Risk scoring in real time leverages analytics and accelerates Irish Revenue’s journey to high performance.
Business challenges
Declining public revenues in many countries are increasing the need for public service organizations to work more efficiently. Ireland’s Revenue Commissioners sought to improve Revenue’s ability to identify non-compliance within the tax system while maintaining high levels of service and efficiency. Existing systems for transaction processing contained checks and validations to detect fraudulent behaviors and erroneous claims, and then route such transactions for review. However, some cases of non-compliance were not detected until after refunds were sent or credits applied. Consequently, Revenue faced the challenge of recovering monies in a “look back” intervention or audit. In addition, unnecessary delays resulted due to compliant transactions being incorrectly targeted for review.

Revenue identified opportunities to improve and strengthen its processing with real-time risk scoring, predictive analytics and intelligence-driven business rules. Real-time risk scoring would not only identify more non-compliant transactions in-flight, it would route fewer compliant transactions for review, thereby improving efficiency and service.

Revenue chose Accenture for its experience using predictive analytics to provide a scientific understanding of non-compliant behaviors. Embedding analytics within existing processes and systems would help reduce non-compliance, both deliberate and resulting from inadvertent errors. In addition, Accenture demonstrated a strong track record of helping public organizations worldwide improve productivity, enhance service quality and pursue high performance.

How Accenture helped
A decision was made to focus first on the income tax system for employees, known as Pay As You Earn (PAYE). The PAYE system updates employment records and tax-credit entitlements, collects taxes deducted by employers, calculates liability and issues tax refunds. Revenue updates more than 22 million PAYE records each year.

Accenture Intelligent Processing Services provided a real-time risk framework. Accenture deployed a team of management scientists and data analysts from its global analytics network to work with a team of Revenue statisticians, subject matter experts, and information and communications technology professionals. The assembled team proceeded in three phases—laboratory, factory, and tracking and feedback—within a six-month timeframe.

Laboratory phase. The project team began analyzing data from data warehouses, including internal, external and third-party sources. Statisticians analyzed data against known cases of non-compliance to identify attributes and behaviors deemed to be predictive of fraudulent behavior. Members of the project team then applied analytical modeling techniques to the key variables, resulting in the selection of the most appropriate predictive model. Some of the insights discovered in this phase were considered suitable for inclusion as standalone business rules that could operate in conjunction with the model.

Factory phase. The project team implemented the predictive model and associated rules into back-office and public-facing Revenue systems. As a result, transactions entering through multiple channels, including phone and Internet, could be assessed in real time. When activity was perceived to be high risk, a customer would be prevented from submitting his or her transaction and instead be requested to contact a local Revenue office. Risky transactions also could be stopped during nightly processing and routed afterward for manual review.
Tracking and feedback phase. The project team developed dashboards to monitor the effectiveness of the model and risk rules, in order to reduce the number of false positives and enhance treatment tactics. The feedback includes charts for model and rules performance, evaluation of key risk areas, case working performance and monetary value saved. As a result, the tracking and feedback phase enables Revenue to enhance its analytical models based on actual experience and make continual improvements.

In June 2012, the real-time risk framework was honored with a Public Service Excellence Award from the Taoiseach (Prime Minister). Ireland’s Department of Public Expenditure and Reform bestows the Taoiseach awards biannually to recognize best practices and innovation across the public sector.

In June 2012, the real-time risk framework was honored with a Public Service Excellence Award from the Taoiseach (Prime Minister). Ireland’s Department of Public Expenditure and Reform bestows the Taoiseach awards biannually to recognize best practices and innovation across the public sector.

High performance delivered

Accenture and the Irish Office of the Revenue Commissioners delivered the PAYE Risk Project on schedule in only six months, leading to rapid achievements in savings for the government.

The PAYE project has assessed more than 1.2 million transactions, and Revenue has recorded a measurable reduction in the number of undeserved refunds and credits. As of mid-2012, the model and business rules have blocked fraudulent or erroneous refunds exceeding €2.5 million, thereby covering the costs of the project in a matter of months.

Revenue anticipates further savings resulting from increased voluntary compliance as word spreads about the new system. Historically, when revenue agencies tighten their compliance systems, fraudulent attempts decline due to expectations that illegal behaviors will be detected.

"Customers can make genuine errors in their applications, which can result in the granting of incorrect refunds or tax credits," explains Declan Rigney, head of Revenue’s Planning Division. "Unfortunately, some taxpayers may misrepresent their circumstances to reduce the taxes they pay or to obtain refunds. We continually seek to improve our effectiveness in addressing non-compliance through the adoption of new processes, technologies and data sources. The inclusion of real-time predictive analytics within our systems is an important progression in approach."

When the model or business rules identify a suspicious case, the file is now automatically directed to a case worker, who determines if the transaction should be allowed or prevented. The number of false positives has fallen, with the "hit rate" (i.e., percentage of cases deemed erroneous or fraudulent, as opposed to benign) rising 50 percent.

Customer service has improved because fewer compliant refunds are being stopped unnecessarily, and a larger percentage of valid refunds and tax credits are being processed automatically. In addition, Revenue has saved on recovery costs associated with investigating and retrieving inaccurate payments.

The real-time risk approach was designed for flexibility and extensibility. Using Accenture Intelligent Processing Services, Revenue has an overall framework for developing risk models for other taxes and duties, such as the value added tax.

The project has exceeded expectations due to Accenture’s expertise in predictive analytics and high levels of collaboration between the Revenue Commissioners and Accenture. In addition, system enhancements were well integrated with Revenue’s existing architecture. As the real-time risk framework is extended to cover other taxes and duties, the financial savings are expected to be substantially higher.

As governments throughout the world struggle to fund operations, Accenture Intelligent Processing Services help revenue agencies and other public service organizations pursue high performance.
About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with approximately 261,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world’s most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$27.9 billion for the fiscal year ended Aug. 31, 2012. Its home page is www.accenture.com.

About Accenture Analytics

Accenture Analytics delivers the insights that organizations need to make better business decisions, faster. Our extensive capabilities range from accessing and reporting on data to predictive modeling, forecasting and sophisticated statistical analysis. We draw on deep functional, business process and technology experience to develop innovative consulting and outsourcing services for our clients in the health, public service and private sectors. At the intersection of business and technology, Accenture Analytics enables organizations to achieve the business outcomes that drive high performance. For more information about Accenture Analytics, visit www.accenture.com/analytics.