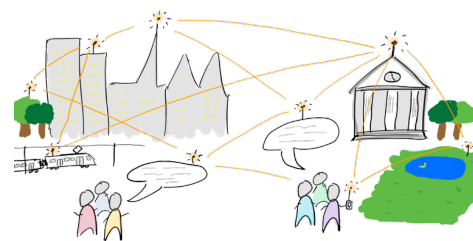


# Digi-Inclusion

*Leaving no-one behind in a digital world*



## [ EU Overview of Policy Context

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## Social Inclusion and the Digital Divide

In its publication “2030 Digital Compass: the European way for the Digital Decade”<sup>i</sup> the European Commission highlights that **technologies are now essential** for working, learning, entertaining, socialising, shopping and accessing everything from health services to culture.

It also puts digital transition at the **core of EU policy** as something that is essential to boost economic growth and improve the quality of life of citizens. But this transition by itself does not ensure that all citizens benefit equally. Indeed a significant number of citizens are **actively excluded** as a result of these rapid changes in digital technology. This **accelerated digital transition** we see happening across Europe is creating **societal imbalances**, affecting both those who are excluded already, and also creating newly-excluded groups.

This is the “**digital divide**” – where certain groups and individuals cannot or do not make full use of digital opportunities (whilst others can and do). This leads to people being **digitally excluded** from aspects of society that are conducted online or in the digital space. In the modern world, digital exclusion is not just a matter of missing a few opportunities – it results in **social exclusion** - a term used by the European Commission to refer to a situation in which certain individuals or groups are unable to fully participate in society due to a range of factors.

This exclusion can be due to a range of factors including lack of access to technology, lack of skills to use those technologies, difficulties in navigating digital information and services, and lack of knowledge and understanding to interpret and make full use of the opportunities of digital technologies and information.

The objective of the Digi-Inclusion network is to help cities **reduce social exclusion by bridging the digital divide**.

### A Real Digital Challenge

To put this divide into context, [data from Eurostat](#)<sup>ii</sup> shows that in 2022 **58 million EU citizens** have **still never accessed the internet** – equivalent to 7% of the population aged 16-74. In some regions of Greece, Italy and Bulgaria etc. this figure rises to between 15 and 20% - a huge portion of the local populations.

And it's not just the south west of Europe. For example, whilst access to the internet is generally better in the north of the EU, according to the Belgian “[Digital Inclusion Barometer](#)” - published by experts from Catholic University of Leuven (UCLouvain) and the Free University of Brussels (VUB)<sup>iii</sup> - an increasing number of people in the country are now “socially handicapped” by their lack of digital skills and it classified a **staggering 46%** of the Belgian population from 16-74 as “digitally vulnerable” i.e. **lacking essential digital skills**. It also noted that this figure has increased in the previous two years by approximately 7%, reflecting that **more people get left behind** as technology advances and they don't or can't keep up.

The concept of **digital inclusion** (and/or digital exclusion) sits within the wider context of social inclusion more generally, as a specific driver that fundamentally affects social inclusion in cities and communities. Being digitally excluded can also lead to economic exclusion (where people are unable to access the labour market as effectively) or even can reduce democratic participation (where information and political discourse is in the digital sphere, or where voting or voter registration must be done electronically). In this sense, it is clear to see that the knock-on effect of being digitally excluded can creep into many aspects of people's lives.

In addition, the **design and offer** of digital services is also not always equitable for all – where decisions are taken by certain people or groups in controlling positions, digital services can often be (unconsciously) skewed towards serving the needs of certain groups disproportionately to other, or designed in a way that makes them harder to access or to use for certain groups.

### Not Just About Tech...

Much of the Digital Divide is a **social problem**, not a technical one (Van Dijk 2020)<sup>iv</sup>. It is also not a “single divide” - the actual state of digital inequality is much more complex and is linked to existing social, economic and cultural divisions in society.

