



The State of Enabling Technology in LTSS Programs in 2024



 Health System Transformation, LLC

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Acknowledgments

ADvancing States is a nonpartisan association of state government agencies that represent the nation's 56 state and territorial agencies on aging and disabilities, and Medicaid long-term services and supports (LTSS) administrators. We work to support visionary state leadership, the advancement of state systems innovation, and the development of national policies that support home and community-based services (HCBS) for older adults and persons with disabilities. Our members administer a wide range of services and supports for older adults and people with disabilities, including overseeing HCBS programs, managed LTSS (MLTSS) programs, and Older American Act (OAA) services in every state. Together with our members, we work to design, improve, and sustain state systems delivering LTSS for people who are older or have a disability and for their caregivers.

Health System Transformation (HST) is a Medicaid consulting firm focused on delivering supports to States, companies, and non-profit organizations in the state-facing healthcare space. Made up of capable leaders each with decades of experience in the state healthcare space, HST works at the program level to deliver success in design, implementation, and delivery. Working intimately with clients on system solutions, HST drives meaningful impact by focusing on what matters most, from product development and customer solutions to stakeholder engagement in support of policymaking.

Throughout 2023, ADvancing States and HST surveyed and interviewed member States, health plans, and technology companies; and facilitated a multi-state affinity group to share experiences and identify best practices for the adoption of enabling technologies that support individuals who need LTSS. This report describes and summarizes the findings from this research and provides considerations for state policymaking. It is our hope that this information will assist State staff in expanding the use of enabling technology across state programs and that, ultimately, enabling technology use will improve outcomes, access, and equity for all populations needing LTSS.

This effort would not have been successful without support from the LTSS community; policy makers, technologists, program managers, clinical professionals, service coordinators, product developers, innovation leaders, researchers, subject matter experts, and evaluators all participating in this work. We would like to thank the States, health plans, technology vendors,

and subject matter experts who participated by completing the surveys, taking part in structured interviews, participating in affinity group discussions, and replying to emails and phone calls. Appendix A identifies the individuals who participated in structured interviews and affinity groups in support of this paper.

Introduction

Enabling Technology is critically needed to support and improve quality outcomes for individuals receiving Long Term Services and Supports (LTSS). However, today most state administrative structures do not effectively support equitable access to enabling technology across populations. States can act as catalysts to accelerate the adoption of enabling technologies throughout the LTSS system.

This report provides insights and findings on the current state of enabling technology in State LTSS systems and offers ideas for incremental changes that States and their partners can implement to support the acceleration of adoption of enabling technologies across the LTSS system. The content of this report is derived from surveys, structured interviews, and State affinity group meetings conducted throughout the Spring, Summer, and Fall of 2023.

Detailed findings and recommendations can be found throughout this report. The top insights are summarized here:

- States are in different places regarding their LTSS delivery system's ability to equitably deliver on the promise of agile and equitable access to enabling technology across populations. Every State can improve.
- However, all participants in the surveys, structured interviews, and affinity groups agreed there is opportunity for enabling technology to improve health outcomes, supplement or supplant human labor easing labor force challenges, and improve quality of life for individuals using LTSS.
- A significant challenge is that States, health plans and technology vendors have differing perspectives regarding the outlook for enabling technology approvals, pricing, and future measures of success.
- Alignment of efforts across these parties, as well as clear and transparent communication to technology vendors, providers, and consumers, is critical to create and maintain forward momentum at improving the LTSS delivery system.

For purposes of this report, we define Enabling Technology as “The use of various forms of devices and technology to support an individual to live as independently as possible.”
Examples include remote patient monitoring or support systems, wearable or other smart devices, mobile applications, communication systems, or home sensors.

A Call to Action

It can be daunting to consider the breadth and depth of change necessary to allow technological innovations to flow to consumers equitably across multiple state programs. However, it is critical that States begin meaningful efforts now.

The survey, structured interview, and affinity group work all point to the same message: Today, most state LTSS delivery systems are not properly supported by aligned state laws and policies, federal agreements, financing, pricing, access, stakeholder engagement, quality measures, and education and training to allow enabling technology to be delivered to consumers in an agile, equitable, and transparent fashion.

There is no single solution; however, there are guiding principles that can help States start, including:

- Engage stakeholders in discussions about enabling technology including consumers, technology vendors and health plans.
- Demand transparency in policy, price, and process.
- Facilitate cross-program alignment of definitions, approval pathways, and measures of success.
- Design agile processes.
- Work collaboratively nationally with federal partners and other states.
- Keep equitable access for the consumer front and center.
- Ensure that outcomes matter by measuring performance.

Recommendations for immediate steps from the survey results, structured interviews, and affinity group input include state-specific and national strategies:

Individual State Strategies:

- Build on **Technology First** state successes.
- Create an inclusive cross-program **enabling technology workgroup**.
- Develop a **roadmap** sharing the vision of the future and identify for stakeholders where the state is today.

National Strategies:

One tech vendor when asked if they knew how to enter the state Medicaid space stated simply: “Nope”.

How about pricing your product for Medicaid?: “Nope”.

1. Develop a **maturity model** to assist states in evaluating options based on their current state and to provide concrete steps forward.
2. Develop **technical assistance resources** to support states in moving along the maturity model.
3. Create a **national learning community** that can spread best practices.

Enabling Technology in LTSS Today

The Problem

Technology is developing faster than LTSS delivery systems can manage. New technologies can improve our efficiency and effectiveness in supporting individuals in their homes with new abilities to conduct remote monitoring while preserving privacy, such as radar-based fall detection. New technologies can employ robots for chores, freeing individuals who previously provided these services to help with other supports or to assist others. Biometric readings can be taken using multiple devices like watches and cell phones, helping to identify things like anxiety and high blood pressure, and alert medical professionals, avoiding a need for an emergency visit a few days later when the condition escalates. These hold tremendous promise; however, often there is not a good fit in existing service definitions or no code for payment. If payment processes exist, the payment rate is either too high or too low. In every instance, new technologies need to “fit” into the existing LTSS delivery system. Multiple historical service definitions for things as varied as Personal Emergency Response Systems (PERS) and transitional assistance may differ between waiver programs within a single State. These complications are magnified 50 times for health plans, providers, and technology companies that operate in more than one State.

The Current View

In 2023, we sought to understand current and future enabling technology activities directed at LTSS from three different viewpoints: states, technology vendors, and health plans. Using the categories of new technologies (see box to the left), we surveyed states, health plans, and technology vendors to obtain information on their current and future plans in each category. We then followed up on the surveys with structured interviews. Finally, we conducted a series of facilitated affinity groups with states.

Enabling Technology Categories

- Adaptive Equipment
- Home Sensors
- Communication Systems
- Mobile Applications
- Wearable or other Smart Devices
- Remote Monitoring or Support Systems
- Other

The two bar charts below show the categories of enabling technology that state respondents were asked to answer questions about in the survey. The charts present the percent of state survey respondents that have recently implemented or expect to implement LTSS enabling technology within the next two years. **Chart 1** highlights the technology that States have recently implemented, while **Chart 2** highlights the technology innovations States anticipate implementing in the next two years.

CHART 1. STATE LTSS TECHNOLOGY INNOVATION RECENTLY IMPLEMENTED

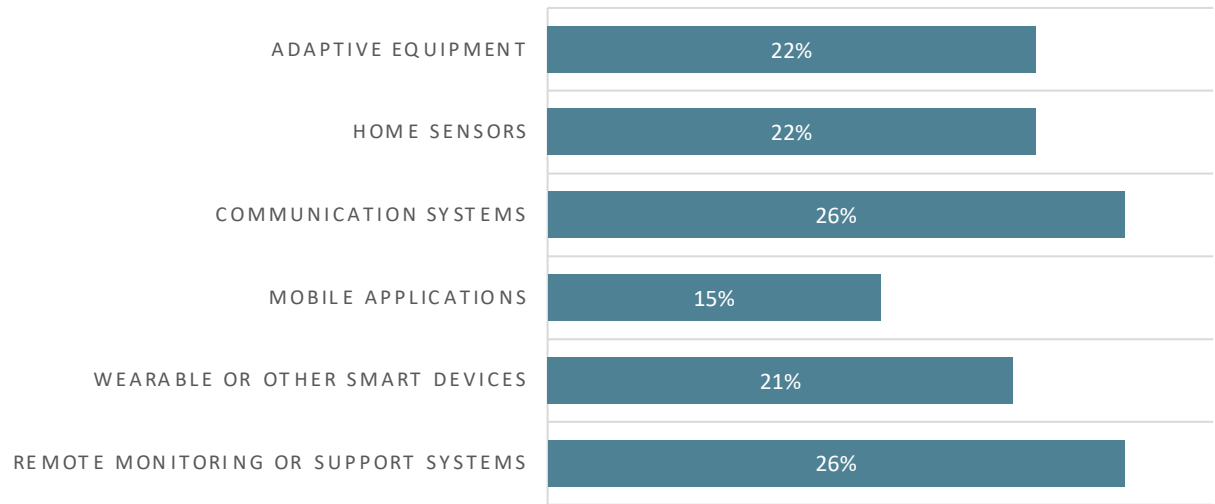
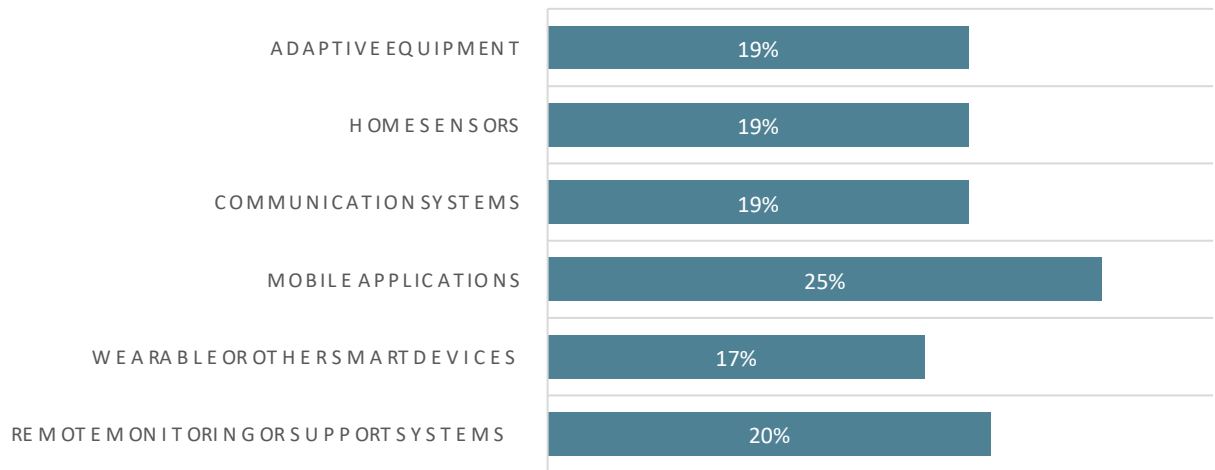


CHART 2. STATE LTSS TECHNOLOGY INNOVATION EXPECTED TO BE IMPLEMENTED IN NEXT 2 YEARS



The core takeaway is how little action there is in any single category. **Less than 30% of state survey respondents have recently implemented, or anticipate approving in the next two years, new technologies in all categories.**

Broadening implementation should be expected over the next two years, a strong indicator that States do not have the necessary enabling technology pieces in place today.

Charts 3 and 4 below display the same data points, except from the viewpoint of the health plans that completed the survey. Overall, more health plans are implementing technology solutions now and anticipate continuing to do so in the future across all categories. More than half of the health plans indicated that they would be implementing mobile applications and home sensors in the near future. There is also a wide array of focus across all the categories. In some respects, having broad focus among health plans, with some emphasizing one area for growth and others emphasizing other areas can be positive, creating plan design differentiation and allowing for consumer choice.

There are multiple large technology events specific to health care today where hundreds, and even thousands, of creators / founders bring forward new ideas. Very few state Medicaid leaders attend.

