A BRIDGE ACROSS COMMUNITIES:

How reversing digital exclusion can level up Europe and build political resilience

1. SUMMARY

For most of us, connectivity is a staple of our daily lives, no different to electricity or heating. We give as little thought to switching on the lights as we do to turning on our phones, computers or TVs. So much so that digital literacy has become as essential as reading or writing.

But millions across Europe remain excluded. 44% of EU citizens lack basic digital skills,[1] and just last year, one in five rural households still had no 5G coverage.[2] Digital inclusion is no longer just a missed opportunity in Europe. Failure to act has far reaching consequences for Europe's economy, social cohesion and political stability. Delayed digital transformation across the EU could cost €1.3 trillion in lost GDP by 2033[3] – and we know areas with greatest digital exclusion suffer poorer health, worse educational outcomes, and greater social divides.

Being online is a vital part of modern life and key to unlocking the opportunities of our digital age. In Germany, digitalisation boosted company earnings (EBIT) by €28 billion in 2023.[4] In Portugal, firms that digitise can afford to pay workers up to 37 per cent higher salaries.[5] And in Nordic countries such as Finland, Sweden and Denmark, where digital literacy is highest, trust in institutions is consistently stronger.

Conversely, when citizens and businesses are digitally excluded, they participate less in the economy and rely more heavily on analogue and costly public services. This feeds a vicious circle of economic stagnation, social fragmentation, and declining trust in institutions. This creates the perfect breeding ground for political disillusionment.

Digitalisation itself also brings challenges, from disinformation to manipulation. This is most acute when digital literacy, social cohesion and trust in political institutions are low. In a geopolitically volatile world, it is essential we build a digitally literate society where citizens can access and navigate online spaces safely.

With the right political action, digital inclusion can rebuild Europe's social contract and sow the seeds of economic resilience for the next generation. Politicians have the levers to drive real change. By further expanding access to high-quality infrastructure and developing digital skills, governments can boost economic participation and business productivity. And in turn, increase tax revenues and take full advantage of digitisation and innovation in public services such as healthcare and education.

Now is the time for European leaders to act.

vodafone

Digital divide: the cost of inaction

Economy & Jobs
Digital transformation and SMEs

Education & Skills
Ability to engage confidently, effectively, and safely in the digital world

Health
Improved outcomes and reduced pressure on health systems

Democracy & Security
Civic and political engagement & cyber risk

€1.3 trillion
a lost opportunity for Europe's GDP by 2033 if digital transformation gaps and barriers persist

€628 billion
gain if SMEs digitalised

+37% salaries & 2× productivity
in Portugal, digitally mature companies outperform

€5 billion in annual GDP
contribution from network expansion in Germany

40% of EU citizens
could lack basic digital skills by 2030

European leaders should:

1. Make digital inclusion a strategic priority
2. Support digital skills development
3. Invest in high-quality connectivity infrastructure
4. Accelerate the digitalisation of public services

2. INTRODUCTION

In Europe, inequalities persist across generations, regions, and socioeconomic groups. Recent shocks, such as the COVID-19 pandemic, the energy crisis and rising inflation have widened these gaps.[6] Income inequality has grown in most EU member states that joined before 2004[7] and younger generations face greater economic insecurity. But another, less visible division is deepening: the digital divide.

Digital exclusion is no longer a marginal issue. It takes many forms, from being unable to access reliable, high-quality connectivity and devices, to lacking the skills and confidence to participate in modern life and keep pace with rapidly evolving technologies.

Too often, digital exclusion is reduced to stereotypes: the isolated village without broadband or the pensioner still relying on a landline. But its impact run much deeper. Consider the rural hospital unable to deploy modern medical technologies enabled by 5G standalone (SA), or the SME struggling to leverage real-time analytics to stay competitive.

Digital tools are expanding access to work, education, healthcare, and public services, but millions are still not fully benefiting, and much of the economic value they generate remains concentrated among a few global players.