The digital divide exists across society and is driven by a whole cross-section of social and economic factors, influenced by a range of different sectors. Cities do not have direct control or influence over all aspects which drive this digital divide. For example, private businesses, the services they offer, and the accessibility of commercial services cannot be directly changed by municipalities nor so easily influenced by cities in a free market setting.

Equally, external factors such as poverty and other economic factors experienced by citizens, and that can contribute to digital exclusion, are things that are not within the control of municipalities. At best, cities can aim to mitigate some of these factors for some of the population, but cannot remove these factors entirely.

Digital exclusion can be about people not being able find or access what they need digitally, and also about people not having what they need *offered* to them digitally.

Shops that only accept cashless payments exclude people without a bank account (can't get what they need); places where only the most mainstream services are available online mean that minority groups need to still spend time travelling to the city hall to access services (what they need isn't offered digitally).

However digital exclusion is also about **participation in society**, not just transactions (as it can sometimes be characterised). Making sure everyone can pay their tax online does not mean a society is digitally inclusive. Exchanging, learning, socialising, working... all now take place increasingly in an online or digital context. So much of modern life now happens in the digital realm, much more so since the Covid-19 pandemic, so there are more and more situations where people become excluded and left behind in the digital realm.

As Héctor Gardó (lead for digital equity at Fundació Bofill, Barcelona) has said<sup>v</sup>, it is necessary to launch a new generation of public policies on digital equity that put people at the centre, promote autonomy and not technological dependence, and allow everyone to acquire the skills to empower themselves to be agents of digital creation, and not just consumption.

This means the task of tackling digital exclusion is now understood to be about more than just access to information and the ability to transact online, but also about being able to participate, exchange, create and share online too.

Whilst cities cannot address all factors, there are **significant opportunities for intervention** at city and community level, across all aspects of the digital divide.

## Defining the Digital Divide in Cities

One of the more relevant frameworks for analysing the digital divide in cities is that proposed by Van Dijk. This suggests there are three main types of digital divide, which are labelled as:

**the Access Divide**  
**the Use Divide**  
**and the Usability Divide**

The language of these labels does create some problems, and we will revisit that as part of the Digi-Inclusion project. Putting that aside for the moment, these three “divides” can be defined as follows:

The first divide, **the Access Divide** refers to the lack of access to digital technologies such as the Internet, mobile devices, and computers. This divide is the easiest level to identify and mainly affects those with more limited financial means.

The second divide, **the Use Divide** refers to the lack of skills and knowledge to use digital technologies effectively, even if they have access to it.

The third divide, **the Usability Divide** refers to the lack of knowledge and understanding to make good use of the information and services available to them, even if they have access to technology and the skills to use it. This divide is typically the most difficult to identify. Note also that the Usability Divide refers to the ability of the individual to make use of the content, not about how usable the content is for the users. It has also been referred to as the Quality of Use Divide to attempt to make that distinction more clear.

At a city level however, there are other considerations around services and information and in particular when thinking about government and related services and how these are available locally. These can be considered in two main ways:

**Service scope** – what is offered, provided or available digitally, and who’s needs are served  
**Service quality** – how well it is designed to be useable by all people in digital formats

These relate to the abilities of product and service providers **to offer the right things** that people need, and also to offer them **in a well-designed and accessible way** that doesn't exclude certain groups due to the way it is designed.

Note that service quality in particular links directly to the concept of “accessibility” i.e. how well designed a digital product or service is, in terms of ensuring all groups can access it even with disabilities. This a key feature in modern digital product and service design and includes things such as “alt text” for web images, ensuring screen reading software can interpret website text effectively for people with sight impairments etc. (to name but a few).

However, this is different to the *Access Divide* that was described earlier, despite the similar words that are used for each. Again this highlights how the use of language around this topic needs to be both considered and used carefully to ensure clarity of meaning and intent.

## Design Bias

Another issue within digital systems can be the structural bias that can be (unintentionally) built into them, either when they are designed or when put into use (or both).

This is not normally about active discrimination but about unconscious bias influencing the design and development of digital services – allowing perceived “norms” for those who design and build a digital solution to creep unnoticed into the way digital products and services work. This can affect the full range of digital solutions and services, and also can affect any excluded groups in theory.

