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Technology and Homelessness: How Website Design and Blockchain Technology Could Impact the Unhoused

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Abstract

Although technology could be used to combat inequality, it is instead increasing it. This paper discusses how the unhoused population suffers at the hand of technological inequality despite being relatively offline. It presents theories on how this would change if we reapproached how technology is used to assist the unhoused. It suggests implementing blockchain as a resource as well as modifying the websites built to assist in accessing benefits. Employees at shelters are interviewed for this paper about their experiences with using digital resources to rehouse and restabilize the vulnerable. They are asked how the sites can be improved for more optimized use. The sites are also tested against current UX standards for accessibility. Currently, they are extremely outdated and difficult to navigate. It also suggests that blockchain would assist the unhoused population in their ability to get the government assistance that they are entitled to in the U.S. Blockchain is, put simply, a network of distributed and encrypted pieces of data, which is already frequently used by the government to store sensitive data. It has been suggested in prior research papers about the unhoused population that blockchain could be used to store identification data, such as a copy of a birth certificate, driver's license, or other vital documents, which can be easily lost when one is living transiently. This impacts someone's ability to get food stamps, get a job, remain a legal citizen, and receive healthcare, among other things. Blockchain could assist this population, but there are barriers that might make that difficult to implement, specifically when it comes to potential concerns from participants about personal security.

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Technology and Homelessness

How Website Design and Blockchain Technology Could Impact the Unhoused

Ren Pratt

Honors Criminology Thesis

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Introduction

Amidst the scattered promises of a digital utopia, the reality of technology's role in inequality is coming to light. The exploitation and sale of personal data has served to amplify existing societal divisions, especially economic class. The widespread assumption of technological access means that doors that used to be widely open are rapidly closing for those who do not have a computer at home. There are mountains of literature about how inequality is becoming a part of the technological world. Artificial Intelligence (AI) is given the power to discriminate by suggesting certain families should not take out loans based on race. Jokes about how a lack of education will lead to a lack of ability to interact with the technological world are commonplace. A manifestation of this problem is how technology makes it difficult for the underprivileged and unhoused to access resources and assistance to which they are entitled. This is partly due to the usability and navigability of websites built by the government and various charities, which are limited in their adherence to general expectations of user experience. This might be due to a lack of resources and a lack of overlap among groups who work with the unhoused and people who are designing the websites that the unhoused will use. The ability to merge the fields of sociology and computer science has led to exciting new work which suggests the use of blockchain for assisting the unhoused in accessing these resources more easily. This is one possible way to use technology to narrow a widening gap.

Although there have been website accessibility laws implemented by the Americans with Disabilities Act (ADA), they are with a focus on making public websites usable for people with major physical disabilities (e.g. if they are blind, prone to seizure, are not able to use a mouse, etc.) (“Guidance…”, 2022). There is not any legislation that would relate to requiring clear language across government websites that provide services, or about making the site navigable in

the first place. Most legislation is about making the experience as equal as possible across different abilities, irrelevant if that experience is a negative one. "Accessibility, in the context of computer science, is about making computing products accessible to people with disabilities," (Ladner et. al, 2018) but within the social sciences the scope of accessibility is usually more broad. In this paper, accessibility will be defined by "giving equitable access to everyone along the continuum of human ability and experience," (Columbia..., 2020, p. 14) including being as accessible as possible to people across language barriers and education levels. User experience (UX) is a lucrative industry in the world of computer science. It usually is not something that needs to be regulated because it is more profitable to give users a positive experience. However, government assistance programs are not maintained by positive user experiences. Websites that are built by organizations that intend to provide services to the unhoused can experience the same gap in resources when it comes to creating navigable websites. However, as the organizations are usually local and have a limited scope, it is easier to access their services even if the website is unusable. Although showing up at the location of an organization or calling them on the phone is not a simple task for an unhoused individual, as they might not have access to a phone or an easy transit option, it is arguably simpler than trying to resolve an issue of misunderstanding with the larger government.

While an increase in usability across sites could lead to more equitable access to government programs, there is also research that indicates blockchain could make those resources more accessible (Mercer & Khurshid, 2021). Blockchain is a digital secure network that keeps a permanent record of the history of all interactions that were done within the network. In the most popular use of blockchain, it is a large ledger that tracks the transactions of cryptocurrency as it passes digital hands. It is "essentially just a big, publicly available

spreadsheet" that is, so far, "impossible to tamper with," (Popper, 2015). It can also be used to store vital information, such as a person's social security number or other verifications of their personal identity (Khurshid & Gadnis, 2019). This would be done using private blockchain, in which the owner of the asset (in some cases, cryptocurrency, in this case, personally identifying information) is the only one able to see the history of the asset, unless they give permission to other users, and that permission can be revoked at will (Khurshid et al., 2020). The unhoused are transient. This is because many cities have laws against sleeping outdoors, or will 'crack down' on encampments, so the unhoused cannot camp out in one area for an extended time in most areas (Ormond, 2014), and therefore are frequently unable to keep track of these documents that are essential to their ability to qualify for various programs. Secure digital storage of personally identifying documents (PIDs) could improve their lives significantly.

The blockchain technology used for this system would be a private blockchain as opposed to a public one, as suggested by previous work (Khurshid et al., 2020). Public blockchain is the more commonly discussed system, which is implemented as a transactional system for bitcoin. Effectively, using blockchain to trade bitcoin can reduce digital fraud and theft. Using private blockchain to have a verifiable record of someone's personal identification, their history of need, their previous medical history, and any other pertinent information (Zhuang et al., 2018), could effectively change the face of how the healthcare system interacts with the unhoused in the U.S. Blockchain could also be an easy way for the unhoused to regain and maintain their personal identity to participate in other government-provided programs to uplift them.

This paper aims to uncover whether personal identification is the primary barrier to accessing services for the unhoused or if it is the inaccessibility of the system. This study will

also explore whether an improvement of usability across government websites, an implementation of blockchain technology, or both, might help to mitigate the problem of limited accessibility. The unhoused are frequently ostracized from society and the digitization of the world has only increased that ostracization (Eubanks, 2018). I argue that currently programs designed to help those who are most in need are least available to the unhoused because of the lack of accessibility to PIDs and benefit application to this demographic. Ultimately, this paper has a goal of discovering whether it is possible to begin reversing that ostracization, or if leaning further into the digitization of assistance would only create further problems.

The Problem

An inability to assure the security of personal belongings is a significant issue for the unhoused. There have been attempts to mitigate the problem by providing lockers or other secure storage options, but it is often not possible to have enough space for everyone in the unhoused population to store their items. Denver implemented the use of large storage units that unhoused people can hold for 30 days on a 'first come, first serve' basis (Paul, 2017). Homeless shelters also provide a space to store belongings, but usually that is only for the night an unhoused person is sleeping there, depending on the shelter. In these cases, personal belongings could still get damaged or lost accidentally if someone is forced to vacate a location due to crack-downs in encampment or loitering laws (Ormond, 2014). Although blockchain technology cannot store many items of value digitally, it can at least ease the stress of losing documents like birth certificates, drivers licenses, or social security cards.

