CYBERSANE

D11.4

Intermediate Report on Dissemination and Communication Activities

Project number:	833683
Project acronym:	CyberSANE
Project title:	Cyber Security Incident Handling, Warning and Response System for the European Critical Infrastructures
Start date of the project:	1st September, 2019
Duration:	36 months
Programme:	H2020-SU-ICT-2018

Deliverable type:	Report
Deliverable reference number:	DS-01-833683 / D11.4 DRAFT
Work package contributing to the deliverable:	WP 11
Due date:	08 2021 – M24
Actual submission date:	31 October 2021

Responsible organisation:	Inria
Editor:	Edward Staddon
Dissemination level:	PU
Revision:	DRAFT

Abstract:	This deliverable describes the communication and dissemination activities achieved for CyberSANE in the second year of the project. The various achievements obtained through the various dissemination and communication channels are presented and explained in relation to the Key Performance Indicator objectives defined and presented in D11.1 and those achieved during year one and presented in D11.2.
Keywords:	Dissemination, Communication, Website, Social Media, KPIs, Impact, Visibility, Objectives

The project CyberSANE has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 833683.

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Executive Summary

This deliverable provides a comprehensive insight into the dissemination and communication activities of the CyberSANE project as performed during its second year. All activities are performed by the consortium and shared through the various communication channels belonging to the project. The work presented here expands upon what was presented in **D11.1 – Dissemination, Communication and Exploitation Plans**.

This report follows up the ground work presented in **D11.2 – Initial Report on Dissemination and Communication Activities** which defined the different dissemination and communications methods and strategies available for the project as well as performed an analysis on the dissemination activities during the first project year.

Furthermore, a complete listing of all dissemination activities during the second year of the project provides a significant insight into project activities. This facilitates the access to specific activities, classed by year of accomplishment.

Finally, to fully evaluate the achievements during this period, this document contains a complete comparison and evaluation relative to the analytical KPIs defined in **D11.1** in relation to all activities presented and previously analysed in **D11.2**. An analysis of the results and adaptation strategies allow the project to evolve, increasing its dissemination and communication efficiency.

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1. Introduction

This deliverable presents the status of **T11.2** during the second year of the project as part of **WP11**. This task is devoted towards dissemination and communication of project related information through the different means of communication employed by CyberSANE. The main objective is to provide a detailed overview of dissemination activities in relation to the various KPIs posed in **D11.1 – Dissemination, Communication and Exploitation Plans**. It also expands upon the work achieved and presented in **D11.2 – Initial Report on Dissemination and Communication Activities** which presented the methods and activities during the first year of the project.

Being noticed and acknowledged is significantly important in many areas, even more so with important technical projects. Sharing their achievements with other projects or people in the same domain allows them to be acknowledged and gain credibility in their work. Furthermore, with the use of social media, the reach of the project is significantly increased, providing the possibility to directly interact with other people through a digital world.

To achieve such recognition, multiple methods of communication must be employed. CyberSANE uses multiple approaches to share information from its own website and social media accounts to the publication of scientific reports and participation in events and workshops. Furthermore, simple use of these methods isn't the most efficient way to achieve one's goal. To take full advantage and exploit these approaches to their full potential, individual strategies must be elaborated and expanded where areas of improvement have been identified. These strategies as well as potential improvements are extracted in **D11.2** and are used for the basis of all activities in this report.

Once the new strategies have been determined and improved based upon our observations after the first year, they can be implemented upon our existing platforms. Multiple dissemination activities have thus been performed once again during the second 12-month period of the project. These activities must also be categorised and enumerated so as to keep track of all those which have been achieved across all communication methods.

However, when achievements are concerned, these activities must be evaluated against Key Performance Indicators (KPIs) allowing to quantitively evaluate the achievements. These KPIs, defined in **D11.1**, pose guidelines which are to be achieved during the project. This allows to identify areas which need improvement but also define the methods to achieve such improvements. It also allows us to study and evaluate the proposed solutions presented in D11.2 after the analysis of the activities during the first year, to determine whether they bore their fruit.

1.1. Purpose and objectives

The purpose of this report is to present the communication and dissemination activities achieved during the second year of the project. Through their evaluation relative to the elaborated KPIs, their effectiveness can be determined, as well as their overall impact on project awareness.

The objectives of this deliverable are as follows:

- Present the new additions and modifications towards the existing methods for sharing information
- Present all the activities performed during the second year of the project
- Analyse impact of these activities and determine areas which need to be improved upon

1.2. Deliverable Structure

This deliverable is decomposed into three distinct sections:

- Section 2 lists the dissemination methods used by CyberSANE as well as an overview of new additions and modifications towards these methods
- Section 3 presents a comprehensive and complete list of all activities achieved during the second year of the project
- Section 4 presents the examination of the activities from Section 3 relative to the defined KPIs, providing an insight into the efficiency of activities, as well as methods of improvement.

2. Communication and Dissemination Methods

In this section, we present an overview of the various existing communication platforms and methods used by CyberSANE for the communication and dissemination activities as defined and presented in **D11.2**. We also present the new additions and modification to our current dissemination armada which occurred during this year.

2.1. Current Methods

CyberSANE possesses *eight* different communication and dissemination methods, each corresponding to a specific use and target audience. The following presents the current library of platforms and methods at our disposal:

- **Website**: The official CyberSANE website [1] and main communication channel for sharing project related information. It contains a large diversity of content spread out across multiple different pages.
- **Social Media**: Perhaps the most successful way to convey a large amount of information quickly to a large audience. CyberSANE possesses two accounts at our disposal:
  - **Twitter**: One of the most commonly used platforms for both personal and professional use, our Twitter account can immediately reach a large diversity of users. Here we can share any information with our followers, updating them on the project's advancements, or simply sharing Cyber Security related news.
  - **LinkedIn**: More oriented towards the professional community compared to Twitter, our LinkedIn account allows us to interact with other projects and professional entities. In a similar fashion to previously, we can share project related information, all the while adapting our vocabulary to a more professional environment.
- **Communication Materials**: Here we categorise any product which can be used to visually promote the project, either digitally or physically. This concerns for example leaflets, project templates or even promotion videos.
- **Publications and Papers**: Some partners are from scientific or academic backgrounds and, therefore, publish their accomplishments in international journals and conferences. Here we list the different publications, allowing their accomplishments to be recognised by the consortium.
- **Media and Press Release**: We can take advantage of various news outlets to share project related information, such as through official project press releases. We can also use the outlets available to our partners, such as websites, social media and press contacts, to promote work achieved during the project on a national level.
- **Newsletter**: We have two newsletters at our disposal, a monthly version updating subscribers on what has happened on the website in the past month, and a biannual version, which goes into more detail on the technical aspects. We can also take advantage of different partner newsletters, both internal and external to promote the project with their followers.
- **Events**: Through our participation in different events and workshops, we can not only gain an insight to the current tendencies in the cyber security field, but also present our findings to the technical community. This can also help us identify potential partnerships and collaborations with other projects and entities.

More information about these methods can be found in D11.2, as well as our preliminary dissemination strategy defined at the start of the project. In section 4 of said report, we also present possible improvements to said strategies, allowing is to adapt our methods based upon the results of our first year.

2.2. Additions and Modifications

During our second year, no new methods have been added to our collection. However, two of our existing methods, the Website and our Twitter, have received some modifications. Below we take a look at both of these methods, and what these modifications entail.

