ACCESS TO TECHNOLOGY IN HUMBOLDT COUNTY:

MEASURING DIGITAL PREPAREDNESS AT THE START OF A PANDEMIC

By

Lauren E. Proffitt

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Committee Membership

Dr. Joshua Meisel, Committee Chair

Dr. Mary Virnoche, Committee Member

Dr. Jennifer Eichstedt, Program Graduate Coordinator

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ABSTRACT

ACCESS TO TECHNOLOGY IN HUMBOLDT COUNTY:
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This research is based on summer 2020 online survey data from a stratified random sample of 573 clients and care providers of a rural Northern California government social services agency. The goal was to study information technology access in Humboldt County, California, and the range of digital preparedness of clients of a local government agency: Humboldt County In-Home Supportive Services (IHSS). IHSS serves several groups of rural residents with low-income, foremost of which are older adults and people with disabilities. In 2020, in compliance with federal requirements, IHSS discontinued systems for paper-based client/provider confirmation of services, moving to digital technology-based service record keeping. Findings were that adults with disabilities, with lower-income and/or who live in a rural location have lower access to technology, were lower technology users, have less confidence with technology, need more help with technology, and are more unready for technological change. Native Americans, non-binary folx, and those with lower education were also more likely to have less access or be lower users. Changes needed for personal use following the COVID-19 pandemic and shelter-in-place orders, as well as in anticipation of IHSS service changes, included new computers and phones, and upgraded internet and phone services. The above groups were

those who needed these changes the most. Overall, these people are considered digitally *unprepared* and lag behind the rest of the digital world. This research provides empirical evidence for IHSS and Humboldt County adoption and implementation of National Digital Inclusion Alliance guidelines for client and provider, training, technical assistance, and material assistance.

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CHAPTER 1

INTRODUCTION

> By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism – in short, cyborgs. The cyborg is our ontology; it gives us our politics. The cyborg is a condensed image of both imagination and material reality, the two joined centers structuring any possibility of historical transformation (Haraway 1991:7).

We age with technology, but we also age into technology by learning technology as we age. As Donna Haraway theorized in the above passage, the human-technology relationship has evolved in form in our contemporary age. We are literally and figuratively transforming into what Haraway calls the cyborg as technology is continuously merging and integrating into our lifeworld, which is to speak to how the aspects of life's conditions, the objective technological world, is influencing our individual and subjective reality and gaining more influence over time.

Over the past century in the United States, there has been an exponential increase in technology development (Kurzweil 2001), fueled by the so-called "treadmill of production" and neoliberal policies and practices (Schnaiberg 1980; Gould, Pellow, and Schnaiberg 2004). Jan van Dijk, in his 2020 book on the state of the "digital divide," suggested that the digital divide is related to the pace of innovation following the Industrial Revolution and the Second World War. Using the image of the cyborg, the

digital divide describes the imbalance of technology in the human-technology lifeworld/life conditions relationship.

Noting this advanced pace of technology development, this indicated to me that there might be individuals and groups of people – people such as older adults, people with disabilities, people who are low-income or impoverished, and/or people who live in rural places – who lag in adapting to these developments or are left behind entirely. In the next section, I introduce this study, itself a response to my above concern.

Access to Technology in Humboldt County

This was a study of access to technology in Humboldt County, California, measuring digital preparedness among marginalized populations. The purpose of this study was to provide Humboldt County Department of Health and Human Services (DHHS) recommendations for meeting community technology needs. California State and Humboldt County social services program In-Home Supportive Services (IHSS), a branch of DHHS, are key stakeholders in this research. IHSS wanted to learn about program client barriers and access to technology in the context of a new electronic visit verification (EVV) program implemented in the Fall of 2020. I investigated this need by the means of learning about the digital technology preparedness of the Humboldt County low-income, rural, disabled/older adult population.

This study was based on survey data collected from 573 clients of IHSS. The research data was collected via an online survey administered during Summer 2020 in partnership with IHSS. At the time of the study, I was employed as a Social Worker

within the IHSS program. This study arose from my initial concern that the federal EVV mandate would generate difficulty for individuals who are older, disabled, living in rural areas, and/or who are low-income. Humboldt County IHSS supported the study with the dual goals of learning about who among the program clientele were most at-risk of having limited technology access, and therefore more likely to need support with the EVV change-over. The study sample was comprised of a diverse group of people that included those aged 65 and older, with disabilities, who identify or were otherwise classified via program regulations as low-income, and/or who live in a rural place.

MacKenzie and Wajcman (1985) defined technology as the integration of the physical objects or artifacts, the process of making the objects and the meaning associated with the physical objects (as cited in Wahab et al. 2011:62). Digital technology converts this traditional understanding of technological artifacts into either the physical (hardware) or metaphysical (software) tools of computer and microchip transactions. Information and communication (or connectivity) technology, known colloquially as ICT or IT, defines digital technology to a further degree, summarized as the tools and methods of telecommunication, including both physical and metaphysical aspects; for example, computers and the internet. The term new media technology also falls into the realm of contemporary, digital technology because it relates to the content produced by and for digital technology, such as virtual reality machines and the games that are played on them. I found that within the literature reviewed, ICT appeared to be the most used technological references, followed by digital technology, then simply, technology. These terms are all used interchangeably.

Understanding access and barriers to digital technology was important for the IHSS delivery of services because of its population demographics. In 2020, the IHSS program was expected to respond to a federal mandate that required client services change from the traditional/analogue system to a digital system, the "EVV" mandate. The EVV mandate originated from the 21st Century Cures Act, H.R. 34, signed into law by President Obama on December 13, 2016. This change would switch client payrolling services from a paper system to an electronic system. In response to this requirement, the agency recognized the need to better understand its clientele's digital technology means, such as who had access to the needed technology and who was able to use it. Coincidentally, the survey was distributed at the start of the COVID-19 pandemic, a time when digital tools suddenly took a larger place in our lives, enhancing social communication when social distancing was a necessary aspect of social life. As a result of this coincidence, the survey measured digital preparedness for the IHSS program change and in response to the COVID-19 pandemic.

The digital preparedness and the digital readiness gap.

I define digital preparedness as having access; using technology; having confidence with technology; not needing help with technology; being able to get help when it might be needed; and being ready for technological change. For the latter, within this study, I measured "being ready for change" by testing who had technology available when immediate technological change was needed during the COVID-19 pandemic and/or for the anticipated EVV-mandated IHSS program change.

I also connected this test of digital preparedness to the established concept of "digital readiness" (Horrigan 2016). Horrigan (2016:3) found that women, people aged 50 or older, those with lower-income, and those with lower levels of formal education made up the majority of those hesitant to adopt and adapt to technology. These groups fell into a "digital readiness gap" where they lagged in adopting and adapting to technology. Horrigan (2016) defined "digital readiness" as having high levels of technology ownership and confidence to use and learn technology. Lag still made an appearance, however, as a limiter on learning. I define lag as a delay or limiter on one's ability to adapt to technological change and finally suggest that that lag is the experience of being digitally unprepared or unready. Lag, in the form of limited technology access, limited technology usage, and unpreparedness for technological change, appeared to be what slowed or limited one's adaptation to technological change, or in other words, one's resilience to change. Resilience is lag's opposing force, such as the ability to bounce-back from a new change or to counteract lag from change. Digital unpreparedness and thus lag contributes to the digital readiness gap (Horrigan 2016).

With these factors at hand, I ask what about digital preparedness tells us about access to technology? Do those who have access tend to "keep up" with the pace of technology development and avoid lag? Also, if lag is a limiter that slows the ability to catch-up with technology developmental changes, who feels lag the most?

If it is true that one falls behind when one lags, then Humboldt County IHSS asked who are those who lag, and in what ways can we help those needing to catch-up? In what ways can we help these people be ready for the next change? We should consider

that "[a]s technology becomes more integrated into everyday life, people with less use of technology are more likely to become more disenfranchised and disadvantaged" (Czaja et al. 2006:346). Thus, as technology becomes more commonplace in everyday American life, public and private services would do best to recognize and accommodate the needs of those who are digitally unprepared.

In the following chapter, I review how the concept of digital inclusion contributes to digital citizenship and democratic participation. I also review literature on the digital divide and the details of how older adults are the most marginalized users of technology.

CHAPTER 2

REVIEW OF THE LITERATURE

In the previous chapter, I introduced the basis of and foundation for this study as a measure of digital preparedness and access to technology in Humboldt County, as this study was completed in partnership with Humboldt County In-Home Supportive Services. In this chapter, I discuss how digital citizenship leads to democratic participation, and thus measures of digital inclusion should reach out to those who are not technology users, to not "leave them behind." I compare the advanced pace of technology development to the digital divide and review the history and current state of the digital divide. In detail, I discuss how older adults are among the most marginalized users of technology, as they generally have the least use of technology.

Digital Citizenship and Technology: Aspects and Importance

Individuals who have less access or are lower-level users of technology are at risk of having limited access to building social and cultural capital, as their lifeworld is limited when excluded from digital technology (van Dijk 2020). These groups have reduced ability to interact with the full spectrum of online public life, such as aspects of democratic participation, citizenship, and digital citizenship. Margaret Somers (2008) defined citizenship as "having the right to have rights – not any single civil, juridical, or even social right, but the primary right of recognition, inclusion, and membership in both political and civil society" (p. 25). Under this definition, democratic participation is the

application of citizenship, although democratic participation does not necessarily require citizenship status as legally defined as an operative component.

Digital citizenship expands on the idea of citizenship as a right to inclusion not only in the physical world, but the digital, such the right to be included on the internet or to have such access to do so, as means to apply democratic participation to the digital world or by using digital tools. Hintz, Dencik, and Wahl-Jorgensen wrote, "we are not simply 'users' of online tools anymore, but digital technologies are integrated into our lives and into the very fabric of society" (2019:21), which blends into the idea of the cyborg as suggested by Donna Haraway in the starting passage.

Hintz et al. (2019) further explained the relevance of digital citizenship under this contemporary perspective:

> Digital citizens … do not just receive existing rights but make claims to rights that may not yet exist. They do not just use the internet to engage with citizen practices online but to claim new rights. These go beyond established civic, political and social rights and address the technological context of humanity's future. Further, they are not necessarily limited to the territory of the nation-state but refer to a different kind of environment - cyberspace - where people meet and interact. …
> What connects many of these accounts of digital citizenship is a focus on citizens' agency and the processive social change that (may) result from it (P. 30).

This passage suggests that fully inclusive digital citizenship could and should be considered an aspect of being, as it is a function of agency empowerment. For example, the inclusion of older adults as digital citizens is an important element of building and integrating technology into public and private services, such as IHSS. When older adults are counted as users, it can help them better incorporate the technology into their

lifeworld (Gatto and Tak 2008; Quan-Haase et al. 2018; Shapira 2007). Services should be built with and for the community so that adaptive accommodations are there from the start.

In the next section, I look at technology development over time, using a genealogical perspective. Genealogy, in the Foucaultian tradition, is defined as the "insurrection of subjugated knowledges" (Foucault, cited in Somers 2008:9). Margaret Somers (2008) further defined genealogy as "to take up 'minor' or repressed knowledge – not to reproduce dominant mythologies" (p. 9). Both definitions promote revealing cultures of lesser understood knowledge via a critical analysis of the past that links the past to the present. Next, I show how the pace of technological development is outpacing human ability to respond to change, using examples from the history of technological development.

The Rapid Pace of Technology Development

Herein, I argue that the exponential increase *in* technology changes by generation puts older generations at risk of failing in the act of catching-up *with* changes. The exponential increase in technology development, such as the rapid rate of change fueled by the treadmill of production, appears to be related to continued Digital Divide gaps among marginalized populations, such as older people. For example, over the last twenty years, the Pew Research Center has reported that older adults are the lowest users of technology, such as computers or the internet (Anderson et al. 2019; Anderson and Perrin

2017; Horrigan 2016; Pew Research Center 2019; Smith 2014; Zickuhr and Madden 2012).

Rewinding the treadmill and looking deep in its past, I first look to the earliest found evolutionary link to humans and tool use by chimpanzees. Chimpanzees are known to use simple wooden and stone tools for hunting, eating, drinking, defending, playing, the foremost among many other actions, which was famously documented by Dr. Jane Goodall in her landmark 1960 study *The Chimpanzees of Gombe* (see: web short from The Jane Goodall Institute describing tool use by chimpanzees. URL: https://vimeo.com/5004514). Following chimpanzees, and per current anthropological and archaeological study, the first known use of technology among hominids is traced to the lower Paleolithic era, roughly 2.6 million years ago, to members of the Oldowan group who broke stone to make sharp tools (Semaw 2000:1197).

It is projected that the evolutionary shift between chimpanzees and the Oldowan took place about 4 million years ago, leaving a difference of 1.8 million years before the Oldowan advanced simple tools for their own benefit and purposes (Stout 2011:1052). Stout (2011) projected that the Oldowan developed their skills via a culture of copying behavior, where both the *means* and *ends* of action were replicated and shared among groups. Stout noted that based on an understanding of how action behaviors manifest and operate via a cognitive hierarchy, research is decisively limited in knowing of which form of behavior copying was more or most influential; however, Stout clarified that "successful transmission of complex technological behaviors would depend on … individual capacities for hierarchical information processing and social mechanisms of

skill acquisition" (2011:1056). This cultural spread of knowledge and skill over long periods of time thus led to another evolutionary shift around 1.6 million years ago, during what is known as the early Acheulean era, where and when the production of tools became even more elaborate and advanced, setting the pace for exponential compounds on techno-evolutionary development from then until now.

Thus, the treadmill has brought us to the modern age – the Anthropocene (Steffen et al. 2011), where for the first time in history, technological advancements are outpacing the generations within which they are being developed. Following the invention of transistors, semiconductors, and then microchips, in 1965, Gordon Moore, CEO and co-founder of Intel, predicted that the number of transistors to circuit would double every two years (Figure 1) (Moore [1965] 1998). His speculation was coined "Moore's law" and has proved to be true because it was set as a bi-annual industry goal, where rapid development for new technologies became standard. The treadmill of production is a reflection of this industry goal.

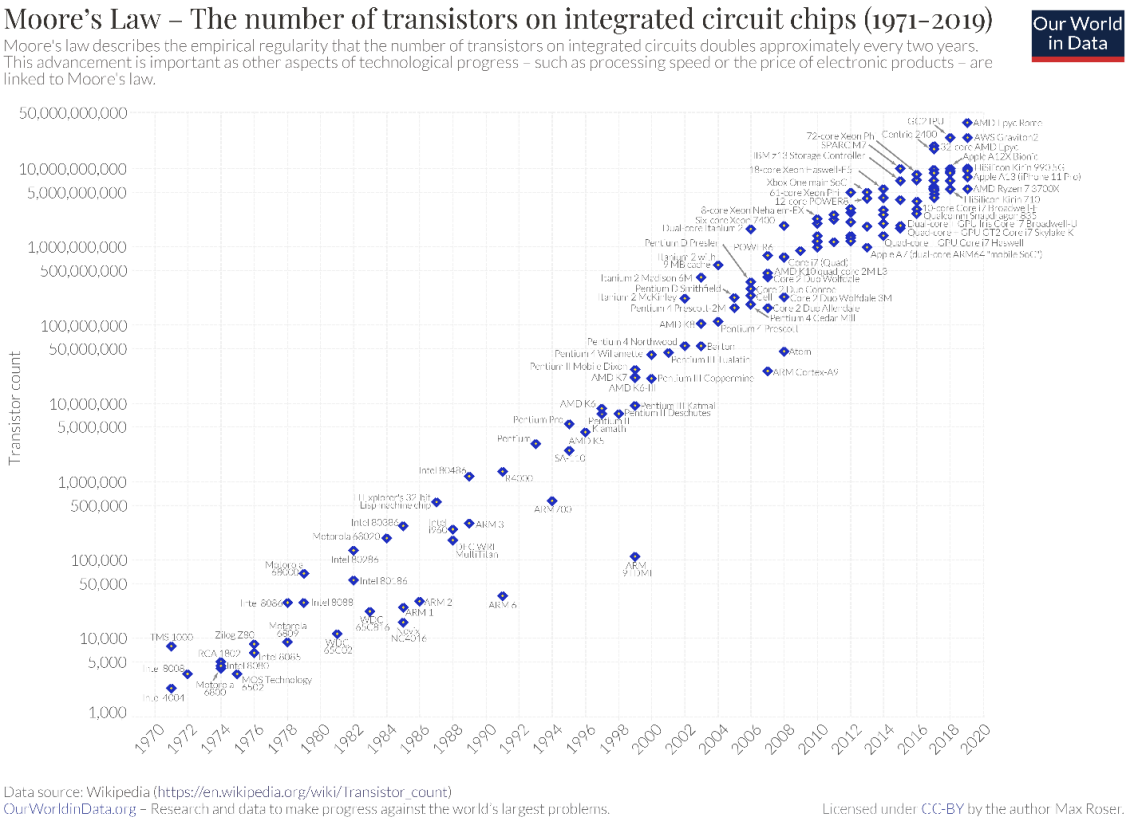

Figure 1. Increasing Transistor Development from 1970 to 2020

Ray Kurzweil (2001), following this prediction, suggested that Moore's law has a finite life of advancement because there is a realistic point at which microprocessors can be made no smaller. Gould, Pellow, and Schnaiberg (2004) would agree that there is an element of technological development restrictions related to resources; not just the physical materials used to make technology, but also capital and other economic resources. Developing at an exponential pace will eventually lead to a point where the demand for resources needed for development will be more consumptive than the available supply. The speed on the treadmill is increasing, but a human can only run so fast before they fall off. In fact, we may already be in the stage where the treadmill is

increasing beyond our pace, but therefore we must diligently work towards reducing this speed.

