

Good timing

Realizing value
from investments
in labor scheduling

Human Capital
Management



IBM Institute for Business Value

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Realizing value from investments in labor scheduling

In a host of people-intensive industries, such as retail, banking, transportation, government, healthcare and customer service, organizations are looking toward improved workforce management tools and techniques to lower labor costs, increase the efficiency and productivity of their existing labor assets, and deliver improved customer service. Moreover, the growing complexity of coordinating work activities on a global scale, coupled with the need to adjust for changing workforce demographics, has created a greater focus on how organizations allocate their internal resources. At the same time, changes in information technology and more sophisticated process designs have enabled organizations to more effectively forecast and schedule their labor force. These new technologies and approaches are helping firms transform what was once considered an art form into a more scientific discipline.

Given both the complexity of this topic, and the potential benefits that organizations can achieve, the IBM Institute for Business Value set out to better understand how companies are realizing value from their investments in labor-scheduling processes and technology. This research involved discussions with 11 companies across a variety of industries that are in the process of, or have recently completed, upgrading their labor-scheduling capabilities. In addition, we conducted a review of the recent literature on this subject and obtained insights from several industry analysts and academics who have been closely tracking developments in this area.

Numerous companies that we researched highlighted several tangible benefits from upgrading their workforce management capabilities. Among the improvements cited were:

- An integrated healthcare delivery system that reduced its costs by US\$200,000-US\$300,000 per year, and obtained a 145 percent return on investment within twelve months¹

- A food wholesaler that was able to reduce labor costs between 5 and 7 percent while reducing the size of its customer queues by 50 percent²
- A specialty retailer that reduced the amount of time that store managers spent on payroll and labor-scheduling tasks from 2-4 hours to 20-30 minutes per week.³

Most organizations that we spoke with also recognize that technology investments alone cannot deliver these expected benefits. Companies need to focus on issues associated with labor-scheduling processes, data quality, organizational alignment and change management if they expect to truly harness the potential of their labor-scheduling advances.

Why are companies looking to upgrade their labor-scheduling capabilities?

We see two primary reasons why companies are upgrading their labor-scheduling practices. On one hand, changing business conditions are forcing organizations to look at new and innovative ways of managing the way they forecast and allocate their human capital. At the same time, new technologies are enabling companies to handle labor-scheduling activities more efficiently and with greater flexibility.

Changing business conditions

From our discussions, six external forces appear to be influencing companies to pay closer attention to the tools and processes they use to manage labor scheduling. These forces have different impacts on different firms, depending upon the dynamics of the industry and the nature of the work itself.

- *Globalization:* As companies expand both their customer bases and labor pools to take advantage of cost differentials and access to local markets, the complexity of resource scheduling continues to grow.

For example, as a telecommunications company expands into a new, potentially lower-cost market, it needs to be able to schedule local resources to address installations and other locally-based problems in this new geography. It may also want to relocate the corresponding back office and customer care activities as well. This requires the capability to schedule resources to handle customer inquiries from around the globe. Put together, these globalization factors dramatically increase the complexity of the labor-scheduling process.

- *Increased margin pressure:* Many companies remain under constant pressure to manage their labor costs, particularly those who are competing in markets that are rapidly commoditizing and/or are facing challenges from firms in lower-cost geographies. Reducing a company's total labor spend, and the time and effort associated with managing labor costs, can have a significant impact on organizations. By improving its labor-scheduling techniques, an organization can more accurately match labor resources to customer demand, reduce unneeded overtime and better leverage a more flexible workforce.
- *Shift to a services-oriented economy:* As more companies shift from a pure product-oriented approach to a value proposition based on solving customer problems, the need to provide cost-effective resources to address customer issues continues to increase. For example, a manufacturing company that provides support for its products (as well as potentially for partner or competitive products) may need to provide both on-site and virtual support personnel on a 24x7 basis. Further, much as the demand for parts often shifts due to seasonal or industry factors, the need for services may also fluctuate, increasing the complexities of scheduling resources to match customer needs. In addition, as companies consolidate and add more product lines and services, the ability to support those additional offerings continues to add to the level of service complexity.
- *Greater focus on differentiation through customer satisfaction:* As customers are increasingly able to access similar products from a variety of sources and channels, many companies seek differentiation through improving the customer buying experience. To execute this strategy, organizations are recognizing the need to provide front-line individuals who are well-versed in the company's offerings and customers' requirements. Improved labor scheduling can help increase the availability of employees with the appropriate skills and competencies. This can both decrease the amount of time it takes for a customer to get an answer to a question, as well as increase the opportunities for salespeople to identify and provide the appropriate product or service.
- *Changing workforce demographics:* In recent years, there have been several shifts in the workforce that have an impact on labor scheduling. First, in many maturing economies such as North America and Western Europe, the number of older workers has been steadily increasing, while pools of younger workers continue to decrease. As more individuals intend to continue working beyond traditional retirement years (either to supplement retirement income or simply to stay active), there will be greater numbers of experienced workers seeking part-time work. Tapping into this part-time labor force will be important for companies that previously relied on younger entry-level workers. Further, as more employees begin to stress work-life balance issues, improved labor-scheduling techniques can both enable workers to express preferences regarding working hours and shifts, and more closely match the need for working hours with outside demands.
- *Increased regulatory focus:* Recently, there has been a great deal of media attention on companies accused of violating regulations regarding overtime pay. What's more, there has been increased scrutiny in several industries, such as transportation and healthcare, regarding the number of hours that indi-

