Enhancing Accessibility: Real-Time Capacity Tracking for Shelters and Resource Centers

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Executive Summary

Access to Essential Resources

- Getting accurate information about key resources like food, water, and shelter is still a major challenge - for both people in need and the organizations trying to help them.
- This places added pressure on social workers who often have to bridge the gap between limited systems and urgent client needs.

Real-Time Capacity Tracking

- Real-time capacity tracking is the practice of keeping information about things like beds, supplies, or staff updated almost automatically, so decisions can be made using the most current data.
    - An example of real-time capacity tracking is monitoring passenger flow on public transportation, like trains and buses, using sensors and mobile phone data to help optimize routes and schedules.
    - In a real-time system, refreshing a website would instantly show updated information about resource availability, such as the number of shelter beds available that night.
- This helps services run more smoothly and makes it easier for people in need to find and access the help they're looking for.

The Florida Resource Map

- The Florida Resource Map (FRM), created by Florida Community Innovation (FCI), is a pilot tool that helps social and community workers find and manage information about local resources like food, shelter, healthcare, and education.
- An in-development version of the map is available at floridaresourcemap.org. This updated version features a modern design, mobile compatibility, an improved database, and new data fields - such as services offered and next steps - based on user feedback. FCI is also making ongoing improvements based on input from community workers in Holden Heights, a neighborhood in Orlando.

Why Integrate Real-Time Tracking into FRM?

- Integrating real-time capacity tracking could improve the FRM's effectiveness by providing continuously updated details, like current bed availability at shelters or food distribution schedules at food banks, all visible on a web interface.
- This would make it easier for individuals to get the information they need.

Challenges to Implementation

- Challenges remain in implementing this feature due to wide differences in how community organizations manage their data.

- For example, some organizations rely on manual, first-come-first-served systems or social media updates, while others use custom databases that still require manual data entry and spreadsheets.
- Smaller organizations may need additional training and resources to build out and maintain real-time systems.
- Because real-time capacity tracking is a relatively new concept in the social services sector, implementers may need to spend significant time developing, testing, and standardizing update protocols.
- These delays show how real-time systems sound great in theory but can be hard to put into practice - especially when things get busy, like during cold weather or an emergency.

Case Study

- This study, conducted from October to December 2024, explores implementation challenges through interviews with two Florida-based organizations. The Crestview Area Shelter provides shelter and outreach services and currently shares bed availability through Facebook posts, as it does not yet have a back-end system for real-time updates. The Food Bank of Manatee manages food distribution using a manual data system, which can sometimes lead to delays in sharing timely information with partners and clients.

Insights and Findings

- This paper highlights the importance of real-time capacity tracking and centralized systems like the Homeless Management Information System (HMIS)- a federally mandated platform that helps service providers understand where clients have already accessed support and coordinate care accordingly - while also identifying challenges faced by smaller organizations that rely on manual or less automated processes.
- Both the Crestview Area Shelter and the Food Bank of Manatee have strong community missions and are actively exploring ways to improve their use of technology. Enhancing digital tools could further support their efforts to distribute resources efficiently and assist clients more effectively.
- The paper emphasizes the importance of systems that are flexible, user-friendly, and designed to meet the needs of people experiencing vulnerability. For example, platforms should work well on mobile phones, not require fast internet or advanced technical skills, and allow staff with limited time or training to update information quickly. These systems should also consider individuals who may not have reliable access to Wi-Fi, identification documents, or stable addresses.
- Our study suggests that adopting real-time data systems, improving data management practices, and addressing funding challenges - such as limited budgets for technology upgrades, staff training, and ongoing maintenance - could strengthen service delivery, improve coordination, and increase overall impact.

Introduction

Easy access to essential resources like food, shelter, and healthcare is still a challenge for many people experiencing vulnerability. One reason is the lack of real-time information about what's available. Without it, people often face delays, confusion, or dead ends when trying to get help.

Real-time capacity tracking helps solve this problem by providing up-to-date information on things like open beds, available meals, clinic slots, staffing, and supplies. This allows service providers and the public to see what is available right now so they can respond faster and more efficiently. Instead of relying on outdated lists or making a bunch of phone calls, people can get the help they need when they need it (Magnetic).

By continuously monitoring and updating resource availability, real-time capacity tracking provides valuable insights into service capacity and accessibility. Applying this technology to social services- such as tracking food bank inventory, shelter availability, and other critical resources - can improve efficiency and better support those in need. Transitioning from paper-based or shelter-specific data to a shared online database would further enhance regional collaboration, making resources more accessible and offering users a convenient, centralized tool to find the services they require.

