

## POSTER SESSION 3

### Towards a viability assessment of smart-ready and life-long homes for ambient assisted living

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Helal et al. (2020). *Gerontechnology* 19(suppl); <https://doi.org/10.4017/gt.2020.19.s.70011>

**Purpose** Whyndyke Garden Village (WGV) is an NHS-designated Healthy New Town being designed from green-grass up. The project emphasizes built environments and elements to promote and measure active and healthy living, and to also enable the transformation of how care is sustainably delivered in the WGV community. Part of achieving these two goals is designing homes for life-long living so they can be adapted to accommodate individuals' needs as they evolve over time, as well as enabling people to live independently for longer, and incorporating digital design in the homes to ensure every home built is a smart-ready home. This innovative type of build could also have an impact on the demand for statutory care provision through local authorities and the health system as people are enabled to remain in their own home environment to support their care and recovery. WGV developers will be aided with detailed costings that we have compiled (and continue to refine) for this type of construction. We first explain Homes For Lifelong Living (HFLL) and Digital Design in the Home, or what we coin as Digital Plumbing (DP). The HFLL standard aims for homes to be built in a way that allows them to be adapted in the future to meet the changing needs of individuals with a range of physical disabilities or illnesses, for instance, the needs of young families requiring accessibility for prams and pushchairs and the needs of an ageing population. DP aims to promote the idea of a smart-ready home that can be turned, with minimum intervention, into a specific smart home – say a dementia home, as opposed to a smart home often built with a fixed purpose and goal in mind. Smart-ready homes can be adaptively and easily specialized or updated over time (Figure 1) to support varying user needs and to deliver the needed assistance, empowerment and living independence (Helal & Bull, 2019). **Method** We compiled a specification of requirements for the WGV HFLL and DP requirements/standards. The HFLL standard is a hybrid of Lifetime Homes (Lifetime Homes, n.d.) and optional building regulations for accessible and adaptable dwellings ("Approved Document M", category 2) (Ministry of Housing, 2016). The DP requirements were designed based on our expertise of smart home and smart-ready design and deployments (Helal & Bull, 2019, s.157-163; Helal et al., 2005, s. 50-60). A Request for Quotations (RFQ) was sent to neutral third parties to request they tender to do the work and to provide cost implication and assessment. The aim was to understand the additional cost of building a range of homes to these enhanced standards, considering savings associated with building at scale. **Results and Discussion** Based on obtained responses, an organization was chosen and commissioned to calculate the costs of building homes to the HFLL standard. These costs are currently being delivered in a draft report. No willing responses were received for the DP standards, even though informal feedback suggested that calculating the cost of building homes to the DP standard was difficult to approach. Work is underway to identify an organization to calculate the cost of building homes to the DP standard separately. All costs obtained will be shared and reported during *Gerontechnology* 2020.

#### References

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**Keywords:** Smart homes, Ambient Assisted Living, Smart-ready Homes, Lifelong Living, Healthy New Towns

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Figure 1. Hosting and Powering Options for Digital Plumbing. Left: Residential grade raised flooring with carpet tile blocks. Right: Dropped crown molding with dedicated conduit network