An example of a current issue under debate with regards to exclusionary design is that many Artificial Intelligence (AI) facial recognition services have been programmed in such a way and by people in certain demographics, and also trained on images of predominantly certain facial types. This results in technology that works better for one group rather than others. Whilst this digital exclusion is perhaps not directly relevant for cities, it is one of the better examples to illustrate the way design bias in digital systems creates discrimination and exclusion.

According to Dr David Leslie of the Alan Turing Institute writing in 2020<sup>vi</sup>, until very recently “pretty much all the available largescale face datasets [used for training AI facial recognition software] were over-representative of white males and under-representative of people of colour and women.”

Leslie highlights that these technologies are increasingly reliant on the data that feeds Machine Learning processes. Therefore, any “structural” issues within that data means imbalanced datasets with less representation of marginalised demographic groups would train facial recognition technologies to be less accurate for those groups.

This is a very specific example, but highlights how the bias may not be visible from the outside – it is harder to interrogate and interpret large data sets to look for potential biases. It can also be hard to see how these biases would affect things - that they might introduce issues when processed and/or combined with other data or other machine learning algorithms.

As mentioned earlier, this is an example of digital exclusion being created not from a technology issue but from a social one. In the above example, there is no failure of technology, but failure by *people* to identify and use the right data to support that technology. People designing and using digital solutions by default will often introduce some level of their own perspectives into what they create.

### Carefully Considering Excluded Groups

When considering who experiences digital exclusion, it is easy to identify some headline groups who tend to be at greater risk of being on the wrong side of the digital divide. Older people, recent migrants, women, people with lower educational backgrounds, those in poverty – all of these groups are typically cited as being ones to focus our efforts on helping.

However, as digital exclusion can often be unseen and hidden behind “averages”, so can these groups also be too simplistic in considering digital exclusion. They are a good enough starting point, but very often the headline category is not actually the determining factor – it simply highlights a greater *risk*, but it is by no means the norm.

For example, it is frequently illustrated that older people experience digital exclusion more often than their younger counterparts within similar geographies and socio economic groups. There are certain factors around declining motor skills and cognitive abilities that are associated with old age and can contribute to difficulties using technology. However, the fact that someone is a certain age is no guaranteed determinant of digital exclusion, and many people in their 70s and 80s are active online and have kept up with technological changes. Other factors, such as education levels, family support, financial means etc. are as much determinants of whether someone is able to stay digitally connected into old age. This is also as much about motivation to stay up to date with technology change as it is about skill levels.

This is not to say that a person’s attributes and circumstances are not a factor in their likelihood of being digitally excluded. There are a complex set of factors and we must be careful of only looking at headline identifiers for groups when trying to identify where exclusion exists. We must examine how combinations of different factors create exclusions and expose specific groups to the effects of the digital divide.

### Interaction vs consumption

As discussed already, the way in which people use digital technology and the internet to enhance their quality and life and their place in society varies widely. This is about many drivers and it manifests itself in different ways. However, the way in which the digital world is evolving means that people now have different levels of engagement and also different roles in that world.

Increasingly, there are lower barriers to entry for anyone to become a digital “creator” (in the broadest sense) i.e. someone who contributes by adding something to the digital world or the digital experience of others. This could be social media influencers, Wikipedia editors, travel bloggers, YouTube stars and so on. “Creators” in this sense are not limited to those with a large online audience or significant reach. The differentiator here is whether people have a two way interaction with the digital world or are mere “consumers” of content, services or information.

Once the first two digital divides (Access and Use) are overcome, anyone can in theory move beyond being a consumer and start to become a creator. The precise and long-term relevance of this distinction is yet to be fully understood, but this aspect is potentially important in terms of how people interact with the digital domain and how that contributes (positively or negatively) towards their participation in society in general and their wellbeing and sense of belonging etc.

As more and more people become “creators” the distinction between creators and consumers may give rise to new types of (or perceptions of) the digital divide.

