

HORIZON SCANNING

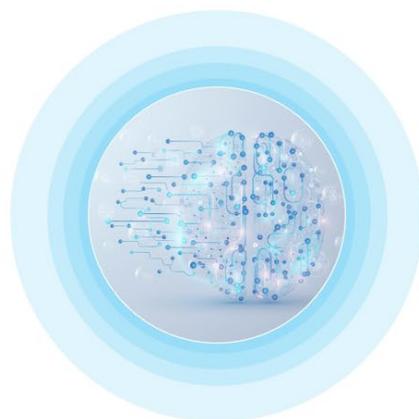
Emerging issues for EU policymaking

Issue 10

This is the tenth report from the ESPAS horizon scanning process which looks at “signals of change” - emerging trends and issues – that appear to be marginal today but could become important for the EU in the future. From the 15 signals of change presented below, three emerging issues were perceived as potentially most impactful by policymakers:



**ERODING SECURITY
(INFRA)STRUCTURES**

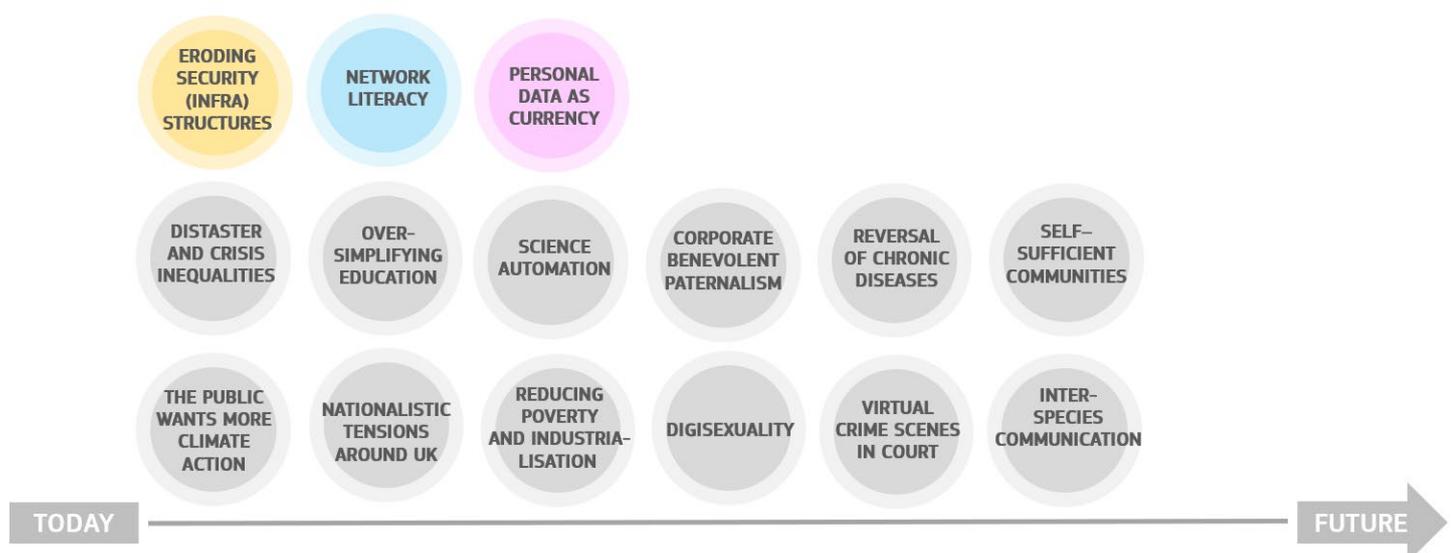


NETWORK LITERACY



**PERSONAL DATA
AS CURRENCY**

The European Strategy and Policy Analysis System (ESPAS) launched the horizon scanning process, led by the Joint Research Centre and the European Parliamentary Research Service, in 2022. The signals of change were identified and developed via a series of sense-making workshops with participants from across the EU institutions and bodies looking at recent developments in multiple domains. The identification of the three most impactful signals was performed through a survey among the horizon scanning community and a targeted set of EU policymakers followed by a workshop to explore and assess the issues in more depth. A summary of this evaluation is presented on the following pages. The selected signals should be viewed as original lenses offering different perspectives on the challenges and opportunities the EU is facing now and could be facing in the coming years. Beyond these three, other signals of change identified in the latest horizon scanning sessions are presented briefly below.



