
Project: Federal Reserve Bank of Cleveland – Technology Review

Date: June 6, 2018

Executive Summary

North Coast Community Homes (NCCH) provides high quality, community-based homes throughout Northeast Ohio for people with developmental disabilities, severe mental illness, and other disabilities. Many of the wonderful individuals we serve have no family or have aging parents who can't as easily meet the growing demands for care. But with the support of many donors, volunteers, and professionals, we have developed and manage more than 220 community-based homes serving more than 1,000 men and women since 1984. In keeping with our mission, homes developed by NCCH are safe, comfortable, and affordable, and are designed to empower persons with disabilities to live fuller, more independent lives. Working with County Boards of Developmental Disabilities and local Mental Health agencies, North Coast Community Homes has homes in more than 60 cities across Northeast Ohio.

As technology advances, not only is it critical that we ensure our own efficient utilization of tools available, it is imperative that NCCH leverages that technology to the benefit of our residents. Often our residents are those voiceless and at the fringes of our communities. However, with Federal Reserve's help, we can develop a plan that will allow us to improve upon the independence, dignity, and quality of life of our residents.

To that end we propose a full technological audit of our internal systems, as well as suggestions for improving our technology in a way that allows us to implement important smart home technology, such as remote monitoring, energy saving features, and communication platforms. The overall goal will be to reduce costs, increase our residents' quality of life, and increase safety for our residents.

Technology Needs

With the introduction of telemedicine many hospital systems in the US and abroad are adapting smart technology, apps, and remote sensors to better health outcomes and shift to preventative care.

We also see an increase in smart technology in the residential home. In the United States such "Smart Tech" is often seen as a luxury, perhaps even as frivolous by some. Others recognize the important quality

of life, economic, health, and safety implications. The European Union has made the widespread implementation and adoption of smart home technology one of its 10 mission critical action steps to reduce energy costs and environmental impact. Similarly, in NCCH's homes, residents with developmental disabilities, severe mental illness, and other disabilities could benefit greatly from technology that allows us to respond faster to maintenance needs, reduce utility costs like water or electric use, and improve safety, as well as provide future opportunities for community/family engagement.

Smart Home Technology

“Smart home technologies (SHTs) comprise sensors, monitors, interfaces, appliances and devices networked together to enable automation as well as localised and remote control of the domestic environment ([Cook, 2012](#)). Controllable appliances and devices include heating and hot water systems (boilers, radiators), lighting, windows, curtains, garage doors, fridges, TVs, and washing machines ([Robles and Kim, 2010](#)). Sensors and monitors detect environmental factors including temperature, light, motion, and humidity. Control functionality is provided by software on computing devices (smartphones, tablets, laptops, PCs) or through dedicated hardware interfaces (e.g., wall-mounted controls). These different SHTs are networked, usually wirelessly, using standardised communication protocols.” – from <https://www.sciencedirect.com/science/article/pii/S030142151630711X>

Quality of Life

In the continuing efforts to improve the quality of life for our tenants, our focus is on how to use technology to enhance the quality of service we provide on a day-to-day basis. Remote Management of our homes can open up new ways to support our tenants. Whether it's communications between us and our tenants or internet-connected safety and security systems, technology can be our next evolution in tenant care.

For example, in 2017 North Coast Community Homes fielded over 3,200 maintenance requests from the 220+ properties we own or manage. Some requests were minor. Others required immediate response, such as a broken handicap accessible toilet. Unfortunately, there are times when a toilet is leaking and unusable, that we may not receive an immediate request from the home health worker, and therefore may not be able to respond timely. It is in areas such as these that our vulnerable residents may benefit from Remote Monitoring of appliances, utilities or other aspects of the home.

Where people with disabilities thrive

Safety and Security

The safety and security of our tenants is paramount. If we are providing a home, it is imperative that it is a safe and suitable home. Our residents are especially vulnerable, and technology is a resource we can use to improve both safety and security. According to the FBI, there are an estimated 2.5 million burglaries every year. In addition to the loss of personal property, there is a loss of psychological wellbeing that results. A large percentage of property crimes are crimes of opportunity, and security systems are seen as an effective deterrent. Current technology provides additional solutions beyond video monitoring.

As an example, replacing traditional door locks and keys, using electronic door & lock systems for our homes would increase security and safety immediately. While our tenant occupancy is stable, there is continuous change in health aids and provider personnel at our homes. Each time, new keys are needed, and locks should be rekeyed. This quickly becomes costly and inconvenient for the tenants and staff. Therefore, they may not always report an immediate staff change or even a lost key. Further, it can be administratively challenging for a smaller organization like NCCH to effectively, manually track of all the individuals with keys. If all this can be controlled at our office as a central hub, it would serve to improve safety and security for the nearly 800 residents in our homes.

Managing the Space between our Office and our Homes

We desire to narrow the time and distance between our office and our homes and tenants. Our field staff is constantly visiting our homes, but there are times when they are requested to be at 2 or 3 places at the same time. Technology could assist our staff to handle issues remotely, efficiently, and timely, thus addressing our tenants needs more effectively.

Creating Space and Opportunity for Community and Family Engagement.

While our tenants enjoy a community home environment, they can often still be isolated from the community. For most of our residents, not all of their family is close enough to engage with them n even a weekly basis. If our homes were properly wired (and made ready for smart technology), we could move towards instituting easy virtual conferencing in a central room in the home. This would allow families to better monitor the health, safety, and well-being of their adult children with special needs, as well as provide important socializing experiences.

Where people with disabilities thrive

Next Steps

Each of these areas listed provide a possible space for us to improve the quality of life for our tenants. However, these are also areas outside the scope of our expertise. Where do we begin? Is our existing technological infrastructure sufficient to support these types of initiatives? What are the critical first steps necessary for North Coast Community Homes to take in order to implement more technological solutions for the safety, quality of life, and independence of our residents?

It is our hope the team at the Federal Reserve can guide us as we begin answering these questions.

Inventory of Hardware and Software

Hardware

- 1 – Physical Server running 3 Virtual Servers (Windows Server 2012)
- 1 – Online backup appliance (24/7 backup)
- 15 – Windows Desktops & laptops (Windows 10 Professional)
- 1 – iMac PC
- Sharp 6580 Network Copier/Printer/Scanner/Fax
- Printer – basic printers
- Avaya Phone system – not a VoIP system. Preference would be to migrate to a Cloud Solution.

Software

- Office 365 Suite - Enterprise E3
- Salesforce (CRM)
- PropertyWare (Property management application)
- QuickBooks Enterprise (Accounting)
- Adobe CSS Suite of products (Graphic Design and Marketing)
- Webroot SecureAnywhere Protection (installed on all PCs and Servers)
- LabTech software for remote IT Support from Third Party Vendor