viduals are permitted to work in a given time period. Improvements to labor scheduling can help ensure that companies comply with regulatory statutes and contractual agreements that impact when employees work, and how many hours they work at any given time and pay rate.

Technological advances

As business conditions have forced companies to revisit their labor-scheduling strategies, new software applications have made it easier to forecast, optimize and communicate labor-scheduling decisions. While there are various packages available – often tailored to specific industry settings – many have a core set of similar functions and features. These include the abilities to:⁴

- Collect or provide links to systems that capture labor demand data
- Forecast demand for services using historical data
- Create work schedules that balance workload against employee availability, skill sets, shift flexibility, costs and service level requirements
- Assign employees to schedules, incorporating employee preferences, bidding and shift trading
- Provide realtime information that enables supervisors and analysts to assess and monitor schedules and execute intra-day changes
- Provide managers and employees with self-service access to schedules and the ability to submit preferences
- Develop “what-if” scenarios to model changes in demand, labor rates or service level impact.

Many of these labor-scheduling applications are integrated with other company systems, such as time and attendance, payroll and skills management to provide a company with a comprehensive understanding of the availability and cost of its human capital.

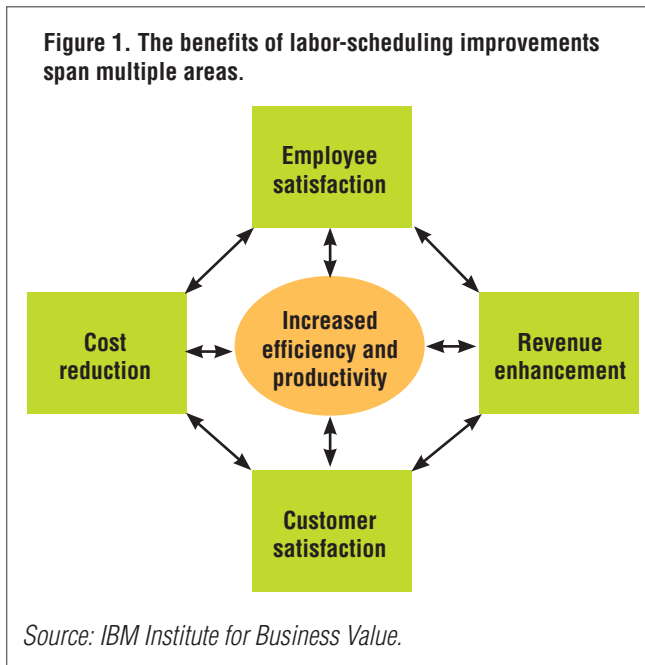
Despite these enhanced capabilities, most companies have resisted taking action to upgrade their labor-scheduling systems. For example, a 2005 Aberdeen Group study of the retail industry found that only 14 percent of companies use an automated labor-scheduling system that links forecasted demand to labor requirements.⁵ This is in contrast to the 36 percent of organizations that use spreadsheets alone to do their labor scheduling and 20 percent that use paper or whiteboards. A host of reasons was cited for delaying upgrades to labor-scheduling systems, including: lack of available telecommunications bandwidth, competing IT priorities, a perception that existing labor-scheduling systems were “good enough,” integration issues with legacy systems, and the difficulty of measuring outcomes and developing business cases.