Eroding security (infra)structures

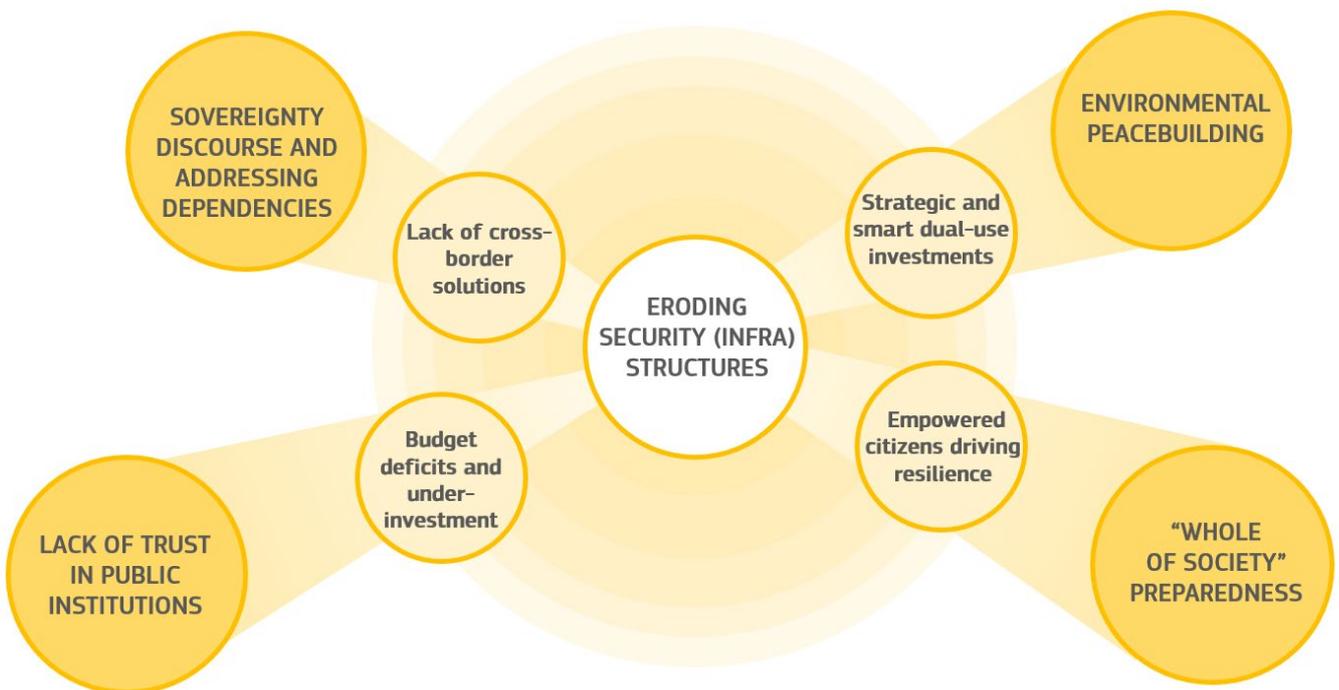
We are witnessing the rise of multiple threats and the disappearance of many security structures that were taken for granted in the past. A large-scale, long-lasting power cut affected Spain and Portugal due to an outdated grid infrastructure struggling to cope with the growing presence of intermittent renewable electricity and electrification of transportation.¹² Floods, heatwaves and cyberattacks and Russia-linked sabotage incidents are increasingly undermining transport sewage, gas and electricity infrastructure.

Security structures are also under stress, especially with the US providing the first signs of disengaging from NATO and wavering intelligence cooperation.³⁴ If this continues, it will have profound effects on NATO's military capability as well as immediate repercussions for the alliance's deterrence. In space technologies, reliance on Starlink might also be a source of vulnerabilities. In this context, we see the EU starting to invest in space reconnaissance and defence.⁵ In other domains, the reflection on resilience is pushing Sweden to reverse course and start to promote the use of cash again⁶. Cybersecurity fears and civil defence are behind this change of heart.