Keeping track of physical items can be difficult when someone is transient. Supplemental Nutrition Assistance Program (SNAP) cards need to be mailed to addresses. These cards are provided to those who are living below a certain income level and contain funds for groceries

and other essentials. If a SNAP card is lost by an unhoused individual, a replacement needs to be ordered and then mailed to an address, to which they might not have access[1]. To make a SNAP account, a social security number is usually needed. Although there are sometimes ways to get a SNAP card without a social security number on hand, it requires extra steps, and those steps are often complicated. Thus, if someone does not have access to a mailing address or their social security number, it can be near impossible to receive SNAP benefits.

Receiving unemployment checks requires an address, evidence that one is attempting to get a job, and a social security number. When someone is without a personal computer, evidence that they are attempting to get a job seems difficult to provide, because when you apply to jobs in person there is no verifiable record of your application process. Becoming employed often requires a passport or several verifications of identity including a person's driver's license and birth certificate. All these PIDs are very difficult to replace once lost, especially for an unhoused person. Even the organization that I discuss working with later in this paper requires some amount of PIDs to allow someone to stay in their shelters. They also have a higher bar for the unhoused who are attempting to enter the semi-permanent housing that the organization offers. This is with intent to guide the guests staying in this housing location towards financial independence, and is necessary, but it is an important part of recognizing how barriers can build up when you don't have PIDs.

Healthcare is also provided through the government to those who live below a certain income bracket. PIDs need to be provided to receive Medicaid unless they are in an emergency. Even in an emergency, a hospital that is looking to gain profit is only willing to do the bare minimum that their contract obligates them to do (Halverstadt & Peattie, 2024). It is important

[1] Although there are organizations that will provide addresses for the unhoused in some areas.

that the unhoused in the U.S. have access to everything for which they are eligible, to help them build a pathway back to stable life. Lack of access to PIDs and an inability to easily navigate the websites that provide benefits could both be barriers to gaining and maintaining housing.

Anywhere between 17,500 and 46,500 people died while homeless in 2018. That number is so unclear because housing status is not something that is usually catalogued when a body is found, and often there would not be a real way to know even if attempts were made (Grabenstein, 2023). On average, people who are homeless have a lifespan that is 17 years shorter than someone who is housed (Guo, 2022). There is a very high cost of life attached to the rate of homelessness in the U.S. Creating a system that would make it easier to access food and healthcare that the unhoused are already entitled to could lower that cost. Creating a system that would make PIDs easier to hang onto, and therefore lower the barriers of access to not only government benefits, but also to jobs and housing, could lower that cost even more.

Potential Hurdles to a Solution

Upon beginning research into how blockchain could assist the unhoused, one of the first worries that I had was that it may not be received well by the population it was trying to serve. One study in 2015 indicated that over half of the adults living in permanent supportive housing had a mental illness (Solari et al., 2016). A study performed in 1998 indicated that 90% of unhoused women had experienced abuse in their lives (Bassuk et al., 1998). When speaking with peers who have worked at emergency shelters, emergency shelters are described as deeply brutal on the psyche, as those staying may get into fights, have belongings stolen from them, or be kicked out due to misunderstandings. The alternative, sleeping somewhere that may be below freezing and where you are exposed to strangers, is not any better. These experiences, or stories of them, lead naturally to paranoia and distrust. Asking for trust in a new technology that is

taking in deeply personal information is asking a lot from any population. There are also explicit cases of the government breaking the trust between those benefiting from welfare and the welfare system. Many recognize that, "there is a long history of social services and the police collaborating to criminalize the poor in the United States," (Eubanks, 2018, pg. 116). A moment in history that illustrates the degree of malintent that these so-called programs sometimes harbor is, "Operation Talon." This was a "joint effort of the Office of the Inspector General and local welfare offices," in which they combed through food stamp data to find people with outstanding warrants and arrested them. They were told to make appointments with welfare offices regarding a change in their benefits, but were arrested at the appointments (Eubanks, 2018, pg. 116). It has been made clear to the unhoused that the government is not necessarily trustworthy.

It is also known that there is a history of the unhoused or underprivileged being taken advantage of by society. Eugenics created the first database of the poor (Eubanks, 2018, pg. 22), and generally historical collection of information about groups that the government has intentionally disadvantaged or discriminated against has been used for malicious purposes. There is also a history of criminalization of the unhoused by governments (Ormond, 2014), thus, many may want to be less traceable. There are cases where the unhoused can face jailtime for racking up so many tickets that are blatantly unavoidable due to their life circumstances, and clearly unpayable for them. In one case, someone in LA "[i]n five years... racked up 25 separate tickets," for crimes like, "unlawfully entering or remaining in a park, failure to leave land as ordered by a peace officer, storage of personal property in public places, jaywalking, littering, and unauthorized removal of a shopping cart, among others" (Eubanks, 2018, pg. 101). Leaving your possessions in a public place and relieving yourself in public are also considered crimes in LA, as was sleeping, or sitting on the sidewalk for an extended period until recently, when it was

changed to only be illegal during the day (Eubanks, 2018). There is a myriad of reasons for the unhoused to be wary of any government programs, especially one that is asking them to enter themselves into a database. It is important to keep in mind that using a blockchain program to help the unhoused to hang onto their PIDs necessitates government agencies' participation. Programs like SNAP and our healthcare system would need to accept this new form of identification. There is no visible path forward for this concept without it being a government-led program. Although private blockchain is built specifically to avoid breaches of privacy and trust, that does not mean that it is infallible technology, nor does it mean that people will immediately trust it.

This paper focuses heavily on what can be done to help the unhoused, and I will be largely ignoring how any of this would impact other groups involved. This list includes, but is not limited to: healthcare workers, social workers, nonprofits that are built for the unhoused, library employees, user experience (UX)[2] professionals and website designers for state and federal governments, and the nation's taxpayers. However, I want to briefly discuss how the improvement of UX across state and federal websites that target the unhoused might impact these groups. It could make the lives of social workers more straightforward, as a significant part of social workers' jobs includes signing their clients up for various government benefits (Eubanks, 2018). Although an argument could be made here that this could eliminate jobs, the staffing shortages with social work are infamous (Jackson, 2019), so I do not believe that would be a relevant concern. Library employees might be asked less for assistance in signing up for these programs and would hopefully be able to focus more energy and resources towards other

[2] UX designers make websites more functional and readable, and work to assure that it is a site that users feel not only capable of navigating but might actually find easy to use.

projects. UX designers would need to be hired to solve these problems, which may be an issue for taxpayers.

