

THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY



LOCATION:
*Seattle, Washington,
United States*

YEAR:
2006

STATUS:
Laureate

CATEGORY:
*Government and
Non-Profit Organizations*

NOMINATING COMPANY:
Sybase

ORGANIZATION:

Emerald City Software

PROJECT NAME:

ATLAS

Summary

The Washington Department of Corrections sought a solution to accurately capture labor-related data while administering the 24x7x365 schedules of 4,400 correctional personnel across 15 correctional facilities. Emerald City Software (ECS) implemented a world-class Enterprise Workforce Management system to not only meet, but exceed the department's requirements. The danger and violence associated with prison operations places a high importance on communication to ensure the safety of everyone involved. The technology implemented on this project has changed the way that information is distributed throughout the department on two levels. First and foremost, custody staff now have the ability to instantly access meaningful information regarding the workforce, scheduling and operations. This, in and of itself, has created a safer and more secure work environment. Secondly, managers from headquarters can now use this real-time technology to identify and control statewide labor-related budgetary issues, including staff funding shortfalls and cost drivers such as the root causes of overtime. Without compromising the central mission of public safety, this innovative project was completed within the original budget and ahead of schedule to successfully and significantly improve DOC labor management functionality.

Introductory Overview

A correctional facility represents a microcosm of society. It contains government services, manufacturing, construction, agriculture, medicine, education, transportation, power generation, waste management, fire and police (correctional officer) services. Like many major cities, correctional facilities have the problems of overcrowding, aging infrastructure, gangs and crime, overburdened government workers, limited funding, cost overruns, morale issues and a demanding population. The Department of Corrections (DOC) for the state of Washington, with 15 correctional facilities across the state needed an operations-centric labor optimization system that would automate and enforce their unique custody-focused labor requirements, union staff scheduling and payroll rules. Additionally, this system needed to clearly identify areas for significant cost savings across their geographically dispersed facilities and broad scope of services while providing enterprise quality information to the user community. Architecturally, the system



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needed to perform optimally within the state's Wide Area Network, be completely data-driven so it could be configured to meet each of the 15 correctional facilities' specific needs and gradually be implemented into a large user base without disrupting the existing work environment. The Washington DOC, recognized as one of the most forward thinking agencies in the correctional sector, envisioned this system to be a vehicle to help gain ownership of their labor issues, control over their budget and create a systematic method to improve the overall quality and performance of their people and services. This aggressive and challenging set of tasks represents the original vision and scope of the project. The vision has been realized and exceeded; the DOC has successfully implemented a system that met the project's original scope; the system supports far more users than first anticipated and has accomplished new goals originally thought unachievable. This was not an overnight success, it was a journey. Involving significant teamwork at all levels of the DOC, this journey involved development and implementation within a harsh prison working environment, bureaucratic frustrations that are inherent in large organizations, and technical problems. The difficulties were balanced by the exhilaration of exceeding the original specifications and maintaining a sustained, productive pace, where hundreds of new feature requests were being handily implemented in near real-time.

Unlike other state agencies, a state prison system cannot cut back on its core services. Public safety is at the heart of the issue. Prisoners are not like highway potholes where in fiscally lean years some are ignored. The Department of Corrections recognized that its managerial and executive staff could not successfully administer a mega-corporation in a constrained fiscal climate without appropriate tools and information about its workforce, facilities, and day-to-day operational issues. The antiquated, manual, paper intensive processes and systems that previously resembled staff scheduling were contributing to the continued escalation of budget deficits.

The original goal of the DOC labor management project was the accurate and timely control of fiscal issues associated with labor; over the course of the project the core guiding principle became: provide a toolset to enable, empower, and ensure fiscal responsibility.

With a continued depletion of State resources, the DOC knew its staff could not achieve the agency's mission using information that was 30 to 90 days old. Not only was this data stale, it was difficult to access and limited in detail. Due to the limitations of the existing systems, the DOC could not comply with requests of outside stakeholders, such as the Legislature, with the requested fiscal detail. Stakeholders wanted not only answers, but data to support these answers. To identify specific drivers of budgetary shortfalls, management and staff needed access to real-time, detailed expenditure information. Overtime was known to be one of the primary drivers contributing to the ongoing fiscal deficit; what was not known was enough detailed information to evaluate common root causes of overtime and control the issue. The focus, therefore, became a concentrated effort to reduce labor expenditures such as overtime. The DOC identified Enterprise Workforce Management as a cost effective and prudent investment in State resources that, when fully implemented, would more effectively use taxpayer dollars, improve the safety and security of staff, offenders and the surrounding communities, and take significant steps to address the concerns and issues of the State's Office of Financial Management, the Attorney General, and the Legislature. This crucial point should be emphasized: The ability to identify funding shortfalls, control spending, identify specific cost drivers of the deficit and improve operational efficiency has a direct correlation to the safety and security of staff, offenders, and the community, in addition to potentially decreasing liability to the Department as a whole.



