INVENTORY OF INNOVATIONS:
Software and Technology

Capacity Building
CENTER FOR STATES

Innovation can be defined as the creation and adoption of new ideas and practices to improve organizational outcomes (Borins, 2006). The introduction and use of new technology—key to innovation in almost any field—is especially important in the child welfare field, where new technology helps child welfare systems to provide better, more integrated services and helps cut costs for states and jurisdictions. Although technology by itself does not "guarantee momentum toward the values of social justice," implementing software and technology innovations in child welfare organizations may help "move the dial" in that direction (Goldkind & Wolf, 2015, p. 85). Listed below are examples of such innovations.

Information Systems in Child Welfare

The Statewide Automated Child Welfare Information System (SACWIS) regulations were established in 1993 to provide enhanced federal funding to states to create automated child welfare information systems. States were encouraged to develop these information technology (IT) systems to improve programs funded under titles IV-B and IV-E by providing effective automated capability to help support service administration under these programs. In 2012, the 1993 regulations were amended to include title IV-E-approved tribes (Tribal Automated Child Welfare Information System, or TACWIS). SACWIS/TACWIS was a federally funded, voluntary, comprehensive, and automated case management tool that supported child welfare practice in states and tribes (Children's Bureau [CB], 2016). Use of SACWIS/TACWIS offered child welfare workers access to a vast amount of data and case management information about a child in the child welfare system. Under SACWIS/TACWIS rules, the federal government provided partial funding for SACWIS/TACWIS that:

▶ Met the requirements for an Adoption and Foster Care Analysis and Reporting System (AFCARS)

▶ Interfaced with state child abuse and neglect automated systems, to the extent practicable

▶ Interfaced with and retrieved information from a state's automated title IV-A system, to the extent practicable

▶ Provided more efficient, economical, and effective administration of title IV-B and IV-E programs

If a state or tribe elected to build a SACWIS/TACWIS, the system had to be the sole comprehensive, automated case management tool used by state agency or tribal staff (including supervisors, workers, and contractors) to meet their needs. Regulations required entry of all case management information so that the SACWIS/TACWIS contained the agency's official case record—"a complete, current, accurate, and unified case management history on all children and families serviced by the agency" (Comprehensive Child Welfare Information System [CCWIS], 2015, p. 48201). In addition, each jurisdiction's SACWIS/TACWIS had to support the reporting of AFCARS, National Youth in Transition Database, and National Child Abuse and Neglect Data System data, as well as accommodate bidirectional electronic data exchanges with systems supporting title IV-A, IV-D, and XIX programs. This information, in addition to other information collected by the agency and entered into the SACWIS/TACWIS, also had to support and assist service delivery to children and families.

On June 2, 2016, the U.S. Department of Health and Human Services issued the CCWIS final rule to respond to the rapid evolution in IT. The shift from SACWIS/TACWIS to CCWIS occurred for several reasons. First, state agencies needed more flexibility to support the often wide range of practices and business needs among their jurisdictions. Second, IT had advanced, and agencies needed the ability to implement efficiency-creating and cost-saving technologies. Finally, SACWIS/TACWIS could not always be scaled down effectively to support smaller jurisdictions at a reasonable cost (CCWIS, 2015). The CCWIS final rule:

▶ Provides child welfare agencies with flexibility to determine the size, scope, and functionality of their information systems

▶ Allows the CCWIS to obtain data required by this regulation from external information systems and create a copy of these data for storage and management in the CCWIS

▶ Focuses on improving data quality and requires a new data quality plan

▶ Mandates additional bidirectional data exchanges and the use of electronic data exchange standards that strengthen program integrity

▶ Promotes more efficient and less expensive development of reliable systems that follow industry design standards

Essentially, the new "CCWIS regulations will provide states and tribes the opportunity to take advantage of modern technology offerings that will enable them to share data between multiple systems rather than building large 'one-size-fits-all' SACWIS/TACWIS applications" (Administration for Children and Families, n.d., para. 2). Each jurisdiction's CCWIS still must support federal reporting requirements, support bidirectional electronic data exchanges, and support and assist service delivery to children and families, providing for the efficient, economical, and effective administration of title IV-B and IV-E programs.