CHART 3. HEALTH PLAN LTSS TECHNOLOGY INNOVATION RECENTLY IMPLEMENTED

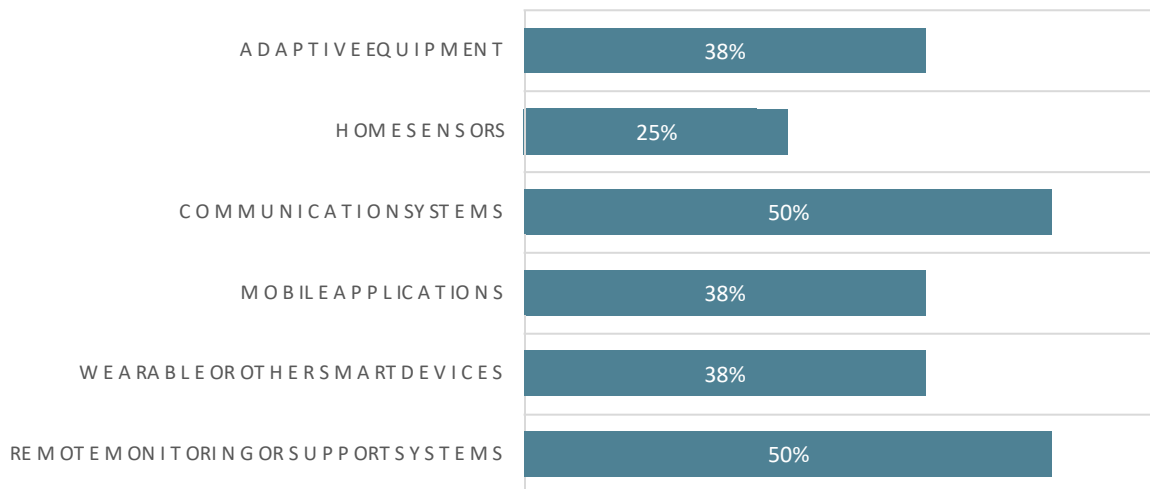
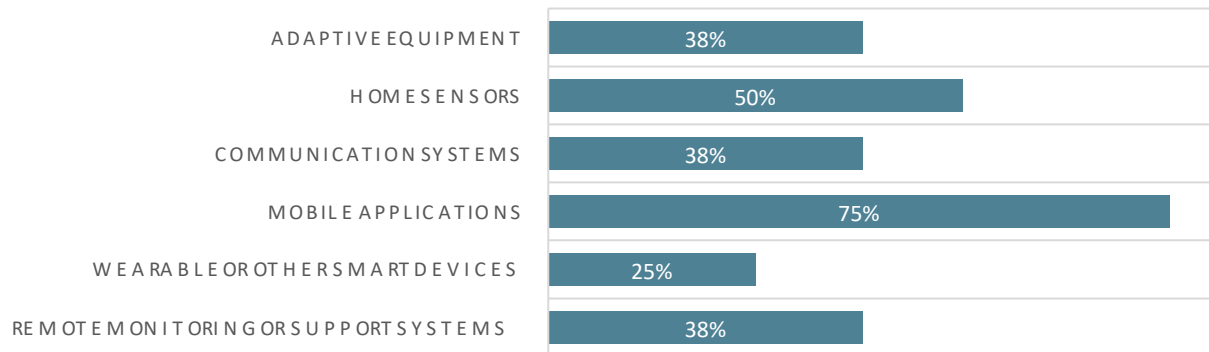


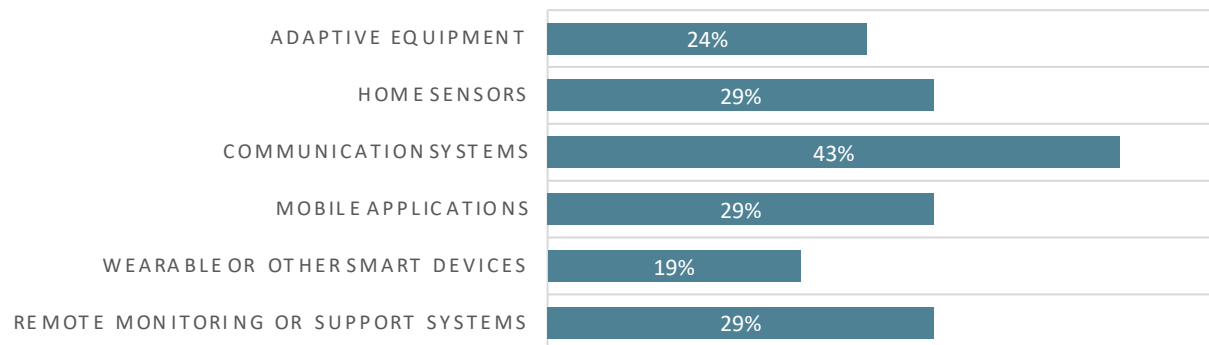
CHART 4. HEALTH PLAN LTSS TECHNOLOGY INNOVATION EXPECTED TO BE IMPLEMENTED IN 2 YEARS



Responses from health plans indicate a shift in focus from communication systems and remote monitoring, which have been recently implemented, to mobile applications and home sensors. This provides some insight into health plan views on market maturity and consumer demand in these areas.

Chart 5 highlights what the surveyed technology vendors are focusing on in the future. It shows that they are focused on meeting market demands and on bringing their innovation forward to influence demand. These two separate drivers create significant diversity among technology that comes to market every year.

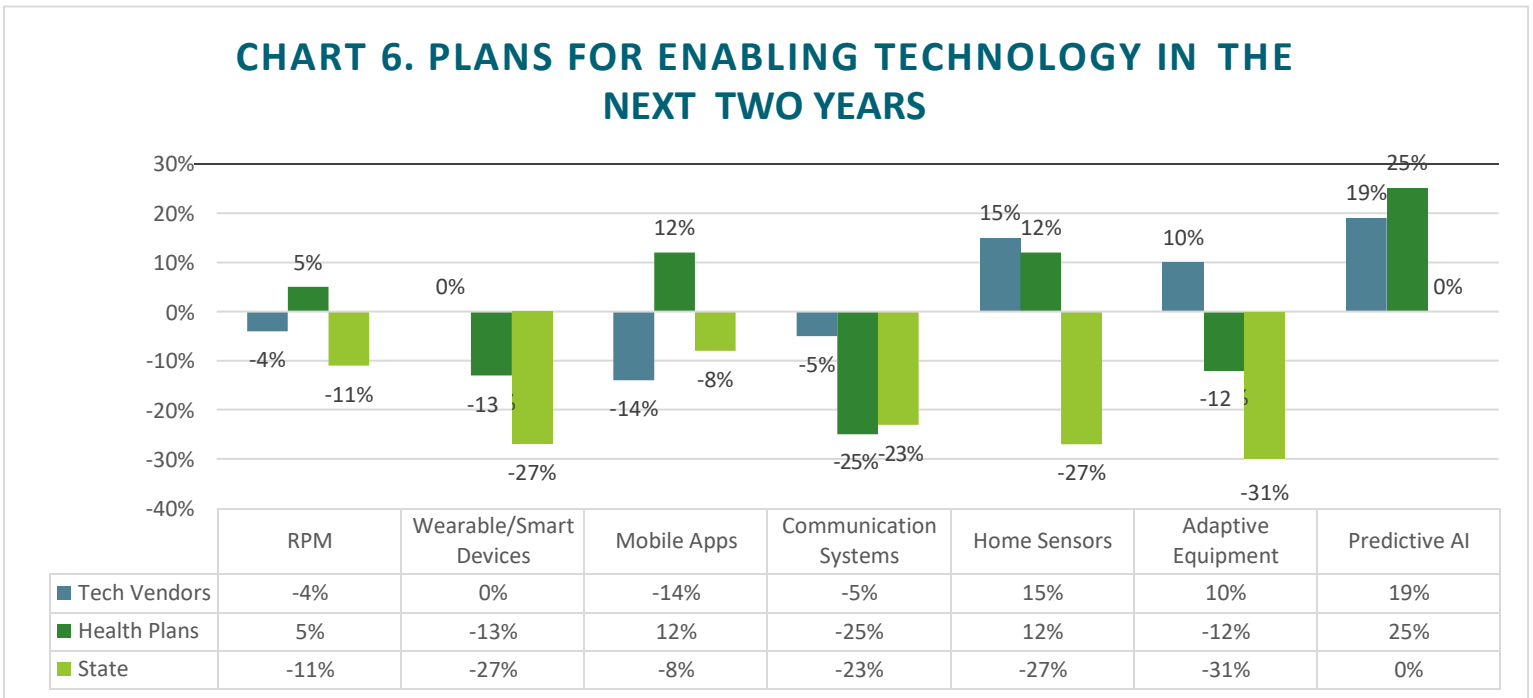
CHART 5. TECHNOLOGY VENDORS LTSS TECHNOLOGY INNOVATION WITHIN THE NEXT TWO YEARS



Interpreting the Data

The following combined time-series compares where things are today to what each survey response group anticipates for the near future.

Chart 6 compares responses by technology category type between currently approved and anticipated approvals in the coming two years and provides the change as a bar for each survey type (states, technology vendors, and health plans). This analysis shows directional trends, meaning trending towards more approvals or fewer. A higher positive percentage indicates more responders expect to see approvals related to the technology category within the next two years and a higher negative percentage indicates more responders expect to see fewer approvals within the next two years.



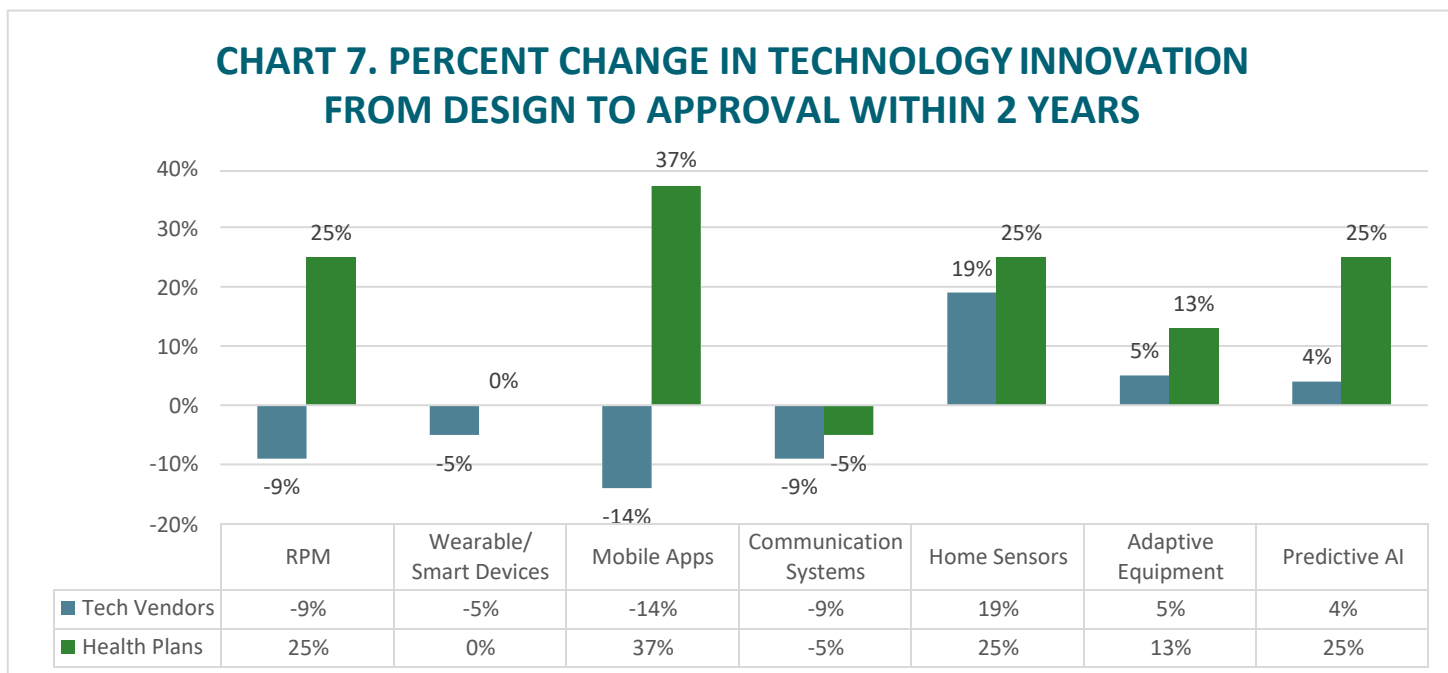
Note: RPM means remote patient monitoring

Overall, there is more agreement than disagreement in the anticipated trends. There is alignment between technology vendor and health plan responses regarding the projected growth of predictive AI and home sensors. Some differences in outlook are expected; for example, technology vendors may answer questions regarding approvals they anticipate in the future based on development happening today, which may not be widely known by health plans and states. Another explanation could be that States have a combined financial and policy lens and

are more closely connected to consumers. States must balance their anticipated budget, federal agreements, and consumer needs.

Adaptive equipment, for instance, is an area of focus for technology vendors, but States and health plans report it as an area where they anticipate fewer new products and services in the next two years. Predictive AI is an area where health plans and technology vendors see more coming in two years while State respondents do not view this as an area for growth in approvals. Whatever the underlying reasons for these differences, they indicate a lack of alignment among key stakeholders. A long-term misalignment in outlook makes it more likely that state LTSS delivery systems will not perform optimally to support access to enabling technology innovations for consumers. **Finding ways to meet technology vendors where they are can help States bring innovations to LTSS populations sooner.** Transparent and inclusive stakeholder processes can help.

Chart 7 compares sentiment between health plans and technology vendors on the relative change by technology category type between current design activities and future anticipated approvals two years from today (2023). Positive percentages indicate more expected future approvals. Negative percentages indicate fewer expected future approvals.