How can it change our perspective?

Resilience of critical infrastructures and strength of security institutions are the backbone of EU preparedness and security policies. However, beyond resilience, a set of new potential responses emerges, such as reversibility (making sure policy decisions can be undone), managed retreat and decommissioning from high-risk zones, designated failure and controlled collapse, re-purposing and re-wilding infrastructure assets by integrating natural processes.

Futures Wheel: An indication of potential consequences



What if the EU...?

...did not treat the infrastructure networks independently but took a holistic approach to create networks that can be quickly repurposed, reconfigured and were designed for multi-use?

Network literacy

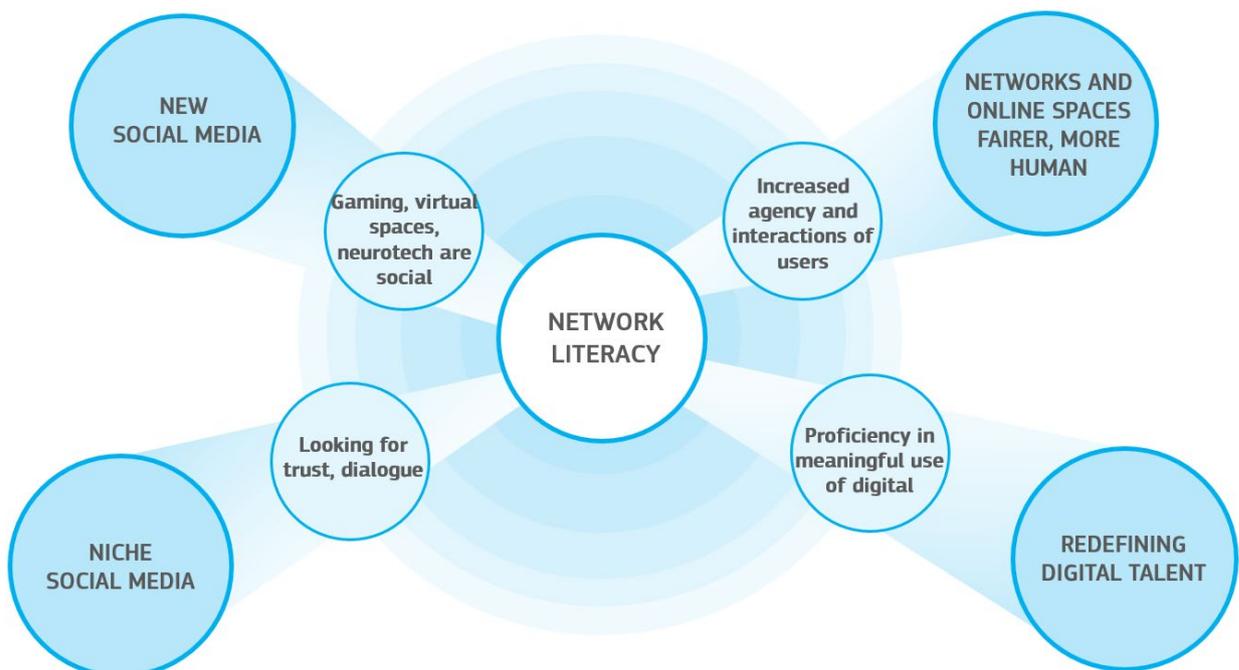
We are witnessing a significant shift in how knowledge is produced, validated and experienced. Digital platforms are shaping our realities and influencing what we know, feel and believe. This demands a new kind of literacy – network literacy⁷ – that goes beyond technical competence to include civic and ethical awareness.^{8,9} In addition to digital, AI and media literacy, network literacy highlights the understanding of the networked world and the skills to critically interpret platform dynamics and navigate algorithmic influence. Students must understand how digital environments condition their perceptions of reality¹⁰. This development also leads to the rise of networked citizenship, where individuals are co-creators of meaning and influence within emotion-driven, data-saturated systems. Digital platforms are redefining public engagement, empathy and mobilisation.

