

## Technology: Past, present, and future

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Charness (2020). *Gerontechnology* 19(Suppl); <https://doi.org/10.4017/gt.2020.19.s.69681.2>

Societies are experiencing two important trends (Czaja et al., 2019) in technology development that have implications for gerontechnology: 1) Miniaturization of technology products, and 2) accelerating technology diffusion rates. The former has resulted in products that pose challenges to aging adults undergoing normative changes in perceptual, cognitive, and psychomotor capabilities. For instance, small displays lead to poor legibility of text and icons. At the same time, miniaturization has promoted portability, enabling aging adults to benefit from digital assistants. Rapid diffusion rates have made information and communication technology (ICT) affordable and ubiquitous. Yet, older adults experience a digital divide in terms of ownership of and proficiency with ICT, making full participation in society more difficult. An example is seen in Figure 1 for frequency of internet access for countries in the EU by year and age group. I discuss these trends and their implications as well as present an approach to forecasting future changes by considering invariants in technology, people, and environments. People's unaided capabilities (e.g., for perception: visual acuity; for cognition: working memory capacity; for psychomotor performance: index of difficulty for Fitts' Law) evolve slowly over time frames of centuries. Social environment characteristics relevant to caregiving such as family size, change more quickly, though over time scales of 40-50 years, as do physical structures such as buildings. However, an invariant for ICT products is that they require continuous access to electrical power to function. More variable climate conditions and cyberwarfare may threaten electric grids and the internet. Nonetheless, there are positive trends in people's aided abilities, including through technology adoption (Charness, 2019), that may counter such risks.

### References

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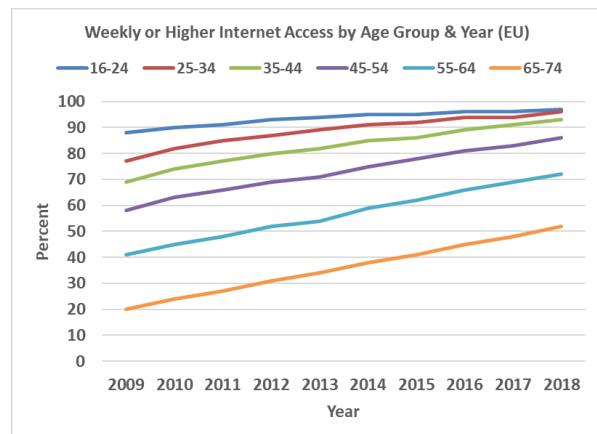


Figure 1. Internet access in the EU by age group and year