

NEXT GENERATION INTERNET

NGI, FOR AN INTERNET OF HUMANS

August, 2019

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The Internet, once heralded as driving the third industrial revolution, is now so firmly sewn into the fabric of our daily lives that we usually take it for granted. Virtually everything we do from travelling, to shopping, to paying taxes, is in some way facilitated by online products and services.

With the explosion of the Internet of Things, multimedia content and social media, the Internet offers an unprecedented access to data and online services. Artificial intelligence helps to extract meaning from this data and to embed autonomy and intelligence into networks, connected objects and services. This promises to revolutionise healthcare, public services, transport, finance - to name just a few sectors.

Yet, as technological advances upgrade what the Internet can do, there is no matching increase in the trust people place in the Internet. On the contrary, such trust, which is one of the pillars of technology acceptance, has eroded in recent years.

There are reasons for it: online transactions remain subject to hacking and security flaws, the personal data of end-users have been used in inappropriate ways, and the risk remains of dominant companies distorting the market or blithely ignoring the human and wider social implications of their products, services, and business models.

Also, one of the biggest strengths of the Internet, a free speech platform where virtually anyone can publish content, has now its downside: the spread of disinformation by accident or misinformation by design, which may, in extreme cases, impinge upon democracy and social cohesion.

With half of humanity already accessing the Internet, and Europeans spending an average of seven hours a day online, it is a matter of urgency to invest time and resources into shaping a better Internet, for us and for future generations.

The Next Generation Internet

Re-imagining and re-engineering the Internet to be fit for the future we want, while we continue using it to help run our societies and economies will require an immense collaborative effort.

This collaboration must meet the challenges of restoring trust, which entail to protect personal data, ensure privacy and security, combat disinformation online, guarantee access and freedom of choice, respect fundamental rights and enforce ethics and sustainability by design.

The NGI initiative, through tailored funding and adapted policy measures, aims to shape the development of the Internet into an Internet of Humans that responds to people's fundamental needs, including trust, security and inclusion, and reflects the values and the norms that we enjoy in Europe.

NGI priority areas include:

Decentralisation and trust

The NGI initiative aims to build the key technology blocks of a human-centric Internet, which gives end-users full control of their personal data. Following on from GDPR legislation, which grants EU citizens strict control over their personal data (with financial penalties for violation), NGI supports projects on privacy and trust enhancing technologies and decentralised data governance.

Distributed ledger technologies and blockchain-based architectures in particular have the potential to increase trust, transparency and traceability of transactions on the Internet, without the need for a centralised third-party. This is a priority investment area for NGI.

With these technologies, the goal is that individuals are fully in charge of their personal data and they can choose to contribute to social good by sharing their data in areas as diverse as health, democracy, or environment. Companies, non-profit organisations and public administrations will have legal certainty on what they can do with the data.

Security and resilience

NGI will support initiatives to ensure that European citizens trust that their online environment is safeguarded against hacking and cyber-

attacks, by funding projects on Internet architecture renovation to achieve better efficiency, scalability, security and resilience.

Here again, blockchain and distributed ledger technologies have huge potential for making social and economic transactions more secure by guarding against an attack and removing the need for middlemen.

NGI will also invest in Open Source software and hardware, making key internet technology building blocks available for inspection and corrections, as a way to detect security flaws and increase internet resilience.

Collective intelligence

The power of billions of individuals connected to the internet, supported by data collecting sensors and Artificial Intelligence is underused in today's internet.

It will be important to develop new concepts for connecting people, smart objects and AI agents to support collective intelligence at the scale of the internet. Synergies and collaboration among 'hyperconnected' individuals will offer ways to change individual and collective behaviour and tackle sustainability challenges, such as sustainable cities or climate action.

The challenge will notably be to accompany a positive evolution of Social Media, overcoming issues such as trust, civic engagement, governance and economic sustainability.

Inclusion

The NGI upholds and integrates fundamental EU values such as linguistic diversity and accessibility for persons with disabilities, to allow everyone to take part in the digital economy and society. Advances in language technologies will help foster competitiveness and language diversity. NGI technologies will also help increase web accessibility through personalised assistive technology.

Technological research will help improve human-machine interaction, increase productivity and help ensure no one gets left behind in the digital age.

Building a vibrant NGI community

NGI is addressing Internet innovators as agents of change. It supports research and innovation for alternative solutions from individual talents who will develop technologies in line with our values and our vision, providing them with funding which can significantly shorten the research cycle and time to market. NGI also provides a nurturing environment with networking opportunities, business mentoring and researcher-in-residence opportunities.

The ambition is to create a vibrant community of researchers, innovators, civil society participants as well as major private and public stakeholders to join forces around a common goal: to build an Internet of Humans.

The way ahead

With an investment plan for the next 10 years, the NGI initiative will shape the development of an Internet that is trustworthy, open, and that contributes to a more sustainable and inclusive society. It will also be an essential driver for the long-term competitiveness of the European economy.

If Europe acts according to its values of openness, innovation, cooperation and protection of fundamental rights, we have a major opportunity to play our part in building the Internet of tomorrow and make Europe a trusted digital hub at the global level.

Any citizen should feel part of the NGI initiative, because we are the Internet of Humans!

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