Storing, managing, and maintaining data within the CCWIS ensures that the title IV-E agency controls and safeguards data privacy and integrity. A variety of circumstances could lead to the loss of CCWIS and case management data that reside only in external systems. For example, if a private service provider (such as a child welfare contributing agency, or CWCA) went out of business or if the contract with the title IV–E agency ended abruptly, it would result in the loss of the case data maintained by that service provider. A system upgrade or replacement or data conversion issues also could lead to the loss of data maintained in other systems. Thus, storing data in the CCWIS, instead of in other systems, facilitates continuity of care because the CCWIS can share the CCWIS data collected by one CWCA with others as children and families move between jurisdictions and providers. This requirement is less burdensome than the SACWIS/TACWIS rules (which required all CWCAs and all users to use and enter information directly into the SACWIS/TACWIS) because it provides title IV-E agencies the option to allow CWCAs to use systems other than a CCWIS. The requirement for a CCWIS to maintain the specific data described in the CCWIS regulation is unchanged from the data captured by the SACWIS/TACWIS-required functions; however, the burden is reduced because, unlike the SACWIS/TACWIS, the CCWIS is not required to directly capture all CCWIS data. Title IV-E agencies may either include the data-capturing functions in the CCWIS or permit other systems to capture the data and provide the data to CCWIS via data exchanges.

Depending on their current system status (SACWIS/TACWIS or non-SACWIS/TACWIS), the options below are available to states and tribes regarding the transition to the CCWIS. The state or tribe must inform the Administration for Children and Families of its transition decision by July 31, 2018.

- ▶ SACWIS/TACWIS projects may:
  - Transition the SACWIS/TACWIS to the CCWIS
  - Elect to use the legacy SACWIS/TACWIS as non-CCWIS
  - Build a new CCWIS

- ▶ Title IV-E agencies with non-SACWIS/TACWIS projects may:
  - Transition the non-SACWIS/TACWIS to the CCWIS
  - Continue to use the legacy system as a non-CCWIS

The transition from the SACWIS/TACWIS to the CCWIS gives states, tribes, and jurisdictions the opportunity to adopt or develop the data management and information system that corresponds to their unique organizational structure and needs.

Cloud Computing

Cloud computing has captured increased attention as a methodology for child welfare agencies to potentially "improve operational efficiency, increase information sharing, and better integrate processes across operational and jurisdictional boundaries" to better serve children and families (Seale & Saunders, 2015, p. 9). "Cloud computing" can be defined as "both the applications delivered as services over the Internet and the hardware and systems software in the data centers that provide those services" (Armbrust et al., 2010, p. 50). In simplest terms, "cloud computing" refers to the practice of using a network of remote servers on the Internet to store, access, and manage data (Seale & Saunders, 2015). Cloud computing, especially when used in conjunction with mobile technology, represents a fundamental shift in how to conduct child welfare work. The advantages of cloud computing for child welfare workers and agencies may include, but are not limited to:

- ▶ Providing child welfare agencies with flexibility to determine the size, scope, and functionality of their information systems

- ▶ Allowing the CCWIS to obtain data required by this regulation from external information systems and create a copy of those data for storage and management in the CCWIS

- ▶ Focusing on improving data quality and requiring a new data quality plan

- ▶ Mandating additional bidirectional data exchanges and the use of electronic data exchange standards that strengthen program integrity

Using cloud computing, an organization could develop and implement applications or environments as needed and eliminate them when the need no longer exists. This incremental approach to technological development enables faster response to service needs and can reduce project and cost risk (Cloud Standards Customer Council, 2017).

Foster Care Matching Software

An important issue in child welfare is placement stability. Unstable placements—those resulting in a child in foster care leaving one placement for another for any reason—are traumatic for children and can have substantial mental, psychological, and physical consequences on their future well-being. Thus, it is important for child welfare agencies to have a consistent placement protocol in place to best enable positive placement stability outcomes (Connell et al., 2006). Although most agencies have placement protocols, new technological developments, such as foster care matching software, can enhance agencies' abilities to achieve improved placement stability.

The following information highlights ways and examples in which states are using foster care matching software. Inclusion of these examples is intended for informational purposes only and does not indicate endorse-

ment by CB or the Capacity Building Center for States. Child welfare agencies should consider their specific program needs when deciding whether to adopt a technology solution.

