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RESEARCH**

RESEARCH REPORT D69 | FOR USE WITH NUCLEUS FINANCIAL MODELING TOOL D69W

ROI Evaluation Report Kronos Visionware

THE BOTTOM LINE

Visionware labor analytics enable organizations to control labor costs and optimize labor usage through improved reporting and analysis. Healthcare providers and other organizations with rising labor costs and fluctuating staffing needs will likely achieve the highest returns from improved decision making based on access to accurate and timely labor and business volume data.

KEY RETURN AREAS

- Reduced costs of agency/contractor labor
- Improved labor productivity
- Reduced FTEs
- Reduced overtime
- Increased charge captures
- Reduced employee turnover costs
- Improved labor reporting

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Kronos Visionware is a labor analytics solution enabling organizations to capture, report, and analyze labor information from different data sources. Organizations can apply this information to make better decisions, at both the departmental and organizational levels. Visionware is used to perform productivity management and labor planning functions, leading to optimized usage of regular and supplemental workers at various types of organizations, including healthcare. Visionware runs in either a completely browser-based environment or a client-server environment.

Key functionality components of the Kronos Visionware solution include the following:

- Data collection. Organizations can collect, consolidate, and use data from key sources, such as the following:
 - Payroll and HR applications
 - Time and attendance solutions
 - Billing and operations management systems
- Reporting. Supervisors and managers at various levels can access reports analyzing the use of full-time and supplemental labor for different departments, through daily and biweekly reporting, including the following:
 - Labor productivity reports
 - Labor utilization reports
 - Trend reports
- Labor planning. Using Visionware, managers develop employment plans that are designed to address ongoing changes in business volume, advising managers about how to hire or downsize (and what skill mix to use) based on real changes in business volume.
- Exceptions-based management. Through tools for exceptions-based management and access to various labor reports, Visionware allows managers to identify opportunities for cost savings by reducing overtime, eliminating unnecessary use of contract labor, and identifying and addressing high employee turnover rates.

Organizations operating in environments with dynamic staffing and labor requirements, such as healthcare organizations, are constantly faced with the challenge of maintaining high levels of customer service while controlling overall costs. As labor costs make up a steadily increasing percentage of revenues at such organizations, the key to profitability and long-term success lies in finding strategies and tools to understand and manage labor costs relative to fluctuating business volume while maximizing the efficiency of existing personnel resources.

Departmental accountability for productivity performance is critical to controlling labor costs, yet organizations are often limited in their ability to enforce performance targets because they lack a system for consistently measuring performance against predetermined productivity standards. Currently, organizations employ a number

of solutions and strategies to track labor productivity and reduce costs:

- A combination of scheduling/staffing software, productivity monitoring systems, and applications for operating budgets. Such applications are normally utilized on a departmental level, to assist supervisors and managers at healthcare organizations in their daily decision-making responsibilities. Data is not rolled up at an enterprise level, or applied uniformly or with consistent timing by different divisional stakeholders. Rather, the calculations are built on a variety of standards and targets that pertain solely to that department or division.
- Business intelligence software. Such applications are provided by vendors such as Cognos, Hyperion, or Business Objects, and they possess reporting, analysis, scorecarding, and business performance management functionality. They support the needs of middle-level and senior managers in business environments where labor costs and usage levels don't fluctuate heavily and where treatment of labor needs is similar to that of other operating expenses.
- Workforce analytics components within workforce management solutions. These are offered by organizations such as Ultimate Software and Lawson Solutions, and many HR application vendors include modules for tracking labor trends like overtime and turnover. However, the abilities to analyze labor usage according to skill mix and activity and to develop employment plans are usually not included in this modular functionality.
- Specialized labor analytics tools, such as Kronos Visionware. These allow both frontline and senior managers to mine and synthesize data from payroll, HR, billing and operations management, and time and attendance applications to understand utilization of different kinds of labor across different departments and to develop employment plans based on business volume. The returns from an integrated labor analytics package can be especially significant at organizations where labor constitutes a large percentage of operating revenue and where labor costs and business volumes are prone to frequent fluctuation.