The urgency to ensure equal access and shared benefits from digitalisation is growing. For those with adequate skills and connectivity, the benefits are real; higher productivity, wider opportunities and better services. For those without, the gap grows wider every year and the longer it persists, the more damaging its effects. Without action, 40% of the EU population could lack basic digital skills by 2030.[8]

Digital exclusion is a catalyst for inequality, disproportionally affecting those already disadvantaged. It worsens educational and health outcomes, reduces lifetime earnings, and deepens regional disparities.

These are not just economic or social issues; they are political ones. Digitally excluded citizens are far less likely to engage in public decision-making,[9] eroding trust in civic and democratic institutions. At a time when Europe's social contract is already fraying, digital exclusion multiplies disillusionment and frustration, creating fertile ground for extremist movements.

Reversing digital inequalities is therefore not only a technological imperative. It is about rebuilding opportunity, legitimacy and cohesion at a time when Europe urgently needs all three to confront growing economic and geopolitical uncertainty.

3. THE DIGITAL DIVIDE APPEARS ENTRENCHED

The scale of Europe's digital divide is stark.

One in five rural European households still lacked 5G coverage last year.[10] And even where 5G is available, it is often not 5G Standalone (5G SA); this comes with a huge opportunity cost as public services and businesses are stuck on 4G infrastructure and cannot reap the benefits of advanced networks providing ultra-low latency.

SMEs lag larger companies in digital intensity and AI adoption.[11, 12] Last year in Greece, only 53.4% of Greek SMEs had at least a basic level of digital intensity, [13] placing the country second to last among EU member states.[14] These gaps point to systemic weaknesses in Europe's preparedness for the digital age.

The digital divide has many roots. Geography is one. The difference in digital maturity between urban and rural areas persists with a 15-point gap in basic digital skills.[15] And extending high-quality connectivity to remote areas remains complex and often requires government support.

Demographics also matter. In 2023, 70% of young Europeans (16–24) had at least basic digital skills, compared to just 28% among those aged 65–74, a 42-point generational gap.[16] Particularly in parts of south-eastern Europe, rapid economic growth has not been matched by equal participation across generations in the digital economy.

But digital exclusion does reflect political choices. Underdeveloped digital public services, insufficient skills investment and unreliable infrastructure hold citizens and businesses back across the continent.

Yet where governments act, the impact is visible. Strategic investment in digitalisation in Czechia has led to the most recent Digital Decade report noting "digital inclusion is a strong point [...], with widespread basic digital skills and minimal gender or rural-urban gaps".[17] Greece's digitalisation of public services has increased efficiency and signalled a pro-innovation mindset.[18]

Public-private collaboration also makes a difference. In Ireland, the Gigabit Hub Initiative, delivered by SIRO (a joint venture with the state-owned utility ESB) and Vodafone, has brought high-speed connectivity to remote working hubs located in rural area, supporting SMEs, remote workers and community resilience.[19]

Nationwide access to high quality, future-proof digital infrastructure, such as 5G SA, is fundamental for individuals, enterprises and public services to thrive. In Germany, network expansion contributed over €5 billion annually to GDP in 2022, nearly twice the economic impact of mechanical engineering.[20] Leaders should see connectivity infrastructure as the foundation on which future economic growth will be built.

National examples show the digital divide can be overcome through investment in skills and connectivity. Across Europe, leaders now need to deliver or risk significant economic and societal fallout.

4. THE COST OF INACTION: HOW DIGITAL EXCLUSION MULTIPLIES EUROPE'S CHALLENGES

Digital exclusion is an accelerating risk and the costs multiply over time.

These costs are both immediate with losses from people, regions and businesses missing out on today's digital economy, and the longer-term with opportunity losses due to an inability to harness transformative technologies like 5G Standalone (5G SA), Artificial Intelligence (AI) or the Internet of Things (IoT).