However, this shift also threatens our liberty as subscription services replace ownership with permission to use, creating a system of ‘subscription slavery’.¹¹ Digital platforms are creating personalised realities, defining what we learn, shop and mobilise around. These ‘bubbles’ of information and influence shape our public engagement and make it difficult to switch between networks. As we become loyal customers rather than active citizens, the risk of losing autonomy and agency grows. To mitigate this, we need network literacy to act as conscious actors.

How can it change our perspective?

Connectivism is a theory that views learning as connecting nodes of information sources, human and non-human – ‘the network is the learning’.¹² As education and skills development have become core elements of most public policies, governing, facilitating and building networks will have as much impact as developing syllabuses or information and awareness campaigns.

Futures Wheel: An indication of potential consequences



What if the EU...?

...made use of the increasing trend of fragmentation of the Internet to create and structure new networks which enhance citizens’ network literacy and network citizenship?

Personal data as currency

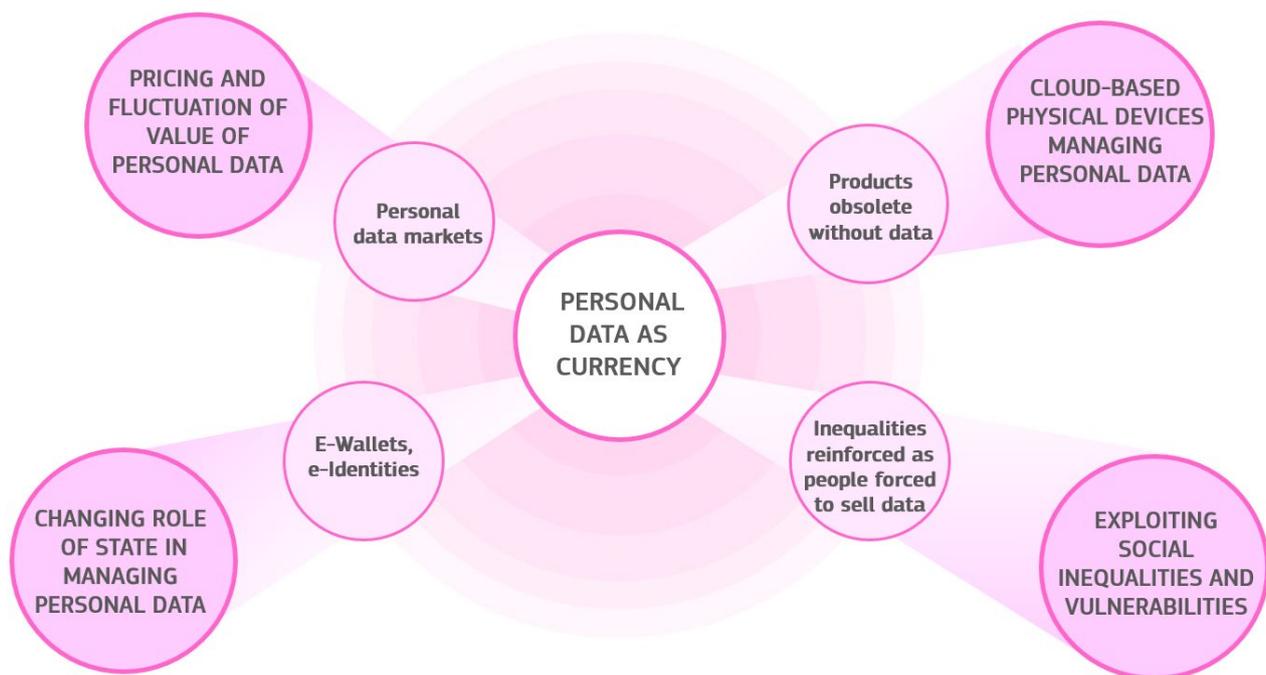
As governments already hold and manage a considerable amount of citizens' personal data, often through e-wallets, there are attempts to use these systems to help citizens sell their data.¹³ Brazil is piloting a dWallet solution, which lets users deposit the private data they generate into a "data savings account" and on accepting a company's offer on their data¹⁴, payment is delivered in the data wallet and can be moved to a bank account¹⁵.