Although there may be legitimate reasons for not moving on to next-generation labor-scheduling systems, some organizations have found that relying on legacy systems left them exposed to significant risks. For example, Comair, a regional airline carrier in the U.S., had been using a crew scheduling system that it had implemented back in 1986. During the subsequent 20-year period, the airline had grown rapidly, from a small airline operating 25 planes to a network that operated in 117 cities with over 1000 daily flights. A major winter storm from December 22-24, 2004 forced a number of delays and cancellations that increased the volume of crew changes significantly. Unknown to the company, the legacy application had a limit to the number of crew scheduling changes that could be made. When this limit was reached on December 24, its entire system shut down. With no sufficient backup system in place and limited ability to schedule crews, Comair was forced to cancel all flights on December 25 and 90 percent of its December 26 flights, stranding tens of thousands of passengers.⁶

Building the business case

When asked about the benefits they were expecting from improvements in labor-scheduling activities, interviewees indicated that they were looking for improvement in four areas (see Figure 1): cost reduction, revenue enhancement, customer satisfaction and employee satisfaction.

Cost reduction: For many companies, reducing labor costs was the primary benefit they sought from labor-scheduling improvements. This included the ability to more accurately match actual labor usage to labor forecasts, which would, in turn, reduce unnecessary hiring, decrease overtime expenses, reduce the use of agencies and outsourcing providers, and enable them to make realtime tradeoffs when responding to changes in demand. Also, companies expected that by being able to more accurately match employee skills to customer needs, they could answer customer inquiries more rapidly, and resolve more questions on the first attempt.



Other organizations cited the need to reduce employee grievances and regulatory challenges resulting from conflicts about overtime hours and other policies. Also, by upgrading their labor-scheduling capabilities, organizations aimed to reduce the time managers spent on developing and maintaining schedules, and to reduce the paper and printing costs associated with schedule distribution. In addition, by consolidating disparate labor-scheduling systems from across the company, organizations indicated they expect to reduce costs associated with application support and maintenance, as well as manual data translation.

One organization that has seen significant cost reduction benefits through improved labor scheduling is Covenant Health Systems, a nonprofit, integrated health delivery system with 3000 employees. It upgraded its employee scheduling system to fully integrate with its time and attendance application, and provide realtime data availability on staffing levels. The scheduling software covered the staffing of a variety of healthcare professionals, including nurses, operating room technicians, respiratory and physical therapists, and ER paramedic positions. Through the changes to its labor-scheduling practices, Covenant achieved a 145 percent return on investment, including a reduction of US\$15,000 in paper and printing costs and US\$200,000-300,000 by avoiding the use of staffing agencies. Also, the new capability reduced the amount of time that patient care managers spent on staffing activities by 15 hours per month – allowing them instead to focus on direct patient issues.⁷

Revenue enhancement: While cost reduction was clearly the goal for many interviewees, some firms – such as specialty retailers – were more focused on revenue enhancement as the rationale for improving their labor-scheduling practices. As one specialty retailer described, “We think that top-line sales can be improved by as much as 20 percent – though 1-5 percent would be sufficient.” Essentially, these companies are looking to more accurately match staffing levels to customer demand. This would, in turn, increase employee availability during periods of high customer traffic, which would then allow sales personnel to more rapidly answer customer queries, work with customers to appropriately match products with

their requirements, and make suggestions for additional products that customers might need. Also, reducing the amount of administrative time managers spent on creating schedules would allow them either to spend more time working directly with customers or training employees on selling techniques.

Louis Vuitton North America is one organization that reduced costs and focused staff and managerial attention on customers by upgrading its labor-scheduling practices. By upgrading its employee scheduling and time and attendance software, and integrating it with human resources, customer counting and point-of-sales technology, Louis Vuitton was able to shift more staff to higher traffic periods during the day. At the same time, it was able to lower the costs associated with manual data entry for payroll processing by 50 percent and reduced the amount of time it took managers to perform payroll and labor-scheduling tasks from 2-4 hours to 20-30 minutes each week.⁸

In addition to a retail setting, customer care centers can also potentially enhance their revenue opportunities through improved labor scheduling. By better matching trained staff with customer demand, a revenue-generating call center (such as a center that handles customer reservations) is less likely to face delays that can cause customers to drop off before completing their purchases. Further, customer representatives with specialized skills (e.g., language ability) can be more accurately scheduled to match the needs of specific customer segments, increasing the opportunities for closing sales and cross-selling.

