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## Architecture for Scalable, Self-\*, human-centric, Intelligent, Secure, and Tactile next generation IoT



# D9.5 Report on Impact Creation Achievements and Plan for M1-M18

<b>Deliverable No.</b>	D9.5	<b>Due Date</b>	30.04.2022
<b>Type</b>	Report	<b>Dissemination Level</b>	Public
<b>Version</b>	1.0	<b>WP</b>	WP9
<b>Description</b>	This deliverable focuses on <i>communication</i> , <i>dissemination</i> , and <i>exploitation</i> activities. It summarizes ASSIST-IoT indicative activities performed between M1 and M16 with regards to these subjects. As requested, this <i>document is prepared following the Minimization Principle</i> . Hence, information from deliverables D9.1 and D9.2 is only summarised, as needed. If any additional information, deemed to be needed, it will be presented, upon earlier request, during M18 project evaluation.		



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## History

Date	Version	Change
19-Dec-2021	0.1	ToC, initial draft, task assignments, initial contributions
1-Jan-2022	0.2	Corrections to the ToC, starting drafting content
27-Mar-2022	0.3	Complete documentation of communication activities
31-Mar-2022	0.4	Completing initial draft of the document
12-Apr-2022	0.5	Reviewed version with IR2 comments addressed
20-Apr-2022	0.6	Final checking after further discussions
21-Apr-2022	0.7	Next round of minor changes
30-Apr-2022	1.0	Final version (changes from IR applied) submitted to the EC portal

## Key Data

<b>Keywords</b>	Communication, dissemination, plan, strategy, roadmap, website, social media, channels, impact, stakeholders, target audience, IoT, project, exploitation, standardisation, standardisation bodies
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# Executive Summary

This Risk Management Plan is written within the context of WP9 – Impact Creation of **ASSIST-IoT** project, under Grant Agreement No. 957258.

In deliverable D9.5, ASSIST-IoT action summarises activities in the areas of communication, dissemination, and exploitation that took place between M1 and M16. Here, reporting of activities had to be frozen to be able to prepare this deliverable. However, some comments regarding ongoing activities (like the fact that a Special Sessions for the IEEE World IoT Forum has been accepted on April 20, 2022) are provided. Moreover, updated plans for exploitation are presented.

Specifically, the communication activities that have been realised in various digital and non-digital communication channels are presented in detail. The same applies to dissemination activities. Next, reflection on the state of exploitation activities, in view of ongoing COVID-19 pandemics are presented. Overall, the effects of the pandemics on communication, dissemination, exploitation and showcasing are discussed and pertinent updated plans are presented in this deliverable.

Finally, it should be stressed that current plans, described in D9.5, are likely to be further updated (throughout the remaining time of the project). This will happen in response, primarily, to the evolving landscape of the war in Ukraine. However, it will take into account also the project's evolving requirements. All undertaken actions are, and will be, designed and undertaken to attain the maximum overall impact of the action.

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## List of acronyms

Acronym	Explanation
<b>5G</b>	5th Generation
<b>5G PPP</b>	5G Public-Private Partnership
<b>AI</b>	Artificial Intelligence
<b>AIOTI</b>	Alliance for Internet of Things Innovation
<b>BDVA</b>	Big Data Value Association
<b>CIS</b>	Controls IoT Security
<b>CT</b>	Core Network & Terminals
<b>DLT</b>	Distributed Ledger Technology
<b>DoA</b>	Description of Action
<b>Dx.y</b>	Deliverable No <i>y</i> of Work Package <i>x</i>
<b>EC</b>	European Commission
<b>GA</b>	General Assembly
<b>IEEE</b>	Institute of Electrical and Electronics Engineers
<b>IEEE SA</b>	Institute of Electrical and Electronics Engineers Standards Association
<b>IT</b>	Information Technology
<b>KPI</b>	Key Performance Indicator
<b>M2M</b>	Machine to Machine
<b>ML</b>	Machine Learning
<b>MS</b>	Milestone
<b>NGIoT</b>	Next Generation Internet of Things
<b>NGO</b>	Non-Governmental Organisation
<b>PC</b>	Project Coordinator
<b>PoC</b>	Proof-of-Concept
<b>RA</b>	Reference Architecture
<b>SA</b>	Service & Systems Aspects
<b>SDN</b>	Software Defined Networks
<b>SP</b>	Special Publication
<b>Telco</b>	Teleconference
<b>Tx.y</b>	Task No <i>y</i> of Work Package <i>x</i>
<b>WPx</b>	Work Package No <i>x</i>

# 1. About this document

The aim of this document is to summarize communication, dissemination, showcasing and exploitation activities that took place during first half of the project. This is a continuation of the reporting thread that started with deliverables D9.1 and D9.2.

## 1.1. Deliverable context

Keywords	Lead Editor
<b>Objectives</b>	Objective 8: Impact creation, Showcasing ASSIST-IoT, and Disrupting the current market.  Presented (updated) exploitation plans as well as the update on the dissemination and communication action status will be intensively used for impact creation and planning ahead to achieve it. Specifically, D9.5 provides a comprehensive description and analysis of ASSIST-IoT impact channels, plans and mechanisms at the half of the project for facilitating the fulfilment of objective No 8 and its KVIs, which is currently in good shape.
<b>Work plan</b>	This deliverable belongs to the set of WP9 deliverables, and it is directly linked to all WP9 tasks' activities.  This document is the second out of a series of three deliverables reporting the status of T9.1 (communication) and T9.2 (dissemination) actions, while including also some hints about impact creation through exploitation plans (T9.4). T9.3 is reported in D9.3 (M18) and T9.4 is tackled in D9.6 (M18), both delivered at the same time as this document.  The use of ASSIST-IoT impact creation channels and the communicated content address almost all tasks of the project, impacting in this way not only WP9 activities but also all the rest ASSIST-IoT WPs.
<b>Milestones</b>	D9.5 has contribution to WP9 milestone (as part of all WP9 activities):  MS8: Feedback, Availability of Technical and Business Evaluations. [M36]
<b>Deliverables</b>	D9.5 is directly linked to one upcoming WP9 deliverable (D9.8) and with two already submitted deliverables (D9.1 and D9.2).

## 1.2. Structure of the Document

This document is divided into six main sections, organised as follows:

**Section 1:** Introduces the reader to the purpose and scope of this document and its format.

**Section 2:** Provides a report of the communication activities (those attributable to task T9.1) while **Section 3** refers to the advances in dissemination (falling under T9.2). Both sections provide evidence of the actions performed as well as a tracking of the status of defined target KPIs from D9.2.

**Section 4:** Depicts and update of the exploitation plans of all ASSIST-IoT partners, enhancing previous descriptions.

**Section 5:** Exposes any changes that the plans (for communication and dissemination) have experienced during the period M6-M18 of the project.

**Section 6:** This section concludes the document.



## 2. Communication activities

Introductory material presented in deliverables D9.1 and D9.2, concerning fundamentals of communication, dissemination, showcasing and exploitation, remains valid and thus it is not going to be repeated in what follows. Here, note also that deliverable D9.1 has been accepted, after the initial review of the action took place in M9. Hence, it was assumed that the strategy and the initial activities have been officially approved, as stated there.

### 2.1. Initial communication channels/developments

Based on the deliverable minimisation principle, communication channels and initial developments are only very briefly summarized. Interested readers can find all pertinent details, for each one of them, in deliverables D9.1 and D9.2. During initial month of the project, the following communication channels have been set-up:

- ASSIST-IoT logo and branding,
- ASSIST-IoT images,
- ASSIST-IoT Website,
- ASSIST-IoT Social media Channels,
  - LinkedIn,
  - Twitter,
  - Facebook,
  - Instagram,
  - YouTube,
- ASSIST-IoT Newsletter,
- ASSIST-IoT Leaflets,
- ASSIST-IoT Posters,
- ASSIST-IoT Press Releases,
- ASSIST-IoT Articles and News,
- NGIoT Communication Task Force and interaction with other projects.

Since then, all of them are extensively used. There are no fundamental changes with regards to the scope of any of them. They have been comprehensively described in D9.1 (Section 2.1) and this description remains valid.

Communication framework and target audience, as well as communication plan and strategy, have been summarized in D9.1, Section 2.2. While, in principle, all these considerations remain valid, the global COVID-19 pandemics has influenced some of detailed considerations in the areas of communication, dissemination, showcasing and exploitation. The resulting modifications, in all areas covered by WP9 (other than the standardization related activities, covered by deliverable D9.6), will be discussed jointly in Section 5.

All fundamental details, concerning Communication Control/Monitoring and Performance mechanisms, used in ASSIST-IoT, have been discussed in D9.1, Section 2.3. All these mechanisms have been used since and most recent communication activities, results and statistics, covering M1-M16 period, are presented in Section 2.2.

### 2.2. Communication Activities performed and Statistical dashboards (M1-M16)

This section presents the communication activities, as they have been performed within each individual channel, during the period M1-M16.

## 2.2.1. Website and Statistics

The ASSIST-IoT website is the main communication tool of the project and is accessible at <https://assist-iot.eu/>. For more information concerning its structure and its technical attributes one may refer to deliverable D9.1.

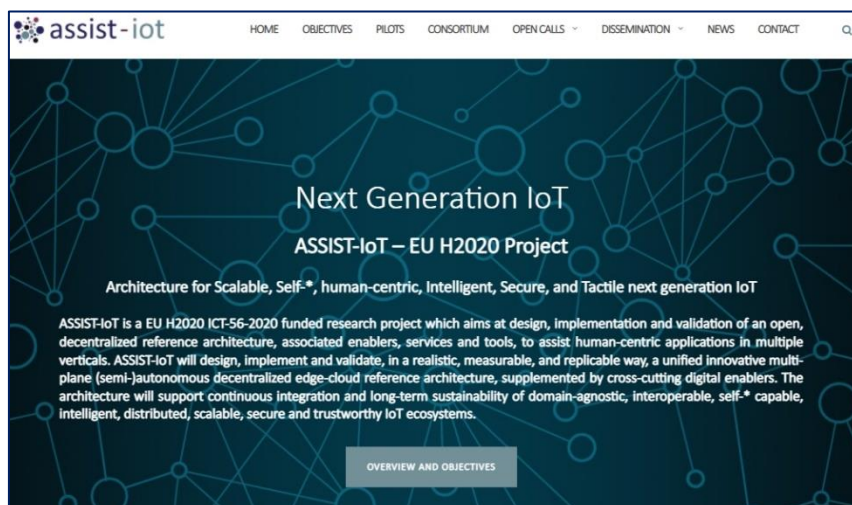


Figure 1. ASSIST- IoT website (home page)

However, it is worth stressing that ASSIST-IoT website is up and running since November 2020, and it serves as the main informative portal of the project. Moreover, it is constantly updated with new content for improving its communication impact.

### 2.2.1.1. Website Updates

In what follows, webpages, which have been systematically updated with new content, during the last 16 months (as compared to the initial M1 version/content) are specified and updates summarized.

- **Updated Objectives webpage** (<https://assist-iot.eu/objectives/>)

The *Objectives* webpage has been fully restructured to better depict the project objectives. Following reviewers' initial recommendation(s), a more clear, coherent, and updated view of the ASSIST-IoT objectives is presented, better reflecting current targets, when the project entered its second year.

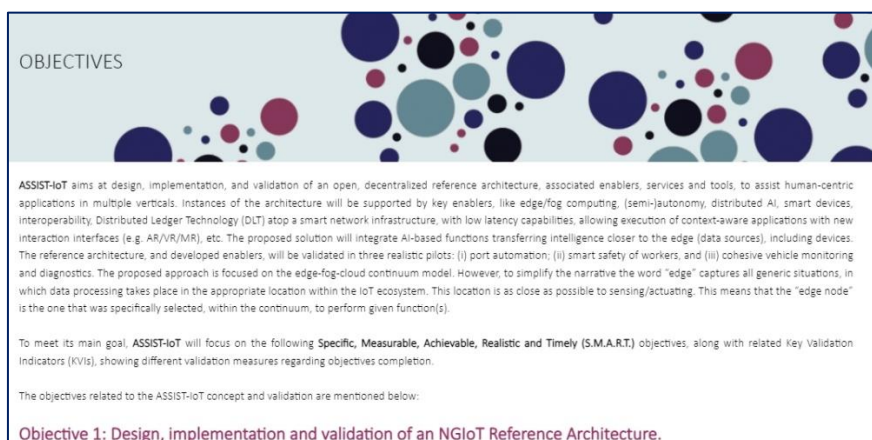


Figure 2. ASSIST- IoT Objectives webpage

- **Updated Pilots webpage** (<https://assist-iot.eu/use-cases/>)

Similar update process has been applied to the Pilots webpage. Content and images illustrating individual pilots have been updated, and more details have been provided per scenario. This update was also intended to provide a clearer view of the Pilots as an action to further enhance the project's Pilots clarity, understanding and expectations for the upcoming, at that time, 1<sup>st</sup> ASSIST-IoT Open Call.

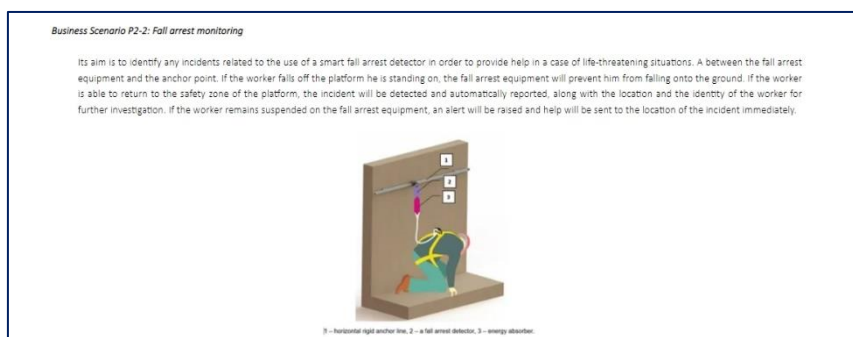


Figure 3. ASSIST- IoT Pilots webpage

- **Articles webpage** (<https://assist-iot.eu/articles/>)

The Articles webpage summarises all published articles, related to ASSIST-IoT in general and its individual partners' activities. Any interested stakeholder can access all the released articles and use the provided URL to access and read online the respective article. Up till now, **8 ASSIST-IoT related articles** have been published.

Table 1. ASSIST-IoT Articles

#	Article	Link
1	"Paving new ways for next-gen IoT" online article by Bits&Chips	<a href="https://bits-chips.nl/artikel/paving-new-ways-for-next-gen-iot/">https://bits-chips.nl/artikel/paving-new-ways-for-next-gen-iot/</a>
2	ASSIST-IoT online article at Partnership for European Research in Occupational Safety and Health (PEROSH) website	<a href="https://perosh.eu/news/ciop-pib-participates-in-project-assist-iot/">https://perosh.eu/news/ciop-pib-participates-in-project-assist-iot/</a>
3	"La industria encara sus retos tecnológicos con la inteligencia artificial y el Internet de las Cosas – La Politécnica lidera el proyecto europeo Assist-IoT" online article at La Razon (in Spanish)	<a href="https://www.larazon.es/comunidad-valenciana/20210103/vbqf2gwxzjhofnp5kuwd4um2ue.html">https://www.larazon.es/comunidad-valenciana/20210103/vbqf2gwxzjhofnp5kuwd4um2ue.html</a>
4	"La industria encara sus retos tecnológicos con IA e Internet de las cosas – El proyecto europeo ASSIST-IoT prevé aumentar la seguridad laboral en la construcción y optimizar el diagnóstico de fallos en vehículos" online article at economia3.com (in Spanish)	<a href="https://bit.ly/3gOnO7K">https://bit.ly/3gOnO7K</a>
5	"ASSIST-IoT Webinar-Workshop video", NGIoT website	<a href="https://www.ngiot.eu/assist-iot-webinar-workshop-video/">https://www.ngiot.eu/assist-iot-webinar-workshop-video/</a>
6	ASSIST-IoT OC1 presented at IoT Week 2021 (30 August 2021) – Video recording available at IoT Week 2021 website	<a href="https://iotweek.org/session-recordings-2021/">https://iotweek.org/session-recordings-2021/</a>

7	ASSIST-IoT OC1 announcement featured in NGIoT Newsflash (Issue October 2021)	<a href="https://mailchi.mp/4c8052d926c6/ngiot-newsflash-october2021">https://mailchi.mp/4c8052d926c6/ngiot-newsflash-october2021</a>
8	ASSIST-IoT OC1 announced at NGIoT website	<a href="https://www.ngiot.eu/assist-iot-open-call-starts-1-november/">https://www.ngiot.eu/assist-iot-open-call-starts-1-november/</a>

- **Press Releases webpage** (<https://assist-iot.eu/press-releases/>)

The **Press Releases** webpage hosts all the press releases made by the ASSIST-IoT partners, and the consortium as a whole, in order to announce the project's initiation or important project milestones. Up till now **10 ASSIST-IoT Press Releases** have been made.

*Table 2. ASSIST-IoT Press Releases*

#	Press Release	Link
1	CORDIS EU research results “Architecture for Scalable, Self-*, human-centric, Intelligent, Secure, and Tactile next generation IoT”	<a href="https://cordis.europa.eu/project/id/957258">https://cordis.europa.eu/project/id/957258</a>
2	NEWAYS “Neways takes part in European ASSIST-IoT project”	<a href="https://www.newayselectronics.com/news/neways-takes-part-in-european-assist-iot-project">https://www.newayselectronics.com/news/neways-takes-part-in-european-assist-iot-project</a>
3	CIOP-PIB “ASSIST-IoT Project”	<a href="https://bit.ly/3sCXFyk">https://bit.ly/3sCXFyk</a>
4	ITI “ASSIST-IoT”	<a href="https://www.iti.gr/iti/projects/ASSIST-IoT.html">https://www.iti.gr/iti/projects/ASSIST-IoT.html</a>
5	S21SEC “ASSIST-IoT”	<a href="https://www.s21sec.com/es/portfolio-item/assist-iot-es/">https://www.s21sec.com/es/portfolio-item/assist-iot-es/</a>
6	La UPV lidera este proyecto internacional para preparar a la industria ante los retos tecnológicos de la próxima generación	<a href="http://www.upv.es/noticias-upv/noticia-12602-assist-iot-es.html">http://www.upv.es/noticias-upv/noticia-12602-assist-iot-es.html</a>
7	NGIoT “ASSIST-IoT”	<a href="https://www.ngiot.eu/assist-iot/">https://www.ngiot.eu/assist-iot/</a>
8	ALICE “projects”	<a href="https://www.etp-logistics.eu/projects/">https://www.etp-logistics.eu/projects/</a>
9	i-sense “ASSIST-IoT”	<a href="https://i-sense.iccs.gr/projects/assist-iot/">https://i-sense.iccs.gr/projects/assist-iot/</a>
10	CERTH ASSIST-IoT: Architecture for Scalable, Self-*, human-centric, Intelligent, Secure, and Tactile next generation IoT	<a href="https://www.iccs.gr/blog/2021/04/24/assist-iot/">https://www.iccs.gr/blog/2021/04/24/assist-iot/</a>

- **News webpage** (<https://assist-iot.eu/blog/>)

The **News** section on the webpage of the ASSIST-IoT website is the most active section. It is updated with (news related to) ASSIST-IoT activities, regarding with the IoT sector, NGIoT cluster activities, and actions by other related projects. News posts are published on a weekly basis. However, for special occasions (dissemination events, project achievements, joint activities) additional News are communicated by the INFOLYSiS team, with uploads more than one post per week. Up till now, 85 News posts have been published.