Such initiatives could bring more income for citizens, but they also mean more state control in terms of taxes and flows of data. This could also be seen as a first step towards opening such data savings accounts for their AI agents and robots, as data-generating extensions of themselves.¹⁶ Meanwhile, various data collectives (unions, trusts, mutuals and clubs) are emerging as bottom-up initiatives to give participants more control over their data.¹⁷

How can it change our perspective?

The legal protection approaches emphasise rights-based protections rooted in privacy, dignity and fair processing laws such as the EU data protection regulation, in which transferring ownership rights over one's own data is not allowed. The proprietary approach conceptualises personal data as a form of property, granting individuals ownership-like rights over their data. It encourages them to treat it as an asset that they can own, trade, monetise and use to create value.

Futures Wheel: An indication of potential consequences



What if the EU...?

... managed citizens' personal data as part of the social security systems and the European Pillar of Social Rights?

Other signals of change

- **Disaster and crisis inequalities**

Lately, in a fast-changing world in which ‘polycrisis’ has become a buzzword, EU policymakers still talk about transitioning towards a ‘fair and sustainable’ future. Yet there is ample evidence that the many disruptions we face do not affect everyone equally. Examples abound. The financial shock of 2008-2009 has affected southern Europe particularly hard through an economic crisis that caused a political one, increasing inequality and social unrest, weakened public institutions and strengthened political disaffection.^{18,19} The Covid-19 pandemic has hit the poor hardest, as they suffer generally from poorer health than the rest of the population, are less likely to be able to work remotely, and often live in higher-density conditions, which puts them at increased risk. They also often have less access to healthcare.^{20,21}

Regional differences in the availability of natural resources also contribute to inequality. Geographical and socio-economic factors lead to inequalities in the face of extreme weather events.²² With an increasing number of heatwaves, a new divide is appearing between those better-off, living and working in air-conditioned spaces and those who have to work, often outdoors, in stifling heat. This diversity of causes of inequality is creating a systemic challenge that policymaking needs to address over the long term.

- **Oversimplifying education**

A trend towards simplification is emerging. Culture and education are being watered down to make them more accessible, rather than helping people engage with more complex ideas. One example is the renaming of spider species in Finland, which aims to make this topic more accessible and to reduce fear or stigma.²³ Another example is the ‘emotional bookshop’ in Naples, which emphasises emotional intelligence and empathy by organising books according to emotions rather than the usual categorisation by topic or literary genre.²⁴ This trend is accompanied by a growing reliance on AI, edutainment and gamification, which can lead to an oversimplification of public discourse. The market for educational products is expanding, with examples such as Netflix’s ‘Adolescence’ being incorporated into UK school curricula.²⁵

At the same time, the number of people who do not follow the news is at a record high. According to an Opinium poll in the UK, only 47% viewed television news programmes regularly or had done so in the previous week. The figure fell to 29% for radio news and 26% for news websites.²⁶ As people increasingly avoid news due to feelings of overwhelm and mistrust, the trend of simplification may continue. The question remains: will we prioritise depth and complexity in our culture and education, or continue down the path of simplification?

- **Science automation**

The automation of scientific inquiry is the use of robotics and automation in science laboratories to perform experiments without, or with minimal, human intervention.²⁷ Across the fields of chemistry, biochemistry and materials science, such automated-science factories can perform experiments faster, more safely and more accurately, and with greater reproducibility. They rely on AI for synthesis, evaluation and characterisation.

One example is the A-Lab of the Lawrence Berkeley National Laboratory, a fully automated lab that uses AI-guided robots to synthesise and analyse new materials, run experiments and optimise research with limited human oversight.²⁸ Another approach is the biofoundries and cloud labs, which involve integrated systems where scientists remotely submit experiments and receive digital readouts.²⁹ Although currently limited to well-defined engineering and discovery procedures, automation will gradually enter more exploratory domains of science and overcome human cognitive limits.³⁰ This shift will raise ethical challenges about keeping science connected to societal values, human progress and public trust in science.