Customer satisfaction: By matching customers with more qualified and available staff, some organizations intended to use labor scheduling to improve their customer satisfaction levels. For organizations that focused on handling high volumes of customers, improved labor scheduling was seen as a way to reduce waiting times, either in physical or virtual queues. An example of this is Metro Cash and Carry, a European wholesale grocery business. After upgrading its labor scheduling and forecasting processes and implementing new scheduling software, Metro Cash and Carry reduced checkout wait times by

50 percent while lowering its labor cost between 3-7 percent.⁹ For those companies involved in higher-margin, lower-transaction businesses, increasing the overall availability of staff with greater knowledge of products and services was seen as an important way for labor scheduling to contribute to improved customer satisfaction.

Employee satisfaction: A number of organizations believed that labor-scheduling improvements could also be beneficial in improving employee satisfaction. Using self-service tools, employees could more easily provide input about the number of hours and shifts they would be interested in working. Plus, they could get access to upcoming schedules, request time off and offer to take on additional hours as needed. Also, through consistent application of scheduling rules, employees could be more confident that their schedules were consistent with negotiated agreements and their paychecks accurately reflected the actual time and schedules that they worked. Improving employee satisfaction will be increasingly important given the tightening of labor markets widely anticipated in maturing economies over the next several years.

How do companies realize the value in investments in labor scheduling?

Companies participating in our study recognized that several important practices need to be put into place to boost returns on labor-scheduling investments. These fall into three categories:

Improve data quality and flow

As with other information technology systems, labor-scheduling packages can only be useful if the input data is accurate, timely and relevant. One common message from our discussions was the importance of understanding both labor supply and demand activities at a granular level, to help ensure that the data used was accurate and reflective of actual business conditions. As Robert Garf, senior research analyst from AMR Research states, “Any workforce management system needs a strong labor management model foundation – including business drivers, labor standards, union rules as well as employee hierarchy, preferences and credentials.”¹⁰

This includes understanding the drivers of labor demand (for example, department traffic, checkout activity, patient acuity, phone inquiries), the expected volume of activity (usually determined at fifteen-minute increments) and the actual time needed to complete various work activities. Many organizations highlighted the importance of employee involvement in evaluating the time required to complete tasks, as first-hand knowledge of work activities is critical for developing accurate forecasts, as well as building a sense of commitment and ownership to work standards. On the labor supply side, companies need a detailed understanding of: the size and cost of their labor pools, the employee skills and competencies necessary to meet customer needs, employee availability (such as current hours worked, time for paid time off and training, etc.) and the business rules that govern employee working practices (for example, union regulations, legislative regulations and employee work schedule preferences). Lastly, companies also need to clearly define their service quality metrics, so that they can align both the labor supply and demand with their customers' expectations.

While helping to ensure that data entering the labor-scheduling system is relevant, companies should also use data produced from the labor-scheduling system to improve medium- and long-term workforce planning decisions. Data regarding the past history of labor-scheduling activities can be valuable in helping determine the overall workforce size and composition, the cost-effectiveness of hiring from different labor sources, the optimal level of customer service, and the long-term costs of union agreements and company policies. Companies that integrate scheduling data into longer-term decisions can get a more accurate, complete picture of their human capital and the appropriate tradeoffs needed to develop a cost-effective workforce.

Align the organization

Many of the companies recognized that simply implementing a labor-scheduling system without addressing a range of organizational challenges can put technological investments at significant risk. These challenges must be addressed not only by the organization's operations

group, which is often responsible for the labor-scheduling process, but from many other groups, such as human resources, legal, information technology and finance. Figure 2 highlights some of the key issues that require collaboration among functional groups for labor-scheduling activities to be effective.

Another important issue is the need for companies to recognize that labor-scheduling processes need to be aligned closely with other human capital activities, such as recruitment, selection, compensation, learning and development, and feedback and performance measurement. For example, if a company decides to increase the number of part-time shifts as a result of an improved labor-scheduling capability, it also needs to:

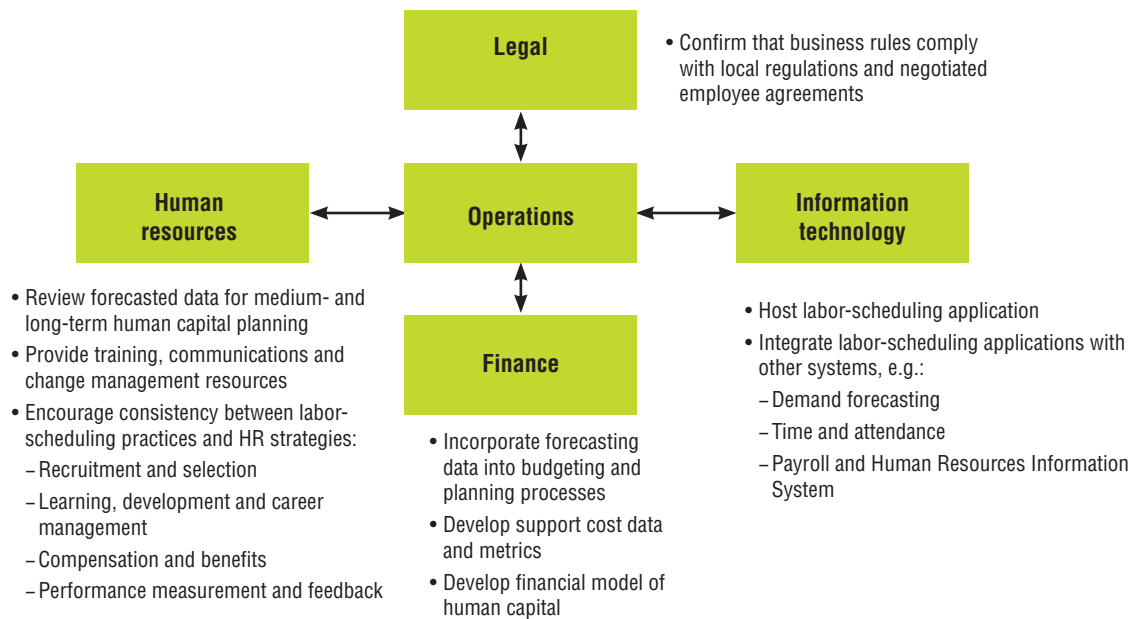
- Consider the need to dip into different labor pools to source individuals interested in part-time work
- Adjust the compensation and benefit levels to attract part-time workers
- Revise the training content and the number of training hours required to get new workers up to speed
- Recognize that supervisors will have to evaluate and provide feedback to a larger group of employees.

Failure to address these integration issues can cause other human resource related problems that can decrease retention rates, increase costs and decrease customer satisfaction.

In addition, another major issue raised by organizations that dealt with larger numbers of workers, such as call centers, is the change in the role of the workforce planner. Before the advent of more advanced labor-scheduling systems, the workforce planner was primarily an administrative role that focused on tracking and reviewing time sheet data, entering data into the system and generating reports for distribution to managers.

However, in companies that are responsible for scheduling hundreds, if not thousands of employees, the workforce planner role has evolved into a more strategic advisory capacity. This includes evaluating staffing levels on a realtime basis, analyzing actual staffing

Figure 2. Functional areas involved in employee scheduling.



Source: IBM Institute for Business Value.

and forecasted levels to identify shifts in short-term and long-term demand, determining future staffing needs and providing managers with cost implications of changes to their overall staffing models. As Vijay Mehrotra, a professor at San Francisco State University and researcher on workforce management states, “Our research shows there is a strong correlation in the level of trust that the senior management has in the workforce analyst and how much value they get out of their workforce management effort.” While some companies indicated that managers were concerned that their ability to develop and modify schedules was being usurped by centralized workforce planners, others indicated value in having workforce analysts provide consultative services to managers, thereby enabling managers to spend less time on administrative activities and more time working directly with their employees.

Manage the change

Labor scheduling represents a window of opportunity for many organizations, yet the effort can be fraught with difficulty, given the amount of change that is required at multiple levels. As one specialty retailer indicated during our discussions, “From the beginning, we recognized since we were playing with employees’ time and money, we had to be sensitive to the needs of our culture.” Managing potential employee resistance was cited as a critical issue by virtually all of the organizations we interviewed. Three groups in particular were cited as stakeholders that required special attention when dealing with labor-scheduling changes:

Front-line employees: While improvements to labor scheduling can offer some benefits to employees (such as employee self-service, the ability to provide schedule preferences and the like), these modifications can also

be perceived negatively by employees. Many employees, hearing about the introduction of new labor-scheduling practices, will be concerned that these new processes will reduce the number of hours they are working, limit the amount of overtime pay they can receive or create nonstandard working shifts that impact the actual times they need to work.

While many of these issues are valid, there are a number of strategies that companies can put into place to mitigate some of these concerns. For one, involving employees in work standards development was seen as important during the initial data gathering stages of the effort. Giving employees input into how long it takes to accomplish certain tasks not only provided a more realistic sense of what it takes to get the work done, but provided a sense of ownership for the larger effort. Frequent two-way communication through the lifecycle of the project about what was occurring and how changes would be rolling out was also cited as an important factor, as was stressing the benefits from the new scheduling approaches. Lastly, mutual gain sharing was discussed as a potential option, in terms of providing financial incentives that could be linked to improved labor-scheduling practices.

