Digital Future for Europe Coalition response to the EU's White Paper on Artificial Intelligence – 'A European approach to excellence and trust'

Executive summary

- Digital Future for Europe is a group of associations, think tanks, start-ups, scale-ups, and successful tech businesses from across the "Digital 9" nations.
- We believe the White Paper presents an opportunity to create the right regulations for placing AI at the heart of Europe's digital future.
- The White Paper has a number of strengths, including its ambition to improve data access in Europe and the importance placed on not overburdening SMEs with regulation.
- **However, the White Paper's weaknesses could seriously damage Europe's tech sector at a crucial time.**
- We recommend a tighter definition of AI and 'high-risk AI', removing ex-ante regulations and re-thinking human oversight.
- We also urge the Commission to invest in skills, focusing on educating the next generation for a digital era; supporting the current workforce to reskill; and ensuring Europe attracts and retains the talent its digital industries sorely need.
- We also stress the importance of support for startups and SMEs, for example by providing incentives for existing businesses that want to use AI systems in their operations.
- More information can be found at **www.digitalfutureforeurope.com**

Digital Future for Europe: who we are

The D9

The "Digital 9" countries are Europe's digital frontrunners: Netherlands, Belgium, Luxembourg, Denmark, Sweden, Finland, Estonia, Ireland, and the UK. These countries are making tech work thanks to their thriving tech ecosystems and healthy startup cultures. The D9 is driving forward

ideas to put Europe on a path to a digital future that create a more sustainable, innovative and equitable society.

Digital Future for Europe

We are a group of associations, think tanks, start-ups, scale-ups, and successful tech businesses from across the D9 nations. We have come together to embed a positive, ambitious and innovative digital agenda for the whole of Europe.

We believe our own countries must do more to lead Europe in tech policy and we believe European policy must follow the lead of the most successful countries within the EU. This means doing more to support the success of the European tech ecosystem, recognising that we are entering an age where all sectors become digitised and affected by AI. There is no longer a 'digital' part of the economy — we have an increasingly digitised and automated economy and companies which have traditionally driven Europe's success must adapt.

We believe our countries must do more to lead tech policy in Europe, creating a successful blueprint for all of Europe to follow.

Who we have spoken to in preparing this response

In preparing this consultation response, we have surveyed Digital Future for Europe members online and in person. Since January 2020, we have been conducting opinion research with members and policy experts working in European tech. We have also held workshops in Stockholm and Tallinn, interviews in Brussels, and a series of online interviews in March and April with startups, associations, and policy experts.

What the White Paper says

The White Paper presents the Commission's vision for a regulatory and investment-oriented approach to 1) the uptake of AI in the EU and 2) the risks associated with certain uses of AI. The White Paper states that the existing EU legislative framework may not be well-suited for this and sets out key priorities in this regard.

It seeks to foster an "ecosystem of excellence" that can promote the uptake of AI and an "ecosystem of trust" to address the risks.

The ecosystem of excellence will include:

- Working with Member States to revise the Coordinated Plan
- Focusing the efforts of the research and innovation community to facilitate the creation of excellence and testing centres
- Developing skills through networks of leading universities and higher education institutes

- Focus on SMEs in terms of Digital Innovation Hubs and access to finance via a pilot scheme of €100m in Q1 2020 to provide equity financing for innovative developments in AI
- Set up a new public private partnership in AI
- Promoting the adoption of AI by the public sector
- Securing access to data and computing infrastructures
- Cooperating with like-minded countries, but also with global players

The ecosystem of trust builds on the seven key requirements identified in the Guidelines of the High-Level Expert Group:

- Human agency and oversight
- Technical robustness and safety
- Privacy and data governance
- Transparency
- Diversity, non-discrimination and fairness
- Societal and environmental wellbeing
- Accountability

The White Paper notes the definition of AI put forward by the High Level Expert Group, but is clear that in any new legal instrument the definition of AI will need to be sufficiently flexible to accommodate technical progress while being precise enough to provide the necessary legal certainty. It states that “Simply put, AI is a collection of technologies that combine data, algorithms and computing power”.