- **Corporate benevolent paternalism**

While China seems to be losing manufacturing jobs because of its shift to increasingly automated high-tech export industries and foreign companies divesting from the country³¹, the government is trying to counter the country's declining birth rate, with unexpected consequences in some quarters. For example, the Shuntian Chemical Group, in eastern China, told its 1 200 employees a few months ago that any unmarried workers aged between 28 and 58 were required to get married to avoid being fired, referring to the national call to marry and have children. The company withdrew the announcement because of a media backlash and local officials pointing to violations of Chinese labour law, but employers seem keen on meddling with their employees' emotions and private lives.³²

To counter low morale, Tiffany & Co. executives rolled out an internal app called 'Tiffany Joy', asking staff to post photos celebrating couples getting engaged, colleagues' big sales and other meaningful moments at stores. It soon turned into a chore, with management telling US staff they were not posting frequently enough and asking workers to 'like' posts more quickly.³³ The app was quickly nicknamed 'Forced Joy'. Similarly, at Starbucks, baristas were ordered to handwrite nice messages on customers' cups, a sign of companies responding naively to a widespread lack of wellbeing.³⁴

- **Reversal of chronic diseases**

A new era of medicine is emerging, where the goal moves beyond treating diseases to reversing them.³⁵ For chronic diseases such as type 2 diabetes, heart disease or hypertension, the aim is to eliminate symptoms, normalise biomarkers (such as blood sugar or blood pressure) and minimise dependence on medication through sustained lifestyle changes. Rather than a one-off cure, this is a process that involves changes in nutrition, exercise, stress management, sleep and social connections.³⁶

A different aspect of this shift is regenerative medicine, which seeks to repair, replace or regenerate ageing cells and tissues.³⁷ This is done through cell and gene therapies, tissue and organ engineering, or implantable devices that stimulate the body's healing processes.^{38,39}

- **Self-sufficient communities**

Many intentional communities, ecovillages and small towns across industrialised countries are becoming more self-sufficient.⁴⁰ They prioritise local food production, renewable energy and skill-sharing. Examples include ecovillages in the United States, ReGen Villages and other developments in many countries.⁴¹ They want to reduce their dependence on distant corporations and government structures, and to reduce their vulnerability to economic, social and environmental instability. They also want to reduce their carbon footprint, adapt to climate change, and build local economic stability through community wealth building, jobs and skills training. They seek to strengthen social connections and collective resilience by preserving practical life skills and fostering neighbourly support.⁴²

This shift also extends to cities and small towns, where local initiatives such as farmers' markets, energy co-ops and community businesses are growing in popularity.⁴³ Even urban retrofits are incorporating local self-sufficiency to reduce the burdens on municipal services.

- **The public wants more climate action**

The COP30 Conference in November 2025 witnessed the weakening of the commitment of countries to phasing out fossil fuels, amid general signs of turning away from ambitious climate goals.⁴⁴ At the same time, 80% of people worldwide want political leaders to take stronger action against climate change, according to a UN Development Programme survey.⁴⁵ Even more people (86%) want their countries to set aside geopolitical differences and work together on climate change.⁴⁶ The scale of this consensus is especially striking in the current global context of increased conflict and rising nationalism, and at a time when many parliaments are pushing to roll back green regulation in many countries.⁴⁷ A study found that 2024 United Nations Environment Assembly attendees underestimated global public willingness to contribute 1% of their personal income to climate action by nearly half on average (37% versus 69% in actuality)⁴⁸, impacting the perception of what is possible in terms of policy.

- **Nationalistic tensions around the UK**

While nationalism in Scotland and Northern Ireland has deep, long-standing roots, the rise of English and Welsh nationalism, especially since Brexit, has challenged the structure and unity of the United Kingdom in distinct ways. English nationalist sentiment has grown in areas experiencing economic decline and among certain demographic groups, such as older people. Welsh nationalism, while less intense than Scottish nationalism, has gained support, especially since Brexit.⁴⁹

In Northern Ireland, tensions involving Irish nationalists remain a source of political and cultural division, but the once-taboo idea of Irish reunification is gaining ground. Far-right nationalism, migration debate and independence movements have fuelled broader nationalist tensions and social friction across various UK regions.⁵⁰ Their influence has reshaped British politics, making elections increasingly focused on regional identities and undermining traditional party loyalties.⁵¹ The Brexit referendum has intensified this phenomenon. English and British nationalism fuelled support for leaving the EU, while Scottish, Welsh and Northern Irish perspectives often opposed it, challenging the legitimacy of Westminster rule and destabilising UK unity.