Hopefully, if UX design is a notable barrier to the unhoused getting the assistance they are qualified for, then nonprofits would see less strain on their resources. Healthcare workers may see more unhoused individuals coming in for non-emergency situations, which would lead to less unhoused people coming in only at the point that a situation is an emergency if the unhoused had better comprehension of their benefits. This would cost the hospital less money, theoretically. In 2022, the city of Denver was estimated to spend between $37,309 and $73,450 on a given unhoused person in the span of a year (Brown et. al, 2022), with Denver Health alone spending $163,665,974 in 2021 on the unhoused, as a whole population ("Report to the...", 2021). We know that "access to primary healthcare is a preferable and more cost-effective alternative to ED, for many reasons, people experiencing homelessness are much less likely to have a regular General Practitioner compared to those living in stable accommodation," (Currie et. al, 2023). Theoretically, large scale improved UX could help the taxpayer by making it easier for the unhoused to understand their benefits and opportunities. It would be saving hospitals and non-profits money, which are both often funded federally to some degree.

The idea of implementing blockchain has similar, and in some cases *more*, benefits to improving federal and state websites usability, but it is a much more complicated project. Many people would need to be hired just to develop the technology. After that, there is the training. The unhoused would need to be educated on how blockchain works to some degree so they can understand what they are agreeing to, but anyone working with the technology needs to be educated on it. Healthcare workers need to be familiar with how the program works, such as how to log in and how to record new information into the database, like prescriptions and previous

visits. Librarians, as one of the primary facilitators between the unhoused and technology, would need to have a fundamental run-through of how the technology works and how to sign up for it, should anyone want to. Social workers and nonprofit volunteers across the nation might need some amount of new training. Any store that can receive SNAP benefits would also need a way to access this technology.[3]

One of the primary barriers when it comes to blockchain assisting the unhoused is how the unhoused would access their own information. The ideal way is by using a login that has a series of numbers or something similar. As will be noted later, not much prior literature has delved into the subject, and this is not an issue that a paper of this scope is completely capable of addressing. In Khurshid's first study on the subject, he notes that the issue that blockchain is addressing in healthcare is that "there is no historical information about the person in the hospital's record… because there is no driver's license or government-issued identity available," (Khurshid & Gadnis, 2019), but suggests that the unhoused individual would access the blockchain system from their smartphone. This proposed solution may seem like an introduction to a new problem; blockchain is useful primarily because a person has lost their PIDs. A person who is unhoused, who has their personal items stolen more than most, and who has already lost their PIDs does not seem like a person who is likely able to hold onto a smartphone for an extended period. It could easily get lost or stolen. The ideal configuration of this technology, and how to provide access to logins, will be investigated throughout this paper, but it will not be discussed in detail because of the scope of the study.

[3] I would suggest the idea of an ATM-like machine, where you input your login information and a paper slip comes out with your temporary SNAP information, to be handed to the cashier at checkout, but of course it is far too early in the research of this technology to know what things like this might look like.

Literature Review

There are several prior studies on how blockchain could assist the unhoused, and prior work on how the unhoused are unable to access resources that they are legally entitled to. One major resource is *Automating Inequality* by renowned author Virginia Eubanks, and there is a plethora of literature surrounding the experiences of the unhoused. When it comes to academic research, there is of course much work to be done around barriers to access for the unhoused; barriers of access to SNAP, to healthcare, to job security, and to community.

A study done in 2003 reports that “[g]iven that Medicaid and food stamps have been long-time entitlements, and the only two entitlement programs that are not seriously affected by the Welfare Reform Act of 1996, it is disturbing to find that one-half of the participants reported they had no access to Medicaid or food stamps, respectively; 41% had access to neither of them.” (Nwakeze et. al, 2003). This study found that stably housed people living below the poverty line were much more likely to have access to these entitlements, despite being just as qualified for them as unhoused people. Those who were "literally homeless," (i.e. living on the streets) versus those who were "unstably housed," (i.e. couch surfing or living in shelters) are equally likely to access those entitlements, which the authors say indicates has something to do with being unhoused on a fundamental level, not to do with stability (Nwakeze et. al, 2003). Another study within this field indicated that “policy modifications and service interventions are needed to improve food access for [the young adult unhoused] population,” (Bowen & Irish, 2018). This study investigated how unhoused people who are emerging into adulthood acquire food and found that SNAP is particularly difficult for them to navigate. Social service workers seemed to be unclear with them if they qualified or not, and many were still on their parents' SNAP plans despite no longer being in the household. Therefore, they were unable to access SNAP due to

miscommunications within the system (Bowen & Irish, 2018). A study on how emergency room frequenters often miss out on these benefits stated that there is “an urgent need for care coordination and communication across multiple entities and sectors,” as frequent miscommunication and lack of coordinated care has made life increasingly difficult for the unhoused" (Kanzaria et al., 2019). They continued to say that "[i]ntegrated medical, behavioral health, and social services data can serve as a useful systems improvement tool, help identify patients who might benefit from coordinated care management and facilitate measurement of the full impact of interventions that target this vulnerable population.” (Kanzaria et al., 2019). Another study focusing on unhoused women accessing Medicare and SNAP specifically, found that having a caseworker significantly increased the likelihood of a person accessing any sort of government aide, and suggested the solution was to improve the rate of matching caseworkers with these unhoused women (Helson et al., 2003). Most of these studies also note a gap in the available academic literature about benefit access for the unhoused (Bowen & Irish, 2018) (Kanzaria et al., 2019) (Nwakeze et. al, 2003). Although there is research on how accessible Medicare and SNAP are for the general eligible public (Eubanks, 2018) the amount of research on the unhoused specifically being able to access it is limited. The idea of technology potentially breaking down these barriers has been suggested in cases like Obama’s phone program (Tumulty, 2013) and libraries’ open access policies (McCook, p.38). However, there is limited research on how federal websites' fundamental design is a barrier for the unhoused.

Blockchain as a solution for bridging the gap of access for the unhoused only really took to the stage in academia in 2019, five years ago, led by Anjum Khurshid. He has published several papers about how the unhoused could be assisted by blockchain and is still the leading voice in this field of research (as of 2024). Khurshid has a focus on the interaction between the

healthcare sector and the unhoused, but in 2020 he also published a study discussing how blockchain could be useful on a larger scale. Over three years from 2019 to 2021, Khurshid, in collaboration with other academics, published three papers focused on how blockchain could assist the unhoused. The field was still largely unexplored in 2019, aside from Khurshid's work. In his first work on the subject, he bases the idea off previous work done in other countries where blockchain is used to protect vulnerable groups from repeated small-scale scams (Khurshid & Gadnis, 2019). Groups that use blockchain internationally according to Khurshid's seminal work include:

~ Farmers, who use it to end a form of modern-day slavery.

