Launching New Digital Tools for WIC Participants

A Guide for WIC Agencies

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Acknowledgements

The Center on Budget and Policy Priorities (CBPP), the National WIC Association (NWA), and Social Interest Solutions (SIS) have partnered on this toolkit to help agencies administering the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) become more informed purchasers of digital tools for WIC participants. The partners would like to thank staff from Community Medical Centers, Inc. in California, Boulder County WIC in Colorado, Greater Baden Medical Services WIC Program in Maryland, Maricopa County Department of Public Health WIC Program in Arizona, Michigan WIC, Mississippi WIC, New York WIC, Osage Nation WIC in Oklahoma, Davidson County WIC in Tennessee, Washington, D.C. WIC, Children's National Hospital/Medical Center in Washington, D.C., West Virginia WIC, USDA's Food and Nutrition Service, the NWA Evaluation Committee, the California WIC Association, the Altarum Institute, and the Food Research & Action Center (FRAC).

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A Guide to This Toolkit

The Center on Budget and Policy Priorities (CBPP), the National WIC Association (NWA), and Social Interest Solutions (SIS) have developed this toolkit to help state and local agencies administering the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) become more informed purchasers of digital tools for WIC participants.

While some WIC agencies have made digital tools available to participants for many years, others are employing them for the first time. This toolkit is intended for use by state and local WIC agency staff as they implement participant-facing technology and is designed to help them determine whether to employ, how to choose, how to implement, and how to improve a digital tool for WIC participants.

In general, state WIC agencies make decisions about which digital tools to employ, so the sections on planning and choosing tools are likely most relevant for them.[1] Local WIC agencies are central to implementing new digital tools, so they will likely find the sections on implementing and improving digital tools most relevant. The toolkit is designed so one can read the entire set of materials or use each individual section as a free-standing resource.

What Are "Digital Tools"?

This toolkit uses the terms "digital tools" and "participant-facing technology" interchangeably to refer to technology like mobile apps, online learning platforms, text messaging services, two-way text messaging, video calling, and websites. See Appendix B for a glossary of these tools and what each does. This toolkit does not cover electronic benefits (EBT or e-WIC).

The information in the toolkit was gathered from interviews with WIC staff who have implemented digital tools or are considering doing so. The goal was to collect what early adopters have learned so that WIC staff making similar decisions can benefit from their experience and to identify key questions on the minds of those considering implementing participant-facing technology.

The introductory section provides background material on the types of tools available and what we know about their efficacy. Part 1 discusses key considerations for state WIC agencies when contemplating employing a digital tool. Part 2 covers key considerations when selecting a specific digital tool. Part 3 provides guidance to help local WIC agencies successfully launch new digital tools. Part 4 explains how to monitor and improve digital tools over time. The appendices provide more detailed information on selected issues and can be used as free-standing references or checklists. For readers unfamiliar with technological terms, we provide some definitions throughout the toolkit, as well as a glossary in Appendix A.

[1] This toolkit uses the phrase "state WIC agency" to refer to the entity and individuals that make statewide decisions regarding digital tools for WIC. In some instances, the decision-makers are within the WIC program, while in others they are policymakers or information technology staff outside of WIC but within the state agency that oversees WIC.

The toolkit will help readers:

- Learn about the types of digital tools for WIC participants available and how they can be helpful.
- Evaluate the important choices to consider before purchasing digital tools.
- Develop questions to discuss within the WIC agency and with potential vendors.
- Look for key features to ensure that digital tools are user-friendly for WIC participants.
- Incorporate digital tools into WIC clinic operations.
- Utilize data to improve digital tools over time.
- Communicate to vendors the types of functionality and tools that would help WIC participants.
- Understand the technological terms that WIC staff may hear from vendors.

The toolkit does not:

- Catalogue the specific digital tools currently available on the market. (Appendix B describes the *types* of digital tools currently available.)
- Evaluate, rank, or recommend specific digital tools.
- Provide an inventory of digital tools currently used by WIC agencies.[2]
- Offer broad recommendations about how to address organizational change.

[2] A paper published in November 2018 inventories the mobile phone apps for WIC participants that WIC agencies across the country are using. Mobile Phone Apps for Low-Income Participants in a Public Health Nutrition Program for Women, Infants, and Children (WIC): Review and Analysis of Features. *Summer J. Weber, Daniela Dawson, Haley Greene, Pamela C. Hull* (November 2018). JMIR Mhealth Uhealth 2018;6(11):e12261.

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	and identifies the kind of influence an agency can have over procurement. It also discusses consolidating and/or integrating tools, as well as funding issues.
Part 2: Choosing a Product	Tools That Are User-Friendly for Participants. The most effective digital tools are designed with WIC participants in mind. This section lists the attributes that state agencies should look for in digital tools to make sure they are user-friendly — that is, easy to use, flexible, and accessible. Tools That Support Staff and Agency Processes. New digital tools for WIC participants can also benefit staff and local agency processes. This section lists key questions that state agencies can raise with vendors to learn what is both desired and achievable to facilitate administrative tasks and make it easier to integrate new digital tools into administrative practices. Maintaining and Updating the Tool. Agencies considering introducing new digital tools into local agency practices will want to consider long-term maintenance and upgrade of the tools. This section helps prepare agencies to work with the vendor to ensure that digital tools remain compatible with newer digital devices, to protect data from exposure or hacking, to address "bugs" or design flaws, or to add on new functionality. Additional Questions and Considerations for Vendors. When writing a request for proposals (RFP), it can be helpful for a WIC agency to consider how it wants the vendor relationship to operate over time. Identifying questions for vendors in advance can help the agency identify its priorities for soliciting proposals. This section includes questions to ask vendors in advance and throughout the RFP and contracting process.
Part 3: Implementation	Preparing Local WIC Staff. Local WIC staff will need training on using the digital tool and assisting participants in obtaining and using the tool. This section provides ideas for local WIC agencies to consider when creating an implementation plan. Preparing Participants. WIC participants will need to access the tool and be trained on how to use it. This

	section provides ideas for local WIC agencies to consider for preparing WIC participants. Privacy and Security Considerations. The data of those who use the digital tools must be kept private and secure. This section outlines a number of key privacy and security considerations to protect WIC participants, agencies, and staff.
Part 4: Assessing and Adjusting	Setting a Baseline to Evaluate Effectiveness. This section explains why identifying and gathering baseline data before digital tools are adopted is essential in determining the efficacy of the tools and provides suggestions for the types of data to collect and measure. Learning from Data. As digital tools are introduced, state and local agencies that collect the data can use them to gain insights about how people experience WIC. This section helps agencies think about using the wealth of data that they collect and create about WIC participants — along with data collected about the use of digital tools — to better understand participation trends, catalogue how tools are helping, and even explore why participants drop out of WIC.
Part 5: Soliciting Strong Proposals	Request for Proposal Checklist. A well-designed RFP is key to successful procurement. This section provides a detailed checklist of considerations for soliciting strong proposals.
Appendices	Appendix A: Glossary: Tech Terms to Know Appendix B: Types of Digital Tools Appendix C: Sample Evaluation Criteria for Selecting a Vendor Appendix D: ADA Compliance Appendix E: Language Access Considerations Appendix F: Sample Customer Satisfaction Surveys Appendix G: Sample Requests for Proposals (RFPs)

Introduction

Why a Toolkit?

WIC has been an innovative program since its inception in the early 1970s. Innovations over the years include updates to the WIC food package, increased breastfeeding support and new breastfeeding programs, updates to nutrition education counseling techniques, and many others. In the last two decades, WIC has turned its attention to technological innovations, most prominently a transition from paper food instruments to electronic benefit cards (otherwise known as EBT or e-WIC). Digital innovations like EBT have made WIC more modern, efficient, and accessible.

The need for modernization in WIC has become even more important in recent years as WIC has experienced steady caseload declines in recent years, due in part to some WIC processes that are perceived to be difficult and burdensome.[3] [4] [5] Digital tools offer a way to make the program easier for eligible families to navigate. Research shows that many WIC participants like using digital technology, both generally and as part of the WIC experience, and would appreciate being able to connect virtually with WIC more often.[6]

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[3] WIC Participation Patterns: An Investigation of Delayed Entry and Early Exit, *Alison Jacknowitz and Laura Tiehen*. ERR-109, U.S. Department of Agriculture, Economic Research Service, December 2010.

[4] Barriers to the use of WIC services. *Mary Lou Woelfel, Rayane Abusabha, Robert Pruzek, Howard Stratton, Shu Guang Chen, Lynn S. Edmunds* (2004). Journal of the American Dietetic Association. 104(5):736-743.

[5] Women, Infants, and Children (WIC): Awareness, experience, and access. Report to Minnesota Department of Health WIC Program. Wilder Research (2013).

[6] Accessibility and preferred use of online Web applications among WIC participants with Internet access. *R.J. Bensley, A. Hovis, K.D. Horton, J.J. Loyo, K.M. Bensley, D. Phillips, C. Desmangles* (2014). Journal of Nutrition Education and Behavior, 46 (3S), 87-92; Exploring the Potential for Technology-Based Nutrition Education Among WIC Recipients in Remote Alaska Native Communities. *J.M. Power, K.L. Braun, A. Bersamin* (2017). Journal of Nutrition Education and Behavior, 49 (7S2), 186-191; Special Project Grant in Vermont: WIC2FIVE: Using Mobile Health Education Messaging to Support Program Retention. *Vermont 2014 WIC Special Project Mini-Grant Final Report* (2017); User-centered Design of a Texas WIC App: A Focus Group Investigation. *L. Biediger-Friedman, S.H. Crixell, M. Silva, B.R. Markides, K.S. Smith* (2016). American Journal of Health Behavior, 40(4), 461-471; Early Childhood Research Brief: The Role of WIC. *No Kid Hungry and Share Our Strength's Center for Best Practices* (March 2017); WIC Nutrition Education Study: Phase 1 Report. *Sheryl Cates, Kristen Capogrossi, Linnea Sallack, Karen Deehy, Celia Eicheldinger, Shawn Karns, Samantha Bradley, Katherine Kosa, Jenna Brophy* (May 2016).

The research is not surprising, given that most WIC participants are millennials and post-millennials who have grown up using digital technology.[7] Increasing opportunities for current and potential WIC participants to use appropriate digital technology to connect with WIC will offer them convenience and flexibility. They likely already use similar technologies for work, communications, and personal business.[8]

Millennials and Post-Millennials

For purposes of this toolkit, millennials are individuals born from 1981 through 1996; post-millennials are born in 1997 and later.

According to research on millennials' shopping and workplace preferences, they are more likely to continue using retailers and stay with employers who provide up-to-date digital tools that help them get things done.[9] Specific functionality that millennials appreciate includes:

- Responsive and knowledgeable customer service;
- Seamless ability to perform tasks both in person and through digital tools; and
- Digital tools with intuitive and user-friendly design.

Research shows that millennials do not necessarily want to use technology to avoid human interactions, but rather to increase communication and enhance relationships.[10] In some cases, digital tools may be the only way to maintain relationships, if traditional methods are not convenient or feasible.[11]

In light of the widespread use of digital technologies among WIC-eligible pregnant women and families, state and local WIC agencies have begun to use a variety of digital tools to better connect with participants and make the program easier to navigate. By implementing options that allow participants to provide and obtain information or services without having to go to a WIC clinic, WIC staff might enroll a greater share of eligible families who could benefit from participating and retain participants for more of their eligible period.

While many WIC programs have recognized the need to modernize,[12] they have varying degrees of support in identifying and implementing new digital tools. To learn about the challenges and

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[7] Defining generations: Where Millennials end and post-Millennials begin, *Pew Research Center* (March 2018); Millennials stand out for their technology use, but older generations also embrace digital life, *Pew Research Center* (May 2018).

[8] Who are the Millennial shoppers? And what do they really want?, *Accenture* (2013); Millennials: A missed opportunity for payers, *Accenture* (2015); Millennials at work: Reshaping the workplace, *PricewaterhouseCoopers* (2011).

[9] *Id.*

[10] *Id.*

[11] *Id.*

[12] TeleWIC: Keeping up with the Times. *California WIC Association* (2018).

barriers that agencies face, CBPP, NWA, and the Food Research and Action Center held two listening sessions with WIC agencies from across the country in 2017. Participants indicated that a toolkit would help WIC agencies navigate modernizing their programs with participant-facing digital tools by:

- Sharing lessons learned by WIC agencies;
- Explaining the challenges that agencies face when introducing tools and suggesting ways to overcome them; and
- Explaining why digital tools may enhance participants' experience and help retain beneficiaries throughout their eligible period.

The project partners prepared the toolkit by gathering information and insights from a variety of sources, including existing research and resources about WIC, best practices from related fields, and most importantly, interviews with a variety of WIC agency staff. The interviewees represented the wide spectrum of experiences and needs of WIC agencies across the country; interviewees had a variety of professional roles, worked in many different types of state and local agencies, had different amounts of time and experiences with WIC, were located in different parts of the country, and work in environments ranging from dense urban centers to remote rural locations. Promising practices and lessons learned from the interviews are included throughout the toolkit.

