

Research note: Between infrastructure updates and societal needs - the missing link of digitalisation

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Abstract: The last decades have witnessed a sustained focus from local and regional policymakers on digitalisation and smart strategies. While these strategies have contributed to a uniformization of infrastructure and access to digital products, they have also created inequalities of their own. Recent studies indicate that, rather than reducing existing socio-economic inequalities, the digitalisation process has generated new gaps, particularly in relation to skills and outcomes. A solution that has been successfully tested, but which is still lacking proper wide deployment is represented by digital helpers, considered to be the missing link of the digitalisation process. This research note proposes a framework and a strategic matrix for policy design that connects the digital helper's role, typical tasks covered, and the level of inequality addressed, as well as a theoretical solution to reduce the misunderstandings arising from administrative variations.

Keywords: digitalisation, digital divide, digital helpers, policy

Introduction

The end of the 20th century and the beginning of the 21st century marked an intensified policy focus on digitalisation and digital products. Digitalisation became a dominant driver for local and regional authorities and was promoted as a mandatory foundation for smart city agendas, smart specialisation strategies, and modernisation of public services. This orientation encouraged the expansion of broadband networks, digital platforms, and e-government interfaces, with the objective to improve accessibility, administrative efficiency, and to support the overall increase of wellbeing. In many contexts, these investments contributed to successfully reducing the first level of the digital divide (access), mostly due to richer infrastructure and higher availability of digital services (Gunkel, 2003; Kim and Kim, 2001; van Dijk, 2006).

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However, the universal solution promoted by policymakers has proven incomplete. Although access to various services has improved, the returns associated with digital engagement remain uneven (Ibănescu et al., 2025; Srinuan & Bohlin, 2011). For some citizens, digitalisation mostly supports entertainment and social interaction, with limited spillovers and with weaker or almost nonexistent implications for income generation or improved employment prospects (Aissaoui, 2022; DiMaggio et al., 2004; Hargittai & Hinnant, 2008). By contrast, other citizens integrate digital tools into everyday practices related to banking, education, and work, which can generate savings in terms of time and money and ease access to public and private services. These different patterns of digitalisation-generated impacts imply that the entire process, in its current form, produces uneven outcomes across the population (Ibănescu et al., 2022; Ibănescu et al., 2025). Therefore, while digitalisation may reduce first-level inequalities, it can also intensify second-level inequalities related to usage, as well as third-level inequalities related to impacts, including offline benefits, wellbeing, and socio-economic inclusion.

The ongoing trend suggests that the same digital infrastructure that stands out for “modernisation” at the system level may correspond to “exclusion” or peripherisation at the individual level, particularly when service delivery becomes *digital by default* without adequate forms of support.

This research note argues that the missing link stopping digital impact to extend beyond access infrastructure is not necessarily related to technical matters, but to mediation capacity, more precisely, it is the people and practices that help citizens convert digital availability into tangible outcomes. The paper argues that digital helpers emerge as a practical, local-based, response that supports vulnerable individuals in completing digital tasks while offering solid solutions for policymakers in order to properly integrate them into local and regional strategies.

1. The emergence of digital helpers in the multi-level digital divide environment

The earliest approaches towards digital divides in the smart strategies were almost exclusively focused on the access problem. Connectivity, devices, and basic availability of online services were seen as the main and, sometimes, exclusive remedy for bridging the gap, at both individual and SMEs’ level (Botezat et al., 2021; Ibănescu et al., 2022; Mladenova et al., 2025). However, as the digital deployment expanded, covering the peripheral areas and creating a wide and homogenous network, the existing rifts failed to disappear, hence suggesting the existence of a more complex state of affairs. This pushed the academic debates to develop multiple frameworks to capture the digital exclusion and its socio-economic and spatial implications (Hargittai & Hinnant, 2008; van Deursen & van Dijk, 2014; van Dijk, 2006).

