



D1.1 - Think NEXUS think tank operational guidelines

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Abstract

This document represents the operational guidelines of the Think Tank and the Expert Groups as main elements and instruments of the of the Think NEXUS project. It sets the basis of how these instruments should operate in order to perform their functions and activities correctly and efficiently, to ensure safe spaces for policy deliberation and debate

Keywords

Next Generation Internet; EU-US collaboration; Guidelines



Revisions

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Acronyms and definitions

Acronym	Meaning
AB	Advisory Board
CA	Consortium Agreement
CO	Confidential (deliverable)
DoA	Description of Action
EC	European Commission
GA	Grant Agreement
GDPR	General Data Protection Regulation
ICT	Information and Communication Technologies
IoT	Internet of Things
IPR	Intellectual Property Rights
KPIs	Key Performance Indicators
MoM	Minutes of Meetings
Mxx	Month
NDA	Non-Disclosure Agreement
PC	Project Coordinator
PU	Public (deliverable)
QA	Quality Assurance
SQAP	Scientific Quality Assurance Plan
R&I	Research & Innovation
SC	Steering Committee
SME	Small and Medium Enterprise
Txx	Task
TL	Task Leader
WP	Work Package
WPL	Work Package Leader



Think NEXUS project

The Internet of the future should be more open, provide better services, more intelligence, greater involvement and participation. It needs to reflect the European values". EU's Next Generation Internet initiative is a key opportunity to rethink the way the Internet works today and develop a vision involving voices from across Europe, the US, and beyond, an Internet that embodies the values Europe holds dear, such as openness, inclusivity, transparency, privacy and cooperation.

Thinking global, the NGI will be successful only if a worldwide consensus is found, enabling the internet a Human-centric process. To that end, collaboration between the US and the US, both areas being strongly committed to develop the future of Internet, to shape a sustainable landscape for NGI developments. Indeed, the NGI initiative should design specific actions for policy collaboration, shared technology development and interaction between user-communities, with other initiatives in the world where parts of the NGI infrastructure are designed and deployed; and the US are one of the main places where such activities are held.

Think NEXUS aims to reinforce EU-US collaboration, through its dedicated Think Tank, involving major stakeholders (researchers, entrepreneurs, policy makers) from both sides of the Atlantic on NGI-related thematic in three Focus Areas: Science and Technology, Innovation and Entrepreneurship and Policy. Its mission is to become an important and lasting entity, involving stakeholders and disseminating NGI visions in a collaborative approach for tackling NGI challenges, and benefit society at large. More specifically, Think NEXUS is expected to boost the strategic research, industrial partnerships and policy compliances among the respective communities of the NGI areas and thus, result in substantial socio-economic benefits in both the EU and US regions.



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1. Executive Summary

This report provides the initial set of the operational guidelines for the Think Nexus' Think Tank and the Expert Groups, to ensure an efficient and effective operation of both instruments for achieving the goals and objectives of the project.

The description and definition of roles, procedures, responsibilities and communication tools are critical for the success of both instruments. Clarifying the above-mentioned elements from the early stages of the project provides a clear vision of the structures aiming to assist all members and Chairs of these instruments throughout the lifespan of the project.

The first part introduces the basic principles and responsibilities of the Think Tank and how the Think Tank should be operated, while the second part gives detailed information about the composition and basic operational principles and procedures related to the everyday operation of the groups.



2. Introduction

2.1. Scope of the document

This document represents the operational guidelines of the Think Tank and the Expert Groups as main elements and instruments of the of the Think NEXUS project. It sets the basis of how these instruments should operate in order to perform their functions and activities correctly and efficiently, to ensure safe spaces for policy deliberation and debate.

It provides information about the structure, the roles and the procedures of these instruments in order to ensure that the Think Tank and the Expert Groups will contribute toward the contractual obligations and requirements. The current document is a living document that may be reviewed and revised throughout the lifespan of the project in order to take into account new information and modified requirements.

