



NEXT GENERATION INTERNET

www.ngi.eu



@NGI4eu

What Internet? What is the challenge?

- Internet as perceived by the **user**.
- Our **vision** for the internet: An internet which delivers more to people and society than today.
- The Internet keeps on **evolving rapidly**.



Drivers of Change

Areas of Impact

Concerns

- Security & privacy
- Lack of trust
- Concentration, silos, lack of interoperability
- Socio-economic transformation with leaves people behind.
- A digital divide which festers
- Loss of memory/heritage

Opportunities

- Unique European values
 - Cooperation
 - Openness
 - Inclusiveness
- Digital Single Market policies
- Level playing field
- Solid and broad tech base

Use **both** tools of policy making

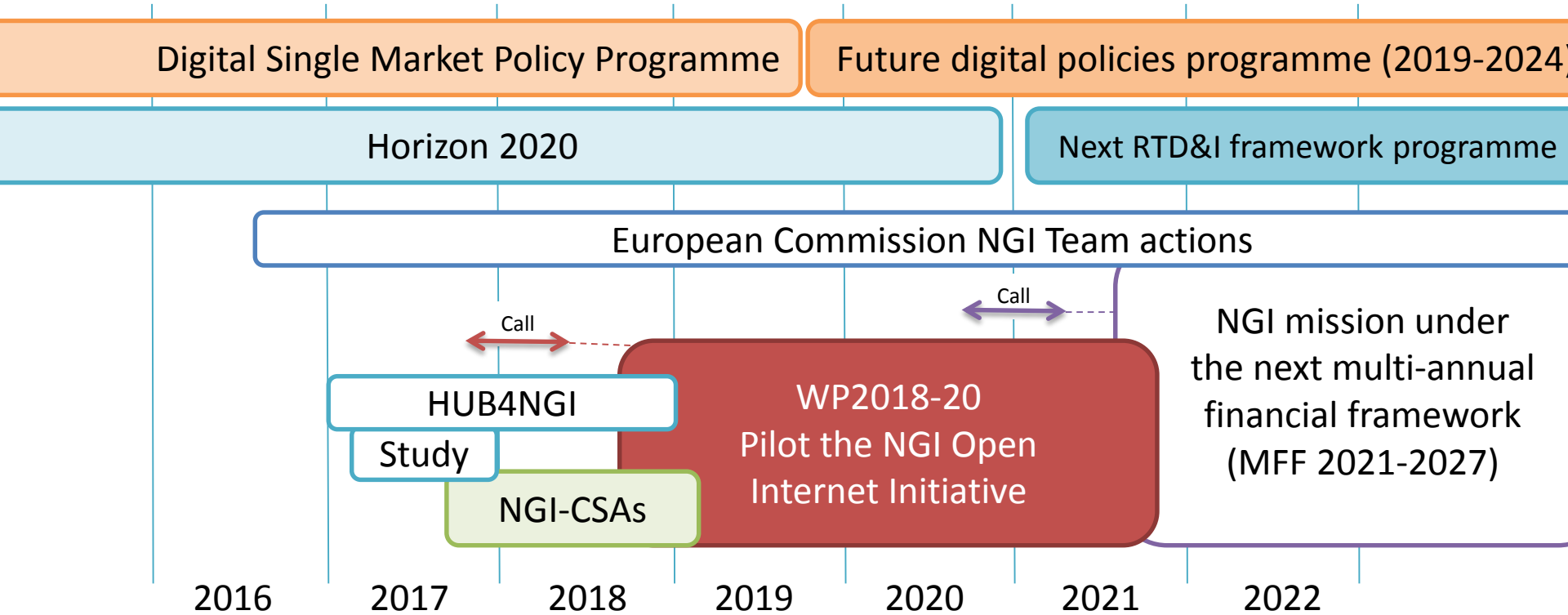
Policy Programme

- Proportionality
- Subsidiarity
- User-centric (human-centric)
- Full toolbox (legislation, soft measures, procurement, standardisation, communication)
- Start now and spill-over into the next Commission (2019-2024)

Spending Programme

- Steering power of R&I
- Own EU programme
- Targeted (actions, actors)
- Cooperation with national programmes and initiatives
- Start now and grow under the next multi-annual financial framework (2021-2027)

Roadmap



The NGI Key Priority

In the LEIT ICT Work Programme 2018-2020
Objectives ICT-24 to ICT-31

Why an NGI Key Priority

- ✓ A number of **technological trends** will thoroughly reshape the internet over the next 10-15 years.
- ✓ Europe should **drive this technology revolution** while contributing to making the future internet more human-centric.
- ✓ An **internet for the people**, that contributes to a more sustainable and inclusive society.
- ✓ Increasingly these technological trends influence each other and a programme targeted towards the Next Generation Internet must **consider them in a holistic way**.