Economic and jobs

Europe's economic resilience depends on the strength of its SMEs, yet only 20% of European SMEs are highly digitalised.[21] The less digitised and connected a company is, the less productive and competitive it becomes, thereby creating fewer jobs, paying lower salaries, weakening national growth and diminishing tax revenues.[22]

Today, on average, European workers produce just 76% of the value generated by their US counterparts,[23] partly due to stronger US digital performance. Closing the SME digital gap could add €628 billion to EU GDP,[24] directly translating into greater public revenue for health, education, infrastructure, and defence.

In Portugal, companies that reach digital maturity are more competitive and pay workers 37% higher salaries than their less digital peers. Digital inclusion translates directly into better wages and improved productivity.

In Romania, despite a booming IT sector, 67% of adults still lack basic digital skills. It also ranks among EU countries with the lowest penetration of digital services. Closing these gaps with the EU's average digitisation score by 2027 could increase Romania's GDP by 3%, equivalent to the country's entire education budget.

Without action, governments face a dangerous fiscal spiral. Falling tax revenues (due to lower productivity, wages, and business growth) alongside rising social spending to support left-behind communities will stretch already tight budgets. Delayed digital transformation could cost the EU €1.3 trillion by 2033.[25]

To ensure the economic benefits of digitalisation are widely shared across regions and socioeconomic groups, and not concentrated in the hands of a few players, Europe must also ensure a fair, inclusive digital ecosystem, where all players compete under the same rules.

Health and wellbeing

People suffering from digital exclusion are 1.5 times more likely to struggle interacting with health services. This raises the risks of delays in care, in turn increasing reliance on emergency services and driving up health system costs.[26]

Mental health suffers too, with over 42% of people with significant mental health issues reporting digital exclusion, and 46% of them lacking basic digital skills.[27] Strengthening access and capability could reduce isolation, improve access to care and support long-term wellbeing, which in turn reduces the cost of late healthcare intervention.

Estonia shows what integrated digital infrastructure can deliver. With 99% health records digitised and nearly all prescriptions issued electronically, doctors and patients have seamless access to information and more efficient care, through the X-Road data exchange platform. The results are less duplication, faster treatment, and lower administrative waste, with Estonia's wider e-governance model estimated to save around 2% of GDP annually.

Societal and democratic resilience

Digital exclusion in Europe is a strategic vulnerability. It undermines human capital development, regional equity and democratic engagement, which in turn weakens societal cohesion and democratic resilience.

Without appropriate connectivity, devices, and digital skills, individuals risk missing out on modern education and employment opportunities, weakening Europe's human capital, just as the continent faces an urgent talent shortage.

Less connected regions, often already starting from a low economic base, suffer underperformance, brain drain, and dependence on subsidies. This depresses national growth and fuels interregional tensions, at a time when divisive populist movements are gaining greater traction.

The issue also extends into the home, as many low-income, older and rural citizens remain largely excluded from online finance, services and e-government due to a lack of digital competence or access.[28] This limits their ability to save, borrow or access support, damaging individual and collective economic outcomes.

When citizens are unable to navigate the digital world with confidence or access online public services, trust in government erodes. In today's security and geopolitical environment, this vulnerability directly undermines Europe's democratic resilience.

At the same time, digitalisation introduces new risks such as increased exposure to AI-powered disinformation and harmful content, including through opaque algorithms. These operations thrive where social cohesion, media literacy and trust in political systems are weak.[29] In this context, digital inclusion becomes part of Europe's frontline defence.

Strengthening digital literacy mitigates these risks and helps citizens engage confidently in digital environments.[30] This is key to building a society that fosters political trust, especially given that evidence shows that improving digital access and connectivity significantly increases citizen's civic engagement and voter turnout.[31]

As case in point, Finland, Denmark, and Sweden – countries with high digital and media literacy – constantly rank among those with the strongest public trust in media and government,[1] thanks in part to national strategies that embed critical thinking and fact-checking into education and civic life.