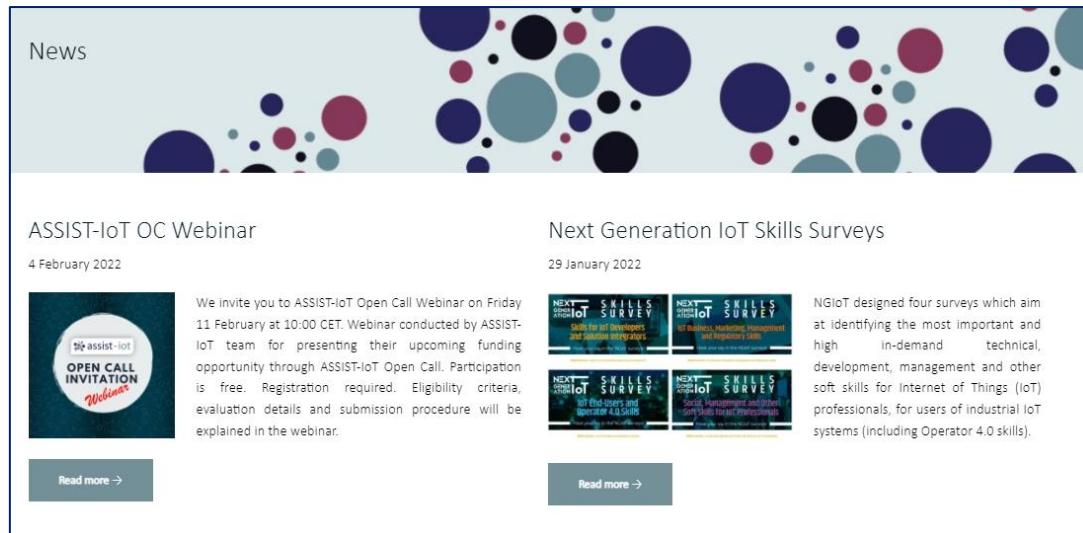


Figure 4. ASSIST- IoT News webpage

- **Publications webpage** (<https://assist-iot.eu/publications/>)

The ASSIST-IoT **Publications** section of the webpage is divided into four different subsections. In the first one, the visitor is informed about the “Call for Papers” opportunities initiated by ASSIST-IoT. The second section presents the ASSIST-IoT journal papers, while the third section records the conference papers and technical reports released by ASSIST-IoT partners. Finally, there is the fourth section where the website visitors can view and access the white papers with ASSIST-IoT contributions and acknowledgement (prepared mainly in collaboration with other research projects). In numbers, up till now, **ASSIST-IoT counts 13 publications** (2 journal papers, 9 technical reports and conference papers, and 2 white papers) and one Call for papers for an upcoming journal special issue.

Here, it should be recalled, that ASSIST-IoT undertakes green access model for dissemination of publications. Specifically, each completed publication is firstly published as a Technical Report of the project. As soon as a Technical Report is editorially ready, it is published within the WWW portal of the project. It is also communicated through pertinent communication channels. Upon publication as a “copyrighted material”, information about such publication (appearance of the final version of the text), including complete bibliographic meta-data is published and propagated. In this way, interested individuals can find/read/cite the final version of each publication.

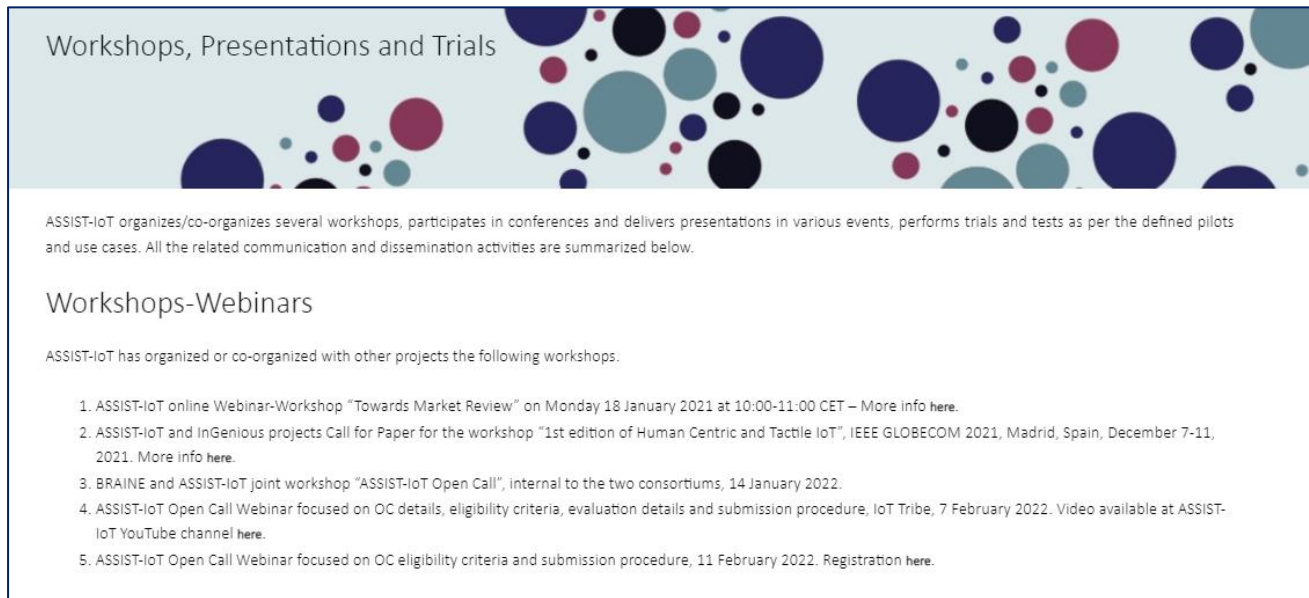


Figure 5. ASSIST- IoT Publications webpage



- **Presentations webpage** (<https://assist-iot.eu/workshops-presentations-and-trials/>)

The ASSIST-IoT **Presentations** section of the webpage is the place where any interested visitor can access information related to the webinars and the workshops, as well as the presentations that the ASSIST-IoT project organised and/or participated in. This landing webpage is divided in two section: one responsible for reporting workshops and webinars, and one related to presentations. Up to now, **ASSIST-IoT project has organised/co-organised 5 workshops/webinars and made 29 presentations.**



*Figure 6. ASSIST- Presentations webpage*

### 2.2.1.2. Website Statistics

Let us now report individual statistical data about use of the Website. Data concerning usage of Website is collected and processed using three different tools: (1) Google Analytics, (2) WordPress Jetpack, and (3) Google Data Studio Statistical Dashboards. Each of these tools delivers slightly different information. It is our belief that using all three of these tools provides the project with a (more) comprehensive impact assessment. For more information regarding these monitoring mechanisms, one should refer to the deliverable D9.2. Let us now present results for each of the communication channels.

- **Website Google Analytics**

The following paragraphs refer to the evaluation of the website's performance, using Google Analytics, for the project period November 2020 – February 2022.

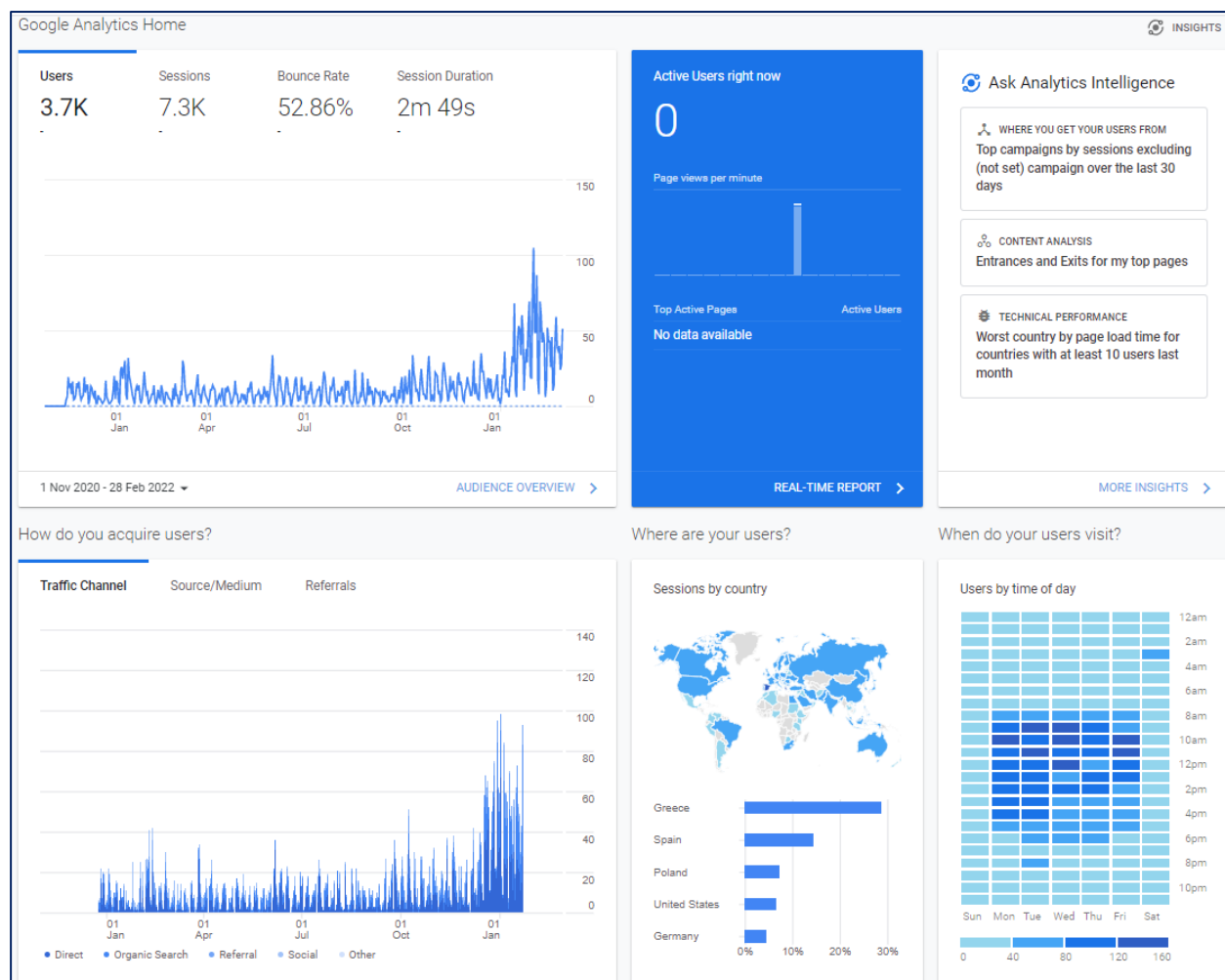


Figure 7. Google Analytics Dashboard

The Google Analytics home page for the respective 16-month project period is shown in Figure 7. This page shows details on the number of users visiting the website on a daily basis, along with some cumulative information such as the total number of website users (3.7K), the total number of sessions (7.3K), the bounce rate (52.86%), and the average session duration (2m 49s). Additionally, a coloured map shows the visitors' origin from around the world. Here, one can notice that most of the visitors come from Greece and Spain but significant is also the number of visitors from the United States. Information regarding the most active visiting hours is also provided and one can easily conclude that the website is visited mostly during office hours. Navigating through the different Google Analytics pages, various insights can also be found. Since the Google Analytics acts as input to the Website Dashboard, the most intuitive features are selected and present in the Google DataStudio, discussed further below.

#### • WordPress Jetpack Statistics

The WordPress Jetpack Platform offers various additional statistical insights about the ASSIST-IoT Website. Specifically, in Figure 8, the posting activity shows consistency on updating the website content, while the website's views per month shows the increase in the website's visibility and reached audience. On the other hand, in Figure 9, the break of views on each of the pages shows the visitors' preferences and can also indicate whether pages with low views should be updated to get more visibility, or if there something inherent to the nature of their content that causes their visibility to remain low. For instance, Open Call FAQ page is not likely to be visited much, since the Open Call has been already closed.

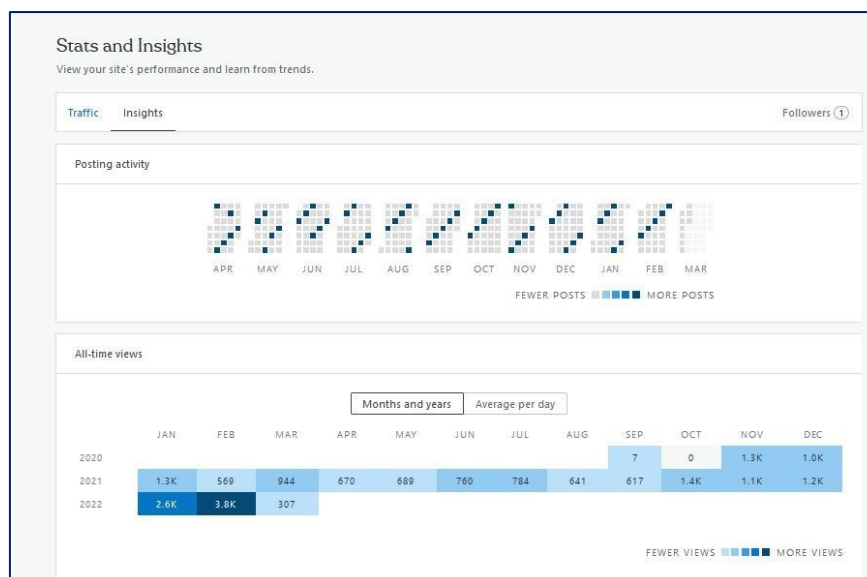


Figure 8. WordPress Jetpack Dashboard 1

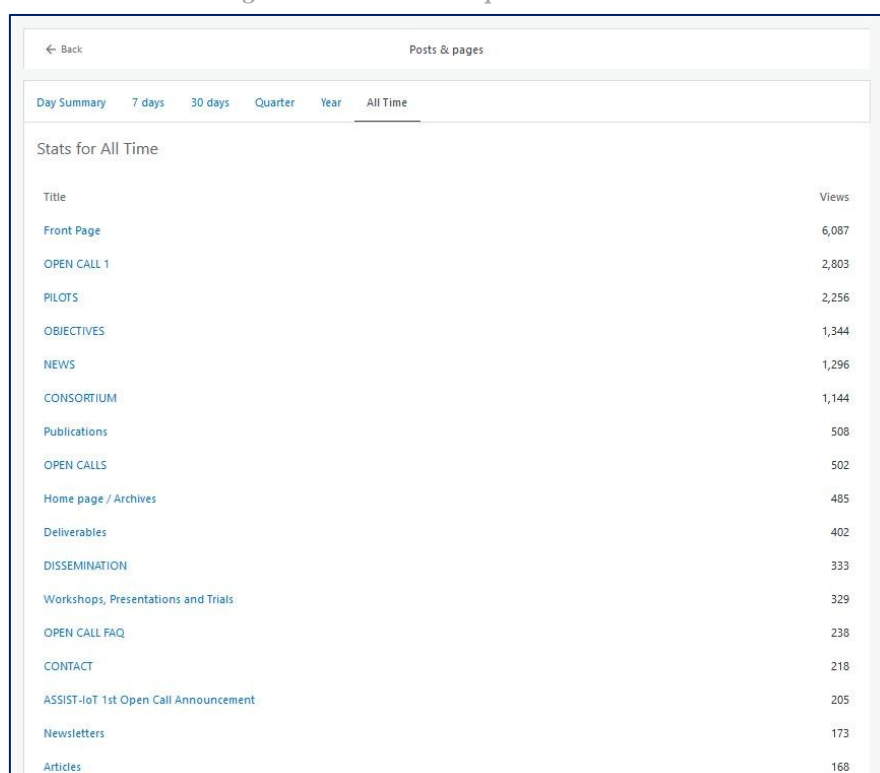


Figure 9. WordPress Jetpack Dashboard 2

- **Google Datastudio Statistical Dashboard**

The Website Statistical Dashboard (Figure 10) has been created using Google Data Studio and data derived from Google Analytics. It shows insight information regarding the ASSIST-IoT Website performance for the period November 2020 – February 2022.



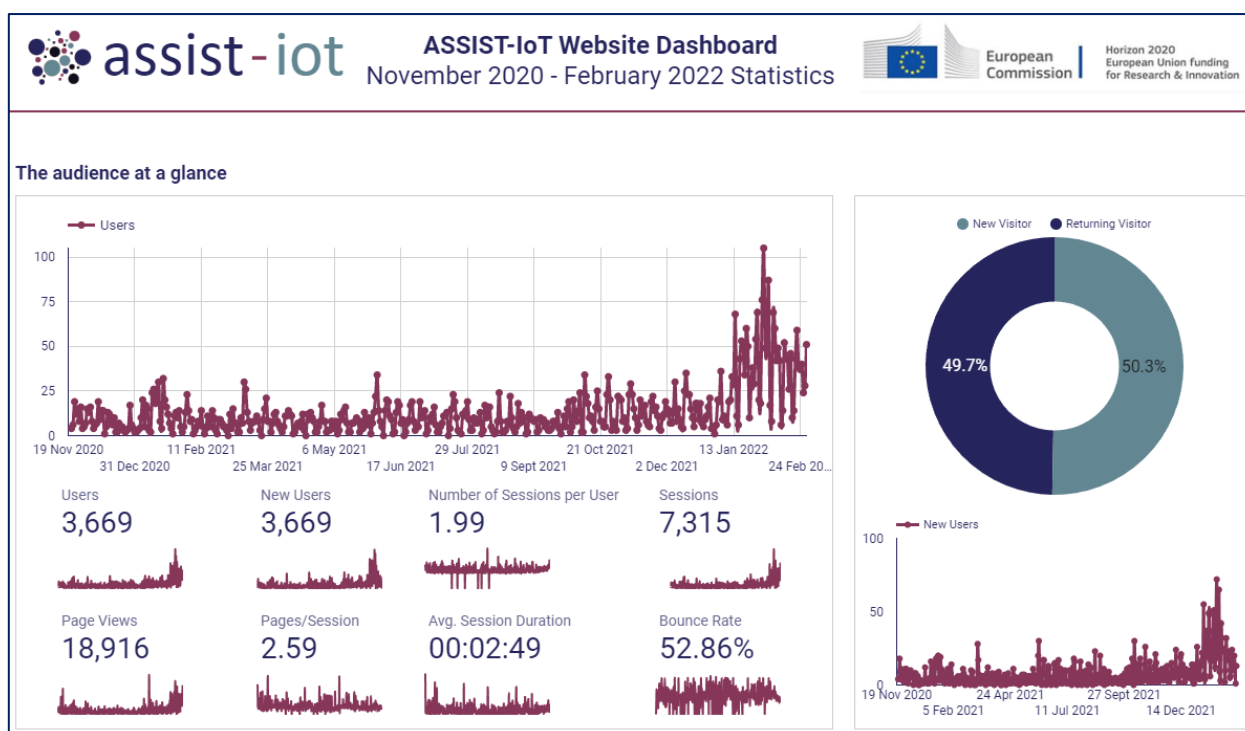


Figure 10. Google Data Studio Website Dashboard 1

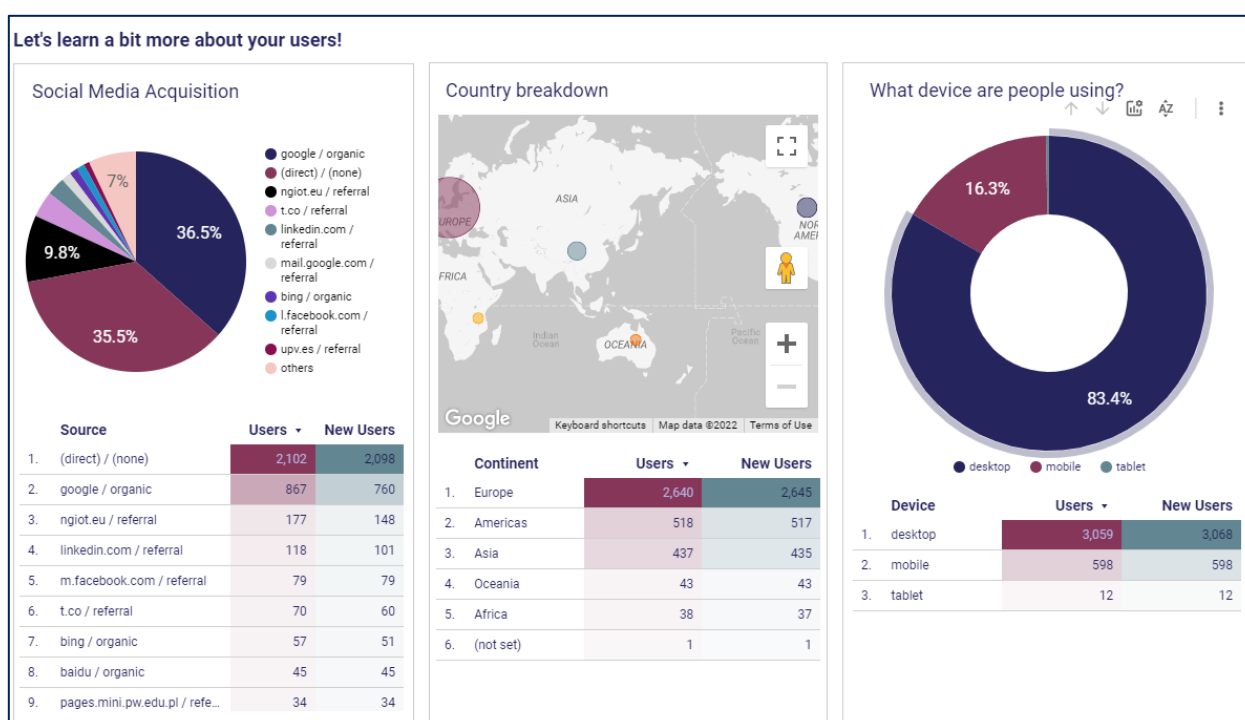


Figure 11. Google Data Studio Website Dashboard 2

The reported information can be used to form a quick view on the website's performance since it focuses on the key performance details. More specifically, for the first 16 months of the project, the website has attracted more than 3,500 users, mostly connecting via a desktop device, while more than half of them tend to return and visit the website again. Additionally, more than 7,000 sessions have been performed, having an average duration higher than 2 minutes, while a total of 18,916 page views were noted, with a 2.49 ratio of pages/session. Regarding the users' acquisition path, it can be observed that most of the users came directly to the website or

using the Google engine, while significant is also the number of users that visited the website through the ngiot.eu page. Last but not least, important is the fact that, while the consortium members are located in Europe, the project has also reached many users from USA, Asia, Africa, and Oceania.

