The European Parliament,

– having regard to Article 173 of the Treaty on the Functioning of the European Union (TFEU), which concerns the competitiveness of EU industry and refers, inter alia, to actions aimed at fostering better exploitation of the industrial potential of innovation and technological development,

– having regard to Article 114 TFEU,

– having regard to Articles 2 and 16 TFEU,

– having regard to the Charter of Fundamental Rights of the European Union (the ‘Charter’),

– having regard to the communication to the Commission of 21 October 2020 on an open source software strategy for 2020-2023 (C(2020)7149),


– having regard to the Commission’s inception impact assessment of 2 July 2020 entitled ‘Legislative framework of the governance of common European data spaces’,

– having regard to the Commission communication of 17 April 2020 entitled ‘Guidance on Apps supporting the fight against COVID 19 pandemic in relation to data protection’¹,

– having regard to Commission Recommendation (EU) 2020/518 of 8 April 2020 on a common Union toolbox for the use of technology and data to combat and exit from the COVID-19 crisis, in particular concerning mobile applications and the use of

anonymised mobility data¹,


– having regard to the Commission proposal of 6 June 2018 establishing the Digital Europe programme for the period 2021-2027 (COM(2018)0434),

– having regard to the Commission communication of 25 April 2018 entitled ‘Towards a common European data space’ (COM(2018)0232) and its accompanying staff working document (SWD(2018)0125),

– having regard to Commission Recommendation (EU) 2018/790 of 25 April 2018 on access to and preservation of scientific information³,


– having regard to the Commission communication of 10 January 2017 entitled ‘Building a European Data Economy’ (COM(2017)0009) and its accompanying staff working document (SWD(2017)0002),


– having regard to the Commission communication of 19 April 2016 entitled ‘Digitising European Industry: Reaping the full benefits of a Digital Single Market’ (COM(2016)0180) and its accompanying staff working document (SWD(2016)0110),

– having regard to the Commission communication of 19 April 2016 entitled ‘European Cloud Initiative – Building a competitive data and knowledge economy in Europe’ (COM(2016)0178) and its accompanying staff working documents (SWD(2016)0106 and SWD(2016)0107),

– having regard to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)⁴ (GDPR),


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¹ OJ L 114, 14.4.2020, p. 7.
the European Union¹,

– having regard to Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA² (Law Enforcement Directive – LED),


– having regard to the Commission communication of 2 July 2014 entitled ‘Towards a thriving data-driven economy’ (COM(2014)0442) and its accompanying staff working document (SWD(2014)0214),

– having regard to Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport³ (ITS Directive) and the delegated acts thereof,


– having regard to the Joint European Roadmap towards lifting COVID-19 containment measures of 15 April 2020,

– having regard to the Member States’ Joint Declaration on building the next generation cloud for businesses and the public sector in the EU of 15 October 2020,

– having regard to the Council conclusions of 9 June 2020 on shaping Europe’s digital future⁵,

– having regard to the Council conclusions of 7 June 2019 on the future of a highly digitised Europe beyond 2020: Boosting digital and economic competitiveness across the Union and digital cohesion,

– having regard to the judgment of the Court of Justice of the European Union of 16 July 2020 in case C-311/18 (Schrems II),

– having regard to its resolution of 17 April 2020 on EU coordinated action to combat the

² OJ L 119, 4.5.2016, p. 89.
COVID-19 pandemic and its consequences,

having regard to its resolution of 12 February 2019 on a comprehensive European industrial policy on artificial intelligence and robotics,

having regard to its resolution of 1 June 2017 on digitising European industry,

having regard to its resolution of 10 March 2016 entitled ‘Towards a thriving data-driven economy’,

having regard to its resolution of 13 March 2018 on a European strategy on Cooperative Intelligent Transport Systems,

having regard to its resolution of 15 January 2019 on autonomous driving in European transport,

having regard to the opinion of the European Economic and Social Committee on the Commission communication entitled ‘Building a European Data Economy’,

having regard to the findings of the annual Digital Economy and Society Index of 11 June 2020,


having regard to Rule 54 of its Rules of Procedure,

having regard to the opinions of the Committee on the Internal Market and Consumer Protection, the Committee on Transport and Tourism, the Committee on Legal Affairs, the Committee on Civil Liberties, Justice and Home Affairs, the Committee on Agriculture and Rural Development and the Committee on Culture and Education,

having regard to the report of the Committee on Industry, Research and Energy (A9-0027/2021),

A. whereas digitalisation continues to transform the economy, society and citizens’ daily lives, and whereas data, which is duplicated every 18 months, is at the heart of this transformation; whereas the volume of data stored worldwide is expected to increase from 33 zettabytes (ZB) in 2018 to 175 ZB in 2025; whereas these processes will only accelerate in the future;

B. whereas digitalisation not only presents an economic opportunity, it is also relevant for
the security, geopolitical resilience and strategic autonomy of the Union;

C. whereas the EU requires the availability of interoperable, flexible, scalable and reliable IT architecture that is capable of supporting the most innovative applications; whereas artificial intelligence (AI) is one of the strategic technologies for the 21st century, both globally and in Europe\(^1\); whereas adequate infrastructure is also required in the EU, notably high-performance hardware to run applications and store data;

D. whereas data is an essential resource for sustainable economic recovery, growth and quality job creation; whereas data-driven technologies could present an opportunity to reduce human exposure to harmful and hazardous working conditions and promote societal progress, and could play a key role in the transition to green and climate-neutral societies and in boosting the global competitiveness of Europe and its companies;

E. whereas the European strategy for data should be consistent with the SME and Industrial Strategies, as it will be instrumental, inter alia, to achieving industrial policy objectives and will be beneficial to European businesses, including SMEs, helping them to successfully face up to the digital transition; whereas there is still a gap between large businesses and SMEs in advanced digital technologies; whereas incentivising the use of data and increasing data access and availability, combined with more legal certainty, can provide a competitive advantage for micro enterprises, SMEs and start-ups to enable them to reap the benefits of the digital transition;