The compounding effect

The digital divide rarely exists in isolation, and fuels other areas of deprivation. The consequences, slower growth, regional decline, population loss, lower educational outcomes and social and political fragmentation reinforce one another, creating self-perpetuating cycles of exclusion. Left unaddressed, these cycles will not only undermine growth, but fragment societies and erode democratic foundations.[32]

For example, young Europeans with lower levels of education are over twice as likely to lack basic digital skills compared to their better educated peers.[33] This limits lifetime earnings, civic participation and leaves communities vulnerable to disinformation. As services move online, those without sufficient access or skills struggle to engage, reinforcing perceptions of state failure. Frustration grows, driving disengagement and regional resentment.

The chart below illustrates how these effects interconnect and intensifies over time, raising risks to Europe's stability and prosperity.

5. THE SOLUTIONS

Changing course to **advance Europe's digital maturity requires political leadership and decisive action on four mutually reinforcing fronts:** strategic leadership, infrastructure, public service delivery and investment. Each demands collaboration between governments, at European, national and regional levels, industry, and civil society.

First, leaders should **make digital inclusion a strategic priority at the heart of government.** Europe's digital divide cannot be addressed in silos; it should be part of economic and resilience strategies, recognising it as a systemic risk. This means delivering fully on strategies with clear accountability and leadership. Leaders should use robust data to map digital gaps and prioritise intervention, aligning legislative reforms with digital inclusion objectives. The European Commission should coordinate national strategies, for example as part of the European Semester.

Second, leaders should **mainstream digital inclusion across public policies.** Given its impact across sectors, digital inclusion should not be confined to digital ministries but instead woven into education, health, or industrial plans. There should be a particular focus on young people's digital skills, including advanced capabilities like AI, data and cyber security, and simpler ones to reduce online radicalisation, sexual violence, and violence against women.

One example is the Vodafone Foundation's **Skills Upload Jr Programme**, which has equipped 10.5 million European students with digital, coding, AI and online safety skills, in partnership with NGOs, local authorities and schools.

Third, European governments **must digitalise services.** Countries like Estonia, which now offers 100% of government services digitally,[34] show what is possible. Other nations should follow suit and accelerate digital transformation to ensure all citizens benefit equally, while providing the necessary skills to use online public services to best effect.

Finally, **governments should work with the private sector to accelerate the rollout of high-quality connectivity infrastructure,** especially in underserved regions. They should incentivise long-term network investment through spectrum policy, regulatory and fiscal frameworks that reward scale, efficiency, and quick deployment. Governments should also promote sustainable infrastructure competition where viable and prioritise inclusive access where it is not, by ensuring fair and consistent regulation in upcoming initiatives such as the EU's Digital Networks Act (DNA).

KEY RECOMENDATIONS

1	**Digital Inclusion** Make digital inclusion a strategic government priority. This must be embedded into national economic and resilience strategies.
2	**Digital Skills** Support digital skills development, including through strong partnerships with the private sector and civil society organisations.
3	**Public Services** Accelerate the digitalisation of public services, ensuring all citizens can access and benefit from streamlined public services.
4	**Infrastructure** Accelerate the rollout of high-quality connectivity infrastructure, by unlocking the single market to create pan-European scale in critical sectors, simplifying regulation and ensuring a fair, inclusive digital ecosystem.

6. CONCLUSION

Digital inclusion will be determinative for Europe and its place in the world. It helps people access public services, learn new skills, find employment, grow businesses and stay connected regardless of income, age or postal code. It delivers macro-level benefits that every political leader should aim for: stronger economies, healthier communities and renewed trust in democratic institutions.

Given the rapid pace of technological change (such as AI), if Europe fails to act, digital haves and have-nots will increasingly live in parallel societies. Europe will continue to fall behind global competitors while eroding the fiscal foundations governments depend on. Tackling digital exclusion today avoids far greater costs tomorrow.