This document is to be used by:

- Think Tank Board;
- Expert Group Chairs;
- Think NEXUS consortium members;

2.2. Structure of the document

The current document is organized as followed:

- **“Introduction”** explains the purpose and intent of this document
- **“Think NEXUS Think Tank: Setting the Basis”** introduces the basic principles and responsibilities of the Think Tank and how the Think Tank should be operated.
- **“Expert Groups: Roles and Responsibilities”** provides detailed information about the composition of the groups and basic operational principles and procedures related to the everyday operation of the groups.

2.3. Relationship to other project outcomes

The current deliverable is directly related with all the work to be implemented throughout the whole project. These guidelines are the basis of the Think Tank and the Expert Groups by providing guidance for members and Expert Group Chairs to perform their functions correctly and reasonably efficiently.

It documents the approved standard procedures for performing activities and operations effectively and efficiently while compliance with these guidelines is considered as activity approved by all Expert Group Chairs and the Think Tank Board.

Moreover, the current document is complementary to **D1.2: Think tank strategic outline**, as the combination of both documents provide a clear and holistic approach of **Think NEXUS Think Tank** and its Expert Groups.



3. Think NEXUS Think Tank: Setting the Basis

3.1. Think Tank: A generic definition

In this subsection we provide a clear definition of what a think tank is, so that authors and readers share the same views and understanding. For a clear definition about the scope and the objectives of **Think NEXUS Think Tank**, please refer to **D1.2: Think tank strategic outline**.

“Think tanks are platforms for creating and implementing solutions for social, economic, political and health problems, among others. They are groups that seek to influence legislation and public opinion via reports and supported research released to the news media, lawmakers and the public. Think tanks offer a way to effect change and communicate with people who are interested in like causes. An effective think tank requires a clear message, people who are willing to do the work, and published research¹”.

3.2. Think NEXUS Think Tank Governance

As already stated in the Description of Actions (DoA), Think NEXUS project will establish a dedicated think tank to facilitate the objectives of the project. **Think NEXUS aims to create the Next Generation Internet's open ecosystem between Europe and the USA**, engaging and collaborating with the most relevant initiatives and key actors from Internet in a comprehensive manner.

It has an international mission to facilitate the coordination of strategic cutting-edge initiatives between these regions, while fostering collaboration among Research, Innovation and Policy groups in the long run. Such initiative will be the ‘pathfinder’ that will identify and strengthen the common baseline of the bilateral EU-US effort towards the future of Internet.

This open framework will allow a smooth and flexible operation to steer and promote efficiently the cooperation across EU-US communities, encompassing the various aspects of NGI towards the correlated values they carry: technology, openness, diversity, inclusion, ethics, etc.

What is critical to mention at this stage, is that the **Think Tank will be formulated by three interdependent and symbiotic Expert Groups**. The Think Tank is used as an “umbrella” term to describe this open framework and will act as guiding and decision-making instrument to the Expert. Groups. All activities will be implemented by the three Expert Groups.