Next Generation Internet

Artificial Intelligence

[ICT-26-2018-2020](#)

Interactive Technologies

[ICT-25-2018-2020](#)

Internet of Things

[ICT-27-2018-2020](#)

Multilingual

[ICT-29-2018](#)

Global Social Sphere

[ICT-28-2018](#)

Inclusive

NGI - Open Internet Initiative

[ICT-24-2018-2019](#) + [ICT-31-2018-2019](#)

5G

Cloud

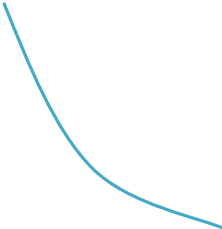
HPC

Big Data

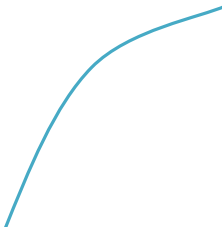
Cyber
Security

What is the aim & what to do?

- 1. Defragment and connect:** Ecosystem of European actors and an Ecosystem which is broader than ICT
- Engage **new stakeholders**
- Link **long-term research** with **applied research & innovation**, with **policy & societal expectations**
- 4. Radical new functionality** to support people's lives & global sustainability
- 5. European core values:** Openness, security, respecting our vision of privacy, participation, a level playing field for all business actors, open to innovation and preserving democracy
- 6. European movement:** human Internet as a political goal



Build a priority which unites stakeholders on a common goal:
Human Internet



NGI Open Internet Initiative

Deep dive into Work Programme 2018-
2020 Objective ICT-24

How does it exactly work?

NGI Open Internet Initiative: Objective ICT-24

Call 1: 2018

Closure: 17 April 2018

- 3 research & innovation projects with a total budget Euro 21.5 million

Use of cascading grants
(financial support to third parties, 80%)

- 3 CSAs, total budget Euro 7 million

Call 2: 2019

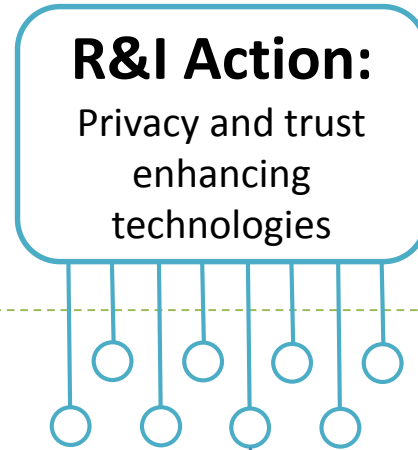
Closure: 28 March 2019

- 3 research & innovation projects with a total budget Euro 21.5 million

Use of cascading grants
(financial support to third parties, 80%)

R&I project implementation through sub-granting

Project submitted to EC call:
Euro 7-7.5 mil, 2-3 years,
80% for sub-grantees
Pan European
Procedures adapted to stakeholders
Run by organisations in the ecosystem



Sub-grantee:

- One legal entity with one specific project
- **Young researchers from outstanding academics, hi-tech startups and SMEs**
- Carry out the R&I work
- 50.000 – 200.000 Euro, 9 – 12 month

- Activities include inter-alia:
- Call for & selection of top-teams
 - Monitoring
 - Mentoring, Coaching, Sharing
 - Communications
 - Community building

Intermediaries could consider the following ...

- Project co-ordinators need to have the proven financial viability (in H2020) to receive pre-financing at the level of Euro 5 million or more.
- **Project partners which have:**
 - **Outstanding technical competence in the area chosen**
 - **Proven organisational and managerial competences**
 - **Capacity to mobilise (networks of) stakeholders**
- Able to develop a **long-term vision** for the area
- Able to develop a **detailed research and engineering work programme;**
Implement evaluation program (incl. external experts),
- Bring use cases from vertical markets incl. novel sustainability models
- Ensure that **final outcomes will have an impact** on the chosen area
- Commit high-level mentors/coaches
- Small and agile partnerships
- Mobilise additional financial and/or in-kind resources e.g. Instruments, tools, infrastructures, services offered to 3rd parties
- Adhere to the programme notions and values and make explicit provisions for this

R&I Actions

Approach may include:

- open source software
- open hardware design
- software quality and usability audit
- security audit
- access to data
- standardisation activities
- access to testing and operational infrastructure
- think about visiting scientist/experts
- an IPR regime ensuring lasting impact and reusability of results
- whatever else is missing, including marketing
- give money to people to break things...