The presented Website Google Data studio Dashboard can also be found [here](https://datastudio.google.com/reporting/f0c9507e-b139-47b0-8c4d-c956d3a5ef12) (<https://datastudio.google.com/reporting/f0c9507e-b139-47b0-8c4d-c956d3a5ef12>) where the viewer can process and review in detail all the information provided.

## 2.2.2. Social Media Channels & Statistical Dashboards

The project's exposure in social media channel exists since its beginning, following a specific communication plan and strategy that have been elaborated in deliverable D9.1. The **project is present in all popular and impactful social media channels**. The ASSIST-IoT Consortium is assessing and will continue monitoring the project's achievement and progress using the social media networks listed below, to ensure effective communication of the project's impact and results.

In summary, below are few of the key usages and advantages of using social media as a means of communication for ASSIST-IoT activities (as analysed in more detail in D9.2):

- Circulation of news, dissemination content, activities and results of the project,
- Creation of a distinguishable project identity and branding,
- Identification of new possible audience and new stakeholders,
- Keep the audience committed to the project through regular weekly posts,
- Monitoring the project impact and audience engagement,
- Relating and linking the project to other similar activities, projects, communities and associations (such as EU, H2020, NGIoT, EU-IoT, 5G-PPP)

Specifically, the ASSIST-IoT project is present in the following social media channels:

Table 3. Social Media Table

<b>Twitter</b>	<a href="https://twitter.com/AssistIoT">https://twitter.com/AssistIoT</a>
<b>LinkedIn</b>	<a href="https://www.linkedin.com/in/assist-iot-project">https://www.linkedin.com/in/assist-iot-project</a>
<b>Facebook</b>	<a href="https://www.facebook.com/assistiot">https://www.facebook.com/assistiot</a>
<b>Instagram</b>	<a href="https://www.instagram.com/assistiot/">https://www.instagram.com/assistiot/</a>
<b>YouTube</b>	<a href="https://www.youtube.com/channel/UC8Sedd5UyB8R61d9YDkkeGg">https://www.youtube.com/channel/UC8Sedd5UyB8R61d9YDkkeGg</a>

Before analysing the social media activity and the statistical dashboards, it is of utmost importance to briefly explain some digital-social media terms in order to provide the reader a better understanding of the provided statistical analysis.

Table 4. Terms Table

Term <sup>123</sup>	Meaning
Engagement	Is a measure of how people are interacting with your social media accounts and content.
Impressions	This value is a measure of the number of times your content is displayed, no matter if it was clicked or not.

<sup>1</sup> <https://sproutsocial.com/insights/reach-vs-impressions/>

<sup>2</sup> <https://buffer.com/library/social-media-metrics/#conversion-metrics-actions-sales-and-results>

<sup>3</sup> <https://www.lovesdata.com/blog/google-analytics-glossary>

Page View	A page view is reported when a user on your website has viewed a page.
Reach	Is the total number of people who see your content.
Sessions	A group of interactions that take place on your website within a given time frame
User	An individual who interacts with your website or app.
Views	Number of views your content gets on social media channels.

Social Media Dashboards, for the period November 2020 – February 2022, were also created using the Google Data Studio Platform, using input derived from the individual social media platforms. The following Sections present these dashboards for the period of the first 16 project months.

The Social Media Dashboards consist of both dedicated period statistics and total statistics referring to the period from the beginning of the project. The information provided is focused on key performance indicators, personalized for each of the social media, stating the advancements made through the reporting period and indicating the weaknesses and points of improvement that require further attention.

For direct access to the Social Media Dashboards for the respective 16-month period of time, please visit the links provided in the following table.

*Table 5. Social Media Dashboards Links*

#	Communication Channel	Link to Social Media Statistical Dashboards (M1-M16)
1	<b>LinkedIn</b>	<a href="https://datastudio.google.com/reporting/f12af905-6d81-4c46-aa3d-9b83ecd352dc">https://datastudio.google.com/reporting/f12af905-6d81-4c46-aa3d-9b83ecd352dc</a>
2	<b>Twitter</b>	<a href="https://datastudio.google.com/reporting/92515ba0-be92-43a4-b60a-af484b96a961">https://datastudio.google.com/reporting/92515ba0-be92-43a4-b60a-af484b96a961</a>
3	<b>Facebook</b>	<a href="https://datastudio.google.com/reporting/e12309d7-50ab-44c6-b40f-f812387756f5">https://datastudio.google.com/reporting/e12309d7-50ab-44c6-b40f-f812387756f5</a>
4	<b>Instagram</b>	<a href="https://datastudio.google.com/reporting/cfcca9bc-ea70-493c-af43-21901240d3d2">https://datastudio.google.com/reporting/cfcca9bc-ea70-493c-af43-21901240d3d2</a>

- **ASSIST-IoT LinkedIn account activity and statistics**

LinkedIn is the world's most popular professional and business networking website. It is a powerful social networking platform that allows the consortium to effectively promote ASSIST-IoT accomplishments in the IoT sector and contact with key businesses and professions. ASSIST-IoT LinkedIn account (<https://www.linkedin.com/in/assist-iot-project>), keeps growing by distributing project's activities, objectives findings and material from relevant projects and associations to the LinkedIn connections/audience.

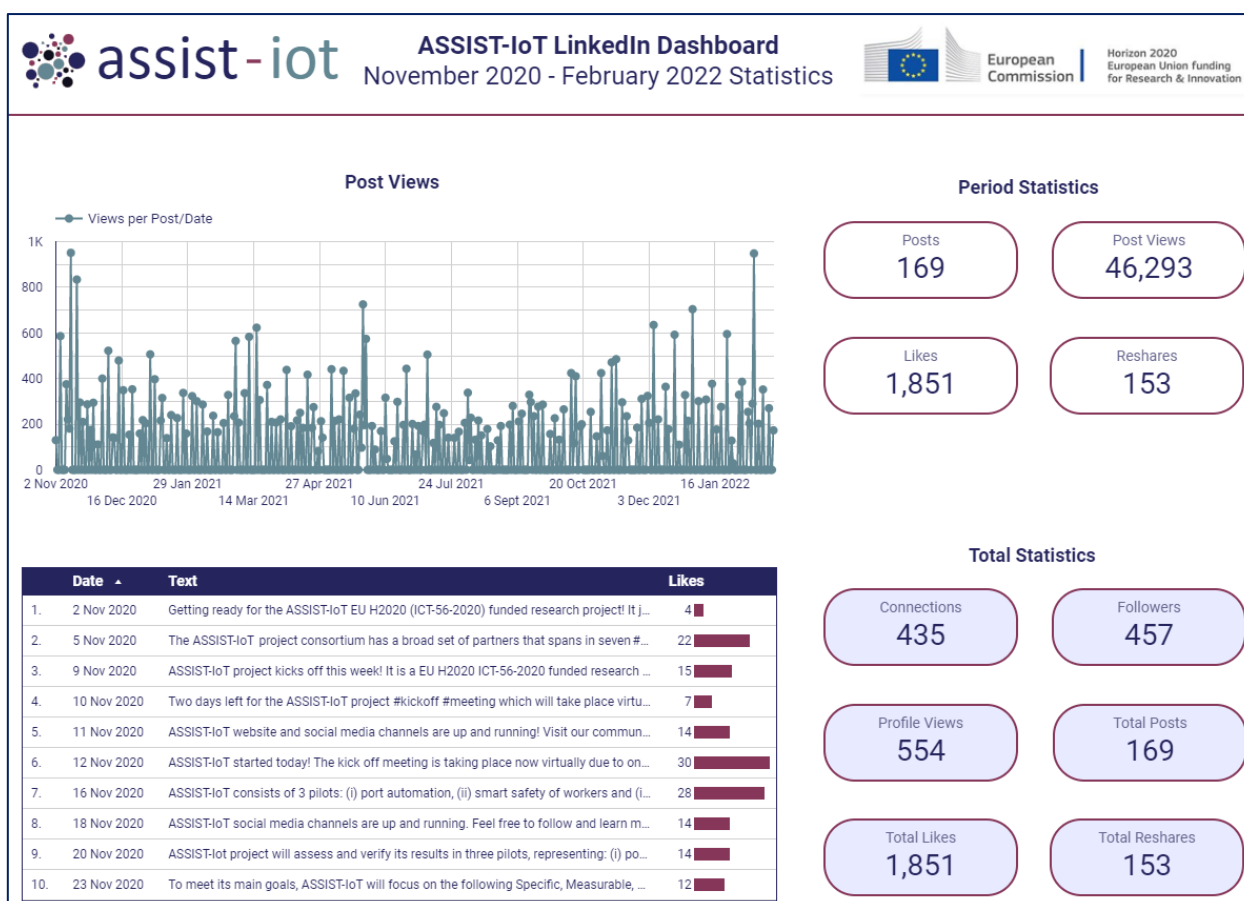


Figure 12. LinkedIn Dashboard

The ASSIST-IoT LinkedIn Statistical Dashboard is presented in Figure 12. During the first 16-month project period, the LinkedIn account has posted a total of 169 posts, achieved 435 connections and 457 followers. Likes per post vary, depending on the content and its views. In terms of total number of likes, the LinkedIn posts received account 1,851 likes, more than 46,000 views, and 153 reshares.

For the purpose of this deliverable, INFOLYSiS communication team has also created a set of bar-plots indicating the number of posts, as well as the followers accumulated with respect to the project months. The aim of these bar plots is to show the trend, as to how quickly each of the social media accounts accumulates followers, indicated the continuous interest of the broader community to join the ASSIST-IoT one. The constant and consistent number of posts per month indicates the continuous presence in the social media platform that is to create impact to the highest level possible.

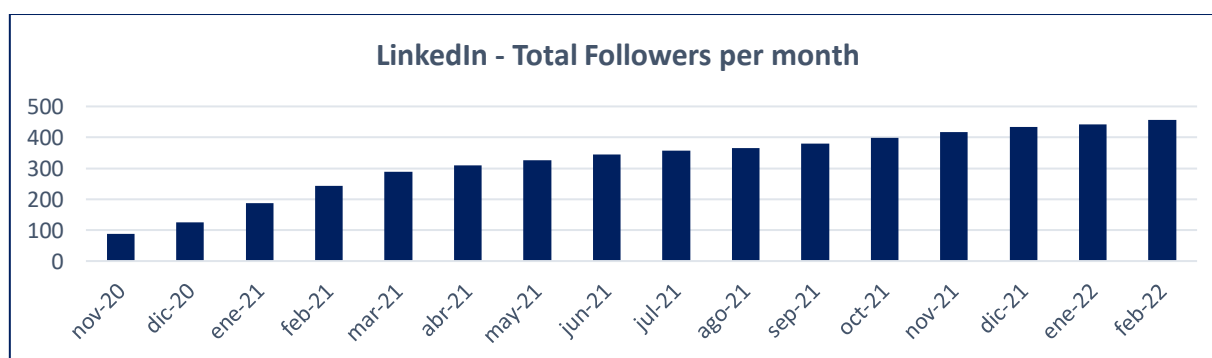


Figure 13. LinkedIn total followers per month

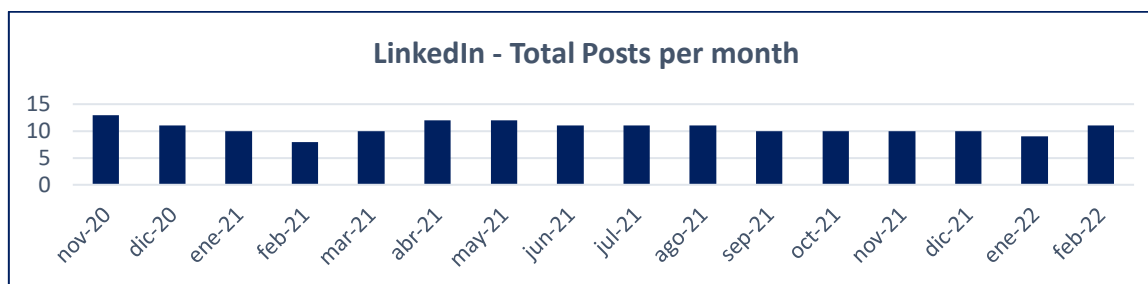


Figure 14. LinkedIn total posts per month

Figure 13 and Figure 14 show both the total followers and the number of posts per month. More specifically, regarding the number of followers, a positive rate of change is noted, indicating a continuous increase of the ASSIST-IoT broader community. On the other hand, the number of posts for the LinkedIn account ranges around an average of 11 posts per month. However, it can be observed that the number of posts varies between project months, due to differences in reportable project's activities.

#### • ASSIST-IoT Twitter account activity and statistics

Twitter is well known for its direct and informative orientation. That is why it is very useful for the promotion of ASSIST-IoT activities to the public and for expanding its global reach and effectiveness. The ASSIST-IoT Twitter account (<https://twitter.com/AssistIoT>) provides a short outline of the project, and information on the number of followers, tweets, etc. ASSIST-IoT uses Twitter account for communicating its activities, events and collaborations. It is a channel that is very active by resharing material and activities from relevant associations and projects.

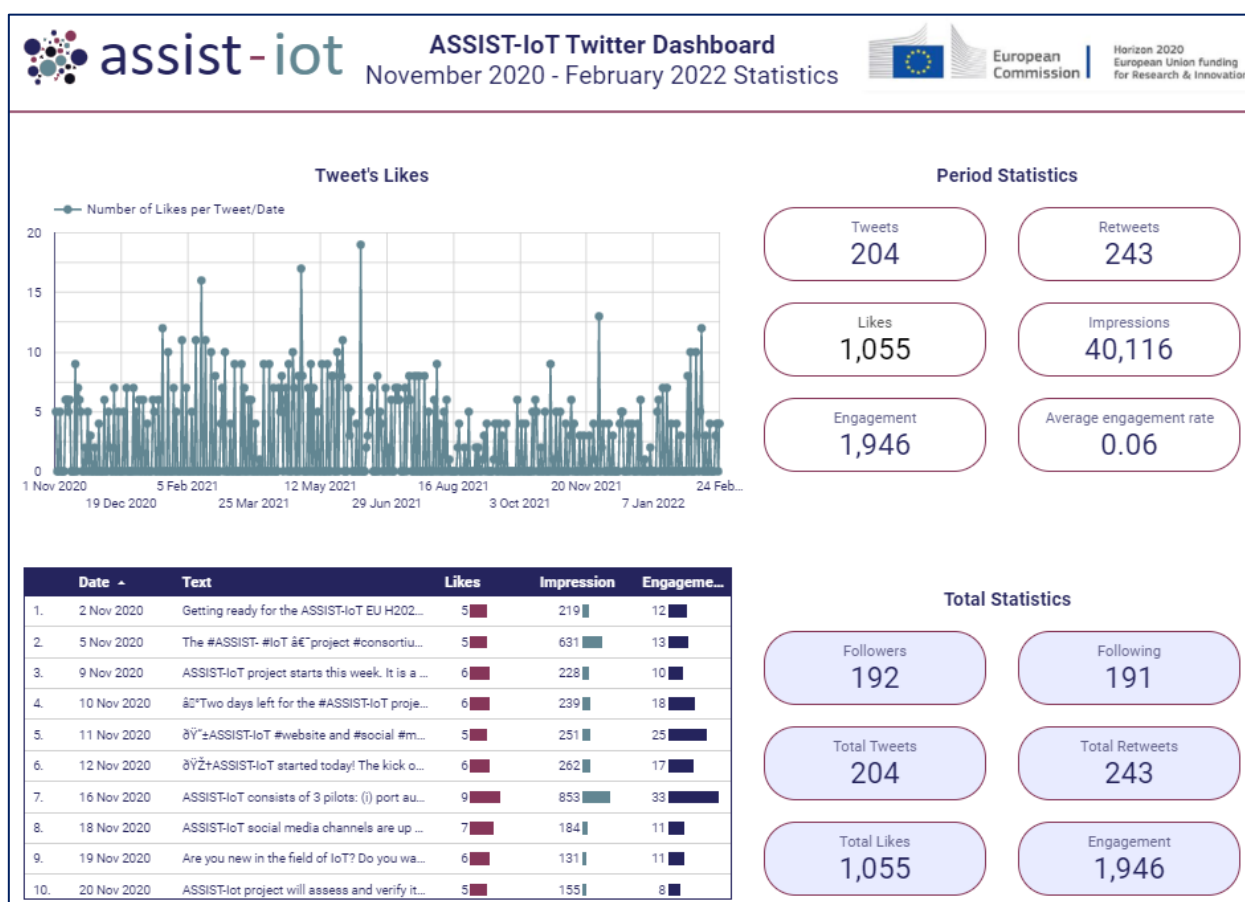


Figure 15. Twitter Dashboard

The ASSIST-IoT Twitter account follows a promising course, accumulating 192 followers and more than 1,000 likes for the 204 tweets. Likes per post vary according to the content, the reach, and engagement it accumulates, while the presence of retweets is also worth noting.

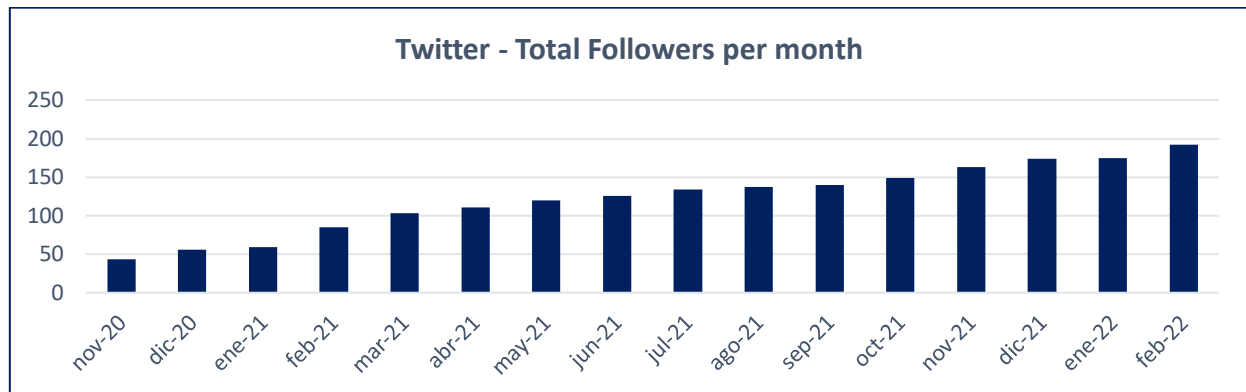


Figure 16. Twitter total followers per month

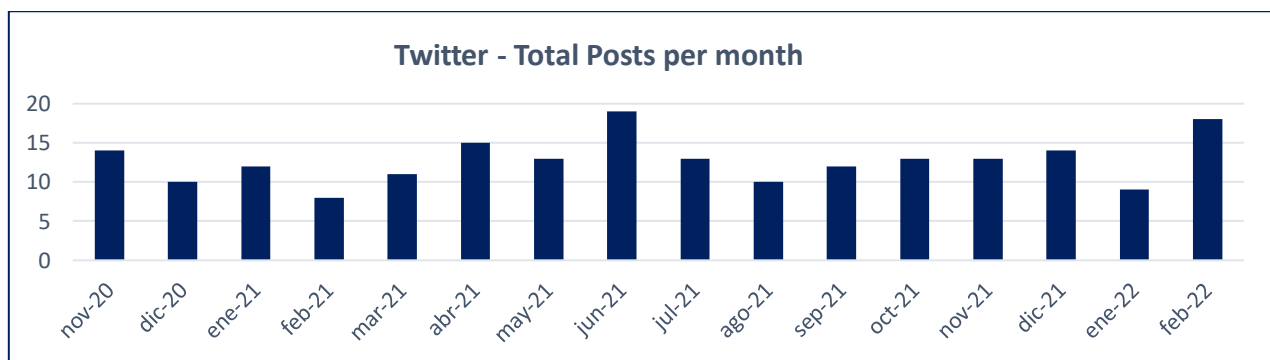


Figure 17. Twitter total posts per month

The ASSIST-IoT Twitter account follows a similar course as the LinkedIn one. More specifically, the number of followers continues to systematically increase each month building a significant Twitter community (Figure 16). On the other hand, the number of posts varies between different months according to the activities that have been completed during specific timeframe (Figure 17).