There was agreement in most categories on growth trajectories, with two exceptions. Technology vendors expect declines in remote patient monitoring (RPM) and mobile application adoption, whereas health plans anticipate sizable increases. This difference could

stem from the lag-time that exists between vendors' innovation and later adoption by health plans. **While technology vendors spearhead advancements, health plans integrate and implement once market fit and business cases solidify, so some timeline misalignment is understandable.** Wearables/smart devices and communications systems represent the technology categories that health plans and technology vendors agree are likely to experience decreased new product deployment in the next two years.

Workforce pressures and the imperative for health plans to look for value drive them to lean into technology where it can efficiently supplement or supplant existing care delivery mechanisms. The well-known pressures on our LTSS delivery systems require acceleration in the adoption of innovation to maintain and improve access and quality. **Adapting state structures to allow for closer real-time alignment with the pace of technology advancement may assist in moving expectations of technology vendors, health plans, and states closer together.**

Accelerating technology implementation could improve quality outcomes for consumers. For the latter to occur, States must work to adapt the LTSS delivery system. Making changes will help to increase the transparent flow of information so that technology vendors and health plans can work together with States to develop and propose new technologies in response to consumer needs. Complicating the smooth adoption of these technologies are several factors including different service definitions, lack of quality measures, inconsistent approval processes, fragmented delivery systems, different assessments, and multiple technology vendors.

The opportunities that the survey findings identify — and which are reinforced by structured interviews and the state affinity group process — are for States to update and align **State laws and policies, federal agreements, financing, pricing, access, stakeholder engagement, quality measures, and education and training to allow enabling technology to be delivered to consumers in an agile, equitable, and transparent fashion.**

State Strategy Recommendations

Broadly, States must institute and maintain the structure within which enabling technology can be delivered equitably across populations and programs. We provide below specific actions States can take today. In every instance, we recognize that states are in different places and that all States have taken some of the actions listed. We also provide some high-level, national, recommendations for the development and implementation of models and supports that could assist all states.

The table below provides domains that States can influence; each recommendation will impact one or more of these domains.

Domains to support transparent, agile, and equitable access to enabling technology for all LTSS populations

Domain	Explanation	Abbreviation
State laws and policies	How we establish the delivery system guidelines for LTSS	SL&P
Federal agreements (waivers and state plan amendments)	How we operationalize programs with our federal partners	FA
Financing	How we structure funding	F
Pricing	How and what we pay technology vendors for specific products	P
Access	How technology gets to an individual	A
Stakeholder engagement	How differing perspectives are heard and valued	SE
Quality measures	How we know that a specific technology item or group of items is effective	QM
Education and Training	How we inform members, providers and technology vendors	E&T

While most items in the list below can fit into three or more of the areas above, we have attempted to identify the primary one or two areas of best fit for each recommendation.

1. **Establish a budget line(s) for enabling technology, as part of a comprehensive approach for supporting enabling technology across LTSS populations.** States should consider establishing budget lines specifically dedicated to enabling technology. By allocating funds for these technologies, states can prioritize their implementation and ensure adequate financial resources are available. (F, SL&P)
2. **Connect enabling technology state policies across waivers and state plan amendments.** This supports a single approach to enabling technology across LTSS populations and programs. Consider: cross-agency and department workgroups, integrated cross-waiver planning, and coordinated clinical and non-clinical use cases for enabling technology. (SL&P, FA)
3. **Develop guidelines for payment models** including rate setting protocols and value-based payment opportunities. (F, SL&P)
4. **Establish the processes necessary to track enabling technology innovations.** Consider the internal expertise and the ability to sustain access, approval, delivery, and assessment of enabling technology innovation. Assign the responsibility to track and report emerging trends, this is a first step towards creating an agile system. (E&T, SE)
5. **Expand “Technology First” strategic planning and engagement to include cross-department and division engagement including communities and stakeholders.** The “Technology First” approach that disability departments across the country have adopted in their I/DD waivers has a demonstrable impact on overall engagement and experience. (SE)
6. **Create a state government workgroup with responsibility for aligning decision-making processes across departments to accelerate technology adoption for all LTSS populations.** States should focus on bringing structure to access, approval, delivery, and assessment of enabling technologies across populations and programs. Currently, decision-making responsibilities are often distributed among multiple stakeholders across policy, finance, and program operations. This can result in inconsistent adoption of enabling technology across different state programs. By focusing on alignment, States can make significant progress in enabling technology adoption and use. (SE, SL&P)
7. **Create a “Big Tent” stakeholder workgroup dedicated to LTSS enabling technology.** This inclusive workgroup should include internal state and external stakeholders. A partial list includes consumers, providers, health plans, advocates, caregivers, community-based organizations (CBOs), technology vendors, county / city / local human service providers, and state departments. Offer meet and greets with vendors,

- conferences, summits, and continuous stakeholder learning and engagement. This engagement will help increase understanding and collaboration. (SE, A)
8. **Work closely with health plans on enabling technology.** States can add specific coverage, quality measures, and incentives to support the adoption of enabling technology. States have an important role in funding innovation and health plan partners need to be heard in the stakeholder “Big Tent” to inform the specific state policies and pricing decisions that will impact how agile the access to new enabling technologies is in practice. The decision by a state to put a price on a specific product using a code that is broadly available has a very different impact on consumer access than a decision to allow health plans to cover the same product as an In Lieu of Service (ILOS) or under Quality Improvement. (SE, P)
 9. **Align state laws and policies across LTSS populations.** It is a significant work effort to look across state government on any topic. LTSS policy related to enabling technology requires consistency across populations to produce the greatest impact. The alignment of state laws and policies is a necessary early step to shift the conversation from silos to the “Big Tent”. (SL&P)
 10. **Multisector Plan on Aging.** Take the opportunity to incorporate enabling technology efforts into a state’s MPA or State Plan on Aging. (SL&P, SE)
 11. **Adopt a single definition of enabling technology across Medicaid, aging, and disabilities programs.** Ensure that a single common definition is used across programs with broad language to allow for new innovations to be included. Today assistive technology and enabling technology are sometimes used interchangeably, sometimes assistive technology is aligned strongly with Durable Medicaid Equipment, in many states there is no definition for enabling technology. There are instances where individual device types are defined in great detail and there are instances where there is no clear category for a product that uses a new technology. When you look at existing state definitions for groups of products like DME, assistive technology, 24-hour emergency supports, home modifications, and PERS they can vary from program to program. In addition, some states have lots of detail that limit new technologies. Broad definitions are better with pricing, quality measures, and access levers being used to guide. These sub-regulatory levers allow for spending to be balanced against need and outcome. (SL&P)
 12. **Develop education and training standards for care team members, providers, consumers, and caregivers to support operational activities across populations and programs.** Structure education and training materials to support continuous learning inside established categories of enabling technology that allow innovation and adaptation to new clinical modalities as they become available. (E&T)

13. **Establish processes for the approval of enabling technologies.** These could be general authorities for MLTSS plans to manage within certain guardrails or a formal certification process for vendors and new technologies. This may include vendor certification requirements or a state cross-agency review team or another structure for review and approval of enabling technology. The key to single or multiple processes is that states consider equity and align approval processes and written policies accordingly. (A, SL&P)
14. **Establish an upfront quality measurement and evaluation strategy that supports the development of innovations.** This strategy will provide a framework for monitoring and assessing the effectiveness of these innovations. It will also enable the identification of areas for improvement.
15. **Establish processes to provide audits of all governance, policy, and operations activities.** These should be aligned with federal requirements (and adjusted annually for any federal changes). The audits should recommend changes for implementation in the coming year.

National Support for States

Building upon the State considerations described above, there are additional opportunities expressed across interviews and affinity groups to advance state adoption of enabling technologies that require a national lens and involvement of a broader community of stakeholders, funders, and decision-makers. While implementation of most of these recommendations would likely fall to the Centers for Medicare & Medicaid Services (CMS), other federal partners, including the Administration for Community Living would have a role to play as well.

1. **Develop a State Enabling Technology LTSS Maturity Model.** To support States in evaluating where they are today across their LTSS delivery system, a maturity model can assist state progress toward a high-functioning system for enabling technology in LTSS. States would complete a self-assessment related to each of the domains listed above: State laws and policies; Federal agreements; financing; pricing; access; stakeholder engagement; quality measures; and education and training.

States would be scored and determined to be at a level of maturity, perhaps on a 1-3 scale (beginning, rising, advanced) with each maturity level clearly defined.

Possible scoring criteria could include:

- a. State has a budget line(s) in appropriations bill
- b. State has a standing workgroup dedicated to LTSS enabling technology that includes multiple departments, advocates, providers, community-based organizations (CBOs), consumers, and families that offer differing perspectives
- c. State has definitions and terminology developed
 - i. State has a definition of LTSS enabling technology in state rule and this is commonly adopted across all state programs
 - ii. Common terminology is used across programs in sub-regulatory guidance using broad groupings and examples of their uses (examples follow)
 1. Remote patient monitoring
 2. Wearable and smart devices
 3. Mobile applications

4. Communication systems
 5. Home sensors
 6. Adaptive equipment
 7. Predictive modeling and artificial intelligence
 8. Assistive technology (clearly distinguishing between enabling technology)
- iii. State has rules that were adopted for assessing and approving technology for use in LTSS that consider:
 1. Specific criteria
 2. Timelines
 3. How technology can enter into use
 4. Equity considerations across programs and populations
 5. Expectations that are incorporated into person-centered planning processes and plans
 - d. State has a program in place to educate clinicians consumers, advocates, caregivers, legislators and their staff, new state employees, and vendors working in LTSS space including all contractors with the State and others as identified
 - e. State-implemented processes in place for measuring impact, outcome measures, and process measures for enabling technology
2. **Develop an Enabling Technology Roadmap and Toolkit for States. A Roadmap and Toolkit supports states once their level of maturity is identified.** The Roadmap would be developed as part of the toolkit to represent the key steps up the maturity scale. The toolkit would provide states with standardized resources to drive consistency in enabling technology adoption using the domains identified and the best practices of higher maturity states.
 - a. State laws and policies,
 - b. Federal agreements,
 - c. Financing,
 - d. Pricing,
 - e. Access,
 - f. Stakeholder engagement,
 - g. Quality measures,
 - h. Education and training
 3. **Implement A National Learning Community on Enabling Technology in LTSS.** A national learning model would support states by offering both a didactic and peer-based learning environment. More advanced states can share their experiences, challenges, approaches, and successes alongside subject matter experts. Case studies could be used to provide more concrete and in-depth examples for shared learning and peer-to-peer

discussion. States can bring their challenges to their peers and SMEs to engage in constructive conversations resulting in potential strategies and solutions for moving policy and action forward. This could be organized around specific topics of interest with a goal of each session to articulate recommendations for state consideration.

4. **Develop Technical Assistance Resources for States.** Based on a State’s maturity level, the State could receive tailored technical assistance to help evolve its maturity level. These support packages would have three tiers – planning, adopting, or expanding – with technical assistance customized to each phase. For example, early planning states may receive toolkits for stakeholder engagement and landscape analysis while adopting states get training modules and timeline templates. Expanding States could leverage progress tracking dashboards, outcome metrics, and vocabulary standards.
5. **Develop an LTSS enabling technology funding opportunities incubator.** Pilot programs play a pivotal role in demonstrating evidence-based outcomes from emerging innovations to spur adoption. However, States have limited resources and opportunities to fund pilots to study and explore the benefits of enabling technology in LTSS. Federal and philanthropic sponsors could catalyze advancement through competitive pilot project grants. Potential funding channels might encompass the NIH, CDC, CMS, ACL/AoA, foundations, or a technology vendor-supported fund for state innovation. Contributions from across health tech sectors into a pooled National Enabling Technology Innovation Fund specific to LTSS would reflect corporate social responsibility while producing insights to support investment informed by state-level policy direction. Partnering at the intersection of public, private, and social sectors could redefine best practices for 21st-century care in LTSS through purposeful innovation incubation.
6. **Revise federal LTSS approval pathways to speed adoption of enabling technology.** Amidst accelerating state innovation, updated CMS guidelines for the adoption and use of enabling technology in Medicaid-funded programs would reduce compliance uncertainties and produce pathways for states as part of their waiver application and amendment processes. By establishing uniform definitions surrounding enabling technology for LTSS services, CMS can help states realize standardized definitions, and align across the same categories of technology. This could happen organically with CMS and state collaboration on previously mentioned ideas such as the maturity model, roadmap, and toolkit.
7. **Create myth-busting public awareness campaigns** customizing messaging across age and cultural groups at tech fairs, provide testimonials, and use peer models.

Conclusion

Based on survey data, structured interviews and state affinity groups, opportunities to further the use of enabling technology to consumers using LTSS have been identified for states as well as Federal partners. It is our hope that these findings and the resulting recommendations will assist State staff and Federal partners in expanding the use of enabling technology and that ultimately enabling technology use will improve outcomes, access, and equity for all populations needing LTSS.

