Industrial Water Efficiency Search Tool

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Organization Background

The Metropolitan Council is the policy-making body, planning agency, and provider of essential services for the Twin Cities metropolitan region. Their mission is to foster efficient and economic growth for a prosperous region. Metropolitan Council Environmental Services (MCES) is tasked with managing water and wastewater within this region, including water supply planning. The Minnesota Technical Assistance Program (MnTAP) is an outreach program focused on preventing pollution and maximizing resource use efficiency in the form of no-cost technical assistance. MCES and MnTAP have been collaborating on industrial water efficiency projects in the metropolitan region since 2012.

"This summer has been a great opportunity to go through the entire development process, starting from research through publication. I was also very lucky to have the the chance to directly apply my skills in data science to sustainability." ~ HP

Project Background

In 2020, Bethany Mestelle analysed MnTAP's database of water related suggestions made during intern projects. She categorized the suggestions according to function:

- **map** - build a water use map of a facility
- **maintain** - return operation to original performance
- **manage** - perform the same operation more efficiently
- **modify** - re-imagine how water is used in a process

This previous work identified specific high value suggestions across many industries. The current project built on the 2020 effort by developing a search tool for the database created in 2020. The goal of this work is to allow users to search the database collection of industry-specific water efficiency recommendations to identify high volume, high value efficiency options for replication in their own facilities. A key feature of this work was to allow public access to the various water efficiency ideas while maintaining confidentiality of the businesses originally receiving the recommendations. The developer was successful in meeting both objectives by researching available data management programs.

Tool Development

The Industrial Water Efficiency Search Tool has been built on the data visualization platform Tableau, a platform which allows developers to build visualizations for users trying to understand relationships within a set of data. The application is especially useful for Tableau because it integrates with Salesforce, a client relationship management system that MnTAP has been using since 2012 to store suggestion data, review past work and track implementation progress.

The Industrial Water Efficiency Search Tool itself consists of a filterable table which displays statistics and details which meet the criteria for this project. This includes the title of each suggestion, savings and cost data, the method of implementation, the industry sector, and a link to the executive summary for each project where the suggestions originated.

Filters are included in the navigation pane (see Figure 1) to allow users to search through suggestions for specific information. Search features include searching by:
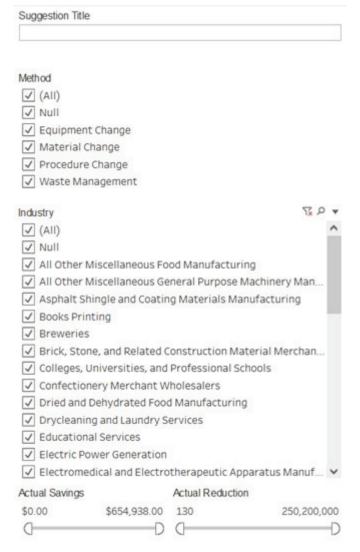
- industry sector
- method of implementation
- key words in a process or function.

Each suggestion has a link to an executive summary that provides more information about the project that generated the water efficiency suggestion. The summaries can provide valuable detail for replication of the idea.

The following figure shows the Industrial Water Efficiency Search Tool Interface.

Figure 1: Industrial Water Efficiency Search Tool Interface

Results

The Industrial Water Efficiency Search Tool provides a new and useful way to search through MnTAP's database of previous suggestions made during intern projects

dealing with water efficiency. This data has been chosen to link users with publicly accessible executive summaries as a way to preserve confidential information contained in many of the recommendations for general technical assistance activities. It allows users to filter by industry and retrieve well-defined water efficiency actions that have been suggested and in many cases implemented in an industrial setting. It also improves the accessibility of publicly available MnTAP data, specifically by linking the executive summaries of projects to searchable data on savings in industry categories. This tool can provide an easy-to-use source of information to expand the impact of each MnTAP Intern Project far beyond the company where it was first recommended or implemented. The tool is available at http://www.mntap.umn.edu/resources/tools-calculators/water-tool/.

Next Steps

There is great potential to expand the Industrial Water Efficiency Search Tool. Similar tools could also be developed for other areas for which MnTAP provides technical assistance and makes client recommendations, such as energy conservation and waste management.

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