This report describes the key benefits and costs associated with using the Kronos Visionware solution for various productivity monitoring and labor analytics activities at healthcare organizations and organizations facing similarly dynamic staffing needs. Organizations should use the associated Nucleus financial modeling tool to calculate the specific returns, costs, and ROI from a deployment of Kronos Visionware.

KEY BENEFIT AREAS

Nucleus Research has identified four key areas where organizations deploying Kronos Visionware can achieve returns from a deployment: improved information organization and access for decision making, improved labor productivity, improved supplemental labor usage, and improved employee retention.

Specific calculations for the returns associated with each benefit area should be entered into the associated financial modeling tool.

Improved Information Organization and Access for Decision Making

By using Visionware for reporting and data analysis, organizations can increase the productivity of managers, enable them to identify and rapidly address problem areas, and effectively increase the accountability of different departments and divisions.

Without a labor analytics tool, managers can spend several hours tracking departmental productivity performance through manual and paper-based reports, using PC-based tools such as spreadsheets or word processors. This process of collecting, reconciling, and analyzing data in separate spreadsheets can be extremely time consuming and error prone, without providing managers with the level of detail or visibility required for monitoring productivity and making decisions about labor use and allocation.

Visionware makes it easier and less time consuming for managers and other personnel to track labor data and accordingly make decisions based on this information. The solution allows managers to automatically perform daily, biweekly, and monthly labor reporting and to analyze and calculate productivity using commonly accepted calculation methods. Using Visionware, managers can reduce the time formerly spent on data reconciliation, minimize the scope for errors and inconsistencies, and act on the latest data on labor productivity. At one acute care hospital facility, Nucleus found that employees in the payroll department saved up to two hours every week because of easier time and attendance reporting with Visionware.

At one acute care hospital, the implementation of Visionware and the improved integration between Visionware and time and labor data significantly improved time and labor reporting by enabling daily review of associates' time. This eliminated "payroll-Monday" crunch time processing and saved payroll staff an average of two hours every week.

To calculate the value of increased manager productivity from improved data access, organizations should identify those reporting and data-gathering activities that can be accelerated with Visionware. The resulting time savings for various staff will depend on the following key factors:

- The number of internal employees devoted to various reporting, querying, and data gathering activities
- The number of hours that departmental managers, supervisors, and IT staff currently spend on collecting data, creating custom or ad hoc reports, and reconciling data
- The frequency with which different employees perform these tasks — on a monthly, weekly, or daily basis

- The extent to which current reporting processes are manual and paper based
- The frequency with which managers are expected to act on the information — on a weekly, biweekly, or monthly basis

Productivity-based returns from automated reporting with Visionware will depend on the number of employees devoted to data gathering and analysis, the frequency with which they perform these tasks, and the extent to which current reporting processes are manual.

In addition to increasing productivity, Visionware can have a positive impact on revenues by reducing inaccurate recording of patient charges at healthcare organizations. Poor entry and tracking of these charges often occur at hospitals with a shortage of billers or coders to support the revenue process. Because Visionware enables the daily and biweekly review of departmental charges and volumes, enterprises can identify inefficient charge-tracking practices and ensure that revenues aren't being lost because of poor access to patient data. In particular, Nucleus found one healthcare provider that was able to drastically reduce the number of misfiled patient charges and minimize late billing thanks to more frequent tracking of charges with Visionware. This organization now recovers several hundred thousand dollars annually in revenues because daily review of patient charge information allows departments to ensure that they are not losing insurance reimbursements because of late billing.

Finally, Visionware improves standard enforcement and accountability by extending timely access to information about the use of full-time, contract, and part-time labor for different departments and activities. In the absence of regular reporting and review of labor data, departments may have no way of determining whether they are truly meeting budgeted productivity standards until annual or monthly financial statements are available. With Visionware, timely access to usage data makes it possible for higher-level management to hold departmental managers to predefined goals and to increase accountability in the short term.

One 300-bed hospital facility is recovering several hundred thousand dollars in revenues by using Visionware for more frequent tracking of charge captures. Visionware helps the organization ensure that it is not losing insurance reimbursements because of late submission of charges.

