Principles and Standards

for Information & Communication Technology in Prison

Cover photo credit: Cholticha Kranjumnong

Authors

- Eden M. Badertscher, PEaCC Principal Investigator, Education Development Center
- Traci Beaucoudray, Operation Restoration
- Rosie Butts, Student and Advocate, Bridges to Baccalaureate
- Chris Etienne, Prison Teaching Initiative, Princeton University
- Laura Hardwick, New Hampshire Department of Corrections
- Jessica Hicklin, Chief Technology Officer, Unlocked Labs
- Veronica Horowitz, Assistant Professor, SUNY-Buffalo
- Jason O'Malley, Co-Founder, Reentry Coaching Academy
- Michael A. Saine II, Education Development Center, From Prison Cells to PhD, Unlock Higher Education
- Kevin P. Waterman, Senior Project Director, Education Development Center
- Kevin Windhauser, Director, Prison Education Program, Washington University-St. Louis

The authors acknowledge the following individuals as part of the process of development for the *Principles and Standards for Information & Communication Technology in Prison*:

Advisors

- Otis Jennings, Georgia Institute of Technology
- Steve Papa, Parallel Wireless
- Udaya Paitnaek, Director, California Office of Digital Innovation
- Joel Samuels, University of South Carolina
- Basia Skudrzyk, Education Development Center, From Prison Cells to PhD
- Syrita Steib, Director, Operation Restoration

Leadership Team

- Eden M. Badertscher, PEaCC Principal Investigator, Education Development Center
- Veronica Horowitz, PEaCC Co-Principal Investigator, University of Buffalo SUNY
- Kevin P. Waterman, Senior Project Director, Education Development Center
- Laurence Audenaerd, The MITRE Corporation
- Ellis Ballard, System Stars
- Nicholas Duffy, New Hampshire Department of Corrections
- Chris Etienne, Prison Teaching Initiative, Princeton University
- Naomi Hupert, Education Development Center
- Haley Schoaf, Unlocked Labs
- Kevin Windhauser, Prison Education Program, Washington University-St. Louis
- Pilar Miranda, Project Coordinator, Education Development Center

Working Group Members

Change Management
- Nick Duffy*
- Heather Erwin
- Meredith Kelling
- Laurie Foster
- Heidi Guinen
- Ken Oliver
- Jason O'Malley

Community Connections
- Chris Etienne*
- Tiffani Arsenault
- Charles Hardwick
- Uzoma Orchingwa
- Zachary Psick
- Senora L. Rudolph
- Abbey Simon

Network and Access
- Laurence Audenaerd*
- John Badertscher
- Nick Galvin
- Eric Harris
- Chris Hurley
- Mickey Saine
- Donte Small

Procurement
- Kevin Windhauser*
- April Feng
- Jon Jeter
- Chelsey Jones
- Vince King
- Monique Robbins
- Scott Young

Services
- Veronica Horowitz*
- Traci Beaucoudray
- Rosie Butts
- Sam Densing
- Ryan Landry

Technology
- Kevin Waterman*
- Rob Aikins
- Jacob Bitters
- Arti Finn
- Laura Hardwick
- Jessica Hicklin
- Jessica Snow

*Group Coordinator

In addition to these members of the Working Groups, we also thank the participants (who are anonymous) of our eight focus groups, which included:

- Formerly incarcerated people
- Currently incarcerated people
- Prison wardens and departments of corrections staff
- Prison healthcare and support providers
- ICT professionals
- Higher education in prison programs
- Reentry providers
- Family members of justice-impacted people and students

Contents

OVERVIEW

The primary goal of this document is to provide guidelines for developing and implementing systems of information and communication technology (ICT) to justice-impacted (JI) people and other members of the prison community that support human rights and basic needs, including education, health care, mental health, legal assistance, career opportunities, and connections to family and community.

Many, though not all, prisons have existing programs that supply some combination of these services, but even when present, such services are limited. Technology provides a mechanism to increase access for all incarcerated individuals as well as staff and volunteers. For example, a facility's Prison Education Program (PEP) may only have a limited, basic slate of classes or certifications. Technology can allow for access to nearby community college or university programs with significantly broad curriculum ranges. The limited number of mental health providers may only be physically at one site one or two days a week, necessarily limiting the number of clients they can see, whereas online appointments could increase access and provide better support and outcomes. Staff also need such services, and these are not provided onsite.

This document details the principles upon which these systems should be designed and provides standards that the systems should adhere to. Details about the specific benefits of these solutions follow. The types of technological solutions considered under this plan all contribute to community development, both building community within prisons as well as decreasing the gap between prisons and outside, such as faith-based, community-based, and professional organizations, in addition to family. Moreover, these systems can maintain a connection to community that further supports incarcerated individuals throughout their incarceration and as the transition to community outside prison.

The complex situation created by lack of technology access is less than ideal, and at times downright counterproductive, not only for the individuals who are expected to rehabilitate, but for the staff and volunteers who work with them as well as the community that absorbs these individuals and must deal with the consequences resulting from the lack of effective rehabilitation within current structures, contributing to recidivism. While prisons rhetorically are focused primarily on rehabilitation, according to the Criminal Justice Review, the real purposes of corrections are retribution, deterrence, incapacitation, and rehabilitation (Kifer et all, 2003). But we as members of the community deserve to have people come back to us who are in fact able to participate in the community successfully, rather than people whose rehabilitation was not the primary focus. This body of work focuses on wholistic rehabilitation with the understanding and goal that the greater success and benefits to the general community, the prison staff and volunteers, and the JI people and students themselves, come from the well-documented reality that education is the best arbiter of successful reentry and decreased recidivism. In particular, for people who receive valuable education in prison, the recidivism rates fall sharply to "14% for those who obtain an associate degree, 5.6% for those who obtain a bachelor's degree, and 0% for those who obtain a master's degree" when compared to those who did not receive purposeful education of whom "more than 3/4 (76.6%) were rearrested within 5 years" (Northwestern, 2022).

BENEFITS

While the benefits of ICT services provided in prison that adhere to the principles and standards outlined in this document remain to be seen, the research and collaborations that led to the development of these principles and standards suggest significant benefits that can enhance what prison facilities are currently able to provide within the limitations of face-to-face opportunities. Past research suggests that providing incarcerated individuals with access to services through up-to-date ICT can better prepare them for reentry (Barreiro-Gen & Novo-Corti, 2015; Reisdorf & DeCook, 2022; Zivanai & Mahlangu, 2022). Supporting successful reentry can lower recidivism rates (Northwestern, 2022). Services provided via ICT also can support the basic psychological needs (Deci & Ryan, 2012) of incarcerated individuals through digital healthcare (Rantanen et al., 2021) and education, which are foundational for individuals to be internally motivated to engage productively (Deci & Ryan, 2012). ICT in prisons could provide people with autonomy and support (Adie et al., 2008).

In addition to meeting the individual needs of incarcerated people, improving ICT in prisons to provide services can also have wider benefits such as positively impacting families and communities. The unparalleled size of the prison population in the US has impacts well beyond those individuals. In fact, 45% of people in the US have a family member either currently or formerly incarcerated (FWD.us & Cornell University, 2023). This has devastating outcomes for family members including children, in particular (Aiello & McCorkel, 2018; Wakefield & Wildeman, 2013), but also on other family members who have shorter life expectancies (FWD.us & Cornell University, 2023) and experience secondary prisonization (Comfort, 2009).

Therefore, we ascertain that establishing both *standards* and *principles* for ICT and the services provided through them are foundational to both successful (re)habilitation and ending our country's systemic mass incarceration. While often used interchangeably, standards and principles are different concepts. According to the National Institute of Standards & Technology, U.S. Department of Commerce (NIST), a standard is defined as "a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose" (International Organization for Standardization, 2023). Conversely, the term "principle" can be defined as "a basic idea or rule that explains or controls how something happens or works" (Cambridge University Press & Assessment, 2023a). Accepting these previous definitions, the authors of this document are able to define the standards and principles on which the following information is based.