F. whereas public sector and government-generated data at national and local level is a resource that can serve as a powerful engine for promoting economic growth and creating new jobs that can be harnessed in the development of AI systems and data analytics, contributing to a stronger, more competitive and more interconnected industry;

G. whereas there are different initiatives in place to encourage female participation and diversity in ICT; whereas the gender gap continues to persist across all digital technology domains, with AI and cybersecurity among those fields with the largest gaps; whereas this gender gap has a concrete impact on the development of AI, which has predominantly been designed by men, thereby perpetuating and furthering stereotypes and bias;

H. whereas in its communication on a European strategy for data, the Commission specifies that the environmental footprint of ICT is estimated to account for between 5 % and 9 % of global electricity use and more than 2 % of global greenhouse gas emissions; whereas the digital sector has significant potential to contribute to the reduction of global carbon emissions; whereas according to a 2018 study on AI by the Commission’s Joint Research Centre, data centres and data transmission could represent between 3 % and 4% of the Union’s total electricity consumption; whereas the Commission expects a 28 % increase in data centre consumption between 2018 and 2030\(^2\); whereas 47 % of digital carbon emissions are due to consumer equipment such

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\(^1\) As stated in its resolution of 12 February 2019 on a comprehensive European industrial policy on artificial intelligence and robotics.

as computers, smartphones, tablets and other connected objects; whereas it is necessary
to minimise the ecological footprint of digital technology, in particular the volume of
electrical and electronic waste;

I. whereas the Union must take urgent action to reap the benefits of data by building a
competitive, innovation-friendly, ethically sustainable, human-centric, trustworthy and
secure data society and economy that respects human rights, fundamental and labour
rights, democracy and the rule of law and aims to build a new, open and inclusive
knowledge economy, in cooperation with the education system and the cultural
enterprises, which ensures the right to quality education and entrepreneurship,
especially among the new generations, and promotes social innovation and new
business models; whereas investments in skills in cloud and big data can help
companies that have not yet embraced technology to turn their businesses around;
whereas companies considered to be at the forefront of technology must remain
constant updated on recent innovations in order not to lose their competitive
advantage;

J. whereas cloud markets (i.e. Infrastructure, Platform and Software as a Service – IaaS,
PaaS and SaaS) are characterised by a high degree of market concentration, which may
put start-ups, SMEs and other European actors at a competitive disadvantage in the data
economy; whereas the Commission should ensure competitive markets through
interoperability, portability and open infrastructures, and remain vigilant about any
potential abuses of market power by dominant actors;

K. whereas the EU earth observation system – Copernicus – should serve as an example of
the socio-economic benefits that a large amount of freely and openly available data can
deliver for EU citizens and businesses;

L. whereas all uses of personal and mixed industrial data should be consistent with the
GDPR and the e-Privacy Directive; whereas according to Eurobarometer, 46 % of
Europeans would like to take a more active role in controlling the use of their personal
data, including health, energy consumption and shopping habits;

M. whereas Article 8(1) of the Charter and Article 16(1) TFEU provide that everyone has
the right to the protection of personal data concerning them;

N. whereas the Charter also provides that everyone has the right to freedom of expression,
including the freedom to hold opinions and to receive and impart information and ideas
without interference by public authority and regardless of frontiers;

O. whereas the processing of workers’ data has become increasingly complex; whereas in a
growing number of contexts workers interact with technologies, applications, software,
tracking devices, social media or in-vehicle devices that monitor their health,
biomedical data, communications and interactions with others, as well as their level of
engagement and concentration, or behaviours; whereas workers and trade unions should
be more involved in the design of such data processing; whereas only Article 88 of the
GDPR is devoted to employment;

P. whereas business-to-business (B2B) and business-to-government (B2G) data sharing
initiatives can serve to tackle societal and environmental challenges; whereas incentives
for data sharing may include inter alia fair compensation, the exchange of best practices
and public recognition programmes;

Q. whereas proper enforcement should be pursued with particular regard to purpose limitation and data minimisation aspects; whereas the protection of privacy should remain a priority; whereas there is non-personal and public sector data that is consistent with Regulation (EU) 2018/1807 on the free flow of non-personal data and the Open Data Directive respectively;

R. whereas health is a particularly sensitive sector for the processing of personal data and whereas no personal information concerning a patient’s health should be communicated without their full and informed consent; whereas it is particularly important in the field of health to guarantee a high standard of protection for the rights of individuals and to respect the principles of data limitation and minimisation;

S. whereas a common European data strategy should provide benefits for the European transport and tourism sector and contribute to the transition towards a safe, sustainable and efficient transport system, while ensuring sufficient interoperability with other sectors;

T. whereas data sharing in the transport sector is aimed at improving traffic management and thus the safety, sustainability, data minimisation and efficiency of both passenger and freight transport;


V. whereas the Union should be an active global player in setting rules and standards based on its values;

W. whereas at least 20 % of funding under the Recovery and Resilience Facility will be made available for digital infrastructure and capacities, which will deliver a boost to the Union’s digital transition and thus support the data economy;

**General**

1. Welcomes the Commission communication on a European strategy for data; believes that the strategy will be a prerequisite for the viability of European businesses and their global competitiveness and for the progress of universities, research centres and nascent AI, and will mark a crucial step towards building a data society rooted in rights and EU values and defining the conditions for and establishing the Union’s leading role in the data economy, which will lead to better services, sustainable growth and quality jobs; considers that ensuring trust in digital services and in safe smart products is

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3 OJ L 198, 25.7.2019, p. 64.
fundamental for the digital single market to grow and thrive, and should be at the core of both public policy and business models;

2. Notes that the COVID-19 crisis has highlighted the role of and need for high-quality, real-time databases, information and data sharing, as well as shortcomings in the infrastructure and interoperability of solutions across Member States; stresses the impact of the digital transformation and the availability of a wide range of technologies on the Union’s economy and society; welcomes the commitment to establish sectoral data spaces; considers it crucial to speed up the creation of a common European health data space, among other initiatives;

