

Policy implications surrounding technology for age-friendly cities and communities

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Age-friendly cities and communities (AFCC) is an area of contemporary action and research since the World Health Organization (WHO) proposed its age-friendly cities and communities (AFCC) topic areas (Figure 1) 19 years ago (2007). The AFCC movement is not a 21st century phenomenon (van Hoof et al.; 2025c, Ch12; 2025b), aiming to act as a framework for local community entities to be inclusive of older adults, to remain independent in their community (World Health Organization, 2007a). However, since 2019, there has been a growth of alternative conceptual frameworks (Marston et al., 2020; Marston & van Hoof, 2019), focusing on the relationship between the built environment, including the home physical space, technologies, sustainability, and accessibility, underpinned by ecological (Marston et al., 2020) and life course theories (Marston & van Hoof, 2019). The purpose of this paper focuses on bridging the interconnections of technology, digital literacy, citizens, and their role situated within the AFCC arena.

Conceptual AFCC frameworks

In the existing literature, reformed or enhanced frameworks have been posited (van Hoof et al., 2021) to reflect contemporary societal living. Although many smart devices, apps, and the Internet of Things (IoT) had not fully reached the commercial market at the time of the WHO publishing the AFC framework (2007a), the Internet was accessible, as were videogames (Marston et al., 2022), and the ongoing debate of the digital divide (Marston et al., 2022). Similarly, the “age-friendly ecosystem” (Fulmer et al., 2020) attempted to push the AFCC narrative to focus more on age-friendly programs encompassing five domains, with a sixth and central domain situating policy at the heart of a broader age-friendly cities discourse.

Disappointingly, technology or the Internet was not acknowledged. This is problematic because the topics posited in the Fulmer et al. framework (2020) rely on technology and the Internet for the respective systems (such as universities and hospitals/health systems) to function as intended in their daily activities.

Considering this, there has been a paucity of criticality pertaining to this framework. Thus, van Hoof and colleagues (2025 b/c) have critically posited the development of the WHO AFCC topics, following their initial deep-dive exploration (van Hoof et al., 2025c) to illustrate disposed indicators which were considered in the initial development of the 2007 AFCC topics (van Hoof & Marston, 2025b). More serious concerns were highlighted relating to methodological rigor (van Hoof & Marston, 2025a), and one of several recommendations posited is to enact a complete overhaul of the AFCC topics, setting out a blueprint of the stages that are required (van Hoof & Marston, 2025b).

Age-friendly cities and communities questionnaire (AFCCQ)

van Hoof and Marston (2025b) note there is an urgency for the 2007 WHO AFCC topics to be overhauled, based on evidence-based applied research (Dikken et al., 2020). The validated Age-Friendly Cities and Communities Questionnaire (AFCCQ) comprises the original eight topic areas (Figure 1) plus a ninth topic: finance (van Hoof et al., 2025b/c). Since 2007, scholarly literature (van Hoof et al., 2021) has swelled to understand localities’ level of age-friendliness mapped against the eight topics of age-friendliness and the accompanying Checklist of Essential Features (World Health Organization, 2007b). The

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Figure 1 The 2007 WHO age-friendly city topics (World Health Organization, 2007a).

purpose of the AFCCQ was to have a working tool to measure age-friendliness.

However, what is very striking is the limited number of studies attempting to quantify and measure age-friendliness aligned to the WHO AFCC topics. It is extraordinary that financial security/income was not acknowledged in the original AFCC documentation and topics (World Health Organization, 2007a, 2007b), even though affordability and financial security were considered to be indicators (van Hoof & Marston, 2025b). Previously, studies have attempted to validate the 2007 WHO AFCC topics (Kim et al., 2022; Garner & Holland, 2020; Buckner et al., 2019), with little success (of all 8 topics). Indeed, the AFCCQ (Dikken et al., 2020) did succeed in validating (Suvarna & Al-Khalifa, 2023) all 8 topics, (World Health Organization, 2007a), leading to several iterations of the AFCCQ in different languages (Dikken et al., 2026), scientifically proving and offering evidence-based research to the sensitivities of the AFCCQ in differing cultural environments.

Adapt tech, accessible technology (ATAT) study

Since the COVID-19 pandemic, digital transformation across our community entities has exacerbated, leading to many citizens needing to create several forms of online profiles and passwords to be able to access governmental services (refuse collection, paying

bills, etc.). However, for many people, ownership of digital devices, together with digital literacy skills, may vary across different age cohorts and abilities (Großschädl et al., 2025).