What is a good proposal?

- Among the three criteria, build a perfect impact story
- KPIs, go much beyond excellent words and plans
- your evaluator will not be administrators, rather top people in the field: write for them!
- Have your proposal checked by the NCP, colleagues, internet gurus.
- Evaluators take an investment decision

Decentralized data governance

Work Programme

Leveraging on distributed open hardware and software ecosystems based on blockchains, distributed ledger technology, open data and peer-to-peer technologies.

Attention should be paid to ethical, legal and privacy issues, as well as to the concepts of autonomy, data sovereignty and ownership, values and regulations

Consider ...

- involve the right technological actors, competent in P2P, blockchain, open source, open hardware
- involve **multidisciplinary views** in a wider context
- Attract top talents addressing the technical issues as 3rd parties

Decentralized data governance

More information about this topic:

<https://www.ngi.eu/news/2018/01/18/info-session-on-ict-24-decentralized-data-governance/>

→ Recorded info session from 17 January 2018

Why decentralisation?

Centralised	Decentralised
One choice	Multiple choices
Monopoly	Network neutrality
Proprietary solutions	Open standards, open source
Clouds	Community networks
Monitoring	Privacy
Artificial Intelligence	Collective Intelligence
Asymmetric data flows	Decentralised data governance

fixing asymmetry in data governance

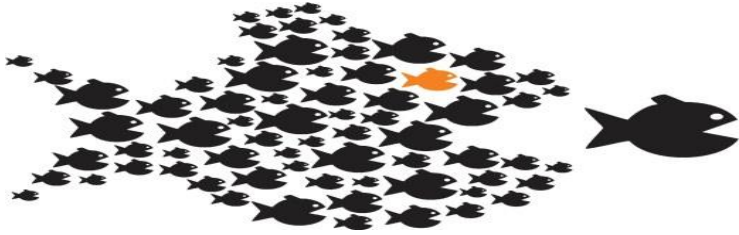
- technologies already exist:
 - **P2P networks** (robust distributed architecture)
 - **Blockchains** and other distributed ledgers (decentralised certification and security of transactions)
 - Open data, linked data
- to be generalised to clouds, social networks and IoT
- with robust standards

the goal: creating a *decentralised innovation ecosystem*

- Open to new entrants and open innovation:
 - Low entry barrier to access big data
 - privacy-by-design business models
- Open to new services: allowing more SMEs and social enterprises to implement **Digital Social Innovation:**
 - for collaborative public services
 - collaborative economy
 - collaborative making
 - participatory consumption
 - environmental action
 - open policy making and open democracy



Collective Awareness Platforms for Sustainability and Social Innovation (2012-2018)



Harnessing ICT networks, network effects and collective intelligence

Creating awareness of sustainability challenges - and of bottom-up collaborative solutions grounded on real communities of people

Supporting new economic models beyond GDP

Based on open data, open source and open hardware participatory innovation paradigms

Requiring participation of at least two non-ICT partners

Appealing to new grassroots actors: social entrepreneurs, students, hackers, civil society organisations

<http://ec.europa.eu/digital-single-market/en/collectiveawareness>

➤ **DEcentralised Citizens Owned Data Ecosystem**

- Data sovereignty for citizens

➤ tools that **put individuals in control**

- of whether they keep their personal information private or share it for the common good
- Developing a free and open source ecosystem of tools, validated in real life context
- using **decentralised algorithms based on blockchains**
- Creating **robust open standards**

➤ Involving

- technological actors (*P2P, blockchains and open source developers, open hardware manufacturers, experts in security, encryption*)
- civil society organisations (*local communities, digital rights advocacies, artists, social scientists*)
- developers of the overlying social applications and systems (*creative industries, SMEs, social entrepreneurs, software developers*)

featured by Financial Times as "creating an alternative data ecosystem" and "redesigning the digital economy by enabling users to control their own data" – thanks to Blockchain.