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After contacting numerous state correctional agencies, the National Institute of Corrections and other international correctional organizations, it became apparent that available software solutions for correctional officer scheduling were fundamentally inadequate. In fact, most organizations were still using pencil and paper or Excel for their scheduling (After being selected, ECS contacted 42 state correctional agencies and the Federal Bureau of Prisons to verify a complete lack of workforce management systems). The DOC realized that resolving these costly and long-standing departmental labor issues would require procuring and enhancing an Enterprise Workforce Management system (EWM) and integrate it with their newly purchased Enterprise Resource Planning (ERP) system. This EWM system, known as ATLAS, when fully integrated with the ERP solution, would provide executive management and outside stakeholders with critical information needed to make sound policy and fiscal decisions. With ATLAS, the DOC has a tool to support their labor decision making process by balancing and managing the demands of safety and security with the supply of the fiscal budget. This balance was previously unachievable without accurate, up-to-the-minute, integrated, operational data.

The successful implementation and integration of this project has clearly placed the DOC at the forefront of government agencies not only in the state of Washington, but across the nation as well.

High Level Project Goals - Enterprise Workforce Management will assist, enable, and/or empower an organization to...

- Manage its fiscal operations as they pertain to personnel
- Identify specific program costs
- Report to stakeholders on its financial position as it pertains to labor
- Match budgeted funds to actual expenditures
- Resolve staff funding shortfalls
- Reduce workers compensation costs
- Determine the labor cost of inmate programs
- Develop sound fiscal policies

To identify, address and implement these goals, the Washington DOC embarked on the implementation of an Enterprise Workforce Management system to provide staff with the information and tools necessary to protect the State's valuable resources. Emerald City Software's Enterprise Workforce Management software, ATLAS, was selected as the software tool to achieve these goals.

Benefits

Benefits were realized along two axes: financial and human. At the financial level the DOC now has the necessary tools to measure –at a detailed level– all aspects of labor costs. The measurement shines a light on previously unrecognized sources of labor overrun costs and is crucial to controlling the costs. At the human level, scheduling adequately rested, correctly trained and qualified correctional officers in the facilities improves the level of safety for officers, inmates, and the surrounding community. In 1971 the Attica, NY prison riot killed 32 inmates and 11



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hostages, in 1980 the Santa Fe, NM riot killed 33 inmates, in 1993 the Lucasville, OH riot killed 7 inmates and 1 correctional officer. During 2005, California alone had three major riots that resulted in over 50 inmates and 20 correctional officers being injured. Prison riots are usually triggered by small incidents occurring within a tinderbox environment. Aftermath analysis often cites inadequate staffing levels and insufficient correctional officer training and alertness as primary factors in both the initial incident and the long term volatility of the environment. The ATLAS system's labor management and scheduling features address both the financial and human aspects of the correctional system.

The following outline highlights selected program objectives and benefits that will assist, enable and empower the DOC:

Cost

- Improves data collection and analysis of attendance patterns and sick leave usage, to assist the overall department strategy to manage and reduce absenteeism and overtime costs;
- Increases payroll and time collection accuracy;
- Reduces time spent by supervisors in timesheet review;
- Management can seek a balance between safety and security of their facilities and meeting the budget. This balance was previously unachievable due to the lack of accurate, up-to-the-minute, integrated, operational data;
- The improved timeliness means the budget can be proactively managed because both potential deficits and areas that are under funded can now be identified;
- Less effort required to respond to requests made by outside entities;
- Supervisors and schedulers have enough accurate labor and operational information to help control costs and effectively allocate resources;
- Supervisors can adequately analyze daily staffing needs over a period of time to optimize personnel resources;
- Quality information improves management's ability to control and contain the high costs of staffing resources to vacant positions;
- Management is now able to analyze daily leave patterns to determine the average level of relief needed to cover predictable absences;
- Reduces employee turnover and the costs associated with recruitment, training and familiarization through improving the quality of work;
- Provides a central repository for enterprise workforce management data;
- Gains the efficiencies and economies inherent in having integrated systems.

