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Report on twin transition and intersectional inequalities

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This report investigates the intersectional impact of the twin transition policies, analysing how sustainable and digital advancements may mitigate existing inequalities across diverse groups in Europe. This deliverable, based on 402 narrative interviews conducted in nine European countries, examines how such inequalities shape and are reshaped by the twin transition across Europe. Its aim is to understand the drivers and barriers that affect individuals' participation in green, digital, and combined transition processes, and to identify policy measures capable of ensuring more equitable outcomes.

The findings show that inequalities in income, skills, health, gender, age, migration status, and place of residence strongly condition people's ability to participate in, shape, or benefit from transition processes. Limited time, financial resources, digital literacy, and infrastructural access reduce opportunities for vulnerable groups. Respondents perceive the green transition as value-driven and largely voluntary, whereas the digital transition is experienced as mandatory, fast-moving, and exclusionary for those lacking digital competencies or trust in institutions. Social networks, community norms, and personal beliefs play enabling or constraining roles in both domains. Structural gaps, including fragmented policies, poorly aligned infrastructures, and concentrated corporate power, further deepen exclusion. While some synergies between green and digital change exist, they remain the exception rather than the norm.

Overall, the study concludes that the twin transition is lived through unequal structures that shape the possibilities for agency.

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Executive summary

The green and digital transitions are processes that are expected to generate long term environmental benefits and opportunities for economic growth. However, these transitions may also generate widening inequalities which slow down progress overall, but also expand the gap between individuals, regions, and social groups. The benefits and costs of these two transitions are also likely to be unevenly distributed across households and vulnerable groups. If green and digital policies fail to address both existing and potential asymmetries related to access and distribution of resource, structural inequalities will be replicated and even widened, creating further injustice – not least since twin transition is taking place in a contested, stressful and unequal time in history (Piketty & Sandel 2025). Despite the growing interest and its position at the top of the European political agenda, the twin transition is still an evolving concept running over two parallel roadmaps/agendas rather than one cohesive policy framework. Much of the existing literature tends to focus separately on either the green or the digital transition. Given their dynamic interdependence, we expect the twin transition to be a more complex process, with its potential implications to economies and societies, still largely unknown. The way in which these two transitions are managed is also still unclear, while their implementation will vary across territories depending on many contextual factors such as their industrial structure, the level of populations' skills and international connectivity/collaboration.

The ST4TE project aims to provide a comprehensive view of the drivers of the twin transition, the inequalities that emerge or are widened by the twin transition, and a set of policies to build greener, more equal and more productive societies. The importance of the green and digital transitions is evident in addressing the impacts of climate change. However, alongside this recognition, there is a growing need for more data to assess the potential perpetuation or exacerbation of inequalities. Various sectors undergoing the twin transitions are currently experiencing disparities that could persist, or worsen, during this transformative period. ST4TE is designed to comprehend the impact of the twin transitions on green goals and vulnerable European regions. Additionally, the project studies the forces behind these transitions, potential inequalities and their causes, and collaborates with policymakers. The goal is to ensure that the green and digital transitions contribute to a more equitable and sustainable future.

This deliverable aims to capture how various inequalities, including income, skills, and health related inequalities, as well as age, gender and other intersectional inequalities, affect the implementation of the green, digital and twin transitions. Second, it aims to explore how the green, digital and twin transitions influence and potentially intensify inequalities in income, skills, employment and health, as well as age, gender and other intersectional factors. Third, it seeks to understand how these inequalities may reinforce each other, creating cycles that both shape and are shaped by the transition processes. It is based on 402 interviews with individuals across nine European countries, conducted by University of Gothenburg (UGOT), The European Future Innovation System Center (EFIS), and Aristoteles University of Thessaloniki (AUTH), in spring/summer 2025. The interviews and analysis followed a coordinated methodology, where guidelines and reporting templates were provided to enable coherent, purposeful, and useful reporting of results. The interviews were analysed using content analysis, qualitative topic analysis and narrative analysis.

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The overall results show that:

- **Inequalities shape participation:** Both the green and digital transitions are significantly influenced by socioeconomic, geographic, and demographic inequalities, particularly around access to time, money, education, and infrastructure. Vulnerable groups often face greater barriers and fewer opportunities for active participation making use of the gains or taking part in shaping its challenges.
- **Transitions differ in perceived agency:** The green transition is often narrated as voluntary and morally driven, relying on individual values for making the 'right' consumption choices and influenced by beliefs and support of the surrounding community. In contrast, the digital transition is experienced as mandatory, fast-moving, and harder to opt out of, creating pressure and exclusion for those without digital literacy, support through significant relationships, or access to digital tools.
- **Social networks and beliefs matter:** Communities, peer support, and personal values play a crucial enabling role in both transitions. However, lack of social appreciation, digital harassment, or mistrust in institutions can significantly hinder engagement.
- **Policy and structural gaps deepen exclusion:** In both domains, fragmented or poorly designed policies are often described as failing to account for diverse lived realities. This leads to frustration, non-participation, or unintended consequences—especially for rural residents, migrants, people with disabilities, and low-income groups.
- **Twin transition as mitigation of inequality.** There are certain descriptions of practices where digitalisation supports the green, so that existing sustainability can be strengthened, and intersectional inequalities are at the same time mitigated. One such example can be when digital marketplaces enable a circular economy of clothes. While most commodities or marketised eco-goods widens the gaps of consumer inequality, second hand clothes potentially do the opposite when the conspicuous consumption element isn't as much dependent on the amount of money spent. Despite the fair quantity of inspirational twin-examples, the successful twin transition is a rare thing, and respondents do not talk from the implied position that they live amidst such synergies.
- **The vulnerability of low emission lifestyle in high emission society.** The notion that we are in a green transition is widespread, but when individuals engage in low carbon activities, such as daily bicycling, long-haul train travel, or public transport, they question whether such a transition is at all happening. Many of the activities for taking part in a green transition go against existing policy and infrastructure, rather than being supported by it. Moreover, the ones that struggle to engage fully in a so-called sufficiency logic "low-emission-lifestyle", find themselves living against the grain and experience that policies not supporting a green transition make them vulnerable.
- **Life in the hands of tech monopolies.** The digital transition is a highly integrated aspect in many areas of people's life and certain groups, such as visually impaired persons, benefit much from digital innovation, while others, such as senior citizens, struggle not to fall behind when digital tools become mandatory. However, yet another experience is shared among groups exposed to a personal loss of integrity, such as immigrants, LGBTQIA+, or politically active persons, who feel a lack of control over the tools one is using and the personal

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information one provides. Daily digital tools, apps, software, communication, and work-tools designed by US tech-monopolies maintain and strengthens a control over digital infrastructure, yet such providers are also avoided by many narrators.

- **The costly green private investments.** Green private investments, such as insulation, electric vehicles, solar panels, or heat pumps, are explained as costly by persons with lower income. It is also a category of technology that respondents feel excluded from because they don't live in a house or cannot afford a car, to mention some examples. The notion that costly private investments stand as model for a successful green transition, makes certain individuals low-income groups (which are already low in material use and emissions) reluctant to the idea of a green transition. Many also do engage in re-use and low-consumption practices, a green behaviour that doesn't require high income.
- **Rural/urban divide in renewable energy landscape.** The main narrative, especially in rural areas, around the shift from fossil fuel to renewable, is based on the experience of living in sacrifice zones. The resistance against installation of wind power in northern Europe, and solar panel parks in southern Europe, we then suggest, is a structural rather than accidental phenomenon. All individuals living rurally are vulnerable in relation to these new infrastructures and since its installation seldom comes with monetary redemptions or land compensation, the tendency is leaning towards a deepened rural-urban divide. A way to lean into the energy shift is to demand measures to lower the total energy use – especially for urban areas as a justice claim.
- **Twin hesitance: The unregulated excess and resource use of digitalisation.** There is a widespread understanding of the grey side of digitalisation, meaning the ever-increasing energy and material needed for digital tools, online cloud services, streaming services, and generative AI. The hesitance is also due to mandatory or volitional use of digital services in people's everyday life, the negative effects on well-being originating from digital stress and information overload. There is a pressure to engage with digital infrastructure and platforms in both wage-work and in extended household-work. However, respondents also recognise how silly amusement, through energy-intensive online practices, is not only a practice they engage in but also an activity that is (surprisingly) unregulated.

In conclusion, the narrative analysis shows that the green, digital, and twin transitions are lived and interpreted through deeply unequal conditions that shape both people's capacity to act and the constraints they face. Across European regions, respondents highlight how socioeconomic position, geography, social identity, and institutional context form the structural backdrop against which individuals navigate the transitions. These structures shape, often asymmetrically, the resources, opportunities, and recognition available to them, reinforcing well-documented patterns of intersectional inequality. Together, these narratives demonstrate that the green and digital transitions are profoundly shaped by the interplay of structure and agency, power and inequality, and the intersectional positions people occupy. Individuals exercise agency (making choices, resisting pressures, seeking alternative) but always within structural contexts that condition what is possible, recognised, or safe. Intersectionality illuminates how these constraints and opportunities are unevenly distributed, shaping who benefits from, participates in, or bears the cost of the transitions.

The findings suggest that achieving a just and effective twin transition requires:

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- Policies that acknowledge differentiated capacities and lived complexities.
- Policies that aim to strengthen social networks and communities supporting learning, collective action and democratic debate in relation to green, digital and twin transitions.
- Policies that take into consideration the different logics, motives and experienced agency behind the green and digital transitions respectively.
- Infrastructures that enable rather than obstruct low-carbon and digital inclusion.
- Governance that addresses concentration of power in both tech and energy systems.
- A shift from individualised responsibility models to collective, structural, and justice-oriented approaches.

By centring lived experience, the narrative interviews reveal both the possibilities and the limits of agency in the twin transitions. They show that without structural change, particularly addressing socioeconomic, spatial, and identity-based inequalities, individual agency alone cannot carry the weight of the transition. A truly just twin transition must therefore foreground intersectionality, redistribute capacity to act, and transform the systems that currently produce and reproduce inequality.

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1 Introduction

1.1 Excellence and background

Europe is amid two profound and interlinked transformations: the transition toward climate-neutral and resource-efficient systems, and the rapid digitalisation of economies, public services, and everyday life. These developments, the green and digital transitions collectively known as the twin transition, are central to the EU's long-term strategy for competitiveness, sustainability, and social resilience supported not least by the various regulations shaped by the Green New Deal such as Energy efficiency 2023/955 and Nature restoration (EU) 2024/1991. Under Horizon Europe, the twin transition is framed not only as a technological or economic imperative but also as a societal challenge that must be managed in ways that promote inclusion, fairness, and territorial cohesion. The ST4TE project is situated directly within this vision, contributing evidence on how these transformations unfold across diverse European contexts, and how they can be steered to avoid deepening existing and/or creating new inequalities.

While the green, digital, and twin transition promises substantial benefits (reduced emissions, resource efficiency, digital connectivity, improved public services, and new employment opportunities) these gains are not automatically or evenly distributed. Access to green technologies, digital tools, skills development, infrastructure, and participation in decision-making processes is conditioned by a range of social, economic, and territorial factors.

To start with, regions differ significantly in their exposure to, and capacity to participate in, the twin transition (Corradini et al. 2021; OECD 2019; OECD 2023), creating risks of deepening existing inequalities (Bohnsack et al. 2022; Ha et al. 2022; Mäkitie et al. 2023). Both the green and the digital transitions have also been shown to influence the content of work, with consequences for skill requirements (e.g. van Laar et al. 2020; Vona et al. 2018), pay levels, income inequality, and opportunities for remote work (Akgüç et al. 2023). Moreover, changes in employment security and occupational structures are expected, as some jobs may be substituted while others are likely to increase in number (e.g. Autor et al. 1998; Autor & Dorn 2013; Charles et al. 2022; Goos et al. 2014; Karabarbounis & Neiman 2014; Lee & Clark 2019).

Furthermore, previous research highlights inequalities related to gender and intersectionality in the green transition (Allwood 2020; Johnson et al. 2020; Zorell & Strid 2025) as well as in the digital transition (Clancy & Feenstra 2019). Studies also discuss the consequences for other disadvantaged groups, including older adults, people with disabilities, marginalised women, or Indigenous peoples (e.g. Liptrott 2016; Fang et al. 2019; Mariscal et al. 2019). Consequently, the twin transition is anticipated to generate new layers of cumulative and intertwined inequalities, with intersecting and sometimes conflicting dimensions manifesting across geographical contexts (Galgóczi 2023).

As a result, a growing "green and digital divide" has begun to surface across Europe. This divide does not map neatly onto single categories; rather, it intersects with gender, age, ethnicity, migration status, disability, class position, and geographical location. Groups among citizens already facing structural barriers in use of and influence over twin transition, are disproportionately exposed to the costs of the transitions, while having fewer opportunities to participate in or benefit from them.

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Despite having sufficiency or transformative political goals they seldom translate into robust supporting policies for living a sufficient and low-emission lives – even in Sweden which is sometime pointed towards as frontrunner (Callmer & Bradley 2021; Boström et al. 2025). In addition, researchers also show an increase in obstruction of twin transition from vested interests who see the risk of their positions being challenged (Brulle et al. 2024).

Although the twin transition is a priority on the European political agenda and codified into various regulatory frameworks, research programs and funding schemes, it remains conceptually fluid and operationally fragmented. Policies and initiatives often progress along separate pathways (one focused on achieving environmental sustainability, the other on digital transformation) without fully recognising their deep interdependencies (Kakderi et al. 2025), not least regarding use of materials and energy for building the infrastructures and composing technologies for the digital transition (Bianchini et al. 2023). The risk of such Jevons paradox (Auerbach et al. 2024) is important to recognise as well as moving beyond for twin transition. Research likewise tends to treat these transitions independently, paying limited attention to how they interact in practice and how their combined effects are experienced by different social groups (Müller et al. 2024). For ST4TE, this fragmentation presents a key analytical gap: the need to develop integrated, intersectional understandings of how green and digital reforms reshape people's everyday lives, their sense of agency, their access to resources, and their inclusion in emerging labour markets.

This deliverable responds directly to that gap by examining the intersectional social impacts of the green, digital, and twin transition across nine countries in Europe. It addresses not only who benefits or loses, but how individuals and communities interpret, negotiate, and make sense of these transformations. Such an approach moves beyond statistical patterns to capture the textures of lived experience; how people articulate hope or anxiety around automation, how they interpret changes in energy systems, how they navigate digital public services, or how green reforms intersect with local labour markets and cultural norms. Understanding these narrative layers is essential for designing twin transition policies that are responsive to people's realities and capable of building trust, legitimacy, and social cohesion. To achieve this, the deliverable highlights the central role of qualitative narrative analysis, aligned with the need for citizen-centred and socially grounded research approaches, particularly when addressing complex transitions. Narratives offer unique insights into the meanings individuals attribute to policy changes, the values and aspirations that shape their responses, and the subtle mechanisms through which inequalities are reinforced or mitigated in everyday settings. They allow researchers to examine how intersecting identities (such as gender, class, disability, or migration background) shape people's opportunities and constraints within the twin transition, while also uncovering context-specific factors operating at local or regional levels.

By foregrounding narrative inquiry, this deliverable contributes to a more nuanced evidence base for policy development. The qualitative analysis helps expose blind spots in current twin transition strategies, reveal unintended consequences, and identify promising entry points for inclusive innovation. It can illuminate why certain groups remain sceptical of green or digital reforms, why others embrace them, and how structural barriers can be dismantled to ensure equitable participation. Importantly, narratives also capture perceptions of fairness and justice, dimensions that are essential if the EU's transition ambitions are to gain broad public support.

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This deliverable therefore aims to deepen understanding of the diverse and intersecting ways in which transition policies affect people across Europe. It provides an integrated analysis of social impacts at the intersection of green and digital reforms, grounded in lived experiences. The findings offer guidance for designing twin transition policies that not only advance sustainability and digital innovation but also actively reduce inequalities, empower marginalised communities, and strengthen cohesion across European societies. This work supports ST4TE's overarching commitment to ensuring are not only transformative but also just, inclusive, and truly shared.

1.2 Theory and concept

This deliverable is grounded in an intersectional theoretical approach that emphasises how multiple forms of inequality operate simultaneously and shape people's positions, opportunities, and vulnerabilities within the green, digital, and twin transitions and the analysis thereof (Johnsson et al. 2020; Sánchez-García et al. 2025). Intersectionality, as conceptualised by Crenshaw (1991), highlights how gender, age, disability, class, ethnicity, migration background, and other social identities do not function independently but mutually shape one another (Davis 2008; Walby et al. 2012). These configurations shape how individuals encounter societal transformations, not only in terms of exposure to risk or access to resources, but also with respect to their perceived legitimacy, capacity to be heard, and ability to influence the direction of technological and ecological change.

Our perspective entails the capacity to act, that is, the ways people navigate, negotiate, and sometimes resist transition-related pressures even when their choices are constrained by social, economic, and technological structures. This process is itself shaped by intersectional locations: people with different social identities have unequal access to resources, recognition, institutional support, and material security, which fundamentally affects their ability to convert concerns into action. This resonates with Emirbayer and Mische's (1998) relational view of agency, which conceptualises agency as temporally embedded/shaped by past experiences, oriented toward future possibilities, and enacted within the contingencies of the present. When linked to intersectionality, this framework shows that agency is never evenly distributed: certain groups have more room to manoeuvre than others due to historical inequalities, structural discrimination, or institutional privilege. Within the green and digital twin transitions, these dynamics become especially visible: dominant actors (e.g., corporations, governments, major institutions) often shape transition narratives and decisions, while marginalised groups find their agency constrained or their experiences rendered invisible.

Combined, these perspectives and theoretical approaches positions individuals as embedded yet capable actors whose actions shape and are shaped by socio-technical transitions. Understanding the twin transition therefore requires an analytical framework that foregrounds both structural inequalities and the diverse ways individuals make sense of, respond to, and act within shifting socio-technical landscapes (Geels 2002; Avelino & Rotmans 2009). To address these complexities, the deliverable employs narrative interviews - a method capable of making these interactions between structure, identity, and agency empirically visible. Narrative inquiry captures lived experience, meaning-making, and the practical reasoning through which individuals respond to transition pressures (Riessman 2008; Gubrium & Holstein 2009) - as its core qualitative method. Narrative inquiry provides a means of accessing lived experiences and socio-cultural meaning-making that is


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often invisible in aggregated quantitative data (Riessman 2008; Gubrium & Holstein 2009). This methodological approach enables the report to:

1. Capture diverse experiences and perspectives, particularly from individuals who are marginalised or underrepresented in mainstream discourses surrounding the transitions
2. Examine intersectionality in practice, showing how gender, age, disability, class, and other social identities interact to shape differentiated impacts, inequalities, and capacities for agency (Davis 2008)
3. Highlight power dynamics between actors involved in the transitions, such as corporations, governments, public institutions, and local communities, and show how these dynamics inform people's vulnerabilities, opportunities, and scope for action (Avelino 2021).
4. Uncover hidden or marginalised stories that escape official statistics, policy narratives, or media framings but are crucial for shaping an equitable understanding of who benefits from and who bears the burden of the green and digital twin transition.

By bringing together intersectionality's attention to structural power, Archer's (2003) and Emirbayer and Mische's (1998) conceptualisations of agency, and narrative methods' capacity to foreground lived realities, this deliverable provides a theoretically robust and empirically grounded foundation for analysing inequalities and capacities for action within the green and digital twin transitions. This integrated approach recognises that individuals' experiences and actions are shaped by their intersecting social positions while simultaneously emphasising their ability to interpret, respond to, and influence transformation processes, albeit under unequal conditions.

1.3 Aims and research questions

There are three aims of the deliverable. First, to capture how various inequalities, including income, skills, and health related inequalities, as well as age, gender and other intersectional inequalities, affect the implementation of the green, digital and twin transitions. Second, to explore how the green, digital and twin transitions influence and potentially intensify inequalities in income, skills, employment and health, as well as age, gender and other intersectional factors. Third, it seeks to understand how these inequalities may reinforce each other, creating cycles that both shape and are shaped by the transition processes.

Two specific research questions are asked:

1) How are the green, digital and twin transitions enabled or hindered by inequalities?
2) How does transition(s) affect people and create or reproduce existing inequalities?

Both questions are addressed using different methods throughout Section 3.

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2 Methods and materials

The deliverable is based on 402 interviews with individuals across nine European countries, conducted by the partners in spring/summer 2025. The interviews and analysis followed a coordinated methodology, which allowed for harmonised, efficient, and cost-effective data collection. Guidelines and reporting templates were provided to enable coherent, purposeful, and useful reporting of results. In the following, the methods for empirical data collection, reporting, coding and analyses are presented in more detail.

2.1 Narrative methodology

The twin transition affects individuals in highly personal and complex ways, and its impacts are multi-directional. The aims and research questions guiding this study are thus focused on *how* these effects and various inequalities are (re)produced. For this purpose, qualitative methods are the preferable choice since this better capture the contextual differences and individual accounts behind results that can be drawn through quantitative methods (see also section 1.2.).

Furthermore, to remain open to the experiences, perspectives, and beliefs that interviewees may hold, and to allow these to emerge naturally, it was important to choose a method that minimised the risk of researchers priming or steering the interview according to their own expectations or interests. For this reason, a narrative methodology was chosen. This approach is also useful for understanding how experiences of past events and circumstances can inform collective planning and policy for the future (Kim 2016).

In contrast to structured or semi-structured interviews, narrative interviews do not follow a traditional question–answer format. Instead, they entail a conceptual shift away from the idea that informants provide answers to interviewer-generated questions and toward the idea that informants are narrators with stories to tell in their own voices (Kim 2019; Chase 2005). Narrative interviews therefore involve an open approach in which the interviewer primarily listens and provides space for the narrator to tell their story.

At the same time, the interviewer can shift between more passive and more active roles, depending on and responding to the narrator (e.g., their background, personality, and communication style). This does not mean, however, that narrators are free to present any narrative whatsoever. The interviewer still interacts with the narrator by foregrounding themes relevant to the research questions. Moreover, the interviewer can shape the content of the story through the selection of narrators and by framing the research aims, including indicating what the interview should focus on.

2.2 Narrative interviews

2.2.1 Preparation phase

To coordinate the research process and teams, a set of guiding documents and templates was produced and discussed. These included the Task 2.5 guidelines, the interview guide, the narrative reporting template, and accompanying instructions for completing the narrative reports. In producing the reporting template, knowledge from previous research (see section 1.1.) was applied to decide

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which individual resources, social dynamics and structural conditions that should be included (see Zorell & Strid 2025). For the participants, the document set consisted of a research participant information sheet, a consent form, and a demographic background questionnaire.

In the second step of the preparation phase, each research team adapted the joint documents. This involved revising the research participant information sheet to provide accurate and relevant details on data management, insurance and compensation, and local contact information. Each partner then translated all documents intended for informants into the language used during the interviews.

An online workshop and training session for all participating researchers was organised prior to the start of recruitment and interviewing. This included an interview briefing and practical training. Additional workshops to discuss challenges and differences in methodological approaches were held throughout the data collection phase. The task leader also offered a weekly helpdesk where task-team members could raise questions or concerns. These efforts aimed to ensure an internally consistent approach to recruitment, interviewing, and reporting across the project

2.2.2 Selection and recruitment of participants

The goal was to carry out interviews in at least six NUTS 2 regions, including a total of 400 interviews. The ambition to have a representation from different regions reflect the input from previous research, pointing to territorial conditions as important for both exposure and capabilities in managing the twin transition (Corradini et al. 2021; OECD 2019; OECD 2023).

In addition, participants were recruited based on their belonging to various social groups representing different vulnerability factors based on gender, age, disability, immigrant background, national minorities, religious minority groups, sexual minority groups, low-skilled workers, and urban-rural divide. This was motivated by the ambition to highlight the intersectional experiences of the twin transitions as well as how various inequalities may influence, or be reproduced by, the twin transitions. In addition, two essential criteria for participation were age (18 or above) and the capacity to fully comprehend and consent to the terms of participation (i.e., no significant cognitive or language barriers).

In determining which groups to approach, ST4TE starts from the assumption that vulnerable groups should not only be considered as victims who are socially excluded, marginalised, or disadvantaged and who may be negatively affected by the green and digital transitions. They should also be recognised as individuals with agency, who in certain ways can drive and influence transformative reconfigurations aligned with the ambitions of the twin transition (see Section 1.2). Prior to the initiation of the recruitment process, the research team was therefore encouraged to take the following risks into account:

1. The risk of interviewing only relatively influential spokespeople for vulnerable groups (especially white people, heterosexuals, men, individuals in leading positions in society)
2. The risk of collecting narratives only from third parties (e.g., NGOs or civil society groups)

For example, during selection and recruitment, it could be difficult to reach individuals with multiple vulnerabilities, which might lead to a reliance on third parties or spokespersons from various

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organisations. With this in mind, the selection criteria based on potential vulnerability were intentionally set broadly to enable a diverse sample.

Recruitment was initially conducted through convenience sampling (Given 2008), with each team approaching organisations and networks where they had easy access and in regions where team members could conduct interviews in the national language. The teams drew on their knowledge of social groups at risk within each specific region. Some participants were recruited individually, for instance, through personal networks, events advertised on social media, or media reporting. Others were recruited via a wide range of organisations, including NGOs; interest groups and networks focused on environmental issues; feminist, masculinist, queer, or trans issues; sexual minorities; young adults or senior citizens; disabilities and health conditions; national minorities; ethnic identity or immigrant status; companies and business organisations; unions; churches and religious groups; public meeting places; language training cafés; municipal activities on related topics; educational institutions; and public servants at the municipal or regional level.

After each interview was conducted, the main characteristics (i.e., vulnerability profile) were recorded in a joint vulnerability profile spreadsheet, which provided an overview of the diversity of participants already included. In later stages, recruitment was directed towards groups and regions that were underrepresented in the dataset.

The final dataset contains a total of 402 interviews carried out in nine European countries, representing 30 different NUTS 2 regions (see Table 1).

Table 1. Geographic representation among participants

Country	*NUTS2*	*Name of region*	*Number of interviews*
Belgium	BE10	Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest	5
France	FR10	Ile-de-France	12
France	FRF1	Alsace	10
France	FRG0	Pays de la Loire	17
France	FRH0	Bretagne (Brittany)	16
France	FRJ2	Midi-Pyrénées	17
Greece	EL30	Attica	20
Greece	EL52	Central Macedonia	32
Greece	EL61	Thessaly	22
Ireland	IE04	Northern and Western	2
Ireland	IE06	Eastern and Midland	2

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Country	*NUTS2*	*Name of region*	*Number of interviews*
Italy	ITF3	Campania	13
Italy	ITH5	Emilia-Romagna	14
Norway	NO06	Trøndelag	4
Norway	NO07	Nord-Norge (Northern Norway)	2
Norway	NO08	Oslo and Akershus	11
Norway	NO09	Sør-Østlandet	2
Portugal	PT1A	Área Metropolitana de Lisboa (Lisboa	20
Spain	ES11	Galicia	19
Spain	ES22	Navarra (Comunidad Foral de Navarra)	10
Spain	ES43	Extremadura	20
Spain	ES61	Andalucía	4
Sweden	SE11	Stockholm	18
Sweden	SE12	Östra Mellansverige (East Middle Sweden)	16
Sweden	SE21	Småland with islands	13
Sweden	SE22	Sydsverige (South Sweden)	12
Sweden	SE23	Västsverige (West Sweden)	40
Sweden	SE31	Norra Mellansverige (Northern Middle Sweden)	11
Sweden	SE32	Mellersta Norrland	11
Sweden	SE33	Övre Norrland	7
TOTAL			402

Table 2. Urban – rural among participants

Urban/rural		
Rural	**Larger city (min. pop. 50,000)**	**City (min. pop. 5,000)**
111	219	72

Table 3. Gender and age among participants

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Gender			Age			
Women	Men	Non-binary*	<30 years	30-50 years	50-70 years	>70 years
202	193	7	73	165	85	79

Table 4. Other vulnerabilities among participants

Disability	Immigrant background	Membership of a national minority	Religious minority group	Sexual minority group	Low-skilled workers
62	86	13	30	48	78

Note: N represent the number of participants (within the total sample of 402 participants) with a specific vulnerability. While some participants did not belong to any of these groups, others belonged to multiple vulnerable groups.

2.2.3 Information to potential participants

When approaching potential participants, the researcher provided information on how their contact details had been obtained and why they were being contacted. Potential participants were given the Research Participant Information sheet (including details on the study purpose, confidentiality, consent data management, and how research results would be published), the Consent Form, and, where relevant, the Personal Background Sheet. They were then asked whether they would like to participate.

The researchers suggested a time and date for the interview while emphasising that participants were free to propose an alternative that suited them better. Participants were also given, as far as possible, the choice of how and where the interview would be conducted, including online, by phone, or in person.

2.2.4 Conducting and reporting the interviews

The interviews were conducted online, on phone or as a physical meeting. The duration of the interviews lasted between 30-120 minutes. The interviews were conducted in the following steps:

1. **Initialisation**. After informing the participants about the purpose of the study and receiving a consent for participation (see section 2.4.) the researcher provided a brief background for the topics of green, digital and twin transitions. The interview guide included a suggested way of presenting the project and framing the interview. This was only a suggestion and was intended to be adapted to the prior knowledge and understanding of the specific informant. The

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interviewer was therefore free to rephrase and clarify the presentation of the project as needed.

2. **Main story.** The interview started with a general background question, which aimed to help the participant begin talking freely, and outline the informant's social situation and characteristics, such as marital or cohabitation status, living conditions, children, and employment. This was followed by an open-ended question that introduced the general topic and helped the participant focus on it. The interviewer took a passive role and primarily adopted a listening stance, aiming to capture the participant's story from their perspective, in their own words, and with minimal interruption. Probing questions were used either to help the informant elaborate their narrative in greater detail (generic probes) or to help more talkative informants remain focused on the main topic (specific probes). Suggestions for probing questions were provided in the interview guide.

3. **Questioning phase.** In this phase, additional questions were asked when necessary. These were exploratory questions that supported an understanding of the narrative schema, such as clarifying the who, what, how, and why in relation to events, causes, and consequences.

4. **Completion.** The interviewer asked whether the participant had anything further they wished to add, repeated the informant's rights, thanked them for their participation, and then ended the interview.

All interviews were audio recorded, some were transcribed verbatim and some were not. Full transcriptions were not required to carry out the narrative analysis. Each researcher could therefore decide whether to transcribe and to what extent, and with what technique (manually or with AI solutions). Recordings and transcripts were not shared between teams, but the full narrative reports were.

After the interview, the interviewing researcher analysed the main content of the interview in the form of a narrative which was included in the narrative report. The narrative reports also included information about recruitment grounds, aspects of inequality or vulnerability raised in the narratives, especially telling quotes, and a preliminary analysis of hindrances and enablers in relation to the green and digital transition. Upon completion of all interviews, the narrative reports were quality controlled and washed. This involved ensuring consistency in data reporting, terminology, and categories. It also involved requesting more information when data entries were missing or when the narrative analysis needed clarifications.

2.2.5 Green and digital transition, or twin?

Because various researchers conducted the interviews, they naturally turned out somewhat different. One notable difference concerns how the twin transition was addressed: some researchers asked directly about the twin transition, while others asked separately about the green and digital transitions and allowed any connections or synergies between the two to emerge organically. The latter approach means that some interviews do not contain explicit references to the twin transition as such. These

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variations, however, provide an opportunity to capture a wider range of narratives related to the twin transition.

2.3 Qualitative coding and analysis

The data have been analysed in three ways, including content analysis, topic analysis, and narrative analysis. As illustrated in Figure 1, the different methods all build upon the initial qualitative analysis conducted when reporting each interview. This initial analysis involved providing: 1) a standardised coding of enablers and hindrances for the green and digital transition respectively, 2) an interpretative comment to the standardised coding, and 3) writing a summarising narrative of the full interview. Each form of analysis is presented in more detail in the subsequent sections.

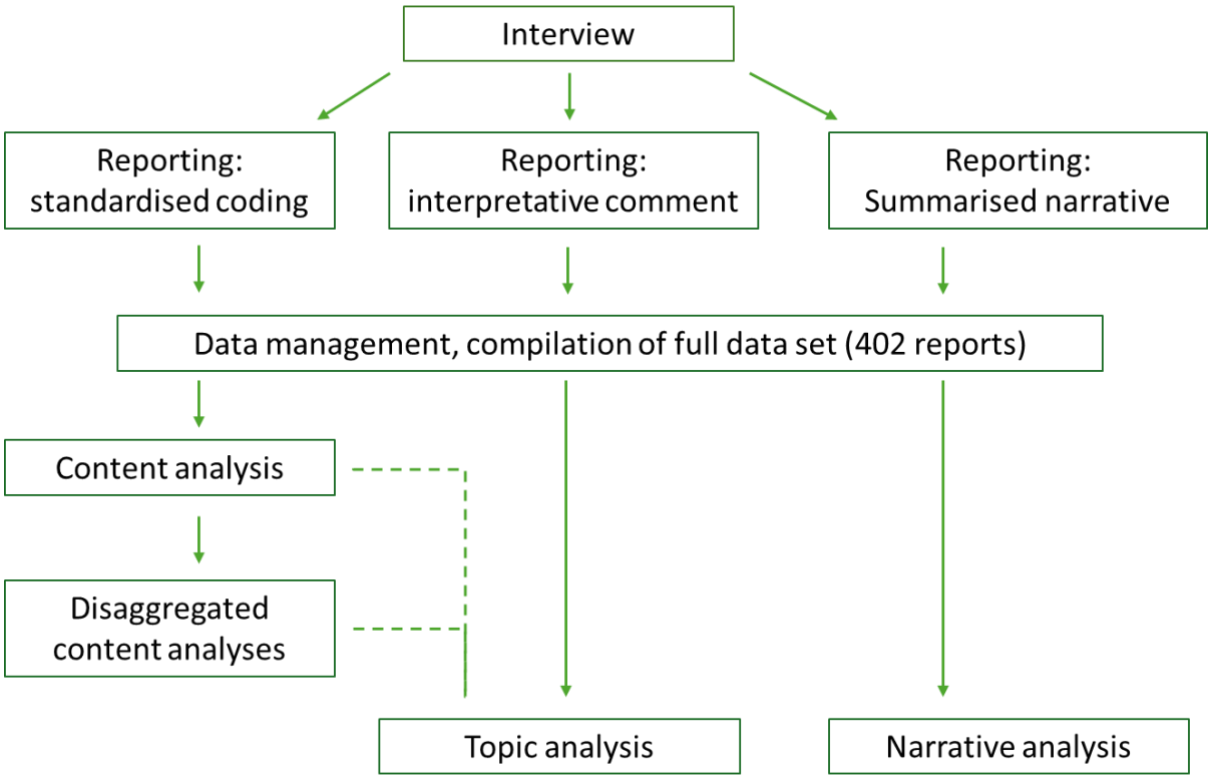

Figure 1. Visualisation of methods for analyses

2.3.1 Content analysis

The content analysis of the data was conducted in three steps, involving 1) a standardised coding of each interview, 2) a content analysis (i.e. frequence analysis of prevalence) of the respective codes in the full data set, and 3) a disaggregated content analyses (i.e. bivariate analyses of prevalences of content in relation to participants' gender, age, migration background, disability/health issues, and

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geographic residence). In the results section, findings from Step 2 will be referred to as results from the content analysis, while the analyses conducted in Step 3 will be referred to as the disaggregated content analyses.

In the first step, each researcher - after completion of the interview - produced the initial analysis of the interview and reported the results in the standardised reporting template. By marking with an X, the researcher reported whether the narrative related to a specific inequality ground, specified individual resources, social dynamics and structural conditions, and whether the enabler or hindrance was related to the green or digital transition. As the available codes for reporting was set from start, informed by previous research, this step constituted a deductive coding of experienced inequalities and hindrances and enablers in relation to the green and digital transition respectively. This qualitative interpretation and coding of prevalence of certain content can also be described as a manifest analysis of the surface structure, focusing on which topics that have been raised in the narratives. It thereby corresponds to the first stage of content analysis, as suggested by Bengtsson (2016).

In the second step, the coding conducted in the initial analyses of each narrative was used for a frequency analysis on the full data set. Following completion of all narrative reports, interview data from each individual narrative report were compiled into a master Excel dataset and subsequently analysed using R. This enabled comparative and quantitative analysis across contexts. This approach combines the depth of qualitative narratives with the rigour of standardised coding, allowing for cross-country examination of patterns and variations. The analysis first assessed the relative importance of each of the factors (grouped under resources, structural conditions, and social dynamics) based on the frequency with which they were mentioned as enablers and hindrances across all respondents. The analysis provides a comprehensive and nuanced understanding of the enablers and hindrances that shape behavioural change in relation to the twin transition, with the overarching aim of informing evidence-based recommendations for inclusive and effective policy interventions.

In the final and third step, the relevance of the different enablers and hindrances across respondents based on their socio-demographic and economic profiles was analysed. This approach added another layer of understanding by disaggregating the role of distinct enablers and hindrances depending on individual profile characteristics that commonly define social inequality: gender, age group, migration background (recoded into a binary, i.e., migrant or non-migrant), disability/health issues, and geography (urban/rural). The analysis provides a comprehensive and nuanced understanding of the opportunities and barriers that shape behaviour in relation to the green and digital transitions, with the overarching aim of informing evidence-based recommendations for inclusive and effective policy interventions. The findings of this disaggregated content analysis are presented together with the results of the qualitative topic analysis. Tables representing the respective analyses are included in the Appendix.

2.3.2 Qualitative topic analysis

After the completion of an interview, the researcher produced an initial analysis of the interview and reported the results in the standardised reporting template (see section 2.3.1). In addition to the deductive coding of various enablers and hindrances, this step involved adding a text comment

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providing a qualitative interpretation and explanation of the coding. These researcher interpretations contain examples and elaborations on what is presented as enablers and hindrances in the different narratives.

In the topic analysis, these interpretations of enablers and hindrances were qualitatively analysed. In relation to every individual, social and structural topic listed in the template, a list of codes was produced in relation to the green and digital transition, respectively. These two lists included codes providing examples of how, for example, education as an individual resource was addressed in the various narratives, and if and how it was presented as an enabler or a hindrance for participation. Continuing with education as an example, the code list for education as enabler for digital transition included the following codes: *learning through primary school; learning through work; learning through public courses; prior education provides skills to adapt to digital tools and evolving technologies; diploma in higher education; uses platforms like YouTube to learn; period of unemployment and need for a job reconversion pushed into digital educational offer*. In this step, no screening was made, and all data was coded into an existing or new code. Corresponding lists of codes were made for all topics, for enablers and hindrances, and for the green and digital transition respectively, generating a total number of 76 code lists.

As a second step, these codes related to each topic (i.e. different individual resources, social dynamics, and structural conditions) were recontextualised in the data. This involved returning to the full narratives, to validate that the codes accurately represented the description provided in the narratives. Only codes and topics that could be clearly validated in this step was included in the final presentation of the findings. Finally, quotes and extracts representing the different codes for each topic was chosen to illustrate and corroborate the analysis.

This analysis is presented in sections 3.2 to 3.7 together with the findings from the disaggregated content analysis.

2.3.3 Narrative analysis

As a fourth step of analysis, the narratives – produced by the researchers - were analysed. The narratives comprise 1-2 pages of interview analysis with a focus on the project's focus. These narratives, including a headline and selected verbatim quotes, constitute an initial analysis in themselves, as well as enabling the interviews for further analysis. In the further coding for this report, the narratives were read all through and given new brief descriptions based on the aims and research questions. The narrative reports were at this stage interpreted according to the relative importance of inequality in combination with green-, digital-, and green transition effects, a procedure leading to support or neglect for claims about effects (or no effects) between transition and inequality. If effects existed, interviews were marked with an explanation, making it possible to go back and juxtapose or group effects that relates to one another. Categories were then created based on intersectional inequalities that cut through the material, with a particular focus on the self-experienced exposure to green and digital transition.

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2.3.4 Presentation of data

In the results section, extracts and quotes from the interviews are presented as illustrations and corroborating examples of findings from the analyses. It should be noted that all interviewees have been given a pseudonym, and that only characteristics relevant to the current argument or finding are presented. This is to ensure the confidentiality of the participants in the study.

While quotes – presented with the use of quotation marks – are verbatim representations of the participants talk, accounts presented as extracts from the narratives are formulated by the interviewing researchers. Extracts are thus not verbatim representations, but reformulated, restructured and condensed summaries of the narrative presented during the interviews. However, extracts do sometimes contain direct quotes, which are then also signified by quotation marks.

2.4 Ethical considerations

The study was conducted in accordance with ethical standards of utility, information, consent, confidentiality and data protection. Ethical considerations in selection of participants included setting eligibility criteria requiring participants to be 18 years of age or older and to have the capacity to fully comprehend and consent to the terms of participation (i.e., no significant cognitive or language barriers). The study also acknowledged that participants from various vulnerable groups may be socially excluded, marginalised, or disadvantaged in certain respects, while recognising them as individuals with agency and facilitating capabilities.

Prior to the interviews, all participants were provided with the Research Participant Information Sheet (including details on purpose of the study, confidentiality, consent procedures, data management, and the publication of research results), the Consent Form, and contact information to the responsible researcher.

At the beginning of each interview, the interviewer asked the participant for permission to record the session. Once permission was granted, the interviewer started the audio-recording, introduced themself and the project, and explained the purpose of the study (in some interviews this step was completed prior to recording). The interviewer then ensured that the participant had read and understood the research participant information, how the data would be used, and the procedures for pseudonymisation and protection of personal data. The participant's rights were explained, including the right to withdraw consent at any time. The interviewer subsequently obtained and audio-recorded the participant's verbal consent to participate.

ST4TE operates in accordance with the EU General Data Protection Regulation (GDPR; Regulation (EU) 2016/679) and national complementary legislation protecting the rights of data subjects with regard to the processing of personal data. All participation and data were protected by confidentiality. Audio files, consent forms, and non-pseudonymised transcripts are stored on secure servers (security class 3), and no personal data have been stored or shared using cloud services. Prior to the sharing or presentation of transcripts, transcript extracts, or quotations, all data were pseudonymised, and information that could potentially reveal participants' identities was carefully removed or edited. The

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study has been ethically vetted and approved by the Swedish Ethical Review Authority and the Research Ethics and Deontology Committee at AUTH.

2.5 Limitations

A few limitations of the methodology should be addressed. These include the interview questions, the potential sampling biases, variation in interviewer styles, inconsistencies in reporting the interviews, and limitations associated with the use of narrative reports.

Addressing the first limitation, the choice of a narrative format for the interview made it more difficult to push people to think and talk about the twin transition specifically. Even though this was presented as the main topic in the beginning of the interview, most participants spontaneously started to talk about either the green or the digital transition. With a more structured interview form, allowing the researcher to guide the participants more explicitly toward the interaction of these transitions via predetermined examples, the analysis could have provided more detailed information about those examples and possible also about the overarching topic. Yet, such approach would then not have allowed room for some of the more specific examples provided in relation to each transition. Furthermore, it would likely not have been possible to illustrate the different ways that people think of, and respond to, the green and digital transition respectively which is a very important result from the study.

As in all data collection requiring an effort of the data subjects, this study has been reliant on people willing and able to participate in interviews. This excludes people who have difficulties expressing themselves, either due to disabilities or language barriers. In addition, it is more difficult to involve individuals who are highly time-strained or who carries a distrust toward academics and/or authorities. In general, people are more likely to participate if they themselves feel they are knowledgeable about the topic. Even though the topic of this study was presented in general terms, to invite all kinds of knowledge and experiences, it was easier to get access to participants who were somehow already engaged in issues around green or digital transition. This methodological challenge has been managed by continuously adjusting the sampling and recruitment approach throughout the process to add less represented groups and perspectives. Furthermore, the analysis focus on presenting a variety of perspectives, rather than relying on the number of times certain ideas or experiences were narrated, compensating for remaining asymmetries in the data set.

Another issue of sampling relates to the representation of regions in EU, and particularly the lack of regions from eastern EU. For practical purposes, the collection of empirical data has been restricted to regions where the team researchers could easily approach and communicate with potential participants. While the data already covers nine different countries and 30 NUTS 2 regions, future research could be expanded to countries and regions not included in this study.

To ensure consistency throughout the interviews, all researchers attended a joint training session and were provided with a detailed interview guide with instructions on the different steps of the interview


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(see section 2.2.1.). Still, the open format of the interview, and the possibility to adjust questions in relation to the interviewee's previous knowledge and experience, allows for great differences between individual interviews. It is also somewhat likely that each researcher developed their own 'style' of interviewing with more typical ways of asking questions.