Following in-depth scrutiny, a three-level digital divide model was suggested in order to identify differentiated mechanisms of inequality (Hargittai, 2003;

DiMaggio et al., 2004; van Dijk, 2006). The first-level divide concerns material access to digital technologies. Despite overall progress in connectivity, access inequalities persist through differences in connection quality, speed, and affordability (Maceviciute & Wilson, 2018; Robinson et al., 2020; van Deursen and van Dijk, 2014). Cross-national examples demonstrate urban–rural and inter-urban divides (Maceviciute & Wilson, 2018), amplified by the recent pandemic, as unstable or unaffordable access translated into restricted access to telework, online learning, and telemedicine (Ibanescu et al., 2023; Robinson et al., 2020). The second-level divide shifts attention from access to usage patterns and digital skills, showing that groups differ in how they use digital tools and in their capacity to do so effectively (DiMaggio et al., 2004; van Dijk, 2006). Vulnerable groups may engage more in entertainment or passive consumption, while advantaged groups use digital resources for education, career advancement, and civic participation (Hargittai, 2003; DiMaggio et al., 2004; van Dijk, 2006). Finally, the third-level divide focuses on unequal outcomes and returns from digital participation, including employment, wages, and political participation (Aissaoui, 2022; Scheerder et al., 2017). At the individual level, outcome gaps are interpreted in terms of uneven employment and resilience (Beaunoyer et al., 2020; Ibanescu et al., 2023), as well as engagement in e-governance (Aissaoui, 2022; Bucea et al., 2021).

The third-level digital divide is considered extremely important because it moves the analytic focus from *who is online* to *who benefits from being online* (Hargittai, 2003; DiMaggio et al., 2004). From this perspective, digital inequality continues when people with comparable connectivity and even comparable skills still obtain uneven outcomes, such as time and cost savings, improved service access, employment opportunities, or enhanced wellbeing. Empirically, populations with similar access can display very different usage collections, ranging from leisure to high-stakes financial, educational, and administrative practices (Ferreira et al., 2021; Van Deursen & Helsper, 2015). The range is shaped not only by digital skills, but also by social support and institutional design.

As the policy problem has shifted from access to outcomes, a practical response has emerged in many territories, especially urban areas and metropoles. Smart city strategies have experimented with multiple approaches to reduce the gaps associated with digitalisation, with mixed results. However, one response, particularly relevant for individuals with lower digital skills, has been to rely on a broad category of support commonly described as digital helpers. These helpers are often younger family members, caregivers, or community volunteers who assist with essential tasks such as account creation, password management, and accessing online services (Antonio & Tuffley, 2015). The common function of digital helpers is the mediation between digital systems (e-government portals, online forms, banking apps) and citizens with lower skills, confidence, or accessibility.

For the most part, the term is used to define any individual who has sufficient digital literacy to support others with related activities, with the shared function of

enabling access to and effective navigation of digital systems. While the term can be associated with broader terminology, such as local experts (Courtois & Verdegem, 2016), facilitators and e-facilitators (Coles-Kemp et al., 2022), digital assisters (Coles-Kemp et al., 2022), among others, the literature challenges assumptions that digital expertise is concentrated among younger people. Researches focused on peer-to-peer support show that knowledge transfer can be effective within age-similar or socially homogenous groups (Hunsaker et al., 2020; Robinson et al., 2020).

2. Guidance for policymakers on enhancing the impact of digital helpers

Digital helpers can therefore be conceptualised as agents of digital inclusion (Coles-Kemp et al., 2022), with the potential to strengthen the inclusion effects of smart strategies. Unsurprisingly, they have recently become a key support element for local and regional policymakers in their efforts to multiply the positive impacts of smart strategies. However, while digital helpers constitute an increasingly visible mechanism through which digitalisation strategies can be translated into inclusion outcomes, their integration in policies remains uneven. Digital help is acknowledged as necessary to mitigate second- and third-level digital divides, yet it is not consistently considered as part of core service and product delivery. This creates a problematic mismatch between the strategic ambition of public services and the practical capacity available to support citizens. Most of the existing issues that feed the respective mismatch revolve around two recurring shortcomings: (1) the slight misunderstanding of the variations imposed by the different administrative levels; (2) the poor connections between the role of digital helpers and the digital-divide level addressed (Ibănescu et al., 2025).

