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D4.5 DISSEMINATION AND COMMUNICATION PLAN

SEPTEMBER, 2024

DISSEMINATION AND COMMUNICATION PLAN

KEY MESSAGE

Leverage EXIGENCE's integrated solutions to pioneer sustainable ICT: Enhance energy efficiency and reduce CO2 with our advanced measurement and optimisation tools.

CHANNELS

- Digital communication channels
- Print and physical media
- Publications
- Event-based channels
- Direct contacts

COMMUNICATION STRATEGY PHASES

- Phase 1: Planting the Seeds (M1 – M6)
- Phase 2: Germinating Ideas (M7 – M13)
- Phase 3: Cultivating Techniques (M14 – M20)
- Phase 4: Harvesting Efficiency (M21 - M26)
- Phase 5: Sustaining Growth (M27 - M30)

This deliverable builds on the measures to maximise impact elaborated on EXIGENCE's Grant Agreement. This Communication and Dissemination strategy identifies the project stakeholders and sets strategic communication goals. It ensures that relevant information, messages, and project updates are spread to the target audience via the most appropriate channels.

TARGET AUDIENCES

EXIGENCE aims to reach a diversified audience to maximise its impact. The project has identified relevant stakeholders and grouped them into the target audiences: ICT technology providers and consumers, telecommunications industry organisations, the research community, national and EU organisations and policy-making entities.

CHANNELS

Communicating the EXIGENCE project's outcomes and developments effectively requires leveraging various communication channels. These channels can be categorised based on their functionality and target audience reach. These channels, individually and in combination, enable comprehensive dissemination of EXIGENCE's developments, findings, and impacts to all relevant stakeholders, maximising engagement and fostering a supportive ecosystem for future ICT sustainability innovations.

ACTIVITIES

We have developed and established a set of channels and materials (e.g. brand, website, social media) and described activities we will implement throughout the project. The activities include a blog, publications, videos, events and synergies with other initiatives.

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05/07/2024	0.3	F6S	Phases for the communication plan and description of channels and materials
17/07/2024	0.4	F6S	Tone of voice for target audience and personas
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1 INTRODUCTION

This deliverable builds on the measures to maximise impact elaborated on EXIGENCE's Grant Agreement. This document covers communication and exploitation, while exploitation is presented in a dedicated deliverable (see D4.7 Innovation and Exploitation Plan, due on M9, September 2024).

A Communication and Dissemination strategy is developed to identify the project stakeholders and set strategic communication goals. This strategy ensures that relevant information, messages, and project updates are spread to the target audience via the most appropriate channels.

The strategy includes a description of the overall objectives, a typology and analysis of the target audiences, and the key messages to reach each audience and through which channels.

Following the strategy, a Communication and Dissemination plan will outline the activities planned throughout the project duration to respond to the strategy's objectives and outline the tools and supports to be used.

The plan will be implemented during the project. As with any good communications plan, it is not static but alive to respond to opportunities throughout the project. The plan includes an overview of the communications activities in different phases of the project and links them to the general objectives of the project and the Communication and dissemination strategy.

The plan also ensures that the partners are given the necessary tools to engage with their stakeholders and organise their communications and dissemination activities.

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2 COMMUNICATION AND DISSEMINATION STRATEGY

This chapter defines the overall communication and dissemination strategy. It starts by identifying the target audiences and describing their needs and potential gains. It defines the key messages and tone of voice for each target audience.

This chapter also describes the project's channels to reach its audiences and summarises the strategy in a communications matrix, cross-referencing audiences and channels.

2.1 TARGET AUDIENCES

EXIGENCE aims to reach a diversified audience to maximise its impact. The project has identified relevant stakeholders and grouped them into the target audiences described in the following sections.

2.1.1 ICT TECHNOLOGY PROVIDERS AND CONSUMERS

This target audience group includes all players involved in the ICT service delivery and consumption chain, ranging from network/IT equipment manufacturers, solution providers, SMEs, cloud operators, over service providers like telecom operators and cloud providers, to end users (i.e. ultimate service consumers).

EXIGENCE outputs will impact all these players. Telecom operators and cloud providers can deploy products and solutions created as direct or indirect results of EXIGENCE in their networks and platforms and achieve energy consumption/CO2e reduction.

Network/IT equipment manufacturers, including SMEs, will make this possible by bringing the project outputs to market, i.e., broadening their product portfolio and offering them to the operators.

Ultimately, service consumers, including the end users, can actively participate in the overall energy consumption/CO2e reduction effort by simply responding to the incentives offered to them (and created as project outputs).

This group represents a broad spectrum of stakeholders involved in developing, providing, or using ICT services, ranging from large manufacturers and service providers to small and medium enterprises and end-users.

This audience is interested in adopting new technologies that enhance service efficiency and reduce costs and carbon footprint. The stakeholders are looking for new opportunities for market expansion and aiming to comply with evolving standards and regulations.

ICT technology providers and consumers need effective, scalable solutions that integrate seamlessly with existing infrastructures, and tools to participate directly in energy consumption and carbon footprint reduction. A clear demonstration of return on investment will also drive them.

2.1.2 TELECOMMUNICATIONS INDUSTRY ORGANISATIONS

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This group is made up of Standards Developing Organisations such as 3GPP, ETSI, International Telecommunication Union (ITU), IETF. EXIGENCE will in all its phases consider active contribution to primarily 3GPP and ETSI (this decision also rests on the timing considerations, i.e. timeliness of the expected outputs and the agendas and plans of the SDOs).

Contribution to 3GPP SA1 related to the requirements for future green energy metering and reporting (EXIGENCE service-level metering) is one of the main results. Similarly, EXIGENCE has a clear plan for how to contribute to ETSI with appropriate extensions of metering interfaces and energy metrics and KPIs, as well as concrete proposals for trustworthy inter-domain exchanges (e.g. through ETSI PDL). In addition, further 3GPP contributions are planned in SA2, such as those related to resource awareness and scheduling in the core network or energy-aware orchestrator operation. EXIGENCE is also considering an ETSI contribution on this topic.

This target audience includes the stakeholders mentioned, that is the members of 3GPP, ETSI, ITU, and IETF, along with affiliated telecom companies and regulatory bodies that influence international telecom standards.

These organisations develop standards that support sustainable development, integrate new technologies, and maintain global telecom interoperability and quality. So, they need research outcomes and technological innovations that can be standardised, tools for green energy metering, energy-efficient resource scheduling, and reliable inter-domain exchanges.

2.1.3 RESEARCH COMMUNITY

This group is a well-known community centred around the main academic dissemination venues, such as scientific conferences and journals. Although often tacitly assumed, this group is worth explicitly mentioning, especially because EXIGENCE addresses attractive research topics and has the potential to create a serious impact on the research community. Here, we count not only the potential of actually getting publications accepted for publication at high-quality and high-impact journals and conferences but also on creating a whole research field around the novel and interdisciplinary topics of EXIGENCE.

The stakeholders are academic institutions, research labs, and individual researchers, particularly those interested in advanced computing, network systems, and sustainability.

This audience develops cutting-edge research, novel methodologies, interdisciplinary projects, and academic recognition through publications. They need access to innovative research, collaboration opportunities, visibility in prestigious journals and conferences, and platforms for academic discourse.

2.1.4 NATIONAL AND EU ORGANISATIONS

This group includes organisations such as EC Innovation Radar, SME instrument, European Investment Fund, end users and other potential stakeholders. EXIGENCE has the potential to create an interesting research movement around the energy-awareness. On the one hand,

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within the scope of energy-aware orchestration, an important state of the art is becoming a new, interesting shape in EXIGENCE, and quite some innovativeness will be needed to attack the related hard, technical problems. On the other hand, EXIGENCE economic modelling will merge the technology and business aspects into a novel, unique research initiative. All in all, we see plenty of sources of novelty in EXIGENCE, the exploration of which will ultimately bring a clear contribution of EXIGENCE to the said innovation-related organisations.

These organisations support companies and innovations that align with EU strategies such as the digital single market and green transition, supporting sustainable technological developments. They are looking for innovative projects that demonstrate practical relevance, scalability, and capabilities to address significant technological or societal problems.

2.1.5 POLICY-MAKING ENTITIES

Governments, legislators and regulators are primarily meant here. EXIGENCE will create an incentive-compatible system positioning energy consumption/CO2 emission reduction as a socially desirable goal. In other words, all actors in the system, acting in their best monetary interest, will bring the system into a socially desirable state. Rules and procedures of this incentive-compatible system will be documented and formulated as recommendations from EXIGENCE to selected regulatory bodies, as their decisions may be needed to effectively enable implementation of the said rules in practice (e.g. exchange of carbon certificates among the actors in the system and their subsequent usage for tax purposes, such as tax reduction or exemption).

Stakeholders include National governments, regulatory agencies, legislative bodies, and international regulatory officials.

They develop policies encouraging technological innovation while ensuring consumer protection, sustainability, and equitable growth. They need reliable data and analyses to support policy decisions, frameworks for integrating new technologies into public regulations, and strategies that facilitate responsible energy and resource utilisation.

2.2 KEY MESSAGES

EXIGENCE has defined clear key messages for each target audience that will be explored in all communications materials, supporting a customised and more impactful interaction (see Table 1).

Table 1: Key messages for the different target audiences.

Target Audience	Key Message
ICT Technology Providers and Consumers	Leverage EXIGENCE's integrated solutions to pioneer sustainable ICT: Enhance energy efficiency and reduce CO2 emissions with our advanced measurement and optimisation tools.

Target Audience	Key Message
Telecom Industry Organisations (SDOs)	Standardise sustainable ICT with EXIGENCE: Pioneer the integration of green energy metering and energy-aware orchestrator operations into telecommunications standards.
Research Community	Advance sustainable ICT research with EXIGENCE: Explore interdisciplinary research on energy measurement, optimisation, and incentivisation methods and solutions.
National and EU Organisations	Align with EXIGENCE to fulfil EU green goals: Drive impactful and scalable ICT innovations that reduce energy use and emissions.
Policy-making Entities	Empower regulatory frameworks with EXIGENCE: Utilise our data-driven insights for targeted policies that reduce ICT's energy and carbon footprint.

2.3 TONE OF VOICE

An effective communication strategy considers not only an individual key message for each target audience but also a tone of voice. The tone of voice in communication refers to how you utilise words or phrases to create an impact on the audience[1]. Specifying the tone of voice will strengthen the connection to each target audience.

In a further step, we consider dimensions of tone of voice, as defined by the Nielsen Norman Group[2]:

- Formal vs. casual: the level of formality and informality (casual and conversational are not necessarily synonymous but often appear together);
- Serious vs. funny: the level of humour or seriousness in the communication;
- Respectful vs. irreverent: the level of irreverence, i.e. how out-of-the-box, about the subject (not the audience) especially when compared to competitors; and
- Matter-of-fact vs. enthusiastic: the level of emotion and enthusiasm when compared to a dryer approach.

Table 2 defines this specification, regarding tone of voice and associated dimensions.

[1] https://uk.indeed.com/career-advice/career-development/tone-of-voice-in-communication

[2] https://www.nngroup.com/articles/tone-of-voice-dimensions/

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Table 2: Tone of voice for each target audience.

Target audience	Tone of voice	Dimensions
ICT Technology Providers and Consumers	Professional and engaging, emphasising technical efficiency, innovation benefits, and environmental impact.	Formal/Casual Serious Irreverent Enthusiastic
Telecom Industry Organisations	Authoritative and technical, focusing on actionable insights, compatibility with existing standards, and future-proofing telecommunications infrastructure.	Formal Serious Respectful Matter-of-fact
Research community	Scholarly and detailed, emphasising innovation, methodology, and the impact on existing and future research.	Formal/Casual Serious Respectful Matter-of-fact/Enthusiastic
National and EU organisations	Formal and informative, clearly demonstrating the project's alignment with policy objectives and its potential impacts on policy and society.	Formal/Casual Serious Respectful Matter-of-fact/Enthusiastic
Policy-Making Entities	Persuasive and policy-oriented, emphasising societal benefits, regulatory compliance, and economic benefits in a language that aligns with legislative regulatory frameworks.	Formal Serious Respectful/Irreverent Matter-of-fact

2.4 CHANNELS

Communicating the EXIGENCE project's outcomes and developments effectively requires leveraging various communication channels. These channels can be categorised based on their functionality and target audience reach. This section identifies and briefly describes these channels specified in the next chapter. These channels, individually and in combination, enable comprehensive dissemination of EXIGENCE's developments, findings, and impacts to all relevant stakeholders, maximising engagement and fostering a supportive ecosystem for future ICT sustainability innovations.

2.4.1 DIGITAL COMMUNICATION CHANNELS

Digital channels are pivotal for reaching a broad and geographically dispersed audience at a relatively low cost and high efficiency. These platforms enable real-time updates and interactive engagement and are essential for establishing an online presence that resonates with contemporary communication habits. Digital channels are also agile and flexible, easily customising content for each target audience.

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Project Website: The central hub for all EXIGENCE information, updates, and resources. Serves as the authoritative source for all comprehensive project-related information and resources. It's tailored to diverse visitor profiles, ensuring relevant content delivery for each stakeholder.

Social Media Platforms: These are crucial for regular updates, fostering community discussions, and engaging with stakeholders directly. EXIGENCE will use:

- LinkedIn: Professional updates, discussions, and network building with industry and academic professionals.
- YouTube: Dissemination of video content such as tutorials, project overviews, and recorded webinars.

Email Newsletters: Allow for personalised and direct communication with stakeholders who have opted to receive updates, ensuring they are kept informed about the project's progress and milestones. These are periodic updates sent directly to subscribers' inboxes, providing news, progress reports, and invitations to events or consultations.

2.4.2 PRINT AND PHYSICAL MEDIA

Despite the rise of digital media, print and physical media hold significant value for in-depth, tangible communications. They are particularly effective in environments like conferences and meetings, where they can make a lasting impression.

Brochures and Flyers: Distributed at events, these provide quick, essential information about EXIGENCE, ideal for reaching new contacts and fast engagement.

White Papers and Reports: In-depth explorations of EXIGENCE findings and implications, targeted towards industry and academic professionals who require detailed technical information. White or position papers outlining research findings and barriers to their adoption, which can contribute to shaping policy at several levels.

2.4.3 PUBLICATIONS

Academic publications serve as a critical platform for disseminating research findings to the scholarly community and industry experts, ensuring peer validation and contributing to the body of knowledge in field-relevant, peer-reviewed contexts.