PRISONS

The National Science Foundation's (NSF) Smart & Connected Communities program sponsored the planning grant Prisons Evolving as Connected Communities (PEaCC), which engaged diverse community stakeholders in developing a model of a prison as a connected community that would address ICT issues unique to prisons. Proposed in 2021 by Drs. Eden Badertscher and Stephanie Gaskill, the goal was conceived to produce a preliminary list of standards for ICT that would disrupt socio-systemic factors in order to facilitate repositioning prisons as equitable habilitative communities supporting successful reentry that were also supportive of staff and volunteers who themselves experience significant trauma. US prisons constitute a unique geographically and physically bounded, technologically disconnected community. This extreme isolation persists due to dehumanizing narratives around JI people , including JI students—narratives closely tied to issues of ability, education, socio-economic status, race, and ethnicity—and the need to protect society from them. Unfortunately, this isolation contributes to the lack of resources and opportunities inside prisons that would support and make likely a successful reentry, as well as additional major hurdles post-incarceration. This failure to successfully reenter society then further perpetuates deficit narratives of JI people.

PROCESS DEVELOPMENT

In PEaCC, Education Development Center and State University of New York-Buffalo collaborated with myriad stakeholder groups including New Hampshire Department of Corrections, Washington University-St. Louis Prison Education Program, STEM Opportunities in Prison Settings, Operation Restoration, Unlocked Labs, and Princeton University's Prison Teaching Initiative. The leadership team also convened an advisory group consisting of individuals representing the various stakeholder groups. Focus groups were then held with the following key stakeholder groups to understand the wants, needs, and fears of each group so the principles and standards would work to successfully reconcile the varied needs, wants, and fears: formerly incarcerated people, currently incarcerated people, prison wardens and departments of corrects staff, healthcare providers in prison settings, ICT professionals, higher education in prison programs, reentry providers, and family members of JI people and students.

The next stage of development involved convening a large working group composed of members from all stakeholder groups organized around six focal areas. After 16 hours of meetings, each of the groups identified critical areas of need for principles and standards within their focal area. A diverse subset of this working group was then identified to bring the ideas and recommendations from the working group to reality in the formal principles and standards document. In the development, their charge was to provide solutions to the aforementioned issues and to honor the recommendations identified by members of the working group and focus groups. This document is the culmination of this effort.

STAKEHOLDERS

It was critical to understand exactly who qualified as a member of the community, in particular, a community stakeholder. Stakeholders are defined as individuals who are "involved with an organization, society, etc., and therefore have responsibilities toward it and an interest in its success" (Cambridge University Press & Assessment, 2023b). In this case, individual parties, including the JI people themselves, were determined by who could influence, change, aid in, or be impacted by an individual's rehabilitation efforts.

Residents

Residents of facilities are those whose control or ability is immediately recognized by the targeted party in question. The individual is the key to any successful form of rehabilitation but must be empowered and supported to succeed. Therefore, while each of the principles and standards recognize that the facility residents have the most to gain, they are also recognized by the authors as disadvantaged members of society, having the least amount of control within their given situation.

Operational Staff

Operational staff are individuals who work within the facilities that govern the residents on a day-to-day basis, such as prison staff, wardens, guards, and other members of the facilities staff. While this group has little power to make specific influential changes, they often have great leverage in how they carry out and enforce the laws that they are given. This group also holds the most control over a resident's day-to-day life and can be the most resistant to change or loss of perceived power, as demonstrated in the Stanford Prison Experiment (Haney & Zimbardo, 1998). In the 2011 *Jail Design Guide*, the U.S. Department of Justice notes that it is aware that there are a lack of individuals and key people who are knowledgeable enough to adequately plan, to which they propose their own plan. The planning document admits that prison officials can use proposed plans to implement their vision into the facility, which will determine the pattern and path of the facility's future. There is an urgency in many of these stakeholders to be the ones to control this future vision, yet the Justice Department must work within an environment

understanding that general politics also controls the situation. We can theoretically use a more community minded approach to reach those stakeholders who would be more reluctant to endorse our ideas and plans.

External Support

External support includes individuals and organization who are not directly impacted by the justice system but have some vested interest in a JI individual's success whether through being mutually acquainted with either the individual or empathic toward the individual's situation. These supporters may be friends, acquaintances, or even lobbying or educations institutions. They are extremely important as a voice because they are the ones most removed from the situation who tend to want to see these JI individuals succeed.

Public and Indirectly Justice Impacted

Another subgroup includes the individuals impacted by the situation. This could be a victim of the crime being perpetrated, the outside community robbed of the individual's talents, or an individual such as a child who has lost a parental figure through incarceration. This group tends to have the strongest feelings about and the greatest investment in the JI individual's situation, and thus they must be addressed as a key stakeholder.

Policymakers

Policymakers individually hold the most control over a JI individual whether or not the rehabilitation can appropriately take place. While operational staff have the ability to affect the general atmosphere, policymakers ensure that the policies are made and write those policies toward education, funding, general nourishment, employment, and every other facet of a caracal setting. True changes cannot happen without the support of this stakeholder group.

OVERARCHING PRINCIPLES AND STANDARDS

In this section, the authors detail the overarching principles on which these ICT systems in prisons should be designed and built, and provide overarching standards that the ICT systems in prison should adhere to and be evaluated against. Details about the specific benefits of these solutions follow. The types of technological solutions considered under this plan all contribute to community development, both building community within prisons as well as decreasing the gap between those in prisons and those outside, including faith-based, community-based, and professional organizations. The latter is particularly important to enable JI people and students to maintain connections to community that further support their rehabilitation and ultimately their transition to community outside prison.

To understand the issues inherent in bringing and installing technologies into carceral facilities, we must first assess and understand foundational commitments that must guide choices and decisions. Subsequent to these, we need to consider stakeholders' needs and concerns; we then need to examine the contexts, focusing on strengths, weaknesses, opportunities, and threats, again from various perspectives. Only in this way can we determine how best to balance these often-competing variables while also unequivocally upholding foundational commitments.

Overarching Standards

Designing and implementing a viable, ethical ICT infrastructure in carceral settings (regional, state, and federal) that is grounded in human dignity requires standards by which to measure and assess quality. The following overarching standards (and the subsequent sub-standards) can provide appropriate guidance to support the design and implementation:

1.1.1. ICT in prison should adhere to and reinforce the diverse rights, dignity, and needs of all human beings as defined in the U.S. Constitution and Declaration of Independence, as well as those described and defined in other treatises that the US has ratified in their participation in the United Nations; these include the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social, and Cultural Rights, and the Nelson Mandela Rules, with the recognized exception of the right to liberty pursuant due process. In instances when these documents do not provide a unified view of human rights, ICT in prison should adhere to the most equitable and personal health- and wellbeing-oriented interpretation

1.1.2. As an independent nation-state, and as a charter member of the United Nations and permanent member of the UN Security Council, the United States of America has accepted and ratified this set of documents that together define human dignity and human rights both nationally and/or internationally. Critical articles (or portions thereof) of the **Universal Declaration of Human Rights** that are critical to the decision making around ICT systems in prison include:

1.1.2.1. Article 1: All human beings are born free and equal in dignity and rights.

1.1.2.2. Article 3: Everyone has the right to life, liberty, and the security of person.

1.1.2.3. Article 12: No one shall be subjected to arbitrary interference with his privacy, family, home, or correspondence, nor to attacks upon his honor and reputation. Everyone has the right to the protection of the law against such interference or attacks.

1.1.2.4. Article 18: Everyone has the right to freedom of thought, conscience, and religion; this right includes freedom to change his religion or belief, and freedom, either alone or in community with others and in public or private, to manifest his religion or belief in teaching, practice, worship, and observance.

1.1.2.5. Article 25: Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing, and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

1.1.2.6. Article 26: Everyone has the right to education.

1.1.2.7. Article 27: Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.

1.1.2.8. Article 29: Everyone has duties to the community in which alone the free and full development of his personality is possible.

1.1.3. Additional critical articles in the **International Covenant on Civil and Political Rights** include:

1.1.3.1. Article 1: All peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social, and cultural development.

1.1.3.2. Article 23: The family is the natural and fundamental group unit of society and is entitled to protection by society and the State.

1.1.3.3. Family can be conceptually difficult to define within a societal construct, but the Human Resources & Services Administration (HRSA) defines family as "a group of two or more persons related by birth, marriage, or adoption who live together; all such related persons are considered as members of one family." (HRSA, 2022). For the purpose of this paper, we will use a more inclusive and self-generated definition that

will define family as a socially constructed entity shaped by self-determining sharing of resources.

1.1.4. Additional critical articles in the **International Covenant on Economic, Social, & Cultural Rights** include:

1.1.4.1. The steps to be taken by a State Party to the present Covenant to achieve the full realization of this right shall include technical and vocational guidance and training programs, policies, and techniques to achieve steady economic, social, and cultural development and full and productive employment under conditions safeguarding fundamental political and economic freedoms to the individual.