- **ASSIST-IoT Facebook account activity and statistics**

ASSIST-IoT project is also present in Facebook. For ASSIST-IoT, Facebook account is used as a medium for "more general interest" material sharing. Its massive use and its high popularity led the consortium to create a dedicated page for the project, in order to link its findings with the broadest possible audience. Browsing the Facebook page of ASSIST-IoT (<https://www.facebook.com/assistiot>), users can be updated with the latest information about project initiatives.

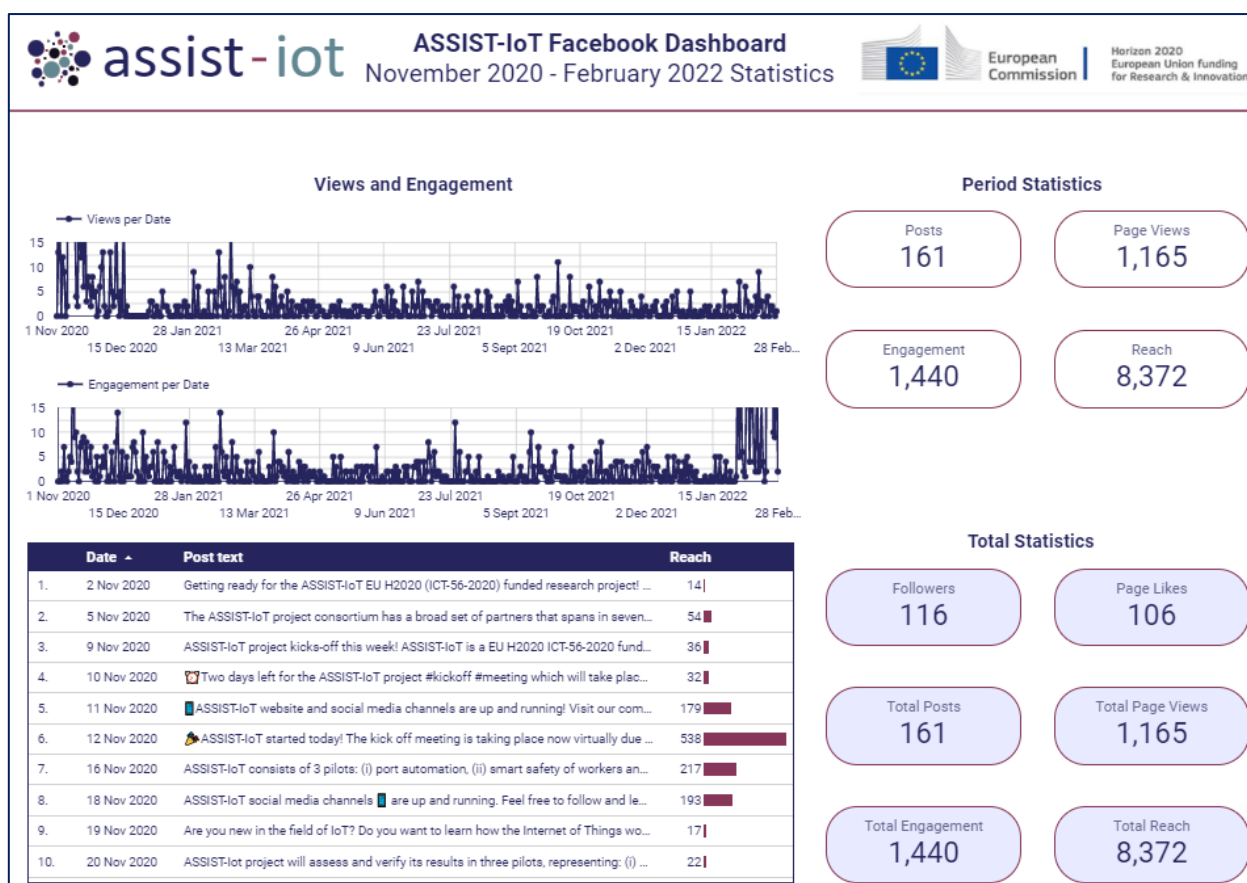


Figure 18. Facebook Dashboard

The ASSIST-IoT Facebook Dashboard is presented in Figure 188. During the period November 2020 – February 2022 the Facebook account has posted 161 times, receiving a total of 1,440 and 8,372 in terms of engagement and reach accordingly. While the page has 116 followers and 106 likes, it has attracted more than 1,000 views.

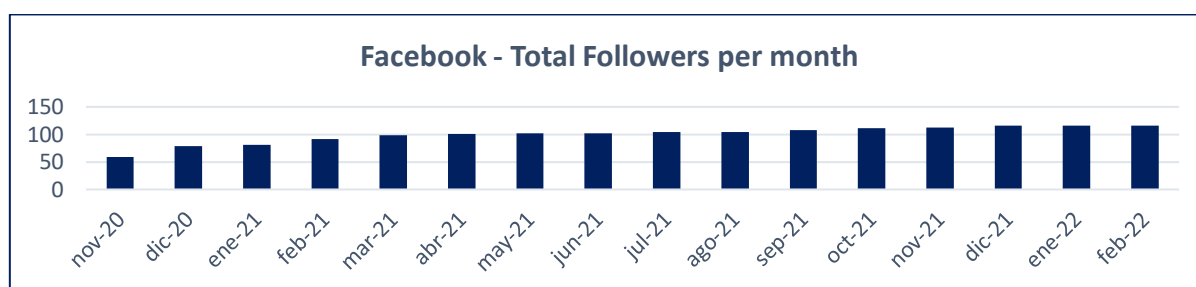


Figure 19. Facebook total followers per month

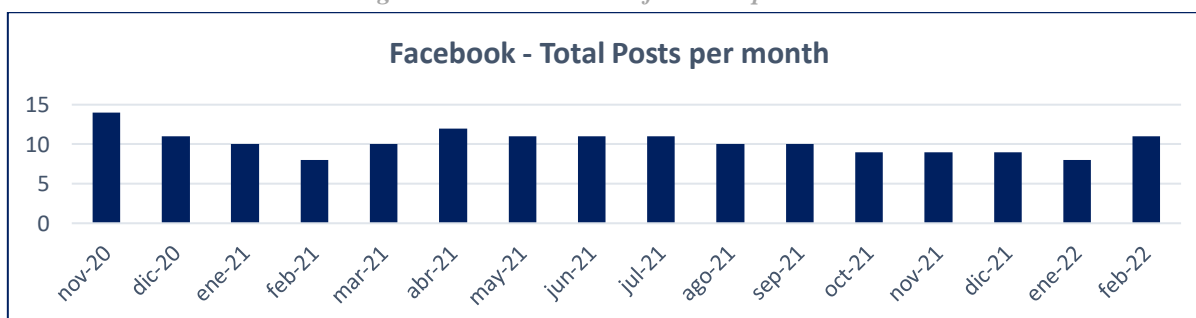


Figure 20. Facebook total posts per month



In Figure 19 and Figure 20 the posts and followers according to the project reporting months for the ASSIST-IoT Facebook account are presented. The number of followers, in this case, shows a significant positive rate of change during the first project months. That was expected, because Facebook attracts mostly non-technical audience and as the project advances the interested scientific community focuses on following the advancements in social media such as LinkedIn and Twitter. On the other hand, the number of posts it ranges around 11 posts per month, it varies according to the project activities during the respective month that are being reported.

- **ASSIST-IoT Instagram account activity and statistics**

Instagram is the most famous and effective way to visualise and create the identity of the project. ASSIST-IoT Instagram account (<https://www.instagram.com/assistiot/>) takes advantage of this situation by posting images featuring the project work and achievements, relevant material and reaching new audiences for enhancing the impact of performed dissemination and communication activities. This form of content offers the chance to make posts more lightweight, visually targeted and to the point, with more focus on the visual elements (such as photos, videos) and less on the textual content. Also, in order to enhance, the open call strategy INFOLYSiS partner added in it's bio a Linktree link, which connects it with the other social media links and a dedicated link for the open call.

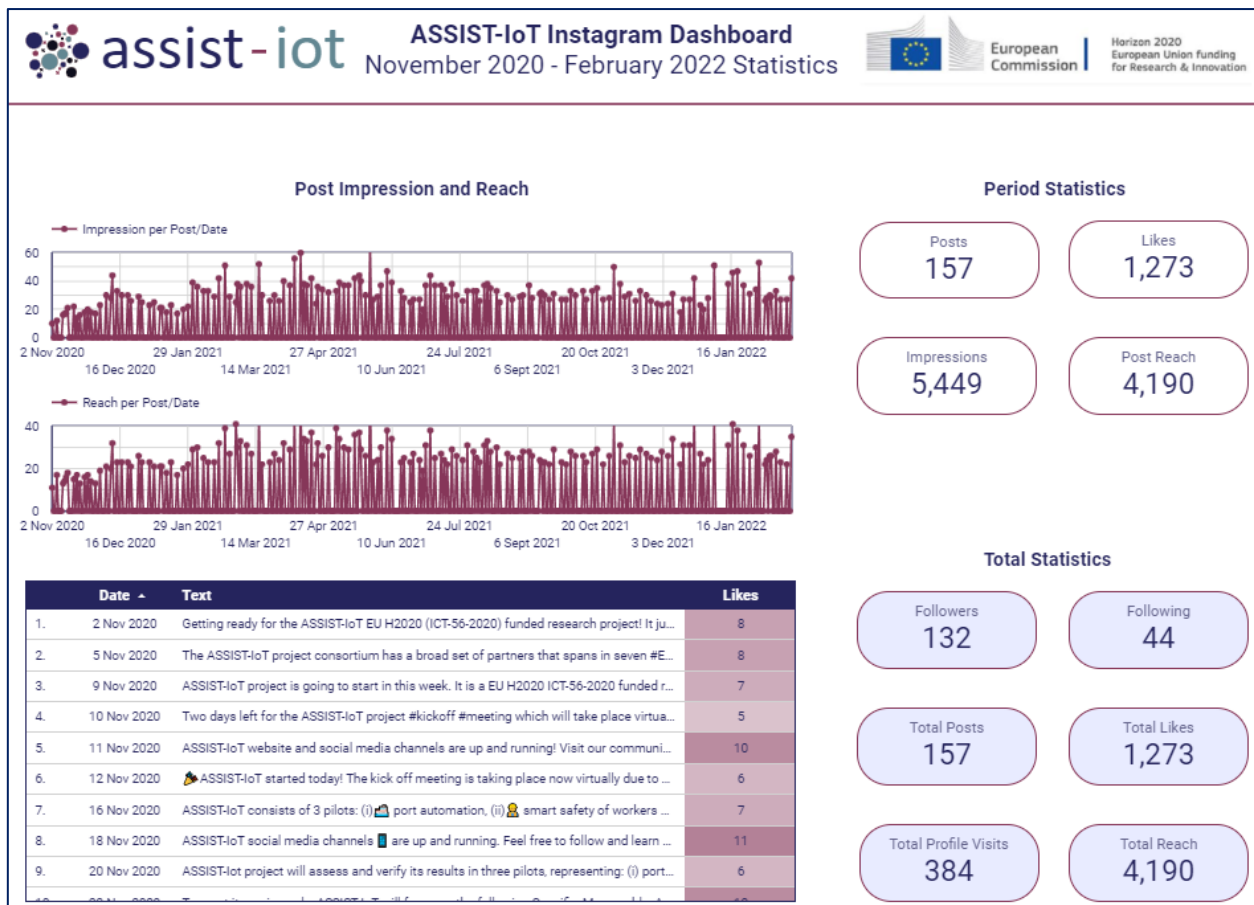


Figure 21. Instagram Dashboard

Last but not least, we have the Instagram Dashboard presented in Figure 21. For the respective period, the account has shared 157 posts receiving a total of 1,273 likes. The likes, reach, and engagement with respect to each post differ according to each content while the post dates affect, to some extent, the achieved numbers. Important is also to note the number of page views, which continues to be significant even if the number of followers (132) tends to not increase in a high rate. In the context of the latest, one needs to take into account the “nature of the Instagram audience”. Currently, Instagram is used mostly by “less technical” (entertainment



oriented) audience. Hence, even though Instagram posts have been prepared with such audience in mind, this communication channel is considered to be “least important” among all communication channels.

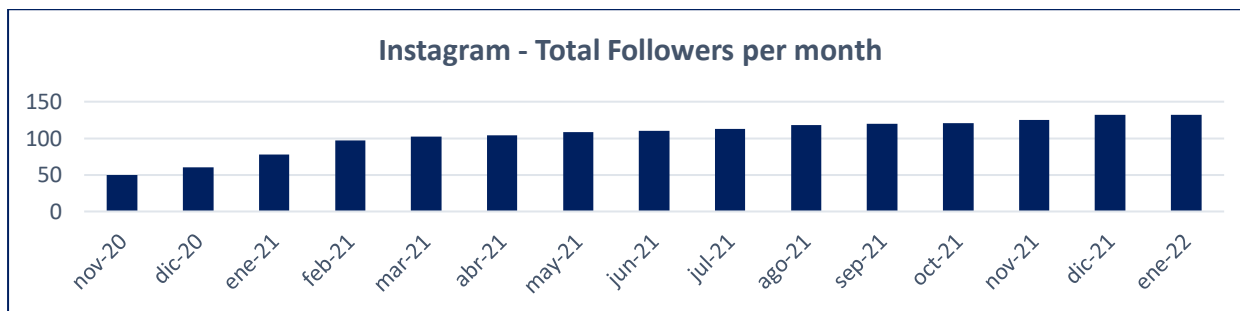


Figure 22. Instagram total followers per month

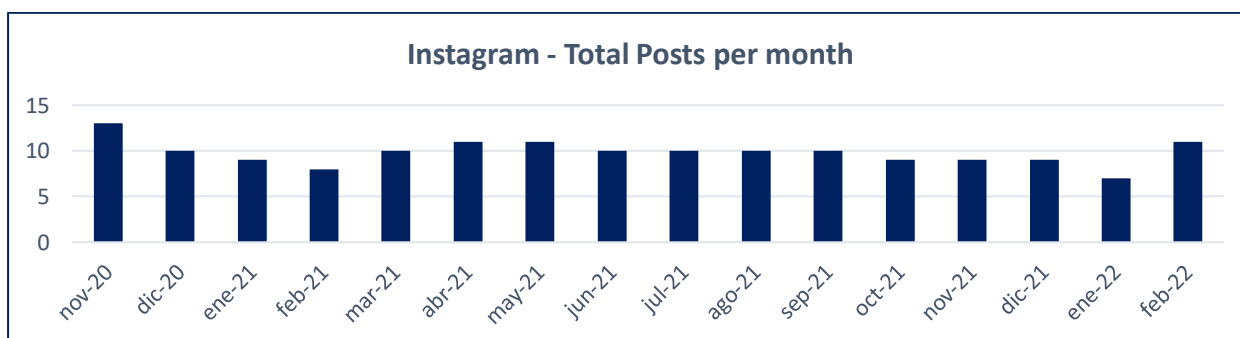


Figure 23. Instagram total posts per month

Similarly to the previous channels, the ASSIST-IoT Instagram account continues to attract more and more stakeholders (mainly non-technical audience, due to the nature of this channel). The number of followers continuously increases with a small but positive rate of change. The number of posts per month ranges around 10, with small deviations due to differences in the intensity of reportable project activities.

#### • ASSIST-IoT YouTube channel activity and statistics

YouTube is one of the best video platforms of the internet. The ASSIST-IoT YouTube channel (<https://www.youtube.com/channel/UC8Sedd5UyB8R61d9YDkkeGg>) is updated regularly with videos since it is used for promoting and showcasing the project events. YouTube channel is already used to share videos from workshops/webinars and presentations. Up to February 2022 (M16), 4 videos have been released and 37 subscribers attracted with a total of 209 views (Table 6).

Table 6. YouTube Statistics

<b>Videos</b>	4 videos
<b>Subscribers</b>	37 subscribers
<b>Views</b>	209 video views

## 2.2.2 ASSIST-IoT Newsletter

The newsletter is an additional means for communicating ASSIST-IoT project activities. The ASSIST-IoT newsletter is released on a quarterly basis sharing information and details of activities related to the project, related organizations (e.g., NGIoT), deliverables and plenary meetings. Every newly released issue is uploaded in the **Newsletter** webpage (<https://assist-iot.eu/newsletters/>) and communicated in all social media channels of

the project. All the issues of the ASSIST-IoT newsletter remain available in the **Newsletter** webpage and can be accessed by anyone. Up to now, 5 **ASSIST-IoT newsletter issues** have been released. One more Newsletter issue is planned to be released after 2022 Easter Holiday period (note that consortium make-up is such that both Easter Holidays are being celebrated). It will be available for the M18 review.

*Table 7. Newsletter Issues*

Issue	Period	Link
1	November 2020 – January 2021	<a href="https://assist-iot.eu/wp-content/uploads/2021/02/ASSIST-IoT-Newsletter-Issue-1.pdf">https://assist-iot.eu/wp-content/uploads/2021/02/ASSIST-IoT-Newsletter-Issue-1.pdf</a>
2	February – April 2021	<a href="https://assist-iot.eu/wp-content/uploads/2021/05/ASSIST-IoT-Newsletter-Issue-2.pdf">https://assist-iot.eu/wp-content/uploads/2021/05/ASSIST-IoT-Newsletter-Issue-2.pdf</a>
3	May – July 2021	<a href="https://assist-iot.eu/wp-content/uploads/2021/08/ASSIST-IoT-Newsletter-Issue-3.pdf">https://assist-iot.eu/wp-content/uploads/2021/08/ASSIST-IoT-Newsletter-Issue-3.pdf</a>
4	February – April 2021	<a href="https://assist-iot.eu/wp-content/uploads/2021/11/ASSIST-IoT-Newsletter-Issue-4.pdf">https://assist-iot.eu/wp-content/uploads/2021/11/ASSIST-IoT-Newsletter-Issue-4.pdf</a>
5	November 2020 – January 2021	<a href="https://assist-iot.eu/wp-content/uploads/2022/02/ASSIST-IoT-Newsletter-Issue-5.pdf">https://assist-iot.eu/wp-content/uploads/2022/02/ASSIST-IoT-Newsletter-Issue-5.pdf</a>

### 2.2.3 ASSIST-IoT Posters and Leaflets

Posters and leaflet version give a brief overview about the project, by sharing information and visualizing project details, the partners information, objectives and pilots. The posters and the leaflets have been created for both physical and digital use. However, due to the COVID-19 pandemic, still existing during the reported period, in most events/cases, the digital ones has been proved more useful. Up to now, in the context of the ASSIST-IoT project, 1 poster in two different sizes ([A1](#) & [A2](#)) and 3 different leaflet versions (version [1](#), [2](#) & [3](#)) have been created. All the poster and leaflet versions can be found in the **Dissemination** webpage here: <https://assist-iot.eu/dissemination/>

### 2.2.4 ASSIST-IoT Digital Communication pack

On an annually basis, the INFOLYSiS team releases on the website a digital communication pack (file) containing in digital format all the communication material of the period. In specific, it consists of all period released leaflets, posters, newsletter issues and technical reports. This annual communication package is provided online in a downloadable zip file in the **Dissemination** webpage (<https://assist-iot.eu/dissemination/>). Up to now the 1<sup>st</sup> years communications package has been uploaded to the website.