To improve placement stability, a private child placement agency in the Midwest has developed a software system called Every Child a Priority (ECAP), implemented in Kansas in 2010. ECAP uses a series of matching algorithms and a scoring system to determine the best possible matches between foster families and children. Information about available foster families and children in care is available in one place and is easily accessible by caseworkers as they strive to make the most appropriate placements (Foster Care Technologies, 2015).

In 2013, the University of Kansas partnered with the agency to evaluate ECAP and made available preliminary data regarding the usefulness of this type of technology in child welfare. Researchers found that with the use of ECAP, median time to permanency dropped 53.16 days, or about 12 percent overall (Foster Care Technologies, 2015). In addition, children placed with the help of ECAP experienced 22.5 percent fewer moves than those matched without ECAP (Foster Care Technologies, 2015).

Other examples of foster care matching software include CareMatch and AdoptionLynx. Some states also have developed their own proprietary matching systems. It is important to note that foster care matching software does not replace the caseworker's judgment, experience, and intuition; rather, it allows caseworkers to make better decisions based on readily available, well-organized information.

Social Media and Mobile Technology

Research indicates that there are many practical advantages to social media and technology access for all stakeholders in the foster care system, ranging from young people currently and formerly in foster care to foster and biological parents to child welfare workers. For young people in foster care, access to social media and mobile technology is an important part of normalcy. This means allowing young people in foster care to have experiences similar to peers who are not in foster care, such as the freedom to take risks, have new and independent experiences, and feel like other people their age (Capacity Building Center for States, 2016). Additionally, using technology to connect with these young people has been shown to increase their capabilities to make decisions about their own care and plan their own lives. Social media and mobile technology also have benefits for other users. For example, foster families and families of origin can use social media and mobile technology to increase their level of engagement with young people currently or formerly in foster care. Further, these technologies can assist child welfare workers in building relationships and communicating with young people in foster care, their families, and care providers, as well as increase child welfare workers' learning opportunities and work efficiency.

Social media and mobile technology offer specific applications that make them useful in child welfare practice, including:

▶ Mobile phones, which have increased worker safety and given workers immediate access to supervision when in the field

▶ Laptops and mobile devices, which make on-the-go case management possible by allowing real-time access to crucial information

▶ Mobile data entry, which reduces the time child welfare workers need to spend entering data into forms manually or allows direct entry into the case management system (Child welfare workers can use this in conjunction with improved voice recognition technology that can transcribe case notes.)

▶ Internet video-based communications technologies (e.g., Skype, FaceTime, etc.), which create more opportunities for communication between children and their families and allow for virtual visitation, communication between children and their caseworkers, real-time mobile medical reviews from the field, and mobile real-time supervision while in the field

▶ Web 2.0 (interactive) technologies like Facebook, Twitter, Instagram, Foursquare, Snapchat, and OoVoo, which help families and caseworkers keep in touch with young people in their own—and often preferred—medium of communication

▶ Electronic medical passports, which allow patients to keep track of and connect to their evolving medical data in realtime

Technology also is being used to increase public awareness of child welfare issues, such as the need to recruit more foster care and adoptive families. Portals, such as CB's AdoptUSKids website, have been quite successful at using electronic and social media for outreach and recruitment (Ledesma & Casavant, 2011).

Child welfare information also has been made available in a variety of mobile and easily accessible formats. For example, the Child Welfare Information Gateway (Information Gateway) Podcast Series supports "learning-on-the-go" and allows users "to hear the outcomes, experiences, and tips from innovators across the child welfare continuum" (Information Gateway, n.d., para. 1). Mobile apps specific to child welfare are used to support child welfare workers as well. For example, the Office of Children's Services in Alaska has collaborated with the University of Alaska Anchorage to develop a training and guidance program that includes a regularly updated Facebook page and a mobile app (Child Welfare Academy, University of Alaska Anchorage, n.d.; Strengthening Families Alaska, 2016). Child welfare organizations also have developed apps for accessing information and services on the Internet. For example, Information Gateway has developed an app for the National Foster Care & Adoption Directory (NFCAD) that allows users to access information about foster care and adoption contacts and services near their location on their mobile devices. The NFCAD app, available from Google Play and iTunes, connects people to agencies, organizations, and experts in the child welfare field. It also allows users to find, filter, and save the most relevant information on their mobile devices. The potential development of a mobile app to support young people currently and formerly in foster care also would allow them to access useful information easily and quickly, and potentially connect with medical care, mental health care, and other providers more expediently (Miller, Chih, & Washington, 2016).