Organizations can expect the following returns through improved information organization and reporting:

- Increased manager productivity
- Reduced time spent collecting labor data
- Reduced reporting cycle time
- Reduced time spent by IT staff on report creation

- Improved charge captures
- Increased manager accountability due to timelier access to information

Improved Labor Productivity

Using Visionware, organizations can increase labor productivity and avoid the costs associated with labor shortages, overstaffing, and other non-optimal staffing situations. Managers can leverage a combination of alerts, features for exceptions-based management, and frequent reporting to anticipate and plan for labor demand and to ensure the timely allocation of labor in response to changing business volumes.

Visionware can deliver significant returns to organizations in industries such as healthcare, hospitality, and entertainment that are especially sensitive to seasonal shifts and unforeseen changes in demand. Monitoring the efficiency of different kinds of labor and reducing rising labor expenses is especially critical for healthcare organizations because of the direct impact on such industry-specific measures of productivity as full-time equivalent employees (FTEs) per adjusted occupied bed (AOB) or FTEs per adjusted average daily census (AADC). Because Visionware supports ongoing productivity monitoring, organizations in healthcare and other verticals can improve labor productivity and usage in comparison with such performance statistics and industry standards.

Visionware can help organizations improve the productivity of workers and effectively reduce labor costs in three key ways:

- **Employment plans.** Visionware’s daily and biweekly reports allow managers to predict future labor needs and be prepared to address short-term and seasonal swings in unit volumes. Managers can also develop employment guides and forecast regular and supplemental resources needed to fulfill predicted levels of customer demand (such as volumes of patients, frequency of guests, volumes of bill processing) at different times of the year. Accurate labor planning will reduce the risk of lost revenue because of the unavailability of personnel and will also limit the amount of supplemental labor needed at a given time — allowing organizations to avoid the higher costs of supplemental labor whenever possible.
- **Exceptions-based management.** Visionware alerts can inform frontline managers and supervisors of “trigger” events or situations when variances from productivity standards exceed predetermined thresholds. Because department managers are immediately alerted whenever there is a labor shortage or when worker productivity falls short of predefined targets, they have a greater ability to take corrective action that will ensure proper staffing and maintain targeted levels of productivity.
- **Volume-adjusted hiring or downsizing.** Visionware enables managers to address ongoing changes in business volume by providing narrative recommendations about how to hire or downsize (and what skill mix to use) based on shifts in demand.

For example, a manufacturing firm that takes on several new contracts in a short period of time can use Visionware reports to determine how many part-time, full-time, and contract workers should be hired. Likewise, with decreasing business volume, a volume-adjusted employment plan can help managers determine how many full-time, part-time, and supplementary workers to reassign or eliminate in order to maximize overall labor efficiency.

As is the case with any analytics tool, the magnitude of returns from improved planning and productivity will depend to a great extent on the scale of operations under the reach of the technology and the size of the annual payroll at the organization. If a healthcare facility with several hundred million dollars in annual revenues effectively uses Visionware to increase worker productivity and reduce FTEs per unit of service by a tiny percentage or can reduce labor costs as a fraction of overall revenues by half a percent, that organization could have paid for the solution many times over. Nucleus found one healthcare organization that used Visionware to replace manual, weekly productivity tracking with daily reporting at seven facilities operating upward of 1500 beds. With Visionware's daily trend reports, frontline managers can track productivity more frequently and address variances as they occur. This capability has led to a reduction in FTEs per AADC more than 3 percent for all the facilities — helping outweigh the costs of implementing Visionware within three months of the deployment.

One healthcare organization was able to reduce FTEs per AADC more than 3 percent by using Visionware to replace manual, weekly productivity tracking with daily reporting at seven facilities operating upward of 1500 beds. This organization achieved a positive return on its Visionware investment within three months of the implementation.

Organizations can expect the following returns from improved labor productivity:

- Reduced FTEs
- Reduced contractor/agency costs
- Reduced labor costs because of improved access to staff-to-patient data
- Increased revenue due to adequate staffing
- Reduced costs of overtime due to staff shortages
- More timely hiring and rightsizing decisions
- Reduced overall labor costs due to optimized labor mix

Improved Supplemental Labor Usage

Managers and executives can leverage Visionware to understand and limit the use of contract, agency, and other outside workers — external resources that can constitute a significant percentage of overall labor costs. Healthcare organizations, for example, rely heavily on the use of contract and agency workers to augment the

regular workforce during erratic business cycles or unforeseen peaks in demand. Certain departments, such as nursing and imaging, are especially prone to sudden and extreme fluctuations in services demand, making them key consumers of supplemental labor.