~ Refugees and migrant workers to have verifiable ownership over their education and health records.

~ Female famers, to improve gender equality.

In this 2019 study there is a focus on healthcare in Austin, Texas. The authors argue that the technology would not be as expensive as a usual database because everyone would have their personal data within their device, so the upkeep of expensive infrastructure would not be unnecessary (Khurshid & Gadnis, 2019, p. 6). [4] It is also important to take from this that anyone on the network would have complete ownership of their personal health history, treatment history, and their history of interactions within the system. That means that they would need to provide permission for any other person or organization to access that information, and that access would not be permanent and could be revoked at any time (Khurshid & Gadnis, 2019). This makes it different from other databases of personal information that are built for government programs. Eubanks (2018) makes the argument that the poorhouses of the 1800s are what directly led to databases of the poor in the modern age in the first chapter[5] of *Automating*

[4] As stated earlier, I take issue with the assumption that an unhoused individual would have access to this technology on a personal device, so this claimed pro might not apply to the proposed system if it is implemented.
[5] Fittingly, this chapter is titled "From Poorhouse to Database," (Eubanks, 2018).

Inequality. Knowing that the technology inherently prevents access to personal databases without direct consent, and that it isn't data that could be sold or used for malicious purposes is an important part of getting potential participants on board.

As Khurshid moved forward in his work, he did some direct work with Austin's unhoused community, as well as with those who work to assist the unhoused. In 2020, he published a paper that was the first step towards implementing this idea in Austin, which involved interviewing potential stakeholders and trying to identify potential barriers, trying to decide if a blockchain-based approach could work practically to solve some of the problems with the interactions between the unhoused and the healthcare sector (Khurshid et al., 2020). His paper in 2020, where he worked with Mercer, took the research another step further. The paper effectively creates the framework for research and implementation of this project (Mercer & Khurshid, 2021). This paper is confident that blockchain is a solution to some of the issues that the unhoused face and suggests the further steps that need to be taken are "defining the baseline problem, addressing acceptability and feasibility, mapping technology and infrastructure requirements, understanding legal and ethical considerations, and rigorously testing the effectiveness of such a solution," (Mercer & Khurshid, 2021, p. 11). Although the previous studies published have dipped into those subjects, thorough research done on a large scale is still needed.

There is a program that already exists called the Homeless Management Information System (HMIS) on a federal level, which collects data on the unhoused, theoretically without specific identifiers attached to that information. However, HMIS is managed on a much smaller level, and each state has different laws around how it is executed (Eubanks, 2018, p. 94). The theoretical new system could work alongside this one, which is the most likely scenario in the beginning of the process as it is not profitable or sensical for the government to scrap an entire

database that already exists; however, using a private blockchain system could bridge many gaps that HMIS does not address (Khurshid et al., 2020, p. 6). In Los Angeles as of 2018, registry into the HMIS was almost the only way for the unhoused population there to get any assistance. There, the HMIS collects social security numbers, distinguishing physical characteristics, names, last known addresses, and the date and place of birth. Although it is not strictly required that an unhoused person register in the HMIS or that they divulge all that information while registering, often they do divulge all of that information. There is a fear in the unhoused population that because the HMIS is connected with the organizations assisting them with stabilization and getting rehoused, that if they divulge less than the maximum amount of information, they will not be on the 'top of the list,' so to speak, when there is a new opening at a permanent shelter, or they will not be made a priority for various types of assistance. Extrapolating from HMIS system information, it is clear that the correct path forward with databases like these involves informing the participating population of the possible benefits but giving them clear guidelines on how to remove their personal information and why it would benefit them to do so when they are no longer using the program. There is a way for those on the HMIS registry to remove their information, but it is a long process, so even those who have been rehoused will usually not bother (Eubanks, 2018, p. 114). This database is a way to make large scale reports on trends within the unhoused community, which is important for budgeting and allocation of other resources. However, it is important to keep in mind that there are flaws in it, and its existence does not at all make the development of privatized blockchain for the unhoused a redundant project.

Methods

My research contains two parts. First, I looked at 10 states' SNAP program websites and categorized the barriers I recognize to a person's ability to using the site effectively. Second, I conducted in-depth interviews of employees at a large-scale permanent housing program in Colorado and asked their thoughts on certain aspects of the intersection between technology and the unhoused.

SNAP Sites

I imagine many people have navigated a DMV site or tried to get a new passport only to find that the government last changed a website design in 1982. I came into writing this paper with that as a preexisting bias, but I wanted to shirk that and investigate the programs that I am criticizing before claiming that they have opaque structures in an academic paper. To do this, I used a random generator (Georgiev, 2024) to get a list of 9 states. I attempted to sign up for their SNAP programs, stopping short of requesting a card. I also attempted to sign up for Colorado's SNAP program, as that is the state within which I am working. I categorized the barriers I ran into across each state's program.

The list that was generated included Oklahoma, Texas, Missouri, Florida, Indiana, Montana, Arizona, Iowa, and West Virginia, in that order. Missouri was repeated after Montana, which I left out. For all 9 of those states and Colorado, an attempt was made to understand the eligibility rules for each state, the process of making an account through the state's site to receive SNAP benefits, and to understand how someone would proceed if they lost their EBT card[6]. Problems include error walls, needing to call someone to complete a step, and an inability to contact someone through the website itself. I also noted whether there was an egregious division

[6] An EBT card is the electronic card that states provide those who qualify for SNAP benefits. Locations that accept SNAP, like grocery stores, can process EBT cards in the same way that they process credit cards.

from common UX rules, like using unclear language or unclear symbols Further, I noted whether a website clearly has not been updated recently, as that is often a red flag when it comes to the security of the site. Because social security numbers, contact information, and pay records are all being input into these sites, even perceived security is a potential barrier to use (Hartono et. al, 2014). The number of possible ways to apply is noted, and if those options included accessibility to folks who did not speak English, are not technologically adept, or options for those who are unhoused specifically, as their application steps may look different. Needing to call someone is also a barrier because the unhoused have limited access to phones. Getting access to a phone at all could be difficult, and if there are any cases where SNAP was attempting to call an unhoused person back, they would not only have no access to the phone at that point but no way of knowing that anyone ever attempted to call them. Needing access to PIDs is also noted, but it cannot be considered a barrier, as it is comprehensible that to get assistance from the government, the government needs to be able to verify that a person exists and is legitimately struggling.[7] Of course, it is more than possible to miss something during this process, and there may be errors that go unnoticed. I am not an unhoused individual, and although I have some understanding of the problems that they may face when signing up for programs like these, I do not have a comprehensive one.