## Digital Inclusion in the EU Context

### Links with Cohesion Policy

According to the European Parliament, about half of the population (including older people and those with lower educational levels) do not use the internet regularly, and some 58 million EU citizens (aged 16 to 74) have never used it. Whilst digital inclusion and the digital divide is no longer solely about levels of internet access, this is still a core factor, and the above serves to illustrate that there is still a significant portion of European society for whom internet access remains the main barrier to being “digitally included.”

At a macro level, the DIGI-INCLUSION project has a close relationship with the fulfilment of the five objectives of the European Cohesion Policy:

- Digital Inclusion can help cities to become more competitive and innovative empowering a more competitive and intelligent citizenship by promoting innovative and smart economic transformation and regional ICT connectivity;
- It can help enable sustainable urban solutions, such as smart energy management, improved mobility and reduced environmental impacts through digitally enabled solutions and services, as well as enabling citizens to connect to services, opportunities and each other, regardless of their location;
- Technology has already shown how it can help to reduce social isolation, most notably during the pandemic and increasing the digital literacy of groups at risk of social exclusion, improving the accessibility of these groups basic services such as healthcare systems or to the labour market also have a factor in how people feel connected to a place and their community;
- Finally, it can help enable and improve citizens' participation and engagement by and allow them to connect with their communities, governments, and others.

### EU Declaration on Digital Rights and Principles

As stated on its website, the European Commission “...wants to ensure people are empowered to fully enjoy the opportunities that the digital decade brings. It has proposed a set of European digital rights and principles that reflect EU values and promote a sustainable, human-centric vision for the digital transformation.

The European digital rights and principles<sup>vii</sup> will complement existing rights, such as data protection, ePrivacy, and the Charter of Fundamental Rights. They will build on the

experience of the European Pillar of Social Rights. And, they will provide guidance for the EU and Member States as they adapt to the digital transformation.”

This declaration is clearly closely aligned with the aims of the Digi-Inclusion network, in that the work of PPs to enable greater digital inclusion can/should directly contribute to the realisation of these digital rights for Europe’s citizens.

More specifically, it sets out a number of specific principles which offer a useful framework for Digi-Inclusion to consider:

- Putting people at the centre of the digital transformation
- Solidarity and inclusion
- Freedom of choice
- Participation in the digital public space
- Safety, security and empowerment
- Sustainability

### **Putting people at the centre of the digital transformation**

Technology should serve and benefit all people living in the EU and empower them to pursue their aspirations. It should not infringe upon their security or fundamental rights. Signatories of the declaration will commit to making sure that the digital transformation benefits everyone and improve the lives of all people living in the EU. They will take measures to ensure our rights are respected online as well as offline. The EU will promote this approach both at home and on the international stage.

### **Solidarity and inclusion**

Everyone should have access to technology, which should be inclusive, and promote our rights. The declaration proposes rights in a number of key areas to ensure that nobody is left behind by the digital transformation, making sure that we take extra effort to include elderly people, people living in rural areas, persons with disabilities, and marginalised, vulnerable or disenfranchised people and those who act on their behalf.

Concretely, signatories will commit to action in a number of areas, including:

- connectivity;
- digital education, training and skills;
- fair and just working conditions;
- digital public services.

### **Freedom of choice**

Everyone should be empowered to make their own, informed choices online. This includes when interacting with artificial intelligence and algorithms. The declaration seeks to guarantee this by promoting human-centric, trustworthy and ethical artificial intelligence systems, which are used in line with EU values. And, it pushes for more transparency around the use of algorithms and artificial intelligence.

Freedom of choice also includes being free to choose which online services we use, based on objective, transparent and reliable information. This in turn involves making sure everyone is empowered to compete and innovate in the digital world.



### **Participation in the digital public space**

Digital technologies can be used to stimulate engagement and democratic participation. Everyone should have access to a trustworthy, diverse and multilingual online environment and should know who owns or controls the services they are using. This encourages pluralistic public debate and participation in democracy.