2.3. CyberSANE Website

During the second year, the website structure saw some modifications with the introduction of *six* new pages. Furthermore, two existing pages were overhaled, to update their structure and contents. The new site map is presented in Figure 1, while the original is available in section 2.1.1 of **D11.2.**

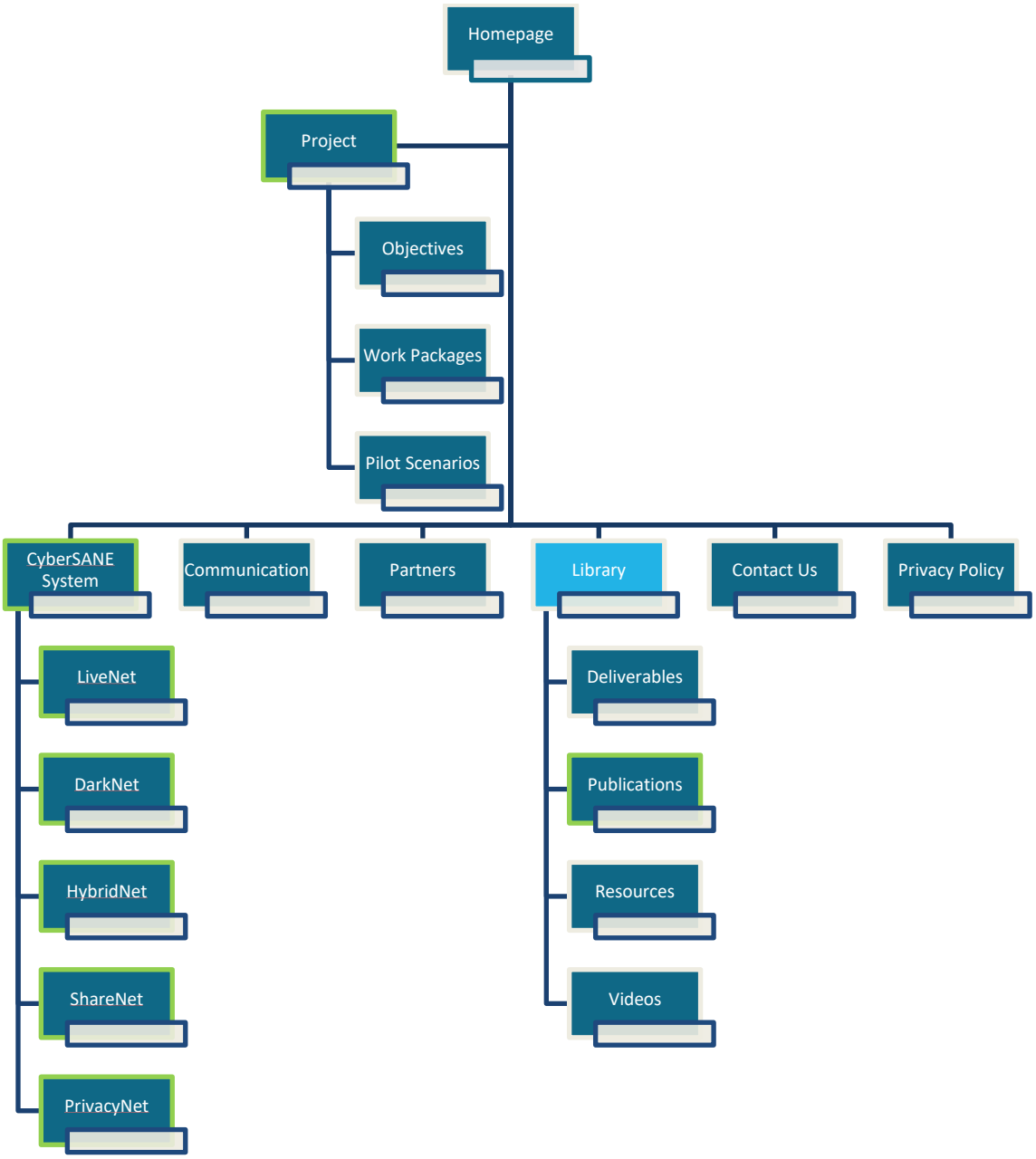

Figure 1: CyberSANE Website – Site Map

As we can see, there are numerous pages surrounded in a green outline. This allows us to identify the new additions or modifications to the original structure, increasing the number of pages from *13* to *17*.

The following presents these changes and additions:

- **Project**: The contents of this first page, shown in Figure 2 have been reviewed to allow a smoother reading experience and provide more information regarding the project itself. Its children pages, **Objectives**, **Work Packages** and **Pilot Scenarios** remain, however, unchanged.
- **Publications**: The structure of the publications page received an overhaul due to the extensive number of publications provided this year. Instead of simply listing the various papers in chronological order, they are now grouped by type of submission: Journal or Conference.
- **CyberSANE System**: This parent category presents the general information about the CyberSANE system functionality and architecture, presented in Figure 2. It also serves as an introduction, providing a brief definition of the five core components, linking to their respective children pages. Each subsequent child page is presented in the same fashion: a presentation about the component itself, followed by an in-depth list of the different partner-provided tools which are integrated into that component.
  - **LiveNet**: The first sub-menu provides the aforementioned information, targeted towards the LiveNet component. The presentation provides insight into the components used and the subsequent tool list presenting three tools, their partners and their uses in CyberSANE. The layout for the presentations is illustrated in Figure 2, while the same also applies for the other four components.
  - **DarkNet**: The second sub-menu moves onwards to the second component, DarkNet. The presentation is followed by a look at the two components which have been integrated into this component.
  - **HybridNet**: The third sub-menu takes a look into the HybridNet component with its three associated partner tools.
  - **ShareNet**: The fourth sub-menu presents the ShareNet component and its uses with CyberSANE. Two tools are associated with this component and are also presented.
  - **PrivacyNet**: The final sub-menu provides an insight into the PrivacyNet component, and its single partner provided tool.

Figure 2: CyberSANE Website – Project Page / CyberSANE System page / LiveNet Page

2.4. Twitter

As part of our strategy for Twitter as defined in **D11.2**, we use what we call "Tweet Tags" to identify the type of tweet been published. An example of this can be seen in Figure 3, where on the left, we see a tweet with the tag "Technical", presenting the CARMEN tool which is part of the HybridNet component. This allows users to, at a glance, get a gist of the context in which this tweet resides, thus helping them in the reading and understanding. We can also see that the tag possesses an emoji, thus breaking up the monotony of a single text block.

