



NAT/794

**Digitalisation and Sustainability –
status quo and need for action from a civil society perspective**

OPINION

European Economic and Social Committee

**Digitalisation and Sustainability –
status quo and need for action from a civil society perspective**
(Exploratory opinion)

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1. Conclusions and recommendations

1.1 The EESC calls for policies that further embed a digital economy incorporating our societal values, thus ensuring that a digital wellbeing economy is **as inclusive as possible**, allowing workers, consumers, SMEs, large companies and non-profit economic actors to benefit alike, especially in rural areas. Such policies include:

- developing **fiscal policy** to ensure that digital businesses pay their fair share of taxes;
- building upon the General Data Protection Regulation (GDPR) to develop a distinctive **law on data protection in the workplace**, on social media and in e-commerce;
- adjusting current competition and monopoly law in order to regulate digital platform markets;
- fostering open-source software and applications;
- taking a "public money – public data" approach, so that publicly-funded research data is publicly available;
- developing a strategic EU data governance policy, including new legislation for "public data trusts".

1.2 The EESC calls on national and local governments to support cooperative sharing platforms. It also calls for transparent, fair and green ICT production chains, ambitious energy standards and an extension of the EU eco-design directive, and asks the European Commission to:

- adapt EU legislation to make online shopping more sustainable, and develop responsible policies on packaging, deliveries and return of packages;
- protect small operators in the market against monopolistic platforms;
- develop a comprehensive set of criteria and indicators for sustainable software products and a digital product pass;
- improve GDPR regarding data sufficiency and data coupling;
- impose restrictions on online advertising to create ad-free spaces.

1.3 The COVID-19 pandemic led to a sudden and significant decrease in transportation, production and consumption; the increased use of ICT mitigated energy-intensive working practices and lifestyles. The EESC calls for appropriate political measures to help consolidate these positive aspects after the pandemic. This, of course, raises wider questions about the energy efficiency of the "cloud" and the data centres that sustain it. For example:

- establishing an EU inventory of data centres (covering energy efficiency, lifecycle, construction materials, etc.) and a top-runner scheme, to ensure that the most energy-efficient data centres become the norm;
- requiring new data centres to be run by 100% renewable energies;
- using Artificial Intelligence (AI) to support the climate and energy transition;
- suggesting measures for sustainable AI solutions.

1.4 The EESC recognises the central importance of sustainable smart city development, including innovative approaches to integrated mobility, energy and tourism.

2. Background and foundations

- 2.1 This opinion was requested by the German Council Presidency and seeks to investigate the two global **megatrends of digitalisation and sustainability** from the perspective of European organised civil society. The EESC welcomes this approach to align the green and digital transitions, as this alignment is key to Europe's future prosperity and resilience.
- 2.2 The EU has fully committed itself to the **UN 2030 Agenda**¹ and its **17 Sustainable Development Goals** (SDGs) and acts in the context of international climate accords such as the **Paris Agreement**². To guarantee their proper implementation, the EU needs to develop and finalise an overarching strategy for Sustainable Development.
- 2.3 The EESC welcomes the **European Green – and Social – Deal**³ (EGD) and its Just Transition Fund, as they should deliver the large-scale investment needed for a just transition to a climate-neutral economy. The EESC considers that the **European Circular Economy Stakeholder Platform**⁴ is key to delivering the objectives of the new **Circular Economy Action Plan**⁵ and looks forward to continuing this collaboration. The EESC stresses that the EU must ensure that digitalisation helps deliver the EGD.
- 2.4 The EESC welcomes the EU's "**Next Generation EU**"⁶ recovery and reconstruction package, aimed at supporting those hit hardest economically by the COVID-19 crisis.
- 2.5 The COVID-19 pandemic is an opportunity to **reflect on how we can remodel and innovate our economy** to make it more environmentally and socially sustainable; the crisis should not distract the EU from its green and sustainability objectives.
- 2.6 The EESC has previously called for a sustainable and inclusive **wellbeing economy**⁷ that works for both people and the planet; this includes using digitalisation appropriately to achieve this goal.
- 2.7 The EESC considers a systematic EU approach to **sustainable consumption**⁸ to be one of the essential building blocks of the EESC's strategic vision of a sustainable, wellbeing economy that leaves no one behind.