Performance

- Eliminates the need to continue using disparate systems by exchanging employee related information with the State ERP corporate Human Resources and Payroll systems;
- Ensures staffing assignments are filled according to qualifications, certifications and training;
- Ensures staffing assignments are filled according to current Federal, State, DOC Management



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and Union rules;

- Enables employee web-based access for vacation bidding and bid status review, training requests, qualifications review, employee schedules, and selected HR data;
- Eliminates the need for data entry into multiple systems and the associated potential for errors;

Tactical Delivery

- Creates a high degree of employee self-empowerment through interactive scheduling decisions with the employee group and through web-based employee self service;
- Provides the ability to accurately identify the availability and commitment of labor resources.

Management Reporting

- Provides accurate, timely and effective management reporting that captures Key Performance Indicators including event costs, labor costs per bed, position vacancy ratio, and OT by work unit type.

Strategic Decision Making

- Contributes to the Departmental strategy of an Enterprise-Wide Suite of business systems;
- Forecasts the impact of operational changes and enables future 'What If' scenarios for Human Resources, Operations, Training, Staff Scheduling and Time Collection;

Economic and Environmental Drivers:

- Provides a complete environment for uniformly and fairly enforcing complex collective bargaining agreements;
- Provides information to address complex operational issues and identify cost drivers;
- Reduces labor-intensive manual processes;
- Reduces effort required to respond to audits.

Organizational Needs:

- Provides real-time information to indicate the most cost-effective method of filling a vacant position i.e. long-term assignment, temporary help or a redirect;
- Identifies and tracks which position actually incurred an expense –as in the Root Cause– using salary data and leave usage patterns;
- Derives an accurate picture of labor expenses, including projected expenses;
- Provides thresholds that limit the use of extra positions and overtime assignments;
- Reconciles actual staffed positions to the budget of approved positions;
- Tracks all position vacancies;
- Organization can now associate events with the financial cost and operational impact;
- Automatically produces the optimum number of previously manually generated reports including Shift Summary, Roster, and Security Roll-up Report.

Benefits to the Community At Large:



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- ATLAS can be used by any organizational entity that desires to conduct workforce management. In its current configuration, ATLAS would be ideal for departments of corrections and/or large jail facilities throughout the U.S. and the world and for city/municipalities labor management needs as well;
- Because ATLAS is fully configurable and data driven, it can be easily adapted for other governmental agencies and/or private enterprises that have complex workforce management requirements;
- ATLAS provides public and private sector agencies and organizations, which possess sizeable labor budgets, with the appropriate information tools to protect their valuable resources.

The Importance of Technology

Architecture was a critical factor in our success. We employ a database-centric solution with a Sybase PowerBuilder front end (if desired, this front-end can be readily ported to the web). The database holds the information and stored procedures that supply the rules used to manipulate the information. PowerBuilder supplies a RAD environment for building the complex data access – the glue behind our rich user interface that connects directly to the database. Our users see an application that performs sophisticated tasks, yet with an easily understood interface. The complexity is our scheduling engine that resides in the highly organized world of the database; the user interface acts as a simplified, humanly accessible window into this world. Another nice aspect of our approach is that components within PowerBuilder, like the DataWindow, delivered, encapsulated data presentation capabilities that required little, if any, programming.

Our adaptability was also an important success factor. We were able to accommodate more than 1,100 change requests at no extra charge. We knew we would benefit from the expansion of the ATLAS product, which made it easy to be so accommodating to all the change orders. We made the changes generic so any organization across the country could use ATLAS. Because rapid change also has inherent dangers; we were careful to keep the database side of the project evolving at a prudent pace. We've all heard of projects where too much change has resulted in out of control spiraling and eventually failure. Our core database scheduling engine was never altered; all change requests were examined to ensure no impact to this powerful engine.

Our adaptability is a direct result of Sybase PowerBuilder's rapid development capabilities; our flexibility on the development side created a much higher likelihood of overall project success. We recognize that the customer knows what they want – at least the broad outlines of what they want. The reality of seeing actual screens doing exactly what was asked, usually leads to a slew of modifications. We have the tools in place to account for this inevitable drift.