Schnaiberg (1980) also argued that the treadmill of production not only creates instability for the environment, but for society. A very general example of this is of production workers who are paid minimum wages, receive minimal benefits, or who are otherwise exploited for their labor, despite the overall profit growth provided by the treadmill of production. The theory of the treadmill of production predicted that the increase of environmental degradation since the Second World War is related to industrial need to continuously "develop" in order to meet economic demands (Schnaiberg 1980). For each measure of development, a figurative bar is raised, necessitating more resources than before to exceed, thus creating a loop. I conflate, therefore, that the treadmill of production also fuels the digital divide, specifically by creating the lag that causes gaps in digital readiness. Lag is generated by the treadmill's rapidly increasing production, where lag causes those who do not progress with production to "fall behind."

Kurzweil (2010) also offered that Moore's law is but one paradigm of technological growth out of many in a series of long-term technological evolutions, growth that is expected to continue in other ways into the future. Essentially, Kurzweil suggested that Moore's law is part of an even larger exponential plot covering technological developments over all time, a suggestion that is consistent with Stout's (2011) findings relative to the growth of human-technology use and development over historic time. Kurzweil referred to this rule as the "law of accelerating returns" (also

known as “Kurzweil’s law”) where the “fundamental measure of information technology follow predictable and exponential trajectories” (Kurzweil 2010:1). His research suggests that change and growth in technology will continue and further compound in development as time progresses.

In addition and in comparison to Kurzweil’s theory of accelerating returns (2010), if we project technological inventions by generation, we can see an increase in invention over time and by generation (Figure 2). Fully scaled out, this shows how removed those of the Silent Generation, the youngest of which would be 75 as of 2020, are from contemporary digital technologies.

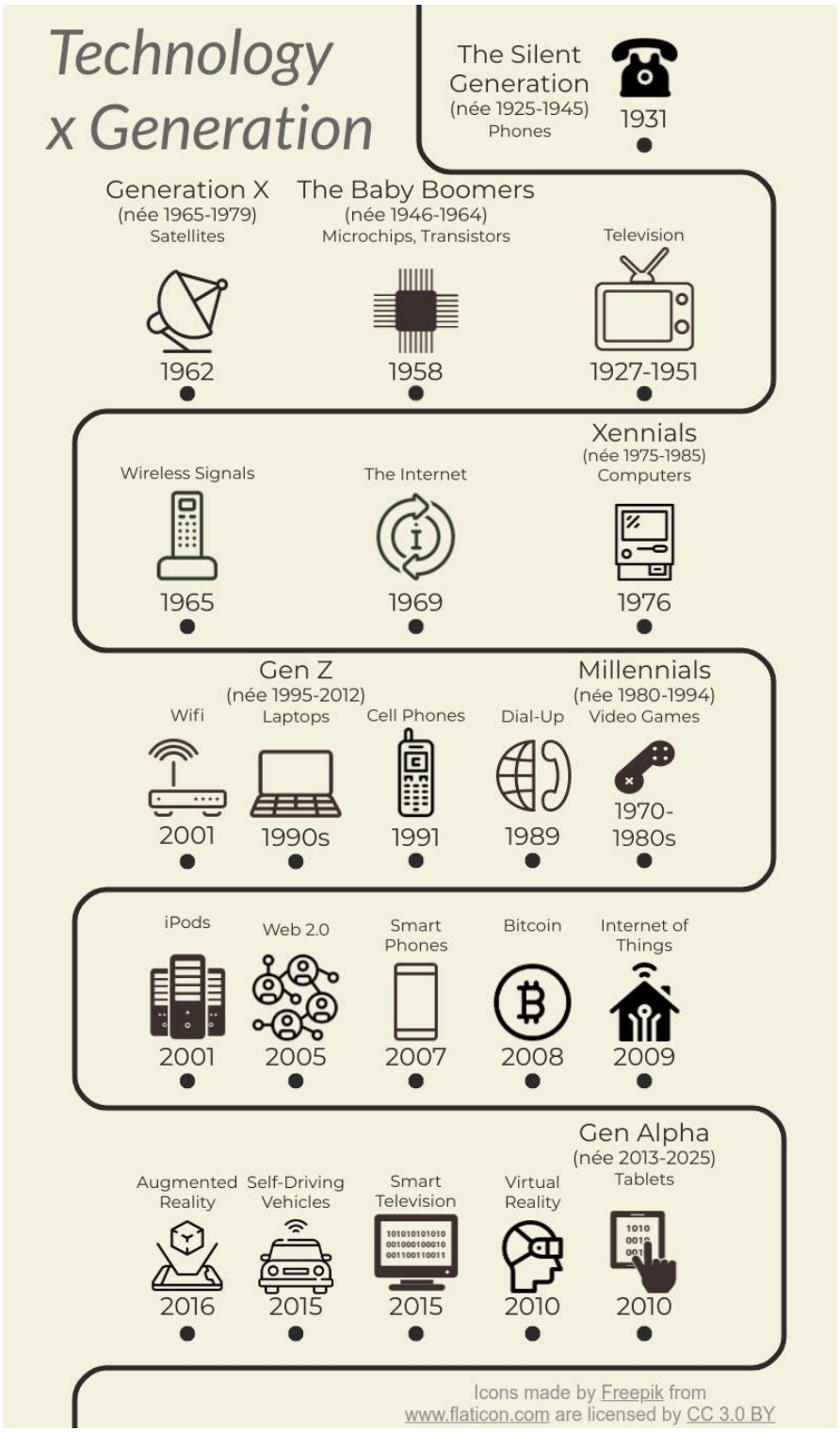

Figure 2. Notable Technology Developments in Comparison to Generations

Indeed, over the last century, there has been a shift in traditional-based technologies to transistor or digital-based technologies. “The ‘digital revolution’ happened so fast that it is not surprising that large numbers of people, especially in the developing countries, lagged behind and so led to a digital divide” (van Dijk 2020:4). Following this, I suggest that rapid technological advancement is a consequence of a human-technology developmental imbalance, in line with the treadmill of production. Because research shows that older adults are the least experienced with technology (Anderson et al. 2019; Ball et al. 2019; Charness and Holley 2004; Choi and DiNitto 2013; Czaja et al. 2006; Di Giacomo et al. 2019; Dijk 2020; Gatto and Tak 2008; Hargittai and Dobransky 2017; Hill, Betts, and Gardner 2015; Hong and Cho 2017; Kaadylak, Rikard, and Cotton 2018; Matthews, Nazroo, and Marshall 2019; Marquié, Jourdan-Boddaert, and Huet 2002; Olson et al. 2011; Quan-Haase et al. 2018; Schulz et al. 2015; Smith 2014; Wagner, Hassanein, and Head 2010; Wu et al. 2015; Zickuhr and Madden 2012), often times self-reporting (Hill, Betts, and Gardner 2015) or internalizing (Marquié, Jourdan-Boddaert, and Huet 2002) this limitation, my proposition is that older generations will continue to have difficulty keeping up with increasing changes over time. Therefore, a focus on reducing digital lag and closing gaps in the Digital Divide is important to prevent further and future development-caused disconnect. Next, I review the Digital Divide and how it illustrates this disconnect.

The Digital Divide

"Digital Divide" is a term that originated in the mid-1990s following the rise of networked home computing. The term refers to "*a division between people who have access and use of digital media and those who do not"* (emphasis original, van Dijk 2020:1). Originally, research focused on differences in material access to technology between the "haves and have nots," as defined in the notable report *Falling through the Net: A Survey of the "Have Nots" in Rural and Urban America* (U.S. Department of Commerce 1995). "The term 'digital divide' is a metaphor. … [It] indicates a special split between people in a divided society. Here the distinction *inclusion in* or *exclusion from society* is relevant" (emphasis original, van Dijk 2020:2). However, Jan van Dijk (2020) cautioned that the metaphor of the term suggests simplicity and technological determinism (because the words "digital" and "technology" imply a singular and technical perspective), rather than complexity, like that found within the social, economic, and cultural dimensions of the divide.

The field of research on the Digital Divide centers around inequality within/between humans and technology, such as unequal access to technological resources (materials), awareness, familiarity, skill, understanding, and participation in society (van Dijk 2020). Jan van Dijk (2012) explained digital inequality in terms of categorical or relational differences, using a network approach (citing Wellman and Berkowitz 1988); "[h]ere the prime units of analysis are not individuals but the positions of individuals and the relationships between them" (p. 58), such as between

micro/meso/macro differences, or between White/non-White people, male/female/other, and young/old. For example, minority groups are less likely to use technology in general (Smith 2014). Pew Research (Perrin 2019; Anderson et al. 2019) specifically found that Black people and Hispanic people were less likely to own computer technology or have internet access but were more likely than White people to own smartphones.

The Digital Divide is also a term for which alternatives have been suggested in recent time due to an often-negative focus, per the focus on "divides." Research on "digital inclusion," a method for supporting access to technology through equity and literacy (National Digital Inclusion Alliance 2017b), is a new development from the last decade. The focus on inclusion, rather than division or separation, opens doors for community development. The issue changes from "who is not included?" to "how can we include everyone?"

Dimensions of the Digital Divide.

From its origin, the definition of the Digital Divide evolved to include additional dimensionalities in years leading into the dotcom bust, Web 2.0, and to now. According to van Dijk (2020) there are four phases of access and use of digital media as the basis of the Digital Divide: motivation, physical access, skills, and usage. The phase of motivation can also be found being referred to as interest in technology; similarly, Ball et al. (2019) referred to this phase as "mental," relative to how self-efficacy, the belief in the outcome of one's actions, influences interest in using technology. Research around motivation for technology focuses not only on how one motivates oneself to use technology, but how external factors can help to motivate usage; for example, like how

efficacious training on technology can motivate one to regular usage. The remaining phases of the Digital Divide are more literal, like the phase of physical access, which relates to the materials needed to access and use ICT.

The Digital Divide can be seen at the individual/micro level, and between meso and macro levels (van Dijk 2020), between urban and rural places, or between nation-states, for example. Ball et al. (2019) expanded on this where they found that there are different levels of the Digital Divide, where level one is related to basic access to technological infrastructures needed to engage in the digital world; level two looks at how lack of access affects usage and skill; and level three is related to differences in social and economic gains using technology. Technological infrastructures under the first level speaks to access to materials, like computer hardware, hardwire, and software; specifically, this level focuses on differences in material access, like that of the "haves and have nots." For level two, the focus is on how differences in material access affect differences in use of ICT, such that one who does not have technology is less likely to use technology. Finally, the divide at level three is one where capital, such as social and economic capital, affect use of ICT, including the possibility of capital gains using technology. This relationship is cyclical. For example, those with higher levels of advantage, like economic advantage, are more likely to use ICT and to then to benefit from using ICT, thus reinforcing use of ICT (Ball et al. 2019:1171).

Adding to this, Ball et al. (2019) proposed a fourth level, a "physical-digital divide," which they argue is connected to age-related differences in use of technology, generative of a barrier to technology between individuals of older age and generation. "In

essence, a social gap or a 'fourth-level' divide may involve significant offline social implications for those who do not, whether by choice or circumstance, participate in digital life" (Ball et al. 2019:1172).

The physical-digital barrier is primarily related to normative expectations involving use of technology in a social setting and can be summarized by the thematic finding that older adults expected limited use of technology when among others (p. 1177). Related findings were that older adults were off put by technology in place of "traditional," primarily physical, methods of socialization, which incidentally led to personal feelings of isolation and ostracization (p. 1178). Essentially, there was an overall difference in the older participants' expectations of the use of technology in social settings, or in other words, their lifeworld.

In comparison to this physical preference, younger generations are sometimes referred to as "digital natives," which defines those who are familiar with technology because of lifelong usage. Similarly, those who start using technology during their life are sometimes called "digital immigrants." Accordingly, Ball et al. (2019) posited that this fourth level divide may indicate that some older people have physical-social preferences, as opposed to digital-social preferences, or a mix of both. These older people and older generations could thus be considered "physical natives" (p. 1179).

I suggest that this preference should be a consideration for social and governmental services that are being built into the digital world and quickly becoming requirements of services. Of concern is exclusionary (leaving out) and "disclusionary" (pushing out) practices that force non-exempt technology practices on an already

vulnerable or marginalized class of people. We must recognize the needs of those who do not prefer to engage with technology. Inflexibility with digital and technological requirements will hold the Digital Divide static.

Older Adults and Technology

Although terminology is starting to change, it appears that the Digital Divide remains the primary term of reference for describing less access, ability, knowledge, use, understanding of, or preference for technology. For example, there is a known Divide between older and younger adults' access to and use of technology (Schneider et al. 2018; Wagner, Hassanein, and Head 2010). Czaja et al. (2006) developed a use prediction model that found the more educated, younger, and less anxious with computer and ICT people are, the more likely they will have experience with these systems (p. 346). Older adults were more likely to feel anxiety towards these technologies, while younger adults were more likely to use technology (p. 342); furthermore, higher levels of computer self-efficacy, belief in personal ability to use technology, predicted general use of technology (p. 347). This age-related aspect of the Digital Divide also scaled by generation, where the oldest generations (the Greatest Generation and the Silent Generation) had the least experience with technology (Vroman, Arthanat, and Lysack 2015:165). Overall, Vroman, Arthanat, and Lysack (2015) found that technology non-users were most likely to be 75 years or older, with a disability, living alone, single or widowed, and with lower levels of education than users (p. 165).

However, age or generational distance from the tool does not necessarily remove the ability of the person to use the tool or technology. There is a misconception within the American public (Quan-Haase et al. 2018; Schmidt and Boland 1986; Vroman, Arthanat, and Lysack 2015) and among other cultures (Fraser et al. 2016; Coudin and Alexopoulos 2010) that people of older age lose the ability to manage digital technology because of an unfamiliarity that comes with age. This is a perception that has appeared as technology has evolved over time and generation. Stereotypes, stigma, and bias against older adults contribute to the misconception that older adults do not or cannot use systems of technology (Hargittai and Dobransky 2017; Kaadylak, Rikard, and Cotton 2018; Mitzner et al. 2010; Moriello et al. 2013; Olson et al. 2011), that they only need the technology services for health-care related needs (Lin et al. 2015; Hong and Cho 2017; National Science and Technology Council 2019; Rogers, Stronge, and Fisk 2005; Schulz et al. 2015; Tak and Hong 2005), and that they have aged beyond the ability to learn the skills needed for ICT use (Coudin and Alexopoulos 2010; Vroman, Arthanat, and Lysack 2015). In fact, internet use by older adults has increased by 55% over the last two decades (Anderson and Perrin 2017; Pew Research Center 2019; Smith 2014; Zickuhr and Madden 2012), and older adults have positive experiences with, and interest in, technology (Mitzner et al. 2010; Quan-Haase et al. 2018; Vroman, Arthanat, and Lysack 2015).