Appendix A - Summary of Advancing States Previous Affinity Group Work

In 2022, Advancing States' ARPA HCBS Technical Assistance Collective convened a state affinity group focusing on ARPA Initiatives to Expand Access to Enabling Technology, resulting in a summary report¹ released in August 2022 by consultants Halperin and Jacobs. This work highlighted that there is no standard definition across state Medicaid programs for “enabling technologies”. As a result of state affinity group input, the report:

- Highlights the need for expanding the public infrastructure to address demographic trends such as increased life expectancy and higher prevalence of disabilities and dementia resulting in an increased need for LTSS.
- Emphasizes the importance of enabling technology in HCBS, particularly in the context of the COVID-19 PHE, which accelerated the adoption of remote service delivery and supports.
- Highlights the use of various enabling technologies, including assistive devices, remote monitoring devices, and smart home technology, to potentially improve individuals' independence and access to services, and address workforce shortages.
- Discusses the federal authorities available to support ARPA initiatives related to enabling technology, such as 1915I waiver amendments, State Plan Amendments (SPAs), administrative claiming, enhanced funding for information technology, and 1915I Appendix K.
- Highlights the considerations and potential challenges associated with each approach and the need for ongoing support and assistance for states in implementing enabling technology initiatives.
- Emphasizes the importance of addressing challenges, building internal expertise, promoting technology solutions, and overcoming biases to drive the necessary culture change.

The report concludes by highlighting the need for ongoing support and assistance for states in implementing enabling technology initiatives and emphasizing the importance of addressing challenges, building internal expertise, promoting technology solutions, and overcoming biases to drive the necessary culture change.

Appendix B - Surveys, Interviews, and Affinity Groups

The content of the current report is derived from surveys, structured interviews, and affinity group meetings conducted throughout the Spring, Summer, and Fall of 2023. Responses were gathered from states, health plans, technology vendors, and additional subject matter experts from advocacy organizations, academic institutions, and other entities.

Survey of States, Health Plans, and Technology Vendors

Methodology

We sent a questionnaire to all 50 states, DC and five territorial agencies, dozens of health plans across the country, and over 90 technology companies representing the full spectrum of technology supports and current enabling technology innovations. We received fully complete surveys from 19 State staff, 13 technology vendor staff, and 9 health plan staff. An additional 56 State staff, 4 technology vendor staff, and 3 health plan staff returned partially completed surveys.

The survey questions asked respondents to identify planned or implemented technology innovations for a range of LTSS services and included questions about the design, development, and implementation of innovations using enabling technologies. A core set of questions were asked of all respondents along with respondent specific questions. The core questions included:

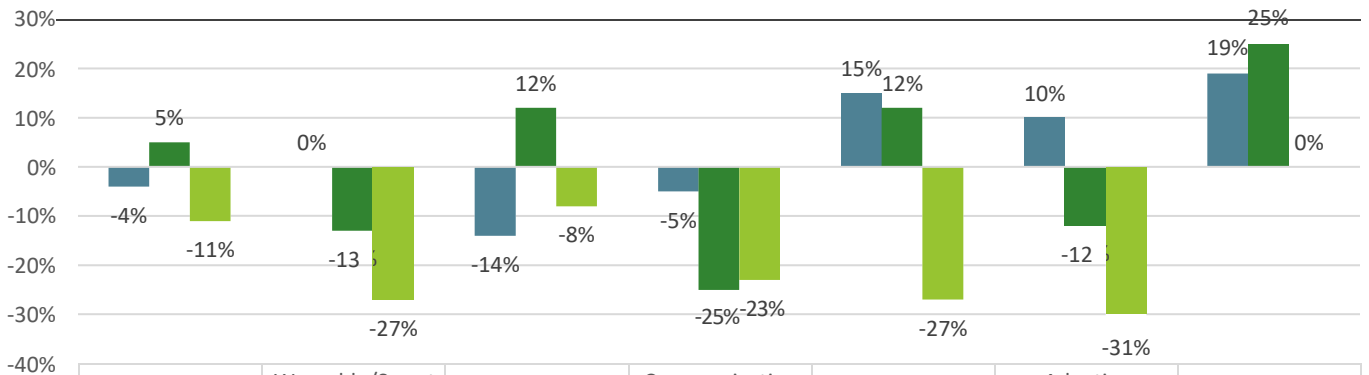
- Recent LTSS innovations designed, implemented, evaluated, contracted for, or partnered on
- Recently implemented enabling technology
- Currently planned enabling technology
- Currently approved enabling technology
- Likely to be recommended enabling technology for approval in the next year or two years
- Existence of a specific enabling technology LTSS workgroup
- Settings where enabling technology is approved
- Existence of a budget line for enabling technology within LTSS

Combined Findings

The Exhibits below display combined State, Health Plan, and Technology Vendor responses to survey questions. Green shading indicates where there was alignment across enabling technology trends and pink shading indicates where there was a divergence in trends.

Exhibit 1 compares responses by technology category type between currently approved and anticipated approvals in the coming 2 years and provides the change as a bar for each survey type (states, technology vendors, and health plans). This analysis shows directional trends, meaning trending towards more approvals or fewer. A higher positive percentage indicates more responders expect to see approvals related to the technology category indicated within the next 2 years and a higher negative percentage indicates more responders expect to see fewer approvals within the next 2 years. A positive percentage indicates anticipated growth, and a negative percentage indicates anticipated reduction in total approvals compared to 2023.

CHART 6. PLANS FOR ENABLING TECHNOLOGY IN THE NEXT TWO YEARS



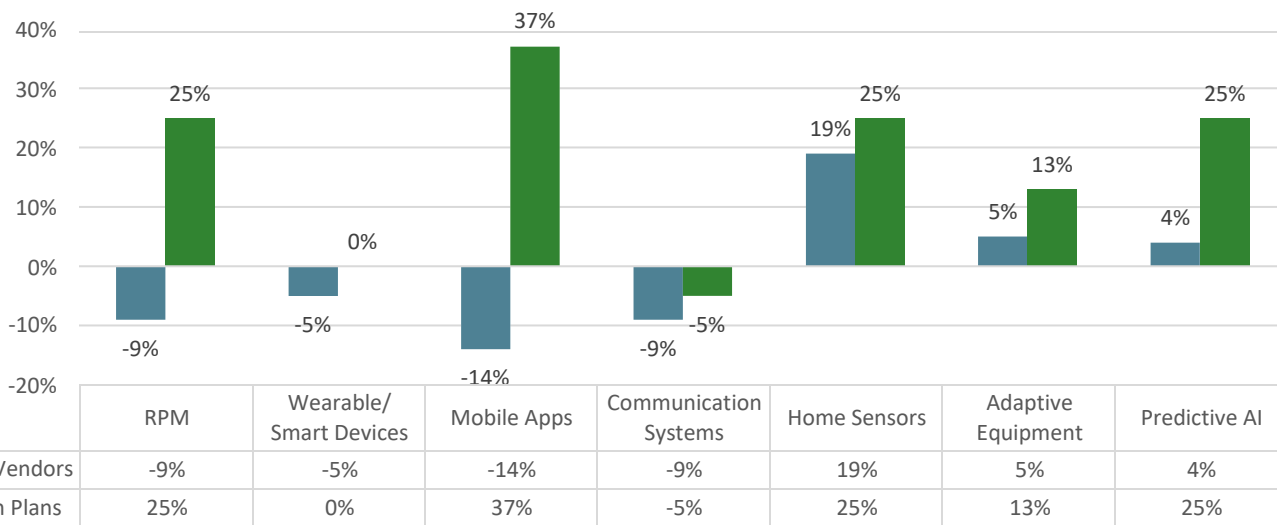
	RPM	Wearable/Smart Devices	Mobile Apps	Communication Systems	Home Sensors	Adaptive Equipment	Predictive AI
■ Tech Vendors	-4%	0%	-14%	-5%	15%	10%	19%
■ Health Plans	5%	-13%	12%	-25%	12%	-12%	25%
■ State	-11%	-27%	-8%	-23%	-27%	-31%	0%

Overall, there is more agreement than disagreement in the anticipated trends. In particular, there is alignment between technology vendor and health plan responses regarding the projected growth of predictive AI and home sensors. Some differences in outlook are expected. One explanation for outlook differences can be that technology vendors may answer questions regarding approvals they anticipate in the future based on development they are doing today which may not be widely known by health plans and states. Adaptive equipment, for example, is an area of focus for technology vendors, but States and health plans report it as an area

where they anticipate fewer new products and services in the next two years. Directional alignment between technology vendors and health plans is important to note because it highlights likely future areas of growth in the need for access, approval, delivery, and assessment by States. Overall, vendors pioneer innovation - perhaps predictably - as upstream creators, while downstream operational and policy organizations like states and health plans adopt on more gradual, practical timelines.

Exhibit 2 compares sentiment between health plans and technology vendors on the relative change by technology category type between current design activities and future anticipated approvals two years from today (2023). Technology vendors are the design leaders, and in various ways health plans have a role in design as well. States were not asked this question because they do not directly design new technology. Positive percentages indicate more expected future approvals. Negative percentages indicate fewer expected future approvals.

CHART 7. PERCENT CHANGE IN TECHNOLOGY INNOVATION FROM DESIGN TO APPROVAL WITHIN 2 YEARS



Focus above on the areas where there are consistent positive numbers and where there are divergent numbers between technology vendors and health plan respondent types. Consistent positive numbers demonstrate that both health plans and technology vendors anticipate growth in those technology types. Divergent sentiment between technology vendors and health plans highlights where their future focus diverges. There was agreement in the majority of categories on growth trajectories, with two exceptions. Technology vendors expect declines

in remote patient monitoring (RPM) and mobile application adoption, whereas health plans anticipate sizable rises. This difference could stem from the lag time that exists between vendors’ innovation design and later adoption by health plans. While technology vendors spearhead advancements, health plans integrate and implement once market fit and business cases solidify, so some timeline misalignment is understandable. The differences in sentiment ebb and flow as new technologies are proven and regulatory pathways solidify.

Wearables/smart devices and communications systems represent the technology categories that health plans and technology vendors agree are likely to experience decreased new product deployment in the next two years.

Table 1 below displays the percentage of respondents that anticipate future approvals of technologies by technology type. The key takeaways from this table are the differences across respondents. Technology vendors and health plans consistently report a higher likelihood than states of future adoption of various technologies. This may be because States are not close enough to innovation cycles and are generally more conservative than both technology vendors and health plans in predicting future technology trends.

Table 1. Anticipated Future Use of Enabling Technologies by Type

Technology	State	Health Plans	Technology Vendors
Remote Monitoring	31%	38%	29%
Wearable / Smart Devices	19%	25%	19%
Mobile Apps	19%	75%	29%
Communication Systems	19%	38%	43%
Home Sensors	19%	50%	29%
Adaptive Equipment	19%	38%	24%
Predictive / AI	19%	38%	52%
Other	27%	35%	14%

Continuing the trend from other data gathered in the survey, both technology vendors and health plans anticipate higher percentages of future approvals across most technology types than states. The known workforce pressures and the imperative for health plans to look for value drive them to lean into technology where it can efficiently supplement or supplant existing care delivery mechanisms. The well-known pressures on our delivery systems in health care require acceleration in the adoption of innovation to maintain and improve access and quality. Adapting state structures to allow for closer real-time alignment with the pace of technology advancement could result in closing the sentiment gap highlighted in Table 1.

Further acceleration in each technology category can and will occur in the future and can improve quality outcomes for consumers. However, this requires States to align governance, policies, and system-wide operations (access, approval, delivery, and assessment) across

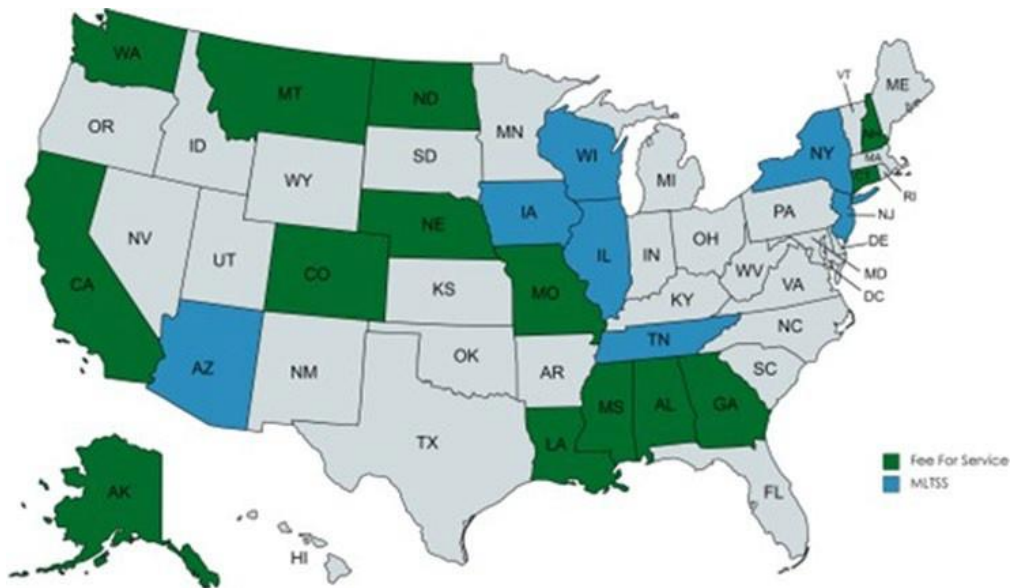
populations, departments, and programs. Making these changes will help to increase the transparent flow of information so that technology vendors and health plans can work together with States to develop and propose new technologies in response to State priorities and consumer needs. Where states have no definitions or different definitions, no measures, or different measures, no clear and transparent approval process or multiple approval processes, no defined delivery system or fragmented delivery systems, and no assessment or multiple different assessments of the industry; health plans, technology vendors, providers, and consumers will find it hard to understand and navigate.