Journal Articles: Extend the reach of research outcomes by targeting specialised audiences seeking deep dives into specific topics. EXIGENCE will seek publication in high-impact journals targeting the research community and industry experts.

Conference Papers: The project will facilitate direct engagement with researchers and professionals, providing live feedback and networking opportunities. It will aim to present research findings and network with peers at conferences such as IEEE ICC and ACM SIGCOMM.

2.4.4 EVENT-BASED CHANNELS

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Events provide dynamic environments for direct interaction, making them ideal for demonstrations, detailed discussions, and networking. These channels are indispensable for building relationships, gaining strategic partners, and integrating project outcomes into larger frameworks and initiatives.

Workshops and Panels: Focused sessions facilitating in-depth exploration of EXIGENCE topics and direct engagement with specific groups to explore EXIGENCE topics in detail, fostering interaction and feedback.

Trade Shows and Exhibitions: Platforms for showcasing innovations to a diverse audience, including potential investors and collaborators. Examples include the Mobile World Congress, where new technologies and results can be demonstrated to a large, varied audience.

Webinars: Accessible forums that allow global participation, reduce geographical barriers, and expand the project's reach, focusing on presenting EXIGENCE results and discussing broader implications.

Synergies with other projects and SNS: Participation in the SNS activities and working groups and interaction with other EU-funded projects, discussing results and exchanging lessons learnt, aiming to maximise the impact of individual projects.

2.4.5 DIRECT CONTACTS

Engagement with SDOs, legislators, and policymakers ensures that project outcomes influence industry standards and contribute to the regulatory landscape. This engagement also ensures that innovations are recognised and recommended for widespread adaptation and integration into existing and future technological infrastructures.

Dedicated Emails: Cold emails establish initial contacts with key stakeholders to engage them in specific project activities, aiming to get their input or disseminate the project's results.

Meetings and Committees: Active participation in discussions and committee meetings shaping standards development and industry guidelines to advocate for EXIGENCE innovations and their adoption.

2.5 COMMUNICATIONS MATRIX

Table 3 presents a communications matrix with an overview of communication channels used to target each identified audience.

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Table 3: Communication channels for each target audience.

	Digital Channels				Print and Physical Media		Publications		Event-Based Channels				Direct Contacts	
	Project Website	LinkedIn	YouTube	Email Newsletters	Brochures and Flyers	White Papers and Reports	Journal Articles	Conference Papers	Workshops and Seminars	Trade Shows and Exhibitions	Webinars	Synergies	Dedicated emails	Meetings and Committees
ICT Technology Providers and Consumers	X	X	X	X	X		X		X	X	X			
Telecom Industry Organisations (SDOs)						X							X	X
Research Community	X	X	X	X			X	X	X		X	X		
National and EU Organisations				X	X	X			X		X	X		X
Policy-making Entities						X			X				X	X

2.6 PERSONAS

This section summarises the communication strategy presented by defining a personal message for each target audience, described by its key message, stakeholders, interests, needs, communication channels, and language tone to support effective communication.

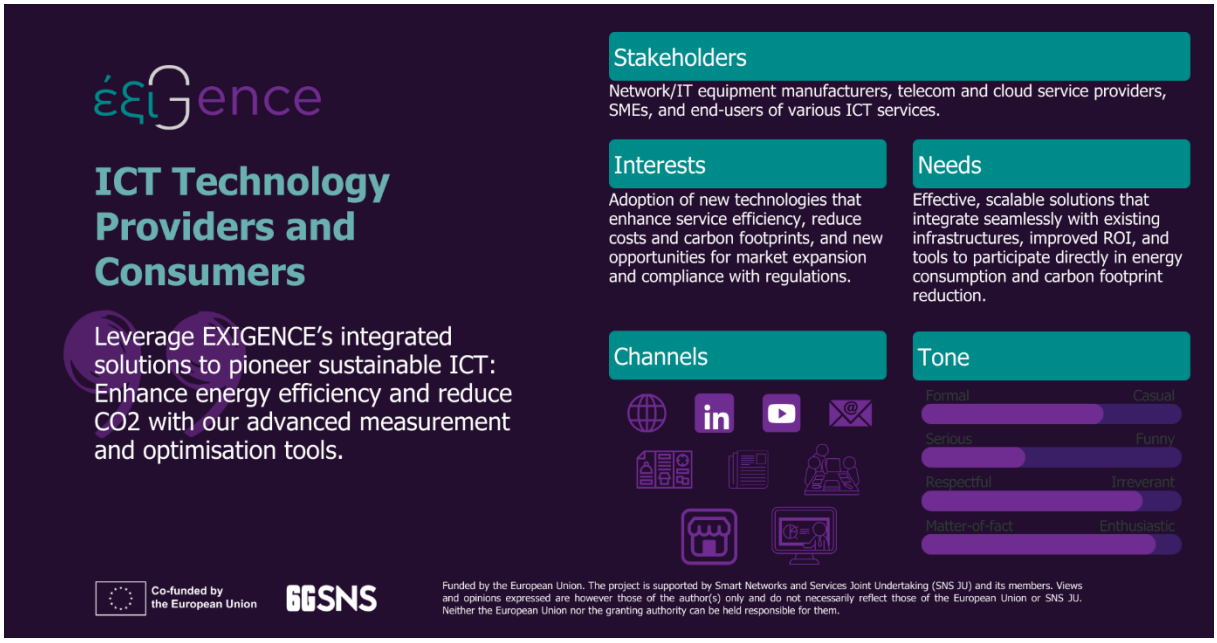

Figure 1: ICT technology providers and consumers persona.

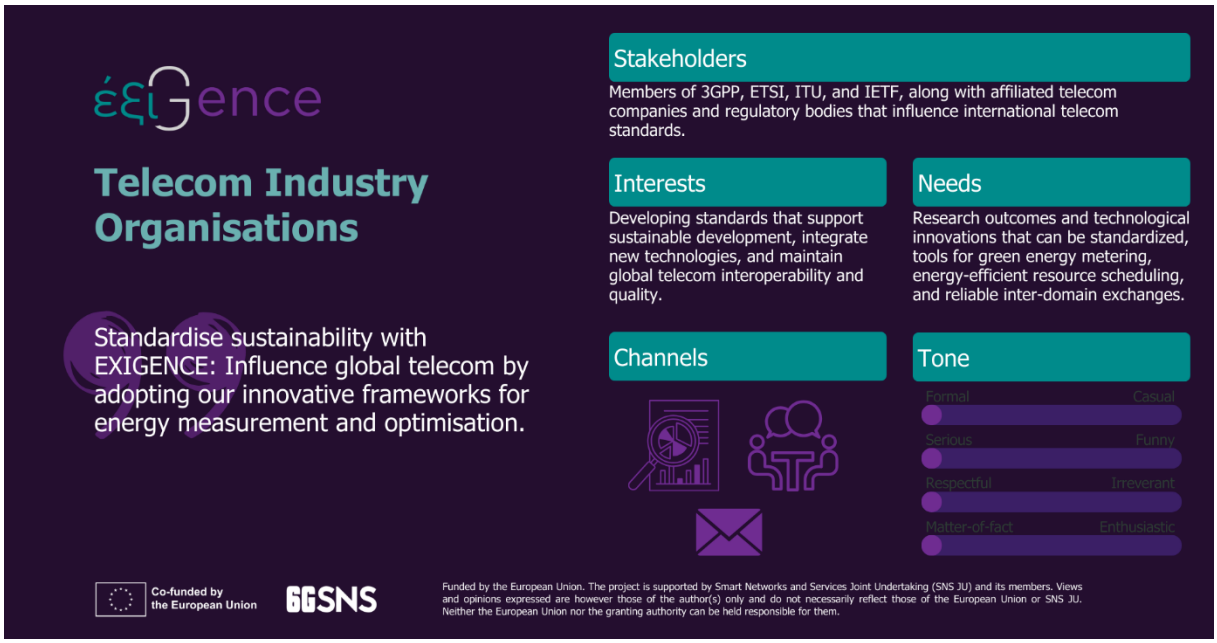

Figure 2: Telecom Industry Organisations (SDOs) persona.

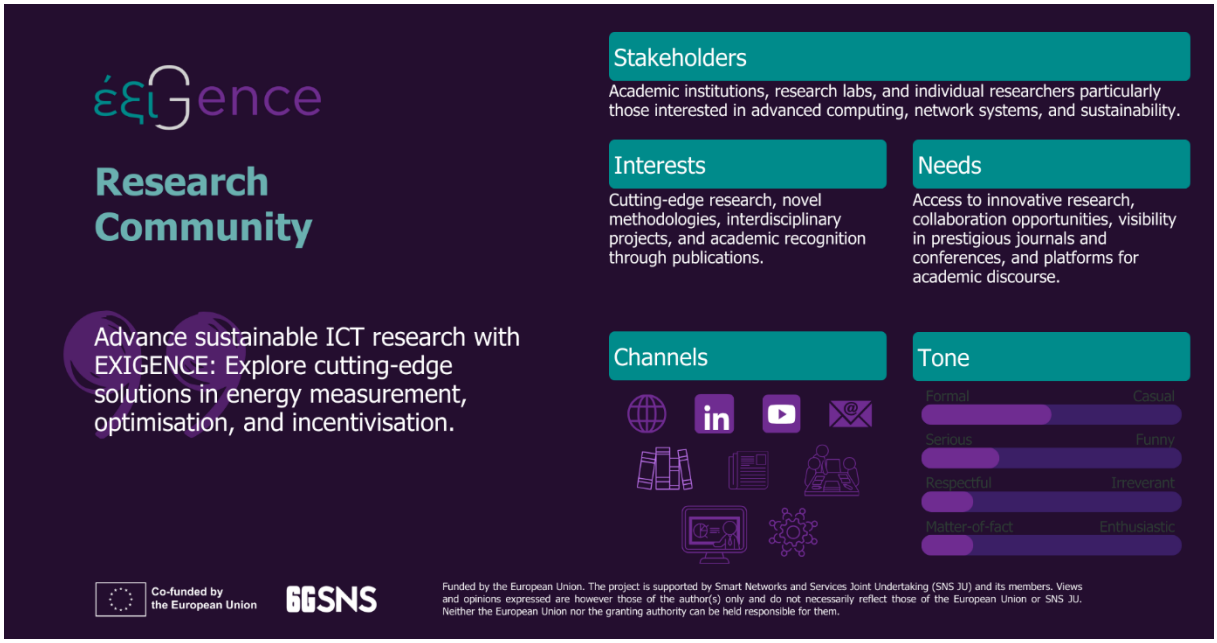

Figure 3: Research community persona.

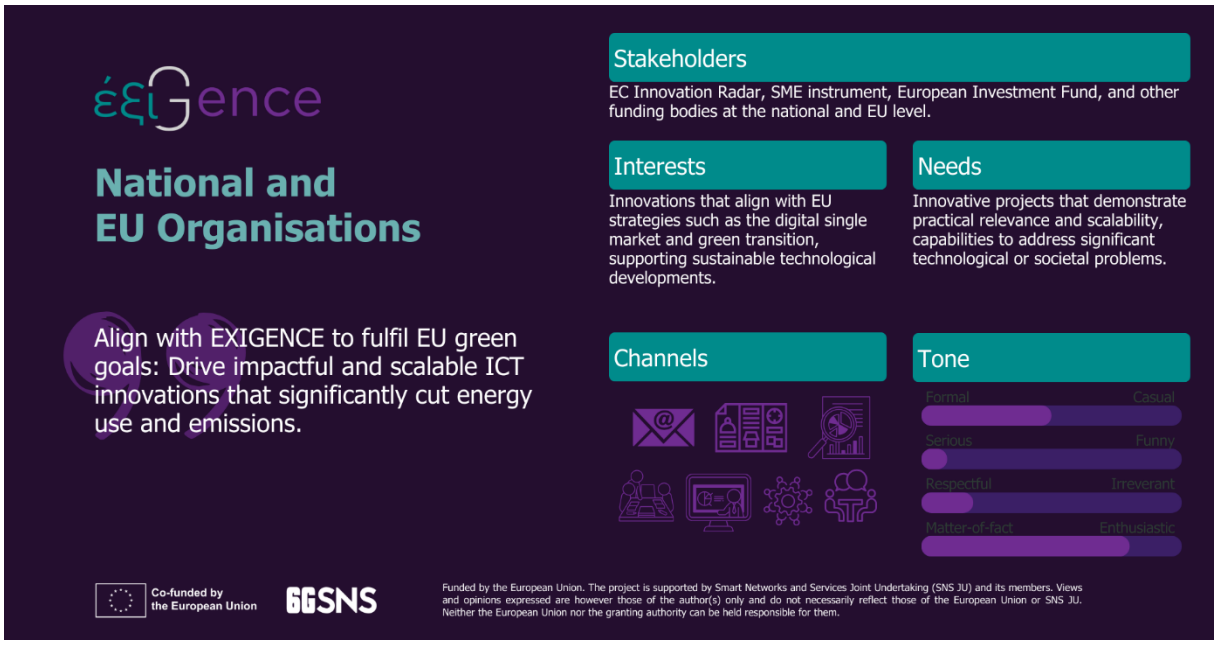

Figure 4: National and EU organisations persona.

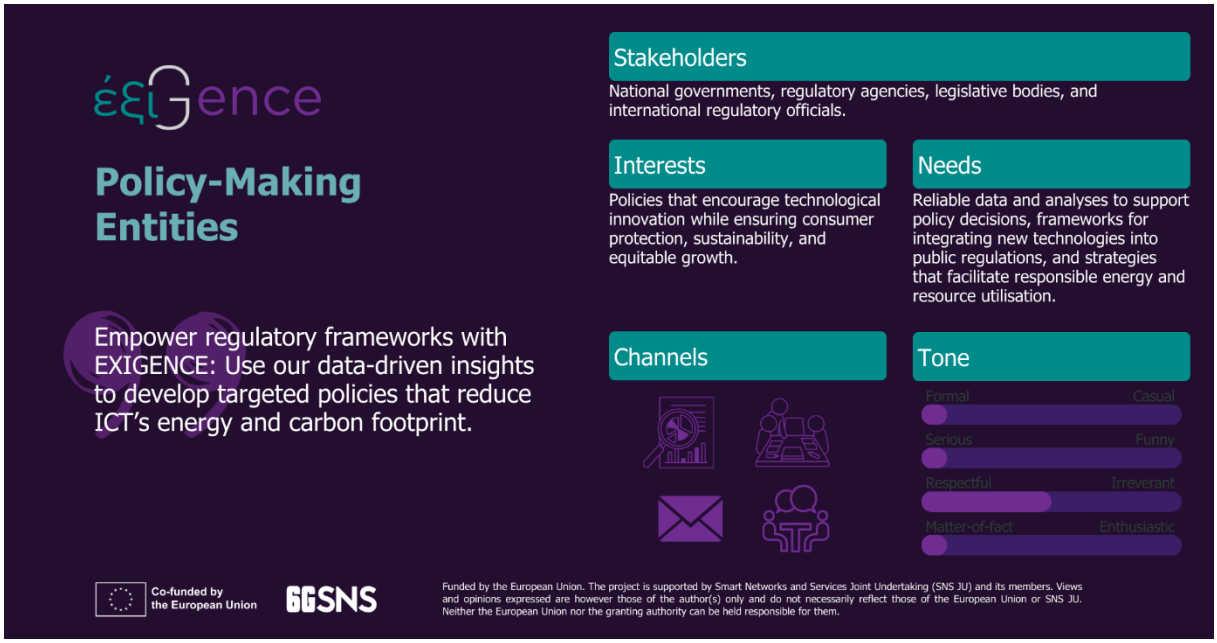

Figure 5: Policy-making entities persona.