Similar challenges are found in reporting the interviews. Even though general guidelines were provided, and how to report the interviews were part of the training session mentioned above, differences could be found between reports accounted by different researchers. These differences involved issues as how to report information in the standardised parts of the report, but also the amount of information provided in comments, and the tone and style of language used in these comments. All of which is a normal outcome of narrative interview reporting. Differences in the standardised parts of the report were thus dealt with and made consistent before compiling all reports into one data set. Differences in text comments have instead been taken into consideration in the topic analysis, where the content has been validated in relation to full narratives and verbatim quotes.

The variations in interviewer style and reporting have, however, involved one more challenging limitation. Initially, the idea was to analyse the data using an AI-assisted analysis for generating an inductive panoramic overview of all the narratives: a topic modelling of the data set based on sentence-level semantic. It quickly became apparent that this approach was made more difficult because the narratives reflected not only differences in experiences of various participants but also differences in narrator style of various researchers.

In addition, the choice to use narrative reports – rather than verbatim transcripts – produce limitations to apply more discourse oriented or semantically focused analyses. As the interviews were conducted in different languages and would still have required to be translated before analysed, the possibilities of more close readings of wordings and linguistic peculiarities would still have been restrained.

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3 Results

The disposition of the results is much given by and organised from the two different research questions this report tries to answer. It means that a first section of the results will be about enablers and hindrances for the green and digital transition (Sections 3.1 - 3.7), and a second section will be about how transition(s) affect people and create or reproduce existing inequalities (Sections 3.8 - 3.16). The selection of themes has been done through careful consideration of the full qualitative data material. The quotes from the material are provided as illustrations in relations to the themes that have been focused. However, descriptions or conclusions in-between quotes is equally based on researchers' examination of the material and should equally be read as a presentation of the material itself. When stated that the quotes are from the Narrative retelling, this means that the researchers own narrative from the interview was used, while Verbatim quotes are the direct sayings from the interview participants (called narrators).

3.1 Enablers and hindrances for the green and digital transition

This section responds to the first research question: How are the green, digital and twin transitions enabled or hindered by inequalities? The analysis draws on aspects of the interviews in which narrators (implicitly or explicitly) discuss enablers or hindrances to participation in the transition(s), and how these factors either compensate for or enforce the vulnerable conditions experienced by certain social groups.

The findings presented in this introductory section are based on a content analysis, that explores the frequency of various enablers and hindrances across the entire data set. In the subsequent sections, the results of a disaggregated content analysis further illustrate the extent to which specific enablers and hindrances appear in the narratives of particular groups of narrators, for instance in relation to gender and age. Many participants spoke about either the digital or the green transition, or they discussed both but in distinct parts of their narratives. For this reason, the following presentation of enablers and hindrances (including in Sections 3.2 to 3.7) similarly reports the findings separately for the green and digital transitions, rather than only for the twin transition.

Beginning with experiences of the green transition, and as shown in Figure 2, respondents reported roughly the same proportion of enablers (85%) and hindrances (78%), with a slightly stronger emphasis on reported enablers (see Table A1 in the Appendix). This balance suggests that people recognise both the opportunities and the constraints associated with the green transition.

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Note: The size of the inner bubbles and legends are relative to the number of mentions to the parent node. Labels and actual proportions are detailed in Table A1 (Appendix).

Figure 2: Visualisation of the green transition enablers and hindrances

A further analysis of the data, across the categories (individual resources, social dynamics and structural conditions), illuminates a more nuanced pattern. Among the enablers, the majority of the participants mention at least one motivation related to, in descending order of importance, individual resources, social dynamics and structural conditions. However, in relation to hindrances, the majority

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cite at least one motivation related to structural conditions and individual resources, while fewer mention motivations related to social dynamics.

Examining the absolute proportions within categories shows that the most frequently cited motivations for enablers are knowledge, beliefs and values, and communities and social networks. For hindrances, the most mentioned motivations concern infrastructure and money. These findings highlight that while personal and social factors often facilitate engagement with the green transition, structural and material barriers remain major obstacles.

In relation to the digital transition, participants are somewhat more likely to mention enablers (90%) than hindrances (71%). This is illustrated in Figure 3 (see also Table A2 in the Appendix). Across the three categories, individual resources are most frequently cited as both an enabler and a hindrance. Structural conditions are mentioned less often as enablers, while social dynamics appear less frequently as hindrances.

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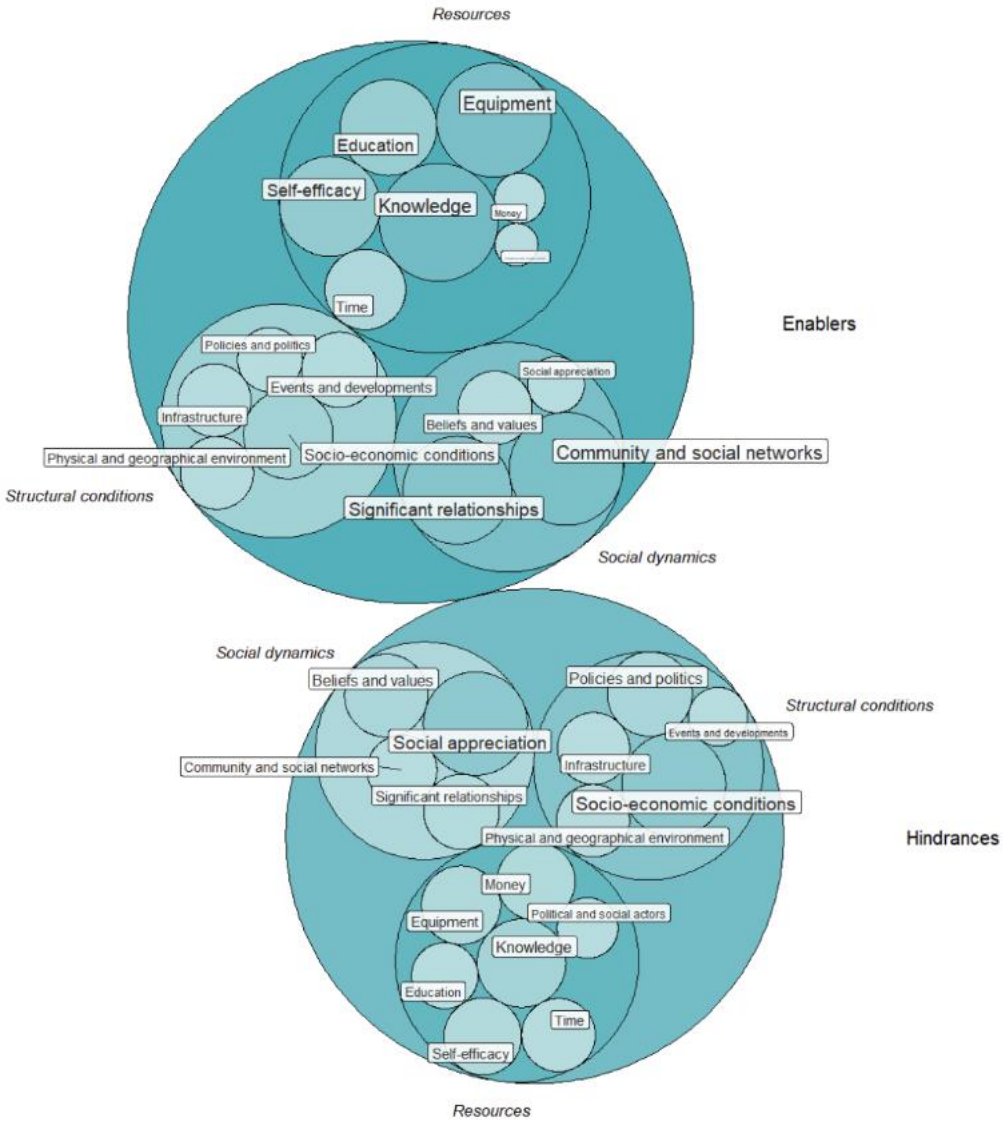

Note: the size of the inner bubbles and legends are relative to the number of mentions to the parent node. Labels and actual proportions are detailed in Table A2 in the Appendix.

Figure 3: Visualisation of the digital transition enablers and hindrances

Among the enablers for the digital transition, the results suggest that the most important motivations are *knowledge*, *equipment*, *self-efficacy*, *education*, and *communities and social networks*. In comparison, fewer participants mention any of the motivations as hindrances. Taken together, these findings suggest that engagement with the digital transition is shaped primarily by individual and material capacities rather than by broader contextual or social constraints. Access to individual

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resources and digital skills appears to be a decisive factor in enabling participation, while structural and social barriers play a less prominent role. This points to the importance of strengthening digital literacy, confidence, and access to technology as key levers for inclusion in the digital transition.

Across both the green and digital transitions, distinct patterns emerge. In the green transition, participants are more likely to refer to both enablers and hindrances, reflecting an awareness of the opportunities as well as the constraints linked to sustainable behavioural change. By contrast, in the digital transition, responses place greater emphasis on enablers, with comparatively few mentions of hindrances. This suggests that while the green transition is often experienced as a balance between motivation and limitation, the digital transition is more readily associated with personal capacity, access, and opportunity.

In the following sections (Sections 3.2 to 3.7), both enablers and hindrances for the two transitions will be presented and exemplified in more detail. These sections present the results from a qualitative topic analysis; applied to elaborate on, and illustrate, the findings from the content analysis. Throughout the sections, key concepts used to code various experiences as enablers versus hindrances are presented in italics. The following sections also illustrates to which extent certain enablers and hindrances are occurring in the narratives of specific groups of interviewees, for instance by exploring the occurrence in relation to gender, age, migration background, disability, and geography. Any differences between groups - based on a disaggregated content analysis - are highlighted when such differences exist. If not explicitly mentioned, there are no clear differences in how individuals belonging to specific social groups has responded. (Figures and Tables presenting detailed results from the disaggregated content analysis is included in the Appendix).

3.2 Individual resources in the green transition

The content analysis presented in section 3.1 shows that *knowledge*, as an individual resource, constitutes one of the more commonly referred to enablers within the data set. In contrast, *money* is – in a relatively large number of the narratives – presented as a hindrance for the green transition. In addition to these two resources, this section will also explore the importance of *education, self-efficacy* and *time*, as these resources – although somewhat less frequently referred to in the whole data set – appear to be particularly important for certain social groups.

3.2.1 Knowledge, education and self-efficacy

As demonstrated in the content analysis (section 3.1), many narratives refer to *knowledge* as an important individual resource for being part of the green transition. Comparing men with women and non-binary participants, knowledge is somewhat more often presented as an enabling resource for the latter group. *Education* and *self-efficacy* constitute closely related individual resources, further enabling a green transition. While self-efficacy is presented as an enabler regardless of gender, women and non-binary people raise education as an enabler slightly more frequently.

In relation to the green transition, *knowledge* is framed in the narratives as: 1) knowledge about the importance of the green transition and the effects of various environmental challenges and risks, 2) knowledge of sustainable practices in everyday life, 3) knowledge of sustainable practices and production methods in an occupational setting, and 4) knowledge of various green subsidies. While

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many of the interviewees refer to having good knowledge in relation to the two first points, several interviewees express that they find it difficult to know and decide upon which products and practices that are, in fact, sustainable. Many testimonies also point to a lack of knowledge on available green subsidies.

Skills and knowledge related to the green transition is attained from either higher education, occupational experience, through own experiences of the effects of climate change (floods, droughts, fires), and through upbringing and primary school (many refers to education/knowledge they received as children on how to live sustainably, and how they now pass this knowledge on to the next generation). However, much learning is taking place within different *communities and social networks* (see further discussion in section 3.3.1) and through self-learning or self-initiated *education*. As illustrated in the following extract with a Swedish man who are currently unemployed, feelings of *self-efficacy,* as well as *belief* in the importance of sustainability efforts, encourage the individual's own initiatives for further education:

> One of my previous jobs was about sustainability. When I started, I knew almost nothing about the subject, and in fact no one else in the company did either. Since I was the only one who spoke Swedish, they thought I would take responsibility for the whole task. I'm a fast learner and don't mind diving into new areas, but the company was in crisis and soon went bankrupt. Therefore, I never really had time to learn as much as I wanted. At the same time, this assignment awakened something in me, a sense that sustainability is both meaningful and important. I started looking for courses on my own and thought, why not? It can only be useful. (UGOT50, narrative retelling)

Participation in communities and networks may directly provide education and skill development but also encourage learning by improving a sense of *social appreciation.* The narratives highlight how the distribution of green ideas, speaking to students, or participating in studies or workshops, increase individual's feelings of social appreciation from the community. Conversely, the opportunities for collective sharing of knowledge within communities may be restrained by the lack of social appreciation. Here it could be noted that it is especially women and non-binary participants, and slightly more people living in rural areas, who refer to this as a hindrance for their participation in the green transition.

Some narratives point to, and criticise, a lack of opportunities for formal *education* (for the adult population), which limits access to structured knowledge about green jobs or sustainable practices, e.g. in climate-smart agriculture. Similarly, interviewees perceive a lack of public information on recycling, subsidy programs, or local environmental efforts. The awareness that exists often comes from informal sources, as described by this female farmer living in rural Greece:

> What we truly lack is information, training, and support. Municipalities should take responsibility and work with the government to inform and assist citizens. Instead, we're left on our own. We protested in the past, but after years of being ignored, people gave up. Now, each of us just does what we can, with the knowledge we have and the effort we can give. (AUTH80, narrative retelling)

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On an individual level, feelings of *self-efficacy* enable the development of green skills and capability to adapt to green practices. However, learning about more sustainable practices is also *time*-consuming (which means that time-strained groups are more at risk of being left behind).

In narratives reflecting the green transition within different industries, knowledge is similarly presented as an essential enabler, while it is also often the lack of sufficient knowledge that is addressed. The following two extracts – both from residents in Greece – illustrate this within the frame of the agricultural industry. While the first extract is from a man, working as a farmer, the latter extract is from an interview with a woman, providing support to farmers in her work as an accountant:

> Looking forward, I think what's most needed is better education on environmental responsibility, starting from a young age. If people understand why change is needed, they're more likely to embrace it. Infrastructure investments and support for green technologies would help too, especially for small and mid-sized farmers. Otherwise, digital and green transitions will remain unevenly experienced across the sector. (AUTH64, narrative retelling)
>
> …
>
> At my workplace, we handle a number of green economy projects for clients, including farmers receiving subsidies and companies managing solar parks. Most of them pursue these opportunities for the financial returns. They're not fully aware of the environmental implications, and the application process is often too complex or poorly explained. If information campaigns or local seminars were more widely available, I believe participation would increase. (AUTH81, narrative retelling)

As both these extracts highlight, a development of knowledge is necessary for continued development in a green direction.

3.2.2 Time

In the content analysis (section 3.1), time is presented as an important factor – both as an enabler and as a hindrance – for the green transition, although time is not one of the most frequently occurring topics. Focusing on how frequently different groups of respondents refer to this resource, some interesting differences can be discerned. While urban participants, women and non-binary individuals more often talk about time as a hindrance, it is presented as an enabler for rural residents and for participants older than 70 years (see Appendix).

In the qualitative topic analysis of the narratives, the lack of time is presented as a hindrance for being more engaged in pushing for the transition, or to put more efforts in environmentally sustainable practices. It is described how the amount of time spent on green transition is exhausting and drains energy; that learning about more sustainable practices is time-consuming; and that you must give up leisure time to devote to the green transition. As described by a middle-aged man, living in a suburb in Western Sweden, this means that activities such as using public transport or biking, or transporting waste to far-away recycling stations, is often deprioritised:

> The green transition does not affect me so much in my working life as an entrepreneur in the service sector. But the fact that we drive cars does affect the environment. It might have been possible to solve this with public transport in a big city, but it takes time and is difficult to

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> combine with family life. Our youngest child is already away from us a lot, so if we were to drop her off and pick her up by public transport, she would have to go to school even earlier and come home late. So, it's a choice we made. (UGOT32, narrative retelling)

As illustrated in the above extract, people with care responsibilities (e.g. for children) often among refer to time restraints to account for their choice of non-green options. Acknowledging that women generally are the main carer, this corroborates the finding in the content analysis, that women more often than men reported time as a hindrance for the green transition (see Joelsson & Scholten 2019). The lack of time as a hindrance is also raised by people with long workdays; impractical work schedules; much time spent commuting to work; and/or multiple jobs. As these conditions may be more common among people living in urban settings, this would explain why urban residents more often refer to time as a hindrance compared to rural residents. However, as the previous extract illustrates, commuting time and lack of public transport also enforces time as a hindrance for people living in more rural areas.

In narratives that describe travelling over longer distances, time again becomes a hindrance. As exemplified in the next extract, by a male urban resident in Sweden, the risk of train travel becoming much more time-consuming is presented as an obstacle for making the greener choice:

> Other things are not so easy, practically. Like I could make a lot more contacts if I travelled by plane, have a better network across Europe. And the trains often take so much time, because there are delays and there are technical problems, and it screws up your whole route and suddenly you are stuck in Hamburg at 4 o'clock in the morning. The circumstances kind of work against you, making that choice. (UGOT57, narrative retelling)

This, again, shows how individuals in time-scarce positions have less opportunities to afford green equipment or opt for the more time-consuming yet sustainable alternatives.

Many narratives, however, also refer to situations when freeing up time – due to retirement, periods of unemployment or sick leave, long train rides or short commuting distances – allows for more opportunities to invest time and energy in sustainable practices and lifestyle changes. The finding that time is the main individual enabler among participants older than 70 years, corroborates this picture. In addition, parents that no longer need to spend as much time for their children say – as in the following extract from a male rural resident in mid-Sweden – that they are now able to take part in sustainable practices to a higher extent than previously:

> What it takes, on the other hand, is time. Even though I enjoy both bicycling and going with the bus, it takes a lot longer time than it would take with a car. We have one car in the household, that my wife is driving. But a quite long time ago, we had two cars. That was when the children were smaller and everything was more stressful. Nowadays, it is possible to just have one car and do bicycle- and bus commute, because I have the time. (UGOT39, narrative retelling).

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3.2.3 Money

The content analysis (section 3.1.) demonstrates that money is, in many narratives, presented as a hindrance for a green transition. Most often it is, not surprisingly, the lack of money that constitutes a hindrance. The costs of organic/sustainable products and investments in more energy efficient housing restrain people's ability live more sustainable lives. This includes, for instance, the reliance on wood - instead of renewable sourced electricity - for heating due to high energy costs, not affording the move to low-energy housing, to renovate for energy efficiency, install proper heating, or replace single-glazed windows. This is, of course, more evident for household with scarce income. However, also when people do have the financial means to invest, the additional costs still put a limit for how far-reaching changes that one is willing or able to make. Such balance act between perceived financial limitations and green ambitions is illustrated in this extract from a female, urban resident in France:

> We've made a conscious effort to construct our house with a sustainable approach. From the very beginning, we've scrutinised the materials used, prioritising ecological options whenever possible. That said, one of the biggest tensions we've faced is financial: environmentally friendly materials are often far more expensive than traditional ones. When you're operating within a strict budget, compromises sometimes have to be made. Still, we made every effort to use recyclable, low-impact materials—ones that, ideally, can be safely dismantled or reused if the house is ever taken down in the future. (EFIS096, narrative retelling)

In relation to transports, the costs are also often raised as a hindrance. Electric vehicles are perceived as unaffordable, and electric bikes are associated with high costs. Travelling by train is described as more expensive than flying. The experienced affordability of flights then keeps them the default, despite their environmental cost.

In the green transition, costs are thus frequently referred to as a hindrance for attaining equipment, and – especially when it comes to public transport and recycling – the issue of infrastructure is raised. However, while some people may access digital equipment through work or through public institutions such as libraries, few interviews mention the possibility of lending/hiring green equipment such as electric vehicles or reusable tools. (Some examples exist with community networks or public institutions coordinating reuse/lending of tools, clothes and materials).

On a structural level, inflation and insufficient increases in pension diminish possibility for retired individuals to finance green adaptations. The economic realities of municipalities and cities make it difficult to prioritise systemic changes, such as expanding sustainable transport options. Similar economic restraints are also present for companies within different industries.

Within industries, and for business owners, the transition to more sustainable practices is often experienced to involve higher costs. For instance, mandatory recycling services for small business is perceived as a financial burden rather than a supported environmental effort; as is the high cost of eco-friendly fertilisers and alternatives to banned substances. For small entrepreneurs, the green transition adds compliance costs for packaging and efficiency standards. Although it may save money in the long run, the affordability barriers also limit access to greener technologies.

For business owners who can afford the initial investment costs, there are however often money to be saved in green investments. For instance, by reducing energy costs. Money, i.e. the incitement to

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reduce costs, may therefore also constitute a push to invest in energy reducing technology and more sustainable behaviours.

Similar patterns appear on the individual level where the findings show that when being in a financially restrained situation, the need to reduce living expenses may push individuals to invest in energy reducing technology and toward less resource demanding behaviours. This is illustrated by the following extract from a senior man, living in public housing in a city in France:

> People living in extreme poverty are used to saving everything they can. I'm shocked to see people taking private jets when they could be taking the train. Elected representatives who give messages about ecology should start by setting an example. I didn't wait until 2024 to adopt everyday environmentally friendly habits and save money, because this was a necessity for me. (EFIS043, narrative retelling)

Financial constraints encourage low-cost sustainable practices (e.g. less travelling, reduced consumption, reusing). Conversely, as also stressed in the above extract, having a lot of money can be a hindrance for green practices as it has been shown to be associated with a more resource-demanding lifestyles (e.g. Adua 2022; Axelsson & Dawkins 2022; Barros & Wilk 2021; Oxfam 2023).

3.3 Social dynamics in the green transition

In the content analysis (section 3.1), it was reported that *communities and social networks* and *beliefs and values* are commonly mentioned as enabling the green transition. In contrast to transition politics founded on the idea of techno-fixes, this illustrates how the narrators are connecting the twin transition to a broader and deeper change in society, where also social dynamics are highlighted as essential for a green transition to take place. Social dynamics did not appear as important hindrances, as relatively few of the narratives raise such examples. However, when looking at the relative importance for different groups of interviews, it shows that *social appreciation* function as a hindrance for certain groups (see Appendix).

3.3.1 Communities and social networks

Focusing on the impact of social dynamics, the content analysis (section 3.1) shows how the narratives commonly refer to *communities and social networks* as something that enables the green transition. Focusing on how this plays out for different groups of people (see Appendix), we find that this is important regardless of gender, but that it - among men - is the most frequently mentioned enabler among the social dynamics. Among rural participants, communities and social networks are likewise the most frequently cited enabler, reflecting the importance of close-knit communities and collective engagement in fostering green behaviours. However, participants with a disability are more likely to mention community and social networks as a hindrance, which may reflect challenges in accessibility, inclusion, or the availability of supportive social environments.

To start with, much learning is taking place within different communities and networks. For instance, being a member of scouting groups, environmental groups or local volunteer groups is reported to have fostered an ecological awareness in many interviewees.

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This is illustrated, for example, in the following extract with a Swedish woman being both safety representative and climate ambassador for her union:

> For the role of climate ambassador, I've needed to develop my competence as I didn't know much before. But the union provides many different forms for this: sharing information online, network meetings, etcetera. To start with, they offer a digital course. It contains information on why the union works with climate issues, how to talk about it and how to deal with resistance and different **prioritisations**, and some recommendations on easy things to start with. (UGOT93, narrative retelling)

Local community networks have helped people share information about energy subsidy programs, guidance through application and renovation processes; how to find second-hand items; and share other forms of practical knowledge. Other types of communities, such as sports clubs, also play a role in education on green transition by organising activities such as river- and mountain clean-ups, or teaching tourists how to respect the environment. As learning, communication and organisation of activities in these communities often take place online, this also provides a good example on enabling practices for a twin transition.

3.3.2 Beliefs and values

Another aspect of social dynamics, which is also frequently raised in the narratives as enabling green transition, is *beliefs and values* (see section 3.1.). Comparing the relative frequence of mentioning for different groups (see Appendix), the results indicate that the enabling effect of beliefs and values are particularly important for women and non-binary people, and for urban residents. Among participants aged 70 and above, beliefs and values instead appear as the most cited hindrance, indicating that differing value systems or generational attitudes may play a stronger role in shaping barriers to green engagement among older adults.

Beliefs and values appear to play an essential role in pushing for skills development and education for a green transition. Enabling beliefs and values include carrying a personal, environmental responsibility or respect for nature, that are either ideologically or religiously grounded. The following two extracts from two Swedish narrators – the first being a cultural worker and the second a member of the Baha'i movement – provide examples of, first, individual morals, and second, religious morals:

> Like many others, I struggle with the balance between individual responsibility and the system we live in. I don't really believe I can have a huge impact on carbon emissions. But I can hold on to my own morals and ethics, what I believe in and how I want to live. Sometimes the moral value in itself can also be worth something. Even if I cannot stop the rapid development with my train travel over five years, at least I have stood up for something that feels right to me. I do not live emission-free in any way. But it still felt significant in my life that I made that choice. (UGOT97, narrative retelling)
>
> …
>
> We are not only physical beings, we are also spiritual beings with reason. I have learnt through my community that we have a responsibility to make responsible decisions and contribute to

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> the good of humanity. The environment and transition issues are a typical case in point. It's a bit of a cliché, but we can think globally but act locally. Ask yourself, what is my impact on the environment and am I using digital technology responsibly? Because I don't think faith or religion is separate from the rest of life. So we have to constantly reflect and day by day try to be better. (UGOT98, narrative retelling)

Enabling beliefs and values raised in the narratives do, however, also include the perception of sustainable practices as positive from an economic perspective or for one's physical health.

It is also apparent that *knowledge* and feelings of *self-efficacy*, in combination with *beliefs* in the necessity of a green transition, constitute strong motivational forces for change. This combination may push individuals toward sustainable practices even despite structural limitations and lack of *social appreciation* from others (see further discussion in 3.12). Furthermore, it allows for knowledge applied to one arena of life to spill over also to other, as illustrated in this extract from a woman working with sustainable tourism in France:

> This professional awareness has gradually influenced my personal choices. I now prioritise local products when grocery shopping. From dairy to sparkling water, I choose Alsace-based brands even if the price is slightly higher. I see it as a small but meaningful way to support my region and reduce environmental impact. The values of local sourcing and ecological responsibility have become part of my daily routine (EFIS093, narrative retelling).

Besides the conviction that green transition is necessary, enabling *beliefs and values* also include beliefs that it is not too late, in individual responsibility, and that there is much that can be accomplished by collective efforts. The following extract with an 87-year-old woman in Sweden, shows how such beliefs are sometimes also translated into widely accepted local norms and cultures, with collective efforts as an outcome:

> I think it's not just the municipalities and states like Sweden's, but it's everyone's responsibility to help. At least we can do it in small, simple ways. I sort rubbish, paper, food waste, metal, newspapers and all that stuff. I think that's very good where I live. It shows that people take it seriously. In the beginning, everything went into the same bin, but now it's separated and people are environmentally conscious. That's good. (UGOT116, narrative retelling).

While less frequent in the total material, some narratives also represent beliefs and values that hinder individuals' willingness to learn green skills and participate in the green transition. This includes mistrust or disbelief in green products/producers, or in the reliability of scientific support for climate crises and suggested sustainable practices. Furthermore, these narratives sometimes reflect a scepticism or resistance toward contemporary political discourse and environmentalist political parties. For example, in this extract from an interview with a senior man living in France, who has previously worked as a lecturer in political science:

> It also seems to me that the ecologist parties are right on the whole. Despite this, I don't vote for them, and I take a critical view of environmentalist political parties. It seems to me that their political discourse includes social issues in a way that doesn't suit me. I also think that the actions of these parties, which concern the environmental transition, often have the

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consequence of negatively affecting a popular electorate. I think that these measures can be excessive and brutal. (EFIS70, narrative retelling)

3.3.3 Social appreciation

Although *social appreciation* is not one of the main topics in the whole data set, the disaggregated content analysis presents it as more relevant – as a hindrance – for women and non-binary people, and for people residing in rural areas (see Appendix). Over half of women and non-binary participants mention social appreciation as a hindrance, compared with about one in three men. Studying the results for urban and rural residents, both groups most often cite social appreciation as a hindrance, though this is more pronounced among rural participants. This may indicate that in smaller or more closely connected communities, social recognition or approval carries greater weight in shaping environmental behaviour.

In relation to experiences of green transition in industries and workplaces, social appreciation is raised in the narratives through talk of gender inequality; prejudices against forest owners; and a strong generational and cultural barrier within the agricultural community, with older farmers showing little interest in green concepts. Even though it is never made explicit that these older farmers are primarily men, these experiences could be interpreted in relation to studies of rural masculinity, shown to promote traditional values in line with industrial/breadwinner masculinities opposing EU climate policies (Gospodarczyk 2024; Brettin 2025). In addition, the narratives illustrate how some interviewees' green engagement is pushed back by the absence of organisational support at workplaces; by limited engagement from colleagues and management; and by stakeholders opposing projects they perceive as environmentally intrusive, even if they align with broader sustainability goals.

Also in the private arena, or in (attempted) interaction with political actors, the lack of social appreciation constitutes a hindrance. For instance, the narratives reflect feelings of being overrun by politicians, state and companies; that the culture and knowledge of national minorities is not taken seriously; worries about repression of climate activism; and that the green community itself can be restrictive with no space for criticism on, for instance, the risks of silent electric vehicles.

Moreover, the narratives reveal how the lack of social appreciation for one's green efforts makes people feel isolated in green practices; they perceive a social pressure to not change too much, too fast, especially in children's life; and they describe how colleagues, friends and/or family get annoyed by the interviewees calling out unsustainable practices. Such expectancy for a slower-paced transition has been previously described as socio-psychological forces preventing rapid changes (Devezas et al. 2024). Interestingly, however, this lack of social appreciation is often referred to when interviewees describe how they act green *despite* the lack of support/attitudes among others in their proximity.

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3.4 Structural conditions in the green transition

Among the structural conditions explored in the content analysis (section 3.1), it is primarily *infrastructure* that stands out, and mainly as a commonly referred to hindrance to the green transition. However, the disaggregated analysis (see Appendix) points to the relative importance – for certain social groups – of *physical and geographical environment*, *socio-economic conditions*, and *policies and politics*. As both infrastructure and socio-economic conditions are often situated in a local context (e.g. local labour market, municipal economy), narratives about these structural conditions are often intertwined with reflections of the physical and geographical environment. For that reason, the three categories are similarly presented and discussed in parallel. In relation to this, the effects of crucial *events and developments*, as well as the importance of *policies and political activities*, will also be discussed as they further feed into the previous mentioned conditions.

The disaggregated content analysis show that *infrastructure* is more commonly referred to as a hindrance among men and among non-migrants. In opposite, enabling aspects of infrastructure is more frequently mentioned by interviewees in the age group of 50-69 years old, and by migrants (see Appendix). Comparing the group of men with the group of women and non-binary people, the *physical and geographical environment* is more commonly referred to as an enabler for the latter group. In comparison to rural residents, *socio-economic conditions* are more frequently mentioned by urban residents as a hindrance. Finally, *policies and politics* is more often referred to as an enabler for people with disabilities, compared to participants without disabilities.

In relation to consumption and everyday practices, the *physical and geographical environment* provides different conditions depending on whether you live in an urban or rural area. For instance, this is seen in narratives on how rural residency facilitates sustainable and self-sustaining practices with own food cultivation or shopping from local food producers. On the other hand, rural residency is also described as associated with long travel distances, and more affected by extreme climate events and water scarcity, which makes everyday life and sustainable behaviour more difficult. For instance, waste sorting in the countryside is presented as less practical due to reduced collection frequency and longer distances to recycling stations.

As previously presented (section 3.2.3), green consumption and everyday practices are conditioned by individual's access to *money.* Financial means allow or limit people's ability to pay for sustainable food and products, hence making green consumption into an economically inequal practice. This is further enforced by *social and economic conditions*. For instance, interviewees point to the effects of precarious employment, to inflation on household economies, and to how the high costs associated with urban residency restrict the financial means for sustainable living.

When talking about green transition in industries and work, the *physical and geographical environment* is mainly mentioned for interviewees occupied in rural areas. As illustrated in the following extract, with a man in France who spend much of his workday as an electrician travelling between different sites, long travel-distances on rural roads and difficult terrain make fully green mobility perceived as unrealistic:

> At work, we have discussed alternatives to reduce our reliance on traditional fuel-powered vehicles, but for now, no practical solutions exist. The company I work for specialises in

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> electrical installations, including setting up charging stations for electric vehicles. However, while we install these systems for others, we do not use electric vehicles for our work fleet. The reason is simple: current electric utility vehicles do not have the autonomy needed for our job. Some models can travel 300 to 400 kilometres per charge, but in real conditions – especially on rural roads – this range drops significantly. In my case, it would often be insufficient, especially when unexpected site visits or detours arise. Additionally, charging infrastructure is still not fully adapted to our needs, and the time required to charge a vehicle adds another layer of difficulty. (EFIS015, narrative retelling)

Furthermore, various *social and economic conditions* are often raised as factors that hinder the green transition in industries and workplaces. For instance, high taxation, "green bureaucracy", and the prevalence of black-market agrochemicals, is said to hinder sustainable adaptation and green practices within the agricultural industry. In regions with renewable energy investments, the perception that these investments do not lead to more local jobs may fuel a resentment to the green transition. Several interviewees also point to the capital logic as a hindrance for transition, as the striving for high profits and efficiency often leads employers to deprioritise sustainability. Finally, regions that are economically reliant on tourism need to balance the profits from the industry with the negative environmental consequences that tourism might have, both locally and globally. The following extract, with a woman working with tourism and sustainability issues in France, illustrates the challenges involved with such efforts:

> At work, I'm often confronted with the contradiction between promoting travel and being mindful of our environmental footprint. Most of our clients are international—many flying in from the US or Canada—which makes it hard to ignore the carbon impact of our sector. That said, we've committed to doing what we can: partnering with local suppliers who operate sustainably, favouring restaurants that grow their own produce or have green Michelin stars, and choosing biodynamic wineries over conventional ones. We've also transitioned to electric vehicles and earned the Alsace Excellence label, which attests to our ecological and societal engagement.
>
> These values are not just surface-level branding. We've implemented internal charters encouraging employees to use public transport whenever possible, especially for business travel. We sort waste carefully, adhere to EcoCert standards, and focus heavily on supporting local service providers. We rarely work with suppliers from outside Alsace, preferring to keep our economic and environmental impact localised.
>
> Even though our clients, especially those from higher-end segments, rarely show interest in these efforts, we still uphold them. It's a point of pride for our management, driven more by personal conviction and alignment with current ecological trends than direct client demand. Sometimes it feels like a paradox—talking about sustainability while accommodating people who've flown thousands of kilometres to visit (EFIS093, narrative retelling).

Moreover, the narratives point to the risk of industry-led transitions being socially unjust and non-inclusive (see further discussion in section 3.15). As illustrated in the following quote, the high-stake green investments – led by large companies – often involve risks that needs to be carried by the local municipality. For people migrating for jobs, and residents in regions with a weaker economy, this also

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means that they must absorb some of these risks, being exposed to potential negative consequences if a venture fails. This is illustrated in the following extract, from an interview with a resident in Skellefteå, Sweden, where the newly started company Northvolt – producing batteries for EV's – went bankrupt:

> Our town has kind of become a focal point when it comes to the green transition. There is a battery factory here, and although it still exists, the scale is much smaller than what it was for a while. The venture of this was really massive, and maybe that was part of the problem also. Anyway, now we kind of see the consequences of it. I am not anymore working for the labour union, so I am not dealing with the direct negotiations. But because I am involved in local associations, I can see the social consequences when people come to our meeting and our activities. Many people have come here from other countries to work and in some cases they have nowhere else to go because they really tried to hit it off here, bought a house and everything. Now these houses are worth much less, so they end up in a difficult economic situation (UGOT122, narrative retelling).

In previous research, such allocation of risks and negative consequences to certain regions have been described in terms of 'green sacrifice zones' (e.g. Brandajs 2025; Maija 2025; Zografos & Robbins 2020).

Several of the narratives, especially with individuals occupied in the agricultural industry, refer to events and developments that impose new challenges for their businesses, but also highlight the need for different production methods. This includes storms, fires, draughts and floodings; extreme events that have destroyed crops and livelihoods, worsening both the local environmental crisis and economic insecurity for entrepreneurs (see further discussion in section 3.15.4).

Here, concerns about *policy and politics* as hindrance is closely aligned with an experience lack of access to *political and social actors* to whom one can address one's concerns and suggestions for solutions and improvements. The following extract from a farmer in Greece shows how climate related consequences could be counteracted by better infrastructure, but that such calls has gone unheard:

> Climate change has made everything more unstable. I've seen frost in April and unbearable heatwaves in July. One summer, we reached 45 degrees. The crops get stressed, and we can't rely on the old planting calendars anymore. In 2023, floods destroyed 107 of my hectares of cotton. I didn't harvest a single kilo. We protested to the regional authorities, asked for flood protections and embankment repairs, but nothing was done. If it rains heavily again, I'll be in the same situation.
>
> We also lack proper infrastructure to store rainwater. Other areas have modern, closed-loop irrigation networks. Here, we rely on pumping water from rivers into open channels and then using our own motors to irrigate. It's inefficient, and a lot of water is wasted. The state should have built dams or improved the irrigation systems, but nothing has changed even if we have protested a hundred times. (AUTH75, narrative retelling)

In narratives such as this one, the need for bringing together aspects of mitigation and adaptation becomes crystal clear. For people who are experiencing consequences of a hotter planet - due to the accumulation of greenhouse gases in the atmosphere - the need to deal with such stress is crucial. In

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similar to the above extract, many of the narratives represent this kind of experience, of lacking response and reaction from politicians. There is a frustration about limited awareness campaigns or local programs promoting green behaviour and a lack of a swift Government action to change consumption behaviour of the population. Moreover, the lack of policy responses is raised in relation to rising energy costs but limited public efforts to provide accessible alternatives.

However, several of the narratives also raise the importance of enabling policies and political regulations. This includes, for instance, energy performance assessments effectively compelling landlords to improve efficiency; subsidies supporting renovations and the construction industry; and EU agricultural policies promoting greener practices. The topic analysis of the narratives does not reveal, however, why people with disabilities - to a higher extent than participants without disabilities - point to policies and political action as enabling a green transition.

In an urban setting, the narratives describe a car-dominated environment, which is not designed to support sustainable practices. Spatial inequalities within cities provide different opportunities for residents in different areas, as cyclists in wealthier areas benefit from safer, more extensive cycling lanes, while cyclists in other areas often share roads with heavy vehicles and lack secure places to park their bikes. The relevance of *policy and politics* is here raised in relation to low-emission zones in the cities. While these are described as beneficial in theory, it is also pointed out how they - for people who cannot afford to replace their vehicles - present an unfair financial burden, also forcing some to take longer routes around cities, ironically increasing their carbon footprint

Furthermore, the narratives raise the challenges of inaccessible, overcrowded or poorly connected public transport which is especially challenging for people travelling to certain parts of the city and for people with disabilities and ill-health conditions. In the following extract, such difficulties are described by an urban-living, Greek woman with cancer:

> Using public transportation has revealed new difficulties. There aren't enough seats for people with disabilities, and the buses, especially those connecting the western part of the city, where I live, to the Metro line, are often overcrowded. I have a digital disability card that gives me priority seating, but because my disability isn't visible, I need to show the card each time. That's something I often hesitate to do. (AUTH62, narrative retelling)

Geographical areas – both urban and rural – with no or few options for public transport thus produce car-dependent societies, with biking or walking as the sustainable options. This generally excludes people with physical impairments from choosing sustainable travelling options. Even for those with minor (or no) impairments these options are further made difficult by lacking infrastructure such as inaccessible sidewalks or lack of bicycle lanes. Many times, biking or walking also constitutes unavailable options for people in time scarce positions.

Among interviewees living in rural or remote areas, the narratives refer to the long distances to basic services and limited public transport as contributing to dependence on car transport. In rural and remote areas, the choice to go by public transport is often further restrained as the few available buses are meant for transporting school pupils, rather than people commuting to and from work. This is illustrated in this next extract, by a woman living in a remote area in Sweden:

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> "I have a car, but I try not to use it that often. But up here the public transport is not very good. So, I bike when I can and use the car when I must." This is a very sparsely populated area. There is one inhabitant per square kilometre, and the distance between the populated areas are waste. So, the buses don't go very often. We have a summer house in my brother's village. But it's pretty much impossible to go there by bus. The timetable is customised for the school pupils. It departs at eight in the morning and returns at twenty minutes to four in the afternoon. So, for a person working a full-time job it's not possible to go with that bus. If the public transport were better, I would surely use it. But I know that many people here still wouldn't, it's a very motorised culture. (UGOT141, narrative retelling)

As indicated at the end of this extract, the availability of public transport is, however, not the only hindrance here. *Beliefs and values*, more specifically a cultural and normative support for car driving and combustion engine cars, also feed into the local car dependence. Similar beliefs – carried either by the interviewees themselves or by their local community and significant relationships – are raised in several of the narratives, as a hindrance for transitioning into more green transports.

Especially in rural and remote areas, a negative attitude towards electric vehicles is further enforced by the experienced material reality of the physical and geographic environment. Residing in a region with few charging stations, mountainous terrain, and/or low temperatures, the choice to opt for electric vehicles is restrained, illustrated here by the narrative from a resident in the Northern parts of Sweden:

> We live five kilometres from the nearest shop, so we need a car. We have talked about getting an electric car, but it sometimes feels uncertain with the cold climate here and the incomplete infrastructure (UGOT58, narrative retelling)

In relation to transport, many narratives also point to flying as a non-sustainable practice that should be avoided. While this is a commonly shared belief, the choice to fly is mostly accounted for by it being cheaper and less time-consuming, because you have family living in another country, or because of the physical geography of the country. Here, Ireland and Norway stand out in the material. As an island nation, Ireland offers few alternatives than flying when going abroad for longer trips according to the narratives; and in Norway domestic travels are described as mostly done by air due to the limited train infrastructure.

3.5 Individual resources in the digital transition

The content analysis presented in section 3.1 shows that individual resources are mostly mentioned as enablers for the digital transition. The resources that are most frequently raised in the narratives are *knowledge*, *education, self-efficacy* and *equipment.* When considering the outcome of the disaggregated content analysis, *time* and *money* appear to have a more prominent role – as both enablers and hindrances – in the narratives for certain social groups, why also these aspects will be discussed in this section.

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3.5.1 Knowledge, education and self-efficacy

Knowledge, education and self-efficacy are all topics frequently talked about as enablers for a digital transition. This section elaborates on these findings, by focusing on how the capacity to develop knowledge varies; what enables and hinders the development of digital skills; and how these three resources interact. It should also be noted that, in some social groups, these resources are also talked about as hindrances for the digital transition. Among older participants (50–69 and 70+), *knowledge* is more often cited as a barrier, suggesting that gaps in digital literacy remain significant obstacles to digital inclusion for these groups. The lack of *knowledge* is also more frequently addressed as a hindrance among rural residents. This is in comparison to urban residents who more commonly refer to *education* as a hindrance.

Self-assessed levels of *knowledge* among the interviewees vary from professional knowledge to just sufficient to manage basic digital services and interactions. In both cases, digital skills are perceived as enabling in relation to the digital transition, at work and/or in people's everyday life (i.e. for the use of public services, consumption, communication, etcetera). As illustrated in the following extract from one of the interviews with a 55-year-old woman from Ukraine, now living in Greece, the development of basic digital skills can make a large difference to individuals' participation in a digital society:

> From the beginning, I took on many responsibilities within the household. I became the one who had to manage all the practical aspects of our life—paying bills, booking tickets, handling appointments—everything through digital platforms. My husband wasn't very familiar with technology, so I gradually became the one in charge of navigating these systems. What used to cause me anxiety is now something that empowers me and makes me feel independent.
>
> In many ways, I became digitally literate through necessity. I learned how to use a computer, submit online applications, and interact with public services electronically. I am proud that I adapted to this digital world, which is constantly evolving. For people like me—migrants, women, and older adults—this digital inclusion is not always easy, but it is vital. I believe that gaining these skills has been a personal achievement and a step toward more equal participation in society. (AUTH69, narrative retelling).

This extract also highlights some of the enabling resources that will be discussed further in this section: feelings of *self-efficacy* and self-learning as a form of *education*. Moreover, the extract points to the importance of having *significant relationships* to support (or be supported by) in learning processes (see further discussion in section 3.6.2).