The opportunities that the survey findings point out, and which are confirmed by the interviews and affinity group comments, are for States to update and align governance, policies, operations, and audit activities to support equitable access to enabling technologies for individuals across state LTSS populations and programs.

States Survey Findings

The states represented by survey respondents are shown in Exhibit 3 below. The states shaded in green operate their Medicaid LTSS programs in a fee-for-service (FFS) structure, and states shown in blue operate Medicaid-managed long-term services and supports (MLTSS) programs.

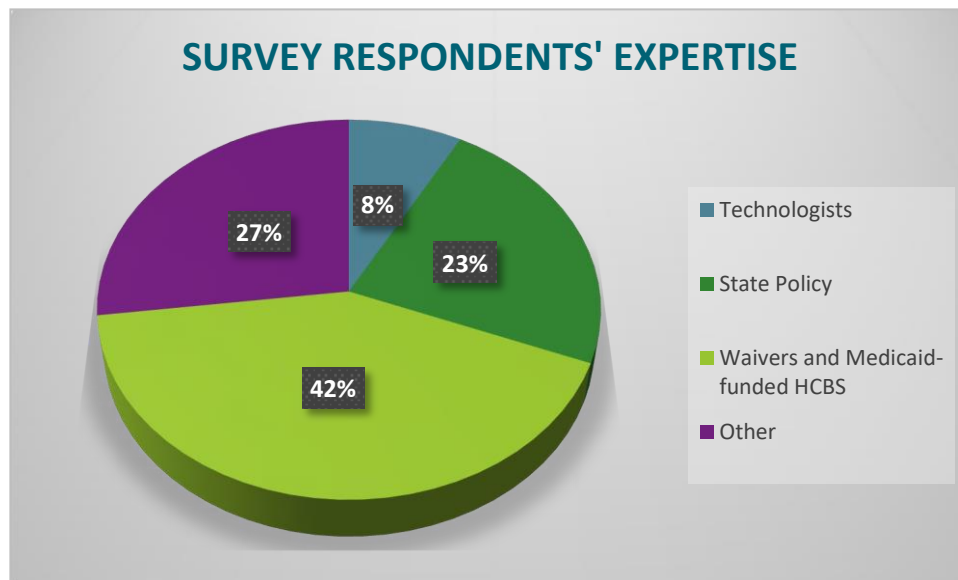
Exhibit 3. State Respondents



Fee for Service: WA, CA, AK, MT, ND, NE, CO, MO, LA, MS, AL, GA, CT, NH
MLTSS: AZ, IA, WI, IL, TN, NY, NJ

The respondents indicated their areas of expertise in relation to enabling technology and LTSS:

- **Technologist:** Building, testing, and/or operating enabling technologies.
- **State policy:** Writing state policies in LTSS, including those impacting technology-related services.
- **Waivers and Medicaid-funded HCBS:** Writing State waiver and Medicaid program requests for LTSS, including technology-related services.
- **Other:** Descriptions provided include administering OAA funds, finance-related roles, training and advocacy, project management supporting division's initiatives, multiple state policies and waivers, Medicaid-funded HCBS staff, State Unit on Aging (SUA) Director with expertise in non-clinical HCBS/LTSS and having expertise in all of the above areas.



Pathways to Adoption of Enabling Technologies

The respondents reported pathways to the adoption of enabling technologies including:

- Including enabling technology in new waiver requests to expand LTSS services and supports.
- Releasing MLTSS RFPs (Requests for Proposals) that include specific enabling technology requirements.
- Writing MLTSS contracts that include specific contract requirements for enabling technologies
- Amending State plan services to provide flexibilities for enabling technologies in LTSS.
- Utilizing federal CARES Act funding for tablets/devices

- Using Grant-funded pilot projects to demonstrate value and quality outcomes (Competitive, Government, Non-profit, and private sources)
- Using cost standards and guidelines in individualized budgets
- Distributing iPad devices, digital literacy, and training resources
- Issuing communicative assistance device grants through the Civil Money Penalty program
- Providing American Rescue Plan Act (ARPA) Section 9817 HCBS grants for expanding remote support.
- Vetting and testing various tech platforms and tools and exploring options for future services or service models.

Status of LTSS Enabling Technologies

State respondents were asked several questions about the status of specific LTSS enabling technologies. Approximately 50% of the responding states have approved enabling technologies in any single category. Successful implementation of enabling technology that broadly supports individuals to live in settings they prefer requires normalized pathways for agile approval of new enabling technologies across LTSS populations. A summary of responses is shown in Exhibit 4 below.

Exhibit 4. Status of ET in State Programs

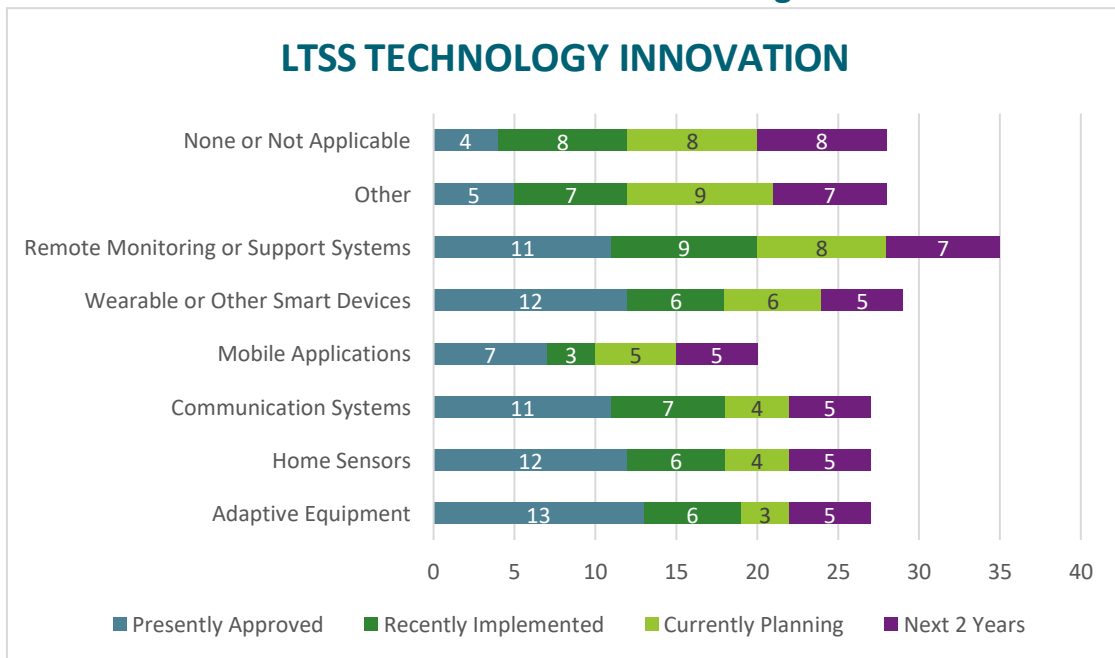


Table 2 below provides further details on types of enabling technologies states identified within the “Other” survey option.

Table 2. “Other” HCBS/LTSS Technology Innovation in States

Time Frame	Enabling Technology Innovation
Presently Approved	Personal Emergency Response Systems (IGS)
	Specialized Medical Equipment and Supplies
	Individual Goods and Services
	Environmental adaptations
	Automated medication dispensers that provide prompts, reminders, alerts, and remote support. (e.g. Livi Smart Pill Dispenser, Spencer, MedReady, and Dose Health.
Recently Approved	Environmental adaptations
	Support for caregivers including lifelong learning, health and wellness, to address isolation and loneliness
	Remote supports
Currently Planning	Contracting with Assured Independence to provide DD waiver clients devices and systems
	Devices to address wandering
	Revise definition of Environmental Modifications in Waivers to allow for health technologies that assist with aging in place
	Virtual Reality/Augmented Reality: Training simulations for pre-employment job skill building and community inclusion
	Virtual Reality/Augmented Reality (VR/AR) applications related to behavioral therapy and emotional regulation
	Connectivity platforms for making friends, those that combat isolation, those that document life stories and personal experiences

Two or more years out	Submit a waiver amendment to add assistive technology to our 1915 (c) waiver
	Enabling technology to support the delivery of remote supports as a waiver-covered benefit
	VR/AR devices and solutions for pre-employment job skill training, community inclusion simulations, social skills building, behavioral therapy, and emotional regulation

Use of Mobile Applications to Support Individuals in LTSS

States were asked to provide greater detail on mobile applications that were recently implemented and/or are currently being planned for implementation. Innovations include the following examples, as shown in **Table 3** below:

Table 3. State-specific Mobile Application Implementations

State	Mobile Applications
New York	Using the mobile app Trualta statewide that includes Arch Angels and a Caregiver Intensity Index. Trualta is an evidence-based training and support platform for caregivers that is free to anyone who uses it, paid for by community-based organizations that adopt it.
	Using an AI platform called ElliQ, designed to foster independence and provide support for older adults through daily check-ins, assistance with wellness goals and physical activities, and more using voice commands and/or on-screen instructions. They've distributed 900 units from August 2022 to May 2023. It is a mobile app that allows direct communication from the end user to a case manager at Blooming Health for SMS, voice, email, mass and individual outreach surveys, and check-ins service and reminders.

<p>New Hampshire</p>	<p>Choices For Independence Program (CFI) Waiver allows for Specialized Medical Equipment, defined as: (1) Devices, controls, or appliances that are specified in the comprehensive care plan which enable a participant to increase his or her ability to perform ADLs or IADLs; (2) Devices, controls, or appliances that are specified in the comprehensive care plan to perceive, control, or communicate with the environment in which the participant lives; (3) Items necessary for life support or to address physical conditions along with ancillary supplies and equipment necessary to the proper functioning of such items; (4) Other durable and non-durable medical equipment not available under the state plan that are necessary to address participant functional limitations; and (5) necessary medical supplies not available under the state plan.</p>
	<p>Has approved Personal Emergency Response Systems in its 1915(c) as follows: Smart technology including electronic devices that enable participants at risk of institutionalization to summon help in an emergency. Covered devices include wearable or portable devices that allow for safe mobility, response systems that are connected to the participant's telephone and programmed to signal a response center when activated, staffed and monitored response systems that operate 24 hours/day, seven days/week and any device that informs of elopement such as wandering awareness alerts. Other covered items include seat belt release covers, ID bracelets, GPS devices, monthly expenses that are affiliated with maintenance contracts and/or agreements to maintain the operations of the device/item. This service assists waiver participants who live alone, live only with someone in poor or failing health, or who are alone at home for 8 hours or more per day and who are: Ambulatory and at risk of falls as assessed by a physician, registered nurse or occupational or physical therapist; or Identified as at risk of having a medical emergency as identified in the comprehensive care plan; and would require ongoing supervision if the PERS were not provided. Devices can be an option to consider as a part of a multifaceted safety plan, specific to a participant's unique needs.</p>
<p>Colorado</p>	<p>Is looking to include mobile apps to help find transportation, visual cues while in the community, life skills training, and other supported employment opportunities.</p>

Use of Communication Systems to Support Individuals Needing LTSS

States were asked to provide greater detail on communication systems that were recently implemented and/or are currently being planned for implementation. Examples reported include:

- Mobile emergency response systems, cellular emergency response, and fall detection emergency response systems.
- Smart home technology
- Specialized equipment/aids, including those for communication, are covered on the Independent Living and Traumatic Brain Injury/Spinal Cord Injury Waivers.
- Enabling technology in LTSS institutional settings through the issuance of Civil Money Penalty grants for communicative assistance devices
- Wandering safety equipment and technology
- Distribution of Claris tablets to help individuals identified as being at risk for social isolation and loneliness and for individuals to virtually participate in evidence-based workshops.
- Remote Supports (RS) and RS Technology for personal care and homemaker tasks
- Use of customized RS systems and off-the-shelf communication systems in which remote support staff, coaches, and/or natural supports can interact, coordinate supports, or actively respond to needs in-person when needed: SimplyHome Firefly system, SafeinHome Remote Support Solutions, Night Owl Support Systems (NOSS) Alexa and Google Communication Hubs with smart home integration Nuclear Care OdessaConnect