The Adapt Tech, Accessible Technology (ATAT) study explores the barriers, challenges, and needs through citizen science (Marston et al., 2023) of older adults residing in England and Wales, United Kingdom. In 2021, the research team conducted a series of online workshops working together with community stakeholders, comprising older adults from across Newcastle, in the northeast of England, and Wales, who shared the challenges experienced through using their smartphones. Participants' unfamiliarity with the meanings of various smartphone icons was a common theme. Six more workshops were conducted between 2024 and 2025 to further explore the additional challenges relating to technology use, with participants from South Wales. Several themes highlighted areas for concern, including (1) cybersecurity while online banking or shopping, (2) protecting social media privacy, and (3) changing the accessibility features on a digital device to be more user-friendly.

Based on the first round of workshops conducted in 2021, the "Icon" booklet (ATAT (Adapt Tech, Accessible Technology) Project, 2020-2021) was co-created with the participants and stakeholders to reflect the various apps available for download on Android and iPhones. These downloadable (ATAT (Adapt Tech, Accessible Technology) Project, 2020-2021) booklets are available in English and Welsh and afford community entities to share with members

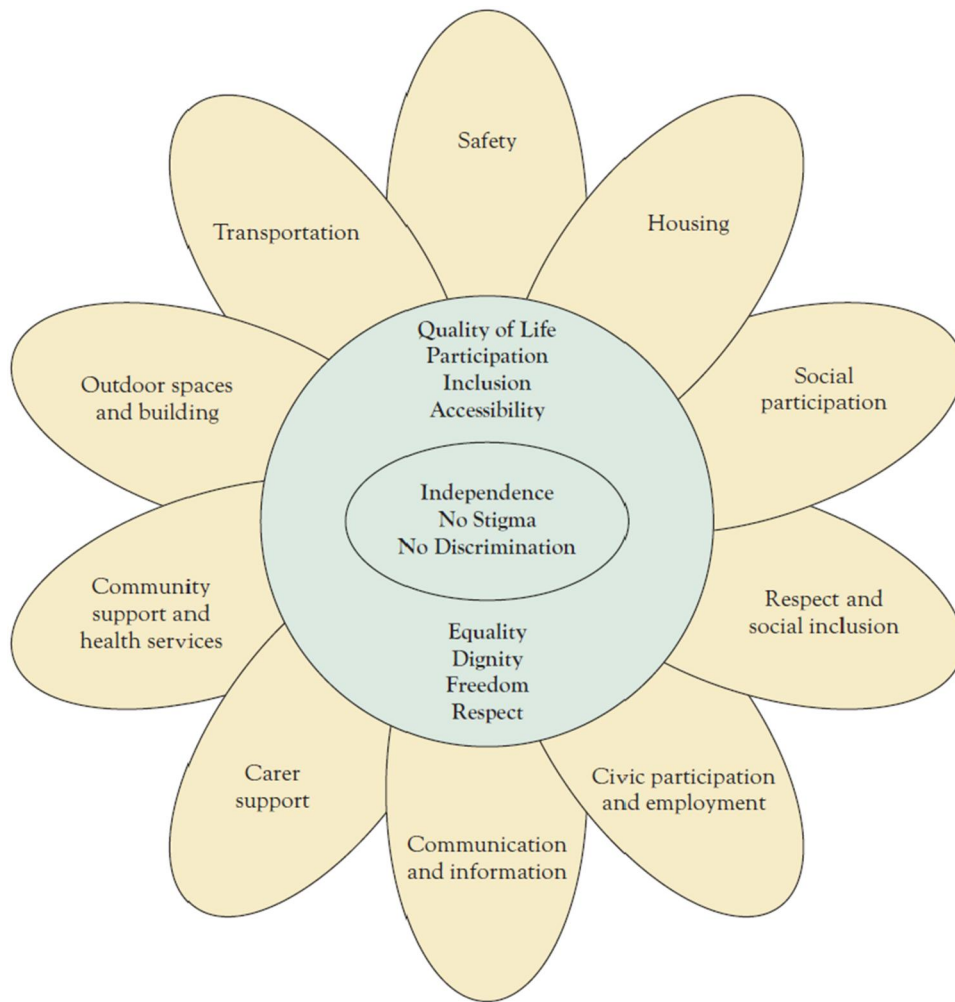


Figure 2 The FACE (finance, age-friendly, community, eHealth; Figure 2) framework (Marston et al., 2025a, Ch9). Permission granted by Cognella.

of their community or services (e.g., libraries). Employing co-creation during the first workshop afforded the stakeholders, older participants, and the research team the opportunity to share their experiences through a podcast (ATAT (Adapt Tech, Accessible Technology) Project, 2021), and through a policy lens, these outputs can support community entities to support existing community-led programs. Likewise, through austerity measures (BBC News, 2022) this type of output can fill the void left from societal austerity imposed by previous UK governments.