¹ <https://smallbusiness.chron.com/ways-start-think-tank-18734.html>



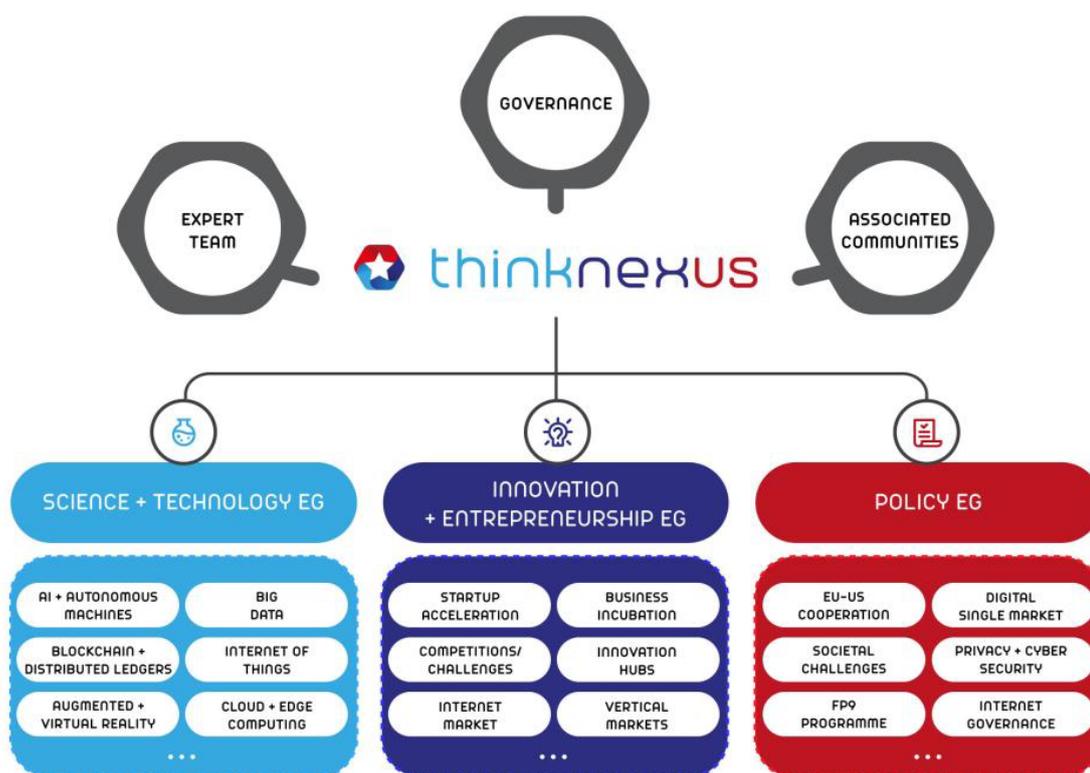


Figure 1: Think NEXUS Think Tank & Expert Groups

3.2.1. Think NEXUS Think Tank Board

The **Think Tank** will be governed by a dedicated **Think Tank Board** consisting of **13 members**. The **Think Tank Board** consists of all **Expert Group Chairs** (3 members) and the members of the **Project Coordination Unit (PCU)**² (7 members), augmented with at **least 3 independent experts** that serve an advisory role. The exact names of the independent experts will be revealed until **M5** of the project.

Responsibilities of the Think Tank Board:

- The Board decides on strategy and adopts the research programme and budget according to the priorities, as documented in the **“Think tank strategic outline”** deliverables;
- Communicate priorities and objectives to the Expert Groups;
- Synchronize the work of the Expert Groups to achieve tangible results;
- Coordinate dissemination and communication actions of the Think Tank with assistance and guidance of **“WP4: Dissemination, outreach and sustainability”** leader;
- Act as Think Tank ambassadors to dissemination events, external working groups, associations, committees, etc.

² Project Coordination Unit (PCU) - is composed of 1 representative per Think NEXUS consortium partner. The PCU will act as the governing board of Think NEXUS project and shareholder of Think NEXUS entity.



Communication & Contact Procedures & Tools

The **Think NEXUS Think Tank Board** will have to create a dedicated mailing list including all the members of the Think NEXUS Board. The mailing lists will be created with the assistance of the Communication and Dissemination Leader (SPI). Adding to the above, the Think Tank Board will have to **remotely meet once every two months**, to discuss and decide on activities and progress made. Internal working papers and documents can be shared among the Think Tank board via email or any other sharing facility such as Google Drive, Dropbox, etc. Particularly sensitive information will be exchanged by ordinary mail more preferably than by e-mail. Moreover, the Think Tank Board will physical meet in parallel with the official **Think NEXUS** Project Meetings without the participation of the 3 independent experts who are acting as advisors. **Both the physical and the remote meetings will be governed by IMEC**, as Work Package leaders or WP1: Think NEXUS Strategy and Governance.

Voting Rights and Solving of Disputes

Each member of the **Think NEXUS Think Tank Board** has the authority to bring any dispute to the attention of the board through a written communication (i.e. letter, e-mail), to be discussed during a physical or remote meeting. These meetings are being governed by **IMEC**, as Work Package leader or WP1: Think NEXUS Strategy and Governance.

The **Think NEXUS Think Tank Board** consist of 12 votes in total, as shown in the table below. In case of a dispute or a disagreement, at least 75% of the votes (9) have to be in favour of it in order for it to be examined or altered. In any other case, all decisions require 100% of the votes in order to be accepted.