1 <https://www.un.org/sustainabledevelopment/development-agenda/>

2 <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

3 https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

4 ECESP, <https://circulareconomy.europa.eu/platform/en>

5 CEAP, <https://ec.europa.eu/environment/circular-economy/>

6 https://ec.europa.eu/info/sites/info/files/factsheet_1_en.pdf

7 EESC opinion: *The sustainable economy we need*, OJ C106, 31.3.2020, p. 1.

8 EESC opinion NAT/789: *Sustainable production and consumption*, (see page XX of the present OJ).

- 2.8 The EESC has advocated a **European path to a digital future**⁹, based on European social values and ethical standards, to ensure that we seize the digital opportunities for the economy, while protecting our privacy and self-determination as well as respecting planetary boundaries.
- 2.9 The Commission's recent **White Paper on AI**¹⁰ proposes a strategy to ensure uptake of AI within the EU and the EESC supports the Commission's ambitions to make the EU an international leader in AI Research & Development and thus to improve Europe's global competitiveness¹¹. At the same time, the EESC would welcome the AI strategy being better embedded into current EU sustainability strategies.
- 2.10 The EESC invites all stakeholders to consider **the impacts of digitalisation across different sectors and across the SDGs** in terms of basic infrastructure, empowerment and transformation.

3. Towards a socially, environmentally and economically sound digitalisation

- 3.1 As we reflect during the COVID-19 hiatus, it is clear that a sustainable digital revolution entails alignment with human factors as well as maintaining non-digital solutions, carefully assessing the risks involved and with special emphasis on resilience. It will be a particular priority to address the digital divide both between and within countries worldwide, with special focus on the Member States, and with an eye on enlargement. Addressing the digital divide within Member States requires public and private investment; the pandemic has highlighted both the opportunities and disadvantages of digital communication, particularly for those living in rural areas.
- 3.2 This opinion will focus on SDG8 (decent work), SDG12 (consumption and production) and SDG13 (climate action)¹², and will therefore strongly link factors for environmental and social sustainability. Aligning these concerns is key to a form of digitalisation that works for all of us. Other particular points of focus include digital education (SDG4), smart cities (SDG11) and e-health (SDG3), and we recommend more detailed analyses of these areas in the context of civil society in future EESC work.
- 3.3 The pandemic has transformed many of our daily routines into a large-scale field trial of digital implementation: Governments temporarily closed schools, asking pupils, students and teachers to work online, and employers quickly had to rethink their approach to remote working. As we slowly emerge from confinement, we need to reflect on how much digitalisation is desirable and appropriate, and how we can maintain intra- and inter-generational fairness aligned with the SDGs in the process.

⁹ EESC opinion INT/896: [Shaping Europe's digital future](#), (not yet published in the OJ).

¹⁰ White Paper on AI: A European approach to excellence and trust, https://ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf.

¹¹ Competitiveness in this context must not be defined only by quantity but also by quality, so as to balance economic prosperity, environmental aspects and social inclusiveness.

¹² These are the most commonly referenced SDGs according to the World Business Council for Sustainable Development's 7th annual review of corporate environmental, social and governance reporting and disclosure, 2019.

The EESC invites all stakeholders to consider the impacts of this unexpected "digital step forward" in the context of the following three dimensions of digitalisation: Basic infrastructure, empowerment and transformation. To illustrate this, we give the example of our education and work environments, but we recommend employing it as a heuristic in other areas to capture these dimensions with their respective benefits and risks.

3.3.1 **Basic digital infrastructure**

While we take it for granted that the internet provides near-universal access to knowledge for many of us in Europe, we must continue working to enhance the quality, safety, reliability, inclusiveness and accessibility of online services. As we move into an age increasingly dominated by AI, it is crucial to analyse the scientific, societal and pedagogical experiences and outcomes of this unexpected situation, noting UNESCO's recent report on AI¹³. We are already aware of significant social inequalities in this context, including a lack of electronic devices, training and connectivity.

In line with the precautionary principle, potential negative factors could include increased screen time, exposure to devices in general, posture, radiation, concerns over the impact of 5G with respect to our health, "fake news", internet fraud, cyberbullying, and surveillance issues – all of which warrant further serious research.