In relation to digital services, lack of *knowledge* and skills constitutes a clear obstacle which leads to people avoiding digital appointments, digital prescriptions, etcetera. Such narratives are generally more common among the older population, finding it harder to develop more than basic digital skills and not coping with using a smartphone or digital identification. However, as many of the platforms are only in the national language or in English (not in smaller languages), digital services can be difficult to access also for those lacking the necessary language skills. This is an obstacle for migrants, but also for people speaking minority languages, as illustrated in these next two extracts by – first – a migrant woman residing in Greece, and – second - a woman working for the community in Galicia, Spain:

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> When I think about the future, I worry about how far behind I am in all these changes happening around me. I don't feel in control, and without papers or digital skills, my possibilities are very limited. Still, we try. We try to raise our kids the best we can, work hard, and stay hopeful. Maybe one day, when I have my papers, I can do more—get a job, learn better Greek, maybe even learn to drive. But for now, I live mostly offline, in the margins of the digital world. (AUTH87, narrative retelling)
>
> …
>
> All the new apps and platforms come in English and Spanish - Galego is an afterthought, if it appears at all. Our government talks about smart cities and digital inclusion, but they forget that language is the first tool for inclusion. When elderly people in our communities can't navigate essential services in their own language, what kind of progress is that? (AUTH36, narrative retelling)

Having sufficient skills for using digital services is, however, not always enough. It also requires perceived *self-efficacy* and trust toward the systems and other users. As illustrated by this older woman living in Greece, the fear of fraud, or making mistakes, is often presented as reasons for avoiding digital services such as online banking and payments:

> I started using a digital card in 2010. It is convenient because I don't have to carry cash. Even though the use of the digital card is convenient, I sometimes feel insecure, worrying that it could be hacked and my money stolen. I prefer to do my banking transactions in the shop rather than online because I don't have the knowledge and I am afraid of doing something wrong. (AUTH128, narrative retelling)

The narratives reveal that forms for *education* and learning vary. While some have picked up their skills through primary school, work or public courses, others have been able to draw on prior (higher) education which has provided them with skills to adapt to digital tools and evolving technologies. However, many describe themselves as self-taught, or that they have picked up new skills on their own initiative, for instance using peer advice on online communities or instructional videos on YouTube. The significance of self-learning is illustrated in the following extract from one of the narratives, presented by a young woman from Greece, working as a graphic designer:

> My school didn't teach us the necessary digital tools, so I had to teach myself. I downloaded software, often pirated, and learned by doing. I actually enjoy learning new tools, especially when they make my work easier. "The newer the software, the better, it helps me work faster and more creatively." (AUTH107, narrative retelling)

The reliance on self-learning may constitute an obstacle for people who need the support of formal educational institutions. This may also explain why lack of knowledge is more commonly referred to as a hindrance among older interviewees, as the younger participants will likely have developed more digital skills through school and peer learning. At the same time, however, the reliance on self-learning offers competitive advantages for those who have had less opportunity to attain a formal education or diploma, but who are still capable of educating and developing on their own initiative. This may be the case for, for example, people with disabilities or lack of financial means to fund their education.

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In the next two extracts, two people who are both living in France – a 61-year-old woman with neuropsychiatric disorders, and a male migrant, forced to reskill after a muscular injury – get to represent how digitalisation, in this way, may facilitate learning:

> I have autism and ADHD. This has prevented me from getting qualifications at school, because I can't stand the pressure of sitting an exam
>
> /…/
> I'm very interested in computer programming. I've acquired skills in Python and C++ code, which I'm applying to programming a train driving simulator. I spend a lot of time on it, and that's possible because I'm not under pressure. (EFIS053, narrative retelling)
>
> …
>
> What made this shift [reskilling to new occupation] possible was the digital world. In the past, learning meant classrooms, physical institutions, and rigid schedules. Today, I can sit at home and study through online platforms, YouTube, and tutorials. I quickly realised that the quality of teaching varies—some instructors complicate things with unnecessary jargon, while others go straight to the point. I find the latter far more effective. Digital tools have given me the freedom to learn at my own pace, in my own time, and at a fraction of the cost of traditional education. (EFIS101, narrative retelling)

Feelings of *self-efficacy*, often referred to as feelings of persistence, curiosity, confidence, and capability to learn, are clear facilitators that enable individuals' motivation for learning and development. People who have grown up with early access and the use of digital tools here constitute a group of 'digital natives.' In contrast, however, many express a lack of self-efficacy: that they don't feel capable of learning how to manage this new technology. This assessment is not only grounded in an evaluation of one's own capacity, but also that the digital landscape is too far reaching to grasp. There are simply too many digital tools and systems to learn them properly. Often this is related, by the interviewees, to higher age and correlated cognitive restraints. Yet, difficulties to 'keep up' with the rapid digital development by continuous learning are expressed also by many of the younger interviewees and by people with relatively well-developed digital skills. For instance, by this woman in Spain, working as a social worker, who describes herself as relatively tech-savvy:

> Bureaucracy has become a massive barrier. "Just understanding the paperwork or logging in with a digital certificate can be a wall." And that's not only about older people or those with disabilities—even for me, someone who's relatively tech-savvy, I sometimes struggle to keep up with the speed of technological change. (EFIS086, narrative retelling)

For those who lack basic skills and knowledge, the rapid development makes it even harder to keep up, increasing the gap between the digital literate and illiterate population. Moreover, an unwillingness to learn constitutes another obstacle, grounded in a general critique of the digital transition (see section 3.6.3).

Attending specifically to the experiences of entrepreneurs, the narratives illustrate how the need for digital skills can be transformative for industries reliant on traditional *knowledge and skills*. Creative and crafting industries provide examples, illustrated in the following extract about weavers, which

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also highlights the need for digital skills for the industry to adapt to the green transition. This is described by this French woman, teaching English to weavers in Guadulupe:

> The hardest part is helping them preserve their craft's authenticity while making it accessible to a global market. We're not just translating words - we're translating centuries of cultural knowledge into something that can exist in the digital space without losing its soul. When a weaver describes her process in Spanish, it's full of terms specific to our region, words that carry the weight of tradition. Finding English equivalents that capture this depth while being searchable on online platforms is a constant challenge.
>
> Environmental certification has become another language barrier. Many of my students practice naturally sustainable crafts - using local materials, traditional preservation methods, zero-waste approaches. But proving this to get official certification requires navigating English-language environmental standards and digital documentation systems. "Sometimes I feel like I'm teaching three languages at once - English, digital, and the language of modern commerce." (AUTH50, narrative retelling).

The development of digital skills may thus be necessary for the survival of small entrepreneurs and traditional industries. However, to develop these skills many are dependent on others to help them and their business to digitalise, which is illustrated in these next two extracts. The first extract is from a narrative by an 87-year-old man, and owner of one of the oldest refuges on the route of Santiago, Spain. The second extract is from a male web developer, living in a small town in Spain:

> The government tells me I need to digitalise - online bookings, electronic payments, automated check-ins. My grandson helped me set up some of it, but I still prefer my old notebook where I've recorded forty years of pilgrim names and stories. They say I'm losing business to the modern albergues in bigger towns, with their websites and Instagram accounts. But the pilgrims who find their way here still fill my guest book with thanks for keeping the old Camino spirit alive. (AUTH34, narrative retelling)
>
> …
> When my elderly neighbour needed to start selling his honey online to keep his business viable, I helped build him a simple website. Through that process, I learned more about sustainable beekeeping than from any environmental app I'd ever used. Now we're working with other local producers to create a digital cooperative because it helps traditional practices survive. (AUTH56, narrative retelling)

As illustrated in these two extracts, small entrepreneurs often do not initially have the necessary skills for using these digital tools. Individual's participation in the digital transition then often depends on support from *significant relationships*, *communities and social networks* and informal *education*.

The substitution of required skills and knowledge are, however, not only found on industry level, but may also hinder individuals performing a job they have previous experience of doing in an analogue manner. For example, a former journalist, now working as a barista in Spain, describes his experience of doing digital jobs on the side:

> Technology has opened doors, too. For example, I recently worked as a translator for a company in the UAE, completely remotely. "It was my first truly digital job," and it allowed me

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> to move between countries while staying financially afloat. You can use now tools like ChatGPT to transcribe interviews and speed up production—things that once took hours are now done in minutes. But still, entering the digital job market isn't easy. "I come from a world of personal contacts; suddenly you're alone with a laptop trying to get work on a platform where others have 10 years of experience." (EFIS083, narrative retelling)

As illustrated in this extract, the performance of analogue and digital work tasks is different, and it is not always easy to translate experiences from the analogue tasks to the digital equivalent. Many narratives similarly demonstrate how the lack of *skills* now demanded in digital jobs makes it harder for those with 'outsider' positions to enter the labour market.

In addition, the digital skills of clients and customers clearly affect the work situation in many occupations. Either because of increased demands for digitalisation, or because digital support to clients and customers has now become an essential part of one's work tasks. Here described by a social worker in Spain:

> We must be cautious not to create new forms of exclusion. Many of the people I work with can't fill out an online form or use an app. Even basic services—like accessing benefits, filing taxes, or applying for housing support—often require digital mediation. "Almost 99% of the people we work with need help with paperwork." We social workers end up doing a lot of this support, though it isn't technically our job. (EFIS086, narrative retelling)

At the same time, and as indicated in the above extract, the provision of support to customers and clients is often not formally included in the job description. On the contrary, the provision of support may be explicitly excluded, which puts restraints on the more service-minded workers. This is seen, for instance, in this following extract from an interview with a man in France, working for a telecommunication company:

> My role evolved with this digital tide. Where once we helped clients directly with changes or services, today we often redirect them to online platforms. For certain tasks, we're no longer allowed to intervene. The company considers them too minor to justify staff time and prefers customers manage them on their own, digitally. That's where problems arise. Many older customers, and even some younger ones, struggle with digital tools. We try to support them, but our assistance is limited. There is the believe that if you help one customer, then they will come back and that will consume your working time just by helping with digital issues. However, we can redirect them with part of our team that works over the phone and then they can spend some time assisting customers.
>
> Appointments rule our schedule now. Since the pandemic, everything functions on a reservation basis. The days when we could spontaneously help someone who walked in are gone. Now, if we spend extra time assisting someone unfamiliar with the technology, we risk running late for the next scheduled appointment. It creates tension, inconsistency, and a perception of unfairness when different clients receive different levels of support. (EFIS091, narrative retelling)

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3.5.2 Time

Although the content analysis (section 3.1) does not point to time as particularly important, neither as an enabler nor as a hindrance, it is still talked about in a substantial number of narratives. It stands out as a hindrance in narratives presented by participants with a migrant background. It is also more often talked about as a hindrance among women than among men (see Appendix).

Having the time for self-learning, or to make contact and use of knowledge in (online) communities to develop digital skills, is presented as an enabling factor. Conversely, the lack of time constitutes a hindrance for many interviewees. Groups that become especially vulnerable here include parents and others with a caring responsibility (often women) and people working long hours or holding multiple jobs (jobs often held by migrants). For these individuals, the lack of time may hinder both the use of digital tools and services, as well as digital upskilling. The two next extracts from two women – the first one living in Spain, the second living in Sweden and working in the culture industry – illustrates this experience:

> I'd like to learn more about using technology, but I don't have the time. I work long hours. I can check my bank account on the phone, I use WhatsApp, I check the bus app to see when it arrives — all that I can manage. But things like buying tickets online? I still go to the travel agency. (EFIS082, narrative retelling)
>
> …
>
> I am afraid that some of my jobs will disappear when people choose cheaper AI solutions, but at the same time I need to learn to use the tools. After parental leave I have fallen behind and have little time to develop my skills while everything moves so fast. (UGOT58, narrative retelling)

Time as a hindrance is highly visible in narratives related to the experiences of digital services as helpful yet time consuming. This is especially the case when interaction with the digital systems fail, as the process of getting assistance even with a simple task may take hours, as illustrated in this narrative by a 60-year-old man living in France:

> Digital technology plays a huge role in my daily life now, I see there's a growing dependence on the smartphone. If I need to book a doctor's appointment, it has to be done online. Recently, I faced a long story with my car registration after buying a new vehicle. Everything was digital—no paper options anymore. A single clerical error in my birth date years ago meant that when I tried to change my address online, the system insisted I wasn't the vehicle's owner. I ended up spending hours going back and forth between France Services and the town hall, waiting for someone in Strasbourg to respond. In the end, a simple task took six hours. (EFIS098, narrative retelling)

When people are dependent on digital support from others, the supporters' time deficiency also becomes a hindering factor. Time scarcity is often further enforced by other obstacles such as precarious employment and lack of citizenship, which means that you need to spend available time for more pressing needs. This is explicitly stated in this quote by this young man from Pakistan, living in Greece and working two jobs:

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> I only care about surviving. Organic food or digital payments—these are luxuries for people with documents and time. (AUTH95, verbatim quote)

As time is restricted by paid labour, it is apparent how this individual resource is also closely related to *money*, i.e. the individual's financial resources and income, adding low-income individuals to the more vulnerable groups. However, time may also constitute an enabling resource for some groups that can be considered vulnerable from other perspectives, for instance unemployed.

Focusing on how entrepreneurial participants talk about time, many narratives refer to digital tools as time efficient. Digital solutions are then perceived as positive for businesses in the strive for increased production, as emphasised in this extract from a pastry chef, currently residing in Italy:

> Thanks to technology, we can save time and labour. For instance, the bread-making process has become much easier. Previously, people had to wake up early in the morning to prepare bread. Now, there are machines that allow us to program the process the night before, so by morning, everything is ready. In my personal experience, the use of tools has made my work more technically efficient compared to doing everything by hand, which was quite challenging. This improvement has also opened up this line of work to many people, especially women. With this technology, it is not necessary to learn through formal courses; experience is often enough. (EFIS085, narrative retelling)

As argued by this interviewee, such solutions may also contribute to making some occupations accessible for more groups of workers. This is both because work no longer must be performed on atypical and inconvenient hours, and due to a deskilling of the occupation as performing the work tasks now requires less formal education.

While digital tools often offer time efficient solutions within industries, there are also cases when the requirements for digital documentation and measurements are instead perceived as unnecessary and time consuming. This is illustrated in the following extract, by a cheese maker in rural Spain, which also highlights how traditional skills and knowledge simultaneously are made irrelevant:

> I'm 45, born into a family of cheese makers. I learned to make Torta del Casar by watching my mother's hands work the milk, understanding how the temperature and humidity of each season affected the curdling process. Now I spend hours in front of a computer, documenting every step of this ancient process for our PDO certification, translating generations of tactile knowledge into digital data points.
>
> Our cheese has been made the same way for centuries. But now we must prove what we've always known. Every batch needs temperature logs, humidity recordings, digital tracking from pasture to aging room. The same hands that know exactly when the curd is ready must now stop to input data into tablets. Sometimes the internet fails, and we have to write everything down to enter later, doubling our work. (AUTH46, narrative retelling)

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3.5.3 Money and equipment

Although the lack of money is not as frequently mentioned as a hindrance for the digital transitions (see section 3.1), the disaggregated content analysis demonstrates how money conditions the digital transition in different ways for different social groups. Among the youngest participants (under 30), *money* and *equipment* are most frequently mentioned as hindrances, indicating that even when skills are present, limited financial means and restricted access to devices can constrain engagement. Participants with a disability are more likely than those without a disability to cite *money* as a hindrance, suggesting that financial barriers, such as the cost of adaptive technologies or digital tools, may compound existing inequalities in digital access. Urban participants, in comparison to rural residents, are slightly more likely to cite *money* as an enabler, pointing to the role of financial capacity in accessing digital tools and services.

Based on the topic analysis of the narratives, it is found that money is related to both *knowledge* and *education*. Having a low income can negatively affect individuals' capacity for developing their skills, as lack of money limits the ability to access paid training programs and privately funded higher education.

Moreover, lack of money is, in some of the narratives, presented as something that restrains individuals' possibilities to purchase necessary digital *equipment* and software, or to pay for internet connection. The lack of financial means for digital equipment is often further enforced by insufficient *infrastructure*, especially in rural areas, as illustrated in the following extract by a young man living and working in rural Greece:

> My old computer barely functions, and our village's internet is painfully slow. I've looked into faster internet solutions, but they're too expensive. That's a big problem: being digitally skilled but unable to afford better devices or services. (AUTH72, narrative retelling)

Not being able to afford to invest in digital equipment or internet also means being reliant on libraries and other public spaces with computers and Wi-Fi. For low-income groups, this clearly restricts ability to participate in remote work, learning, and it limits the ability to access paid training programs. Moreover, the lack of proper *equipment* or *infrastructure* – having to do your errands on a slow computer; with a slow or an unreliable internet connection; or on your smartphone – adds to the perception of digital services as time consuming and inaccessible.

While lack of equipment was previously mentioned as a hindrance for using digital services, the access to specific *equipment* also functioned as a clear enabler for many interviewees, especially among people with various disabilities or health conditions. The examples mentioned in the narratives include technological devices to manage medical conditions such as diabetes, and eye-tracking systems, apps and other forms of aid compensating for visual, hearing, speech or physical impairments (see also section 3.14).

With increased urbanisation, and many people living physically far from their close relatives, digital tools can thus improve the facilitation of care, health and services for especially disabled and older people. However, there is also a risk that society becomes too reliant on such solutions, not discerning when they are an insufficient substitute for human interactions. The following narrative, told by a rural

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postman in Spain, illustrates how the care responsibilities, in practice, still falls on the physically present person:

> My route covers twelve villages, some with only three or four elderly residents left. I'm often the only person some of them see all day. While everyone talks about digital communication and smart rural development, I watch how these changes really play out in our forgotten corners of Galicia.
>
> The post office gave me a digital scanner and a tablet for tracking deliveries, but they don't work in half the places on my route - no signal. I still use my old notebook to record deliveries, transferring the data when I get back to the main office. The same government that wants everything digitalised can't even provide mobile coverage in these villages.
>
> My job has become more than just delivering mail. I help elderly residents read their digital utility bills, explain letters from banks telling them their local branch is closing, carry their pension withdrawal requests to the nearest town because they can't use online banking. Some days I feel more like a social worker than a mail carrier.
>
> /…/
>
> I keep a list of phone numbers from children of elderly residents on my route. When someone doesn't answer their door, or I notice they're not well, I'm the one who calls their family in the city. The government talks about telehealth and digital services for rural areas, but who's going to help an 85-year-old navigate a video call with their doctor when they can barely see the phone screen? (AUTH33, narrative retelling)

Also at work, and for entrepreneurs, money and equipment plays an essential role for the digital transition. The digital transition also means that workers in certain industries need to adapt their business models and products to be able to compete with subscription-based or AI-driven services. Again, creative industries are especially exposed where, for instance, the digitalisation of music reduces income for many in the music industry. Yet, workers in other creative industries are also affected, as narrated by this cultural worker and designer in Sweden:

> AI is causing a kind of trouble for me, because it is hard to compete with the costs of an AI-integrated model. Instead, I have tried to think how that which I have to offer, is about complete philosophy and the concept, rather than just producing a short piece of text. But, I am of course not surprised by this development with AI taking jobs, since we have had such a focus on cost-efficiency for a long time. (UGOT106, narrative retelling)

As illustrated in the above extract, *money* plays an essential role as the strive for cost-efficiency and the calculations of cost-benefit ratios is crucial for entrepreneurial decisions on whether to invest in digital *equipment* and solutions. The two following extracts, both from the agricultural industry in Greece, provides – first – an example of when the assessment of the cost-benefit ratio does not encourage a digital upgrade, and – second – an example of a farmer who concludes that the digital tools are both “better for my wallet and better for the environment”:

> In my region, some growers have started using more advanced digital tools — like drones for spraying — but I haven’t. Not because I’m against innovation, but because using drones

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requires official certification, training, and additional costs like government fees. In my case, it's not necessary. My land is easily accessible and manageable with conventional methods, so the cost-benefit ratio doesn't justify the switch. (AUTH88, narrative retelling)

…

Over the past years, digital tools have really changed how I work. My tractors are now equipped with GPS and precision farming systems. These allow me to input exactly what I want to do—whether I'm spraying pesticides or spreading fertilisers. Once I've entered the dosage and speed into the GPS interface, the system takes over. It guides the tractor on straight lines, controls the nozzles so I don't double spray areas, and automatically stops the application where it's not needed. That alone saves me money on chemicals, time and avoids harming the plants with overdosing. I no longer have to rely solely on experience or judgment. Even if you don't know the field like the back of your hand, the machine makes sure the work is accurate.

The system tells me how much product to load and releases the right amount depending on the speed and soil conditions. For example, if I want to spray 40 litres of water per hectare, I enter that into the GPS, and the tractor adjusts the pressure and flow rate to do it automatically. It even tells me exactly where to turn or when to stop. These machines have saved me both time and fuel, and also reduced pesticide waste significantly. It's better for my wallet and better for the environment.

At first, it wasn't easy to learn this new technology. At my age, it's hard to adapt. But I had help from my son, who is much more comfortable with digital tools. He taught me how to use the GPS systems, and now I handle them myself. When we first installed the new equipment, the companies gave a short demo. After that, if I had questions, I would either call them or ask my son. Without him, it would have been difficult, but I've managed.

My smartphone also helps with daily planning. I check the weather every morning. That might seem small, but it has changed how I make decisions. In the past, I used to head to the fields and get caught by sudden rain, losing time and even damaging the soil. Now, I check the forecast and know which days are better for spraying or sowing. Of course, the forecasts aren't always perfect, but it's a big improvement from how we used to work.

For irrigation, I've switched most of my fields to drip systems. That has saved a lot of water, especially now that we're seeing shortages. With drip irrigation, I can fertilise in small doses and target the roots more effectively. Instead of dumping all the fertiliser at once like in the past, I now divide it into three or four applications. The plants absorb it better, grow healthier, and I avoid waste. (AUTH75, narrative retelling)

Noteworthy, the latter of these two narratives also illustrates how the twin transition can affect the agricultural practices.

Even when the motivation for using digital tools is there, the actual use are many times hindered by the high costs of modern digital agricultural equipment, GPS systems, machinery upgrades, co-working spaces, etcetera. The transition to more efficient infrastructure in workplaces is sometimes

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also hindered by bureaucracy, staff shortages, and general underfunding. Finally, limited funds often hinder investments in digital marketing.

On the other hand, digital tools sometimes offer cost-efficient solutions that are beneficial for business owners. For instance, companies may use digital payments, marketing on social media, or keep costs low by not having any stores, just selling online (e.g. UGOT87). By offering opportunities for remote work, companies can more easily 'find good staff, as they don't have to live in the same city' (UGOT32), which can also have positive effects on the business' profit margins. In some instances, online sale and marketing of own products may partly compensate for individual's lack of other income – the lack of income may then also function as a push for digitalisation of business.

Focusing instead on jobs and work conditions within industries, many similar aspects stand out as enablers and hindrances. Lack of *money* and *equipment* restricts ability to participate in remote work or perform digital work tasks. This means that especially unemployed, or people with low-paid and precarious employment, have less ability to purchase or upgrade digital tools necessary for many jobs. For those able to afford the equipment, digital tools can offer new opportunities for employment, especially in short-time jobs.

3.6 Social dynamics in the digital transition

The content analysis of various social dynamics as enablers or hindrances, shows that *communities and social networks* are commonly mentioned as enablers for the digital transition (see section 3.1). However, when studying the results of the disaggregated content analysis (see Appendix), it is found that also *significant relationships, social appreciation,* and *beliefs and values* are more often mentioned within certain groups of participants.

3.6.1 Communities and social networks

The disaggregated content analysis shows that references to *communities and social networks* as enabling the transition is especially common among participants aged 49 or below, reflecting the greater influence of peer connections and collective digital cultures among younger cohorts. Moreover, it is slightly more often raised as an enabler among people with a migrant background compared to non-migrant interviewees.

Having opportunities to receive support and help from *communities and social networks* (both online and offline) generally facilitate learning and participation in the digital transition. There are many examples presented throughout the interviews, including professional or occupational networks (e.g. for farmers, teachers, laboratory workers), social identity groups (e.g. seniors, migrants from a specific country, people with specific disabilities), interest groups (e.g. role-playing community), political groups and unions. These groups are sometimes mentioned because they facilitate learning digital skills, but they also provide emotional and practical support on other matters. Online communities also function as an incentive for people to develop their digital competence to participate in, and maintain, online social networks.

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While both online and offline communities may facilitate the digital transition, digital networks are especially important in some respects. Digital networks act as enablers by giving access to a safe meeting place for groups otherwise especially exposed to (online) discrimination or harassment (e.g. LGBTQI+, Muslims). Such experience was described, for instance, by this young, transsexual woman living in France:

> I know quite a few people who have been harassed on the Internet because they are transsexual women. For example, I worked on the design of a game that was openly LGBT, and the openly trans people who also contributed to it were harassed. People who have had to transition on the Internet and who were known before transitioning experience a lot of harassment. I also think it's because people think, well, we still have images of you from before, and so people know and can easily find out that people are trans people, which creates problems that are a bit specific to the Internet, because it's very easy to find information about people and misuse it too.
>
> At the same time, digital technology allows a lot of people to speak out. In particular, it allows trans people to speak freely. Without digital technology, it would have been harder for me to talk about my life in a concrete way. The Internet allows you to create your own space. (EFIS051, narrative retelling)

Noteworthy, the use of social media to socialise sometimes also compensate for a lack of social communities offline. This facilitates networking both for more socially isolated individuals and for groups that, for various reasons, have difficulties meeting physically. The following extract - from a Muslim woman living in Sweden and working with public education - shows how digital meetings have enabled civil society organising for the Muslim community, otherwise excluded from many meeting places:

> From the perspective of working with Muslims, you could say that one positive thing about digitalisation is in relation to the fact that Muslim civil society is being discouraged. Conferences, associations and meeting places are opposed and shut down. But then we can meet on the internet/social media, such as large Facebook groups (like the Muslim Competence Portal). In this way, digitalisation has helped us. It becomes an alternative to the meeting places that have been closed down or opposed by authorities, for example.
>
> During the pandemic, one thing we saw in the popular education we do was that many migrant elders were already skilled in using digital technologies, for example, they were used to communicating with relatives in the 'home' country via WhatsApp, video calls, etc. Our transition in course activities was therefore not as complicated as many others (UGOT22, narrative retelling).

The latter part of this extract also illustrates how the common notion that elderly individuals generally have a harder time to manage digital tools are not always true. Highlighting elderly with migrant experiences, many of them may already have acquired many digital skills due to their needs and interest for digital communication. By membership in online social networks, and being motivated to

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use digital tools to sustain these social interactions, the communities thereby constitute a self-enhancing enabler for individuals' participation in the digital transition.

Many narratives include a retelling of how people use digital communication tools for keeping up significant relationships with families, friends and other social communities. As illustrated in the following extracts from two people with migrant background – the first one living in Spain and the second in Greece - this appears to be especially important for migrants, international students and others who live far away from their families and networks:

> [After migrating and getting my first job], communication became my first real challenge. WhatsApp groups became my lifeline—networks of other migrants, local workers, information exchanges that moved faster than any official communication channel. Technology wasn't just about devices; it was about survival, about creating networks of support and opportunity.
>
> /…/
> Every evening, I video call my family in Morocco. The connection is sometimes unstable, the image pixelated. But these moments reveal the true nature of modern migration—we are never fully here or there. Technology allows a kind of presence that defies physical distance, a belonging that isn't confined by borders. (AUTH59, narrative retelling)
>
> …

> Especially for migrants, smartphones are vital. They help us stay in touch with family back home. I can talk to my family in Albania whenever I want. Sometimes, it's so easy that I even end calls early, pretending I'm busy, because I know I can always call again. My brothers weren't as fortunate. They migrated in 1998, when communication was harder and much more expensive. Back then, distance caused alienation between parents and their migrant children. (AUTH67, narrative retelling)

With this important role of communities and networks in mind, we need to highlight those groups that risk lacking such community support. Analysing the narratives, the risk of being excluded is clearly related to having an undocumented status and to language barriers. It is also related to feelings of lacking *social appreciation,* which in the disaggregated content analysis appear as a commonly mentioned hindrance for the digital transition, especially for women and non-binary persons. It is more often also referred to as a hindrance among urban residents. The lack of social appreciation is raised in relation to discrimination and negative stereotypes (e.g. gender stereotypes, islamophobia, discrimination against people with autism) within communities. As illustrated in this next extract, from an immigrant man in France, online visibility can also involve more immediate risks for particularly vulnerable groups:

> In my country, it's dangerous for members of the LGBTQI+ community to expose themselves on social networks. For this reason, members of the LGBTQI+ community don't use social networks, and maybe not here in France either. (EFIS49, narrative retelling)

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Such risks and negative attitudes have a direct effect on participation but also lead to a lack of self-esteem and confidence with consequences for individuals' ability to adapt.

3.6.2 Significant relationships

In the disaggregated content analysis, having significant relationships is more often mentioned as an enabler by women and older participants (ages 50–69 and 70+). Among non-migrants and people with disabilities, it is more often referred to as a hindrance.

Having a social network constituted by close relationships may both support and negatively impact individuals' learning process. Many interviewees who assess themselves having insufficient skills to manage basic digital services, rely on significant relationships (family and friends) for helping them. This is illustrated in this next extract from a 75-year-old man, living in Greece:

> I have two sons, one lives in Greece and the other abroad, and this distance pushed me to engage with technology, despite the difficulties I face. I use my computer and mobile phone only for basic functions, mainly to communicate with relatives and friends. Electronic procedures, such as scheduling appointments with doctors or public services, are challenging for me due to my lack of English and limited digital skills. Fortunately, my children support me when I need help. (AUTH129, narrative retelling)

As the above extract illustrates, close relationships may both encourage individual's motivation for learning and using digital tools and enable it by providing support to those who lack sufficient digital and language skills. Corroborating findings in previous research on older adults (Gallistl et al. 2020; Korpela et al 2023), such support is essential for many individuals – especially older people and women - to manage daily life in a digital society. However, it may be a short-term solution if it circumvents and inhibits their own learning.

3.6.3 Beliefs and values

According to the disaggregated content analysis, beliefs and values are more often presented as a hindrance among men, for participants older than 70, and for migrants (see Appendix). There are, however, no clear differences between social groups when it comes to beliefs and values as enablers for the digital transition.

Similarly, the topic analysis of the narratives captures references to beliefs and values primarily as hindrances to the digital transition. This relates to feelings of the digital transition as involuntary; as counteracting positive human interaction; a dislike towards digital activities and work; that digitalisation negatively affects our health; and to feelings of distrust.

The following extract from a man residing in a small Spanish town, illustrates the first issue, that digitalisation – by being involuntary – also stands in the way of communities' needs:

> The inequities I observe aren't just about digital access - they're about who gets to choose their relationship with technology. I can decide when to be online or offline, using digital tools on my terms. Local farmers and artisans, however, increasingly face pressure to digitalise

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> every aspect of their work, often in ways that don't fit their practices or needs. They're not resistant to technology; they just want it to serve their community's actual needs. (AUTH56, narrative retelling)

Supporting the notion of digitalisation as being unvoluntary, interviewees express how they do not want to use digital tools or social media, or that they dislike computer-based tasks and screen-work.

In addition, people express their scepticism and critique toward the ongoing digital shift: how digitalisation and e-services substitute people and human interaction. Narratives describing digital services as impersonal are often also related to feelings of being unheard. Another critique relates to the perception that responsibility and administrative tasks are moved from companies and public sector to individuals. The following extract - from an interview with a 60-year-old woman living in Italy - illustrates how this development conflict with expectations on services to simplify life, especially for older people:

> The digitalisation is also part of my life, sometimes making things easier but also pushing responsibilities onto individuals. At my age, life should be simplified in all senses, and not that you need to move documents around on the website or making too many steps for something that could be simple. Nowadays, booking medical appointments online means fewer long lines at public offices, but it also means that people less familiar with technology—especially older generations—were left behind. I got the help of my family to run some applications, not all of them are easy. The same went for banking, taxes, and even simple things like paying a bill. What was once handled by an employee was now our own responsibility. (EFIS033, narrative retelling)

The concern that digital communication may substitute for real-life interactions is also reflected in how many interviewees stress that they prefer physical interactions and real-life community over a digital one. These accounts appear to stem from a related concern, that digital habits interfere with social cohesion and meaningful engagement. Such beliefs can be considered as a hindrance for further digital participation; however, this does not pertain to any specific social groups.

Among parents, the narratives point to how the protection of their children involves consciously setting up hindrances for children's screen time, digital communication and online presence. This is, however, not merely based on a concern for harmful digital habits but also reflect a fear for online safety of children, exposure to harmful digital content and unfiltered news. Not trusting other actors online, parents many times feel left alone in this struggle, asking for more regulations of both content and phone use for children.

The lack of trust plays an important role as a hindrance to digital participation for other interviewees as well especially older and less digitally skilled participants. More specifically, it is the fear of fraud that often constitutes an obstacle for online shopping, using digital services, or - as illustrated by this 83-year-old man in Spain - for digital communication:

> "I don't keep up anymore. If they took my computer away tomorrow, my life would go on just fine". I use it now mostly for writing and checking bank transfers. When I get strange emails or messages on my phone, I don't even open them. "I don't trust anything I don't recognise. I'm very cautious with digital communication". (EFIS088, narrative retelling)

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In addition, the lack of trust is raised in relation to digital communication in general, as some interviewees voice their concerns about how commercial digital practices often infringe on personal data, perceived as a violation of privacy right.

However, a negative attitude is also based on a critical notion of digital tools negatively impacting mental health by causing information overload; making work-life balance more difficult, and through the societal pressures and competitive nature of social media (see also section 3.12.3.). Furthermore, the online environment offer space for people to express beliefs and attitudes that may – in its consequence – negatively impact other people's experiences of being online. Such expressions, together with misinformation, may constitute another hindrance for online communication for groups that are the target of discriminatory or negative descriptions. In the following extract, a young man with autism spectrum disorder describes the experience of meeting such misinformation, but also the difficulty of screening information:

> I think the internet brings access to a lot of information, but that also includes a lot of misinformation. "The internet is a double-edged sword." I've come across content designed to provoke emotions or manipulate users—things like rage bait or engagement bait. These can affect me emotionally. I try to avoid them, but they're out there. I think it would help if there were some kind of regulation, but it's hard to draw the line. One topic that really bothers me is the idea spread by some anti-vaccine groups that vaccines cause autism. "You're offending an entire group of people just because of extremely harmful beliefs." Saying that autism is worse than disease—or than death—is deeply hurtful. (EFIS079, narrative retelling)

3.7 Structural conditions in the digital transition

The content analysis (section 3.1.) showed that structural conditions are relatively less frequently mentioned as enablers for the digital transition. Focusing on structural conditions as hindrances, somewhat more of the narratives point to the importance of *socio-economic conditions*. This aspect also stands out in the disaggregated content analysis, pointing to a comparatively higher importance as an enabler for men, for participants below 50 years of age, and for people without any disability. In contrast, it is more often mentioned as a hindrance by people living in rural areas.

In addition, the disaggregated content analysis indicates a relative importance for specific groups also of other aspects of structural conditions. To begin with, rural participants and interviewees older than 50 more commonly referred to *infrastructure* as an enabler. The same age groups – above 50 years old – also more frequently talked about *physical and geographical environments* as enabling the digital transition. In similar, people with disabilities more often referred to the environment as enabling compared to participants without disabilities. Interestingly, rural participants talked about the physical and geographical environment more often than urban participants yet also raise both hindrances and enablers more frequently. Looking at differences for *events and developments,* it is found the women and urban residents more often mention this as something that has enabled their digital participation. Finally, it is found that *policies and politics* is more frequently referred to as a hindrance by people with disabilities, compared to participants without disabilities. This aspect also

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appears as more important for the urban population than for the rural residents but is talked about as both enabling and hindering the digital transition.

As these different aspects of structural conditions are highly intertwined in the narratives, this section will present and discuss them in a similar way.

To begin with, the importance of *infrastructure*, and more precisely access to good internet connectivity, is a recurring topic in many of the interviews. The following extract from a 27-year-old-man living in a rural town in southern France, illustrates a common narrative, representing how the installation of fibre-optic provides people with better internet connectivity and enables them to better take part of the digital transition:

> Access to high-speed internet has been a game-changer here. Before fibre arrived, it was almost impossible to work efficiently online from more rural areas in the surrounding valleys, where I used to live. Now, I can handle bookings and even attend online training or workshops, which saves time and money on travel. (EFIS002, narrative retelling)

Many times, however, such well-functioning infrastructure is lacking in rural – especially remote – areas, which further restrains the possibilities for, for instance, remote work.

The problem presented here, that of rural areas being left behind, reflects also the importance of the *physical and geographical environment*, with a rural-urban divide in relation to infrastructure. However, as illustrated in the next extract, EU subsidises is also told to have had a real and positive effect on countering this divide by improving connectivity for rural areas. Interestingly, the disaggregated content analysis showed that rural participants more often than urban residents talked about infrastructure as an enabler for digital participation. As the rural residents had often more recently experienced improvements to the local digital infrastructure, this is likely to affect their perception of it as enabling, rather than as a taken for granted. Many times, the narratives include both a retrospective part – showing how the lack of infrastructure in rural areas constitutes a hindrance – and a part describing the contemporary infrastructure as enabling digital practices. This is exemplified in the following extract from a 70-year-old man, living in a rural area in Sweden:

> When it comes to digitalisation, this has been a big issue for us on the countryside: getting access to stabile digital communication. We were a bunch of people, walking around, complaining about it. Then there was these EU money that you could apply for, a start-up check for about 25 thousand SEK, which we applied for and was granted. So we formed a local organisation for broadband fibre, set up a board, and gathered people from the nearby villages. The board included people who had the knowledge on these things, so after receiving the money we did everything ourselves. We built and installed the fibre, and then we sold it to the municipal electricity company.
>
> Now, we still have our daily newspaper in paper, but otherwise we use all these homepages and platforms, and I sometimes shop online. It saves time and travelling, we can use the car less. (UGOT60, narrative retelling)

As described in this extract, the EU subsidies enabled the installation of fibre, yet it also required the joint efforts of the social community. This further illustrates the increased difficulty for people living

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in remote areas, where the potential community is geographically more distributed, to collectively organise with the goal of attaining the necessary infrastructure.

In addition to this rural-urban divide, the narratives provide several examples on how *infrastructures* and systemic barriers provide hindrances for groups of people to make use of digital tools and services. This includes infrastructures (such as touchscreens) or apps that are not fully adapted to disabilities or functional variation, as described by this visually impaired care worker:

> I'm also currently going through a digital transition, using new tools every day. They exist, and they're still being developed, because, once again, we're people with disabilities and working in the care sector. We're even smaller, so general tools are rarely adapted. So we have to adapt the tool to new situations. I'm thinking of management software that opens in a pop-up window and is therefore unreadable for certain tools that take care of a central page. So that's it, I'm always trying to find adaptation tools now. When I experience obstacles, it's often when you get to very advanced levels of security [...]. I'm thinking of silly things, but for example, my access to my online bank is regularly evolving, linked to these security issues, so it takes time to adapt. And even though I sometimes take the trouble to write to the developers and all that, it's clear that we [the visually impaired] are still epsilon in terms of population. So they [the applications] are initially designed for people without visual problems. And then they always end up adapting. (EFIS036, narrative retelling)

Furthermore, the interplay between *infrastructure* and *physical and geographical environment* is especially visible in narratives reflecting on the digital transition within industries. Once again, it relates to the specific challenges of rural areas and how the lack of digital infrastructure in rural areas makes it difficult for some entrepreneurs to keep up with the digital expectations of the industry and government. However, the physical and geographical character of different rural areas further add to these challenges. This is the case, for instance, among farmers in mountainous villages of Galicia, illustrated in the below extract with a young, female vet providing witness of the changes enfolding since the pandemic:

> When COVID hit, everything changed. Suddenly my role expanded - I was one of the few professionals still visiting isolated communities regularly. While everyone talked about telemedicine and digital solutions, I was carrying prescriptions to elderly farmers who couldn't get to town because the buses stopped running.
>
> /…/
>
> My van carries two sets of everything - digital monitoring equipment that works when there's power, and traditional tools that work when there isn't. During COVID, this double preparation saved us multiple times. While urban vet clinics switched to telehealth, I was using hand-written notes and knowledge passed down through generations. The pandemic showed that sometimes the old ways are more resilient than the new. (AUTH38, narrative retelling)

In the above narrative, the Covid pandemic is highlighted as a significant *event*, during which the applicability of digital tools came to a test. The pandemic was, however, most often referred to a period of rapid digitalisation on several areas. For instance, the participants perceive that publicly or

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company funded digital training courses were more frequently provided during the Covid pandemic, as digital courses. The pandemic is also talked about as a period that pushed peoples' self-learning of digital skills, both due to the new need for digital skills that the pandemic brought about (for distant work, online communication, online shopping and services, etcetera), and because this period provided people with more *time* that could be used for skills development. This is illustrated in the next extract, from an interview with a middle-aged woman living in Greece:

> Then came the COVID-19 pandemic. Forced to stay at home, I experienced a life-changing period. In 2021, I was diagnosed with breast cancer. I underwent two surgeries, eight rounds of chemotherapy, and thirty radiation treatments, a process that has lasted four years. I once again had issues with my residence permit, which had to be altered in order for me to receive a disability allowance. It was a difficult and lonely period for me, but also a productive one.
>
> That time alone gave me the space and motivation to become familiar with digital platforms. I began to feel my self-worth rise, and I found the will to pursue my dream again. Although I didn't receive any help from those around me in setting up or using my profile, I dedicated time to learning the ropes on my own. Eventually, I decided to use TikTok to create and share content about psychology. It was a big step out of my comfort zone, and I'm proud I took it. I feel like I've accomplished something meaningful. (AUTH124, narrative retelling)

The *event* of the COVID pandemic is often mentioned also in relation to industries, because it provided time for app development, and because it involved a significant upswing for online shopping and online food delivery platforms.

In addition, the digitalisation of money and payments; online shopping; and the availability of online food delivery platforms constitute *developments* that enable more people to be part of the digital transition. For example, and as stated in some of the narratives, online consumption often provides opportunities to find cheaper products and offers, thereby facilitating also for low-income groups to participate.

However, in some narratives - with small-scale entrepreneurs - it is also stressed how the digital transition raises competition with online actors and big companies who have the financial means to improve their business and offers by analysing user data etcetera. This is part of the *socio-economic conditions* highlighted in the content analysis as primarily a hindrance for the digital transition.

Furthermore, socio-economic conditions are raised in the narratives through talk of the regional labour market, precarious employment, and the availability of opportunities for reskilling and education. To what extent the educational system is designed to match skill needs on the local labour market and available competence in the labour force, is a recurrent topic in the interviews. For instance, publicly funded education programs are mentioned by many interviewees as something that has supported their learning. In contrast, other narratives stress the absence of structured support systems and training programmes as a hindrance to their continued development. In particular, the narratives highlight the absence of public support or retraining programs targeted at groups that are more vulnerable in the digital transition (e.g. women, older people, low-skilled, and people with

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disabilities or health problems). Opportunities for digital education are also perceived as less available for individuals who are not fluent in the national language.

Unsurprisingly, in narratives related to the experiences of business owners and self-employed, both enabling and hindering policies are addressed. For example, EU agricultural policies - now promoting digital integration – is presented as an enabling policy incentivising change. However, the same policies are also criticised for being unevenly implemented. In addition, policies and policy development are perceived as hindrances by overlooking the realities of small-scale producers and not adequately consulting or supporting small farmers during implementation. While the policies may be efficient in pushing for digitalisation, they may simultaneously make running a small business harder.

3.8 Transition(s) effects on people: driving or mitigating inequality

The sections below will specifically address the second of the two research questions, about the exposure to green, digital and twin transition and how these transitions affect existing inequalities or create new types of inequalities. The narratives from the interviews have been carefully examined not just for mapping but also for understanding intricate dynamics of vulnerability and agency. Intersectional inequality is approached in combination with the green and the digital transition, so that the synergy between these transitions can be considered as far as possible. A separation between certain effects of the green and digital transitions respectively, will however also be done when applicable.

3.9 Twin transition inspiring practice

There are several examples of the green and digital transition supporting each other. This means that the use of online tools or digital infrastructure can facilitate or strengthen green practices, so that there is a synergy between them. However, for the errand of this report, one should also locate practices that are mitigating inequality, helps inclusion, or can be accessible for groups with a low income. At the minimum, an inspiring twin transition practice is such that it does not systematically create asymmetrical power relations between groups based on income, skills, work, or health-related inequalities.