3. Underlines that future data legislation must be designed to facilitate technological development, innovation, data access, interoperability and cross-border data portability; urges the Commission, in this respect, to carry out an evaluation and mapping of the existing legislation in order to assess what adjustments and additional requirements are needed to support the data society and economy and safeguard fair competition and legal clarity for all the relevant actors; calls for the Union to be a leader in establishing an international framework for data, while respecting international rules;

4. Calls for prior impact assessments to be conducted by the Commission on whether the data-driven digital economy requires any changes or adjustments to the current legal framework for intellectual property rights (IPR) in order to promote innovation and the uptake of new digital technologies; welcomes the Commission’s intention to revise the Database Directive\(^1\) and to further clarify the application of Directive (EU) 2016/943 on the protection of trade secrets\(^2\);

5. Believes that the free flow of data in the Union must remain the founding principle and underlines its vital role in harnessing the full potential of the data economy; highlights that the significant increase in the amount of data available, chiefly as a result of smart connected objects and broader data access and use, could entail challenges related to data quality, bias, protection and security or unfair trading conditions that will have to be addressed; believes that achieving the goals of the data strategy should not unduly distort competitive markets in the Union;

6. Recalls that the processing of personal data, including its transfer, must always comply with the Union data protection \textit{acquis}, and that any future sectoral or fit-for-purpose legislation needs to respect them;

7. Recalls that any future proposals that involve the processing of personal data are subject to the supervision of data protection authorities pursuant to the GDPR, in order to ensure that innovation also considers the impact on citizens’ rights; calls for the acts to build upon and align with existing legislation, in particular the GDPR;

8. Points out that existing directives, such as the ITS Directive, should not be weakened by an overarching set of rules and that facilitating a data-sharing environment will be crucial for the EU in the coming years; calls on the Commission to include data sharing, particularly in the field of ticketing and booking systems, in the upcoming revision of

\(^1\) OJ L 77, 27.3.1996, p. 20.
the ITS Directive;

**Values and principles**

9. Believes that the Union must strive for EU-wide data governance and a human-centric, data society and economy based on the Union’s values of privacy, transparency and respect for fundamental rights and freedoms, empowering its citizens to take meaningful decisions over the data produced by or relating to them;

10. Stresses that individuals should have full control of their data and be further assisted in enforcing their data protection and privacy rights regarding the data they generate; underlines the right to data portability and the data subject’s access, rectification and erasure rights provided for by the GDPR; expects future proposals to support the enjoyment and meaningful exercise of these rights; stresses that in line with the GDPR principle of purpose limitation, the free sharing of data must be limited to non-personal data, such as industrial or commercial data, or securely, effectively and irreversibly anonymised personal data, including in the case of mixed data sets; stresses that any misuse of data, including through mass surveillance, must be ruled out;

11. Notes that a well-built data society and economy should be designed to benefit all consumers, workers, entrepreneurs, start-ups and SMEs, as well as researchers and local communities, should respect labour rights, create quality employment without lowering working conditions and improve EU citizens’ quality of life, and should reduce existing digital gaps without creating new ones, especially for vulnerable groups and those who are disadvantaged in terms of abilities and access to digital tools;

12. Urges the Commission to empower consumers, with particular attention for certain groups of consumers considered as vulnerable; believes that industrial data and citizens’ data could help in developing innovative digital and sustainable solutions for products and services that would benefit European consumers;

13. Stresses that the increasing volume, development, sharing, storage and processing of industrial and public data in the Union is a source of sustainable growth and innovation that should be tapped into, in compliance with Union and Member States’ laws such as data protection, competition law and IPR; notes that data is becoming increasingly valued by the market; believes that economic growth can be secured by ensuring a level playing field and a competitive, multi-player and fair market economy, while ensuring interoperability and access to data for actors of all sizes, in order to counter the market imbalances;

14. Stresses that the data strategy must support and contribute to sustainability, the Green Deal and the Union’s climate targets, including climate neutrality by 2050, as well as the resilient recovery of the Union’s economy and social cohesion; points out that ICT can have a positive role to play in reducing carbon emissions in many sectors; calls for measures to reduce the carbon footprint of the ICT sector by ensuring energy and resource efficiency, not least given the exponential growth of data processing and its environmental effects, recalling in this respect the Union’s objectives for reducing greenhouse gas emissions by 2030;

**Data governance and spaces**

15. Supports the creation of a data governance framework and common European data spaces, which should be subject to EU rules and cover transparency, interoperability,
sharing, access, portability and security of data, with a view to enhancing the flow and reuse of non-personal data or personal data that is fully GDPR-compliant and securely anonymised in both industrial and public environments and across and within specific sectors;

16. Insists that the data governance model, including common European data spaces, must be built on a decentralised data operating environment in order to support the creation and emergence of interoperable and secure data ecosystems; emphasises that these spaces should reap the potential of existing and future data spaces or data sharing schemes, which may be organised in a distributed or centralised way;

17. Believes that data management services and data architecture designed to store, use, re-use and curate data are critical components of the value chain of the European digital economy; acknowledges that a vast proportion of data processing will be moving towards edge processing, e.g. to smart connected objects; supports the further uptake of decentralised digital technologies, which enable individuals and organisations to manage data flows based on self-determination, e.g. distributed ledger technologies; stresses that the costs and skills relating to the access to and storage of data determine the speed, profundity and scale of the adoption of digital infrastructures and products, especially for SMEs and start-ups;

18. Calls for the creation of a Commission-led expert group that would have the capacity to help and advise the Commission to set common, EU-wide guidelines on data governance in order to turn interoperability and data sharing into a reality in the EU; calls on the Commission to seek the regular involvement of Member States, relevant agencies and other bodies and stakeholders such as citizens, civil society and businesses in an effort to improve the governance framework; stresses the importance of coordinating the regulators involved in the data economy;

19. Stresses that common European data spaces should prioritise crucial economic sectors, the public sector and other areas of public interest; supports the creation of further such data spaces in the future; calls on the Commission to address fragmentation in the single market and unjustified diverging rules in Member States in order to ensure the development of common data spaces in the EU;

