

# On the Imperative of Interdisciplinarity in Defining Digital Exclusion?

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**Abstract:** Digital inclusion is a central concept in information systems (IS) management, in a context of social and environmental transitions, and with the emergence of disruptive technologies for society, such as artificial intelligence, or blockchain. When it is mobilised in the literature, the aim is mainly to provide solutions to digital inequalities (digital divide and literacy). However, situations of digital inclusion and exclusion can co-exist, in the meantime. To assess the impact of digital technologies on society, we stand for an imperative to define this complementary concept of “digital exclusion”, i.e. the social mechanisms that keep individuals unable to fully participate in a world structured by technological spheres. Our article proposes to anchor this definition in an interdisciplinary approach, drawing on philosophy and sociology, in order to envisage and operationalize future required research on digital exclusion in IS.

## 1 INTRODUCTION

In Christian literature, the first excluded figure was Jesus Christ. This illustrates how deeply the notion of exclusion is embedded in history and social systems. It serves here as a starting point to question the underlying mechanisms of digital exclusion, a concept at the heart of contemporary debates on inclusion and equality.

Research in Information Systems (IS) has long focused on digital inequalities — the gaps in access to digital technologies (digital divide) and associated skills (digital literacy) — as well as their relevance in local contexts (van Dijk, 2020; DiMaggio & Hargittai, 2001; Faik et al., 2024). Digital inclusion is often viewed as a political response to these inequalities, facilitating social inclusion through digital technologies (Jaeger et al., 2012; Reisdorf & Rhinesmith, 2020). However, this approach to inclusion is built on notions of difference, inequality, and social stratification (Warschauer, 2003).


To understand the effectiveness of digital inclusion policies, it is crucial to examine the concept of digital exclusion and its mechanisms, complementing the existing work on inclusion. This


article proposes to take digital exclusion as a starting point, aiming to open new avenues for research.

As a complement to recent studies on digital exclusion (Vassilakopoulou & Hustad, 2023; Wilson-Menzfeld et al., 2024), this work draws on philosophical and sociological frameworks to define and characterise digital exclusion. The objective is, first, to explore the concept of digital inclusion and its limitations through a literature review. Subsequently, we will characterise digital exclusion by employing philosophical and sociological approaches, particularly focusing on the notions of boundaries and social mechanisms. Finally, we will propose a research agenda centred on the dimensions and implications of digital exclusion.

## 2 LITERATURE REVIEW ON DIGITAL INCLUSION

Research in Information Systems (IS) on digital inclusion primarily focuses on evaluating digital inequalities and the political solutions aimed at reducing them. Digital inclusion is often perceived as

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a lever for social inclusion (Reisdorf & Rhinesmith, 2020).

However, some studies highlight the limitations of this approach. Zheng & Walsham (2021) emphasize that analyses centred on technology access and adoption tend to obscure the social and political dimensions of digital exclusion. Pandey & Zheng (2023) identify four levels of digital inclusion: technological adoption, community participation, empowerment, and structural transformation. Faik et al. (2024) advocate moving beyond access inequalities by exploring the role of vulnerable populations in the inclusive design of technologies.

The literature can be synthesized as follows, as shown in Table 1:

Table 1: Key contributions on digital inclusion, from the literature

References	Summary	Key Definitions
Reisdorf & Rhinesmith, 2020	Digital inclusion has been studied for decades, focusing on understanding and addressing digital access ("digital divide"), use, and skills ("digital literacy").	Digital inclusion policies aim to bridge digital divides and foster digital literacy as a component of broader social inclusion (Jaeger et al., 2012).
Faik et al., 2024	Emphasizing inclusive technology design for marginalised communities, exploring socio-cognitive processes during the definition of technical requirements.	Digital inclusion must address the dynamic socio-cognitive processes that enable communities to interpret and shape technologies in ways meaningful to their contexts.
Pandey & Zheng, 2023	Critiquing the framing of digital inclusion around "who" should be included and calls for examining power structures and institutional norms affecting inclusion.	Digital inclusion involves not only access and skills but also empowerment and structural transformation, challenging power imbalances and fostering participation in societal structures.
Zheng & Walsham, 2021	Arguing for moving beyond a simple "digital divide" framework, emphasizing users as embedded in social relations and power structures.	Digital inclusion is a dynamic process involving interactions between users, technologies, and social structures.

These contributions call for redefining digital inclusion as a dynamic process involving interactions

between users, technologies, and social structures. To address digital exclusion more comprehensively, we propose drawing on the perspectives of anthropological philosophy and sociology.

This interdisciplinary approach allows us to explore the complex interplay of technological, social, and human factors that shape exclusion. By examining the boundaries and mechanisms underlying digital exclusion, we aim to expand the theoretical and practical understanding of the phenomenon and its implications.

### 3 DIGITAL EXCLUSION: PHILOSOPHICAL AND SOCIOLOGICAL APPROACHES

Definitions of digital exclusion vary. It can be understood as a mere lack of access (Naidoo & Raju, 2012) or as a loss of autonomy and active participation, tied to power structures (Pandey & Zheng, 2023). To define digital exclusion, we propose a combined philosophical and sociological approach.