3 COMMUNICATION AND DISSEMINATION PLAN

Based on the strategy, the Communication and Dissemination plan describes the activities planned throughout and in different phases of the project to respond to the strategy's objectives, provides the tools and supports to be used, and outlines how we will measure and report on the impacts of our efforts.

3.1 PROJECT PHASES

Creating an effective communication and dissemination strategy for the EXIGENCE project is critical for ensuring its success and impact. This strategy is structured into distinct phases aligned with the project timeline of 36 months, with each phase tailored to achieve specific objectives and encompass a set of key activities. Communications activities are linked to project deliverables and research outcomes. Each phase focuses on a different aspect of the project, building up to the final project results. Figure 6 represents the five phases and their respective duration, described in detail in the text below.

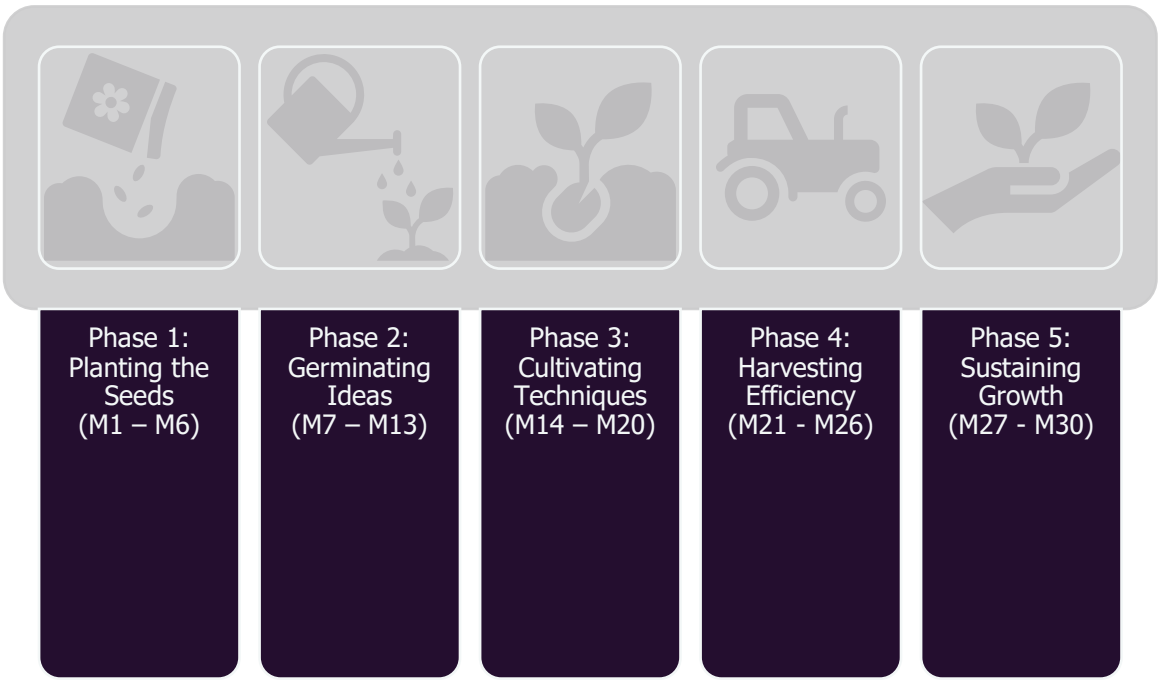

Figure 6: Communication phases.

Phase 1: Planting the Seeds (M1 – M6)

Objective: Initiate broad awareness about the EXIGENCE project, its objectives, and the consortium behind it.

Project results: Objectives and consortium

Key Activities:

- Project Kick-off Announcement: Issue a press release and social media posts announcing the project's launch, highlighting the consortium members' overarching goals.

- Website and Social Media Launch: Develop and launch the project website along with profiles on LinkedIn, Twitter, and YouTube to serve as platforms for ongoing updates and engagements.
- Creation of Promotional Materials: Develop brochures, introductory videos, and a presentation deck about EXIGENCE that outlines the project's vision, goals, and importance.
- Initial Event: Participate in one industrial event to start interacting with stakeholders to detail the project scope, expected impacts, and how different sectors can get involved.

Phase 2: Germinating Ideas (M7 – M13)

Objective: Disseminate information about initial use cases and the broader energy consumption ecosystem being addressed.

Project results: state-of-the-art, initial use cases, energy consumption ecosystem

Key Activities:

- Use Case Workshops: Organize workshops with stakeholders, either virtually or in key locations, to discuss initial use cases and gather industry feedback.
- Content Series on Use Cases: Release a series of video clips, blog posts, and white papers that delve into the specific use cases, explaining their relevance and potential impacts on energy consumption.
- Engagement at Industry Conferences: Participate in and present at suitable industry conferences to introduce the EXIGENCE use cases to a wider professional audience.

Phase 3: Cultivating Techniques (M14 – M20)

Objective: Focus on developing and sharing the metrics and methodology for measuring energy consumption and efficiency.

Project results: measuring – metrics and methodology

Key Activities:

- Publication of Methodological Framework: Release detailed guidelines and papers on the developed metrics and methodologies, targeting academic journals and industry publications.
- Technical Webinars and Seminars: Host sessions with technical stakeholders to discuss the measurement techniques and methodologies in detail.
- Interim Project Review Event: Organise an event to present the progress on metrics and methodologies to the consortium and stakeholders, incorporating live demonstrations or interactive sessions.

Phase 4: Harvesting Efficiency (M21 – M26)

Objective: Share advancements in optimising resource efficiency and introduce the evolving system architecture.

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Project results: Measuring and Optimising – metrics and methodology towards resource efficiency

Key Activities:

- Release of Optimisation Tools and Techniques: Publicise the developed tools and techniques for resource optimisation through case studies and demonstration videos.
- Collaborative Industry Workshops: Conduct workshops focusing on how the project's outcomes can be integrated into existing systems, emphasising optimised resource use.
- Standardisation Contributions: Submitting findings and recommendations to standard development organisations to lay the groundwork for industry adoption.

Phase 5: Sustaining Growth (M27 - M30)

Objective: Highlight the complete system architecture and mechanisms for reducing energy use, culminating in the project's final achievements.

Project results: Measuring, optimising and incentivising – towards final system architecture, use cases and mechanisms for energy use reduction

Key Activities:

- Final Symposium: Host a comprehensive event showcasing the complete results, with detailed presentations on measuring, optimising, and incentivising practices.
- Final Documentation and Reports: Produce and distribute the final project reports, system architectures, and use case analyses, both in print and digitally.
- Media Outreach and Closure Events: Engage extensively with the media to discuss the project's impacts and future implications and host closing events to mark the end of the project phase.
- This strategy ensures a steady flow of communication throughout the project. Each phase builds upon the successes of the previous one and strategically targets key milestones for maximum impact.

3.2 COMMUNICATION CHANNELS AND MATERIALS

We have already developed and established a set of channels and materials, described in this section.

3.2.1 PROJECT IDENTITY

The first effort focused on developing a solid identity for the project, aiming to establish an identifiable brand for all communication channels, materials and activities.

EXIGENCE has a typographical logo using a combination of the Greek and Roman alphabets. EXI means 6 in Greek; thus, EXIG stands for 6G. In the heart of the logo, the emphasis is on the letter G, which also mimics the number 6.

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The primary logo is EXIGENCE written in full. A short version of the logo was also created that omits the letters "-ence", showing only EXIG (or 6G). This can be used as an alternative by preference (see Figure 7).

Both versions can be used in several colour variations, as well as all-black or all-white

Figure 7: Logo variations.

In the text, we always write EXIGENCE in All-Caps.

EXIGENCE uses TAHOMA typeface. This sans-serif font is versatile and visually appealing. It's easy to read digitally and in print, and available across platforms.

The EXIGENCE main logo uses teal, purple and grey, which compose the project's core colour palette (see Figure 8).

Figure 8: EXIGENCE core colour palette.

Based on the colours of the main logo, the following extended colour palette (see Figure 9) was developed to design materials and documents such as presentations, illustrations, graphics etc.

Figure 9: EXIGENCE extended colour palette.

Following our Grant Agreement (Article 17 – Communication, Dissemination and Visibility), the consortium will acknowledge the project and funding authority in all activities. As per the GA, all the SNS JU projects should add the following disclaimer in communication materials:

Funded by the European Union. The project is supported by Smart Networks and Services Joint Undertaking (SNS JU) and its members. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or SNS JU. Neither the European Union nor the granting authority can be held responsible for them.

We will include the EU funding acknowledgement in all the communication materials (online and offline). In the case of the SNS JU programme, as a co-funded EU partnership, the guidelines are to use the association of the EU emblem and the SNS logo (see Figure 10).

Figure 10: Acknowledgement of EU funding.

We have prepared a set of disclaimer examples in long (see Figure 11) and compact (see Figure 12) formats to facilitate the use by the partners.

Figure 11: Disclaimer examples.

Figure 12: Compact disclaimer examples.

This visual identity is the baseline for a strong project brand, which includes: a document template (used in the current deliverable), a presentation template (see Figure 13), and a set of social media templates (see Figure 14).

Figure 13: Power point template.

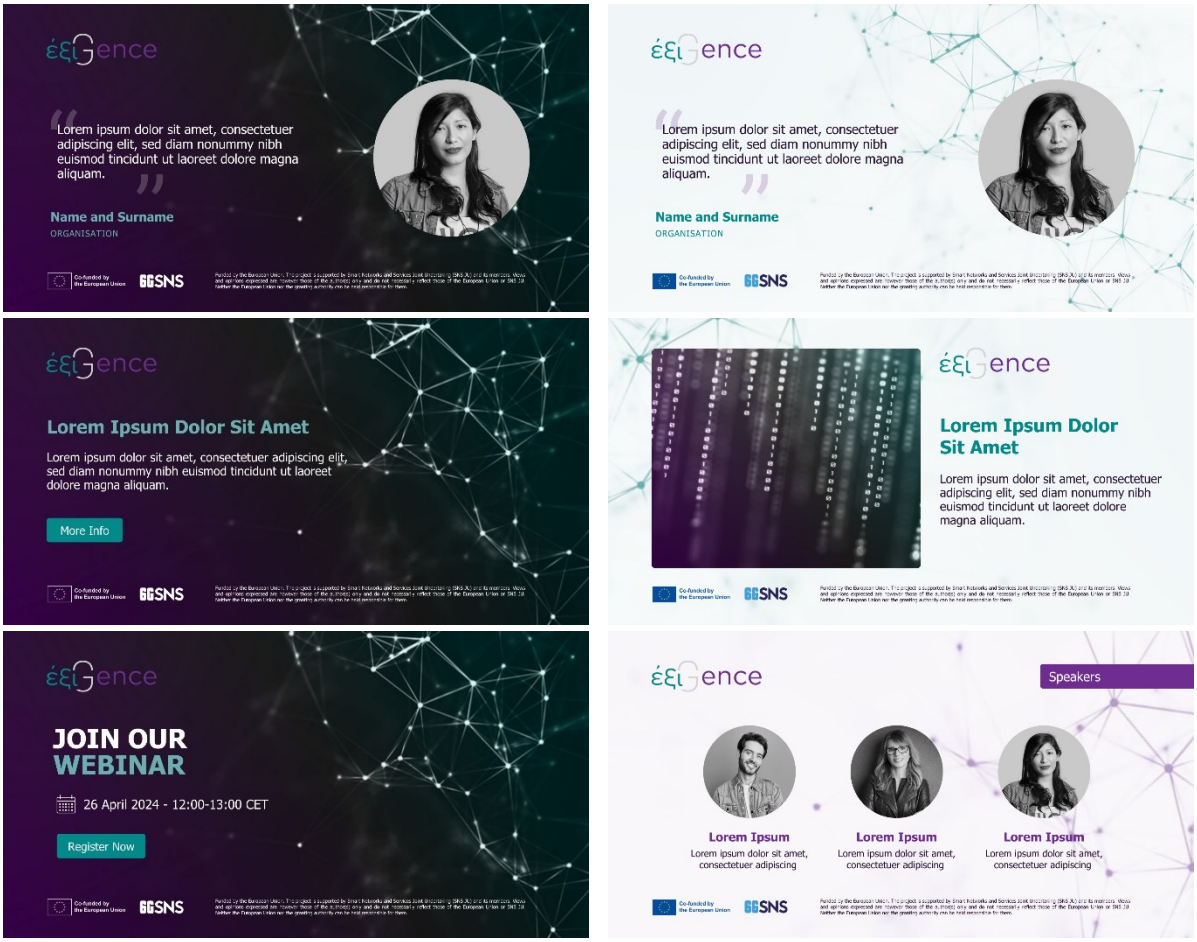


Figure 14: Social media templates.

3.2.2 PROJECT WEBSITE

The website, https://projectexigence.eu/, was set up in the second month of the project. It is the project's main communication channel, delivering information to several of its target audiences.

While this section very briefly presents the website, which has been described in more detail in D4.4 Project Website (delivered in month 2 of the project), section 3.3.1 Website iterations describe the plan to update it throughout the duration of the project.

The website is structured with a main menu for the key pages: Home, Objectives & Approach, Insights & Events, About Us and Results.

Figure 15 presents the main landing page. As the first encounter with the project, this page introduces the project's mission, and showcases the latest updates and results achieved within the project with easy navigation to the subpages.