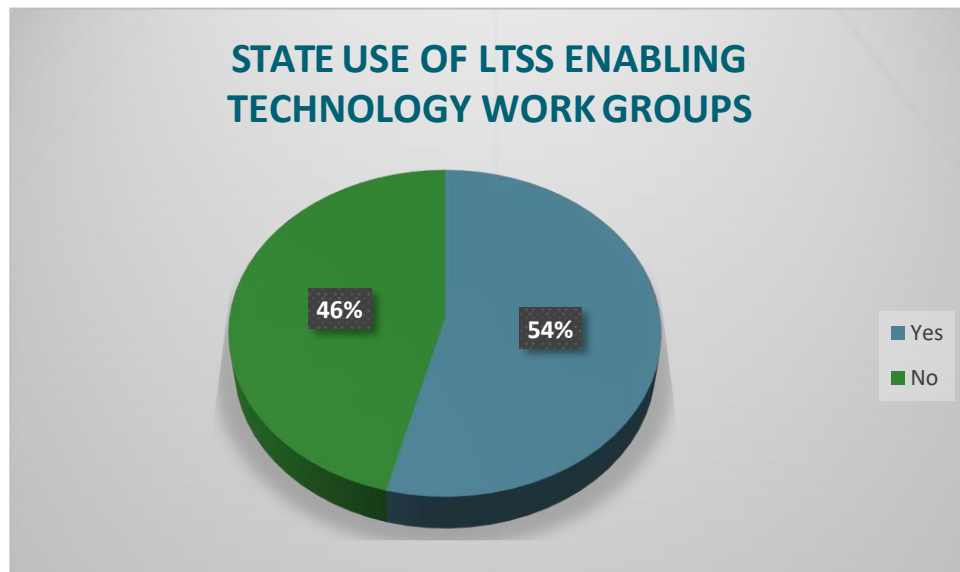
Use of Enabling Technology Workgroups and Stakeholder Engagement

For enabling technology to advance, states must develop and execute a comprehensive approach to community and stakeholder engagement. This engagement must be incorporated into its overarching planning and recommendations, as well as its long-term oversight and monitoring; this ensures that technologies are working as intended and supporting individuals to achieve their desired level of independence, remain in their communities, and support families, caregivers, and loved ones.

Just under half of responding states have workgroups or subgroups in place today specific to enabling technology. Examples of workgroups and subgroups reported by States include:

- Master Plan on Aging Subcommittees
- Advisory Councils, Advisory Committees, Steering Committees specific to enabling technologies, HCBS Waivers, Assistive Technology

- State Technology Workgroups
- Local AAA workgroups
- Workgroups formed to focus on a specific type of technology, e.g., remote support with specific tasks in development of standards and guidelines through Medicaid Waivers
- Cross-agency workgroups focusing on the building of alignment across services, programs, protocols, policies, and procedures.



Location, Timing of, and Budgeting for Enabling Technology Implementation

Location: Most respondents indicated that enabling technologies are currently being implemented or will likely be implemented in the future for in-home use, followed by adult day settings.

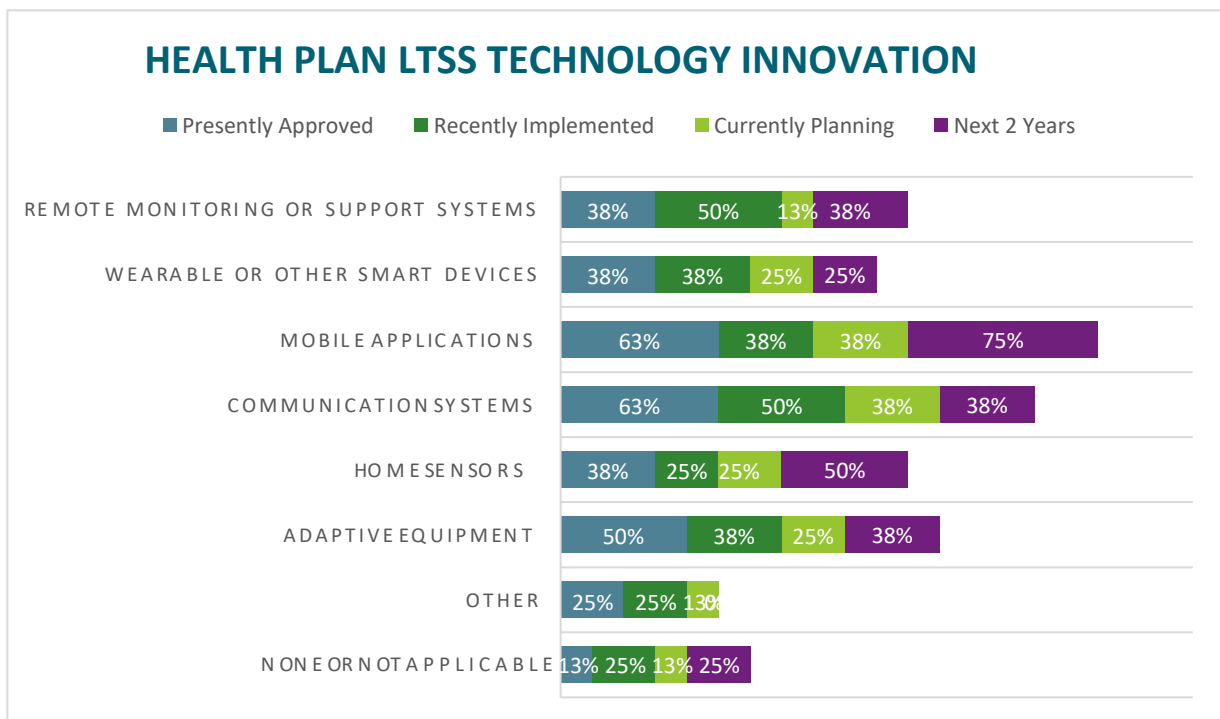
Timing: Almost two-thirds of state respondents indicated that enabling technologies are two years out into the future, with less than half reporting they would be adopting specific enabling technologies within the next 12 months.

Budget: Over half of responding states do not have a dedicated budget line in place today for enabling technology. Examples of budget amounts shared include state budgets of \$2.5 million to \$5 million with ARPA FMAP cited as a source, individual consumer budget caps of \$1,500 over the course of a five-year Waiver period, and a consumer cap of \$550 annually. More than 80% of respondents indicated that general funds and FMAP/Medicaid were their primary sources of funding.

Health Plan Survey Findings

The most common solutions health plans are planning include communication systems and mobile applications. Future solutions include a focus on mobile applications, adaptive equipment and home sensors, and predictive analytics/AI. The primary funding sources were identified equally across sources: Medicaid capitation built into rates, in lieu of services (ILOS), flexible funds, and general organizational budgets. More than half of health plans (57%) are using an LTSS enabling technology workgroup to support their work. Those that did not report using a specific workgroup reported using information technology steering committees. **Exhibit 5** provides an overview of enabling technology innovations that are approved, recently implemented, currently planning for, or considering for the next two years. The numbers in each category represent the percent of health plans that answered yes and are planning or anticipating new enabling technologies in each category.

Exhibit 5. Specific LTSS Technology Innovation in Health Plans



Technology Vendor Survey Findings

The survey was sent to over 90 companies representing the full spectrum of technology supports and current innovations in the enabling technology space. A total of 17 responses were received, of those 13 were complete survey responses and 4 were partial responses. Over half of respondents have designed, tested, or sold new enabling technologies for LTSS. A little more than half of respondents use an LTSS enabling technology workgroup to support their work in this area.

The most common solutions technology vendors are focused on include communication systems and mobile applications followed by remote monitoring or support systems. **Exhibit 6** provides an overview of approved, recently implemented, currently planning for, or considering for the next two years for LTSS enabling technologies. The numbers in each category represent the percent of technology vendors that answered yes and are planning or anticipating new enabling technologies in each category. Technology vendors reported that most technologies being used are for in-home or residential setting use with a couple of respondents indicating use in adult day and employment programs.

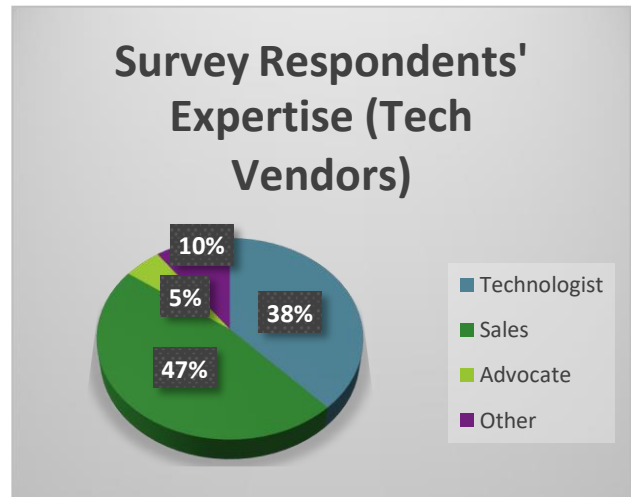
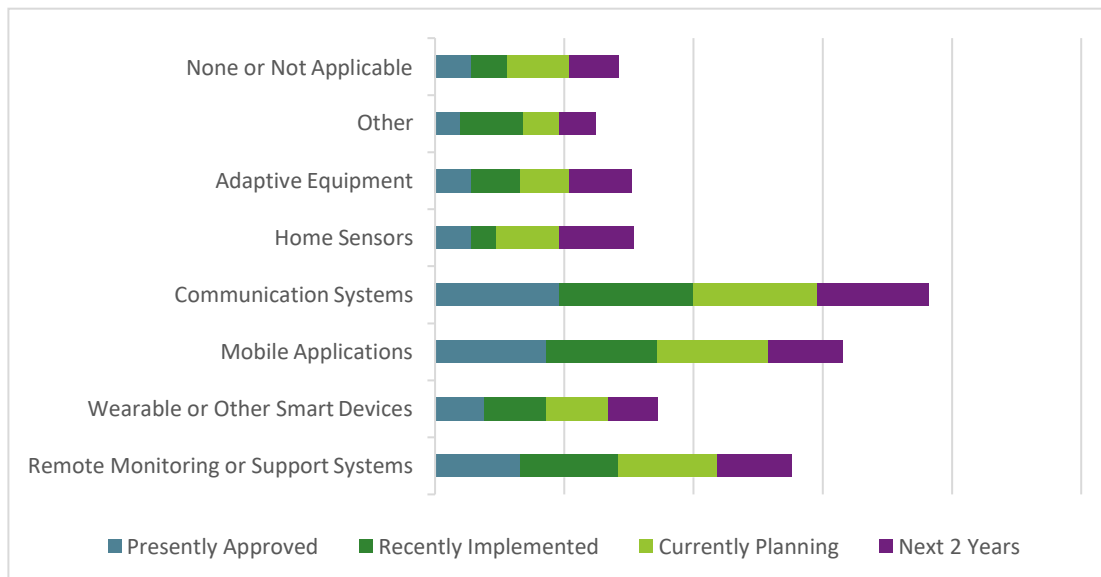


Exhibit 6. Specific LTSS Technology Innovation for Technology Vendors



Structured State Interviews

ADvancing States and HST completed 26 structured informational interviews with subject matter experts representing State Medicaid, Aging and Disability Agencies, national advocacy organizations, academic institutions, and technology vendors. The interviews allowed for a free-flowing discussion within a structured format that included questions about enabling technology policies, financing, access issues, and overall innovations that will impact enabling technology adoption trends over the coming years. There was alignment across several topic areas, including where challenges exist and where there are opportunities for states to continue to advance in technology adoption.

State staff representing Iowa, Tennessee, Colorado, Missouri, New York, and California were interviewed. Summaries of the interviews are provided below.

Iowa

Iowa is implementing a Remote Support Option, offered with Home-Based Habilitation (HBH) and Supported Community Living (SCL) services, using remote support professionals. The goal of remote support is to foster independence, security, and community participation for individuals by combining technology and service. It allows individuals to receive direct contact and assistance from trained staff when needed, promoting the development of life skills and independence while ensuring safety and well-being. Remote support involves trained professionals who provide assistance and support to individuals through live two-way communication using enabling technology. It is not a standalone service but rather an available delivery option within the HBH or SCL services.

Remote support services can be used to assist individuals in living more independently or transitioning to independent living. It also involves the use of enabling technology such as detectors, sensors, reminders, wearable devices, GPS, smart appliances, and a centralized hub for connectivity and alerts. It enhances self-advocacy skills and increases opportunities for community participation. The service model involves support professionals who provide remote support from a secure location. Remote support monitoring base staff are responsible for overseeing and supporting individuals receiving remote support. They assess urgent situations, coordinate emergency responses, and maintain files with relevant information on each individual. The remote support location must have reliable connections, including backup power and internet service. Backup support is also available to provide on-site assistance when needed. Paid or unpaid backup support can be utilized as specified in the individual's service plan.

The individual's person-centered service plan reflects how remote support is used to meet goals for independent living and assessed needs, including health and safety. The remote supports include safeguards, backup plans, and emergency response protocols to ensure the safety and well-being of individuals. The service plan must include informed consent, goals, in-person support requirements, equipment usage, consent for video monitoring (if applicable), and other details. Assessments are conducted to determine the suitability of remote support, and privacy considerations are taken into account.