### 2.2.5 ASSIST-IoT Open Call Communication, webpages, posts, and webinars

The Open Call is a vital activity for the ASSIST-IoT success. In that manner the communication plan of the project had to be adopted and adjusted accordingly. The ASSIST-IoT 1<sup>st</sup> Open Call communication was divided into three different phases. The first one was the announcement phase (October 2021), the second one was the main phase (November 2021 till the end of February 2022) where all the attention was to raise awareness and attract potential candidates to submit their proposals, and the third one (March 2022 and on) is the communication of the results and will be devoted to reporting activities of the accepted proposals.

For each one of these phases, ASSIST-IoT has followed a specific communication plan. A more detailed plan of the ASSIST-IoT open call communication (during realization phase) will be summarized in D2.11 (M20). However, it is of utmost importance to refer some details about the open call communication plan. The first step, in order to have a consistent and consolidated open call communication plan, was the creation of a dedicated open call webpage (<https://assist-iot.eu/open-call-1/>). Since the middle of October 2021, this webpage was live, sharing all the related information and documents about the open call. On this webpage, any interested stakeholder could find information about the open call timeline, the challenges, the eligibility and the funding

criteria. Also, there were four distinct buttons for downloading/accessing related material and forms (the template, the guide, the contact and the submission). Apart from the dedicated open call webpage, INFOLYSiS team, in collaboration with UPV, has created a special Open Call frequently asked questions (FAQ) Webpage (<https://assist-iot.eu/open-call-faq/>). There, any interested stakeholder could find 14 answered questions that could have responded to several queries that might have come to the surface when the potential applicants worked on preparing their proposals.

The Open Call communication plan was not limited to the website update only. In order to achieve the maximum visibility for the Open Call additional means and channels were found. For this purpose, ASSIST-IoT project followed a new approach on social media channels. Since the Open Call announcement (October 2021) up to its closing (February 2022) the social media channels of the project were fueled with posts related to the Open call. These posts were done on a weekly basis in all social media channels of the project. They were aimed at triggering interest across the broadest relevant audience. Trying to create a community around the Open Call social media posts have been enriched with related hashtags such as #ASSISTIoTOpenCall #opencall and mention of related organizations and other ICT-56 projects with open call procedures like @IoTNgin @VEDLIoT @Intelliot\_eu, @Terminet\_H2020 and NGIoT.



Figure 24. Social Media post example

In order to have an enhanced image of the Open Call, INFOLYSiS team has prepared several images in order to visualize in the best possible way the Open Call branding and communication. Besides, the social media actions, several presentations in different events took place trying to inform and attract potential candidates. In total concerning the ASSIST-IoT 1<sup>st</sup> Open Call, 6 OC related presentations have been made in 6 different events, 1 Open Call webinar with the support of NGIoT organized, and one more webinar was also organised with the BRAINE project, targeting its stakeholders. The aim of the webinar was to bridge the administrative gap between the potential candidates and the Open Call management. Furthermore, it is very useful to mention that the ASSIST-IoT Open Call and the Open Call webinar have been communicated in the NGIoT association ([www.ngiot.eu/event/assist-iot-open-calls/?instance\\_id=173](http://www.ngiot.eu/event/assist-iot-open-calls/?instance_id=173)) website and in the NGIoT newsflashes (<https://mailchi.mp/0c511056ea51/ngiot-newsflash-november2021>).

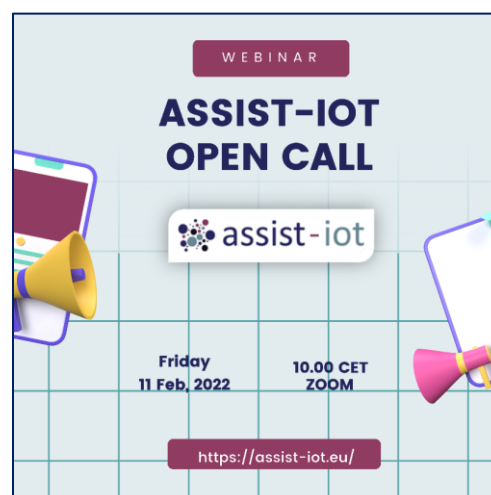


Figure 25. ASSIST-IoT Open Call related image

Finally, as an indivisible part of the Open Call communication was circulation of Open Call invitations to several mailing lists and other related projects such as the 5GPPP communication working groups and the SME working groups.

## 2.2.6 Events

During this reporting period, ASSIST-IoT project has participated/attended multiple events, some of which are being considered as being important for the project's efficient communication and impact creation through the wide communication of its objectives, activities, and results. Any interested stakeholder may access all the past events attended at <https://assist-iot.eu/past-events/> and all the future events for which ASSIST-IoT participation is planned at <https://assist-iot.eu/upcoming-events/>. Up till early March 2022, ASSIST-IoT has participated in, and attended, 40 events.

*Table 8. Past Events*

#	Event	Date
1	5th International Conference on Computer Science and Computational Intelligence (ICCSCI)	November 2020
2	5th IEEE International Conference on Recent Advances and Innovations in Engineering	December 2020
3	International Conference on Research in Management and Technovation, virtual	December 2020
4	2nd International Conference On Machine Learning, Advances in Computing, Renewable Energy and Communication (MARC2020)	December 2020
5	The 8th International Conference on Big Data Analytics (BDA 2020)	December 2020
6	3rd International Conference on Smart Systems: Innovations in Computing	January 2021
7	ASSIST-IoT online Webinar-Workshop "Towards Market Review"	18 January 2021
8	National Seminar, The West Pomerania School of Business	January 2021
9	Next-Generation IoT and Edge Computing Strategy Forum	22 April 2021
10	Next Generation Internet of Things – NGIoT Thematic Workshop: Manufacturing	27 April 2021
11	International Conference on Computational Science – ICCS 2021	30 April 2021
12	6th International Conference Information, Communication & Computing Technology – ICICCT-2021	8 May 2021
13	International Conference on Paradigms of Communication, Computing and Data Sciences – PCCDS 2021	7-9 May 2021
14	2021 IEEE International Conference – Emerging Trends in Industry 4.0 – (IEEE ETI 4.0)	19 May 2021
15	NGIoT/EU-IoT Training Workshops Series: AIoT and Edge Machine Learning	21 May 2021
16	NextSecure, the annual cybersecurity event of S21sec, celebrated its XXIII edition focused on Offensive Security	9 June 2021
17	IntelliIoT Event: Human-in-the-Loop – the Key to Successful AI webinar	15 June 2021
18	HORIZON CLOUD Community event: Open Source initiatives for Cloud Computing	15 June 2021
19	NGIoT Thematic Workshop: Automotive industries and mobility	15 June 2021
20	BDACS 2021 International Conference on Big Data Analysis and Computer Science	25-27 June 2021
21	NGIoT Training Workshop Series: Enabling the Tactile Internet with IoT	8 July 2021
22	Engine and Powertrain Control, Simulation and Modeling (E-COSM 2021)	August 23-25, 2021

23	EU-IoT IDEathon/Hackathon 2021/22 IoT Edge Computing	30 August 2021
24	NGIoT Open Calls workshop, IoT Week session	30 August 2021
25	IoT Week	30 August – 3 September 2021
26	NGIoT – Workshop on IoT and Edge Computing Research and Standardisation Convergence	13-14 September 2021
27	16th International Conference on Parallel Computing Technologies (PaCT-2021)	13-18 September, 2021
28	EU-IoT WP3 Standardisation and Open-source meeting	15 September 2021
29	9th annual edition of Sustainable Places (SP2021)	29 September-1 October 2021
30	EU-IoT Training Workshops Series: Next Generation IoT Architectures	9 November 2021
31	5th IEEE International Conference on Distributed Computing, VLSI, Electrical Circuits and Robotics (2021 IEEE DISCOVER)	20 November 2021
32	European Big Data Value Forum 2021	29 November 2021 – 3 December 2021
33	6th International Conference and Workshops on Recent Advances and Innovations in Engineering – ICRAIE 2021	1 December 2021
34	ECTP Conference	2-3 December 2021
35	IEEE GLOBECOM 2021	7-11 December, 2021
36	BRAINE and ASSIST-IoT joint workshop	14 January 2022
37	IoT Tribe webinar	7 February 2022
38	NGIoT Training Workshop: Decentralizing IoT Intelligence using Distributed Ledger Technologies	7 February 2022
39	NGIoT ASSIST-IoT OC webinar	11 February 2022
40	2022 International conference on Advanced Computing and Intelligent Technologies (ICACIT 2022)	12 March 2022

## 2.2.7 NGIoT & Interaction with other projects

The Next Generation IoT association is an initiative, which brings together projects from the IoT sector and, especially, the ICT-56 ones. Its main goal is to create a dedicated IoT oriented ecosystem that will help each project to reach its goals, promote its work and distribute funding opportunities. In order to achieve this goal, it offers a variety of communication and dissemination opportunities. For instance, every project has its own dedicated webpage (ASSIST-IoT: <https://www.ngiot.eu/assist-iot/>) and, on a regular basis, NGIoT releases newsflashes and newsletters (<https://www.ngiot.eu/newsletter/>) with project related activities. The most important action that leads to the creation of a community between the IoT projects is the Training Workshops Series. Here, workshops are organized under the supervision of the EU-IoT project. In these sessions, presenters from all projects share findings and data from their projects, cultivating an atmosphere of collaboration and progress. In order to control and facilitate project activities NGIoT organizes, on monthly basis, a Communication Task Force meeting, during which project representatives share the status and the recent communication and dissemination activities.

A tentative list of the ASSIST-IoT participation in NGIoT activities:

- NGIoT Communication task force meetings: **11 meetings**
- ASSIST-IoT presented in NGIoT Newsflash issues: **6 times/issues**
- ASSIST-IoT presented in NGIoT Newsletter issues: **3 issues**
- ASSIST-IoT contributions to NGIoT/EU-IoT White Papers: **2 white papers**
- ASSIST-IoT promoted through NGIoT Website (News posts, articles etc.): **8 news posts**
- ASSIST-IoT Presentations in NGIoT events: **11 presentations**
- NGIoT/EU-IoT Events attended/participated: **12 events**

Apart from, the NGIoT interactions, ASSIST-IoT project has collaborated with other projects and organisations such as DataPorts (<https://dataports-project.eu/new-collaborations-with-other-projects/>), Alice association (<https://www.etp-logistics.eu/projects/>), FogGuru, Big Data Value Association – BDVA (<https://www.youtube.com/watch?v=mx4GchU9OsM>), IoT Tribe, InGenius and Braine IoT projects.

Specifically, the following joint activities took place:

- ASSIST-IoT and InGenious projects Call for Paper for the workshop “1st edition of Human Centric and Tactile IoT”, IEEE GLOBECOM 2021, Madrid, Spain
- ASSIST-IoT & ALICE collaboration announcement (<https://www.etp-logistics.eu/projects/>)
- ASSIST-IoT & DataPorts collaboration announcement (<https://dataports-project.eu/new-collaborations-with-other-projects/>)
- ASSIST-IoT Presentation in Big Data Value Association – BDVA (<https://www.youtube.com/watch?v=mx4GchU9OsM>)
- ASSIST-IoT & FogGuru / Horizon Results Booster group of the project FogGuru
- ASSIST-IoT & Braine Project Joint Workshop (open call presentation)
- BRAINE and ASSIST-IoT joint workshop “ASSIST-IoT Open Call”, internal to the two consortiums
- IoT Tribe and ASSIST-IoT Open Call Webinar focused on OC details, eligibility criteria, evaluation details and submission procedure,

## 2.2.8 Summary of Communication Activities (M1-M16)

Overall, material presented in Table 9; **Error! No se encuentra el origen de la referencia.** quantitatively summarises ASSIST-IoT communication-related actions, performed during the period M1-M16.

*Table 9. Summarised Activities*

Mean	Channel/Session	URL	Activity M1-M16
Website	News	<a href="https://assist-iot.eu/blog/">https://assist-iot.eu/blog/</a>	85
	Publications	<a href="https://assist-iot.eu/publications/">https://assist-iot.eu/publications/</a>	12
	Articles	<a href="https://assist-iot.eu/articles/">https://assist-iot.eu/articles/</a>	8
	Press Releases	<a href="https://assist-iot.eu/press-releases/">https://assist-iot.eu/press-releases/</a>	10
	Website Visitors		<b>3,669</b>
	Website Page Views		<b>18,916</b>
Social Media	Facebook	<a href="https://www.facebook.com/assistiot">https://www.facebook.com/assistiot</a>	Followers: 116 Posts: 161
	Twitter	<a href="https://twitter.com/AssistIoT">https://twitter.com/AssistIoT</a>	Followers: 192 Posts: 204
	LinkedIn	<a href="https://www.linkedin.com/in/assist-iot-project-27a1431b9/">https://www.linkedin.com/in/assist-iot-project-27a1431b9/</a>	Followers: 457



			Posts: 169
	Instagram	<a href="https://www.instagram.com/assistiot/">https://www.instagram.com/assistiot/</a>	Followers: 132 Posts: 157
	YouTube	<a href="https://www.youtube.com/channel/UC8Sedd5UyB8R6ld9YDkkeGg">https://www.youtube.com/channel/UC8Sedd5UyB8R6ld9YDkkeGg</a>	37 Subscribers
	<b>Total Followers</b>		<b>934</b>
	<b>Total Posts</b>		<b>691</b>
Leaflets	Website	<a href="https://assist-iot.eu/dissemination/">https://assist-iot.eu/dissemination/</a>	3
Posters	Website	<a href="https://assist-iot.eu/dissemination/">https://assist-iot.eu/dissemination/</a>	2 (A1 & A2 sizes)
Newsletters	Website/Social Media	<a href="https://assist-iot.eu/newsletters/">https://assist-iot.eu/newsletters/</a>	5
Communication Pack	Website	<a href="https://assist-iot.eu/dissemination/">https://assist-iot.eu/dissemination/</a>	1 (1 <sup>st</sup> Year)

### 3. Dissemination

In deliverable D9.1, the overall approach to dissemination and showcasing activities has been presented. Here, let us note that showcasing is understood, primarily, as presenting project results in the industrial/business (fair) context. Since COVID-19 pandemics has stopped majority of such activities (for the time being, business exhibits are, for all practical purposes, wiped out of existence), this section will focus on scientific dissemination activities. The assessment of showcasing activities in the remaining month of the project is presented in Section 5, jointly with discussion of other updates to the planned activities in the areas of communication, dissemination, showcasing and exploitation.

As far as predicted dissemination activities, Means of Dissemination have been discussed in deliverable D9.1, Section 3.1. Next, in Section 3.2., Dissemination Targets and Timeline have been discussed. Finally, in Section 3.3. Dissemination Plan and Strategy have been presented. Since deliverable D9.1 has been accepted, this material will not be repeated here.

Overall, in principle, all considerations summarized in D9.1 and D9.2 remain valid. However, COVID-19 pandemics has affected some specifics of ways of realizing the goals and reaching original targets. These will be discussed in what follows.

#### 3.1. Conference and Journal Publications

Let us now summarize details of dissemination activities. In Table 10, two journal publications are reported.

*Table 10. Journal papers*

#	Journal Papers	Link
1	Modelling and Evaluation of the Absorption of the 866 MHz Electromagnetic Field in Humans Exposed near to Fixed I-RFID Readers Used in Medical RTLS or to Monitor PPE, Sensors 2021, Vol.21(12), pp.4251	<a href="https://www.mdpi.com/1424-8220/21/12/4251">https://www.mdpi.com/1424-8220/21/12/4251</a>

2	DevSecOps Methodology for NG-IoT Ecosystem Development Lifecycle – ASSIST-IoT perspective, Journal of Computer Science and Cybernetics, 37(3):321-33, Sept 2021	<a href="https://vjs.ac.vn/index.php/jcc/article/view/16245">https://vjs.ac.vn/index.php/jcc/article/view/16245</a>
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In Table 11, details of 9 Technical Reports, produced thus far, have been provided.

*Table 11. Technical Reports*

#	Technical Reports-Conference papers	Link
1	César López, Ignacio Lacalle, Andreu Belsa, Zbigniew Kopertowski, Carlos E. Palau, Manuel Esteve, “Reviewing SDN adoption strategies for Next Generation Internet of Things networks”	<a href="https://assist-iot.eu/wp-content/uploads/2021/02/ASSIST-IoT-Technical-Report-1-Reviewing-SDN-adoption-strategies-for-Next-Generation-Internet-of-Things-networks.pdf">https://assist-iot.eu/wp-content/uploads/2021/02/ASSIST-IoT-Technical-Report-1-Reviewing-SDN-adoption-strategies-for-Next-Generation-Internet-of-Things-networks.pdf</a>
2	Piotr Niedziela, Anastasiya Danilenka, Dominik Kolasa, Maria Ganzha, Marcin Paprzycki, Kumar Nalinaksh, “Sunday-FL – Developing Open Source Platform for Federated Learning”	<a href="https://assist-iot.eu/wp-content/uploads/2021/05/ASSIST-IoT-Technical-Report-2-Sunday-FL%E2%80%93Developing-Open-Source-Platform-for-Federated-Learning.pdf">https://assist-iot.eu/wp-content/uploads/2021/05/ASSIST-IoT-Technical-Report-2-Sunday-FL%E2%80%93Developing-Open-Source-Platform-for-Federated-Learning.pdf</a>
3	Ignacio Lacalle, Cesar Lopez, Rafael Vano, Carlos E. Palau, Manuel Esteve, Maria Ganzha, Marcin Paprzycki, Pawel Szmaja, “Tactile Internet in Internet of Things Ecosystems”	<a href="https://assist-iot.eu/wp-content/uploads/2021/05/ASSIST-IoT-Technical-Report-3-Tactile-Internet-in-Internet-of-Things-Ecosystems.pdf">https://assist-iot.eu/wp-content/uploads/2021/05/ASSIST-IoT-Technical-Report-3-Tactile-Internet-in-Internet-of-Things-Ecosystems.pdf</a>
4	Kumar Nalinaksh, Piotr Lewandowski, Maria Ganzha, Marcin Paprzycki, Wiesław Pawłowski, and Katarzyna Wasielewska-Michniewska, “Implementing autonomic Internet of Things ecosystems – practical considerations”	<a href="https://assist-iot.eu/wp-content/uploads/2021/06/ASSIST-IoT-Technical-Report-4-Implementing-autonomic-I%E2%80%93CE%E2%80%93A4-ecosystems-%E2%80%93-practical-considerations.pdf">https://assist-iot.eu/wp-content/uploads/2021/06/ASSIST-IoT-Technical-Report-4-Implementing-autonomic-I%E2%80%93CE%E2%80%93A4-ecosystems-%E2%80%93-practical-considerations.pdf</a>
5	Óscar López, Jordi Blasi, Mikel Uriarte, Ignacio Lacalle, Gonzalo Galiana, Carlos E. Palau, Eduardo Garro, Maria Ganzha, Marcin Paprzycki, Piotr Lewandowski, Katarzyna Wasielewska, Konstantinos Votis, Georgios Stavropoulos, Iordanis Papoutsoglou, “DevSecOps Methodology for NG-IoT Ecosystem Development Lifecycle – ASSIST-IoT perspective”	<a href="https://assist-iot.eu/wp-content/uploads/2021/07/ASSIST-IoT-Technical-Report-5-DevSecOps-Methodology-for-NG-IoT-Ecosystem-Development-Lifecycle-%E2%80%93-ASSIST-IoT-perspective.pdf">https://assist-iot.eu/wp-content/uploads/2021/07/ASSIST-IoT-Technical-Report-5-DevSecOps-Methodology-for-NG-IoT-Ecosystem-Development-Lifecycle-%E2%80%93-ASSIST-IoT-perspective.pdf</a>
6	Carlos Guardiola, Christian Vigild, Frederik De Smet, Klaus Schusteritz, “From OBD to Connected Diagnostics: A Game Changer at Fleet, Vehicle and Component Level” (PDF). Submitted to: 6th IFAC Conference on Engine and Powertrain Control, Simulation and Modeling (E-COSM 2021)	<a href="https://assist-iot.eu/wp-content/uploads/2021/07/ASSIST-IoT-Technical-Report-6-From-OBd-to-Connected-Diagnostics-A-Game-Changer-at-Fleet-Vehicle-and-Component-Level.pdf">https://assist-iot.eu/wp-content/uploads/2021/07/ASSIST-IoT-Technical-Report-6-From-OBd-to-Connected-Diagnostics-A-Game-Changer-at-Fleet-Vehicle-and-Component-Level.pdf</a>
7	Tina Katika, Fotios K. Konstantinidis, Thomas Papaioannou, Aris Dadoukis, Spyridon Nektarios Bolierakis, Georgios Tsimiklis, Angelos Amditis, “Exploiting Mixed Reality in a Next-Generation IoT ecosystem of a construction site”	<a href="https://assist-iot.eu/wp-content/uploads/2022/01/ASSIST-IoT-Technical-Report-7-Exploiting-MR-in-a-Next-Generation-IoT-ecosystem-of-a-construction-site.pdf">https://assist-iot.eu/wp-content/uploads/2022/01/ASSIST-IoT-Technical-Report-7-Exploiting-MR-in-a-Next-Generation-IoT-ecosystem-of-a-construction-site.pdf</a>
8	Alejandro Fornés-Leal, Ignacio Lacalle, Carlos E. Palau, Paweł Szmaja, Maria Ganzha, “ASSIST-IoT: A Reference Architecture for Next Generation Internet of Things”	<a href="https://assist-iot.eu/wp-content/uploads/2022/02/ASSIST-IoT-Technical-Report-8-ASSIST-IoT-A-Reference-Architecture-for-Next-Generation-Internet-of-Things.pdf">https://assist-iot.eu/wp-content/uploads/2022/02/ASSIST-IoT-Technical-Report-8-ASSIST-IoT-A-Reference-Architecture-for-Next-Generation-Internet-of-Things.pdf</a>