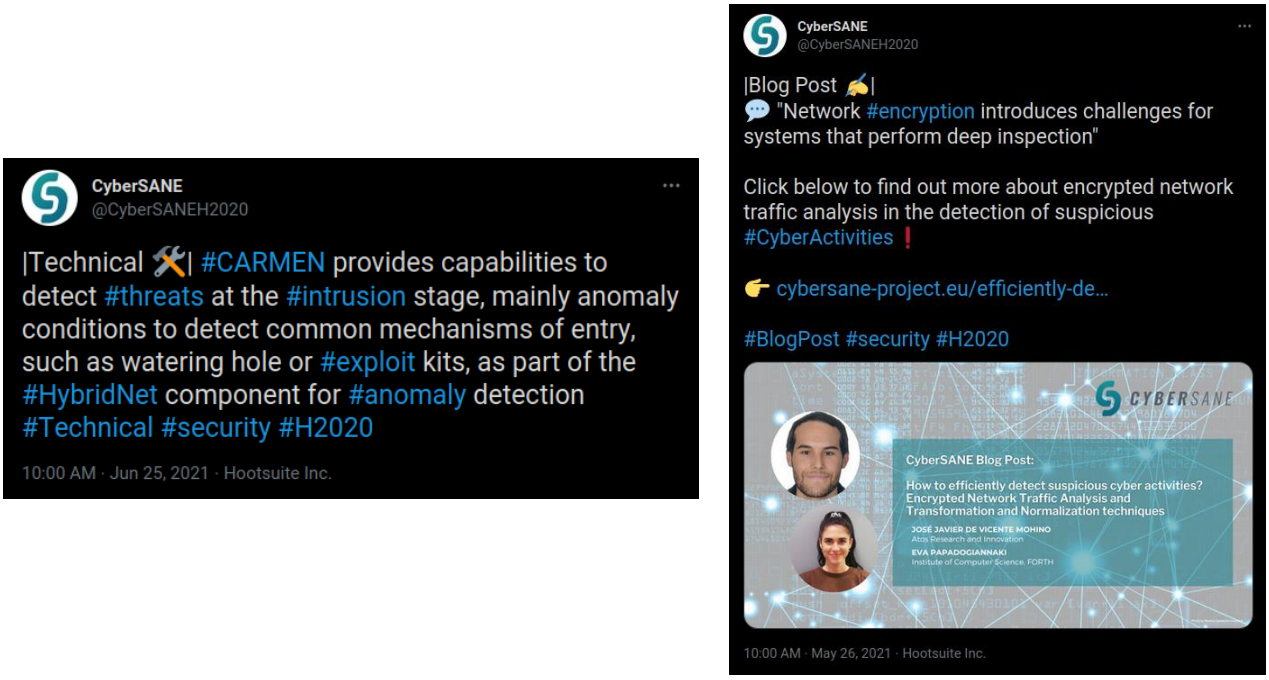

Figure 3: CyberSANE Twitter - Tweet Examples

During the second year, with the arrival of a new type of blog post called "Project Updates" being published on the website, as presented in section 3.1 below, a new tweet type was also devised with a corresponding emoji. This allowed us to share this information with our twitter followers in the same fashion as we share other website-based content, whilst still permitting the user to identify the tweets context at a glance. This new tag is presented in Table 1 and a sample tweet is visible in the image on the right side of Figure 3.

Tags	Contents	Emojis
Blog Post	Share project updates posted to the website's blog	✍️

Table 1: CyberSANE Twitter – New Tweet Tags

3. Communication and Dissemination Activities

During the second year of the project, various activities concerning communication or dissemination of information have taken place. This section presents all activities during the period between *1st September 2020* and *29st August 2021*. It is important to note that the second year of the project does not officially end until *31st August 2021*, however, many activities towards the end of this period will be missed due to the submission date of the deliverable.

These activities will be presented relative to their different methods and platforms.

3.1. CyberSANE Website

During this second year, the activities surrounding the website were more relaxed than the first. Indeed, only slight modifications were brought to the website structure, including four new pages. Of course, some pages such as those contained in the "*Library*" section are periodically updated with new contents. However, since these pages concern other dissemination activities which are defined separately in this document, they will not be explored here.

The main method of communication through the website is the use of the blog. In a similar fashion as the first year, any and all activities or important project-related information are published to the blog. As explained in **D11.2**, we use Categories to group together different posts that revolve around a similar theme. However, this year, following updated strategy post **D11.2**, we added a new category called "Project Updates", in which different aspects of the development process are presented periodically. Each update is authored by a partner who was in charge of either the corresponding Work-Package or Task. These blog posts, published on the "*Communication*" page [2], are listed in Table 2, along with the name and affiliation of the author.

Title	Author	Date
Architecture for an innovative, knowledge-based, and collaborative, security and dynamic response system	Athanasios Karantjias, *Grupo MAGGIOLI*	24th September 2020
CyberSANE Methodology for gathering End Users requirements	Edward Staddon, *INRIA*	28th October 2020
Taxonomy of Threat Landscape	Julio Navarro Lara, *S2 Grupo*	23rd November 2020
How does CyberSANE comply with the legal and ethical aspects for the protection of Critical Information Infrastructures (CIIs)?	Ilaria Buri, *KU-Leuven*	7th January 2021
Web crawlers, data mining and extraction of knowledge from news articles and Dark Web	Matej Kovačič, *Jožef Stefan Institute*	4th February 2021
How to efficiently detect suspicious cyber activities? Encrypted Network Traffic Analysis and Transformation and Normalization techniques	José Javier de Vicente Mohino, *Atos Research and Innovation* Eva Papadogiannaki, *Institute of Computer Science, Forth*	20th April 2021
Intelligence and Information Sharing models	Fabio Martinelli, Oleksii Osliak and Vincenzo Farruggia, *Consiglio Nazionale delle Ricerche*	27th July 2021

Table 2: CyberSANE Website – Project Updates

As we can see, a total of *seven* project updates have been published to the blog, each one providing various levels of technical information on different aspects of the project's development cycle. Since each post is authored by a different person, they are able to use their own personal touch to speak to the reader on a more personnel level rather than a generic post providing some information. We can also see that, although the updates were published on a monthly basis, this has evolved more towards a bi-monthly basis to align with the project's development timetable, since more information was already available when the posts first started. Table 3 shows the current publication timetable for the different project updates.

Year	Month	Topic	Partner
2020	September	CyberSANE Architecture	MAG
	October	Critical Infrastructures requirements	INRIA
	November	Taxonomy of threat landscape	S2

Year	Month	Topic	Partner
	December	Legal and ethical requirements on the protection of CIIs	KUL
2021	February	Web crawlers, data mining and aggregation analysis	JSI
	April	Encrypted network traffic analysis, transformation, and normalisation technique	ATOS
	June	Intelligence and Information Sharing models	CNR
	August	CyberSANE Reference Scenarios	VPF
	October	Advanced anomaly detection	S2
	December	Protecting Energy CIIs: Challenges and obstacles	LSE
2022	February	Advanced visualization techniques	UBI
	April	Protecting Transport CIIs: Challenges and obstacles	VPF
	June	Trust, security and privacy mechanisms for CIIs	ATOS
	August	Protecting Health CIIs: Challenges and obstacles	KN
	October	CyberSANE components data flow and system operation	MAG

Table 3: CyberSANE Website – Blog Post Timetable

These project updates aren't the only source of information on the blog. Indeed, there are many other types of information which could be of interest to the reader such as different events or awards. Table 4 presents a listing of these alternative additions to the blog.

Title	Contents	Category	Date
CyberSANE at ENISA-EC3 Workshop	Presentation of the ENISA-EC3 workshop in which CyberSANE participated	Workshops	14th September 2020
CyberSANE at the Concordia Open Door Event 2020	Presentation of the Concordia Open Door Event 2020 as well as our virtual booth	Events	21st September 2020
CyberSANE at Cyberwatching.eu Webinar 2020	Presentation of the Cyberwatching.eu Webinar in which CyberSANE participated	Events	22nd October 2020
Project of the Week – Cyberwatching.eu 2020	Nomination of CyberSANE as Cyberwatching.eu's Project of the Week award from 19th to 23rd October 2020	Award	22nd October 2020
CyberSANE at C4IIoT Winter School 2020	Presentation of the C4IIoT Winter School in which we participated	Events	30th November 2020
Newsletter #2 – December 2020	Publication of the second biannual newsletter	Newsletter	15th December 2020
Joint Standardisation Workshop of Dynamic Countering of Cyber-Attacks Projects	Organisation of CyberSANE's first workshop alongside other projects from the SU-ICT-01-2018 H2020 call	Workshop	13th January 2021
CyberSANE joins the European Cluster for Securing Critical Infrastructures (ECSCI)	Publication presenting the ECSCI as well as CyberSANE becoming a new member	Announcement	4th February 2021

Title	Contents	Category	Date
CS4CA's 24Hr Global Cyber Security Summit	Presentation of the CS4CA 24Hr Globa Cyber Security Summit in which CyberSANE participated	Events	23rd March 2021
CyberSANE at SPARTA Day and Brokerage Event	Presentation of SPARTA Day and Brokerage Event in which CyberSANE participated	Events	12th April 2021
CyberSANE supporting 2nd International Workshop on Cyber-Physical Security for CI Protection	Presentation of the 2nd Int Workshop on Cyber-Physical Security for the protection of CIs and CyberSANE's support as a member of the ECSCI	Workshops	14th April 2021
CyberSANE recognised by EU Innovation Radar	Publication presenting the different innovations and their partners which were identified by the EU Innovation Radar	Announcement	21st April 2021
CyberSANE at ARES 2021	Presentation of ARES 2021 in which CyberSANE participated	Events	16th July 2021

Table 4: CyberSANE Website – Activities

Taking a closer look, we can see that a total of *13* blog posts have been published to the website, on top of the *seven* previously presented project updates. If we take a look at the publication dates for these posts, we can see that the rate is approximately *two posts per month*, doubling the rate of the previous year. However, we can also see that no activity took place on the blog between the *21st April* and the *16th July*. Since the blog presents information, such as events and project updates, this is due to the lack of event participation and the pause between subsequent project updates.