Interviews

Based on my literature review, I believe that the primary gap in the current research is whether certain changes would or would not have a positive impact on the unhoused. Although

[7] An example of why this is necessary can be found when discussing the assistance given out during the pandemic. According to the FBI, "the U.S. Small Business Administration inspector general estimates $136 billion in fraud from the EIDL and $64 billion in fraud from the PPP," (Nanz, 2024).

creating assistive technology and ideal websites to simplify the sign-up process may look like breaking down barriers to entry, it is unclear how true that is.

To find subjects for my interviews I went through a preexisting contact. A gentleman I will refer to as Michael works at an organization for whose shelters I have volunteered almost 100 hours. Michael has also helped me with previous work for classes that had to do with the unhoused. He works in the head office of the organization and is friendly with many of their employees. Using his invaluable assistance, I was able to do purposive sampling to contact my other interviewee. I was looking for people who would be using government websites and other methods to assist those who are residents of the organization's permanent facility. I intentionally looked for people who were not the ones building the websites, but instead were the ones using them, as I think that is the larger gap in this research. In my previous work with this organization, I was able to interview four different caseworkers and Michael across three different projects. But, during the period that I was writing this thesis it was a busier season for caseworkers, and I did not want to be pulling resources from those in need, so my pool was slightly limited.

I interviewed a VP of Operations at this organization who I will call Mary, along with Michael. Mary is involved in the organization’s progression into the modern age of technology but has also spent a lot of time as a caseworker. I wrote an interview schedule ahead of time, which can be found in the appendix, and had the interviewees sign consent forms that confirmed they both understood what they were doing, how to contact me or my thesis advisor if they had any questions, and any potential risks. Both signed the forms electronically, so that I had the signatures ahead of time.

For the interview schedule, it started with casual questions about the person being interviewed to gain some trust. It then moved on to questions about how technology shaped their job, specifically how it helped the unhoused. Then questions about the navigability of government websites, and if that was a barrier to getting assistance. The schedule's conclusion focused on blockchain, whether the interviewees believed there was an issue with the unhoused having access to their PIDs and if that coincided with an inability to sign up for useful programs. There was also a focus on what amount of participation might be expected if a program using blockchain was implemented. The schedule concluded with some questions inspired directly by Orne's "Boystown," including "is there anything you would like to add that you didn't get to mention?" (Orne, 2017). During the actual interview it was slightly less structured; if the topic of PIDs was brought up, questions about blockchain might be introduced earlier in the interview, for example.

Most of the people working for this organization cannot be expected to know how blockchain works or what it is, so focus was put on how to best present how blockchain could be used for the unhoused. It needed to be done briefly and effectively, so there was a limited focus on the technology side. The description is focused on how to best explain the potential idea that would be executed, not how to best teach a person about how blockchain works.

"Blockchain technology is something that you often heard talked about in the context of bitcoin or other cryptocurrencies, if you have heard about it before at all. However, it can also be used to store vital information, such as a person's social security number or other verifications for their personal identity. Blockchain is a secure network that ***keeps a permanent record of the history of all interactions that were done within the network****. For the population that you serve, blockchain could be a way to obtain the assistance that they are entitled to, whether that is care from health first Colorado or food stamps from SNAP."*

This description was created with simplicity in mind and edited and approved by a computer science professor at the University of Denver, Matthew Rutherford, to ensure accuracy.

The interviews were recorded on a physical recorder and were deleted after they were transcribed. The transcription was performed in such a way that anonymity was maintained. After transcribing and coding the two interviews, they were analyzed. Due to there being only two interviewees and relatively specific questions, more in-depth analysis was possible, specifically with looking into where interviewees agreed and disagreed, and noting what topics they were expressing as more or less important to them. After collecting all data via in-depth interviews and a thorough observation of the digital process of applying to SNAP, the information that was gathered had to be analyzed for patterns, and to decide what was and was not relevant to what is being discussed in this paper.

Findings

After data collection, I proceeded to analyze it and look for patterns. I did this with the intention of discovering whether PIDs or website design were major barriers, and if these were issues that could be mitigated. I pulled the most relevant information from the interviews. Because I only had two interviewees, there was no need to create visuals of certain pieces of information, as I couldn't identify large-scale patterns. For SNAP sites, though, I was able to create a large table that visualizes the issues and patterns across sites.

SNAP Site Findings

This paper will focus on the findings across SNAP sites first. Throughout this research, any issues that are easily visible will be shown using screenshots of the site, but issues that are less visible will be noted in the paper without a visual provided. The visuals are chosen to emphasize the problems that might be more difficult to explain verbally and illustrate why sites like this might be difficult to trust with personal information or might be frustrating to navigate for those who are unhoused. Filling out a lengthy form for which one is missing a lot of

information becomes much less rewarding if one is unclear whether there will be anything gained from filling it out. Across different states there are different qualification rules for SNAP, and for some states it can become specific to a county, so transience can complicate SNAP qualifications as well, and will lead to a need to re-apply.

Accessibility issues were the primary focus. This includes unclear language, anything that makes a site seem notably unreliable (some websites are just clearly outdated, which makes them difficult to trust for some people), and any errors that I encountered when trying to execute normal functions. Language inclusivity will also be noted. Language inclusivity is especially important if there is an alternative language option, but it is not displayed in the target language on the site. For example, if the Spanish option button is displayed as "Spanish Option" instead of “Opción Española," that will be noted. I also noted an out of date visual on the Oklahoma site that I thought would be confusing, although I understand it is very minor. Still, it is not something one would see on a trafficked site of a large-scale company in the current day. A large part of commonplace UX design is using visuals that are close to universal, so that navigating a site feels natural (Hartson & Pyla, 2019). As of February 29th, 2024, Colorado’s pre-screening for SNAP, which is how people would be able to check whether they are eligible for SNAP benefits without going through the entire process of registering, is not accessible. This is shown in Figure 1. When someone clicks on the link for the pre-screening, the above image is what is returned. Note that there is no recommended way to ask for assistance alongside this error message.