9	Alejandro Fornés-Leal, Ignacio Lacalle, Rafael Vaño, Carlos E. Palau, Fernando Boronat, Maria Ganzha and Marcin Paprzycki, “Evolution of MANO towards the Cloud-Native Paradigm for the Edge Computing”	<a href="https://assist-iot.eu/wp-content/uploads/2022/03/ASSIST-IoT-Technical-Report-9-MANO-towards-Cloud-Native-Edge.pdf">https://assist-iot.eu/wp-content/uploads/2022/03/ASSIST-IoT-Technical-Report-9-MANO-towards-Cloud-Native-Edge.pdf</a>
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Out of reports presented in Table 11, these marked in bold (in the number column; total of 5) have been already published. Here, it should be noted that as the moment of writing this deliverable, *three abstracts have been accepted for presentation at two conferences*. This means that by the end of M18, early in M19 at the latest, three additional Technical Reports should be completed (for the total of 12).

In Table 12, two White Papers that ASSIST-IoT has contributed to are being reported.

*Table 12. White papers*

#	White Papers	Link
1	EU-IoT white paper, The Internet of Things Open Source Ecosystem in 2021, Nov 2021	<a href="https://www.ngiot.eu/download/the-internet-of-things-open-source-ecosystem-in-2021/">https://www.ngiot.eu/download/the-internet-of-things-open-source-ecosystem-in-2021/</a>
2	EU-IoT white paper, A Vision on Smart, Decentralised Edge Computing Research Directions, Sept 2021	<a href="https://www.ngiot.eu/download/a-vision-on-smart-decentralised-edge-computing-research-directions/">https://www.ngiot.eu/download/a-vision-on-smart-decentralised-edge-computing-research-directions/</a>

## 3.2. Workshop/Webinars Presentations

Finally, in Table 13 list of 5 Workshops/Webinars that ASSIST-IoT has contributed to is presented. In Table 14, the remaining 29 presentations delivered under the umbrella of ASSIST-IoT are listed.

*Table 13 Workshops-Webinars*

#	Workshops – Webinars	Date
1	ASSIST-IoT online Webinar-Workshop “Towards Market Review”	Monday 18 January 2021
2	ASSIST-IoT and InGenious projects Call for Paper for the workshop “1st edition of Human Centric and Tactile IoT”, IEEE GLOBECOM 2021, Madrid, Spain	December 7--11, 2021
3	BRAINE and ASSIST-IoT joint workshop “ASSIST-IoT Open Call”, internal to the two consortiums	14 January 2022
4	ASSIST-IoT Open Call Webinar focused on OC details, eligibility criteria, evaluation details and submission procedure, IoT Tribe	7 February 2022
5	ASSIST-IoT Open Call Webinar focused on OC eligibility criteria and submission procedure	11 February 2022

*Table 14. Presentations*

#	Presentations	Event
1	Towards Edge-Fog-Cloud Continuum in the Next Generation of IoT Ecosystems	5th ICRAIE-2020, 1 December 2020
2	Second rise of semantics in the era of next generation system architectures	ICRMAT-2020, 6 December 2020
3	Towards Edge-Fog-Cloud Continuum in the Next-Gen of IoT Ecosystems	BDA 2020, December 2020
4	Onwards Edge-Fog-Cloud Continuum in the Next Generation of IoT Ecosystems	2nd MARC2020, December 2020
5	Towards Edge-Fog-Cloud Continuum in the Next Generation of IoT Ecosystems	5th ICCSCI, November 2020

6	Onwards Edge-Fog-Cloud Continuum in the Next Generation of IoT Ecosystems	3rd International Conference on Smart Systems, January 2021
7	Towards Edge-Fog-Cloud Continuum in the Ecosystems of the Next Generation of IoT	National Seminar, The West Pomerania School of Business, January 2021
8	Edge Node use cases	NGIoT Thematic Workshop: Manufacturing, 27 April 2021
9	ASSIST-IoT Introduction to Federated Learning	International Conference on Computational Science – ICCS 2021, 30 April 2021
10	ASSIST-IoT – Federated Learning	International Conference on Paradigms of Communication, Computing and Data Sciences – PCCDS 202, 7-9 May 2021
11	ASSIST-IoT Introduction to Federated Learning	6th International Conference Information, Communication & Computing Technology – ICICCT-2021, 8 May 2021
12	Introduction to Federated Learning	2021 IEEE International Conference – Emerging Trends in Industry 4.0 – (IEEE ETI 4.0), 19 May 2021
13	Introduction to Federated Learning	EU-IoT Training Workshops Series: AIoT and Edge Machine Learning, 21 May 2021
14	ASSIST-IoT Port Automation Pilot	Data Week 2021 – Big Data Value Association – BDVA, 27 May 2021
15	Applying machine learning towards active cybersecurity	NextSecure, 9 June 2021
16	ASSIST-IoT Pilot #3: Cohesive Vehicle Monitoring and Diagnostics	NGIoT Thematic Workshop: Automotive industries and mobility, 15 June 2021
17	Introduction to Federated Learning	BDACS 2021 International Conference on Big Data Analysis and Computer Science, 25-27 June 2021
18	Use of Tactile Internet and Augmented Reality in the Construction Industry	NGIoT Training Workshop “Enabling the Tactile Internet with IoT”, 8 July 2021
19	From OBD to Connected Diagnostics: A Game Changer at Fleet, Vehicle and Component Level	6th IFAC Conference on Engine and Powertrain Control, Simulation and Modeling (E-COSM 2021), 23-25 August 2021
20	ASSIST-IoT Open Call	NGIoT Open Calls workshop, IoT week 2021, 30 August 2021
21	Implementing autonomic Internet of Things ecosystems – practical considerations	16th International Conference on Parallel Computing Technologies (PaCT-2021), 17 September 2021
22	From the diagnosis of OSH-related needs in the construction sector to Next Generation IoT architecture: Smart Safety of Workers and the ASSIST-IoT project	PEROSH Conference – 4th Research Conference, 29-30 September 2021
23	The ASSIST-IoT Architecture	EU-IoT Training Workshops Series: Next Generation IoT Architectures, 9 November 2021
24	Interoperability in IoT ecosystems	5th IEEE International Conference on Distributed Computing, VLSI, Electrical Circuits and Robotics (2021 IEEE DISCOVER), 20 November 2021
25	ASSIST-IoT Open Call details	European Big Data Value Forum 2021, 1 December 2021

26	Semantic interoperability for IoT	6th International Conference and Workshops on Recent Advances and Innovations in Engineering – ICRAIE 2021, 1 December 2021.
27	ASSIST-IoT project and Open Call details	BRAINE and ASSIST-IoT joint workshop (online), 14 January 2022
28	DLT-enabled security for IoT infrastructures	NGIoT Training Workshop: Decentralizing IoT Intelligence using Distributed Ledger Technologies, 7 February 2022
29	Evolution of MANO towards the Cloud-Native Paradigm for the Edge Computing	2022 International conference on Advanced Computing and Intelligent Technologies (ICACIT 2022), 12 March 2022

## 4. Exploitation activities

### 4.1. Introduction

An in-depth analysis of the potential exploitation of ASSIST-IoT results has been considered as mandatory in the project, in order to help to improve the development guided by the real needs of new and existing markets, outside of the closed ecosystem of the ASSIST-IoT consortium. The monitoring of the individual and joint exploitation plans of the project's results is one of the main responsibilities of T9.4 and is described here (D9.5). The heterogeneity of the Consortium partners' activities will lead to different types of individual exploitation strategies, which can be either non-commercial (academic/research) or commercial (industrial). Accordingly, the Innovation team is following a continuous interaction with partners to collect their expectations over a wide range of exploitation paths, in order to provide dynamical nature supporting the exploitation progress of every asset of the project.

In this section, the updated version of ASSIST-IoT joint and individual exploitation plans is presented.

### 4.2. Intermediate ASSIST-IoT exploitation plan

#### 4.2.1. Joint exploitation Plan

Starting from initial statements in the proposal, and following the most up-to-date plan, the joint exploitation plan has been defined from the point of view of required functionalities linked to business cases to be developed within ASSIST-IoT, considering NG-IoT equipment and service providers, the three industrial ecosystems (Maritime, Worker's safety, and Automotive), research & academia (see figure 26, below, extracted from D9.2).

Therefore, the Joint Exploitation Plan has the final goal to define and implement an exploitation business model. That model will create the right synergies so that individual business plans on product and service innovations can be realised and Return on Investment plan for all the consortium partners. The Joint Exploitation plan considers all ASSIST-IoT dimensions, providing a harmonised approach to holistic ASSIST-IoT reference architecture exploitation.

Following that approach, the joint exploitation objective of ASSIST-IoT is clearly identified by the general objective defined from the proposal preparation phase: “To

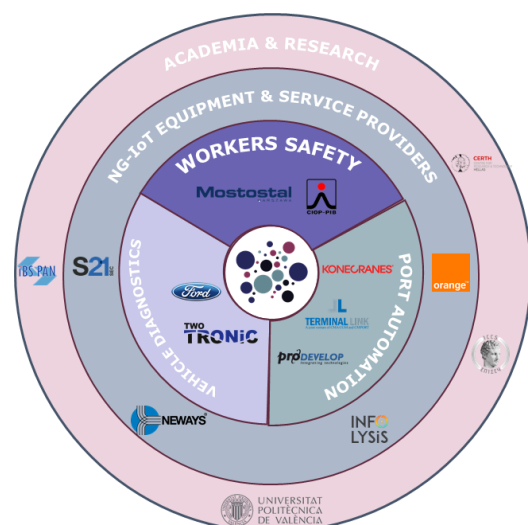


Figure 26. Figure 27. ASSIST-IoT exploitation ecosystem

*design and implement an open software architecture ... to be validated into three high-value industrial pilots but also applicable to any cross-vertical business process*". Based on this, the following statement has set the ground truth for the journey to be addressed with respect to the Joint Exploitation plan in the second term of the project:

- The NG-IoT will not only improve the data collection, where good data analytics can be based on, but also will provide better tools to support the decision making at corporate level. In this joint exploitation, the ASSIST-IoT industrial partners and their expertise with regards to port, construction, and automotive sectors plays a major role, since they will not only validate the ASSIST-IoT technology but also provide the business insights on the needs and requirements for their usability.
- The main intention of the joint exploitation is to make full offering of ASSIST-IoT framework, making use of the technical partners knowledge and the user stories provided by industrial pilot owners. Therefore, the integration of ASSIST-IoT over the different Information Systems of the pilots is paramount.
- The identified prospects of ASSIST-IoT joint exploitation are:
  - Increase the use and easy-deployment of NG-IoT technologies in any industrial environment susceptible to acquire data from the movements of goods, assets, or humans, by exploiting the AI-enhanced connectivity as well as the secure management technologies under development.
  - Improve the data collection, by providing a highly distributed, cost-effective service, relying on the open source solutions over which the data management enablers are based on (e.g., MQTT protocol, Apache Kafka, Elastic stack, and PostgreSQL), and automate business IT processes using data from the collected data of ASSIST-IoT deployments, such as complex event processing, advanced analytics, etc.
  - Better orchestration and management of existing infrastructure, by supporting in the project and out of the project future stakeholders in developing, deploying and validating new business models in the IT economy race of NG-IoT.
- Additionally, all partners will profit from the following advantages within a healthy collaboration:
  - Industrial partners and NG-IoT service providers will obtain the expertise as well, as the technical insights of ASSIST-IoT for continue exploiting their good conditions in their associated market.
  - Academic partners will leverage the ASSIST-IoT technology in order to (i) raise the quality of their academic offering, (ii) make the institution's international rankings higher by submitting high-quality journal and conferences papers, and (iii) enhance the quantity of potential consulting collaborations with industry.

According to the current joint exploitation intentions, all project partners are keen to contribute. For instance, ORANGE will boost the ASSIST-IoT deployment over new uprising markets by enabling their network infrastructure across selected European countries. Terminal Link will try to engage additional terminals from this mother branch CMA CGM beyond Malta Freeport.


Further analysis within the Consortium partners will be carried out in order to look for strategic alliances to exploit the expected benefits of ASSIST-IoT development.

## 4.2.2. Individual Exploitation plans


The following tables presents the progress of the individual exploitation development of each partner since the last reporting, within the D9.2. Note that the impact of COVID-19 pandemics has been explicitly addressed.

### 4.2.2.1. Industrial Port Automation partners

#### 4.2.2.1.1. Exploitation plan of partner TL

<b>Name of the partner:</b> <b>TERMINAL LINK</b>	<b>Partner's type:</b> <b>Private Container Terminal Operator</b>	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>The wireless control of the heavy cranes to move containers is becoming more and more critical to be more competitive. New disruptive internal and external autonomous vehicles are close to arrive to our terminals and still the port industry has to develop the data technology able to manage this new demand.</p> <p>During 2021 a new need appears: decarbonization, it requires electrification with long process of recharging batteries. The impact on the production process is high requiring between 20-50% more equipment and charging time over the working time. The only way to minimize this impact in CAPEX and OPEX is thanks to dual control: remote and autonomous. This is especially relevant with the TT (Terminal Tractors) and RTGs already included in the initial exploitation plan.</p> <p>ASSIST-IoT will facilitate the interaction between the cranes (RTGs) and the internal and external autonomous-remote trucks with a machine-to-machine capability, allowing at the same time the redundant low latency remote control under an architecture that facilitates the management of the system.</p>		
<b>COVID impact and contingencies</b>		
<p>The COVID has significantly reduced the availability of local men power in the terminal. This has forced TL to use the more expensive HQ manpower and limited the speed producing the 2021 deliverables. After 2021 lock-down period TL has recover the manpower resources in the terminal and the site pilot's preparation has started.</p> <p>An indirect COVID impact is the shortage of components that has delayed significantly the RTG pilot's implementation due to lack of components. Unfortunately, we cannot forecast the final impact of this lack of components for the RTGs and WiFi network, we are working with our partners to minimize the impact but is not under our control.</p>		

#### 4.2.2.1.2. Exploitation plan of partner PRODEVELOP

<b>Name of the partner:</b> <b>Prodevelop S.L.</b>	<b>Partner's type:</b> <b>Private SME</b>	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>PRODEVELOP has spent more than 25 years offering solutions to the port sector. A wide range of products and solutions have been used by different Port Authorities and associated areas like Terminals.</p> <p>ASSIST-IoT will give the opportunity to PRODEVELOP to optimize current Big Data &amp; IoT offering ones for port terminals. Thanks to the integration of edge computing capabilities and distributed framework, the project will permit to provide advanced analytics to the industrial companies for: (i) alleviate the bandwidth required for data transmissions to central cloud servers, (ii) be able to support ultra-low latency requirements for certain events which are identified as critical but without the need of a vast processing in the cloud, such as video analytics on the edge, as well as proper M2M communications (e.g., crane-trucks alignment), (iii) guarantee that the data collected from port terminal assets are not susceptible of being attacked, and (iv)</p>		



reduce the extreme lack of scalability (and its associated computing needs) in the central node of the architecture.


Finally, the project efforts will allow to incorporate new products into its catalogue, due to the mobile app that is being developed in order to exposes container terminal assets to internal stuff, as well, as contractual external parties.

#### COVID impact and contingencies

COVID-19 associated mobility restrictions have reduced the possibility of on-site visits to Malta Freeport terminal for physically analyze the current status of the infrastructure. Nevertheless, this risk has been satisfactorily addressed by holding continuous biweekly online meeting with technical IT stuff of the terminal.

In addition, the explosion of work-from-home modality due to COVID-19 is impacting has led to some unexpected job leaves within the company. However, new developers have been recently joined the team, and no significant delays are likely to occur.


#### 4.2.2.1.3. Exploitation plan of partner KONECRANES

<b>Name of the partner:</b> <b>KONECRANES</b>	<b>Partner's type:</b> <b>Private Transport &amp; Logistics</b> <b>OEM</b>	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>Konecranes is the industry leader in providing automation solutions to container terminals. These solutions range from advanced operator assisting features on container handling equipment, to fully automated terminals where both equipment and operating systems are delivered by Konecranes.</p>		
<p>With the help of Assist IoT, Konecranes is planning to strengthen the automation offering targeted specially to existing terminals where existing infrastructure is setting limitations not seen in completely new terminals. Konecranes' development activities in Assist IoT can be labelled with two categories: Operator Experience and Connectivity.</p>		
<p>To improve the Operators Experience, Konecranes will, with help of Assist IoT partners, combine latest state-of-art sensor technology to the remote operating user interface with help of AR. In addition, Konecranes will continue the development of TIC4.0 to offer data interfaces for external applications like the mobile application for truck drivers developed under Assist IoT by another project partner.</p>		
<p>For existing terminals, where building a hardwired physical network is not cost efficient, a reliable wireless connectivity is a pre-requisite of any automation or remote operation. Assist IoT is set to solve the lack of existing solution of such reliable, redundant, and scalable wireless communication method. Konecranes will develop its remote operation system to be compatible with the Assist IoT communication protocol and if proven superior, will commercialize the solution in future customer projects.</p>		
<b>COVID impact and contingencies</b>		
<p>Covid-19 has impacted Konecranes' business environment in various ways since the beginning of Assist IoT. Quickly after the initial shock, container terminals globally accelerated their plans to automate as much as possible of the terminals' repetitive tasks. This includes automation and remote operation of container handling equipment. Therefore, the market demand for Konecranes' automation solutions have increased greatly. This may create some resource challenges for Konecranes as similar resources are needed for planned Assist IoT development activities and Konecranes' project deliveries. As a mitigation plan, Konecranes is actively recruiting new resources. In addition to impact on available resources, Covid-19 and its side effects has put global supply chains on their limits. This is valid especially in componentry used in automation</p>		


solutions: industrial PCs, cameras, controllers etc. have record long delivery times. Konecranes is utilizing its global procurement teams to tackle the issue and to avoid any delays in planned Pilots.