1.1.4.2. The widest possible protection and assistance should be accorded to the family, which is the natural and fundamental group unit of society, particularly for its establishment and while it is responsible for the care and education of dependent children. … Special measures of protection and assistance should be taken on behalf of all children and young persons without any discrimination for reasons of parentage or other conditions. Children and young persons should be protected from economic and social exploitation.

1.1.4.3. The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing, and housing, and to the continuous improvement of living conditions.

1.1.4.4. The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.

1.1.4.5. The States Parties to the present Covenant recognize the right of everyone: (a) To take part in cultural life; (b) To enjoy the benefits of scientific progress and its applications; (c) To benefit from the protection of the moral and material interests resulting from any scientific, literary, or artistic production of which he is the author. … The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for the conservation, the development, and the diffusion (spreading) of science and culture.

1.1.5. Moreover, because health and wellbeing are essential human rights that extend "beyond healthcare to the underlying determinants of health" per above, ICT design and implementation in prison, and in all locations, should adhere to a Word Health Organization's Human Rights-Based Approach (HRBA) by which all development cooperation activities should "respect and advance human rights."

1.1.6. The World Health Organization (2022) asserts that "Violations or lack of attention to human rights can have serious health consequences," and as such commitment to an HRBA is necessary to protect the health and wellness of all members of a prison community, including but not limited to staff, residents, and service providers. This means that human rights principles and standards should guide all "development cooperation and programming," and that they should contribute to states, and organizations within those, "respecting, protecting, and fulfilling their human rights obligations and ensuring all people can claim their human rights."

1.1.7. The realization of and access to human rights via ICT, including but not limited to education, will be grounded in human dignity and not be restricted by expected carceral outcomes or for the purposes of behavioral modification (e.g., punishment). Anything else is fundamentally interfering with human rights and actively makes society less safe by ensuring people in reentry lack the knowledge, skills, and resources necessary to reenter society successfully.

1.1.8. Considering the human rights defined above, particularly economic rights, access to and development of 21st century skills through education is a human right. Therefore, consistent access to and training on reliable technology (including access to and training on current software and platforms) is a human right because 21st century skills are necessary to function at all levels of society and are, thus, essential intellectual and cultural capital necessary for reentry into a free society and for career advancement.

1.1.9. Pursuant the human rights to self-determination and the physical and mental health, human- (or identity-) centric language as determined by population under discussion should be used at all times relative to ICT, as anything else impinges self-determination and can contribute to mental health issues.

1.1.10. Pursuant the above rights, including recognition of the family as a fundamental unit of society, all incarcerated individuals and other members of the prison community will be granted access to modern technology needed to access loved ones promptly and efficiently.

1.1.11. ICT in prison, and all educational services provided through it (or through in-person means), will adhere to The Family Educational Rights and Privacy Act (FERPA) 1974, protecting student data according to equivalent standards for the population of students at large.

1.1.12. This act protects the privacy of ALL student educational records, and applies to ALL public or private elementary, secondary, and/or post-secondary institutions.

1.1.13. Drawing on the International Covenant of Social, Economic, and Cultural Rights and FERPA (1974), students should have a level of ownership over their data and products that allows them to leverage it for future opportunities both inside and outside prison settings (e.g., employment, further academic pursuits, paroling opportunities).

This standard prevents situations where upon release, students no longer have access to their records, work, and/or intellectual property that was developed in prison, enabling them to use these to demonstrate knowledge and experience post incarceration.

Overarching Principles

The following overarching principles, if disregarded, would undermine the realization of the overarching standards discussed above, including the Universal Declaration of Human Rights.

1.1.14. **Principal of Cross-Collaboration:** Collaboration with JI people is as necessary to design and create systems that support the needs and wants of all stakeholders as is collaboration with all prison community stakeholder groups. This collaboration across groups requires equity and care to develop and grow for it to achieve productive ends.

1.1.15. **Principal of Commensurate Technology:** As a well-documented severe economic constraint against securing a living wage, ICT design and implementation by facilities and service providers should ensure that all members of the prison community have sufficient technology training so they do not experience a digital gap relative to common technology use outside or prisons. This is particularly important for incarcerated people so that when they are released, they do not face a digital gap that interferes with and undermines their ability to find employment providing a living wage.

1.1.16. **Principal of Rejection of Fear-based Decision-Making:** Technology implementation and access decisions must not be based on fear of what could happen, as this would allow for arbitrary and inequitable implementation. Decisions must be made in adherence with the standards above and with the guidance of data. That no technology can be 100% secure is accepted by the United States, its States, and other government agencies, as well as other public and private organizations. As such, policies and procedures must be well-planned to ensure

both tight security and how to address security breaches; this includes preparing for finding, learning from, and addressing issues and weaknesses, whether anticipated or not. At no level of society is the solution to remove technology; thus, this is not a viable option in prison settings either.

1.1.17. **Principal of Data Ownership and Control:** Data ownership refers to both the possession of and responsibility for information. Ownership implies power as well as control. The control of information includes not just the ability to access, create, modify, package, derive benefit from, sell, or remove data, but also the right to assign these access privileges to others. Therefore, the JI scholar shall own all intellectual rights and properties to the work that they generate, create, help to create, or consult on. All data ownership should be clearly outlined and include the JI scholar's knowledge, agreement, and understanding (Loshin, 2002).

This principle works in conjunction with the standard on student data ownership.

1.1.18. **Principal of Non-Replacement and Enhancement**: It can be distressing upon the individual to go without basic, personal, face-to-face interactions with other people. *Relatedness* is a well-documented basic psychological need (Deci & Ryan, 2012)—as is human interaction—the loss of which undermines mental and physical health. Therefore, technology should never be used as a means to reduce face-to-face interactions, particularly for the convenience of the holding facility, but should be primarily a means to enhance opportunity and interaction (Gunawardena, 1995).

FOCUSED PRINCIPLES AND STANDARDS

There are overarching themes that do not necessarily serve the universal issues identified natively with the rights that should be afforded to individuals. These standards and principles, therefore, are focused into subsections that affect some portion of the theoretical issue of creating smart and connected communities or the stakeholders in general but do not necessarily represent the overarching themes. Therefore, each section was created to represent these groups, beginning with Community Connections and Services.

Community Connections and Services

Focusing on community connections for JI scholars during and post-incarceration is necessary to ensure the emotional health, educational access, and successful transition of formerly incarcerated individuals into society, as characterized by the expanded Nelson Mandela Rules adopted by the United Nations General Assembly in 2015 (McCall-Smith, 2016). Similarly, such connections for staff can support their health, wellbeing, and educational access. According to the Standard Minimum Rules for the Treatment of Prisoners, which was first adopted by the First United Nations Congress on Crime Prevention and Criminal Justice in 1995 and later adopted as part of the Nelson Mandela Rules:

The treatment of [incarcerated people] should emphasize not their exclusion from the community but their continuing part in it. Community agencies should therefore be enlisted wherever possible to assist the prison staff in the task of social rehabilitation of the [incarcerated people]. There should be a connection with every prison social worker charged with the duty of maintaining and improving all desirable relations of an [incarcerated person] with his or her family and with valuable social agencies. Steps should be taken to safeguard, to the maximum extent compatible with the law and the sentence, the rights relating to civil interests, social security rights, and other social benefits of [incarcerated people].

These rules highlight two essential rights that should be extended to every incarcerated individual, as described in the *Universal Declaration of Human Rights*. First, that the individual is a person before the law and as such should be treated with dignity, reaffirming Article 15 of the *International Covenant on Economic, Social, and Cultural Rights*, emphasizing the right to participate in cultural life of the community. Second is the right to health and wellbeing through the role of social service and community agencies that play critical roles in services and opportunities that address the "underlying determinants of health" as stated by the World Health Organization. These are essential to making it possible for the formerly incarcerated population to transition back into society successfully and with community support. In their absence, the U.S. Department of Health and Human Services published the report *The Psychological Impact of Incarceration: Implications for Post Prison Adjustmen*t, which stated:

> *As a result of several trends in American corrections, the personal challenges posed and psychological harms inflicted in the course of incarceration have grown over the last several decades in the United States. The trends include increasingly harsh policies and conditions of confinement as well as the much-discussed de-emphasis on rehabilitation as a goal of incarceration. As a result, the ordinary adaptive process of institutionalization or "prisonization" has become extraordinarily prolonged and intense. Among other things, these recent changes in prison life mean that prisoners in general (and some prisoners in particular) face more difficult and problematic transitions as they return to the free world* (Haney, 2001).

