An aerial photograph of a city skyline, likely Chicago, featuring numerous skyscrapers and a large body of water (Lake Michigan) in the background. The sky is overcast with grey clouds. A thin horizontal gold bar is located in the upper right corner of the image.

SUSAN K. WALKER, PHD  
UNIVERSITY OF MINNESOTA

*Digital technologies:  
interlinkages with  
megatrends  
and regional perspectives*

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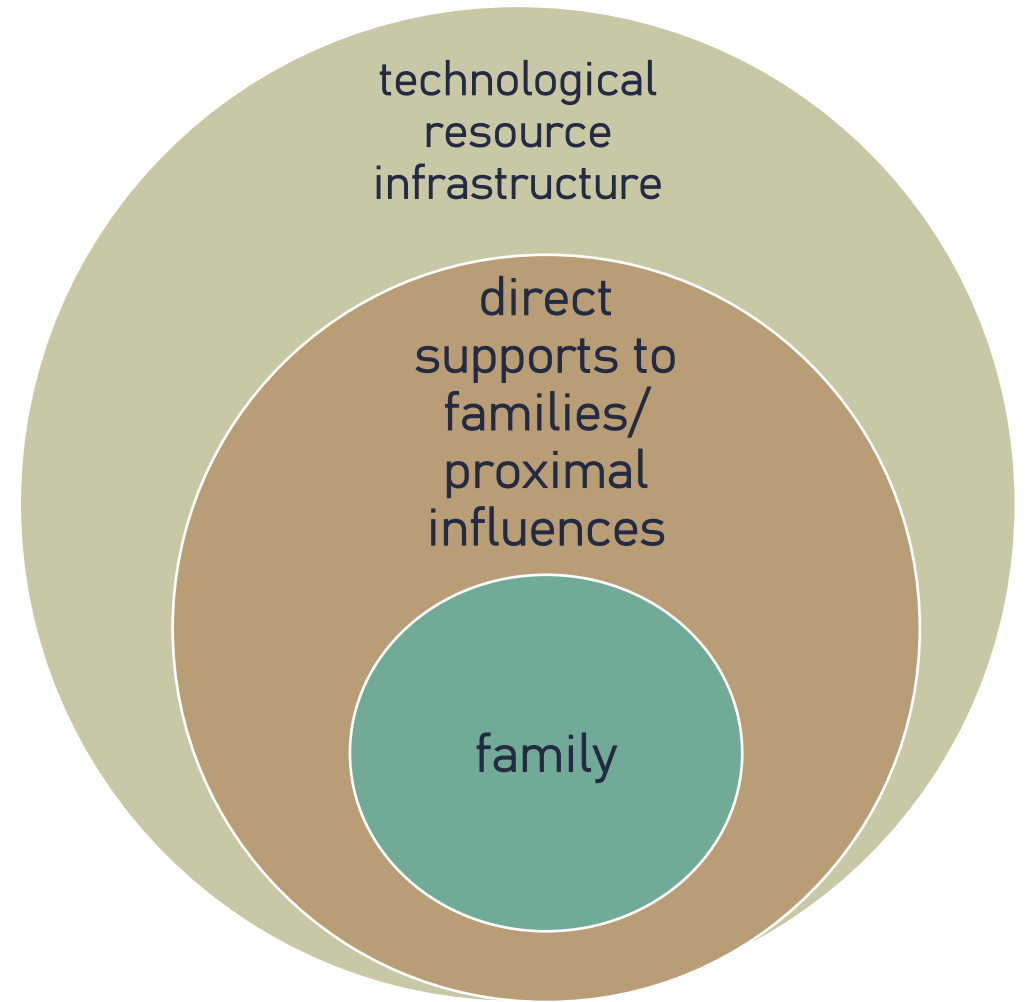
# Now in the tertiary phase of the 'Information Age' – much has been learned/much to know

- In the last 25 years, nearly ubiquitous Internet use and smartphone ownership; with transactional effects on individuals, families and the wider structures they live in
- Information and communications technology (ICT) has reduced space and time barriers, offered efficiencies and additional tools for communication, productivity and learning
- Research to date supports the value of ICT to family life and human development
- Yet it also identifies threats through exposure, security and privacy breaches, heightening challenges especially to those living in high risk conditions
- Further research avenues will identify processes and actual (not correlational) impacts and strategies to best support families.