How Digital Tools Can Help WIC

Digital tools can improve the WIC experience for participants and staff in a number of ways:

- **Maximizing face-to-face time:** Digital tools can simplify administrative tasks, freeing up staff to focus on counseling, education, or referrals, which benefit from a human touch.
- **Keeping participants engaged:** Digital tools can provide interesting new ways for WIC participants to satisfy program requirements.
- **Reflecting program modernization:** Digital tools can signal to participants that the WIC agency is forward-thinking and committed to being accessible to its participants.
- **Overcoming transportation barriers and staffing shortages**: Rural or isolated WIC agencies may not have the resources to hire and/or retain specialized staff.[13] Also, participants in rural or urban areas may struggle to secure reliable transportation to appointments.[14] Digital

[13] *Id.*

[14] The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) Special Project Mini Grant Final Report. *Delaware Health and Social Services Division of Public Health's WIC Program and the Food Bank of Delaware* (2014); TeleWIC: Keeping up with the Times. *California WIC Association* (2018); WIC Nutrition Education Study: Phase 1 Report. *Sheryl Cates, Kristen Capogrossi, Linnea Sallack, Karen Deehy, Celia Eicheldinger, Shawn Karns, Samantha Bradley, Katherine Kosa, Jenna Brophy* (May 2016).

tools can help connect WIC participants with WIC staff without the need for in-person meetings, increasing flexibility for those with more challenging schedules.[15]

FROM THE FIELD

Participants' changing technology preferences: Davidson County WIC in Tennessee noted that its participants, especially younger ones, often prefer text messaging over telephone reminders. Traditionally, WIC agencies make appointment reminders via telephone, but texts can be more discreet and convenient. Participants may be put off by seeing incoming calls that display "government" on caller ID; text messages, in contrast, can be extremely clear with a very direct message, which may put participants at ease.

The table below describes common challenges facing WIC agencies and some digital tools and functionalities that may help overcome them.

Challenge	Examples of Digital Tools That Might Help
Participants miss appointments	• Text message reminders for appointments • Text messages, mobile apps, or websites with links to maps locating WIC agencies or a WIC agency locator
Participants unable to make or reschedule appointments easily	• Two-way text messaging to manage, confirm, or reschedule appointments • Online tools for scheduling appointments
Participants do not know what or whom to bring to appointments	• Text message reminders or messaging embedded in mobile apps (e.g., shopping assistance apps) to remind participants what and/or whom to bring to appointments
Participants are unable to attend in-person appointments when specialized staff (e.g., registered dieticians or those who speak multiple languages) are available	• Video calling for: o Appointments during and/or after regular business hours o Support from specialized staff stationed at other locations

[15] TeleWIC: Keeping up with the Times. *California WIC Association* (2018).

Challenge	Examples of Digital Tools That Might Help
Participants are unable to make appointments during regular business hours	• Video calling for appointments after regular business hours • Remote alternatives to in-person nutrition education classes: o Online nutrition education via mobile apps and/or websites/portals o Text message or phone-based nutrition education
Participants have difficulty traveling to in-person appointments due to transportation challenges	• Video calling for appointments during and/or after regular business hours • Remote alternatives to in-person nutrition education classes: o Online nutrition education via mobile apps and/or websites/portals. o Text message or phone-based nutrition education
Participants do not redeem all of their WIC food benefits because they are unsure which foods are WIC-eligible	• Digitized APLs ("approved product lists," or lists of WIC-eligible items) searchable on mobile apps (such as shopping assistance apps) or mobile-friendly websites • Shopping assistance mobile apps, which can include: o Digitized APLs o UPC scanner that scans the UPC label on a food item to determine if the food item is WIC-eligible o Benefits redemption tracking (based on EBT card usage) to indicate which foods remain
Participants do not use their WIC benefits because they do not know how to cook with specific items	• Shopping assistance mobile apps, which can include: o List of unredeemed WIC-eligible food items o Recipe features to find recipes that use WIC-eligible food items, which can include search

Challenge	Examples of Digital Tools That Might Help
	functions or recipe suggestions based on unredeemed food items

Participants do not remember to redeem their WIC benefits in time	• Shopping assistance mobile apps, which can include:
	  o Real-time status of available EBT benefits so participants can see which benefits they have used and which remain (only for states whose EBT systems are online/real-time)
	  o WIC retailer locator to find the closest WIC-authorized retailer
	• Text message reminders about unredeemed food benefits

Participants drop off WIC over time despite remaining eligible	• Text message reminders for recertification appointments
	• Text messages or mobile apps with data on how much benefit money participants lose by leaving WIC early
	• Text message reminders or mobile apps that provide information about continued eligibility:
	  o after child turns 1
	  o when a parent returns to work
	  o if the family no longer receives Medicaid

Participants do not attend in-person nutrition education classes	• Remote alternatives to in-person nutrition education classes:
	  o Online nutrition education via mobile apps and/or websites/portals
	  o Text message or phone-based nutrition education
	  o Video calling between participants and WIC staff

Participants stop breastfeeding earlier than planned	• Breastfeeding support via video calls • Text message reminders or mobile apps with information and resources about breastfeeding

Challenge	Examples of Digital Tools That Might Help
Participants struggle alone with breastfeeding at night or on weekends	• Video calling available 24/7 for breastfeeding support
Participants struggle to complete the certification/enrollment process	• Mobile apps, websites, or text message reminders to: o Conduct pre-screening for WIC eligibility[16] o Submit income/residency documentation in support of certification o Complete all forms associated with certification

FROM THE FIELD

Texting what to bring to appointments: To make the enrollment and recertification processes easier and more enjoyable for participants, San Diego State University Research Foundation's WIC Program initiated a project aimed at improving communications with participants through various channels. One channel was text messaging: before an appointment, participants received text reminders with a link to a webpage providing information on what and whom to bring to the appointment and what to expect. Text messaging (sometimes in combination with other methods the agency tested) produced a measurable, steady increase in the number of attended appointments and newly enrolled families.

Uploading documents in advance: Participants in Greater Baden Medical Service's WIC program in Maryland indicated that bringing supporting documentation to enrollment and recertification appointments was a hassle. In response, the agency offered a digital tool that allowed participants to complete intake questions and upload supporting documentation online ahead of appointments. As a result, participants completed certification appointments more quickly.

Online screening and referral tool: A collaborative of local agencies in central New York developed a WIC outreach website that includes a screening and referral tool. (See WICstrong at http://www.wicstrong.com/apply-for-wic/.) The tool screens potential participants for WIC eligibility and collects their demographic information. Once an applicant provides personal information, the tool sends a referral via email to the local WIC agency closest to where the applicant lives. The local agency then contacts the applicant to schedule an enrollment appointment and answer any questions. The tool also allows WIC agencies to provide customized content to their participants, including information about upcoming events and educational content.

[16] FNS has a prescreening portal available at https://wic.fns.usda.gov/wps/pages/preScreenTool.xhtml.

Participants' Use of Digital Tools

WIC agencies may wonder whether digital tools are effective and would be accessible to their clients. This section discusses low-income families' access to digital tools and reviews research on the efficacy of digital tools, in WIC and similar contexts.

WIC Participants and the Digital Divide

While digital technology use is growing across all populations, the gap in access to digital technology (commonly referred to as the "digital divide" or "digital inequality") affects many individuals with lower incomes. While 93 percent of individuals who make $75,000 a year or more have a smartphone, just 67 percent of those with incomes under $30,000 do.[17]

Furthermore, while many adults own a smartphone, not all have broadband service at home, which can make them "smartphone dependent," meaning they rely on their smartphones to access the internet. Without access to broadband services, these individuals may be more conscious of how much storage space they have available and how much data they can use on their smartphones. They may also face challenges accessing websites through a mobile browser. (See the sidebar on "Mobile apps vs. mobile optimized websites" in Part 2: Choosing a Product). About one-third of those earning less than $30,000 are smartphone dependent, compared to one-tenth of those earning $75,000 or more.[18]

Smartphone dependency is also more prevalent in rural areas. Approximately 7 in 10 people living in suburban or urban areas have broadband service at home, while only 6 in 10 people in rural areas do. Exacerbating these access problems, web service is more likely to be slower in rural areas than in suburban and urban ones.[19]

A large survey of WIC participants in the western region of the country shows that WIC participants largely reflect the same patterns in digital technology use as millennials and post-millennials.[20] They are also more likely to be smartphone dependent than other groups, based on their level of income. Both WIC-eligible individuals' and current WIC participants' comfort level with technology means that WIC agencies can safely assume that participants will appreciate and use digital WIC tools. How those tools are made available, however, can be critical to their uptake.

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[17] Mobile Fact Sheet, *Pew Research Center* (February 2018).

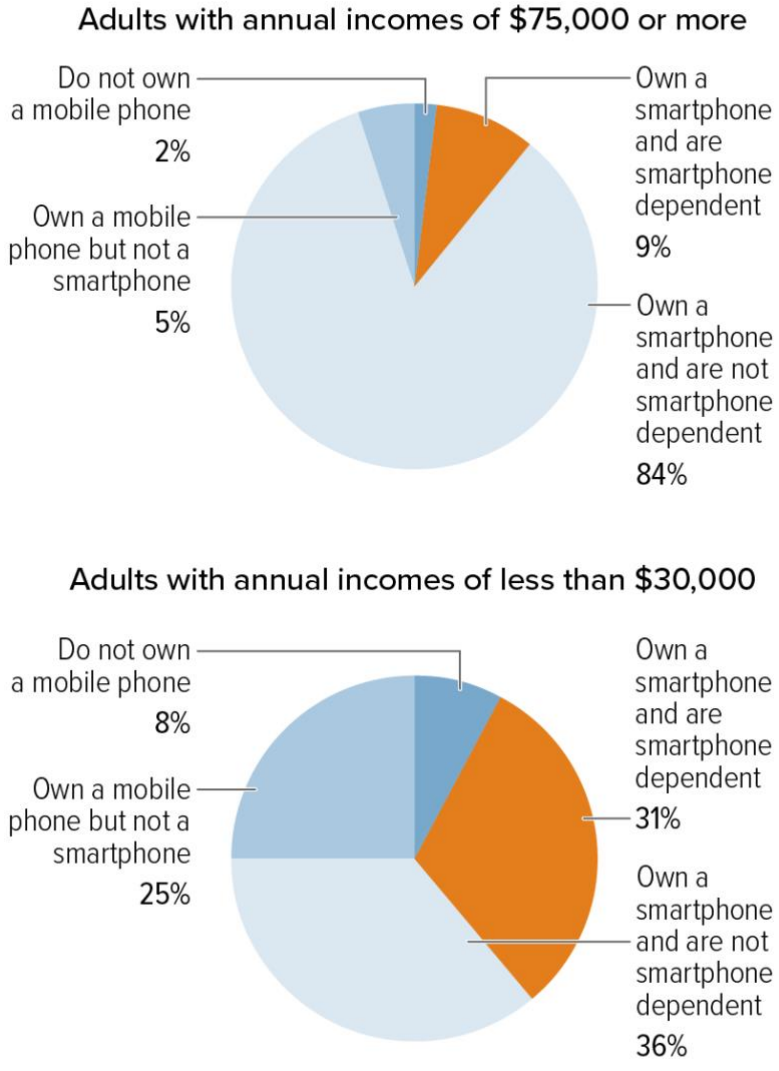
[18] Mobile Fact Sheet, *Pew Research Center* (February 2018).

[19] Digital gap between rural and nonrural America persists. *Pew Research Center* (May 2017).