<http://decodeproject.eu/>

EIC Prize on "Blockchains for Social Good"

- "To develop scalable, efficient and high-impact **decentralized solutions to social innovation challenges** leveraging Distributed Ledger Technology (DLTs), such as the one used in blockchains"
- "Targeting social innovations in which decentralized solutions based on DLTs have shown **clear benefits over conventional centralised platform solutions** "
- **5 awards of €1 Million each**, corresponding to different social application areas
- Deadline to submit applications: **25 June 2019**

Manifesto for Digital Social Innovation

sign at <https://www.dsimanifesto.eu>

- 1. **Openness and Transparency**
 - Mandate Open-Source, Promote Open Data, Sustain Open Knowledge
- 2. **Democracy and decentralization**
 - Accelerate democracy projects, Showcase open democracy, Promote awareness
- 3. **Experiment and adopt**
 - Bring together, Set technological priorities, Public adoption
- 4. **Digital skills and multi-disciplinarity**
 - Promote digital skills, More ICT curricula, Incentives for multi-disciplinarity
- 5. **Sustainability**
 - Shift funding governance (from lobbies to bottom-up), Methodology, Additional sources

Decentralized data governance

Q&A

→ Contact: Fabrizio Sestini, Fabrizio.Sestini@ec.europa.eu

Privacy and trust enhancing technologies

Work Programme

As sensors, objects, devices, AI-based algorithms, etc., are incorporated in our digital environment, develop robust and easy to use technologies to help users increase trust and achieve greater control when sharing their personal data, attributes and information.

Privacy and trust enhancing technologies

Consider...

As research examples (under this topic):

- Decentralised or federated internet-wide identity, authentication, authorisation mechanisms
- Distributed trust reputation
- User-defined and controlled personal data release
- Privacy-safe personal data checking/proofing mechanisms
- Open hardware and software; usability, deployability, scalability

For the intermediaries (proposers):

- Uses cases from vertical markets and novel sustainability models
- **Commitment to implement the WP values:** openness, cross-border cooperation, decentralisation, inclusiveness and protection of privacy
- Instruments, tools, infrastructures, services offered to 3rd parties
- **Attract top talents as 3rd parties**
- **Mentoring and adoption logic**

Privacy and trust enhancing technologies

More information about this topic:

<https://www.ngi.eu/news/2018/01/16/info-session-ict-24-privacy-trust-enhancing-technologies/>

→ Recorded info session from 15 January 2018

Contact: Jean-Luc Dorel, Jean-Luc.DOREL@ec.europa.eu

Discovery and identification technologies

Work Programme

Search and access large heterogeneous data sources, services, objects and sensors, devices, multi-media content, etc., which may include aspects of numbering; providing contextual querying, personalised information retrieval and increased quality of experience.

Discovery and identification technologies

Consider ...

- Focus on the actual discovery mechanisms
- **Address the global remote discovery problem that led to the domination of a few platforms**
- Develop open semantics at all layers, eco-systems around are critical to avoid silo-based approaches
- Enable individuals and companies to be discoverable on the internet without intermediaries
- **Impact of search and discovery in system design, data transparency and model implementation**
- Importance of management of live streams of data requires new system approaches to access, process and store streams.
- **Novel approach for multi-modality and multi-lingual content aggregation**
- Importance of algorithmic systems transparency for digital trust and appropriation of emerging technologies

Discovery and identification technologies

More information about this topic:

<https://www.ngi.eu/news/2018/01/18/info-session-on-ict-24-discovery-and-identification-technologies/>

→ Recorded info session from 18 January 2018

Contact: Luis Martinez,

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Research and innovation actions ICT-24

Q&A

The three Programme Support Actions

Integral part of programme success

Technology Strategy & Policy

- Engage leading-edge Internet stakeholders and will identify emerging research trends and policy needs, through a continuous public online consultation, open stakeholder engagement, fora and debates, and data analysis.
- Use the most innovative approaches and technologies, and unconventional ways to maximise involvement of those stakeholders who are new to community programmes and who will actually drive the evolution of the Internet.
- Map and cooperate with national/regional initiatives and global activities where relevant.
- Driven by actors with a solid background and standing in today's NGI community, it aims at sustainability right from the beginning.
- **Be the intellectual spearhead of the 'Next Generation Internet – An Open Internet Initiative' and will closely engage with the other actions supported in this topic.**
- 3 years, Euro 3 million, partially be implemented through small prizes (max budget Euro 300.000)

Consider the following ...