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# Key aspects influencing ICT effectiveness for all families

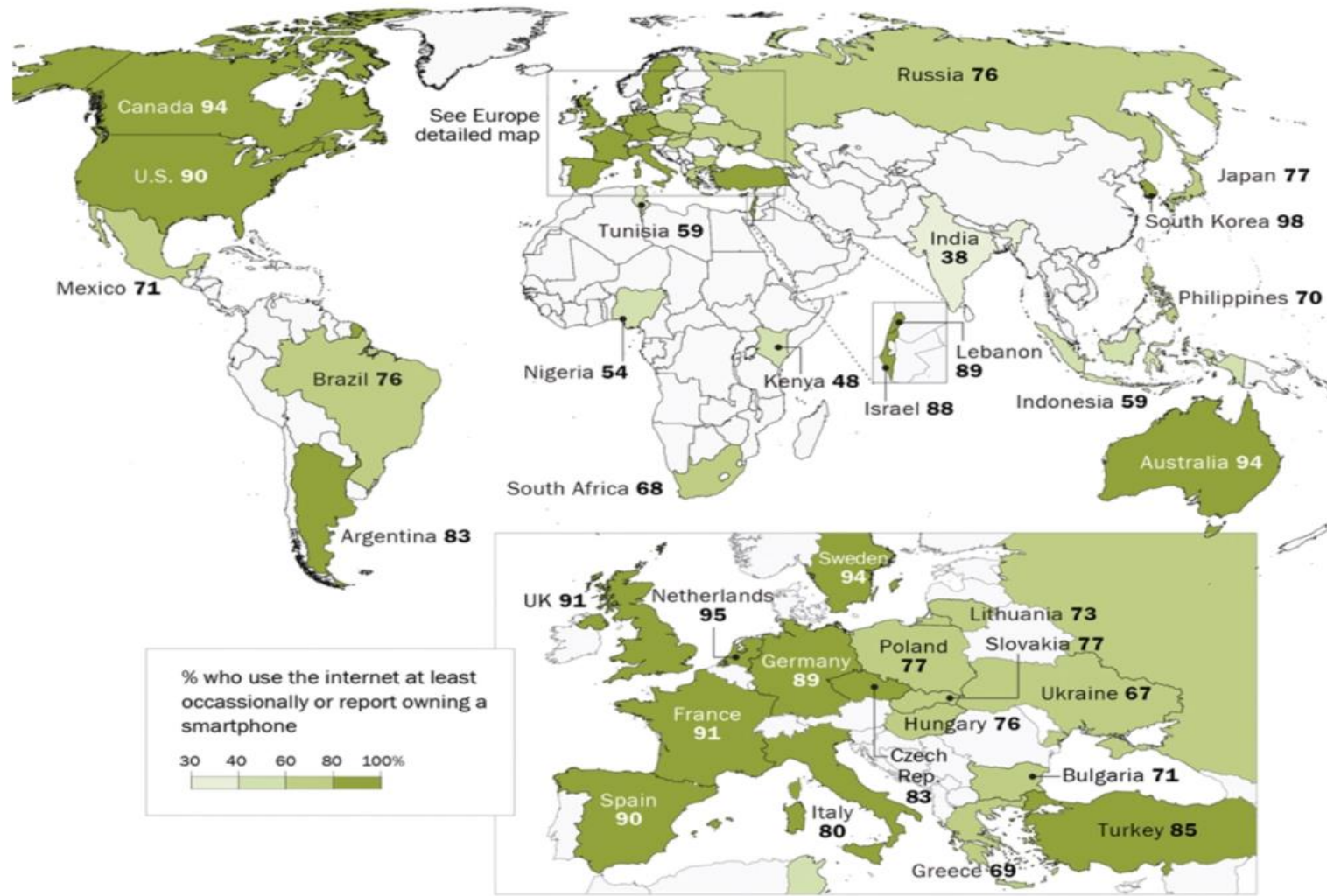
- Context influences create user divides:
  - Access
  - Comfort & skill