3.3.2 **Digitalisation as a tool for empowerment**

On the plus side, we have all had a dramatic reminder of the potential of digitalisation as a tool for empowerment in everyday life. For example, information is readily available and this allows for independent, life-long learning and flexible working. The versatile and rich environment includes audio, video, text, animations, virtual training environments, live chats, augmented reality and virtual reality on a broad range of subjects tailored to our schedule and needs, whether we are pupils, students, employees or simply seeking to acquire new knowledge or skills.

The internet is also serving as a catalyst for civil society movements, and in particular has been powerful in mobilising people to take political or environmental action such as Fridays for Future, or as spectacularly illustrated in the Hong Kong demonstrations in recent years.

At the same time, we appreciate that the use of "high tech" digitalisation does not necessarily result in greater sustainability – e.g. indigenous communities or groups of elderly people with "low-tech" approaches tend to have more sustainable, non-digital solutions.

¹³ UNESCO: Steering AI and advanced ICTs for knowledge societies: a Rights, Openness, Access, and Multi-stakeholder Perspective.

3.3.3 Digitalisation as a tool for transformation

The lessons learned from this "global lab" experience provide a great opportunity to draw conclusions on how this will affect future developments, such as the ideal mix of tailored distance learning and on-site education. The world's top-ranked institutions are already offering Massive Open Online Courses (MOOCs) through collaborations such as Coursera, offering everyone some of the rewards of a dream university.

The environmental and social implications are striking. There has been much less business travel, resulting in a reduction of air- and environmental pollution in general, less noise, a decrease in human stress, and it is likely that some of these new patterns will remain even after recovery. For many, there has been more time at home/with family and a focus on local suppliers like farm shops, though plainly, for some there has also been great hardship.

In terms of infrastructure, this is a perfect opportunity to raise and analyse community investment and cost efficiency issues.

3.4 SDG 8: Decent work and the wellbeing economy

Digitalisation bears great potential for the wellbeing economy. But the benefits are unevenly shared, with the risk that an increasing share of capital and assets will accumulate in the hands of a few players. Most digital platforms and software businesses are located in the USA and Asia¹⁴. European SMEs depend on their services, and for example, with Fulfilment By Amazon, lose a share of their sales due to royalty payments. To counteract this oligopolisation trend, we need to build an inclusive wellbeing economy in Europe. The EESC supports the development of **fiscal policy** to ensure that digital businesses pay their fair share of taxes¹⁵.

3.4.1 Digitalisation and its effects on employment

Digitalisation in the work environment holds many opportunities for a desirable rationalisation of work¹⁶, for example by using "cobots"¹⁷, but it also entails certain risks unless we integrate it firmly into our European social values and ethical standards by using a "human-in-command" approach. Specific challenges in this context are:

¹⁴ Such as Google/Alphabet, Apple, Facebook, Amazon or Microsoft in the USA and Alibaba or Tencent in China.

¹⁵ Such as the Digital Services Tax introduced in France; however, this was perceived to be discriminatory against non-EU companies.

¹⁶ Rationalisation due to robotisation, automisation, AI, labour efficiency improvements and sectoral change.

¹⁷ A cobot is a collaborative robot that can work together with people by taking over repetitive, undesirable or dangerous tasks and by creating new tasks that are more rewarding.

- A shift in the **ratio of jobs to revenues** in the new business segments, with digital businesses generating more sales with fewer jobs. Most scientific studies assume that the *net effects* of digitalisation on the labour market will lead to increased unemployment¹⁸¹⁹²⁰²¹²²²³.
- A precarisation of jobs, where fewer people are likely to have satisfying and well-paid jobs, while an increasing number may find themselves reduced to unstable employment conditions in the so-called "Gig Economy", characterised by part-time labour, short-term or zero-hour contracts²⁴²⁵²⁶²⁷²⁸.
- A polarisation of incomes, as the share of gross domestic product (GDP) attributed to wages falls, while the share of investment income²⁹ rises³⁰³¹³². This polarisation of incomes may depress purchasing power³³³⁴³⁵.
- A trend towards outsourcing of labour and labour control. The perceived gain in autonomy when working from home should not come at the cost of employees' interests (e.g. a safe workplace, stable working conditions, the right to disconnect, and data protection in the workplace). The EESC therefore calls for a strong interpretation of the EU's GDPR and suggests establishing a distinctive law on data protection in the workplace.
- A targeted use of AI to improve labour market functioning, e.g. by anticipating skills needs or effects on working times and conditions, with the aim of achieving a wellbeing economy.

