



Age-Friendly Technology Design

A Practical Guide for Designers
and Developers of Digital Experiences

From AARP and Older Adults Technology Services





Introduction

Executive Summary

Digital technology plays a significant role in the lives of older adults, who comprise a large and growing segment of the multibillion-dollar market for consumer electronics and apps. But too often, tech products are designed without accounting for the unique needs and preferences of older consumers, causing friction, frustration, and lost opportunities on both sides. Unfortunately, 42% of 50-plus adults say that they do not feel technology is designed with them in mind (AARP 2021).

This guide is intended to help companies in the technology sector integrate age-inclusive principles into their product development process at every step, from research and experience design to testing, support, and marketing. Our goal is to offer expert guidance, actionable steps, and simple checklists that can help close the gap between great products and consumers of all ages and abilities.



What Is Age-Inclusive Design?

Age-inclusive design is about achieving an optimal user experience for people across age groups by being more intentional about including older adults in the design and maintaining a focus on the unique needs of 50-plus users throughout the development process.

Whereas accessible design has advanced technology to be more inclusive of those with disabilities or changing abilities (often due to

aging), age-inclusive design creates a more inclusive user experience by accounting for the typical differences between younger and older users. Disability-centered thinking can sometimes reinforce stereotypes about aging. Accessibility features are often very helpful for older adults who are experiencing changes in sensory, cognitive, or mobility functionality, but the accessibility lens does not fully address the needs of 50-plus users.

Why Age-Inclusive Design?

Market case: People 50-plus constitute a large and influential market for technology products, devices, and services. Approximately 70% of those 50-plus made a tech purchase in the past year, and their spending on technology has been increasing significantly since 2019. Projections suggest that will expand in the US market to \$108 billion in 2030 (AARP 2021).

Corporate social responsibility: Technology makes life better for people in important ways as they age. Older adults' primary motivations for using tech are to stay connected, be entertained, and manage day-to-day living (AARP 2021). Older adults also benefit significantly from technologies that facilitate access to healthcare, in-home services and e-commerce, smart home/home automation, and other features that bring the necessities and conveniences of the modern world to their door when transportation is more challenging. By adopting digital age-inclusion strategies that address gaps in digital access, skills,

and design, companies signal their commitment to positively impacting society and creating goodwill toward an important user community.

Risk and cost reduction: Failure to think about inclusive design can add costs down the road. According to a recent study by the Centre for Inclusive Design in Australia (2019):

Inclusive design should be used at the beginning of the design process because the cost to implement inclusive design increases the later it is introduced. Design that is not inclusive can lead to complaints, legal challenges, planning delays and costly retrofits as a product or service matures. Poor design can also negatively impact brand reputation. The relative cost of retrofitting a product or service to become inclusive will increase significantly over time and can reach up to 10,000 times the cost of introducing inclusive design earlier on.



Inclusiveness as Market Opportunity

Today's 50-plus adults came of age before the internet and mobile devices became ubiquitous. Because all but the younger members of this cohort were already out of school at the dawn of the digital revolution, **older adults tend to learn and use technology differently from "digital natives"** who first experienced computers and mobile devices as children (Centre for Ageing Better 2021). The digital age gap is closing, but it has not vanished.

Older adults also make up a disproportionate percentage of the 7% of Americans who do not use the internet. Today, 25% of adults ages 65 and older report never going online, compared with much smaller shares of adults under the age of 65 (Perrin and Atske 2021).

For these reasons, makers of software and devices need to pay special attention to the unique usability considerations of older users—considerations that may not occur to younger product designers accustomed to their own assumptions about use and adoption. However, that additional effort can yield important benefits.

Companies like Google (2022), Microsoft (2022), and Apple (2022) recognize that good design is critical to making their products accessible to people with physical disabilities, neurological diversity (McAuliffe 2022), under-resourced regions and countries, and those facing other barriers to entry. **Following age-inclusive guidelines can make digital products and services more usable for many people, not just older adults.** People of all ages can experience visual impairments, hearing loss, low literacy, reduced motor ability, limited technical experience, and memory loss.

Simply put, no one prefers badly designed, overcomplicated products. **When you design with inclusion, accessibility, and simplicity in mind, you can reach and benefit up to four times the size of the intended audience**, according to a study from the Centre for Inclusive Design (2019).



Designing for Older Users

While this guide presents a number of practical steps companies can take at each stage of the design process, **the number one takeaway is: listen to older users!** We advocate for including a diverse cohort of users 50 and older representing different life stages, backgrounds, and experience levels at multiple points, from initial market research through to testing and quality assurance. In the words of a recent industry study on age-inclusive design, “Involve older end-users throughout all stages of research and design processes, starting with the assessments of users’ needs, and not only in final stages of marketing (e.g., evaluation)” (Kotti and Mannheim 2021). A few key points to keep in mind:

There is no “typical senior.”

Age is intersectional, one of many factors to consider in your overall inclusive design strategy. In building your panel of older adults, be sure to consider gender identity, race and ethnicity, socioeconomic and geographical diversity, and educational attainment, among other factors, as these may yield dramatically different perspectives on usability and design.

“Designing down” to older adults is not the right approach.

50-plus users are not looking for less capable products; they are looking for powerful products that are easy to use.

The 50-plus segment represents a wide variety of ages, stages, and savviness.

People at different life stages or with different work experiences may engage very differently with digital experiences (AARP 2021).