1.2. Principles of Community Connections and Services

1.2.1. Principle of Equity of Opportunity: Opportunities, services, and connections provided to students and JI people inside prison via ICT should be made available to all members of the prison community as a family benefit including telehealth, tuition remission to attend classes for staff or their dependent children, for education, workforce training, and the like.

- Too often programs that come into a prison increase tension between students/JI people and the prison staff because in the rare instances that this is provided to incarcerated people, staff and their families do not typically have similar access. Critical to building productive communities inside prisons is by not removing programs but expanding who has access to them. This can change cultures by creating increased opportunities to see both the staff of, and the people incarcerated in, a prison as learners and human beings.

1.2.2. Principle of Family Connection: Just as the State of California has recognized the impact that accessible communication has on an incarcerated individual's and their family's emotional health—resulting in the *Keep Families Connected Act* and improving successful reentry—people in juvenile detention centers, prisons, and jails should be able to make and receive calls for free.

- Communicating with loved ones is an emotional need because feeling connected to others is a basic psychological human need clinically considered as significant to productive development as biological needs (Deci & Ryan, 2012). If a need is not met, health suffers significantly, and in particular, motivation to engage, to improve yourself, gets progressively worse until one gives up. This relatedness need can actually be significantly filled even while in prison if we are purposeful in removing barriers and erecting community supports within and across prison walls. The current primary communication systems for incarcerated individuals are limited to snail mail or fee-based phone services. Individuals or families who can't afford these services are unable to maintain healthy emotional bonds with their families and or loved ones. This is particularly damaging in the case of children because they are deprived of a loved one for a substantial time, which causes significant trauma (recognized and documented by the CDC as an "Adverse Childhood Experience," or ACE). Keeping active engagement reduces this trauma, which is important because higher levels of early

trauma are a predictor not only of decreased health outcomes, but of incarceration. We can stop this cycle.

1.3. Community Connections and Services Standards

1.3.1. Every incarcerated individual will be granted access to enhanced social services during incarceration and in preparation for reentry via ICT in addition to face-to-face social services, including but not limited to health care (and all its underlying elements as discussed by the World Health Organization), accessibility to employment, life and 21st century skills, clothing, and food assistance programs. These should also be made available as benefits to staff as well.

1.3.2. Social services should be individualized based on the needs of the JI individuals, not on perceptions of what is deserved. Caseworkers will help JI people access and tailor their services.

1.3.3. Supporting assertions by the *Journal of Family Psychology*, JI individuals who are able to continue contact with families and communities outperform individuals who are given strict guidelines (Folk et al., 2019).

- Exclusions to this will only be enacted when such communications concretely and directly compromise an ongoing criminal investigation or would violate documented and reasonable conditions of supervision.

1.3.4. Departments of corrections staff should receive tuition remission benefits for themselves and their families, or free access to educational programs provided at the prison facility through ICT to ensure equitable access to educational opportunities by all members of the prison community.

1.3.5. To properly prepare a student or JI person's return to their community, incarcerated people will be virtually connected to caseworkers and social services when sustained face-to-face support is not an option or is inadequate, to help those reentering society to bridge the "acclimation gap" (Haney, 2001).

- ICT will enable the process or re-acclimatization to start much earlier, or ideally, will eliminate interruptions to interacting with family and community throughout incarceration, thereby diminishing or eliminating the acclimation gap.

- The HHS report stated,

  The psychological consequences of incarceration may represent significant impediments to post-prison adjustment. They may interfere with the transition from prison to home, impede an ex-convict's successful re-integration into a social network and employment setting, and may compromise an incarcerated parent's ability to resume his or her role with family and children. The range of effects includes the sometimes subtle but nonetheless broad-based and potentially disabling effects of institutional prisonization—the persistent effects of untreated or exacerbated mental illness, the long-term legacies of developmental disabilities that were improperly addressed, or the pathological consequences of supermax confinement experienced by a small but growing number of prisoners who are released directly from long-term isolation into free-world communities (Haney, 2001).

1.3.6. Technology will provide continuity of services (education, health care, etc.) in situations where such services cannot be maintained in-person (e.g., due to a prison infraction, prison closure) or when continuity of care cannot be otherwise reliably and consistently guaranteed. It is particularly important to ensure continuity of care throughout the last year of incarceration and the first year of release under supervision subsequent to incarceration.

1.3.7. Regular, timely, non-snail-mail communication between students and teachers are supported by ICT.

- Prohibitions to such must be based on current data documenting a verifiable security concern; neither stakeholder fears and beliefs nor the existence of one-off examples constitute a verifiable security concern.

- Prohibitions should be resolved through directly involved stakeholders' efforts and, where necessary, third-party entities to find an acceptable balance between security and opportunity.

1.3.8. Access to education provided through ICT must be equitable to all, accounting for the diversity of environmental as well as historical and current needs of the learner. Moreover, the quality should be adequate to ensure that a person's education and credits will have value in outside professional and/or accredited education programs.

- Equity is not defined in relation to a person's conviction or prison status but is relative to human rights and dignity.

- ICT has come with incredible benefits, but a drawback is certainly the vast amount of poor-quality educational materials and experiences. As such, services that are provided via ICT should meet and exceed the standards that a similar professional body would need to meet in non-ICT contexts. For example, higher education in prison should be accredited by one of the governing bodies, such as the Higher Learning Commission, to ensure transferability of credits.

1.3.9. Technology will provide students continuity of education in terms of learner pathways to employability (where in-person, high-quality continuity is unable to be reliably and consistently provided or maintained) and, particularly, in situations where movement between carceral conditions or institutions becomes necessary.

1.3.10. All incarcerated individuals should be given access to a law library and legal services, providing current and former law proceedings to assist with cases, criminal or civil, for post convictions, pardon and parole boards, clemency hearings, and expungements.

A Focus on Healthcare and/or Mental Health Services

1.3.11. All incarcerated individuals will be granted healthcare by primary and mental health providers via ICT if such regular and consistent access either cannot be maintained in person or is necessary to support continuity and transition of healthcare in the last year of incarceration and the first year under supervision.

1.3.12. Healthcare and mental health telehealth services, equitable in quality and frequency to standards enjoyed by the general population, is of no cost to those incarcerated or their extended family (due to the impact of incarceration on the family of the incarcerated person as well as the incarcerated person) and should ensure that access to healthcare of any kind is not limited by what a carceral facility can reasonably provide in house. This telehealth access should be available to other members of the community as a benefit of employment while at work.

1.3.13. Trauma-informed training and education are given to all facility workers employed in tele-healthcare services, including mental health, to ensure that treatment by healthcare workers does not exacerbate or create any trauma for the student or JI person inside prison.

Network Access

For the purposes of this paper, the authors are making recommendations that work on all the layers of the Open Systems Interconnection (OSI) mode. The OSI model describes seven layers that a packet within the computer systems use to communicate over a network. The tasking and recommendations have been broken into two phases where the infrastructure section is designed to focus on the first four layers (bottom four in Figure 1) of the access model: Physical, Data Link, Network, and Transport layers. Additionally, the Subsection, End-User ICT will start from Layer 4 and move through the rest of the layers providing information for Computing systems, Operating systems, and Applications used to deliver the educational content to the end user. This is noted in Figure 1.

Network Access Infrastructure, OSI Layers 1–4

1.3.14. Standards of Network Access Infrastructure, OSI Layers 1–4

Figure 1: Illustration of the OSI model ico ISO/IEC 7498

    1.3.14.1. Network access is professionally described by the National Institute of Standards and Technology (NIST) as "access to an organizational information system by a user (or a process acting on behalf of the user) communicating through a network." Within the context of this paper, we will define the term *network access* as access via facility occupants within the system as set forth by our recommendations and description to the greater internet via the use of wide area networking (WAN) designed to propagate and give access to the greater internet in a controlled environment where information can be accessed at the same fundamental level of satisfying the safety and security of the facility within the contextual attached stakeholders and applicable laws set forth per facility.

    1.3.14.2. We understand and confirm that not all facilities look exactly the same. Because of this, it becomes impossible to develop an exact plan to meet all the shareholders' requirements AND structural and organizational requirements across every facility. Therefore, this document will not provide concrete recommended procedure and designs at a granular level but, rather, will provide guiding information that will meet all the requirements of all potential cases. The authors of this document affirm and understand that each facility's requirement could theoretically be individualized and still meet the appropriate standards and principles outlined within the context of this document.