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- 18 Muro/Maxim/Whiton, Automation and Artificial Intelligence: How machines are affecting people and places, 2019.
- 19 Frey/Osborne, The future of employment: How susceptible are Jobs to Computerisation?, 2013 The authors do not make any precise statements about how rapidly this process could unfold, speaking instead, relatively vaguely, of one to two decades.
- 20 Ziehran/Gregory/Arntz, The risk of automation for jobs in OECD countries: a comparative analysis, OECD Social, Employment and Migration, 2016.
- 21 International Federation of Robotics: The Impact of Robots on Productivity, Employment and Jobs, 2017.
- 22 Ziehran/Gregory/Arntz: Racing With or Against the Machine?, 2016.
- 23 World Economic Forum: Future of Jobs Report, 2018.
- 24 Muntaner, Digital Platforms, Gig Economy, Precarious Employment, and the Invisible Hand of Social Class, 2018.
- 25 For a typology of Crowdwork Platforms see: Howcroft/Bergvall-Kåreborn, A Typology of Crowdwork Platforms, 2019.
- 26 Uws et al., Crowd work in Europe: Preliminary results from a survey in the UK, Sweden, Germany, Austria and the Netherlands, 2016.
- 27 Berg, Income security in the on-demand economy: Findings and policy lessons from a survey of crowdworkers, 2015.
- 28 Bartmann, The Return of the Servant, 2016.
- 29 Including shareholder values and dividends from digital platforms, firms leading the way on AI, robotisation etc.
- 30 Stockhammer, Determinants of the Wage Share, 2017.
- 31 Hudson, The Road to Debt Deflation, Debt Peonage, and Neofeudalism, 2017.
- 32 Lange/Santarius, Smart Green World? Making Digitalisation Work for Sustainability, 2020.
- 33 Cf. Staab, The consumption dilemma of digital capitalism., 2017.
- 34 Summers, Larry Summers at IMF Economic Forum, 2013.
- 35 Teulings/Baldwin, Secular Stagnation: Facts, Causes and Cures, 2014.

(This may include considerations about the introduction of a basic income, a reduction of hours for full time-jobs, or levies for low-paying jobs.)

3.4.2 Power through accumulation of data

The rise of the "digital giants" with monopolisation and oligopolisation has distorted competition. Moreover, the concentration of information and knowledge has implications for political sovereignty and personal self-determination, as large parts of internet traffic (e.g. personal and market-related data, news and public discourses) are in the hands of a few global (non-EU) IT companies. The EESC calls on the Commission to adjust current competition and monopoly law to regulate digital platform markets³⁶. The EESC also notes the importance of protecting the rights of citizens in the context of GDPR, and that the exploitative aspect of surveillance capitalism needs to be openly discussed and debated.

Moreover, platforms like Amazon act increasingly as market participants within their own markets while controlling the economic infrastructure (i.e. the shopping platform, distribution channels, and advertisements) where thousands of competing sellers offer their products. Amazon uses this data from third-party sellers to push its own products, thus disadvantaging its competitors³⁷. A revision of EU competition law along the lines of the Indian FDI-regulation³⁸ could identify and sanction such abusive practices.

Securing the neutrality of new digital platform markets³⁹ is vital to ensure fair play for all market participants. The EESC suggests regulations on 'natural monopolies' in the digital economy to ensure their governance by civil society or public authorities⁴⁰. This includes interoperability between competing platforms to ensure competition within the digital market, for example with legislation on mandatory predefined interfaces for information exchange.

3.4.3 Data governance: Towards a strategic EU Data Governance Policy

The EESC calls on the Commission and EU Member States to foster Open Source software and applications as tools to encourage business models and applications that allow open access and just benefit-sharing.