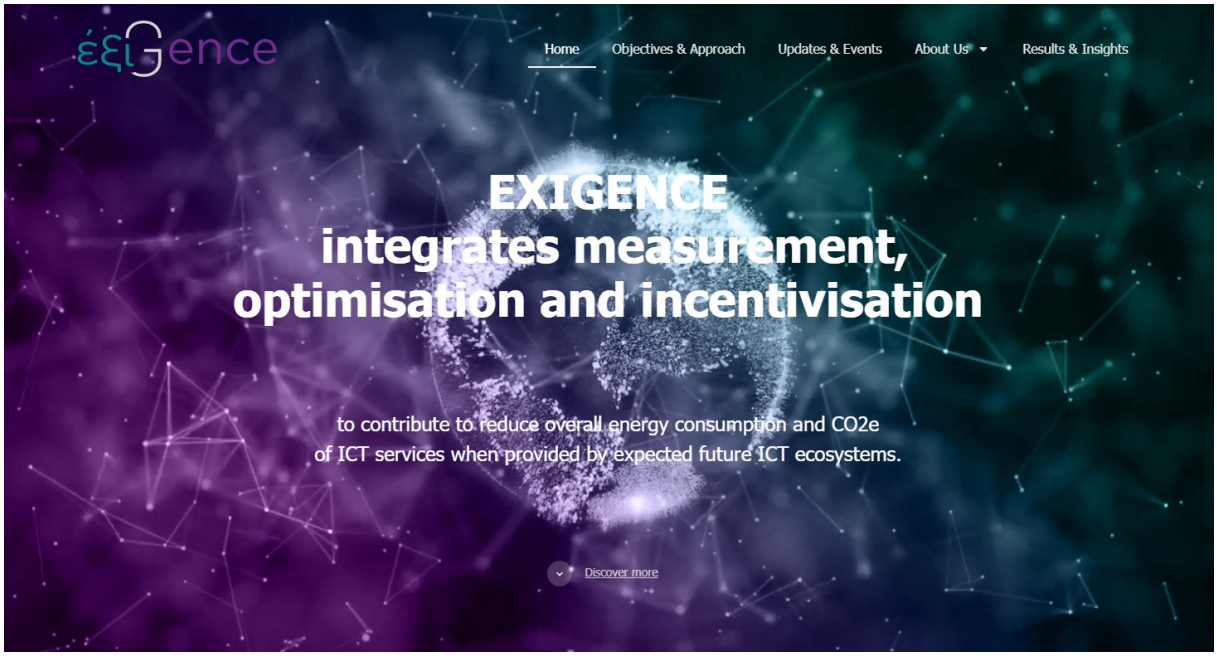


Figure 15: EXIGENCE homepage.

The website includes blog functionality to allow the consortium to publish posts on several categories. We have currently defined the following categories:

- Events: conferences, exhibitions, meetings and other occasions EXIGENCE attends and participates on;
- Insights: opinions and spotlight of articles on topics relevant to the project; and
- Results: outputs directly produced by the project, such as deliverables, publications.

Section 3.3.2 Blog Editorial Calendar presents the plan to add content to the blog.

3.2.3 LINKEDIN

The project set up its LinkedIn account (https://www.linkedin.com/company/projectexigence) right at the beginning, aiming to be an agile communication channel tightly connected to the project website. All blog posts published on the website are also posted on LinkedIn. In addition, this channel has its dedicated plan, presented in section 3.3.3 LinkedIn content.

Figure 16 shows the main LinkedIn page of the project.

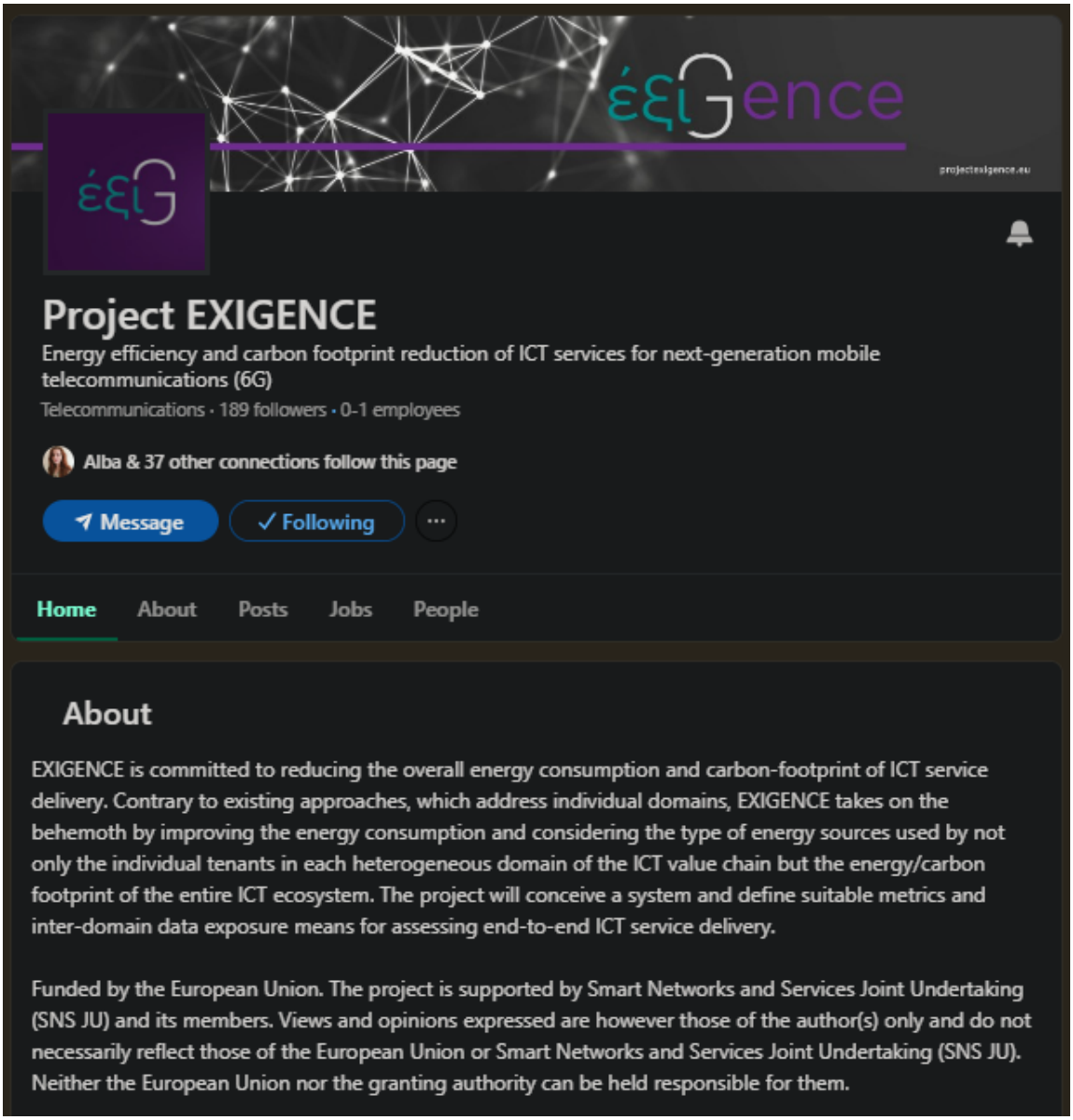


Figure 16: EXIGENCE LinkedIn page.

3.2.4 YOUTUBE CHANNEL

The project also created a YouTube channel (see Figure 17), which is available at http://www.youtube.com/@projectexigence. The channel is still empty and will be used later in the project when we start producing specific relevant content (see section 3.3.5 Presentations and Videos).

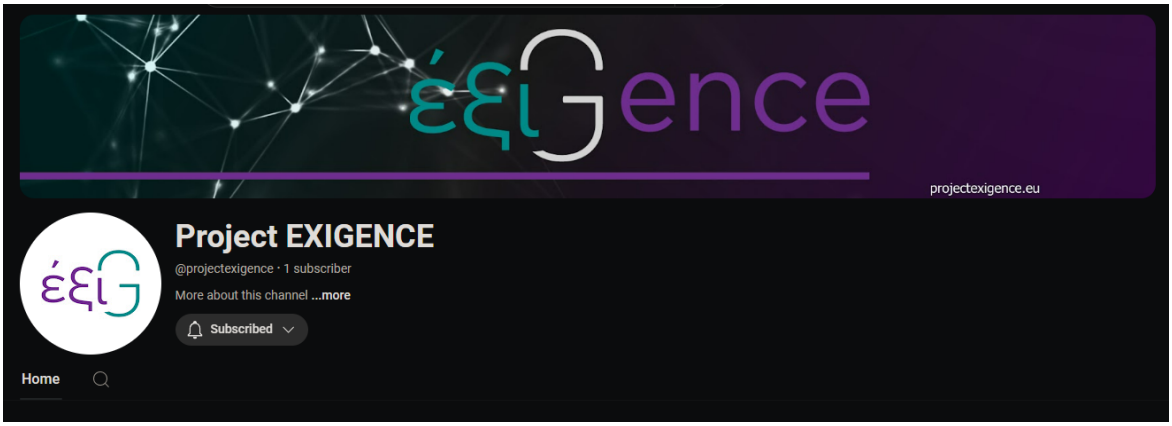


Figure 17: EXIGENCE YouTube Channel.

3.2.5 FLYERS

We have prepared an initial flyer outlining the project's objectives and key expected results (see Figure 18). Flyers are flexible materials that can be used in print or digital format and are useful tools, particularly for events.

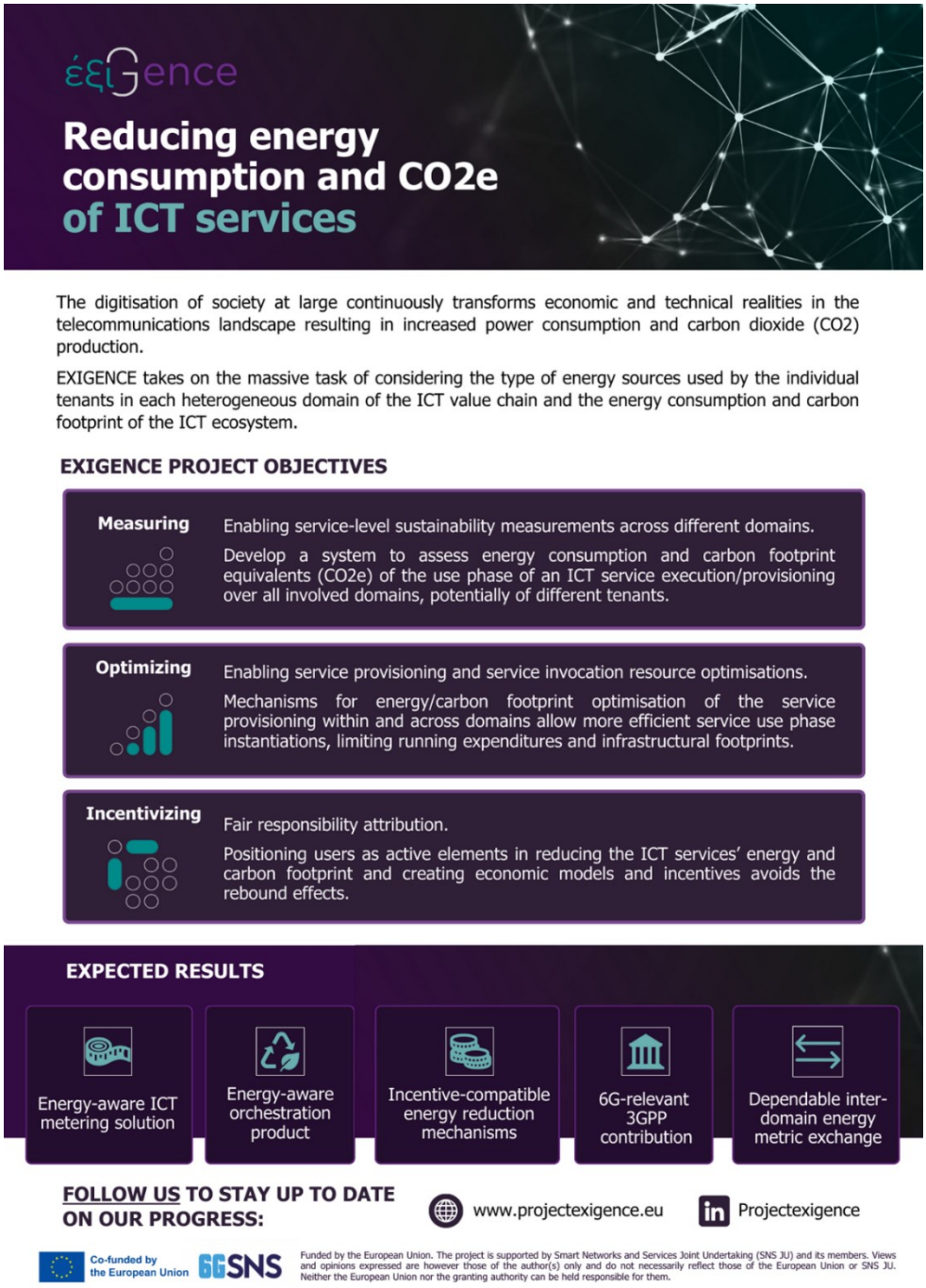


Figure 18: Project initial leaflet.

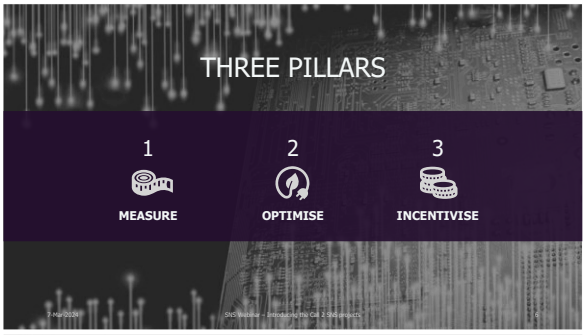
3.2.6 PROJECT PRESENTATION

We have also prepared a slide deck to present the project, outlining the mission, objectives, technical approach, results, testbeds, impact and consortium. These slides are a baseline that partners will adapt and customise for any event (see Figure 19).