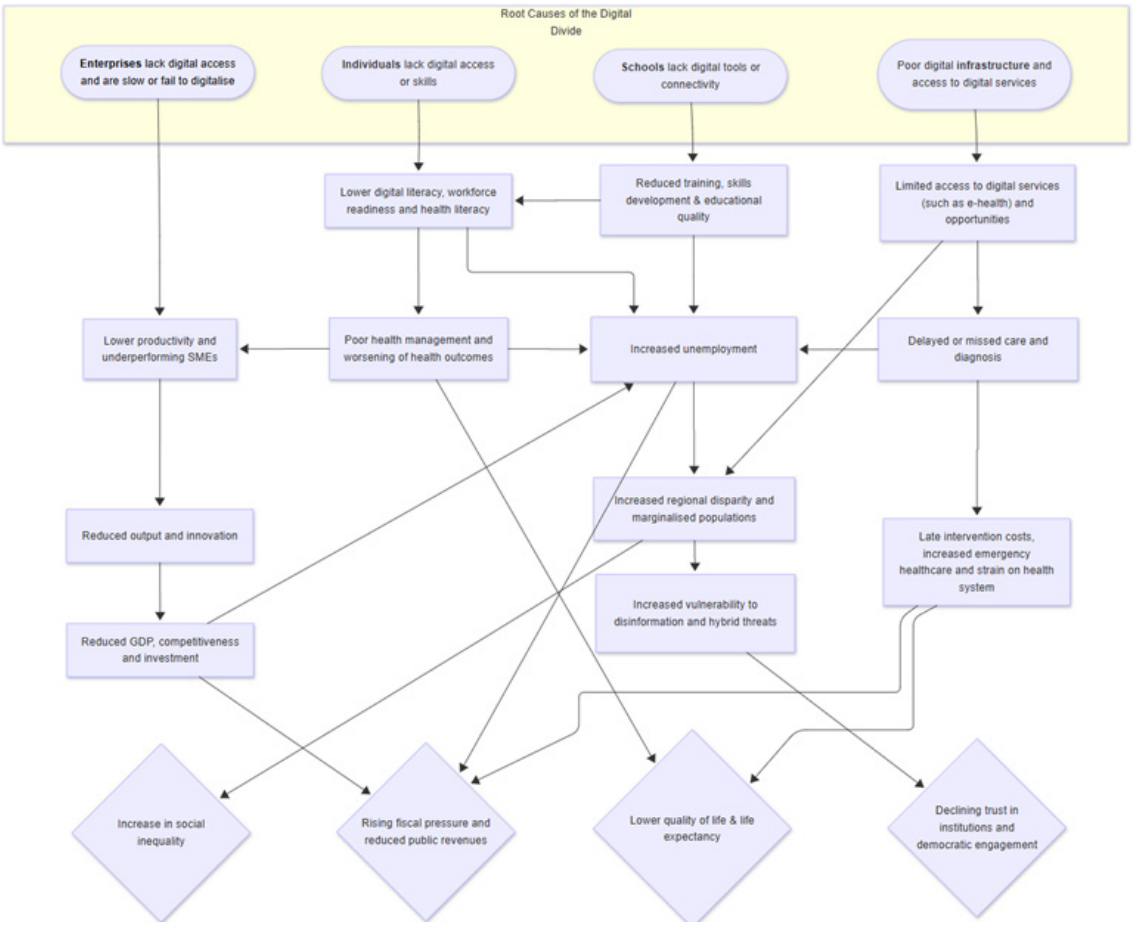
The good news is that solutions are within reach. With the right incentives, smarter regulation and shared commitment across governments, industry and civil society, we can ensure that people and businesses participate fully in, and benefit from, an increasingly digitalised society.

Providing these solutions will be a real sign of political leadership in an increasingly fragmented age.

Annex 1: Vodafone's case studies: collaborative solutions to digital exclusion

Digital exclusion takes many forms, and its solution are not one-size-fits-all. Closing the digital divide requires locally tailored approaches that reflect the needs of each community. The most effective approaches involve collaboration between governments – at European, national and regional levels – industry, charities, non-profits and communities themselves. The following case studies offer replicable models for policymakers willing to build an inclusive, resilient Europe.

Figure 1: Economic, social, and financial impacts associated with the digital divide



Source: Vodafone review in 2025 of literature referenced in annex[2].