20. Notes that common European data spaces need to be accessible to all market participants, both commercial and non-commercial, including start-ups and SMEs, and take advantage of collaboration opportunities with SMEs, research institutions, public administration and civil society, while increasing the legal certainty of data usage procedures for private and public actors of all sizes; considers it crucial to avoid any risk of unauthorised access to common European data spaces and to create tools to counter possible misconduct; stresses the importance of cybersecurity, including cooperation with the EU Agency for Cybersecurity (ENISA) and the EU Cybersecurity Competence Centre;

21. Urges the Commission and Member States to build interoperable, sectoral data spaces that follow common guidelines, legal requirements and data sharing protocols in order to avoid the creation of silos and to enable cross-sectoral innovations; stresses that the management of sectoral data spaces should take account of the requirements and procedures laid down in sectoral legislation; insists that any actor operating in the EU and taking advantage of European data spaces must comply with EU legislation;
22. Encourages the Commission to use common European data spaces to enhance trust, adopt common standards and regulations, and encourage the creation of well-formed application programming interfaces (APIs) along with robust authentication mechanisms, and to consider using pre-agreed, clearly specified and time-bound sandboxes to test innovations and new business models as well as new data management and processing tools, both in the public and private sector;

23. Believes that well-formed APIs would provide essential access to data and interoperability within data spaces and would enable automatised and real-time interoperability between different services and within the public sector; calls on the Commission and the Member States to further improve individuals’ access to effective remedies under the GDPR, to guarantee the interoperability and data portability of digital services and, in particular, to harness APIs to enable users to interconnect between platforms and to increase the range of options for different kinds of systems and services;

24. Notes the need to help private and public sector actors, notably SMEs and start-ups, to identify and capitalise on the data they generate and possess; calls for action to improve the findability of data to fuel data spaces by facilitating, curating, cataloguing and forming generally accepted taxonomies and cleansing routine data; calls on the Commission to provide guidance, tools and funding from existing programmes to improve the findability of metadata within data spaces; highlights initiatives such as the Nordic Smart Government programme, which aims to enable SMEs to voluntarily share data automatically and in real time through a decentralised digital ecosystem;

25. Recalls the key role of data intermediaries as structural enablers for the organisation of data flows; welcomes the Commission’s plans for the classification and certification of intermediaries with a view to the creation of interoperable and non-discriminatory data ecosystems; calls on the Commission to ensure interoperability by developing minimum criteria between data intermediaries; urges the Commission to work together with European and international standards organisations to identify and close gaps in data standardisation;

26. Underlines the need to address specific issues that could arise in relation to access to and control of consumers’ data, in particular certain groups of consumers considered as vulnerable such as minors, elderly people or persons with disabilities; calls on the Commission, therefore, to ensure that all consumers’ rights are respected at all times and that all consumers can benefit equally from the advantages of the creation of the single market for data; underlines that when the processing of data includes mixed data sets, these data sets must be treated in accordance with the applicable legislation, including the Commission’s guidance on Regulation (EU) 2018/1807 on the free flow of non-personal data;

27. Highlights the need to create common European data spaces with the aim of ensuring the free flow of non-personal data across borders and sectors to ramp up data flows between businesses, academia, the relevant stakeholders and the public sector; calls on the Member States, in this context, to fully comply with Regulation (EU) 2018/1807 in order to allow for data to be stored and processed across the EU without unjustified barriers and restrictions;

28. Recalls that personal and non-personal data, such as industrial data, is not always
separable and can be difficult and costly to separate, with the result being that a large amount of data currently remains unused; recalls, in this context, that data sets in which different types of data are inextricably linked are always treated as personal data, including in cases where the personal data represents only a small part of the data set; urges the Commission and European data protection authorities to provide further guidance on the lawful processing of data and on practices on the utilisation of mixed data sets in industrial environments, while fully respecting the GDPR and Regulation (EU) 2018/1807; considers that the use of privacy protecting technology should be encouraged in order to increase legal certainty for businesses, including through clear guidelines and a list of criteria for effective anonymisation; stresses that the control of such data always lies with the individual and should be automatically protected; calls on the Commission to consider establishing a legislative framework and a clear definition of horizontal and cross-cutting personal data spaces alongside other data spaces, and to further clarify the challenge of mixed data sets; calls on the Commission to empower citizens and companies through, for example, trustworthy intermediaries such as MyData operators which facilitate data transfers with the owner’s consent and provide an adequate level of detail on the permissions; emphasises the need to further develop digital identities, which are the essential foundation of a reliable, multi-player data economy; calls on the Commission, therefore, to revise Regulation (EU) No 910/2014 on electronic identification and trust services for electronic transactions in the internal market¹ and to publish a legislative proposal on a trusted and secure European e-ID; calls on the Commission, moreover, to analyse whether organisations and things, such as sensors, should need digital identities to facilitate the cross-border use of trust services, which are essential for the multi-player data economy;

29. Highlights the potential to improve the quality of law enforcement and to counter bias where it may exist, by gathering reliable data and making it available to the public, civil society and independent experts; recalls that any access by law enforcement to public or privately held personal data in data spaces needs to be based on EU and Member State law, be strictly limited to what is necessary and proportionate, and be coupled with adequate safeguards; underlines that the use of personal data by public authorities should be allowed only with strict democratic oversight and with additional safeguards against its misuse;

30. Notes that data exchanges between Member States in the areas of justice and home affairs are important in terms of strengthening the security of EU citizens and that appropriate financial resources should be allocated in this regard; stresses, however, that stronger safeguards are needed in terms of the way justice and home affairs agencies process, use and manage personal information and data in their proposed data spaces;

31. Supports the Commission’s intention to promote the development of nine common European data spaces for industry (manufacturing), the Green Deal, mobility, health, finance, energy, agriculture, public administration and skills; calls for their development as a matter of urgency; supports the possibility of extending the concept of common European data spaces to other sectors;