When discussing the American older adult population, we should also ask about who they are. How do we define older age and who are older adults? It is not an easy question. It is considerable that age is not always chronological but can be biological

when people develop their identity from how old they feel rather than how old they are. Some people develop to a different biological, psychological, or developmental age than what is their born age, without much personal choice. In addition, there is considerable variation in how "older adults" is operationalized in the literature. Some defined older adults as age 65 and older (Vroman, Arthanat, and Lysack 2015; Olson et al. 2011; Mitzner et al. 2010); 63 and older, which is the age used by the General Social Survey and the United States Census Bureau; and 60 and older (Czaja et al. 2006; Tak and Hong 2005), which is consistent with the practice of the Social Security Administration; while others lowered the definition to as low as 50 (Gatto and Tak 2008; Marquié, Jourdan-Boddaert, and Huet 2002; Mitchell et al. 2019; Ball et al. 2019; Cantu et al. 2013). Lowering the defined age allowed for research to compare different birth cohorts, or generations, to each other. Overall, the determination of the age categorization appeared to fluctuate by the needs of the research. Accordingly, older adults will henceforth be referred to those 65 and older.

It is important to note that older adults are a growing cohort. It was estimated that by 2050, the number of older adults will double to about 84 million people, comprising 21.4% of the total U.S. population (U.S. Census Bureau 2018; Ortman, Velkoff, and Hogan 2014). This is notable because the overall population was projected to grow from 314 million to 400 million, but within this estimate, the older population was expected to rise while the remaining-age population was projected to plateau.

It was also projected that healthcare needs will grow as the number of older adults rises. Martini et al. (2007) found that per capita healthcare costs for age related needs

would rise by 18% from $2,993 per person in 2000 to $3,543 per person by 2050 (p. 208). Because of this trend, research into older adults and technology has turned to measuring how technology could support older adults with healthcare needs, and similarly how the healthcare industry could develop technology to support the growing older adult population.

The Digital Divide is also found in areas that often intersect with older age, such as older adults with disabilities, who are poor, or who live in rural places. In 2017, people with disabilities were three times more likely to report they do not go online than people without disabilities (Anderson and Perrin); in 2019, people from households that earned less than $30,000 annually were nine times less likely to use the internet than those who earn more than $75,000 (Anderson et al.); and in 2019, people who lived in rural places were 12% less likely than their suburban and urban counterparts to have access or use the internet (Perrin 2019). Notably, the COVID-19 pandemic might have had a strong influence on these trends. It is possible that, as a result of rapid technological changes that were implemented in different ways across 2020, many more people started to go online, and divides started to close as a result of necessity and rapid change.

As technology development grows, so does technology adoption and use, but rates of development and current use are not equal across groups. While older adults were the fastest growing users of technology in 2017 (Anderson and Perrin), those age 65 and older have also been found to be most likely to not use the internet, with one out of three age 65 and older reporting they do not go online or use ICT (Smith 2014; Horrigan 2016; Anderson and Perrin 2017; Anderson et al. 2019; Perrin 2019). Comparatively, nearly

100% of those ages 18 to 49 go online, as do 88% of those 50 to 64 years old (Pew Research Center 2019). Anderson et al. (2019) found that 87% of older adults with an annual household income of $75,000 or more had broadband internet services at home, whereas only 27% of older adults with $30,000 a year or less also had broadband services. Vroman, Arthanat, and Lysack (2015) corroborated Olson et al.'s (2011) research in finding that the least associative activities used by older adults related more to those used by younger adults, such as texting, whereas the most associative were more relevant to an older adult's needs, such as communicating with family and others, managing health information, and managing information about products and travel.

Furthermore, Marquié, Jourdan-Boddaert, and Huet (2002) found that older adults had less confidence with technology, which combined with higher anxiety, aids in lowered levels of self-efficacy among older adults. The lack of confidence for this age group was specific to the computer domain, while a lack of confidence in older adults of this generation is not a typical finding within the majority (Marquié, Jourdan-Boddaert, and Huet 2002:279). Other research (Hill, Betts, and Gardner 2015) explored older adults' use and attitudes towards technology and might help explain older adults' lack of computer confidence. Participants spoke about levels of power generated or removed by use or non-use of technology within themes of "empowerment" and "disempowerment." Within the theme of disempowerment, isolation and physical-digital social barriers were concerns expressed by the participants; within the theme of empowerment, participants spoke about how technology enables ways to gain social and civic inclusion. These

themes of empowerment and disempowerment are notable because they are connective factors of the Digital Divide and digital inclusion.

In response to the findings related to confidence, there is research on motivation to use technology. Gatto and Tak (2008) looked at benefits and barriers to use. Although the largest single source of motivation was a person's own interests or curiosity at 90%, the combined influence of other individuals as a motivating factor rose above a single person's interest (p. 804). Tak and Hong (2005) similarly found "the perceived usefulness of computers motivates older adults to purchase and learn about computers" (p. 136). Gatto and Tak (2008) noted that regardless of the origin of motivation, once the older adult was engaged with ICT, their interest was likely to act as a bridge to learning. This is relative to findings showing lessened anxiety is likely to increase self-efficacy. Overall, Pew Research (2019) found that older adults make-up the least amount of ICT users over the past 30 years of research on the Digital Divide.

These facts about older adults, and intersections including disability, ruralism, and income, are of interest for social and governmental programs that serve these populations to mind for purposes of equity and inclusion when developing services, especially considering the rapid pace of technology development both on a wide scale and in recent times, as a result of the COVID-19 pandemic.

In the next chapter, I present the In-Home Supportive Services program, a California State government program with which this study is connected and partnered, as an example of a service introducing digital technology changes to a marginalized population during the COVID-19 pandemic.

CHAPTER 3

THE CASE OF IN-HOME SUPPORTIVE SERVICES

In the previous chapter, I discussed the importance of recognizing digital technologies as a route to democratic participation, with emphasis on extending digital inclusion to the people who are the least users of technology, as a way to promote digital citizenship and democratic participation. I proposed that the advanced pace of technology development contributes to the Digital Divide, and I provided an overview of the Digital Divide. Because older adults are among those who use technology the least, I also reviewed literature that documents specifically how the Digital Divide affects this group.

In this chapter, I review In-Home Supportive Services, a California social services program, with which this study was partnered. I describe the electronic visit verification mandate, which was a program change required of In-Home Support, and which inspired and provided the basis for this study. I end with my hypotheses for this study.

Overview: In-Home Supportive Services

In-Home Supportive Services (IHSS) is a California state social services program developed to provide in-home care for individuals who are aged, blind, and/or disabled. Humboldt County IHSS serves a rural and largely older population of individuals with disabilities living in poverty. IHSS provides financial assistance to the program recipient to hire an in-home caregiver. As of January 1, 2021, Humboldt County care providers were paid $14.50 an hour, which was planned to rise and cap at $15.50 an hour in 2022.

Pay rate otherwise varies by county. The foremost goal of the program is to keep care recipients in the home and out of care facilities, such as hospitals and skilled nursing facilities. Funding for IHSS comes from federal and state agencies, and the program is governed by federal and state laws. It is the responsibility of individual counties to administer the IHSS program.

For recipients, there are two eligibility requirements they must meet to participate in the program. First, they must have either or both Medi-Cal, California's implementation of the federal Medicaid program, and Medicare, the federal Supplemental Security Disability Insurance program. Both these programs have their own income and asset ceilings for retention of insurance eligibility. As of 2020, this was a limit of $17,609 annual income for one individual (U.S. Department of Health Care Services 2020); under this limit, one is classified "low-income." Second, a medical doctor qualified to speak to the client's medical history must confirm the client has a disability that would put them at risk of out-of-home care if they did not receive IHSS. Separately, care providers must also meet some minimum eligibility requirements; predominantly, they must pass a background check with the Department of Justice and attend a program orientation to learn about IHSS.

Outside of determining individual eligibility, the IHSS program functions much like a payrolling agency. Once a care recipient is determined eligible and becomes established in the program, a social worker assesses how much "time" the care recipient needs for adequate care, after which the recipient acts in the capacity of an employer and hires their own care provider. The recipient signs a contract to affirm they will manage

the care provider in all ways as the employer, following a standard California employer-employee relationship. The care provider is an at-will employee under this contract. To be paid, the provider must enroll through the IHSS payrolling system, as noted above. Workweek time is based on the service time authorized to the recipient, who can use their time to arrange flexible schedules with the provider. All providers may work up to 66 hours a week and receive time-and-a-half pay if they work over 40 hours, in accordance with rules based on the Fair Labor Standards Act (U.S. Department of Labor 2020b).

As a purely cost-saving measure, the cost of providing care in-the-home is cheaper than out-of-home care, such as hospitals and specialty care facilities (Navarre 2009). On the other hand, the government paying care providers a wage for care that is arguably indispensable to the recipient's overall welfare provides tremendous social benefit. California's minimum wage has increased over the years due in part to strong community organizing and direct-action support from the Homecare Providers Union (SIEU-UDWA) (United Domestic Workers of American 2016), while the federal minimum has stagnated at $7.25 an hour since 2009 (U.S. Department of Labor 2020a). Notably, the Humboldt SIEU branch negotiated a $0.50 wage increase at the start of the COVID-19 pandemic; however, it is a considerable concern that the general minimum wage is barely keeping up with the rate of inflation. According to a 2019 Bloomberg report, by 2025, a $15 hourly wage will be equivalent to a wage of $11.93 hourly in 2012 (McIntyre 2019). IHSS paid $10 an hour in 2015. At the current rate of $14.50 an hour, a provider working a regular 40-hour workweek earns about $30,000 in annual income,

which would classify them as "low-wage" or "working-class." Not all providers work full time, however, thus depressing average care provider wages.

With all these details at hand, I see an alarming contradiction within the program: the recipient receives minimal assistance, both in services, by the limiting design of the program assessment, and in care, by rate-of-pay. Yet without adequate care, the recipient could have a decline in their health, which could then mean hospitalization or a stay in a skilled nursing facility, where publicly funded insurance must pay far more to the private institutions than it would via the above home-based care system (Navarre 2009). It therefore seems that the purpose of the program is to prevent the higher cost-for-care that private entities charge, while at the same time balancing a minimum payment for homecare. I interpret this a result of neoliberal practices that force the burden of care on the individual.

The effect of neoliberalism.

Neoliberalism celebrates individualism where the term means every person for themself. Individualism here means the development of "personal responsibility," where responsibility is reflected from the state and the driving forces behind neoliberalism; away from the provision of support for the benefit of people and instead for the benefit of the market; and away from collectivity. "The neoliberal world order relies on a global system of capitalism that is inflected through unequal relations of race, gender, sexuality, age, disability, and citizenship" (Hill Collins and Bilge 2016:138). This is to say that the societal, cultural, and legal oppression and suppression of minorities within and across these groups aids and abets the structural dominance of neoliberalism.

In describing the legal structures that discriminate across these dimensions, Lazaro Lima (2020) wrote that, “for universalists the law is impartial a priori and therefore color-blind and value-neutral; ergo any consideration for ethnic, gendered, or racial particularisms is simply an untenable proposition unworthy of discussion” (p. 150-51). This legal perspective easily translates into everyday life, across and through culture and politics, and an aspect of neoliberalism. I look to inclusion, specifically measures of digital inclusion, to move away from this force of personal responsibility. I see inclusion as a method to celebrate individual differences and needs, and to revive social and communal support.

Electronic Visit Verification

In 2020, a new federal mandate took effect, changing the way IHSS care providers were paid. This was and is the electronic visit verification (EVV) requirement. EVV, in effect, required IHSS payrolling to change from paper to electronic timekeeping, which has larger implications worth analyzing. Unfortunately, the electronic visit verification system order appears to extend neoliberal practices, stemming from developmental advancements in technological research and development (R&D). The purpose of technology R&D, at least so far as it concerns older adults, comes from an urgency for infrastructure to support an aging population in a neoliberal state that has spent the last 40 years eroding and eradicating social supports. For this section, I look at the origin of the EVV and reason for the change, and then describe the change.

What is the purpose of the EVV system?

The electronic visit verification requirement originated as a subclause (section 12006(a)) of the 21st Century Cures Act, an act passed in the last days of the Obama Administration. Signed by President Obama on December 13, 2016, the Act declares its purpose as "[t]o accelerate the discovery, development, and delivery of 21st Century cures, and for other purposes" (Bonamici 2016). The "cures" in reference were written into the Act in both literal and metaphorical terms; for example, Title I refers to innovation projects and state responses to the opioid abuse crisis. Overall, the act focuses on R&D in the field of medicine, designating funds for grants to be distributed into the various noted fields of research.

The section for EVV can be found under Title XII, "Medicaid mental health coverage." Section 12006(a) notes that an electronic visit verification system was a new requirement for personal care services and home health services under Medicaid. The clause elaborates:

> (A) The term 'electronic visit verification system' means, with respect to personal care services or home health care services, a system under which visits conducted as part of such services are electronically verified with respect to--
> (i) the type of service performed;
> (ii) the individual receiving the service;
> (iii) the date of the service;
> (iv) the location of service delivery;
> (v) the individual providing the service; and
> (vi) the time the service begins and ends (Bonamici 2016).

After reviewing the other topics of R&D listed in the act, I find the EVV clause out of place among the other "cures" because of the seemingly authoritarian nature of the

policy. It is the only "cure" listed that enforced a change upon the population, rather than a grant for R&D. While the other sections of the act focus on "curing" issues of contemporary society, with examples such as childhood trauma, substance use disorders, and suicide prevention, the EVV section does little but require technological system changes, "curing" long-standing physical systems into the technological. Why was this requirement included as a *necessary* "21st Century cure?" Was the purpose simply to advance the use of technology among the American populace?

I propose that instead of simply for the sake of progress, the EVV system, by its force of technology, also acts as a data capture and surveillance system, a method known as "dataveillance" (Hintz, Dencik, and Wahl-Jorgensen 2019; Savirimuthu 2015; Van Dijck 2014), another function of neoliberalism. Dataveillance is concerning because it restricts autonomy, in this case, by the suggestion that increased data monitoring of services is a measure of fraud prevention. This is even though rates of welfare fraud are historically low and actual fraud is rare – not only in the US, but in Canada, the UK, and Australia as well (Dobson 2019). Therefore, the EVV change appears to be more of a guise for dataveillance, which is, in turn, an advanced method of control over already-marginalized populations.

The EVV system in place.

The federal government required that States implemented functional EVV systems effective January 1, 2020 (Centers for Medicare and Medicaid 2020); however, California received a good-faith extension that pushed implementation out to mid-2020. Humboldt County's effective start date was September 1, 2020. The local IHSS office

spent the extension time reaching out to both recipients and providers to inform them of the change and help them enroll in the new system. Although the federal government has specific requirements for what the EVV requirement includes, states have the right to commission or develop their own software systems. IHSS developed both an online timesheet system, called the electronic services portal (ESP), as well as a telephonic timesheet system (TTS). IHSS clients may choose to use one or both systems.

Both systems require the same inputs, although technical management is different. New options of reporting time worked, such as location, start time, and end time, were required with the EVV change. For the electronic system, when a provider submits a timesheet for recipient approval, the recipient receives notification by email and is expected to login to their account to approve or reject the timesheet digitally. The telephonic timesheet system, although the same in function, is far more labor intensive because it requires tactile input and confirmation for each option. The telephone system takes more time overall, although some find it more familiar (per use of phones) than the digital technology of the electronic system.

Moreover, the Centers for Medicare and Medicaid (CMS) reviewed and rejected how California designed the system framework for not meeting all the above federal requirements. California State representatives, during an IHSS stakeholder meeting on October 19, 2020 (California Department of Social Services 2020b), reported that CMS required that IHSS include a clock-in/clock-out feature that captures geo-location in-real-time at the start and end of a workday. One of the State's proposed solutions to this new requirement is to develop a mobile app with these features included. The California

Department of Social Services incurred federal fines starting in 2021 until these changes are implemented, which at the time of this writing, are still pending development. I expect this additional change will cause even greater service restrictions, as a result of increased dataveillance and the additional dimension of technology via smartphone app services.

For the current EVV requirements, I look to digital readiness to study how prepared IHSS clients were and are for the electronic service changes. I question whether lag is a significant factor limiting resilience to the EVV change. I also question aspects of the EVV system, which has caused a concern within the County over whether marginalized social service recipients had and have the tools necessary to adopt and utilize the new electronic and telephonic payroll services, as well as navigate the electronic visit verification changes. Overall, I argue that compassionate and flexible inclusion to help disadvantaged groups like older adults become common users of technology should be an important element of social and healthcare services.