[20] Accessibility and preferred use of online Web applications among WIC participants with Internet access. *R.J. Bensley, A. Hovis, K.D. Horton, J.J. Loyo, K.M. Bensley, D. Phillips, C. Desmangles* (2014). Journal of Nutrition Education and Behavior, 46 (3S), 87-92

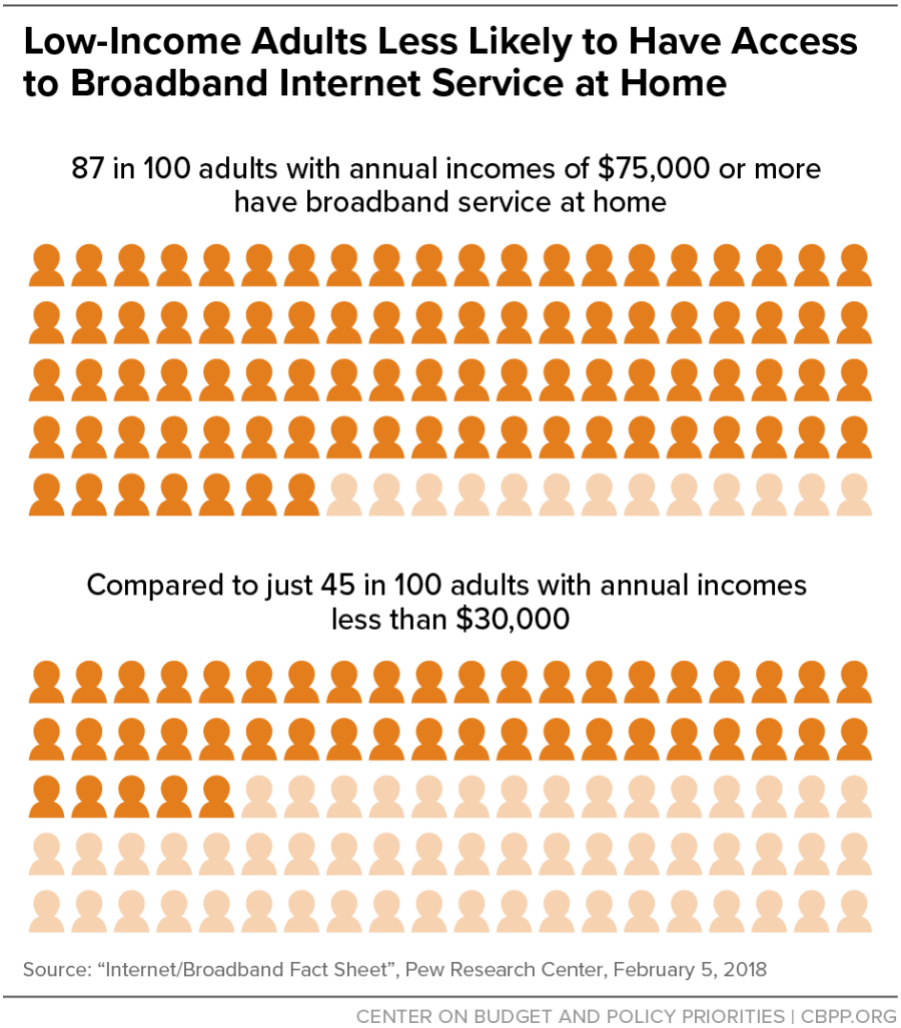
FIGURE 1

Low-Income Adults More Likely to Be Smartphone Dependent for Internet Access



Source: "Mobile Fact Sheet." Pew Research Center, February 5, 2018

FIGURE 2



Efficacy of Digital Tools

Some of the digital tools available for WIC participants have been in use for decades and have been evaluated. Others are fairly new to the market. The evaluations conducted to date have mostly examined indicators such as acceptability and customer satisfaction. While they have gathered some information regarding participants' behavioral changes, such as whether tools increase the likelihood that participants will attend scheduled appointments and/or redeem benefits, there is little information on whether they have led eligible participants to remain on WIC longer.

Some studies evaluated digital tools used in WIC; others looked at digital options in a non-WIC context, including other programs' use of telehealth or text messaging. Most studies indicate that users — especially millennials and post-millennials — like and appreciate the digital tools offered to them. Carefully selected participant-facing technology can be a useful tool to support local WIC agencies' retention efforts. The limited research available shows that:

- WIC participants (as well as people with similar characteristics, such as parents, millennials, and post-millennials) like using digital technology to receive care or services, including texting and email,[21] smartphone apps,[22] and video-calling.[23]
- WIC participants, in particular, like the care or services they receive through digital tools, including:
  - Online nutrition education for WIC;[24]
  - Breastfeeding/lactation support via video-calling;[25]
  - Breastfeeding/lactation support for WIC participants via texting;[26] and
  - Appointment reminders and other information about WIC shared via texting.[27]
- Several studies indicate that texting services can support the provision of care.
  - Texting interventions led to health improvements and behavioral changes in other contexts.[28]

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[21] Accessibility and preferred use of online Web applications among WIC participants with Internet access. *R.J. Bensley, A. Hovis, K.D. Horton, J.J. Loyo, K.M. Bensley, D. Phillips, C. Desmangles* (2014). Journal of Nutrition Education and Behavior, 46 (3S), 87-92; Exploring the Potential for Technology-Based Nutrition Education Among WIC Recipients in Remote Alaska Native Communities. *J.M. Power, K.L. Braun, A. Bersamin* (2017). Journal of Nutrition Education and Behavior, 49 (7S2), 186-191; Special Project Grant in Vermont: WIC2FIVE: Using Mobile Health Education Messaging to Support Program Retention. *Vermont 2014 WIC Special Project Mini-Grant Final Report* (2017); Examining Internet Access and Social Media Application Use for Online Nutrition Education in SNAP-Ed Participants in Rural Illinois. *E. Loehmer, S. Smith, J. McCaffrey, J. Davis* (January 2018). Journal of Nutrition Education Behavior, 50(1):75-82.

[22] User-centered Design of a Texas WIC App: A Focus Group Investigation. *L. Biediger-Friedman, S.H. Crixell, M. Silva, B.R. Markides, K.S. Smith* (2016). American Journal of Health Behavior, 40(4), 461-471.

[23] Breastfeeding and Telehealth. *Iona Macnab, Wilaiporn Rojjanasrirat, and Alisa Sanders* (2012). Journal of Human Lactation. 28(4):446-449.

[24] If You Build It They Will Come: Satisfaction of WIC Participants With Online and Traditional In-Person Nutrition Education. *Lauren Au, Shannon Whaley, Klara Gurzo, Martha Meza, Lorrene Ritchie* (2016). Journal of Nutrition Education & Behavior. 48(5):336-342; A smartphone app for families with preschool-aged children in a public nutrition program: Prototype development and beta-testing. *P. Hull, J.S. Emerson, M.E. Quirk, J.R. Canedo, J.L. Jones, V. Vylegzhanina, B.A. Husaini* (2017). Journal of Medical Internet Research, 5(8), 2-18.

[25] Breastfeeding and Telehealth. *Iona Macnab, Wilaiporn Rojjanasrirat, Alisa Sanders* (2012). Journal of Human Lactation. 28(4):446-449.

[26] Feasibility and acceptability of a text message intervention used as an adjunct tool by WIC breastfeeding peer counsellors: The LATCH pilot. *Nurit Harari, Marjorie S. Rosenthal, Valerie Bozzi, Lori Goeschel, Teshika Jayewickreme, Chukwuma Onyebeke, Michele Griswold, Rafael Perez-Escamilla* (August 2017). Maternal and Child Nutrition. 14(1).

[27] Special Project Grant in Vermont: WIC2FIVE: Using Mobile Health Education Messaging to Support Program Retention. *Vermont 2014 WIC Special Project Mini-Grant Final Report* (2017).

[28] Mobile Text Messaging for Health: A Systematic Review of Reviews. *Amanda K. Hall, Heather Cole-Lewis, and Jay M. Bernhardt* (April 2015). Annual Review of Public Health. 36: 393-415; Using Health Text Messages to Improve Consumer Health Knowledge, Behaviors, and Outcomes: An Environmental Scan. *Mathematica* (May 2014); Promoting Maternal and Child Health Through Health Text Messaging: An Evaluation of the Text4baby Program (Summary of Key Findings). *Mathematica* (February 2015).

- Texting reminders led to increased WIC engagement, such as participants picking up paper benefit vouchers.[29]
- Breastfeeding/lactation support for WIC participants via text facilitated access to breastfeeding support.[30]

In sum, evidence suggests that WIC participants appreciate technology and that tools would likely help with retention. As digital tools become more widespread, evaluating their efficacy in WIC and impact on retention of participants will help WIC agencies determine which tools to adopt.

Research Needs for WIC

The National WIC Association's (NWA) 2018 research needs assessment prioritized "[u]nderstanding how WIC participants use technology and considering barriers to technology access." NWA recognizes that more and more WIC agencies are adopting digital tools to deliver services, but there is a lack of research about the tools' efficacy. NWA encourages researchers and WIC agencies to work together to understand how WIC participants use digital technology in their daily lives, as well as the impact of new digital tools in WIC on their participation. The full 2018 research needs assessment is available at https://www.nwica.org/RNA-2018.

[29] Special Project Grant in Vermont: WIC2FIVE: Using Mobile Health Education Messaging to Support Program Retention. *Vermont 2014 WIC Special Project Mini-Grant Final Report* (2017).

[30] Feasibility and acceptability of a text message intervention used as an adjunct tool by WIC breastfeeding peer counsellors: The LATCH pilot. *Nurit Harari, Marjorie S. Rosenthal, Valerie Bozzi, Lori Goeschel, Teshika Jayewickreme, Chukwuma Onyebeke, Michele Griswold, Rafael Perez-Escamilla* (August 2017). Maternal and Child Nutrition. 14(1); Impact of the Lactation Advice Through Texting Can Help (LATCH) Trial on Time to First Contact and Exclusive Breastfeeding among WIC Participants. *J.L. Martinez-Brockman, N. Harari, S. Segura-Pérez, L. Goeschel, V. Bozzi, R. Pérez-Escamilla* (January 2018). Journal of Nutrition Education and Behavior. 50(1):33-42; Lactation Advice through Texting Can Help: An Analysis of Intensity of Engagement via Two-Way Text Messaging. *J.L. Martinez-Brockman, N. Harari, R. Perez-Escamilla* (December 2017). Journal of Health Communication. 23(1).

Part 1: Planning

The decision to acquire and offer digital tools for WIC participants should not be made lightly. Investing and/or reallocating resources could significantly affect program operations. Considering these potential impacts in advance can set a WIC agency up for success in selecting and implementing a truly effective digital tool. This section discusses how state WIC agencies can help participants and staff prepare for new tools.

Impact on WIC Participants and Staff

By reaching out to WIC participants and local WIC staff during the planning process, decision-makers can learn how digital tools might affect them. Adopting new technology can take time. Engaging with participants and staff in advance and learning about their experiences can increase patience and set realistic expectations.

Agencies could use a survey, interviews, or focus groups to explore participants' experiences in the following areas:

- **How WIC participants use technology** (see Appendix F for sample customer satisfaction surveys):
  - What types of digital devices do participants use (e.g., smartphones, tablets, in-home virtual assistance)?
  - What services do they prefer to use via digital tools (e.g., text messaging, apps, video calls)?
  - How do they like to use their digital devices and digital tools?
    - Do they use their tablets only for specific tasks?
    - Do they always have their smartphones with them?
    - Do they prefer text messaging over email?
    - Do they use social media? Which social media platforms do they use and why?
    - Are they selective about which apps they download?
  - What kind of functionality do they want or need from a tool?
  - Where do they normally go to find new information?
  - How do they feel about new digital tools for WIC?

- **Factors that could prevent participants from taking advantage of digital tools.** Possible hurdles include:
  - Storage space limits on mobile devices (such as smartphones and tablets)
  - Data usage limits and overage fees on some mobile plans
  - Text messaging limits and/or costs of some mobile plans
  - Limited access to Wi-Fi and/or broadband internet
  - Languages spoken by the WIC participants
  - Literacy skills of the WIC participants

Access to Broadband Services

The federal Lifeline program offers subsidies on phone and broadband services to eligible low-income families who purchase from participating providers. Eligibility is based on income (at or below 135 percent of the federal poverty line) or enrollment in other public benefit programs like Medicaid, SNAP, or SSI. Providers often offer a free or low-cost mobile phone as part of Lifeline services.

FROM THE FIELD

Surveying participants on texting preferences: Community Medical Centers in northern California surveyed its WIC participants before designing its texting-based nutrition education program pilot. The WIC program manager wanted to be sure not only that participants wanted a new option to complete nutrition education, but that the new option would work well for them. To capture participant preferences, the survey asked such questions as:

- How much would you use texting-based nutrition education if it were offered?
- How frequently would you want to receive text messages?
- Which topics would you want the texting-based nutrition education to cover?

Participants indicated through the survey that they would use such an option, so the agency was confident in moving forward with the pilot. The agency also used survey respondents' preferences in designing the pilot. The texting-based lessons occur every two weeks (the average frequency that respondents preferred) and cover topics in which survey respondents indicated interest.

Asking participants their preferred way to be contacted: In February 2018, the San Diego State University Research Foundation WIC agency began asking participants during their appointment reminder phone calls if they would prefer to receive reminders by text message instead. The share of those opting for text messaging has increased every month, from 64 percent in January 2017 to 88 percent in November 2018, indicating a very strong preference for text messaging.

To prepare for implementing a new digital tool, state or local WIC agencies could connect with their staff to learn more about their experience with technology to:

- **Find out how comfortable staff are with new technologies**:

- What digital devices and tools do they use in their personal lives? At the WIC agency?
- How do they use digital devices and tools in their personal lives? At the WIC agency?
- How comfortable are they trying new digital tools at home? At work?

- **Identify champions or leaders among** staff who are excited about new technology and bring a positive attitude to the process.

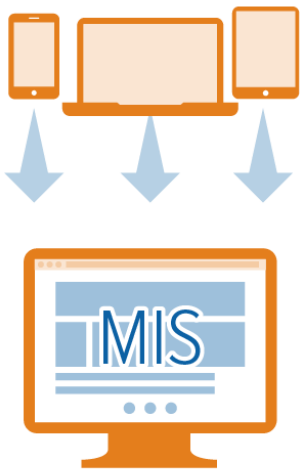
FROM THE FIELD

Getting staff buy-in: The Michigan WIC agency involved local agency staff from the very beginning in creating its comprehensive digital tool, WIC Connect.[31] Project leaders started sharing information about the tool with local agency staff in 2015, when it was just an idea. As the tool was being developed, project leaders shared screenshots with local agencies and later had local agency staff test it on smartphones. This upfront investment paid off: when higher-up decision-makers suggested cancelling the project partway through its development, local agency staff persuaded them to reconsider. The tool became available in January 2018. The vendor subsequently offered a similar tool in other states.