- Small and agile partnerships, 1-3 partners?
- Name the project leader and why this person is qualified.
- High-level, proven skills, authority in EU research landscape
- What are your KPIs?
- New and more effective and efficient ways – use of the latest online technologies and tools
- Integrate knowledge from ongoing actions.
- Mobilise additional resources (financial and/or in-kind)
- Demonstrate how you will be at service of the NGI initiative – what flexibility do you bring in?
- Adhere to the programme notion and make explicit provisions for this

New ways:

- Data mining, Crawling
- publications
- Automatic data collection, dynamic spaces, crowd-sourcing
- Virtual networks
- Policy validation
- Visiting scientists
- Challenges
- Social media
- Thought leaders
- Meet-ups
- Events, groups,...

Technology Harvest & Transfer

- Support 'R&I Actions' and their third parties in ensuring the best use of the outcomes created by **delivering specific exploitation strategies**, including follow-up investment opportunities, industry relations, IPR/knowledge transfers, tech-transfer services to digital innovation hubs, mentoring / coaching services and linkage to national IPR exploitation programmes, in a most innovative and effective way.
- Support impact assessment at the level of the 'Next Generation Internet – An Open Internet Initiative' topic.
- Start 6 months after R&I Actions (summer 2019)
- 3 years, Euro 2 million

Consider the following ...

- Small and agile partnerships, 1-2 partners?
- Proven background and the skills and competences necessary for this job
- Name the project leader and why this person is qualified.
- What are your KPIs?
- How will you filter the once to work on more intensively (VIP class?)
- Help the teams to package into products and services which can move to the next stage (of development, of trials, of deployment, or mass market,...)
- Software/security audits, licenses,
- Support the ability to deploy, lead customers, procurements,
- How will you attract corporates to the programme (talent & startup)
- Overall demonstrate how you will be at service of the NGI initiative – what flexibility do you bring in?
- Mobilise additional resources (financial and/or in-kind)
- Adhere to the programme notion and make explicit provisions for this

Outreach Office

- Execute the programme communication strategy, branding and marketing activities, including extensive online and social media presence and events, establishing a positive brand image among young researchers, innovators, policy makers and people at large.
- **Centralised, more efficient and professional, it will lead communications towards the outside world** but also coach all actions under this topic in effective communications and marketing.
- 3 years, Euro 2 million.

Consider the following ...

- Small and agile, why should a proposal have more than one partner?
- Aimed at professionals (in the communications & advertisement business)
- Name the project leader and why this person is qualified.
- Proven track record in communicating
 - Europe wide and multi-lingual
 - Complex (abstract) societal and economic challenges
- Tech-savvy, use of hottest online services
- Demonstrate how you will be at service of the NGI initiative – what flexibility do you bring in?
- Mobilise additional resources (financial and/or in-kind)
- Adhere to the programme notion and make explicit provisions for this

Communication & community building

- ✓ Follow us [@NGI4eu](https://twitter.com/NGI4eu)
- ✓ Read more about NGI: www.ngi.eu
- ✓ Be part of NGI & Register:
<https://www.ngi.eu/ngi-map/>
- ✓ Take part in the NGI open consultation:
<http://consultation.ngi.eu/about-ngi-consultation>
- ✓ Register in the NGI Newsletter/News:
<https://www.ngi.eu/subscribe>
- ✓ LinkedIn group: <https://www.linkedin.com/groups/2206279>



+ Engaging Member States/H2020 Associated Countries via the [H2020 FIF expert group](#) & the [NGI Contact points](#)

Q&A

Contact: CNECT-Next-Generation-Internet@ec.europa.eu



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Next Generation Internet

INFO SESSION on ICT-24 and ICT-31

Webinar, 31 January 2018



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**The best place to benefit from H2020's know-how, know-what,
know-who and knowledge!**

We're also on [Youtube!](#)



Questions are welcomed!

Edina Nemeth - NCP for ICT in Hungary - Edina.Nemeth@ist.hu



EU-US Collaboration on NGI

Work Programme 2018-2020

Objective ICT-31

How exactly does it work?