The White Paper states a risk-based approach is important to help ensure that the regulatory intervention is proportionate. It says an AI application should be considered high-risk where it is employed in both 1) a specific sector and 2) used in such a manner that significant risks are likely to arise. It says the sectors covered should be specifically and exhaustively listed in the new regulatory framework but highlights “healthcare, transport, energy and parts of the public sector.”

The Commission envisages that, under the mandatory pre-marketing conformity assessment, high-risk AI systems could be assessed on certain requirements, including the following:

- Training data
- Keeping records and data
- Information provision
- Robustness and accuracy
- Human oversight

A voluntary labelling scheme for non-high-risk AI applications is proposed in addition to the mandatory requirements for high-risk AI.

In addition to these new proposals, the Commission intends to review the current EU product safety and liability regimes to address risks associated with products and services involving AI.

Why the EU's AI White Paper is so important

Opportunity and risk

AI is an era-defining technology. No part of the economy will be untouched by its developments. The future growth of Europe and the prosperity of its citizens depends on harnessing the benefits of AI.

The use of AI is increasing in areas such as personal health and healthcare, vehicle automation, the financial markets, hospitality, entertainment, cybersecurity and public services. It allows companies to find solutions, streamline services, increase safety, and save time and money. Thanks to the creativity, talent and entrepreneurship of many of those behind tech startups and to the backing of investors and individual governments, the development and dissemination of AI is picking up pace everywhere in the world.

This culture of innovation operates in a fragile environment in Europe, where it lacks a coordinated effort to invest, nurture, and reward talent and innovation, as well as disseminate the technology to businesses and the public sector. The EU's AI White Paper has the potential to significantly increase the use and growth of AI in the D9 countries and around Europe, creating a solid foundation to address this fragility, but only if it gets it right.

For instance, the Commission must arrive at clear definitions of AI and high-risk AI, and strike the right balance between data sharing and privacy - so as to allow startups and researchers to stand a chance of competing with counterparts in the US and China. On mandatory requirements for high-risk AI, it must allow for flexibility in the legal interpretation and collaborate with the sector to design rules that are feasible from a technical standpoint. Additionally, it needs to find the balance on enforcement, to avoid jeopardising innovation and overburdening businesses.

A heavy-handed approach to regulation could hold the sector back and diminish its chances to grow and become more competitive. Big tech companies may be discouraged from investing in and growing their businesses in Europe and the continent will become infertile ground for AI startups seeking a competitive edge globally.

The White Paper therefore presents an opportunity to create the right regulations for placing AI at the heart of Europe's digital future. If also presents the risk that with the wrong regulations, European innovation could be damaged at a critical time and be vulnerable to falling further behind the US and China.

Good tech policy is good growth policy

The White Paper rightly acknowledges that the sustainable current and future economic growth of Europe increasingly draws on value created by data – and that AI is one of the most important applications of the data economy. Good tech policy – and specifically good AI policy – is good growth policy.

Being globally competitive means thinking now about the businesses of tomorrow

Europe failed to ride the wave of digital revolution that saw the rise of American-based tech giants such as Google, Facebook and Amazon. If it misses the current wave its economy could be severely impaired in the years to come, as the exponential growth of AI in China and the US allows them to pull further away.

It is not enough to think about those companies that exist today. The goal should be to create an ecosystem for the companies and technologies of the future to develop and succeed in Europe. In order to achieve that, Europe must allow data to flow as freely as possible, help countries to address skills shortages, support SMEs to embrace the benefits of AI, and give the research and innovation community the tools, incentives and investment it needs to thrive.

It was technology— from the printing press to antibiotics — that fuelled the historic wealth of Europe and it is technology that will drive its future.

Case in point: Connecterra

Dutch-based Connecterra developed an AI platform – 'Ida' – that empowers farmers of all sizes to increase the productivity of their farms, while reducing the impact on the environment.

Using sensors and artificial intelligence to turn raw data into insight-driven efficiencies, it's an example of how AI has been harnessed to reduce the impact of farming on the planet and to contribute to feeding the growing world population. However, their aim is to achieve so much more. Their ultimate ambition is to use the Connecterra platform to solve inefficiencies in the food system, climate management, disease prevention, energy use, natural disaster response and more.

We must ensure future regulations do not overburden innovators such as Connecterra, who willbe instrumental in answering some of the big questions facing our planet.