[31] For more information about the WIC Connect mobile app, see https://www.michigan.gov/mdhhs/0,5885,7-339-71547_4910-458489--,00.html.

Impact on Clinic Operations

Introducing a new digital tool will affect local WIC staff and clinic operations. Planning for the necessary changes can mitigate the short-term disruption and allow staff to view the change as an opportunity for long-term operational improvements. This section describes considerations to address during the planning period.



Interoperability With WIC Agency Systems

Digital tools facilitate activities that support a family's ongoing participation in WIC. Digital tools that interface with the WIC agency's underlying eligibility system — the Management Information System (MIS) — can make maintaining eligibility easier for participants and reduce administrative work for staff.

But not all digital tools are designed to interface with WIC MIS, and not all WIC MIS are capable of interoperability. Some MIS legacy systems are too old to support such communication with modern digital tools. In some instances, the state WIC agency's data security standards will not allow interoperability.

TECH TERM

Interoperability: Interoperability is the ability of computer systems or software to communicate and exchange or make use of information and data.

Learning what technology capabilities exist with the agency's current system, whether the MIS can be adapted to accommodate new tools, and whether new tools would require significant (planned or unplanned) changes to the MIS can affect agency decisions about whether and what kind of digital tools to procure.

For example, digital tools for WIC nutrition education can connect to state WIC MIS to varying degrees. Current options include:

- The vendor's digital tool for online nutrition education syncs with the WIC MIS and adds information about individual WIC participants' online nutrition education activities directly to the MIS through an automated online process or in the cloud.
- The digital tool emails the local WIC agency at the end of the day a batch report listing participants who have completed nutrition education lessons. A staff person manually enters the batch data into the WIC MIS.

- The digital tool emails the local WIC agency to notify it that an individual participant has completed nutrition education lessons. A staff person manually enters the data into the WIC MIS.
- The WIC participant prints or saves a pdf copy of completed lessons to share with the WIC agency as proof of lesson completion. A staff person then manually enters the data into the WIC MIS.

TECH TERM

Sync: Sync is short for the process of synchronizing data between two or more sources into a single set of data. To use an example from WIC, if a digital tool for online nutrition education synced with a WIC MIS, then a participant's record of completing a nutrition education lesson in the digital tool would be reflected in the WIC MIS as well.

The cloud: In short, "the cloud" refers to the internet. Therefore, terms like "cloud computing" and "cloud storage" mean that those actions are performed over the internet instead of in a dedicated computer or system.

Aside from the convenience and efficiency that interoperability can provide, automation can also prevent miscommunications and errors. When staff have to manually enter data into the WIC MIS, there is a greater likelihood of a data entry mistake. Also consider an example of miscommunication: if a participant does not understand that she needs to visit a local WIC agency to provide proof that she has completed a nutrition education lesson, her WIC records may indicate that she has not received nutrition education, even if she has completed all of her lessons in the digital tool. When this occurs, staff may need to spend extra time following up with participants.

Anticipating Integration Into Clinic Operations

Whether a digital tool is interoperable with the MIS will affect clinic operations. Considering the following questions in advance can help integrate a new digital tool into clinic processes:

- What aspects of clinic operations might need to change? Can these be addressed up front?
- How will the tool change clinic flow?
- How will the tool change the way staff spend time?
- Will the tool affect all staff?
- Will the tool free up administrative staff time, allowing staff to spend more time with participants?
- What new responsibilities will staff take on to support the tool? (This might include doing more data entry or helping participants download and use the tool.)

- What tasks will no longer be necessary? (For example, if an agency implements a text message-based appointment reminder system, staff may no longer have to call participants to remind them about appointments.)
- Will the agency have Wi-Fi available so staff can help WIC participants download the app when they are on site, which is especially important if they have limited or no Wi-Fi access when they are away from the WIC clinic?
- How much and what type of training is needed to help staff become comfortable with the new tool?

Preparing to Assess Impact

Obtaining baseline data for how WIC participants interact with the WIC clinic can help the state or local WIC agency evaluate the efficacy of the new tools over time. A baseline assessment can enable WIC agencies to measure any improvements that result from introduction of the tool. It does not need to be complicated or resource-intensive, so long as it allows for a before-and-after comparison.

For example, measuring the percent of missed appointments before and after implementing text appointment reminders can indicate whether the reminders are making a difference. Alternatively, surveying participants to assess their satisfaction with a relevant aspect of their clinic experience will allow for a follow-up once a digital tool is introduced. Part 4, "Assessing and Adjusting," provides further details regarding the value of identifying and gathering baseline data before digital tools are adopted.

FROM THE FIELD

Gathering baseline data: Maricopa County, Arizona's Department of Public Health WIC program carried out a project to simplify the enrollment process and reduce the number of temporary (30-day) certifications. After establishing baseline data measuring the share of WIC participants who were enrolled through temporary certifications, the agency offered participants an online appointment request tool, a phone number for general information, and the ability to show documents on computers or mobile devices during their certification appointment or send them electronically afterwards. The agency later compared its baseline data to the number of temporary certifications after the tools were introduced and found a substantial decrease in the share of temporary certifications.

Procurement Considerations

Because procurement rules and processes can be very specific to location, this toolkit does not provide tailored guidance. Instead, it describes key areas to consider when procuring a digital tool.

What state and local WIC agencies can do regarding procurement and information technology (IT) solutions depends on a number of factors. Some local agencies are individually responsible for procurement for some of the services and products they use; others are in states where the state agency procures everything and makes it available to all local agencies. Some state WIC agencies participate in a consortium that makes procurement decisions for all of the partners.

Additionally, WIC agencies' IT capacity varies. Some state agencies have dedicated IT staff; others rely on the IT resources provided by the parent agency (such as a Department of Public Health or Department of Health and Human Services). These differences will likely affect how procurement decisions are made.

Before introducing a new digital tool, it would be helpful for the agency to:

- Be aware of the procurement rules and processes that apply.
- Understand what entity has the authority to purchase a digital tool and/or set the budget: the local WIC agency? The state WIC agency? A parent agency? Some other entity?
- Identify the funding mechanism it would use to purchase a digital tool and maintain it over time.
- Know what it wants out of a vendor relationship and be prepared to ask vendors certain questions.
- Understand how resource-intensive the technology will be and whether the agency needs the vendor (rather than in-house IT staff) to fully support the technology.

Understanding the federal, state, and local procurement rules and processes can help set expectations and identify the kind of influence an agency can have over its own procurements. In most cases, the state agency is responsible for procurement. It would be helpful for those agencies to consider:

- Is the state already procuring tools that are shared across WIC agencies in the locality?
- How much is cost driving procurement decisions?
- Is there a way to look beyond initial costs to consider the tool's costs and benefits over time?
- Is there an option of leveraging purchasing power (through a consortium or partnership) to reduce costs?

- What timeline has the agency established for the procurement decision? Will the procurement follow the normal timeframe? Can procurement be expedited?
- Have all the relevant players (e.g., IT, procurement, WIC leadership) had an opportunity to weigh in to help ensure that there is an effective request for proposal (RFP) process to share with vendors? Consider:
  - Reviewing the RFP checklist (provided below) to integrate helpful language into an RFP.
  - Reading FNS' Handbook 901 for more information on what to consider including in an RFP.

FROM THE FIELD

Building a consortium: Some state and local WIC agencies have obtained new technologies by pooling and leveraging their limited resources through a consortium. In Oklahoma, a number of Indian Tribal Organizations (ITOs) have created a consortium for technology projects to leverage their collective purchasing power as early adopters of EBT in WIC. The individual ITOs are small and thus have a limited ability to purchase new technologies, yet as sovereign nations, they have far fewer procurement and purchasing restrictions and are more independent than state-affiliated WIC agencies. This added flexibility can be an advantage when procuring digital tools. By combining their resources to invest in an upgraded system for processing EBT in WIC, the ITOs obtained a better price per transaction than they could have negotiated individually. After their positive experience working on EBT as a consortium, they have collaborated on other technology projects, including their vendor manual.

Looking Beyond Initial Costs

When making procurement decisions, purchasers often focus on a tool's initial cost, but considering costs over the tool's lifecycle can provide better information. Looking ahead may also reveal potential future cost savings from the tool.

Request for Proposal (RFP)

A document that a business or public agency posts to solicit a formal bid from potential vendors or organizations. The RFP identifies what the business or public agency needs help with and spells out how it will assess the bids. Part 5 provides a checklist for what to consider when creating an RFP.

FNS' Handbook 901 and the Advance Planning Document (APD) Process

APDs are used for procuring MIS and EBT contracts for SNAP, WIC, and other food programs. FNS calls for the formal APD process when entering into large-scale information technology projects. The handbook covers virtually everything a state agency would need to consider for such contracts; it also contains ready-to-use templates and worksheets. While not all procurement decisions will necessitate using every recommendation or requirement from every chapter of the handbook, it can still be a useful guide for WIC agencies. The handbook is available at https://www.fns.usda.gov/apd/fns-handbook-901-v2-advance-planning-documents.

Consolidating and/or Integrating Tools

Currently, no digital tools provide a complete set of services (nutrition education, text messaging, lactation support, shopping, etc.) in one app. Thus, if a WIC agency wants to offer its participants an array of services via digital tools, it must invest in multiple tools. Multiple tools require more management from staff. They also place a burden on participants to download different apps, learn what each does, create and manage multiple user names and passwords, store and use additional data, and expose themselves to multiple privacy and security risks. One way to improve access for WIC participants who use multiple tools is to have a single sign-on.

TECH TERM

Single sign-on: Single sign-on (SSO) allows an individual to access multiple applications using only one set of credentials, such as a username and password. An application programming interface (API) accepts the login information and verifies that the user is who they say they are.

FROM THE FIELD

Benefits of consolidation: As purchasers, agencies can request that vendors offer a package of services all included within one app. The WIC agency in Boulder County, Colorado heard from some participants that having multiple WIC digital tools was confusing or frustrating. Some participants complained that when they clicked a nutrition education link in the shopping assistance mobile app, they were unexpectedly taken to the nutrition education online portal with a prompt to log in, not realizing that these were separate tools offered by different vendors. Other participants understood that they were different but were still frustrated that they had to log in separately.

What consolidation can look like: Michigan WIC's WIC Connect mobile app combines multiple features in one solution. In addition to the typical features of a shopping assistance mobile app, WIC Connect can send reminders for upcoming appointments, pre-screen for WIC eligibility, and connect users to immunization records.

Short of creating custom tools, WIC agencies may not have much control over what vendors provide. While there may be advantages to having multiple tools (less data to store, more flexibility, etc.), agencies can try to reduce the number of tools they need by making it clear to vendors that they prefer one tool for all the functionalities they wish to offer WIC participants.

Weighing the benefits and drawbacks of one tool versus multiple tools can help agencies decide what makes most sense for them and their participants. Either way, the voice of WIC agencies can signal to the vendor market what is expected and desired in the future. In the meantime, agencies can request that vendors design tools to remember participants' usernames and passwords and clarify to participants which tools address which functions.

Address Initial and Long-Term Funding

It is important to plan to fund the use of a digital tool over the long term. Digital tools often require maintenance or regular updates to reflect, for example, changes in program rules, in relevant federal poverty guidelines, and in other program policies. (For a more detailed discussion of maintenance considerations, see "Maintaining and Updating the Tool" on page 33.) Knowing the likelihood of changes in digital tools can help WIC agencies consider whether to secure several years of funding so the tool can be used beyond the initial pilot or implementation stage. Anticipating the need for maintenance and updates can help agencies in their decision-making processes.

Long-term funding may not always be realistic for WIC agencies, however. Many funding sources that WIC agencies have previously used to support introduction of digital tools are time-limited —

offered through one-time grants or annual budget allocations that need regular renewals to keep the tool in place.

Plans for a long-term funding strategy may need several checkpoints and a few contingency strategies. While considering long-term funding is important in all types of purchases, purchasing digital tools is different than purchasing a piece of equipment in that the tools will likely require updates, may benefit from enhancements, and definitely need to be maintained over time. With that in mind, WIC agencies can consider:

- If a tool is funded as a pilot with a grant:
  - Under what conditions would the pilot become larger-scale and permanent?
  - Would funding be available for such a scenario?
- If a tool is purchased with state or federal funding that won't be available in the future:
  - Are there similar sources of state or federal funding that the agency could use?
  - Could the agency absorb the ongoing maintenance costs of the tool into its base budget?
- If a WIC agency plans to add on new functionality to the tool in the future, what is the plan for funding such additions?
- If a consortium of WIC agencies pools resources to support a digital tool:
  - Are all partners certain about the sustainability of each source of funding?
  - If some sources of funding are not certain, is there a back-up plan?

While each WIC agency will be in a unique situation to determine how to secure long-term funding of a digital tool, it is worth reaching out to agencies that have already adopted tools to learn how they fund them over time.