Continual use of contract and agency labor can have a significant impact on an organization's labor costs per hour. In addition to the higher hourly rates often paid to supplemental workers, organizations sometimes need to pay for the costs of transporting outside labor to remote sites and facilities. Such costs can have a significant negative financial impact when high volumes of outside labor need to be engaged on a frequent, ongoing basis.

Increasing regulatory pressures can also have an impact on an organization's need for unplanned supplemental labor. Many state and federal regulatory authorities are requiring healthcare organizations to maintain minimum nurse-to-patient ratios. Such staffing mandates will not only impact such census statistics as FTEs per unit of service but can also translate into huge costs where supplemental labor is required to ensure adherence to such ratios.

Visionware can enable organizations to understand and control the costs of supplemental labor in a number of ways. Visionware's labor distribution reporting system segments information in a way that allows managers to see which labor expenses are controllable in the short term and which ones can be addressed in the longer term. So, managers have a separate and detailed view of supplemental labor amounts that are controllable in the short term — such as overtime, agency, or extra part time.

In the absence of Visionware, healthcare organizations might be unaware that they are utilizing inordinately high levels of agency nursing labor until weeks or even months after the fact. With access to regular reports, hospitals can identify departments or facilities that are using excessive supplemental labor and can take more timely corrective measures. Nucleus found one hospital that had no short-term visibility into its spending on agency labor before it implemented Visionware. With Visionware, managers realized that many departments were using excessive amounts of agency nursing labor and consequently replaced those workers with full-time employees. By eliminating the use of expensive agency nurses, the organization saves approximately \$1 million annually and has achieved a full payback on its investment in a little over two months.

One hospital could replace expensive agency labor with full-time workers because of increased visibility into labor costs with Visionware. It has since saved \$1 million annually while improving the satisfaction of its full-time employees.

The improved usage of supplemental labor will help organizations achieve the following returns from Kronos Visionware:

- Reduced costs of agency labor
- Reduced costs of contractor labor
- Reduced overtime
- Reduced average costs of labor per hour

Improved Employee Management and Retention

More optimal labor planning and management will always have a net positive impact on satisfaction levels among employees and ultimately on employee turnover rates. Visionware can therefore help control employee turnover in the long term by enabling organizations to optimize the use of labor and maintain satisfactory staff-to-customer ratios.

The costs of employee turnover can be significant for organizations — especially where hard-to-fill and specialty positions are concerned. Organizations operating in healthcare and other industries with specialized staffing requirements need to consider the following costs of worker turnover:

- Commissions paid to placement agencies and other recruiting resources
- The costs of providing specialized or mandatory training required for positions that are advanced or regulated by federal laws
- Recruitment costs, such as signing bonuses paid to new hires

These expenses can constitute up to a third of an employee's starting salary. Other, less visible productivity costs are associated with employee turnover as well. New hires can accomplish only a percentage of what experienced workers can in a given period of time, forcing organizations to pay for the employee productivity lost in the process.

Visionware can help facilitate long-term reductions in annual employee turnover in a number of ways. With better planning, managers will minimize forced and unplanned overtime and reduce the worker stress associated with regulatory patient-to-staff ratios — ultimately leading to improved worker satisfaction. In addition, appropriate staffing ratios will reduce the probability of work-process errors and ensure a consistently higher level of service rendered to end customers. Visionware also helps reduce reliance on outside contract or agency labor, allowing organizations to give full-time and part-time employees the opportunity to staff those positions. This is likely to increase the morale and satisfaction of employees, positively influencing turnover in the long term. Nucleus spoke with at least one Visionware customer that reported a significant increase in its employee satisfaction level because of its ability to transfer earning opportunities from outside to full-time labor. Finally, reducing expenditure on supplemental labor can allow organizations to channel resources toward increased employee salaries for full-time workers and greater employee development and retention strategies.

At least one Visionware customer reported a significant increase in employee satisfaction because it could transfer earning opportunities from outside to full-time labor.