EU-US Collaboration on NGI

- Fruitful ideas from both sides led to important Internet milestones (notably the www)
- Bridge excellence on Internet from both sides of the Atlantic
- Build on some existing channels (e.g. GENI-FIRE) but now advancing the conversation on NGI

EU-US Collaboration on NGI: Calls

1

Deadline 17 April 2018

Support Actions

- A. Think/Do Tank**
- B. Fellowships**

Budget Euro 2.5 million

2

Deadline 28 March 2019

Research & Innovation Action

- **Joint experimentation**

Budget: Euro 3.5 million



Think/Do Tank

2018 CSA ~2-3 years, Euro 1 million: Organise workshops and other support activities: to facilitate the coordination of research and innovation initiatives in the EU and US, and to promote collaboration between the research groups. Create a Next Generation Internet open ecosystem engaging relevant initiatives and key actors from the EU and the US.

Consider ...

- What type of collaboration and what workshops/seminars/events do you plan?
 - Scope is the NGI ICT-24 to ICT-29 and its evolution
 - What type of people to mobilise? Researchers, innovators, startups, policy makers, lead thinkers, ...
 - What type of other organisations to mobilise, notably from the US progressive think tanks (not targeting US agencies, rather the users)
 - Have you already something similar ongoing? Capacity to use what is there and draw on partner's research
 - Ecosystem building and being visible in Brussels and US (Washington, Boston, Berkeley/Stanford,...)
 - Avoid overlaps with ongoing actions
- Note: The US side may consider launching a related programme – how will you benefit from that "twin-action"?
- Why more than one partner?
 - Think tank with a
 - strong overall socio-economic background,
 - which demonstrates digital policy competence,
 - has strong transatlantic relations, and,
 - Can draw widely on research and science.
 - Politically super sensitive
 - Coordinate closely with the Commission
 - Think tank which has an existing EU-US policy portfolio and a clear understanding of both sides of the Atlantic
 - Use existing assets, be economical and aim for a multiplying effect
 - Adhere to the programme notion and make explicit provisions for this
 - Duration ~ 2-3 years
 - Start Date: 1 October 2018



Fellowships

2018 CSA ~2-3 years, Euro 1.5 million: Fellowship programme: support 3 to 6 months fellowships for Internet researchers notably from hi-tech startups, SMEs, mid-caps, research centres or academia to broaden the understanding of different approaches, perspectives and values, in view to then contribute to concrete NGI services and products 'Made in Europe'. The project will only provide financial support for travel and subsistence, and only citizens of the EU and associated countries will be eligible for funding.

Consider ...

- Your job: Organise open calls, clear & fast selection process. Coach & buddy with the other fellows and monitor
- Fellowship applications: What is the value for Europe (including the what after and how will this impact individually)
- Target group clear in the proposal: brilliant people, a career in front, NGI scope, EU citizens (or H2020 associated country)
- Part of the proposal: Top-of-class landing spots in the US, NGI related and at the forefront of digital technology and policy in academia and industry (research labs)
- How will the fellows report on their work? Impact? Once back, TED-style 'defence' of your fellowship?
- Recognise, celebrate, hand-out a certificate
- Fellows are EU ambassadors
- Why more than one partner?
- Operational & administrative capacity to carry out the work with high standards
- Organisation with the capacity to attract the right applications for fellowships
- A KPI will be how much budget is allocated for the fellowships (why less than 80%)
- Mobilise additional resources (financial and/or in-kind)
- Maximise # of fellowships: Flat-rate reimbursement of additional cost
- Assess impact of the project as a whole
- Adhere to the programme notion and make explicit provisions for this
- Duration: ~ 2-3 years



Joint Experimentation

Call
2019

**2019 Research and Innovation Action, 3 years,
Euro 3.5 million, 80% sub-granting for common
experiments by EU/US teams** on emerging
topics for the Next Generation Internet /
Tomorrow's Internet programmes on top of
EU/US experimental platforms.