Consider Dedicated USDA Funding

Some WIC agencies, such as Mississippi's state WIC agency, have paid for digital tools through USDA operational adjustment (OA) funding. Infrastructure grants can also be used for digital tools. There can be drawbacks to this funding approach, however. The agency is usually given a short period in which to initiate the project; the project is often a pilot given the time and funding constraints; and the agency must secure additional funding once the original funding runs out.

FROM THE FIELD

Paying for a digital tool as a monthly subscription: When West Virginia's state WIC agency was considering how to continue paying for a shopping assistance mobile app it had piloted, it applied for OA funding and worked with the vendor to pay for the tool on a monthly subscription basis. The state approved the subscription approach to pay for use of the WIC Shopper tool, which remains available to West Virginia WIC participants.

A digital tool for one state can benefit many states: Some digital tools that WIC agencies have introduced have subsequently been adopted by other WIC agencies. If the software is made publicly available on the internet so that others may use, modify, and/or redistribute the source code as they like, it is considered "open source." Sometimes a vendor develops a tool for one state or local WIC agency and later modifies it for other WIC agencies; while the tool isn't "open source," this approach can reduce the resources that another state needs to invest. A good example is Michigan's WIC Connect mobile app. Michigan WIC worked with a vendor to create the mobile app, and now the vendor is working with other state WIC agencies to provide them with similar versions.

Part 2: Choosing a Product

When choosing a digital tool, there are many factors to consider, such as: Is it well-designed for participants? Can it help staff?

Not all tools will have all of the features that an agency would like. The checklist in Appendix C is meant to help agencies consider what is most important for them and the people they serve and use that information to prioritize their specifications.

Tools That Are User-Friendly for Participants

Well-designed digital tools — ones that are easy to sign into, read, and navigate — take users' needs into account. Whether designing a new tool or selecting an existing one, WIC agencies can obtain a user-friendly tool by looking for the basic elements listed below.

What Is Human-Centered Design (HCD)?

Applying HCD principles to the design process can help create a digital tool that truly meets the needs of its intended users. But what is HCD?

- The foundation of HCD is that technology should serve people. In the HCD process, designers include the people they are designing for at every step: understanding who users are, identifying what problems are being addressed, brainstorming and modelling solutions, and testing the new tools during development and before their introduction into the marketplace.
- HCD takes an inclusive view of human experience and the role that products and services play in that experience. An inclusive view can include culture, social norms, political landscape, and more. Gaining such a view helps designers truly understand the people they are designing for, what their problems are, and what effective solutions might be for them.

- **Friendly and inviting to all users**
  - Clear and simple design
  - Good visual cues
  - Strong graphics and inviting appearance
  - Text that is welcoming and/or personalizes the process
  - Text that is culturally sensitive as well as affirming of different identities (see Appendix E for language access considerations)
  - Text that provides reassurances for WIC participants and their families (such as immigrants)
  - Text that addresses the needs of all different types of WIC participants
  - Audio voice-overs to assist those with Limited English Proficiency (LEP) or who are visually impaired
  - Closed captioning for videos to assist those with hearing challenges or those who are in a place where they cannot play audio
  - Text and functions that comply with the Americans with Disabilities Act (ADA) and Section 508 requirements (see Appendix D for more information)

What Is Limited English Proficiency (LEP)?

According to LEP.gov, Limited English Proficient individuals are those "who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English."[32]

FROM THE FIELD

Attracting users: Multiple WIC agencies noted that they favor tools that are appealing, engaging, and interactive. The agencies we interviewed commonly complained that some tools currently on the market lack features that make them interesting to use, like animations or interactivity.

- **Easy to use**
  - Introductory text that explains what the tool is for
  - Video with instructions
  - Visual aids where appropriate
  - Clear directions

[32] Frequently Asked Questions, *LEP.gov*.

- Navigation cues, user prompts, and/or a progress bar
- Help text, pop-up features, FAQs, definitions/glossary, and/or tool tips
- Explanatory text to cue or guide the user as to what is coming next and why
- Hyperlinks to further information
- A 6th grade readability level
- Only a few items or questions per page
- Contact information for local WIC agency personnel for users with additional questions

- **Flexible**

  When scrolling through the screens, users should be able to:

  - Go back to a previous screen without losing information they have already entered
  - Save information and complete tasks later
  - Print or save summaries of completed tasks for their own records (this can be especially important for things like nutrition education)
  - Receive an automatic confirmation e-mail after successfully completing a task
  - Set up an online account (and preferably stay signed in when accessing it from a trusted/secured device)
  - Submit updated contact information to their local WIC agency/clinic

Writing Tips

Readability and readability scoring - A readability score measures the approximate level of education a person would need to read and understand a piece of text.33 Various software and services exist on the market that can quickly score the readability of text, though many require a subscription fee.

Writing in plain language - PlainLanguage.gov provides guidelines on how to write in plain language that more users can easily understand. It is available at https://plainlanguage.gov/.

Writing for translation - MailChimp, an email marketing software service, has a style guide that offers several categories of advice that may be helpful when developing or assessing digital tools for WIC participants. Its advice includes how to write English text that translates to other languages more easily, how to write text that is accessible for those with disabilities, and more. The guide is available at https://styleguide.mailchimp.com/.

Playbook for Behavioral Design

[33] What is readability and how can it help you?. *Readable.io.*

User experience (UX/UI) resources used in other contexts can offer guidance for developing digital tools for WIC participants. For example, ideas42's *Behavioral Design for Digital Financial Services* playbook lays out tangible UX/UI tips and helpful checklists that can inform the design of a variety of easy-to-use and engaging mobile apps, not just for financial management. The playbook organizes its tips into four categories:

- Capture attention
- Inspire trust and confidence
- Simplify the decision
- Facilitate action

The playbook is available at http://www.ideas42.org/dfsplaybook/.

FROM THE FIELD

Solutions designed with WIC participants' needs in mind: West Virginia's WIC director shared that some WIC participants are grandparents so may not be tech savvy or may have limited access to internet/Wi-Fi. Some participants prefer digital tools that accommodate lower visual acuity and can work on any digital device (computer, smartphone, or tablet). This preference is consistent with research on technology use; according to 2014 data from the Pew Research Center, adults overall who use digital devices are more likely to have a smartphone than a tablet, but the reverse is true for adults over age 65. (See Older Adults and Technology Use, *Pew Research Center* (2014).)

A picture can say a thousand words: At Davidson County WIC in Tennessee, staff often print out images of certain WIC-eligible items for participants to take to the store so they can compare the image with store items. The pictures are particularly helpful with participants who do not read English. Digital tools can be designed to include visualizations to help non-English readers identify WIC-eligible items.

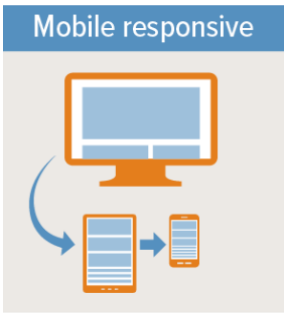
- **Accessible to WIC participants**
  - Mobile apps that do not use a large amount of data
  - Mobile apps that require minimal storage space
  - Tools that can be accessed both online and via mobile apps
  - Websites that display well in mobile browsers or have a mobile app counterpart
  - Mobile apps that allow users to download content and complete tasks offline
  - Online tools that can be read easily on all types of devices, including computers, tablets, and smartphones
  - Tools that allow participants to opt in or out of text messaging services
  - Tools that assure participants that their personal information will be protected and secure
  - Tools that are easy for potential users to test or try out

Mobile Apps vs. Mobile Optimized Websites

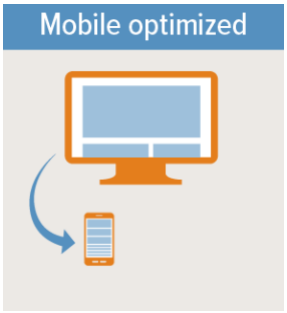
Some smartphone users have limited memory space and/or data plans and may therefore be more selective about which mobile apps they choose to download and use. Before deciding whether to offer a mobile app, the WIC agency can consider if a website that displays well in mobile browsers would be a better alternative for their participants. Asking participants about their preferences can help determine the most appropriate strategy.

- **Adaptable across devices.** Some websites do not translate well on a mobile device browser (such as when viewing websites on a smartphone or tablet). There are different ways to make sure that information can be viewed and used on a mobile device, including:

  - Making a website "mobile friendly": A mobile friendly website is designed to be viewed on desktop computers and automatically adapts to mobile devices, but it may not display well on mobile device browsers because it was not designed specifically for them.



  - Making a website "mobile responsive": A mobile responsive website has only one design, but its layout, content, and orientation are designed to change based on the type of screen or device. Because it is designed for use on both desktop computer browsers and mobile device browsers, the website displays clearly regardless of the mobile device used to view it and without requiring maintenance of two different designs of the same website.



  - Making a website "mobile optimized": A mobile optimized website has two separate versions — one for displaying through desktop computer browsers and another for displaying through mobile device browsers. The website displays clearly regardless of the mobile device used to view it.

In addition, as noted, all digital tools should comply with current ADA accessibility requirements and standards, which allow tools to meet the needs of participants with disabilities.

Keeping Tools Simple for Basic Phones

Many low-income families may have phones, data plans, or internet services that cannot support complex graphics or apps that require extensive download of data. For example, low-income families using Lifeline services may use phones with smaller storage capacity, a fixed number of phone-call minutes, data limitations, and/or slower download speeds. For this reason, it may be better for some agencies to opt for mobile-responsive tools rather than apps that need to be downloaded or that take up storage space on a mobile device.

Tools That Support Staff and Agency Processes

Just as important as the design of the public-facing side of a tool for WIC participants is the functionality that WIC staff will use. Tools with a user-friendly design are helpful to staff as well.

Explore possible features with both staff and vendors to learn what is desired and achievable to facilitate administrative tasks. Consider functionality that allows staff to:

- Pull data from the tool into easy-to-read and easy-to-share reports;
- Edit content easily;
- Seamlessly work across digital devices (this is especially helpful for staff who use smartphones or tablets to communicate with WIC participants); and
- Customize or add to tools.

A ready-made digital tool that requires no customization and can be used wholesale by the WIC agency eliminates the need to invest staff time in developing a tool. Such tools, however, offer limited flexibility. Developing a customized solution can result in a more suitable tool but requires an investment of staff time. By considering the trade-offs, each WIC agency can decide which approach is a better fit.

TECH TERM

Commercial off-the-shelf (COTS): COTS applications are created by a vendor and sold "as-is" to customers. The vendor does not modify the application to fit different customers' specific needs. (However, the COTS tool may still have features that allow customers to configure certain aspects of the tool.) These applications may also be referred to as "vendorware" (vendor software). If a vendor customizes a COTS application for a customer, it may then be referred to as modified off-the-shelf (MOTS).

FROM THE FIELD

For busy WIC agencies, ready-made may be better than custom: While custom options would best suit a WIC agency's needs in certain cases, some interviewees suggest that ready-made options might be preferable. When preparing to introduce an online nutrition education option, one WIC agency did not like the existing lessons offered with the platform, but creating customized lessons took far more work than staff had anticipated. Consequently, the staff now recommends that WIC agencies make sure the benefits of customization outweigh the costs, including both time and resources. This resource from 18F, a federal agency technology contractor, offers additional considerations about purchasing commercial off-the-shelf vs. customizing: https://modularcontracting.18f.gov/using-cots/.

Ready-made tools can have limitations: Staff at Davidson County WIC in Tennessee were aware that WIC participants did not often use the existing online nutrition education option, a ready-made tool. The tool offered few lessons and most were available only in English; participants quickly ran out of lessons and those who read other languages had no online options. The tool did not use a digital platform that readily allowed staff to create and add lessons to the online options.

Digital tools need promotion: D.C. WIC staff were not accustomed to mentioning nutrition education options during their appointments with participants. As a result, even though the agency offered online nutrition education options, participants were not taking the lessons online. With some training, staff were encouraged to include mentions of online nutrition education options when they met with participants in person. In addition, some local agencies provided opportunities for participants to complete online nutrition education lessons while waiting for appointments.

Maintaining and Updating the Tool

Digital tools benefit greatly from updates and maintenance. They may need adjustments to stay compatible with newer digital devices, protect data from exposure or hacking, address "bugs" or design flaws, or add new functionality. By considering the processes and resources needed for updates and maintenance, WIC agencies can keep their digitals tools working well.

- **What will the vendor do?** For commercial off-the-shelf tools (COTS), updates and maintenance depend on the vendor. Even for custom-designed tools, it is helpful to include clear arrangements for maintenance in the contract. Addressing the following questions early in your conversations with vendors can establish clear expectations and avoid surprises when updates are needed.
    - Does the initial cost include ongoing updates and maintenance? If not, what will be the additional cost?
    - Will the ongoing maintenance be billed as a monthly subscription or in some other way?
    - What is the vendor's scheduled frequency for updates or maintenance? Does the frequency meet the WIC agency's needs, and if not, is the vendor open to changes?
    - How will user experience be incorporated into updates?
- **What role will the WIC agency play?** Agencies need to be clear with vendors about the agency's preferred role in developing and improving a digital tool. Understanding the agency resources available and communicating preferences can help ensure that expectations are clear and followed. Consider:
    - Will the agency facilitate user testing of new updates?
    - Will the vendor solicit ideas from the agency for new functionality?
    - Does the agency want to conduct regular surveys of WIC participants or staff to inform updates and/or assess desired new functionality?
    - Will the agency do any updates and maintenance on its own?
- **What triggers updates and maintenance?** The timing of anticipated updates and maintenance may depend on several factors. While the vendor might have a regular update process, the agency may need more frequent updates. By considering the following factors in advance, agencies can clearly communicate priorities to the vendor and help prevent unexpected delays.