Regarding the first issue, it must be acknowledged that, at the moment, there is no clear distinction between the role and the extent of digital helpers' support measures at local and regional level despite the fact that they are covering territories with very different internal relations. For example, at the *local strategy layer*, digital help should be addressed through inclusion projects that position helpers as a form of delivery capacity. More precisely, they should be considered when smart strategies are implemented, or when new digital platforms are launched. In practice, this capacity often takes two forms. First, local programmes may rely on volunteer networks hosted in community-wide institutions such as libraries, community centres, or schools. This type of support has the major advantage of a very extensive reach, strong local trust, and very flexible formats for one-to-one sessions, group workshops. However, it can also generate variability in service quality and coverage, particularly where recruitment is difficult or where volunteer support is not aligned with more complex tasks (benefits applications, health portals). Second, digital help can be added to the responsibilities of frontline staff, for example, within administrative units, social care teams, housing support, or employment services. While the latter approach is the easiest to integrate into existing pathways, it tends

to produce inconsistent results, as time constraints are rarely designed to accommodate the iterative nature of digital assistance. As a result, the second form tends to support digital helpers rhetorically while failing to do so operationally, because the helper function is not supported through dedicated coordination, training, or safeguarding protocols.

When the strategy lens passes to the *regional and national layer*, digital helpers should be formalised through programmes that recruit, train, and support them as part of broader inclusion agendas. This type of approach provides standardised training materials, role descriptions, and infrastructure for managing volunteers at a wider territorial scale. While the regional modus operandi tends to integrate this specific design, it should be mentioned that they often operate through quasi-public organisations via affiliated branches and often omit third-sector or partner institutions. The policy logic should shift from dependence on local initiative or discretionary effort towards a distribution on a wider system, both spatially and institutionally, that could keep minimum standards, coherence across localities, and continuity over time.

In the new context, the relationship between the various administrative levels becomes a strategic policy, instead of a complementary design. Local actions do not manage to cover the required support through digital helpers' risk fragmentation, short-termism, and dependence on informal help. Furthermore, regional strategies that fail to address local integration may struggle to connect support to the specific environments where exclusion occurs, especially in the scenarios where vital services become digital by default. The strategic and long-term implication is that digital helpers are most likely to function as a durable *missing link* when they are positioned at the intersection of local service, community trust, and administrative systems that provide training and resourcing. On the other hand, digital helpers tend to be least effective when treated as a policy *add-on*, instead of a planned component of digital and/or smart strategies. Positive examples involving local government practice indicate that the helpers can also be organised as networks intended to deliver practical, place-sensitive support. For example, the UK Local Government Association documented a case study regarding a specific network developed to help residents lacking skills or confidence to go online¹. This networked model suggests digital helping is not reduced to a volunteer role, but it can be treated as delivery infrastructure for inclusion.

Regarding the poor connections between the role of digital helpers and digital-divide level addressed, we are suggesting a matrix approach detailed in Table 1 that can serve as a practical example of how the helper's role can be linked to specific needs and strategically used in the local and regional policies in the most efficient manner.

¹ Milton Keynes Digital Champion project <https://www.local.gov.uk/case-studies/milton-keynes-digital-champion-project>

Table 1. Strategic matrix for policy design

Helper role	Core function	Typical tasks	Level addressed
Access enablement	Reduce basic barriers to access online services	Device set-up, connectivity guidance, account creation	Level 1 (access)
Skills coaching	Build capability and confidence over time	Basic navigation, email, security hygiene, assistive tech basics	Level 2 (skills/use)
Task completion support	Enable completion of specific high-stakes tasks	Benefits applications, e-government forms, banking, appointments	Level 2 → Level 3 (outcomes)
Trust and assurance	Reduce fear, increase perceived safety and control	Scam awareness, privacy settings, step-by-step reassurance	Level 2 (use) and enabling Level 3
Referral and escalation	Connect users to specialist services when needed	Debt advice, social services, disability support, legal aid	Level 3 (outcomes)

Source: author's representation

The matrix summarizes digital helping in strategic documents as a set of distinct but complementary roles that align with different levels of the digital divide. Once access is covered in the territory, the focus should be switched towards skills coaching through operational competence, helping users to navigate digital environments more independently. The trust supports this transition and reduces uncertainty through guidance on privacy, security, and sustained engagement. Finally, the escalation is almost exclusively outcome-orientated, as it recognises that some digital difficulties reflect broader vulnerabilities and require connection to specialised services.