A first example of such practice is when digital platforms are used for buying and selling second-hand clothes, and other vintage articles (see for example AUTH101 and EFIS25, for description of such practice integrated in everyday life). When such practice is of most importance is when the digital techniques aren't just replacing anything that was already there (flea markets, vintage stores or clothes swapping in the nearby geography) but is rather creating a new practice and lowering the threshold for larger groups of people to access second hand shopping. Many of the articles wouldn't be sold to others if it wasn't for digital technique making it so easy and accessible, resulting in enough people doing it for it to become a market with sufficient supply (there is thus a risk that the energy and material used for transport cancel out the positive effects). The second-hand apps are also good

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because it is a sustainable practice that cost less money, not more, as told by a 34-years-old unemployed woman in Sweden:

> Not spending too much money and living a life with low-emission and minimal resource use, kind of goes hand in hand. I rarely think of it in my everyday life, for example when I buy things second hand this can save me a lot of money, but I also have a strong reluctance towards buying something new, it has almost become unthinkable. Buying stuff second hand is also a good example of a practice where digital tools come in handy. Like, I look through the different platforms when I need something and can always find what I need. (Narrative retelling UGOT24)

The motivation to be green, alongside motivations to keep costs down, means that the second-hand digital platforms can answer to different needs. Rather than being a costly alternative for the initiated, they are combining the low resource-use that comes with low income, with a function that makes life easier. In addition to second-hand apps, one can mention “too-good-to-go" as another digital platform that allocate food and leftovers from restaurants and cafés; small packages that people can buy from an app and then pick up (EFIS25). Other combinations of apps and households are such that they can optimise or help lowering the level of consumption and keep down costs:

> I also use digital tools for personal efficiency, tracking my household energy consumption and optimising my expenses. This is a good way to understanding what the causes of price increases are, if I need to do interventions to the equipment or not. (Narrative retelling EFIS032)

Other examples of low-carbon household app usage include inspiration for vegetarian or vegan recipes, as one narrator talked about. What is common denominator with previous examples is that digital tools become integrated in the ambition to lower carbon footprint and add something to such practices, simplifying them, or even being the reason practices are initiated in the first place.

A second example is when travel can be avoided with the help of online meetings. This is overall something that happened during and after the Covid pandemic. The pandemic became a boost for people’s knowledge about the digital tools available and how to use them. In a post-pandemic setting, that we are in now, the online has become more optional, complementing rather than substituting physical meetings. In terms of vulnerable groups, and the need for social belonging generally, there must however be a necessary balance between digital- and physical presence, something which many respondents reflect upon and emphasise. For example, this female teacher in urban Greece:

> COVID forced us to adapt to online teaching quickly. At first, we didn’t know how to manage. But once we realised it would last, we organised ourselves and learned how to use digital tools. Now, we use remote learning occasionally during snow days or emergencies. (Narrative retelling AUTH77)

The story of covid as a breaking point was told repeatedly during the interviews. In terms of online meeting practices, the pandemic was decisive for changing habits, create learning opportunities, strengthen the skills, and pushing the norms. However, while many groups have been positively affected by more flexibility, there are of also significant negative effects. Some of these are taken up below, in the section “Inequality of mobility and immobility”.

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A third example of synergy between the digital- and green transition is the possibility for local transition and resilience, especially rural small-scale farming, which can be strengthened when people can live rurally while working at a distance (UGOT26). Work that is typically done in urban offices can be combined with cultivation of crops and food production during short breaks, and less or no time is needed for commuting between small scale food production ("transition-projects") and wage-work. This includes also online courses for farming, where the "local living" can be combined with teaching crops and cultivation to a bigger crowd. The different situations are described in the following quotes from an upper middle-aged man who moved full time to his cabin in Northern Sweden, and a lower middle-aged woman who runs online vegetable farming courses in southern Sweden:

> I have reduced my workhours quite drastically and instead spend my time living in the cabin and grow my own vegetables. The rural lifestyle has been accentuated after I moved out here permanently a few years ago. [...] A key was the ability to most of the paid job online, and the first important thing was when this village decided to install a fibre cable for internet connection about ten years ago. (Narrative retelling UGOT026)

> I didn't want to go back to a regular workplace after the pandemic, I incorporated the digital practices in my daily work and the education I give. Also, people know so much more about it now, one can just relax and know people can handle a meeting on Teams or Zoom. Anyway, the handicraft, the cultivation of vegetables, these are all aspects that I consider part of the green transition, a work that for me has to do with self-sufficiency and preparation for different types of crises, or just using less resources. (Narrative retelling UGOT042)

A fourth example is a kindergarten using the digital platform, the one for parental contact, as a channel for informing about leftovers from cooked meals at the end of the day (UGOT19). This way, parents can say if they'd like to bring portions with them back home. From the perspective of the interviewee, who initiated this at the kindergarten where she works, there is a good feeling to know that it comes to use and that stressed parents seems relieved to get an extra meal they don't have to cook.

In some ways, the best examples might be those where the citizen, consumer, or user of public transport, doesn't need to act from a strong environmental belief but rather behaves in climate-mitigating ways that are simplified by digital technology. The thing is then that technology is used in such a way that it becomes a facilitator not just for the practice that are sustainable, but also for helping people with their everyday needs, such as finding cheap good clothes, cooking a dinner, or take part in a meeting without travelling. Importantly, these positive effects do not come by itself via digitalisation. The digitalisation needs to be explicitly directed if it is to have positive effect on mitigation of energy and material use – enabling a green transition.

Notably, one may also remember that ideas for sharing cars in car-pools, or ride-share apps, for example, didn't come with applications or websites as such. They have been around longer, testified for example by an interviewee in Sweden:

> In the 1980s, I joined the first ever car-pool in the city, and that was my way of getting access to a car at the time. I mean, I lived pretty central then, I had no need for owning a car and neither could I afford it. We wrote our names on paper, in a book, and that was the booking system, the book was in a local store selling ecological food. (Narrative retelling UGOT30)

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A reminder that digital apps can help in the sharing economy, but the logic of sharing is not about the technology: it is rather the ability to build trust, create communities, care for common futures with other people and to sustain such practices over time. Online based practices that don't involve contact between people may risk losing some of the benefits from earlier, more offline-based solutions. Finding the sweat spot that enable positive outcomes from the twin transition might include some detailed understanding of such combinations.

Another illustration of the twin transition, yet without the potential effects of redistribution as exemplified above, is when solar panels connect with apps that allows monitoring of power output. This seems a bit indifferent many of the users when they talk about it, and owners of photovoltaic cells say is that they rarely check the level of output. But even though it doesn't seemingly make much difference, it makes an example for when one gets used to app-controls and monitoring in everyday life. The combination of app and solar panels makes the practice easier and more understandable for the user. A side effect of such practice is that individuals and groups of people get more connected to the rhythms of planetary systems. Since such knowledge is crucial for coming back to Earth and stop breaking the planetary boundaries – connecting to them via solar panels could open for further change.

3.9.1 Twin transition bad practice

Bad practice, in this context, means that the potentialities for synergies between the green and the digital remain under-utilised. As far as there is optimism about trajectories or policy areas feeding into each other, they can also either contradict each other or remain separated in a way that doesn't boost the twin transition.

An example of this is that, despite technical possibilities, there are no easy ways of planning and buying train tickets for travels across Europe. Interviewees relate to how there are easy ways of comparing, planning and buying airline tickets, but no similar sites or digital infrastructure exists for long-haul train travel. An urban single mother in Sweden explains:

> It's not like I take the trains to different places in Europe, almost the only experience I have is when I check and it just take such a long time. Also, it is not easy to access what departures there are. The website or infrastructure for getting an overview, is really missing (Narrative retelling UGOT095)

Another kind of bad practice is when digital transition creates obstacles for the green transition, because it increases rather than decreases demand for energy and/or resources. An example is the unregulated expansion of big data storage and generative AI by private companies. Several interviewees (e.g., UGOT107, UGOT103, UGOT134) indicated their concern regarding the energy and water use of these technologies. They felt like there was little they could do about this, except try not to use these technologies. The understanding is that motives of profit is the underlying reason for such expansion, i.e. what narrators talk about is how profit and capitalism are the reasons behind increased resource-use:

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> I think that one of the main problems is the capitalism behind it, which means that we consume more and more, whether it's high-performance games, or companies trying to make high-performance games, or computers that are asked to do more and more things, faster and faster. (Verbatim quote EFIS51).

Similar views are presented in other interviews (e.g. EFIS53) saying that incentives from tech-companies is to increase profit by increasing activity, so one gets hooked on things, stay online, continue browsing, updating the feed, and this is all based on exploiting many people's want for more.

3.10 Affordability: income level and private equipment

In both the digital and the green transition, there is a reliance on individuals and households doing investments on their own, buying the equipment that is needed. This means for example buying a smartphone or installing a heat pump. While such private investments are happening in both the digital and the green, there are some differences between digital tools and green technology. A few digital tools have become much of a standard that most people must live up to, because there are effects of lagging behind if not doing so. Green transition on the other hand, is somewhat more voluntary, such as buying an electric car, insulating one's home, or installing solar panels. Energy, nonetheless, tend to be very costly and when individuals cannot afford new equipment, they usually end up paying higher energy bills than the ones who could afford the heat pump or the solar panels.

But, starting with the digital, there is a clear case of exclusion or marginalisation when groups with low-income cannot keep up with the level of upgrade needed in everyday life. The digital transition is much of a substitution process where the practices, procedures and infrastructure involved in ordinary actions, such as doctor's appointment, identification at the tax-office, parking a car, or booking a travel, are replacing one way of doing it with another. A situation that probably many parents stand with, is the update on necessary digital equipment for their kids. One narrator in Greece explained that her kids couldn't follow the teaching as it went online during the covid pandemic, because she as a working single mother couldn't afford the computers necessary to do so (AUTH134).

Thus, there are involuntary aspects to the digital transition, and some groups fall behind in that process for different reasons. Sometimes the sheer costs for connecting to internet can be significant and sometimes hardware on computers have gotten too old. But the situation typically described by respondents is that updating the smartphone is a costly affair. Such updates are needed to use version of applications that are continuously updated, including the most necessary tools such as digital Bank ID. One narrative retelling from a senior citizen in Sweden describes such a situation and how it is an expense that needs planning:

> I have to plan when it comes to money, look at what I can afford to do over a month and what I cannot afford. Also, getting smartphones that are new enough to have access to new apps, is something that I need to plan in advance. I cannot just go and buy a new phone when it is needed and they become more and more expensive (Narrative retelling UGOT16)

A woman in Italy is telling a similar story, and she also express anger about the cost for digitalisation that she needs to pay, rather than the state taking such costs. First, she refers to equipment needed

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in the green transition and how there is a changed expectation on consumers, and then she goes on comparing that with the digital:

> You can imagine with my pension I can't afford all these changes. Even if the government makes you a discount, but governments are not supporting. It should be done by governments strongly. Same happens with technology, today everything goes with smartphones, but I can't afford to pay a thousand euro for one. I have one I received from a friend, otherwise, how I do things? (Narrative retelling EFIS014)

The quote thus leads into policy-relevant topics, aspects that are taken up further down in "Discussion and conclusions" of this report. One may however, on this topic, establish that affordability plays a role when it comes to digitalisation, and any person with a low income will have to prioritise but also simply not be able to pay for necessary digital equipment. As narrators have mentioned, there is a significant cost that comes with buying a new (or used) smartphone, and apart from the skills and time needed to make such updates, there is a significant indirect cost as well. The significance of calling attention to such costs, is that much digitalisation is involuntary, one must make use of digital infrastructure in everyday life or otherwise one is limited in daily activities or excluded from public- or governmental services.

A similar problem with affordability and private equipment is pertinent when it comes to the green transition. Sustainable infrastructure and technological development sometimes require that individuals go in and buy stuff themselves, a kind of investment. There are cases when such private investments pay out well, and there are situations when the person has an income that covers the initial costs and over time can get even lower energy bills. A self-employed man in rural France explains such a situation:

> I chose to renovate an existing building instead of constructing a new one. This decision aligned with my aim to minimise my environmental footprint. I've also invested in solar panels for my workshop and home, enabling me to sustainably cover most of my electricity needs. The solar panels cover the consumption of both my workshop and house, though recent changes (like purchasing an electric car) have slightly increased our energy demand. (Narrative retelling EFIS009).

This narrative even combines the investment in solar panels with the use of an electric car, so that electricity from photovoltaic cells (solar panels) can be used for charging the electric car. In addition, the purchase and installation of solar power was helped by a directed governmental support that took a bit of the cost (see also EFIS059).

However, many narratives complicate such a story, especially because green private investments are beyond the reach of what many people can pay. Stories were told of high electricity bills and unbearable costs for heating, a situation occurring when low income is combined with (shockingly) high electricity bills. Such situations of energy poverty relate negatively to private investments, meaning that the inability to insulate houses, pay for a heat pump, or affording renewable energy infrastructure, leads to higher costs in the long run. An example of such narrative comes from this senior citizen in rural Greece:

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> I have noticed that my electricity bills are higher as I have not installed photovoltaics in my house, but I have not considered making any changes (such as installing window frames or a solar water heater) as it is a big expense and, given my age, it is not in my interest. (Narrative retelling AUTH068)

Thus, while the bills have gotten higher over time, that doesn't automatically lead to spendings or investments that would only lower the costs in the long run, because although they pay out in the long run, they are a big expense here and now. And, like the narrator explains, time is also of the essence for reasons given his age, and money spent momentarily has more value than investments stretching a bit into the future. Another story of green private investments comes from a single mother with migration background, now living in urban Greece since many years. She also thinks organic products costs more than she can afford:

> At the supermarket, I'd love to buy more organic products, but they're expensive, and my children don't always like them. We use natural gas at home for heating and hot water, but we haven't joined any energy-efficiency programs yet. We recently installed a new gas boiler, but we don't have solar panels or insulation upgrades. (Narrative retelling AUTH071)

So, while this narrator is in quite a different life situation than the former, what they have in common are the limited resources to spend on green products and energy-efficient technology. But low income doesn't only matter when it comes to certain equipment, there is also an attitude that some narrators share, about ecological lifestyle generally being expensive, a luxury for the ones who can afford it. This includes some new policies like zero-emission zones in Paris:

> Ecology is expensive, energy transition is expensive, eating biological foods is expensive and buying more sustainable clothes is expensive. [...] For instance, the zero emissions zones in Paris that they want to introduce - it is just not doable for all the shop-owners in Paris that cannot take public transport for their work and cannot afford to invest in electric car (electric cars are expensive!). (Narrative retelling EFIS67)

So, the feeling is that one cannot afford taking part in the green transition although the interviewee feels obliged or expected to do so. Some actual policies, such as the Paris zero emissions zones, are not helping with affordability, they just exclude the ones that cannot upgrade to electric cars. The experience that comes through, is the notion of being excluded. So, even though digital is more involuntary, the experience of green transition has some of the same effects, being punished for not buying the equipment needed and thus falling behind in a change of society that expects individuals to chip in.

3.11 The vulnerability of low emission lifestyle in high emission society

Among the reoccurring narratives are the ones where individuals make efforts for a green transition but are not supported by infrastructure. Such narratives suggests that many individual efforts are lost because there is no infrastructure that answer to people's needs. In the long run these conditions in themselves create vulnerabilities because if the green alternative is less favourable than the fossil

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alternative, the ones that choose the green alternative comes worse off. Inequalities are thus created from the lack of green policies rather than because of green policies, and the efforts that people make are not awarded.

A first example is when individuals living rurally choose to commute by bike or electric bike (cf. Balkmar et al. 2025; Balkmar & Sandström 2025). They are not supported by an infrastructure that enables cycling, and it affects them negatively in different ways. It may be that the commute takes a very long time, or that they feel afraid during cycling, most typically done on the sides of the road with trucks and motorists speeding by (UGOT35). This results in individuals that refrain from using the bicycle. The same may also be the case in some larger cities, then related to how bicycling doesn't feel safe when cars are dominating traffic. Again, the ones that are excluded are everyone but the young, strong and healthy, although they of course can also be negatively affected. The alternative in both cases, both rurally and in the larger cities, is to either choose the car anyway, choose public transport when that's an option, or to get a more limited mobility in everyday life. A young inhabitant in a middle-size Irish town talk about the unsafe bicycling in the middle of car-traffic:

> Cycling in [middle-size Irish town] in general is not easy. The city is heavily car-dependent, and while some areas, particularly the west side, have decent cycling infrastructure, large parts of the city lack proper cycle lanes. I cycle when I can, especially at quieter times, but I don't feel confident riding through heavy traffic. The city's traffic layout is chaotic, making it even harder for cyclists to move around safely. (Narrative retelling EFIS023)

The narrative is typical in the way that car-dependency forces non-car users to unsafe situations, and the infrastructure supports not the green alternative but rather the more carbon- or resource intensive option. The situation might in some cases, like this one above, be worse in middle-size towns than in some larger cities, but that varies of course.

A second example has to do with mobility over longer distances, especially the difference between flights and trains, and the narrative that repeats itself is that persons want to go by train for longer travels, but that it costs too much. Another reason for not choosing train is that the booking process is tedious and complicated. There are no sites like the ones for flights, where train over Europe is easily planned and book, instead it is a puzzle of combining different routes. A young man in rural France talks about his ambition to travel by train but ends up taking a flight instead:

> Living in a rural area comes with its challenges. The town is fairly well-connected, but if you don't have a car, it's tough to get around. Public transport options exist, but they're limited, especially for early or late trips. Once, I had to travel with my kayak and wanted to take the train, but the restrictions and lack of infrastructure made it impossible. Instead, I had to fly – a frustrating situation given my desire to reduce my carbon footprint. (Narrative retelling EFIS002)

Apart from the feeling of frustration, the interviewee points himself to the situation of living rurally. Often, that situation comes with fewer alternatives when it comes to travel. The point in this case is to exemplify how there is a fossil infrastructure, air traffic, that is more easily accessible than long travels by train. It may seem like an easy thing to just choose the flight, but one should also recognise the efforts made for finding a greener alternative and the frustration that comes with not finding one.

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More destructive examples are the ones where people struggle or even burn themselves out, because they strongly believe in the importance of climate mitigation. As one is then engaging and taking the time for transition in one's own life, it is tiresome and discouraging when infrastructure and policy doesn't support the green transition. A middle-aged unemployed woman in Sweden talks about a shift in attitude and politics, away from ideals of climate mitigation and green transition:

> I care very much about keeping a low carbon footprint from what I eat, but I can barely stand to tell anyone about that cause it feels like I'm just going too far. This is even with the ones that have formerly been engaged with in the environmental movements, people that used to be vegans but now they eat meat and flying to Greece on vacation. [...] But then, things have also been going the wrong direction in politics at national level, I have felt that this struggle is overwhelming after the [conservative] government was put in office. (Narrative retelling UGOT24)

So, while infrastructure and policy are important, the social support for lowering carbon footprint also plays an important role. Not the least because individual efforts are tiresome and potentially exhausting when neither the government nor friends are supportive in such efforts. Another effect of non-supportive milieus and policies, may be resignation or pessimism in about what can be accomplished by individual efforts, here from a 25-year-old man living in rural Ireland:

> I think a lot of the responsibility lies with governments and big companies. Real change won't come from individual recycling habits; it needs big structural shifts. Sometimes I feel pessimistic about it all. Politics feels too slow, too corrupt to make the kind of urgent changes we need. (Narrative retelling EFIS063)

A similar resignation, about the insignificance of individual efforts, is felt from a narrator who thinks that a systemic change is necessary. After working with production of fine cheese the narrator experienced that essential goods and services should be more prioritised:

> Living sustainably is important to me, but I see it as a broader societal challenge rather than an individual one. [...] While I do my part by minimising waste, recycling, and conserving energy, I believe systemic change is necessary. Working in the industrial sector opened my eyes to the inefficiency of producing non-essential goods. For example, while I appreciate the craftsmanship of high-end cheese, I wonder if industries should prioritise essential rather than luxury items (Narrative retelling EFIS010)

What might seem like a mundane example, production of fine cheese, is about the frustration of non-essential characteristics of today's economy, when really what is ought to be done has to do with transition on a systemic level. Overall, the examples are illustrative for a larger group of narrators that describe either exhaustion or individual resignation, when policy and infrastructure isn't supportive of change that is needed. As they anyway carry on with individual efforts and low-emission lifestyles, they are not supported but rather vulnerable.

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3.12 Exposure online: tech power and digital intimidation

During the interviews, tech monopolies and digital structures of power have been regarded integrated in the architecture of arenas for communication and the use of digital tools. These are more than simple opinions about the ownership and company policies from the world's leading software and hardware developers, because the experience that narrators share, is that these companies and their decisions shape much of one's activities in everyday life. Therefore, the question of tech power is a question about the shaping of digital transition because many central decisions about digital technology is not taken by politicians but by private companies. An aspect of that is also how US American companies have gotten a hold of much tech power in a way that makes narrators, talking as citizens in European countries, to reflect on the power of US over European politics. For understanding the interviews on this matter, one should consider the election of Donald Trump for a second presidency and the impact of Silicon Valley tech entrepreneurs taking side with the administration in weak defence for private integrity on digital platforms.

3.12.1 Anti-gender and ableist internet infrastructure

A first issue of digital intimidation is stemming from the anti-gender sentiment that have driven US companies to neglect needs for a gender neutral or liberal approach on internet and social media platforms. Especially, this has induced quite a lot of insecurity from narrators belonging to the LGBTQIA+ community and no matter real intent from powerful actors, digital platforms has become an arena for toxic politics forcing people to shy away from personal sharing. Because there is not much option than to share much personal information on digital platforms, everything that one provides from private life is considered a target for Silicon Valley tech companies.

One example has to do with the sheer power of gendering, and of identifying gender, on apps and digital websites. For someone who is non-binary, doesn't identify as male or female, this kind of schemes are intimidating because they are so rudimentary in everyday online activities.

> I'm confronted with having to define my gender on websites. Few sites allow you not to declare your gender. [...] I [then] receive different messages that refer to my gender definition. (Verbatim quote EFIS62)

A typical feature is then that gendered, or politically oriented views, are built into technical infrastructure itself, and algorithms is an often-mentioned candidate for how behaviour is steered and control. A gay man in Spain for example described for example a situation where a post with political content way automatically removed from the feed when he tried to post it. Because of that and similar situations he now considers algorithms to function as form of censorship (EFIS80).

Another perhaps more direct or active form of discrimination has to do with ant-gender sentiments, and how they become a reason to worry that not all actors mean well. One narrator, transgender person, explains how there is an ambivalence to platforms such as Twitter/X, because while they apply algorithms that filter out much hate speech, the platforms are potential tools used in battles against the LGBTQIA+ community:

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> Social networks can be used against homosexuals, in particular to reveal their homosexuality against their will [...] A French platform was closed down because there had been too many cases of homosexuals being attacked following exchanges on the platform. At the same time, I noticed that the twitter algorithms were filtering out a lot of negative and aggressive comments about me. Nevertheless, I think that the big reactionaries, particularly in the US, are currently waging a battle against homosexuals, and transsexuals in particular, because it's easier. This is facilitated by certain social networks, such as Twitter, which has become X. (Narrative retelling EFIS75)

So, while noticing different tendencies, a point that comes through here is the inability to feel secure and to share information freely, and that is already a modification or important aspect for the function of digital activities and services.

Other functions of apps and websites are considered ableist (discriminatory against disabled) and this can be related to inaccessible or messy graphic design on websites, as well as the ad-heavy content and pop-up windows that distracts. Such functions may totally block access for visually impaired. The situation for visually impaired will be more closely examined further down, but the point here is to address how digital infrastructure is accessible and inaccessible depending on design.

The provocation of certain emotions in social media and news-outlets is another example of digital intimidation. Narrators sometimes mention how they need to stay away from or log out during times of great stress or sadness, just to avoid being triggered. But for some, it is more than that, because of certain conditions such as Asperger or other syndromes. A young person in urban Spain describes how it is to encounter the content of social media:

> I've come across content designed to provoke emotions or manipulate users—things like rage bait or engagement bait. These can affect me emotionally. I try to avoid them, but they're out there. (Narrative retelling EFIS79)

What is important here is that web design and algorithms that may be just on the edge of what most people can handle, is something that needs to be avoided by people that have a reduced capacity to cope with triggers, provocations or emotional baits.

3.12.2 Migration, citizenship and digital exclusion

Different digital systems are at play in control of migration between countries, in the immigration processes of states, and in contacts with authorities. The digital tools are a necessity for individuals that move from one country to another, in everything from applications to identifications, when looking for a place to stay, or for signing any kind of agreements. Some of these procedures are excluding persons that have not yet become inhabitants or citizens. While citizenship and habitation have always been characterised by inclusion and exclusion, the experience that some narrators describe is that the digitalised systems strengthen the exclusion (AUTH87). For example, such an experience was described by a middle-aged man that came to Norway:

> The first three months that I lived here was super difficult, because in Norway, they require you to have a bank ID, and that's your gateway to anything. If you have a bank ID, everything

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> is going to be super easy. If you don't have a bank ID, it's like chicken and egg. You cannot have a bank account, you cannot rent a house, you cannot register your address, and a lot of other things come with it. And you cannot...your salary cannot be paid to you, because you don't have a bank account. And so these are consequences of digitalisation. (Verbatim quote UGOT147)

In just a short quote, many obstacles are described having to do with the simple yet key thing, of not being able to identify oneself digitally. The identification with physical ID card, it should be said, was not the difficulty in this case. The exclusion instead occurred when he was denied access to digital systems, a procedure that was just more complicated. Another narrator in Italy describes experiences from his work with migration, and what he considers as problems and opportunities:

> I think there is some progress in digitalisation for those with an education, but for immigrants, sometimes this is limited. They are using mostly WhatsApp for communicating back with family, then social media. But there is not much knowledge on how to use emails - often required for jobs applications. This is particularly of relevance in the field of administrative issues, such as developing the residence permit or the citizenship. (Narrative retelling EFIS30)

The narratives around this, point to how public institutions expect digital literacy and ability to provide digital identification without providing any real alternatives to those who lack any, or both, of this. Another example comes from a man in his sixties, working in the voluntary sector in Spain, and he believes that digitalisation also means harsher rules (EFIS30). Thus, there is a change of rules in practice, in the form that translation from paper to digital takes, and one might in other studies explore the effect of implementing post-2015 immigration policies in parallel with a digitalisation of procedures and documentation. This is not least a barrier common among people with undocumented residence status, or the ones living a long-time in a country without attaining citizenship. An example comes from this upper middle-aged woman who migrated to Spain some twenty years ago:

> As a European resident without Spanish nationality, I've hit certain limits. "I can't get a digital signature here, even though I'm a long-time resident. It feels discriminatory". The technology exists, but access isn't equally distributed. (Narrative retelling incl. verbatim quote EFIS089)

But these processes, which in the quotes above have been rather difficult because of digitalisation, can also make certain aspect easier. For example, while the lack of language skills can constitute an obstacle for using various platforms and online tools, some narrators refer to the use of digital tools to overcome language barriers and facilitate both online and offline communication with authorities. This is done, for instance, by using Google translate, like this migrant woman in Greece explains:

> I use my smartphone and computer every day. I talk to my family in Ecuador through WhatsApp, and I also shop online for clothes or home items. I learned how to use all this on my own—no one taught me. I didn't grow up with these tools; I only had a small Nokia phone back in Ecuador. Now, I even use Google Translate when I don't understand a Greek word, which helps a lot. (Narrative retelling AUTH71)

So, this example points to the intricate dynamics of digitalisation, that are also typical for all groups, where digitalisation creates both problems and opportunities. More of the "positive" stories includes a woman who recently moved to France, who thinks that the digital channels are excellent because

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she can easily AI-translate all different sources that she need or is interested in getting to know better (EFIS39). Another woman in France described how telegram has become the channel for communication among Ukraine refugees (EFIS050).

3.12.3 Digital stress: senior citizens, burn-out sufferers, and school age parents

Many senior citizens struggled to keep up with digitalisation. The type of problems encountered and described vary, but most typical is barely managing to use basic digital services in everyday life. This often means having trouble with digital Bank ID, or about booking tickets for travelling and public transport. Other problems are bit less rudimentary, such as narrators saying they would never buy stuff online. A common reason for that is the fear of fraud when handing over payment card details. This rather widespread concern about fraud linked to digital payment is a condition that should be addressed before online purchase would be widespread among the elderly. And there are reasons why a mitigation of stress around online purchase would be positive, especially as many elderly, both rural and urban, find it convenient to have goods such as medicine delivered on their doorstep (UGOT118, UGOT125). Other senior citizens, with somewhat exempt from the Nordic countries, prefer paying with cash and would thereby not make online payments at all.

The digital help that senior citizens get is arbitrary and irregular and getting help from family members and the grown-up kids is a common situation. This help is reliant on them living close by or having the time to help when it is needed. A few say they have gotten help or courses from the local library, but even this is arbitrary, as it relies on good-will or political interest on the municipal level.

The challenge of affordability has been addressed above, but the troubles here that leads to inequalities have much to do with stress and lack of skills. Senior citizens feel a stress when there are no alternatives to the use of digital tools. Other have a problem integrating digital tools in their everyday life, and they either continuously rely on people around them or consider use of applications an exception to the rule of not using it, like this retired man in urban Greece:

> I've been trying to learn how to pay bills with my phone. My daughter showed me how, and now my wife usually helps me do it. I know how, but I still prefer someone else does it for me. Technology and I—well, we have a surface-level relationship. For example, I won't check when the next bus comes using the OASA app. (Narrative retelling AUTH104)

So, what is pointed out here is not mainly the inability to pay for smartphones or other hardware, but the inability to use it. Substitution of practices from offline to online becomes a stress in everyday life when the option that used to be familiar is traded for tools and techniques that isn't.

A fairly common experience is that the digital transition is just happening a bit too fast, and that the replacing of people with screens doesn't feel good. An almost "ideal type" for this attitude is about choosing person over machine at the store's checkout, exemplified here in one narrative from a mother of three in France:

> It's happening too fast, for too many things. For example, booking a doctor's appointment or shopping at a self-checkout. I always prefer to shop at a checkout where someone works, because that person has been hired. (Narrative retelling EFIS56).

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This is about the unpleasant experience of not speaking to someone when booking appointment or checking out at the food store. The stress that comes with this, that it is “happening too fast”, is a rather vague notion of societal and technical change. But this notion is told in different version from some narrators.

But there are not only senior citizens that might struggle with digital stress. People struggling with burn-out syndrome (occupational burn-out) is another group that express problems with the tempo of digitalisation. Digitalisation, they tell, covers all kinds of practices in life. Specifically, what has been mentioned is the information overload that comes with all the different apps and accounts one must keep track of in daily life. There is an effect from the combination of all different apps, and information, that must be processed instantly in many situations.

A more precise link between digital tools and burn-out syndrome, has to do with the work-life balance and how the digital dissolves the boundaries between job and free time. The tools involved are sometimes apps where one can get work shifts on short notice, or managing work-accounts on social media that can easily be followed and updated also outside of normal work hours. Quite many narrators talk about e-mails as the link to job during free time, and it means checking e-mails at all times of the day and evenings, also outside work hours. Generally, digitalisation has dissolved the boundaries between job and free time, sometimes because of simple digital tools.

The element of digital stress should not be understood too unidimensional. There are examples of digital tools helping people a lot in daily life, stating that life becomes easier in many ways. An example is from a woman who suffered from consequences of meningitis and explained that although digitalisation have some setbacks, many tools have had very positive impacts to her, as it helps her remembering important information (EFIS48).

Getting out of such stress is much about limitations created by individuals themselves. Some narrators reflect on a situation where dissolved boundary of job and free time led them into a situation of burn-out syndrome. If they have gotten out of the most acute phase of burn-out, the limitation of access to work through smartphones is one of the keys for getting there. A non-binary 30-year-old in Sweden explains how the boundary between work, activism and free time was dissolved due to digital tools and communication being accessed constantly:

> I have experience of being burnt-out and although this was some years ago, I still have that with me and think about it. I guess much of it has to do with work-life balance, or maybe the work-activism balance. One can work all awaken hours in a way, because free-time and work, voluntary job and activism, are a bit mixed up. This goes also for the use of mobile phone and laptop as work-devices, that one can pick up work or activism wherever and on whatever time of the day or evening. Answering an e-mail as you go in and check other things. But I have become better at separating tasks including how I use my phone, what I shut down at certain hours, and so. (Narrative retelling UGOT48)

Another, 35-year-old, woman in Norway describes how she experienced stress from digital accessibility:

> Maybe the digital formats in my job have also led me to become pretty stressed at times. Or, I realised a time ago that I had been all to accessible all the time and that I made myself so

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> flexible when checking my e-mail all the time, checking my job accounts on social media, and so. Now, I am much more conscious about how I handle that. I don't have the e-mail in my phone anymore. (Narrative retelling UGOT127)

So, this story is rather representative of a type of job where not just e-mails but also social media is part of the job description, and if one doesn't set any limits, it can easily create a lot of stress. The point here is that much of the dissolved boundaries has precisely to do with digital tools and communication; it is an effect of the digital transition.

Another kind of digital stress is among parents, who can feel stress reasons in relation to digitalisation and children's development, expectations about their parenting, or the use of school- and preschool digital platforms. One such situation comes from the feeling of uncontrol over digitalisation of children's life, and what limits oneself must or should set as a parent. A father in urban Greece for example says this about children and online activities:

> These new technologies also have a negative side. I try to keep my children away from excessive screen time, though it's not always easy. My teenage son is especially hard to monitor, and I worry about what he might encounter online. There's so much misinformation out there, it's frightening. (Narrative retelling AUTH122)

Similar examples are from parents that has a hard time restricting their kids' screen time because they don't want their kid to be left out, although they also feel it would be better for them to not spend too much time online. A Muslim parent relates similar experiences to how he does not want to be stereotyped as restrictive Muslim parent, but he sometimes feels that there should be restrictions about what content that may be shown for younger kids:

> And for kids, I mean, every kid would like to have TikTok or Instagram or WhatsApp. So, we are afraid of what they see there and what they could, what they might be impacted by. [...] I mean, there should be a content limitation. OK, such kind of content cannot be shown to kids under 15, for example, or under 12, for example. Yeah, so it could be helpful. I mean, this is a bit stressful. I mean, sometimes I feel like kids see much more than maybe 15 years ago. That We could not see easily. (Narrative retelling UGOT33)

An experience where not just digitalisation but also stress about fulfilling what he sees as the stereotype of Muslim parenting. Stress with digital transition is often related to such social connection with others, and the digital transition is thereby not only a matter of technical development but also about norms and expectation and to keep up with others in their adaptability or reluctance to a digitalised life.

A final remark on digital stress is that while narrators have had reasons to feel digital stress, they have also over time learned how to deal with it. So, one may report a learning process having to do with digital tools, and when it comes to vulnerability there are different resources at play for such a learning process that can mitigate some of the effects of inequality. Another resistance or co-optation is to log out from Silicon Vally and big tech services, like Meta and Twitter/X, and instead adapt to alternatives such as Mastodon, a behaviour that is often accompanied by reflexivity about effects of empty scrolling or algorithm-steered online gazing.

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3.13 Working conditions under green and digital transition

Alongside other effects of the green and digital transition, the job situation is an area where inequalities play out somewhat differently depending on the kind of influence one already has over one's work. There are some effects that relate to digitalisation of employer-employee relation, and other that affects one's ability to compete for freelance jobs or make it as self-employed. It would be beyond the scope of this report to investigate the changing structures and power relations, and the topics brought up here are rather illustrations of some situations as they were told by narrators.

3.13.1 Transport work: digital tools and fuel efficiency

There are many job situations where the transport, one of the emission- or energy intensive activities, is organised through apps that oversee and organise jobs or deliveries. The latter is among the most integrated digital systems in today's work life, giving a situation where physical transport is organised through digital programs which in turn organise and oversee employees' movements and actions. This integration of digital systems in transport also means that estimations on the carbon footprint or emissions of a vehicle can be monitored alongside other information about the driving routines and patterns.

There are many jobs where driving is a regular routine. Among the participants these have included carpenters, electricians, waste collectors, taxi-drivers, special staff for school- or kindergarten, delivery personnel and gig-workers, to name a few. Common among all these is that driving amounts to a significant use of resources and money, sometimes within a policy or regulation about emission levels. Some respondents say that electric vehicles work very well, others that they couldn't be flexible enough, or drive long enough distances, without using a gasoline- or diesel car. A few respondents, especially in the rural inland of Sweden, say that an insufficient infrastructure for charging vehicles is the reason for choosing fossil fuelled cars. Another complication shared by a taxi driver in urban Sweden, is about the work time it takes to charge electric vehicles:

> I only drive hybrids, not electric cars. [...] We work around the clock, so when would I find time to charge? Driving an electric car is often cheaper for the customer, but I lose working time, so it's not profitable. (Narrative retelling UGOT77)

Similar objections are shared by rural drivers, but while the previous driver referred to the sheer time of charging, rural conditions are usually difficult because charging stations are too spread out. A story about the time detours to charging stations might take, was ironically enough told by an electrician working with the installations of charging stations in rural France:

> While we install these systems for others, we do not use electric vehicles for our work fleet. The reason is simple: current electric utility vehicles do not have the autonomy needed for our job. Some models can travel 300 to 400 kilometers per charge, but in real conditions – especially on rural roads – this range drops significantly. In my case, it would often be insufficient, especially when unexpected site visits or detours arise. Additionally, charging infrastructure is still not fully adapted to our needs, and the time required to charge a vehicle adds another layer of difficulty. (Narrative retelling EFIS15)

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Again, the work time is an aspect at play, but these are also about the conditions of working in rural areas where the infrastructure is too sparse. Similar situations are reported from the same kind of drivers; electricians, carpenters etc.; working in rural Sweden.

Other situations have to do with the relation between an employee and an employer, where the factor of keeping down costs for an employer play in. While one might say fuel- or energy efficiency is important, it seems after all not easy to distinguish between efforts to keep down emission levels, and efforts to keep down costs. Both efforts result in drivers making sure they choose the most efficient route possible. In the case of platform or gig-workers (more about that below), the differentiation of vehicles is done through wage. Choosing to deliver by bicycle gives more pay than delivering by car. Given that bicycle delivery is a physically demanding business, lower emissions are possible because of gig-workers making the effort.

Fuel efficiency is also connected with digital systems, especially through the planning the routes during a day. A union representative for waste collectors says that there is frustration with digital systems that are planning their routes, because they don't understand how the driving must be done once you're in the city. From experience, they know what order is best for collecting the waste, or when it's too late to avoid rush hour on some streets, leading them to just ignore digital systems or simply turn them off (UGOT23). The waste collection is digital both when it comes to planning of routes and for checking what boxes have been emptied or not.

3.13.2 Steel manufacturing, battery production and communities in transition

The industrial side of the green transition can mean a lot for the future of small towns and communities. If a steel plant can manage to steer towards low-carbon steel production, or a battery factory can be established, it may be significant for work and workers on that site, as well a growing number of inhabitants when other people come there to work.

A small-town teacher in Northern Sweden experiences a disinterest in the green transition, when he talks to his teenage pupils about it. He can see how people in this company town probably are tired from the connection with the factory and the history of it, but at the same express what he understands as a decisive transformation in near future, through and around the green transition:

> The theme of green transition connects also to the local industry that is around here, because they as well aim for a green transition. So, I talk to the pupils about this a little bit even though there is not always interest in it from their side. This town where the school is situated, have strong connections to a certain company, and what they decide to do and how they can manage to compete have a lot to say for the future. (Narrative retelling UGOT39)

Thus, what the teacher tries to accomplish is a greater engagement in the topic itself. In his view, there is a collective investment in things that can be done now, something that seems a bit hard to accomplish. A similar view is shared from a narrator working at the steel plant of another company town of Northern Sweden. He expresses a kind of disinterest both from himself and co-workers, in the future of the green transition:

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> Some projects are happening now of course, like the project of using hydrogen in the process of refinement and perhaps for other steps requiring lots of energy. [...] But for us working here, although I can feel some pride in doing something good, I don't think anyone cares that much whether we are green or not. We would do the job we do even if it was totally unsustainable. People would still go to work, even if what we did was environmentally unfriendly. (Narrative retelling UGOT43)

What the narrator points to as disinterest or indifference is also said in a context where dangers of the job have been paid attention to. So, if thinking about the steel plant worker as vulnerable, it makes more sense to highlight the perils of the steel production generally rather than thinking about the green transition as having strong effects on his own. However, what both former narrators point to is that the ability or inability to compete on a world market will matter a lot for the years to come.

If transition of already existing carbon-intensive industry is one side of the story, Northern Sweden has also been the site for battery production, another side of the industrial green transition. A former industry union representative in the Northern Sweden reflects on his experiences during the last years:

> Our town has kind of become a focal point when it comes to the green transition. There is a battery factory here, and although it still exists, the scale is much smaller than what it was for a while. The venture of this was really massive and maybe that was part of the problem also. Anyway, now we kind of see the consequences of it. [...] Because I am involved in local associations, I can see the social consequences when people come to our meeting and our activities. Many people have come here from other countries to work and in some cases they have nowhere else to go because they really tried to hit it off here, bought a house and everything. (Narrative retelling UGOT112)

The quote is a reminder about industrial green transition being not just about one factory, but may involve a whole town, for better or worse. Battery production was in this case something that drew people from all around the world, and the town has forever changed because of it. The experiences of the narrator are connecting with a feeling he had that the town was at the centre of attention, but what was first a positive occasion eventually turned into a negative collective experience when so many people lost their jobs. Such convulsions, ups and downs of industrial progress, are affecting workers and inhabitants negatively.

3.13.3 Precarity and freelance under the digital transitions

The narratives show how workers with higher education (e.g. engineers, teachers, civil servants) primarily associate digitalisation with efficiency and flexibility. However, among the low-skilled workers (e.g. cleaners, carers, construction workers, food delivery) who are also often in precarious employment, digital tools are either marginal for their experiences of their work conditions, or digitalisation entail increased monitoring and expectations of efficiency. The flexibility of digital tools thereby involves higher work pace and stress, something especially apparent among gig-workers, like this 42-year-old male living urban life in Sweden:

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> There is also the uncertainty involved with being 'totally dependent on a global tech app', while not really knowing what is measured, valued or expected from you as a worker. Not knowing if you could lose your job by taking a breaking, or by not responding to an inquiry. (Narrative retelling UGOT31)

So, while the app served as a channel for everything related to the job, it was also a somewhat opaque tool of constant audition, operating on premises that were clear from neither a technical nor a contractual perspective. Such conditions make not just for an uncertain job situation generally, but also for suspicion against the digital tool one is using for doing the job.

The situation among gig-workers is such that riders aren't meeting anywhere physically, something which has also made unionising difficult. A bit of contradiction or conflict occurred when a digital platform was used for communication between the drivers, and it went from being a channel set up by managers to make work task more efficient, into being a tool for organisation of a union. Again, the same tool that was used for performing the work, could also have other function. But instead of surveillance, it was now used as a platform for unionisation, here explained from:

> The practical organisation of workers was also difficult, especially because there were no spaces where the cyclists actually met each other. One could see other drivers now and then on the streets but no physical spaces for gathering or talking. There was a [digital platform] channel however, created for the communication between drivers for logistical reasons. But I started to post unionising messages there, at the channel. (33-year-old-man living in the Northern part of Sweden, migrant from another European country UGOT21)

Both these narratives show how digital tools in combination with a precarious employment position increase stress and vulnerability throughout the workdays. However, as illustrated in the second narrative, digital tools used for communication can also be used to strengthen the soci*al community* and for unionisation.

Another situation is that of freelance job under digitalisation, a situation that often requires presence in social media. Thus, digitalisation is not something forced upon freelancers, but narrators talk about how they cannot really choose to stay away from social media either. It is way to show what you do and to share the word of work or projects you have accomplished. A man who migrated to France explains how social media became important for him to share his art and illustrations, a channel to inform about his work:

> Social media also became part of my professional life. At first, I used Instagram simply to inform clients where I was working. Later, it became a platform to share my work. I have an ambivalent relationship with it—I see its usefulness but also its manipulative side. Algorithms can give visibility to mediocre work, while truly talented artists often remain unseen. (Narrative retelling EFIS101).

A freelance musician in Sweden shares a similar narrative, but which also explains how social media is used out of necessity rather than something exciting:

> The digital shift has significantly changed the music industry. Musicians must constantly promote themselves before tours or album releases. I use social media out of necessity,

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> feeling pressure to remain visible despite preferring to focus on the music. (Narrative retelling UGOT55)

Work under the digital transition is thus not just forced or something directly connected with employment but is also a voluntary yet necessary infrastructure when freelance workers need to promote themselves. As a multidimensional transition, digital transition binds up people to intricate networks that we come to in different roles and social positions, but while the technology isn't neutral neither is workers response to it as they engage themselves and organise through the same infrastructure that they are managed by.