- The urgency of the update (for instance, a software update to ensure data security)
- The vendor's availability
- Changes in program rules
- Compatibility with other WIC agency systems
- Affordability
- Problems or error messages

- **What is the vendor's commitment to continuous improvement?** Most products are not perfect immediately upon deployment. Agencies can request that vendors not only handle defects and bugs but also improve the user experience over time. Is the vendor prepared to partner with the agency to make usability improvements and/or other changes that enhance the tool's performance for clients and staff? If so, are there additional costs?

Additional Questions and Considerations for Vendors

Considering how the WIC agency wants the vendor relationship to work over time can be helpful in writing an RFP that will achieve its goals. Discussing the following questions internally can help the agency identify its priorities before soliciting proposals.

- **Does the agency want to leverage existing vendor relationships?**
- **Does a current vendor (e.g., for an existing MIS and/or EBT system) offer digital tools that meet identified needs?**
- **Have other WIC agencies used that vendor?**
  - If so, would they recommend the vendor?
- **Are the agency's WIC systems (such as the MIS) modern enough to interface with new digital tool technologies**?
  - What would be the consequences if the technologies are incompatible?
  - Would such consequences cause the agency not to adopt these new technologies?
- **Does the tool allow for interoperability with the WIC MIS system?**
- **Does the tool allow for interoperability with the SNAP and/or Medicaid system to allow for data matching and targeted outreach or sharing of health information?**

- **How does the vendor intend to share data about WIC participants with the WIC agency?**
  - By interfacing directly with the WIC agency's MIS?
  - In a daily batch process?
  - Via staff accessing the data through the vendor's tool?
  - Through an individual report shared back to the WIC agency?
- **How much flexibility does the WIC agency want to have to customize any tools for its specific needs? Would acquiring this flexibility involve additional costs?**
- **Does the vendor value human-centered design (HCD)?**
  - How does the vendor consider user experience when making design decisions?
  - Does the vendor have information to share with the WIC agency about previous user testing of the tools it offers?
  - What process did the vendor use to test the tools with families?
  - If the vendor has not done user testing, would it agree to incorporate that now? At what points in the process?
- **Is the vendor open to allowing WIC participants to review a prototype of the tool? During the tool's development, can agencies work with the vendor to get feedback from WIC participants to help shape the final product?**
- **Does the vendor charge an additional fee for each authorized individual who has access to the tool?**


TECH TERM

Prototype: A prototype is a preliminary model of what a tool could be. Prototypes can be simple hand drawings, more technical wire frames (computer-generated sketches of the tool), examples of the tool as used in other states or localities, or designed "drafts" of the tool itself.

- **How does the vendor safeguard WIC participants' data?**
    - What protections does the vendor have in place to protect user privacy? Do they comply with WIC's federal confidentiality requirements? (See subsequent section for more information about privacy protections.)
    - How do privacy and security protections get communicated to users through the tool?
    - Does the vendor limit data access to role-based access?
    - Has the vendor experienced any security breaches? If so, how has it handled them?
- **Is the WIC agency client the vendor's focus and priority?**
    - Does the vendor have any interests that conflict with the agency's interests?
    - Does the vendor lobby any state or federal officials on specific issues? Do these issues align with WIC's goals and messages?
- **Does the vendor have evaluation data about the tool available to review?**
    - The "gold standard" for such data would come from an independent evaluation or peer-reviewed studies

Where to Find Information About Lobbying

The Center for Responsive Politics' website OpenSecrets.org provides basic information about lobbying activity. It can be a good starting point for WIC agencies that want to know more about the potential lobbying activity of prospective vendors. Such information would help a WIC agency assess whether the vendor's lobbying positions are compatible with the agency's goals.

TECH TERM

Role-based access: Role-based access restricts access to systems or data based on a person's role in the organization. It is often used to limit the number of people with access to private information held by an organization in order to keep the information confidential.

Part 3: Implementation

Another critical component in ensuring that WIC participants get the most out of new digital tools is implementation. A successful implementation plan involves the agency, the staff, and WIC participants. The agency will need to integrate the tool into its business processes. Staff will need training on how to use the tool, how to incorporate it into their processes, and how to assist participants in obtaining and using it. Testing or piloting the tool with staff and participants, followed by special outreach to participants, can facilitate awareness.

Preparing Local WIC Staff

Local WIC staff, with their on-the-ground experience and insights, are invaluable contributors to the planning and roll-out of new tools. Involving staff can help them feel like true partners in the implementation process, building trust[34] and increasing their enthusiasm for the new tool. Establishing a mechanism for staff to provide feedback about issues that arise during implementation will help resolve unanticipated problems. State or local WIC agencies can provide local staff opportunities to:

- Test the tool before testing it with participants;
- Provide input on the staff training they will receive about the tool;
- Identify themselves as champions who are excited about promoting the tool internally;
- Help strategize about outreach and implementation plans to share the tool with participants; and
- Share feedback on their experience and participants' experience with the tool once it has been launched.

[34] Hitting the Mark: Putting VENA Into Action. *Jaclyn Chamberlain, Marlene Williams, Vernita Reyna, Kim McGee* (April 2015).

Various factors are involved in creating an implementation plan. The factors below are inspired by actual implementation plans that state WIC agencies have used to introduce EBT and other new technologies into local WIC agency practices.

- **Implement the tool incrementally,** which allows the state WIC agency to resolve problems before implementing it widely. Options for an incremental rollout include:
  - Pilot new digital tools with a small number of local WIC agencies
    - Evaluate the pilot frequently to track successes and/or challenges
    - Address issues that arise while it is still in pilot mode
    - When confident that the tool is working as intended, introduce it to a larger audience
  - Roll out the tool at a specific location (e.g., smaller, rural communities or large urban areas)
  - Make features within the digital tool available one or a few at a time
    - Consider releasing the tool's functions in stages
    - Prioritize the functionalities that will most benefit users and add functionality over time
- Prepare to **train staff** in advance and on an ongoing basis. Issues to consider include:
  - Will the local agency or the vendor be responsible for the initial training?
  - Is it better to have a "train the trainer" approach or to train the entire staff all at once?
  - Is it more effective to train in shorter sessions over time or in one longer, comprehensive session?
  - Must the training happen in person or can it be done remotely? Will a test lab be set up for agency staff that meets their needs?
  - Who will be available to answer staff questions about using the tool? Does a vendor representative need to be on site when the tool is introduced?
  - Will someone on staff become the expert whom others can go to for assistance?
  - What training and implementation timelines and dates can be set up in advance so staff know what to expect and when?
  - Will staff have enough time to prepare questions before trainings?
  - How will ongoing training needs be met, after the initial training ends?
  - Should the agency prepare role-playing activities in advance?
  - Does the agency have space to provide training environments for staff to practice (sometimes known as a "sandbox")?
  - What kind of support can the agency provide staff after the tool launches?

- Can the agency provide a help desk, monthly support calls, and/or technical assistance during the early stages of implementation?
- Will the agency hold kick-off events and/or staff celebrations?

- **Anticipate how the new tool may affect the local WIC staff and agencies' schedules.**
  - Build time into staff schedules to allow them to try out the tool and incorporate it into their regular workflow.
  - Build in time for staff to introduce the new tool to participants.
  - Consider how a tool may affect scheduling and participant volume at the local agency.

Preparing Participants

Local WIC agencies can increase their chances of success by introducing the new tool to WIC participants through a thoughtful planning process that considers outreach, training, and roll-out. Such planning can help agencies:

- Test the tool with participants;
- Consider how to integrate introducing the tool into participant appointments;
- Identify the best outreach strategies to connect with new WIC participants; and
- Offer participants training for the new tool.

There are a number of opportunities to help WIC participants take advantage of new tool offerings.

- **Test the tool with participants.** Engaging participants in user testing before implementation is important not only to ensure that the tool works as desired, but also to learn what kinds of support participants may need to use it effectively. While WIC staff can provide feedback, there is great value in testing directly with the individuals for whom the tool was designed. This can help WIC staff determine how to introduce the tool, devise training strategies, and prepare support materials to help participants make the most of the tool. Agency options include whether to:
  - Invite a group of participants to do user testing before the tool is widely used
  - Offer a special evening activity
  - Include testing before or after a scheduled in-person nutrition education session

- Identify a small group of participants to test the tools at home and provide feedback via a quick survey
- Address the issues raised in testing during the early phases of roll-out

- **Introduce the new tool to WIC participants**. Consider:
  - How and when will staff introduce the tool to participants?
    - Will the local agency offer trainings in person or remotely?
    - Will the local agency offer trainings after hours?
    - Will the training be built into regular appointments?
  - What kinds of materials does the vendor have already available for participants to learn about the tool? Are there supplemental materials the state or local agencies want to develop?
  - Will the local agency send out information about the tool to participants before launch?
  - Will the local agency have resources to display posters, hand out flyers, and/or post to social media in advance?
  - Can the state agency develop promotional materials and distribute them to local WIC agencies and partner organizations, such as schools or clinics?
  - Will the state agency be able to provide image files and preferred copy to local WIC agencies, so they can customize the messaging and post about the tool through their own social media channels?
  - Can the state or local agency prepare FAQs to have available when introducing the tool?
- **Train WIC participants to use the tool.** Consider:
  - How will participants be trained initially?
  - What kind of ongoing support will agencies offer participants? Will dedicated staff be available to support participants?
    - Will agencies offer support through multiple channels such as: in person at local WIC agencies, online via state and local WIC agency websites, call centers where participants (and, ideally, staff) can call with questions, and/or two-way text messaging lines where staff can reply to questions?
    - Will staff introduce the tool on a one-on-one basis to participants who come in for appointments?
    - Will time be built in to allow staff to help participants download and set up an account (if required) while still at the local WIC agency?

FROM THE FIELD

Download a tool on the spot: Staff at Community Medical Centers, Inc., in California recognized that small actions by staff can help WIC participants use digital tools. Creating environments for participants to download a new digital tool while they are at a local WIC agency for an appointment makes it more likely that they will use that tool.[35] Even participants planning to download and use a new tool may forget to once they walk out the door. Ensuring that Wi-Fi is available and that a staff person takes an extra moment to help the participant download and try out the tool may make all the difference.

TECH TERM

Sandbox: In the context of technology projects, a sandbox is a test version of a new tool that looks and acts like the real tool but is not connected on the back end to perform its intended functions. Testers and trainees, such as staff, can "play" in the sandbox version with no impact on the live version of the tool. A sandbox gives staff consequences-free, hands-on experience with the tool, helping them become comfortable and confident with the real tool once implementation begins.

Using Behavioral Science to Improve Business Processes and Beyond

A report from ideas42, *Using Behavioral Science to Improve the WIC Experience: Lessons for the field from San Jose, California*, examines why participation in WIC is not higher and recommends how WIC agencies can increase participation by eligible families. These behavioral, science-based recommendations range from high-level policy changes to changes in business processes and adoption of participant-facing digital tools. Each recommendation aims to nudge eligible families toward participating and help them continue to participate once they have made that choice. The report is available at http://www.ideas42.org/wp-content/uploads/2017/07/I42_WIC-Paper-Final.pdf.

[35] Special Project Grant in Vermont: WIC2FIVE: Using Mobile Health Education Messaging to Support Program Retention. *Vermont 2014 WIC Special Project Mini-Grant Final Report* (2017).

Privacy and Security Considerations

Safeguarding WIC participant data is essential. It is important for WIC agencies to:

- **Ensure that participants' data are kept private and secure.** Federal regulations require WIC agencies to keep data that identifies an applicant, participant, or family members confidential.[36] To protect against exposing participants' data, agencies should:
  - Work with a tool's vendor to ensure the tool is more secure/less prone to exposing data;
  - Design business processes to prevent situations that might expose data; and
  - Train staff and participants on how to protect participants' data.
- **Confirm whether the agency has any obligations under the Health Insurance Portability and Accountability Act (HIPAA).** The WIC program, WIC data, and local WIC agencies are not themselves covered under HIPAA.[37] However, sometimes partner entities are covered by HIPAA, such as a medical clinic.[38] In those circumstances, WIC agencies should confirm their obligations under both HIPAA and WIC privacy rules and make decisions for any digital tools accordingly.
- **Explain to WIC participants the security measures in place to protect their personal information.** While the tool itself should provide clear statements about privacy, communicating additional assurances to WIC participants that their information will be protected can increase their comfort with using a new tool. Consider creating informational hand-outs informing participants that:
  - The agency has an obligation to protect and secure WIC data and equipment;
  - Local agency staff receive security training;
  - Participants' information will not be shared with unauthorized individuals or entities; and
  - Participants' information that can be shared will not be released without their consent.