Table 1: Think Tank Board Votes

	Think NEXUS Think Tank Board Members	Votes on the Board
Expert Group Chairs	Expert Group Chair 1	2
	Expert Group Chair 2	2
	Expert Group Chair 3	2
PCU Members	INNO (coordinator)	2
	IINV	1
	ATC	1
	SPI	1
	IMEC	1
	Total Votes	12



4. Expert Groups: Roles and Responsibilities

4.1.1. Expert Groups: A Definition³

As already state above, **Think NEXUS** will establish three Expert Groups. The Expert Groups will operate the activities of the Think Tank, fostering cooperation and discussions among top-class experts to release key results. The three expert Groups are the following:

- **Science & Technology Expert Group:** This area focuses on pure technical aspects of common priorities for both regions, such as AI, Big Data, Blockchain, Internet of Things and more; - **Led by ATC**
- **Innovation & Entrepreneurship Expert Group:** This area covers the Go-To-Market approach of NGI, identifying trends and means to foster and speed up the exploitation of the technology; - **Led by IINV**
- **Policy Expert Group:** This area pinpoints crucial policy cooperation between regions, including Internet governance, cyber security, standards and interoperability, data privacy, and ethics. – **Led by INNO.**

The **Think NEXUS** expert groups are essential to the **Think NEXUS** project. Members of each group are carefully selected by the expert group (EG) chair and are considered as the most prestigious experts in the corresponding area inside the EU or US. Their participations in this project are set on a voluntary basis without any payment other than refunding of travelling costs to attend expert group meetings.

In general, the objectives of the expert groups are to:

- **Identify industrial drivers, societal challenges and policy gaps**, as well as of relevant **challenges and opportunities** in EU and the US
- **Propose common priorities and future cooperation opportunities** in EU and the US
- **Promote EU-US collaboration** on the specific technical or policy area
- **Provide linkages** between EU and US networks
- **Devise roadmap** for EU-US collaborations

4.1.2. Expert Groups Governance

These groups will work under the supervision of an Expert Group Chair and his US Deputy, ensuring the alignment of the set of tasks with the objectives of the project. Moreover, each Expert Group includes external experts who are part of the Expert Team.

The Expert Team is the pool of individual members contributing to each Expert Group. Besides experts from partners of the consortium, Think NEXUS counts on a preliminary group of **34 specialists from Europe and the US**, that will increase or change throughout the project lifetime.

Each Expert Group benefits from the diversity of the stakeholders' background, institutions, positions, and thus provide a panel able to encompass considerations from the technical level to the policy ones (including social & societal implications). The groups will be completed with additional members selected during the 6

³ For more details see D1.2: Think Tank Strategic Outlines



first months of the project and will evolve along its developments. In a first phase, project partners indeed intend to have a first round of discussions with EU and US policy representatives (ITRE; NIST; NSF) for gathering feedbacks on which key stakeholders should be added to the groups.

Expert Groups comprise academia, business and policy representatives and will work jointly on two main elements:

(1) Represent and advance innovation and scientific excellence in the topics through exposure of research and innovation results in this international context;

(2) Be a platform for the strategic discussion and orientation for potential future collaboration opportunities, based on the needs of academics and/or society.

Membership in the groups will be opened for representatives from related H2020- and US-funded industry-driven projects and ICT associations, networks and PPPs from the EU and the US. The views of the groups will be integrated in **joint working sessions** in order to identify gaps and opportunities and to provide a map of challenges, open problems, and needs for future policies and strategic EU-US initiatives, both policy- and research-related. Cross-industry and cross-application findings will be captured thanks to the interactions within and between the groups.