One example of a platform that would be improved by real-time capacity tracking is the Florida Resource Map (FRM). The FRM is a digital platform designed to connect Florida nonprofits with beneficiaries and social workers.

There are two versions of the FRM: the original version at https://floridaresourcemap.org, which features resources from community foundations, local governments, and agencies; and a new version in development at https://dev.floridaresourcemap.org, currently being piloted in a neighborhood in Orlando. This version aims to connect vulnerable populations with essential services based on their location and find local programs for food, housing, health care, financial assistance or more.

This interactive tool allows users to discover nonprofit organizations and understand what services are provided. By integrating real-time capacity tracking, the FRM could provide live updates on resource availability, such as open shelter beds or available food supplies, ensuring users get the most current information. This would make it easier for individuals to find immediate assistance, reducing wait times and ensuring they can connect with the right services when they need them.

Integrating real-time capacity tracking at shelters and resource centers can be difficult. Challenges include different ways community organizations manage data, varying levels of technology resources, and the time needed to update information manually. Securing support

from shelters and standardizing data collection methods requires time, effort, and coordination, in addition to time spent serving their clients.

To understand these challenges, FCI, a nonprofit organization dedicated to improving resource accessibility in Florida, has partnered with students from the Reach Consulting Group at the University of Michigan. This collaborative project from October 2024 to December 2024 seeks to assess the technical capacity of shelters and explore strategies for integrating real-time updates into the Florida Resource Map.

Our team focused on gathering insights through interviews with local homeless shelters and food banks to understand current data management practices and barriers to real-time tracking. A review of academic literature on shelter data collection provided additional context on past efforts. The project aims to lay the groundwork and conduct research to understand the potential improvements real-time capacity tracking can bring, as well as to determine the best approach for its implementation.

Key Takeaways

- Real-time capacity tracking is crucial for improving efficiency in social services by providing up-to-date information on the availability of resources like food, shelter, and healthcare. This can help allocate resources more effectively, ensuring better support for people in need.
- Implementation of this system in shelters and resource centers faces challenges such as inconsistent data management, limited technology resources, and delays in manual updates. Overcoming these barriers requires standardizing data collection, enhancing technical readiness, and building strong support among stakeholders.

Interviews

We began by reaching out to homeless shelters and food banks in Florida. The interview questions included the following:

1. Could you give us a summary of the organization?
2. What are some of the key services your shelter provides?
3. How are services managed through your technology systems?
4. How do you update your data? (ex: shelter bed availability, food bank resources)
5. Where is this data stored?
6. Do you have a team working on data management? If not, who manages the information?
7. Does your organization have a website and how is it managed?
8. If the interviewee is familiar with website management:
    a. What is used for the backend of the website?
    b. Is real-time data reflected on the website?
    c. How often is it updated?

Crestview Area Shelter

Our first interview was conducted with the Crestview Area Shelter located in Crestview, Florida. The Crestview Area Shelter serves 10-25 people at a time and is the only homeless shelter in the Crestview community. This shelter was selected for the study because of its balanced attention to homelessness and its ability to provide both short-term and long-term assistance.

The shelter's goals focus on two key areas: providing immediate outreach and offering long-term residential stays. Outreach services are available on Mondays, Wednesdays, and Fridays. These services include showers, clothing, medical care, prescription aid, and legal assistance for Social Security and IDs.

The residential on-site program consists of an eight-room dormitory with double-bunk beds and accommodation for families. Residents can stay for up to a year, depending on compliance with

the shelter's rules and case management plans.

The shelter uses a low-barrier model, removing obstacles like proof of identity, sobriety, or employment so that community members can access services without discrimination. These free services provide a crucial safety net for vulnerable populations. The shelter also operates a cold night program, opening its dining room as an emergency shelter during cold weather.

The Crestview Area Shelter availability is handled on a first-come, first-serve basis, so walk-ins must check in person or via phone for availability. While updates on services are posted on the shelter's Facebook page, its official website only provides general information, such as location and hours of operation.

The website currently does not provide real-time updates on bed availability, and there isn't an automated system in place to do so. This can make it harder for the shelter to share timely information with those who need it.

Relying on external systems presents challenges for maintaining sustainable and accurate public data over time. Additionally, without immediate access to updated information, it can be more difficult for individuals to quickly connect with the services they need.

