

# THE COMPUTERWORLD HONORS PROGRAM

## CASE STUDY



### ORGANIZATION:

City of Houston - ILMS iTEAM

### PROJECT NAME:

OVERLORD (ILMS Transition Project)

### Summary

The City of Houston's PWE Planning and Development Services Division checks plans, issues building permits, and provides inspections for all of the construction projects in the city, which requires lots of data retrieval and cross-checking. If people need information on any house or building in Houston, they come to this department. To streamline planning and development services for this busy government agency, Ken Porter and a small group of IT professionals in the city's Public Works and Engineering department have updated the city's Integrated Land Management System (ILMS)—the primary permitting and inspection application for the City of Houston—with Web-based reporting technology. The new reporting system supports Building Inspections, Fire Marshal, Sign Administration, and many other of the city department's permitting and inspections processes for everything from elevators to dumpsters. Users can now create their own reports, drilling down into the data as required.

### Introductory Overview

Sifting through eighteen years worth of historical data is all in a day's work for the City of Houston's PWE Planning and Development Services Division, Code Enforcement iTEAM. The Building Inspection division issues more than 30,000 permits and conducts about 100,000 inspections per year. Each of these events generates multiple database record that may need to be accessed multiple times. The iTEAM generates reports from ILMS for a wide variety of categories—such as electrical, plumbing, fire codes, public health, and more.

Previously, when users needed this information, the iTEAM had to generate and print unique reports, dealing with cumbersome legacy reporting processes. Today, thanks to a new reporting system and its real-time links to mainframe data sources, authorized users can access this information through simple Web browsers – generating thousands of reports each year with little or no help from IT professionals.

LOCATION:  
*Houston, Texas, United States*

YEAR:  
*2006*

STATUS:  
*Laureate*

CATEGORY:  
*Government and  
Non-Profit Organizations*

NOMINATING COMPANY:  
*Information Builders*



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### Benefits

With help from consultants at Information Builders, the City of Houston created business intelligence templates that can push reports out to users through a graphical user interface. The new reports, constructed with Information Builders' WebFOCUS and iWay technologies, is helping the department reduce costs and simplify end-user reporting processes. With the new reporting structure the iTEAM has achieved two keys goals to provide better information and provide easier accessibility for users to their business information.

Reports are much easier to develop, maintain, and modify than ever before. Already, several of the legacy reports have been retired and the new system has allowed the team to reduce maintenance activities by consolidating an average of fifteen old reports into one new report template. This frees up the staff to focus on other valuable duties.

About 1,200 internal users and many private contractors use the new reporting system to obtain information about city permits and inspections. This number will grow markedly when citizens are granted external access via the Internet. Each user can choose the drill-down path at run-time—all through a standard Web browser—without having to call the iTEAM.

### The Importance of Technology

Hewlett Packard's decision to suspend support for the HP3000 platform compelled Houston's PWE Planning and Development Services division to migrate its reporting activities to a more modern client/server system running a popular relational database. As part of this migration, they looked for a business intelligence platform that could straddle the new and old domains. They selected WebFOCUS as the foundation for their business intelligence and reporting initiatives primarily due to cost, ease of use, and interoperability between the old HP TurboIMAGE database as well as a new relational database. The BI software includes a comprehensive set of data adapters for transforming hundreds of types of data, including data stored in hierarchical TurboIMAGE databases. This made it much easier for the city to create an efficient interface between TurboIMAGE and the new relational databases, where reporting data is now stored.

### Originality

The former reports were static except for a few parameters like date ranges. Thus developers had to create separate reports for each section—for instance, one set of reports for plumbing inspections, another for electrical inspections, and so on. In essence, they had six or eight versions of each report circulating. The new tools allow the team to combine all of these variants into a single report template.

These report templates are the starting point for a group of reports. Each template can then be run for a department, for a certain zip code, a specific permit type, a date range, or a variety of other parameters. Developers at the City embrace the capabilities of WebFocus to access an online analytical processing application(OLAP)and be able to generate the reports without havint to develop multidimensional databases and cubes, denormalize data, or develop complex Data Mart to accomplish the creation of these sophisticated, parameter-driven, HTML web base reports.



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### Success

Previously, the iTEAM had to customize reports for each city section on a case-by-case basis. By using WebFOCUS Report Templates, these professionals have been able to replace many hard-coded reports with a single, lightweight HTML page. This makes it easy for users to continuously slice, dice and filter views of the data—all within a fixed display that preserves corporate standards.

In the future, the department plans to develop other types of self-service applications to help city workers become more independent. Here are some quotes from Ken Porter and his team:

“We can generate thousands of reports with no real impact on our IT costs. Thanks to this efficient Web-based model, we can support an infinite number of users.”

-- Jack Griffin, project and system integrator, iTEAM

“The reports are flexible and robust. Users from any department can view information in a form of their choosing without having to rely on the iTEAM staff.”

-- Jack Griffin, project and system integrator, iTEAM

“Our reporting philosophy is to allow users to make informed decisions and to directly assist their customers. Leveraging the strength of the BI platform, we can follow through with this goal. We are building a superior architecture that delivers savings on an ongoing basis.” -- Ken Porter, project manager, iTEAM

“BI technology has enhanced the value of the applications we have invested in over the years by unifying disparate solutions and increasing the agility and responsiveness as business needs evolve.”

-- Niki Patel, a software developer and project manager at Houston’s Planning and Development Services Department

The users have embraced the change and now are requesting new function and features. The new environment took about 6 months for the users base to warm up too, however now they are pushing the envelope of design.

### Difficulty

At the time that the iTEAM was re-engineering the primary application and rewriting the user interface, they were also learning how to use an ETL tool. It was a big job for such a small team. They had to redevelop and migrate a stable legacy OLTP application, databases and sub-systems from an HP e3000 running MPE/iX to a relational database in a Unix environment—all while maintaining the old reporting system. This involved recreating numerous legacy reports and transforming them into interactive reports with drill down capabilities, so they could be accessed directly by business users.

Part of the difficulty came with making the transition from hierarchical to relational data types. Information Builders helped the team to redesign the database and arrive at best practices earlier than they would have on their own, according to Porter. Additionally, the BI software was fairly easy to learn and it enforces good relational theory, which helped the City to optimize the structure of the database.



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The total cost to migrate ILMS to another platform with new reporting tools and hardware was a sticker shock for uppermanagement. Their fears were abated by comparing alternate applications, the cost required to purchase multiple applications since no one application could do everything that ILMS current does, integrate those applications, performing the modification to the applications to adhere to the City Ordinance, business process, and connect to support applications were far more expensive than our conversion approach. On top of those costs was the costs and time involved in writing conversion programs to migrate 18 years of data to another data structure and applications. Finally, a cost often not taken into account was the cost of training department personnel in the use of new applications. Additionally, WebFocus was the only reporting tool that was able to report data from our Turbo Image Database and the new relational database; therefore, if a report was run against both systems and the data was the same, then we had proof that the data migration was successful.