

TTS IMPACT

Robust evidence-based tool created from efforts to modernize application processes using advanced analytics

The U.S. Department of Housing and Urban Development (HUD) partnered with GSA's Federal Acquisition Service Technology Transformation Services (TTS) to streamline application processes using advanced analytics.



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT'S STORY

The mission of HUD is to create strong, sustainable, and inclusive communities and quality affordable homes for all. HUD is working to strengthen the housing market to bolster the economy and protect consumers; meet the need for quality affordable rental homes; utilize housing as a platform for improving quality of life; build inclusive and sustainable communities free from discrimination; and transform the way HUD does business.

HUD has focused on modernizing its aging technology to transform how it operates across the agency and within its programs. Making the Office of Lead Hazard Control and Healthy Homes' grant process more efficient and effective for grantees and HUD staff closely aligns to those overall modernization goals.

On average, HUD distributes between 130 million and 390 million in grant dollars each year and measures housing units that benefit from lead remediation as one of the measures supporting the lead strategic priority. In addition, HUD currently has an outstanding unknown liability in terms of potential lead hazards in HUD-owned properties. Prior research has demonstrated that the return on investment for lead poisoning prevention and mitigation dollars versus treatment is four dollars for every one dollar spent on lead hazard control. As a result of this engagement, HUD intends to systematically quantify and more effectively disseminate lead risk and lead remediation opportunity in order to (1) better understand HUD's own liability relative to emergency lead remediation in its properties, (2) ensure that grant dollars dispersed are targeted geographically to maximize the number of households and the number of children under six years of age who benefit from HUD-funded lead grants, and (3) drastically reduce the time to review lead hazards in specific municipalities.



THE CHALLENGE

Lead-based paint poisoning is a major concern for HUD as it administers major affordable housing and homelessness programs across the country. Lead-based paints were used significantly in homes before 1978 and can cause brain, kidney, nerve, and blood damage, especially in young children.

HUD offers grants for lead-based paint hazard control, but the majority of those applying for the funds lack the domain and data knowledge to accurately quantify the risk of lead-based paint in their jurisdiction. Upon receipt of funds, grantees lack the robust support to effectively target funds for remediation.



THE SOLUTION

In an effort to modernize grant application review and resource targeting, HUD found collaborators within the agency with completed research to consider utilizing beyond program implementation needs. HUD identified that there was a need to consolidate the multiple federal reports of lead exposure data to fulfill the Federal Lead Action Plan, which is a cross-agency collaboration to reduce and eliminate lead exposure.

The collaboration had already implemented an effort to utilize publicly available data (obtained via the census) to streamline grant review and scoring, and to ensure high-need areas were prioritized to receive funding. HUD staff created a hybrid of that tool and the DPI (Deteriorated Paint Index), incorporating verified and published research from HUD's Office of Policy Development and Research (PD&R). The Housing and Lead Index aims to create a consolidated lead data mapping tool on which HUD could overlay assets and resources for both public and internal stakeholder risk and resource analysis and targeting.

The Centers of Excellence (CoE) team came in with resources to contribute their advanced analytics technology to the project and brought it to life. Collaborating with CoE allowed the perspective of opportunities to grow, and there are phases of data HUD could add to the tool to make it robust. HUD was also able to incorporate additional affordable housing risk factors into the tool, such as carbon monoxide and radon exposure.

Due to the high-quality estimate base in the DPI, HUD is proposing to pursue additional research with the Department of Education to further verify the DPI and assist in targeting resources for special education resources in high-risk and high-need areas. We have been accepted into the American Public Health Association for presentation of the tool and have applied to the Financial Management Innovation Partnership to seek additional resources for research and development of the HUD Housing and Lead Index (HaLI) Tool for additional phases.

For the tool to be user friendly for multiple stakeholders, its user interface must be designed for the default selections and present the data appropriately. CoE offers many technology options to make that a reality outside of HUD resources alone. The collaboration also ensures the data is coded and clean for inclusion in the tool and that there is the general capacity to focus on producing the tool deliverables over other assignments beyond HUD staff.



THE IMPACT

As a result of this work, the partnership created a more objective and less time-consuming application process that reduced processing times by 50 percent from 48 hours to 24 hours. It also helps grantees improve the speed and targeting of lead remediation funds upon receipt. A future internal-facing tool will accurately quantify HUD's risk of lead paint across the country.

Beyond the grant program, this tool combines multiple federal and or public reports on lead resources and exposure into a single index with a public interface that leverages a verified tool for estimating the local housing stock's lead exposure risk. The public interface brings data to the public's door, from the families who live in each community to the city, state, and federal collaborators who plan and target their resources based on evidence of need to promote and protect affordable housing across the nation.

The tool is a prototype at this stage and it is receiving recognition across the government innovation community. It is being recognized for what it can do before HUD can demonstrate the full scope of the data delivery and use across stakeholder groups. Others can recognize the innovation and need for the tool just based on the idea and sample.

Staff is still collecting data and formulating partnerships for data sharing and team creation so that the data is ready for the next phase of tool development. They have applied for additional competitive resources to broaden the scope and use, as well.

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