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[36] 7 C.F.R. §246.26

[37] WIC Policy Memorandum #2016-4 Verification of Certification. *USDA Food and Nutrition Service* (August 2016); WIC Data Privacy – Memo REVISED. *Minnesota Department of Health* (February 2016); Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Miscellaneous Provisions. *USDA Food and Nutrition Service* (September 2006).

[38] *Id.*

Agencies can distribute these hand-outs at the registration desk or another prominent location in the waiting area, or during the screening interview and/or nutrition assessment and counseling process.

WIC agencies that have adopted digital tools have protected participants' data by, for example:

- Purchasing only digital tools that vendors can assure keep data safe (by meeting industry standards for data security and/or HIPAA requirements);
- Training staff on how to keep participants' data safe; and
- Avoiding tools that contain or connect to protected health information (PHI) or personally identifiable information (PII). (See Glossary in Appendix A for an explanation of these terms.)

Federal Requirements for Protecting Participants' Data

Ideally, all participant data should be kept private and secure. Federal law establishes rules for how certain categories of data must be protected. HIPAA includes definitions for PHI and PII. PHI includes any "health data created, received, stored, or transmitted by HIPAA-covered entities and their business associates in relation to the provision of healthcare, healthcare operations and payment for healthcare services."[39] PII includes 18 categories of identifiers (such as names, phone numbers, and addresses) that, when combined with PHI, may make the data personally identifiable.

[39] What is Protected Health Information? *HIPAA Journal* (January 2018).

Part 4: Assessing and Adjusting

Data analytics can be crucial in helping WIC agencies determine the efficacy of a tool and make meaningful improvements. Using a tool that incorporates data reporting and analytics functionalities can enable agencies to share positive outcomes with both internal and external stakeholders, including funders. It can also help agencies identify areas where the tool is being underutilized, which can inform staff about where to do additional outreach or to assess whether the tool is accomplishing the agency's goals.

Setting a Baseline to Evaluate Effectiveness

Learning what metrics the vendor already has in place can help WIC agencies understand the types of data the tool tracks, how that data will be shared with the agency, and what functionality will be available to WIC staff to access the data for evaluation, visualization, and metrics. Data elements that would be useful to track include:

- Number of downloads (if a mobile app)
- Number of uninstalls (if a mobile app)
- Last activity the user performed (and when) before uninstalling (if a mobile app)
- Number of distinct daily active users
- Frequency of tool use
- Number of times users have logged in
- Length of user sessions (session time)
- Length of time users have the tool open (on their computers, smartphones, etc.)
- Features/functionality users visit the most
- Features/functionality users visit the least
- Frequency that users click on external resources or referral links within the tool

- Options chosen the most/least when features/functionality include options (like nutrition education lessons or recipe lists)
- Messages users respond to the most/least when the tool sends them messages (like text messaging services, or push notifications in mobile apps)

FROM THE FIELD

Data reports: Staff at Davidson County WIC in Tennessee like that their online nutrition education platform can show basic data about how participants use the tool. But they would also like the tool to produce exportable reports that organize this data in an easy-to-read format to help them analyze and share it with their leadership team.

Tracking usage over time: The West Virginia WIC agency sees an uptick in the use of the shopping assistance mobile app whenever the agency releases a revised WIC-eligible items list (or "approved products list"). Once participants are used to the new list, they refer to the tool less.

Learning from Data[40]

Agencies that collect data on participants' use of digital tools can use it to gain insights about how people experience WIC. Agencies already have a wealth of data about participants: appointment attendance, participation in nutrition education, use of benefits, etc. Adding data collected about the use of digital tools can help agencies discern patterns and better understand participation trends, catalogue whether and how tools are helping, and even explore why participants drop out of WIC.

For example, most local WIC agencies collect data on age, number of children in the family, and language preferences. Data about digital tool use may identify who abandons the tool at a specific point in the process. By comparing both sets of data, agencies may find, for example, that the people who abandoned the tool were all limited English proficient (LEP) readers, which could lead the agency to examine the tool for text that may be difficult for LEP readers to understand. The agency and the vendor could then revise the text to make it more user-friendly.

Data about WIC participants who use digital tools can also help an agency identify patterns and needed changes in policy, business processes, and/or technology to make it easier to participate

[40] The following section is adapted from Social Interest Solutions' publication, "Data-Driven strategies to improve transitions between Medicaid and exchange coverage," February 2018.

in WIC, such as by pointing to particular populations that likely need assistance. Additionally, agencies may be able to build an evaluation tool into an online or mobile app by including a brief survey (or link to one) to learn if the tool is effective and get feedback for improvements.

Agencies can also invest in statistical analysis of data sets to more easily and routinely learn from their data. They can share aggregate data with colleges or universities to undertake data analysis. Such partnerships help both parties: WIC agencies benefit from a university's expertise and capability in data analysis, and universities get a chance to perform research for communities they care about.

Additional Guidance on Conducting WIC Research

The National WIC Association (NWA) encourages researchers and WIC programs to collaboratively conduct research to help make WIC more evidence-based and innovative. NWA offers advice on conducting WIC research in its *Guidance for Planning, Conducting and Communicating a WIC Research Project*. The guidance covers how to plan a research project, conduct research in the WIC community, and communicate research findings. It is available at https://www.nwica.org/guidance-for-planning-conducting-and-communicating-a-wic-research-project.

Part 5: Soliciting Strong Proposals

State WIC agencies will likely use their formal procurement process to select contractors or vendors to fulfill some or all of their digital tool needs. A well-designed request for proposals (RFP) is key to successful procurement.

This section is intended to help agencies produce RFPs that yield high-quality proposals and enable effective decision-making. While procurement officials will be crucial in developing standard procurement parameters, the checklist below will help specify unique content needed for procuring participant-facing technology.

Agencies can adopt various strategies, both before staff draft an RFP and throughout the process with the vendor, to promote a productive client/vendor relationship. For example:

- Designate a project manager: Assign a dedicated person from the agency to be the key contact for the vendor.
- Engage: Include a wide range of agency staff, not just IT and fiscal staff, in developing the RFP, including subject matter experts.
- Document: Track the process from the beginning, identifying expectations at the outset, keeping notes from formal and informal interactions, tracking timelines and agreements, etc.
- Coordinate and clearly define the roles of vendor staff working on behalf of the agency: articulate responsibilities internally and communicate them clearly to the vendor.

An RFP will describe the scope of the work requested in the procurement of the digital tool. The scope of work will be unique to each WIC agency, depending in large part on its decisions regarding considerations raised in this toolkit. To the extent that a particular feature is not immediately feasible, the RFP can ask if it can be added in the future. WIC agency staff will want to work with their procurement teams to devise RFP specification language that addresses the agency's decisions.

The items in the checklist below can be included in any RFP that WIC agencies develop to help ensure that the tool will work well for both WIC staff and participants. Agencies can exclude from their RFP any items that don't make sense for them.

Appendix C provides some sample evaluation criteria to guide agencies when comparing vendors, and Appendix G provides examples of contracts from WIC agencies across the country.

RFP Checklist

Specifications	Yes	No	Notes
Planning			
Procurement considerations			
Consolidate and/or integrate tools			
Vendor offers an all-in-one tool that covers all functions the agency wants to offer WIC participants	Y	N	
Vendor offers multiple applications and users can access them all through a single sign-on (SSO)	Y	N	
Choosing a Product			
Tools that are user-friendly for participants			
Friendly and inviting to all users			
Clear and simple design	Y	N	
Good visual cues	Y	N	
Strong graphics and inviting appearance	Y	N	
Text is welcoming and/or personalizes the process	Y	N	
Text is culturally sensitive and affirming of different identities	Y	N	
Text provides reassurances for participants and their families (such as immigrants)	Y	N	
Text addresses needs of different WIC participants	Y	N	

Specifications	Yes	No	Notes
Audio voice-overs to assist those with Limited English Proficiency (LEP) or who are visually impaired (if possible)	Y	N	
Closed captioning for videos to assist those with hearing challenges or those who are in a place where they cannot play audio	Y	N	
Text and functions comply with Americans with Disabilities Act (ADA) and Section 508 requirements	Y	N	
Easy to use			
Introductory text explaining purpose of tool	Y	N	
Video with instructions	Y	N	
Visual aids where appropriate	Y	N	
Clear directions	Y	N	
Navigation cues, user prompts, and/or progress bar	Y	N	
Help text, pop-up features, FAQs, definitions/glossary, and/or tool tips	Y	N	
Explanatory text to cue or guide user as to what is coming next and why	Y	N	
Hyperlinks to further information	Y	N	
6th grade readability level	Y	N	
Few items or questions per page	Y	N	
Contact information to local WIC agency personnel for families with additional questions	Y	N	

Specifications	Yes	No	Notes
Flexible			
Allows users to return to earlier screen without losing information they have entered	Y	N	
Allows users to save and complete tasks later	Y	N	
Allows users to print or save summaries of completed tasks for their own records	Y	N	
Allows users to receive automatic confirmation e-mail showing task was successfully completed	Y	N	
Allows users to set up online account (and preferably remain signed in when accessing it from trusted/secured device)	Y	N	
Allows users to submit updated information about themselves to their local WIC agency/clinic	Y	N	
Accessible			
Does not use large amount of mobile device data	Y	N	
Minimal storage space requirements	Y	N	
Can be accessed both online and via mobile app	Y	N	
Website displays well in mobile browser	Y	N	
Allows users to download content and complete tasks offline	Y	N	
Can be read easily on all types of devices	Y	N	
Provides users opt-in or opt-out text messaging services	Y	N	

Specifications	Yes	No	Notes
Clearly communicates privacy and security considerations reassuring users that personal information will be protected	Y	N	
Tools that support staff and agency processes			
Allows users to pull data from tool into easy-to-read and easy-to-share reports	Y	N	
Allows users to edit content easily	Y	N	
Allows users to seamlessly work across digital devices	Y	N	
Allows users to modify tool	Y	N	
Tools that will be maintained and updated regularly			
Initial costs include ongoing updates and maintenance (and if not, additional costs are specified)	Y	N	
Ongoing maintenance can be billed as monthly subscription	Y	N	
Clear schedule for providing frequency of updates and/or maintenance	Y	N	
Vendor open to changes in frequency of updates/maintenance to meet WIC agency needs	Y	N	
WIC agency can facilitate user testing of new updates	Y	N	
Vendor will solicit ideas for new functionality from WIC agency	Y	N	
Vendor will accept input from WIC agency to help inform updates and/or desired new functionality	Y	N	
Vendor can explain its approach to incorporating user experience into updates	Y	N	

Additional questions and considerations

Vendor already offers digital tools for other WIC agencies	Y	N	
Tool is interoperable with agency's current MIS system	Y	N	
Tool is interoperable with SNAP and/or Medicaid system	Y	N	
Tool is customizable to meet WIC agency's needs	Y	N	
Vendor uses human-centered design	Y	N	
Vendor considers user experience in design decisions	Y	N	
Vendor has performed user testing with WIC participants/families	Y	N	
Vendor is willing to perform user testing	Y	N	
Vendor has safeguards in place to protect WIC participants' data	Y	N	
Tool clearly communicates users' privacy protections	Y	N	
Vendor has means to limit data access to role-based access	Y	N	
Vendor shared any experiences with security breaches	Y	N	
Vendor does not lobby state or federal officials on WIC issues	Y	N	
Vendor provided evaluation data about tool (the gold standard being independent evaluation or peer-reviewed studies)	Y	N	

Assessing and Adjusting			
Setting a Baseline to Evaluate Data			
Vendor tracks number of downloads for mobile app (if applicable)	Y	N	
Vendor tracks number of uninstalls for mobile app (if applicable)	Y	N	
Vendor tracks last activity performed before uninstalling (if applicable)	Y	N	
Vendor tracks number of distinct daily active users	Y	N	
Vendor tracks frequency of tool use	Y	N	
Vendor tracks length of user sessions	Y	N	
Vendor tracks number of times users log in	Y	N	
Vendor tracks length of time users have tool open	Y	N	
Vendor tracks features and functionalities that users visit most	Y	N	
Vendor tracks features and functionalities that users visit least	Y	N	
Vendor tracks frequency that users click on external resources or referral links	Y	N	
Vendor tracks messages users respond to most	Y	N	
Vendor tracks messages users respond to least	Y	N	
Language Access			
Tool is automatically available in English and Spanish	Y	N	
Tool is offered in other languages	Y	N	

Tool allows agency to translate content into other languages	Y	N	
Vendor plans to offer tool in additional languages	Y	N	

Appendix A

Glossary: Tech Terms to Know

This glossary includes technology terms used in the toolkit, as well as additional terms that may come up in the process of procuring a digital tool.