Multiple age-related changes are best addressed together.

Older adults may experience multiple age-related changes that affect their ability to use digital technology. The effects of multiple changes can interact with one another, making them even more difficult to overcome.

Play to the strengths of older consumers.

Older adults often possess greater specific experience in roles, professional skills, and domain knowledge than younger adults. Design can take advantage of this difference where appropriate by giving older adults a way to use these advantages (Johnson and Finn 2017).

This is a dynamic market.

Patterns of tech adoption are changing among older consumers just as they are among other demographics. Older adults are keenly interested in current and emerging areas, including mobile health apps, smart home, remote learning, entertainment, and more.

Age-Friendly Design Lifecycle

AARP is eager to share knowledge and best practices with the industry to make age-inclusive design a win-win for developers and consumers. This document is broken up into ten segments covering typical steps in the design lifecycle of digital technologies. These include:



Metrics

Establish baselines and key performance indicators (KPIs) to assess performance; then take an honest inventory of current marketing, setup, and support experiences through the lens of age-friendly design.



Research

Understand and quantify market opportunities for age-friendly design.



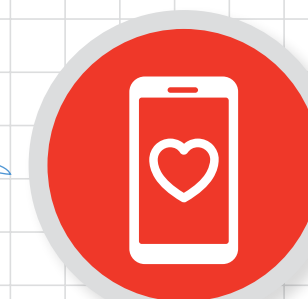
Co-design

Develop collaborative design processes to make age-friendly efforts more authentic and inclusive.



Agile Development

Incorporate age-friendly principles into the development process and workflow.



User Interface

Learn from industry best practices around UI design for all ages.



User Experience

Beyond the UI, understand broader perception, usability, and experience issues for demographically diverse consumers.



Use-case Development

Develop consumer personas and customer journey maps for different life stages and abilities.



Testing and QA

Use diverse testers and collaborative processes to ensure product quality across demographic lines.



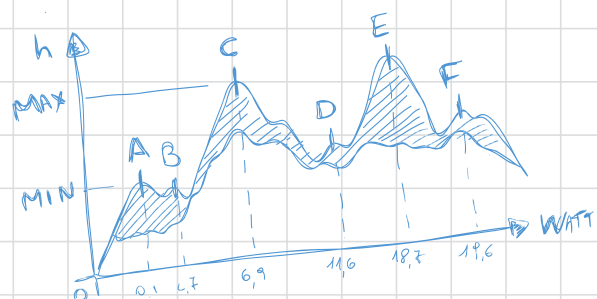
Adoption

When your product is ready for market, ensure that all the supporting materials, documentation, FAQs, and customer support processes are age-friendly.



Marketing

Make sure product marketing, packaging, and branding reflect age-inclusive principles.





1. Metrics

Improving processes requires three key elements: measurement, transparency, and accountability. The first step for organizations on the journey toward age-friendly design is to ask, what does success look like, and how will it be measured?

Organizations should establish KPIs & OKRs that support age inclusion and equity. KPIs (key performance indicators) and OKRs (objectives and key results) measure, track, and report results.

They allow organizations to identify where they are succeeding, where they are falling short, and where resources are needed to ensure equity. Here are some best practices for developing relevant metrics around age-friendly offerings.



Apply Inclusion Metrics to Consumer Strategies

Being intentional about adoption by older consumers requires having age-inclusive targets. These are examples of KPIs or OKRs that can be incorporated.

Organizational Business Metrics

1. Number of products, enhancements, or features specifically for 50-plus users
2. Revenue generated from market expansion to 50-plus
3. Percent market share growth through expansion to 50-plus
4. Percent market share of 50-plus target users
5. Number of 50-plus promotional efforts
6. Amount of effort spent on digital inclusion efforts
7. Amount of investment in digital inclusion efforts
8. Percentage of partnerships with organizations with age-inclusive offerings
9. Number of earned media opportunities including age-friendly language or imagery
10. Percentage of marketing or promotional activities that include older users
11. Customer satisfaction or net promotor score (NPS) for 50-plus

Product Age-Inclusion Performance Metrics

1. Number of leaders engaged in product age-inclusion
2. Number of business units or product areas that have age-inclusion OKRs
3. Diversity of age representation on a team
4. Number and rate of increase of 50-plus users buying or engaging with a product or service
5. Budget invested in age-inclusive training and tools
6. Number of innovations related to age-inclusion
7. Number or frequency of negative 50-plus user experience reports/escalations
8. Incorporate digital product strategies into environmental, social, and governance (ESG) goals. ESG goals currently do not generally include digital product design approaches.

As with any efforts to quantify organizational performance, it is important to keep in mind that:

Metrics must be tied to clear objectives and be socialized.

What is measured may evolve over time.

Strong teams must have metrics focused on underrepresented users (those 50-plus), and those metrics must lead back to the users' needs and preferences as well as the business goals.



Incorporate Age-Inclusion into DEI Efforts

The 50-plus cohort matters for market share and revenue. For every dollar spent in the US, 56 cents are spent by someone over the age of 50. Having people in your workforce that reflect your consumer is important. As an additional benefit, it will help your teams become multigenerational—and thereby stronger.

Companies have made progress on workforce inclusion, and many are already including age in their diversity, equity, and inclusion (DE&I) efforts. Companies that adopt inclusive product design goals will likely have more mature DE&I workforce practices. AARP recommends six ways to add age into your DE&I guide (Tinsley-Fix 2021). These are also good places to start thinking about age-inclusive design:

Be deliberate about age as a diversity element, and review existing materials to ensure it is covered.