As developers we often find ourselves in the decidedly negative position of constantly vetoing change requests in order to actually complete a project. On this project, because we were RAD-enabled, it was easy to modify screens to match the changes as they were requested. When the user asked for something, we could have it running for them to see in the next hour or day. At times we were a little ragged, but the reality is the changes made ATLAS much more robust and attractive to virtually every correctional/city government/manufacturing/ operationally focused organization across North America and, ultimately, the world. There was a tremendous amount of knowledge they gave us that we were able to rapidly bring into the product itself.

In the interests of surviving the flood of requests, the DOC project manager tried to slow the



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rate of change a couple of times, but the users did not want any delay; they wanted the changes as fast as we could provide them. These changes demonstrated clear user 'buy-in' and were primarily focused on automating manual and labor intensive processes.

Originality

- Project covering 15 facilities, headquarters, 4,400 custody personnel, over 1,000 users operating in a mission critical 7 x 24 environment was implemented by 4 FTE's over the course of 11 months. Roster Managers, the individuals responsible for staff scheduling, provided a valuable level of user-focused assistance;
- First known enterprise workforce management system implemented in a Department of Corrections environment;
- First known enterprise workforce management system integrated with ERP at the government level and will be fully integrated with SAP Human Resources and Payroll (go live for SAP is July 2006);
- System is fully portable to the web but, due to network performance issues, is implemented as an n-tiered client/server application;
- System has an Employee Self Service module (production version available and owned by the DOC);
- First known enterprise workforce management system coupled with a powerful and highly sophisticated labor modeling component (Hours of Work module within ATLAS);
- First known enterprise workforce management system coupled with a training and operations module that includes: Event Tracking, Emergency Operations Center, Drills & Alarms Tracking, Special Response Teams, Operations Logs, Incident Tracking, Searches Tracking, and Security Rollup Reporting as well as a full suite of training functionality;
- First known Enterprise Workforce Management system with bi-directional time collection; changes to time collection feed SAP and the ATLAS staff scheduling module;
- First known enterprise workforce management system with configurable union-based vacation and job bidding functionality;
- First known enterprise workforce management system with staff scheduling planning capabilities that will allow the DOC to create Training, Leave and Facilities Service plans (and compare to budget and actuals). This planning functionality will enable the DOC to create work schedules and determine relief needs 12 to 24 months in advance. These future vacancies, created due to the training and vacation needs of the employees, can be quickly and easily identified and filled using the virtual job bundling functionality within ATLAS;
- First known enterprise workforce management system with six dimensions of business rule management. Rules may be placed and managed at the following levels:
 - Person, Position, Work Unit, Employee Manned Entity (i.e. facility), Partial Shift, and Day (comprised of multiple shifts)
- Most effective staff scheduling and time collection system in the national DOC environment;
- ATLAS is highly data driven and can be readily configured for other organizations without the



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intervention of a programmer or other technical resource.

Success

- Considered one of the most successful IT projects in the history of the DOC;
- Originally slated for 75 users, ATLAS now has over 1,000 users. The system has been fully operational since May 2005;
- Project was completed ahead of an aggressive schedule (June 2005);
- Project was completed on budget;
- Originally slated for custody personnel, use of ATLAS has been expanded to Human Resources, Payroll, Senior Management, Labor Negotiations and Medical facilities personnel;
- Currently ATLAS schedules approximately 4,400 custody staff, future phases may bring on the remaining 4,000 employees (Management and administrative support personnel) ensuring that 100% of the Washington DOC staff have their schedules and time collected within ATLAS;
- With real-time information, management can ensure that Department and State policies and procedures are being followed. Adherence to governing rules significantly decreases the liability to the Department and improves the safety and security of staff and offenders;
- The system leverages staff knowledge, improves productivity, insures consistent output and standardizes the information required for fiscal accuracy, best practices are now being shared across organizational boundaries and implemented within ATLAS;
- Staff has significantly improved capability to respond for requests of data from external organizations such as the Legislature and the Attorneys General office.