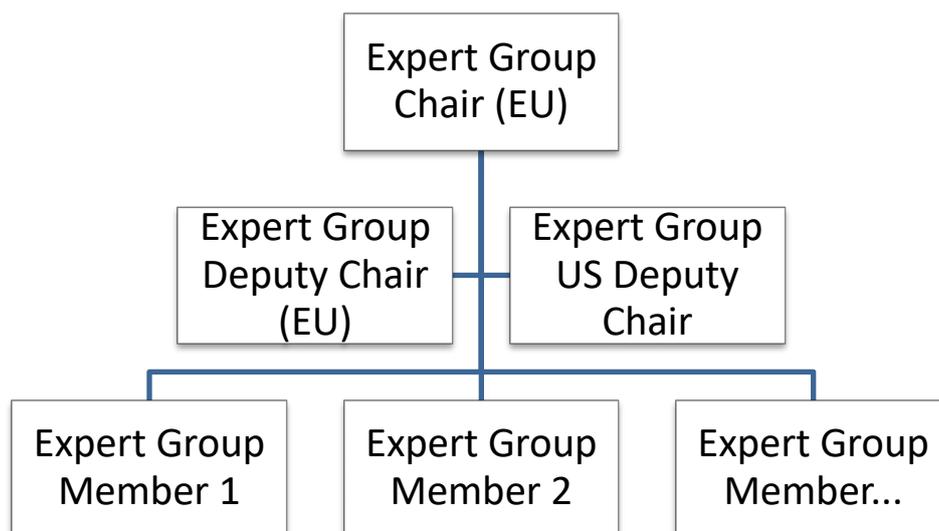


Figure 2: Expert Group Structure

Responsibilities of the Expert Group Chairs

- Each **Expert Group** will be led by the **Expert Group Chair**, who is a physical person and a dedicated member of the consortium. The **Expert Group Chairs** are the following:
 - **Science & Technology:** Nikos Sarris (ATC)
 - **Innovation & Entrepreneurship:** Jose Gonzalez (IINV)
 - **Policy Expert Group:** Fabrice Clari (INNO)
- The **Expert Group Chair** will ensure the quality of discussions' level as well as the alignment with Think NEXUS priorities.



- **Expert Group Chairs** have the responsibility of ensuring a fruitful interaction with external members of their groups, **besides being work package leader and representing their partner organisation in the PCU** (Project Coordination Unit).
- Each **Expert Group Chair** will have to assign one or more US member of his Expert Group, to act as his US counterpart (**Expert Group US Deputy Chair**) who will have a more in-depth knowledge of the US reality on Expert Group topics.⁴
- Each **Expert Group Chair** has the option to assign one or more EU members of his Expert Group, to act as his Deputy/Deputies (**Expert Group Deputy Chair**) to assist him/her in daily operations. This role is not mandatory.
- Each **Expert Group Chair** manages the planning of his respective group activity, including follow-up of deliverables, as well as administrative and financial activity (such as organisation of events, reimbursement of external members' travel costs, etc.). In case of necessity, the **Project Coordinator** will be able to intervene on working group activity and management.
- Each **Expert Group Chair** is responsible of the quality of inputs and deliverables to be submitted by his Expert Group to the consortium.

4.1.3. Expert Group Activities

All three Expert Groups will have to implement a number of activities to contribute to **Think NEXUS** objectives and scope. Each Expert Group chair manages the planning of his respective group activity, including follow-up of deliverables, as well as administrative and financial activity (such as organisation of events, reimbursement of external members' travel costs, etc.). In case of necessity, the Project Coordinator will be able to intervene - one contact point "Secretariat of the Expert groups" will be nominated by the coordinator.

Example of activities can be found below, however these can be adjusted or change according to the needs and scope each Expert Group.

- **Set a consistent conceptual framework for NGI-related developments**, by analysing potentials and challenges for EU-US collaboration in the fields covered by NGI concepts and the needs for policy and actions to improve such conditions for upcoming collaborations;
- **Identify research and innovation collaboration opportunities and potential projects** supporting the setup of a sustainable human-centric architecture, infrastructure and governance;
- **Contribute to the barriers and opportunities reports**, to develop common views on the priorities and EU-US collaboration will provide improved competitiveness, performance and reinforced rights to Internet users;
- **Propose new schemes for developing and co-developing strategic initiatives and actions that will foster the uptake of human centric considerations** within technological hard & software developments;
- **Help in linking EU and US networks** for mobilising the relevant stakeholders upon given topics.
- Contribute with strategic policy advice and guidance to the project in view of EU/US collaboration on NGI

⁴ Not Mandatory



- **Provide targeted advice** during the project implementation, i.e. on specific project recommendations
- **Support project dissemination activities**, acting as “**project ambassadors**” by keeping informed their various networks of the project activities and outcomes
- Participate in **third party events** representing Think NEXUS
- **Contribute** to Think NEXUS’s International **symposium** by participating, organising workshops/sessions and disseminate
- **Contribute to Project workshops** by participating or organising dedicated sessions
- **Contribute to project Webinars** by participating or organising dedicated sessions

4.1.4. Communication & Contact Procedures & Tools

Each **Expert Group Chair** will have to create a dedicated mailing list including all the members of the expert group that he supervises. The mailing lists will be created with the assistance of the Communication and Dissemination Leader (SPI).