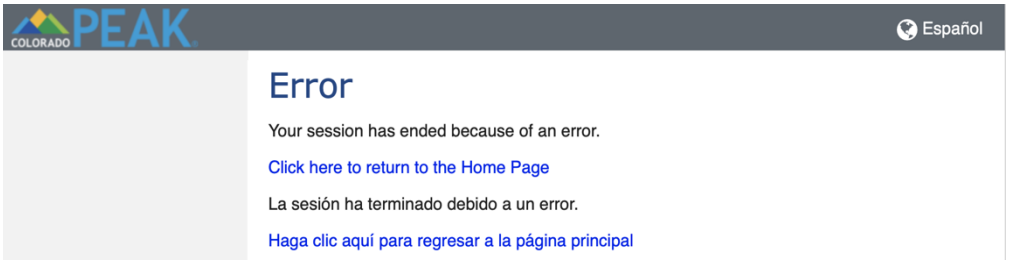

Figure 1

On Oklahoma's SNAP website, there were three very visible issues. The first is shown in Figure 2. During the online application the 'Next' button looks like the commonly used 'Reset' visual, which means that it was not created with up-to-date conventions. The second issue that I found is shown in Figure 3, which is that after given the option to fill out a PDF to apply for SNAP, a PDF comes up that says that you need Adobe Reader 8 or higher, both as of April 22, 2024. That isn't something that could be installed on a computer that you don't own, and I have Adobe installed and it still was opening this PDF. Oklahoma has two different websites, the front facing one, and then the one that exists when you begin applying for any benefits, which is shown in Figure 4, and is clearly outdated, and uses misleading language - most of the links visible in this screenshot did not take me where I expected them to. This information was taken in April 2024, and may have changed since then.

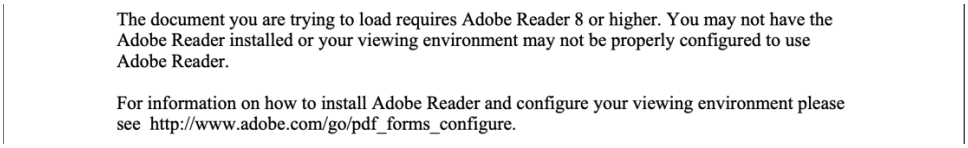

Figure 2 **Figure 3**

Across the different states, there were several inconsistencies. Although the intent of the research was not to assess each state's eligibility criteria, it is important to note that states often had varying eligibility criteria. This is important because being unhoused leads to a lot of transience, and as a person moves through states, or even through different counties in the same state, their eligibility for SNAP may change. The explanation of the criteria is essential to anyone who has an intention of independently applying to receive SNAP benefits. If it is explained incorrectly, one could waste hours on an application process and then receive nothing, or one could believe themselves to not be eligible, not apply at all, and lose out on benefits they are eligible for. For an unhoused person, who has limited resources, needs to make more time to apply for benefits, and might need to make a trip to a specific location or ask for favors to apply,

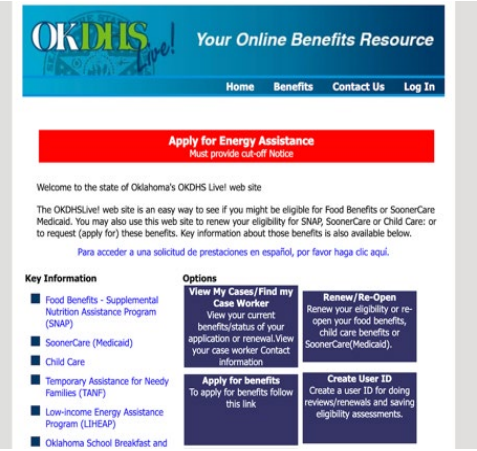

Figure 4

and who may be moving in and out of eligibility due to transience and the criteria itself[8], a clear explanation is arguably even more important. Many of the sites did not provide clear explanations. Some did, and some did an impressive job explaining the criteria succinctly and provided quizzes that could be taken to assess eligibility. Table 1 illustrates the drastic differences across sites.

Table 1 visualizes different good, bad, and neutral facets of each site. Green represents positive facets, red represents negative facets, and grey is something neutral or 'average.' Average is defined here as a site feature that is clearly doing the bare minimum but there are not real barriers being created, or a site feature that might just be important to note but was not good or bad. Some states will have a light blue box, this is normally a footnote or a piece of information that was relevant overall but not necessarily relevant to the specific data collection of this section, usually meaning it has nothing to do with the design of the site or the design of the application process. If a box is a darker green or a darker red, it is an indication of something exceptionally good or exceptionally bad, respectively. The scoring is based on how each site compares to other sites, with a baseline expectation of something being comprehensible to an able-bodied, neurotypical English-speaker. Anything blue was difficult to categorize but something that was none-the-less important to the question of accessibility to the unhoused.

[8] Some states say that able-bodied persons who are unemployed are only eligible for SNAP 3 months out of every year, or something similar.

	Eligibility	Applying	Replace EBT
Colorado	Language explaining who is eligible is clear and straightforward	Explicit alternative to SSN input for account creation	Card replacement requires a phone call, but if you know your EBT number it is a fully automatic process
	Link to automatic eligibility calculator did not work.	A Spanish PDF is available	
		3 application options, making an online account and applying through that, printing out and sending in a form, and calling a SNAP location	
		One of the application options was a phone call that involved being called back	
		The link to the Spanish PDF option is not in Spanish	
		The alternative to SSN input was a phone call that involved being called back	
Oklahoma	There is a new policy on eligibility that is explained in very inaccessible language	The option that involves sending in a PDF includes a large text and a Spanish version of the PDF alongside the standard version	Replacing the card can be done online
	No way to check eligibility on the front facing page other than a longform PDF that uses inaccessible language	Spanish options available when you reach their secondary site	Finding the link to replace the card is very difficult, it is not in a location on the site that is intuitive
	There is an eligibility calculator, but it is difficult to locate	No clear options in Spanish on their front facing page	
		There are two application options offered, but the link for the option that involves filling out a paper form leads to an error	
		Making an account requires answering personal questions on a visibly old site	
Texas	The language used on the primary site to explain eligibility is accessible and straightforward	The site overall is very accessible to Spanish speakers	Replacing the card can be done through the website, through an app, or via a phone call
	There is a secondary site where you can check eligibility for any benefits	An educational video about SNAP is provided	
	No way to check eligibility via filling out a quiz as far as is made clear on Texas' primary SNAP site	The paper application is slightly difficult to locate and explicitly discouraged as an option	
		There is only one clear application option, which is online	
		The paper application is 33 pages long (13 pages longer than the next longest one in this study) but is an application to assess eligibility for all possible benefits	
Missouri	The language used on the site to explain eligibility is accessible and straightforward	The PDF offered is only 8 pages long	Unclear how to proceed if EBT card is lost; customer service phone number is listed but not explained as the place to call if replacement is needed.
	There is not a way to check eligibility via filling out a quiz	There is a Spanish option for the PDF	
		"Other Ways to Help" section that provides a list of food pantries and other resources in the state	
		Translation and ASL options available via phone call	
		Two application options, one is making an account and applying online, and the other is filling out a PDF	
		There are two application options offered, one being an online application and one being sending in a printed PDF	
Florida	The language used on the site to explain eligibility is accessible and straightforward	Florida actually doesn't require a SSN to apply for SNAP, nor does it require an account be made to apply online*	To replace EBT card the only option is to call a phone number that commonly involves a long waiting time or a call back
	There is not a way to check eligibility via filling out a quiz	Many language options are available for the site as a whole	
	Misleading link "use SNAP eligibility" implies that there is a program that will tell you, but it leads to an irrelevant site	Slightly difficult to find the application page	
		Only one option to apply, which is online	*Florida law indicates that any person deemed able bodied who isn't currently working would only be eligible for 3 months out of every 3 years
Indiana	There is a quiz to check eligibility for any benefits*	To make an account you need to input that last four digits of your SSN and there are no alternatives offered	To replace EBT card the only option is to call a phone number that commonly involves a long waiting time or a call back
	The page used to explain eligibility does not explain the rules enough to be sure who would or wouldn't qualify	To print the PDF application the site needs an address	
		There are two application options offered, one being an online application and one being sending in a printed PDF	*When I attempted using this calculator it told me I was not eligible for SNAP but did not explain why, despite me putting in an extremely low income. People who are not working may not qualify for benefits, but if so that is not written anywhere explicitly that I could find