Build age into anti-bias training. Acknowledge the existence of age discrimination and be mindful of generalizations.

Reexamine your hiring practices. Scrub job postings of coded language (see the “Marketing” section below) and ensure alignment with other AARP programs such as the Employer Pledge.

Establish age as a valued diversity element in internal and external communications. Elevate and dignify perspectives from workers of all ages.

Create opportunities for collaboration, including intergenerational teams and resource groups.

Reexamine your management practices so managers are properly trained to support policies (NCQA 2018).

Each of these steps should become a scorecard to measure performance and improvement over time as a way to drive accountability.



Gap and Opportunity Analysis

Once organizations have developed measurement criteria around age-inclusive design principles, it’s important to take an honest and comprehensive look at existing processes to identify gaps and opportunities for improvement. This provides a baseline so leadership can set priorities for improvement.

This is an important early step, not just for organizational purposes, but also for risk mitigation. Gaps in age-friendly approaches may be harming the perception of your organization among key consumers. However, improving those processes can generate new opportunities to reach strategic and underserved markets.

Build a Scorecard

Gap analysis begins by measuring the current status of all key design processes and decision points. For each of these areas, the organization should honestly assess how the practice performs relative to age-inclusive goals, and take each shortfall as an opportunity for improvement.

Here are some KPIs to include on the scorecard:

INCORPORATING DIVERSE VIEWPOINTS

Are older users part of the development or review of the practice in question? What steps have been taken to ensure their perspectives are included? Are older adults authentically represented among target personas used for design and marketing?

TESTING FOR POINTS OF FAILURE

Are the usability needs of older consumers integral to design considerations? Are usability issues affecting older consumers given priority in the development, testing, and quality assurance (QA) processes?

ELIMINATING STEREOTYPES AND AGEIST LANGUAGE

The “Marketing” section below provides examples of stigmatizing language that should be avoided in public-facing materials. This should also be applied to internal documents and communications.

Create an Inventory of Best Practices

As part of an organization’s initial assessment, evaluate existing practices against best practices to highlight gaps and opportunities for improvement. Consider these key points (NCQA 2018):

ACCESSIBILITY

Consider that different people perceive and encounter different barriers and constraints when using technology and require design systems that match their needs.

INCLUSION

Consider that people using your products are diverse, and embrace design choices that appreciate the full range of human diversity.

LOCALIZATION

Consider that people from different parts of the world feel valued when products mirror their realities and are culturally adaptive.

NON-DISCRIMINATION

Ensure that you offer fair and unprejudiced treatment of people and that benefits are evenly and equally distributed.

COLLABORATION

Acknowledge that people are experts about their lived experiences and that partnering with them enriches their experiences on platforms.



2. Research

Research is an important first step in the design of a new product or app. But many digital technology companies conduct their preliminary market research without considering the needs of—or potential impact on—older consumers. If they do target this market, they often do not include the voices of actual older adults in their research and product planning discussions. Some steps that can be taken to improve this are:

Include a range of older adults in product opportunity research, reflecting the diverse experiences of different age cohorts over 50 as well as gender, race, socioeconomic status, and other factors.

Use consumer panels that represent older adults at different stages of life, with different backgrounds and experiences, and representing gender and ethnic diversity.

Widen the contexts of product use by conducting more research in more diverse contexts, thereby increasing the relevance of the product to a larger number of users (Righi 2016).

Change the object of design, shifting the focus from defining the features of a technological artifact to fostering a mutual shaping relationship between technologies and everyday practices.

Rethink the subjects of design by moving from designing “for older people” to designing for established communities.





3. Co-design

Age inclusiveness should also extend deeper into the product design process. **We advocate for a process of co-design, bringing 50-plus adults and aging experts into the formal ideation and design exercise.**

Including diverse ages in discovery practices allows for upstream value to be created as prototypes and products take shape.

Inclusion must be more than just box-checking. For the process to yield productive results, all participants must feel respected and their points of view seen as valid, even—perhaps especially—when they contradict conventional thinking on product design. When the involvement of older

users in the design process is pushed back to the final phases of development and marketing, designers miss the opportunity to utilize valuable context through the early design stages, and late rework may incur additional costs.

Here are five best practices from inclusive design that apply directly to age-friendly design:

1. Recognize team biases

- Recognize that each individual brings a unique perspective.
- Understand biases and be intentional about creating inclusive ways of working.
- Uncover and discuss individual biases of each team member.

2. Recognize exclusion

- Run inclusive design workshops with underrepresented groups.
- Create tools to scale inclusive practices and highlight common traps to avoid.

3. Use inclusive language. See the “Marketing” section on Page 34 for some best practices.

4. Identify and address bias in your research sample and personas

- Place a stronger focus on demographics when recruiting research participants.
- Create inclusive personas.
- Recognize that each individual brings a unique perspective to the team/session.

5. Prioritize digital accessibility

- Design with—not just for—older consumers.
- Make it easy for new users to get started.

Another best practice is to create an advisory group before you start development and use the community as a co-creation team throughout the development process. Even though older adults often appreciate being asked for their perspectives, it is still best to pay them for their time, knowledge, and lived experience.