Moreover, each Expert Group Chair is responsible for setting up a monthly call (i.e. teleconference) with all expert group members. The teleconference will take place with the assistance of teleconference tools according to the preference of each Expert Group Chair (i.e. WebEx, Google Hangouts, UberConference, Skype, etc.). Internal working papers and documents can be shared among the Expert Group Members via email or any other sharing facility such as Google Drive, Dropbox, etc. Particularly sensitive information will be exchanged by ordinary mail more preferably than by e-mail.

4.1.5. Physical Meetings and Workshops

All Expert Group will have to physically meet three times, throughout the lifetime of the project:

- A first meeting of all 3 groups – with parallel sessions, linked to the public event, will take place on the east coast of the US (several options being considered, notably in Washington DC (US Ignite)) at month 9; However, location and dates may vary according to availability of all stakeholders.
- The second assembly will take place in Brussels, enabling notably EU stakeholders to provide their inputs in joint sessions in parallel to relevant EU event with US speakers at month 18; Location and dates may vary according to availability of all stakeholders. However, the option of having three independent expert group meetings is also possible according to the availability of all expert group members.
- The third physical meeting will take place aside Think NEXUS final event on the West coast of the US, with major EU and US stakeholders of Tomorrow’s Internet (location to be set during the project). Location and dates may vary according to availability of all stakeholders.

What is also critical to mention at this stage is that Each Expert Group’s meeting will take the form of focused open workshops with additional specialists, in particular from EU and US projects, exploring technological topics related to the societal challenges and relevant policy issues linked to NGI.



4.1.6. Internal Reporting Procedures

Each **Expert Group Chair** has the responsibility to update the **Think Tank Board**, on a monthly basis, about recent developments, on-going work and/or results of their Expert Groups via an email communication. Official reports will be generated and submitted to the Coordinator and to other Work Package Leaders according to project milestones and official deliverables.



5. Conclusions and next steps

The present document has established the basic operational guidelines of the Think Tank and the Expert Groups. The description and definition of roles, procedures, responsibilities and communication tools are critical for the success of both instruments. Clarifying the above-mentioned elements from the early stages of the project, provides a clear vision of the structures aiming to assist all members and Chairs of these instruments throughout the lifespan of the project

These outcomes are of high relevance for the project's next steps:

- Setting up and operating a Think Tank relevant to project's scopes and objectives
- Daily operation and implementation of all three Expert Groups to ensure that their outcomes are according to the Think Tank principles and the project's expected results



Annex A – Technological Priorities

Technological Priorities are listed in D5.2 and included here in annex for convenience.

Next Generation Internet technologies are seen as having major impact on society. The convergence among these technologies such as 5G, SDN, AI, NFV is highly important. Thus, NGI includes a number of different, but always interrelated, IT technologies which can be summarised, but not limited, into the following topics:

- **AI and Autonomous Machines:** Autonomous machines, as defined in the Digital Innovation Networks (DIN) Forum 2017⁵, are intelligent self-driven machines (robots) that are capable to sense their surrounding environment, reason intelligently about it, and take actions to perform tasks in cooperation with humans and other machines in a wide variety of situations on land, sea and air. With the development and proliferation of autonomous machines, a paradigm shift will occur within the industrial and societal domains;
- **Edge Computing:** Edge Computing is considered as top-priority technology area by 30% experts at the DIN 2017. Edge computing is a method of optimizing cloud computing systems by performing data processing at the edge of the network, near the source of the data. This approach requires leveraging resources that may not be continuously connected to a network such as laptops, smartphones, tablets and sensors;
- **Blockchains & Distributed Ledgers:** Although still not very familiar to most people, however, blockchains and distributed ledgers are widely being considered as revolutionary technologies⁶. Blockchain or distributed ledger technology revolves around an encoded and distributed database serving as a ledger whereby records regarding transactions are stored. At the core blockchain is an innovative database approach with a data model whereby cryptography (cryptographic hashing) is utilized in each transaction update and verifications become possible across the specific blockchain network, depending on its goal and stakeholders;
- **Big Data:** Big Data are considered a critical part of NGI. As data has become a key asset for the economy and our societies similar to the classic categories of human and financial resources the need to make sense of "Big data" is leading to innovations in technology, development of new tools and new skills;
- **Internet of Things (IoT):** IoT is marked as the top technology driver by the number of sources. From the results of a large-scale survey of European citizens⁸, IoT is among the most promising technologies which may have larger impact not only on peoples' personal lives but also in the labour market. At the DIN Forum 2017, almost 80% of participants expressed IoT as the key technology driver for NGI;
- **Open Data:** Open data have been always considered as critical by the Commission, especially for start-ups, as discoverable and easy to access and process data will boost the competitiveness of the EU IT industry. There is a need to develop and "open link" in order to overcome the challenges of format interoperability among data representation and data sources;
- **Cloud Computing:** Although cloud computing poses some security and privacy threats, it is important because of many reasons. For both education and business, cloud solutions are seen as a great opportunity. In order to overcome the challenges of security, privacy and surveillance, new security-built protocols could be designed to support new business and social domains.



- **Future Architectures:** Europe has invested in clean slate research following the US clean slate initiative with research into technologies such as the eXpressive Internet Architecture (XIA), Recursive InterNetwork Architecture (RINA), Service Oriented Network Architecture (SONATE), Netlet-based Node Architecture (NENA), MobilityFirst, NEBULA, and Named Data Networking (NDN).
- Key application areas which are expected to be greatly impacted by the emerging NGI technologies:
- **Industry 4.0:** Industry 4.0 is a name for the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of things, cloud computing and cognitive computing. Industry 4.0 is commonly referred to as the fourth industrial revolution. It is considered to be the next phase in the digitization of the manufacturing sector. It relies on Internet services and knowledge is largely shared across the network in order to exploit this available knowledge for faster and better robotic learning.
- **Immersive Environment:** With the advancement in AI and learning algorithms, the immersive environments such as Virtual Reality (VR), Augmented Reality (AR) are also expected to be leveraged. However, these new forms of interactions and immersive environments might also face the challenges of data privacy, diversity and the concentration of data into proprietary platforms. Understanding the psychological & biological effects and threats and opportunities for industry and citizens is necessary in the VR world.
- **Collective User Experience:** Decentralised, heterogeneous and distributed architectures are important in the next generation digital society. For an enhanced user experience, human-centric technologies need to be identified, propagated and managed.
- **Lifelong Learning:** ICT lifelong learning is important in order to raise people's awareness of the significance of acquiring ICT skills throughout their lives.
- **Inclusiveness:** Each citizen has the right to benefit from modern ICT services and technologies. And the services should be designed in simple and easy to use way so that everyone including persons with disabilities could get benefit. Ubiquitous access to Internet and other ICT services is the right of each citizen just like access to clean water or energy infrastructure. Inclusiveness and ubiquitous connection are the key themes for civil society. The important risk factor is the potential isolation of those behind general levels of connectivity. There is a need to take immediate actions in order to bridge the digital divides and to cope with the digital literacy challenges.
- **Protection from the dangers of the Internet:** Ordinary Internet users are not fully aware how deep they are in the Internet. They sometimes disclose very personal information against social engineering attacks. This poses not only a data protection problem but also people themselves protection. It is important for emerging NGI technologies to protect people from dangers of the Internet.

Each **Expert Group** will decide on scientific or other, relevant to their nature, areas and topics of interest either directly from the list above or from topics not mentioned above. Topics of interest should be decided by each **Expert Group Chair**, with the agreement of all Expert Group Members, and validated from the **Think Tank Board** and the **External Advisory Board**.