Formal Hypotheses

Based on the aforementioned research, I developed several hypotheses related to technology access and use of my sample. First, that they will have low access to technology. Second, that they will not use technology often. Third, that they will have low confidence in their use of technology. Fourth, that they will need more help with technology. Fifth, that they will rarely be able to get help with technology. And sixth, that they will not be ready for technological change. Overall, I hypothesize that older adults,

lower-income disabled individuals, and rural-living people will be among the respondents who are not “digitally prepared,” and therefore fall into the “digitally readiness gap,” defined by Horrigan (2016).

CHAPTER 4

METHODS

In the last chapter, I provided an overview of In-Home Supportive Services, the agency with which I partnered for this research. I also explained the federal electronic visit verification mandate, which is a program change required of In-Home Support. This mandate inspired and provided the basis for this study. I closed the last chapter with my hypotheses that set the stage for the analysis of my data. In this chapter, I describe the study design and implementation including questionnaire development, sampling method, survey administration, and my data analysis plan. I further describe my sample of care providers and recipients.

Survey Design and Administration

The survey was titled "Humboldt County and Access to Technology." To develop the instrument itself, I first considered questions on similar national surveys such as that of the American Association of Retired Persons (AARP) (Nelson Kakulla 2020) and the Pew Research Center (Anderson and Perrin 2017). I developed my instrument in SurveyMonkey and gathered feedback from colleagues and other researchers. The final survey (Appendix A) included five main sections: internet information, phone information, electronic timesheets, emergencies and technology, and using technology. Demographic information were also captured from this survey. The first section asked about access to these services and related technologies, while the second section asked

about technology preparedness for the COVID-19 pandemic shelter-in-place orders, and expected preparedness for the IHSS EVV changes. The last section focused on respondents' need for help, ability to get help, confidence, and belief training would help them with technology. Humboldt County IHSS provided ten $5 Starbucks Coffee gift cards as an incentive to complete the survey, although completing the survey was not mandatory to be entered into the drawing for a gift card. Gift card awardees were drawn randomly following the closing of the survey. The survey was open from June to December, 2020. The research was approved by the HSU Institutional Review Board (Appendix B).

Sampling Method

In-Home Supportive Services provided me with a full population list (N=4,155) of the Humboldt County active recipient and care provider names, regions, and emails. From the list, I generated a stratified random sample. I first sorted the list by recipient/provider status. Then, I further sorted those lists by region type: urban, rural, or very rural. Statistical sample calculations at 95% confidence showed that the sample size for each very rural region in Humboldt, specifically the outskirt regions, required 100% inclusion due to the small sample pool; therefore, I added all individuals living in very rural places to the total sample. I used a sample calculation to determine sample size needed from the regions with larger populations. In June 2020, through the U.S. Postal Service, I mailed the sample population (n=2,338) a cover letter (Appendix C) that included online survey information and a paper copy of the survey with a postage paid

return envelope. Following the paper survey distribution, I also emailed the survey to the sample populations. Two weeks after the first email, I sent one email reminder.

Most responses were submitted in two large waves: the first partway through June and the second at the end of June. I recorded only 40 responses in both July and August. The majority (61%) of responses were received on paper via the U.S. Postal Service. I input each paper survey into SurveyMonkey, tagging them with a response ID. The high paper response rate foreshadowed results of this research about access to technology. Overall, there was a 24.5% valid response rate (n=573), including responses from both recipients and care providers. SurveyMonkey calculated a 94% completion rate with an average response time of four minutes.

Description of Analytic Plan

I used descriptive statistics to provide a profile of the sample and their experiences with technology. Inferential statistics were then used to identify significant patterns of technology access, usage, and need. Independent samples t-test, ANOVA, and chi-square tests, as well as bivariate correlation, were used to examine relationships among variables. Analysis started with a comparison of relationships between the respondent demographics: IHSS status (care provider or recipient), gender, race or ethnicity, age, education, household income, and location; and technology variables: access to computers and phones, and internet and phone services; connection and signal stability, and data availability; confidence with technology; need for help and ability to

get help with technology; need for training to use technology; and need for technology items or services when there is a change.

I first expected that recipient respondents would be older than care providers in general because older age-related factors can play a factor in recipient need for IHSS services. Independent samples t-test was used for this determination. Age was also recoded into age groups to be used in chi-square analysis. Chi-square analyses were also used to compare relationship differences between demographic groups, like care providers, recipients, and household income. For example, a difference between IHSS clients and income was also expected because recipients receive Social Security Insurance or Medi-Cal insurance as a requirement of service eligibility. Chi-square analyses continued by testing demographic against technology variables to identify specific differences between the respondents and their access, use, and need for technology. For example, chi-square analysis tested whether recipients or those with low-income have less access to the internet, or are less confident with technology.

In addition to relationship comparisons, technology variables were also tested against each other to measure correlation for an index. The index was created such that the higher the score, the lower the access and usage but also a higher need for technology. Multivariate analysis was then performed with the index to obtain a model of those who had less access, less usage, and needed more technology in case of change.

Sample Population

In this section, I compare demographics of Humboldt County, the full populations of Humboldt County and California State IHSS recipients and care providers, and the survey respondents (Tables 1 and 2). The Humboldt County resident populations of those 65 and older, who are Native American, and who have an advanced degree are statistically significant comparisons to the survey respondent sample. Overall, the demographics of the respondents to this survey are similar to that of the IHSS service population. The sample is older and more likely to be disabled than the population of Humboldt County (Tables 1 and 2).

Care providers and recipients, and age.

Care providers were more likely than clients to respond to the survey (Table 1). Although more (10%) surveys were sent to recipients than providers, and there are 25% fewer care providers (N=1,757) than recipients (N=2,332) in Humboldt county[1], about 10% more of my respondents were care providers (n=294) than recipients (n=237). The difference in response rates suggested there was more at play that could explain the groups' differences. I expected there was a further difference between IHSS status, age, and response rate, which could be indicative of older adults' interest in technology; for example, interest in responding to technology as a topic, and/or difference in access, ability, and readiness/preparedness.

[1] This likely was and is because care providers can work for more than one recipient. This was seen at the State level as well, where there were 15% more recipients (N=641,000) than care providers (N=546,000), according to the California Department of Social Services (CDSS 2021).

Upon closer examination, a comparison of age groups, such as 18 to 44 or 65 and older, to generational groups, such as Millennials or Baby Boomers, revealed that there were more younger respondents when counting by age groups than by generational groups, $\chi_2(3, 536)=536.0$, $p<.001$, $\gamma<.001$. To accommodate for this difference, and due to the subjectivity of what age makes one an "older adult," age was changed into generational cohorts by using groups of twenty years. Middle-aged respondents had the majority within age groups, but those who fell within the Baby Boomer generation made-up nearly half of the respondents. As a result of this difference, I believed that grouping by age 65 and older only was too limiting because of the skew towards middle-aged, so I also used generation as a comparative measure of age (Table 1).

An independent sample t-test confirmed recipients were ten years older, on average, than care providers, $t(513.0)=7.8$, $p<.001$. Additionally, 60% of recipients were of the Baby Boomer generation and 11.5% were of the oldest generation, with recipient age negatively skewed (Table 1). Not surprisingly, care providers were slightly younger with age normally distributed. Care providers of Generation X represented the majority of my care provider sample. At the state level, older adults aged 65 or older account for 55% of IHSS (CDSS 2021), compared to 37% in Humboldt County (CDSS 2021), and 32% of respondents; comparatively, the 2019 U.S. Census reported that older adults made-up 19% of the Humboldt County general population.

Gender and race/ethnicity.

Most of the respondents (73%) were female and were overrepresented as compared to the proportion of females (50.5%) in the general population of Humboldt

County residents (CDSS 2021), which can be seen in Tables 1 and 2. A significantly greater proportion of my provider sample was female, $\chi_2(2, 545)=26.5$, $p<.001$, $\lambda=.002$, $\phi_c=<.001$. The statistics on female care providers match what has also been found in prior research. Although statistics on overall IHSS care providers' gender were not readily available, a 2020 AARP report on caregiving in the United States noted that 60% of caretakers are White women with an average age of 49 (AARP and National Alliance for Caregiving 2020:89).

White people made-up the majority (78%) of the respondents (Table 1). This statistic is less than the Humboldt County population at large, where 5% more were White (U.S. Census 2019), but more (6%) than their proportion in the State population (U.S. Census 2019). American Indian or Alaskan Native (AIAN) was the only other ethnic group with a sufficiently large sample size ($n>30=54$) and they represented 10% of the respondents (Table 1). As can be seen in Table 2, the proportion of respondents who were AIAN was significantly greater than their population proportion of 6.4% in Humboldt County (U.S. Census 2019). On average, White respondents were older ($M=57.7$ years, $SD=15.3$) than Native American respondents ($M=52.8$ years, $SD=16.5$) and all others ($M=48.1$ years, $SD=18.6$), $F(2, 498)=8.0$, $p<.001$. Tukey's post hoc test revealed that there was a significant age difference between White people and people of other race or ethnic make-up besides Native Americans, $p=.001$.

Education, income, and location.

Most respondents (31%) completed some college without obtaining a degree as their highest level of schooling (Table 1). As can be seen in Table 2, this is similar to

Humboldt County residents (U.S. Census 2019) as 90% of respondents had at least graduated from high school. When explored further, chi-square revealed that 10% more care providers had at least some college education compare to recipients, while 10% more recipients than providers had only a high school education or less, $\chi_2(1, 529)=5.0$, $p<.05$, $\phi_c=.025$. Otherwise, there was no difference between education or other variables.

Income was a variable of interest because I expected it would be related to material access, such as by the ability to purchase computers or phones, or pay for internet and phone services. Income was measured by asking about total household income. Sixty-four percent of respondents lived with $25,000 or less in annual household income (Table 1), with a median household income between $10,000 and $25,000, lower than the median household incomes than the broader population of Humboldt County residents (U.S. Census 2019). The 2019 median household income in Humboldt County was $48,000, yet only 20% of respondents had a household income of $25,000 to $50,000, and 83% of the respondents had income under $50,000. Also, those with lower income were of older age ($M=58.9$ years, $SD=15.8$), $t(395.8)=4.7$, $p<.001$. I investigated whether this difference related to the differences in recipient and care provider income and found that 92% of recipients have lower income ($25,000 or less), while 60% of care providers had higher income, $\chi_2(1, 503)=140.2$, $p<.001$, $\lambda<.001$, $\phi_c<.001$. This was likely a result of the recipients' fixed income skewing them towards lower income. Otherwise, there was no difference in income by gender, race, or location.

As for location, this was included because of the general rural nature of Humboldt County contrasted with more urban population centers. I defined urban as being within

fifteen minutes of a city or large town center. This included the cities of Eureka, Arcata, Fortuna, Garberville, and McKinleyville. All rural areas, including very rural places, were collapsed into one category because there was no difference between semi-rural areas (15min to 1hr of one-way travel) and very rural (1hr+ of one-way travel). Most respondents (80%) lived in an urban area (Table 1). Other analyses revealed no difference between location and other demographics.

Table 1. IHSS Survey Respondents Sample Description

Variables	*Recipient*		*Care Provider*	
	N	*Percent*	*N*	*Percent*
Gender				
Female	148	61.7%	247	81.0%
Male	90	37.5%	56	18.4%
Other / Non-binary	2	0.8%	2	0.7%
Total	240	100%	305	100.1%
Race/Ethnicity				
Native American	19	8.2%	35	11.4%
Asian or Pacific Islander	2	0.9%	6	2.0%
Black or African American	3	1.3%	6	2.0%
Hispanic of Latino	10	4.3%	11	3.6%
White or Caucasian	184	79.7%	238	77.5%
Other	13	5.6%	11	3.6%
Total	231	100%	307	100.1%
Age				
18-44	26	11.0%	96	32.1%
45-64	102	43.0%	127	42.5%
65-74	70	29.5%	58	19.4%
75-99	39	16.5%	18	6.0%
Total	237	100%	299	100%
Generation				
Gen Z and Millennials (18-37)	20	8.4%	54	18.4%
Generation X (38-57)	47	19.8%	124	42.2%
Baby Boomers (58-77)	143	60.3%	104	35.4%
Oldest Generations (78-99)	27	11.4%	12	4.1%
Total	237	99.9%	299	100.1%
Education				
HS Degree or Less	92	39.7%	90	30.3%
More than HS Education	140	60.3%	207	69.7%
Total	232	100%	304	100%
Household Income				
$0-$24,999	206	92.0%	119	41.5%
$25,000+	18	8.0%	168	58.5%
Total	224	100%	287	100%
Location				
Urban	184	79.0%	232	78.4%
Rural	49	21.0%	64	21.6%
Total	240	100%	301	100%

Table 2. Demographic Comparison of Sample to Humboldt County Residents

Variables	*IHSS Sample*		*Humboldt County Residents*		
	N	*Percent*	*N*	*Percent*	*Z-score*[1]
65 and Older	185	32.3%	135,558	18.6%	8.39***
Female	395	72.5%	135,558	50.4%	-2.29
White / Caucasian	425	78.4%	112,784	83.2%	-3.06
Native American	54	10.0%	8,676	6.4%	3.51***
High School Graduate	486	90.7%	122,680	90.5%	0.16
Has Advanced Degree	188	35.1%	41,210	30.4%	2.44**

*p < .05 **p < .01 ***p < .001

[1] The following formula was used to compute z-scores to compare the IHSS sample to Humboldt County residents on several demographic measures:

$$z = \frac{(\hat{p}_1 - \hat{p}_2) - 0}{\sqrt{\hat{p}(1-\hat{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

CHAPTER 5

FINDINGS

In the last chapter, I described the study design and administration, sampling method, and analytic plan. I also described my sample demographics. In this chapter, I present the results of my data analysis.

Revisiting Hypotheses

I began by examining relationships between IHSS client access to and use of technology, preparedness for digital and technological change, and their gender, race, age, education, income, and location. I expected that the older a person is, the less likely they are to own or use technology, have confidence with technology, or be ready for technological change. I also expected that in comparison to younger respondents, they would be more likely to need help with ICT. Research shows that older people within older generations understand and use technology less than younger generations (Czaja et al. 2006:334). I further expected that this relationship would be compounded by disability[2] due to lower ability to use technology items, lower income due to lower ability to afford materials, and potentially, rural living due to lower or limited infrastructure.

I also expected that the more education a person has, the more likely they would be familiar with, and therefore use, technology. As education often requires the use of

[2] Being an IHSS recipient was interpreted as being disabled, since having a disability is one of the primary measures of IHSS service eligibility.

technology, being educated is assumed to be an indicator of technology use. I did not expect there to be a difference in the use of technology between men and women as research has found that in there is no difference between how women and men use technology, such as their range of technology used or their performance with technology (Jackson et al. 2008; Deursen and van Dijk 2010; van Deursen and Helsper 2015).

Next, I expected that the more income a person has, the more likely they would be able to afford computer technologies. I was especially interested in how this relationship affects individuals who are low-income because of the implication that the less income a person has, the less likely they would be able to afford technology. This might be the case with older adults who do not have a source of retirement pension; or disabled people, like IHSS recipients, who might have a restricted income according to the eligibility rules of Supplemental Security Insurance, Medi-Cal, and/or Medicare.

Finally, I expected that people who live in a rural location would also have less access to technology, use technology less, and be less ready for change due to or because of technology. Noting that the infrastructure of rural Humboldt is not well developed, there are fewer and poorer quality options or poorer quality options as compared to urban areas. I therefore expected that respondents in rural areas would be more likely to report fewer technology access options than those in urban places. And I expected that Native people with a lower income would report less access or be more affected by poor access in the area because of historic poverty within this group.

Bivariate Analyses

In this section, I examine relationships among my access and use variables in order to identify candidate variables for use in a linear regression model.

Access to technology.

The survey included questions about access and use of phones including landlines, cellphones, and smartphones, as well as internet, computer, and email because the new electronic systems IHSS implemented, to meet the EVV requirements, were a telephonic timesheet system and an online ("electronic") service portal. Respondents who reported no access to the internet or phone services (13%) were considered the "non-user" respondents. Likewise, 16% of respondents had access to a phone data plan only for access to the internet, but no computer technology. These latter respondents were not asked about their internet services and were considered the "phone internet only" users.