3.14 Disability and digital tools: Visual impairment

Disabilities are not static but dynamic conditions that may change depending on how society and technology is organised, and what tools that are available, including digital tools. People with visual impairment is a group that have been represented throughout the interviews, and there are examples of both mitigated and alleviated problems in everyday life as effects of the digital transition.

The problems with digitalisation, for the visually impaired, have much to do with public services, communication and information that is mediated through screens and touchscreens. To come to the hospital or local medical centre and be met not by a person at a counter, but instead be met by a screen, is a situation that creates difficulties. After having spoken about obstacles with being in a store with only digital check-outs, a man in Sweden further explains that:

> Another situation is when getting to an hospital or attending health-care services, and when you arrive there is just a screen, where you are expected to register your visit. Also, total blank for me, I can't get anywhere. Then I need to approach someone to get help, if someone is available at all. (Narrative retelling UGOT44)

Having to approach someone for help is tiresome and something that should be avoided when things work out well. And digital tools can provide the help or extra information needed, so that they give more and not less personal autonomy. A man in a larger city in France describes it like this:

> The help of digital technology has made my life a whole lot easier, and has empowered me in many ways, both personally and professionally. [...] There's a counterpart, there's less interaction, maybe human, because I don't need to ask other human beings to help me. But it also makes my life a lot easier, because there isn't always a human being around at the times and in the places you find yourself. (Verbatim quote EFIS36)

Thus, rather than feeling helpless in relation to the digital counterpart, it can create empowerment and be that counterpart which can help but without personal intimidation. A concrete example is the form of app where one can take a picture and then get description of what is in front of you.

There are more situations where the same doubleness or ambivalence may occur. Websites can be both accessible and non-accessible, depending on their design and functions. For visually impaired, websites often become a digital landscape of sound, so that the website is something one is listening

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rather than seeing. The navigation is based on key-commands that must be practiced and known beforehand. A woman in a Swedish middle-size city describes:

> When you access something via the computer on a website, you do not see the whole. You have to work with the keyboard and different combinations. If I take key H, I get to new headlines. I can make a list of links and have the links lined up with certain keys F7 and F6. [...] I have to know my keyboard, my commands to reach the input field, hit the space-button and hear a popping sound. (UGOT47, Verbatim quote)

So, when it works out well, the skills and practice make websites accessible. But there are many situations and website-design that create obstacles. While anyone is familiar with the disturbance of pop-up windows and automatically rolling videos, such functions may also be totally obstructive. What some narrators described was that one need to learn each website and practice a few times before they become accessible.

Digital literacy and skills vary quite a lot among visually impaired, and there is an even greater vulnerability in falling behind digitally when the access to telephone calls or staff-operated counters disappear. Much of the key to functioning digitalisation has to do with practicing and education: That is something the same woman in Sweden reflects upon and actively promote in practice:

> I see a bright future, and I think that digital development is a big, big development opportunity for the visually impaired. What is needed is a huge educational effort to be able to use the good part of the technology. The technology is superb for the visually impaired. That's our thing! But we need to have a lot more training and you have to redistribute resources to the vision units. And get a lot more educational opportunities, a lot more intensity in education (Verbatim quote UGOT47)

Another woman, 62-year-old also living in Sweden, describes how there is sometimes help to get if one knows where to look and ask for it:

> The thing is often that technology exists, but one needs to find it, have knowledge about it. And it sometimes takes time and effort to explain that you need certain forms of help. Like there were new washing machines where I live. Before I could access the machine because there were buttons with braille on the old one. The new ones are just with a touch-button that I cannot use. Anyway, after asking about it, and wonder if I could have my own machine in the apartment, they found out that one could install a speech-function that could be used so that one also hears and could speak to the machine, the new one. (Narrative retelling UGOT52).

A narrative where the housing association played a part, and associations of different sorts can be a key for coordinating the solutions that are evolving with technical and digital tools. Disabilities are integrated in other kinds of struggles against inequalities and like with many other aspects of digital transition there are challenges and opportunities. A middle-aged man in urban France narrates his positive notion of technological development:

> I work for an association that provides services to members of the LGBTQI+ community. I'm over 30 and visually impaired. I use digital tools a lot, which I find useful in my personal life,

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> as well as in my professional life, both for myself and for the members of the association I work for. I emphasise these positive aspects in many ways. (Narrative retelling EFIS45)

A reminder that although technological development can be a help, it needs to be put into social context where inequalities or exclusions can be overcome. Digital tools don't come to the right users by themselves, and while practice and skills are important, policies may also be needed to make them accessible and affordable.

3.15 Rural unjust green transition

One aspect of the twin transition, which is known by social scientists since long back, is the critique against industrialisation of nature (e.g. forests into plantages, rivers into dams and land into mines). Two technologies for renewable energy stand out in response from people living rurally: solar panels in the south of Europe and wind turbines in the north of Europe. Of course, wind turbines exist also in the south, and solar panels in the north, but the largest parks and projects are divided along those lines based on a Terra Nullis logic. In the way that such infrastructure has been included in the energy system, the people living rurally are the ones affected by the installations and physical construction of it.

Interviewees in the south of Europe experience that solar panels damage good agricultural land, and that they raise local temperatures. In the north there are responses that wind power destroys natural areas and forest, especially because of the infrastructure needed around the turbines, such as roads, clearage of the ground, and gravel put out to make the area more accessible. For the ones that live especially close to them there are other negative effects because of noise and visually disturbing lights, shadows, and reflections. The sound is described by two different women in Sweden, living close by wind turbines:

> Because it has ruined one's quality of life, they sound terrible, because there otherwise quiet around here. [...] We have measured the sound and sometimes it is above the limits allowed, but they claim that it doesn't, and we have asked to get a hold of their records but they will not allow us to see. (Verbatim quote UGOT02)

> It is that whooshing, pulsating sound which is so annoying. I try to get used to it, after all, I want to continue living here. (Verbatim quote UGOT03)

A similar experience, and resentment, is going on against photovoltaic cells, solar panels, but then usually in southern Europe where instalments of parks are more common, and cover larger areas, than they do in northern Europe. A man in Spain shares his thoughts:

> I am also concerned about the expansion of photovoltaic parks on fertile agricultural land. I believe that areas of high agricultural yield should be protected. The area where I live performs much better as an agricultural farm than in photovoltaic energy production. Personally, I find large-scale photovoltaic parks visually disturbing when they are installed en masse and reduce green and farming spaces. (Narrative retelling AUTH65)

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The feeling that interviewees share is that of non-commitment, that nothing is given back to the local community, and that they are not compensated enough nor gets positive effects from the large wind- and solar industrial parks. Therefore, what they must deal with are only the negative local consequences from renewable energy installations. There is a vulnerability about rural living, when the countryside is just supposed to be exploited by actors that don't care about negative effects, but are only interested in the profit they get out of it. Living rurally is experienced as not being heard or listened to, and there is a conflict when other actors take the right do modify the landscape where people live.

Overall, with wind power and solar panels, there is an inequality between larger cities and the countryside. Living rurally means being exposed to the installations of major wind- or solar parks close to one's residence. Even though these parks often are placed in relatively sparsely populated areas, many people are still living there, and they have been negatively affected in the cases taken up here.

A similar issue that comes up has to do with mines for rare earth minerals, a kind often considered useful or necessary for the green transition. In this next extract from a woman under 30 living in a middle-size town of Sweden, the narrator stresses the threat of climate change, but also criticises the activities (i.e. mining) conducted in the name of green transition:

> Climate change is such an overarching threat towards the future, and it makes so much sense to protest, given much of the injustice going on. However, a local struggle against a mine has become a very serious issue during the last years, and that is something I organise around in a network. This also has to do a lot with the future and what I see as a pretty staggering future given that the green transition doesn't lead where we need to go. In a way, that has also led to work against what is considered green, but the projects that are going forward around here are in no way green, because there are so many risks with it, especially because it almost certainly will pollute the drinking water. (Narrative retelling UGOT18)

This narrative also illustrates how enabling and hindering beliefs are locally situated and formed by the influence, or lack thereof, that people perceive they have over activities taking place in their local geographics.

Another situation, in some of the same areas or Northern Europe and the Nordic countries, is related to how Sami culture and knowledge is not taken seriously. There is a long history of feeling of being overrun by politicians, the state and companies. A Sami woman in Norway, former reindeer herder, describes her view of the green transition as an unjust project that goes into conflict with much of the Sami culture and practice of reindeer herding. A large part of the narrative is included here in order not to cut up the testimony too much:

> It is very dramatic what is happening now with the green industry, or what you call the green industry. The transitions that are happening. It is quite fatal for many of us. In the situation I was in as a leader in the reindeer herdng district. It is such a massive apparatus that in a way gnaws against you. And it creates colossal consequences for people's lives and pressure on young people. I lost my brother because of these processes; he committed suicide. It destroys the family when something like this happens. And it is a direct consequence of the pressure. I

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had a period of 10 years where I lost someone I knew every year to suicide. Young men and women become powerless, and the powerlessness you can feel in those processes.

But I also know that we managed to stop part of the windmill construction. But it came, and it is still there today and that area is unusable for reindeer now. It is not necessarily the windmills in themselves that have the biggest impact, but it is the roads and the infrastructure around it that are massive interventions and that also lead to plastic pollution, and kills the nature close to those areas. So the development that is happening now I think is very destructive.

I have no illusions that this is a green shift because it is only about the economy. It is about greenwashing the Norwegian economy and oil production. And we need all this energy. But all the big data centres, with the development of technology. It is clear that we are doing good things with digital technology, medically, lifelong learning, connecting society, and so on. But a lot of that energy goes to social media, cat pictures, storage of useless information and other things that will not benefit us. (Narrative retelling UGOT105)

So, while this sums up some of the other critique against wind power, mining, and exctractivism, it also takes in another dimension about what is at stake. Because the lands are used for different purpose and these may be contradictory where the economic profit for some can be life and death for someone else. From the perspective of this narrator from a Sami community, and from other narrators living rurally in Northern Sweden and Northern Norway, the green transition goes into a longer history of colonialism.

3.16 Inequalities of mobility and immobility

Mobility plays much into the dynamics of inequality related to the green and digital transition, especially through ways that travels, and personal transport create differences in opportunities and disadvantages (cf. Elliott & Urry 2010; Urry 2007). Much of the significant differences between autonomy and dependency have to do with the wanted and unwanted mobility, and between the voluntary and involuntary immobility. Although digitalisation for a long time has played into these dynamics, the topic of digital meetings has the last 5 years, since the covid pandemic, played a major role in the technical and social transformation of travel- and commuting practices.

Public transport is an important component for the future of green and low-carbon travel, both when it comes to commuting in urban and densely populated areas, and for travelling in more rural settings. This requires not only that the travel options and modes of transport work for everyone, but also that public transport is inclusive as a public space. This is not always the case and respondents have experienced racist or homophobic situations where they themselves have been targeted to the degree that they do not feel comfortable taking the bus, tram or subway, and rather spend some money taking a taxi. Public transport may be considered a public space and at times also a discriminatory public space from narrators' point of view.

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Communicating or posting online may also in itself be a way to go out into public space but without leaving home physically. The regularity of online presence varies between different groups and for different reasons. Avoiding online communication may for example be a way to protect oneself from discrimination and lack of social appreciation:

> UGOT122: When it comes to negative aspects of the digital world, we Muslims are vulnerable in that we have no real place. People think you can't talk bad about Muslims as if we are part of the establishment, but we are at the bottom. And Muslims have been bad-mouthed all the time, on social media or other digital media, blogs or new news sites. I used to be one of those people who got into debates, in the comments section of the local newspaper and on social media. But that was like shouting into space, so I don't do that anymore. I have social media, but I try to stay away from it now. In that way I'm not exposed as much anymore. But sometimes I see all the hate and it affects me, I feel bad about it, I can't handle it. So, in that way it limits me. (47-year-old Muslim father, urban resident in Sweden)

In this case we can see how the tone used and values spread act as barriers for people to take advantages of the digital transition. It has less to do with using the digital tools, but more to do with if the content is inclusive or not. Reasons that it becomes excluding can for example be because of antisemitism, islamophobia, other forms of racism, hatred against politicians and political activists, and ableism.

People living on the countryside often feels put aside in transition to sustainable travel, for example because the infrastructure is deficient or because the closes bus stop is too far away. This is a problem in because it strengthens the difference between urban and rural settings. But it is also a problem because persons that cannot drive a car are involuntarily immobile, and people who can drive a car anyway gets excluded from a green transition in mobility.

Another experience of public transport is related to disability and narratives from persons with visual impairment. What is then typical, for example, is that information about routes is not given properly at the place where buses are leaving from, or that the speakers that should call-out stops inside the bus, has been turned off. A particular experience, related to the twin transition, is critique against electrification of public transport. The electrical buses are too silent in the public spaces where they operate, and this is a problem described by some narrators described (UGOT47, UGOT52). What more is, they have experienced a patronising and belittling treatment when taking up the problem with the companies and local politicians in charge of public transport.

The digital and the green are already much integrated when it comes to mobility, typically because of the expansion of digital infrastructure around commute and travel. Mobility is also a quite extensive topic in the interview material, and especially relevant with regards to inequality and life-situations, because moving around, commuting, travelling, or staying at home, are such essential aspects in people's life.

One could say that digital communication didn't play such an important role in everyday mobilities life only 15-20 years ago (see for example Sheller & Urry 2006 and Urry 2007). A solid result from the interviews is that the covid pandemic changed many things around digitalisation and the increased

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frequency of online meetings is probably the change that stands out the most in terms of mobility during the last five years.

A few senior citizens are happy not to travel around as much anymore. Although the reason is sometimes that they can avoid spending money on travelling, the digital meetings can anyway be a way to cope with the immobility. The changed habits of physical and online meetings mean a lot for mobility as practice, most obviously because online meetings become substitutions for physical meetings. Moreover, when time is perceived as a scarce resource, digital tools often help you 'save' time, and to deal with other practical issues. Tommasso, a 31-year-old man from Bologna, Italy, working in marketing and communications:

> The SPiD (Digital Identity), helps you solve multiple issues online, that before you needed to go to the city or regional offices. If I need to make a doctor appointment, I don't need to ask for permission at work to go to the doctor or call and make the appointment, now everything can be done online. This saves you a lot of time. (Narrative retelling FIS020 T)

In a similar fashion, the possibility of working from home, using digital tools, may also free up time previously used for commuting. The following extract illustrates how the pandemic here functioned as a catalyst enabling for more work to be done remotely. The description is from a 48-year-old programmer living in a larger city in Sweden:

> There was a much lower threshold for just working from home, also when the pandemic was over. Everybody had gotten used to meet through videocalls and there is nothing strange about joining online. That was positive in many ways. So much time was devoted to commuting, for the travelling, getting back and forth, being late, the train is stuck somewhere. (Narrative retelling UGOT53)

These kinds of stories, where narrators remember what it was like then before the pandemic 2020, and afterwards, are rather typical for the pandemic as a breakthrough for working remotely. Online meeting practices, both in wage-work and for other commitments, have affected the need for physical mobility to such degree that both individuals and organisations think qualitatively different about travel and commuting before and after the covid pandemic. In terms of digital transition and mobility, such events that so abruptly changed habits and norms weren't considered in future scenarios of mobility before the pandemic (cf. Urry 2007, Elliot & Urry 2010), but we can now recognise what a major impact this change has had.

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4 Discussion and conclusions

4.1 Research questions

Based on analyses of a vast qualitative dataset, containing narrative interviews from 402 individuals residing in 30 different European regions, this report responds to a twofold aim. First, to capture how various inequalities affect the implementation of the green, digital and twin transitions. Second, to explore how the green, digital and twin transitions influence and potentially intensify inequalities in income, skills, employment and health, as well as age, gender and other intersectional factors. It further seeks to understand how these inequalities may reinforce one another, creating cycles that both shape and are shaped by the transition processes.

The following sections summarises and discusses the findings in relation to the guiding two research questions:

1) How are the green, digital and twin transitions enabled or hindered by inequalities?
2) How does transition(s) affect people and create or reproduce existing inequalities?

4.2 How are the green, digital and twin transitions enabled or hindered by inequalities?

This report has explored how individuals experience and navigate the green, digital and twin transitions, identifying shared and distinct enablers and hindrances across these parallel processes. To begin with, it should be noted that participants do not generally narrate experiences of twin transition – although several examples are provided throughout the interviews – but instead talk of how they engage with, and have been affected by, the green and digital transitions respectively. It is thereby the influence of various inequalities on these two parallel processes that has been examined.

The analysis reveals complex interactions between individual resources, social dynamics, and structural conditions, shaping how people engage with each transition. It also points to both similarities and differences in how the transitions are experienced and managed by the participants. An overview of these findings is presented in Table 5, followed by a more detailed summary of the results presented in this report.

Table 5. Dimensions in the green and digital transitions

	Green Transition	***Digital Transition***
General perception	Perceived as voluntary, yet difficult.	Perceived as mandatory and sometimes overwhelming.
	Enablers and hindrances reported to an equal extent.	Enablers reported more often than hindrances.

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Motivation	*Value-driven:* based on personal or religious ethics, concern for the environment.	*Necessity-driven:* based on individual interest for societal participation, service use, and work access.
Enablers	*Knowledge* based on early education, occupational experience, or social values.	*Knowledge* based on formal and informal education; self-learning and work experience.
	Feelings of *self-efficacy* important to learn and act.	Feelings of *self-efficacy* important to learn and act.
	Beliefs and values in support of green transition.	
		Equipment: access to time-saving and sometimes necessary services and tools.
	Community support and networks: foster awareness, collective action, and moral encouragement	*Community support and networks*: support learning, provide emotional safety, and reduce feelings of exclusion
		Significant relationships: support of digital learning and activity
Hindrances		*Lack of digital skills*
	Time-scarcity: sustainable practices perceived as time-consuming.	*Time-scarcity*: learning and navigating digital systems takes time.
	Money: sustainable practices and living associated with high costs.	*Money:* costs associated with education, equipment, software, and internet
	Lack of infrastructure: e.g. public transport, bicycle-lanes, recycling- and charging stations	*Lack of infrastructure:* stable and high-speed internet
	Lack of social appreciation: discouragement from peers or communities	*Lack of social appreciation:* discrimination and online harassment
	Lack of access to political actors: not feeling heard	*Lack of access to political actors*: not feeling heard
	Beliefs and values: mistrust in institutions and green labels	*Beliefs and values:* mistrust in institutions and other online actors
Particularly vulnerable groups	Low-skilled people with low sense of self-efficacy.	People with low digital literacy, disabilities, language barriers and/or with low sense of self-efficacy.
	People in time-scarcity: caregivers, multi-job holders, and rural residents.	People in time-scarcity: caregivers, multi-job holders, and rural residents.
	Low-income individuals.	Low-income individuals.

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	Entrepreneurs with small profit margins.	Entrepreneurs with small profit margins.
	People with precarious legal status (e.g. undocumented migrants)	People with precarious legal status (e.g. undocumented migrants)
Main inequality drivers	Affordability of green choices, infrastructure and policy support	Digital literacy, access and inclusiveness of digital designs
Policy critique	Inadequate or unjust subsidies.	Exclusion from digital service design.
	Fragmented support for businesses.	Fragmented support for businesses.

Individual resources, social dynamics, and structural conditions can both enable and hinder participation in the transitions. Interestingly, participants reported a near balance between enablers and hindrances in the green transition, while they somewhat more often pointed to enablers in the digital transition. This could be interpreted as a reflection of how people generally experience the two transitions; with the digital transition as something that is more likely to facilitate in various arenas of life, while the green transition involves more obstacles to overcome.

Both the green and digital transitions are strongly influenced by individual knowledge and perceived competence. In the green transition, knowledge encompasses environmental awareness, sustainable practices, and subsidy schemes. Many individuals describe how their actions are based on early education, occupational experience, or social values. For the digital transition, knowledge often refers to practical digital literacy, managing digital services, tools, and communication platforms. Unlike the green domain, where education is sometimes ideological or value-driven, digital skills are often gained out of necessity. Self-efficacy enables action in both cases, but while green engagement is often framed as voluntary and morally motivated, digital participation is seen as unavoidable and system imposed.

Time scarcity is narrated as a common hindrance in both transitions, particularly for caregivers, multi-job holders, and rural residents. In the green domain, sustainable practices (e.g., recycling, using public transport) are perceived as time-consuming lifestyle choices, often traded off against convenience, economic priorities and family responsibilities. In the digital realm, time is more tied to learning and adapting. People need time to explore new tools or navigate confusing online systems. Lack of time also limits the ability to receive support or engage in digital education. However, digital tools are also timesaving, especially in work or services, depending on access and competence.

Economic resources are highlighted as pivotal in both transitions but manifest differently. In the green transition, financial barriers are connected to high costs of eco-friendly products, isolating homes, or investing in electric vehicles. Sustainable behaviours are thus understood as facilitated by economic privilege. In the digital transition, costs relate more to access to devices, software, and stable internet, issues exacerbated in rural and low-income communities. Digital poverty can isolate people from work, education, and even public services. In both contexts, infrastructure gaps, from public transport to broadband, highlight territorial inequalities and deepen exclusion.

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Social support networks serve as crucial enablers for both transitions. In the green transition, communities foster awareness, collective action, and moral encouragement. In the digital transition, networks support learning, provide emotional safety, and reduce feelings of exclusion, especially among marginalised groups (e.g., LGBTQI+, Muslims, people with disabilities). However, both transitions also reveal how social appreciation is unequally distributed. Some participants report discouragement from peers or communities, particularly when their efforts deviate from the norm or challenge entrenched beliefs.

Personal and collective beliefs heavily shape engagement. The green transition is deeply tied to ideals about nature, ethics, spirituality, and social justice. These beliefs motivate action even when structural support is lacking. In the digital transition, beliefs are more ambivalent. While some see digitalisation as empowering, many express scepticism, fatigue, or resistance, citing concerns over surveillance, misinformation, and digital dependency. In both, mistrust in institutions (e.g., government, tech companies) can undermine motivation and block engagement.

In the green transition, businesses, especially small or rural ones, face high costs and regulatory barriers to sustainable practices. Even when motivated, many lack knowledge or financial capacity to change. In the digital transition, similar patterns emerge; small entrepreneurs struggle to digitise services, compete with big tech, or use advanced tools. Yet, digitalisation sometimes enables success, through online marketing or remote work. Both transitions reshape work models. Digitalisation in particular demands constant upskilling, and green transition pushes businesses to balance sustainability with profitability. In both, policy support is often perceived as fragmented or inconsistent.

Transport is a major green concern. People cite poor infrastructure, high costs, a culture that stress flexibility and long distances as barriers to sustainable mobility. In contrast, digital services (e.g., health, banking) are often mandatory but not inclusive, especially for people with low digital literacy, disabilities, or language barriers. Both areas reflect a sense of limited choice: many individuals want to act sustainably or use services effectively, but structural constraints (economic, infrastructural, regulatory) stand in their way.

Both transitions reshape social interactions and consumption. Digital tools foster connection but can also amplify stress, surveillance, and exclusion. Green behaviours are sometimes seen as socially alienating or morally burdensome. Concerns about democratic inclusion surface in both transitions. Participants feel unheard by policymakers, sidelined in tech development, or overwhelmed by top-down initiatives. People with precarious legal status (e.g. undocumented migrants) face systemic barriers to participation in both green programs and digital systems.

Concludingly, both transitions hold promise—but also risk reproducing and intensifying inequalities. The green transition is often experienced as a moral obligation but limited by resources and time. The digital transition is perceived as inevitable, yet many feel pushed into it without adequate support. In both cases, structural and social conditions profoundly shape who can participate, who benefits, and who gets left behind.

Noteworthy, much of what has here been described as hindrances has structural, socio-economic and political aspects, thereby blocking enablers that are constituted by individual resources and social

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dynamics. For instance, the enabler knowledge is blocked by lack of economic incentives and political action to put that knowledge into practice; and the enabler of sustainable beliefs is blocked by high costs of sustainable products and practices. Important enablers, such as beliefs and digital skills, only produce meaningful change when structural barriers like cost, access, and trust are also addressed. Interventions that address intersectional vulnerabilities, ensure inclusive design, and bridge digital and ecological gaps are thus key to making both transitions just and effective.

4.3 How does transition(s) affect people and create or reproduce existing inequalities?

The second research question turn the first research question around a little bit, and instead of analysing what may hinder or enable the twin transition, it asks how transition(s) might affect people and create or reproduce existing inequalities. The narrators provide answers to such a question by sharing their own experiences. The themes taken up in results are explorations of experiences that should be paid attention to. As analyses of intersectional inequality these effects may be ambivalent because the answer depends on what groups one is focusing, so what may be a cause for exposure or problem for one group may be helping another. Nonetheless, inspiring twin transition practices are examples when digital tools can lead to less resource use and lower emissions without inducing costs. The results have shown that inspiring practice exists, but twin transition in its most ideal form is not a very common nor regular phenomenon.

Affordability is a theme that comes up a lot and should be paid much attention to, and some conclusions can be drawn. Much of the private equipment that qualify “participation” in the digital- and green transition is relatively costly. From examples given in the results section, one may point out again the involuntary aspect of falling behind digitlisation, against the more voluntary element of investing privately in sustainable technology. What should be stressed though, is that although narrators share the experience that they do not have enough money to be green, this is not the same as actual high levels of emission. Low levels of income rather indicate the opposite, that the use of resources and engagement in high-carbon practices is frugal. Income inequality and the experience of poverty, much talked about and represented in the material, is a problem in its own right. However, also with regard to the green transition, narrators testify about the shared yet not commonly recognised experience that they in their low-carbon practices simply isn’t supported by existing infrastructure nor policy. This goes in the opposite direction of green transition being too intrusive on personal lives and indicates rather that the lack of transition makes certain groups vulnerable because they don’t participate in high-emission lifestyles.

Digitalisation shapes people’s everyday-life and participation in society, and the interviews show how these effects are unevenly distributed across different groups. Technical infrastructures are marked by power relations in which large technology companies, often US-based, define the conditions for communication, privacy, and visibility online. For many minority groups, especially LGBTQIA+ people and persons with disabilities, this results in digital environments where discriminatory design, algorithms, and toxicity create vulnerability and self-censorship. Migrants and those without full citizenship experience how digital systems can reinforce exclusion by limiting access to welfare,

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identification, and public services, even if digital tools can also help them overcome language barriers and maintain social connections. Digitalisation likewise contributes to rising stress levels in several groups: older adults struggling with basic digital services, people recovering from burnout facing constant reachability, and parents who worry about children's screen time and exposure to online risks. Taken together, these narratives show that the digital transition is not only a matter of technological change, but also one of power, norms, and the capacity to lead sustainable lives in a society where the boundary between online and offline has become increasingly blurred.

Narrators with visual impairment also report problems due to digitalisation, especially as touch screens replace people at counters, or apps replacing phone calls. There are also experiences of visually impairment being forgotten when websites are designed or when public transports don't provide help for disabled that works in practice. However, there are generally positive expectations what technological development might bring and already provides. This stems from already positive experience with apps and digital tools that can "read" the environment and speak to its users. Education and practical guidance are key for unleashing the potentiality of such tools, and just like with digitalisation overall, policy and infrastructure should make sure to raise the lowest standard, for example with support for organisations that already represent visually impaired and other disabled groups.

In transport and delivery jobs, digital tools organise routes, monitor efficiency, and track emissions, but they also introduce stress, limit flexibility, and expose gaps in infrastructure, especially in rural areas. Industrial transformations, such as low-carbon steel or battery production, affect entire communities, bringing both opportunities and risks, with job security and local social dynamics deeply intertwined. For precarious workers and freelancers, digitalisation can increase surveillance, workload, and uncertainty, while simultaneously providing platforms for networking, self-promotion, or unionisation. Across sectors, the narratives show that technology is neither neutral nor universally empowering: its effects are mediated by work type, location, social position, and the broader structures of employment and market competition, illustrating the multifaceted social consequences of green and digital transitions.

The rural injustice relates much to the green and digital transition production of sacrifice zones. This means that experiences of living rurally is associated with close encounters with disturbing or unpleasant energy production, or extractivism that destroys nature or is intrusive on inhabitants' recreational areas. The testimony from such experience is therefore bit ambivalent form narrators' point of view, because while many see the points with politics and project for sustainability, one doesn't favour the "version" of green transition that affects their local community. So, resentment against wind- or solar power is not necessarily combined with an opposition to renewal energy or climate mitigation, but one doesn't see how their local sacrifice plays into a larger project of transition to low-carbon or energy-conserving society. Rather, their experience is understood as a sacrifice to a drive for profit or politically motivated greenwashing.

Finally, mobility is an area where green and digital transition are strongly intertwined and the distribution of accessibility to both physical travel and the freedom not to travel. While some have gained access to stay home and work remotely, others report problems that last years due to rising gasoline prices. Generally, what is key for many is to have access to affordable public transport, and

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that either lacks regularity or isn't an option because they live rurally. For people living in larger cities, some narrators talk about the public transport as racist, sexist or homophobic space. What comes through a lot is nonetheless that the changed habits and elevated skills for online meetings, have given a greater amount of autonomy when it comes to choosing when and why one is travelling.

4.4 Tensions and challenges

Based on the results presented in this report, this section attends specifically to the discussion of some tensions and challenges that have been identified. Such tensions and challenges are both found *within* the respective transitions, as well as constituted by tensions appearing *between* the two transitions.

To start with tensions within transitions, the report shows that communities, peer support, and social appreciation play a crucial enabling role in both transitions. However, lack of social appreciation, digital harassment, or mistrust in institutions can significantly hinder engagement. While online interaction offers new arenas for social interaction and networking, it is also sometimes perceived as a worse substitute for offline interaction; thereby interfering with social cohesion and meaningful engagement. The role of communities and social networks thereby play a double role, both involving inclusionary and exclusionary mechanisms in the transitions.

Regarding tensions between the twin transitions, the findings point to different logics and motives driving the green and the digital transition respectively, allowing also for different kinds of agency for the participants. The green transition is often narrated as voluntary and morally driven, relying on individual values for making perceived correct consumption choices and influenced by beliefs and support of the surrounding community. In contrast, the digital transition is experienced as mandatory, fast-moving, and harder to opt out of, creating pressure and exclusion for those without digital literacy, support through significant relationships, or access to digital tools. This result indicates that it is likely unproductive to design policies for a twin transition, without taking these differences into account.

Moreover, the results point to the importance of policies that acknowledge differentiated capacities and lived complexities. In both domains, fragmented or poorly designed policies are often described as failing to account for diverse lived realities. This leads to frustration, non-participation, or unintended consequences, especially for rural residents, migrants, people with disabilities, and low-income groups. This is also a democratic challenge, that should be accepted by all political actors, as participants express a frustration of not being heard, of not being able to influence decision-making or political activities, and about political inactivity.

However, it should be stressed that the democratic challenge is not merely a matter of closer connections to political actors and representation in decision making bodies but also aligned with the enabling functions of social networks and beliefs. For instance, the analysis shows how EU subsidies have enabled the installation of fibre in many rural areas, but that this has also required joint efforts of an active, social community. Another example points in the opposite direction, showing how a call for more regulations of digital data and activities often stem from a mistrust towards other actors in society. In addition to policymaking and efforts involving awareness and knowledge development, or support for technology and infrastructure investments, policies supporting green and digital

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transitions should consequently aim to strengthen the wide range of social networks and communities supporting learning, collective action and democratic debate.

Synthesis of findings through an intersectional structure–agency lens

The narrative interviews reveal that the green, digital, and twin transitions are lived and interpreted through deeply unequal conditions that shape both people's capacity to act and the constraints they face. Across European regions, respondents consistently highlight how socioeconomic position, geography, social identity, and institutional context form the structural backdrop against which individuals navigate the transitions. These structures shape, often asymmetrically, the resources, opportunities, and recognition available to them, reinforcing well-documented patterns of intersectional inequality.

Inequalities as structural conditions for participation

The transitions are not experienced in a vacuum: access to time, money, education, transport, broadband, and supportive infrastructures fundamentally determines whether individuals can participate, benefit, or even comply with emerging expectations. For low-income families, rural residents, migrants, and people with disabilities, these resources are often lacking, resulting in mismatches between what transitions demand and what individuals can realistically enact. This aligns closely with intersectional insights that marginalisation is produced at the intersection of identities and structural arrangements, not simply through isolated categories.

Divergent agency in the green and digital transitions

The interviews highlight a marked difference in how respondents perceive their agency within each transition. The green transition is widely narrated as voluntary, morally grounded, and reliant on the perceived correct individual choices, yet this voluntarism is often constrained by existing infrastructures and the absence of supportive policies. Agency here is conditional: people can act only to the extent that systems allow them to. In contrast, the digital transition is experienced as compulsory, fast-paced, and unavoidable. Respondents feel coerced into forms of digital participation that exceed their capacities or preferences, echoing Margaret Archer's (2003) notion that agency is inseparable from the structural conditions that either enable or restrict the internal conversation individuals rely on to navigate change. For some, especially seniors or those lacking digital literacy, the digital transition becomes a site of diminished agency and heightened vulnerability.

Social relations, recognition, and everyday negotiation

Across both transitions, social networks, community values, and shared norms appear as crucial enabling factors. Peer support can expand capacity to act, while lack of recognition, digital harassment, or institutional mistrust significantly undermine it. These relational experiences illustrate that agency is never merely individual but socially embedded and dependent on recognition and support. At the same time, respondents' stories show how power dynamics shape the transitions themselves: whether in the hands of tech corporations designing everyday tools or in policy processes that fail to anticipate lived complexity, many individuals feel acted upon rather than acting.

Policy gaps, structural blind spots, and uneven burdens

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Structural inequalities are reinforced by policies that inadequately account for diverse lived realities. Respondents describe public transport systems that do not support low-carbon mobility, digitalisation strategies that assume universal competence and access, and renewable infrastructure planning that sacrifices rural communities. These examples underscore how policies, even when designed to promote ecological or technological progress, can inadvertently deepen existing divides. Intersectionality helps reveal how these blind spots disproportionately disadvantage those whose identities already place them at the margins.

The anomaly of twin transition synergies

Very few narratives highlight synergies where digital tools enable greener practices, such as circular-economy marketplaces or platforms facilitating reuse. These accounts are rare and seldom perceived as the default pathway. Most respondents do not situate their lives within a successful twin transition, suggesting that synergies remain structurally underdeveloped and unevenly distributed.

Living low-carbon lives in high-carbon systems

Individuals who actively pursue low-carbon lifestyles often do so against the grain. Their accounts reveal a mismatch between personal efforts and the infrastructures and policies that acts on them. Rather than enabling low-emission living, existing laws, subsidies and infrastructures often exacerbate the fragility of such lifestyles, testifying to the structural barriers that undermine even highly motivated individuals.

Digital vulnerabilities and power concentration

Experiences of the digital transition differ markedly across groups. While some benefit substantially, such as visually impaired respondents gaining independence through digital technologies, others experience digitalisation as invasive, exploitative, or unsafe. Immigrants, LGBTQIA+ individuals, and politically active respondents express acute concerns about privacy, surveillance, and loss of control. The dominance of U.S.-based tech monopolies is widely perceived as undermining democratic accountability, user autonomy, and cultural sovereignty, illustrating how global power asymmetries structure everyday digital life.

Costly green investments and the dismissal of sufficiency

Green technologies such as solar panels, electric vehicles, or heat pumps are often framed in public discourse as signs of progress. Yet respondents emphasise that these technologies are accessible primarily to those already well-resourced. Low-income households, despite often having low emissions, feel alienated from a transition model that equates sustainability with capital-intensive consumption. Such experiences reveal how the green transition risks reproducing classed hierarchies of ecomodern citizenship enabled by energy and material intense consumption.

Rural sacrifice zones and claims for spatial justice

Rural respondents frequently describe renewable energy infrastructures, wind turbines in the north, solar parks in the south, as imposed rather than negotiated. These accounts portray rural areas as sacrifice zones for urban energy consumption, underscoring the spatial and distributive injustices embedded in transition processes. Demands for reducing total energy use, particularly in urban centres, emerge as justice claims grounded in lived experience rather than abstract principles.

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Twin transition hesitance: Resource use and overload

Finally, respondents express ambivalence about the digital transition's ecological footprint and its impact on everyday well-being. Concerns about energy-intensive infrastructures enabling consumption (e.g., streaming, cloud services, AI) and digital overload highlight a structural contradiction: individuals are pressured to participate in systems that simultaneously burden them psychologically and undermine ecological goals.

Conclusion: Understanding the twin transition through intersectional agency and structural inequality

Together, these narratives demonstrate that the green and digital transitions are profoundly shaped by the interplay of structure and agency, power and inequality, and the intersectional positions people occupy. Individuals exercise agency (making choices, resisting pressures, seeking alternatives) but always within structural (e.g. technological and socio-geographical) contexts that condition what is possible, recognised, or safe. Intersectionality illuminates how these constraints and opportunities are unevenly distributed, shaping who benefits from, participates in, or bears the cost of the transitions.

The findings suggest that achieving a just and effective twin transition requires:

- policies that acknowledge differentiated capacities and lived complexities,
- infrastructures that enable rather than obstruct low-carbon and digital inclusion,
- governance that addresses concentration of power in both tech and energy systems, and
- a shift from individualised responsibility models to collective, structural, and justice-oriented approaches.

By centring lived experience, the narrative interviews reveal both the possibilities and the limits of agency in the twin transitions. They show that without structural change, particularly addressing socioeconomic, spatial, and identity-based inequalities, individual agency alone cannot carry the weight of transition. A truly just twin transition must therefore foreground intersectionality, redistribute capacity to act, and transform the systems that currently produce and reproduce inequality.

4.5 On the added value of the deliverable for the project

An added value, to other project tasks in ST4TE, is that twin transition capabilities are here located according to how they are accessed, negotiated and contested by people embedded in different structures of disadvantage and privilege. For example, previous quantitative work in other tasks (e.g. T1.2, T1.3) mainly provides a mapping of capabilities and does not explain why similar configurations produce different outcomes across territories and groups. The report thereby recognises important 'blind spots' in standard regional statistics, such as time poverty, discrimination, dependence on informal support or perceived insecurity, that are crucial for assessing the justice of the twin transition but are not directly captured by conventional indicators.

As an example, where D1.3 report understood green and digital jobs from the perspective of competitiveness, the D2.5 adds an understanding about twin transition attractiveness also outside

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professional life. This added value thereby connects quantitative aspects of the ST4TE project, categories that can be understood on integrated level, with qualitative elements that captures particular experience of competitiveness and geographic distribution. The latter doesn't schematically follow a distinction between professional and private life, and while that may be difficult to discover on the integrated level, the D2.5 have explored what other categories may contain over time, as they are approached narratively.

Therefore, one of the main strategic contribution of this deliverable is to provide a structured interpretive layer for reading the Twin Transition Index and related quantitative analyses. The TTI and associated metrics inevitably operate at a level of aggregation where regional scores summarise complex realities into single numbers. This deliverable demonstrates that regions with similar structural profiles; comparable twin specialisation, skills readiness or digital infrastructure; can host very different combinations of vulnerability, agency and perceived fairness.

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Appendix I. Additional tables and figures

Figures by Anne Laure Humbert, University of Gothenburg

COMMENT ON THE ENABLERS AND HINDRANCES FOR THE GREEN & DIGITAL TRANSITIONS

Across the 402 quantified narrative interviews conducted in the ST4TE project, participants reported almost equal proportions of enablers and hindrances. This balance suggests a shared awareness of both the opportunities and the challenges associated with behavioural change in the context of the twin transition.

Three overarching categories (resources, social dynamics, and structural conditions) were used as the main determinants of engagement. Resources capture individual capacities such as knowledge, education, time, equipment, and financial means. Social dynamics relate to the influence of beliefs and values, social networks, and social appreciation. Structural conditions encompass the wider material and institutional environment, including infrastructure, policies, and socio-economic circumstances.

The most frequently cited enablers across both transitions are knowledge, beliefs and values, and community and social networks. These findings point to the importance of information, personal motivation, and collective support in facilitating behavioural change. Conversely, the most recurrent hindrances are money, infrastructure, and socio-economic conditions, highlighting the continued relevance of material and structural barriers.

Overall, the results indicate that while many enablers stem from individual motivation or capability, most hindrances originate in the broader social and structural context. This underscores that achieving the twin transition requires not only informed and motivated individuals but also enabling systems and equitable conditions that make sustainable and digital engagement possible for all.

Enablers and hindrances for the green transition

Table A1: Number and relative/absolute proportion of mentions on enablers and hindrances for the green transition.

Type	*Category*	*Motivation*	*No. of mentions*	*Relative proportion*	*Absolute proportion*
Enablers			342	85%	85%
	Resources		291	85%	72%
		Knowledge	175	60%	43%
		Self-efficacy	139	48%	34%
		Education	109	38%	27%
		Time	108	37%	27%
		Equipment	90	31%	22%
		Money	67	23%	17%

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		Political and social actors	44	15%	11%
	Social dynamics		242	71%	60%
		Beliefs and values	177	73%	44%
		Community and social networks	164	68%	41%
		Significant relationships	108	45%	27%
		Social appreciation	35	15%	9%
	Structural conditions		194	57%	48%
		Physical and geographical environment	101	52%	25%
		Policies and politics	62	32%	15%
		Infrastructure	50	26%	12%
		Socio-economic conditions	49	25%	12%
		Events and developments	25	13%	6%
Hindrances			313	78%	78%
	Structural conditions		261	84%	65%
		Infrastructure	171	66%	42%
		Socio-economic conditions	128	49%	32%
		Policies and politics	124	48%	31%
		Physical and geographical environment	114	44%	28%
		Events and developments	50	19%	12%
	Resources		235	75%	58%
		Money	151	64%	37%
		Political and social actors	68	29%	17%
		Time	67	29%	17%
		Equipment	37	16%	9%
		Knowledge	29	12%	7%
		Self-efficacy	27	12%	7%
		Education	21	9%	5%
	Social dynamics		106	34%	26%
		Social appreciation	62	59%	15%
		Community and social networks	29	27%	7%
		Beliefs and values	24	23%	6%
		Significant relationships	22	21%	5%

Note: Relative proportions are calculated as the number of mentions relative to the parent node (i.e., enablers and hindrances are the parent node for resources, social dynamics, and structural conditions, which are themselves the parent node of motivations), and not the total number of respondents. Absolute proportions are calculated as the number of mentions divided by the total number of respondents (n = 402).

Enablers and hindrances for the digital transition

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Table A2: Number and relative/absolute proportion of mentions on enablers and hindrances for the digital transition

Type	*Category*	*Motivation*	*No. of mentions*	*Relative proportion*	*Absolute proportion*
Enablers			364	90%	90%
	Resources		336	92%	83%
		Knowledge	242	72%	60%
		Equipment	225	67%	56%
		Self-efficacy	174	52%	43%
		Education	160	48%	40%
		Time	112	33%	28%
		Money	44	13%	11%
		Political and social actors	32	10%	8%
	Social dynamics		244	67%	60%
		Community and social networks	161	66%	40%
		Significant relationships	146	60%	36%
		Beliefs and values	68	28%	17%
		Social appreciation	40	16%	10%
	Structural conditions		154	42%	38%
		Socio-economic conditions	63	41%	16%
		Events and developments	45	29%	11%
		Infrastructure	42	27%	10%
		Physical and geographical environment	42	27%	10%
		Policies and politics	33	21%	8%
Hindrances			287	71%	71%
	Resources		231	81%	57%
		Knowledge	93	40%	23%
		Equipment	74	32%	18%
		Money	72	31%	18%
		Self-efficacy	71	31%	18%
		Time	64	28%	16%
		Education	52	23%	13%
		Political and social actors	44	19%	11%
	Structural conditions		169	59%	42%
		Socio-economic conditions	93	55%	23%
		Policies and politics	62	37%	15%
		Physical and geographical environment	46	27%	11%
		Infrastructure	45	27%	11%
		Events and developments	30	18%	7%
	Social dynamics		96	33%	24%
		Social appreciation	53	55%	13%
		Beliefs and values	34	35%	8%
		Significant relationships	28	29%	7%
		Community and social networks	24	25%	6%

Note: Relative proportions are calculated as the number of mentions relative to the parent node (i.e., enablers and hindrances are the parent node for resources, social dynamics, and structural conditions, which are themselves the parent node of motivations), and not the total number of respondents. Absolute proportions are calculated as the number of mentions divided by the total number of respondents (n = 402).