Case study 1: Empowering youth through Skills Upload Jr Programme
The Vodafone Foundation's Skills Upload Jr Programme is its flagship digital inclusion initiative, designed to equip underserved young people with essential digital, coding and AI skills. Delivered across eight European countries (Spain, Germany, Portugal, Albania, Romania, Netherlands, Turkey, and Greece), the programme combines curriculum-integrated learning, national coding competitions, edutainment campaigns, and real-world applications of emerging technologies. It also includes modules on digital safety, helping young people build the critical thinking and awareness needed to navigate digital spaces responsibly.

The programme is delivered in partnership with Save the Children and informed by the Digital Wellbeing Youth Board, a youth-led advisory group. A network of local partners, including government agencies, NGOs, and education providers, ensures tailored implementation in each country.

Since launch, **Skills Upload Jr has reached over 10.5 million students**, making it one of the largest youth digital inclusion programmes in Europe.

- In rural Romania, a local teacher used Skills Upload Jr to integrate digital tools and interactive methods into her classroom, saving her school from closure and dramatically improving student engagement.
- In Albania, the initiative supported the creation of 147 new coding clubs, weekly innovation sessions, and the training of 1,700 teachers and 2,500 students over a six-month period.

These examples show how **investment** in digital education strengthens both human capital and social resilience, two key pillars of Europe's long-term competitiveness.

Case study 2: Revitalising rural communities in Ireland
The Gigabit Hub Initiative, a partnership between SIRO and Vodafone, delivers high-speed gigabit broadband connectivity to remote working hubs located in rural areas in Ireland. These hubs foster community resilience, economic regeneration, and a sense of belonging, enabling local entrepreneurs, creatives, and remote workers to thrive in regions previously underserved by digital infrastructure. Examples include:

- Ludgate Hub in Skibbereen, Ireland's first rural digital hub
- Creative Spark in Dundalk, a creative industries incubator
- PorterShed in Galway, supporting local tech innovation and start-ups

These initiatives contribute to reduce rural isolation, attract new businesses, support work-life balance, and boost local productivity, highlighting how reliable connectivity can promote regional cohesion and rural resilience.

Case study 3: Supporting SMEs through V-Hub
Vodafone is also helping SMEs cross the digital divide. In Europe, V-Hub is a Vodafone digital platform providing impartial and actionable advice to help SMEs evolve their business with the right digital solutions. V-Hub supports businesses who lack the skills and in-house tech specialists – precisely the sort of businesses that do not have the digital skills they need to flourish.

Through V-Hub, SMEs can access resources tailored to them, create action plans, and engage in one-to-one support, all in one place, so SMEs feel equipped and confident to evolve their business digitally. In the United Kingdom along, this has helped over 1.7 million SMEs upskill their digital capabilities.

Annex 2: Impact snapshot - Economic, social and health impacts of the digital divide