4. Use-case Development

Once companies have completed market research and preliminary product designs, they will typically develop use case scenarios and user personas to **make sure that user experience is grounded in authentic customer needs and real-world situations**. Relevant real-world understanding can be gained through feedback from online communities, empathy interviews, product reviews, or other “lived experience” research channels.

It is important that the **stories and experiences of older customers play a role in the development of the customer journey**. That way, age diversity will be reflected organically in the design and

conception of the product rather than something that needs to be addressed later in the process, when modifications are more costly and complex.

As part of the process, you should ask yourself two questions:

How do you conceptualize older people in the project?

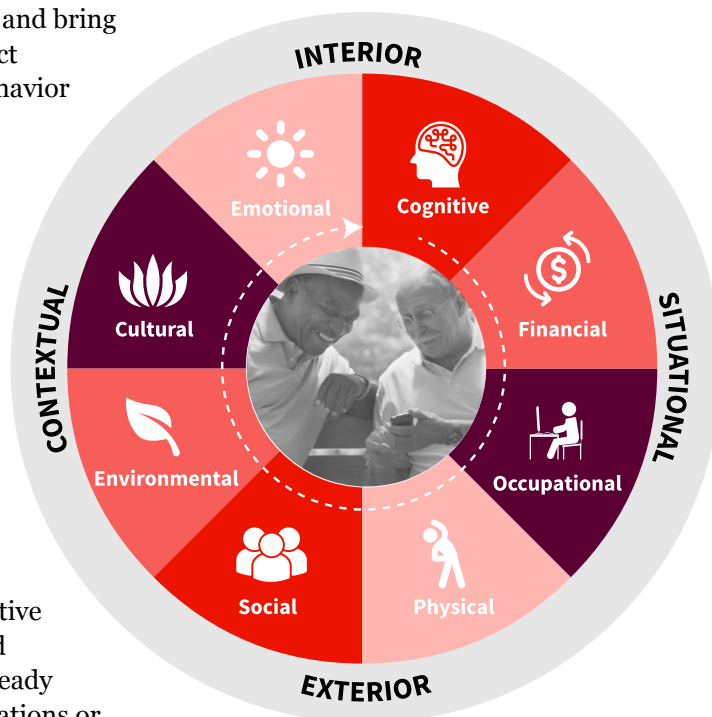
What interactive technologies do they truly need, and why?

By answering these two questions, you will be able to define and limit the design space, within which research and design decisions will be made throughout the project. Your answers will help define which technologies will be designed and which will be disregarded. If designers and researchers construct their own meanings of age and bring them into their activities, your final project may reflect unexamined assumptions and exhibit unintended behavior that limits the appeal.

User journey management is an effective approach to creating processes that serve more inclusive customer needs. AARP recommends taking a 360-degree view by considering the dimensions of diverse users across eight facets (see graphic to right).

Having journey maps for different life stages can be very effective. Examples include becoming a caregiver, retiring, becoming an empty nester, downsizing a home, or becoming single.

Here are some inclusive design principles, best practices, and guidance on incorporating the perspective of older adults into customer journey planning, based in part on practices that successful companies are already using to be inclusive of customers with physical limitations or neurodiversity.



Inclusive Mobile Design Principles

Microsoft has invested extensively in accessible design practices—considerations that also apply to age-friendly design and may overlap in cases where older adults are experiencing physical limitations. The company notes that “designing for people with permanent disabilities can seem like a significant constraint, but the resulting designs can actually benefit a much larger number of people” (2022). That is because **the same conditions that lead to permanent disabilities can also be experienced as temporary or situational impairment**, and these may commonly occur with older users.

In developing use cases for technology, Microsoft asks developers to consider: Are we forced to adapt to technology, or is technology adapting to us?

Here are some key principles:

- Recognize exclusion.
- Learn from diversity.
- Solve for one, extend to many.
- Spend time understanding the experience from the user’s perspective.
- Distinguish between permanent, temporary, or situational impairment—for example, blindness (permanent), impaired eyesight (temporary, as user is not using corrective lenses or is recovering from an eye condition), or difficulties perceiving the screen due to poor lighting conditions, being too close or too far from screen, etc. (situational).

Neurodiversity in Inclusive Design

Recent work in understanding how neurodiverse people use technology has also yielded some best practices that may apply to creating use cases for older adults. These techniques focus on reducing cognitive load (the mental processing power needed to complete a task). Though these considerations are optimized for the needs of people on the neurodiversity spectrum, **they are good commonsense practices to make use cases more accessible to everyone**.

- Design around recognition rather than recall.
- Ensure layout design is easy to scan.
- Use predictable patterns in UI to activate common features.
- Provide communication options such as voice interface when possible.
- Afford users the ability to control info presented.
- Avoid “walls of text.”
- Use plain language.



5. User Experience

User experience (UX) encompasses every touchpoint that consumers have with the brand. Over the last ten years, the industry has moved to center user experience in product design, marketing, customer service delivery, branding, and engagement on social media, with many companies now naming a chief experience officer (CXO) with responsibilities for the entire process.

For this reason, many tech companies are looking at UX design in the broadest sense, encompassing the market positioning, packaging, and post-purchase experience (service, training, etc.) in addition to the design of the product interface. First, we'll look at UX design holistically, and then in its constituent areas.

Good UX starts with a clear understanding of customer needs and pain points (which should arise from effective market research and customer journey mapping done in earlier stages) along with a **comprehensive strategy to engage authentically with customers**.