32. Highlights the need to devote particular attention to certain sectors such as health; shares the Commission’s view that EU citizens should have secure access to a comprehensive electronic record of data concerning their health and that they should retain control over personal health data and be able to share it securely with authorised

¹ OJ L 257, 28.8.2014, p. 73.
third parties, with all unauthorised access prohibited in accordance with data protection legislation; stresses that insurance companies or any other service provider entitled to access information stored in e-health applications should not be allowed to use data obtained from these applications for the purpose of discrimination, including in the setting of prices, as this would run counter to the fundamental right of access to health;

33. Recalls that the processing of special categories of personal data under Article 9 of the GDPR is in principle prohibited, with certain strict exceptions, which involve specific processing rules and always include the obligation to conduct a data protection impact assessment; highlights the potentially disastrous and irreversible consequences of wrongful or unsecure processing of sensitive data for the individuals concerned;

34. Welcomes the Commission’s proposal to create a European single market for data, including a common European mobility data space, and recognises its huge economic potential;

35. Highlights that this European data space would be of particular interest to the European transport and logistics sectors, as it has the potential to enhance efficiency in the organisation and management of freight and passenger traffic flows, as well as to make better and more efficient use of infrastructure and resources throughout the Trans-European Transport Network (TEN-T);

36. Underlines, furthermore, that this European data space would also ensure improved visibility in the supply chain, the real-time management of traffic and cargo flows, interoperability and multimodality, as well as the simplification and reduction of administrative burdens across the TEN-T, in particular in cross-border sections;

37. Highlights that data sharing could improve the efficiency of traffic management and road safety for all transport modes; stresses the potential benefits of sharing data, such as real-time traffic avoidance navigation and real-time notifications for delayed public transport, in saving extra working hours, improving efficiency and avoiding bottlenecks;

38. Proposes that, in the process of creating a regulatory framework for interoperable data exchange in rail transport, the Commission should revise Commission Regulation (EU) No 454/2011 on the technical specification for interoperability relating to the subsystem ‘telematics applications for passenger services’ of the trans-European rail system¹ and Commission Regulation (EU) No 1305/2014 on the technical specification for interoperability relating to the telematics applications for freight subsystem of the rail system in the European Union²;

39. Welcomes the Commission’s support for the establishment of a common European agriculture data space; recalls the potential of agricultural data and of extensive access to it in order to increase sustainability, competitiveness and the use of resources across the entire agri-food and forestry chains, contribute to the development of innovative and sustainable techniques, improve access to relevant information for consumers, and reduce food waste and the sector’s ecological footprint; urges the Member States’ relevant authorities to enhance and invest in the development of data collection and processing tools for agricultural sub-sectors, as well as for data on the export and import

¹ OJ L 123, 12.5.2011, p. 11.
of inter alia agricultural goods and products;

40. Calls on the Commission to explore the potential merits and scope of creating common European data spaces for the cultural and creative sectors and industries and for cultural heritage; points out that the cultural sector has a significant amount of reusable data, which when combined with other sources, including open data sources and data analytics, could help cultural institutions;

41. Calls for the creation of a European data space for tourism with the objective of helping all actors in the sector, especially SMEs, benefit from vast amounts of data when implementing policy and projects at the regional and local levels, facilitating recovery and boosting digitalisation;

42. Supports the Commission’s initiative to create a strictly defined, EU-wide approach to data altruism and to establish a clear definition and rules on data altruism in accordance with EU data protection principles, notably purpose limitation, which requires that data be processed for ‘specified, explicit and legitimate purposes’; supports the Commission’s proposal that data altruism should always be conditional on informed consent and revocable at any time; underlines that data donated under data altruism is meant to be processed for the purposes of general interest and should not be used to pursue solely commercial interests;

43. Urges that the data governance framework should promote the principle of data for the public good, while always protecting the rights of EU citizens;

44. Highlights that individuals should not be pressured to share their data, and that decisions must not be tied to direct benefits or advantages for those who choose to allow the use of their personal data;

**Data act, access and interoperability**

45. Urges the Commission to present a data act to encourage and enable a greater and fair B2B, B2G, government-to-business (G2B) and government-to-government (G2G) flow of data in all sectors;

46. Encourages the Commission to facilitate a data sharing culture and voluntary data sharing schemes, such as the implementation of best practices, fair contractual model agreements and security measures; notes that voluntary data sharing should be enabled by a solid legislative framework that ensures trust and encourages businesses to make data available to others, particularly across borders; urges the Commission to clarify utilisation rights, notably in B2B and B2G market settings; urges the Commission to incentivise businesses to exchange their data, whether original, derived or co-generated, possibly through a reward system and other incentives, while respecting trade secrets, sensitive data and IPR; encourages the Commission to develop collaborative approaches for sharing data and standardised data agreements in order to improve predictability and trustworthiness; stresses the need for contracts to set clear obligations and liability for the accessing, processing, sharing and storing of data in order to limit the misuse of such data;

47. Notes that market imbalances deriving from the concentration of data restrict competition, increase market entry barriers and diminish wider data access and use; notes that B2B contractual agreements do not necessarily guarantee adequate access to
data for SMEs owing to disparities in negotiation power or expertise; notes that there are specific circumstances, such as systematic imbalances in B2B data value chains, in which access to data should be compulsory, for instance by using well-formed APIs that ensure fair access to players of all sizes or by implementing competition rules to counter unfair or illegal B2B practices; highlights that such imbalances are present in different sectors;

48. Calls on the Commission and the Member States to examine actors’ rights and obligations to access data they have been involved in generating and to improve their awareness, in particular the right to access data, to port it, to urge another party to stop using it, or to rectify or delete it, while also identifying the holders and delineating the nature of such rights; calls on the Commission to clarify the right of actors to benefit from the economic value created by applications trained using data they have been involved in generating;