The website also allows the reader to interact with us, by either leaving a comment on one of the posts or by using the "*Contact Us*" page to communicate with the project coordinator and dissemination leader. Although only a small handful of comments are left on various posts, unfortunately they are generally spam posts and are subsequently removed. The "Contact Us" form on the other hand, has seen a significant increase in activities, with a total of *193* uses during the second year. Unfortunately, similar to the comments, many of these requests are spam related, in general revolving around "consequences due to COVID-19" or proposing different deals related to cryptocurrency. As of yet, no legitimate request of information has been made via the contact form.

3.2. CyberSANE Social Media

3.2.1. Twitter

Out of all of our available methods for sharing information, Twitter is definitely the most used. By increasing our tweet rate to an average of two a week thanks to our technical campaigns, we were able to significantly increase the number of tweets published during the second year. Table 5 shows an overview of the various tweets made.

Tags	Number of Tweets
Cyber News	8
Partners	9
Meeting	1
Calendar Event	0
Event	27

Tags	Number of Tweets
Announcement	9
Results	0
Information	18
Presentation Woman	0
Presentation Man	0
Publication	0
Technical	61
Blog Post	19
Untagged	10
Total	162

Table 5: CyberSANE Twitter – Activities

As we can see, a total of *162* tweets were published throughout the different categories. It is important to note that all posts made through the official account have been included in the statistics. This means that retweets which contained an added message to them have been noted, however, simple retweets without comment have been excluded. It is also visible that certain categories possess no tweets, this includes "*Calendar Event*", "*Results*", "*Presentation Woman*", "*Presentation Man*" and "*Publication*". The first is due to a scheduling mistake, meaning the programmed Christmas and New Year wishes were not published. The reason for the second has not changed since the first year, since no publishable standalone results have been made, however, all intermediate results have been published to the website through the project updates, and subsequently shared on twitter through the "*Blog Post*" tag. The third and fourth were not used this year as there was no need to perform presentations of either men or women in any context. Finally, the last category "*Publication*" did not see any activity since its objective was to announce the publication of individual papers as and when they are official. However, as explained in section 3.4 below, new publications were provided to us as a whole and not at the time of publication. As such, no tweets fall under that category.

During the second year, we were able to develop our "*Technical*" series, presenting different aspects of the project and the system. As of date, two technical campaigns have taken place with the second still ongoing. As confirmed by the table, these series have provided the most tweets during this year, with a total of *61*, each presenting different aspects of the CyberSANE code architecture, as well as the different partner tools and their uses in the different system components.

To achieve our goals with our technical campaigns, a global campaign timetable was devised following the proposed strategy in **D11.2**. Thanks to this timetable, an average of *two tweets per week* were programmed during both campaigns, allowing our twitter account to have a regular output, catching the eye of new followers. The individual timetables for the "*Technical Components*" and the "*Technical Tools*" campaigns are presented in Table 6 and Table 7 respectively.

Component	Subject	Partner	Due Date	Publication Date	Status
LiveNet	Presentation	INRIA	03/08/20	10/08/20	Published
	Description	INRIA	07/08/20	14/08/20	Published
	Monitoring & Analysis	S2	10/08/20	17/08/20	Published
	Taxonomy	INRIA	14/08/20	21/08/20	Published
	Encrypted Traffic Analysis	FORTH	17/08/20	24/08/20	Published

Component	Subject	Partner	Due Date	Publication Date	Status
	Transformation & Normalisation	ATOS	19/08/20	26/08/20	Published
DarkNet	Presentation	JSI	04/09/20	11/09/20	Published
	Description	JSI	14/09/20	21/09/20	Published
	Social Media Crawling	JSI	18/09/20	25/09/20	Published
	Deep / Dark Web Crawling	UBI	21/09/20	28/09/20	**Part Published**
	Data Management Algorithms / Knowledge Extraction	JSI	25/19/20	02/10/20	Published
HybridNet	Presentation	ATOS	02/10/20	09/10/20	Published
	Description	ATOS	05/10/20	12/10/20	Published
	Detection / Analysis	ATOS	09/20/20	16/10/20	Published
	Prevention / Response	STS	12/10/20	19/10/20	Published
	Evidence Chains / Cyber Fusion Models	FORTH	16/10/20	23/10/20	Published
	Situation Development	MAG	19/10/20	26/10/20	**Not Provided**
ShareNet	Presentation	CNR	26/10/20	02/11/20	**Not Provided**
	Description	CNR	30/10/20	06/11/20	**Not Provided**
	Sharing Models	CNR	02/11/20	09/11/20	**Not Provided**
	Threat Intelligence / Trust Management Approaches	STS	06/11/20	13/11/20	Published
	Mechanisms / Storage	CNR	09/11/20	16/11/20	**Not Provided**
	Specification / Development	MAG	13/11/20	20/11/20	**Not Provided**
PrivacyNet	Presentation	PDMFC	20/11/20	27/11/20	**Not Provided**
	Description	PDMFC	23/11/20	30/11/20	Published
	Modelling	PDMFC	27/11/20	04/12/20	Published
	Specifications	STS	30/11/20	07/12/20	Published
	Innovations	CNR	04/12/20	11/12/20	**Not Provided**
Core	Presentation	ATOS	17/12/20	21/12/20	Published
	Description	ATOS	17/12/20	24/12/20	Published *x2*

Table 6: CyberSANE Twitter – Technical Component Campaign Timetable

Looking at the "*Technical Component*" campaign timetable, Table 6 above, we can see that a total of *30* contributions were requested from a wide variety of partners. Since this campaign revolved around the components themselves, the partners contacted were those who worked in the corresponding project Work-Package. Apart from the presentation and description tweets, which were requested from the Work-Package leader, each subject represents a specific Task from each package with the associated partner being the Task leader. This allows the tweets to be written by someone with knowledge about the Task itself, rather than the social media organisers generating the tweet from a short report, with little understanding of the work involved. Although the majority of partners responded to and respected the timetable, unfortunately both **CNR** and **MAG** were not able to contribute. However, on a good note, **UoB** who was not expected to contribute towards any

of the topics, provided two tweets regarding **PrivacyNet**, filling the empty spot left by **CNR**, bringing the total number of contributions towards this campaign to *24 out of 30*.