Most respondents had access to a phone (82%) and used the internet (87%), and respondents who reported phone access were more likely to report internet use, $r(561)=-.14$, $p=.001$. Also, the vast majority (81%) of respondents used the internet at home at least once a month (Table 3). Following this, phone services and internet services were likely to be the same, $r(519)=.11$, $p<.05$. The most commonly reported cell phone providers in descending order were Verizon Wireless, AT&T, Suddenlink, U.S. Cellular. More details comparing these services can be seen in Table 4.

There were differences in access by race/ethnicity, and whether someone lived in a more rural vs urban area (Table 3). Those in more urban areas, as compared to rural

respondents, reported having access to significantly more internet data when they needed it, $\chi_2(1, 541)=12.0$, $p=.001$, $\phi_c=001$. Native Americans, compared to other races and ethnicities, had less access to the internet in rural areas, $\chi_2(1, 110)=8.0$, $p<.01$, $\phi_c=.005$. Care providers were twice as likely as recipients to own and use both computers and phones, and have access to the internet, $\chi_2(3, 563)=38.9$, $p<.001$, $\lambda<.01$, $\phi_c<.001$ (Table 3). Lastly, internet and phone users significantly differed by education, where twice as many respondents with higher education (some college or more) use both internet and phones compared to those with lower education (a high school degree or less), $\chi_2(3, 563)=26.9$, $p<.001$, $\phi_c<.001$.

In regards to phone and internet service connections, 45% of older adults of the oldest generations had no phone data plan, nor did 25% of Baby Boomers, compared to the younger generations, $\chi_2(9, 209)=38.3$, $p<.001$, $\phi_c<.001$. When layered by income, this rate increased to 80% total for Baby Boomers and the oldest generations with low income, compared to 45% of older generations with high income, $\chi_2(9, 500)=58.1$, $p<.001$, $\phi_c<.001$. Meanwhile, compared to other generations, and against income, younger generation respondents with low income were more likely to run out of phone data ($\chi_2(6, 227)=16.6$, $p<.05$, $\phi_c<.05$), and internet data ($\chi_2(6, 191)=16.8$, $p=.01$, $\phi_c=.01$), which could be explained by the group's higher levels of usage. This altogether indicated that lower income is a limiting factor to suitable access.

Use of technology.

Because material access and functions of connectivity are only the first and second levels of the Digital Divide, respondents were also asked about their ability with

technology and their beliefs about technology (Table 3). According to van Dijk (2020), those without access are more likely to experience barriers to ability, understanding, and other aspects of usage. Results exemplified this, where recipients expressed significantly less confidence with technology than care providers, $\chi_2(4, 534)=45.3$, $p<.001$, $\phi_c<.001$. Recipients were also more likely to need help ($\chi_2(4, 528)=76.7$, $p<.001$, $\phi_c<.001$), as did older adults ($\chi_2(4, 546)=27.3$, $p<.001$, $\phi_c<.001$), when compared to their younger, care providers counterparts.

EVV and COVID-19.

Finally, being prepared for change was measured by a count of technology and/or internet/phone service needs for the COVID-19 pandemic and/or the IHSS EVV system changes. This study focused on respondents' response to technological change because of 1) concern that change impedes this population's access, usage, and resilience (ability to adapt to change), and 2) concern that new and future changes will continue or further limit this population as a result.

The majority (80-90%) of respondents needed no changes for either the pandemic or EVV (Table 3). This was expected as the COVID-19 pandemic was already two months underway by the time surveys were received by the respondents. Respondents therefore were answering whether they *needed* to get new technology or make changes to their internet and/or phone plans because of the shelter-in-place orders. In comparison, EVV changes were an anticipated factor. Respondents were informed on the survey that EVV system changes were planned for July, two months into the future. As EVV changes

did not actually go into effect into September, respondents were reporting what they anticipated needing to be prepared for the EVV change.

Among those not prepared for change, IHSS recipients were significantly more likely than care providers to report need for internet or phone service changes in anticipation of IHSS EVV implementation, $\chi_2(1, 428)=8.2$, $p<.01$, $\phi_c=<.004$. These results are likely because care providers had more use, more confidence, and less need for help with technology than recipients. Therefore, I found that older adults and those with disabilities expected more needs when there is a technological change, likely because they have less access, less confidence, and need more help with technology.

Table 3. Summary Statistics for Technology Variables

Variables	*N*	*Percent*
Phone Use		
Has Access to Phone	472	82.4%
Phone Plan		
Always Enough Data	336	77.1%
Always Connected (Data)	230	52.4%
Always Connected (Signal)	260	54.6%
Internet Use		
How Access		
Computer/Wifi Connection	167	29.7%
Phone Data Plan Only	89	15.8%
Both Computer/Wifi & Phone Data	233	41.4%
No Access	74	13.1%
Connection		
Always Connected	188	47.7%
Always Enough Data	310	82.2%
How Often Used		
>Once a Month	462	80.8%
Technology Ability		
Has Confidence	454	79.2%
Does Not Need Help	360	9.2%
Able to Get Help	396	75.9%
Belief Training Will Help	247	58.1%
No Change Needed for Pandemic or EVV	310	54.1%

Note: The above table describes what percent of respondents had access to technology, used technology, had confidence with technology, did not need help, but were able to get help if needed, did not think they needed training on technology, and did not need technology following the pandemic or EVV.

Table 4. Correlations Between Measures of Technology Connection, Usage, and Changes

Variables	*1*	*2*	*3*	*4*	*5*
1. Internet Data Availability	-	.91**	.37**	.43**	.15**
2. Internet Connection Stability		-	.34**	.39**	.11*
3. Phone Connection Stability			-	.77**	.53**
4. Phone Data Availability				-	.45**
5. Phone Signal Stability					-
1. Confidence	-	.24**	.51**	.26**	-
2. Frequency of Help Needed		-	.08	.22**	-
3. Ability to Get Help			-	.27**	-
4. Belief in Training to Help				-	-
1. Tech Changes for Pandemic	-	.17*	.44**	.30**	-
2. Tech Changes for EVV		-	.16*	.11	-
3. Int/Phone Changes for Pandemic			-	.49**	-
4. Int/Phone Changes for EVV				-	-

*p < .05 **p < .01 ***p < .001

Note: N = 573 surveyed respondents. Pearson R was used for correlations. This table denotes statistically significant correlations between technology variable groups and demonstrates that these variables are significantly related for use in an index for linear regression.

A Model of Digital Unpreparedness

I next sought to develop a model of digital *un*preparedness. I started by creating an index of who has limited access to technology and use of technology and need for technological change. The method for this analysis was to first review bivariate correlations from my previous analysis to include relevant variables in my regression model. The variables combined for this model included no/low access to a computer, phone, and the internet; no/low internet/phone connection and signal stability; and data availability (Table 4). Low confidence and need for help with technology, plus ability to get help and need for technology training, were also correlated and thus included in the model (Table 4). These factors accounted for use of technology. Lastly, I counted whether hardware and internet or phone service changes were needed for either the COVID-19 pandemic or the EVV service change, as an additional factor shaping access (Table 4). I referred to changes needed as the measure of preparedness for technological change. Overall, the index ranged from zero to fourteen, with a count of fourteen indicating that the respondent had the *least* digital preparedness, or in other words, was the most digitally *unprepared*. I included respondent demographics in the linear regression model in order to predict who was and is digitally *un*prepared. Variables were entered into the regression analysis using a stepwise method.

Age and being a recipient, non-binary gender, Native American, having a higher education, lower income, and living in a rural area were all significant predictors of digital unpreparedness. These coefficients were notable in that they allowed for a model

of predicting whether a Humboldt County IHSS client is *not* "digitally prepared" for technological change by having limited access, usage, and more need for change. The model itself was statistically ($F(7,791)=10.3$, $p<.001$) and substantively significant (adjusted $R^2=.108$). Collinearity diagnostics for this test did not reveal any serious problems with multicollinearity. All VIF values were between one and two for this test, and the Durbin-Watson test reported normal values (D-W=1.374). A histogram of residuals revealed a normal curve with a slight right-tailed skew (.796) and a leptokurtic distribution (.797). By the seventh model, the adjusted R^2 (.108) showed minimal shrinkage when compared to the unadjusted value (.120). This indicates that the model generalized well. Twelve percent of the variance in digital unpreparedness could be explained by variables in the model.

Those with low education were more likely to be digitally unprepared than those with higher education. As can be seen in Table 5, knowing the education level of respondents significantly improved the prediction of digital unpreparedness. Education had an inverse effect on unpreparedness, and examination of the standardized regression coefficients showed that education level had the greatest effect on measures of digital unpreparedness. Holding other variables in the model constant, having more than a high school education decreased the digital unpreparedness of the respondents. Stated another way, improving education would likely increase one's digital *preparedness*.

Native Americans were also more digitally unprepared. Being Native American corresponded with a one-point increase in being digitally unprepared, compared to Whites and other races and ethnicities (Table 5). Other digital unpreparedness factors

included having low income and living in a rural location. These both corresponded to almost a one-point increase (B=.9) in digital unpreparedness (Table 5). Compared to providers, recipients were more digitally unprepared (Table 5); also, older age related to a higher likelihood of digital unpreparedness, although age's effect on unpreparedness was marginal (B=.02).

Non-binary people were also more likely to be digitally unprepared than men and women. Being non-binary corresponded to a four-point increase in digital unpreparedness compared to females and males, controlling for other variables in the model. However, it should be noted that this is a weak relationship because there were only four non-binary respondents in the sample (Table 5).

Overall, the model shows that higher education, higher income, and living in an urban location are strong predictive factors of digital *preparedness*, while having a disability (being a recipient), being older, Native American, and identifying as non-binary puts one most at risk of being digitally *un*prepared.

Table 5. Linear Regression Model Coefficients Predicting Digital Readiness

Variables	B	SE B	*β*
Constant	2.53	.60	-
More than HS Education	-1.12	.30	-.16***
Low-income	.89	.34	.13**
Race: Native American	1.18	.46	.11**
Age	.02	.01	.11*
Rural Location	.94	.38	.11*
Recipient	.70	.35	.10*
Non-binary Gender	3.96	1.73	.09*

*p < .05 **p < .01 ***p < .001

Note: Model significance: F(7, 790.7)=10.3, p<.001

CHAPTER 6

DISCUSSION

In the previous chapter, I reviewed the detailed findings of this study, starting by revisiting the expectations of my hypotheses, in advance of my findings. I ended the findings section with a description of a model of digital unpreparedness, the culmination of all the findings. In this chapter, I discuss how these findings link to literature on the Digital Divide, and expand on key findings related to improving and providing digital technology education and training.

Before moving on, I want to first address the successes and limitations of this survey and study. I consider the high response rate a major overall success; however, not sending the survey through the mail more than once might have proven to be a limitation for more diversity of responses. More specifically, I expect that if the survey was sent a second time, it might encourage or capture more responses from the low-response groups that did not meet a sufficiently large sample size. These groups included other racial ethnicities besides White people and Native Americans, those who identify as non-binary, and people who live in very rural areas. I also consider the high Native American response a success, considering the importance of understanding and meeting the needs of this group because of the high Native American population in our rural locality.

It is also interesting that there was a high female and care provider response rate, although this makes sense when considering that AARP (2020) reported that the care provider population consists mostly of those who identify as female. My respondents

mirrored this national pattern insofar as 62% of respondent care providers were female. Similarly notable was a limited non-binary respondent sample (n=4). Findings from this population were included in this model but might provide only a snapshot of the reality of non-binary people and their digital preparedness. On the other hand, findings were included despite the small sample size because this group might not be recognized in other datasets. Thus, I found it important to include their perspectives in this study.

Lagging Out: Non-users and the Digitally Unprepared

My findings reported in the last chapter confirmed my hypotheses that older, disabled adults with lower-income and/or who live in a rural location have lower access, are lower users, have less confidence, need more help, and are most unready for technological change. Findings revealed that Native Americans, non-binary folx, and those with lower education also lag behind the rest of the digital world. Together, they are the digitally *un*prepared.

N. Katherine Hayles (2012), in conversation with Haraway's ([1989] 2013) theory on the cyborg and humanity, theorized that humans and technology have coevolved together via the term she coined to explain this change, "technogenesis." She explained that "contemporary technogenesis is about adaptation, the fit between organisms and their environments, recognizing that both sides of the engagement (humans and technologies) are undergoing coordinated transformations" (2012:81).

Digital unpreparedness disrupts technogenesis. This can be seen in the findings from this study. For example, Native American care recipients needed more access to

technology hardware, like computers and phones, in general. In addition, older adults and those living in rural places needed more access to internet and phone services. Older adults and those with low income needed more help with technology, such as help managing and using computers, tablets, phones, and the internet. Finally, older adults and recipients needed more technology when there was a change, like the EVV service change and other digital changes needed following the COVID-19 pandemic. Technology in this last finding specifically refers to hardware, like computers and phones, and hardwire, like the internet and phone service plans. These findings are consistent with other research that finds older and disabled adults are the lowest users of technology (Anderson et al. 2019; Anderson and Perrin 2017; Horrigan 2016; Pew Research Center 2019; Smith 2014; Zickuhr and Madden 2012).

In response to these findings, I want to bring focus back to the IHSS electronic visit verification change. Both Humboldt County IHSS and I have questioned whether marginalized social service recipients have the tools and skills necessary to adopt and utilize the new electronic and telephonic payroll services, as well as navigate future electronic visit verification changes. These findings thus suggest that IHSS recipients, Native American clients, older clients, clients with low income and low education, and clients living in rural places are indeed unprepared for these service changes.

Consequently, findings suggest that increasing “education,” by providing training on and about technology and digital services, will increase digital preparedness. One suggestion to increase preparedness for those found to be unprepared is for targeted outreach and assistive interventions aimed at older adults, Native Americans, and those

with disabilities, in the low income, low education bracket, who are outside areas of technological inclusion.

In the next section, I briefly discuss the importance of understanding patterns of technology adoption and acceptance, which follows research on technology education. I argue that compassionate and flexible inclusion to help disadvantaged groups like older adults become common users of technology should be an important element of social and healthcare services.

Technology Acceptance and Adoption

Technology acceptance models are an understanding of why people adopt and accept technology. Originally, these models were sought for industry marketing research, with a focus on learning perceived technological usefulness and ease of use (Davis 1989).

> To varying degrees, existing models have focused on the following three factors: (a) abilities, needs, and preferences of end users; (b) features of the technology; and (c) societal factors, including social and health policy, and the regulatory environment (Schulz et al. 2015:730).

Knowing how people accept technology is the stepping-stone to building frameworks for outreach, education, and training. And training and education has been found to reduce "lag" by supporting digital preparedness. For example, Gatto and Tak (2008) found that higher rates of access related to higher rates of learning computer technology among older adults.

Prior research on technology adoption and use has "generally shown that a number of factors, such as education, socioeconomic status, attitudes toward the technology, the perceived benefits of technology, and access to technology, influence technology adoption" (Czaja et al. 2006:334). For example, diffusion theory (Lin and Atkin 2007, as cited in Lin et al. 2015:217) indicates that technology adoption is resource-driven in a "trickle-down" manner. Diffusion theory proposes that those who are wealthy have the financial means to adopt and adapt to technology before those of lower classes and income thresholds. My survey findings support this conclusion insofar as those who were older, with a disability, and who had lower income were not as ready for technology change as others.

In developing a modern technology acceptance model, Olson et al. (2011) studied technology adoption within older adult populations, focusing on current engagement with technology. Their finding was that "adoption," which they define as acceptance of technology for use, was influenced by the extent to which the individual believes the technology will be advantageous and compatible for their personal use or integration into their lifeworld (p. 9). In comparing young adults to older adults, the perspective of older adults was that technology that can be connected to healthcare was more useful to their lifeworld (p. 9).

Likewise, other research asked older adults what they like and dislike about technology. Their experiences with technology were overall positive, suggesting that the "benefits of using technology outweigh the costs" (Mitzner et al. 2010:6), with "the cost" equal to anxiety, difficulty in use and learning, time spent to learn, and actual cost, to

name a few. Schulz et al. (2015) echoed this cost-benefit calculation in relation to technology adoption, specifying the costs of adoption as the loss of privacy, reduced efficiency, reduced social interaction, stigma, training, and maintenance requirements. The benefits of adoption were enhanced functioning, increased independence, reduced need for assistance, and improved health and safety.