Knock-on effects for traditional economy

Digital industries do not exist in isolation, and how the EU and national governments decide to regulate AI and the use of data will have huge knock-on effects throughout the traditional economy, not just the tech sector.

Help us achieve EU's social mission

We know that Europe is more than an economic project, it has a social mission too. AI can and should be central to achieving Europe's political and social goals. If we want to see increased innovation and productivity in SMEs and traditional industries, greater progress on sustainability and clean energy, making European cities happier and healthier places to live, and improving

inclusion and wellbeing through skills and education, then AI adoption must be encouraged at all levels. AI can play a significant part in keeping Europe at the forefront of acting on the big challenges of our time, such as tackling climate change, responding to public health crises such as the Coronavirus pandemic and leading global efforts on food and water security.

Case in point: Eiravato

Eiravato is an Luxembourgish/Irish start-up that has developed digital transformation tools to enable transformation of recycling economy towards inclusive Clean Circular Economy by turning waste data into environmental intelligence.

Eiravato's bespoke platform and the marketplace empower and mobilise industry to re-think their waste and turn it into valuable material. Companies using Eiravato technology turn 70% of what used to be waste into valuable materials, sold to manufacture new products.

Eiravato Integrated technology enables new regenerative Clean-Circular Economy and a mitigator of waste to enable industry, value chains, governments, circular groups and other key stakeholders to: be connected through robust digitized material classification; be defined by their unique characteristics; and connect all stakeholders through shared focus to eradicate landfill, reduce incineration to embolden with new lean practices to accelerate circularity and EU net zero ambitions.

In 2020 the EU Commission launched the public consultation for the H2020 Green Deal call. Within Area 3 of the call, 'Industry for a clean and circular economy', topic 2 focuses on the demonstration of systemic solutions for the territorial deployment of the circular economy. This is exactly what Eiravato does, becoming a key player enabling the European Green Deal.

Eiravato is a prime example of how AI can be central to tackle major societal and environmental challenges, aligned with EU Green Deal and United Nations Sustainable Development Goals (SDG12).

Post-coronavirus recovery

The way that we approach the tech sector and the use of AI has taken on even greater importance as European nations look to restart their economies in the wake of the Coronavirus crisis, and also build resilience against future pandemics.

Although it is not the focus of this paper, it is appropriate at this juncture to highlight that as well as finding the right balance in regulation for a thriving tech sector, it is vital that public bodies and private companies work together to secure a strong post-coronavirus recovery.

Case in point: Voi

Voi is one of Europe's e-scooter and mobility innovators, founded in Stockholm. By creating networks of shared electric vehicles around city centres, Voi provides an affordable, environmentally-friendly way of traveling.

The company paused operations in most cities in March in response to the coronavirus pandemic. The company continued to operate in six cities, working with food delivery services and charities to assist key workers and those in isolation. Since lockdowns across Europe started to lift, Voi has been putting scooters back on the streets of European cities where users have been riding the e-scooters as a way to avoid crowded public transport.

In April Voi announced an official partnership with Hertz and Allianz as part of WeAllMove, an open, online platform connecting mobility providers with workers of essential services as part of the World Economic Forum's response to COVID-19.

Since June Voi is back in all its cities and in fact seen increased demand for its services. Voi has launched in new cities such as Zurich and Trondheim and is gearing up to launch its scooters in the UK.

What we believe are the White Paper's strengths

Ambitious about improving data access in Europe

The introduction of GDPR has exposed companies using data for AI to substantial compliance costs, limited their ability to collect and use data and restricted the use of automated decision-making, slowing down the sector's growth when compared to China, which has virtually no data privacy barriers, and the US, which has a much more relaxed regulatory environment, While it is important to have the right safeguards in place to protect individuals' right to privacy and ownership of their data, there is a tension that the White Paper must address between these safeguards and the ability of startups to easily access and use data for AI innovation.

The White Paper is right to highlight that "improving access to and the management of data is fundamental" and that without data "the development of AI and other digital applications is not possible". The recognition of the opportunity for Europe to position itself at the forefront of the data and AI transformation is welcome and necessary.

Promoting adoption of AI in the public sector

The intention to encourage and upscale the deployment of AI by more public sector bodies and organisations where it can improve their activities, products and services is encouraging. So too is the plan to initiate open and transparent sector dialogues in order to present an action plan to facilitate AI development, experimentation and adoption across the public sector.