Component	Tool	Partner	Due Date	Publication Date	Status
LiveNet	XL-SIEM	ATOS	15/03/21	23/03/21	Published
	SiVi	SID	29/03/21	05/04/21	Published
	GLORIA	S2	12/04/21	19/04/21	Published
DarkNet	Medusa	UBI	03/05/21	10/05/21	**Part Published**
	EventRegistry	JSI	17/05/21	24/05/21	Published
HybridNet	CARMEN	S2	07/06/21	14/06/21	Published
	L-ADS	ATOS	21/06/21	28/06/21	**Not Provided**
	OLISTIC	UBI	05/07/21	12/07/21	**Not Provided**
ShareNet	Sharing Platform	FORTH	26/07/21	02/08/21	Published
	C3ISP	CNR	09/08/21	16/08/21	Published
PrivacyNet	CHIMERA	PDMFC	06/09/21	13/09/21	Pending

Table 7: CyberSANE Twitter – Technical Tool Campaign Timetable

Compared to the first campaign, the "Technical Tool" timetable at first looks much less demanding. However, the topic revolves around the different tools provided by partners which are integrated into various components. As such, a single tweet would not be sufficient to convey enough information to understand these tools and how they function, in relation to their component. To respond to this challenge, the bar was raised to *four* contributions per partner to present each tool over a span of *two weeks* per tool. This brings the total number of tweets requested to *44*, *14* more than the component campaign. Unfortunately, similar to the previous campaign, multiple partners couldn't contribute where requested or weren't able to provide all *four* tweets. One partner, however, wasn't able to meet the requested timetable, but have confirmed they will provide their tweets at a later date instead.

This campaign is currently still underway and not expected to end until the end of *September*, at which time another will take place. However, the next contender to our campaign line-up hasn't yet been defined.

3.2.2. LinkedIn

Compared to Twitter activities, LinkedIn posts are significantly subdued. As shown in Table 8, *15* posts took place between *September 2020* and *August 2021*. Similar to the previous year, many of these posts are website-based content, shared across social media. However, contrary to last year, the rest of the posts concern interactions with other members on the platform, such as sharing their post.

Post	Date
CS4CA Partnership	September 2020
QG Media Interview	September 2020
CS4CA Participation Reminder	October 2020
Concordia Open Door Event 2020	October 2020
1st three Project Updates	November 2020
C4IIoT Winter School 2020	December 2020

Post	Date
Legal and Ethical Project Update	January 2021
Shared GUARD project Joint Standardising Workshop participation announcement	January 2021
1st Edition of the Joint Standardisation Workshop	January 2021
2nd three Project Updates	June 2021
Bi-Annual Newsletters	July 2021
CyberSANE Architecture	July 2021
LiveNet	July 2021
DarkNet	August 2021
HybridNet	August 2021

Table 8: CyberSANE LinkedIn – Activities

It is also noticeable that there is a five-month gap between the last two posts in *January* and *June* respectively. This is due to the nature of publications on LinkedIn, which are significantly different from those on Twitter. Whereas it is possible to simply share a link or website-based information directly to twitter with a small quick caption, on LinkedIn it is more prudent to provide a more professional type of message for a more "professional" platform. Furthermore, no possible contributions were available to be published during this period, leaving the platform and its followers without any updates. However, it is important to note that since then the rate of posts has significantly increased in an effort to recuperate and minimise the impact of the down time.

3.3. Communication Materials

During this second year, *two* types of communication materials have been created and are presented in Table 9.

Type	Description	Date
Social Media Banners	Banner images to promote project updates on the blog and on social media	VARIOUS
Presentation Video	Official project presentation video on YouTube	October 2020

Table 9: CyberSANE Communication Materials – Activities

The first material concerns the creation of multiple Social Media Banners for use on both the website and social media. In total, *seven* banners have been developed, *one* of which to promote the participation in an event whilst the other *six* were used to promote the project update series on the blog. With the development and publication of the project update series, an individual banner was created per post, presenting the title of the post as well as the authors and their affiliation. This completes the personal touch of the blog posts themselves, but are very useful for publication on social media, as they can serve as images which also entice passing users to take a look at our post and potentially read the blog post itself. A quick overview of some of these banners is visible in Figure 4.

The second creation concerns the first official CyberSANE project presentation video [3], which can be seen in Figure 5. The video, posted to our official YouTube channel [4], is also available on the website on the "*Videos*" page under the "*Library*" category. At almost three and a half minutes long, this video presents the

context in which CyberSANE is situated. It also goes into further detail by decomposing the system's architecture, thus presenting the CyberSANE core as well as all *five* components.

As of writing this, the video currently has *166* views and *ten* likes. Furthermore, we also have *five* subscribers to the channel.

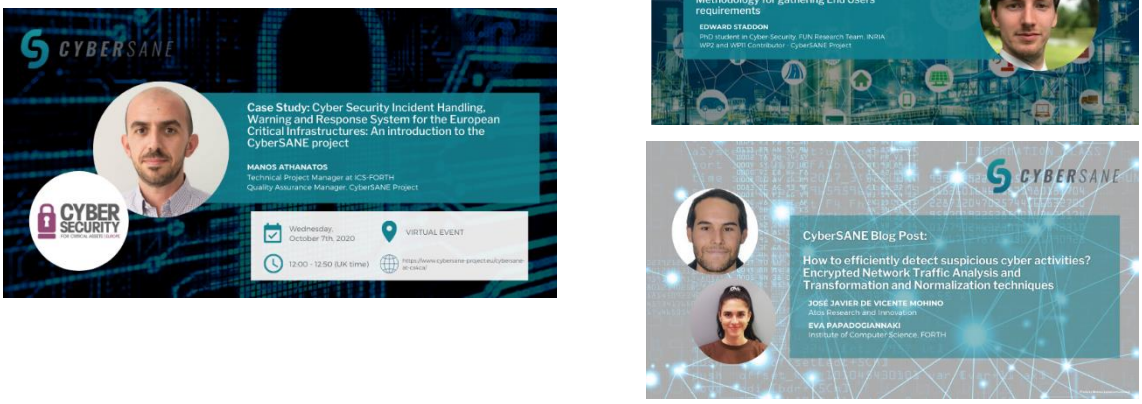

Figure 4: CyberSANE Communication Materials - CS4CA Event Banner ¦ Project Update Banners

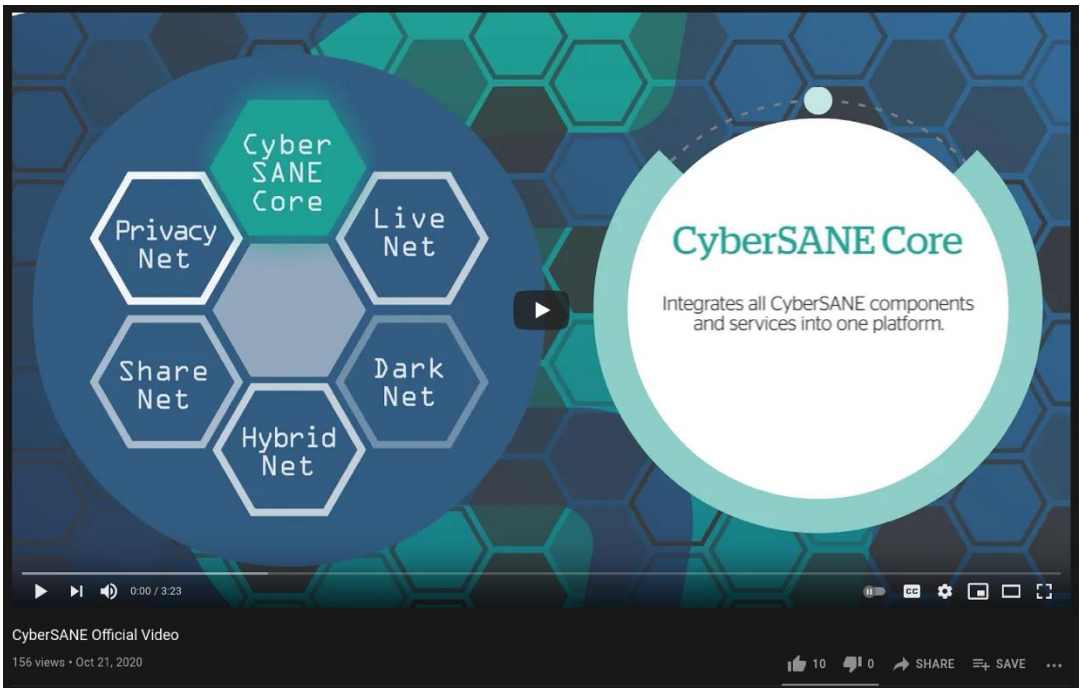

Figure 5: CyberSANE Communication Materials – Official CyberSANE Video

3.4. Publications and Papers

When it comes to scientific or academic publications and papers, there has been a significant uptake in activities. A grand total of *27* new publications have been added to our registry. All journal publications can be seen in Table 10 and conferences in Table 11.