The advances in Web 2.0 and social media technologies have led to the development of new case management platforms that make best practices easier to apply in real-life casework. Some applications include the ability to provide a robust visual history of families and cases that is built automatically during data input; graphic visualization of family relationships; placement-matching engines that can, for example, rank families and services to help caseworkers identify placements more likely to succeed; access to real-time data about families that is available to caseworkers and their supervisors; and case and service plans that reflect all the people in a family network, as well as professionals from other agencies supporting the family. Such platforms also can facilitate virtual case collaboration among multiple users with different roles within an organization and, with the appropriate permissions and technology security, across agencies.

To take advantage of these rich technological developments, several state agencies have begun implementing mobile and other technologies to assist child welfare workers in the field. For example, in the summer of 2017, the Arizona Department of Child Safety (DCS) began an initiative to provide tablets to its approximately 1,400 investigators and case managers (Arizona DCS, 2017). Arizona DCS has selected a software platform that will help child welfare workers in the field with four different applications—Mobile Visits, Mobile Investigations, Mobile Self-Service, and Mobile Uploads—all designed to change the ways caseworkers access information and better serve the clients who interact with health and human services agencies.

In November 2015, New York City's Human Resources Administration (HRA) created a mobile app using the same software platform used by Arizona DCS. The HRA Document Upload mobile app allows users of New York City's Supplemental Nutrition Assistance Program to photograph, upload, and submit supporting documents. While still in its infancy, early results show that the program benefits both agencies and users by saving time, effort, and cost (Diona, 2016). In 2017, the HRA app was nominated for an IT Solutions Management for Human Services award for improving functionality, ease of client use, and worker efficiency (L. Aaronson, personal communication, November 8, 2017). Other states also have developed useful apps for child welfare workers, including apps for training, keeping up with regulations, and assisting in work with clients. (See some of the apps listed here: https://ncwwi.org/index.php/special-collections/mobile-apps-and-technology.)

Considerations for Implementing Software and Technology Innovations

Several challenges exist for child welfare organizations considering developing and implementing software and technology innovations. These may include legal issues, funding, organizational capacity and readiness, and resistance to new technology. However, these challenges are not insurmountable, especially if the child welfare organization chooses the right technological innovation to enhance its work (Treagle, 2016). States and child welfare agencies may want to consider the following when deciding whether to implement a software or technology innovation:

▶ The Division of State Systems (DSS) is a primary resource for child welfare agencies considering implementing a software or technology innovation. For additional information regarding DSS analyst assignments for states and tribes, see https://www.acf.hhs.gov/cb/resource/state-tribe-assignments.

▶ The success of an innovation depends on having buy-in from an organization's leadership, particularly if there are high costs and risk of failure. This does not mean that innovation predominately occurs top-down but that support of an organization's leadership is necessary at an early stage to implement adoption of the innovation (Daglio, Gerson, & Kitchen, 2014).

▶ Organizational attitudes toward new technology are an important component of successfully implementing an innovation in software and technology. Research shows that workers are more inclined to embrace innovations perceived as the right solution for an acknowledged problem and that do not add additional structural complexity to working with children and families (Aarons & Palinkas, 2007).

References

Aarons, G., & Palinkas, L. (2007). Implementation of evidence-based practice in child welfare: Service provider perspectives. *Administration and Policy in Mental Health and Mental Health Services Research, 34*, 411–419. doi: 10.1007/s10488-007-0121-3

Administration for Children and Families. (n.d.). *Notice of proposed rulemaking (NPRM) for the comprehensive child welfare information system: Frequently asked questions.* Retrieved from https://www.acf.hhs.gov/sites/default/files/cb/ccwis_nprm_faq.pdf

Arizona Department of Child Safety. (2017, March). *Arizona Department of Child Safety going mobile.* Retrieved from https://dcs.az.gov/news/arizona-department-child-safety-going-mobile

Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R., Konwinski, A., . . . Zaharia, M. (2010). A view of cloud computing. *Communications of the ACM 53*(4), 50–58. Retrieved from https://cacm.acm.org/magazines/2010/4/81493-a-view-of-cloud-computing/fulltext

Borins, S. (2006). *The challenge of innovating in government.* Retrieved from http://www.businessofgovernment.org/report/challenge-innovating-government