Montana	The language used on the site to explain eligibility is accessible and straightforward	There are four application options offered; online application, calling in to apply, going to a physical office location, and sending an email to receive a PDF of the paper application to send in	To replace EBT card the only option is to call a phone number that commonly involves a long waiting time or a call back
	There is not a way to check eligibility via filling out a quiz	No language or large print accessibility	
	Access to your SSN is listed as a requirement for eligibility	The link to access a paper application does not work, and if it did you have to send an email to Montana's social services to receive the PDF at all	
Arizona	The quiz provided explains why you don't qualify for certain benefits	Asks if the applicant is unhoused and adjusts the forms accordingly	To replace EBT card the only option is to call a phone number that commonly involves a long waiting time or a call back
	There is a quiz to check eligibility for any state provided benefits	There is only one clear application option, which is online	
	It is difficult to find the eligibility quiz	To make an account you need to input your SSN and there are no alternatives offered	
	There is another eligibility quiz listed on the page where you can apply for SNAP that is less explicit and less functional		
Iowa	The link that is labeled as the way to check someone's eligibility for SNAP does not check eligibility for SNAP but instead for a different governmental program	Iowa explicitly addresses the unhoused and says that a mailing address works instead of an address within the account making process	Unclear how to proceed if EBT card is lost; customer service phone number is listed but not explained as the place to call if replacement is needed.
	There is no clear location that explains SNAP eligibility within the primary SNAP site	There is only one clear application option, which is online	
West Virginia	There is no clear location that explains SNAP eligibility within the primary SNAP site	The PDF offered is only 10 pages long	Unclear how to proceed if EBT card is lost; customer service phone number is listed but not explained as the place to call if replacement is needed.
	The website that is for explaining SNAP specifically is extremely unintuitive	Spanish option of the PDF is available	
	There is an eligibility calculator, but it is difficult to locate	It is slightly difficult to find where the completed form should be mailed	
		Two application options, one is making an account and applying online, and the other is filling out a PDF	A program called Optum GovID is used to login to your benefit account, but I cannot find any info on what that is, or how it is different than a normal username

Table 1

Interview Findings

During the conversation with the interviewees, the UX design for Colorado's SNAP design was discussed. At one point, I brought up the error page that I found, saying "[when you go] to check if you're eligible, when you click on that link, it just shows up a blank page," to which Mary replied with an enthusiastically fed-up "Uh-huh!" and proceeded to make it clear that this was something that she had known about for a while. Mary told me during the interview that a significant portion of her job when she was a caseworker would be helping the unhoused to sign up for government benefit programs like SNAP. When asked how many people in the population for whom she was working usually had already signed up for programs independently before coming to her, she said

> "I would say probably half haven't started the process and then a quarter have like stopped halfway through and then there's another quarter who are already receiving [benefits]."

Mary also described the UX design of these sites as a "significant barrier." She noted that the population she works with is usually older, and these sites are not set up to be maximally accessible to an older population. She also had comments on the process of calling the help lines for these benefit programs. Mary said that usually the first call will be a long wait time that eventually gets sent to voicemail. Then, you are put in a queue to be called back. If you don't answer the call back, you must call them again and restart that process. She further explained, "and it's not like I think it's an intentional runaround by anybody. I think... they're overwhelmed too... so it's a lot of back and forth." She also made an interesting point about how the application process works, which was visible on some state SNAP sites that weren't Colorado. Mary said that,

> "simplifying... that initial application process... is doable and would be very beneficial... I don't know for sure, but I think like probably, 70% of the Social Security application is similar to... what SNAP is needing."

The importance of PIDs was also discussed in the interviews. I asked the interviewees if they believed that lack of personal identification was a significant factor in why people remain unhoused, and they both said that it was. Mary stated that,

> "having that identification is required for just about everything; for getting a job, for getting housing, for getting benefits... that's always the first thing that we work on with people when they come

> to our shelters is, 'do you have the identification necessary to even start applying to get yourself help?'"

Michael said, on the topic of losing PIDs,

> "when somebody experiences homelessness, they're not just staying in Denver, right? They're going to Omaha, they're going to the Springs, or they're going to LA. And they just got to do like all their paperwork, like Mary says, is in a bag. And if it gets stolen. For lack of a better phrase, they're screwed... for a significant time until they can get all that process going."

Normally organizations like the one that both interviewees are a part of can help to get clients their PIDs back. Mary explained that they do this through ID blitzing, where the DMV comes to their centers and begins the process for a bunch of the folks there. The center will have them use the mailing address of a different organization that specifically takes in mail, and they will work together to get the PIDs back to those who applied.

I went on to explain the idea of using privatized blockchain to secure PIDs for the unhoused and asked them about potential barriers that they saw. Mostly, they seemed enthusiastic about the idea. They both said that any system that makes things more consistent for the unhoused across organizations and across county and state lines is a helpful removal of a barrier. The organization that they are a part of uses cards that the unhoused can use to check into any of their shelters, and that they can also use to check into some of the other organizations that work with the unhoused in the area. This makes caseworkers' lives easier. For example, if someone starts sleeping at a new shelter for a personal reason, but their housing application got approved and that information is sent to an employee at their prior shelter, it is easier to figure

out their current address and get that information to them. This is because the card and scanner send information to a large database every time someone checks into a new location. They believed that the population might be suspicious of the technology but said that ultimately anything that tangibly improves people's lives will usually become widely trusted, or at least used, by that community. I asked whether they believed that keeping a cellphone on your person when unhoused would be a challenge, and they both said that it might be difficult, but that a lot of people do it. Mary seemed to think unhoused people were much more likely to have a cellphone than access to their PIDs. In a way, this makes sense, as PIDs are something small that needs to be held onto for a lifetime, but one can get a phone any time. I also asked Mary how frequently people lost the cards they used to check into their shelter, and she said that it was relatively infrequent. She said, "once you realize that [the card is] what gets you into everything... that gets held onto." At an earlier point in this new technology, their organization had one card, and every other organization provided their own cards, so they reported a lot more loss of cards then, "because when you have to have ten... shuffling through them" it starts to become difficult, according to Mary. Consolidating the cards helped that situation a lot. Throughout the interview process, communication between organizations was consistently emphasized. They all want to help, and they can help the most when everyone is on the same page.