In addition, the EESC advocates a "public money – public data" approach, which would require publicly funded research and development projects to make data available, for example, in accordance with creative commons or public copyright licenses.

36 E.g. search engines or Internet of Things, e-commerce and social media platforms.

37 Feiner, Amazon admits to Congress that it uses 'aggregated' data from third-party sellers to come up with its own products, 2019.

38 Indian FDI-regulation 5.2.15.2.4. v: "An entity having equity participation by e-commerce marketplace entity [...] will not be permitted to sell its products on the platform run by such marketplace entity."

39 Especially those operating in the area of public goods (health, mobility, city).

40 E.g. a public search engine, a GAIA X cloud server, or civil society-governed social media platforms.

Moreover, the EESC suggests developing a strategic EU data governance policy to strike a balance between making data as open as possible while ensuring that public economic actors and SMEs do not lose their core business to large internet and data firms. In the past, mere "open data" played one-sidedly into the hands of large internet companies. The EESC calls for the establishment of "Public Data Trusts" to function as intermediaries between actors that generate data and/or intend to use data. Different data trusts could be established for mobility-related data, city-related data, etc. New legislation is needed to create public mandates for governmental or civil society organisations to host such data trusts, including deciding about access to and benefit-sharing of products and services. Data relevant to public services should balance entrepreneurial innovations, public sovereignty, rights of universal access, and citizen welfare. Looking ahead, it is crucial to further develop blockchain technologies and ensure algorithmic transparency.

3.5 SDG 12: Responsible consumption and production

Digital apps have great potential to advance **sustainable consumption**⁴¹, so the EESC calls on national and local governments to support cooperative sharing platforms as well as e-commerce platforms offering sustainable products⁴². A new smart sustainable system on sustainable food labelling, as recently suggested by the EESC, would provide **comprehensive information** about products⁴³ to promote sustainable consumer choices and lead to healthier diets⁴⁴.

To increase the **sustainability of online-shopping**, the EESC suggests EU legislation to promote good practices to reduce returned packages (e.g. by restricting free returns)⁴⁵, prohibit the destruction of returned packages, bundle deliveries and increase utilisation rates of delivery cars.

60% of all data traffic is **video streaming**. As voluntary limitation during COVID-19 has shown, low-resolution alternatives are widely accepted and more sustainable, so they should be encouraged.

3.5.1 Sustainable ICT

ICT hardware production should apply circular economy standards. Issues include mining rare earths and other materials, and device production, which often involves poor working and environmental conditions (e.g. in China and other countries of the Global South).

The EESC calls for more transparency in ICT production chains. We need an extension of the EU eco-design directive⁴⁶ to include comprehensive production standards, including i) sustainable

41 Such as sharing purchases (and experiences) between consumers, second-hand barter, digital forms of "prosuming", local digital platforms to promote local businesses, and, where appropriate, short supply chains.

42 E.g. "La ruche qui dit oui", a Belgian platform with organic and seasonal produce.

43 Such as information about production, environmental effects, composition, use, repairability and usability of any given product.

44 EESC opinion: *Promoting healthy and sustainable diets in the EU*, [OJ C190, 5.6.2019, p. 9](#).

45 Note that on average, every eighth package purchased online is returned. <https://www.salecycle.com/blog/featured/ecommerce-returns-2018-stats-trends/>.

46 Directive 2009/125/EC.

materials (recycled and renewable resources); ii) hardware design (maximise longevity - devices to be modular and repairable); iii) software updates to last until end of a product's physical lifetime; iv) extended warranty periods; v) reuse of functional devices and increasing recycling of materials; vi) ambitious energy standards, including a dynamic top-runner regulation, in which the most energy-efficient product becomes the minimum standard; vii) sustainability standards for development of software and apps, incentivising developers to design software in a way that data traffic and hardware utilisation during application are as low as possible. The EESC welcomes the Karlskrona Manifesto for Sustainability Design and calls on the Commission to develop comprehensive criteria for sustainable software products⁴⁷⁴⁸.

3.5.2 Transparent product chains

Digitalisation must advance transparency and responsibility along product chains. The EESC welcomes the EGD proposal reiterated by the German government in its recent "Digital Policy Agenda for the Environment" to establish a "digital product pass" with information on materials and standards in production to identify shortcomings in sustainability production in line with the European CSR-strategy⁴⁹, including labour standards.