Qualified providers and remote support professionals receive training based on their roles and responsibilities. Documentation requirements include service logs, incident reports, and compliance with applicable rules and regulations. Reimbursement for remote support is included within the fee schedule rates for HBH, BI Waiver, and ID Waiver SCL services. Service limitations include the requirement for real-time monitoring or two-way communication for billing, and internet and phone service costs are not covered in the reimbursement rate.

Tennessee

Tennessee is currently in a transitional stage, working on aligning their enabling technology programs in its developmental disabilities 1915(c) waiver with all Medicaid LTSS services and the Health Plans in Tennessee. This alignment allows all populations within the Home and Community-Based Services (HCBS) waiver systems to have the opportunity to use waiver funding for enabling technology services. Tennessee also mentioned that the TnChoices program has enabling technology services under the American Rescue Plan Act grant for assistive enabling technology and hopes to gather information from it to support their program.

With the alignment of Tennessee's waiver services and technology providers across their services, Tennessee implemented a new credentialing process in November 2021 to accommodate new providers offering enabling technology services. These non-traditional technology providers go through a vetting process to ensure they meet the program's criteria and have a deep understanding of the technology requirements.

Additionally, Tennessee has intentionally collaborated with Tennessee Disability Pathfinder to develop a new technology portal called Tennessee Tech Connect. This portal aims to provide resources, including funding information and organizations supporting people with disabilities. Tennessee expresses excitement about the upcoming launch of the portal and mentions the ongoing process of getting all providers' information into the system. Tennessee is working to educate and train traditional provider agencies to incorporate technology into their services. They provide training and support to help these agencies develop organizational technology plans and become technology providers themselves.

Colorado

Colorado's highest priorities for enabling technologies are to help members utilize supports in a person-centered way, improving their access to care while ensuring privacy and safety. The Colorado Department of Health Care Policy & Financing (CO HCPF) has been implementing enabling technologies for years, such as assistive technology and electronic monitoring. The planning and discussion of remote supports started before the COVID-19 pandemic to address direct care workforce (DCW) challenges, but the pandemic highlighted the need for alternative delivery methods. Colorado does not have a standard definition of enabling technologies, but specific services are defined.

While stakeholder engagement has been conducted through technology-first councils, stakeholder groups, and sessions to discuss barriers to care and new rules for service delivery, adoption of enabling technologies has been slow, and efforts to promote their use include provider meet and greets, social media campaigns, and informational sessions. Training and technical assistance have been provided to providers and case managers, but implementation has been slow due to competing priorities and provider enrollment processes. Once challenges are resolved, the CO HCPF plans to offer on-demand case management training, member-facing social media campaigns, and resources on available technologies. Colorado reported that additional supports needed for adopting enabling technologies include time, consistent definitions and materials, and trust building with virtual care providers and technology. Enabling technologies are currently used in all HCBS waivers, but different waivers do have different combinations of enabling technology services available. Examples of Enabling Technology services in Colorado include telehealth, assistive technology, remote supports, medication reminders, and personal emergency response systems.

The main barriers for Colorado include a lack of specific cost-saving or cost data for technology, provider enrollment challenges, member satisfaction with existing services, and case managers not discussing technology solutions with members. While no quality measures have been developed yet, the Department plans to use ARPA funding to understand technology gaps and collect data on outcomes. Additional concerns and challenges include evolving technologies, privacy concerns, and resource constraints.

Currently, enabling technologies are fee for service (FFS), without value-based payments (VBP) or alternative payment models (APM). There is no managed care for enabling technologies. Funding for new technologies is typically assured through the state budget process.

Colorado raised concerns regarding the term "Enabling Technology" and its negative connotations, and the Department has chosen to use the term "Supportive Technology" in its current work.

Missouri

Technology adoption in Missouri's Aging waivers is currently very limited, with only the TBI waiver offering technology access capped at \$5,000 per year. Significant barriers exist including provider resistance, funding constraints, and concerns about budget impacts given the \$1.5 billion per year spent on Aging services. Adding new services like technology could also reduce waiver slots available, which has been the top priority area supported by the legislature versus adding additional services.

The Developmental Disability waivers are much farther ahead in incorporating enabling technology and "tech first" approaches. Aging would need to hire a dedicated staff and build resources to catch up to this level. Overall, though, enabling widespread access to technology is viewed as a 5-year plan for Aging and is not likely to see movement in the next couple of years. The most likely Aging waivers to first target expanded technology access would be the larger Aged & Disabled waiver (24,000+ participants) and/or the smaller Structured Family Caregiving (SFCW) waiver. However, funding technology for the Aged & Disabled waiver especially could be a "big hit" budget-wise given the size. The SFCW may present an opportunity to slowly introduce technology on a smaller scale.

There is great interest in learning what specific technologies other states are funding, how they are funding and implementing programs, arguments to help convince resistant providers, and steps to potentially align with DD waivers farther ahead.

Technologies of interest included remote monitoring (sensors, bed alarms) to ensure safety as well as tablets to help dementia participants with daily living activities. But first and foremost is education on best practices from other state examples. Overall, the key barriers come down to minimal funding/resources, staunch provider resistance, other pressing policy priorities, and overriding concerns about budgetary impacts - especially on waiver slots available. However, they are hopeful for advances over the next five years.

California

California has launched several major initiatives focused on expanding access to technology for older adults and people with disabilities. These efforts align closely with California's new 10-year Master Plan for Aging, which provides long-term continuity across administrations. Through public-private collaboration involving entities like the Department of Technology, research institutions, health plans, and technology vendors, the state aims to help Californians age with greater dignity and independence.

Specific programs include the Connections, Health, Aging and Technology (CHAT) pilot, which distributed iPads bundled with digital literacy training through Area Agencies on Aging (AAA).

The focus was reducing social isolation and loneliness among recipients. The University of Southern California is evaluating CHAT outcomes through pre- and post-surveys. Building upon CHAT, the Digital Connections program is purchasing an additional 16,000 devices while contracting with digital literacy vendors to provide device training beyond just the AAAs to other HCBS programs.

Additionally, California awarded Access to Technology grants totaling \$48.5 million to counties for designing local digital inclusion programs tailored to community needs. Counties were able to leverage existing in-home care infrastructure to identify participants for technology access and training. Various federal funding streams like CARES, ARPA, and enhanced FMAP have supported technology expansion focused holistically beyond Medicaid services alone.

While much of the evidence is still anecdotal presently regarding impact, the use of survey tools and questionnaires will enable California to evaluate changes in social isolation and other metrics. However, the overarching priority extends beyond just device distribution—it encompasses providing digital literacy support for older adults and people with disabilities to effectively utilize technologies long-term. Sustainability guarantees maintaining device access over five years rather than one-time ephemeral grants. Through taking an integrated, evidence-based approach aligned around its Master Plan for Aging, California aims to empower its older residents and residents with disabilities through technology access and use.

New York

New York has a unique state funded program that provides direct financial support to purchase and implement enabling technology. Stakeholder engagement in technology and keeping stakeholders involved is critical to success. New York utilizes a broad stakeholder group to vet tech innovations and get them in front of the Area Agencies on Aging (AAA) to pilot and test. Ongoing state funding support is available for successful pilot initiatives. Outcome data from various tech innovations that support everything from combating isolation and loneliness to helping prevent falls and identify social determinants of health needs has been gathered on innovations since 2018.

The Aging Department in New York emphasizes the importance of providing as many tools as possible, evaluating them, and letting the consumer decide which works for them. There are always challenges coordinating with different agencies and systems and New York State has many different programs. The unique New York Department of Aging program that funds enabling technologies for older adults is a 100% state general funded program. Multiple other programs with Medicaid dollars also fund more traditional supports and the Department of Aging coordinates with these programs, particularly for older adults who have been taking care of their children with developmental disabilities.

One example of a successful initiative highlighted by New York is livable communities for aging populations in Long Island. This work focused on reducing density restrictions and securing funding for smart growth and livable communities. A focus on the importance of creating communities that allow people to stay in their homes and communities as they age permeates the Department.

Challenges include implementing programs in different geographies, collecting and analyzing data, and staying proactive in implementing programs.

Key Challenges and Considerations Identified by Interviewees

Governance

- Concerns about costs and budget impacts of adding new technology services. There is hesitancy from legislatures and leaderships around increased spending.
- Blending funding streams including Medicaid and OAA and aligning funding priorities
- Leverage time-limited federal funds like ARPA to test innovations without long-term commitment
- Analyze cost projections and identify potential savings to build a business case for leadership
- Coordinate across disability, aging, and Medicaid agencies for Policy and pricing alignment
- Connect CMS with states farther along to share learnings on monitoring and oversight.
- Concerns with lack of CMS familiarity and delays in waiver approvals for new tech services
- Difficulty helping CMS understand state technology innovations and directions

Policy

- Balancing funding for tech vs funding to serve more people or fill more waiver slots.
- Lack of interoperability and data sharing for technologies across programs and systems.
- Inconsistent definitions, rules, and policies for tech across waivers and populations.

Operations

- Access
 - Ensuring equitable access and digital literacy for participants to fully utilize technologies.
 - Resistance from providers around adopting new technologies and workflows.
 - Getting buy-in from families and guardians on remote monitoring.

- Incentivize adoption through value-based payments and shared savings initiatives.
- Approve
 - Provide detailed use cases and examples when submitting new tech services for approval.
 - Approval, availability, sourcing pathways
- Deliver
 - Develop statewide technology portals/resources to educate and guide options.
 - Involve providers, families, and advocates early when developing tech policies to get buy-in.
 - Host demonstrations, trainings, and tours for hands-on experience with technologies.
 - Need for extensive and ongoing training and technical assistance for providers to adopt tech.
- Assess
 - Developing standards and quality metrics to evaluate tech impact and utilization.
 - Difficulty capturing true return on investment or cost savings from using technologies
 - Survey participants on experience and outcomes from using technologies.
 - Track metrics like reduced staff dependency, hospitalizations, and skill gains.
 - Identify metrics for technologies and adopt them to allow for evaluation and integration into approval processes.
 - Partner with academic institutions for evaluation support

Audit

- Credentialing and oversight of new tech provider types. Determining qualifications.
- Create universal definitions and standards for technologies across populations.

Subject Matter Expert Interviews

We interviewed individuals from academic institutions, technology vendors, and health plans with in-depth expertise and knowledge related to research, direct use, design, and implementation of enabling technologies in both in-home and institutional environments. The interviewees expressed interest in understanding barriers to acceptance and adoption across generations as well as facilitating more positive user experiences. They focused on research around consumer experiences with various technologies like smart home systems, remote monitoring, robotics, and AI. A major theme expressed across all sectors centered on the importance of standards, especially around critical issues like privacy, data security,

transparency, and responsible development of artificial intelligence. The interviewees highlighted the range of comfort that exists among consumers on terminology, capabilities, and interoperability of various technologies. Some consumers have little to no comfort while others are very comfortable, emphasizing the need for education across stakeholder groups. Some researchers prioritized applications that enable older adults and individuals with disabilities to successfully age in place through passive assistance from ambient intelligent systems. This includes the development of sensor networks, computer vision systems, reminder/prompt technologies, and predictive analytics designed to improve safety and positively impact quality of life. Social robotics and digital therapeutic interventions were also seen as promising solutions for providing companionship and personalized health coaching. Some interviewees focused on product enabled services to support individuals by supplementing in-person services and providing opportunities for caregiver training and respite at times and places of their choosing.

From a policy standpoint, experts expressed the need for oversight bodies and ethical guidelines around AI and automation, along with agreed-upon measures to assess inclusivity and accessibility of smart technologies across user groups regardless of background, digital literacy, socioeconomic, and health literacy. It was noted that government can play a key role in funding research and setting performance standards.

Affinity Group Meetings

The affinity groups were attended by State staff, with one or two subject matter experts from another entity type included to answer questions and provide a different perspective. The groups were structured to allow for sharing of overarching priorities, needs, and suggestions for States as they move toward enabling technology adoption.

Goals for the affinity group included:

- Elicit participant insights, expertise, experiences, and challenges around adoption and use of enabling technology to support people needing LTSS
- Share and learn from one another how enabling technology can support people in achieving and maintaining independence
- Identify enabling technology promising practices and specific uses
- Identify the biggest challenges to technology adoption

We facilitated the three meetings, the final meeting was used to share learnings to date, thoughts for the most pressing opportunities, and considerations in the near term.

States would like to come together for state-to-state learning to talk about what they are doing. Topics included:

- Policies and procedures
- Pain points for adoption
- Develop a common understanding of technology
- Develop common definitions
- How to organize technology into understandable and simple categories
- How to bring enabling technology into the person-centered service planning and support plan processes, conversations, and documentation
- How to bring health equity into the conversation as states shared differing approaches and thoughts on whether health equity should be talked about at a population level vs on an individual level.