Managers: Employees are not the only important group that may have concerns about new labor-scheduling practices. First-line managers who have traditionally had responsibility for labor scheduling may see these changes as reducing the amount of control they have over scheduling decisions. They may believe that any form of centralized scheduling will not take into consideration their knowledge of the local marketplace and, therefore, have limited benefits to their particular location. Some may be uncomfortable with using computers at all, especially for mission-critical tasks that directly affect their overall profitability. Finally, managers may be concerned that, given the complexity of the system, they will be unable to articulate to employees the rationale behind labor-scheduling decisions, and therefore increase employee anxiety and concerns.

To address manager concerns, organizations should verify that managers receive communications that allow them to understand what changes are taking place, and how to communicate these change to their employees. Companies have also found it valuable to include local managers in the customization of the centralized software so that the parameters of the software are tuned to meet the local needs of particular stores or branches. Providing additional in-person and face-to-face support during the early implementation of the system can reduce the possibility that initial technical glitches can lead to managers simply abandoning the new systems and processes.

One specialty retailer found it valuable to provide a three-part education series to its store managers when it decided to upgrade its labor-scheduling system. The first part focused on building foundational skills, so that store managers understood the fundamental business model of the organization and the rationale for the new labor-scheduling system. The second part was designed to educate managers on the new labor-scheduling policies and procedures, which would help clarify the business rules that determined how new schedules were being developed. Finally, the retailer provided hands-on application experience to allow managers to practice and refine the store-level optimization models. The organization felt that by separating the discussions of procedures from the actual system use managers would be less inclined to build a negative association between the new policies and the actual technology implementation.

Unions and works councils: Given the potential impact on the pay of a larger number of employees, organizations that have collective bargaining agreements in place need to pay attention to the needs and concerns of unions and works councils. Education, communication and involvement of the union leadership early in the process were seen as important to address concerns. In addition, identifying opportunities for workforce redeployment, increased cross-training and gain-sharing opportunities should be considered to improve the likelihood for greater acceptance among relevant stakeholders.

Conclusion

For many companies, investments in upgrading their labor-scheduling practices and technologies have returned significant benefits, in terms of increased productivity and enhanced customer experience. However, the lessons learned from these organizations are important for others seeking the same benefits. To take advantage of the latest tools and techniques, companies must have a clear understanding of the drivers that influence both customer demand and the need for employees to service that demand. Without this accurate picture, the process for labor optimization and scheduling will be ineffective at best, and at worst, detrimental to the business.

Further, organizations need to recognize that labor scheduling represents one component of a larger workforce management strategy. Changes made to scheduling practices must also consider the residual effects associated with how the organization sources and manages its workforce. Finally, changes to any labor-scheduling process require significant attention to the change management issues. Employee involvement, stakeholder management, communication and education are all critical components to incorporate labor-scheduling systems into everyday business operations.

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References

- ¹ Weber, Nancy and Lureen Patten. "Shoring Up for Efficiency." *Health Management Technology*, Vol. 26, No. 1. January 2005.
- ² Power, Denise. "Louis Vuitton's Time Out." *Women's Wear Daily*. July 13, 2005.
- ³ Stevenson, Natalie. "Metro uses Workplace to slash labour costs." *Retail Week*. June 17, 2005.
- ⁴ Rosenberg, Alan. "Best Practices in Workforce Management." *Call Center Magazine*. May 2005.
- ⁵ Jones, Katherine. "Workforce Optimization in Retail: From Point of Hire to Point of Sale." Aberdeen Group. June 2005.
- ⁶ Overby, Stephanie. "Bound to Fail." *CIO*. May 2005; "Review of December 2004 Holiday Air Travel Disruptions," *Office of the Secretary of Transportation*, Report Number: SC-2005-051, February 28, 2005 accessed from www.oig.dot.gov/StreamFile?file=/data/pdfdocs/sc2005051.pdf on November 16, 2005
- ⁷ Weber and Patten, "Shoring Up for Efficiency."
- ⁸ Power, "Louis Vuitton's Time Out."
- ⁹ Stevenson, "Metro uses Workplace."
- ¹⁰ Garf, Robert. "Drive Retail Employee Productivity Through New Web-Based Workforce Management Applications." AMR Research. November 2004.



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