The Food Bank of Manatee

Our second interview was conducted with the Food Bank of Manatee, located in Bradenton, Florida. This organization was chosen due to its significant role as the largest hunger relief network in Manatee County. It supports 105 partner agencies and 300 people daily to address food insecurity and provide critical resources to the community.

The food bank's collaborative, community-driven approach is another reason for its selection for this project. By partnering with local agencies, it ensures effective resource distribution and support for vulnerable populations, showing how data can improve coordination and overall impact in similar organizations.

Established in 1972 during Hurricane Milton, the food bank offers diverse services and operates under Meals on Wheels PLUS, which is an organization that provides meals to seniors who cannot buy their own due to health or mobility issues. These services include home-delivered meals for seniors over 50; a friendship dining program that provides meals and activities for older adults; and an adult day care center called Daybreak, which supports individuals with dementia who require constant supervision.

The organization also tackles broader community issues, including jail rehabilitation programs, emergency food assistance, and specialized resources for young women escaping human trafficking. However, the organization occasionally encounters challenges in sustaining and expanding its grant-funded programs, government support, and fundraising efforts.

The food bank's strong reliance on community volunteers to manage 71 meal delivery routes (down from 90 during the pandemic) shows both the importance of local support and the ongoing need for additional resources.

The organization's data management system also made it an ideal choice for our study. The food bank uses an internally developed Agency Information Management System (AIMS) to track donations and distribution of resources with staff inputting data manually into the system.

A hired programmer handles the more complex tasks, while other tracking, like barrel collections, is done using Excel spreadsheets. These systems rely heavily on manual data entry, highlighting opportunities to boost efficiency through updated tools and automation. In addition, using multiple systems to track data can create challenges for efficiency and organization.

The food bank manages its own website, which allows them to quickly update information about services, hours, and resources. This ability to share real-time updates is a key strength. However, there can still be delays when sharing information with partner organizations.

Looking at how the food bank handles both internal and external communication helps us understand how technology and systems can support mission-focused groups in keeping their

information up to date.

Key Takeaways

- The Crestview Area Shelter currently has opportunities to improve data transparency - especially around bed availability - and could benefit from automated, real-time updates to a centralized, accessible location to help reduce uncertainty for individuals seeking shelter.
- The Food Bank of Manatee manually inputs data into AIMS for resource tracking and uses Excel spreadsheets for other items, presenting an opportunity to improve efficiency by adopting a centralized real-time capacity tracking system.
- Both organizations could enhance service delivery by strengthening data management and incorporating real-time updates through better integration of internal and external data systems. Additionally, the food bank's continued reliance on grants and volunteer support reflects the important role of community resources, while also highlighting ongoing funding challenges that complicate the adoption of real-time capacity tracking.

Research

Primary Research: Interview Findings

The Food Bank of Manatee shares key goals with Homeless Management Information System (HMIS)-supported organizations discussed in Shelterforce (2003) and the Harvard GovLab study (2020). These shared goals include improving resource allocation, streamlining service delivery, and addressing community needs.

The food bank manages its operations through an internally developed AIMS, which tracks incoming donations and outgoing resources across its 105 partner agencies.

However, unlike HMIS, which supports real-time data tracking, centralized analysis, and coordinated care, the AIMS system used by the food bank relies on manual updates, staff input, and external programmers (Shelterforce, 2003). This lack of automation can limit the food bank's ability to respond quickly to changing needs and highlights the opportunity for modernization through enhanced technology infrastructure.

A key strength of the food bank is its in-house website management, which allows for timely updates on services and resources. However, the food bank's manual updates can still cause external communication delays. Integrating the AIMS database with its website could streamline information sharing and improve transparency for users.

Funding constraints further hinder the food bank's ability to upgrade its systems or expand services, reflecting broader challenges shared by many community organizations with limited capacity.

Secondary Research: Literature Review Findings

Future work should focus on understanding how the systems and logistics used in homeless services affect people experiencing homelessness - and how those effects might differ based on things like race, gender, or family situation. The goal is to use what we learn to suggest fairer policies and improve how information is collected and used in these services.

In contrast to the insights gathered through interviews, this literature review sheds light on the practical challenges of recordkeeping in homelessness services. Focusing on the experiences of social service workers reveals that most shelters lack the technology to track information in real-time, making it difficult to provide effective support.

Workers emphasized the need for more flexible systems that prioritize gathering information directly from clients, rather than relying solely on rigid bureaucratic processes. They also stressed the importance of consulting with displaced individuals to better understand their

needs and determine what would create the best user experience for them.