## Internet use is a prevalent part of many people's lives across the globe

% who use the internet, at least occasionally, or report owning a smartphone



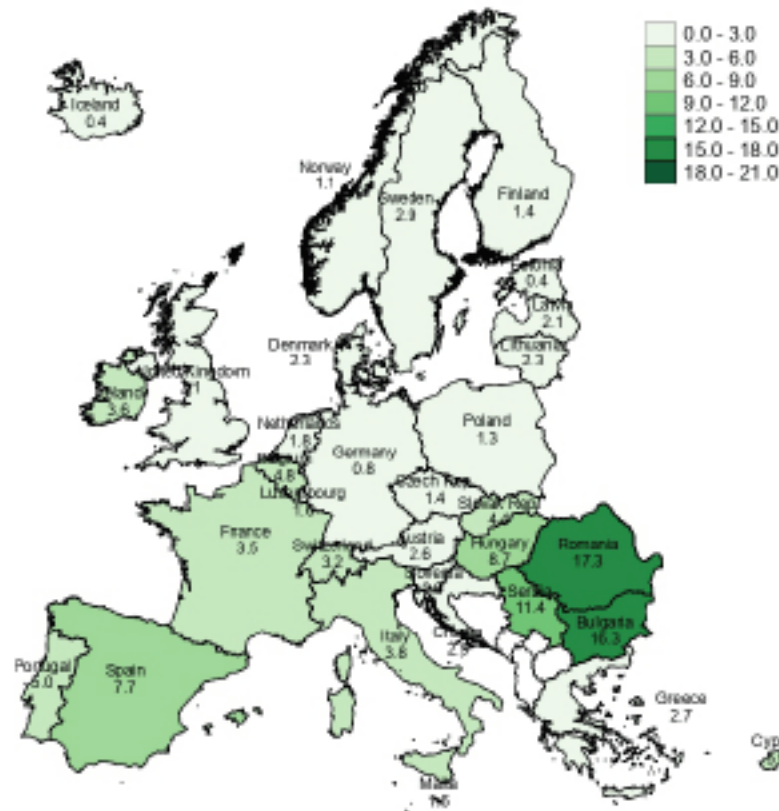
Internet access and use varies around the world. Although approximately 77% have internet access, this ranges from developed economies (e.g., US, EU) 98% to less developed economies (e.g., Africa, India), 13%.

Schumacher, S. and Kent, N. (2020, April 2). *8 charts on internet use around the world as countries grapple with COVID-19*. Pew Internet and American Life. Retrieved from <https://www.pewresearch.org/>