#### 3.1 A Philosophical Perspective: The Notion of Boundary

Exclusion can be examined through the lens of philosophical anthropology, which interrogates the relationship between humans and their environment. To be excluded is to exist outside a boundary, a defined space where inclusion occurs. Several thinkers shed light on this idea.

Sloterdijk (2000) describes humans as beings who create "spheres" to adapt to the world, making the boundary between inclusion and exclusion visible. Honneth (2000), through the concept of the struggle for recognition, highlights the role of social relationships in identity formation. Gehlen (2021 [1940]) and Leroi-Gourhan (2012 [1943]) explore the idea that humans as technical beings organise the world to control its openness. These works help define exclusion as an inability to participate in a world structured by technological spheres.

#### 3.2 A Sociological Perspective: Mechanisms and Determinants of Exclusion

Sociology offers tools to analyse the mechanisms underlying digital exclusion. Castel (1994) and Paugam et al. (1996) describe exclusion as a dynamic

process, shaped by failures in systems of protection and recognition. These failures can be associated with factors such as:

- Income, employment, or cultural capital.
- Relationships with institutions and assistance structures (Paugam, 2013 [1991]; Simmel, 2002 [1907]).
- Socio-economic criteria, such as gender or housing.

Digital exclusion shares these determinants while introducing specific dimensions related to skills and access to technologies.

There is a circular relationship between social and digital exclusion. Socially vulnerable groups are also those most affected by the digital divide (Warren, 2007). This interdependence creates a vicious cycle in which mutual exclusions reinforce one another.

#### **4 RESEARCH AGENDA: TOWARD A COMPREHENSIVE UNDERSTANDING OF DIGITAL EXCLUSION**

The study of digital exclusion calls for a comprehensive and interdisciplinary approach that goes beyond the traditional focus on access and skills. By integrating philosophical and sociological perspectives, we can redefine digital exclusion as a dynamic and multifaceted process that reflects broader social, cultural, and technological interactions. This conclusion outlines a research agenda to deepen our understanding of digital exclusion and guide future inquiry.

Theoretical foundations must be established to clarify the concept of digital exclusion, moving beyond simplistic definitions centred on lack of access. A refined definition should incorporate dimensions of autonomy, agency, and social recognition, emphasizing the structural and power dynamics that shape exclusion. Philosophical approaches, such as the concept of boundaries in anthropological philosophy, can shed light on the relational and contextual nature of exclusion. Simultaneously, sociological frameworks highlight the mechanisms and determinants of exclusion, including economic inequalities, cultural capital, and institutional relationships. Exploring these aspects through an intersectional lens will reveal how exclusion is compounded by factors such as gender, ethnicity, disability, and geography.

Empirical studies are essential to ground this theoretical understanding in diverse real-world contexts. Research should examine the experiences of marginalised communities, such as migrants,

refugees, and displaced populations, to uncover the specific challenges they face in accessing and using digital technologies. Similarly, comparative studies of rural and urban disparities can illuminate how geographical and infrastructural differences influence digital exclusion. Vulnerable groups, including the elderly and individuals with disabilities, also warrant focused attention to address their unique needs and barriers. These inquiries should not only identify exclusionary mechanisms but also explore the role of institutions and policies in perpetuating or mitigating exclusion.

Methodologically, a mixed approach is needed to capture the complexity of digital exclusion. Ethnographic studies can provide rich, qualitative insights into the lived experiences of excluded populations, exploring their interactions with technology and their surrounding social contexts. Participatory research methods can empower these groups to co-design solutions and contribute directly to policy and practice. Comparative analyses across regions and nations can further identify common patterns and localised solutions, providing a global perspective on digital exclusion.

At the intersection of theory and practice, this agenda emphasizes the importance of evaluating digital policies and initiatives to ensure they address the root causes of exclusion. Inclusive technologies designed with user-centred and participatory approaches can play a vital role in reducing barriers and fostering equity. Furthermore, bridging the gap between digital and social inclusion requires an understanding of their reciprocal relationship. Socially vulnerable groups often experience heightened digital exclusion, creating a vicious cycle that needs targeted intervention. Policies and initiatives must address this interplay to achieve sustainable inclusion.

Finally, future research must address critical questions about the transitions between inclusion and exclusion, the impact of emerging technologies, and the ethical considerations surrounding digital justice. How can policies facilitate transitions to inclusion while preventing regression into exclusion? What role do technologies such as artificial intelligence and blockchain play in exacerbating or mitigating digital exclusion? How can principles of fairness, equity, and justice guide interventions in this domain?

By embracing this comprehensive agenda, researchers can contribute to a deeper understanding of digital exclusion and its implications. This knowledge will inform the design of equitable digital ecosystems that empower individuals and communities, ensuring that digital inclusion becomes a reality for all.

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