Technology adoption success or failure often occurs in the context of the physical environment. Good **user experience should consider a range of consumer environments**, including:

Different combinations of devices

Older users may engage on different screens and get information through different channels.

Wireless connectivity modalities and internet speeds

Older users constitute a large percentage of Americans who do not have or use broadband wireline connections.

Living situations

The household situations of 50-plus users may include empty-nesters, recently single, assisted living, multigenerational households, and other distinctive circumstances with implications for UX design.

Tech savviness

Older users may not share the habits, behaviors, and assumptions about technology use of digital natives.

User Experience



For example, UX designers should consider:

What is the user experience for someone less tech-savvy, using a legacy email provider like AOL or Earthlink, living in an independent living facility, using a Fire tablet, and with mediocre internet speeds? What is the set-up experience? The learning experience? The support experience?

Our research shows that **simpler is better**. Simple, intuitive, and user-friendly user experiences equate to a loyal user base. When asked about user experience challenges, older adults often reference too much advertising, pop-ups, lack of instructions, frequent upgrades and changes, too many steps, lack of integration, and not asking older users what they want.

Complexity increases costs of program management and back-end costs like support while reducing adoption. The following sections of the document offer specific best practices around areas touching on UX, including user interface design, testing and quality assurance, market deployment and adoption, training and support, and marketing.

We recommend designers of age-friendly technology products and applications **incorporate these considerations into the UX design process as co-equal customer journeys**. These should represent valid experiences of key customer groups, even though they may differ from the assumptions that apply to younger consumers.



6. User Interface

The user interface unlocks the features, and therefore the benefits, of your product for customers. While the industry has made great strides in simplifying complex user interfaces and establishing standard, familiar modes for interacting with technology, **there are still too many design decisions that make it unnecessarily difficult for older users.**

Improving age accessibility in interface design starts by **understanding the unique requirements of older users and employing some commonsense design guidelines around accessibility.** Many companies have found that these decisions not only benefit older users, but also improve the overall usability of their systems, with the side benefit of reducing support costs and negative user feedback.

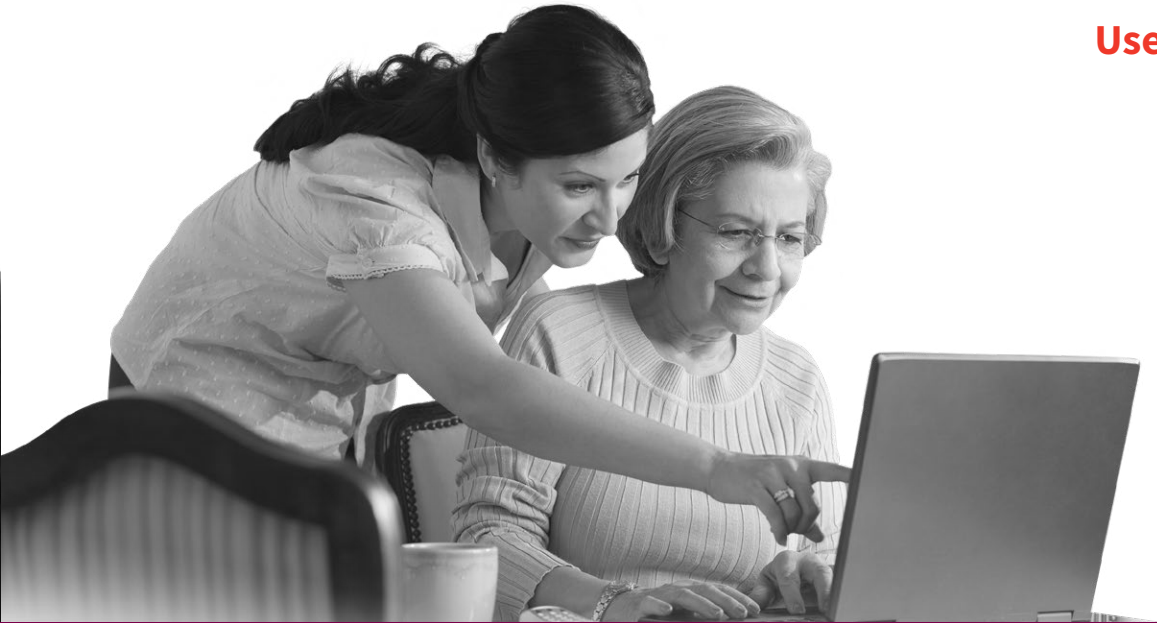
Special UI Considerations for Older Adults

Usability studies directly examine the performance differences between older and younger participants. Designers should consider how age may affect the following factors (Johnson and Finn 2017):

Time to learn new applications or devices	Time it takes users to complete tasks	Search strategies (generationally relevant search terms, variable phrasing of search strings, etc.)
Ability to complete tasks dependent on memory	Salience of distractions (e.g., is user accustomed to multitasking?)	Concerns about making mistakes/errors (“Will I break the app or device by doing the wrong thing?”)
Importance of fine motor skills and dexterity	Propensity for imprecise or accidental movements of the pointer	Facility with mouse, keyboard, or touch-screen conventions

In all cases, designers should build their technologies to accommodate the widest possible range of user behaviors without imposing biases or expectations that may exclude older consumers.