    1.3.14.3. Network access should have certain traits associated with the information technology (IT) system in general. Therefore, it should meet security, accessibility, compliance, standards, and privacy standards. Security standards should ensure that all IT assets and network infrastructure comply with the highest possible standards to prevent unauthorized access to sensitive information and ensure the safety of all users and administrators involved. The accessibility standards should ensure that assets adhere to all relevant laws, regulations, and guidelines concerning education and prison education. Resource standards should give guidelines for procurement and minimum
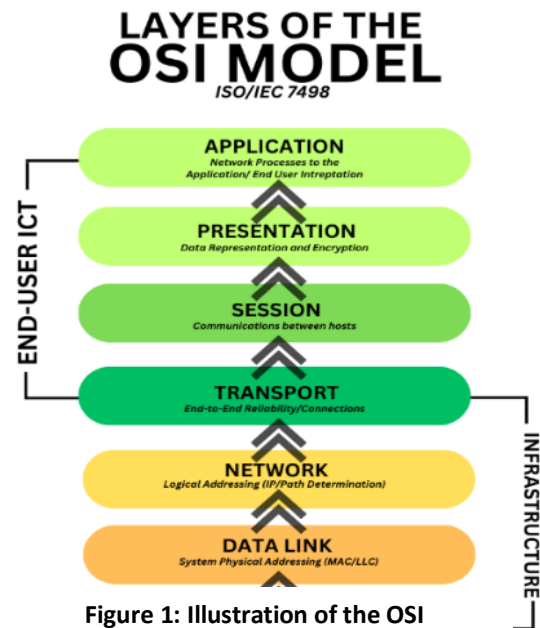
requirements for effective learning. Privacy standards should safeguard the privacy of students' personal data and education records within data protection laws.

1.3.14.4. Therefore, the appropriate standards were consulted and affirmed, which include but are not limited to:

    1.3.14.4.1. NIST 800-53 Rev 5 - Security and Privacy Controls for Information Systems and Organizations will provide the appropriate network and security configurations to ensure the network meets the appropriate standards set forth. All IT assets and network infrastructure must comply with the highest security protocols to prevent unauthorized access to sensitive information and ensure the safety of both students and staff.

    1.3.14.4.2. NIST 800-30, Rev 1 - Guide to Conducting Network Risk Assessment will provide all appropriate information and planning for any possible risks to the network.

    1.3.14.4.3. NIST SP 800-53, Rev 4 - Security and privacy controls for federal information systems and organizations will provide appropriate recommendations specific to federal facilities. The implementation of IT assets should adhere to all relevant laws, regulations, and guidelines concerning education and prison environments.

    1.3.14.4.4. The Health Insurance Portability and Accountability Act of 1996 (HIPAA) is a federal law that requires the creation of national standards to protect sensitive patient health information from being disclosed without the patient's consent or knowledge. The authors have taken this into account with the estimation that network infrastructure could also be used for medical purposes because of the close nature of the closed community inherent within a system such as this. In this continuity setting, we affirm and understand that HIPAA should be factored into the network design, including the use of Port 443, TLS/SSL security procedures, and that the most stringent standard should be the one used in all parts of the network design, construction, implementation, and usage thereafter.

    1.3.14.4.5. All privacy rules that adhere to in-person communication must also adhere to digital communication; for example, communications with lawyers must be 100% confidential and unmonitored. For other communication, any monitoring systems should first be done through a non-person-centered approach such as in an AI system that understands the variation used in casual language locally, and anything that is flagged for next-stage human review should be reviewed by a cross-stakeholder group, not Departments of Corrections only, to equitably implement (and when necessary develop policy and responses) responses according to policy. Responses to violations of appropriate communications should be determined by a cross-stakeholder group in advance of breaches, reasonable to the violation, applied in a person-by-person approach (rather than universally to all involved in communications generally) and modified by the cross-stakeholder group in response to investigations of breaches.

1.3.14.4.6. Infrastructure must be adequate to ensure that the highest security standards are maintainable and that the services, education, and communication via ICT inside prison is as consistent and reliable as what would be expected outside the prison facility.

1.3.15. Principles of Network Access Infrastructure, OSI Layers 1–4

Within the conceptual framework of Standards above, the following principles ensure the physical usability of the system for the intended recipients.

1.3.15.1. **Principle of user-centricity:** The IT system is to be designed with the needs and capabilities of the special circumstances that incarcerated students and people need with a user-friendly interface designed for even individuals without a high school education and therefore able to understand and use the system for the pursuit of education.

1.3.15.2. **Principle of accessibility:** These systems should be given the utmost priority toward giving access and are for educational and reentry purposes; in other words, these are not privilege but, rather, are necessary to support successful reentry. Therefore, access from the system should not be restricted for anything other than danger or harm to the system itself or other individuals within the facility, and should be individualized, in concurrence with conditions of person's supervision, in accordance with legal precedence, and/or based on concrete data, not beliefs.

1.3.15.3. **Principle of Scalability:** A network infrastructure design must exist that is capable of accommodating future growth and integrating technological advances that allow the system to grow without necessitating frequent overhauls, ensuring long-term sustainability.

1.3.15.4. **Principle of Collaborative Improvement:** The system must be regularly updated and continuously improved based on feedback from users and the further changes of evolution of education requirements.

1.3.16. Principle of Effective Interaction and Privacy
A learning environment must be created that includes the tools and technologies necessary to allow students to interact with educators and peers while maintaining the utmost privacy within the system.

1.3.16.1. **Principles of Training and Support:** Training and support processes must be provided to both students and staff members with the conceptual idea of using the IT assets effectively and replacing/addressing technical issues promptly.

1.3.16.2. **Principles of ethical use:** Guidelines and restrictions will be appropriately established fairly and through written notice/regulatory requirements so that the individual user knows and understands how or what they have done and/or the administration is held to the appropriate disciplinary actions based on the regulations that they have not adhered to.

1.3.16.3. **Principle of technology usage:** These guidelines were written with the conceptual understanding that technology does not replace human interaction and should not be used as a substitute for human interactions (i.e., a tablet or voice over internet protocol (VoIP) phone system may be used for the appropriate purpose of making a phone call, but a video system call does not constitute a visitation or any requirement that would normally occur and involve human interaction.

Principles and Standards of End-User ICT, OSI Layers 4–7

Within the context of this paper, we define the phrase "end-user information and communication technology (ICT)" as access to computing hardware (desktop computers, tablets, cell phones) as well as the client-based software that operates on this hardware. This part of the network will focus on the Open Systems Interconnection (OSI) mode layers 4–7 with some overlap with Infrastructure at the Transport Layer. Some, but not all, of these recommendations will require complementary standards within Network Access to function properly, but issues such as internet access and control, wired and wireless communication, and security are not addressed directly here.

Not all facilities will look exactly the same. Therefore, we will define this into Principles and Standards, Stakeholder, and Recommendation.

1.3.17. Principles for End-User ICT, OSI Layers 4–7

1.3.17.1. Virtual classrooms should be available for programming, office hours, continuity of programming, and support inter-jurisdiction programming.

1.3.17.2. Technology solutions should be constructed to provide as much continuity of services as possible whether due to transfer between facilities or upon release.

1.3.17.3. Digital education should be seen as supplemental and not as a replacement for in-classroom models of instruction.

1.3.17.4. Individuals should have access to current technology to support their ability to earn a living wage both while they are incarcerated and when they return to the community.

   ▪ This includes access to internships, job search, and interview opportunities; the ability to share their data in the form of work and educational products inside on applications; and continuous learning.

1.3.17.5. Technology should favor maximum access allowed in any given environment. In cases where verifiable security concerns exist, access should be implemented in a tiered approach in accordance with this principle of maximum access.

1.3.17.6. Technology to access education, healthcare, or services should not cost incarcerated learners or their families and should be provided as a benefit to staff.

1.3.17.7. Data collected by technology should inform best practices.

1.3.17.8. Date should ensure continual refinement to the quality of educational opportunities provided.

1.3.17.9. Education standards should adhere to those provided by one or more of the educational associations focused on in the content area in question (NCTM, NTSA, MAA, CSTA, ACM), and instructors should meet the same standards they would be expected to meet for comparable education outside of prisons.