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Gender and the green transition

Individual resources

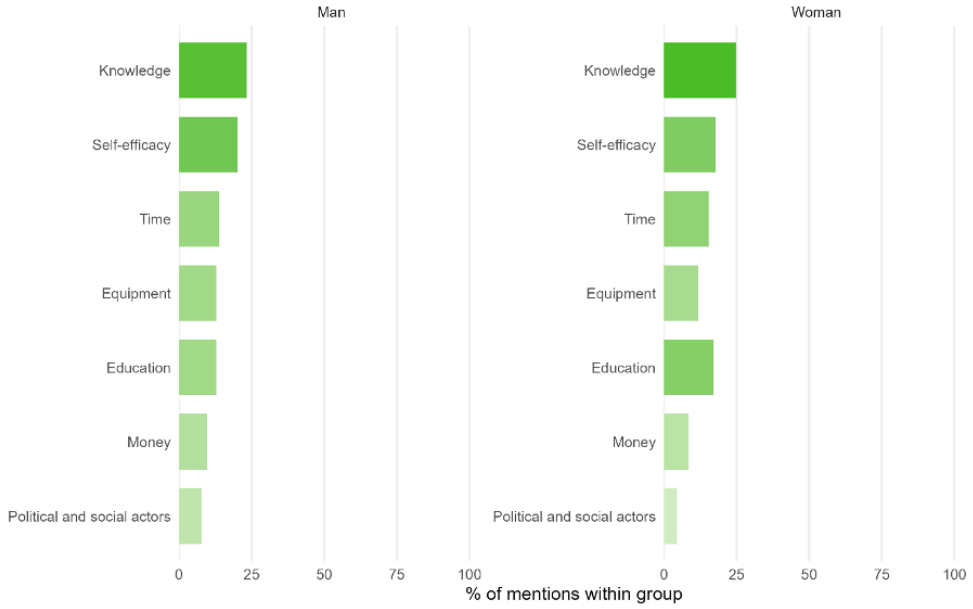

Figure A1. Enablers for the green transition: resources by gender

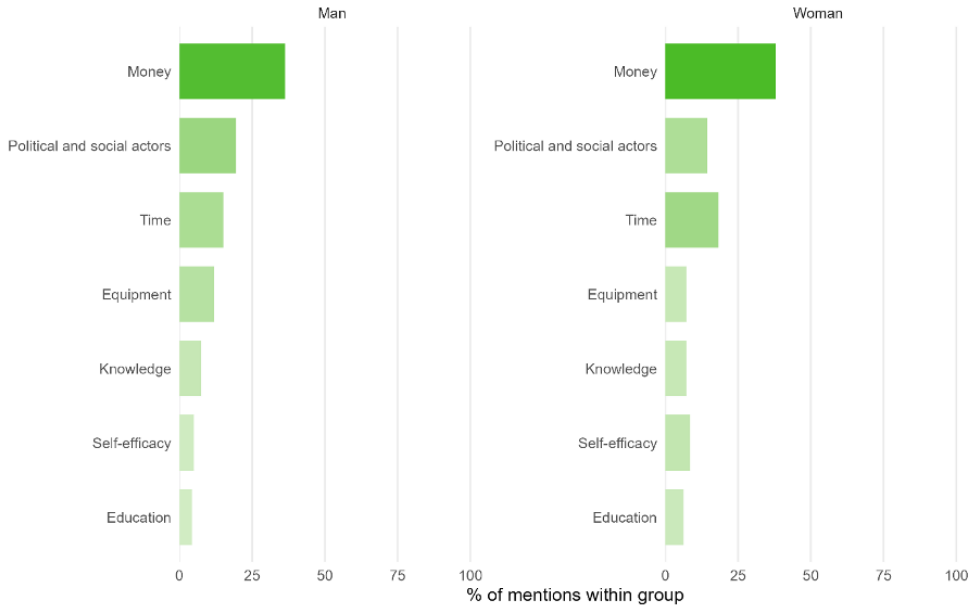

Figure A2. Hindrances for the green transition: resources by gender

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Social dynamics

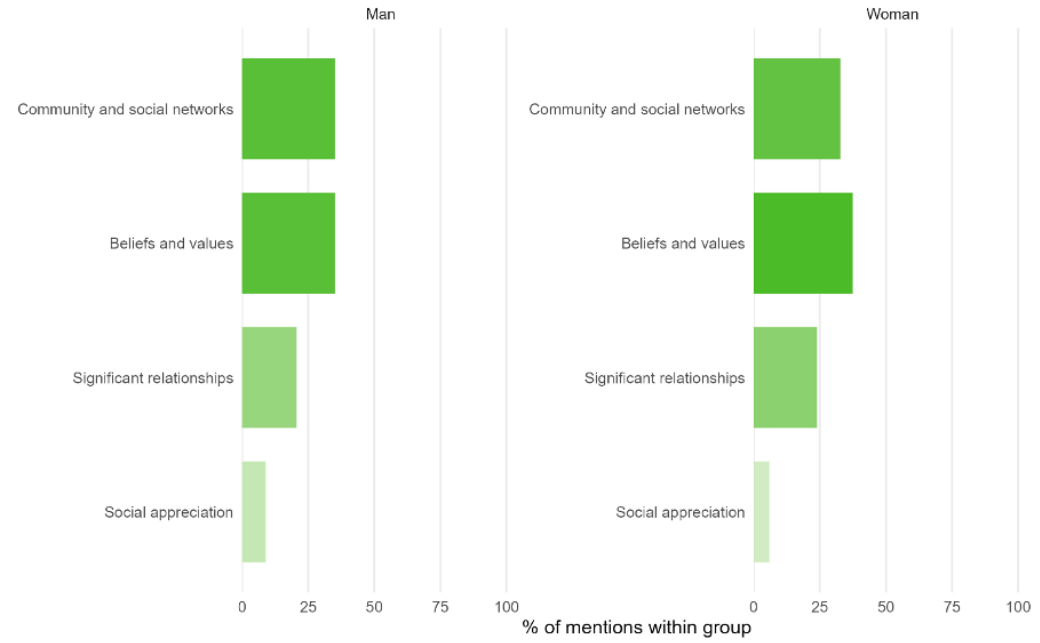

Figure A3. Enablers for the green transition: social dynamics by gender

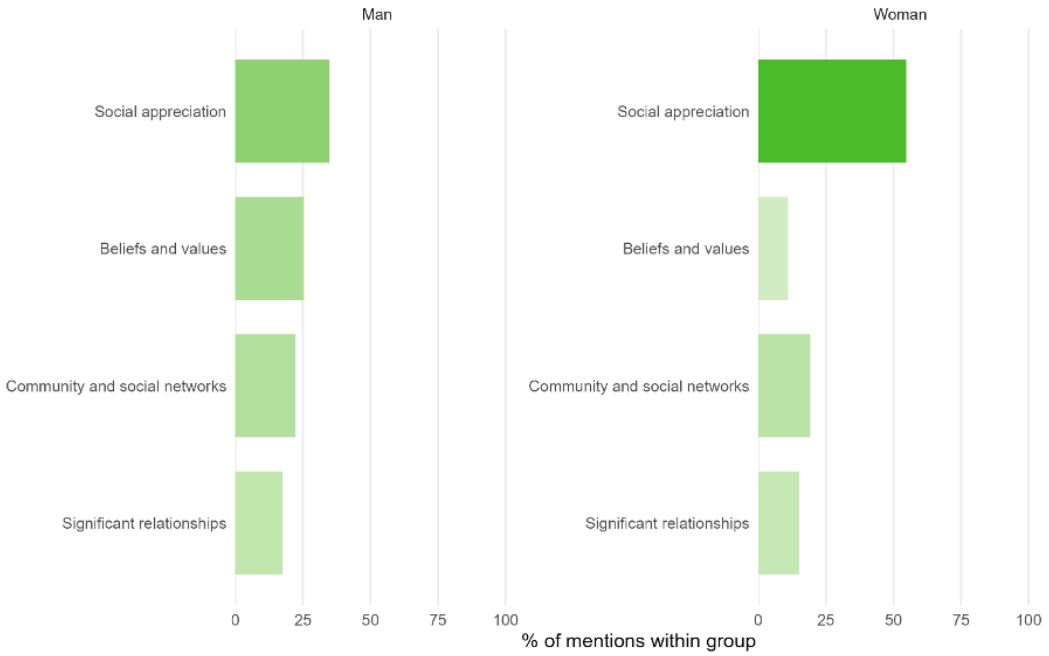

Figure A4. Hindrances for the green transition: social dynamics by gender

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Structural conditions

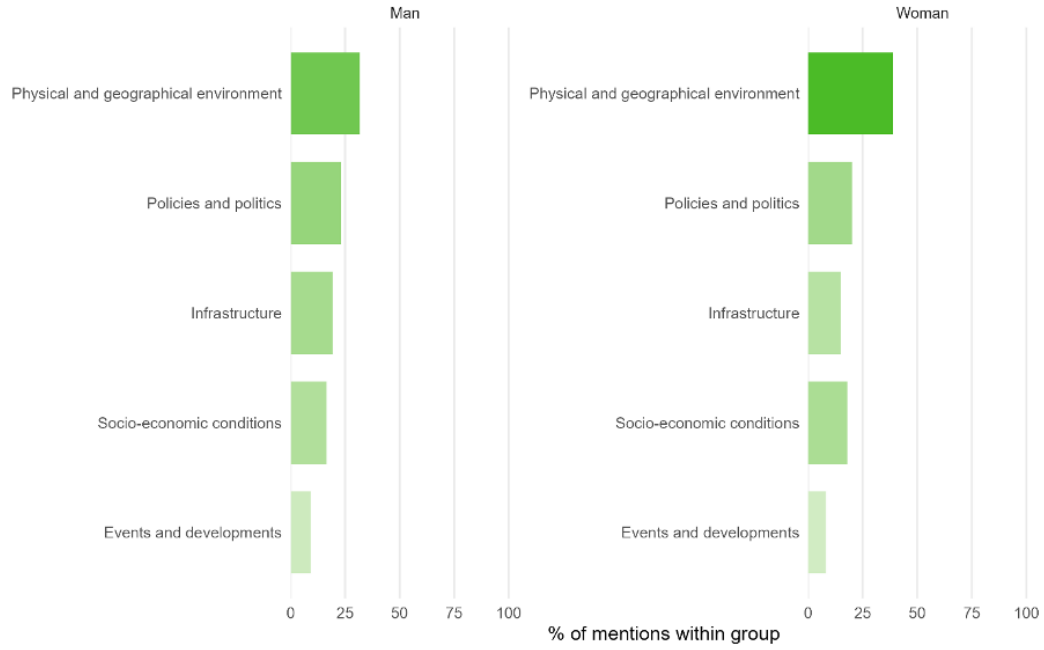

Figure A5. Enablers for the green transition: structural conditions by gender

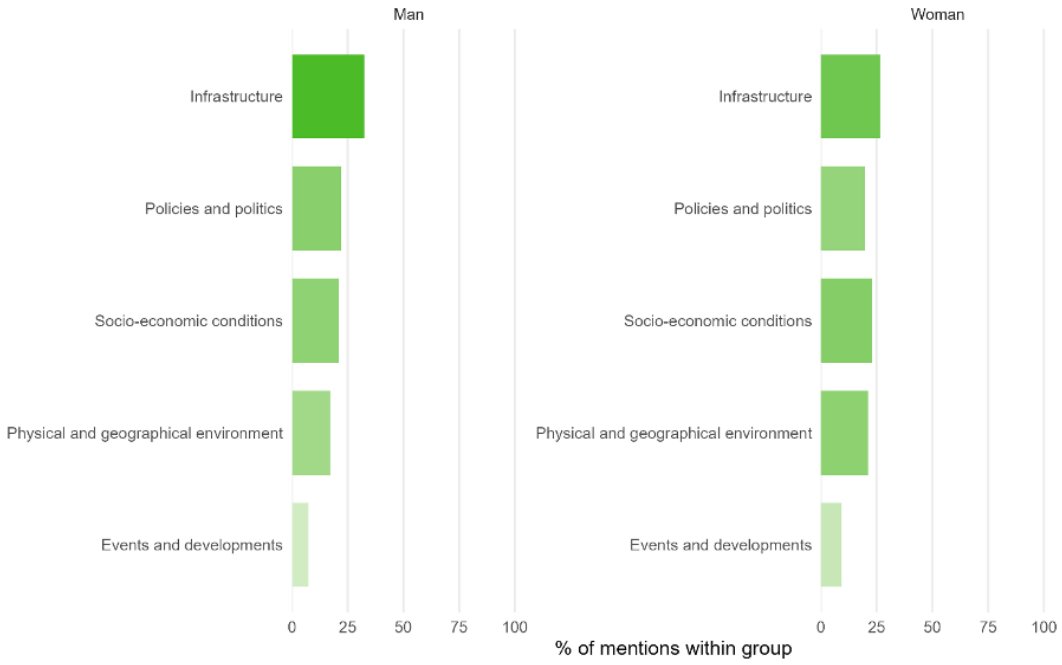

Figure A6. Hindrances for the green transition: structural conditions by gender

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Gender and the digital transition

Individual resources

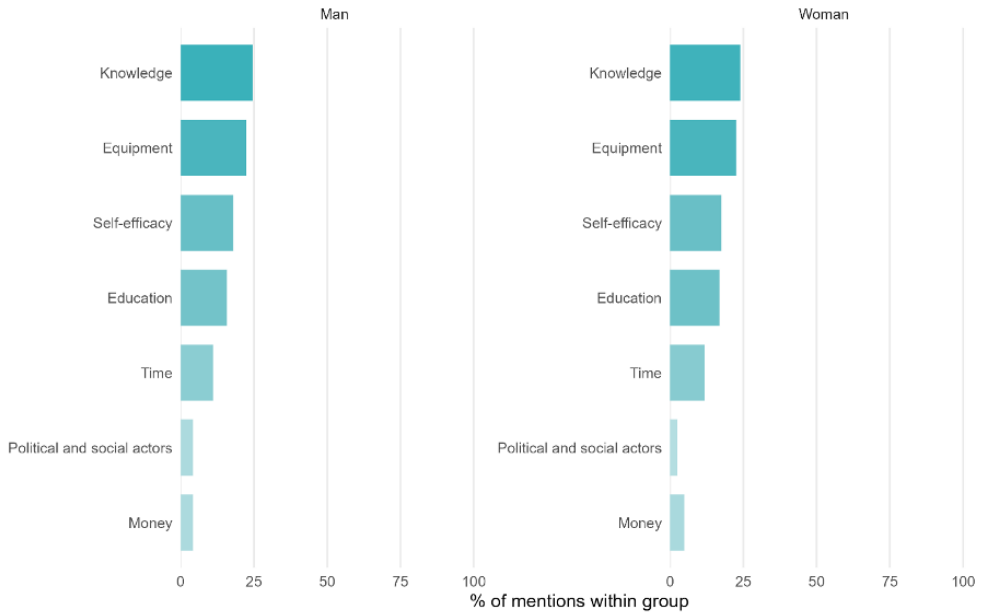

Figure A7. Enablers for the digital transition: resources by gender

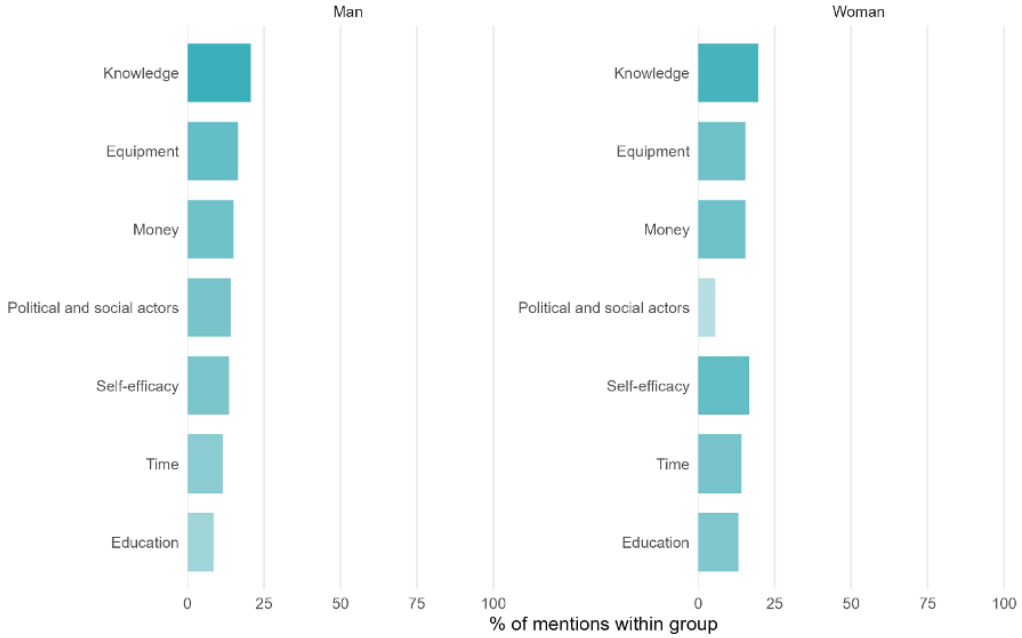

Figure A8. Hindrances for the digital transition: resources by gender

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Social dynamics

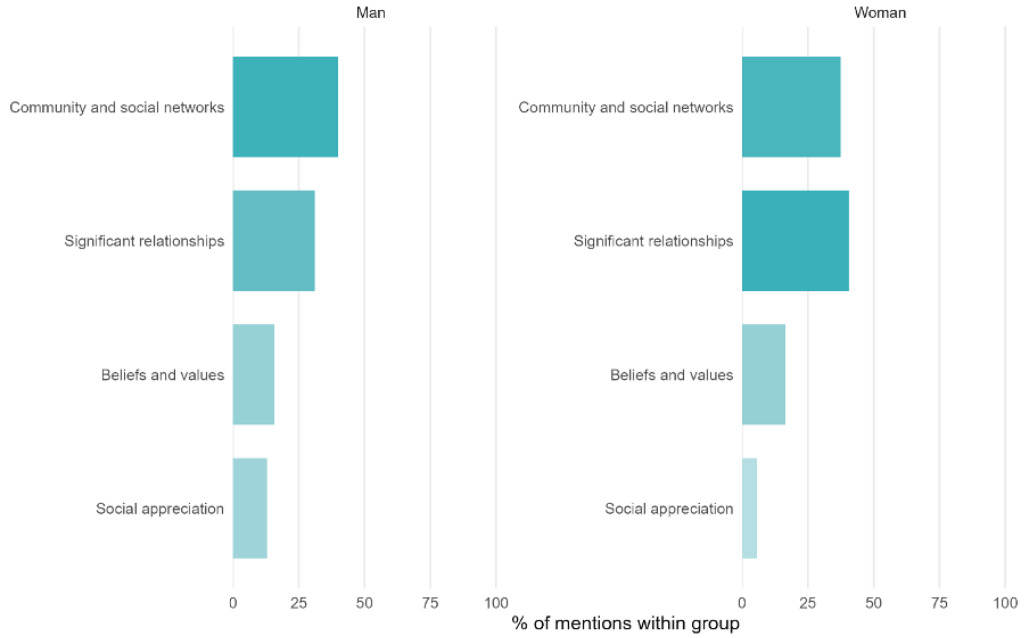

Figure A9. Enablers for the digital transition: social dynamics by gender

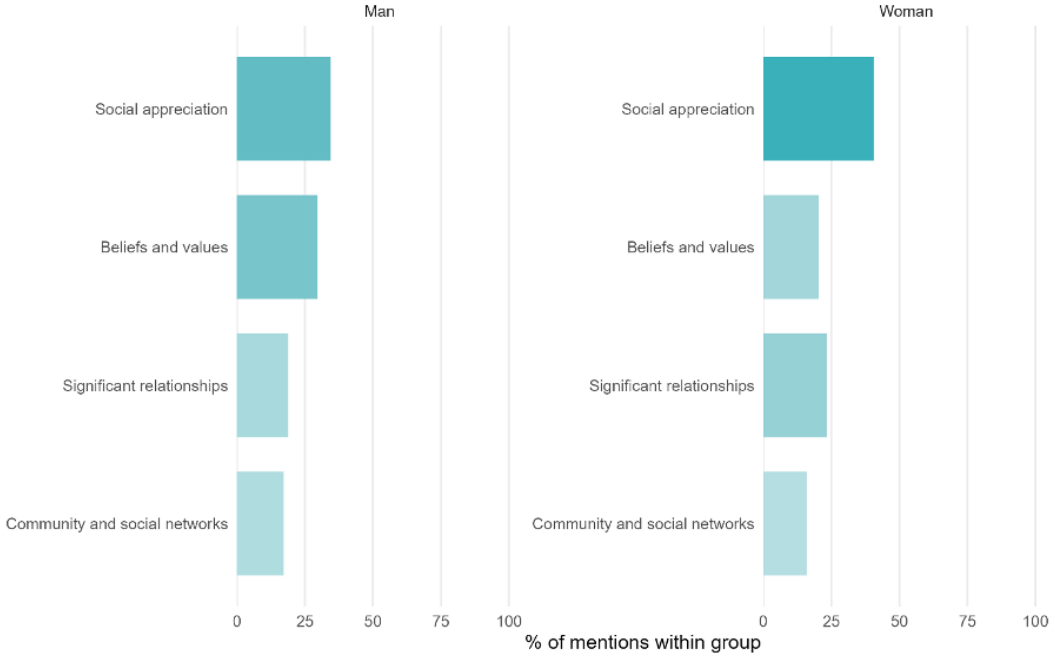

Figure A10. Hindrances for the digital transition: social dynamics by gender

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Structural conditions

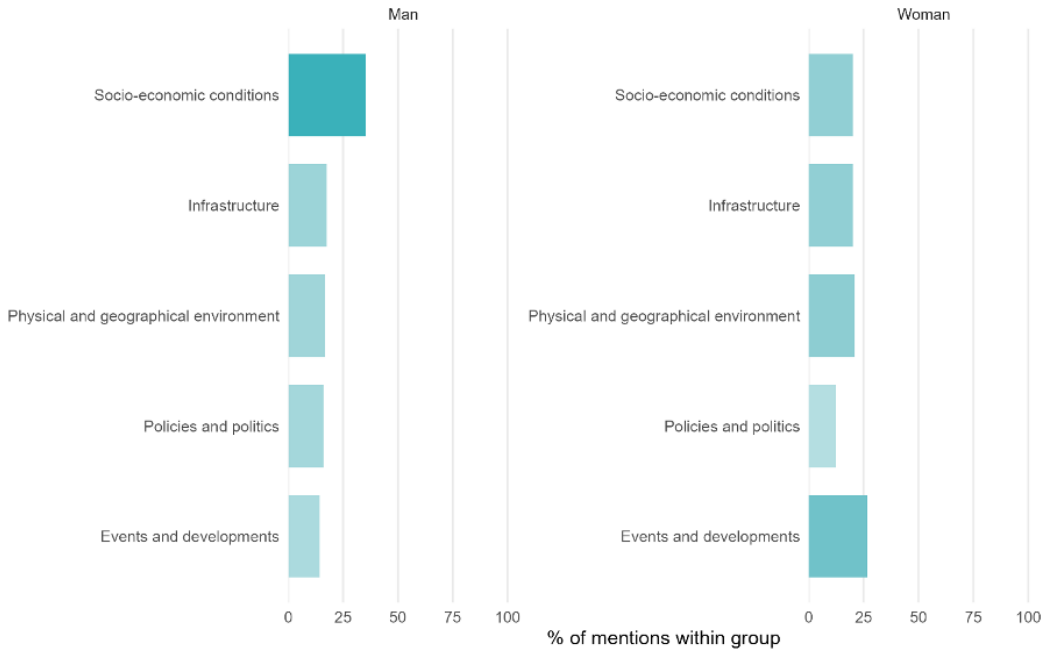

Figure 11. Enablers for the digital transition: structural conditions by gender

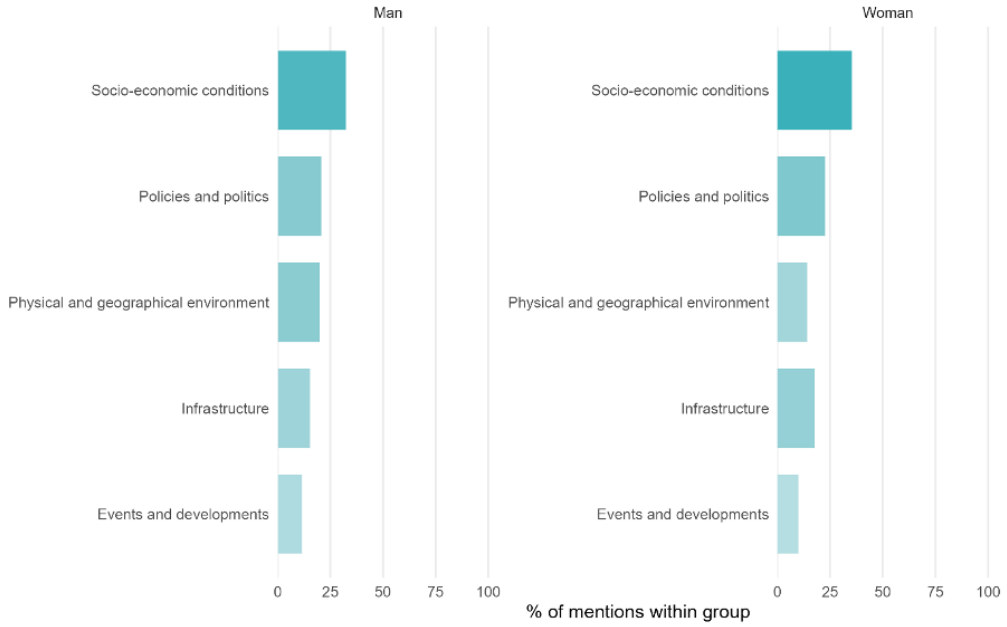

Figure A12. Hindrances for the digital transition: structural conditions by gender identity

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Age and the green transition

Individual resources

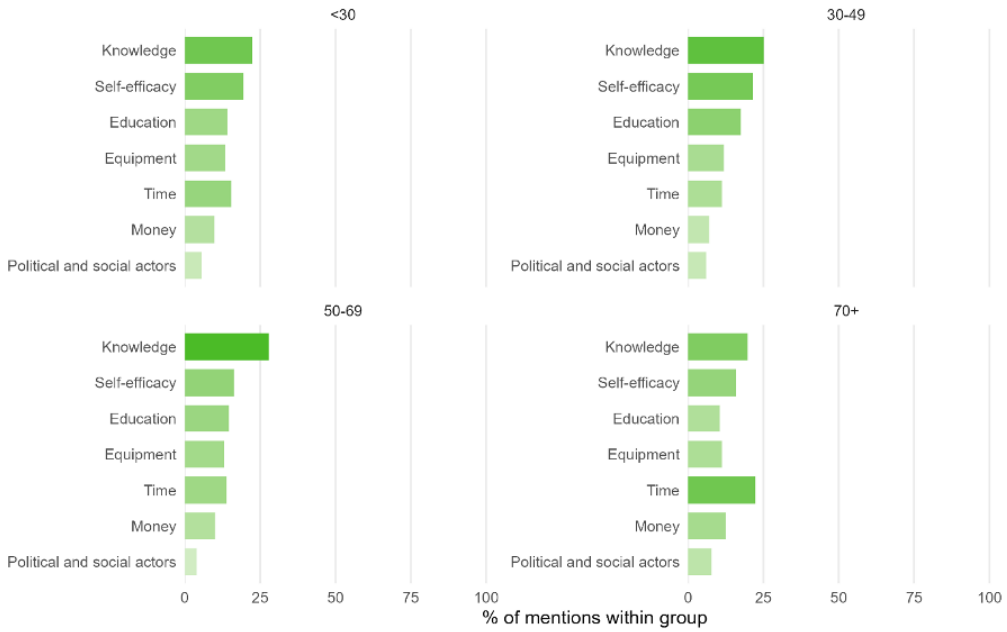

Figure A13. Enablers for the green transition: resources by age

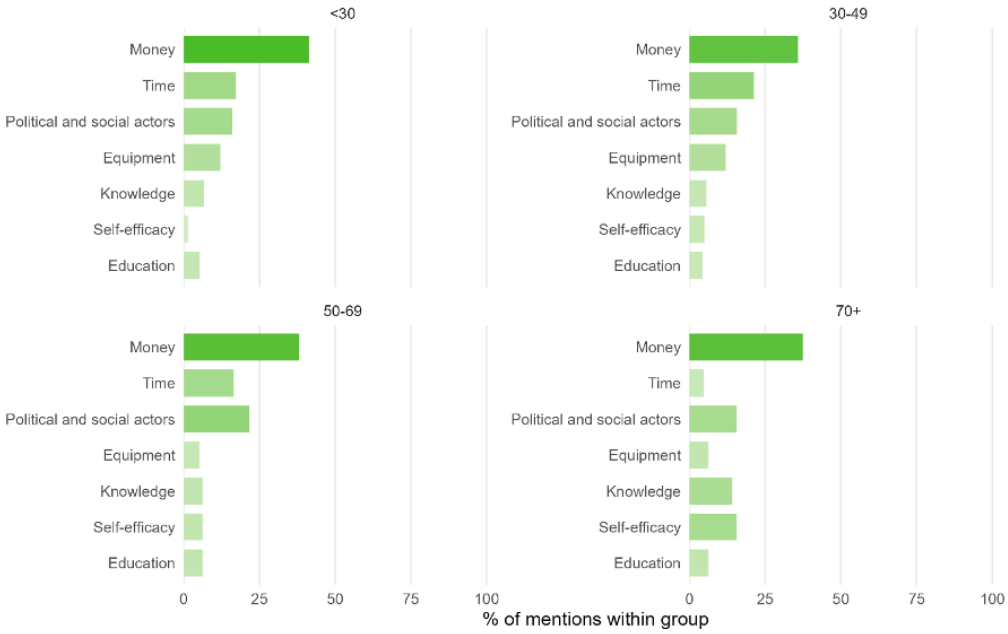

Figure A14. Hindrances for the green transition: resources by age

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Social dynamics

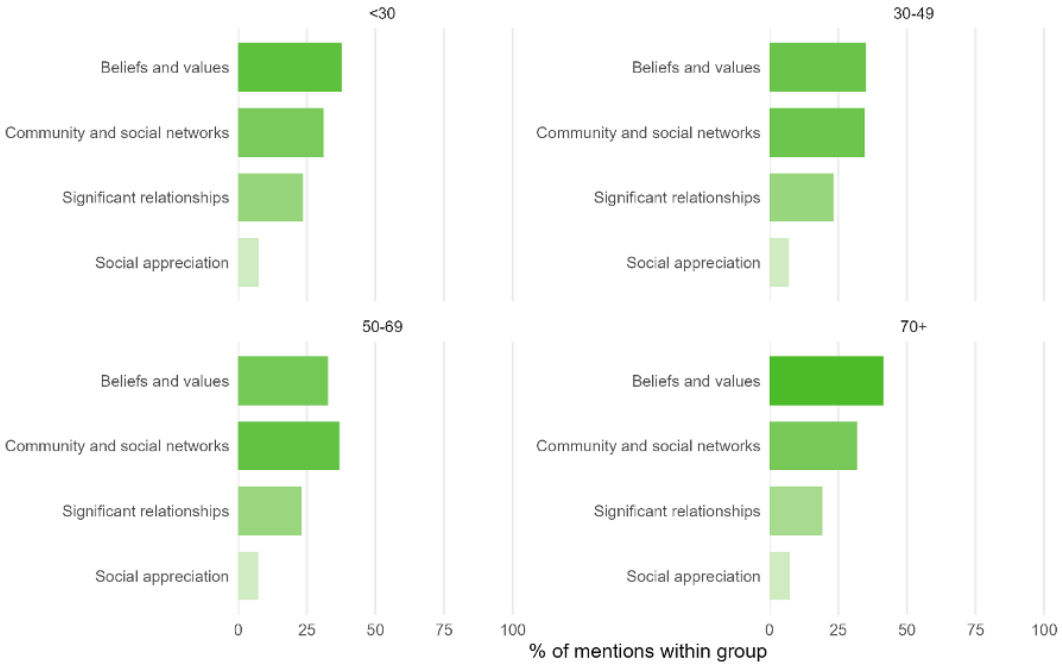

Figure A15. Enablers for the green transition: social dynamics by age

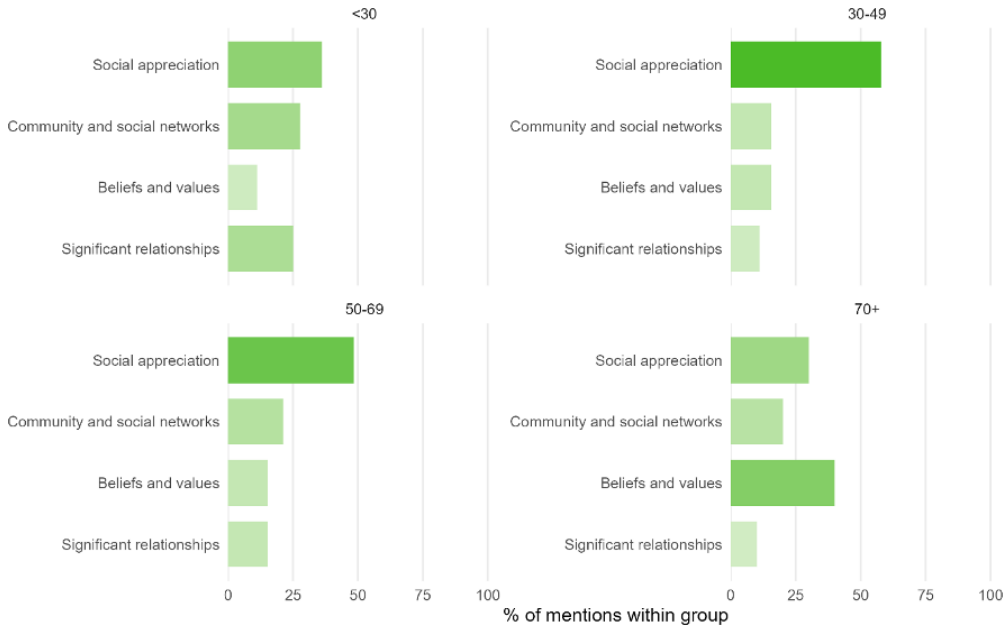

Figure A16. Hindrances for the green transition: social dynamics by age

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Structural conditions

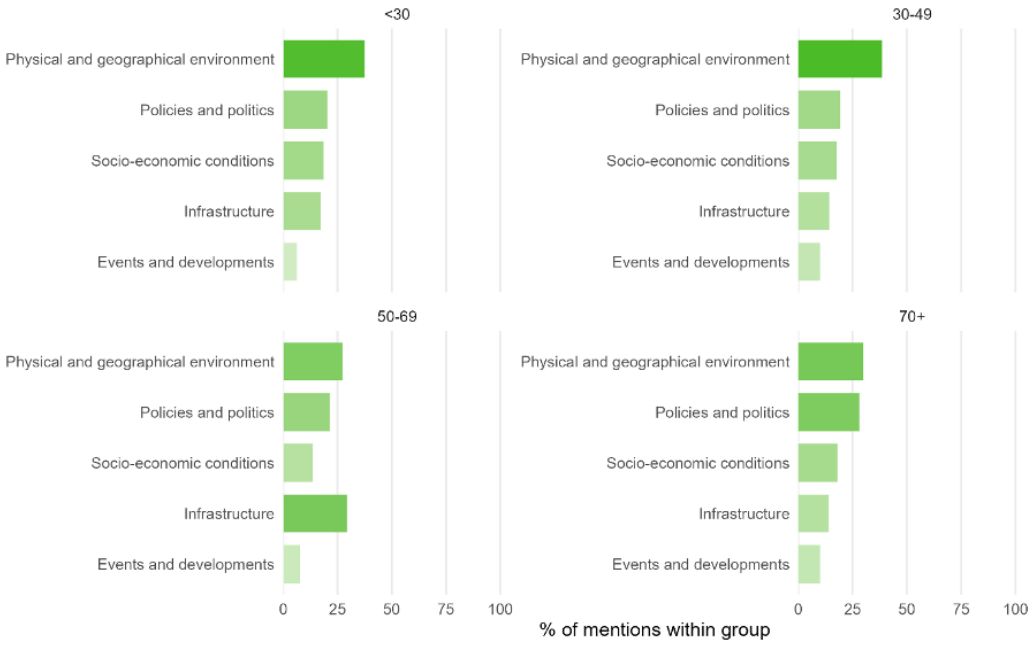

Figure A17. Enablers for the green transition: structural conditions by age

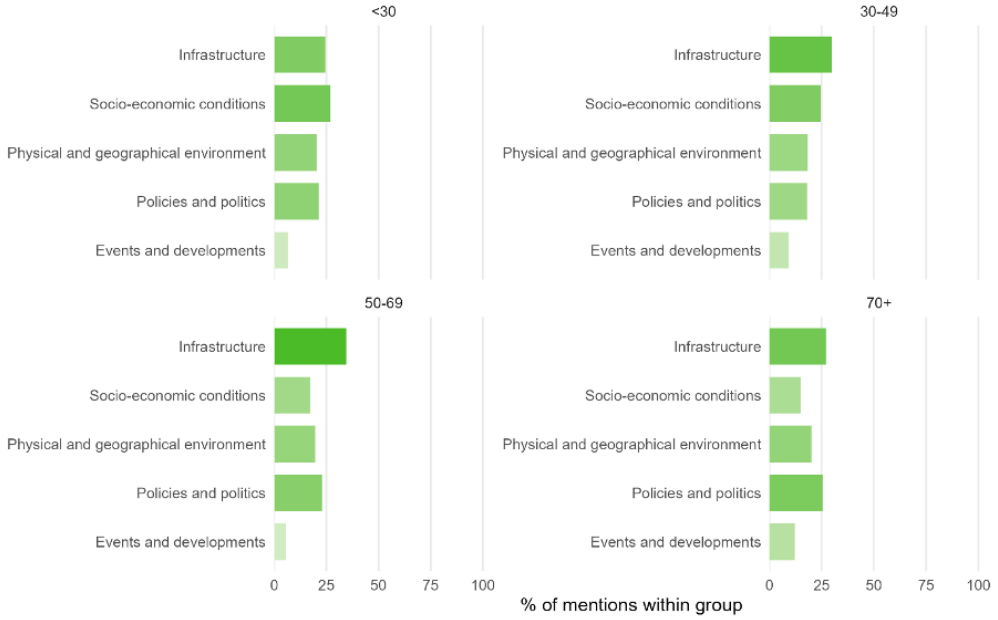

Figure A18. Hindrances for the green transition: structural conditions by age

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Age and the digital transition