Organizations can expect the following returns through improved employee management and retention:

- Reduced employee turnover costs
- Improved quality of service
- Improved employee performance due to better morale

KEY COST AREAS

Organizations implementing the Kronos Visionware solution can expect to spend in a number of areas, including software, hardware, consulting, personnel, and training.

Software

Organizations should budget both for the costs of software licenses for Kronos Visionware and for annual license maintenance fees. In general, software costs will depend primarily on the number of employee records or workers covered by the technology.

Visionware can run in either a completely browser-based environment or in a client-server environment, and some organizations may have to make additional investments in upgrading browser software where the Web-based solution is being used.

Hardware

The costs of hardware needed to support Kronos Visionware will be determined by several factors, including the user population as well as the number of ways Visionware will be used. Other factors affecting the need for servers will be the volume of data that is contained in various systems connected to Visionware and the number of different data sources that the solution is supposed to mine. Nucleus found that organizations implementing Visionware can expect to spend on at least two additional standalone servers to support the solution.

Consulting

Consulting costs for developing, customizing, testing, and installing the Visionware system should be considered by organizations planning a deployment of the solution. Organizations will need Kronos Visionware consultants for developing interfaces, completing integration with other HR applications and data sources, and conducting software and database testing and conversion. Visionware needs to be directly integrated with other applications to receive data for reports; the solution can take a "snapshot" of discrete data from data sources and combine this with the information in the Visionware database.

The ability of organizations to use Visionware for effective decision making and labor cost reduction will depend on how effectively the system interacts with various internal systems. Therefore, organizations shouldn't hesitate to invest in consulting and integration for improving their performance. Kronos offers installation and consulting services for Visionware customers as part of organizations' implementation packages. The service, provided by internal Kronos consultants, covers data integration and other implementation requirements specific to Visionware deployments.

Organizations that do not have pre-existing processes for monitoring productivity and enforcing performance standards may choose to engage external consultants to assist in defining and developing productivity objectives and in ensuring that the Visionware system recognizes and reinforces these new standards. For example, Nucleus found one customer that had observed no consistent standard before purchasing Visionware and therefore brought in third-party consultants for defining new productivity standards appropriate for its industry. However, Visionware can be fully implemented by an organization using its existing budget as the productivity standard — until new targets are developed and implemented. Organizations choosing to revise productivity standards should budget for these consultancy costs as well.

Personnel

Internal personnel — both line of business and IT — will be required to help develop and implement the Visionware solution. Before the implementation of Visionware, managers from different departments will have to collaborate with senior executives in determining enterprisewide productivity standards and metrics. During the deployment, internal database administrators and other IT staff will need to contribute as well.

As part of the ongoing maintenance service, Kronos is responsible for database and Visionware maintenance. Some organizations might still decide to assign a small percentage of an internal database administrator's time to Visionware maintenance and should accordingly account for the cost of this personnel time as well. Nucleus found that organizations using Visionware did not devote more than a third or a fourth of the time of database administrators or other IT staff for various ongoing support activities, such as developing productivity reports.

Training

Organizations should consider the costs of time spent by managers on Visionware-related courses as well as the costs of trainer time and trainer travel.

The training of managers, supervisors, and other staff will have an important impact on the success of the Visionware solution and the ability of users to effectively leverage the system to make profitable decisions. Therefore, organizations should budget time and money

for providing the requisite training. In many cases, organizations will have to spend time explaining new productivity standards and performance metrics to managers while simultaneously instructing them how to use Visionware reporting and analysis functionality to support new performance goals. In general, Nucleus found that productivity managers, operators, and other staff at organizations implementing Visionware had to receive approximately one week of training that covered both the system's functionality and the newly implemented productivity standards.

CONCLUSION

Visionware's reporting and analysis functionality enables organizations to improve labor productivity and control labor costs by increasing departmental accountability for labor usage and driving adherence to productivity standards. Kronos Visionware can bring significant returns to healthcare organizations and other organizations seeking to control rising labor expenses by providing increased visibility into the use of full-time, part-time, and contract workers. Organizations that are subject to frequent and unforeseen peaks in demand and that rely heavily on the use of supplemental labor are especially well positioned to achieve cost savings and a positive ROI through Visionware.

Organizations considering an investment in Kronos Visionware should use the associated Nucleus financial modeling tool to quantify the potential costs and returns from a deployment.