1.3.17.10. Technology platforms should provide positive reports that highlight positive behavior to students and JI people, legal support, as well as correctional and paroling authorities. This has two functions: to provide (1) to provide the learners with transcripts they can then use for their purposes (parole presentation, employment opportunities, etc.) and (2) to provide those same reports to paroling authorities (who almost always have access to negative behavior reporting but rarely to comprehensive positive behavior reporting). Additionally, technology systems must provide data and reports (such as usage) for individuals for purposes of self-advocacy with correctional and paroling authorities.

1.3.17.11. Technology platforms should provide learners with comprehensive transcripts and records of work (e.g., an online portfolio) that the learner can use in contexts such as parole consideration and future employment opportunities.

1.3.17.12. Technology should support and maintain credentialing (micro-credentialing, certifications, and degrees) to provide learners with more opportunities to prove their employability upon return to the workforce.

1.3.17.13. Systems architects should favor well-known open-source/non-proprietary technology solutions and software providers with active communities to support security and avoid vendor lock-in situations, as well as encourage sustained technology improvement and advancement in the context of carceral ICT.

1.3.17.14. Content providers (those interested in offering educational opportunities in carceral spaces) should be supported and should not be charged simply to make those opportunities available.

1.3.18. Standards for End-Use ICT, OSI Layers 4–7

1.3.18.1. ICT solutions must support bridging the digital divide, with a focus on digital literacy and current technical skillsets for incarcerated learners. This literacy should include basic internet concepts and terms to a degree of proficiency.

- Meeting this standard ensures students are able to develop and maintain the technological and digital literacy required in 21st century skills and for full participation in the professional and economic world post-release. It is well known that the majority of those who are incarcerated are from geographic locations and contexts where the digital divide is greatest; thus, this is even more critical.

1.3.18.2. End-user technology must be updated on a regular basis, as is fiscally reasonable, to ensure that incarcerated learners are accessing relevant technology so (1) the highest security standards are maintainable, (2) students are able to continually develop 21st century skills consistent with what is expected outside prison settings, and (3) students are able to fully access community, educational, and healthcare services.

1.3.18.3. Each student must be provided ample access to basic computer classes, and refresher opportunities should be provided throughout incarceration both as technology advances and as release approaches, to ensure as seamless a transition to the technological world outside carceral spaces as possible

1.3.18.4. Each student should have access to technology that enables them to look for and apply for employment actively and consistently, as well as supporting employment services prior to release.

- Forbes indicates the current average job search is 5 months. Given the increased complications of searching for employment with a criminal record, the ability to begin searching for a job up to 1 year in advance of release is not unreasonable (Whitehead, 2019).

1.3.18.5. Technology must allow for education data exchange between systems through one of the many open education data standards (Common Education Data Standards [CEDS], Learning Tool Interoperability, etc.).

1.3.18.6. Technology access must be, at a minimum, compliant with the Americans with Disabilities Act of 1990 (ADA) (Section 508) as is the norm in educational and professional settings: websites and documents must be screen-reader compatible, video should include closed captioning and, where applicable, descriptive video.

1.3.18.7. Technology must support internationalization where and to the degree appropriate to ensure learner success.

Procurement

Ethical, efficient, and reliable procurement of technology for use in prison settings, whether for infrastructure or end-user experience, is necessary to ensure the longevity of any ICT ecosystem. Ethical procurement in this context must follow principles that maintain compliance with local, state, and federal regulations to prevent disruption to technology access for incarcerated people, provide transparency to the public, ensure free and fair opportunities for bidding and contracting, and affirm integrity as a value of both suppliers and purchasers.

At the start of any ICT in Prison initiative, it will be important to examine, and change when necessary, procurement policies to identify those that:

1. Interfere with the ability of carceral institutions to meet these principles and standards

2. Support the existence, including the appearance, of conflicts of interest or favoritism

3. Allow contracts that unfairly prevent correctional institutions from canceling a contract without penalty if the contract inhibits the correctional facilities to meet the expectations of these principles and standards.

1.4.   Principles of Procurement

1.4.1.   Principle of Compliance. Procurement conducted in any manner that violates the rules and regulations of local, state, and/or federal jurisdictions risks harming the ability of incarcerated people to access communications technology. Both governmental and non-governmental actors involved in the procurement process must take appropriate due diligence to ensure legal compliance. (Institute of Supply Management Principles and Standards of Ethical Supply Management Conduct 9)

1.4.2.   Principle of Transparency. Information regarding procurement decisions must be, to the fullest extent allowed by law, made publicly available. Public stakeholder input into the procurement process, which supports integrity in procurement decision making, is possible only when procurement information is easily accessible. (ISM Principle 1, 6, and 9)

1.4.3.   Principle of Social Responsibility. Procurement decisions will follow the principle of *Do No Harm*, particularly with attention to due diligence regarding a potential supplier's conduct in relation to incarcerated and formerly incarcerated users. Procurement decisions will consider, using all available information, economic and environmental sustainability, labor and supply chain ethics, and principles of diversity and equity. (ISM Principle 6)

1.4.4.   Principle of Vendor Quality: All vendor contracts should include quality metrics, including expectations that vendors meet or exceed the ICT principles and standards in this document; when such metrics are not met, fine-free contract cancellation should be fully available.

1.5.   Standards of Procurement

1.5.1.   As procurement is comparing and evaluating ICT and service providers, this principles and standards document should support evaluating the providers for their abilities to meet or exceed these standards.

1.5.2.   ICT costs are, in the 21st century, a real and unavoidable cost in maintaining daily operations, and a cost that must be regularly maintained and updated. As such, ICT should no longer be considered a capital budget expense. Rather ICT is necessary for day-to-day operations and, as such, should become part of the operations budget of a prison facility.

1.5.3.   Vendor contracts that support predatory practices of passing unreasonably high ICT costs that are not proportional to wages earned (as is consistent with costs and wages found in the general public) onto incarcerated people or their families are antithetical to carceral or rehabilitative spaces, as well as to human rights and dignity.

1.5.4.   Contracts that govern access to the modern-day non-predatory ICT should ensure free or affordable ICT for the currently incarcerated population; when not free, rates should be on a sliding scale based on what is truly affordable under a person's daily wage in prison, not based on what the family can afford or rates in the broader community. This sliding scale should be set and monitored by a cross-stakeholder body.

- This procurement standard supports the mission of habilitation/rehabilitation as such communication is documented as vital to not just motivation to engage and have hope, but for success of release.

Change Management

As is the case in any organization, introduction of change in carceral facilities, and systemwide, requires an intentional and methodical process of care in the facilitation of that change. Carceral cultures have evolved to maintain the status quo when it is perceived that the institution is functioning normally. How do we address the mindsets of fear of change and of upsetting the status quo—the "if it ain't broke, don't fix it" mindset? In introducing into carceral facilities increased access to technology by residents, we propose a set of standards that are aligned with the U.S. Department of Commerce's National Institute of Standards and Technology; the American Correctional Association's Performance-Based Expected Practices for Adult Correctional Institutions, Fifth Edition; and the U.S. Department of Justice: Office of Justice Programs' Federal Standards for Prisons and Jails; as well as any local or state standards for educational and training programs in carceral institutions. We also propose a set of principles to guide the change management process.

1.6.   Standards of Change Management

1.6.1.   The change management team will collaboratively and equitably include all stakeholders of the prison community in addition to the providers of service and technology. In fact, "all of the diversity within organizations should have their voices heard when it comes to decision-making, problem solving, and strategic planning" (Renard & Eastwood, 2003), and it is proposed here that residents as well as staff are major parts of the diversity of carceral organizations.

- The change management process for individual carceral facilities should be designed collaboratively and equitably by all participants of the change management team so as to increase buy-in. This process should include understanding hopes, needs, and fears across the various stakeholder groups (e.g., holding focus groups), and the change management team should respond to these hopes, needs, and fears by ensuring that training is provided by and with technology and service providers to increase understanding of and reduce anxiety around technology changes.

- As is noted by researchers, true change comes with collaboration and mindset shifts: Gupta & Rous (2016) stated:

  > Plans for change gain momentum through a collaborative campaign rather than through a single decision or event. Inclusion, for example, depends on a community-based approach. Riehl conducted a comprehensive review of the literature about educational administration practices and looked specifically at the role of the principal in promoting inclusion. She proposed that 'real organizational change occurs not simply when technical changes in structure and process are undertaken, but when persons inside and outside of the school [or other organizations] construct new understandings about what the change means (p. 186).

