The Washington Department of Revenue (DOR) had a need to better identify businesses under-reporting taxes and failing to register to conduct business in the state of Washington. The department believed that an innovative Business Intelligence application focused on taxation compliance could help them achieve those objectives.

To collect revenues accurately, administer programs to fund public services, and advocate sound tax policy, the DOR sought to provide the tools local businesses need to report and pay taxes, and to make use of the Internet to deliver services more efficiently.

The challenge
As the first U.S. agency to develop an Electronic Filing (ELF) system to allow businesses to file and pay their taxes online, the Washington Department of Revenue recognized the need for an IT solution to improve and help enforce compliance with tax codes. Audit Division Assistant Director Tremaine Smith notes, "Sending out auditors is the single most expensive educational method for correcting taxpayer errors. We would like to use the results of the data warehouse to help improve our audit selection techniques and allow the agency to develop the best educational strategies to improve taxpayer compliance." DOR is determined to educate businesses to register and report fairly, to clear up confusion and correct misunderstandings, and not to let budget limitations or the lack of internal expertise compromise its goals.

The solution
To remedy the problem, HP proposed a data warehouse solution to manage information strategically. After an initial requirements analysis in September 2002, HP Services and the DOR determined to implement the project in two phases: The first, to identify under-reporters, was completed ahead of schedule in January 2003. The second phase will identify businesses who have not registered, is slated for completion in June 2003—also ahead of schedule.

The data warehouse integrates data from multiple underlying applications and incorporates third party data by soft matching data from government sources to create a database that determines non-payment, or underpayment, of taxes. Soft matching is a way of comparing data that is similar but not necessarily identical. For example, one data source might list an address as "Hubbard Avenue"; another lists it as "Hubbard Ave.," a small difference most computer programs cannot identify as a match because there is no common key, although we know they are clearly the same. Soft matching uses artificial intelligence software algorithms to compare names and addresses from multiple data sources to identify matches like this, and compile them into a master database. These algorithms, built into SearchSoftwareAmerica, the data clustering engine, are at the core of the data warehouse solution hp designed and built for the DOR.
Identifying businesses that under-reported taxes or failed to register to conduct business in the state of Washington.

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<td>The Washington Department of Revenue can now integrate data from multiple underlying applications and incorporate third party data by soft-matching data from government sources to create a database that determines non-payment, or underpayment, of taxes.</td>
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The data warehouse project is comprised of Microsoft SQL Server 2000/Enterprise Edition; Data Transformation Services, which come with SQL server (data extraction transformation and loading [ETL] enables you to pick up data, transform it into a different format, and write it into the data warehouse format you choose); Windows 2000 Advanced Server; and IIS (Internet Information Server).

BusinessObjects is the reporting and analysis tool deployed and HP chose the Data Clustering Engine, from SearchSoftwareAmerica, to meet the DOR’s soft-matching needs. The hardware platform consists of HP Proliant Servers.

Planning, direction, analyzing, and prioritizing business needs took place during the requirements analysis. In this phase, the hp team interviewed key DOR staff, summarized findings, then conducted a workshop to confirm agreement on prioritized requirements—particularly end users’ reporting needs. Hp then analyzed and documented and presented the results to the client.

After the requirements analysis, HP Services dispatched a professional team—project manager, software architect, and technical consultants, who executed the data warehouse implementation in two phases at the DoR’s Olympia, Washington, headquarters. Specialists from HP’s offshore organization in Bangalore, India, came onsite to contribute to providing integration services, yielding a cost-effective combination of local and offshore expertise.

Testing and training

The HP team then tested the application and system according to plan. Tests include report development and unit testing; Quality Assurance on the database, ETL, and front end; system testing of backup and recovery, security/access, end-to-end data load; performance and User Acceptance testing.

After putting the system through its paces, the HP team focused on training DOR IT and operations staff as the data warehouse system is rolled out. Knowledge transfer is a point of honor at HP: an InfoWeek poll of IT managers rated our Services training delivery “the best in the industry.”

Tremaine Smith recognizes the importance of having business users understand an imperative that could impact several Department of Revenue divisions. “This project involved a huge knowledge management transfer, and HP helped educate us from the start about the process and use of this innovative technology—particularly our dedicated three-person internal team.”

Progress

Smith is understandably pleased that the Department of Revenue project finished ahead of its scheduled completion date, in July. The state agency is now well-prepared to collect taxes accurately, by identifying unregistered businesses and businesses that under-report tax in Washington state. The new system allows the department to meet its mark: to effectively manage reliable information to achieve its goals.

Whether it was excellent references—experience implementing 700 enterprise-wide data warehouses and data marts and Business Intelligence solutions, or seeing success demonstrated by HP’s choice of an off-the-shelf tool—(Business Objects, the reporting/analysis tool deployed, and SearchSoftware America’s Data Clustering Engine for soft matching name and address data), HP showed the department exactly how to achieve its goals.

DOR Audit Division’s Tremaine Smith chalks the project’s success up to good communication and a great game plan. “From Day 1, we had weekly meetings of solid, thorough, open communication, where we would fix bumps in the road that every project is exposed to. HP had a great game plan and has done a phenomenal job to keep us on track.”

HP helped the Washington Department of Revenue achieve its goal of improving its record of tax collection.
and enforcement on time, meeting a tight budget with an accomplished team with substantial experience, reasonably priced offshore capabilities, a proven methodology, and by demonstrating a good technology fit. DOR Audit Division Assistant Director Smith adds, "HP understands the potential and results of data warehouse technology for increasing our effectiveness."

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