

# Digitalising the built environment for all generations: A new paradigm for equity and inclusive age-friendly cities and communities

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## Introduction

Digital transformation in society has been exacerbated since 2020 and the COVID-19 pandemic.<sup>1</sup> Imagine working from home or having a face-to-face conversation without having access to the now well-known and ubiquitous platforms that facilitate online meetings. Now in a post-pandemic society, many sectors situated within the built environment are realising the importance of engineering and technology and their roles in digital transformation throughout our daily lives. Developments and challenges of sustainable urban design in the digital age have been outlined by Wang et al.<sup>2,3</sup> There are greater opportunities to work from home or offer alternative modes of healthcare delivery<sup>4,5</sup> and independent living.<sup>6</sup> Now and in the future, our homes and associated buildings within the built environment making up our cities and communities should adapt to accommodate the emerging needs of future populations including people in Western societies who are Generation X, Millennials or Generation Z,<sup>7</sup> and not just older generations. The future of age-friendly cities and communities (AFCC) needs to adapt and be more agile to the changing needs of residents of all ages. The UN Decade of Healthy Ageing ‘the Decade’ provides a unique opportunity to further strengthen age-friendly environments. The Decade brings together governments, civil society, international agencies, professionals, academics, the media and the private sector for 10 years of concerted action to improve the lives of older people, their families and the communities in which they live.<sup>8</sup>

Recent literature<sup>6,9–13</sup> has posited alternative, innovative, inclusive and up-to-date AFCC models, building on the foundations of the World Health Organization’s (WHO) age-friendly model.<sup>10</sup> The alternative SAfE<sup>6</sup> and CASE frameworks<sup>12</sup> acknowledge the achievements of engineers,

specifically technology as a means of improving the built environment in the broadest sense of the word. Both frameworks demonstrate how theory is underpinned and can be applied in the micro, meso and macro levels of our societies.<sup>12</sup>

## Looking towards the future

The built environment encompasses more than just buildings, and encompasses residents, visitors, workers/commuters, tourists, as well as the social innovation and the lived experiences of the inhabitants of the community be it rural or metropolitan across the life course, ensuring a ‘transgenerational’<sup>7</sup> approach is underpinned. There is a growing body of literature from the perspective of pre- and post-pandemic communities and society<sup>14–16</sup> surrounding digital transformation and behaviour, relating to the built environment or in other domains of our daily lives.

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## Digital and eHealth for the future

Digital health is of global importance,<sup>17–19</sup> and in the context of the home environment, people are now being expected to self-monitor their health and engage with telehealth practices.<sup>20</sup> The homes of people are increasingly turning into a true alternative for a general practitioner's practice, a hospital or polyclinical centre, or a nursing home. However, much more can be done to join the dots up, aligning to the Decade and the SDGs (Sustainable Development Goals) to acknowledge the importance of technology within our societies, be it Western, East-Asian, Middle Eastern or low-middle-income countries. Action plans such as the *'Regional digital health action plan for the WHO European Region 2023-2030'*<sup>21</sup> sets out the challenges and opportunities experienced since the pandemic; such challenges can be overcome while seizing the opportunities, to afford all citizens the opportunity and access to eHealth in the coming years and more importantly decades.<sup>21</sup>

As mentioned before, a transgenerational approach is much needed. It is imperative that we look to the future not just a decade, but 40, 50 even 60 years as stipulated by Marston and colleagues<sup>7</sup> in their *'Transgenerational Technology: Well-Being & Innovation Opportunities for the 21<sup>st</sup> Century – A Manifesto'*. This approach requires strategic co-operation, communication, acknowledgement of financial and (digital) skills required by citizens and health professionals, with fewer discussions in echo chambers and a greater appreciation of the needs, expectations of marginalised communities.<sup>15,22</sup>

## Left behind because of skills and literacy shortage

In times when we are increasingly working, shopping, entertaining ourselves, engaging in social contacts from home instead of bridging physical distances, digital skills and literacy have become ever more important. The digital transformation since the pandemic has been a key driver. However, over the last 3 years, the pandemic has highlighted across the life course that not every young or older adult has the digital skills, or the financial means to install the Internet into their homes. Instead, public buildings and hotspots within the built environment act as a go-between the digital and rely upon public Wi-Fi hubs, with growth reaching 549 million hotspots globally<sup>23</sup> and includes public transport, cafes or restaurants, retail outlets or a library.<sup>24</sup> Further, some people use their smartphone for basic functions which can be impeded by their confidence.<sup>15,22</sup>

Guidance is important and employing a participatory approach can prove key to understanding the needs and expectations of users and can lead to various outputs including a podcast or a guidance booklet (ATAT Project).<sup>15</sup>

Although many scholars have studied the level of digital skills and literacy gaps in citizens including healthcare professionals (such as Wouters et al.<sup>25</sup> and Nieboer et al.<sup>26</sup>), their findings have sadly not yet found a wide-spread application which helps overcome problems in practice. For successful delivery of care in the form of digital transformation and eHealth, there are multiple factors that have to be considered:

1. Accessible and stable infrastructure, including a minimum Internet speed for less well-connected (rural or coastal) communities.
2. Acknowledgement of financial constraints placed on individuals and families who cannot afford a monthly Internet subscription, and alternative assistance is provided. Moreover, passing on devices that can incur additional problems with system updates (including iOS) may not function correctly or at all.
3. For existing citizens who do not have the skills or access, offer (interim) guidance and support. Digital skills and literacy need to be offered in various and accessible formats.<sup>27</sup> Community hubs<sup>7</sup> are one approach, while evening courses are another. Interweaving digital skills and literacy into educational curriculums are advantageous but possible, to ensure a minimum of knowledge and skills is attained upon leaving formal education.<sup>28</sup>
4. Employing the transgenerational manifesto<sup>7</sup> will set the foundations for future decades not just a short fix; affording citizens' voices to be heard by European and global governments who are set to instil eHealth and digital transformation initiatives on short, medium and long-term route maps.

But where do these recommendations sit within the AFCC domain?

## AFCC and the future

As detailed in the introduction of this editorial, the growing body of literature is setting the foundations. However, greater work is needed not only from a scholarly perspective but industry and organisations (such as NGOs) should be involved in the planning of future communities or smart cities.<sup>29–31</sup> Indeed, acknowledgement of people's financial situation has hardly been reflected to date, with the exception of the work by Dikken et al.<sup>32</sup> and van Hoof et al.,<sup>33</sup> which should be pivotal for future planning and implementation. It is a sorry state of affairs when people in essential day-to-day professions or older adults on fixed incomes face challenges in light of the cost-of-living crisis. Many older adults are unable to heat their homes for fear of the cost from energy suppliers,<sup>34</sup> and having the digital

skills and insights to steer one's energy use through the use of smart meters and thermostats<sup>35</sup> has been valuable in the winter of 2022–2023.

Future AFCC (applied) research and initiatives need to understand the implications of financial constraints and impacts on younger cohorts such as Generation X, Millennials and Generation Zs if there is to be sufficient impact and application. It is a primary concern for many of how they will afford to pay their monthly bills (energy or food), and who wish to lead a fulfilled and independent life, and enjoy leisure activities, but are unable to.<sup>34</sup> Currently, the 'sustainable' political agenda has not led to acceptable conditions in which people can continue to live with a good quality of life at a decent cost, as energy would be saved and generated through environmentally friendly systems.

On the contrary, in Maslow's hierarchy of needs,<sup>36</sup> observations show many factors placed at the base of the pyramid which are under pressure due to the cost-of-living crisis and are of a higher priority than self-fulfilment, which has been the focus of many AFCC researchers. In many non-Western nations, sustainability and self-fulfilment are not on the list of political and societal priorities, as nations are building economies to lift societies out of poverty, provide healthcare services and shelter, and prevent potential future famine. As the AFCC agenda is a global agenda, the world-wide participation requires future research and initiatives to go back to the basics and adopt a more universal agenda.

Pontificating, handwringing and discussing the quandaries of current societal challenges requires reimagining to focus on both immediate and long-term future directions globally. This behaviour only speaks of tokenism,<sup>10,37</sup> and thus, a cohesive and succinct roadmap for policy and practice is required, to understand the digital transformation/eHealth (yet in many developing nations, the infrastructure may not be there), sustainability, AFCC and the financial implications for our communities, industry and innovation sectors and at the country level. This also acknowledges the diversity that exists on a global level.

## The next steps

The next steps that need to be considered and taken forward are as follows:

- A. Reducing surplus research through evidence-based research plays a key role here and to provide a succinct overview of the current landscape and state-of-art research.<sup>38</sup> This means that evidence from non-anglophone contexts should be included and consulted, and Anglophone studies need to be re-appraised based on the country where such studies are applied as potential evidence. For instance, the WHO European Region comprises of 53 countries,

from the Atlantic all the way to the Pacific Ocean (namely, the east of the Russian Federation), with approximately 880 million inhabitants. Different countries require different approaches and have different priorities because of cultural, religious, political and socio-economic realities.

- B. Different entities have different roles to play on the national and international landscape in a bid to collaborate and provide informed multi- and interdisciplinary evidence-based decision-making intersecting across the AFCC environment, gauging current discourse and initiatives, including financial implications<sup>32</sup> and looking towards the future, ensuring multigenerational built environments are fit for purpose.
- C. Industrial, NGO and academic blue-sky thinking can lead to collaborative route maps instilling social innovation, aligning to the five principles outlined by the Regional Digital Health Action plan for the WHO European Region 2023–2030<sup>21</sup>; the Decade and the SDGs by taking a transgenerational<sup>7</sup> approach will serve the provision of a legacy but more importantly, a positive AFCC for future decades to come.
- D. Acknowledging the critical role that finance plays in the daily lives of citizens is crucial,<sup>32</sup> because financial aspects govern every single domain of the AFCC.<sup>33,34</sup> This lack of awareness will only create greater divides in society – the haves and the have-nots, and it is imperative that future societies and AFCCs are equitable for all residents.

This editorial serves as a thought piece and outlines recommendations for the imminent and future discourse surrounding digital transformation, digital skills/literacy and financial implications on societal citizens in the AFCC discourse. Action is needed now, and this can only be achieved by talking openly about the real issues and concerns affecting people in our communities and in the future.

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