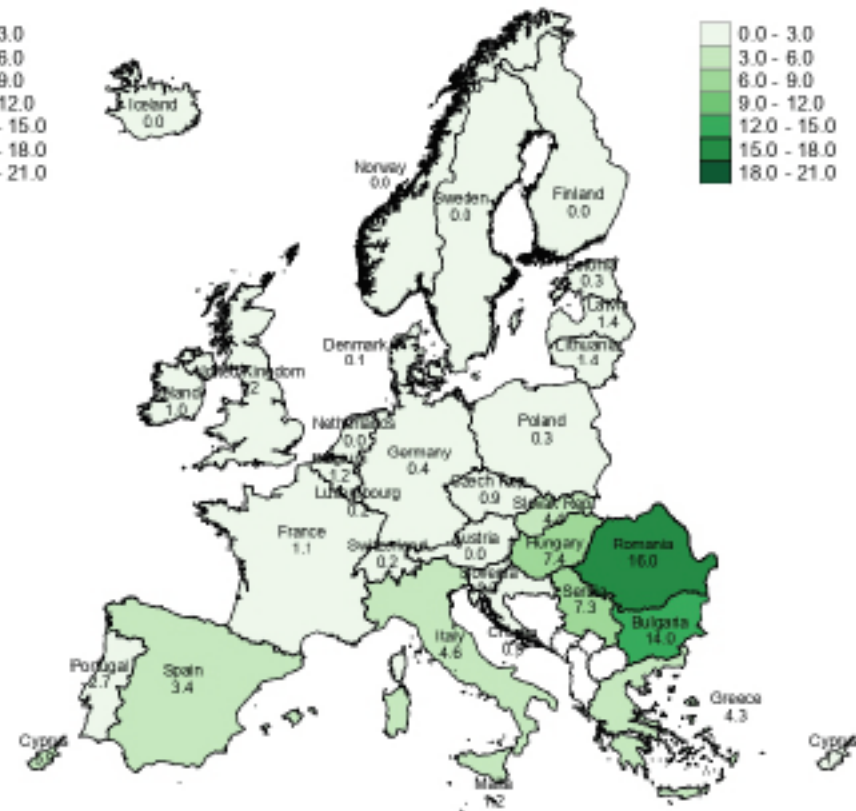
Source: Spring 2019 Global Attitudes Survey. Q51 & Q53. U.S. data is from a Pew Research Center survey conducted Jan. 8-Feb. 7, 2019.

# European children (6-16) in households that cannot afford a computer (left); that cannot afford an internet connection

**Figure 2a:** Percentage of school-aged children (6-16) who live in a household that cannot afford a computer, Europe, 2019



**Figure 2b:** Percentage of school-aged children (6-16) who live in a household that cannot afford an internet connection, Europe, 2019