Individual resources

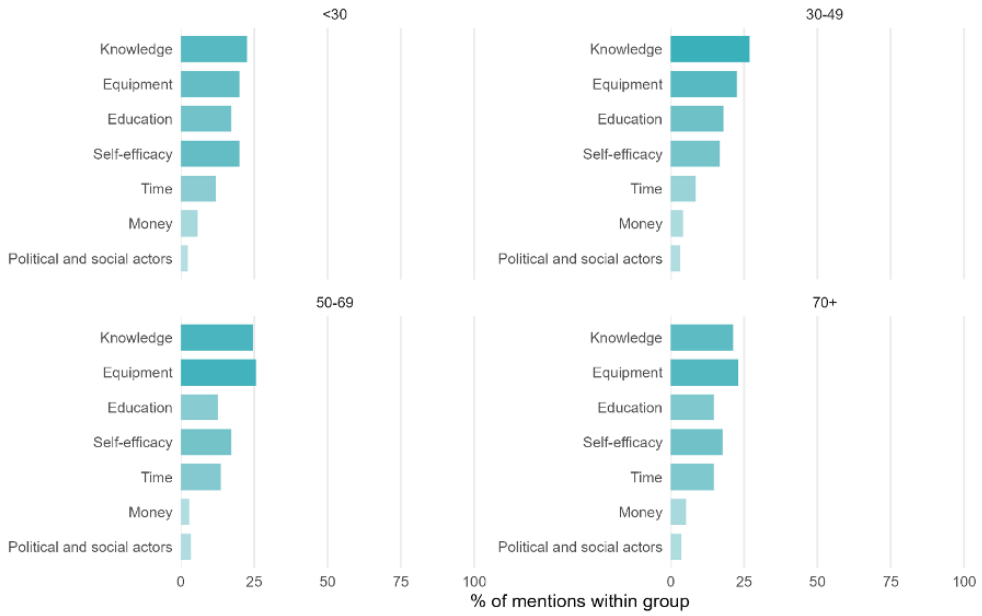

Figure A19. Enablers for the digital transition: resources by age

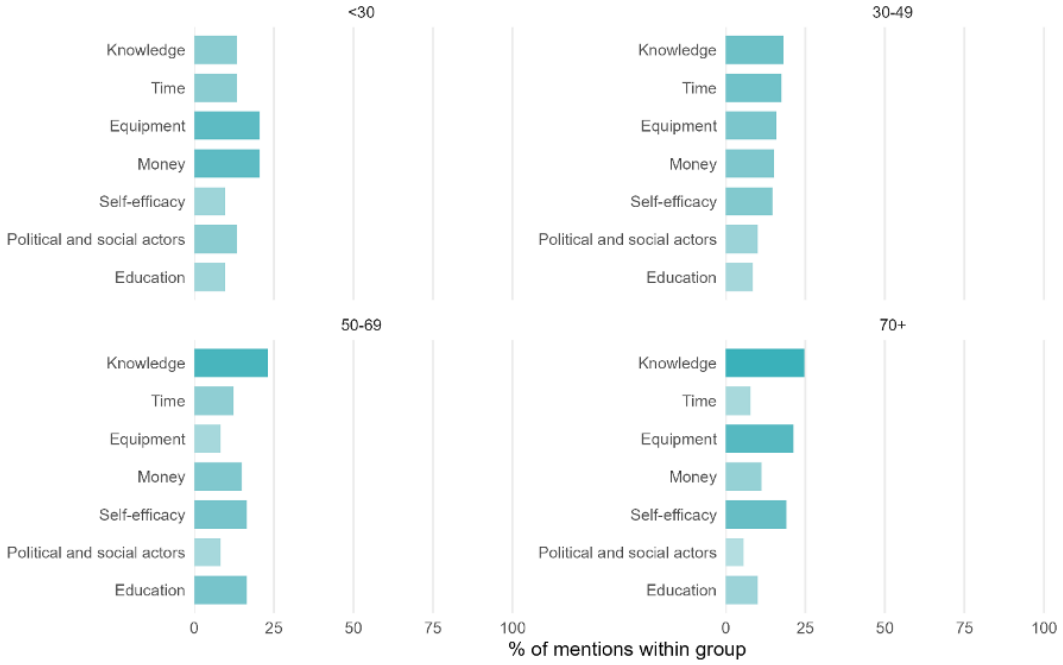

Figure A20. Hindrances for the digital transition: resources by age

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Social dynamics

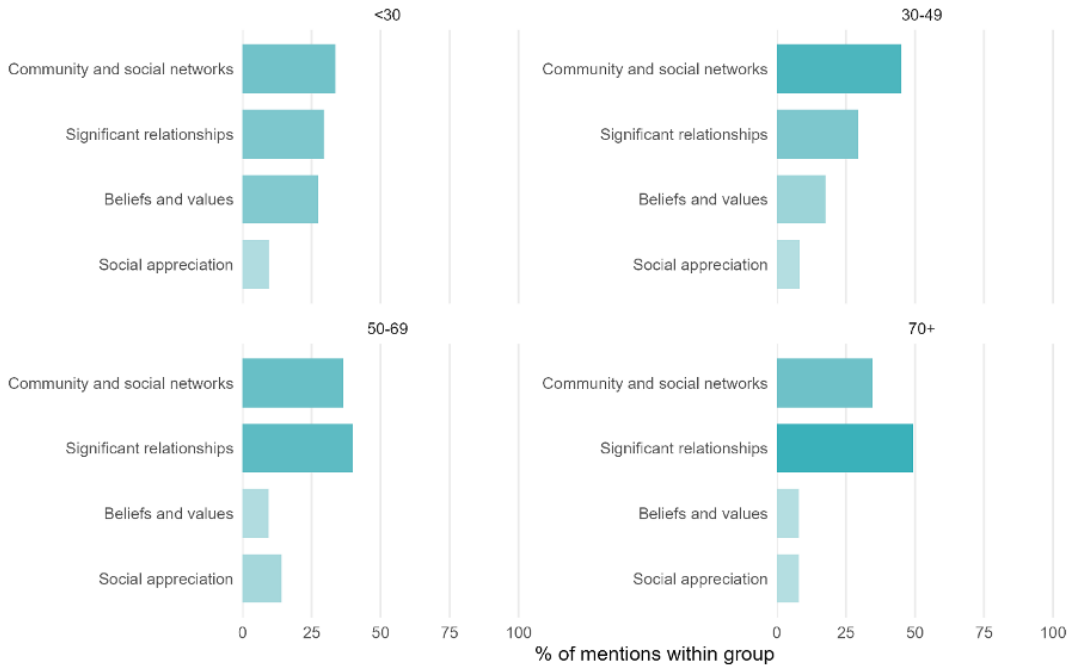

Figure A21.21 Enablers for the digital transition: social dynamics by age

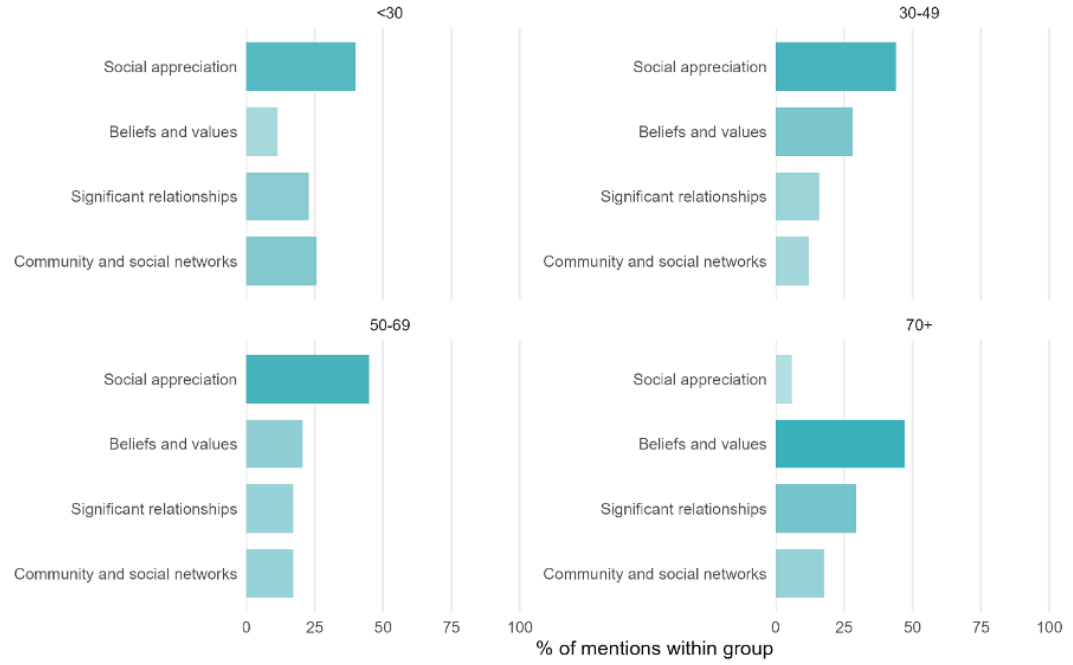

Figure A22. Hindrances for the digital transition: social dynamics by age

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Structural conditions

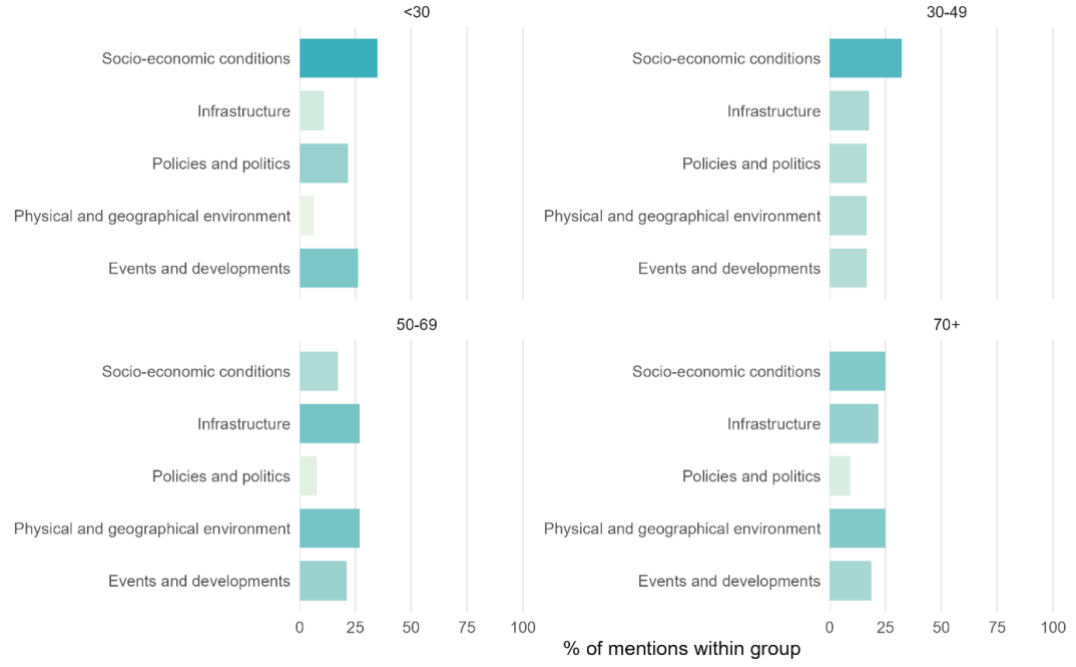

Figure A23.23 Enablers for the digital transition: structural conditions by age

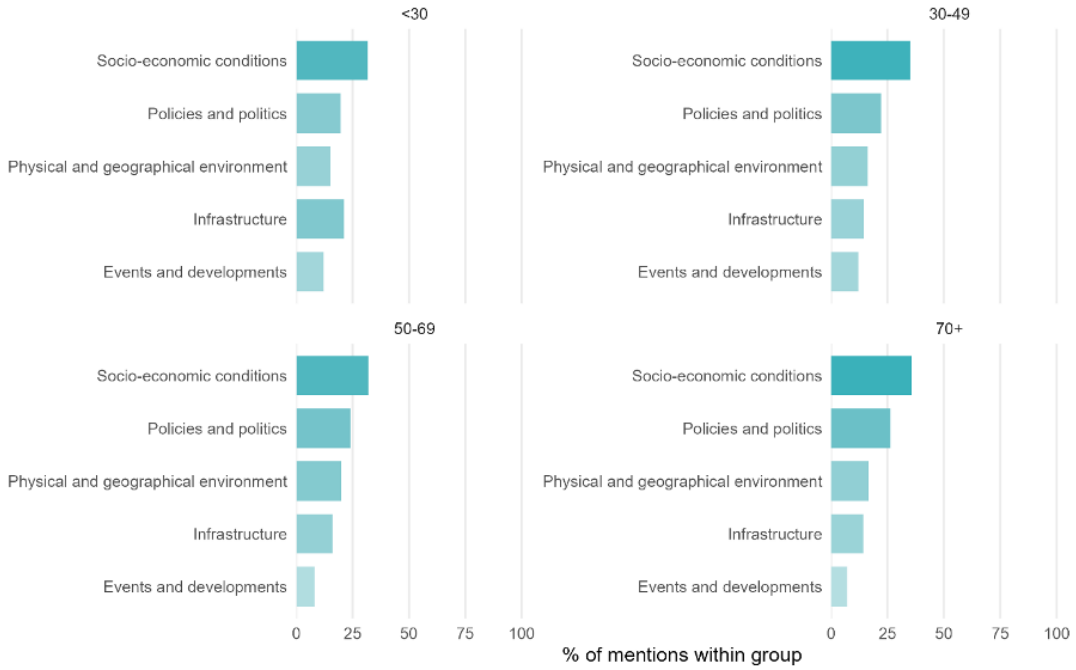

Figure A24. Hindrances for the digital transition: structural conditions by age

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Migration and the green transition

Individual resources

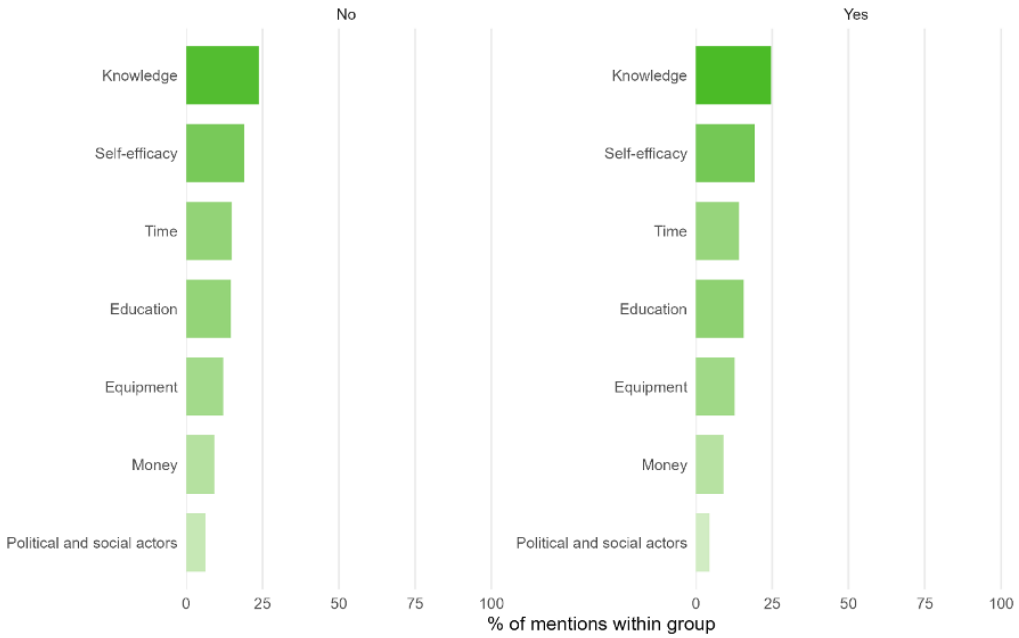

Figure A25.25 Enablers for the green transition: resources by migration

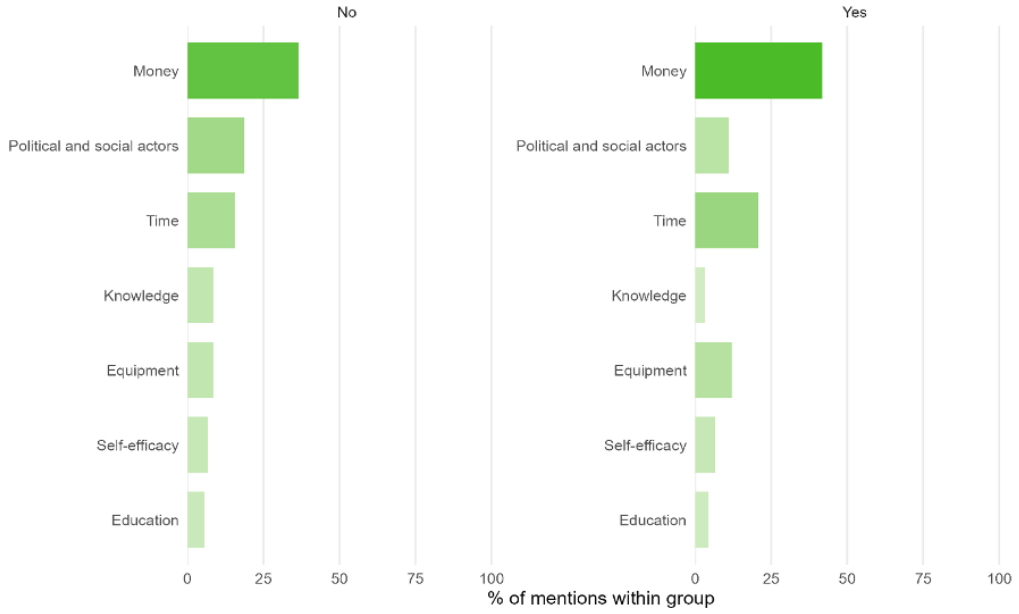

Figure A26. Hindrances for the green transition: resources by migration

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Social dynamics

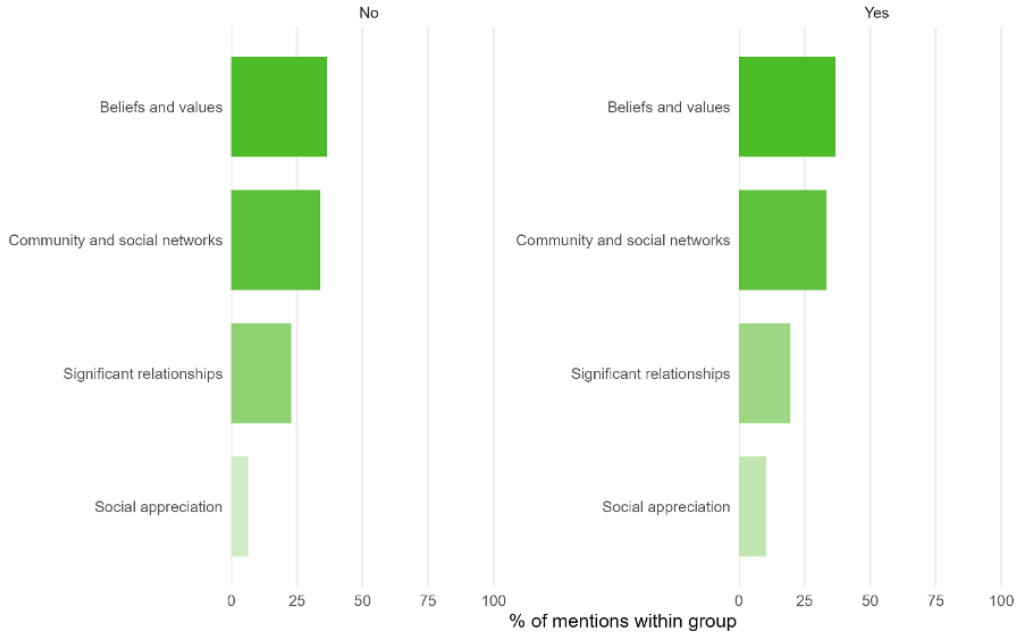

Figure A27.27 Enablers for the green transition: social dynamics by migration

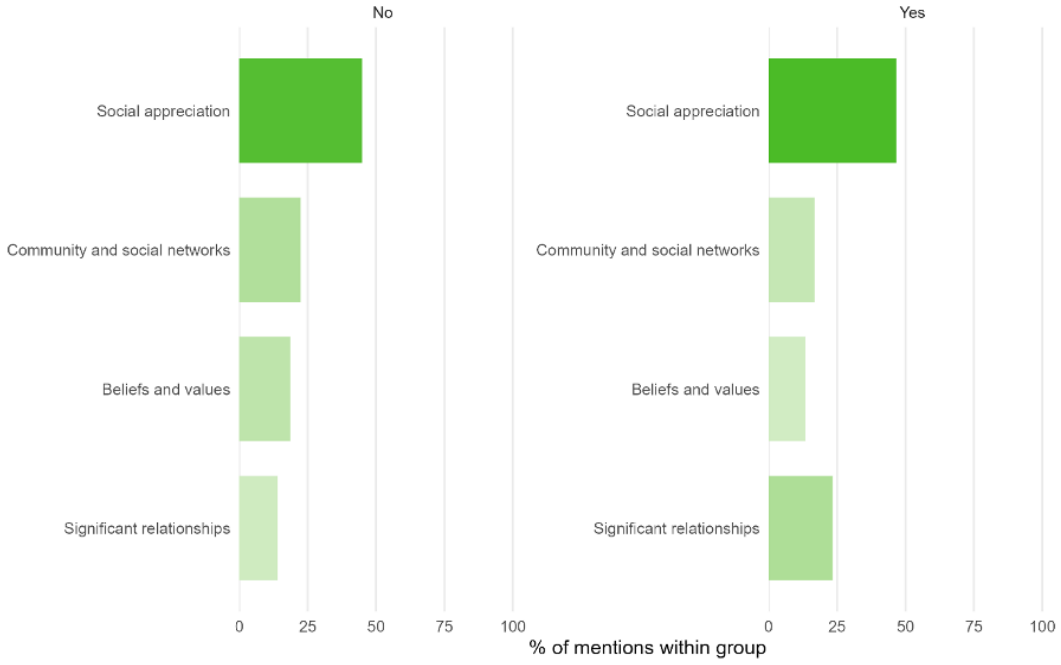

Figure A28. Hindrances for the green transition: social dynamics by migration

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Structural conditions

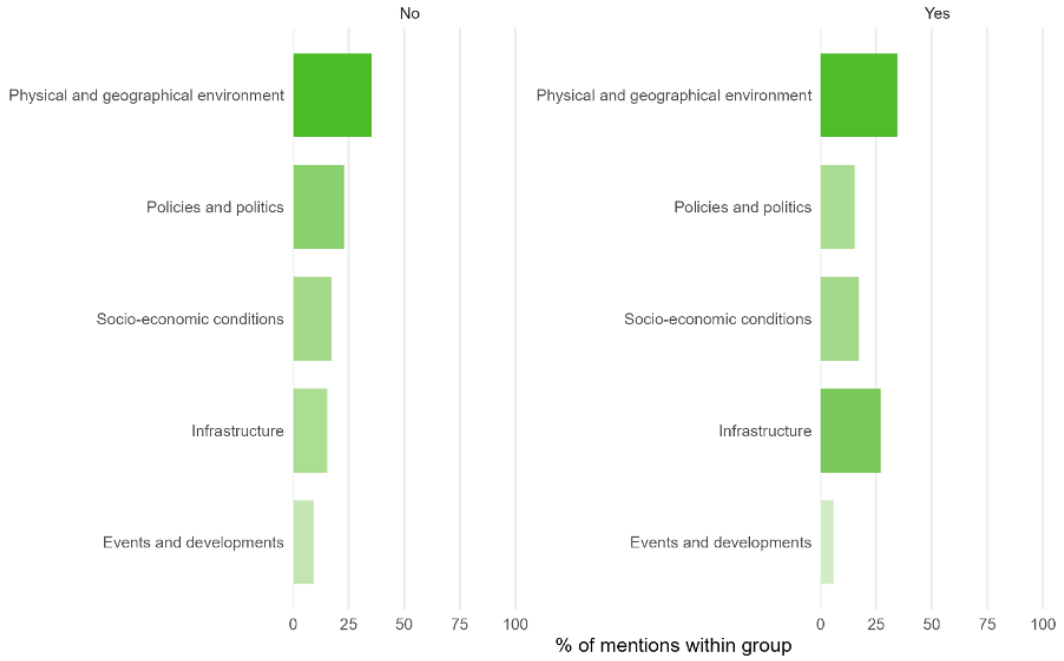

Figure A29.29 Enablers for the green transition: structural conditions by migration

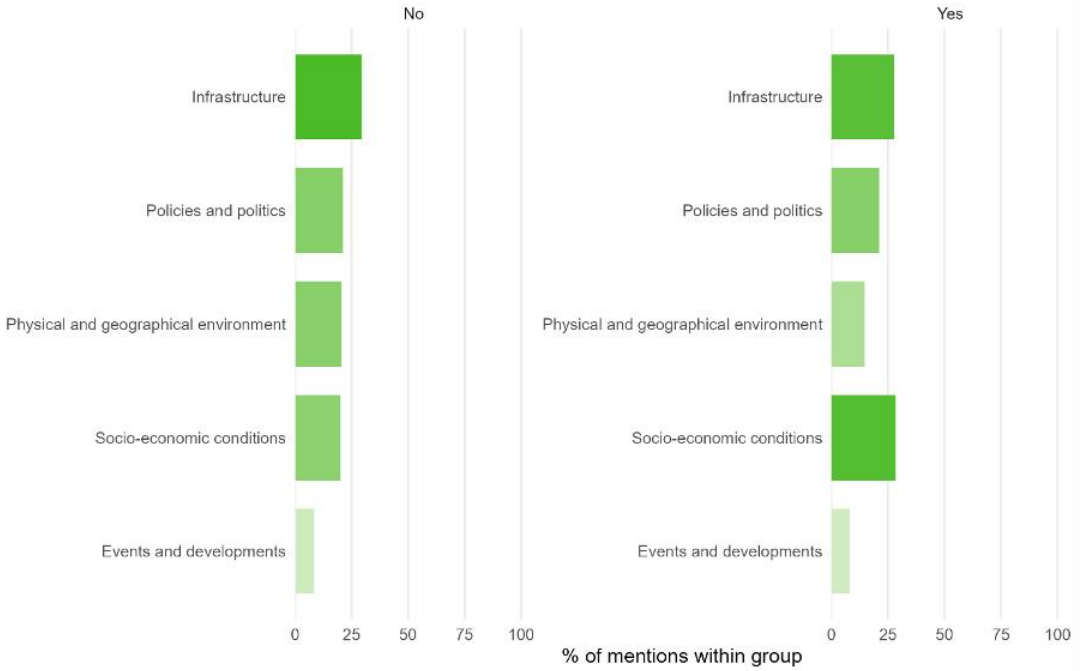

Figure A30. Hindrances for the green transition: structural conditions by migration

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Migration and the digital transition

Individual resources

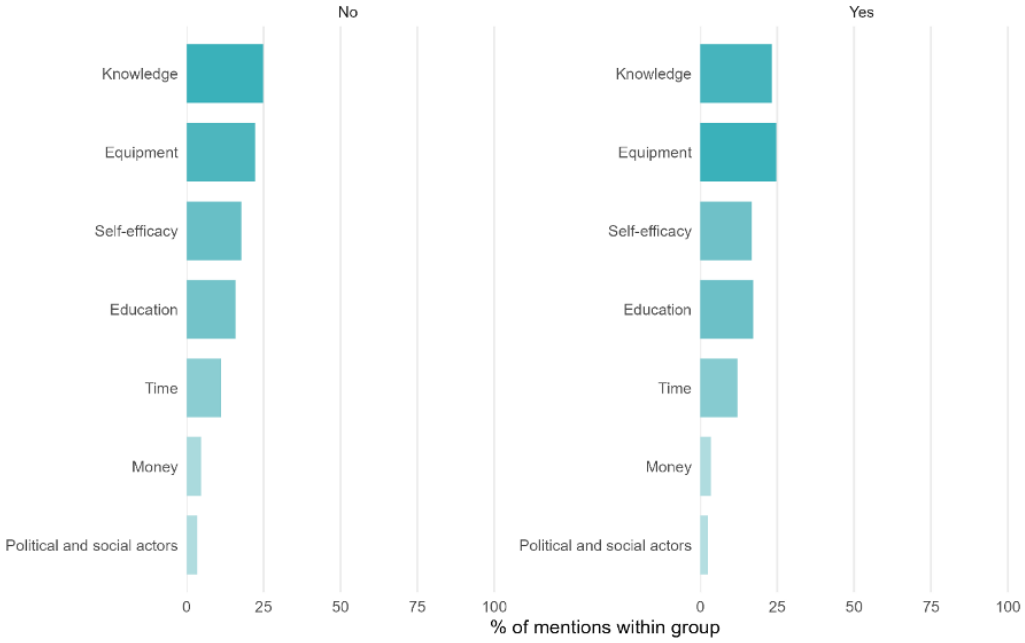

Figure A31.31 Enablers for the digital transition: resources by migration

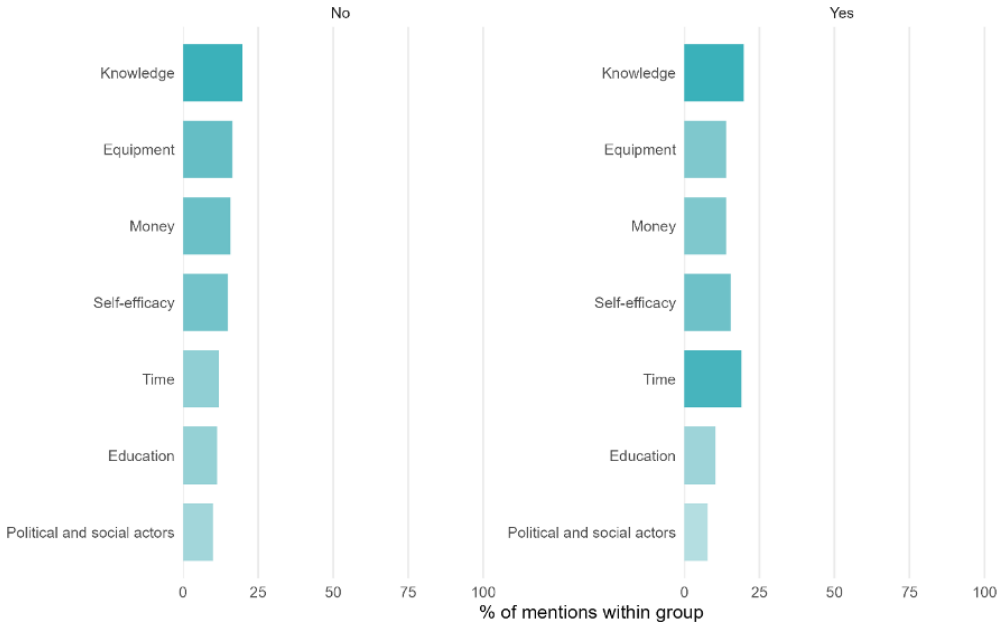

Figure A32. Hindrances for the digital transition: resources by migration

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Social dynamics

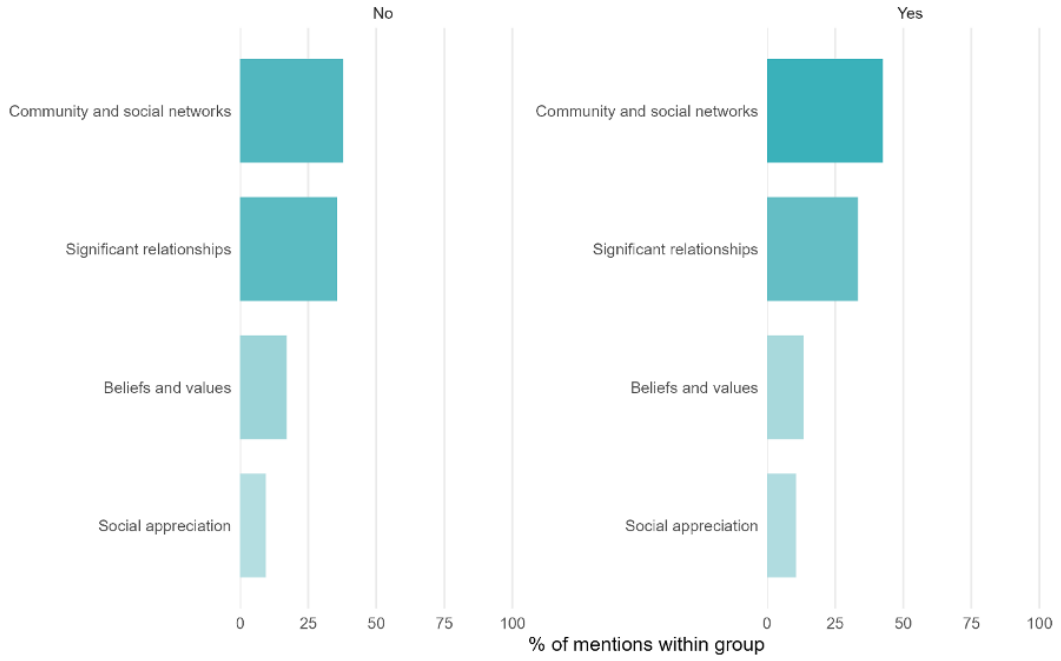

Figure A33.33 Enablers for the digital transition: social dynamics by migration

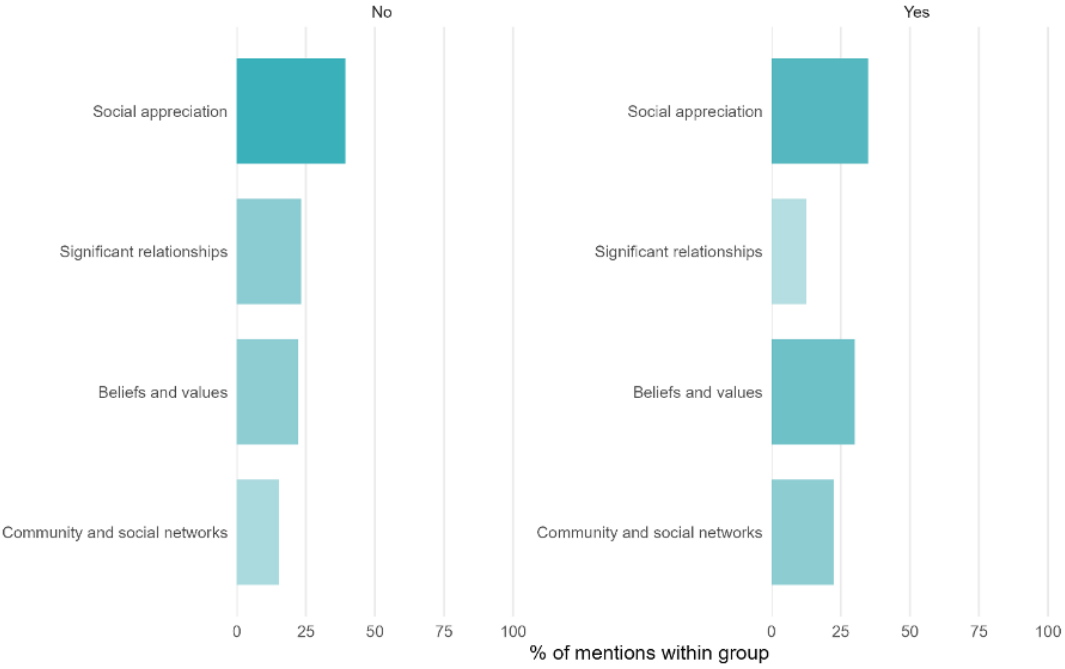

Figure A34. Hindrances for the digital transition: social dynamics by migration

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Structural conditions

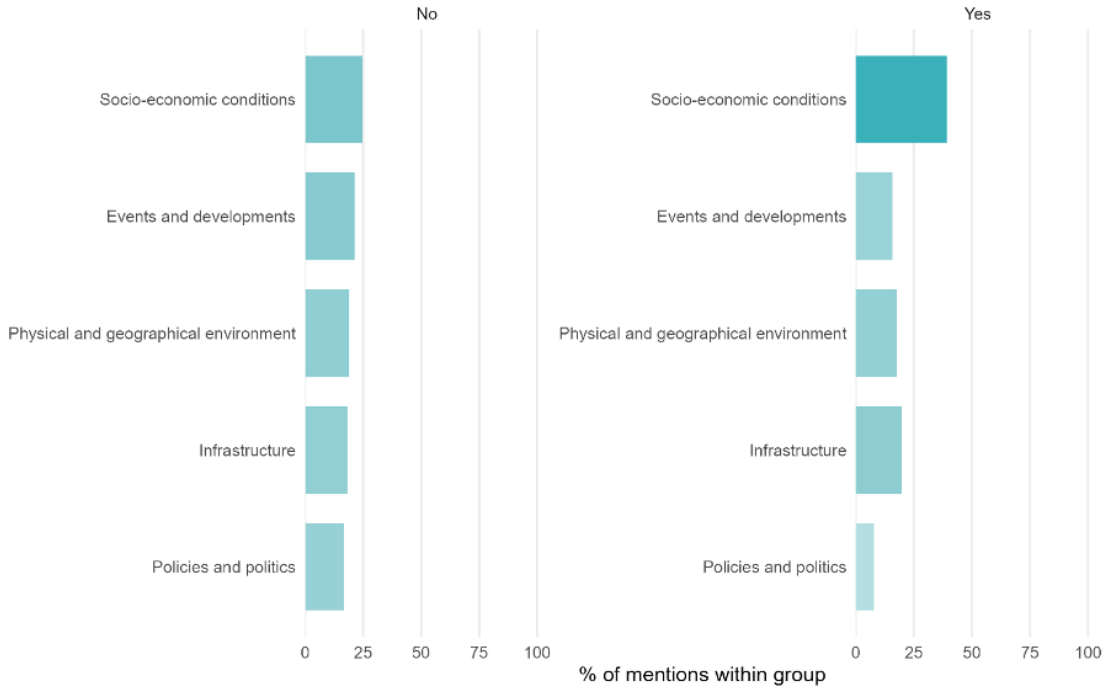

Figure A35.35 Enablers for the digital transition: structural conditions by migration

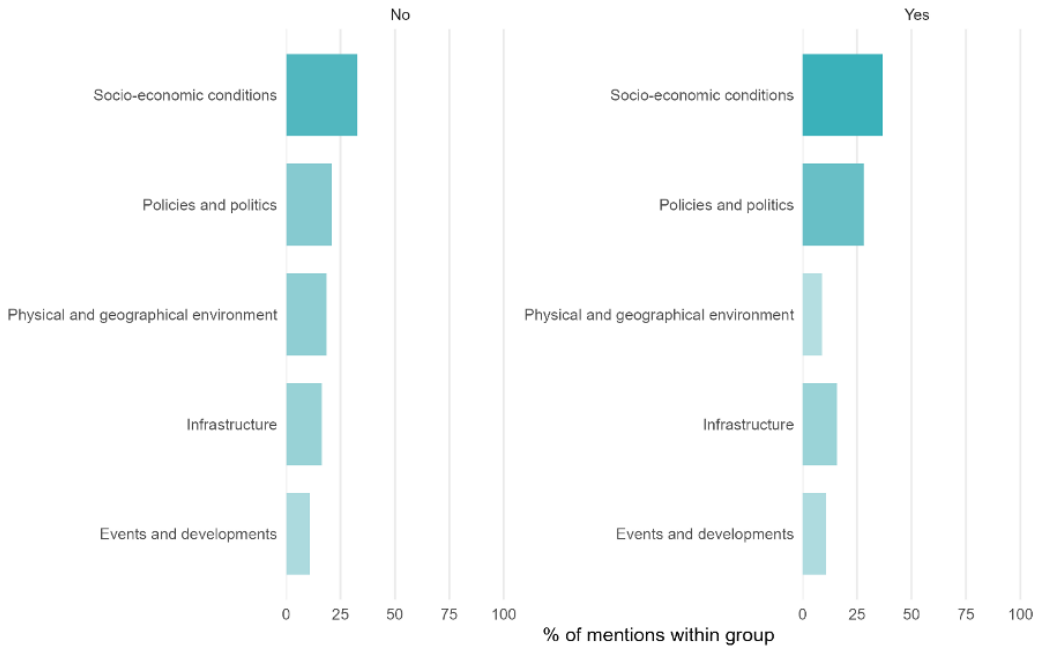

Figure A36. Hindrances for the digital transition: structural conditions by migration

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Disability and the green transition

Individual resources

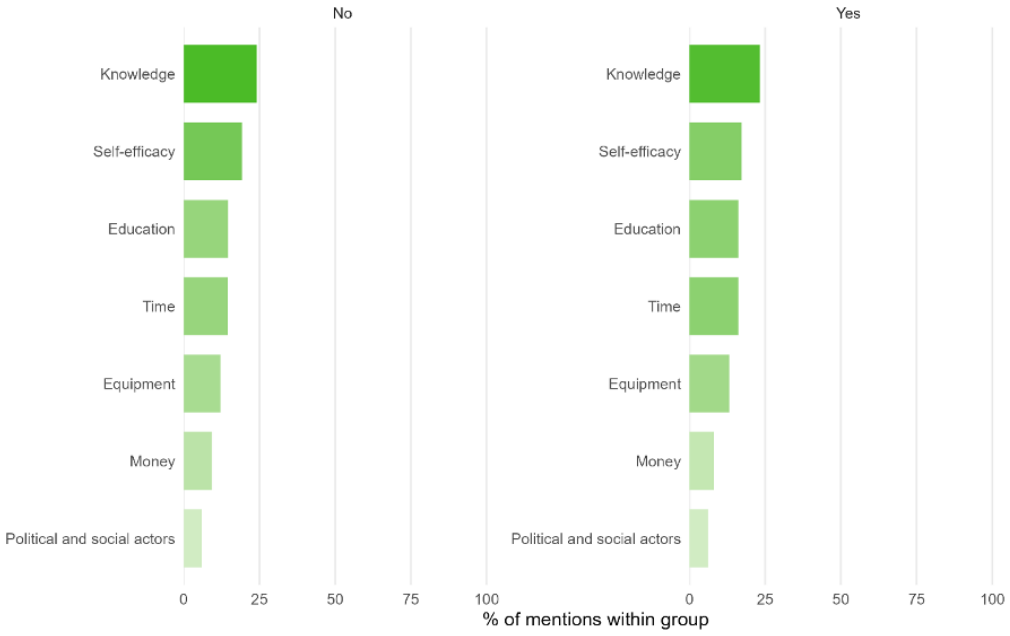

Figure A37.37 Enablers for the green transition: resources by disability

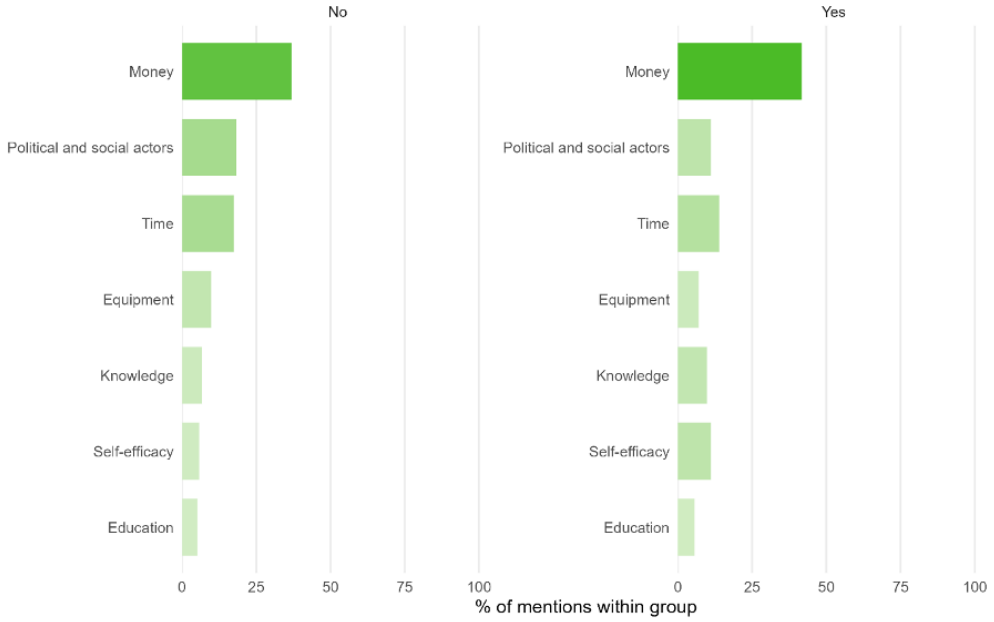

Figure A38. Hindrances for the green transition: resources by disability

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Social dynamics

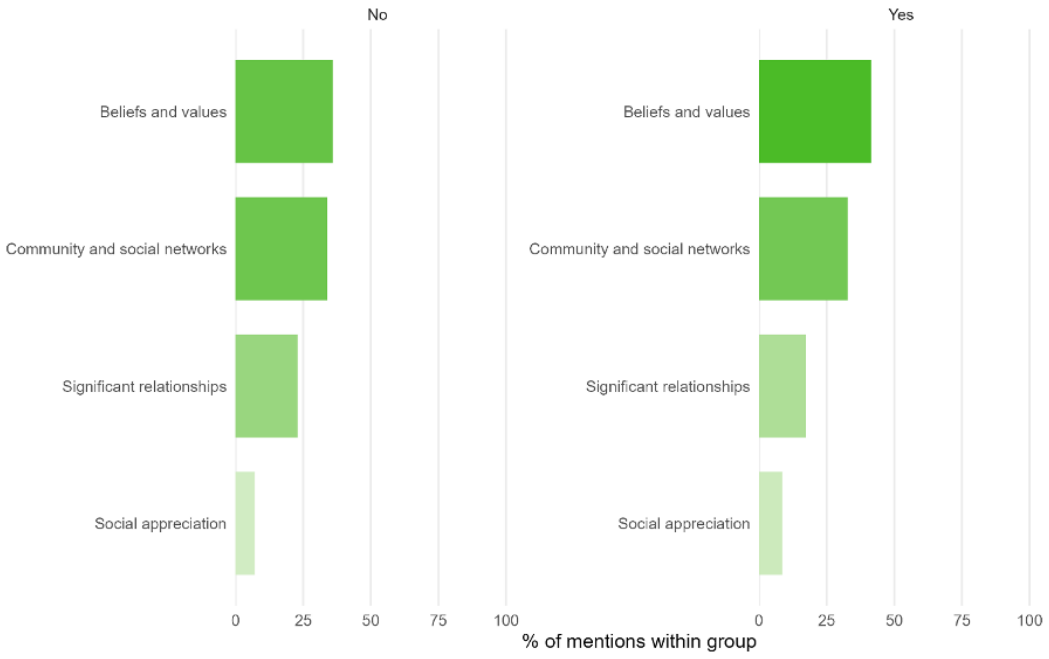

Figure A39.39 Enablers for the green transition: social dynamics by disability

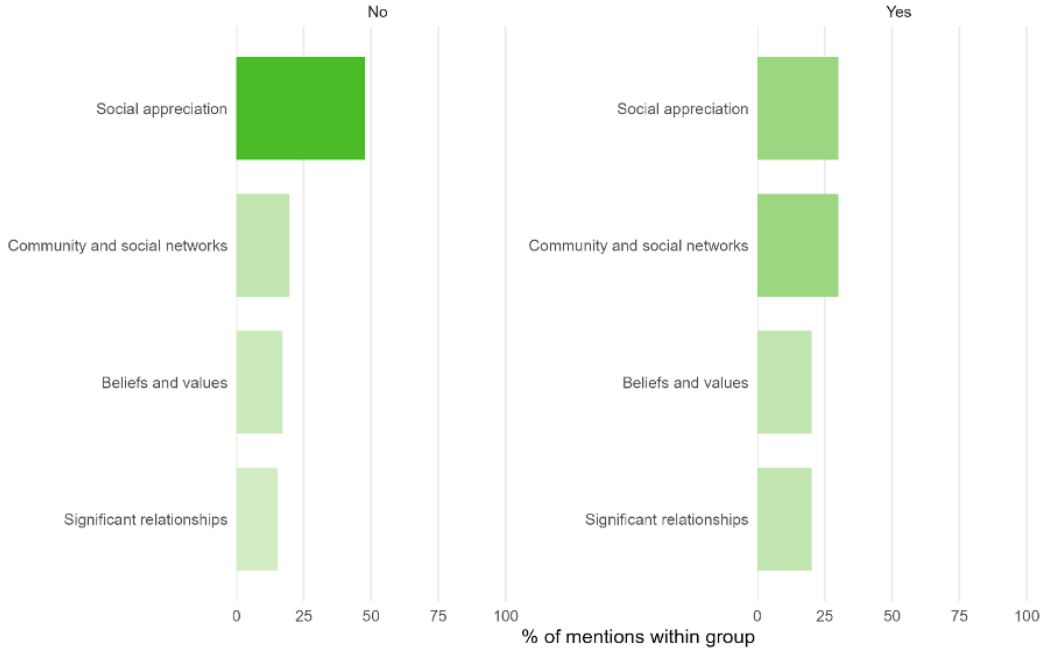

Figure A40. Hindrances for the green transition: social dynamics by disability

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Structural conditions

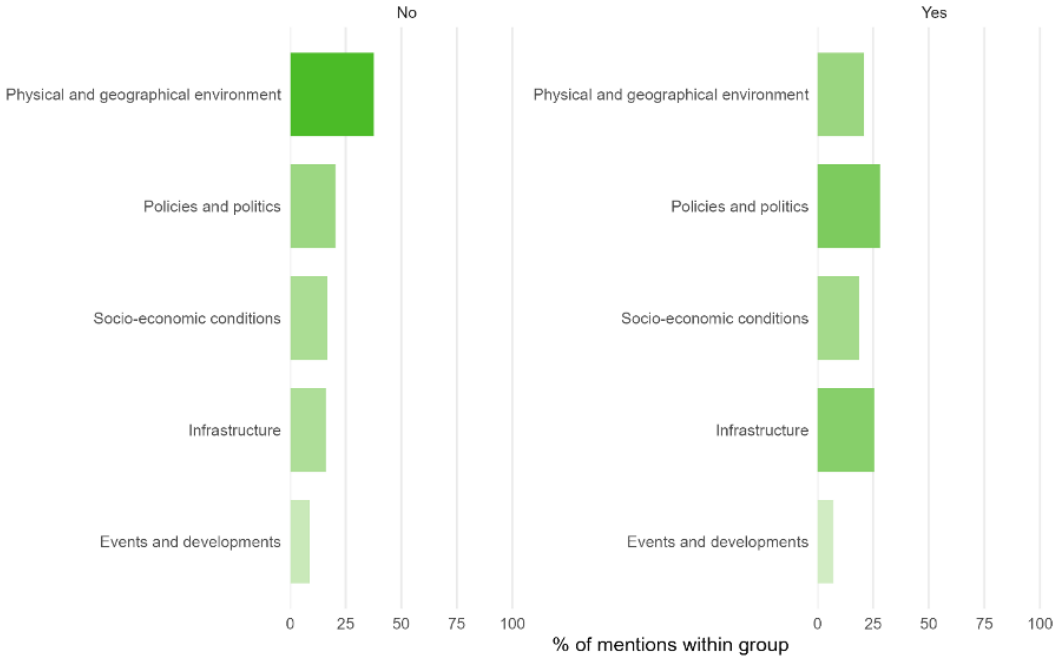

Figure A41.41 Enablers for the green transition: structural conditions by disability