Understanding the importance of AI to the traditional economy

Europe leads the way in deploying AI in manufacturing, with over half of the top manufacturers implementing at least one instance of AI in manufacturing operations. The ambition must be to expand this more broadly to services and hospitality, healthcare, logistics, financial services and other areas.

Wants to create the right environment for increasing AI in private sector

Specific and detailed attention is given to how Europe's private sector is fully involved in setting the research and innovation agenda. The establishment of new public private partnership in AI, data and robotics to combine efforts, ensure coordination of research and innovation in AI, is very welcome. These partnerships will enable an increase in investment, allow for exchanges of best practice, and accelerate the application, sharing and integration of data, robotics and AI technologies generally in society and across different sectors.

Highlights importance of not overburdening SMEs with regulation

The White Paper explicitly states that, as a matter of principle, the new regulatory framework for AI should be effective to achieve its objectives while not creating a disproportionate burden, especially for SMEs. This is an important statement and one that will encourage Europe's tech businesses – both current and future – that the Commission is determined to find the right balance in this regard.
To build on this point, it is important to recognise that in discussing the need of new AI regulation, regulators should – as a good lawmaking principle – first identify existing gaps in current laws, prior to or instead of creating brand new regulations on top of existing ones.

The focus on skills

The White Paper states the European approach to AI will need to be underpinned by a strong focus on skills to fill competence shortages. Skills and talent are two of Europe's greatest assets, and a key to future growth. They must be pushed to the top of the economic reform agenda. The focus on skills must include three things: educating the next generation for a digital era; supporting the current workforce to reskill; and ensuring Europe attracts and retains the talent its digital industries sorely need.

What we believe are the White Paper's weaknesses

Definition of AI too broad

The White Paper has proposed a definition of AI it describes as "sufficiently flexible to accommodate technical progress while being precise enough to provide the necessary legal certainty". It states that "AI is a collection of technologies that combine data, algorithms and computing power". However, not every collection of technologies that combine data, algorithms and computing power is in any sense 'intelligent'. Such a broad definition of AI is likely to lead to over-regulation and a better approach would be to change this definition to focus on the way in which AI is a learning and adaptive technology, and narrow it to specific subcategories of AI where there may be greater need for regulation.

Artificial Intelligence is an umbrella term to describe a number of different technologies which can be used to train systems to perform tasks that would be too burdensome and time-consuming for humans to attempt. It includes machine learning algorithms – which can be used for supervised learning, unsupervised learning, semi-supervised learning and reinforcement learning – as well as natural language processing, vision, speech and other categories.

Despite being known as subsets of AI, not all types of algorithms are strictly considered to be intelligent, because they are constrained by human activity and knowledge. For example, supervised learning algorithms are used to make predictions because they can be trained to spot patterns in larger volumes of data with greater accuracy than humans. However, they are the kinds of systems where humans take the driving seat in that they choose and process the information fed to the algorithm and instruct the nature of outcomes.

The use of supervised learning is already widespread in everyday life. Common uses include sentiment analysis, often applied in automated customer services support; recommendations - as seen on Youtube, Netflix, Amazon and others - and email spam filters.

Applying the EU's definition of AI to a whole tranche of digital technology will ignore the substantial differences between cases where humans are already mostly in control and those much rarer instances where machines are allowed more autonomous learning processes. This will place a huge burden on startups and SMEs and harm their ability to focus money and resources on experimenting and developing new technologies, while also discouraging existing businesses in the traditional economy and the public sector to embrace this new technology, potentially slowing growth in the sector and putting Europe at disadvantage in the global AI race.

Definition of 'high-risk AI' too broad

By taking a strict approach to risk mitigation, the Commission has arrived at a definition of high-risk AI that is too ambiguous and work is needed to ensure stricter regulation is only applied to the right instances of AI use.

As it stands, the proposal to list specific sectors and the criteria for high-risk AI applications within those sectors is broadly the right approach. However, there is legal uncertainty in the inclusion of the “exceptional instances” clause and the best option is for it to be removed.