General Guidelines around Age-Inclusive Design

Applications designed to be accessible to a wider range of abilities will be more usable, useful, and marketable to all. AARP has developed the following specific UI guidelines around age-inclusive design for software, applications, and device operating systems to ensure that the widest range of people will be able to use products successfully, regardless of age or ability.

Visual

- Ensure that designs make it **easy to understand what is important** and the relative hierarchy of elements. It should be easy to make sense of what the design is about and how to navigate through it.
- **Use headers** to support scanning.
- Ensure that graphical elements, including backgrounds, are designed to **enhance the readability** of the overall design.
- Use **consistent, descriptive links and navigation labels** using reading-level appropriate language. Also, take into account the informational and cultural background of users and the needs of the text.
- Design text using fonts, styles, colors, and contrast that **make it easy to read** by people with a wide range of visual abilities, appropriate to the usage situation. Avoid text overlaid on images or graphics, which make the text difficult to read.
- Provide users the **ability to adjust text size, color**, and other design elements to accommodate a wide range of visual abilities.

Hearing

- Provide **volume and speed controls**.
- Provide **closed-captioning**/text alternatives.
- **Support, but don't require, speech input**.
- Provide **subtitles** for any type of voice or video.

Cognitive/Memory

- **Do not unnecessarily place time restrictions** or pressure on task completion.
- Design to **emphasize recognition rather than recall** (for example, provide checklists, definitions, help, memory aids, etc., as appropriate).
- **Make form labels descriptive**.
- Use **universally familiar** terminology.
- **Make error messages helpful and clear**. Avoid cryptic or confusing error codes that may frustrate users.
- **Break long tasks into shorter steps**.
- **Provide clear paths** to key areas of the site or app and provide visual clues for navigation.

- **Leverage familiar user experiences** from previous versions whenever possible rather than introducing novel ways to accomplish existing tasks. Add new functionality that extends intuitively on existing features, so users do not have to relearn old tasks.
- **Provide reminders and alerts** for habitual actions; do not make the user have to remember small, repeating details.
- **Explain the purpose** of a product or feature loud and clear, not just through language, but also through non-linguistic means such as color, shape, form, etc.
- **Keep your calls to action simple and clear**.
- **Write copy so readers can follow along by skimming headers**, bullets, and bold type rather than reading every word.

Mobility/Dexterity

- **Size touch targets appropriately** for a wide range of users with varying levels of fine motor skills.
- **Put space around active elements** to preclude users from triggering unexpected app behavior by pressing the wrong button.
- **Consider providing alternate methods of input** to accommodate differing abilities.

- Be mindful that **different input methods require different levels of dexterity** and precision. For example, touch controls generally need to be larger than controls that are accessed via mouse; swiping motions are generally easier to perform on touch devices than with a mouse.

Broad Inclusivity

- **Allow parts of the app to be used without Wi-Fi or connectivity** or in low-bandwidth situations to accommodate users in environments where broadband connectivity is scarce or expensive.
- Provide an **easy control for notification settings**.
- Consider multilingual support and localization to **accommodate linguistic diversity** among older immigrant populations who are more comfortable with the content in their native (non-English) language.



7. Agile Development

Many technology companies utilize agile development methodologies to design, build, and test their products and applications. Some see the implementation of special UI/UX considerations into products as a hurdle in the path of rapid and efficient development due to the misconception that accessibility testing cannot be automated. Industry practice suggests that this is not the case. Instead, **failing to address inclusion/accessibility in agile design can add more costs, complexity, and time to the development, testing, and usability process.**

Moreover, **accessibility issues, including age-friendly design, often create a usability focal point that can lead to better designs for everyone** (Barrell 2019). We recommend companies allow time in

the agile development process to integrate and implement feedback, and treat accessibility and age-inclusive design as a separate function from usability (covered in the “Adoption” section on Page 32).

Best Practices for Incorporating Age-Inclusive Considerations into Human-Centered Design

Recognize that accessibility starts in design, not development. Identify accessibility and age-inclusive design elements that are product features requiring functional testing versus those where accessibility applies only to usability.

Identify which accessibility and age-inclusive considerations can be automated through “axe clean” automated testing using a browser extension or automation tool and which require a more thorough manual process.

Teams should not commit any code to a repository or complete pull requests for things that are not “axe clean.” Extensive research via audits has determined that automated accessibility covers about 25% of success criteria by Web Content Accessibility Guidelines (WCAG) and about 50% of accessibility issues by volume.

For certain features that must be validated manually, such as alt text, write a simple unit or integration test to check for alt text to serve as a reminder for developers.

Maintain a library that shows what an accessible component or widget looks like in various states, so those components can be reused across different frameworks (Barrell 2019).