- **Application:** In the context of digital technology, an application (or application software) is software that performs specific tasks. Terms like **mobile app** or just **app** usually refer to downloadable applications that are used on mobile devices like smartphones and tablets. Web apps are applications accessed through an internet browser.
- **Application programming interface (API):** An API is a set of codes that let different applications "talk" to each other and share information.
- **Broadband:** Broadband is high-speed data transmission that allows a great deal of information to be communicated quickly. Broadband internet access is faster than dial-up internet access.
- **Browser:** A browser is an application that provides a way to view and interact with all the information on the internet. It is also sometimes called a "web browser."
- **Cloud computing:** Cloud computing is storing data via one or more remote services accessible through the internet, rather than locally on a computer or system. Software as a service (SaaS) is an example of cloud computing. Cloud computing also refers to building and deploying applications that are deployed in cloud services (for example, Microsoft Azure), Cloud services include PaaS, IaaS, and SaaS.
- **Commercial off-the-shelf (COTS):** COTS refers to applications that are created by a vendor and sold "as-is" to customers, rather than customized to fit different customers' specific needs. It may also be referred to as **vendorware** (vendor software).
    - If a vendor customizes a COTS application for a customer, the application may be referred to as **modified off-the-shelf (MOTS).**
- **Data architecture:** Data architecture encompasses rules, policies, standards, definitions, and models that govern how data is collected, used, stored, managed, and integrated into database systems.
- **Data mining:** Data mining is the practice of evaluating large sets of data.
- **Database:** A database is a collection of information that is organized so that it can be easily accessed, managed, and updated**.**
- **Digital technology:** Digital technology is technology that uses, creates, transmits, and/or stores digitized information.
    - Digitized information is written in **binary code**, a language consisting of different combinations of the digits 0 and 1. Digitizing translates large amounts of disparate

information into a common language that takes up little space, allowing information to transmit much more quickly.

  - **Digital devices** are devices that process digitized information. They can include computers, smartphones, and tablets. Mobile digital devices like smartphones and tablets are also called "**mobile devices.**"

- **Encryption:** Encryption protects sensitive data from unauthorized users by using an algorithm to transform the data into an unreadable format. The encrypted data may only be made readable again with a "key," which only authorized users have access to.
- **Flat file:** A flat file is a digital file that has data sorted into simple tables. Flat files are often used to easily export and share data.
- **Hardware:** Hardware are the physical components that make up a digital device.
- **Human-centered design (HCD):** Fundamental to human-centered design is the vision that technology should serve people. HCD-oriented designers include the people they are designing for at every step of the process, including understanding who the users are, identifying the problems to be addressed, ideating and prototyping solutions, and testing new tools during development and before their introduction into the marketplace.
- **Ideating:** In human-centered design, ideating refers to a phase in the design process in which those involved generate ideas for the desired end product or tool.
- **Infrastructure as a service (IaaS):** IaaS is cloud computing that manages the infrastructure for a user, where the user purchases, installs, configures, and manages their own software, operating system, and applications. It is one of three types of cloud computing; the others are PaaS (platform as a service) and SaaS (software as a service).
- **Interoperability:** Interoperability is the ability of computer systems or software to communicate, exchange, and make use of information and data.
  - Interoperability between systems is not always possible. In government programs, sometimes the **"legacy" systems** (older technology systems) used to process eligibility and enrollment are not up-to-date enough to allow interoperability with new technology.
  - Interoperability allows different systems to share information and data more automatically, saving time and helping ensure that systems can easily be modernized and kept up to date.
- **Mobile friendly:** A mobile friendly website is designed to be viewed on desktop computers and automatically adapts to mobile devices, but it may not display well on mobile device browsers because it was not designed specifically for them.
- **Mobile optimized:** A mobile optimized website has two separate versions: one for displaying through desktop computer browsers and another for displaying through mobile device browsers. The website displays clearly regardless of the mobile device used to view it.
- **Mobile responsive:** A mobile responsive website has only one design, but its layout, content, and orientation are designed to change based on the type of screen or device. Because it is

designed for use on both desktop computer browsers and mobile device browsers, the website displays clearly regardless of the mobile device used to view it and without requiring maintenance of two different designs of the same website.

- **Modularity:** Modularity is the extent to which applications or software can be broken into discrete modules to provide flexibility and variety.
- **Open source:** Open source software is software made publicly available on the internet so that others may use, modify, and/or redistribute the source code as they like. A common example is Google Chrome. Open source development includes opening up the development process to the public: any developer (not necessarily connected to the company promoting the open source project) can participate in the development effort. Bitcoin is one example.
- **Operating system:** An operating system is software that controls the basic operation of computer systems.
- **Personally identifiable information (PII):** A term from the Health Insurance Portability and Accountability Act (HIPAA), PII includes 18 categories of identifiers that, when combined with PHI, may make the data personally identifiable. The 18 identifiers include names, phone numbers, and addresses.
- **Platform as a service (PaaS):** PaaS is a cloud computing model in which users receive access to hardware and software tools (usually those needed for application development) over the internet. It is one of three types of cloud computing; the other two are IaaS (infrastructure as a service) and SaaS (software as a service).
- **Protected health information (PHI):** A term from the Health Insurance Portability and Accountability Act (HIPAA), PHI includes any health data created, received, stored, or transmitted by HIPAA-covered entities and their business associates in relation to the provision of health care, health care operations, and payment for health care services.
- **Prototype/Prototyping:** In human-centered design, prototyping refers to a phase in the design process in which preliminary models of the desired end product or tool are created. Prototypes can be as basic as a drawing on a piece of paper or as sophisticated as a semi-developed digital tool.
- **Sandbox:** Within the context of technology projects, a sandbox refers to a test version of a new tool that looks and acts like the real tool, but is not connected on the back end to perform its intended functions. Testers and trainees, such as staff, can "play" in the sandbox version with no impact on the live version of the tool. A sandbox gives staff consequences-free, hands-on experience with the tool, helping them become comfortable and confident with the real tool once implementation begins.
- **Server:** A server is a computer, device, or program that manages network resources.
- **Single sign-on (SSO):** SSO allows an individual to log in to a user session using only one set of login credentials, such as a username and password, to access multiple applications. An application programming interface (API) is used to accept the login information and verify that the user is who they say they are.

- **Software:** Software is a program containing coded instructions that tell digital devices what to do. **System software** tells the hardware in the digital device how to operate. **Application software** is used to perform specific tasks on the digital device.
- **Software as a service (SaaS):** SAAS is a software distribution model in which software applications are centrally hosted (often on the internet) and licensed on a subscription basis. Typically customers use SaaS by logging into the SaaS' web portal through a web browser. Common examples are Salesforce.com and Microsoft Office 365. SaaS is one of three types of cloud computing; the other two are IaaS (infrastructure as a service) and PaaS (platform as a service).
- **Sync:** Sync is short for synchronizing data between two or more sources into a single set of data.
- **Telehealth:** According to the Center for Connected Health Policy, telehealth "encompasses a broad variety of technologies and tactics to deliver virtual medical, health, and education services. Telehealth is not a specific service but a collection of means to enhance care and education delivery."[41]
    - Some consider **telemedicine** and telehealth to be the same, but others consider them to be separate concepts.[42] The latter typically regard telehealth as an umbrella term and telemedicine as the use of telehealth in the medical setting or for medical care.
- **User interface:** User interface is the system that allows a user to interact with the system.
- **Web portal:** A web portal is a type of website that requires a user to log in (the user must have an account). The portal's content and features may vary depending on the user.
- **Wi-Fi:** Wi-Fi is short for wireless fidelity, which means a user can connect to a network wirelessly.

[41] What is Telehealth?. *Center for Connected Health Policy.*

[42] Is There a Difference between Telemedicine and Telehealth?. *mHealth Intelligence.*

Appendix B

Types of Digital Tools

This inventory provides a brief overview of the types of digital tools available and their purposes.

Type of Tool	Definition and Function
Mobile app	• Short for "mobile application" • Also known as "smartphone app" or "app" • Type of software used on mobile devices like smartphones and tablets
Text messaging service	• Also known as "text messaging software" • Type of software that allows users to send text messages to large groups of people • Some text messaging services communicate only in one direction
Two-way text messaging	• Allows for texting messaging conversations in two directions • Can enable recipient to reply to text message directly to original sender
Video calling	• Technology that lets people engage in live conversations over video, rather than in person • Available on most smartphones and tablets • Can be hosted through separate software or services (iPhone's FaceTime feature and Skype are common examples of video calling services)
Websites and web-based learning platforms	• Accessible from web browsers (like Internet Explorer or Google Chrome) on multiple types of digital devices, including computers, tablets, and smartphones • A "web portal" is a website that requires users to log in to search for information, perform certain tasks, or take other actions (online learning platforms, which provide integrated online services to support online learning, are examples of web portals)

Appendix C

Sample Evaluation Criteria for Selecting a Vendor

	Vendor A	Vendor B	Vendor C
Costs of purchasing digital tool			
Costs of upgrading and maintaining digital tool			
Use of human-centered design when developing tool			
Safeguards in place to protect privacy and security of user data			
Data analytics capabilities of tool			
Customization of tool possible			
Commitment to ongoing maintenance and operations			
Compatibility of digital tool with agency systems			
Existing relationships with other WIC agencies			
Available evaluation data about tool			
Any conflicts of interest			
Overall ability to meet WIC agency's needs and expectations			

Appendix D

ADA Compliance

All digital tools should be designed to comply with current accessibility requirements and standards, which allow tools to meet the needs of participants with disabilities. Tools that follow accessibility requirements and standards can be easier for everyone to use. The three sets of federal accessibility requirements and standards are:

- **American with Disabilities Act (ADA).** The Americans with Disabilities Act of 1990 prohibits discrimination based on disability. Among other requirements, public entities (like WIC agencies) must make "reasonable modifications" to their policies, practices, and procedures to ensure that people with disabilities receive equal treatment as those without disabilities.[43]
- **Web Content Accessibility Guidelines (WCAG).** The WCAG were created and are maintained by the World Wide Web Consortium (W3C), an international community in which member organizations, a full-time staff, and the public work together to develop web standards.[44] The original WCAG 1.0 were published in 1999 and the WCAG 2.1 in June 2018.[45] Though not legally required, the WCAG are commonly accepted and recommended.
- **Section 508.** Adopted in 1998, Section 508 amended the Rehabilitation Act of 1973 to require federal departments and agencies (like WIC) to ensure that any electronic or information technology they are "developing, procuring, maintaining, or using" is comparably accessible to those with disabilities and those without disabilities.[46]

Some states may have additional, state-specific requirements that WIC agencies will want to be aware of as well.

[43] Americans With Disabilities Act of 1990, 42 U.S.C. ch. 126 § 12101 et seq.

[44] About W3C, *The World Wide Web Consortium.*

[45] Web Content Accessibility Guidelines (WCAG) Overview, *The World Wide Web Consortium.*

[46] Section 508 Standards for Electronic and Information Technology, *United States Access Board.*

Appendix E

Language Access Considerations

According to a U.S. Census Bureau 2015 report, at least 350 languages are spoken at home in this country.[47] Recognizing this diversity, federal WIC regulations require WIC agencies that serve a significant number of people who speak a language other than English to provide services and information in the language of those participants.[48] Even if a WIC agency does not meet the threshold for such requirements, however, it is important to offer digital tools in the languages that users need.

Once they know the languages they need to serve, WIC agencies can evaluate digital tools to determine whether:

- They are automatically available in English and Spanish;
- They are offered in other languages;
- The agency can translate the tool content into other languages;
- The vendor plans to offer the tool in additional languages;
- Portions of the tool are only offered in English; and
- A non-English speaker would have to navigate an English-only section before getting to translated content.

[47] Census Bureau Reports at Least 350 Languages Spoken in U.S. Homes, *United States Census* (November 2015).

[48] Per the Federal Code of Regulations, "Where a significant number or proportion of the population eligible to be served needs service or information in a language other than English in order effectively to be informed of or to participate in the Program, the State agency shall take reasonable steps considering the size and concentration of such population, to provide information in appropriate languages to such persons." 7 C.F.R. Part 246.8(c).

Appendix F

Sample Customer Satisfaction Surveys

One way to collect feedback from WIC participants about their experiences with WIC digital tools is to conduct customer satisfaction surveys. There is no single best formula for a survey; the examples below illustrate how WIC agencies have structured surveys for various WIC initiatives:

- **Los Angeles County WIC's parent questionnaires (multiple examples):** http://lawicdata.org/survey/
- **Pennsylvania WIC program's 2017 breastfeeding services satisfaction survey for WIC participants:** https://s3.amazonaws.com/aws.upl/nwica.org/pa_2017-final-bf-services-satisfaction-survey.pdf
- **Pennsylvania WIC program's 2018 nutrition education satisfaction survey for WIC participants:** https://s3.amazonaws.com/aws.upl/nwica.org/pa_2018-final-nutr-ed-satisfaction-survey.pdf
- **Texas WIC program's survey and reports (multiple examples):** https://www.dshs.texas.gov/wichd/bf/surveysreports.aspx

Appendix G

Sample Requests for Proposals (RFPs)

There is no single best approach to writing an RFP to procure a digital tool for WIC participants. The examples below show how WIC agencies have approached RFPs for various WIC initiatives:

- **Colorado WIC's RFP for mobile application services for WIC participants:** https://s3.amazonaws.com/aws.upl/nwica.org/rfp_colorado-wic-mobile-app.pdf
- **Mississippi WIC's system requirements for a breastfeeding support mobile app:** https://s3.amazonaws.com/aws.upl/nwica.org/ms_bf-app_wic-system-requirements.pdf