Designing systems that are not only functional but also accessible and user-friendly for unhoused individuals is critical to ensuring these tools effectively serve the people who need them most. These findings highlight the importance of balancing accountability with accessibility and care in recordkeeping practices.

By examining diverse perspectives, we can identify major themes related to data tracking, issues that shelters face, and strategies for improvements.

Data Management

Both primary and secondary sources emphasize the importance of secure and centralized data storage.

While the food bank's AIMS system tracks resources effectively, HMIS systems utilize Continuums of Care (CoCs) - homelessness-preventing partnerships - to manage secure databases that enable broader coordination across agencies (Shelterforce, 2003). Transitioning to a more centralized and automated system could enable the food bank to streamline its operations in line with HMIS-supported shelters.

Recordkeeping, Logistics, and translation: a study of homeless services systems as infrastructure (2023) explores how recordkeeping in homeless services plays a critical role beyond accountability. It emphasizes its role in facilitating the efficient movement of unhoused people through the system, a process referred to as logistification.

While logistification aims to speed up service delivery, it often compromises the ability of social service workers to provide meaningful care to their clients. Many social service workers felt that this shift diminished their professional expertise and limited their ability to fully support clients. Social service workers, especially those with direct client interactions, expressed the importance of personal investment in care.

The pressure for efficiency led them to develop informal practices, such as "translation work," which helps navigate the disconnect between the bureaucratic system and the lived experiences of unhoused people. These efforts helped workers affirm their clients' humanity and provided some flexibility in an increasingly rigid system.

Despite their efforts, the infrastructure of recordkeeping remained strained. Delays in processing applications, incomplete paperwork, and other administrative failures often had serious consequences for clients' access to housing and services.

These issues underscore how small administrative failures can greatly impact people's lives.

Record Keeping

Effective data tracking and recordkeeping are essential to providing essential and effective services inside homeless shelters, as emphasized in both primary and secondary sources. Keeping accurate, timely records helps allocate resources efficiently, support clients, and maintain accountability.

While secondary research advocates for computerized systems that mirror operational processes, interviews with Crestview Shelter staff revealed a more complex reality.

Crestview tracks bed availability daily and accepts applicants in the order they arrive, which means people often find out about bed availability only when they arrive.

Unlike larger shelters with centralized databases, Crestview shares updates primarily through Facebook and walk-in inquiries. This approach can make it harder for individuals without reliable internet access or familiarity with social media to get timely information.

While some shelters have adopted real-time systems, Crestview's limitations highlight the technological gap between smaller community shelters and larger ones. Both sources mention common manual workarounds, such as calling shelters to check availability or relying on informal communication, stressing the urgent need for more integrated, real-time systems.

Both sources identified data systems' accessibility as an essential factor. The secondary research highlights the need for current systems to accommodate the different requirements of clients, particularly those lacking technology access or experience.

Interview Limitations

Additionally, primary interviews indicate that the Crestview Shelter's website is managed by volunteers and currently provides basic, static information such as location and contact details.

This differs from the recommendations found in the secondary research, which suggest the benefits of a user-friendly, mobile-compatible, and frequently updated system. Without timely updates, individuals seeking shelter often need to visit in person or call to check bed availability, which can create challenges in service access and cause delays.

The manual, in-person, first-come-first-served model does have its benefits. It affords greater "real-time" flexibility in emergencies, such as openings during inclement weather when space in the shelter dining room is immediately converted into supplemental sleep space. The ability to adapt quickly and make decisions in real-time with the tools available to them is often absent

when these processes are digitized at a larger scale.

Secondary research supports this point: flexibility and a person-centered approach are vital in addressing the complex and unpredictable needs of the homeless population. While manual systems may prove unwieldy, they also afford staff the chance to provide more individualized support to their clients, a circumstance often lost in fully automated systems.

Infrastructure Limitations

Infrastructure challenges are a recurring theme in both sources. The secondary research highlights how older data systems across agencies can create barriers to housing and slow down services.

At Crestview, this is reflected in its reliance on manual, first-come-first-served processes. Unlike the automated, centralized databases recommended in secondary research, Crestview shares updates primarily through Facebook and volunteer-run efforts - a common situation for smaller shelters with limited resources or technical support.

Interviews show that Crestview's system doesn't update in real-time, and its website is managed by volunteers rather than dedicated staff. This points to ongoing challenges in maintaining sustainable technological systems. The secondary research emphasizes the importance of having dedicated personnel to support these systems, which aligns with Crestview's current experience.