3.5.3 Strengthening cooperative platforms

The EESC calls on the Commission and EU Member States to foster the development of cooperative internet platforms, operating as neutral intermediaries to better distribute benefits amongst producers/service providers, and include citizens/consumers in governance, decision-making and benefit-sharing.

For example, the cooperatively-run federation CoopCycle provides the platform software for bike delivery cooperatives in nine European cities. The rental platform Fairbnb incorporates cities and regions as stakeholders. By donating 50% of its revenues to local community projects, it fosters a new understanding of European tourism that benefits both travellers and hosts.

The EESC calls for political support to help such platforms to scale across Europe. Procurement regulations should be adapted to ensure that local authorities can give them preferential treatment.

3.5.4 Online advertising and consumption

The EESC is concerned by the increasing trend of e-commerce platforms that foster unsustainable forms of consumption. Tracking of online purchasing decisions and personalisation of ads foster unsustainable mass consumption. The EESC considers that the use of data for third party purposes is not sufficiently resolved by the GDPR and calls on the Commission to enhance this legislation on the principles of data sufficiency (data minimisation) and data coupling.

⁴⁷ C. Becker et al. (2015), Sustainability Design and Software: The Karlskrona Manifesto, in IEEE/ACM 37th IEEE International Conference on Software Engineering, p. 467–476, doi: 10.1109/ICSE.2015.179.

⁴⁸ See also Kern et al. (2018), Sustainable software products - Towards assessment criteria for resource and energy efficiency, Future Generation Computer Systems, Bd. 86, S. 199–210, doi: 10.1016/j.future.2018.02.044.

⁴⁹ A renewed EU strategy 2011-14 for Corporate Social Responsibility, COM/2011/0681.

The EESC also calls for restrictions of online advertising. In many Member States, advertisements are prohibited in public spaces such as schools. The EESC would support ad-free spaces on the internet, particularly on search engines and social media. The EESC notes that roughly half of all global online advertising revenues (more than USD 300 billion per year⁵⁰) go to two US companies: Google and Facebook.

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The EESC welcomes initiatives such as the AI-based "Green Consumption Assistant" currently developed by the Einstein Center Digital Future and Ecosia.org, which intends to advance search engines to assist consumers in purchasing more sustainable products and services.

3.6 SDG 13 Climate action

3.6.1 Digitalisation for environmental protection and climate change

The EESC welcomes digital solutions enabling environmental protection and sustainability transformation in transport, energy systems, buildings, agriculture and other sectors. For instance, a Swiss study found that ICT could save up to 6.99 million tons of CO₂-equivalents (CO₂e) per year, with an own carbon footprint of 2.69 million tons of CO₂e per year⁵¹. Other studies found even larger potentials⁵². However, the EESC notes that overall digitalisation of the economy and society has so far not contributed to a reduction in energy demand and carbon emissions.⁵³ Therefore, reaping the potential of ICT to contribute to climate and environmental protection requires supportive policies, for example to mitigate rebound and induction effects.

3.6.2 Energy consumption of server farms

The "cloud" consists of physical data centres, which are resource-intensive to build and energy-intensive to run. The EESC calls on the Commission to cooperate with EU Member States to establish an EU inventory of data centres, covering energy efficiency, life-cycle, and construction materials. Moreover, the EESC would welcome Commission legislation on integrating data centres into urban dwellings or commercial zones to make best use of waste heat.

The EESC recommends establishing a top-runner scheme in which the most energy-efficient data centres becomes the norm. The EESC would welcome a common agreement among Member States to mandate the building of new data centres with 100% renewable energy.

⁵⁰ Emarketer.com

⁵¹ Hilty & Bieser (2017): Opportunities and risks of digitalisation for climate protection in Switzerland.

⁵² E.g., GESI/Accenture (2015): SMARTer2030. ICT Solutions for 21st Century Challenges.

⁵³ Lange & Santarius (2020) Smart Green World. Making Digitalization Work for Sustainability; Lange, Pohl & Santarius (2020): Digitalization and Energy Consumption. Does ICT Reduce Energy Demand?