1.6.2. Training in newly designed and implemented ICT will be facilitated by specialists who have experience synthesizing multiple stakeholders' voices in the process of change. The training will be adequate to ensure consistent access to technology by residents in carceral facilities, staff, and, as necessary, service providers, as well as to resolve fears and concerns regarding safe access and use. Static training modules will also be available digitally following face-to-face training to support ongoing review as needed. Moreover, training should be repeated at regular intervals to onboard newly arriving members of both the staff and the carceral community by trained specialists, not just from static online modules.

- As noted above, because change in carceral facilities—as in many other organizations—does not happen easily, facilitation of the process by experienced facilitators is needed. "Research has shown that changing established educational goals and curricula requires innovative change agents, facilitators, and coordinated strategies to assure success," and "two important factors in educational change theory are quality facilitation and trained, subject-specific facilitators who can be proactive and communicate well" (Fuller, 1969 as quoted in Linnell, 2001).

- All staff members within correctional facilities (e.g., wardens, assistant wardens, captains, lieutenants, corrections officers, infirmary employees, chaplains, and civilian employees) should participate in diversity, equity, and inclusion trainings relative to ICT as well as be up to date on codes, regulations, new and revised laws, and safety and security measures.

1.6.3. Training to support implementation and change of ICT will be grounded in, and include training in, trauma-informed practices and practices that promote community belonging across stakeholders.

- This standard helps realize that subsequent to training, policies and practices regarding the technology should continue to minimize and counter trauma and harm for all, as well as ensure that the remaining principles and standards are able to be realized by all members within a prison community.

1.6.4. Two sets of evaluation will accompany training and implementation: (1) Trainings will be regularly evaluated by all participants regarding their perceptions of growth of knowledge and effectiveness of training to ensure that training continues to meet the needs of all stakeholders and can be refined to better achieve its goals. Moreover, as Lienhardt (1976) notes, "Measures of implementation can both clarify the nature of the educational process and demonstrate the relationship of that process to observed achievement," and "educational innovations need to be evaluated not only for the obvious economic reasons, but also to provide clearer insight into areas which need improvement." (2) Ongoing evaluation of the goals of community change, and meeting the needs of diverse stakeholders will be evaluated at regular intervals to determine the

effectiveness of the implementation in meeting stated goals. This evaluation will support changes to grow community and meet stakeholder needs.

1.7.   Principles of Change Management

1.7.1.   Principle of Long-Term Safety and Security: Education is the only documented intervention to not only transform the likelihood of successful (re)habilitation and successful reentry (e.g., a reduction in recidivism) but to also be shown consistently overtime to increase the safety and security of facilities by transforming the culture. As such, education must be considered the primary means for ensuring safety and security both in carceral facilities and the broader community. Because education provides opportunities and hope—shifting mindsets regarding identity and the future—while significantly changing employability post release, this dramatically impacts what a previously incarcerated person is able to achieve, what they are able to give back to society, and what they are able to provide for their families, directly interrupting generational incarceration. As such, education as safety and security is a critical guiding principle to any change management process—especially in the case of increased access to technology.

- ▪ Education not only promotes the learning of specific skills for employability, but more importantly, helps foster increased reasoning and thinking skills. Mosely et al. (2005), in examining different frameworks for developing thinking skills, found that "when thinking is strategic and reflective (i.e., carried out with conscious purpose, careful monitoring and evaluation), meaningful learning (Ausubel, 1968) is more likely to occur" and that the integrated model to help foster better thinking skills developed from the different frameworks "may help promote positive change in the belief systems of many people, and so improve the quality of thinking and learning," which will also promote better decisions with regard to choosing options that lead to positive outcomes and facilitate reaching one's goals that do not conflict with institutional or societal goals.

RECOMMENDATIONS

It can be difficult to decide and understand what to do with standards and principles after they have been written. Making a declaration does little in the way of standards. Therefore, the stakeholders who collaborated during the working groups recommended a series of solutions designed to represent the overarching and focused principles and standards.

Overarching Recommendations

The overarching principles and standards consider a lot of existing laws. Therefore, it is simple to meet these requirements with a series of recommendations. The following recommendations can be used as a planning tool to ensure the reality of the aforementioned standards and principles. The following recommendations were made toward the overarching principles and standards:

- **Access to new policies and funding.** As lawmakers and funders of departments of corrections, policymakers should create policy and provide funding that expand or facilitate the development of the tech infrastructure to support the implementation of these standards, so departments of corrections are not left alone to carry the burden of implementing them.

- **Access to current hardware and software.** The world is an increasingly technologically focused society, and familiarity with current technologies is vital, especially for the success of IP post-release. Prisons (as all organizations should) need to treat costs for maintaining technological solutions as management and not capital expenditures.

- **Access to the increasingly large bank of online educational opportunities.** Many prisons have access only to basic educational courses, with a specific dearth of STEM courses. Moreover, educational experiences are relying more and more on integrated technologies (for reviewing course materials, for interfacing with classmates, and for completing assignments), so students in prisons who can also access these enhancements would have greater success.

- **Access to systems for communicating with health providers (physical and mental health).** Telemedicine is another avenue that has opened up opportunities for all, especially around mental health. These systems can also allow for continuity of care, since the modality could be the same if the individual changes custodial location or is released.

- **Access to more accessible systems.** Replace current technological solutions that are provided by private, and often predatory, companies with systems that are more accessible and preserve the dignity of the incarcerated individuals and their families. These systems often provide the ability for incarcerated individuals to communicate with their families and for family members to add funds to a prison account.

- **Access to other services.** Incarcerated individuals need access to services such as legal, employment, and job training both while in prison and after release.

Focused Recommendations

The focused recommendations are smaller supportive recommendations that reinforce the principles and standards set forth in the document earlier. Each of the assigned subsections represents the sub-group as assigned and is considered a supportive recommendation, as each of these recommendations meets the requirements necessary to support the focused principles and standards that support the overarching principles and standards. None of these are more or less important than the overarching ones as they are designed to be a supportive pillar capable of building the support necessary to implement the overarching stands.

Recommendations for Community Connections and Services

- Partnerships should be established between the correctional facilities (both private and public) and health care providers to ensure all incarcerated individuals and staff receive adequate and regular health screenings and mental health support.

- Particularly in light of Article 15 of the International Covenant on Economic, Social, and Cultural Rights, STEM programs should be available to all incarcerated individuals and staff within correctional facilities regardless of length of time remaining on a sentence, as well as to their families. All individuals completing any program should be given a certificate acknowledging achievement and a full description of the course to allow other institutions to judge equivalence of experience. These courses should be current in terms of content and support continued education or workforce development.

- An accessible database of local social services organizations for all community members should be provided that are also recognized for their abilities to support JI individuals both inside and after release. Local and national policymakers should work with federal, state, and regional correctional institutions to fund the development of these databases. Local non-profits who already do this work can support this effort.

- To operate as an independent citizen in society, prior to release, students and JI individuals should be given access to governmental programs early that can assist with voting registration, governmental identification, government assistance (e.g., Medicaid, Medicare, Section 8 housing), etc., so that upon release, a person has a solid foundation of support and knowledge to facilitate successful reentry.

Recommendations for Network Access

OSI Layers 1–4

- After much debate, research, and review of the previously mentioned variables, it was determined that the best design possible would include the act of creating a server setup designed to make incremental backups of the required webpages to power and exchange information needed for the facility resident.

- Therefore, at the Demarcation point would start with a Demilitarized Zone (DMZ) containing a server directly connected to the router via a Firewall appliance with a series of "allow" incoming rules that directly allow the server to access and create an archive of the websites that residents needed. All other websites would be listed under "Deny All" rules for incoming internet traffic. Outgoing rules would be designed as a different set of rules that allowed facility members to only send outgoing traffic through individually approved sites, such as the learning management system (LMS) as previously mentioned. All other rules (i.e., YouTube comments) would hold a "Deny" rule with a final "Deny All" rule placed at the end. After the Demarcation Point-Router-Firewell appliance-server, all endpoints would communicate indirectly via the internet by accessing the incremental backup of websites placed on the server with the server placing the POST requests on the resident's behalf and allowing administrators to watch, supervise, and stop any inappropriate outgoing POST request.

- A related and important discussion becomes the point of developing the "when" and "where" that administrators would be able to modify, view, and restrict communications between the server and the internet, where recommendations should be written based on the aforementioned Family Educational Rights and Privacy Act (FERPA). The strongest recommendations are made to use an artificial intelligence bot based off of Chat-GPT 4.1 or current version, where latency between the system and the server could eventually be driven down to milliseconds.

- Networking (internet service providers [ISPs], WiFi, etc.) should become public infrastructure.