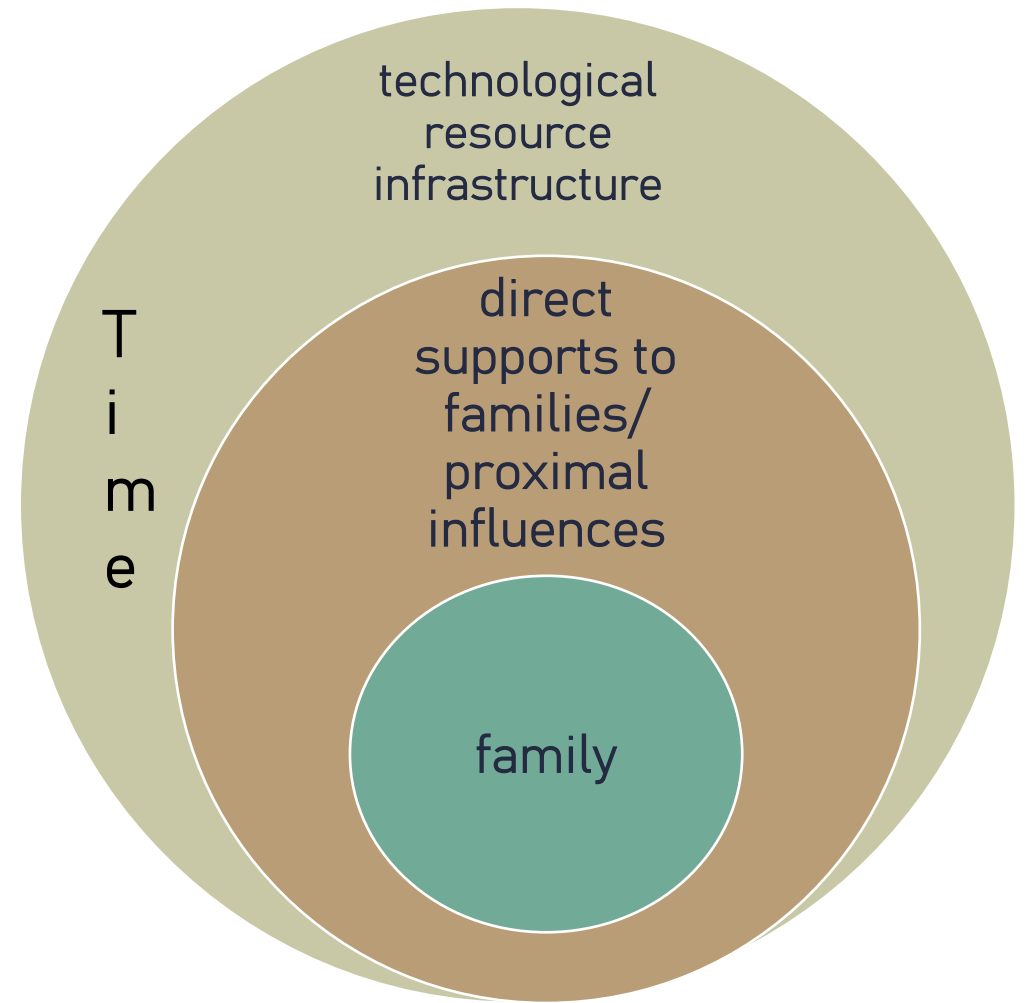


Ayllón, S., Holmarsdottir, H.B. & Lado, S. (2021). Digitally deprived children in Europe. (DigiGen - working paper series No. 3.

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# Key aspects influencing ICT effectiveness for all families

- Context influences create user divides:
  - Access
  - Comfort & skill
- Time influences on the user experience:
  - Generational differences
  - Speed of technological change







Cell phones: 1992-2004



The first iPhone features in 2007 [15 years ago]

RAPID CHANGES IN ICT: devices, software, applications, capabilities → user preferences

<b>Size</b>	5.78" x 2.82" x 0.30"
<b>Weight</b>	7.19oz (204g)
<b>Display</b>	6.1" Super Retina OLED, HDR, ProMotion 120Hz, 1000/1200 nits
<b>Cameras</b>	12MP Wide f/1.5, 12MP Ultrawide f/1.8, 12MP 3x Telephoto f/2.8
<b>LiDAR</b>	Yes
<b>Front Camera</b>	12MP f/2.2 TrueDepth camera
<b>Processor</b>	A15 Bionic
<b>Battery</b>	3095 mAh
<b>Storage</b>	128GB / 256GB / 512GB / 1TB
<b>Connectivity</b>	Bluetooth 5, Wi-Fi 6 with MIMO, 5G (sub-6GHz and mmWave)
<b>Other features</b>	MagSafe, Dolby Vision, Dolby Atmos, Ceramic Shield, IP68 (6 meters up to 30 min)



Features of the iPhone 13Pro in 2022

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# Urbanization and Technology

- 'Smart' cities improve quality of life for families:

Emergency services and safety

Transportation efficiencies

Health services

Environmental health

E-commerce

Enhanced engagement in city planning

- ICT comfort may contribute to a reversal of urban migration:

COVID work from home has encouraged more workers and employers to reduce the need, desire and cost of place-based operations

Workers opting for less costly work from home situations outside of city areas



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## Families and Migration in the Information Age:

*'the successful integration of migrants requires that their technological integration is as important as the social, political, and economic integration traditionally reported in scientific literature' (Collin, 2012, p. 66)*

# Benefits of ICT for families during migration

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Social  
connections



Integration  
into new  
society

Skills development



Representation  
in data sources  
and social  
media

# Technology-Related Issues Facing Families During Urbanization and Migration

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Access

Digital  
Literacy

Privacy,  
and Safety

Especially vulnerable  
women and children

- Attend to equity issues to ensure level access and digital skills for immigrant and transnational families across the trajectory from preparation for migration to settlement and potential re-entry.
  - This includes attention to access and skill of professionals who work with immigrant families.
- Provide digital literacy infrastructure that supports social connectivity and integration into new communities.
- Empower immigrants, particularly women, with skills to deploy technology in work, and as members of the tech sector.
- Attend to regulation and policy involving how immigrants are represented in data sources, viewing data as a public good. Attend to public discourse and safeguard immigrant women, children and families from surveillance, privacy invasions and threats from traffickers.

## POLICY RECOMMENDATIONS THAT ALIGN WITH THE SDGS

### SUSTAINABLE DEVELOPMENT GOALS