Conclusions

This research note addresses a major issue that emerged during the past two decades, the emergence of inequalities related to digital products despite an overall homogenous coverage in terms of access. As a result, it positions digital helpers as an implementation-oriented mechanism for converting infrastructure-led digitalisation into more equitable use and more equitable outcomes. Furthermore, it addresses one of the major shortcomings regarding the wide range deployment of digital helpers networks, their faulty integration within local and regional strategies.

The paper proposes an original framework to counteract the lack of overlap between administrative-level territorial specificities and variations in digital help networks, as well as a strategic matrix that connects the helper's role, core function, tasks, coverage, and the levels of the digital divide addressed. This approach helps

authorities at several administrative levels to better design policies and smart strategies that include digital helpers or related types of support as an integrative part, rather than as an add-on. We consider that local, metropolitan, and regional policymakers, as well as all actors of the quadruple helix, can contribute to a more direct dialogue with these types of networks in order to create, on the one hand, a better integration of digital helpers in their strategies and, on the other hand, a more productive outcome of their support.

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References

Aissaoui, N. (2022). The digital divide: a literature review and some directions for future research in light of COVID-19. *Global Knowledge, Memory and Communication*, 71(8/9), 686-708.

Antonio, A., & Tuffley, D. (2015). Bridging the age-based digital divide. *International Journal of Digital Literacy and Digital Competence (IJDLDC)*, 6(3), 1-15. <https://doi.org/10.4018/IJDLDC.2015070101>

Beaunoyer, E., Dupéré, S., & Guitton, M. J. (2020). COVID-19 and digital inequalities: Reciprocal impacts and mitigation strategies. *Computers in human behavior*, 111, 106424. <https://doi.org/10.1016/j.chb.2020.106424>

Botezat, A., David, M., Incaltarau, C., & Nijkamp, P. (2021). The illusion of urbanization: Impact of administrative reform on communities' resilience. *International Regional Science Review*, 44(1), 33-84. <https://doi.org/10.1177/0160017620964861>

Bucea, A., Cruz-Jesus, F., Oliveira, T., & Coelho, P. S. (2021). Assessing the role of age, education, gender and income on the digital divide: Evidence for the European Union. *Information Systems Frontiers*, 23(4), 1007-1021. <https://doi.org/10.1007/s10796-020-10012-9>

Coles-Kemp, L., Robinson, N., & Heath, C. P. (2022). Protecting the vulnerable: Dimensions of assisted digital access. *Proceedings of the ACM on Human-Computer Interaction*, 6(CSCW2), 1-26. <https://doi.org/10.1145/3555647>

Courtois, C., & Verdegem, P. (2016). With a little help from my friends: An analysis of the role of social support in digital inequalities. *New media & society*, 18(8), 1508-1527. <https://doi.org/10.1177/1461444814562162>

DiMaggio, P., Hargittai, E., Celeste, C., & Shafer, S. (2004). Digital inequality: From unequal access to differentiated use. *Social inequality*, 355-400, http://cpi.stanford.edu/_media/pdf/key_issues/consumption_research.pdf.

Ferreira, D., Vale, M., Carmo, R. M., Encalada-Abarca, L., & Marcolin, C. (2021). The three levels of the urban digital divide: Bridging issues of coverage, usage and its outcomes in VGI platforms. *Geoforum*, 124, 195-206. <https://doi.org/10.1016/j.geoforum.2021.05.002>

Gunkel, D. J. (2003). Second thoughts: Toward a critique of the digital divide. *New media & society*, 5(4), 499-522. <https://doi.org/10.1177/146144480354003>

Kim, M. C., & Kim, J. K. (2001). Digital divide: Conceptual discussions and prospect. In *International Conference Human Society Internet* (pp. 78-91). Berlin, Heidelberg: Springer Berlin Heidelberg. https://doi.org/10.1007/3-540-47749-7_6

Hargittai, E. (2003). The digital divide and what to do about it. In D. C. Jones (Ed.). *New economy handbook* (vol. 35, pp. 821-839). Elsevier.