The Commission must consider the cost of businesses choosing not to use AI in light of an ambiguous definition that could lead to an overwhelming set of rules and requirements to be adhered to. There absolutely must be a concerted effort to mitigate potential harms and introduce robust safeguards, but without risking opportunities to deploy ‘AI for good’ in society.

It must also be willing to reconsider the unrealistic requirements on high-risk AI performance. Many non-AI tasks also carry risks and there is a danger that having unreasonable expectations of how accurately AI systems must perform will make it over-regulated in relation to those other activities. In the same way that tasks such as driving is done imperfectly by human beings, AI systems will also have imperfections, and while it is key to seek to improve performance to the highest possible standards no developer or human will ever achieve perfection in a given task. We believe the requirements for AI systems should be to reach a similar accuracy standard to that of a qualified human doing the same task, unless there are reasons agreed in advance to justify an exception.

Case in point: Einride

Einride is a Swedish technology company that develops and provides freight transport solutions based on electric and autonomous vehicles.

The Einride Freight Mobility Platform is an intelligent transport planning and execution engine, built to handle transport with all types of vehicles but focusing on electric vehicles - with or without a driver. The platform collects transport data and automatically optimizes routes and schedules while providing detailed plans for how to introduce electric transport into the fleet. It was announced in April 2020 that Einride will supply electric trucks to Lidl this year as the next step in a long-term partnership to transform Lidl’s supply chain to be emissions-free. Einride provides an example of how AI is helping to tackle some of the greatest challenges of our time – in this instance climate change.

It is vital that we create an environment where more business in the traditional economy harness the power of AI through companies like Einride to reduce their emissions.

Onerous set of commitments

For AI technologies deemed high risk, the Commission recommends that under the mandatory pre-marketing conformity assessment, high-risk AI systems could be assessed on certain requirements, including:

- Training data
- Keeping records and data

- Information provision
- Robustness and accuracy
- Human oversight

We have concerns over these proposals as they stand.

The assessment of training data is not the best approach to ensure the quality of the output. Experienced and mindful practitioners can develop sufficiently accurate, fair and high-quality systems from datasets of poorer quality. Instead of putting the burden on businesses and research facilities to comply with requirements that could hinder their ability to develop these systems, a more constructive approach would be to put systems in place to strive to ensure outputs – the information resulting from using real-life data - are within an acceptable range.

The keeping of records and data is problematic in the sense that it could, for instance, clash with GDPR requirements (i.e. required deletion of personal data), and severely impair developers' access to open-source systems, since they would not have access to the datasets used to train those systems.

It is far better to focus on opening up public data sets, spearhead data sharing between nations and around Europe, and legislate for data interoperability than to demand unreasonable standards and contradictory actions from companies and individuals.

On the subject of GDPR, further detail from the Commission on a specific point would be welcome. While many datasets will be considered personal information and fall into the GDPR, it is questionable whether a trained machine learning model would be considered as such. Clarification on this point would be welcome, because it would effectively allow models to be kept, even if the original personal data they were trained with is partially cancelled by their owners.

Ex ante regulations pose a big problem

Ex ante regulations, as set out by the White Paper, pose a big problem for startups, innovation, Europe's ability to compete globally and for retaining and attracting tech companies that are so important for economic growth. Among other issues, they would try to predict risk and potentially constrain companies' ability to exercise trial and error in the development of new products within already existing ethical, legal and due diligence practices.

While larger, well-established companies may be better prepared to interpret and accommodate ex ante regulations, startups are not. With so much of the tech industry's great ideas coming from startups, this a major concern.

Attempting to regulate things that may happen in the future stifles creativity in itself, but Europe in particular is badly prepared for such a system. With no assessment centres in operation and an IT skills shortage, the kind of testing regime required for such a regulatory framework would slow down many AI innovations and may even prevent them being introduced at all.

As the global response to COVID-19 has shown, it is vital to have fast and effective solutions to the rapidly escalating threats. AI offers the potential to provide the right responses at the right time and we must ensure future regulations do not compromise AI's ability to respond.

As the Coronavirus crisis developed, for example, tech companies jumped to the fore and united efforts with other businesses, researchers and the wider AI-developing community to facilitate the sharing of data and speed up the analysis of the virus' characteristics, spread, effects on the human body, and potential treatments and bases for vaccines. Most of those companies were US and China-based - very few of these initiatives happened in Europe and they were all but dwarfed by projects launched in those countries.