49. Considers it important to guarantee that legal and technical support is facilitated for companies, especially micro enterprises, SMEs and start-ups, both at national and EU level, such as in the context of the European Digital Innovation Hubs under the Digital Europe Programme, with a view to enhancing the use and sharing of data and improving compliance with the GDPR; considers that access to co-generated data should be provided in a manner that respects fundamental rights and supports a level playing field and the involvement of social partners, even at company level; stresses that such access rights must be made technically possible and granted through standardised interfaces;

50. Calls on all EU institutions and the Member States as well as local and regional administrations to lead by example and put in place real-time services and a policy based on real-time data; stresses that digitalisation represents an opportunity for public administrations to reduce unnecessary administrative burdens and tackle silos in public bodies and authorities with a view to managing non-personal data more effectively, which will benefit the development and provision of public services;

51. Calls for more and better secondary uses of securely anonymised personal data and use of developed privacy-enhancing and -preserving technologies, especially in G2B/G2G exchanges, in order to boost innovation and research and improve services in the public interest; stresses the need for tools to ensure that such secondary uses are always fully compliant with EU data protection and privacy law; stresses that access to data does not preclude privacy;

52. Underlines also that any use of aggregated personal data from social media sources needs to either comply with the GDPR, or truly be irreversibly anonymised; calls on the Commission to promote best practices for anonymisation techniques, and to further promote research into the process of reversing anonymisation and how to counter it; calls on the European Data Protection Board (EDPB) to update its guidance in this regard; expresses, however, caution against reliance on anonymisation as a technique to protect privacy, given that full anonymisation is practically impossible to achieve in certain cases;

53. Stresses the role of the public sector in fostering an innovative and competitive data economy; stresses the need, in this context, to avoid service provider or technological lock-ins for publicly collected data or for data of general public interest collected by private entities; calls for public procurement processes and funding programmes to
secure later data access rights, interoperability and portability requirements based on common technical standards; supports the use of open standards, open source software and hardware, open source platforms and, where appropriate, open, well-formed APIs in an effort to achieve interoperability; highlights the need to protect and promote access for SMEs and in particular start-ups to public procurement processes in the context of the digitalisation of public administrations in order to foster the creation of a dynamic and competitive European digital sector;

54. Highlights that the sharing of data should enhance competition and encourages the Commission to ensure a level playing field in the single market for data;

55. Calls on the Commission to further define for B2G data sharing the circumstances, conditions and incentives under which the private sector should be obliged to share data with the public sector, such as due to its necessity for the organisation of data-driven public services; stresses that compulsory B2G data sharing schemes, for example in situations of force majeure, should have a clearly defined scope and timeline and be based on clear rules and obligations to avoid unfair competition;

56. Calls for improved coordination among the Member States in order to facilitate G2G data sharing and the cross-border flow of data across sectors, through government and stakeholder dialogue, with the objective of establishing a collective approach to data based on the principles of findability, accessibility, interoperability and reusability; calls on the Commission to examine opportunities for data curation at scale;

57. Reminds the Commission and the Member States to fully implement the Open Data Directive, to improve its implementation in terms of the quality and publication of data, and to respect its objectives when negotiating the implementing act on high-value data sets; calls for these data sets to include inter alia a list of company and business registers; underlines the societal benefits of promoting better access to public sector data in ways that strengthen usability across the Union; calls on the Commission to provide a strong link between these high-value data sets and the forthcoming data legislation and deployment of the common European data spaces;

58. Stresses the importance to both the economy and society of extensively reusing public sector data, which should be, to the extent possible, real-time or at least up-to-date and easy to access and process thanks to machine-readable and user-friendly formats; encourages the Commission to coordinate with the Member States to facilitate the sharing of non-sensitive, public-sector-generated data sets in machine readable formats beyond what is required by the Open Data Directive, either for free, whenever possible, or covering the costs, and to issue guidance on a common model for data sharing in accordance with the GDPR requirements; while preserving the flexibility of updates of the high-value data sets, encourages the Commission to extend the scope of the Open Data Directive to additional public data sets and to implement the principle of implicit digital transparency of public sector data so as to encourage Member States to publish existing digital raw data in real-time;

59. Points out that the rapid development of modern digital solutions for transport and tourism, such as autonomous vehicles and intelligent transport systems (ITS), is impossible without the establishment at European level of common, uniform and structured machine-readable data formats, which should be based on open recording standards;
60. Calls on the Commission to identify and establish a voluntary, open and interoperable environmental, social and governance (ESG) data register on corporate sustainability and responsibility performance, which is crucial to ensure sustainable investments and would improve the transparency of companies’ sustainability and responsibility to enable them to better demonstrate action taken towards Green Deal objectives; calls on the Commission to assess which data sets are essential for the ecological transition and supports, in particular, the opening up of private data when justified for public research purposes;

Infrastructure

61. Calls on the Commission and the Member States, with a view to strengthening the Union’s technological sovereignty, to promote research and innovation and work on technologies that facilitate open collaboration, data sharing and analytics, and to invest in capacity-building, high-impact projects, innovation and the deployment of digital technologies, while respecting the technological neutrality principle;

62. Stresses that the ongoing COVID-19 emergency has exposed shortcomings and vulnerabilities in the digital area, both at Union and Member State level; calls for the Commission and the Member States to continue effectively addressing the digital divide, both across and within the Member States, by improving access to high-speed broadband, very high capacity networks and ICT services, including in most peripheral and rural inhabited areas, thus promoting cohesion and economic and social development; points out the potential role for satellite connectivity in ultimately remote areas;

63. Recalls that the success of the Union’s data and AI strategies depends on the wider ICT ecosystem, on closing the digital gap, on accelerating technological developments in inter alia the internet of things (IoT), AI, cybersecurity technology, fibre, 5G, 6G, quantum and edge computing, robotics, distributed ledger technologies including block chain, digital twins, high-performance computing, visual processing technology, and intelligent connectivity at the edge, such as via large-scale, open calls for projects that combine edge and the IoT; underlines that technological advancement based on data processing and the interconnectedness of digital products and services must be backed up by legally-binding ethical standards to mitigate threats to privacy and data protection;