Title	Authors	Published	Proceedings
Visualizing the outcome of dynamic analysis of Android malware with VizMal	Andrea De Lorenzo, Fabio Martinelli, Eric Medvet, Francesco Mercaldo & Antonella Santone	February 2020	Journal of Information Security and Applications – Elsevier
Android Collusion: Detecting Malicious Applications Inter-Communication through SharedPreferences	Rosangela Casolare, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	June 2020	Information – MDPI
A Deep-Learning-Based Framework for Supporting Analysis and Detection of Attacks on CAN Buses	Alfredo Cuzzocrea, Francesco Mercaldo & Fabio Martinelli	October 2020	Procedia Computer Science – Elsevier
Call Graph and Model Checking for Fine-Grained Android Malicious Behaviour Detection	Giacomo Iadarola, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	November 2020	Applied Sciences – MDPI
Detecting Colluding Inter-App Communication in Mobile Environment	Rosangela Casolare, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	November 2020	Applied Sciences – MDPI
Model checking and machine learning techniques for HummingBad mobile malware detection and mitigation	Fabio Martinelli, Francesco Mercaldo, Vittoria Nardone, Antonella Santone & Gigliola Vaglini	December 2020	Simulation Modelling Practice and Theory – Elsevier
Towards an Interpretable Deep Learning Model for Mobile Malware Detection and Family Identification	Giacomo Iadarola, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	January 2021	Computers & Security – Elsevier
Neural Networks for Driver Behavior Analysis	Fabio Martinelli, Fiammetta Marulli, Francesco Mercaldo & Antonella Santone	February 2021	Electronics – MDPI
Driver Identification Through Formal Methods	Fabio Martinelli, Francesco Mercaldo, Vittoria Nardone & Antonella Santone	February 2021	IEEE Transactions on Intelligent Transportation Systems – IEEE
Acceleration of Intrusion Detection in Encrypted Network Traffic Using Heterogeneous Hardware	Eva Papadogiannaki & Sotiris Ioannidis	February 2021	Sensors – MDPI
A Survey on Encrypted Network Traffic Analysis Applications, Techniques and Countermeasures	Eva Papadogiannaki & Sotiris Ioannidis	July 2021	ACM Computing Surveys – Association for Computing Machinery (ACM)
Attack Categorisation for IoT Applications in Critical Infrastructures, a Survey	Edward Staddon, Valeria Loscri & Nathalie Mitton	August 2021	Applied Sciences – MDPI

Table 10: CyberSANE Publications and Papers – Journals

As we can see, significant work has been undertaken by various partners and this work has been shared throughout the scientific community, with *12* being shared through various academic and scientific journals with the other *15* being published in different international conferences. However, it must be noted that *14* of these publications took place during the first year. This is because unfortunately, these papers were provided

to us at the time of publication but instead were given in bulk half way through the second year along with new publications. Naturally, even though they didn't take place in the last 12 months, they are still of importance to the project's dissemination and as such, are included in the activities for this year to provide a comprehensive and complete overview of all publication activities.

Title	Authors	Published	Proceedings
Android Run-time Permission Exploitation User Awareness by Means of Formal Methods	Fausto Fasano, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	February 2020	Proceedings of the 6th International Conference on Information Systems Security and Privacy – ForSE – SciTePress
Accidental Sensitive Data Leaks Prevention via Formal Verification	Madalina Ciobanu, Fausto Fasano, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	February 2020	Proceedings of the 6th International Conference on Information Systems Security and Privacy – ForSE – SciTePress
Bank Credit Risk Management based on Data Mining Techniques	Fabio Martinelli, Francesco Mercaldo, Domenico Raucci & Antonella Santone	February 2020	Proceedings of the 6th International Conference on Information Systems Security and Privacy – ForSE – SciTePress
Code Reordering Obfuscation Technique Detection by Means of Weak Bisimulation	Giuseppe Crincoli, Tiziano Marinaro, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	March 2020	Advanced Information Networking and Applications – Springer International Publishing
Colluding Android Apps Detection via Model Checking	Rosangela Casolare, Fabio Martinelli, Francesco Mercaldo, Vittoria Nardone & Antonella Santone	March 2020	Web, Artificial Intelligence and Network Applications – Springer International Publishing
Towards the Use of Generative Adversarial Neural Networks to Attack Online Resources	Lelio Campanile, Mauro Iacono, Fabio Martinelli, Fiammetta Marulli, Michele Mastroianni, Francesco Mercaldo & Antonella Santone	March 2020	Web, Artificial Intelligence and Network Applications – Springer International Publishing
Predicting Probability of Default Under IFRS 9 Through Data Mining Techniques	Fabio Martinelli, Francesco Mercaldo, Domenico Raucci & Antonella Santone	March 2020	Web, Artificial Intelligence and Network Applications – Springer International Publishing
Image-based Malware Family Detection: An Assessment between Feature Extraction and Classification Techniques	Giacomo Iadarola, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	May 2020	Proceedings of the 5th International Conference on Internet of Things, Big Data and Security – AI4EIoTs – SciTePress
Machine Learning for Driver Detection through CAN bus	Fabio Martinelli, Francesco Marcantoni & Antonella Santone	May 2020	2020 IEEE 91st Vehicular Technology Conference (VTC2020-Spring) – IEEE
Malicious Collusion Detection in Mobile Environment by means of Model Checking	Rosangela Casolare, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	July 2020	2020 International Joint Conference on Neural Networks (IJCNN) – IEEE

Title	Authors	Published	Proceedings
Enhanced Privacy and Data Protection using Natural Language Processing and Artificial Intelligence	Fabio Martinelli, Fiammetta Marulli, Francesco Mercaldo, Stefano Marrone & Antonella Santone	July 2020	2020 International Joint Conference on Neural Networks (IJCNN) – IEEE
VisualDroid: automatic triage and detection of Android repackaged applications	Rosangela Casolare, Carlo De Dominicis, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	August 2020	Proceedings of the 15th International Conference on Availability, Reliability and Security – Association for Computing Machinery (ACM)
Head(er)Hunter: Fast Intrusion Detection using Packet Metadata Signatures	Eva Papadogiannaki, Dimitris Deyannis & Sotiris Ioannidis	September 2020	2020 IEEE 25th International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD) – IEEE
Evaluating Deep Learning Classification Reliability in Android Malware Family Detection	Giacomo Iadarola, Fabio Martinelli, Francesco Mercaldo & Antonella Santone	October 2020	2020 IEEE International Symposium on Software Reliability Engineering Workshops (ISSREW) – IEEE
On Strengthening SMEs and MEs Threat Intelligence and Awareness by Identifying Data Breaches, Stolen Credentials and Illegal Activities on the Dark Web	George Pantelis, Petros Petrou, Sophia Karagiorgou & Dimitrios Alexandrou	August 2021	16th International Conference on Availability, Reliability and Security – ARES 2021

Table 11: CyberSANE Publications and Papers – Conferences

3.5. Media and Press Release

When it comes to media presence and press releases, there are different factors to take into account. We start by listing the different internal dissemination activities performed by partners as well as the contents of each activity. Then, we present the various activities achieved by third parties sharing official CyberSANE information through their own diverse channels.