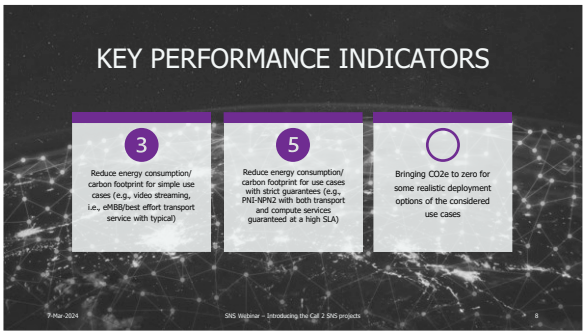
EXIGENCE Overview

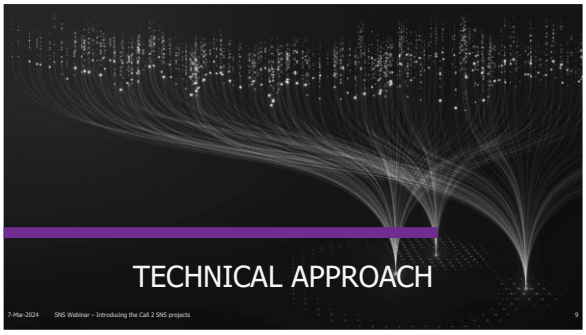
έξι-Gence
7-Mar-2024
SNS Webinar – Introducing the Call 2 SNS projects
4

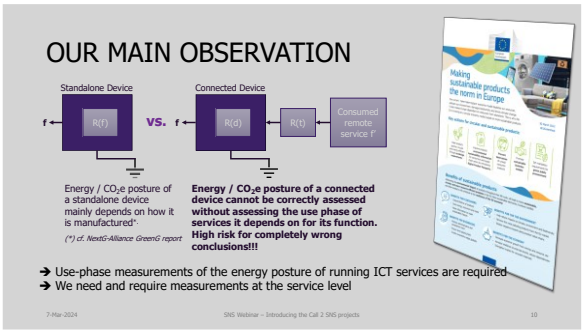
MISSION
EXIGENCE integrates measurement, optimisation and incentivisation to contribute to reduce overall energy consumption and CO2e of ICT services when provided by expected future ICT ecosystems.
MISSION

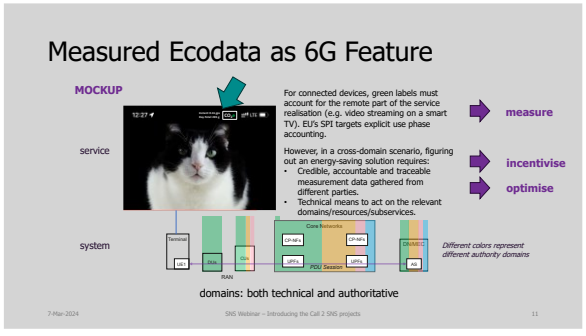

THREE PILLARS
1
MEASURE
2
OPTIMISE
3
INCENTIVISE

Project objectives
1
Design and implement a system (TRL 4) to reliably assess energy consumption and carbon footprint equivalents (CO2e) of the use phase of an ICT service execution/provisioning.
2
Explore and adapt novel, incentive-compatible energy consumption and carbon footprint reduction mechanisms, for service providers and users.
3
Transform the obtained insights into requirements and suitable solutions for the most important, typical ICT domains and systems.
OBJECTIVES


KEY PERFORMANCE INDICATORS
3
Reduce energy consumption/ carbon footprint for simple use cases (e.g., video streaming, i.e., eMBB/best effort transport service with typical)
5
Reduce energy consumption/ carbon footprint for use cases with strict guarantees (e.g., PNI-NPN2 with both transport and compute services guaranteed at a high SLA)
Bringing CO2e to zero for some realistic deployment options of the considered use cases


TECHNICAL APPROACH


OUR MAIN OBSERVATION
Standalone Device
Connected Device
vs.
Energy / CO2e posture of a standalone device mainly depends on how it is manufactured*.
(*) cf. Next6-Alliance GreenG report
Energy / CO2e posture of a connected device cannot be correctly assessed without assessing the use phase of services it depends on for its function. High risk for completely wrong conclusions!!!
Use-phase measurements of the energy posture of running ICT services are required
We need and require measurements at the service level


Measured Ecodata as 6G Feature
MOCKUP
service
system
For connected devices, green labels must account for the remote part of the service realisation (e.g. video streaming on a smart TV). EU's SPI targets explicit use phase accounting.
However, in a cross-domain scenario, figuring out an energy-saving solution requires:
Credible, accountable and traceable measurement data gathered from different parties.
Technical means to act on the relevant domains/resources/subservices.
measure
incentivise
optimise
Different colors represent different authority domains
domains: both technical and authoritative

THREE PILLAR APPROACH
01
Enable "eco-data" measurements at the service level (not domain level)
02
Resource-optimise service provisioning
03
Enable all players to redeem the non-expenditures on the carbon market
MEASURE: enable assessment at the respective service level
OPTIMISE: minimise resource footprints on per-domain base
INCENTIVISE: provide data and economic incentives to respective service consumers
APPROACH

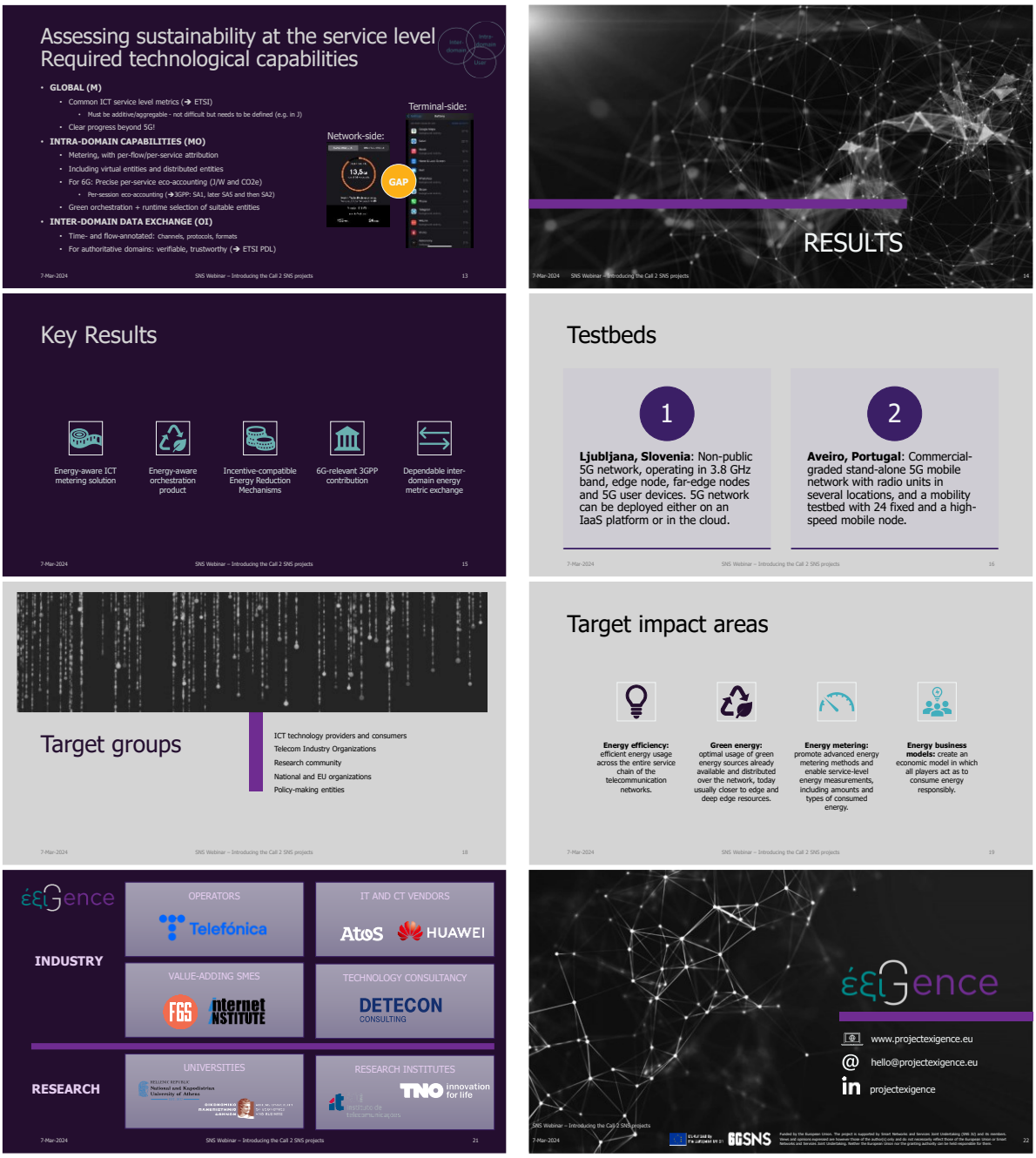


Figure 19: Project presentation.

3.3 COMMUNICATION ACTIONS AND ACTIVITIES

This section describes the main activities planned for the project. We will monitor and update this plan throughout the project to maximise our reach and impact.

3.3.1 WEBSITE ITERATIONS

The website will be continuously updated throughout the project in two forms: a blog includes posts with results and updates (see section 3.3.2 Blog Editorial) and additional content as dedicated pages, described in this section.

The website itself will have several significant reviews, where we will add content and update core pages related to the project's deliverables and milestones (see Figure 20 and Table 4).

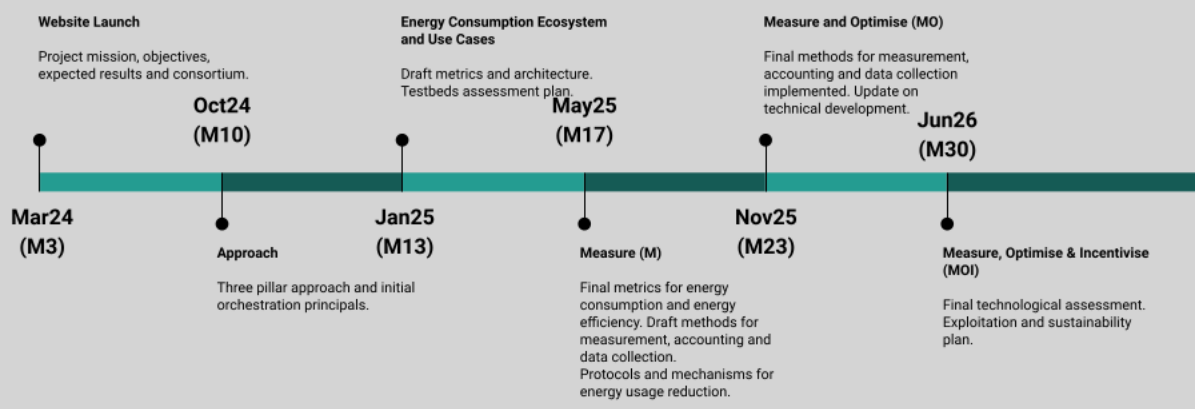


Figure 20: Timeline of website updates.

Table 4: Website iterations.

Iteration	Name	Planned Content	Project Results
October 2024 (M10)	Approach	Adding subpages with initial introductions of the project's main pillars: "Measuring" (Text & visuals) "Optimising" (Text & visuals) "Incentivising" (Text & visuals) Adding subpage for project publications	MS1 Draft Use Cases/Requirements MS6 Control plane and orchestration principals
January 2025 (M13)	Energy Consumption Ecosystem and Use Cases	Update of page "Objectives & Approach" with: Visual representation (illustration) of the Energy Consumption Ecosystem Section on User Stories / Scenarios (with visuals)	D1.1 Energy Consumption Ecosystem D1.2 Use Cases and Requirements (Intermediate) D1.3 Draft Functional Architecture
May 2025 (M17)	Measure (M)	Expansion of page "Objectives & Approach" (and subpages) Text and visuals providing an overview and explanation of the metrics (D2.1 & MS3) and the methodology for measuring. Explainer video on the metrics for energy consumption and efficiency metering, showcasing one of the testbeds	D3.1 First report on protocols and mechanisms for energy usage reduction MS7 Technical developments progress D2.1 Metrics for energy consumption and efficiency metering MS3 Final Metrics for energy consumptions and energy efficiency metering developed MS4 Draft methods for measurement, accounting and data collection/exchange implemented and ready for final assessment
November 2025 (M23)	Measure & Optimise (MO)	Update of page "Objectives & Approach" with: Final User Stories / Scenarios (with visuals)	D4.2 Preliminary technological assessment MS9 Preliminary technological assessment D1.4 Final Deliverable on Use Cases/requirements

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Iteration	Name	Planned Content	Project Results
		Explainer video on the metrics for energy consumption and efficiency metering, showcasing testbed 1 (Portugal / Slovenia) Explainer video of data observation and methodology and process for data collection; showcasing testbed 2 (Portugal / Slovenia)	MS8 Technical developments progress (update) D2.2 Energy consumption and production metering and data observability methods D2.3 Measurement, accounting and data collection layer methods for energy consumption and production MS5 Final methods for measurement, accounting and data collection/exchange implemented and ready for final assessment
June 2026 (M30)	Measure, Optimise & Incentivise (MOI)	Final revision of visual representation (illustration) of the Energy Consumption Ecosystem and System Architecture Update page Incentivise, visuals to show how data is presented at the user level in predefined use cases	D1.5 Final System Architecture D3.2 Final report on protocols and mechanisms for energy usage reduction (update) D4.3 Final technological assessment MS10 Final technological assessment D4.6 Dissemination Report D4.8 Innovation and Exploitation Activities Report

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3.3.2 BLOG EDITORIAL CALENDAR

The insights & events page will provide continuous updates with announcements, news articles, and events. Project deliverables and other project outputs will be published on the results page. The content for both pages is published as blog posts, using the categories defined: events, insights, and results. We will add other categories as needed.

We have planned most of these posts, centred on the project results (deliverables and milestones), and some upcoming meetings and events. The blog editorial calendar is maintained on a shared spreadsheet, which is also used to track status. We will complete the rest of the calendar, filling in some blanks with insights from partners and additional events, aiming to have approximately two blog posts per month. Figure 21 presents the current schedule for the duration of the entire project.