64. Acknowledges the current success of the European High-Performance Computing Joint Undertaking; believes that it is an important instrument to exchange information and data between scientists and researchers and private and public actors more broadly; welcomes the Commission’s proposal to maintain and advance Europe’s leading role in supercomputing and quantum computing;

65. Highlights that the digital sector has significant potential to contribute to the reduction of global carbon emissions; notes that the sector is estimated to be responsible for more than 2 % of global greenhouse gas emissions; stresses that the sector’s continued expansion must be accompanied by a focus on energy and resource efficiency to counter environmental effects; notes that new technological solutions such as fibre (when compared with copper) and energy-efficient programming produce a much smaller carbon footprint; stresses the need to improve the use and circularity of critical raw materials, while reducing and recycling E-waste;
66. Highlights that data centres account for a growing share of the world’s electricity consumption, with the potential for a further increase if no action is taken; notes the Commission’s intention of achieving highly energy-efficient, sustainable and climate-neutral data centres by 2030; supports the promotion of innovative and best available solutions, waste minimisation, and green data storage techniques, focusing in particular on the synergies between district heating and cooling and using the waste heat generated when cooling data centre facilities, for the purposes of mitigating the impact of data centres in terms of the environment, resources and energy used; calls for more transparency for consumers over the CO₂ emissions of data storage and sharing;

67. Calls on the Commission and the Member States to promote competitive markets while strengthening European businesses and to support the development of European cloud offerings; welcomes the initiatives of the European Cloud Federation, such as a European Alliance for Industrial Data and Cloud and funding initiatives, as well as the GAIA-X project, which aim to develop a federated data infrastructure and create an ecosystem that allows scalability, interoperability and self-determination of data providers by design to ensure organisations’ or individuals’ self-determination to have control over their own data; supports competitive EU markets in the areas of IaaS, PaaS, and SaaS and in the development of specialised and niche cloud services and applications; urges the Commission to remain vigilant about any potential abuses of market power by dominant actors operating in oligopolistic markets in the Union that could inhibit competition or consumer choice; stresses that cloud infrastructures should be based on the principles of trust, openness, security, interoperability and portability; stresses that data portability principles should overcome, to the extent necessary, differences in IT providers’ infrastructures and practices to ensure that users’ data is ported effectively; notes that users may not have the exact same configuration and service when porting their data from one provider to another;

68. Calls on the Commission, in cooperation with the Member States, to fast-track the development of a ‘cloud rule book’ that will establish principles for the provision of competitive cloud services in the Union, represent a solid framework to enhance clarity and facilitate compliance for cloud services, as well as inter alia oblige service providers to reveal where data is processed and stored, while ensuring users have sovereignty over their data; notes that this rule book should further allow users to seamlessly migrate their data via interoperable interfaces to other service providers; believes that it should aim to prevent technological lock-ins, especially in public procurement; considers the use of CEN Workshop Agreements (CWAs) in specific areas, such as cloud services, as a way to increase efficiency in creating harmonised standards; stresses that while the choice of a cloud operator lies with the businesses and consumers, all cloud operators, when established or acting in the EU, must follow EU rules, norms and standards and their compliance should be monitored; notes that in the event that an EU operator uses cloud services located in non-EU countries, it is important to ensure the same application of a high level of legal protection in the case of disputes, including over intellectual property;

69. Supports the Commission’s work to take advantage of the review of horizontal and vertical competition guidelines to introduce new tools to curb excessive market concentration inherent to data markets, including ongoing monitoring for at-risk markets and, where necessary, ex ante regulation;

70. Emphasises the importance of trust and a more robust cybersecurity framework for a
stable data economy, in addition to a culture of security for entities that handle large amounts of data; stresses the importance of state-of-the-art underlying digital infrastructure and calls on the Commission and the Member States to invest together to ensure its full deployment; calls for the support of further development of technology for secure data sharing, such as via secure multi-party computing and encryption technology; urges the Commission to present solutions and cybersecurity standards suited to market players of all sizes, including micro enterprises and SMEs; supports the joint and coordinated approach on the EU toolbox on 5G cybersecurity and the secure 5G deployment in the EU;

71. Calls on the Commission to promote audits on the abusability, vulnerability and interoperability of data sharing infrastructure; draws attention to the significant and rapidly increasing costs generated by cyberattacks; recalls that greater connectivity may increase cyber threats and crime, as well as cyberterrorism and the risk of natural and technological accidents, such as those affecting trade secrets; welcomes, in this respect, the Commission’s proposal to revise Directive (EU) 2016/1148 on the security of network and information systems\(^1\) and a new EU Cybersecurity Competence Centre in order to improve cyber resilience and respond more effectively to cyberattacks;

72. Stresses that the safe uptake of products and services in the data-fuelled, consumer-facing and industrial IoT European ecosystems should include security and privacy by design; encourages the use of tools to enhance transparency; supports the Commission’s ambition to develop a digital ‘product passport’;

73. Emphasises the importance of the competent market surveillance authorities having the necessary power to access relevant data, while fully respecting Regulation (EU) 2019/1020\(^2\), when they have reasons to believe that potentially illegal practices exist, in order to strengthen their actions and ensure sufficient control of product safety; stresses the need to safeguard the safety and protection of accessed data by the surveillance authorities;


**Research, skills, competence and AI**

75. Recognises the potential of data access to accelerate scientific research and education programmes; welcomes the Commission’s work in enabling data sharing for research and education; welcomes the development of the European Open Science Cloud as an open, trusted and federated environment in Europe to store, share and re-use research data across borders; advocates the promotion of publicly funded research data in accordance with the principle of ‘as open as possible, as closed as necessary’; highlights the value of strategic partnership agreements between universities to further promote cooperation in the various fields of data science;