Therefore, organizational efforts towards "digital inclusion" – the practice of bridging structural gaps for those excluded by digital divides – must find inventive ways to work towards the removal of said structural gaps and barriers. How is this accomplished? In the next chapter, I provide examples of technology supports, like that of the "digital inclusion" movement. I end with recommendations for Humboldt IHSS, Humboldt County, and the State of California.

CHAPTER 7

CONCLUSION

Digital Inclusion

Antonio Pastrana (2006) wrote that inclusion cannot simply be acknowledgement of intersectionality, where,

> it is not enough to simply end all analyses with the observation that, yes, intersectional lives exist. It demands, from its observers, and from the very people who live intersectionist lives, a further articulation of what can be done with these observations and these lives. It demands that they utilize their experience of difference in imaginative ways that connect the individual to the group and the structures that support the group (p. 231).

For digital inclusion, this must equate to diverse methods for the sake of digital literacy and equity. And on the topic of intersectional treatment, Sumi Cho, Kimberle Crenshaw, and Leslie McCall (2013) wrote that, "[c]loser attention to the manifold ways in which the operations of power at the local level are constituted through the regional, the international, and the global is critical if intersectionality studies is to fulfill its radical potential" (p. 805). The issue at hand is that narrow perspectives, meaning those that are not expansive and or fail to use expansion as praxis, focus on the center and therefore aid the status quo, which in this case is the ownership and use of digital technology by young, White, urban, and educated middle-and-upper-class groups.

In respect to digital inclusion, the status quo limits the very possibility of what inclusion sets-out to accomplish: the removal of digital divides for ease of use. For digitally inclusive organizations and the leaders within, this means that decentering

efforts will take different forms to work to widen inclusion at all levels. Rural localities, for example, might focus on developing network infrastructure, but also seek services in other languages and build a grant/lend/loan program.

Charlene Carruthers (2018) elaborated on how such transformation is possible when she wrote that, "[a]ffirmations of queerness creates possibilities outside the norm" (p. 10). She specified that by "queer," she does not simply mean to refer to people who identify as LGBTQIA+, but a broader definition, such as "a continuum of possibilities outside of what are considered to be normal" (Carruthers 2018:10). Queering in this way means to decenter, to be imaginative, and to use imagination to expand perspectives. By queering or decentering digital inclusion, we can expect to reach beyond the simple realm of digital needs and into the realm of digital equity.

Building local supports: examples of digital inclusion.

For the purpose of providing examples of community groups and organizations actively working towards digital inclusion, equity, and justice, I present the National Digital Inclusion Alliance (NDIA), in comparison to the Detroit Community Technology Project (DCTP) and the Community Technology Network (CTN). NDIA shows what a national coalition can do for digital inclusion measures, while DCTP and CTN reflect how local groups can apply these measures and methods.

NDIA, established as a 501(3)(c) in 2015, is, as its title explains, a national alliance of individual members organizing for digital inclusion efforts. These are individual members and for-profit organizations ("friends"), paid subscribers and community organizations ("affiliates"), NDIA staff, and broadband sponsors.

Membership is free for individuals. New members must agree to the membership statement:

> We are leaders of local government, community organizations, public libraries and other institutions committed to reducing digital disparities among our neighbors. To improve the daily lives of all community members, we call for widespread and actionable digital inclusion public policies that reflect what we've learned from experience. Digital Inclusion is most effectively promoted by community-driven efforts that combine: Affordable home broadband service, Public broadband access, and Locally trusted technology training and support (NDIA 2020a).

The NDIA collective is comprised of its affiliates:

> NDIA affiliates total 500+ in 44 states, the District of Columbia and the US Virgin Islands. NDIA Affiliates are local public and nonprofit organizations including municipal government bodies, local public libraries and regional library councils, college/university programs, state government agencies, local school districts, housing authorities. Private U.S. businesses and international organizations are not included in the Affiliate list or count but are members of the NDIA community (NDIA 2017a).

And in referring to NDIA itself, "[it] occupies a unique role among organizations engaged with technology and broadband development issues. NDIA is committed to faithfully reflect the perspectives and interests of local digital inclusion practitioners and advocates, while operating with a professional understanding of:

- the historical and political landscapes in which our affiliates operate
- the complexities of telecommunications regulation
- the evolving technologies and tools involved
- the evolving research and data shaping programs and policy strategies" (NDIA 2019b).

In general, NDIA works collaboratively via many different work group meetings and regular meetings between staff, the public, affiliates, and members. Overall, "NDIA

combines grassroots community engagement with technical knowledge, research, and coalition building to advocate on behalf of people working in their communities for digital equity" and to act as "a bridge to policymakers and the general public" (NDIA 2019)**.** They further list that their purpose is to

- Support on-the-ground digital inclusion practitioners and advocates.
- Advocate for local, state and federal policies to promote digital equity and support local digital inclusion strategies.
- Educate policymakers, the media, and potential partners about the need for digital equity and the work of local digital inclusion programs.
- Conduct, support and promote data-gathering and research that can inform public understanding, public policy and community strategies related to digital inclusion and equity (NDIA 2019).

In writing of the need for digital inclusion as fundamental to this development, NDIA explains,

> Digital Inclusion refers to the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of Information and Communication Technologies (ICTs). This includes 5 elements: 1) affordable, robust broadband internet service; 2) internet-enabled devices that meet the needs of the user; 3) access to digital literacy training; 4) quality technical support; and 5) applications and online content designed to enable and encourage self-sufficiency, participation and collaboration. Digital Inclusion must evolve as technology advances. Digital Inclusion requires intentional strategies and investments to reduce and eliminate historical, institutional and structural barriers to access and use technology (NDIA 2017b).

Underneath digital inclusion are related values, specifically digital equity, digital literacy, and strong digital connectivity. For digital equity, NDIA refers directly to a technological capacity for democratic participation, under the assumption that, because of societal "progress," an individual cannot fully participate in democratic society without technological capacity (equity). Digital literacy then becomes part of achieving equity

and thus inclusion because it is the level of understanding beyond simple means into comprehensive engagement.

Additionally, there are structural needs related to digital equity, such as the speed and availability of strong communication services such as the internet or phone, which are part of the basics of using ICT and which continue to need public advocacy and awareness. NDIA uses the term "broadband adoption" in reference to these layers of connectivity and specifies that the term has become synonymous with the ability to access services regularly, such as daily, with speed, quality, capacity, skill, and agency. In sum, NDIA's place within the nonprofit industrial complex is as an invaluable middleman; a meso-level linkage. They are a resource bank that can support all scales of organization, as well as act as an advocate for digital equity.

At the macro-level, NDIA acts as a policy advocate, for policy surrounding digital needs, for things such as broadband affordability and federal programs funding and development (like for expanding the federal Lifeline phone service program). As of this writing, NDIA is working with U.S. Senator Pat Murray (Democrat, Washington State) on the Digital Equity Act (NDIA 2019a), a federal proposal that seeks to strengthen digital inclusion and close the Digital Divide via digital literacy and skill building grants and policies. Additionally, NDIA's work on the Lifeline telephone-for-all program seeks stronger broadband and affordability as well as updating telecommunications policies that have been in place since the Reagan era.

At the local level, NDIA supports what they term "Digital Trailblazers," which is a designation they give local governments who have an applied digital inclusion

initiative. To be listed as a Digital Trailblazer, the government must meet NDIA's trailblazer standards, under which the organization must hire at least one staff member full-time to manage the program; complete programming for the purposes of a digital inclusion initiative or policy building; have a digital inclusion plan or be in process of developing a plan; participate in a digital inclusion coalition; have or plan to conduct and publish survey research related to digital topics; and also plan to manage local broadband service affordability.

Following their model trailblazers, NDIA also promotes local coalition building. They have created and published a community start-up manual as well as a guidebook for established coalitions based on lessons from six example community coalitions (NDIA 2021). They have also developed a framework for what they term "Digital Navigators," also known as digital stewards, who are the digital technology teachers, trainers, and helpers.

NDIA also promotes public awareness measures, the companion to their efforts for policy change and advocacy. NDIA writes that policy for digital inclusion measures are non-partisan, as digital connectivity can increasingly be argued to be a human need. During the COVID-19 pandemic, they published a series of webinars, with notable topics such as the effects of the pandemic on digital inclusion; active coalitions and their strategies; current research on intervention strategies; local government strategies; and racial equity and digital inclusion (NDIA 2020b).

There are also other important aspects of digital inclusion that are not included among NDIA's projects and focuses. For example, digital inclusion programs should also

focus on environmental impacts relative to ICT progress. I also suggest that programs should focus on de-centered internet development as a measure of building equitable internet, as well as build hubs for material technology resources, such as hardware and software. Some of these features can be found in the next example programs, the Detroit Community Technology Project, and the Community Technology Network.

The Community Technology Project and the Community Technology Network.

In this next section, I focus on the Detroit Community Technology Project (DCTP) and the Community Technology Network (CTN), the latter, which is based in the San Francisco Bay Area, with a sister program in Austin, Texas. Both groups organize direct ICT services for physical and digital ICT needs, primarily for connectivity and literacy. Like NDIA, these programs were founded around 2010, partially as a result of the rapid structural shift of digital integration into social life that followed the evolution of "Web 2.0."

DCTP is a sponsored project program under the Detroit-based non-profit, Allied Media Projects. "Allied Media Projects (AMP) cultivates media for liberation" (AMP 2020) through a network support system, housing many media-based programs under their roof. DCTP works with their community to rebuild, reformat, recycle, redistribute, and re-use ICT material goods. DCTP follows digital justice principles (Detroit Digital Justice Coalition 2021) that include equal access with support for different languages, participation with an emphasis on those who are traditionally excluded, common ownership for free and freely shared tools and technology, and healthy communities including sustainable technology use. One of their foremost programs is the Equitable

Internet Initiative (EII) (DCTP 2020), a de-centered internet program that allies neighborhoods and community centers to distribute internet connectivity. One of their partners, 123Net, reported that DCTP connected at least 130 homes in 2018 through the EII program, using practices centered around mutual aid (Diachenko 2018).

A secondary program of DCTP focuses on education and praxis. For example, they produced a series of zines and a handbook for teaching community technology (DCTP 2021). Their ongoing community outreach includes both school and community training, which they call "DiscoTechs," and support for community maker spaces, places where people can get hands-on ICT learning. Maker spaces also help the program's recycling efforts by opening spaces where ICT goods can be repaired and redistributed into the community.

Additionally, DCTP provides digital steward training sessions for community members who, once trained, can then turn around to serve back to their community. CTN, similarly, recruits volunteers to become digital coaches, who also then provide expertise training. This trend is notable because it shows that digital trainers, stewards, coaches, and navigators are important and foundational roles for local ICT/digital services. They are the helpers and hand-holders who do the actual work of guiding learners through the complex ICT world. Publications, information, and resources have an otherwise limited reach without someone in the position of connecting the information to real world applications.

CTN differs from DCTPs insofar as the former primarily works to promote digital literacy. CTN notes their focus "is on helping *older adults* live comfortably and safely in

a digital world by providing digital devices and digital literacy training" (emphasis added, CTN 2020a). Their program outline specifies that:

> The individual personalized training pathway for each older adult will vary based on their experience. Home-bound adults with internet access and prior exposure to a digital device may be connected directly to a volunteer Digital Coach for weekly virtual training sessions. If they need internet access, they may receive support applying for service. For those who are new to using the internet, they may receive a preconfigured tablet and begin virtual training with a CTN staff trainer to learn the basic, fundamental skills and to become familiar and comfortable with their device. They are then matched with a Digital Coach Volunteer for more advanced specific training that they have selected (CTN 2020a).

CTN has volunteers who can aid in English, Spanish, and Cantonese, meeting the varied language needs of the San Francisco Bay Area community. Individualization is a unique aspect of their program; using social media, they make regular posts to highlight or put a spotlight on employees and learners. Their website has up-to-date profiles of their digital coaches, along with success stories, videos, news, and reports on the impact of their work on their community. Of their work, they write, "[o]ur vision for success is a world where all people understand the value of the internet and have the digital skills and access needed to accomplish goals and improve the quality of their lives. We do this by partnering with nonprofit and social service agencies working closely with people who need help getting online and gaining the digital skill needed to reach their goals" (CTN 2020b).

Both DCTP and CTN are important community linkages; simply, they are *the* go-to for ICT assistance in their areas. They are who provide the application for digital inclusion measures within their community, and they are currently the only ones doing

this work. In essence, they are the real-life application of the initiatives promoted by NDIA. DCTP focuses on inclusive connectivity, sustainable technology, and individual empowerment. They want their community members to take over ICT use in their lifeworld; DCTP is just the starting point. In contrast, CTN, with an older adult population focus, provides ongoing support for individual use, whether that means provision of technology directly, education, or hands-on assistance. CTN does not expect that their community will stop needing their help. In this way, DCTP advocates for digital empowerment over digital inclusion, whereas CTN works more towards digital inclusion at the basic level. Both are solid tactics that are grounded in the needs of the community; the neighborhoods in Detroit that the DCTP serves have reduced and limited ICT access because of historical segregation followed by deindustrialization, causing both urban decay and White flight. Poor, Black neighborhoods have been left with limited access to lifeworld services all-around (Digital Equity Laboratory 2020; Wiley et al. 2020). DCTP highlights the limited access to ICT and related connectivity. DCTP seeks to close this digital gap as one method of rejuvenating and reviving Detroit neighborhoods via stronger inter- and intra-connectivity.

CTN, on the other hand, serves older individuals who, as research has shown again and again, are the last to adopt ICT and the last to join the digital world. CTN strives to build digital network connections between older adults by helping them learn ICT in order to then use ICT to build a stronger social network base. Research has also shown that the modern older American has higher health risks the more isolated they are, and isolation overall shortens life-expectancy (National Academies of Sciences,

Engineering, and Medicine 2020). Furthermore, COVID-19 has imposed necessary isolation on all individuals, with older adults in the highest risk category should they be exposed to the virus. In general, it has never been more necessary to improve digital literacy and build digital connections among marginalized populations. Despite their differences, this is the goal of each of these programs.

Recommendations for the Humboldt County Department of Health and Human Services

NDIA uses the term inclusion to represent a way of building digital equity and literacy through measures that are collective and holistic rather than separative or individualistic (2017b), as the "divide" in the Digital Divide would imply. In short, inclusion allows one to gain access to civil and social capital through means of technological equity, although the Digital Divide remains a term used to describe the gaps-in-place that must be overcome to meet measures of inclusion.

NDIA, a non-profit and local government coalition, has frameworks and methods available for organizations undertaking digital inclusion measures that focus on these concepts. Foremost is the Digital Inclusion Trailblazers, a model for local governments to follow when developing their own digital inclusion programs. The City and County of San Francisco, California; Austin, Texas; Boston, Massachusetts; Chattanooga, Tennessee; Hamilton County, Tennessee; Long Beach, California; Portland, Oregon; San Antonio, Texas; Seattle, Washington; Louisville, Kentucky; Provo, Utah; Salt Lake City, Utah; Detroit, Michigan; New York, New York; Kansas City, Missouri; and the District

of Columbia are all government entities listed on NDIA's "honor roll," having developed successful programs under this model.

The model itself includes the following requirements:

- The local government has, or directly funds, at least one full-time staff dedicated to digital inclusion initiatives, policies and/or programs.
- The local government has a digital inclusion plan or is in the process of developing a plan.
- Representatives of the local government participate in a digital inclusion coalition.
- The local government has conducted or plans to conduct and publish survey research on Internet access and use by your residents.
- The local government directly funds community digital inclusion programming.
- The local government is taking steps to increase affordability of home broadband service (NDIA 2017c).

I recommend that Humboldt County use this framework to develop a digital inclusion plan for the purpose of mitigating many of the concerns related to the new EVV mandate, and to be prepared for planned future changes. The first step is to formally join the NDIA coalition, in addition to attending their bi-monthly community meetings. Once a part of the NDIA coalition, Humboldt County would then apply to be a "Digital Trailblazer," in accordance with NDIA's guidelines. These guidelines include planning a digital inclusion program, hiring staff for tech support and training, monitoring affordable broadband services, and developing program needs assessments. Future evaluations could focus on learning more about service access among the wider population, and/or among more targeted groups and populations, such as school-age distance-learners. As far as developing a formal digital inclusion plan, North Carolina's Department of Information Technology has shared and distributed a digital inclusion plan template and guide to the

NDIA community (Appendix D). The plan suggests creating a formal alignment of the vision, purpose, and goals for the digital inclusion program in collaboration with wider community and stakeholders, in consideration of how these goals align with current county goals.