Q&A

Contact: Georgios Tselentis

Georgios.TSELENTIS@ec.europa.eu

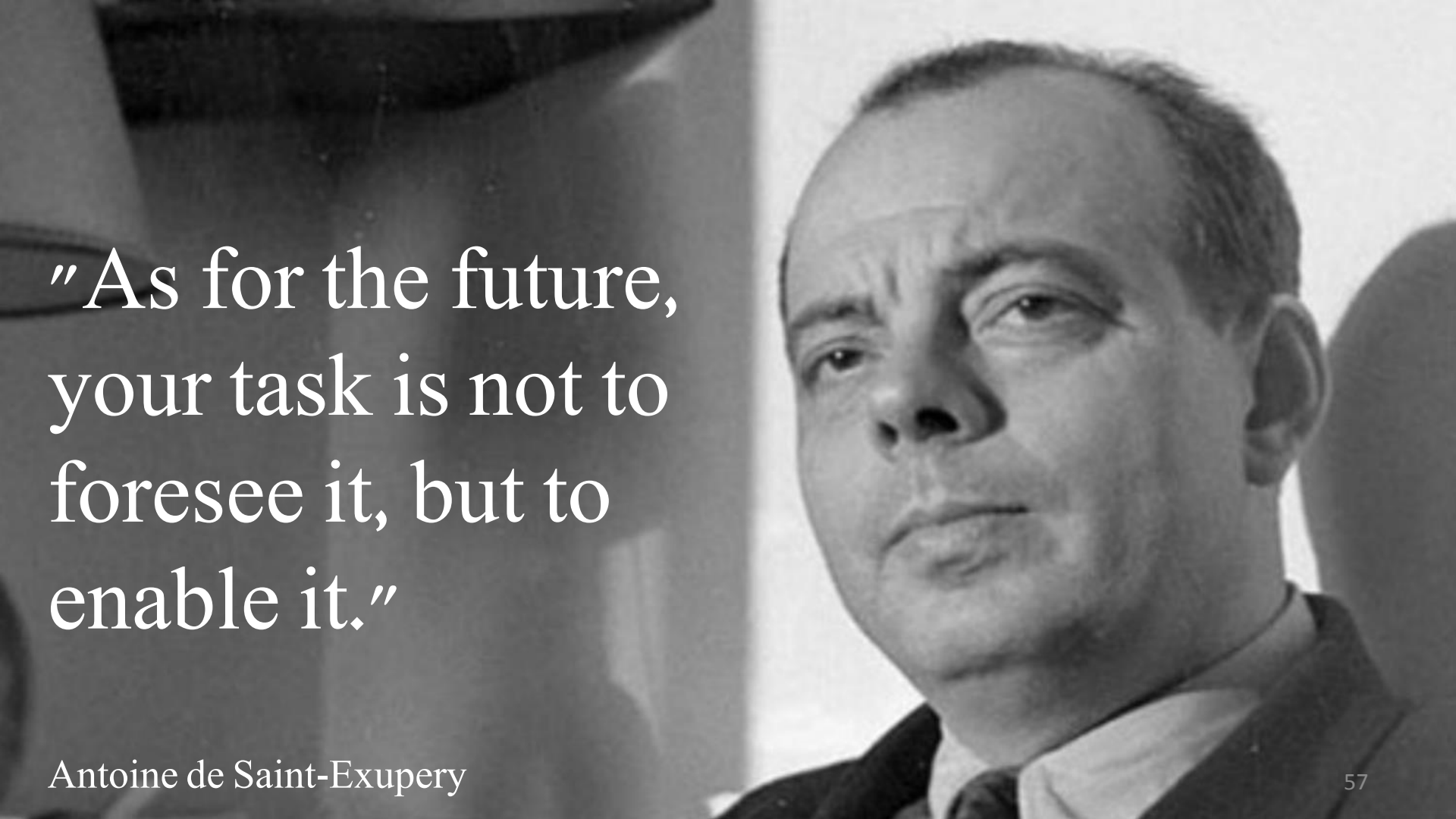
EU-US NEXT GENERATION INTERNET (NGI) PROJECT. US PARTNER COLLABORATION OPPORTUNITIES.

We are identifying interested US collaborators to potentially participate in proposals with EU partners. Potential U.S. partners can include:

- Big Data Innovation Hubs (Northeast, West, South, Midwest)
- Regional and national networks and Network Operations Centers
- Non-Governmental Organizations (NGOs), Centers of Excellence
- Universities
- Industry

Please contact Florence Hudson, Special Advisor - Next Generation Internet, Northeast Big Data Innovation Hub, for further information regarding US partner collaboration.

[Email: flo1980@alumni.Princeton.edu](mailto:flo1980@alumni.Princeton.edu) or florence.distefano.hudson@gmail.com

A black and white portrait of Antoine de Saint-Exupéry, a middle-aged man with short hair, wearing a dark suit jacket, a light-colored shirt, and a dark tie. He is looking slightly to the left of the camera with a thoughtful expression. The background is out of focus, showing some architectural elements.

*"As for the future,
your task is not to
foresee it, but to
enable it."*

Antoine de Saint-Exupéry



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