Some states feel technology is inherently personal and needs to be tailored to each individual's needs versus addressing on a population-wide basis. A discussion is needed about equitable access to technology and breaking down aging/disability program siloes around funding, policies, and eligibility. It was recognized there is a large discrepancy between intellectual/developmental disability (I/DD) waiver adoption vs aging waiver adoption.

States believe there is a favorable cultural shift towards enabling technology compared to years past, however, States are at varying levels of sophistication when it comes to understanding, adopting, and expanding the use of technology. Some states are at a basic level focusing on just getting broadband so that technologies that require internet are even possible. Other states are more advanced and feel they are plateauing and need guidance and insights into how to get to the next level and whether part of the advancement should be inclusion of more populations in enabling technology use (e.g., older adults/aging waivers). More advanced states shared the benefits of using pilot projects to test out incorporating enabling technology into services and programs. There is a need for a technology roadmap or toolkit that would include different chapters to help States adopt and learn the steps to become a "Tech First" state. This roadmap and toolkit should include evidence-based or experience-based methodologies and plans. States need a system to measure and report on the outcomes of technologies to help advance adoption, funding for, and understanding of enabling technology, and a credentialing process for technology vendors to assist in balancing innovation with appropriate standards.

States agree a common set of definitions and terminologies for the various types of enabling technology is needed to better align both within states, state programs, and services and across states. States often view what is considered "enabling technology" from different perspectives. Some states include management information systems and data platforms as technology and

there was agreement across states that many of their systems are outdated and need to be upgraded. For example, a challenge in this area is that states have legacy data systems that don't talk to one another or integrate across different technology platforms.

There is considerable state interest in collaborating to build capacity among states, vendors, families and consumers, and case managers around enabling technology understanding, needs assessments, and overcoming fears. States articulated the importance of customizing regional outreach and education based on geographic/cultural norms. There are significant differences across geography including urban and rural, income levels, and cultural norms. Rural areas may need more in-person engagement and opportunities to experience enabling technology, to alleviate fears and misunderstanding about technology. Tech Ambassador programs and technology fairs can be used to increase consumer awareness, and engaging health plans early on regarding training and other requirements helps to align expectations. Tech First states shared the importance of stakeholder engagement throughout, including the planning and identification of technologies, development of standards and guidelines, and scope of services.

States need clearer guidance and agreement on who should be assessing consumers' technology needs and what their credentials should be. They would like to better assess technology needs, including:

- Functional needs of individuals that could be met by technology
- Technology needs of individuals
- Individuals' perceptions about and fears of technology, to build trust and encourage use.
- Individual preferences and choices, to incorporate into person-centered service plans

There are no clear processes for how states should engage and work with technology vendors. Because technology is changing quickly, it presents challenges for States to keep up given that State processes, policies, and funding decisions are much slower. There are variations in funding vehicles and approaches and what technology states should pay for, and often by the time a decision is made, the next best technology innovation is already on the market.

States reported their need to inform the Centers for Medicare & Medicaid Services (CMS) about their activities regarding technology so that CMS can better support states in their waiver applications and amendments. If this is done, opportunities exist for CMS to provide clearer guidance to states on how to incorporate technology into waiver applications and for CMS to adopt internal protocols for reviewing state applications and amendments.

Appendix C - Publicly Available Information on State Programs

In addition to state survey responses, ADvancing States did a search of publicly available information on additional information of states' enabling technology implementations. Below are summaries of materials found on state websites regarding projects, protocols, and descriptions of states' initiatives. Highlighted below are examples from Ohio, Tennessee, New York, and California.

Technology-First State Efforts: Ohio

The Innovative Technology Solutions project, initiated by the Ohio Department of Developmental Disabilities (DODD), aims to leverage technology to improve the lives of individuals with developmental disabilities. By addressing daily challenges, enhancing access to education and employment, and expanding service delivery, innovative technology solutions have the potential to enable individuals to lead more fulfilling lives. Ohio Department of Developmental Disabilities (DODD) provides an overview of the projects undertaken in 2021 and 2022 by various organizations as part of the Innovative Technology Solutions initiative.

- Living Arrangements for the Developmentally Disabled, Inc. (LADD) focused on two projects in 2022. The first project involved the development of a mobile application in collaboration with Cinnova and Xavier University. This application, accessible through wearable devices or smartwatches, aimed to provide remote support beyond the confines of individuals' homes. The second project focused on training Remote Support Professionals (RSPs) through a technology-driven approach, incorporating the Technology First methodology, service delivery training, intervention strategies, outcome-based delivery training, and device implementation.
- Rose-Mary, a leading care provider for individuals with intellectual and developmental disabilities, implemented the "Getting to Know" videos as a training tool for Direct Support Professionals (DSPs). These videos enable individuals with communication challenges to directly express their preferences and support needs, preserving valuable knowledge for the benefit of future DSPs.
- Capabilities, a private provider for individuals with developmental disabilities, utilized the Innovative Tech Project to tailor waiver documentation and billing, integrate

SETWorks documentation and billing, and implement remote ADS support. These enhancements resulted in more efficient and effective documentation, reduced billing time, improved service delivery, and reduced staff stress.

- OnSeen Marketing, Inc., a software development company specializing in mobile workforce management solutions, utilized the Innovative Technology Solutions Grant to enhance their applications and develop new solutions catering to the developmental disabilities service system. Their LiveCare Solution benefited nearly 300 Ohioans with developmental disabilities, enabling better management of remote teams and improved service delivery.
- Heart of Unlimited Boundaries (HUB) aimed to support individuals with disabilities or critical illnesses and their families through recreational activities, therapeutic programs, and integration with the typically functioning population. Their project focused on leveraging technology to enhance the quality of life for all participants.
- LADD's Forever Home Initiative, initiated in 2017, aimed to provide a technology-based service model that promotes independence and reduces reliance on in-person staffing. As part of this initiative, LADD piloted the use of a smart refrigerator to study its impact on independence and support with shopping, menu planning, and cooking.
- Mahoning County Board of Developmental Disabilities (MCBDD) and Portage County Board of Developmental Disabilities collaborated with SafeinHome to assess challenges faced by stakeholders in service delivery. By utilizing technology, these organizations aimed to increase independence and empower individuals with developmental disabilities.
- Welcome House developed the WeThrive day program model, designed to provide adult day services through a combination of in-home, virtual, and community center spaces. Technology played a vital role in enabling individuals to participate in the community remotely and facilitating cost-effective service delivery.
- These projects demonstrate the potential of innovative technology solutions in improving the lives of individuals with developmental disabilities. By leveraging technology, organizations can enhance service delivery, promote independence, preserve knowledge, and empower individuals to live fuller lives. The Innovative Technology Solutions initiative continues to foster collaboration, creativity, and the development of transformative solutions in Ohio's developmental disabilities service system.¹

¹ Ohio Department of Developmental Disabilities. (2023) Innovative Technology Solutions Project. [https://dodd.ohio.gov/about-us/resources/tech-first/Innovative Technology Solutions Project](https://dodd.ohio.gov/about-us/resources/tech-first/Innovative_Technology_Solutions_Project)

Technology-First State Efforts: Tennessee

The Tennessee Department of Intellectual and Developmental Disabilities has established a standard training (remote and in-person) and a standardized operational protocol² for the utilization of enabling technology in the support of individuals receiving services under the CHOICES, Employment and Community First (ECF) CHOICES, and 1915(c) Waiver programs. Enabling technology refers to equipment and methodologies that enhance the independence of individuals with intellectual and developmental disabilities (I/DD) in their homes, communities, and workplaces. This protocol outlines the process for assessing the need for enabling technology, requesting authorization, and implementing the necessary solutions. Care coordinators and support coordinators are responsible for educating and assessing members for enabling technology options. There are specific limits on the funding allocated to enabling technology services based on the program, and additional approval may be granted under certain circumstances. Enabling technologies being used in Tennessee include remote support caregiving, tablets to support transportation, reminders, support on a job, smart homes that support environmental controls in the home, tech apps to support individuals with instructions for activities of daily living (ADL)s and instrumental activities of daily living (IADL)s, medication dispensers, and even induction stovetops with added safety features such as alerts to caregivers on use, prompts for reminders, and special pans for operating. Providers and coordinators are required to undergo training, and special considerations are outlined for providers of remote supports. The protocol provides guidelines for screening tools, educational opportunities, person-centered planning, coordination with technology vendors, service authorization requests, and annual reviews of technology solutions. The protocol aims to promote independence, personal development, and self-determination for individuals with I/DD through the use of enabling technology.

Aging State Efforts: New York

The New York State Office for the Aging (NYSOFA) has invested in various technologies and tools to address social isolation and provide support for caregivers. These initiatives aim to combat the negative impacts of social isolation on older adults and the challenges faced by caregivers. Here are some of the tools and programs:

1. Trualta: This web-based caregiver education and support platform offers free resources and personalized training for unpaid caregivers in New York State. It provides evidence-

² TN Department of Intellectual and Development Disabilities. (2021). <https://www.tn.gov/content/dam/tn/tennicare/documents/EnablingTechnologyProtocol11022021.pdf>

based training, connects caregivers to local resources and support services, and helps build skills and confidence in caring for loved ones with challenging needs.

2. **GetSetUp:** NYSOFA has partnered with GetSetUp to provide older adults in New York with free access to online classes. These classes, designed by older adults for older adults, cover a wide range of topics including digital device usage, physical and mental health, and social activities like Tai Chi, Yoga, book clubs, and more.
3. **Pets Together:** In collaboration with the Association on Aging in New York, NYSOFA has partnered with Pets Together, a national non-profit organization. Pets Together offers free video visits with volunteer pet owners to reduce social isolation among older adults. These visits provide opportunities for engagement and meaningful connections with pets and their owners.
4. **Animatronic Pets:** NYSOFA has been providing animatronic pets to older adults experiencing social isolation. These lifelike robotic pets make realistic sounds and motions, providing comfort and companionship. In a pilot study, it was found that these pets significantly reduced loneliness and pain in older adults.
5. **The New York State Office for the Aging (NYSOFA)** has partnered with ElliQ to bring this technology to over 800 older adults. ElliQ is a voice-operated smart device that offers daily check-ins, assistance with wellness goals and physical activities, connection to family and friends, and more. It differs from other smart technologies by proactively suggesting activities and initiating conversations, creating a sense of relationship with artificial intelligence. It also provides features like sleep relaxation exercises, physical activity exercises, nutrition-related conversations, and medication reminders tailored to each user's needs.

These tools and programs aim to improve the well-being of older adults by addressing social isolation and providing support to caregivers. They offer education, training, social interactions, and companionship to combat the negative impacts of isolation and caregiving responsibilities.

Aging State Efforts: California

The State of California's Health and Human Services Agency initiated a Digital Inclusion initiative to address the digital divide among older adults and individuals with disabilities. The initiative aims to provide devices, connectivity, and digital literacy opportunities to bridge the gap and improve the quality of life for program participants.

The California Department of Aging (CDA) has launched two projects as part of the initiative: Digital Connections (DC) and Connections, Health, Aging, and Technology (CHAT)³. The DC project involves distributing Apple iPads, along with broadband connectivity and digital literacy resources, to participating agencies and centers serving older adults. The CHAT project, funded by various acts, including the Families First Coronavirus Response Act, focuses on distributing iPads to older adults through Area Agencies on Aging (AAA). The Digital Inclusion initiative recognizes the challenges faced by older adults and individuals with disabilities, such as social isolation and limited internet access. The goal is to provide them with the necessary tools and resources to engage with their communities and access digital services.

The program requirements for both the DC and CHAT projects include eligibility criteria for participants, distribution of devices and connectivity, and the management and reporting responsibilities of participating agencies. The programs are set to continue until December 31, 2023, with plans for ongoing support beyond that date.

Overall, the State of California's Health and Human Services Agency, in collaboration with the CDA and AAAs, is working to close the digital divide and improve the digital inclusion of older adults and individuals with disabilities through the DC and CHAT projects.

Assistive Technology State Conference: Connecticut

The Connecticut Department of Developmental Services (DDS) just convened a successful Assistive Technology Innovation Conference held on June 22, 2023. Attendees, including individuals with disabilities, family members, DDS staff, service providers, and technology experts, gathered to explore the latest advancements in assistive technology. The conference featured various sessions on topics such as assistive technology for employment, accessibility features for smartphones and tablets, and initiatives for accessing assistive technology. The event also included an Assistive Technology Expo Hall where participants could interact with exhibitors and experience hands-on demonstrations of assistive technology devices. The conference emphasized the potential of assistive technology to enhance independence and inclusion for individuals with intellectual disabilities. The event was a collaboration between the Developmental Disabilities Council, the Department of Developmental Services, and the CT Tech Act Project, highlighting the commitment to promoting accessibility and inclusivity in Connecticut.

³ PROGRAM MEMO: Digital Inclusion Projects: CHAT and Digital Connections, (January 23, 2023), <https://aging.ca.gov/download.ashx?!E0rcNUV0zYnI2udSakF3Q%3D%3D>

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