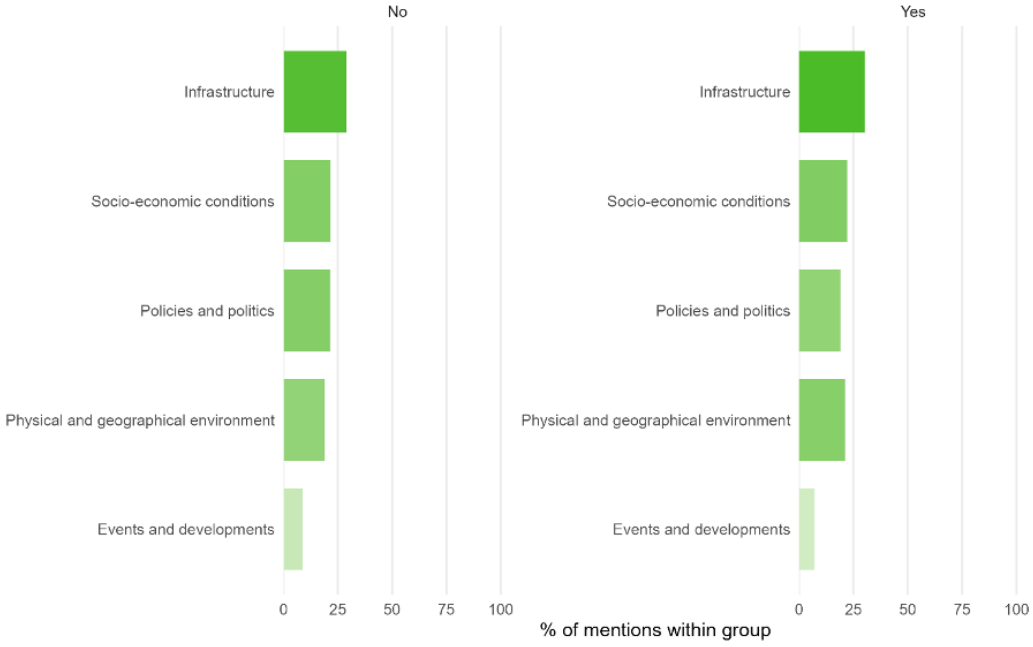

Figure A42. Hindrances for the green transition: structural conditions by disability

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Disability and the digital transition

Individual resources

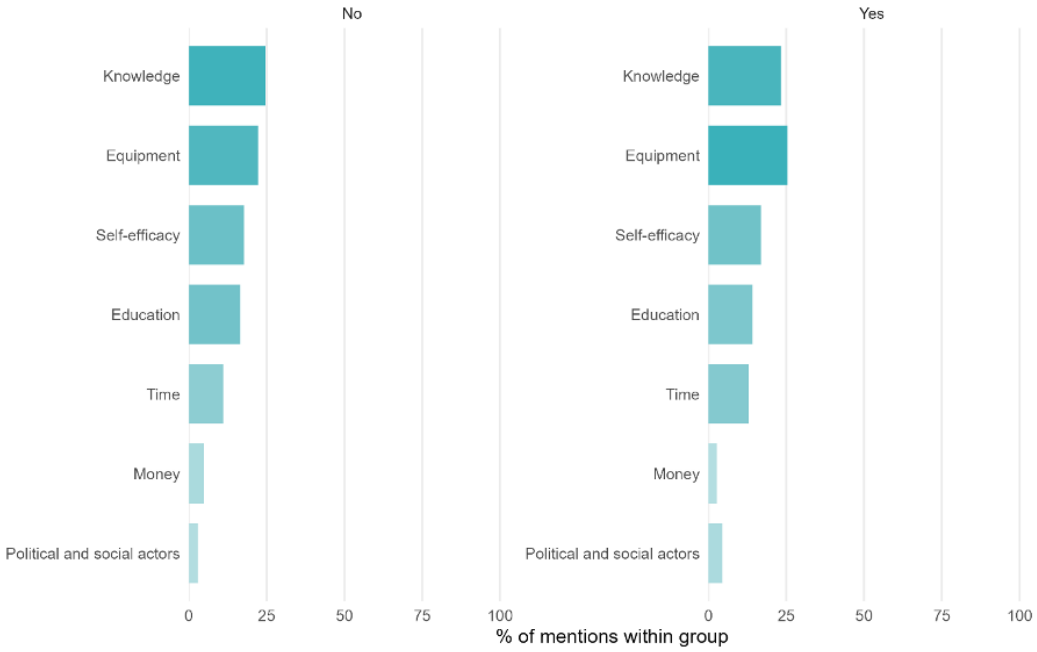

Figure A43.43 Enablers for the digital transition: resources by disability

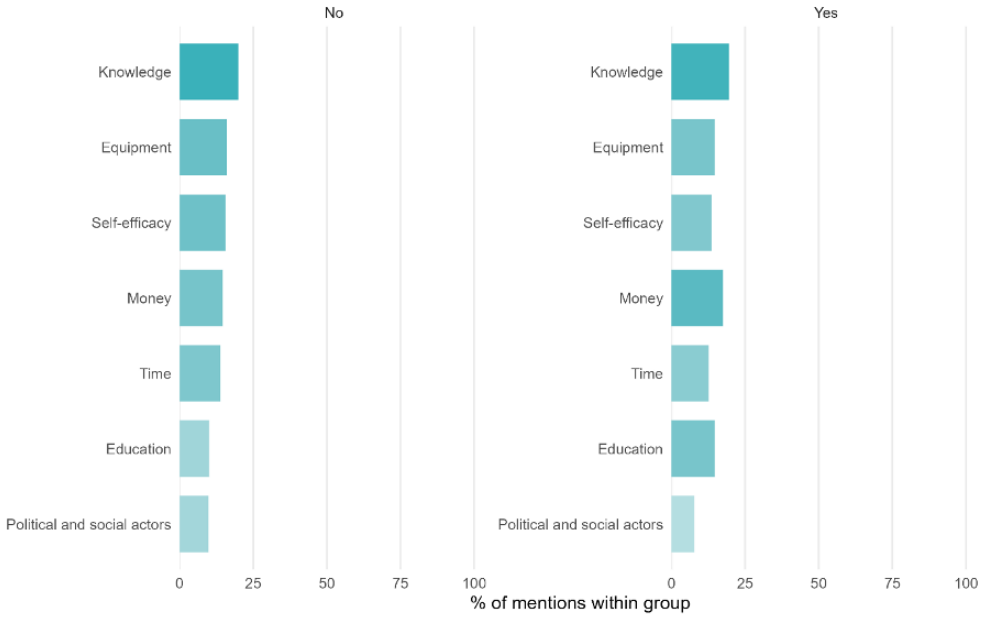

Figure A44. Hindrances for the digital transition: resources by disability

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Social dynamics

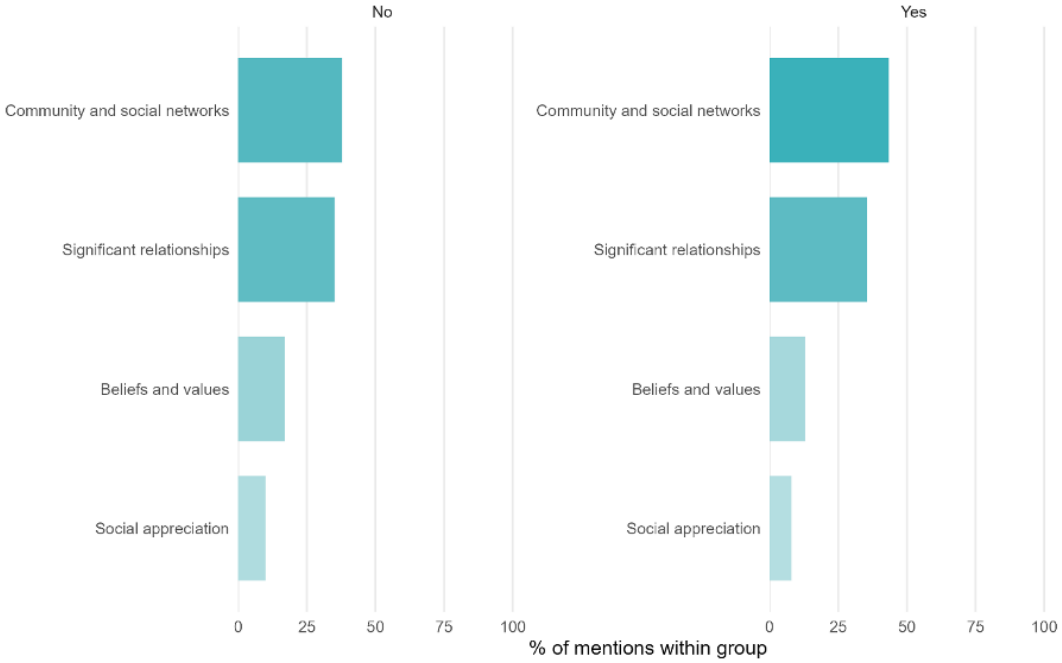

Figure A45.45 Enablers for the digital transition: social dynamics by disability

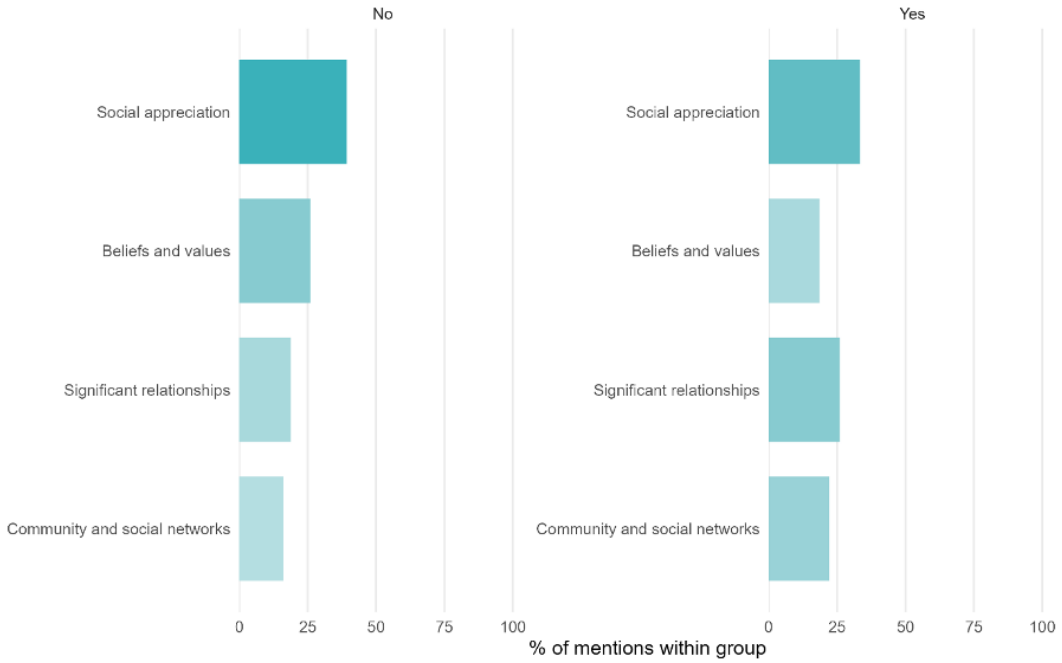

Figure A46. Hindrances for the digital transition: social dynamics by disability

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Structural conditions

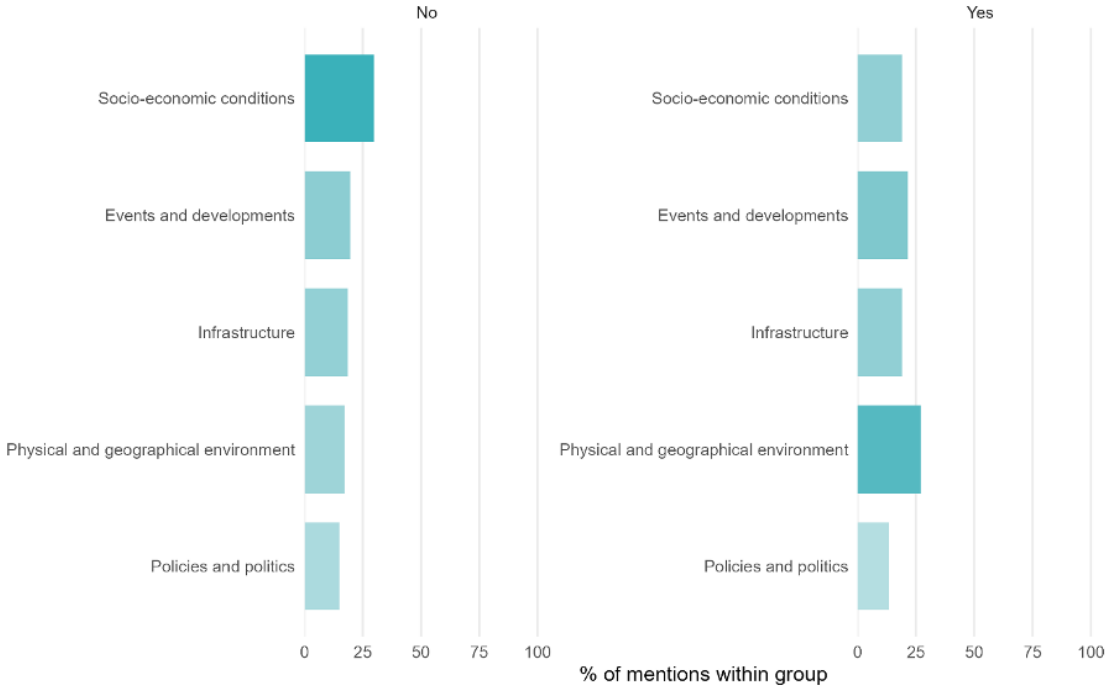

Figure A47.47 Enablers for the digital transition: structural conditions by disability

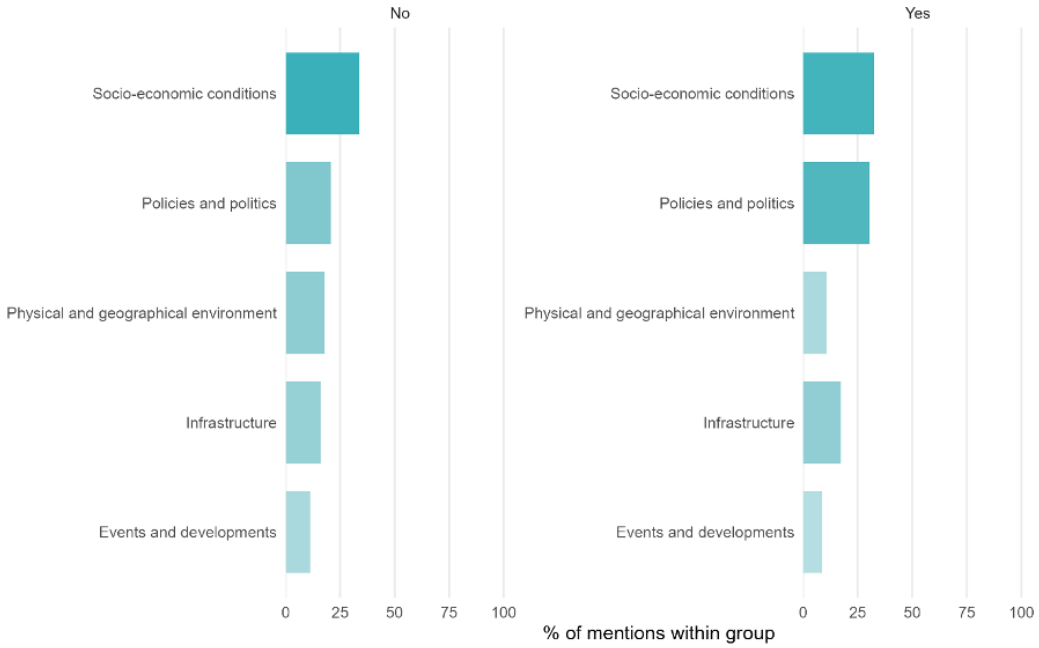

Figure A48. Hindrances for the digital transition: structural conditions by disability

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Geography and the green transition

Individual resources

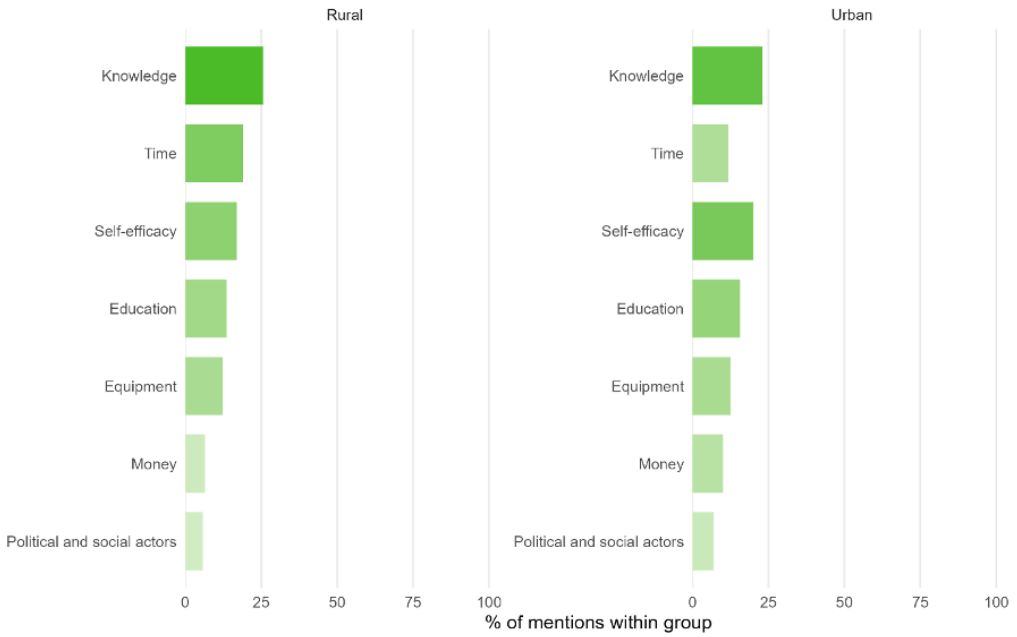

Figure A49.49 Enablers for the green transition: resources by geography

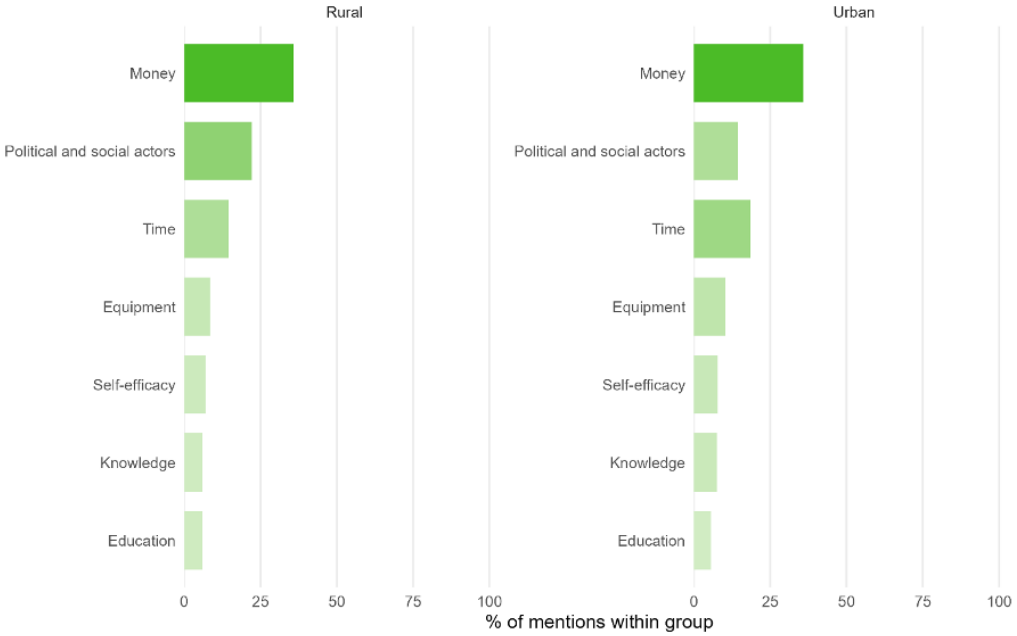

Figure A50. Hindrances for the green transition: resources by geography

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Social dynamics

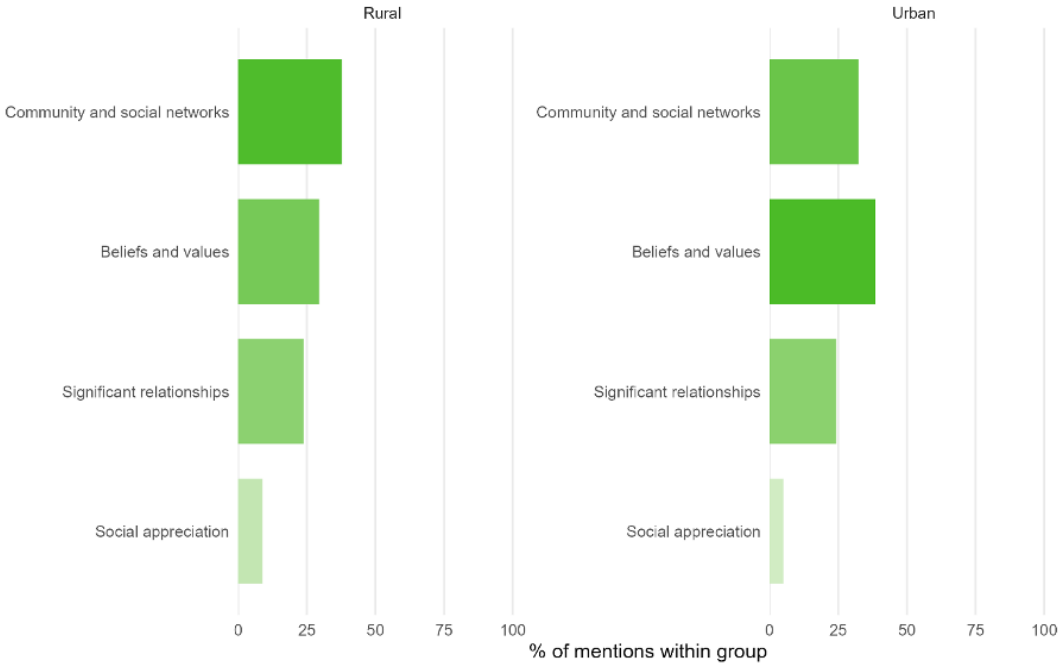

Figure A51.51 Enablers for the green transition: social dynamics by geography

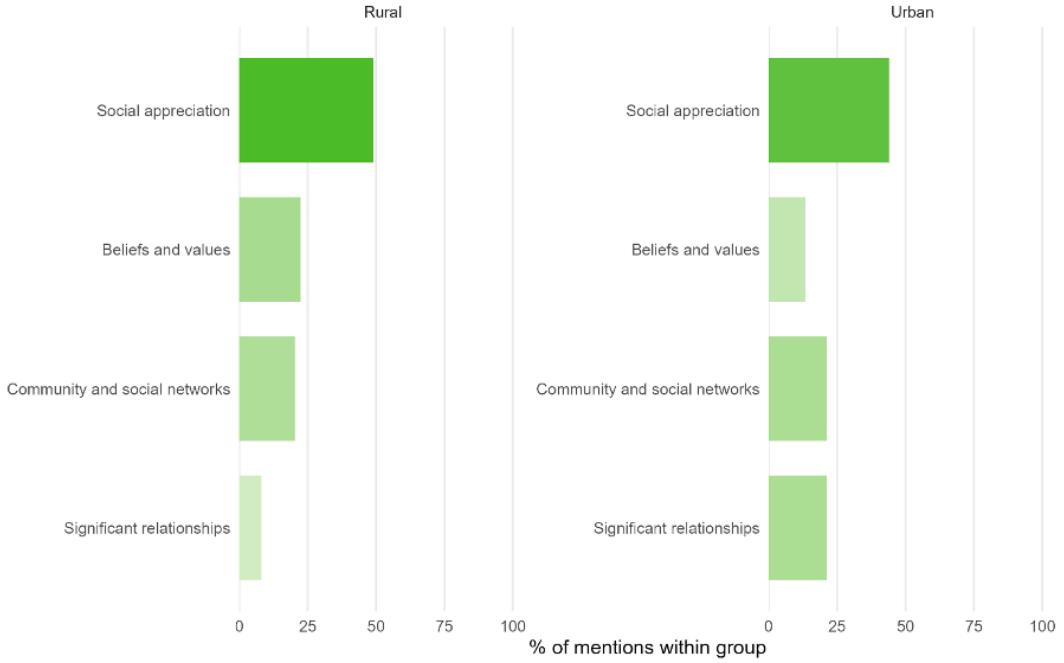

Figure A52. Hindrances for the green transition: social dynamics by geography

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Structural conditions

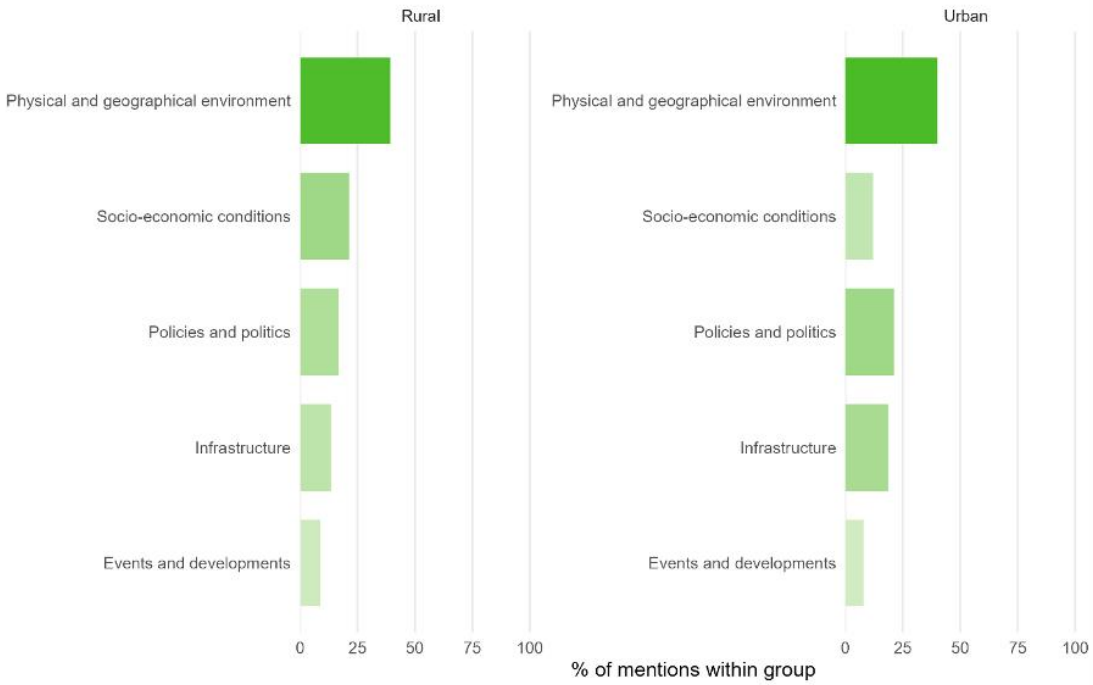

Figure A53.53 Enablers for the green transition: structural conditions by geography

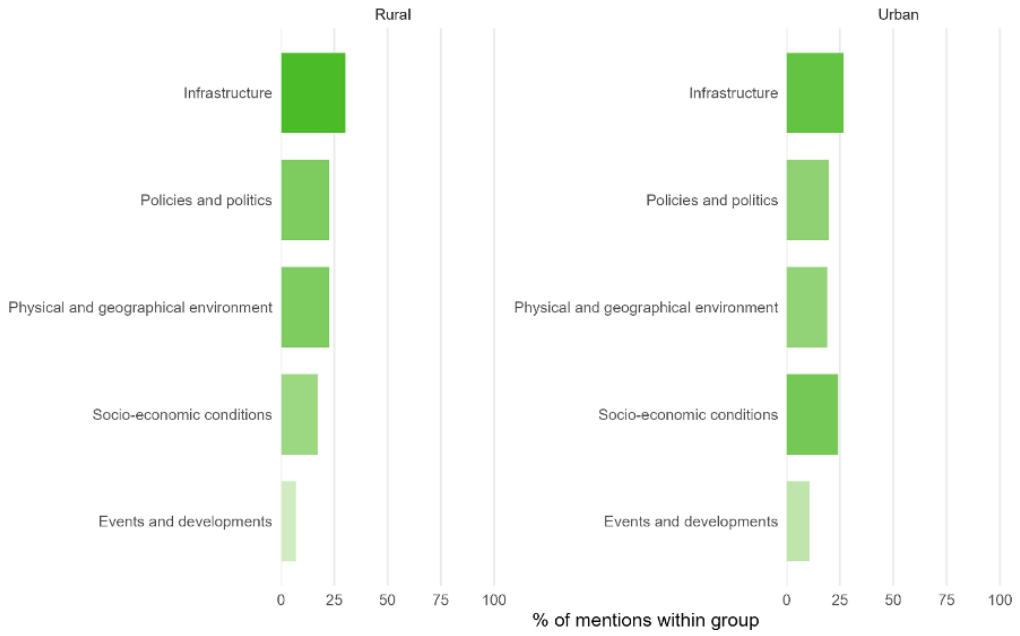

Figure A54. Hindrances for the green transition: structural conditions by geography

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Geography and the digital transition

Individual resources

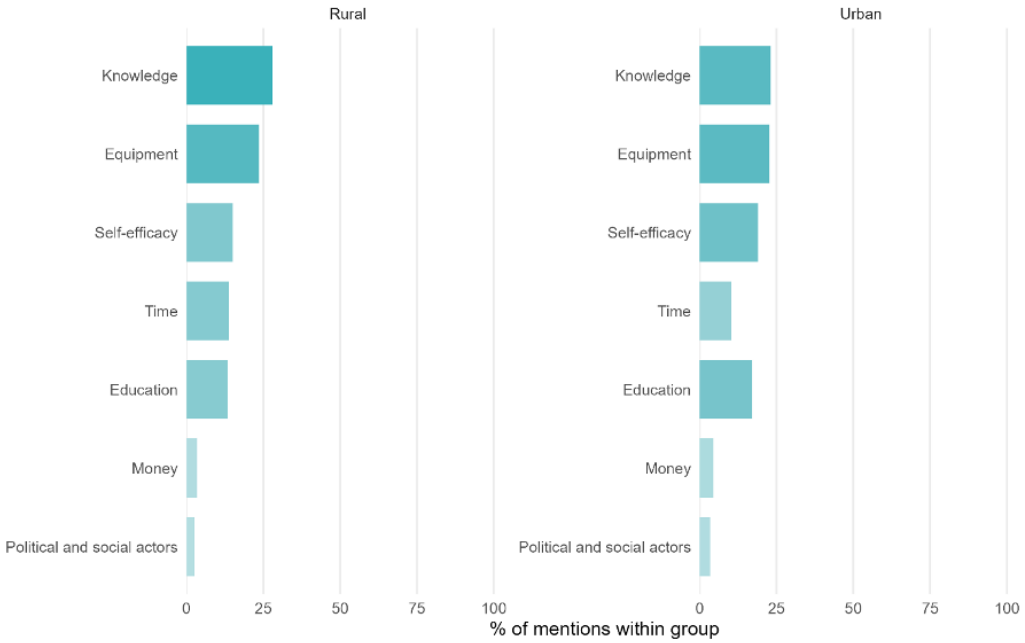

Figure A55.55 Enablers for the digital transition: resources by geography

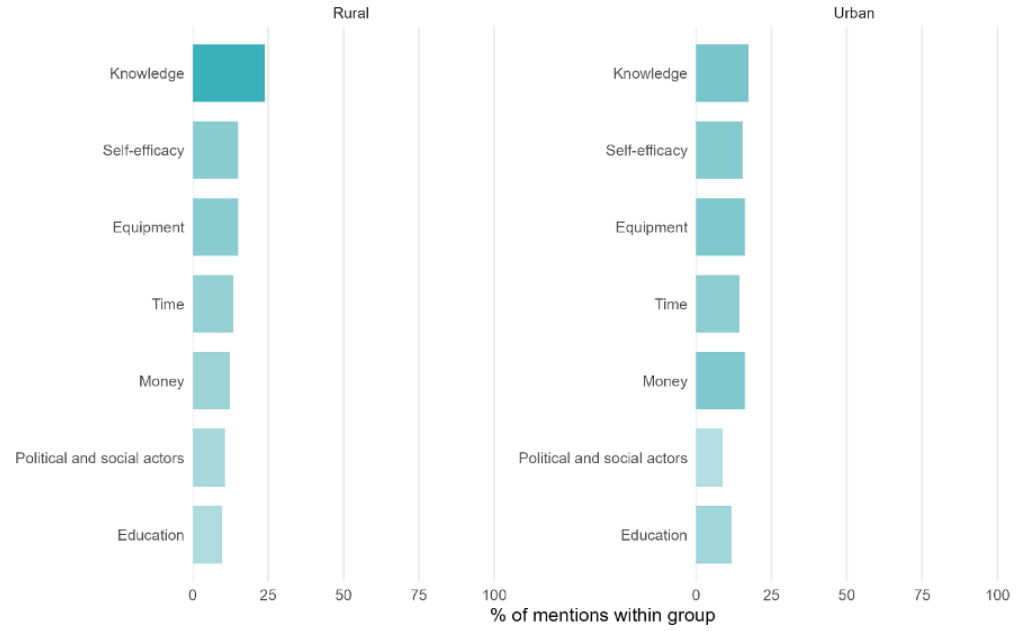

Figure A56. Hindrances for the digital transition: resources by geography

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Social dynamics

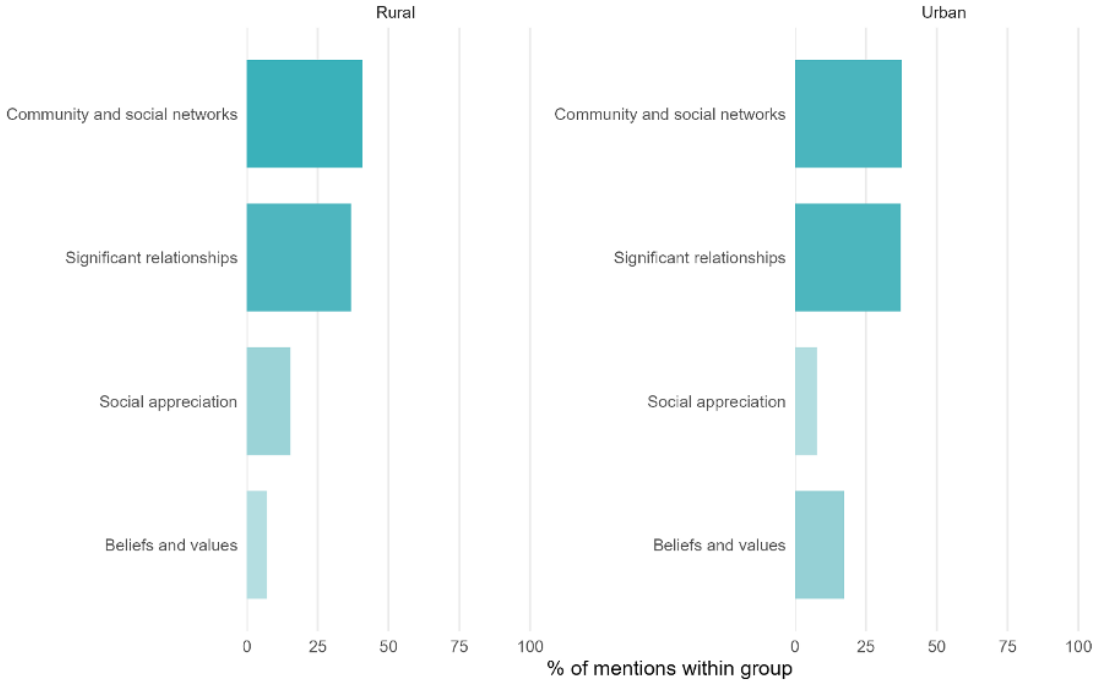

Figure A57.57 Enablers for the digital transition: social dynamics by geography

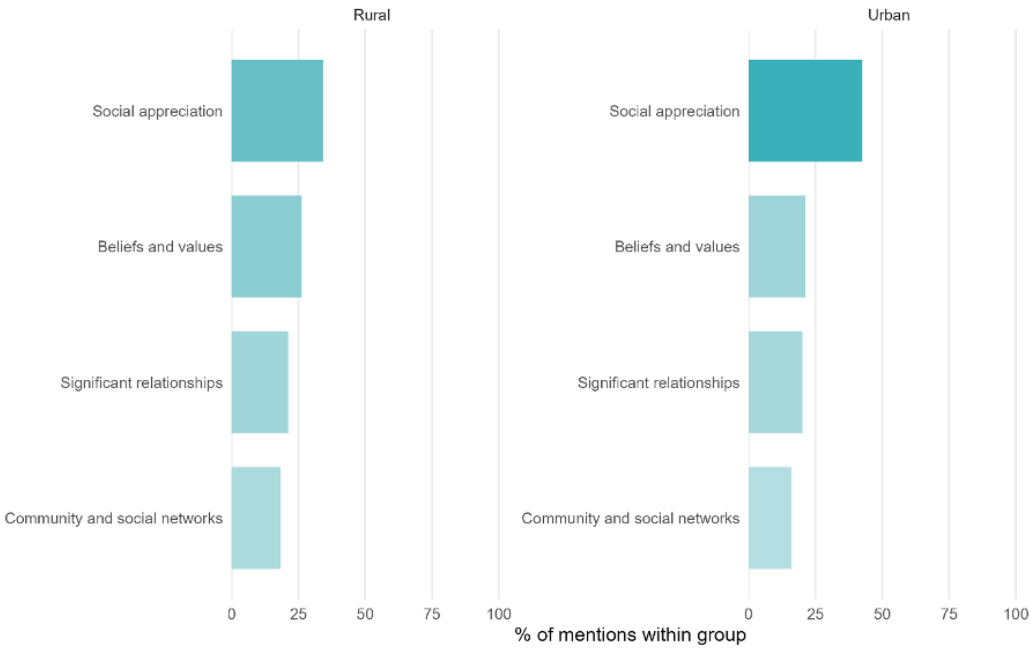

Figure A58. Hindrances for the digital transition: social dynamics by geography

This project has received funding from the European Union's Horizon Europe under grant agreement No 101132559.

Structural conditions

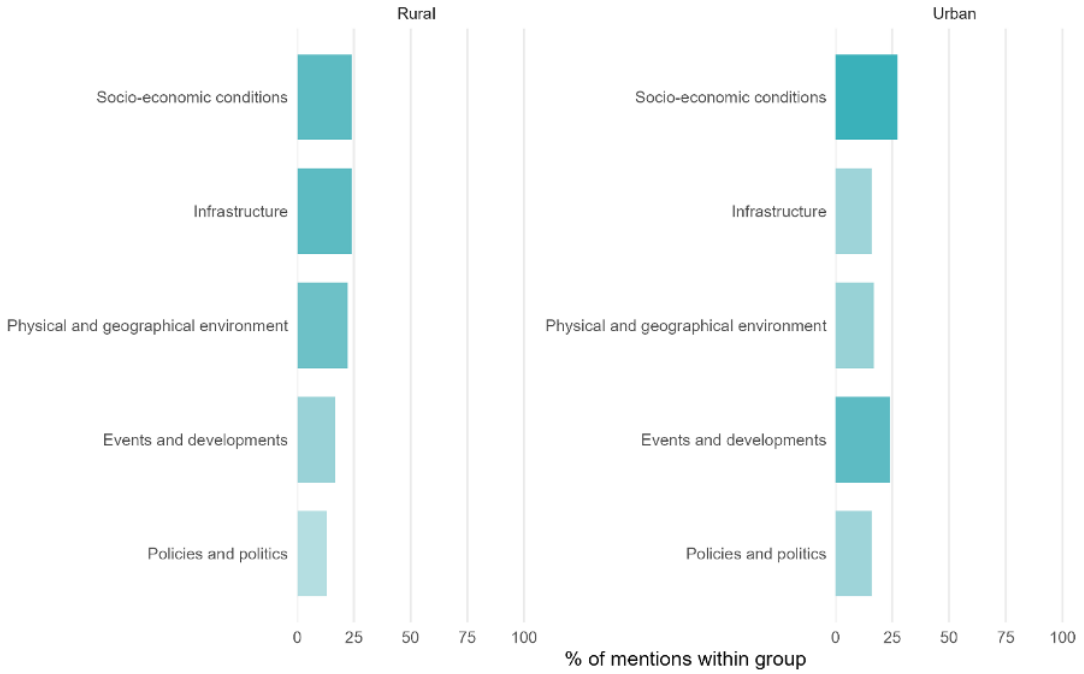

Figure A59.59 Enablers for the digital transition: structural conditions by geography

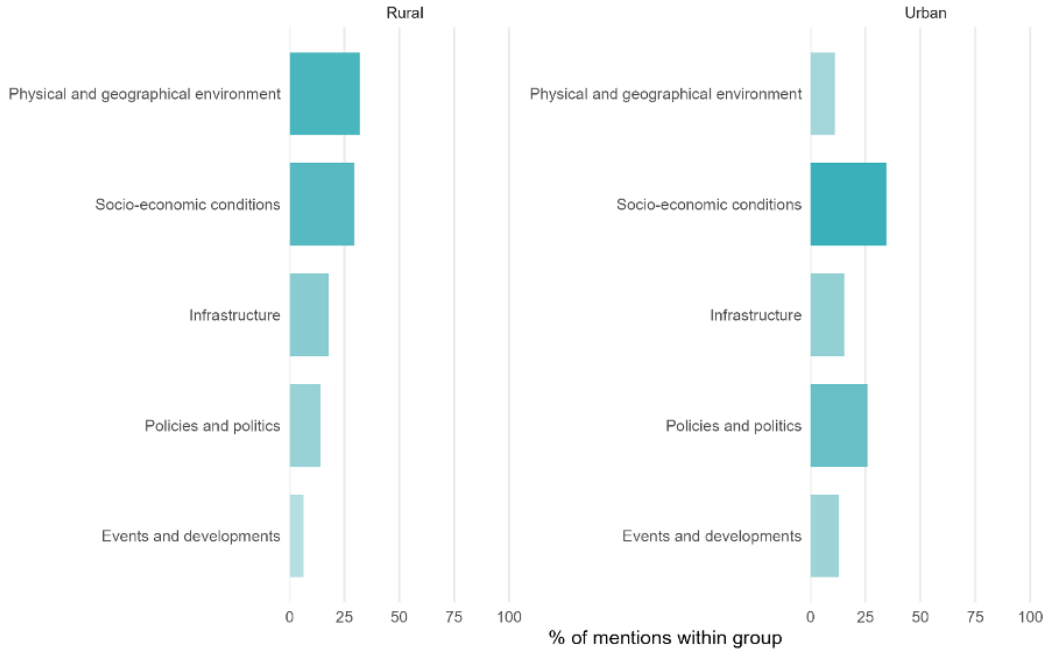

Figure A60. Hindrances for the digital transition: structural conditions by geography

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