Productivity Improvement Examples (include but are not limited to):

- The Custody Operation shift summary report had been manually created taking 2-3 hours per shift (32,850 hours per year). This report is now a by-product of the day's activities and is created automatically by ATLAS;
- Payroll Liaison Clerks, in the past, manually entered custody timesheets into the mainframe. ATLAS takes scheduled hours, converts it to collected time, enables supervisors to adjust an employee's time, ensures that management and collective bargaining rules are adhered to, and releases the time to the ERP system. Data will no longer be re-keyed, which results in greater payroll accuracy while simultaneously reducing payroll effort (SAP go-live July 2006);
- Management reports (over 180 different reports) are available instantaneously providing the latest real-time financial and operational information. Previously, financial reports lagged 30-90 days;
- ATLAS tracks and reports the Department of Natural Resources for labor provided in fighting forest fires. This process, now automated, was previously manual;
- Operation log management: Previously, each institution utilized a hand written log; institutions now utilize an on-line operations log that can be accessed by authorized personnel with the proper security clearance at the Regional and Headquarters facilities. This data is available in real-time and is fully searchable (i.e. by keyword or phrase);



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- Union Grievances: The system provides comprehensive support to determine the accuracy and correctness of grievances. Upon SAP go-live, it is fully expected that seniority and payroll grievances will decline; similarly, it will take less time to resolve these issues;
- Significantly improves the DOC's Information Liquidity by providing a single point of data entry that removes information bottlenecks and improves user access and data security;
- ATLAS automatically refreshes itself with new releases of the product without IT intervention.

Other Successes:

- DOC and Emerald City Software, in a true government/private sector partnership, successfully implemented over 1,100 change orders without incurring any additional cost. While this change of scope was both significant and not fully anticipated, the team was able to implement the project one month ahead of schedule (Project timeline from start to finish was 12 months);
- Integrates the collection, storage, retrieval and reporting of information related to Enterprise Workforce Management practices of the entire organization;
- Aligns spending authority with spending plan;
- Increases the availability and accuracy of the costs associated with posted positions to provide information necessary to substantiate budgetary expenditures;
- Reduces overtime expenditures;
- Reduces Absenteeism;
- Enables management to identify the reasons for position cost drivers and formulate corrective action plans;
- Reduces the establishment of unauthorized positions over and above positions authorized in the budget;
- Improves management of program funding;
- Reduces the time required to research information;
- Reduces Workers Compensation Case Management;
- Improves Workload Management for Staff;
- Reduces the amount of staff turnover;

Difficulty

- Much of the work we did occurred within the confines of the prisons. These are unpleasant, remote locations with a necessarily harsh and dangerous work environment. Extensive onsite time exposed the implementation team to many of the same hazards experienced by the correctional workforce. We worked in the operations center of each prison, which is located in the central area of the facility and multiple layers of security zones away from the front door;
- The first workforce management pilot, with a 3rd party vendor –that, by the way, was not Emerald City Software– failed. This engendered a certain doubt concerning further attempts and we saw limited mid-level prison management support for the second attempt. The second attempt was funded from existing financial resources with the expectation that sufficient savings



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would be recouped via the implementation of the solution and a subsequent reduction in over-time;

- Limited State budget equals small implementation team; the project utilized 1 FTE from the DOC and 3 FTEs from Emerald City Software;
- The short time frame offered limited opportunity for business process reengineering;
- Our end user community was correctional officers who were under significant stress imposed by workload, lack of time for appropriate training and a constant budget crisis primarily due to the State's economic condition. As is often the case, the very people we were helping did not have time for us because of the broken system we were fixing. This was compounded by significant labor agreement changes which equated to longer workdays for officers;
- Significant changes to the offender community which raised the tensions in the facility; notable was the no smoking policy that was imposed during project pilot;
- Data had to be migrated from 15 facilities from 15 different databases. Employee qualifications data, from an existing training database, was identified as outdated, inaccurate and highly problematic;
- Workforce is 24x7x365. This meant training often occurred after midnight and support issues required Emerald City Software to be available on a 7 x 24 basis;
- We were using the State's outdated, high volume, problematic network with limited IT resources. The network problems were exacerbated by geographic features like the Cascade and Olympic mountain ranges and Puget Sound;
- Highly complex business rules surrounding workforce management that included union and management rules that had to be fully defined and rigorously adhered to;
- System had to be data-driven to enable easy and effective rule changes;
- Due to the nature of the project, the union-based user community viewed the project suspiciously (Big Brother). Facility Superintendents were uneasy that headquarters had real-time access to workforce management issues such as extra positions, absenteeism and overtime;

The DOCs did not have the resources to evaluate and identify the shortfalls in its operational practices (Business Process Re-engineering). The DOC's leadership team, as a result of the implementation learning curve, has realized that systems, procedures and accurate, real-time data are only part of the equation of a fiscally responsible business entity. As a leadership team, management, in the future, is working towards influencing a cultural change to make fiscal management inherent in daily operational practices at the program level.