Ignoring the already existing constraints and failing to listen to the sector's concerns over the burden of ex ante regulations would not only deprive European citizens of the benefits of AI but risks seeing tech companies relocating to the US and elsewhere, where they can continue to take part in the global AI innovation race. The ecosystem for the companies and technologies of the future to develop and thrive in Europe will be seriously harmed.

Case in point: Etsimo

Etsimo is an AI and machine-learning driven healthcare platform from Finland.

Their CE-marked medical device uses demographic information, current symptoms and risk factors to help triage patients to the right care at the right time with the right information. Etsimo's COVID-19 version is currently under development and will be able to provide data-driven predictions of future care need and make timely decisions based on data. The Etsimo solution is essential for playing the long game of controlling the spread while waiting for the vaccine.

To ensure such services are at the disposal of Governments and organisations in the event of a new pandemic occurrence, we must ensure we have the right regulations to encourage and not stifle innovation.

Human oversight proposals require careful thought

The White Paper states that the objective of trustworthy, ethical and human-centric AI "can only be achieved by ensuring an appropriate involvement by human beings in relation to high-risk AI applications." How we arrive at "appropriate involvement" requires careful thought.

First, the insistence on human oversight defeats the point of many types of artificial intelligence, which are about reducing the need for human oversight of many tasks.

Second, in terms of practicalities. A suggested manifestation of human oversight in the White Paper is that "the output of the AI system does not become effective unless it has been previously reviewed and validated by a human." This prompts many fundamental questions relating to how

such a review would take place, the barriers and cost burdens this would entail, and why an AI system would be designed to operate on different criteria to its human verification. For instance, insisting that human oversight of genome sequencing takes place would increase costs and limit the potential of using innovative technology. Ultimately, it would rather defeat the purpose of expediting this task by using an AI system.

Third, the principle of human review speaks to what many regard as a fear of AI and machine learning, seeing it primarily as a risk rather than an opportunity. This holds back AI innovation, and startups are in urgent need of political allies.

Fourth, it is important to bear in mind the role of human oversight in bias. The White Paper presents a number of the potential risks of discrimination in AI, but recognition needs to given to the fact that AI is not biased, people are. AI can in fact help limit and prevent human bias.

Taken together, these proposals could seriously damage Europe's tech sector at a crucial time

Well-established tech companies may be able to adapt to these changes, but startups and existing SMEs will be severely affected.

There are many positives in the White Paper, such as the Commission's ambition to improve data access in Europe; the intention to promote the adoption of AI in the public sector; the acknowledgment of the importance of AI to the traditional economy; the will to create the right environment for increasing AI in private sector; focus on skills; and the importance of not overburdening SMEs with regulation.

However, it is important to note the potential impact the of some the problematic proposals set out by the Commission in the hope that these concerns will be addressed. It will be crucial for the Commission to reconsider the definitions of AI and high-risk AI - as well as the commitments set out for the mitigation of harm – the potential impact of ex ante regulations and the complications and unintended consequences of the human oversight requirements.

The ability of Europe to nurture startups and SMEs and create an environment attractive to investors and with potential to compete with the US and China, depend on getting the balance of regulation and incentive to creativity and innovation right.

Our key recommendations

- *Tighten the definition of AI.* It would be more appropriate to have a definition that focuses on the way in which AI is a learning and adaptive technology.

- *Tighten the definition of 'high-risk AI'.* The definitions should not only focus on the risk, but should consider the probability of AI systems causing harm.

- *Remove ex-ante regulations.* Instead focus on the problems of the present and do so through the use of industry standards rather than statutory instruments.

- *Re-think 'human oversight'.* The insistence on a blanket requirement for human oversight defeats the point of many types of AI, which are about reducing the need for human oversight of many tasks.

- *Invest in skills.* The focus on skills must include three things: educating the next generation for a digital era; supporting the current workforce to reskill; and ensuring Europe attracts and retains the talent its digital industries sorely need.

- *Support startups and SMEs.* Provide exemptions for startups and SMEs in their first year of operation to encourage innovation, plus provide incentives for existing businesses that want to use AI systems in their operations.