The next stage of the plan is to assess available communal assets, such as hardware and infrastructure, digital literacy programs, and individual supports. The plan must then identify asset needs relative to asset availability, who are invested partners, and where there might be gaps. Finally, the plan provides strategies to develop leadership, sustainability, holistic response, and fully scaled implementation timeline. The City of Charlotte, North Carolina, is a strong example of a government using this plan's structure, having dedicated $3.2 million from the 2020 federal CARES Act to support Access Charlotte, their digital inclusion program (Burkarth 2020). Using this money, a few aspects of their plan include development of a public wi-fi infrastructure, the provision of hotspots and learning labs for students, and training digital navigators who can support the larger community.

There are a few "affordable" internet and phone services available in Humboldt County, but the county would benefit from taking measures to seek grants for communal broadband and other affordable internet services, in addition to declaring and regulating broadband services as a utility and therefore a right for the community. Building on the structure of the Digital Trailblazers, a digital inclusion plan for Humboldt County might include developing a county initiative to promote digital inclusion, such as an assistive information technology (IT) program. This program could include a "call center" of sorts

to provide technical assistance to social service clients in need, or perhaps the wider community as a whole. Assistive IT workers known as “Digital Navigators” could help with troubleshooting for specific program help, such as helping with electronic IHSS timesheets or navigating online Medi-Cal and CalFresh applications, or finding and locating free wi-fi and subsidized phone and internet services.

Such a program could even be mobile: it might include a bus or van, driven by social service workers acting as digital navigators/supporters to provide public hotspot wi-fi and the option for in-person “tech clinics.” Rather than just boosting wi-fi availability, bringing wi-fi to communities would help provide more access to social services. Doing so would give IHSS providers and recipients the opportunity to complete timesheets in their own communal area, rather than requiring travel to urban areas of Humboldt and incurring the associated financial and time costs.

Other community considerations should include deep collaboration with community centers to develop maker spaces and a strong networked public wi-fi infrastructure. Maker spaces are excellent sources of community networking and sustainable use of technology. Maker spaces are usually spaces set aside or incorporated into a community center or library, where people can come to learn about computers and hardware. Maker spaces often take material donations, which can then be recycled into new components for free or shared use. Maker spaces can also act as another place for learning technological skills and to empower the community to take technology into their own hands, and even to take the information they have learned back to share with their family, friends, and neighbors.

In summary, I recommend that Humboldt County join the National Digital Inclusion Alliance (NDIA) and apply to be a "Digital Trailblazer" following NDIA guidelines. I also suggest building a technology lend/loan, recycle, and grant program. The county should also consider a "mobile tech clinic" that can rotate around the county, providing wi-fi and tech support services. These are only a few possibilities for communal digital inclusion measures, but even a baseline digital inclusion plan would go far in helping rural Humboldt County close digital gaps that have become more significant amidst a global pandemic, an unprecedented time in history. Without digital support, individuals who experience digital lag or are otherwise digitally unprepared will be left to "bridge the digital divide" entirely on their own; so, with the adoption of digital inclusion programs and standards noted above, Humboldt County and IHHS will be well positioned to "bridge the Digital Divide" for its most vulnerable residents.

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APPENDICES

Appendix A: Survey Instrument

Humboldt County and Access to Technology

Consent

***1. Statement of Informed Consent**

This study is about access to technology for Humboldt County In-Home Supportive Services (IHSS) clients. This research was developed by Lauren Proffitt, graduate student of the School of Sociology at Humboldt State University and lead social worker for IHSS. Humboldt County IHSS provided funding for this study.

Participant Role

Your part in this study involves responding to a 10-minute online survey about your experience with local internet and phone services because the IHSS program is changing from paper timesheets to internet or telephone timesheets in July of this year. This survey is hosted by SurveyMonkey. Topics to be covered in the questionnaire include the internet and phone service providers you use, their speed and stability, your confidence using this technology, the help you need and get with this technology, and if you have needed to upgrade or change your technology because of COVID-19 or IHSS program changes. In responding to the survey questionnaire, you will have the opportunity to share information about your experience with technology in Humboldt County.

Risks and Benefits

Consider these risks: You are asked to provide information about your use of computers, the internet, and phones because we want to know if you have access to the technology needed to use online or telephone timesheets. You might find this change confusing or concerning.
Consider these benefits: Sharing your experiences may help the Humboldt County IHSS program better understand where access to technology is poor so that people who live there can receive accommodations.

Voluntary Participation

Your participation in this study is entirely voluntary. You may decline to enter this study or may withdraw from it at any time without jeopardy. The investigator may terminate your participation in the study at any time.
Included as part in this survey is a raffle for a number of $5 gift cards to Jitter Bean coffee. You can be included in the drawing even if you do not complete or participate in the survey by asking

the investigator to include you.

Protecting Anonymity

Researcher will be unable to associate your identity with any of the information you provide in response to the survey, unless you provide your information for further contact. If you provide your contact information, this personal information is kept only by this researcher on a password protected computer and in a locked filing cabinet. While IHSS secured your participation, only the researcher has access to the participant database, which is kept in a secure location. Moreover, IP addresses are not collected with this survey.

Concerns

If you have any questions about this study or the questions, you may contact Lauren Proffitt: lproffitt@co.humboldt.ca.us. If you have concerns about this study or questions about your rights as a participant, you may contact the Humboldt State University Institutional Review Board for the Protection of Human Subjects at irb@humboldt.edu or (707) 826-5165

Given the above, I consent to participate in this study and confirm that I am at least 18 years old:

- ◌ Yes
- ◌ No

Humboldt County and Access to Technology

Internet Information

*2. How often do you use the internet or email?

- Daily
- A few times a week
- About once a week
- A few times a month
- Once a month
- Less than once a month
- Never

*3. Where do you MOST use the internet or email?

- Family member's house
- Family resource center
- Friend's house
- Home
- Library
- Neighbor's house
- Senior center
- Other (please specify)

*4. How do you access the internet?

- Computer/Wifi connection only
- Phone data plan only
- Both computer/wifi connection and phone data plan
- No access to the internet
- Don't know

Humboldt County and Access to Technology

Computer Internet Information

*5. What primary computer internet provider do you use?

- ACCESS UNIVERSAL
- Altice
- ASIS Internet Services
- AT&T
- HughesNet
- Local Net
- Renaissance Internet
- Sonic Net
- Suddenlink
- Wave Broadband
- Don't know
- Other (please specify)

*6. Is this internet connection stable, meaning that it stays connected when you need it?

- I always have a stable connection
- I sometimes have problems with the stability of my connection
- I never have a stable connection
- Don't know

*7. Does this internet plan have enough data to get you through the month?

- I always have enough internet data
- I sometimes run out of internet data
- I never have enough internet data
- Don't know

Humboldt County and Access to Technology

Phone Information

*8. Do you have access to a phone?

- ◌ Yes
- ◌ No

*9. Which landline, mobile or cell phone service provider(s) do you use?

- ☐ AT&T
- ☐ Boost Mobile
- ☐ Cricket
- ☐ MetroPCS
- ☐ Sprint
- ☐ Suddenlink
- ☐ T-Mobile
- ☐ Trac-Fone
- ☐ U.S. Cellular
- ☐ Verizon Wireless
- ☐ Virgin Mobile
- ☐ No cell phone provider
- ☐ Don't know
- ☐ Other (please specify)

*10. Does this phone plan have enough data to get you through the month?

- ◌ I always have enough phone data
- ◌ I sometimes run out of phone data
- ◌ I never have enough phone data
- ◌ Other (please specify)

- No data plan
- Don't know

*11. Is this phone's data connection stable, meaning that it is connected to the internet when you need to use it?

- I always have a connection
- Sometimes my phone will disconnect or have no connection
- I never have a connection available
- No data plan
- Don't know

*12. Is this phone's signal stable, meaning that it is connected for calling/texting when you need to use it?

- I always have a connection
- Sometimes my phone will disconnect or have no connection
- I never have a connection available
- No phone provider
- Don't know

Humboldt County and Access to Technology

Electronic Timesheets

In-Home Supportive Services (IHSS) will switch from paper timesheets to a new internet timesheet system in July, 2020. A telephone timesheet system will also be available.

All IHSS recipients and care providers will need to switch to one or both of the new timesheet systems.

Paper timesheets will no longer be available after July.

*13. Are there technology items you need to get because of the change to internet or telephone timesheets? (Check all that apply.)

- [ ] Desktop comp.
- [ ] Laptop comp.
- [ ] Tablet
- [ ] Landline phone
- [ ] Basic cell phone
- [ ] Smartphone
- [ ] No items needed
- [ ] Other (please specify)

*14. Do you need to change your internet or phone plan(s) because of electronic timesheets? (Check all that apply.)

- [ ] A new internet plan for online timesheets
- [ ] A new phone plan for telephone timesheets
- [ ] Upgrade internet plan for online timesheets
- [ ] Upgrade phone plan for online timesheets
- [ ] Upgrade phone plan for telephone timesheets
- [ ] No changes needed

Humboldt County and Access to Technology

Emergencies and Technology

Recent emergencies have impacted our lives in new ways. Please think about the COVID-19 shelter in place order(s) for the following questions.

*15. Are there technology items you needed to get because of COVID-19 shelter in place? (Check all that apply.)

- [ ] Desktop comp.
- [ ] Laptop comp.
- [ ] Tablet
- [ ] Landline phone
- [ ] Basic cell phone
- [ ] Smartphone
- [ ] No items needed
- [ ] Other (please specify)

*16. Have you needed to change your internet or phone plan(s) because of COVID-19? (Check all that apply.)

- [ ] New internet
- [ ] New phone
- [ ] Upgrade my internet plan
- [ ] Upgrade my phone plan
- [ ] No changes needed

Humboldt County and Access to Technology

Using Technology

*17. How confident are you with technology (internet, computer, phone)?

- Extremely confident
- Very confident
- Somewhat confident
- Not so confident
- Not at all confident

*18. How frequently do you need help with technology?

- I always need help
- I need help a lot of the time
- I sometimes need help
- I don't often need help
- I never need help

*19. Are you able to get help with technology when you need it?

- I always get help
- I get help a lot of the time
- I sometimes get help
- I don't often get help
- I never get help

*20. How much do you think training classes would help you with technology?

- A great deal
- A lot
- Some
- A little
- Not at all

Humboldt County and Access to Technology

Demographics

*21. Are you an IHSS recipient or care provider?

- Recipient
- Care Provider
- Neither

22. What is your gender?

- Female
- Male
- Other (specify)

23. What is your age?

24. Which of the following best describes your race / ethnicity?

- [ ] American Indian or Alaskan Native
- [ ] Asian / Pacific Islander
- [ ] Black or African American
- [ ] Hispanic or Latino
- [ ] White or Caucasian
- [ ] Other (please specify)

25. Where do you live?

26. What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school degree or equivalent (GED)
- Some college but no degree
- Associate degree (AA, AS)
- Bachelor degree (BA, BS)
- Professional certificate
- Graduate degree (MA, MS, MBA, MFA, PhD, MD)

27. How much total combined money did all members of your HOUSEHOLD earn last year?

- $0 to $9,999
- $10,000 to $24,999
- $25,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- $100,000 to $124,999
- $125,000 to $149,999
- $150,000 to $174,999
- $175,000 to $199,999
- $200,000 and up

28. If you have questions about this survey or the IHSS timesheet changes, please leave your contact information and an IHSS representative will contact you directly. What is your information?

Name

Phone Number

Humboldt County and Access to Technology

Thank you!

29. If you would like to be entered in a drawing for a $5 gift card to Jitter Bean coffee, add your info below. What is your contact information?

Name

Phone Number

Appendix B: Institutional Review Board Approval

707-826-5165 | irb@humboldt.edu | www.humboldt.edu/human_subjects

MEMORANDUM

Date: 5/12/2020

To: Joshua S Meisel

Lauren Proffitt

From: Susan Brater

Institutional Review Board for the Protection of Human Subjects IRB #: 19-174
Title: Humboldt County and Access to Technology

Thank you for submitting your application to the Committee for the Protection of Human Subjects in Research. I am able to provide expedited review of your proposal by Federal Regulation 45 CFR 46.110 because your research:

> *will involve research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.*

The anniversary date of your research is **5/12/2021**. By HSU policy, all data collection related to this protocol must stop on the anniversary date, unless a renewal/annual report is submitted. In order to prevent any interruption in your research, please submit a renewal/annual report in time for the IRB to process, review, and extend the Expedited designation (at least one month).

Important Notes:
• Any alterations to your research plan must be reviewed and approved by the IRB prior to implementation.
- Change to survey questions
- Number of subjects
- Location of data collection,
- Any other pertinent information
• If Expedited approval is not extended prior to the anniversary date, investigators must stop all data collection related to this proposal.
• Any adverse events or unanticipated problems involving risks to subjects or others must be reported immediately to the IRB (irb@humboldt.edu).

cc: Faculty Adviser (if applicable)
Institutional Review Board for the Protection of Human Subjects

Humboldt County Department of Health & Human Services
Mental Health
Emi Botzler-Rodgers, MFT, Director
720 Wood Street, Eureka, CA 95501
phone: (707) 268-2990 | fax: (707) 476-4049

Appendix C: Survey Cover Letter and Invitation

Dear IHSS client,

You have been selected to participate in a survey for In-Home Supportive Services. This survey is about your internet and phone use. IHSS is switching from paper timesheets to online and telephone timesheets in July. We want to hear about your experiences with technology in Humboldt!

We are offering a raffle of a number of $5 gift cards to Jitter Bean coffee as part of this survey. You can be included in the drawing even if you do not complete or participate in the survey. You can add your contact information in the survey or ask me directly to include you in the drawing.

You can complete this survey by clicking the link included with this email message, or go to the survey directly at:

https://www.surveymonkey.com/r/IHSSEVV

Best regards,

Lauren Proffitt
Lead IHSS Social Worker
lproffitt@co.humboldt.ca.us

Appendix D: Northern Carolina Digital Inclusion Plan

NC DIT Broadband Infrastructure Office | North Carolina Department of Information Technology

The North Carolina Digital Inclusion Plan Template and Guide

Introduction

Congratulations! If you are embarking on building a digital inclusion plan, your community is committed to prioritizing digital inclusion. Creating a digital inclusion plan is a perfect first step to ensure your community becomes more digitally equitable.

While the digital divide was present and pervasive throughout North Carolina prior to the COVID-19 pandemic, the stay-at-home orders that pushed more activities online than ever quickly exposed to the world what many of us knew already—the internet and its benefits are not accessible to all North Carolinians. While the pandemic has impacted us all, those without internet, a computer, and the skills to use them have been disproportionately impacted during this time. As such, closing the digital divide is more imperative now than ever before.

'Digital Equity' is a condition in which all individuals and communities have the information technology capacity needed for full participation in our society, democracy, and economy. As the world has learned since the beginning of 2020, digital equity is necessary for civic and cultural participation, employment, lifelong learning, and access to essential services. Digital Inclusion activities will help your community reach digital equity. Digital Inclusion activities are the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of Information and Communication Technologies (ICTs).

This document will help your community form a 'digital inclusion plan' to help guide your community design and implement digital inclusion activities and increase digital equity. Building a digital inclusion plan is similar to building a community strategic plan. The primary difference is a digital inclusion plan specifically addresses the digital divide and identifies strategies to close it. Like any plan, a plan is built from a specific place in time, reflects the community it is developed in, and is not the end in itself—but points to and prepares the way for your final goal—a digitally equitable community.

How to use this document

Your community may choose to use this document as a loose guide or follow it to the letter. Regardless, our hope is that it simplifies the process of creating a plan and helps your community implement the plan faster, thereby increasing digital equity in your community faster. Closing the digital divide has never been more urgent, and we hope this template enables your community to meet the needs of your community members, leverage your community's unique assets, and find innovative and creative solutions for closing the digital divide in your community.

This document includes both a template with the specific categories your team should consider including in your plan as well as a guide with probing questions to assist your community in the process of building that plan. Whether you simply fill out the basic template or use the guide to walk through the provided questions before synthesizing the information into a plan will depend on how much planning and work your community has already done, in addition to your community's individual needs, timeline and capacity.

First, you will find a digital inclusion plan template. While each community may choose to structure and order their plan differently, this is the general order and list of categories we recommend each plan include.

