E-GOVERNMENT CASE STUDY

Home Application and Fulfillment System (HAFS)
Project Information

<table>
<thead>
<tr>
<th>Case Study</th>
<th>Ministry of Housing</th>
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<tr>
<td>Country</td>
<td>Republic of Trinidad and Tobago</td>
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<tr>
<td>Project name or title</td>
<td>Home Application and Fulfillment System</td>
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<tr>
<td>Target Group(s)</td>
<td>Citizens and Stakeholders of the Ministry of Housing</td>
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For four [4] decades the Ministry of Housing, via its executing agencies, the Trinidad and Tobago Housing Development Corporation (HDC) formerly NHA, the Land Settlement Agency (LSA) and the Sugar Industry Labour Welfare Committee (SILWC) provided homes for citizens using a manual application process. The production and subsequent distribution of homes used a first come first serve application process, together with a separate distribution system for citizens in critical need of homes.

During this time, in an effort to meet the high demands for housing, the Government constructed homes and provided land for construction guided largely by the availability of land. As a result, the locations and types of homes constructed did not always meet the preference of our citizens. Although functional, this system resulted in a growing administration problem in the storage and handling of vast amounts of records on paper. The manual application and retrieval systems were very time consuming and labor-intensive for the relevant executing agencies.

In addition, given that the records were becoming increasingly difficult to manage, the agencies were finding it challenging to identify key supporting information to determine housing demand and effective demand. In other words, the Ministry could not accurately determine the number of persons in need of government housing, the specific types of housing desired and the preferred location. Also, the profile of the average applicant in terms of basic demographics and financial information was not readily available.

Evidence of this can be found in the Report of the Task Force on Housing and Settlements, 1992 which states that:-

“5.1.1 A Comprehensive policy on housing and settlement must address the needs of all segments of the population. However, globally estimated needs can only be regarded as a desirable goal for the country. .... In other words, estimates of housing needs are only useful as indicators of overall aspirations, but must be converted into ‘effective demand‘ projections for the purpose of realistic policy formulation.”

“5.1.5 Up-to-date data, structured to provide relevant inputs for policy formulation and implementation were not readily available. Without such data on the housing market
demand, policy tended to be intuitively derived and would not necessarily remain consistent and fully effective."

The aforementioned findings highlighted the need for the acquisition and maintenance of information about Home Applicants that would facilitate the determination of the Effective Demand for the Ministry’s Housing Products.

Based on the above, three [3] main questions then became the focus of Information Technology Strategic Planning:

- Could the Ministry determine housing needs?
- Could effective demand be determined?
- How could technology assist in the efficient and effective management of the application and allocation processes of housing solutions?

It was evident that a transformation of the application process was critical and the Ministry of Housing in 2002 contracted an Information Technology Team for, *inter alia*, this particular undertaking. This team began to review the existing system and explored the use of Information Technology to change the form and manner of the acquisition, processing, storage and retrieval of information, into an efficient and effective system.

Following an analysis of the business requirements and an investigation into available software solutions, it was concluded that the requirements of the executing agencies were so unique that no turnkey solution could be found to provide the functionality that matched the requirements.

In 2003, the contracted Information Technology Team developed a comprehensive solution to address the challenges faced by the Ministry and its agencies. The result was the *Home Application and Fulfillment System (HAFS)*.

**ABOUT THE HOME APPLICATION AND FULFILLMENT SYSTEM (HAFS)**

The Home Application Fulfillment System (HAFS) is a computer application that revolutionizes the way in which the Ministry of Housing and its agencies interact with the citizens of Trinidad and Tobago. It facilitates the recording of individual citizens’ housing applications with the Ministry’s executing agencies, submitted via hand-written forms, on-line through the Ministry’s Intranet (kiosks), and on-line through the Internet.