76. Underlines the importance of achieving a high level of overall digital literacy and of

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promoting public awareness activities; stresses that the Union’s growth potential depends on the skills of its population and workforce; calls on the Member States, therefore, to devote particular attention to software engineering, attracting talent to ICT and data literacy for all in order to build European know-how focusing on next-generation and cutting-edge technologies; highlights the need for law enforcement and judicial administration staff to have adequate digital skills, as these are crucial to the digitalisation of the justice system throughout the Member States; notes that the Commission has proposed ambitious targets for digital skills in the EU through the Digital Education Action Plan and highlights the need to closely monitor the implementation, development and performance of the latter;

77. Underlines that competitive access to data and facilitating the cross-border use of data are of the utmost importance for the development of AI, which relies on high-quality and increased data availability to create non-personal data sets that are capable of training algorithms and improving their performance;

78. Stresses that the implementation of the European data strategy must strike a balance between promoting the wider use and sharing of data and protecting IPR, trade secrets, but also fundamental rights such as privacy; underlines that data used for the training of AI algorithms sometimes relies on structured data such as databases, copyright-protected works and other creations enjoying intellectual property protection which may not usually be considered as data;

79. Notes that the use of copyright-protected content as data input needs to be assessed in the light of the current rules and the ‘text and data mining’ exception provided for by the Copyright Directive\(^1\), as well as related rights in the Digital Single Market; calls on the Commission to issue guidance on how reserving the rights will be made publicly available for all in a centralised way;

80. States that the Commission should further evaluate changes to the current legal frameworks in civil procedure law in order to reduce existing investment obstacles for private investors; calls on the Commission, in this regard, to promptly and adequately follow up on the European Parliament’s resolution of 4 July 2017 on common minimum standards of civil procedure\(^2\);

81. Highlights the need to prevent all kinds of biases, especially gender biases, from being inadvertently reflected in algorithm-based applications; encourages to that effect the transparency of algorithms, AI systems and application design;

82. Recalls that pursuant to the GDPR, EU citizens have the right to receive an explanation of and to dispute the decisions taken by algorithms in the interest of reducing uncertainty and opacity, while special attention should be given to well-being and transparency in working life;

83. Believes that although the current liability principles and technology-neutral liability rules are, in general, suitable for the digital economy and most emerging technologies, there are nevertheless some cases, such as those concerning operators of AI systems, where new or additional liability rules are necessary in order to enhance legal certainty

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\(^1\) OJ L 130, 17.5.2019, p. 92.

and to provide for an adequate compensation scheme for the affected person in case of unlawful use of data;

84. Urges the Commission to conduct a comprehensive assessment of similar potential legal gaps in relation to liability for data, such as for AI- and non-AI-caused damage resulting from deficiencies in or the inaccuracy of data sets, and to evaluate possible adjustments to the current liability systems before coming up with new legislative proposals;

85. Calls on the Commission to promote best practices in science, technology, engineering and mathematics (STEM) education, with a specific focus on gender equality, as well as the involvement and employment of women in tech;

86. Welcomes Digital Europe, Horizon Europe, the Space Programme and the Connecting Europe Facility as well as the European Digital Innovation Hubs, which will help European businesses to keep up with the opportunities of the digital transition; underlines the importance of the funding earmarked for quantum research in Horizon Europe; recalls, in addition, the role that the Recovery and Resilience Facility should play in contributing to the digital agenda;

87. Calls for public and private funding, in particular for micro enterprises and SMEs, in order to support the digital transition and fully capitalise on the potential of the data economy as well as to integrate digital technologies and skills; underlines that securing a level playing field for micro enterprises and SMEs not only includes access to data, but also entails ensuring the necessary skills to carry out analytics and extract insights from such information;

88. Calls on social partners to explore the potential of digitalisation, data and AI for increasing sustainable productivity, while respecting workers’ rights, improving the well-being and employability of workforces and investing in upskilling, reskilling, outskilling, lifelong learning and digital literacy schemes; notes that awareness-raising, education and transparency surrounding data-driven technologies are important to enable EU citizens to understand, and be part of the fair implementation of those technologies; underlines that employees should have the right to know where and how their data is collected, used, stored or shared; calls for the prevention of disproportionate and undue surveillance at work; considers that national trade unions should be more involved in providing recommendations and guidelines on data protection and privacy in the workplace;

Global rules

89. Believes that global rules governing the use of data are inadequate; invites the Commission to come forward with a comparative analysis of the regulatory environment for data in third countries; notes that European companies operating in some third countries are increasingly faced with unjustified barriers and digital restrictions; calls on the Commission and the Member States to bolster efforts with like-minded third countries at international and multilateral forums and in bilateral and trade discussions in order to agree on new international ethical and technical standards to govern the use of new technologies, such as AI, the IoT, 5G and 6G, which should promote the Union’s values, fundamental rights, principles, rules and standards and ensure that its market remains competitive and open to the rest of the world; highlights the need for international rules and standards to foster global cooperation aimed at strengthening data protection and establishing safe and appropriate data transfers, while
fully respecting EU and Member States’ laws and standards;

90. Emphasises that transfers of personal data to other jurisdictions must always abide by the provisions of the GDPR, the LED and the Charter and take into account the recommendations and guidelines of the EDPB, prior to any transfer, and can only take place if there is a sufficient level of protection of personal data;

91. Calls for the free flow of data between the Union and third countries on the condition that data protection, privacy, security and other clearly defined, duly justified and non-discriminatory public policy interests are met, such as via adequacy decisions; believes that the free flow of data across borders is needed to reap the full potential of the data economy and stresses that preserving the flow of data must remain a foundation stone of Europe’s objectives; supports allowing access to common European data spaces to stakeholders that fully comply with all the relevant Union legislation; calls on the Commission, together with the Member States, to negotiate new rules for the global digital economy, including the prohibition of unjustified data localisation requirements; recalls the importance of making progress with e-commerce negotiations at the World Trade Organization and calls for the inclusion of ambitious and comprehensive digital trade chapters in EU free trade agreements; supports the Union’s active role and participation in other international forums for international cooperation on digitalisation, such as the UN, the OECD, the International Labour Organization and UNESCO;

92. Instructs its President to forward this resolution to the Council and the Commission.