8. Testing and Quality Assurance

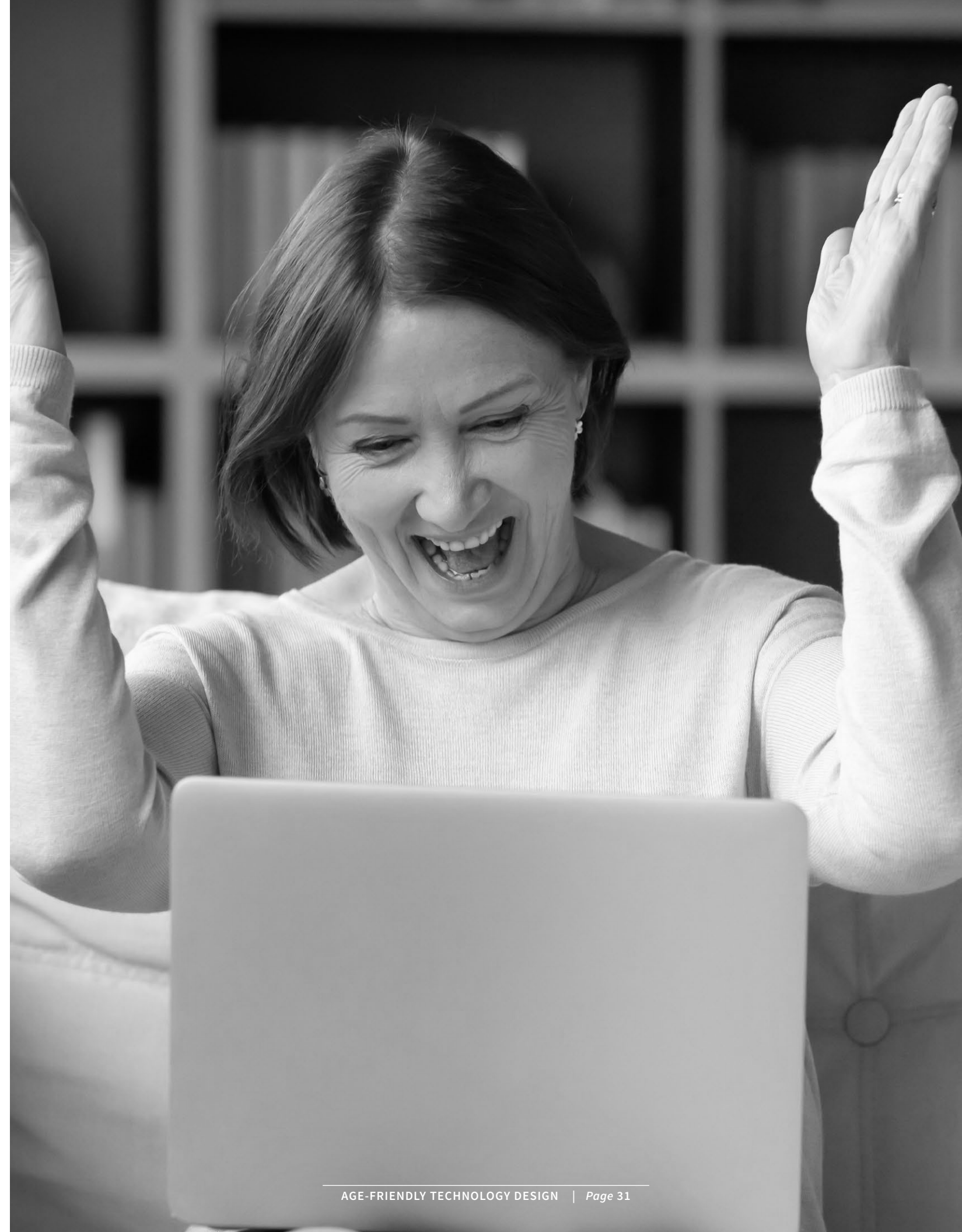
Testing is a critical step to discover issues in the initial product build. But testing feedback is only as good as the testers. If everyone testing a product does so from the same set of assumptions about usage and UI behaviors, products that come to market can fall significantly short for consumers whose views have been left out of the process.

That is why **organizations should always include adults 50-plus as part of the product testing process, ideally in a pairs-testing environment**, and older adults should also be part of downstream quality assurance (QA) activities. Test across different ages, abilities, and facets related to aging.

Pairs testing, where testers work in tandem to identify problems, represents an especially good opportunity for intergenerational collaboration, as colleagues can share experiences that give younger workers insights into the perspectives of older users.

We also recommend that **companies designate a priority escalation path for age-related issues** that arise in the QA process, so these issues do not get lost in the shuffle of last-minute fixes to the final build. This will help companies get out in front of issues likely to frustrate some consumers and squash bugs before they make it into the market.

Feedback from users can be impactful to continual improvement. AARP recommends collecting relevant feedback from the user community or online community who has experience with the technology in real-world environments.





9. Adoption

Differences often exist in the way non-digital natives learn to use a product or application and expect to be supported as compared to digital natives. There are several things that can help customers feel included and supported and not leave the impression that the product is not made for them.

Here are some practices we recommend for designing an age-friendly user experience around technology:

Learning, education, and self-betterment are central themes to the topic of getting older.

Any opportunity to integrate learning, growth, connection, and freedom into the adoption process will likely connect with your older users and drive higher adoption rates (Centre for Ageing Better 2021).

Learning a new skill and fully adopting technology can be enjoyable.

Learning may be associated with younger years as something that one needs to do; however, an older user may be motivated to fully learn how to use a tech offering for the sake of personal growth or overcoming a fear of technology (Centre for Ageing Better 2021).

Visual learning unlocks the full potential of the brain.

Step-by-step instructions in simple language with images build confidence and increase the adoption potential.

Proactive training builds confidence.

Especially around online safety and privacy. Proactively providing instructions on security/privacy settings can help eliminate a sense of intrusiveness and uneasiness with new technology.

Provide clear, systematic, and explicit instructions

that cover installation, functionality, usage, and limitations. While younger users like to dive in, click, and explore to discover how technology works, many older users prefer a more linear learning experience, in part to allay concerns that they may break the product if they do something wrong.