Many of the studies that have been used to fuel this project have a negative view on technology and its interactions with the poor, but those that were interviewed had a very different perspective. Technology has helped them to reach people who cannot leave their tents because they are severely disabled, keep in contact with people who are unwilling to come into the shelter for months due to negative experiences, and better serve the community that they are

committed to helping. They believed that technology could help the unhoused in significant ways.

Discussion

Both interviewees believed that a system that used privatized blockchain could assist with breaking the cycle of homelessness earlier in the process. They pointed out that the likelihood of losing PIDs as an unhoused person is high, and that the barriers to access when you don't have PIDs are high and ever-present. Using blockchain could help to provide informed care across hospital locations, connect caseworkers with others who are working with their client at different organizations, receive and maintain government benefits, and make obtaining housing, jobs, benefits, and other things much easier. It would hopefully, ultimately lead to less work for caseworkers and a more streamlined system. If blockchain is privatized, then one never has to worry about anyone unwanted accessing their personal information.

Although biometric data could be suggested as a way for the unhoused to 'log in' to their blockchain account so that they do not need to carry a physical item or remember a username and password, there are a few reasons this seems unreliable. The first is that any system controlled by the government might become accessible to bad actors. A complete biometric database in the wrong hands can do a lot of damage, especially as biometrics become such a large part of everyday technology. Although that is not the intent of using blockchain, it is not impossible for it to occur. The HMIS system was built to assist the unhoused, but the police have complete access to it upon verbal request and without any needed reason (Eubanks, 2018, p. 115). If this system asked for biometric data, that data could later be used by the police to pursue criminal cases, and there is evidence that the routine conditions of being unhoused are often considered criminal acts (Eubanks, 2018) (Orne, 2017). Phones seem like they are not impossible

as an option, but they still seem suboptimal. The best idea might be a combination of a smartphone and a physical key card (maybe with a QR code or barcode) which would interface with an application and website. Through the interview process it became clear that holding onto a card, although not foolproof, works for many unhoused people. During the interview process it also became clear that there is a belief that many of the unhoused in Denver already have smartphones, so it would not be an impossible hurdle.

Similar benefits to caseworkers and the unhoused could come from improving the websites used to apply for benefits. Specifically with SNAP, there are multiple barriers to applying if you are unhoused, whether you are eligible. Simple changes could make a big difference. For example, using language specifically directed at the unhoused on the application sites to explain their potential eligibility in simple language, and having an application process that will let you apply for multiple benefits at once. Multiple sites that were observed did these things in some capacity, but many did not. Generally using clear language can make these websites more usable. Even creating a place to leave feedback on the website's structure and wording for those using it would be an improvement. These are not changes that would cost a lot or be difficult to execute. It would be a single day of work at maximum to change the text on these sites and could really change the lives of people.

Mary said that "simplifying... that initial application process... is doable and would be very beneficial... I don't know for sure, but I think like probably, 70% of the Social Security application is similar to... what SNAP is needing." This would mean that instead of filling out the same information five times across five different sites, a person could fill out a base application and use that information to apply for multiple things. For an unhoused person, re-applying for

lost PIDs is a major part of breaking the cycle, and if that can be done while applying for benefits, it would make things much simpler.

The demographic this paper focuses on is the unhoused, but because of the scope of the project, and IRB concerns, it was not possible to interview anyone who was or is unhoused. This creates severe limitations on what can be stated as fact. Having the opinions of unhoused people and previously unhoused people on whether the idea of using blockchain to obtain and maintain PIDs would work for them, and what configuration would be ideal, is integral to further this area of research. It is also important to get reviews from people who use SNAP websites. I was only able to get so far in the application process without feeling like I was potentially wasting resources that should go to those who need it. Considering my own positionality, I am well educated and affluent and have my own laptop that is up to date. My experience reviewing these sites looks deeply different from someone who is navigating them because they need food this month.

Privatized blockchain technology needs to be researched further as well. This technology would need to be safe and secure. If instead, it ultimately led to people being unfairly persecuted, used for profited, or arrested, because there was some hole in the security, that would reverse any good that it did. No technology is infallible, but it should be as secure as possible from outsiders, or even from those operating the technology. Whether abusing this system is something that the U.S. government would do, is it something that another government might do? Or that the U.S. government might do in fifty years, due to some unforeseeable change? It is integral that this technology is truly secure, otherwise it is not viable. That specific topic could be researched within the scope of this paper, but it cannot be implemented as a solution until these issues are considered further.

Conclusion

This paper aimed to uncover whether personal identification is a primary barrier to accessing services for the unhoused or if it is the inaccessibility of the system. Those who were interviewed for the study believed that both were barriers to the unhoused accessing the help that they need to break the cycle. The improvement of usability across government websites and an implementation of blockchain technology would likely help to mitigate the problem of limited accessibility. It is possible to begin reversing that ostracization, and although leaning into technology sometimes feels like hurtling into a dystopia, it is clear that at least the UX design of sites could be an easy modification that would change lives drastically. Blockchain technology is murkier than re-designing websites, but so far many of the hurdles I perceived to using blockchain seem less severe than I originally assumed.

People experiencing homelessness face multifaceted inequities that impact every aspect of their lives. Chief among these challenges is the precarious state of their health, both physical and mental, which is perpetually under threat due to the harsh conditions of life on the streets or in temporary shelters. The lack of stable housing exacerbates existing health issues and makes individuals more vulnerable to new ailments. The cycle of homelessness often intertwines with substance abuse, mental health disorders, and inadequate access to healthcare services, creating a complex web of health disparities that disproportionately affect this marginalized population. While various programs and initiatives exist to address this, their effectiveness is often hindered by systemic barriers that impede access and utilization. Too frequently, these programs are designed without sufficient consideration of the unique needs and circumstances of the population they aim to serve. As a result, despite the best intentions of policymakers and service

providers, the gap between services offered and services accessed remains wide, leaving many individuals without the support they desperately require.

However, amidst these challenges lies the potential for positive change. By critically examining the barriers to access and advocating for more inclusive and responsive program designs, we can begin to dismantle the structural obstacles that perpetuate health inequities among the homeless. By working collaboratively and compassionately, we can forge a path towards a future where technology lowers barriers between people and creates bridges to the help that people need.

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