Planned/Publish Date	Type of Article (News,Events, Insights, Results)	D / MS	Title	Topic / Content / Details	Content Format
2024					
20-Mar-24	Events		EXIGENCE introduced during SNS JU Webinar	SNS Webinar presentation	Article + Video
26-Mar-24	Insights		EXIGENCE embarks on mission to reduce the carbon footprint of ICT delivery services	Project Ambition and SNS Call 2	Article
6-May-24	Insights		The Sustainability of ICT: the carbon footprint nobody talks about	Context / Rationale / Background for EXIGENCE: IT is hallowed as the solution to make everything more sustainable, but nobody talks about the sustainabilty of ICT itself - IDEA for Title: The Sustainability of ICT: the carbon footprint nobody talks about	Article
13-May-24	Events		EXIGENCE at the EuCNC & 6G Summit	Participation at EUCnC: https://www.eucnc.eu/programme/workshops/workshop-7/	Article + Link
15-Jun-24	Events		A Novel Approach for Energy Consumption and Carbon Footprint Reduction of ICT Services	Ljupco Jorguseski, (TNO) [Exigence] Presentation at EUCNC	Article
22-Jul-24	News		EXIGENCE present at the Lisbon Energy Summit 2024	Lisbon Energy event conferences and discussions and Pedro Martins Interview	Article + photo+video
9-Aug-24	News		Sustainable ICT Services: The Path to a Greener Tomorrow!	EXIGENCE Objectives	Article
20-Aug-24	Insights	MS1	EXIGENCE Unveils its Use Cases	Develop on the use cases	Article + infographic?
6-Sep-24	News		Green deal		
23-Sep-24	Insights	MS1	Introducing the state-of-the-art Digest	Launch Digest pages on website, elaborate on the reason behind the activity and enagage audience to have a look at the different topics etc (what is it? purpose? what can be found etc)	Article
4-Oct-24	Results	D4.7	Where is EXIGENCE at?	Aggregates the different initiatives by the partners, and of the project as a whole, for project outcomes' take-up	Deliverable Executive Summary
25-Oct-24	Events		EXIGENCE attended the last SNS-B Meeting in Barcelona	Overview of meeting, discussions and things learnt	Article + photo
7-Nov-24	Results	D4.1	What, how, where and when will EXIGENCE assess its results	Elaborates on the identified mechanisms and technologies	Deliverable Executive Summary
11-Nov-24	Insights	MS2	We are working on metrics for energy consumption and energy efficency	Elaborate on the metrics for energy consumptions and energy efficiency metering developed	Internal report + Executive Summary
26-Nov-24	News		Our Consortium just met in Munich	Develop on progress made so far and the future steps	Article+ pictures
13-Dec-24	Insights		Wrapping up the first year of EXIGENCE	A summary of the 1st year of the project, main results achieved and outlook for 2nd year	Article + infographic

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Planned/Publish Date	Type of Article (News,Events, Insights, Results)	D / MS	Title	Topic / Content / Details	Content Format
2025					
10-Jan-25	Results	D1.1	Our take on the value chain for the energy consumption and carbon footprint ecosystem	Elaborate on the results from T1.1 - value chain for energy consumption and carbon footprint ecosystem.	Deliverable Executive Summary
20-Jan-25	Results	D1.2	EXIGENCE elaborates a set of use cases to measure end-to-end energy consumption and carbon footprint in ICT	Elaborate on reults from T1.2, relevant use cases and requirements to measure end-to-end energy consumption and carbon footprint.	Deliverable Executive Summary
3-Feb-25	Results	D1.3	Building the Foundation: Architecture for Sustainable ICT Services	Elaborate on draft system architecture for monitoring and controlling the end-to-end energy consumption and carbon footprint.	Deliverable Executive Summary
20-Feb-25	Events		EXIGENCE got together with all other SNS projects in the Steering Board meeting of the SNS	Overview of meeting, discussions and things learnt	Article + photo
5-Mar-25	Results	D3.1	Towards Responsible Usage: Economic Incentives for Energy Awareness - Part 1	Elaborate on the findings on control plane design and mechanisms for energy efficient service orchestration and coordination. (concerning the economic models and incentives to consume energy in a responsible manner)	Deliverable Executive Summary
27-Mar-25	News				
17-Apr-25	News				
7-May-25	Results	D2.1	Challenges and solutions related to inter-dependencies among different domains in an end-to-end service energy consumption	Elaborate on the challenges and proposed solutions related to inter-dependencies among different domains in an end-to-end service energy consumption, based on energy dependency graph developed and modelled in T2.1.	Deliverable Executive Summary + Infographic?
15-May-25	Insight	MS4	The first implementation and assessment steps in EXIGENCE	Elaborate on the methods on measurements, data collection etc	Internal Report
7-Jun-25	Events		EXIGENCE @ Lisbon Energy Summit	The project participates in event where a wide variety of stakeholders meet to discuss energy transition	Article + photo + video
28-Jun-25					
20-Jul-25					
4-Aug-25	Results	D4.2	Here are the outcomes of the first round of assessments in EXIGENCE	Present the outcomes of the 1st round of assessments and main contribution - WPs of the project and external parties	Deliverable Executive Summary
20-Aug-25					
6-Sep-25	Results	D1.4	Our final use cases and requirements to measure end-to-end-energy consumption and carbon footprint in ICT	Elaborate on all (revised) requirements including the additional requirements provided to WP2, WP3, and WP4 after D1.1.	Deliverable Executive Summary
25-Sep-25					
6-Oct-25	Insights	MS8	Where are we in our technical developments?	Elaborate on technical progress made + workshop overview	Internal report + Workshop
26-Oct-25					
10-Nov-25	Results	D2.2	How can we measure energy consumption/ production metering and collect, store and exchange metering results?	Elaborate on definition and implementation of methods required for energy consumption/ production metering and methods for metering results collection, storage and exchange making these data available to other processes	Deliverable Executive Summary
25-Nov-25	Results	D2.3	Prototypes of methods for measurement, accounting and data collection layer for energy consumption and production	Present/report prototypes developed within the T2.2 and T2.3	Deliverable Executive Summary
12-Dec-25					

Planned/Publish Date	Type of Article (News,Events, Insights, Results)	D / MS	Title	Topic / Content / Details	Content Format
2026					
15-Jan-26					
3-Feb-26					
20-Feb-26					
15-Mar-26					
6-Apr-26	Results	D1.5	EXIGENCE proposes a system architecture for monitoring and controlling the end-to-end energy consumption and carbon footprint	Elaborate on the overall final system architecture (WP2, WP3 and WP4) for monitoring and controlling the end-to-end energy consumption and carbon footprint.	Deliverable Executive Summary
20-Apr-26	Results	D3.2	Towards Responsible Usage: Economic Incentives for Energy Awareness - Part 2	Elaborate on findings on control plane design and mechanisms for energy efficient service orchestration and coordination. (concerning the economic models and incentives to consume energy in a responsible manner)	Deliverable Executive Summary
7-May-26	Results	D4.3	EXIGENCE's validation achievements according to the latest consolidated system components' designs	Present the validation achievement realised in the project	Deliverable Executive Summary
1-Jun-26					
6-Jul-26	Results	D4.6	What impact did EXIGENCE had in the ecosystem?	Dissemination and reachability achievements	Project Final Results
10-Jul-26	Results	D4.8	What's next for EXIGENCE?	Elaborate on results/outcomes of the achieved take-up capabilities of the project	Project Final Results and Exploitation

Figure 21: Blog editorial calendar.

3.3.3 LINKEDIN CONTENT

We also plan the LinkedIn content, aligning it with the blog and including additional content. Figure 22 shows the current LinkedIn calendar for 2024. We always keep a detailed calendar planned for a couple of months ahead. So, we'll plan the first months of 2025 in a couple of months.

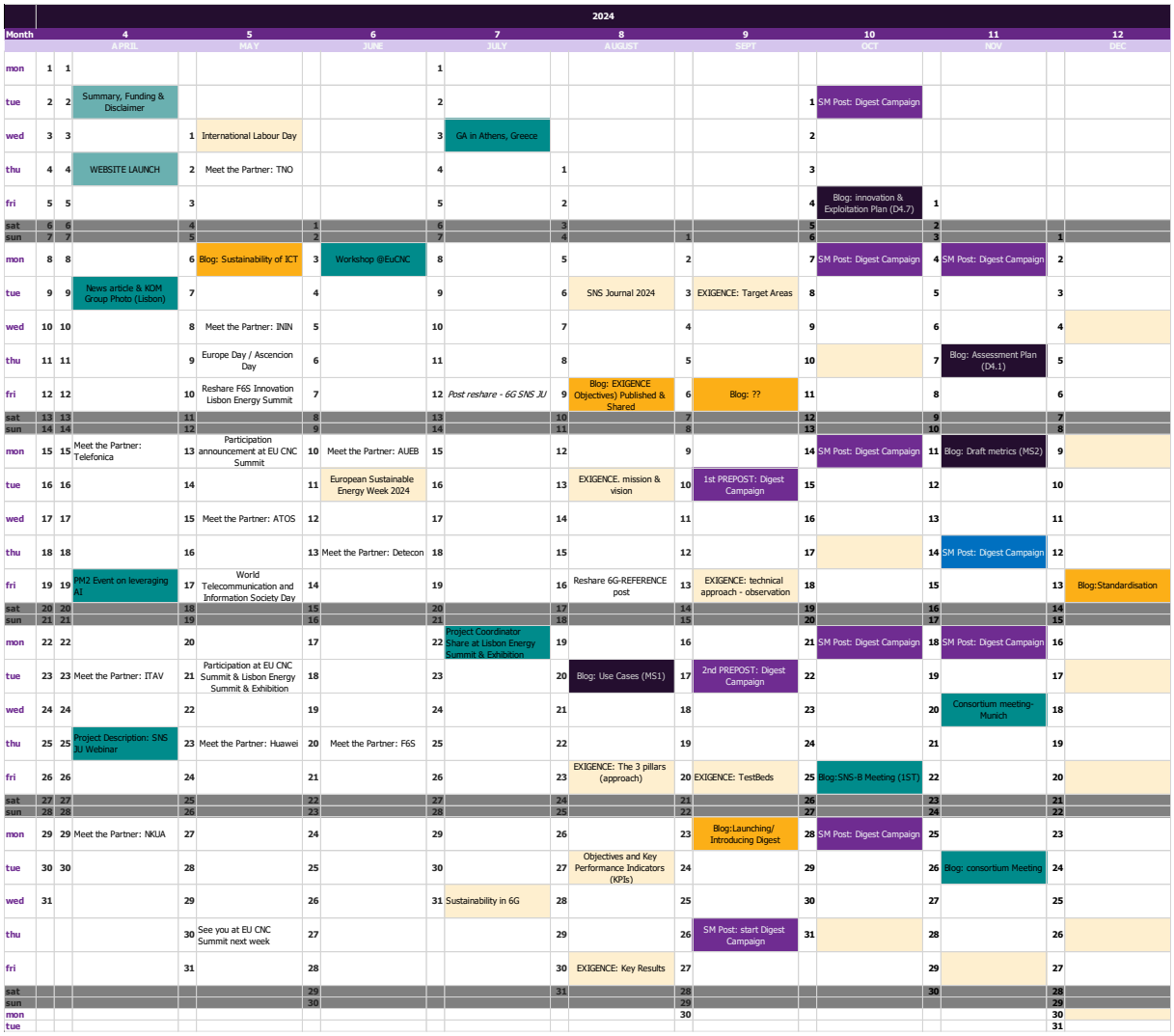

Figure 22: LinkedIn calendar

3.3.4 GREEN ICT DIGEST

In the scope of work package 1, requirements and architecture, the consortium developed a comprehensive overview of standards and regulations relevant to sustainable ICT in several categories: 3GPP, ITU-T, ETSI, IETF, IEEE, NGNM, IBC accelerator programme, other associations and EU projects, video and broadcast standards, research papers and ISO. This was done in the project progress towards milestone MS1 Draft Use Cases/ Requirements.

This analysis is relevant for any ecosystem stakeholders aiming to work on topics related to the sustainability of ICT. Therefore, the EXIGENCE consortium decided to make it available on the project website in a user-friendly format, where stakeholders can read, search, and navigate within the categories and topics. This will allow us to disseminate this particular result to a much wider audience than possible using a pdf file.

Figure 23 presents the main page of the green ICT digest and Figure 24 shows an example of a topic page. All topic pages will have the same structure, including sections for scope, summary and relevance for EXIGENCE.

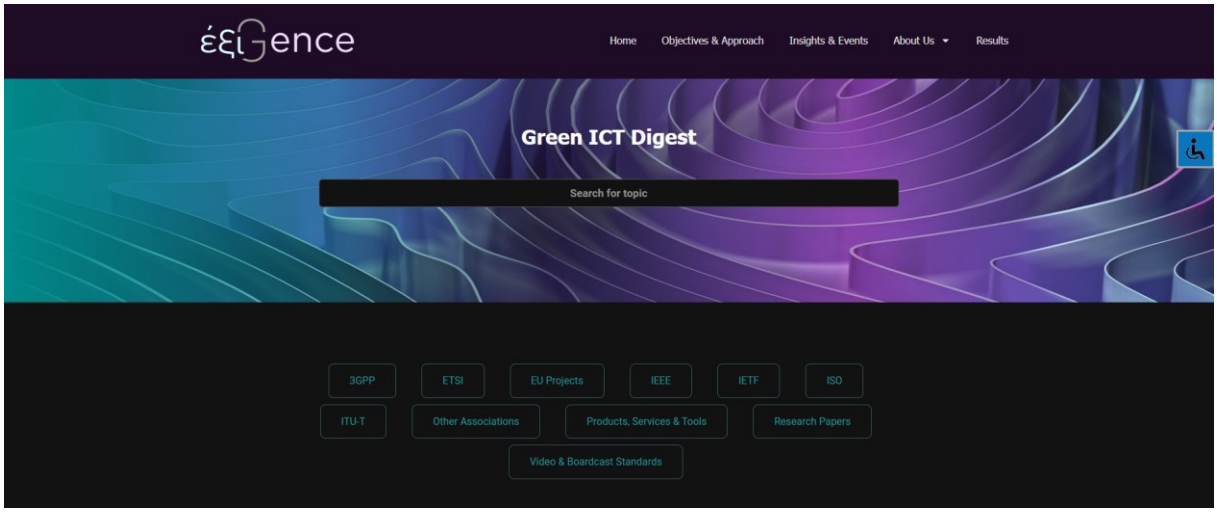

Figure 23: Green ICT digest main page.