**AREA OF APPLICATION**

HAFS is designed specifically to cater for the needs of governmental housing agencies that provide new homes, rental units, regularization of squatters, Inter-American Development Bank funded subsidies and Government housing grants.

**MAIN FEATURES OF HAFS**

Registration and Application Processes

The application process is a two step procedure – i) registration of applicants and ii) generation of an application record. Firstly, a record is created for each applicant that contains the relevant personal information. Secondly, an application record detailing the
housing solution preferences of the applicant(s) is generated to which a principle applicant and a maximum of two co-applicants can be attached. This separation of the applicant and application details ensures that duplicated information is minimized.

As part of the registration process, a user account consisting of a unique username and password is created for each applicant to facilitate future access to the system enabling them to view the status and/or update their application at any time via the Internet. The system facilitates privacy for every application in that no applicant can view the details of another application. A unique application reference number is generated each time an application is received. This reference number is used to track an application through the system.

Random Selection
An important functionality of HAFS is the ability to do a ‘Random Selection’ draw. This selection is undertaken using set criteria, which are used to pre-qualify an applicant for a new home, IDB grant or government grant. The process is completely transparent and ensures that integrity is maintained throughout the selection process.

Automatic identification of family income
Given that government is focused on providing homes for low and middle-to-low income families, HAFS was designed to support government’s Housing Allocation Policies in that respect. The basic criteria used to determine eligibility / qualification for a home can be set to generate a list of families in particular income brackets.

Allocating Alternative Housing
HAFS has a built-in facility to easily transfer the housing applications that do not qualify for a new home mortgage to an application for a rental accommodation.

Matching Preferences
Based on an applicant’s housing solution preferences and financial profile, the system searches all solutions and generates the best matches for the selected preferences.

Applying On-line
On the Ministry’s web site, an applicant can view maps showing the location, by region, of housing development sites. Applicants can view a map as a guide to inform where they prefer to live when selecting their housing solution preferences.

Automatic Pre-Qualification Process
The system can financially pre-qualify an applicant automatically, once the relevant financial data is captured. Upon electronic submission of a completed application, an applicant can view his/her application to determine whether or not he/she has pre-qualified for a home of the value selected.

HAFS via the Internet and Intranet
HAFS can be accessed via the Internet through the Ministry’s web site at www.housing.gov.tt or through its Intranet via kiosks located at the Ministry and its agencies. These kiosks provide ease of access to members of the public who have no
access to the Internet, and/or to personnel to assist them in completing on-line applications. It is proposed that a number of kiosks will be deployed throughout Trinidad and Tobago at community centers and at other public sector agencies in a bid to provide wider access to the general public.

**GIS Technology**

The use of Geographic Information Systems (GIS) Technology to model HAFS data, allows sophisticated analysis of housing demand.

**HAFS OBJECTIVES**

The business objectives of the Home Application Fulfillment System are:

1. To provide the Ministry with more accurate data on Housing Solution Demand, ensuring that Government’s Housing Policy better serves the Citizens of Trinidad & Tobago.
2. To facilitate more efficient and transparent modes of processing Home Solution Applications.
3. To facilitate the allocation of alternate Housing Solutions to Applicants not qualifying for New Home Mortgages.
4. To facilitate the analysis of home application information in order to determine the effective demand for housing.

**IMPACT / RESULTS**

HAFS has facilitated the tracking of home solution applications, home solution selection and the analysis of housing solution demand. With the available statistics on current demand for housing provided by HAFS, the Ministry has been able to take effective measures and actions to facilitate the provision of housing units that will in time satisfy/meet the current demand, which as at August 2005 stands at approximately 70,000. More specifically, HAFS facilitates:

- Easy retrieval of application information;
- Elimination of duplicate applications;
- Restriction of one application type per applicant;
- Enforcing adherence to established housing policy and procedure;
- Provision of accurate housing statistics;
- Improved customer service; and
- Facilitation of submission of an application to the Ministry from any part of the world by citizens of Trinidad and Tobago

**The Web Site**

As at November 2005, 119,482 applications were received for various housing solutions and stored in the HAFS database of which 3,357 were received via the Internet.

