



## Puerto Rico's property tax receipts up sharply after TimeXtender and Truenorth implement a data warehouse solution in just 15 days.

Centro de Recaudación de Ingresos Municipales (CRIM) selects Discovery Hub® and Truenorth Corporation to deliver a complete data warehouse and advanced analytics platform.

### TIME MATTERS IN GOVERNMENT

Time matters in government because citizens demand accountability. No citizen wants to see their taxes collected unevenly or spent carelessly. Puerto Rico's government has attracted media attention recently as its citizens inquired about the property tax billing and collecting systems. Early in 2018, just after category 5 hurricane María hit Puerto Rico directly, the property tax authority, "Centro de Recaudación de Ingresos Municipales (CRIM)" launched an initiative to improve its billing and collections processes. This initiative was high profile due to the impact of hurricane María and the associated media attention.

### ANOTHER GOVERNMENT AGENCY SELECTS TIMEXTENDER

At TimeXtender, we are proud to bring you this story because governments large and small have implemented Discovery Hub® with immediate positive results. TimeXtender partners with technology consulting and systems integration firms on every engagement and worked side by side with Truenorth Corporation in Puerto Rico on this project. The CRIM set out to increase its income by at least 10% to satisfy the many needs of its citizens. In order to do this, the CRIM selected Truenorth and TimeXtender to integrate its many data silos.

### THE PROBLEM

Citizens are not naturally enthusiastic about paying taxes. They are apt not to pay if processes and systems are poorly implemented or if they don't believe everyone is paying. In short, in order to work, the tax billing and collection system must be fair and easy to use. The CRIM's potential revenue estimation represents a multi-billion dollars opportunity. Unfortunately, only 22% of these funds are received due to billing and collections problems directly related to the data silos and lack of accurate information within CRIM's many information systems.

### GOVERNMENT

#### CUSTOMER BACKGROUND

- Puerto Rico property tax authority
- Build complete data warehouse and advanced analytics on-site

#### CHALLENGES

- Wide variety of data sources, including
- Oracle databases, SQL databases, and GIS
- On-site requirement for all hardware and software
- Flexibility to meet future requirements

#### SOLUTION & BENEFITS

- Implemented Discovery Hub® and connected all required data sources
- Built SQL data warehouse on-site, with Power BI front-end for visualizations
- Automatically produced data lineage and documentation for agency oversight
- Prototype in place in 2 days, production in 15 days

#### TRUENORTH + TIMEXTENDER

- Truenorth is Puerto Rico's leading provider of strategic technology and management consulting
- TimeXtender's Discovery Hub® automation and machine learning platform prepares and delivers the data needed for any analytics initiative

Truenorth's evaluation of CRIM's data systems identified discrepancies in the properties pending for appraisals, the properties in CRIM's billing system, and the properties in the digital cadastral database.

Truenorth was able to quantify over \$250 million in specific potential yearly gains, representing a 31% increase in revenue:

- Undeliverable invoices due to incorrect addresses or contact information: Close to 117K instances, representing an annual net new revenue of \$117 million
- Returned invoices due to incorrect addresses or contact information: Close to 104K instances, representing an annual net new revenue of \$46 million
- Property improvements that are pending for appraisals: Close to 55K instances, representing an annual net new revenue of \$22 million
- New pools that are pending for appraisals: Close to 28K instances, representing an annual net new revenue of \$7 million
- New properties that are pending for appraisals: Close to 58K instances, representing an annual net new revenue of \$62 million

### THE SOLUTION

Implementing a phased approach, the team brought together several Oracle databases, SQL databases, Hansen software, and a geographic information system. Truenorth and TimeXtender connected these data sources during a two-day on-site proof of concept. Truenorth's solution was then implemented in a multi-phased approach:

- **Phase 1:** Build a data warehouse to integrate the data silos within the CRIM's billing system, appraisals system, and digital cadastral database. This phase also included the development of ETLs to cleanse, transform, and aggregate the data within the data warehouse, in order to be able to perform multi-dimensional analysis and data mining of this data and to develop Power BI reports, with real-time alerts, to visualize the data.
- **Phase 2:** Integrate data from other government agencies (Puerto Rico Aqueducts and Sewers Authority, Puerto Rico Electric Power Authority, Puerto Rico's Treasury Department, Puerto Rico's Department of Health, and Puerto Rico's Tourism Company), in order to identify new income streams and reduce fraud.
- **Phase 3:** The third phase of the solution included support services, in order to notify clients with potential income opportunities, invoicing of clients' recognized debt, customer service activities, and improvements to the payment processes.

The data warehouse will run on Microsoft SQL Server on-premises and the data visualizations will run on Microsoft Power BI. With Discovery Hub® generating the code required for managing these multiple data sources and delivering the data to Power BI, the CRIM team now has the data it needs to address the challenges ahead.

### TRUENORTH AND TIMEXTENDER

Truenorth creates unquestionable value by effectively deploying the most reliable management and technology systems to protect or create revenue, profit, and customer loyalty. As a client centric services firm, Truenorth is recognized for excellence and reliability and providing an exciting work environment for employees, while serving the community with dignity, transparency, and honesty.

TimeXtender's Discovery Hub® enables businesses to make quality decisions faster. Easily merge data from a wide variety of data sources and use agile data modeling to effortlessly build a modern data warehouse and semantic model. Discovery Hub® is a single, integrated, metadata-driven, agile, and automated software platform.



**Using TimeXtender's Discovery Hub, we were able to identify over \$250 million in annual net new revenue by integrating CRIM's data silos, while reducing our development efforts from 9 weeks to 15 days**

**Juan Carlos Chipi, Senior Manager, Truenorth Corporation**

**Let us earn your trust!**  
If you want to know more about our services send us an email to: [info@Truenorth.pr](mailto:info@Truenorth.pr)