The digital principles also highlights the need to create a digital environment that protects people from disinformation, information manipulation and other forms of harmful content including harassment and gender-based violence. And, it supports access to digital content that reflects our cultural and linguistic diversity.

### **Safety, security and empowerment**

Everyone should have access to safe, secure and privacy-protective digital technologies, products and services. The digital principles commit to protecting the interests of people, businesses and public services against cybercrime, and confronting those that seek to undermine the security and integrity of our online environment.

The declaration calls for everyone to have effective control over their personal and non-personal data in line with EU law. It pays specific attention to children and young people, who should feel safe and empowered online.

### **Sustainability**

The digital and green transitions are closely linked. While digital technologies offer many solutions for climate change, we must ensure they do not contribute to the problem themselves. Digital products and services should be designed, produced, and disposed of in a way that reduces their impact on the environmental and society. There should also be more information regarding the environmental impact and energy consumption of such services.

## The Digital Economy and Society Index (DESI)

On an annual basis, the Digital Economy and Society Index (DESI)<sup>viii</sup> assesses and tracks the performance of EU countries and the EU overall in terms of what it terms “digital competitiveness.” It comprises five dimensions, each of which is broken down into a set of specific indicators. The five dimensions are:

**Connectivity** (fixed and mobile broadband, prices)

**Human Capital** (Internet use, basic and advanced digital skills)

**Use of Internet Service** (citizens' use of content, communication, online transactions)

**Integration of Digital Technology** (business digitalization, e-commerce)

**Public Digital Performances** (e-government, e-health)

DESI can be a useful point of reference for cities to consider when looking at digital exclusion of their citizens. It can give cities headline data about the national context they are operating in with regard to digital maturity of their country. However, digital exclusion by its very nature is often about small or hidden groups rather than top level / average statistics. Digital exclusion is often about the (significant) minorities rather than the average of the larger majorities.

Whilst the index is still only applied at member state level, it masks any differences within member states and doesn't highlight the pockets of exclusion that exist within specific places or across specific groups. The dimensions that make up the DESI assessment are probably more informative for cities if they "self-assess" themselves against these, using them as a series of questions and/or indicators to help consider their local population as a whole, or to apply to specific communities or groups to start to understand DESI values on a more targeted level.

Obtaining good and robust data for these indicators at local level will potentially be the biggest challenge for cities in this regard. But the nature of applying DESI locally by cities will mean it may only provide an assessment that can be used locally – it will not enable benchmarking with other cities (unless the data methodologies are identical, which is unlikely in practice).

The Digital Transition Partnership (under the Urban Agenda for the EU) looked specifically at the possibility of applying DESI at a more local level, and prompted work to create an initial set of options, indicators and methods that could be used. Development of LORDI by the Living-in.EU community, which was a pilot of LOcal and Regional Digital Indicators intended to test the options for measuring the effects of digital transition at local level. Partners in this work included ESPON and Open and Agile Smart Cities, as well as Connected Places Catapult (UK), IS-Practice BV (BE) and Politecnico di Milano (IT).

This could provide cities with an option for obtaining more empirical data about the levels of "digitisation" across their citizens. However, securing resources to collect this data could be a barrier for many cities but, if secured, such resources would provide a good return in terms of proper understanding of the local situation.

## Digital Services Act and AI Act

At EU level, there is a clear indication that there is the will to take regulatory action to steer the development of digital services in the coming years. Whilst the Digital Services Act and AI Act don't have direct objectives regarding "digital inclusion" some of their elements may well have an impact on the digital divide in the future.

This impact is unlikely to have a large direct affect the work of Cities combatting digital exclusion in the immediate future, but it is important to be aware of the developments in these domains as they will potentially impact some strands of digital inclusion work as they develop further. There may also be unintended consequences for some (excluded) citizens as businesses start to implement the necessary changes to comply with these laws.

