, third party logistics, industrial / wholesale, automotive and service parts, and pharmaceuticals. Customers include Hewlett-Packard, Sony, Thames Water, Procter & Gamble, Nestle, Panasonic, Georgia-Pacific, Eveready, Merck Sharp & Dohme, Unilever, Exel, GE, TNT Logistics, and many others. For additional information, call 1.877.733-7724, or access www.RedPrairie.com.