Impact (s)/outcome (s)	Mechanism(s) identified	Key messages from Evidence (Source)
Economic impact		
Productivity loss in SMEs means SMEs fail to thrive and some fail	Productivity gap between digitally advanced and digitally lagging SMEs. GDP uplift if all SMEs reached a basic level of digital adoption.	€628 billion in economic growth per annum in EU can be unlocked if struggling SMEs increase adoption of digital technology to the European average- this is roughly 5% of EU GDP, Sage (2023)
		European workers only produce 76% as much as US counterparts. Due to consistent underinvestment in digital technologies especially amongst SME. If all large EU enterprises scaled AI to match US level €200bn could be added to annual revenues. Accenture (2025)
Missed innovation and growth opportunities means enterprises fail to adapt to the "new digital normal" and fail to add to the local economy	Comparative business GVA in areas of greater / lesser connectivity.	Study shows that the EU has a higher share of persistently non digital enterprises. These enterprises which tend to be older and smaller are less likely to innovate, increase employment and command higher mark ups. EiB (2020)
Regional economic imbalances fuel the demand for subsidies from the centre / wealthier regions	Contrast between GDP in areas of high / low connectivity.	Digital divide across the EU and in rural areas is widening. This is leading to worse economic outcomes and social exclusion. Eurofound (2023)
Personal financial exclusion leads to worse economic outcomes for individuals leading to worse macroeconomic outcomes (e.g. savings in the form of cash lead to less bank lending)		96% of adults have access to a bank account but only 60% of adults use internet for banking services. This means that these people who often tend to be low-income, elderly, and rural, are disproportionately excluded from digital finance tools, limiting their ability to save, borrow, or access support services. ECB (2023)
Heightened potential for cybercrime means a loss to individuals / enterprises		Countries with higher digitalisation scores (e.g. Denmark, Finland, Netherlands) showed significantly lower cybercrime vulnerability scores, suggesting a strong inverse relationship. In lower-readiness countries, reported cybercrime incidents were 2.5x higher per capita compared to digitally advanced nations. AR&P (2025)
Education and skills		
Missed education opportunities lead to lower earnings and underemployment and a growing skills gap, as well as the loss of human capital	The lifetime earnings gap for students without digital access. The cost of lower educational attainment due to digital exclusion.	Paper shows that schools with limited digital capacity in 8 OECD countries (especially in socio-economically disadvantaged areas) struggled with teaching and led to pupils developing fewer digital skills. Southern EU countries and Eastern European ones lagged in the digital education index. OECD (2023)

Health and wellbeing		
Unequal access to telehealth and digital health means **poorer health outcomes** in digitally excluded region	The cost of delayed care due to lack of telehealth access.	Most deprived areas show 22% lower NHS app activation rate indicating reduced access to digital health services. This is also true of older people (>75) and those in rural areas where significant digital barriers exist. BMJ (2023)
Delayed diagnoses and treatment in rural areas lead to worse public health, decreased life expectancy, and **greater costs of treatment**	The economic burden of preventable hospital visits in digitally excluded areas.	Digitally excluded individuals are 1.5 times more likely to struggle interacting with health services, increasing the risks of delay in care. This often leads to higher reliance on emergency services which is more costly. Cost of late intervention in NHS at £3.7bn annually. Good things foundation (2024), Lloyds Bank 2024 Consumer Digital Index
Mental health impact of digital isolation lead to worse quality of life and requite expensive treatment		In the UK for people with significant mental health issues 42.5% reported digital exclusion, 46.2% lacked essential digital skills for everyday tasks. This exclusion amongst other factors leads to a shorter life expectancy by 20-25 years and much higher emergency service usage. BJP (2025)
Democracy and trust		
Diminished access to accurate and reliable information means **easier spread of disinformation,** decreased trust between people, less awareness of laws, and a potential loss of inward investment opportunities	Rise of populism across Europe, often fuelled by political disinformation campaigns that target people with lower digital skills	Disinformation is now more sophisticated (AI, bots, micro-targeting, often state sponsored or politically motivated). Disinformation erodes trust in institutions, media and elections. Increases polarisation. Manipulates electoral outcomes though misinformation and voter suppression. Digital literacy and education are seen as key factors in fighting disinformation. European Parliament
Reduced civil participation and access to public services **erodes trust in government** and its authorities. It carries potential economic costs and a reduced quality of life to individuals		Connectivity helps to engage in civic life. Bringing previously offline groups online significantly boosts civic engagement and voter turnout. This is because internet access lowers the costs of participation, improves access to political information, and exposes citizens to mobilisation efforts. Sociological science (2024)

Increased social inequality breeds distrust between different groups in society and leads to human capital flight		Digital exclusion rates were highest in areas of high unemployment, low incomes, and poor education. Excluded groups 35% lower understanding of welfare and tax benefits compared to digitally active groups. Excluded groups are less connected to community support and leads to isolation. EUROSHIP (2024)
Public finance impact		
Lost tax revenue and economic underperformance	Lower lifetime earnings, underemployment, exclusion from digital economy and finance tools	The UK government loses an estimated **£483 million annually** in tax revenue due to the lower earnings and economic activity of digitally excluded groups Good Things Foundation & Cebr

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