Capacity Building Center for States. (2016). *Having the normalcy conversation: A guide for discussing developmentally appropriate services for children, youth, and young adults in foster care.* Retrieved from https://library.childwelfare.gov/cwig/ws/library/docs/capacity/Blob/106243.pdf?w=NATIVE%28%27SIMPLE_SRCH+ph+is+%27%27Having+the+Normalcy+Conversation+A+Guide+for+Discussing+Developmentally+Appropriate+Services+for+Children+Youth+and+Young+Adults+in+Foster+Care%27%27%27%29&upp=0&order=native%28%27year/Descend%27%29&rpp=25&r=1&m=1

Child Welfare Academy, University of Alaska Anchorage. (n.d.). Child Welfare Academy (Version 1.2) [Mobile application software]. Available from http://itunes.apple.com

Child Welfare Information Gateway. (n.d.). *Child Welfare Information Gateway podcast series* [Webpage]. Retrieved from https://www.acf.hhs.gov/cb/capacity/child-welfare-podcast-series

Children's Bureau. (2016). *SACWIS/TACWIS information.* Retrieved from https://www.acf.hhs.gov/cb/research-data-technology/state-tribal-info-systems/managers

Cloud Standards Customer Council. (2017). *Impact of cloud computing on health care: Version 2.0.* Retrieved from http://www.cloud-council.org/deliverables/CSCC-Impact-of-Cloud-Computing-on-Healthcare.pdf

Comprehensive Child Welfare Information System; Administration for Children and Families Proposed Rules, 80 Fed. Reg. 154 (August 11, 2015). Retrieved from https://www.gpo.gov/fdsys/pkg/FR-2015-08-11/pdf/2015-19087.pdf

Connell, C. M., Vanderploeg, J. J., Flaspohler, P., Katz, K. H., Saunders, L., & Tebes, J. K. (2006). Changes in placement among children in foster care: A longitudinal study of child and case influences. *Social Services Review, 80*(3), 398–418. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4204626/

Daglio, M., Gerson, D., & Kitchen, H. (2014, November). *Building organisational capacity for public sector innovation.* Background paper prepared for the Organisation for Economic Co-operation and Development conference "Innovating the public sector: From ideas to impact," Paris, France. Retrieved from http://www.oecd.org/innovating-the-public-sector/Background-report.pdf

Diona. (2016). *NYC HRA document upload: A Diona mobility case study.* Retrieved from https://www.diona.com/nyc-case-study-thank-you/

Foster Care Technologies. (2015). *A new standard in placement stability: How behavioral matching can lead to better outcomes in foster care* [White paper]. Lawrence, KS: Author.

Goldkind, L., & Wolf, L. (2015). A digital environment approach: Four technologies that will disrupt social work practice. *Social Work, 60*(1), 85–87. https://doi.org/10.1093/sw/swu045

LaLiberte, T., & Snyder, E. (Eds.). (2011, Spring). *CW360: Child Welfare and Technology* [Special issue]. Retrieved from http://cascw.umn.edu/wp-content/uploads/2013/12/CW360_2011.pdf

Ledesma, K., & Casavant, V. (2011, Spring). Enhancing the reach and outcomes of child welfare programs through social media. *CW360: Child Welfare and Technology* [Special issue] 10, 14. Retrieved from http://cascw.umn.edu/wp-content/uploads/2013/12/CW360_2011.pdf

Miller, J. J., Chih, M., & Washington, E. (2016). Conceptualizing a mobile app for foster youth transitioning to adulthood: A mixed-method approach. *Journal of Technology in Human Services, 34*(2), 145–170. https://doi.org/10.1080/15228835.2015.1108260

Seale, R., & Saunders, W. (2015, August). It's in the cloud: Innovative approaches to improving child welfare outcomes. *Policy and Practice 73*(4), 8–11. Available from https://www.questia.com/magazine/1G1-430892967/it-s-in-the-cloud-innovative-approaches-to-improving

Strengthening Families Alaska. (2016). *Supporting family strengths and resiliency: Child Welfare Academy FY 2016 report summary.* Retrieved from http://dhss.alaska.gov/ocs/Documents/2016_SF.pdf

Treagle, S. (2016). Heads in the cloud: An example of practice-based information and communication technology in child welfare. *Journal of Technology in Human Services, 34*(2), 224–239. https://doi.org/10.1080/15228835.2016.1177479