The Ministry’s web site shows over seven thousand (7,694) hits (i.e. over seven thousand visits to the Ministry’s website) since its launch in July 2004.
On-line facility

The public has access to email addresses of the Ministry and its agencies via a contact page on the Ministry’s web site. This facility has been, and continues to be used by the public for submission of their queries and concerns. The Ministry’s HAFS support team, together with personnel in the Communications Unit, are responsible for responding to both on-line and telephone queries pertaining to the Ministry. In addition, each agency has its designated contact person and email address in order to provide a similar service. Feedback from the general public on the services provided through our on-line facility is complimentary.

Providing Statistics

In a bid to provide the Ministry with relevant up-to-date information for decision-making, HAFS has a Statistics Query/Print screen which shows quantifiable statistical summary data on applicants:

<table>
<thead>
<tr>
<th>QUERY</th>
<th>STATISTICS</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>Physically challenged - 528</td>
</tr>
<tr>
<td>Age by Region</td>
<td>Protective Services - 13,953</td>
</tr>
<tr>
<td>Age by Income</td>
<td>Public Service - 9,886</td>
</tr>
<tr>
<td>Income</td>
<td>Disaster Victims - 54</td>
</tr>
<tr>
<td>Income by Region</td>
<td>Other - 45,873</td>
</tr>
<tr>
<td>Single applicants (Male and Female)</td>
<td></td>
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<tr>
<td>Single applicants by Region</td>
<td></td>
</tr>
<tr>
<td>Current Residence VS</td>
<td></td>
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<tr>
<td>Requested Residence</td>
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TOTAL OPERATING BUDGET

The Home Application Fulfillment System (HAFS) project was funded from Government’s Public Sector Investment Programme (PSIP) in the amount of five hundred and sixty-eight thousand, two hundred and sixty Trinidad and Tobago dollars (TT$568,260.00).

The Home Application Fulfillment System is maintained by the Information Technology Department of the Ministry of Housing and as a result, the operating budget is subsumed in the budget for Computerization of Activities, Ministry of Housing.

KEY ISSUES ENCOUNTERED DURING IMPLEMENTATION

1. Conversion of existing application data highlighted poor data integrity and rendered many application records unusable.
2. System bugs that resulted in the deletion of existing applications.
3. Poor system performance at data entry peak times.
TARGET GROUPS

- Citizens of Trinidad and Tobago.
- Ministry of Housing and its executing agencies.
- Settlements Department – Division of Tourism, Transportation, Enterprise Development. and Settlements, Tobago House of Assembly.
- Trinidad and Tobago Mortgage Finance.
- Contractors/Developers – HAFS can provide information to contractors in terms of housing demand for specific categories of citizens. Armed with this information, contractors can undertake to partner with the Ministry in the development of their housing programmes.
- Banking Institutions in Trinidad and Tobago - HAFS can provide the banking institutions with financial information on potential home owners which can then form the basis on which contractors participating in the Ministry’s housing programme can access funds for development of housing sites.

LESSONS LEARNED

The Test Plan’s coverage of the application did not extend beyond the basic functional and system testing of the client/server environment. Little emphasis was placed on demonstrating the application’s speed (performance), reliability and scalability. After the bottlenecks and poor performance encountered during peak times, the system test plan was amended to incorporate the following tests, for all future systems implementation:

- Performance – identifies functions in the application that can result in bottlenecks;
- Load – measures how the application handles large tasks;
- Stress – examines the application behavior under peak periods of activity; and
- Scalability – examines the application’s behavior when increasing the number of concurrent users to establish the threshold for failure.

AWARD WINNING

The Home Application and Fulfillment System (HAFS) won the Prime Minister’s Innovating for Service Excellence Award for 2005.