The EESC recommends the use of AI to support public climate protection and the energy transition.

- As suggested in the White Paper on AI, the Commission should suggest measures how Member States can promote sustainable AI solutions.
- AI-guided autonomous vehicles could reduce greenhouse gas reductions for urban transport through traffic optimisation/eco-driving algorithms or ride-sharing services with fully electric autonomous vehicle fleets.
- AI can enhance the predictability of demand and supply for renewables across a distributed grid or improve energy storage, efficiency and load management.

3.7 Smart cities and other examples

The EESC welcomes smart city technologies' cloud-based applications that manage data in real time to enable better decisions, such as streamlined rubbish collection, decreased traffic congestion, better air quality, and improved energy distribution (with 100% renewable energy systems, grid management, and fluctuating electricity provision and demand).

3.7.1 A key area is that of mobility, including the concept of **Mobility-as-a-Service (MaaS)**, which catalyses better use of public space, data and infrastructure in order to lower carbon emissions by integrating public and private transportation. Multimodal transportation, including bike-sharing, car-sharing, public transportation, taxi and other modes, can make public and shared transportation much more attractive and reduce reliance on cars. Three leading examples from Member States are:

- **Amsterdam** shares traffic data with interested parties to enable the development of mapping apps integrated with public transport.
- **Barcelona's** famous metro line 9 will run for 47.8 km, with driverless trains to the airport and train stations.
- **Copenhagen's** innovative smart bike system is used to monitor and manage air quality and traffic congestion.

3.7.2 The EESC welcomes Barcelona's smart and sustainable policies and EU smart city projects such as:

- The **REMOURBAN** project⁵⁴ will test a range of technical innovations and business models for city renovation, involving Valladolid (Spain) and potentially Serain (Belgium) and Miskolc (Hungary).
- Tourist cities such as Valencia (Spain), Dresden (Germany) and Antalya (Turkey) are the "lighthouses" in the EU smart city project **MATCHUP**⁵⁵.

54 <http://www.remourban.eu/>

55 <https://www.matchup-project.eu/>

3.7.3 **Sustainable tourism** is key to the post-COVID recovery. We should build on the recent EESC opinions on this matter⁵⁶. In particular, we should encourage pollution-free means of transport such as bikes and collective transport, develop increasingly fuel-efficient aero-engines and promote the renovation of accommodation facilities with **ecolabel certification**.

3.7.4 The EESC welcomes sustainable approaches in the **digitalisation of farming** and refers to the current EESC opinion on the Commission's Farm to Fork strategy⁵⁷. The Committee's ambition is to ensure that small and medium-sized farms also benefit from digital solutions for the necessary agroecological transition if they so wish, provided they are financially sustainable-and remain under the control of the farmers themselves. There are lots of innovative technological applications, many of which are clearly beneficial as society moves towards more sustainable food production (e.g. drones for crop and animal monitoring, robots for sowing, weeding, harvesting or milking, and the prospect of "vertical farms" in cities with much lower water use and local supply). In this context, we encourage co-ownership, shared data schemes⁵⁸ and other innovative models.

Managing the digital revolution in farming presents complex challenges and we note the importance of initiatives like FAIRshare⁵⁹ to promote the use of digital tools to optimise farming practice. Building skills and trust while addressing the special rural digital divide is particularly important in this context.

3.7.5 **E-health** is central to informed, evidence-based decision-making, transparency of care processes, error reduction, improved diagnostic accuracy and cost-efficiency, and reducing waiting times and waste. Social distancing and quarantine pandemic responses have jump-started a far wider awareness of the potential of e-health.

Brussels, 17 September 2020

Luca Jahier

The president of the European Economic and Social Committee

⁵⁶ EESC opinions: *International Trade and Tourism - A Global Agenda for Sustainable Development* (OJ C14, 15.1.2020, p. 40), *Tourism and transport in 2020 and beyond* (INT/909), (not yet published in the OJ).

⁵⁷ EESC opinion on *From Farm to Fork: a sustainable food strategy*, 2020.

⁵⁸ Such as JoinData, an independent data platform for farmers (join-data.nl).

⁵⁹ <https://www.h2020fairshare.eu/>