This 'political brew' can be used by adversaries, especially Russia, to undermine the UK's cohesion. The UK government now treats nationalist tensions as part of a broader national security challenge that overlaps with external hostile actions and internal separatist sentiment.⁵²

- **Reducing poverty without industrialisation**

Following China's example, industrialisation is generally seen as the best path towards development and reducing poverty, for example in Africa – but these views are changing. India is given as a counter-example, as it has substantially reduced poverty without following the traditional path of rapid industrialisation. Instead, it has relied on agricultural development, service sector growth and targeted welfare policies. Rather than shifting the rural population into urban factories, as China did, India modernised farming techniques, raised rural wages and expanded agro-based employment. As a result, poverty declined even as 40% of the population remained employed in agriculture. India also used subsidised food, rural employment schemes and social protection systems to help protect the poor against income shocks and provide essentials. Direct transfers through digital infrastructure, such as Aadhaar and Jan Dhan, improved targeting and reduced leakage, making poverty reduction more efficient.⁵³

Growth in the service sector, such as information technology, finance and tourism, also generated jobs, especially in non-urban areas. This sector boomed alongside improvements in education and infrastructure, drawing people out of poverty without the need for mass industrial employment. India's anti-poverty strategy emphasised inclusive development, combining better rural infrastructure, financial inclusion, healthcare access and educational support. This comprehensive approach enabled millions to escape poverty while remaining in rural settings and participating in agriculture or services. This experience can provide a model for other developing economies.⁵⁴

- **Digisexuality**

With the development of sex-related technologies, robotics, AI companions and virtual reality, the concept of digisexuality is gaining recognition.⁵⁵ It refers to sexual experiences facilitated or mediated by digital tools. These began with dating apps, sexting and online pornography, and now include immersive technologies such as virtual reality sex and sex robots that may fully replace human partners, both emotionally and sexually. Digisexuality is emerging as a new sexual identity for people for whom technology is an integral part of their sexuality and who may not feel the need for human partners.⁵⁶ Thoughtful engagement with this topic will shape whether it makes us more connected and engaged or more disconnected and isolated, so judgement-free discussion is needed.

- **Virtual crime scenes in the court**

Virtual and augmented reality are increasingly used by police to reconstruct crime scenes and analyse evidence.⁵⁷ This kind of evidence has been brought to court in recent years, with judges or jurors 'visiting' the crime scene in virtual reality.⁵⁸ Extended reality can improve accuracy, efficiency and collaboration in forensic investigation processes. It can also help preserve crime scene data and reduce training costs. However, it can lead to emotional bias (triggering stronger emotional responses), potential biases linked to who creates and interprets the virtual models, and a risk of misrepresentation, as people may give more authority to realistic representations than is warranted.⁵⁹

- **Interspecies communication**

AI and advanced sensing technologies are enabling breakthroughs in decoding and responding to animal communication.⁶⁰ Using large-scale data collection, bioacoustics and machine learning, researchers are identifying structured communication patterns in species such as whales, dolphins^{61,62}, birds and bees.^{63,64} Initiatives such as Project CETI⁶⁵ (focusing on sperm whales) and the Earth Species Project⁶⁶ are leading this research and are developing initial steps towards two-way dialogue or ‘talking back’, while some companies, such as China’s Baidu, look to patent an AI system to decipher animal sounds.⁶⁷ These efforts extend beyond pet ‘translation’ wearables and apps, and reflect a growing capacity to tap into ecosystems as networks of communicative systems.

For policymakers, this emerging field opens new possibilities for biodiversity monitoring, animal welfare assessment and disaster preparedness by interpreting stress signals, migration cues and environmental disturbances in real time.⁶⁸ It also raises ethical and legal questions regarding ecological data governance, species rights and responsible technology deployment.⁶⁹ As AI, field biology and sensor technologies converge, these developments highlight the need to consider multispecies coexistence proactively in EU digital and environmental policies, and in any other policies that impact or rely on other species.⁷⁰

ENDNOTES

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