The second aspect of the document is a guide that expands the template with questions, comments, and things to consider as you build your plan. Notably, the order of this section is different from the template. This is because the chronological order in which you compile the plan will likely differ from the order it appears in its final form. For example, it is often easier to create goals after you have identified your community's assets and gaps.

Both the template and guide were designed to incorporate the common themes and challenges communities who embark on digital inclusion work encounter. But it may not address some of the specific challenges or opportunities in your community. As such, this guiding document is what it sounds like—a guide. While we hope it is a useful tool in your planning process, given North Carolina's geographic and cultural diversity, it will not address every community's unique circumstances. Please feel free to use this as is, tweak it to your needs, or compile your own plan from scratch.

We hope this tool supports your community as you embark on closing your community's digital divide and creating a digitally equitable community where all citizens are equipped with the technology, tools and training needed to thrive in the 21st century.

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The Community Digital Inclusion Plan Template

I. Collective Vision for Digital Inclusion in your Community

A. Vision Statement
B. Mission Statement
C. Values
D. Goals
    1. Alignment with existing community goals and plans (including community and economic development goals/plans)
    2. Digital inclusion specific goals
E. Objectives

II. Current State of Digital Inclusion and Digital Divide in your Community

A. Asset Inventory
    1. Broadband assets
        a) Mobile broadband
        b) Fixed broadband
        c) Public Wi-Fi or public access points
        d) Wi-Fi mobile hotspot lending programs
        e) Discount/low-cost offer programs
    2. Digital literacy/skills opportunities
        a) Organizations specializing in digital literacy training
        b) Workshops
        c) Courses
    3. Individual support
        a) Digital navigators
        b) Tech support
    4. Public computer access points
    5. Computer/devices
        a) Refurbished
        b) Low-cost
        c) K-12
        d) Other
    6. Other/Miscellaneous
B. Needs Inventory
    1. Broadband availability
    2. Broadband subscription
    3. Broadband affordability

4. Computers/devices
5. Digital literacy/skills
6. Other

C. Partner Identification
D. Gap Assessment

III. Implementation: Achieving a Collective Digital Inclusion Vision in your Community

A. Strategies
1. Leadership
2. Sustainability
3. Holistic response
4. Prioritization
5. Necessary resources

B. Timeline
1. Short-term
2. Near-term
3. Long-term

NC DIT Broadband Infrastructure Office | North Carolina Department of Information Technology

The Community Digital Inclusion Plan Guide: Supplemental Questions and Instructions for Developing your Plan

NOTE: The following guide is meant to guide you and your community through the process of creating your digital inclusion plan. The guide expands on the template and is in a different order. This is because it is often easier to build a plan with a better understanding of what assets and gaps your community has. However, your community may determine starting with the visioning process of this guide will better suit your needs. This guide is meant to be structured in the way that best meets your community's needs. As you document your assets you may find that some assets fit into multiple categories—that's to be expected. Feel free to organize and categorize the assets in a way that best suits your community's needs.

I. **Assets and Gap Inventory**

A. **Asset Inventory**: *In this section you will catalogue your community's unique assets. This can be a mix of hard assets (i.e., computer labs, downtown wi-fi, hotspot lending programs, etc.) and soft assets—the people, organizations, digital skills/literacy trainings, etc. that are unique to your community.*

Note that later in this process, you will identify the gaps or what is unavailable. In this section, focus on what **is** available.

1. **Broadband Assets**: *Where is broadband available in your community, and are there options and programs to address its affordability?*
   a) Mobile or Cellular Service-Who is your predominant mobile/cellular provider?
      (1) Do you have coverage maps of their service areas? (NOTE: If not, contact NC BIO to obtain more information)
      (2) For data on the percent of your households/population **with access** to mobile or cellular service contact Amy Huffman: amy.huffman@nc.gov
   b) Fixed or Wireline Service: *What internet service providers serve your community?*
      (1) Do you have coverage maps of their service areas? (NOTE: If not, contact NC BIO to obtain more information)
      (2) For data on the percent of your households/population **with access** to fixed or wireline service contact Amy Huffman: amy.huffman@nc.gov
   c) Public Wi-Fi or public access points: *Where in your community can community members access free public Wi-Fi (i.e., Some examples* might be:
      (1) Parks
      (2) Libraries
      (3) School parking lots
      (4) Restaurants/grocery stores, etc.

(5) Churches and places of worship
(6) Career Centers

d) Personal Wi-Fi Hotspots: *Does any organization 'lend' or 'check out' mobile hotspots to citizens? If so, how many do they have available?* Some examples might be:
(1) K-12 Schools
(2) Libraries
(3) Community Colleges and universities

e) Discount or Low-Cost Programs-*Do any of your internet service providers offer discount or low-cost service for low-income families?*

2. **Digital Literacy/Skills**: *What programs and organizations currently provide the following in your community/region?*
a) Digital skills or digital literacy
(1) Workshops
(2) Courses
(3) One-on-one sessions
b) Workforce development training (computer/digital skills focused)
c) Job search training or assistance that includes digital skills/product development (i.e., resumes, etc.)
d) STEM/STEAM training
e) Coding schools, certifications, or training
f) Technical certifications

3. **Public Computer Access**: *Where in your community can the public access computers?* You may want to map these locations and catalogue how many computers are available at each location.
a) Public computer centers
b) Libraries
c) Workforce development centers
d) Afterschool programs
e) Recreation centers
f) Mobile computer labs
g) Churches/places of worship
h) Other

4. **Individual Support**: *Where in your community can the public obtain individual assistance and support?*
a) **Digital Navigators:** *Where in your community can the public access assistance in navigating the digital inclusion process?*
(1) Is there a person or organization who provides information on home internet connectivity, devices, and digital skills?
(2) Navigators can be members of the community, volunteers or cross-trained staff who already work in social service agencies, libraries, health, as well as others who offer remote and socially distant in-person guidance.
(3) For more information see NDIA's Digital Navigator Model
b) **Tech Support:** *Do any organizations or groups of organizations provide cost-free or low-cost tech support to new computer users or refurbished computer owners?*

5. **Devices**: *Where in your community can the public obtain low-cost or no cost computers?*
   a) Does your K-12 school system have a one-to-one computer program? (i.e., provide laptops/tablets for students)
      (1) If so, what type of devices does your school system use?
      (2) How many grades have access to these devices?
      (3) Can the students take the devices home or do they stay at school?
      (4) Are there fees charged for full participation in the one-to one program?
   b) Do your libraries check out or 'loan' computers?
   c) Do your community colleges check out or 'loan' computers?
   d) Is there an organization that provides refurbished, discounted, or low-cost devices?

6. **Other/Miscellaneous**: *Does your community have any other digital inclusion assets, or assets that can be leveraged for digital inclusion?*

B. **Needs Inventory:** *In this section you will catalogue your community's unique digital inclusion needs. To do so, you will evaluate how and where the various aspects of the digital divide impact your community.*

1. **Broadband Availability**: *where is broadband **unavailable** in your community?*
   a) To identify broadband availability gaps in your community, visit https://www.ncbroadband.gov/indices/ and view the "Broadband Availability and Quality Index" for the county or census tracts
   b) For broadband coverage of your community, visit: https://www.nconemap.gov/pages/broadband
   c) If your community has previously conducted a survey or feasibility study, you can use that data here.
   d) If you need more granular data, your team can partner with NC BIO to distribute its standardized survey and speed test to your citizens.

2. **Broadband Subscription**: *what is your community's subscription rates? Who subscribes and who does not?*
   a) To identify subscription rates in your community, visit: https://www.ncbroadband.gov/indices/ and view the "Broadband Adoption Potential Index" for the county or census tracts
   b) Use '% Broadband Subscription' data point and overall adoption potential score.

3. **Broadband Affordability**: *is broadband affordable in your community? How many households in your community are low-income and may not be able to afford the service that is available?*
   a) To identify broadband affordability challenges, visit https://www.ncbroadband.gov/indices/ and view the "Broadband Adoption Potential Index" for the county or census tracts
   b) Use '% Poverty' data point.

4. **Computers/Devices**: *how many households in your community do not have access to a desktop, laptop, tablet, or other computer?*
   a) To identify computer and devices gaps, visit https://www.ncbroadband.gov/indices/ and view the "Broadband Adoption Potential Index" for the county or census tracts
   b) Use '% Households No Computer Devices' data point.

5. **Digital Literacy/Skills**: *how many households in your community do not have the skills needed to effectively use the internet or digital devices?*
   a) This data is difficult to obtain, but you can use proxy data such as levels of education, or the percent of your population with limited English.
   b) In addition, you may consider obtaining anecdotal data from community partners that provide computer access and assistance to people who need help with computer tasks such as librarians, workforce development centers, etc. They may be able to provide information on the demographics with the highest digital skills needs and the needs they believe to be most pronounced.
   c) To identify Digital Literacy and skills gaps, visit https://www.ncbroadband.gov/indices/ and view the "Broadband Adoption Potential Index" for the county or census tracts

C. **Partners:** *In this section you will identify the organizations within your community who can partner with your organization to close your community's digital divide.*

1. *What organizations, if any, already provide digital inclusion services in your community?*
2. *What organizations, if any, could/should get involved in digital inclusion efforts? Some examples might be:*
   a) County government leaders
   b) Local government leaders
   c) K-12 school system
   d) Libraries
   e) Community college
   f) Public housing authorities
   g) Local universities and colleges
   h) Non-profits
   i) Chamber of commerce
   j) Entrepreneurs and business owners
   k) Churches and faith-based institutions
   l) Local foundations and funders
   m) Local internet service providers

D. **Identifying gaps:** *You have now identified your assets, needs, and partners. This section will help you identify both the gaps in your understanding of digital inclusion in your community and who is not currently served by your digital inclusion ecosystem.*

1. *Who are the populations in need in your community that are unserved by*

the current digital inclusion ecosystem?
a) Are there certain demographics (age, income, race/ethnicity, language, disability) that are unserved?
b) Are there certain geographic areas (neighborhoods, cities, towns, rural areas) that are unserved?

2. *What information is missing? What other data or information is needed to inform your plan?*
a) If you find you need more granular broadband availability and adoption data, you can partner with NC BIO to deploy a standardized survey and speed test to gather more granular availability and adoption data in your community:
b) Survey information can be found here: https://ncbroadband.gov/survey

II. Collective Vision for Digital Inclusion in your Community

In this section, your community will collectively imagine what your community could look like if digital equity is achieved and cast a vision for what digital equity looks like in your unique context. Your community's collective vision section may include all the following components (vision, mission, values, goals, and objectives) or just a few of them. Outlined below are the different components it could include and probing questions to help you develop the components you choose to include.

A. **Vision:** a vision statement is your north star for the plan. It is a 'clear, specific, compelling picture' of what your collective vision is for the future of your community. In this context, it is a collective vision for what your community would look like if it were digitally equitable.

1. To develop the plan's vision statement for the digital inclusion plan, consider the following questions (in a group or individually):
a) How does the digital divide impact your community?
b) *Why is digital inclusion important to your community?* It may be helpful to think about the following two scenarios:
(1) If we do nothing, what does the future look like?
(2) If we do this correctly, what does the future look like?
2. Using your responses to the questions above, develop a short collective, community vision statement for your digital inclusion plan.

B. **Mission**: a mission statement is a general statement on how the vision will be achieved.

1. To develop the plan's mission statement, consider the following questions (in a group or individually):
a) What does your community plan to do to close the digital divide?
b) How will your community close the digital divide?
c) For whom does your community seek to close the digital divide?
d) What value will this plan bring to closing your community's digital divide?
2. Using your responses to the questions above, develop a short collective,

community mission statement for your digital inclusion plan

C. **Values**: values are the distinctive and enduring principles your community will follow in designing and implementing the plan. Your community may find it appropriate to embed values into the plan so as digital inclusion programs are implemented because of the plan, they are built on common values.

1. To develop the plan's values, consider the following questions (in a group or individually)*?*
   a) How does digital inclusion align with your community's existing values?
2. What beliefs should guide the goals and the subsequent activities that result from the plan?

D. **Goals:** the plan's goals will be broad, intangible outcomes that are derived from and support the achievement of the community vision statement.

1. *Alignment with existing community goals and plans:* To develop the plan's goals, your team will first need to identify how the plan's goals align with your community's existing goals and plans. As a group, consider the following questions:
   a) How does digital inclusion align with your community's existing goals and plans?
   b) Does your community already have a strategic plan or a community economic development plan?
   c) If so, how will digital inclusion activities help achieve the goals outlined in your plan(s)?
   d) For example, if your community has established goals around any of the following issues, consider how digital inclusion activities would enhance (or detract from) your goals.
      (1) Aging in place
      (2) Health
      (3) Community and economic development
      (4) Education
      (5) Public safety
      (6) Quality of Life

2. *Develop digital inclusion specific goals:*
   a) To create digital inclusion goals that align with your community's existing goals, it may be useful to create goals to address each aspect of the digital divide: broadband access, broadband affordability, computer devices, and digital literacy
   b) To develop your digital inclusion goals, consider the following questions as a group for each aspect of the digital divide:
      (1) What do we want to achieve in a year? In five years? In ten years?
      (2) What do we need to do to get there?
      (3) Who do we need to serve? I.e., Who is most impacted by the digital divide in our community?

E. **Objectives**: objectives are specific, measurable, concrete, and support the obtainment of your goals.

1. *Each goal you develop may have several objectives to reach that specific goal.* For example, if your goal is 'to ensure all K-12 students have access to a meaningful computing device in their home by 2021' then your objectives might be the following: a. Determine how many students do not have a computing device at their home by Dec. 2020. b. Identify the number of computing devices the school system deploys to students through the current 1:1 program by Dec. 2020; c. Purchase devices for 100 percent of K-12 students without devices by April 2021.
2. Objectives help you measure your progress towards achieving your goals. Including objectives will assist your team in determining how impactful your strategies are at achieving your goals.

III. Implementation

A. **Strategies**: To develop the strategies you will undertake to achieve your goals, consider the following questions.

1. *Remembering that the digital divide impacts each facet of your community in unique ways and as such each part of your community will need to address digital inclusion within their sphere, how will you integrate digital inclusion into the various agencies, sectors and industries in your community? (i.e., community & economic development, healthcare, education, public safety, etc.)*
2. *Who will lead the efforts, keep projects on schedule and help your community implement the various aspects of this plan.*
   a) Many communities find it helpful to create a digital inclusion coalition to lead these efforts. If your community does not already have a coalition, forming one could be one of the outcomes of this. plan.
   b) For information on how to form a coalition, see the NDIA's Digital Inclusion Coalition Guidebook.
3. *How will your community achieve the goals you outlined above?*
4. *How will you plan for sustainability for each strategy?* For example, some projects may be one-time short-term projects, where-as others will necessarily span years. How will you ensure those long-term efforts have the funding and support needed to be sustainable?
5. *How will you holistically address the various aspects of the digital divide?*
   a) How will you address broadband access?
   b) How will you address broadband affordability?
      (1) See NDIA Discount Internet Guidebook for information and resources
   c) How will you address the lack of computers or devices in your community?
   d) How will you address digital literacy and digital skills needs?
6. *How will you prioritize your goals and align your actions to them?*
7. *What resources are needed to accomplish your goals? (i.e., funding, personnel, policies, programs, legislation, etc.) This will inform your actions and timeline.*

8. *Do new programs, policies or tools need to be created to address the digital divide in your community?*
   a) See NDIA Digital Inclusion Startup Manual for guidance.

B. **Timeline**: In developing your timeline, it will be difficult yet important to simultaneously address your community's urgent needs (made more pronounced by COVID-19) with planning for the future and implementing long-term sustainable solutions. To develop your timeline, consider the following questions.
   1. *What resources are needed to accomplish your goals?* For example, if you determine you need substantial funding to achieve your goals, you may need time to identify grant sources etc.
   2. *What is most urgent, pressing, and can be accomplished quickly (short term)?* (i.e., established within months)

   a) Are there immediate situations that require a rapid response due to COVID-19?

   b) *Are there specific facets of your community that are in crisis due to the digital divide and need immediate attention?* (i.e., K-12 schoolkids attempting to participate in remote learning, etc.)
   3. *What can be accomplished soon (mid-term)?* (i.e., established within a year-18 months)
   4. *What will take more time (long-term)?* (i.e., established within years, long term sustainable solutions)