Recommendations for Procurement

- Procurement of ICT infrastructure and end-user experience should become part of a carceral facility's operating budget or be part of the operating budget of the state or national government rather than the capital budget in either context. These costs are ongoing and fundamental to 21st century operations of any organization and need to be considered part of the cost of doing regular business.

Recommendations for Change Management

- Training and education should be available for students and JI people inside, as well as all facility staff and volunteers, to ensure a mutual understanding of the technology available inside the facility and how it should be used.

- Training and education sessions should be held for cohorts of residents, for cohorts of staff, and ideally, for joint cohorts of staff and residents, supporting community growth.

- Conversations with residents, staff, and technology providers about increased access to technology, and facilitated by change management specialists, is a key implementation strategy to reduce fears as well as increase understanding and buy-in by both residents and staff.

- Implementation of increased access to technology should occur as a phased approach with a commitment to continuing education at each phase of the implementation strategy. As Gupta and Rous (2016) note, "What [multiple frameworks for implementation] share in common are implementation stages, usually four or five, that describe the planning of a new practice, its gradual adoption and scaling up, and finally its full adoption."

- Models of change management as well as a literature review of technology in prison should be examined to incorporate best practices and learn from them to ensure successful implementation of increased access to technology in carceral facilities.

- Impact analysis to determine potential impact and other control mechanisms should be implemented to measure outcomes and course correct when needed. In fact, Metz and Bartley (2012) state that "it is clear that implementation is not an event, but a process involving multiple decisions, actions, and corrections to change the structures and conditions through which organizations and systems support and promote new program models, innovations, and initiatives" (Gupta & Rous, 2016).

- Assess what legislation (state and federal) and policies need to be navigated to implement increased access to technology in carceral facilities.

REFERENCES

Adie, J. W., Duda, J. L., & Ntoumanis, N. (2008). Autonomy support, basic need satisfaction and the optimal functioning of adult male and female sport participants: A test of basic needs theory. *Motivation and emotion*, *32*, 189–199.

Aiello, B. L., & McCorkel, J. A. (2018). "It will crush you like a bug": Maternal incarceration, secondary prisonization, and children's visitation. *Punishment & Society, 20*(3), 351–374.

Ausubel, D. P. (1968) Educational psychology: A cognitive view. *American Educational Research Journal, 5*(3), 289–298.

Barreiro-Gen, M., & Novo-Corti, I. (2015). Collaborative learning in environments with restricted access to the internet: Policies to bridge the digital divide and exclusion in prisons through the development of the skills of inmates. *Computers in Human Behavior, 51*(Part B), 1172–1176. https://doi.org/10.1016/j.chb.2015.01.076

Cambridge University Press & Assessment. (2023a). *Principle.* Cambridge Dictionary. https://dictionary.cambridge.org/us/dictionary/english/principle

Cambridge University Press & Assessment. (2023b). *Stakeholder*. Cambridge Dictionary. https://dictionary.cambridge.org/us/dictionary/english/stakeholder

Comfort, M. (2009). *Doing time together: Love and family in the shadow of the prison.* University of Chicago Press.

Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 416–437, Vol. 1). Sage. https://doi.org/10.4135/9781446249215.n21

Enns, P. K., Yi, Y., Comfort, M., Goldman, A. W., Lee, H., Muller, C., Wakefield, S., Wang, E. A., & Wildeman, C. (2019). What percentage of Americans have ever had a family member incarcerated? Evidence from the family history of incarceration survey (FamHIS). *Socius*, *5*, 2378023119829332.

Folk, J. B., Stuewig, J., Mashek, D., Tangney, J. P., & Grossmann, J. (2019). Behind bars but connected to family: Evidence for the benefits of family contact during incarceration. *Journal of Family Psychology, 33*(4), 453–464. https://doi.org/10.1037/fam0000520

Fuller, F. F. (1969). Concerns about teachers: A developmental conceptualization. *American Educational Research Journal*, *6*(2), 207–226.

FWD.us & Cornell University. (2023). *Every second.* [Webpage] https://everysecond.fwd.us/?_gl=1*2k1yyf*_ga*NTU2MDkwMjI3LjE3MTM4NDQ2NzE.*_ga_7E8DZC69ZL*MTcxMzg0NDY3MC4xLjEuMTcxMzg0Dg3Ni4wLjAuMA..#chapter1-1

Gunawardena, C. N. (1995). Social presence theory and implications for interaction and collaborative learning in computer conferences. *International Journal of Educational Telecommunications, 1*(2), 147–166.

Gupta, S.S. & Rous, B.S. (2016). Understanding change and implementation: How leaders can support inclusion. In H. Schertz (Ed.). *YC Young Children*, *71*(2), 82–91.

Haney, C. (2001). *From prison to home: The effect of incarceration and reentry on children, families, and communities.* Office of the Assistant Secretary for Planning and Evaluation. https://aspe.hhs.gov/reports/psychological-impact-incarceration-implications-post-prison-adjustment-0#main-content

Haney, C., & Zimbardo, P. (1998). The past and future of US prison policy: Twenty-five years after the Stanford Prison Experiment. *American Psychologist, 53*(7), 709.

Human Resources & Services Administration (HRSA). (2022, March). *Definition of family* [Webpage]. https://www.hrsa.gov/get-health-care/affordable/hill-burton/family

International Organization for Standardization. (2023, October 18). *Deliverables*. ISO. https://www.iso.org/deliverables-all.html#IS

Kifer, M., Hemmens, C., & Stohr, M. K. (2003). The goals of corrections: Perspectives from the line. *Criminal Justice Review, 28*(1), 47-69. https://doi.org/10.1177/073401680302800104

Lienhardt, G. (1976). Observation as a tool for evaluation of implementation. *Instructional Science, 5*(4), 343–364.

Linnell, C. (2001). Focus on communication and collaboration: Suggestions for implementing change in the 21st century. *The Journal of Technology Studies*, 27(1), 48–50.

Locke, J. (1948). *The second treatise of civil government and a letter concerning toleration*. B. Blackwell.

Loshin, D. (2002). Data quality and business rules. In *Information and Database Quality* (pp. 111–133). Springer US.

McCall-Smith, K. (2016). United Nations standard minimum rules for the treatment of prisoners (Nelson Mandela Rules). *International Legal Materials*, *55*(6), 1180–1205.

Metz, A., & L. Bartley. (2012). Active implementation frameworks for program success: How to use implementation science to improve outcomes for children. *ZERO TO THREE, 32*(4), 11–18.

Moseley, D., Elliott, J., Gregson, M., & Higgins, S. (2005). Thinking skills frameworks for use in education and training. *British Educational Research Journal*, *31*(3), 367–390.

Northwestern. (2022). *Benefits of prison education* [Webpage]. https://sites.northwestern.edu/npep/benefits-of-prison-education/

Rantanen, T., Eronen, J., Kauppinen, M., Kokko, K., Sanaslahti, S., Kajan, N., & Portegijs, E. (2021). Life-space mobility and active aging as factors underlying quality of life among older people before and during COVID-19 lockdown in Finland—A longitudinal study. *The Journals of Gerontology: Series A*, *76*(3), e60–e67.

Reisdorf, B. C. & DeCook, J. R. (2022, February 11). Locked up and left out: Formerly incarcerated people in the context of digital inclusion. *Sage Journals, 24*(2). https://doi.org/10.1177/14614448211063178

Renard, M. & Eastwood, K. (2003). Cultural masks: Giving voice to the margins. *Administrative Theory & Praxis*, *25*(4), 499–512.

U.S. Department of Justice. (2011, March). *Jail design guide.* National Institute of Corrections. https://info.nicic.gov/nicrp/system/files/024806.pdf

Wakefield, S. & Wildeman, C. (2013). *Mass incarceration and the future of American inequality*. Oxford University Press.

Whitehead, K. (2019, November 10). 4 dangerous misconceptions about a long job search. *Forbes Magazine.* https://www.forbes.com/sites/kourtneywhitehead/2019/11/10/4-dangerous-misconceptions-about-a-long-job-search/?sh=3773f3f026cf

World Health Organization. (2022, December 10). *Human rights*. https://www.who.int/news-room/fact-sheets/detail/human-rights-and-health

Zivanai, E., & Mahlangu, G. (2022). Digital prison rehabilitation and successful re-entry into a digital society: A systematic literature review on the new reality on prison rehabilitation. *Cogent Social Sciences, 8*(1). https://doi.org/10.1080/23311886.2022.2116809