Implications of digital transformation in a post-pandemic society

The exacerbation of digital transformation during the COVID-19 pandemic has continued into a post-pandemic society, resulting in many services and information available solely online through social media sites or specific community entity websites with few telephone or in-person options. Likewise, measures of closing down high-street (Phillips et al., 2021) outlets or banks (House of Lords Library, 2024) can impact the most vulnerable, those citizens who live in rural areas, reliant on public transport

(routes are also being cut) (Topham, 2025), and who do not have online access or the digital skills to execute actions via a laptop or smartphone. Allied health professionals working within the community may also have limited digital skills or knowledge pertaining to technologies (e.g., virtual assistants) adopted by family members to assist their loved one (Marston & Samuels, 2019). Although a person may use social media sites (Facebook, Instagram, or WhatsApp) for personal use, this does not mean they are digitally literate, implementing assistive technologies (Gilbert, 2022) into the home, to aid with medication reminders or other daily living activities is important for maintaining independence. Through a UK lens recommendations have been posited pertaining to the integration of assistive/technologies into the national education curricula at college and university levels (Gilbert, 2022) for students studying allied health programs (McInally & Marston, 2026).

Age-friendly frameworks for the future

To ensure our communities reflect its residents, Marston et al. (2025a/b) have proposed two alternative conceptual

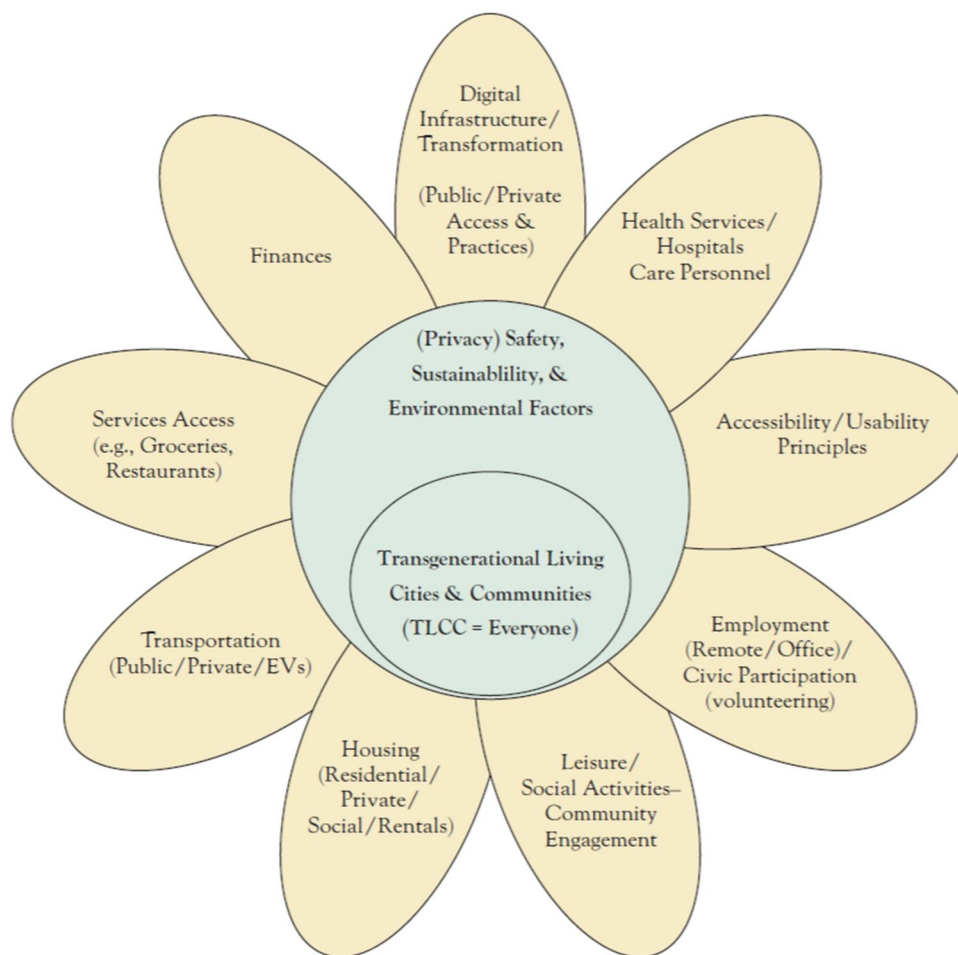


Figure 3 The “Transgenerational Living Cities and Communities” (TLCC) (Marston et al., 2025b, Ch10). Permission granted by Cognella.

frameworks, echoing the digital transformation in a post-pandemic society. The “FACE” (finance, age-friendly, community, eHealth; Figure 2) framework (Marston et al., Ch9, 2025a) places citizens and their financial affordability/income centrally at the framework, the second conceptual framework, “Transgenerational Living Cities and Communities” (TLCC) (Figure 3), focuses on communities with all citizens, including young people with life-limiting, life-changing health conditions and family members (Marston et al., Ch10, 2025b). These thought-provoking frameworks (Figures 2 and 3) illustrate how citizens/residents can and should be reflected more greatly in our communities, by community entities wishing to be more inclusive, and leading age-friendly initiatives. Without this inclusivity and financial security, residents will face challenges to meet their basic needs in the community, described in Maslow’s hierarchy of needs (Boeree, 2006), leading to a further question of whether the age-friendly initiatives are fit for purpose.