It must be noted that CyberSANE can generate and disseminate its own official press release. However, no such publication was devised during this year.

3.5.1. Internal Dissemination

Each partner can share and disseminate information through the use of internal methods. In this case, internal methods represent the different means of communication possessed by the different partners, such as websites, newsletters and official social media accounts. In Table 12 we can see a complete list of all publications of project related information through various partner channels.

Title	Publisher	Date	Type
Disseminating CyberSANE's development progress and research activities based on CyberSANE newsletter	Various	April 2020 – June 2021	Project Information

Title	Publisher	Date	Type
CyberSANE Video	STS Twitter [5]	22nd October 2020	Project Information
	STS Facebook [6]		
	STS Website [7]		
CyberSANE "Lutte dynamique contre les cyberattaques"	« Lille » by Inria Booklet	December 2020	Project Information
CyberSANE "Lutte dynamique contre les cyberattaques"	Inria Intranet	3rd December 2020	Blog Post
Retweet of CyberSANE's tweet regarding STS' contribution towards privacy-enabled techniques, encryption and blockchain methodologies	STS Twitter [8]	4th December 2020	Project Information
Retweet of CyberSANE's tweet regarding PrivacyNet component capabilities	STS Twitter [9]	7th December 2020	Project Information

Table 12: CyberSANE Media and Press Release – Internal Dissemination Activities

As we can see, two types of dissemination are listed in this table, each corresponding to a specific type of communiqué. The first, "*Project Information*" simply defines any publication which conveys the basic information regarding the project. This includes information such as funding, partners, architecture or any presentation of the CyberSANE system. The second, "*Blog Post*" is probably the most transparent, as it represents any post to a partner own blog written by themselves.

We can also see that there have been activities on partners social media accounts, with for example STS posting both on their Twitter feed but also their Facebook page. This highlights the fact that dissemination mustn't only be done through the project's official accounts, but partners can use this information to attract their own followers, who might be interested in the project's objectives or achievements.

3.5.2. Media Presence

Other than internal communication channels, it is also possible to use external third-party media channels to promote project information. This includes a wide variety of platforms, from websites to physical printed newspapers. Table 13 presents an overview of these external dissemination activities, following the same format as the previous section.

In this table we can see that there were *five* known dissemination activities using various media outlets. These posts are targeted towards the general public, providing them with different information regarding the project itself, or simply presenting work which has been done during the project. As such, these articles could be written by both the news outlet itself and project partners, then published through independent media outlets.

Title	Publisher	Date	Type
VARIOUS	Cyberwatching.eu [10]	VARIOUS	VARIOUS
Transformación Digital en Valenciaport, una realidad	Diario del Puerto [11]	2020	Project Information
Les bénéfices à participer à un projet européen #5 consacrer du temps pour approfondir un sujet	Hauts de France [12]	8th February 2021	Project Information
Comment marchent votre réseau wifi et vos appareils connectés – et	The Conversation [13]	27th June 2021	Media Presence

Title	Publisher	Date	Type
pourquoi ils sont vulnérables aux attaques informatiques			
Pourquoi le wifi et nos appareils connectés sont si vulnérables aux attaques informatiques	Ouest France [14]	28th June 2021	Media Presence

Table 13: CyberSANE Media and Press Release – Media Presence

Furthermore, as we noted in D11.2, there is a visible variety in languages in which each publication is made. This strengthens the point that multiple partners are using their countries own dissemination methods to promote the project on a national level.

Other than the various individual publications, we immediately notice that the first publication, made on Cyberwatching.eu [15], does not have a title, date or type. This is because CyberSANE possesses a profile on Cyberwatching.eu on which multiple project related information is published, such as events in which we have participated, available resources such as deliverables, publications or our video and even project related news taken from CyberSANE's website. As of date, a total of *48* posts have been made and are summarised in Table 14.

Type	Contents	Amount
News [16]	Project related updates from the CyberSANE website (blog posts, announcements, etc.)	10
Events [17]	List of past events in which CybeSANE has participated	6
Deliverables [18]	List of public deliverables available for download	3
Publications [19]	List of published scientific publications made by CyberSANE partners	28
Video [10]	The videos uploaded to CyberSANE's YouTube channel	1

Table 14: CyberSANE Media and Press Release - Cyberwatching.eu

One important thing to remember is that although the majority of communications have been listed in Table 13, it is possible that some publications took place once again without our knowledge. If this is the case, however, such as done with the scientific publications, they will be included into the next deliverable **D11.6** which will present the activities during the third year of the project.

3.6. Newsletter

The CyberSANE newsletter comes in *two* forms; a *monthly version*, keeping the subscribers up to date with website updates; and a *biannual version*, which is published directly onto the website blog. However, there is also another newsletter channel that needs to be considered: *partner newsletters*. The activities on these *three* mediums are explained below.

3.6.1. Monthly Newsletter

The monthly newsletter's goal is to update subscribers with a list of website updates. These updates generally evolve around new additions to the blog, but they also concern other dynamic elements such as publications or the addition of new digital communication materials. Furthermore, it can be used to share other information, such as various publications from media outlets as well as the main topic from previous newsletters. Table 15 shows an overview of the activities achieved through the monthly newsletter.

Month	Contents
September 2020	Project Update Events and Workshops
October 2020	Project Update Events Awards
November 2020	Project Update
January 2021	Project Update Newsletter #2 Events
April 2021	Project Update Events Announcements
May 2021	Dedicated Project Updates
June 2021	Dedicated Publications
July 2021	Events Architecture Overview

Table 15: CyberSANE Monthly Newsletter – Activities

First of all, we can see that there is a recuring theme in the different newsletters: "*Project Update*" and "*Events*". This is due to the arrival of the project updates on the website blog, as presented in section 3.1 above, and the participation of CyberSANE in various events, as is explained in section 3.7 below.

Although originally created to be published on a monthly basis, some months did not possess a newsletter to their name. This is due to the lack of activities during certain months, but also a planning issue on the administrative side. To resolve the former, a new type of monthly newsletter was devised, this time not focusing on the activities during that month, but instead presenting a specific element from the website. This can be seen in both *May* and *June*, where no new activities occurred on the website, so special issue newsletters, dedicated to the project updates and the various publications were devised and sent. The latter issue on the other hand, has been resolved by requesting contributions from partners which are used as core elements in our newsletter, so there is always something to inform the readers about, and serve as an administrative reminder. As of writing this, this newsletter currently possesses *30* subscribers.

3.6.2. Biannual Newsletter

In *January*, as shown in the previous table, the contents of the monthly newsletter contained the second edition of CyberSANE's biannual newsletter. As presented previously, the biannual newsletter contains an overview of the project including presentation, achievements as well as information on the partners. Table 16 shows the list of biannual newsletters published this year.

As we can see, only one newsletter has been published this year. Each new edition contains information about CyberSANE's activities since the last edition, taken from the website itself, or reporting the status and achievements of the different Work-Packages. Although the contents change between the editions, the general structure and idea remains the same, to provide a complete and comprehensive booklet informing the reader about the project in great detail. It also serves a as brief summary of activities presented in this deliverable, informing the reader of different blog posts, publications, events, as well as the CyberSANE presentation video. The ending partner presentations also provide a human insight into the faces behind the list of partner entities.