Older users who adopt new technology like to share their experiences with others.

Providing opportunities through social media or through the product to share their experiences with a product can help to drive awareness and word-of-mouth marketing.

Be conscientious about imagery and language within the product.

Be age-inclusive so that older consumers see themselves as part of the target audience. Do not refer to age or life stage unless it is required (Hestres et al. 2022). See the “Marketing” section for specific examples.



Avoid making assumptions about user knowledge.

While many older adults are just as experienced and tech-savvy as younger people, others may be approaching a device or application for the first time. Do not make them feel like they are joining a conversation that has been going on without them.

If your product requires special training, seek expert guidance on developing curricula around the needs of older adults.

There is an entire body of professional practice around developing effective training programs for older adults and how this methodology might differ from techniques for training younger cohorts. It has further been demonstrated that providing age-appropriate training in conjunction with new technology dramatically increases consumer satisfaction and user experience, especially among lower-income seniors (OATS/AARP 2022). AARP affiliate Older Adults Technology Services (OATS) is a great place to start for guidance on this topic.

Deliver clear, straightforward customer support.

Everyone finds poor service frustrating; older adults may also perceive it as risky and alienating. Keep in mind that older adults are frequently targeted by online scams posing as customer service and have learned to be vigilant about intrusive questions and evasive responses. Older consumers prefer to speak to a live representative whenever possible. Online forums or chatbots can be an effective substitute when they are adequately moderated and resourced. Plan for not only technical support, but also support in fully integrating the product’s capabilities into the user’s life. Ensure that the help feature is accessible from every page and is clearly marked as an information option.

Technology companies can build digital confidence for older adults.

This is not only good for product adoption, but also good for society. AARP implores technology companies to take seriously the opportunities to increase digital confidence for all.





10. Marketing

The final step on the design journey is marketing and branding, where companies introduce their product to the market and target messages to prospective customers. It’s also the place where **mistakes can cost brands access to 50-plus consumers—consumers who spent more than \$8.3 trillion in the US in 2021**, a number expected to grow to \$12.6 trillion annually by 2030.

The cultural discourse around technology for the past three decades has been largely youth-oriented, so many older adults already feel defensive when approaching a new device or application. Brands can reinforce those suspicions by making design decisions that fail to consider the perspectives and needs of older consumers or by using language and imagery that strike the wrong tone.

According to a 2021 report on the language of aging, nearly one in five consumers over 50 decided not to purchase from a brand due to ageist stereotypes (Thayer and Kakulla 2021).



Here are some guidelines from AARP on approaching older consumers through marketing campaigns and messages*

* AARP 2021, Centre for Ageing Better 2021, Thayer and Kakulla 2021

Don’t assume the brand loyalty of the 50-plus market is set.

62% of consumers actively consider alternatives.

Do show adults 50-plus at work

because more than half of them are.

Do show familiarity and comfort with technology.

Do assume people want to continue to grow.

Another popular sentiment is, “You are never too old to set another goal.”

Do show adults 50-plus participating in the world.

Nearly half of adults 50–65 and 53% of those 65+ volunteer.

Do focus on what 50-plus value the most—relationships.

Don’t call them “old.”

94% of people aged 50-plus do not want to be defined by their age. If a person’s life stage needs to be called out, use terms like experienced, mature, knowledgeable, retiree, or senior (when over 65+). Always avoid terms like old, boomer, elderly, over the hill, and geezer.

Technology makes learning more accessible.

Older learners view technology positively, but the fear of losing in-person social connection exists.

Learning a new tech skill keeps the brain active.

With age comes the fear of dementia and Alzheimer’s, and learning new technology skills can help to exercise the mind and keep the brain sharp.

Be conscientious about imagery.

Be age-inclusive in the imagery you use to package your product so that older consumers see themselves as part of the target audience.

Don’t assume people find aging depressing.

Many find happiness increases with age.

Don’t link aging with disability.

Give older adults images they can relate to.

Do reflect their independence, knowledge, and experience.

Those 50-plus embrace a positive outlook on life and age, and they connect with the sentiment of learning something new.

Do assume people are motivated to stay relevant and competitive.

As people contribute longer into their healthier lifespans, people want to continue contributing through work, volunteer roles, and community. Staying up to date with the latest technology conveys that someone is a productive contributor, regardless of age.

Use inclusive language within forms, product marketing pages, and any other interactions that are part of the customer’s experience. Forrester defines inclusive language as “Language that acknowledges the full range of human diversity with respect to ability, gender identity, language, race, socioeconomic status, and other characteristics.” Be clear and accurate, and avoid terms with stigmatizing connotations (Bhawalkar and Guler Biyikli 2021).

• **Acceptable terms to use:** 50-plus (especially 50–64), experienced, mature, knowledgeable, retiree (if actually retired!), senior, or senior citizen (usually 65+).

• **Terms to avoid:** Old, boomer, elderly, over the hill, geezer.



Conclusion

Creating technology products that are useful, inviting, and easy for older adults to use does not have to be a painful, complex process. These guidelines and best practices offer companies straightforward ways to integrate age-friendly principles into every aspect of the design process.

As with any guidance, these principles should be a starting point for conversation and innovation, not a rigid set of rules. AARP welcomes dialogue with communities, organizations, and commercial businesses engaged in the important work of accessible design to develop more and better practices that advance the principles of age-friendly design and usability.

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