#### 4.2.2.2. Industrial Worker's safety partners

##### 4.2.2.2.1. Exploitation plan of partner MOSTOSTAL

<b>Name of the partner:</b> Mostostal Warszawa SA	<b>Partner's type:</b> Private construction company	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>Mostostals's exploitation plan has not significantly changed from the initial version.</p> <p>Mostostal is an example of the industrial stakeholder, particularly interested in the adoption of ASSIST-IoT results in order to improve safety and health at work. Therefore, MOW is going to exploit action results at various construction sites in Poland. The ASSIST-IoT results will be the basis for future scientific research and development in the field of occupational safety and health. As soon as the use cases are finally defined and accepted, it will be examined the possibility of interactions ASSIST-IoT platform with commercial tools that are used on the construction site for OHS reporting. Moreover, the novel knowledge produced within the ASSIST-IoT project as well as the know-how gained by MOW will be shared through the Agreement for Building Safety in Poland. In addition, information related to the use of openBIM models to inform about hazardous zones will be exploited through the buildingSMART Poland association.</p>		
<b>COVID impact and contingencies</b>		
<p>COVID – 19 had the impact on limiting face-to-face meetings within the project and forced shifting them to the online platform. Due to COVID – 19, visiting and getting acquainted with the construction site, where the Smart Safety of Workers pilot will take place, was postponed and took place in March 2022.</p> <p>COVID – 19 had no significant influence on the construction works. The project is implemented on time and allows for testing on the construction site.</p>		

##### 4.2.2.2.2. Exploitation plan of partner CIOP-PIB

<b>Name of the partner:</b> CIOP-PIB	<b>Partner's type:</b> Research organisation	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>CIOP-PIB's exploitation plan has not significantly changed from the initial version.</p> <p>As CIOP-PIB is a key research institution in Poland in the field of occupational safety and health (OSH), its priority will be to use the ASSIST-IoT results to ensure safer and healthier workplaces. However, this is a social impact that is expected rather in a long-term perspective, but which cannot be achieved without making an impact in other areas in short-term perspective.</p> <p>The Smart Safety of Workers pilot will allow to examine the usefulness of the developed innovative smart IoT devices within ASSIST-IoT in terms of increasing safety and health at the construction site. For this reason, construction sector is the main potential addressee of the products and services</p>		

developed within ASSIST-IoT project for the purpose of this pilot. However, the experience gained in the project is expected to be easily transferred to address needs of other sectors.


The solutions developed within the project will be the basis for future scientific research and development in the field of occupational safety and health. ASSIST-IoT will give the opportunity to produce the novel knowledge in the field of new IoT wearable devices, as well as application of the NGIoT with the aim of improvement of workers safety and health. The know-how gained by CIOP-PIB's team will also help enhance its training offer targeting OSH experts, operational managers, employee representatives and OSH management consultants.

#### COVID impact and contingencies


COVID – 19 had the impact on limiting face-to-face meetings within the project and forced shifting them to the online platform. Due to COVID – 19, visiting and getting acquainted with the construction site, where the Smart Safety of Workers pilot will take place, was postponed, and took place in March 2022.

### 4.2.2.3. Industrial Vehicle diagnostics partners

#### 4.2.2.3.1. Exploitation plan of partner FORD-WERKE

<b>Name of the partner:</b> <b>Ford-Werke GmbH</b>	<b>Partner's type:</b> <b>Private vehicle OEM</b>	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>Since both passenger cars, as well as light commercial vehicles, are gradually moving into IoT business models, Ford expects significant opportunities to deploy frameworks like ASSIST-IoT. Within the perimeter of the propulsion system controls domain, these opportunities are specifically seen around diagnostics and in-service conformity. The increased stringency of current and future emission legislation are the strongest drivers for edge computing schemes, enabling statistical modelling and all kind of sub-system performance evaluations at the fleet level. Although Fords involvement within ASSIST-IoT is a research-based initiative without a clear plan for exploitation, the high potential of IoT solutions, was confirmed in the first half of the ASSIST-IoT project. Also, the ideas and technical principles of ASSIST-IoT have been presented in various Ford internal meetings, resulting in high interest in ASSIST-IoT and IoT solutions in general. From emission legislative perspective the ASSIST-IoT approach chosen in Pilot 3A is also still very promising and seems to cover a lot of the challenges lying ahead of the automotive industry and especially in the propulsion system controls domain, making a future IoT exploitation even more likely than expected in the beginning.</p>		
<b>COVID impact and contingencies</b>		
<p>The COVID situation has no impact on the project or any exploitation plans. Due to the research nature of the Ford involvement no exploitation plan is jeopardized.</p>		

#### 4.2.2.3.2. Exploitation plan of partner TWOTRONIC

<b>Name of the partner:</b> <b>TwoTronic GmbH</b>	<b>Partner's type:</b> <b>Private SME</b>	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		




TwoTronic has been a pioneer in the German market for digital vehicle scanners in the automotive sector. So far, an advanced, user-oriented scanner concept with an accompanying solid electromechanical construction and advanced illumination together with patented image acquisition techniques have set the base for the market acceptance. In the meantime, the upcoming digitalisation and integration needs of the market for unified, seamlessly working IT-solutions demand for more software-added proposals and communication balanced solutions between edge and cloud computing. The additional market wishes for accompanying automated surface inspections are also increasing the scientific level for new solutions. The ASSIST-IoT architecture promises sound solutions for these new aspects together with very fresh developments in the AI system technology. Based on that, TwoTronic started to implement the foreseen exploitation plan via direct customers contacts and consultancy about the suitable functionalities for its business scenario as well as pilot-discussions with major players in the various business scenarios of the market promoting new technology solutions for a balance proposal of edge and cloud computing in its customer market. Getting scanned images from first pilot scanners from the real market helps not only the R&D development of the project but creates project awareness at important market multipliers and customer expectations for individual exploitation possibilities for their own processes.

#### COVID impact and contingencies

The COVID situation has had a triple impact to the TwoTronic project activities so far. Direct market contacts have been abandoned, digitalisation needs of the everyday operations of the organisations have increased, and the finding of suitable personal to cope with the growing new demand for advanced technologies has become more difficult. As many other organisations, more remote contacts have been organised between TwoTronic with selected customers (criterion: market earlier adaptors and opinion makers) to inform them about the coming, new technologies. More software layers are being defined to support an easier adoption of the customer IT-teams and the TwoTronic-proposals co-supported by the upcoming ASSIST-IoT architecture. We expand the search of suitable personnel beyond the TwoTronic-traditional local regions towards a mixed collaboration with national R&D organisations and persons on national but also within the broad EU-context.

#### 4.2.2.4. NG-IoT transversal enablers partners

##### 4.2.2.4.1. Exploitation plan of partner ORANGE PL

<b>Name of the partner:</b> <b>Orange Polska S.A.</b>	<b>Partner's type:</b> <b>Private Telecommunication service provider</b>	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>Exploitation plans for Orange Polska S.A (OPL) are not changing from initial plans. One of the most important areas for OPL in research as well as in business (B2B) are IoT services, especially for industrial partners. Since few years Orange Polska has been intensively developing its offer of IoT services aimed to different business verticals such as: smart city, energy metering, water metering, intelligent tracking etc. With Assist-IoT other new services can be developed e.g. safety for the workers. From other side OPL is the network operator and is continuously working on enhancing network technologies deployed for different services. With IoT services development of 5G network and the identification of new use cases is key objective for OPL during ASSIST-IoT project.</p>		
<p>In summary exploitation plans are related to:</p>		
<ol style="list-style-type: none"> <li>1. Technical activities like: <ol style="list-style-type: none"> <li>b. testing of IoT new solutions (different enablers),</li> <li>c. integration of new elements in the OPL IoT platform.</li> </ol> </li> </ol>		

## 4. Business activities like:

- e. internal and external communication about Assist-IoT innovations,
- f. developing new solutions in business products,
- g. spreading know-how inside Orange Group.

## 8. Scientific and standardization areas:

- i. contribution in cooperation with other partners to creation of standards, recommendations and tutorials,
- j. scientific publications in different technical areas.

## 11. Human resources:

- l. New employees are hired (3 new researchers and developers),
- m. Build up new workplaces in IoT research and business area in OPL

Orange is developing also 5G network in Poland but currently its range is limited only to the largest cities in Poland.


**COVID impact and contingencies**

In OPL COVID not make serious influence on research activities, employees were mostly worked remotely. The research work was conducted according to the plans.

From business perspective COVID is more affecting but with no serious impact. Selling process are mostly affected. For the future, bigger impact can be foreseen in relation to Russian aggression and long-term consequences. However, OPL is not involved in Russian market, the overall business climate in Poland can be not optimistic, also with growing inflation and rising of prices.


Due to the pandemic in 2021, the auction of frequencies dedicated to the 5G network was canceled. It is assumed that this will delay the implementation of 5G technology in Poland.

**4.2.2.4.2. Exploitation plan of partner NEWAYS**


<b>Name of the partner:</b> NEWAYS	<b>Partner's type:</b> <b>Private Hardware manufacturer</b>	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>The exploitation plan of NEWAYS ways remains almost the same. In many customer applications the interest for using AI is gaining traction. This creates new opportunities for Neways to apply the gained knowledge and experience within ASSIST-IoT for customers in the industrial, semiconductor and agricultural market sector. The GWEN under development supports the sales process towards customers to convince them that we are the right partner to provide edge computing and support in local compute power for implementing AI applications. Within ASSIST-IoT smart IoT devices are used for localization, localization of all kinds of assets like containers, AGVs, workers at a construction site, etc. are use cases which might be very interesting for Neways customers.</p>		
<b>COVID impact and contingencies</b>		
<p>Due to COVID-19 working at home became common practice. At the same time this gave a boost in digitalization in cooperation and communication between colleagues, customers and ASSIST-IoT team-members. COVID-19 also made clear that, despite the fact that lots of automated high-tech equipment is used, the manufacturing and delivery of electronic components highly depends on the availability of raw materials and on the persons operating these high-tech machines. Due to people becoming ill and placed in quarantine production of electronic components reduced drastically. This results in extremely long lead times</p>		

of electronic components, from passives up to highly complex integrated circuits. For Neways this means that lots of effort is needed for component purchasing and product deliveries are delayed. Also, for consumers price of electronic equipment increased and delivery times raised even up to non-availability at all.

#### 4.2.2.4.3. Exploitation plan of partner INFOLYSiS

<b>Name of the partner:</b> INFOLYSiS	<b>Partner's type:</b> Private SME	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>For the specific reporting period INFOLYSiS faced no important deviations from initial exploitation plan (refer to D9.2). INFOLYSiS, as a software SME specializing in the development of chatbot applications, focuses its exploitation activities on using chatbots as front-end user interfaces for potential use-cases (smart-cities, training, maintenance, etc.) based on IoT platforms and data.</p> <p>Beyond the foreseen in the DoA activities, INFOLYSiS is also interested in jointly exploiting the IoT solutions developed within the ASSIST-IoT project for further expansion of chatbot portfolio in the IoT community and specific market sectors (e.g. ASSIST-IoT pilot's sectors). Once the ASSIST-IoT use-cases are in a more mature stage, INFOLYSiS is interested to explore the potential development and exploitation of a chatbot as an intelligent interface between the human-machine interaction, driven by the IoT platform and based on the experience that will be gained by the three pilots namely: (i) port automation, (ii) smart safety of workers and (iii) cohesive vehicle monitoring and diagnostics.</p> <p>Furthermore, the close collaboration with dedicated IoT sectors, partners, organizations and associations (such as NGIoT), during the first period of the project, helped the company to further elaborate its exploitation initiatives (and slightly amend its initial exploitation plan with new interactions beyond the ASSIST-IoT consortium). As a result, INFOLYSiS decided to further explore the latest IoT innovations (not only the ones of ASSIST-IoT pilots but also the ones developed in other ICT-56 projects) through its participation to NGIoT activities and adapt its market strategy accordingly in order to be aligned with more IoT projects' technologies/results and potentially be able to offer new chatbot based apps and services, targeting more markets/sectors, in the long term.</p>		
<b>COVID impact and contingencies</b>		
<p>The unprecedented impact of COVID-19 has partially threatened the efficient impact of expected communication and market penetration since impact creation mainly relies on digital means/content and interaction. COVID-19 and Omicron variation, along with associated travelling and meeting restrictions, have caused presence in physical events, forums, exhibitions and conferences to be dramatically decreased. However, in order to cope with the lack of physical interaction with customers (and partners) and physical presence in events, while maintaining the efficiency of its exploitation plan, INFOLYSiS has adopted its strategy and minimized the COVID negative impact by closely attending and contributing to online events (conferences, webinars, panels etc.). By doing so, INFOLYSiS tries to bridge the gap caused by the lack of physical interaction and communication while co-aligning both company's and project's exploitation activities and strategies.</p>		

#### 4.2.2.4.4. Exploitation plan of partner S21SEC GES

<b>Name of the partner:</b> S21SEC GES	<b>Partner's type:</b> Private Cybersecurity company	<b>Logo:</b> 
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### Summary of updates to your initial individual exploitation plan

S21SEC GES plans to use research results from ASSIST-IoT, to enhance the process of continuous integration and continuous deployment of managed cybersecurity services, using DevSecOps methodology, supporting the company strategy for SOC services provided by S21SEC globally.

S21SEC will deliver a DevSecOps methodology that will guarantee security by design in the software deployment process of different software enablers for NG-IoT architectures like ASSIST-IoT and S21SEC will particularly focus on the cybersecurity enablers to be applied in this kind of architectures.

S21SEC will apply DevSecOps methodology in Research and Development department enhancing the S21 internal corporate process helping to create environments for recurrent testing in R&D projects. Additionally, the experience and knowledge in DevSecOps principles and practices will help to build a corporate offer of consultancy services oriented to the assistance and put in place DevSecOps processes and methodology to incorporate in the portfolio of services of the company.

The role of S21Sec in ASSIST-IoT will focus on the corporate strategy for deploying cybersecurity services. S21SEC will align business strategy with ASSIST-IoT. S21SEC is responsible for the management of threats, detection and handling of breaches, the building of incident response and recovery capabilities in organizations, prevention techniques, education of the employees with the best cybersecurity practices, and alignment of business goals with the cybersecurity principles.

S21SEC will enhance with the results of ASSIST-IoT their offer for managed security services in IT, IIoT and OT field. For S21SEC is crucial that new offerings of managed services will be designed to improve, optimize, and transform the value creation throughout the value chain, both at supplier and user sides. Industrial SOC services that will be able to adequately detect and respond to threats associated to IoT and IIoT will be best placed to respond to the market needs. With ASSIST-IoT, S21SEC will achieve a new position to their offering for managed security services.

### COVID impact and contingencies


Due to COVID-19 telework explosion and remote access services have experienced, a significant presence establishing a need for a great number of companies, as a result cybersecurity incidents have also increased considerably, and the forecast is that this tendency will grow.

S21Sec business strategy remains showing clear focus on developing Managed Cybersecurity Security Services, although pandemic situation has put in evidence difficulties to engage with technical developments. Added to this we have suffered the increasing efforts required for daily tasks, and integration tasks in the ASSIST-IoT project, along with reduced contact with corporate marketing and sales department to provide and offer new ASSIST-IoT services. This could be relegated with lower priority due to difficulties due to the increasing amount of work in other areas of the company.

Nevertheless, to mitigate this we have started to make a continuous follow up of the ASSIST-IoT project activities to overcome with potential integration issues and on the other side establishing more frequent communications with the marketing department and trying to increase links and contacts.

## 4.2.2.5. Academic and Research partners

### 4.2.2.5.1. Exploitation plan of partner UPV

<b>Name of the partner:</b> UPV	<b>Partner's type:</b> University	<b>Logo:</b>  UNIVERSITAT POLITÈCNICA DE VALÈNCIA
<b>Summary of updates to your initial individual exploitation plan</b>		

With regards to areas of impact, besides those four originally identified, UPV is also working towards two additional thematic goals. First, to advance in applying cloud-native concepts and technologies (scalability, federation of nodes, orchestration with k8s-and assimilable tools- and advanced smart networking). For achieving so, efforts are being put in the research and development of enablers in task T4.2 (mostly) and T5.2. Second, the automotive pilot, in its in-service emission pillars (Pilot 3A), is revealing itself as a major cornerstone for validating very relevant technologies of ASSIST-IoT. This vertical sector is (and will be) the focus of various researchers of UPV team, that will look for enhancing knowledge in the area towards continuing technology transfer activities with major actors in the automotive field.

A couple of additional “needs” from UPV’s perspective that might be solved by exploiting ASSIST-IoT results are:

- Enhance the group’s experience in Industrial applications (especially automotive but construction sector as well).
- Liaise with sister (and related) H2020 and HE projects to keep updated in research trends in the field.

UPV has also the commitment, in order to favour exploitation of scientific results, to publish any research article in Zenodo or similar open repositories, as well as on ASSIST-IoT’s website in the form of Technical Reports.


Finally, a remarkable exploitation results that UPV expects to achieve is the participation in standardization boards like AIOTI and IEEE. The fact of contributing to pre-normative or standards will give UPV the opportunity to consolidate and enhance its position as relevant player in the IoT field.

#### COVID impact and contingencies

One of UPV’s research group pillars is to grow upon scientific publications. Journal articles and conference presentations are of utmost importance in order to advance and keep being relevant in a competitive IoT technological field. COVID-19 associated mobility restrictions have caused presence in conferences to be dramatically decreased. Currently the Omicron wave is still striking hard at some parts of Europe, where safety conditions cannot be guaranteed, thus the dissemination is kept at merely online fashion. Whereas the participation in such online activities qualifies as valid communication of project’s advances, it is far from optimal from the exploitation point of view. The same reflection applies to local/regional spread. UPV is strongly committed to showcasing ASSIST-IoT content via lectures, seminars and other activities that, unfortunately, are not yet unleashed in its majority. Similarly, tackling top magazines and other public media has become very difficult, as most efforts are (logically) still shifted towards COVID-related news, including technology to improve the situation (medical, IT...). Finally, hiring procedures are also menacing the sustainability of ASSIST-IoT exploitation for UPV as (i) bureaucratic steps are often stuck due to staff unavailability, (ii) competitive profiles are scarce, (iii) teleworking is not always suitable to be offered/accepted.

With the purpose of overcoming such negative impacts, UPV has decided to reinforce the scientific devotion during the past few months and until the situation will be improved, with the goal of reverting back then to full-powered external dissemination. This does not mean to reduce efforts on producing scientific articles (otherwise UPV’s exploitation plans would be completely jeopardized), but to focus on online events and technical reports (for now). In addition, the strategy is now being boosted by planning presence (demonstrators, booths, pitches, round tables) in physical events for Summer/Autumn 2022 and beyond (e.g., Euan, IoTWeek, TRA...).

#### 4.2.2.5.2. Exploitation plan of partner ICCS

<b>Name of the partner:</b> ICCS	<b>Partner’s type:</b> Research Institute	<b>Logo:</b> 
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### Summary of updates to your initial individual exploitation plan


ICCS will design, develop and implement Augmented Reality applications and smart devices focusing on local intelligence and processing capabilities. Augmented Reality services will be provided through applications that involve near real-time data flows. To this end, appropriate management of data at the different layers of the ASSIST-IoT architecture will be required. The end-to-end performance of Augmented Reality services, with or without connectivity, based on the ASSIST - IoT architecture will also be assessed in order to increase confidence in the proposed solutions. Apart from that, if data movement will be necessary, pre-processing strategies for the minimisation of the volume of data sent to the cloud will be devised. Furthermore, performance and usage diagnosis data will be collected from ASSIST-IoT architecture, highlighting potential operational and functional problems in the ASSIST-IoT platform, allowing the monitoring of all levels. This allows to autonomously act in accordance or to inform the administrator for fine-tuning the associated machine resources.

In contrast with the initial individual exploitation plan, ICCS will also develop a performance and usages diagnosis service that will provide device-related and software-related health metrics, ensuring high reliability and within the ASSIST-IoT architecture and future deployments in IoT architectures. Despite the deployment of federated learning approaches will not be exploited by ICCS, intelligent edge data broker services will be used to apply edge-processing strategies for the optimisation and reduction of data between edge and cloud, enhancing the next-generation IoT architectures.