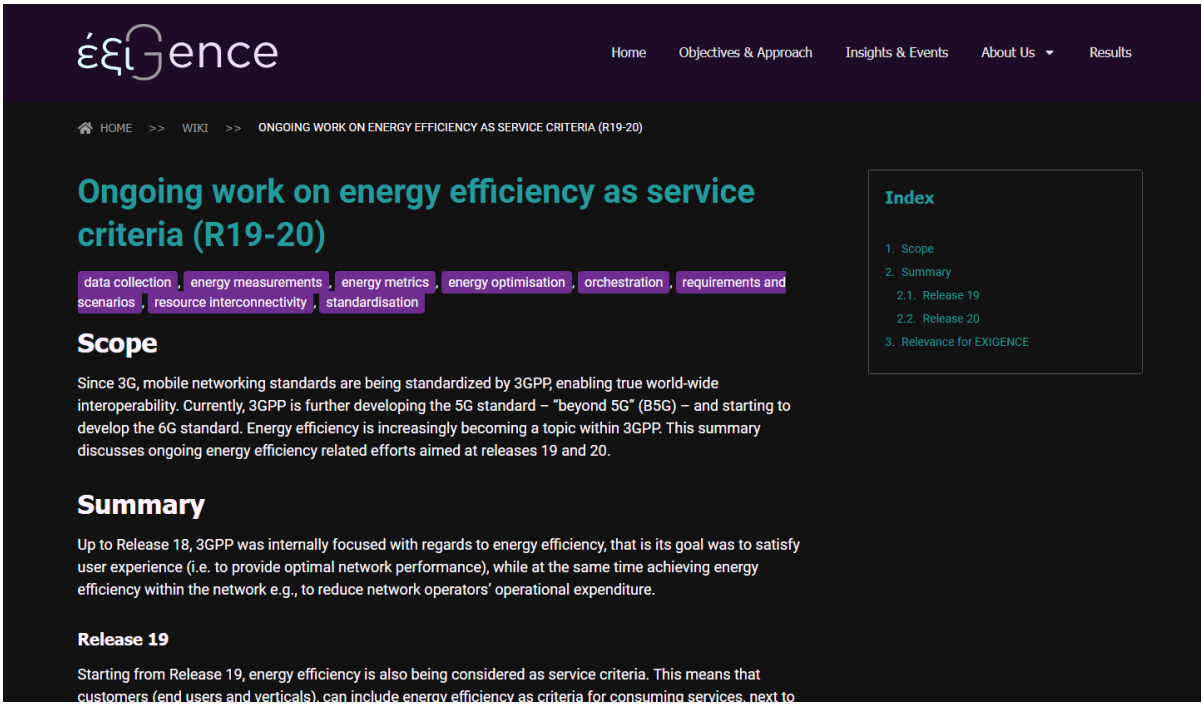

Figure 24: Example of a topic page of the green ICT digest.

EXIGENCE will make the green ICT Digest public in September 2024, supported by a launch campaign including:

- a blog post,
- LinkedIn posts,
- Online events, and
- Specific visual material, i.e. leaflet and infographic.

3.3.5 PRESENTATIONS AND VIDEOS

In an attempt to produce engaging content, EXIGENCE will produce presentations and videos. These will feature content such as use cases and scenarios, demonstrators, screencasts, code and algorithms walkthroughs, how-to-use tutorials, etc. Pre-recorded videos and live

presentations will cater to different audience preferences and maximise reach and engagement. This type of content is naturally aligned with the phases of the communication strategy (see section 3.1 Project Phases) and includes the following activities:

Phase 1: Planting the Seeds (M1-6) - Foundation and Awareness Phase

Objective: Introduce EXIGENCE and its goals.

Activities:

- Kick-off Presentation: Host a project kickoff webinar outlining the project goals, stakeholders, timeline, and expected outcomes. This presentation can be live-streamed and recorded for wider dissemination.

Distribution Channels: YouTube, Project Website, Email Newsletters

Phase 2: Germinating Ideas (M7-13) – Engagement and Education Phase

Objective: Elaborate on the approach and theoretical groundwork and raise awareness about the importance of energy efficiency in ICT.

Activities:

- Video 1—Introduction to EXIGENCE: A short, engaging video that explains the project's aims, the significance of greening ICT, and an overview of the technologies involved.
- Video 2—Understanding Energy Consumption in ICT: Through animatics or simplified graphics, illustrate how current ICT technology consumes energy and its impact on carbon footprint.

Distribution Channels: Social Media, Project Website, Partner Networks

Phase 3: Cultivating Techniques (M14-20) – Intermediate Findings and Technical Deep-Dives

Objective: Delve into specific issues, share findings and technical progress, and engage deeply with the technical community.

Activities:

- Webinar Series on Energy Metering, Optimisation and Green ICT Practices: Host a series of webinars with project researchers and invited experts to discuss methodologies for energy measurement and sustainable practices in ICT.
- Video 3—Use Cases: Start demonstrating potential use cases of EXIGENCE technologies using animations or simplified simulations.
- Technical Tutorial Videos: Release a series of screencasts or recorded tutorials walking through EXIGENCE's developed algorithms, codes, or new system prototypes (e.g., energy-aware orchestrators).

Distribution Channels: YouTube, ResearchGate, LinkedIn, Specialised Mailing Lists

Phase 4: Harvesting Efficiency (M21-26) – Technical outcomes

Objective: Showcase the EXIGENCE technical outcomes, continuing to engage the ecosystem stakeholders to gather feedback and encourage future adoption.

Activities:

- Technical Tutorial Videos: Continue to release a series of screencasts or recorded tutorials that walk through EXIGENCE's developed algorithms, codes, or new system prototypes (e.g., energy-aware orchestrators).
- Interactive Q&A Sessions: Live sessions where developers and researchers discuss and answer questions from the ecosystem stakeholders, encouraging dialogue and feedback.

Distribution Channels: Instagram Live, Facebook Live, YouTube, Project Website

Phase 5: Sustaining Growth (M25-30) – Review and Future Outlook

Objective: Summarise the achievements, share final results, showcase technology assessment and explore future directions.

Activities:

- Video 4—Testbed Results: Showcase the assessment results in the two project testbeds.
- Final Project Presentation: A webinar or live event summarising the project findings, lessons learned, and recommendations for future work.
- Video 5—Impact of EXIGENCE and Future of Green ICT: A high-quality documentary-style video reviewing the project's impact, stakeholder testimonials, and foresight into future trends in green ICT.

Distribution Channels: Industry Conferences, YouTube, Project Website, News Releases

We will monitor engagement metrics such as views, likes, comments, and shares across all digital platforms and consider gathering feedback through surveys during webinars and after video releases. These results will allow us to adjust content and communication strategies based on analytics and feedback to maximise impact and relevance.

3.3.6 EVENTS

EXIGENCE is active with different stakeholders in the ecosystem and has already participated in several events (e.g. Lisbon Energy Summit 2024, EuCNC2024).

During the project, we will organise joint events (workshops, conferences special sessions, etc.) with sister projects and initiatives (see section 3.5 Synergies and collaborations) and participate in industrial exhibitions and trade fairs.

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We have identified a list of relevant events, but the actual selection will occur during the project, aligned with the project results, partners' schedule and event participation. The following lists relevant target events:

- MWC Barcelona, 3-6 March 2025
- DVB World 2025, 18-19 March 2025
- Lisbon Energy Summit, 3-4 June 2025
- EuCNC & 6G Summit: 3-6 June 2025
- International Broadcast Convention (IBC), September 2025
- NGMN Industry conference & exhibition: September 2025
- 6G Flagship Symposium
- one6G Summit, September 2025

3.4 SCIENTIFIC DISSEMINATION

The EXIGENCE objectives demand significant scientific research supporting inter-domain energy measurement and optimisation. The project is strongly committed to wide dissemination, evidenced by the public nature of most of the deliverables. We will increase scientific dissemination with a significant effort to publish in relevant international conferences and journals.

EXIGENCE will target the following conferences, which not only enable the publication, but also provide fora for discussion and engagement with other researchers and stakeholders:

- European Conference on Networks and Communications (EUCNC) Conference,
- IEEE Conference on Standards for Communications and Networking (CSCN),
- Special Interest Group on Data Communication (SIGCOMM) Conference,
- IEEE International Conference on Communications (ICC),
- IEEE Global Communications Conference (GLOBECOM),
- IEEE Wireless Communications and Networking Conference (WCNC),
- IEEE International Conference on Computer Communications (INFOCOM),
- International Conference on Sustainability, Technology, and Education (STE), and
- ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys).

In addition, EXIGENCE will also focus on publishing articles in high-impact internal peer-reviewed journals. Table 5 provides an overview of high-impact journals covering topics relevant for EXIGENCE, all of which allow open access options with a CC BY licence.

Table 5: List of relevant journals for EXIGENCE.

Journal	Impact Factor	Eigenfactor	Article Infleunce Score	CiteScore
IEEE Transactions on Sustainable Computing (T-SUSC)	3	0.00147	0.766	7.7
IEEE Journal on Selected Areas in Communications (JSAC)	13.8	0.03999	4.445	30

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Journal	Impact Factor	Eigenfactor	Article Influence Score	CiteScore
ACM Transactions on Sensor Networks (TOSN)	3.9			5.9
IEEE Transactions on Green Communications and Networking	5.3	0.00618	1.236	9.3
Energy Efficiency Journal	3.2			
IEEE Transactions on Wireless Communications	8.9	0.06471	2.654	18.6
IEEE Transactions on Mobile Computing	7.7	0.01557	1.59	12.9
IEEE Trans. on Pattern Analysis and Machine Intelligence	20.8	0.09432	6.861	28.4
IEEE Trans. on Neural Networks and Learning Systems	10.2	0.09427	2.999	23.8
Artificial Intelligence	5.1			11.2
IEEE Transactions on Communications	7.2	0.04874	2.07	16.1
IEEE/ACM Transactions on Networking	3	0.00876	0.957	8.2
IEEE Transactions on Mobile Computing	7.7	0.01557	1.59	12.9
IEEE Transactions on Network and Service Management	4.7	0.00951	1.003	9.3

EXIGENCE will also seek to publish results in Open Research Europe, the open access publishing venue for European Commission-funded researchers across all disciplines, with no author fees.

3.5 SYNERGIES AND COLLABORATIONS

As a holistic, interdisciplinary project, EXIGENCE covers several interest areas that can offer opportunities for synergies and collaborations. We have been active in the Smart Networks and Services Joint Undertaking (SNS JU) and already established collaboration with some projects.

This section describes the projects with which we are collaborating and with which we will develop content and activities.

3.5.1 SNS PROJECTS

EXIGENCE has established contact and is exploring synergies with the following SNS projects:

BeGreen (SNS Phase 1, Stream A): BeGREEN will take a holistic view to propose evolving radio networks that accommodate increasing traffic and services and consider power consumption as a factor. BeGREEN will perform research and implementation at different levels, i.e., hardware, link, and system levels, toward improved energy efficiency at radio access design.

6Green (SNS Phase 1, Stream A): The 6Green project aims to conceive, design, and realize an innovative service-based and holistic ecosystem that can extend "the communication infrastructure into a sustainable, interconnected, greener end-to-end intercomputer system" and promote energy efficiency across the whole 5/6G value chain.

Hexa-X-II (SNS Phase 1, Stream A): Hexa-X-II is proposed with the ambition of being a flagship project towards the elaboration of a holistic 6G network platform and system and of inspiring the world for digital transformation through novel 6G services. Hexa-X-II will work beyond enabler-oriented research, to optimised systemisation, early validation, and proof-of-concept; work will progress from the 6G key enablers that connect the human, physical, and digital worlds, as explored in Hexa-X, to advanced technology readiness levels, including key aspects of modules/protocols/interfaces/data.

6G-PATH (SNS Phase 2, Stream D): The goal of 6G-PATH is to help foster the further development and integration of new and improved tools and products from EU companies with 5G/6G while also measuring relevant KPIs and KVIs. To achieve this, some testbeds will be part of the project consortium, which will be used by corresponding use cases spread across four key verticals: Health, Education, Smart Cities, and Farming.

3.5.2 OTHER EU-FUNDED PROJECTS

F6S, the partner leading communications in EXIGENCE, is also exploring collaborations with EU-funded projects outside SNS JU. EXIGENCE and 6G-PATH are collaborating with other projects in a synergy group around energy efficiency. These group of projects have already attended the Lisbon Energy Summit 2024 together:

- DigiWind will deliver interdisciplinary Specialised Education Programmes to future-proof the careers of Science, Technology, Engineering, and Math professionals in wind and energy systems through advanced digital skills in key capacity areas of High-Performance Computing, Artificial Intelligence, Cybersecurity, and other emerging technologies.
- HEDGE-IoT proposes a novel Digital Framework to deploy IoT assets at different levels of the energy system to add intelligence to the edge and cloud layers through advanced AI/ML tools and to bridge the cloud/edge continuum introducing federated applications governed by advanced computational orchestration solutions.
- i-STENTORE explores the integration of various storage solutions, emphasising innovation and efficiency. It will highlight the synergy between storage systems and other integrated assets, prioritising reliability, power quality, cost-efficiency, and asset lifespan.
- SNUG aspires to contribute to a world where buildings seamlessly integrate with the environment by reshaping the construction industry and fostering the transition to Zero-Energy Buildings. Using circular economy principles and artificial intelligence, the project will support architects and builders in selecting optimal thermal insulation materials according to building features and surroundings.

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- TWAIN ensures the reliable and cost-effective design and operation of wind power plants, focusing on system stability, security, and environmental considerations. The project aligns with ambitious decarbonisation goals, acknowledging the transformative influence of powerful catalysts such as artificial intelligence and digitalisation, enabling the integration of wind farm control technology processes into the operation and design of future energy systems.
- WeForming redefines energy management by turning buildings from passive consumers into active participants in shaping future energy networks while considering the business aspect. Our innovative approach centres on Intelligent Grid-Forming Buildings equipped with cutting-edge technologies for smart management, predictability, and energy efficiency.
- With an innovative design strategy, INFERNO will develop a modular hybrid energy harvesting system that can be easily integrated into production lines to convert industrial waste heat into usable electricity. The project's ultimate goal is to create an efficient and easy-to-install system that helps reduce greenhouse gas emissions.

3.5.3 ADDITIONAL CONTACTS AND OPPORTUNITIES

EXIGENCE has established contact with Greening of Streaming, an organisation with international reach that was created to address growing concerns about the energy impact of the streaming sector. We exchanged information with the organisation and met to discuss our initial results around the state-of-the-art and draft use cases. The fruitful discussion solidified a collaboration channel that will remain open to establish further interaction.

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4 MONITORING AND REPORTING

Communication and dissemination activities will be monitored and evaluated regularly to assess their impact and adjust where needed. This section defines the key performance indicators to measure dissemination and communication, elaborates on the measurement tools, and finally presents the project's current status.