Hargittai, E., & Hinnant, A. (2008). Digital inequality: Differences in young adults' use of the Internet. *Communication research*, 35(5), 602-621. <https://doi.org/10.1177/0093650208321782>

Hunsaker, A., Nguyen, M. H., Fuchs, J., Karaoglu, G., Djukaric, T., & Hargittai, E. (2020). Unsung helpers: Older adults as a source of digital media support for their peers. *The Communication Review*, 23(4), 309-330. <https://doi.org/10.1080/10714421.2020.1829307>

Ibanescu, B. C., Gheorghiu, A., Cristea, M., Pascariu, G. C., PsyCorona Team, & Leander, P. (2023). The evolution of job insecurity in spatial contexts in Europe during COVID-19 pandemic. *International regional science review*, 46(5-6), 552-576. <https://doi.org/10.1177/01600176231160485>

Ibănescu, B. C., Pascariu, G. C., Bănică, A., & Bejenaru, I. (2022). Smart city: A critical assessment of the concept and its implementation in Romanian urban strategies. *Journal of Urban Management*, 11(2), 246-255. <https://doi.org/10.1016/j.jum.2022.05.003>

Ibănescu, B. C., Ursache, I. M., Damian, D. A., & Gheorghiu, A. (2025). Bridging Urban Digital Divide: Digital Helpers and the Governance of Smart Cities. *Transylvanian Review of Administrative Sciences*, SI, 69-85. <https://doi.org/10.24193/tras.SI2025.4>

Macevičiūtė, E., & Wilson, T. D. (2018). Digital means for reducing digital inequality: Literature review. *Informing science: the international journal of an emerging transdiscipline*, 21, 269-287. <https://doi.org/10.28945/4117>

Mladenova, I., Vladimirov, Z., & Harizanova, O. (2025). Digital transformation, organisational capabilities, and SME performance - size matters. *Eastern Journal of European Studies*, 16(1), 216-238. <https://doi.org/10.47743/ejes-2025-0110>

Robinson, L., Schulz, J., Blank, G., Ragnedda, M., Ono, H., Hogan, B., ... & Khilnani, A. (2020). Digital inequalities 2.0: Legacy inequalities in the information age. *First Monday*, 25(7). <https://dx.doi.org/10.5210/fm.v25i7.10842>

Scheerder, A., Van Deursen, A., & Van Dijk, J. (2017). Determinants of Internet skills, uses and outcomes. A systematic review of the second-and third-level digital divide. *Telematics and informatics*, 34(8), 1607-1624. <https://doi.org/10.1016/j.tele.2017.07.007>

Srinuan, C. & Bohlin, E. (2011). Understanding the Digital Divide: A Literature Survey and Ways Forward, In 22nd European Regional ITS Conference, Budapest. <https://hdl.handle.net/10419/52191>

Van Deursen, A. J., & Van Dijk, J. A. (2014). The digital divide shifts to differences in usage. *New media & society*, 16(3), 507-526. <https://doi.org/10.1177/1461444813487959>

Van Deursen, A. J., & Helsper, E. J. (2015). The third-level digital divide: Who benefits most from being online? In L. Robinson, S. R. Cotten, J. Schulz, T. M. Hale, A. William (eds.) *Communication and information technologies annual*, (Vol. 10, pp. 29-52). Emerald Group Publishing Limited. <https://doi.org/10.1108/S2050-2060201510>

Van Dijk, J. A. (2006). Digital divide research, achievements and shortcomings. *Poetics*, 34(4-5), 221-235. <https://doi.org/10.1016/j.poetic.2006.05.004>

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