Implications for policy and practice

Measuring age-friendliness by using the AFCCQ instrument is key to providing community entities and policy makers who are responsible for local governance and initiatives with pertinent

evidence-based results of the exact needs and concerns of their residents. Domestically, if measuring age-friendliness was conducted by municipalities in one country, at the same time point, comparisons can be shared with pertinent stakeholders, sharing best practices, affording strategic decision making to be renewed and prioritized either at a local or national level (provincial, state, federal, or county). To provide an overview of the areas that require changes within the community, the AFCCQ is appropriate because of its sensitivity to different cultures, countries (Dikken et al., 2026), and intergenerational perspectives (Marston et al., 2026; Ziganshina et al., 2025; Yamada et al., 2023).

Based on the new revelations posited by van Hoof and colleagues (2025b/c), it is clear that the existing WHO AFCC topics (2007a) should be overhauled and for members of the Global Network of Age-Friendly Cities and Communities (GNAFCC) to reanalyze the age-friendliness of their community, using the AFCCQ. If there is little appetite among members for conducting a reanalysis, it should be questioned how committed they are to transforming their communities, established in evidence-based research. This may result in an alternative tiering system within the GNAFCC; a traffic light system could signify which communities are (1) in progress (or conducting their 5-yearly evaluation) of assessing age-friendliness (amber), (2) communities that have

conducted analysis (green), and (3) those that do not intend to quantifiably measure age-friendliness (red). This would provide the WHO with key insights, feeding into the expectant 5-yearly evaluations of the GNAFCC membership, leading to a global database, thus adding to the existing datasets collated through the initial AFCCQ validations (Dikken et al., 2026), enabling longitudinal analysis to be conducted in the future. Management and negotiation between the WHO and key stakeholders of this data would be critical, including key signposting of personnel conducting site data analysis. Proposing an international dataset to enable the measurement of age-friendliness would be valuable for community entities and policy makers who truly wish to make change through their age-friendly initiatives.

Based on the new revelations posited by van Hoof and colleagues (2025b/c) it is now very clear that the existing WHO AFCC topics (2007a) should be overhauled and for members of the Global Network of Age-friendly Cities and Communities (GNAFCC) to reanalyse the age-friendliness of their community.

The notion of digital transformation is not going to disappear, and it is imperative that future theoretical and applied research acknowledges the implications of digital technologies at both high and low levels of communities and countries. The ATAT project together with existing theoretical frameworks illustrates how citizens with low digital literacy can still remain connected, with assistance. Community entities and policy makers need to acknowledge the implications and impact of digital transformation rollout and recognize our communities are not homogeneous. For example, some residents will be aging without children (Hadley, 2021), and (may) have few friends or community networks to seek out assistance. There is an alignment between AFCC initiatives and digital transformation, and this must be acknowledged to truly represent 21st century society, communities and residents who wish to live independently but may require greater support because of their personal circumstances (for instance, residents with disabilities; Degenholtz et al., 2025), irrespective of age. We recommend a further overhaul of the WHO Essential Checklist (2007b) to accommodate the digital transformation in our communities and more broadly our society (van Hoof et al., 2025b/c).

The conceptual frameworks (Figures 2 and 3) are situated in evidence-based research (Dikken et al., 2026; Marston et al., 2025, Ch10; Dikken et al., 2020) and interdisciplinarity, whereas the WHO AFCC framework (Figure 1) features considerably less evidence-based research (van Hoof & Marston, 2025b; van Hoof et al., 2025c), placing “finance” directly with residents; without financial security the affordability of everyday items (housing, groceries, transport, etc.) or the participation in community activities, affording health insurance (for instance, insurance poverty; Kwon et al., 2018), medication costs, or additional social care needs is not achievable. Without financial security, residents’ quality of life differ. Future proofing age-friendly initiatives led by community entities should consider the AFCCQ instrument because it establishes evidence-based research, which can in turn be applied directly into the community

through strategic (policy) decision making to meet the needs of all residents, not a select few or population.

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Conflicts of interest

None declared.

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