### COVID impact and contingencies

Due to ongoing pandemic, the cancelation or alteration of physical events inevitably influenced not only the realization but also the nature of the ICCS's planned dissemination activities. ICCS has re-evaluated its participation to conferences and events, looking for alternative opportunities online to disseminate project results and establish partnerships with key industry stakeholders to ensure the future implementation and sustainability of solutions/further collaboration in future research/technical initiatives in Greece and beyond. Apart from that, Covid-19 has caused delays in the delivery and availability of technical equipment such as Gateways and MR devices, where restrictions may affect on planned technical activities.

#### 4.2.2.5.3. Exploitation plan of partner SRIPAS

<b>Name of the partner:</b> <b>SRIPAS (as per the GA – IBSPAN)</b>	<b>Partner's type:</b> <b>Research Institute</b>	<b>Logo:</b> 
<b>Summary of updates to your initial individual exploitation plan</b>		
<b>Main exploitation objectives:</b> SRIPAS will exploit results primarily by strengthening its position as the leader in IoT-related research in Poland, in Europe and worldwide.		
<b>Commercial exploitation know-how:</b> While SRIPAS will try to use its membership in ICT/IoT Clusters to seek potential for dissemination activities and commercial exploration of results in terms of direct monetization of IPR and consulting/funded collaboration. However, taking into account the effect of COVID, which resulted in atomization of Cluster members (due to the lack of face-to-face activities), this avenue of results exploitation became more difficult than originally expected. Moreover, possibility of creation of a start-up/spin-off company is much less certain, due to much higher level of financial uncertainty caused by COVID and Russian aggression of Ukraine.		
<b>Scientific exploitation:</b> As a leading research institution, results will be explored via seeking additional external funding (primarily, EU-based) through various funding mechanisms. Moreover, results should result in a total of at least 9 publications in high impact venues. As a matter of fact, it is extremely likely that the		




first goal has been achieved, as we are “expecting good news” about potential funding. The second goal has been almost achieved as far as the number of publications that are in the pipeline.

**Other:** The increase in workload is expected to finance 3-5 full-time researchers (assistants and post-doctoral). Currently, SRIPAS employs 4 new researchers. Hence this exploitation target has been achieved.

#### COVID impact and contingencies

As outlined above, the main impact of COVID on the exploitation plan is related to potential for commercial exploitation of results. Due to COVID and to Russian aggression the “overall business climate” and the potential for starting commercial endeavours is much less appealing than it was before. Here, in addition to the reasoning presented above, it is very unclear what is the actual financial situation of the Polish government. Hence, it is not known if there will be any funds available to support creation of start-ups. At the same time, advancing-science-related exploitation remains on track, and, at this stage, COVID/Russian aggression should not have long-term adverse effects.

#### 4.2.2.5.4. Exploitation plan of partner CERTH

<b>Name of the partner:</b>  <b>CERTH</b>	<b>Partner’s type:</b>  <b>Research Institute</b>	<b>Logo:</b>  
<b>Summary of updates to your initial individual exploitation plan</b>		
<p>CERTH's exploitation plan does not significantly deviate from the initial exploitation plan. The rise of DLT technology and its application in the IoT environment throughout the project will broaden the field of expertise for CERTH, permitting the creation of more robust and quality solutions.</p> <p>The project is relevant to contemporary subjects, especially edge computing schemes, federated learning, and DLT, applied in numerous different ways in IoT environments. As these subjects are novel and drive the future developments in the IoT sector, the institute considers the collaboration within the project valuable. The projects proposition in containerisation of the components is another point adding value. The solutions developed within the project can be included and extended with more ease. Furthermore, the idea of containerisation helps to mitigate frictions in the collaboration between partners.</p> <p>The DevSecOps approach extends further than traditional approaches bringing security in a focal position within the development. The partners' requirements for the framework and the implementation of tools provides CERTH with the opportunity to develop more secure applications.</p> <p>Finally, the introduction to the self-* technologies is a fascinating field of research for the institute. The fact that autonomic computing is focused on managing the policy and not maintaining the mechanisms makes it an excellent candidate to be integrated with DLT technologies.</p>		
<b>COVID impact and contingencies</b>		
<p>COVID – 19 mobility restrictions have caused an unprecedented decrease in the organisation of live presence conferences, hence affecting the communication and dissemination to only be held online. Even though such communication can be considered adequate regarding the exploitation plan, it is far from ideal. However, ASSIST-IoT’s bi-weekly online meetings and constant development updates keep the communication standards high, thus providing a high standard product.</p> <p>Working from home has also created an impact on the group’s efficiency, as it is affecting internal communication through the lack of physical interaction between the members. Also, organising activities to bond the group became more difficult throughout this period. Although the above does not cause significant delays, physical presence and interaction along with direct communication are very important, and no alternative can be considered equally effective.</p>		

### 4.3. Summary of exploitation plans and activities

Sections related to the project exploitation show the early progress on the ASSIT-IoT exploitation plans during M1–M18, providing a concise update of both joint Consortium positioning, as well as individual partners exploitation outcomes. As previously, this analysis will be further developed throughout the second term of the project with another interaction in D9.8, considering the updates on the enablers technology, as well as pilot-specific developments, and consequent exploitable results. It is also important to highlight the early-stage of the joint exploitation plan because of the early status of the whole ASSIST-IoT framework, as well as the missing analysis in order to align the partner's exploitation objectives and expected exploitable results.

The exploitation efforts that will take place during M18–M36 will include further product definition, business development and a preliminary go-to-market strategy. Thanks to gather a strong knowledge of the exploitable results, the project will be able to develop a strong value proposition for ASSIST-IoT as a whole, and consequently offer a product/service that is valuable to targeted customers. These activities will also react to the (potential) changes in the world, which may materialize as a result of various unexpected situations.

## 5. Updates to plans for communication, dissemination, showcasing and exploitation

### 5.1. Communication plan

In this section, the current status of the communication action plan is presented, highlighting some KPIs, giving updates and providing information about future actions. The major guidelines (timeline, stages, activities, means to be used, etc.) for the successful and effective communication of the project, per communication channel and targeted audience have been elaborated in D9.2 ([https://assist-iot.eu/wp-content/uploads/2021/12/ASSIST-IoT\\_D9.2\\_Impact-Creation-Roadmap.pdf](https://assist-iot.eu/wp-content/uploads/2021/12/ASSIST-IoT_D9.2_Impact-Creation-Roadmap.pdf)). As an overview, during the first two communication phases Figure 28 of the project, we faced no deviations from the communication plan and we still closely follow it in order to achieve the projects KPIs for the third and final period, which starts in M19.

In the following sections a short description of the current (M16) status is provided along with current KPIs met and next steps planned.

#### 5.1.1. Overview of current Communication plan status

The following figure shows the communication plan as it has been established in the begging of the project and in the D9.2.

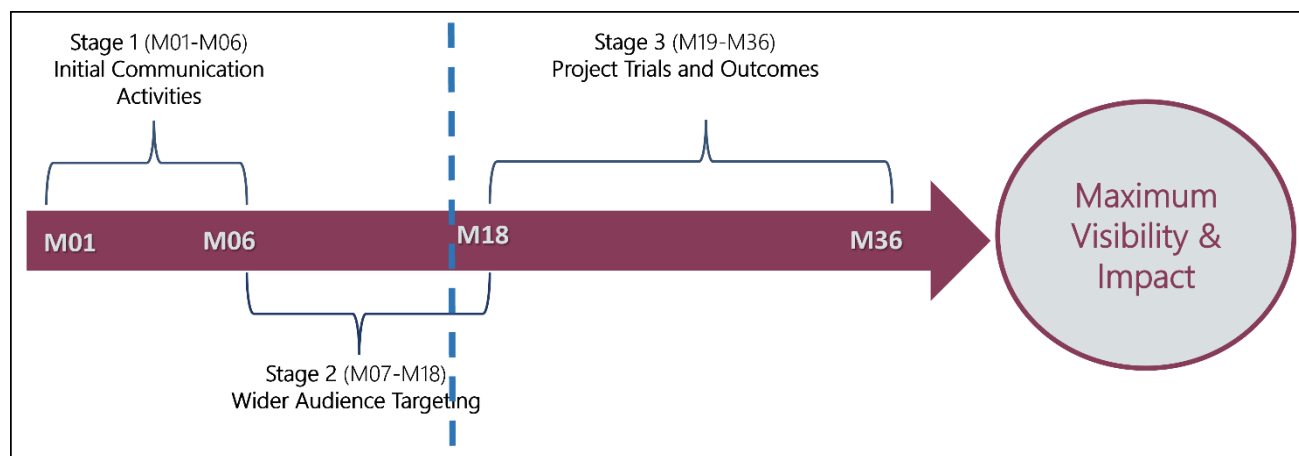


Figure 28. ASSIST-IoT Communication plan

Actions performed as per communication plan:

- All communication channels are continuously used and updated on a regular basis,
- The project's website is constantly updated with news and updated communication/dissemination content,
- Social media posts are made on a regular weekly basis,
- Higher frequency of posts during events, meetings, conferences etc.,
- Different strategy on posts/content used per communication channel, designed for addressing the appropriate audience,
- During the first six months of the project (M1-M6) an intensive communication of the project applies targeting to wider audience based on versatile content related to the project and IoT related topics for accumulating more visitors/followers,
- As the project advances the content becomes more technical and corresponding technical audience and academia are thus more intensively targeted,
- In the 3<sup>rd</sup> phase, the content focuses on results and exploitation methods targeting the potential users and customers.

### 5.1.2. Communication KPIs

The following table shows the communication KPIs in comparison with the current status at M16. As it can be realised so far all performed communication actions are fully aligned with the communication plan and its stages mentioned in the previous sections and set communication KPIs are well met so far.

*Table 15. Communication KPIs*

What	Description	Timeline/KPIs	Target Audience	Current Status (M1-M16)
<b>Project logo and templates</b>	Use of project logo and documents/presentation templates for creating branding and increasing project's visibility and audience engagement	Continuous activity from M1 to M36	All	Ongoing
<b>Website</b>	WordPress designed website, allowing easy retrieval of main action data with few clicks	Website running from M1 to M36 plus 3 years after the project's end  Attracting at least 1000 visitors per year and at least 25000 views, 8000 sessions in total	All	3,669 visitors 18,916 views 7,315 sessions
<b>Social Media</b>	Social media channels (e.g. Facebook, LinkedIn, Twitter,	Continuous activity from M1 to M36.	All	934 followers 691 posts

	etc.) used to communicated project news, activities and results	Presence with dedicated channels in LinkedIn, Twitter, Facebook, Instagram and YouTube. Accumulating at least a total of 1000 followers and making at least 600 total posts and attracting 50000 engagement/impressions through the project lifetime		6.663 engagement 100,230 impressions  TOTAL: 106,893 engagements/impressions
<b>Quarterly newsletters</b>	Use of newsletter to improve project's news communications and increase engagement and visibility	Quarterly issues 12 issues to be released during project lifetime	All	5 issues released and 1 under editing
<b>Posters/leaflets/ Press releases</b>	Use of posters, leaflets and press releases to improve communication of ASSIST-IoT results and raise awareness during dissemination and comm. events	Continuous activity from M1 to M36. At least 3 poster and 3 leaflet versions to be released during project lifetime	Scientific/academic/industry community, IoT communities and associations, Stakeholders	2 posters (A1& A2 size)  3 leaflets
<b>Communication package</b>	Leaflets, press releases newsletters and videos explaining ASSIST-IoT's performed activities.	At least 1 per year summarising the project's annual activities (available either in printed or digital format through website).	All (specifically media and the public at large)	Y1 communication pack released
<b>On-site visits to field pilots</b>	Selected user and stakeholder groups, e.g. construction companies, automotive companies and ports/terminals	At least 2 during project lifetime	Industry community	Planned for M19-M36

### 5.1.3. Next actions: Stage 3 of communication plan

As it can be clearly noticed, the project is reaching the end of stage 2, which has been indicated to take place in M18 (as per Figure 28. ASSIST-IoT Communication plan). The aim of this stage was to reach the widest potential audience and find new key stakeholders. In other words, the communication actions focused on establishment of a connection points with the community and the industry, by addressing a wider audience and explaining how the project might be leveraged by specific communities, industry stakeholders and the society in general. Based on this scope, the material/content (slide-based presentations, videos, news and dissemination activities) that was communicated, was more focused on the project's technical details, pilots, trials, demos and results of the project. Vital role in the execution of this phase had the communication channels. Social media channels, website, newsletter were the key aspects in reaching the broadest possible audience, find and collaborate with new associations and diffuse the project's results.

The following Table 16 summarizes the ASSIST-IoT's objectives in comparison with the timeline, the type of content and the current status.

*Table 16. Communication objectives and means.*

STAGES	OBJECTIVE	TYPE OF CONTENT	STATUS
<b>M1-M6</b>	Initial communication activities, establishing the digital presence of the project. Creation of communication channels and creation of targeted audience/followers.	General content about the project, its objectives, use cases, consortium and the IoT industry overall. Intense communication for introducing the project, raising interest, and attracting audience	Completed
<b>M7-M18</b>	Reaching the widest potential audience and find new key stakeholders. Targeting to the increase of technical, academic, and scientific audience/stakeholders.	General content with preliminary technical details. Differentiation of content depending on the channels to be used. More intense communication of dissemination events and primitive trials results.	Approaching completion (M18)
<b>M19-M36</b>	Focus on communicating the project outcomes and achievements to all targeted audiences.	Communication of the projects' outcomes and trial results. Intense communication by all channels of dissemination activities, and final trials/showcases.	Not started yet

Leading to the end of the stage 2 of communication plan, all the attention of the partners is focused on the third period initiation. The third period (M19-M36) of communication plan, is mainly focused on communicating and disseminating the project's technical achievements and outcomes. So, the main objective of the communication team, as per current communication plan, will be to outline and communicate them over dedicated channels by utilizing suitable methods for addressing the appropriate target audience and achieving the maximum impact. For that reason, the main content that will be communicated, will be focused on the pilots, trials and outcomes of the project.

Additional role in the success of this phase will also have the progress and the results of the OC projects' activities. Overall, open call activities will help the project to gain additional visibility and reach new different associations through its funding opportunity and presentation of results by the third parties and their projects.

Specific actions planned for highlighting upcoming period's (Stage 3 - M19-M36) scope are:

- More technical oriented presentations on webinar and workshops.
- Dedicated hashtags #trials #demonstrations #progress.
- Dedicated technical articles on Cordis EU results webpage.
- Intensive technical posting activity on Twitter and LinkedIn concerning pilots' trails and demos.
- More videos on YouTube (to promote the technical progress achieved, ASSIST-IoT dissemination, ASSIST trials and demos).
- More intense communication of dissemination activities.
- Communication of OC projects and results.
- Closer synergy and interaction with the NGIoT association and rest ICT-56 projects to communicate the project's results and findings.

## 5.2. Dissemination and showcasing

Let us now summarize, in Table 17, dissemination KPIs vis-à-vis total dissemination activities performed in the time frame M1-M16.

*Table 17 Current Status and goals*

Dissemination Activities	KPI	Target	Current Status - M16
Scientific Publications (Journals Conference Papers, Technical Reports)	Number of publications	>20	2 journal papers 9 Conference papers/Technical reports 1 paper accepted at TRA2022 (Nov 2022)
Presentations in scientific events	Number of presentations	>20	29 presentations
Whitepapers	Number of whitepapers	>5	2 NGIoT white papers
Organization/Co-organization of events (tutorials / workshops / webinars)	Number of events	>10	5 organised/co-organised and 1 workshop accepted at IoTWeek 2022 (June 2022)
Education (seminars/courses)	Number of courses/seminars	>10	- (period M19-M36)
Showcases	Number of showcases	>5	- (period M19-M36)
Exhibitions in scientific and industrial events	Number of exhibitions	>5	- (period M19-M36)
Liaison with other projects/associations	Number of contributions	>10	In liaison with: NGIoT, EU-IoT, INGENIOUS ICT-56 project, DataPorts, BRAINE, IoT Tribe, FogGuru, BDVA, ALICE

It can be seen that all activities planned for M1-M36 are definitely on track to reach their respective KPI's. In general, the half way mark has been reached when quantitative are considered. This is even more so since, as noted above, additional dissemination activities are already in the pipeline.

Specifically, as mentioned above, three scientific contributions are in the immediate pipeline and two papers are in early stages of development. Moreover, as the number of completed software artefacts (implemented technological advancements) grows, possibility of preparing viable contributions to journals and conferences increases. Therefore, it is expected that the scientific dissemination targets are feasible. Moreover, a Special Session proposal has been submitted to the IEEE 8th World Forum on Internet of Things. This Special Session



has been accepted (mail received on April 20, 2022). Hence, it will become a major scientific dissemination event. It is also likely to result in publication of additional content.

ASSIST-IoT project organises a workshop to be held during IoTWeek 2022 (20-23 June, Dublin, Ireland) entitled: “The ASSIST-IoT approach to NGIoT architecture design and implementation”, IoT Week 2022, Tuesday 21 June 2022, Dublin, Ireland. In this session, experts of the project will present relevant outcomes of ASSIST-IoT, in particular: design principles of the reference architecture and definition of the concept of encapsulated enablers. Topics to be presented:

- Introduction of ASSIST-IoT as the reference architecture for the NGIoT.
- Design and implementation of a smart orchestrator for deploying enablers in NGIoT environments.
- Secure data sharing schemes for IoT by coupling XACML & Distributed Ledgers.
- ASSIST-IoT functionalities for securely tracking assets in terminal yard.
- Consuming real-time data in Mixed Reality application through a distributed data broker: A case study on large construction site.

The aspect that is worrisome to some extent is related showcases and exhibitions. On the one hand, COVID-19 seems to be slowly allowing physical events to take place. However, it is not clear how fast possibilities of meaningful showcasing and exhibiting will be back. Moreover, war in Ukraine may have direct effect of popularity of “fairs”, as businesses may cut down marketing expenditures, due to the global instability. This situation is recognized as an actual project risk and is being monitored. The next assessment of the situation is planned for after Summer of 2022.

It is worth noting that, thus far, typical promotional materials, in the form of stickers, pens, notepads, T-shirts, leaflets, mugs, etc., promoting the action, have not been produced (in the form of physical artefacts). This is going to change as soon as the first in-person dissemination event takes place. Appropriate materials will be produced, delivered to those who will need them and used during conferences, business fairs, etc.

### 5.3. Exploitation

In order to address several innovations stages at different times along the project duration and guarantee a successful exploitation of projects results, ASSIST-IoT exploitation plans are going along five steps:

1. *Discovery and identification of Exploitable Results of the project and partners’ interests.*
2. *Identification of IPR of each Exploitable Result.*
3. *Identification of Joint and Individual exploitation opportunities.*
4. Selection process of where to put the focus on during project execution.
5. On those selected, development of the business plan.

At this stage of the project, the three first steps have been addressed. The goal of these steps has been to identify a number of different Exploitation Results. Nevertheless, additional refinement will be needed until M30 of the project in order to have a clearer view of the functionalities that the different enablers of the project are capable of delivering.

Moreover, not all exploitation opportunities will be feasible to become in business plans. From M18 until the very end of the project, the innovation team will carefully select a sub-set of opportunities (step 4) which worth the effort to perform an in-depth analysis with a more detailed business plan (step 5) as thoroughly explained in D9.6.

## 6. Conclusion

In summary, it can be concluded that:

1. Communication activities are proceeding smoothly and are ahead of schedule in all pertinent KPIs.
2. Taking into account the fact that, as stipulated in the project schedule, technical achievements (e.g., implemented software), which can be “turned into publications” (and conference presentations) start to materialise, it can be claimed that dissemination activities are on track. Consortium is aware of some potential shortcomings in this area, although respective KPIs are so far at good standing, and is monitoring the situation. Moreover, potential venues for publication of project-based materials are being created by the consortium (e.g., the Special Session at the IEEE IoT World Forum).
3. While no showcasing took place thus far (planned for the second half of the project), the main reason is that only now results that can be showcased start to materialise. Hence, no substantial risk in reaching targets is perceived. However, situation is monitored by the Consortium.
4. Finally, exploitation plans have been updated, including potential short- and long-term effects of COVID pandemics. Here, it should be also noted that war in Ukraine is much too new event, and the situation is much too liquid to assess its potential effects in the area of exploitation/dissemination of project results. Hence, this factor (which is monitored) will be assessed at the end of the project (in the final round of exploitation-related documentation).