4.1 KEY PERFORMANCE INDICATORS

The following table shows the project's Key Performance Indicators (KPIs) as set out in the Grant Agreement.

Table 6: Key performance indicators for communication and dissemination.

Key Performance Indicator	Target (Y1/Y2/Y3)
Publications in specialised magazines	10
Exhibitions and trade fairs	5
Request for technology features and its potential use	10
3GPP (contacts/interactions)	6
ETSI (contacts/interactions)	5
Publications at international conferences	20
Publications in international journals	10
Organisation of joint events (workshops, conferences special sessions, etc.) with sister projects and initiatives	4
Participation in European Commission's consultations and policymaking process in the field of interest	1
Website monthly visitors	200 / 350 / 500
Social Media Followers	100 / 200 / 300
Newsletters	4 / 4 / 4
Flyers	400 / 800 / 1600
Promotional videos	5 videos / 500 views per video
Collaboration with other EU projects	1 / 3 / 6
SNS and other concertation events	>=6
MsC Thesis	>=9
PhD Thesis	>=3 (Y4)
Impacted training programmes	>=3
Community building	>=50 members

4.2 MEASUREMENT TOOLS

The project KPIs regarding communication and dissemination are tracked monthly, using information reported by all partners in a project master sheet, which is also the baseline for the project's continuous reporting.

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In addition to the KPIs listed on Table 6, we monitor analytics for the project website and LinkedIn.

For the project website, we are currently using Google analytics to monitor performance (see Figure 25), namely track the following indicators:

- Users, new users, and unique visitors;
- Average engagement time;
- Engaged sessions per user; and
- Views by page.

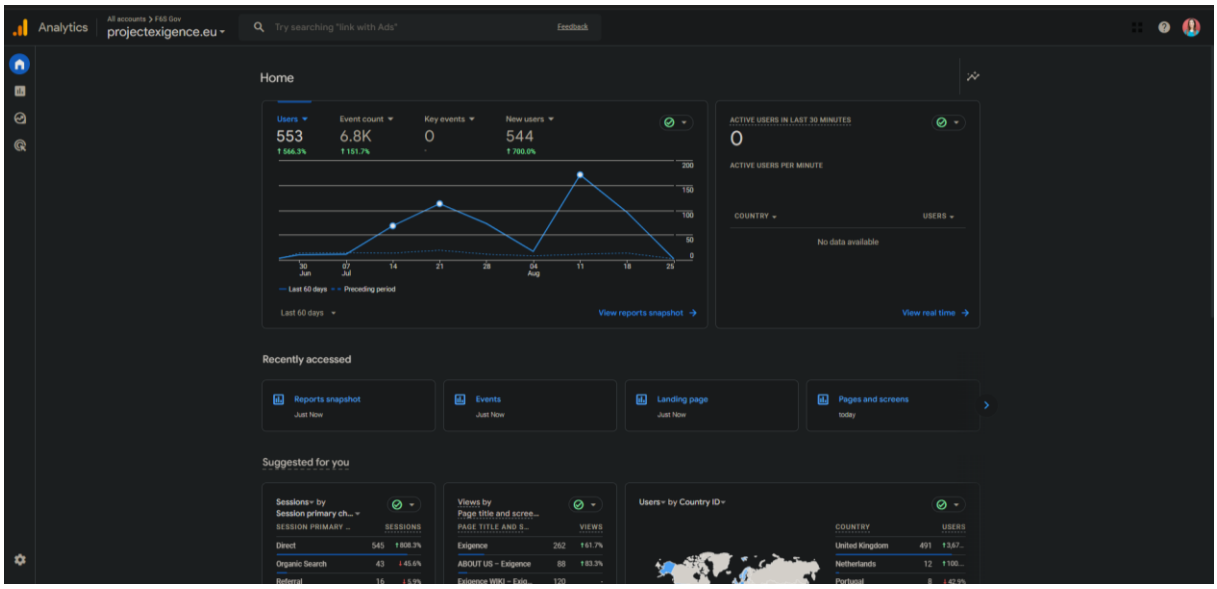

Figure 25: Google Analytics for the project website.

In our LinkedIn page, we use the built-in dashboard and analytics to monitor performance (see Figure 26), tracking the following indicators:

- Impressions, clicks, reactions, comments, reposts, and engagement rate per post ;
- Page views;
- Visitor demographics;
- Total and new followers; and
- Follower demographics.

The engagement rate per post allow us to identify the most successful posts, to understand the material, content and tone resonating more with our audience.)

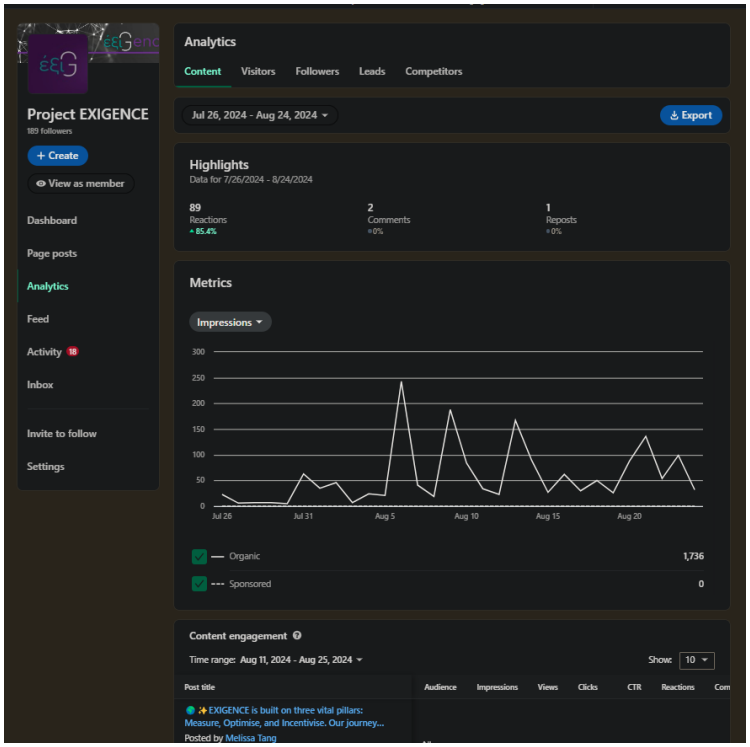

Figure 26: LinkedIn analytics dashboard.

4.3 REPORTING ACTIVITIES

The consortium continuously tracks communication and dissemination activities, to be able to report on the project activities, analyse the efforts and adjust the strategy if necessary.

EXIGENCE has a comprehensive spreadsheet in its shared repository, with several tabs, mirroring the information of the Funding and Tenders Portal. The consortium reports activities in this spreadsheet, and F6S, as coordinator, inserts the information on the Funding and Tenders Portal every 3-4 months.

This section briefly describes how partners report their activities.

4.3.1 EVENTS

All partners are requested to actively communicate and disseminate the EXIGENCE project. Hence, an Events sheet was created to gather all the **potential events** partners might be participating in/co-exhibiting/presenting/organising. This sheet provides an overview of interesting and relevant events happening within the project duration, to facilitate communication and inform F6S of any support needed.

Note:

- The Events sheet should **continuously be updated** throughout the whole project duration.
- **Events can include** conferences, courses, training, and opportunities either promoted by the project or attended by project partners.

The following text defines the actions partners need to carry out so the events are properly spotlighted on the project website and social media:

1. **Before the Event:**

Once attendance/participation at an event is considered, partners should add the relevant event information in the Events sheet.

If partners need any material (e.g., a roll-up, flyer, or other visual) for the event, they should mention it in the respective column and notify the project's communications team. These requests should be made **at least three weeks (approximately. 15 working days)** before the event *(note: adaptations to existing materials may be handled within 2 weeks)* to successfully promote and engage a wider audience.

Once this information is defined, the communication team will promote the event:

- 1 week before event: If appropriate, F6S will post an announcement of the project/partner's participation on LinkedIn.
- 3-4 working days before event: If requested, F6S will produce the material, iterating it with the partner.

2. **During the Event:**

Partners create a dedicated folder within the "EXIGENCE Dissemination Activities" folder with format: **Date_Event Name_Partner** and include any relevant images of activities, useful information, and personalised content.

- Partners should include photos of the presentations, the attendant either presenting or discussing at booth, or any project material (e.g. booth, flyer)
- During the event: F6S will prepare a LinkedIn post to update the audience on the evolution of the event along with the pictures received.

Please note: if the event lasts for 3 days, we understand partners will be busy, hence we would suggest that partners send some images and content on the first day of the event, for F6S to promote.

3. **After the Event:**

The Partner who attended the event should fill in the relevant information in the Sheet 15 – Dissem Activities along with the link to the folder created within the "EXIGENCE Dissemination Activities"

Partners, especially those exhibiting, presenting, and organising events, are encouraged to write a blog post to promote the event's results and outcomes on the website.

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- **Within three working days after the event:** The partner who attended the event is encouraged to draft an article (1 400 – 2 100 words in length) to promote the event. Once ready, the partner adds the article to the event folder created and leaves a comment in the "Useful Link" column by tagging the communications manager.
- **Within one week after the event, F6S reviews the article and publishes it** on the project website and LinkedIn.

4.3.2 COMMUNICATION ACTIVITIES

Sheet 16 – Comms Activities is updated **monthly** with every communication activity carried out by each partner throughout the project duration. Partners add their activities, if not directly after the activity, at least **within the month of the activity**.

This table covers any general activities to communicate the project, usually for a wider audience, and using existing communication channels (Website, Social media, Print materials, Press release, Media article, Newsletter, Interview, Video, TV/Radio campaign, Other).

Please make sure to:

- Fill in the columns with as much detail as possible. Be concise and add any useful links of the communication activities as required.
- Add specific results or KPIs of your activity e.g. estimated views on the website, number of attendees etc., in the sheet column "Outcome."

4.3.3 DISSEMINATION ACTIVITIES

Sheet 15 – Dissem Activities is updated **monthly** with every dissemination activity carried out by each partner throughout the project duration. Partners add their activities, if not directly after the activity, at least **within the month of the activity**.

This table lists activities presenting any results of the project, usually to audiences who are potential users and adopters of these results. These activities include Conferences, Education and training events, Meetings, Clustering activities, Collaboration with EU-funded projects, Other scientific collaboration, Other.

Please make sure to:

- Create (if not already done during the event phase) a respective folder within the "EXIGENCE Dissemination Activities" folder with format: **Date _Activity_Partner** and include any relevant images of activities, useful information, and personalised content.
- Add the link to the above folder created in **Sheet 15 – Dissem Activities**

4.3.4 SCIENTIFIC PUBLICATIONS

Partners will produce scientific publications during the project, which need to comply with the Grant Agreement, particularly the open science requirements.

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Article 17 of EXIGENCE's Grant Agreement defines these requirements, as replicated in the text below.

Open Science (excerpt from Article 17 of the GA)

Open science: open access to scientific publications

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and
- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.

When preparing scientific publications, partners must include these two elements:

- A proper acknowledgement to the project, including the following text:

  Funded by the European Union. The project is supported by Smart Networks and Services Joint Undertaking (SNS JU) and its members. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or SNS JU. Neither the European Union nor the granting authority can be held responsible for them.

- Metadata of the publication according to the following:

  Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

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Partners must make all publications available in a trusted repository for scientific publications. EXIGENCE has created a page on Zenodo, that partners can use to deposit their publications.

As soon as a paper is accepted for publication on a conference or journal, partners should do the following actions:

- Deposit the publication in a trusted repository, preferably making it available in the project's Zenodo page.
- Fill in all the columns Sheet 10 – Publications with the publication details.

F6S will use the information to maintain a list of publications on the project website.

4.3.5 STANDARDS

Sheet 13 – Standards records any activities related to standardisation and SDOs, which include Revision of an existing standard, Elaboration of a new standard, Participation in a technical committee, Participation in a technical group, Elaboration of a workshop agreement, Others.

4.4 CURRENT STATUS

Since their launch, we have monitored the website and LinkedIn and the remaining KPIs every month. Table 7 presents the current status of the communication and dissemination KPIs on month 8 of the project.

Table 7: Current status of communication and dissemination KPIs.

Key Performance Indicator	Target (Y1/Y2/Y3)	Status (M8)
Publications in specialised magazines	10	
Exhibitions and trade fairs	5	2
Request for technology features and its potential use	10	
3GPP (contacts/interactions)	6	2
ETSI (contacts/interactions)	5	
Publications at international conferences	20	
Publications in international journals	10	
Organisation of joint events (workshops, conferences special sessions, etc.) with sister projects and initiatives	4	1
Participation in European Commission's consultations and policymaking process in the field of interest	1	
Website monthly visitors	200 / 350 / 500	123
Social Media Followers	100 / 200 / 300	189
Newsletters	4 / 4 / 4	0
Flyers	400 / 800 / 1600	200
Promotional videos	5 videos / 500 views per video	1 / 48
Collaboration with other EU projects	1 / 3 / 6	8

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Key Performance Indicator	Target (Y1/Y2/Y3)	Status (M8)
SNS and other concertation events	>=6	2
MsC Thesis	>=9	
PhD Thesis	>=3 (Y4)	
Impacted training programmes	>=3	
Community building	>=50 members	

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5 CONCLUSIONS

This deliverable, D4.5 Dissemination and Communication Plan, presents our overall approach to maximising the impact of EXIGENCE's results and reaching key stakeholders in the energy ecosystem.

This document is divided into three parts: strategy, plan, and monitoring.

The communication and dissemination strategy defines our five target audiences: ICT technology providers and consumers, telecommunication industry organisations, the research community, national and EU organisations, and policy-making entities. We characterise these target audiences by identifying the stakeholders, key message, tone of voice, and channels. We summarise the overall description in personas.

The communication and dissemination plan describes the overall approach for the project duration, divided into five phases: planting the seeds (M1-M6), germinating ideas (M7-M13), cultivating techniques (M14-M20), harvesting efficiency (M21-M26) and sustaining growth (M27-M30). We describe each activity's objective, project results, and key activities. We elaborate on the communication channels and materials already developed for the project, including the brand, website, social media, flyers and presentation. The plan then details the main communication activities planned for the project, implementing the plan presented.

Finally, we describe the key performance indicators and monitoring tools for the communication and dissemination activities, which we will use to understand the approach's success, adapting as we go along.

We will report on the communication and dissemination activities in the project's periodic report on M12 and M30. In addition, we will elaborate deliverable D4.6 Dissemination Report on M30, detailing all the activities implemented.

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