## Why Is Digital Inclusion Important For Cities?

As emphasised by the European Commission in its publication “2030 Digital Compass: the European way for the Digital Decade” technologies are now imperative for working, learning, entertaining, socialising, shopping and accessing everything from health services to culture. It also puts digital transition at the core of EU policy. Cities will be operating within this framework and need to respond accordingly in their local policies and actions to minimise the negative impacts of digital transition excluding certain people and groups. That aside, cities need to work within the reality that life for citizens is now increasingly influenced by and/or dependent on digital technologies. As such, cities have a role to help minimise the structural disadvantages that develop for some groups and communities due to digital transition. By promoting, supporting and enabling digital inclusion as widely as possible, cities can play an important part in reducing the digital divide and the social exclusion that results from it.

Social exclusion is a cross-cutting theme for cities. Citizens or communities that are more excluded from participation in society in general will have impacts across the territory – for example whether that’s increased demands on health and social care services that stretches already scarce resources; or increased levels of economic deprivation, potentially leading to crime that affects a wider area of a city than just specific neighbourhoods – cities can’t afford to ignore the impacts.

We need to work within the reality that life for citizens is now increasingly influenced by and/or dependent on digital technologies. Without changes to how we think about digital transitions and how we enable people to access and participate in the digital world, those who are digitally excluded will become increasingly separated from that reality. This exclusion can diminish their health and wellbeing, their economic prosperity and even their democratic participation.

The digital divide is becoming an increasingly large driver for social exclusion, and hence cities need to be sighted on both its causes and impacts. Whilst cities cannot address all factors, there are significant opportunities for intervention and actions at city level, across all the aspects of the digital divide. Most of the components have elements that cities can either influence or even directly control (particularly in terms of the civic services that are provided digitally by the municipality directly, or supported indirectly via the culture and expectation the municipality creates around digital services and access).

## Other Factors to consider

The framework for the different types of digital divide described earlier provide a good basis for analysis and discussion within the network partnership. There are also a number of other frameworks and interventions that are providing interesting and relevant ideas and approaches for tackling this topic, some of which are described below.

### Motivation and Trust

in addition to access and skills, both Motivation and Trust have also been highlighted at challenges facing people trying to get online, for example in the UKs 2014 digital strategy. Citizens not only need the access, skills and understanding necessary to engage in the digital world, but they also need the motivation to do so. This in turn requires trust, in both the systems and the providers of those systems but also in the overall idea behind digital interactions and services.

One thing that is clear is digital inclusion is about overcoming all the challenges, not just one. Again, to quote Héctor Gardó...

*“existing inequalities in communities usually have greater significance [than access issues]. Additional mechanisms and resources of a socio-educational nature are needed for technology to fall on fertile ground. We are talking about generating high expectations, providing bespoke support, involving families, recoding individual digital identities, generating collective trust and other essential strategies to bring us closer to the social transformation we aspire to achieve.”*

### Digital Capital

Initial development of ideas around the concept of Digital Capital (carried out by organisations such as The Raspberry Pi Foundation as well as others) has started to create potential frameworks for tackling the digital divide, by seeking to understand the gaps and equip (primarily younger) people with the broad set of skills needed to engage productively in the digital world.

This current thinking suggest that Digital Capital of citizens can then be looked at through different thematic lenses (for both diagnosis or planning actions):

- Access and infrastructure
- Skills and education
- Tech adoption
- Research and innovation
- Data ecosystems
- Business and entrepreneurship

Building on the concept of “Science Capital” and adapting it for specifically post-digital transition applications, this looks at eight areas to target interventions, namely:

1. Digital literacy
2. Digital-related attitudes, values and dispositions
3. Knowledge about the transferability of digital (that digital 'open doors' to many careers)
4. Digital media consumption
5. Participation in non-school digital learning contexts
6. Family digital skills, knowledge and qualifications
7. Knowing people in digital-related roles
8. Talking about digital in everyday life

Current development has focussed on educational settings and contexts, but the principles that underpin it are highly transferrable to other contexts, with only minimal adaptation or slight shift of emphasis.

If we can help people to develop their own digital literacy and then capitalise on that, maybe we can ensure everyone is truly empowered to gain full value from the new and emerging technologies which now surround us, and ensure that no-one is left behind in our digital world.



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