The 2023 Annual Homelessness Assessment Report (AHAR) from the U.S. Department of Housing and Urban Development (HUD) underscores the growing role of data tracking in addressing homelessness in the United States. With 653,104 people experiencing homelessness in 2023 - a 12% increase from 2022 - accurate shelter data is essential to understanding and responding to the needs of this vulnerable population.

Among those unhoused are over 111,620 children, highlighting the urgency of the issue. Cities like New York and Los Angeles, which account for a quarter of the nation's homeless population, rely heavily on shelters as key centers for data collection. These shelters track occupancy, demographics, service use, and client needs, providing valuable information to guide resource allocation and policy decisions.

Data Management Limitations

The report reveals significant disparities in how data is managed across shelters. Larger cities often use centralized, real-time data systems, improving efficiency and ensuring accurate resource distribution. These systems allow shelters to monitor availability, streamline client placements, and share information with partnering agencies, enhancing service delivery.

In contrast, smaller or underfunded shelters often rely on manual systems, such as day-to-day tracking or social media updates. This disparity creates uncertainty for clients seeking shelter and delays access to critical resources.

The AHAR findings emphasize the potential benefits of real-time data-sharing models between shelters and agencies, which could address service delivery gaps and improve efficiency. However, challenges remain, such as inequities in technology access, variations in digital literacy among clients, and funding constraints for smaller shelters.

These barriers highlight the need for integrated, accessible, and adaptive data systems that cater to the diverse and unpredictable needs of unhoused individuals. Balancing the efficiency of automated systems with the flexibility of smaller shelters will be key to ensuring no one is left behind in the fight against homelessness.

Leveraging Real-Time Data to Optimize Shelter Space Management (2024) by Bitfocus emphasizes how immediate, accurate data can improve shelter operations. By maintaining a constant influx of current information, shelters can track bed availability, identify resource shortages, and deploy staff efficiently.

This approach contrasts with manual processes, such as entering data into spreadsheets or posting updates on social media, which can leave clients uncertain about available resources. Bitfocus has created tools that combine data gathering, analysis, and reporting, helping staff respond faster to changing situations.

The article also notes that real-time data strengthens shelters' ability to handle emergencies, prepare for shifting demand, and prevent clients from slipping through the cracks. Over time, these data systems can inform better funding decisions, guide resource distribution, and shape policies that align with community needs. The piece highlights that when staff have immediate, reliable information, they can make informed choices rather than relying on guesswork or outdated records.

These insights match the challenges we heard about in our interviews. For instance, the Crestview Area Shelter currently uses a first-come, first-served walk-in system and relies on social media updates, which makes it hard for people to know if beds are available before they arrive.

Similarly, the Food Bank of Manatee’s internal data system experiences communication lags, limiting its ability to provide instant updates to clients and partner agencies.

Bitfocus's perspective suggests that adopting dynamic, tech-driven approaches could help both

organizations reduce uncertainty, speed up service delivery, and increase transparency, directly addressing the issues identified through our primary research.

Key Takeaways

- Both the Food Bank of Manatee and Crestview Area Shelter use manual processes for updates and data management. Real time capacity tracking can be used to create a more modern, technologically-efficient recordkeeping system to more effectively address client needs.
- Keeping recordkeeping systems easily accessible and client-centered while also balancing technology is crucial in providing personalized support to clients.
- The research emphasizes the importance of designing systems that prioritize the needs of homeless individuals. This includes developing data systems that are flexible, user-friendly, and accessible to clients who may have limited digital literacy or technological access.

Conclusion

This report outlines key challenges and opportunities in implementing real-time capacity tracking for shelters and resource centers. Interviews and literature reviews reveal that while organizations have strong community missions, they face major limitations in data management

The Crestview Area Shelter currently uses manual processes and external support, which can make real-time updates challenging. Likewise, the Food Bank of Manatee's manual data entry and communication methods sometimes lead to delays, suggesting opportunities for improvement through automation and better integration.

Adopting real-time systems has the potential to improve transparency and accessibility for both organizations. Aligning their operations more closely with practices used in Homeless Management Information Systems (HMIS) might help enhance resource allocation, service delivery, and the overall experience for users. These updates could also ease some of the workload for staff and support more reliable and scalable services.

While challenges such as funding and standardization remain, they can be addressed step-by-step through collaboration. Involving shelters, resource centers, and local governments throughout the process will help build support and create a system that works well for everyone involved.

Paying attention to both the technology and the people using it will be key to developing a real-time system that strengthens providers, makes services easier to access for vulnerable populations, and supports fairer service delivery.

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