Issue	Month	Contents
#2	December 2020 [20]	Technical Progress updates, events, partner presentations

Table 16: CyberSANE Biannual Newsletter – Activities

The second edition focuses more on certain technical aspects, such as the continued work on the different architectural components and what each task has managed to produce during the six months since the first edition. The partner presentations in this edition follow on from the previous, presenting *INRIA*, *MAGGIOLI* and *S2 GRUPO*. Figure 6 presents the cover photos of the second edition of the Biannual Newsletter.

Figure 6: CyberSANE Biannual Newsletter - #2: Front Cover

3.6.3. Partner Newsletter

Other than the official CyberSANE newsletter publications, there is also the potential to use partner newsletters to promote the project amongst their subscribers. The contents of these editions are up to the partner who wishes to publish one. However, the contents generally reside around similar information as the biannual edition: presenting project progress, news and significant results or publications. Table 17 presents a list of partners who have created and sent newsletters presenting or concerning the project.

Partner	Month
Inria Internal Newsletter	December 2020

Table 17: CyberSANE Partner Newsletter – Activities

As we can see, here only one newsletter has been published by Inria. This newsletter is listed as internal, meaning it is specific to Inria's mailing lists and cannot be accessed from outside.

3.7. Events

The final method for dissemination is by organising or participating in various events and workshops. Thankfully, following on the difficulties encountered during the first year due to the apparition of the COVID-19 pandemic, the majority of events which were postponed to a later date, were able to take place. As a consequence, respecting the sanitary rules and regulations, these evets and workshops were not able to take place in person. However, with the wide spread adoption of video-conferencing technologies to continue working throughout the sanitary crisis, the different events were able to migrate to these new platforms, rendering them 100% virtual. Although this meant that encountering interesting parties face to face would not be possible, it did mean that more people throughout the world were able to join, since travelling and lodgings were no longer required. Table 18 shows an overview of all the events and workshops in which CyberSANE has participated.

Name	Organiser	Location	Date	Type
International Cybersecurity Forum (FIC) [21]	CEIS & Gendarmerie Nationale	Lille	28th – 30th January 2020	Event
9th ENISA-EC3 Workshop: CSIRT and LE Cooperation [22]	ENISA & Europol	Virtual	16th September 2020	Workshop
CS4CA European Summit [23]	CS4CA	London (Virtual)	6th & 7th October 2020	Event
CONCORDIA's Open Door 2020 [24]	CONCORDIA	Virtual	28th & 29th October 2020	Event
Cyberwatching.eu's 2020 Webinar [25]	Cyberwatching.eu	Virtual	29th October 2020	Event
C4IIoT's Virtual International Winter School on Cybersecurity [26]	C4IIoT	Virtual	3rd December 2020	Event
Joint Standardisation Workshop of Dynamic Countering of Cyber-Attacks Projects [27]	CyberSANE	Virtual	22nd January 2021	Workshop
IoT Week By CITC [28]	CITC	Lille (Virtual)	17th March 2021	Event
SPARTA Day & Brokerage Event: We Are Connected [29]	SPARTA	Virtual	12th April 2021	Event
CS4CA 24Hr Global Cyber Security Summit [30]	CS4CA	Virtual	6th May 2021	Event
SOC Developments and Pilots in CEF and H2020 Projects Webinar	EU Commission	Virtual	19th July 2021	Event
ARES 2021 [31]	SBA Research	Virtual	17th – 20th August 2021	Event
2nd International Workshop on Cyber-Physical Security for Critical Infrastructures Protection (CPS4CIP 2021) [32]	ECSCI & NORCICS & RESTABILISE4.0	Virtual	September 2021	Workshop

Table 18: CyberSANE Events– Activities

As we can see, CyberSANE has participated in a total of *ten* events during our second year, all of which were able to take place virtually. If we look closer, we can identify that only three of these events were in fact workshops, highlighting the diversity in the type of participation. Looking at the *Organiser* column, we notice

that some of the events were in fact organised by other H2020 projects, such as *C4IIoT* and *CONCODRIA*. Furthermore, it is important to notice that CyberSANE also organised *one* of the workshops with other H2020 projects. This is an excellent point, as not only were we able to bounce back from the lack of event participation due to COVID-19, but we were also able to organise and hold our own virtual workshop.

There are *two* events and *one* workshop which are also of interest, outside of simply presenting CyberSANE to other participants. Indeed, CyberSANE was able to enter into a partnership with CS4CA as well as participating in both their "European Summit" and "24Hr Global Cyber Security Summit". This partnership allowed us to promote special discount codes for both events on our website, allowing our followers, in correspondence with the terms and conditions, to secure either free spots, or with a 10% discount. They also followed up our partnership with an exclusive interview with our Quality Assurance Manager and Technical Project Manager, who presented a CyberSANE Case Study at the "European Summit" [23].

As for the workshop, as part of the European Cluster of Securing Critical Infrastructures (ECSCI), in which CyberSANE recently became a member [33], we are currently supporting CPS4CIP 2021 for the upcoming virtual workshop which will be held later this year.

4. Communication and Dissemination KPIs

To be able to compare and analyse all activities achieved during this year, a list of KPIs has been defined. These KPIs present target objectives to be achieved during each project year, as well as a total after the three-year period. These KPIs are available in Table 19 and their definition is available in **D11.1**.

Platform		Activity	Year 1	Year 2	Year 3	Total
Website		Development	1	0	0	1
		Blog Content	6	6	6	18
		Unique Visitors	500	800	1000	2300
		Page Views	1000	1200	1500	3700
		User Sessions	300	500	700	1500
Social Media	**Twitter**	Tweets	180	180	180	540
		Followers	80	150	250	250
		Retweets / Likes	150	200	250	600
		Impressions	6000	7000	8000	21000
	LinkedIn	Followers	20	50	70	70
		Impressions	1000	1200	1500	3700
Communication Materials		Leaflet	1	1	1	3
		Roll-Up	1	0	0	1
		Video	1	3	1	5
Publications and Papers		Journals	1	3	3	7
		Conferences	2	5	5	12
Media and Press Release		Press Releases	2	2	2	6
		Audience Reached	1000	2000	2500	5500
Newsletters		Biannual Newsletters	2	2	2	6
		Subscribers	40	60	100	100
Events		Participation External Events	1	1	2	4
		Organisation of Events / Workshops with stakeholders	1	1	2	4
		Audience reached	100	200	500	800
		Participants per workshop	0	20	50	70

Table 19: CyberSANE KPIs

The exploration of these KPIs and how we will present our objectives was presented extensively in **D11.2**, however, we provide a brief description of how our analysis will proceed. Each year reports all activities that took place between the *1st September* and the *31st August* the following year across all dissemination methods. However, as seen previously, some activities are reported after the previous report, and as such as considered part of this year's achievements.

Each platform is analysed and its results are presented in a colour coded comparison table, identifying achieved objectives (**green** cell) and areas in need of improvement (**red** cell), allowing to modify the strategies if and where needed. The overall objective is to adapt our strategies to increase productivity, so as to reach the total objectives after the three-year period, increasing steadily as each year progresses.

During each presentation of the various KPIs, some graphics will be presented to illustrate the variations during the last 12 months. We will also perform slight comparisons between these results and those presented in **D11.2**. Although we won't be reposing the exact graphics, they are presented and analysed in detail in the previous deliverable and the necessary KPI values are extracted and presented in the different KPI comparison tables for each dissemination method.

4.1. CyberSANE Website

As presented in **D11.2**, we use Matomo [34] to collect information from each passing user. Since this uses cookies and must respect GRDP lay, it is explained in detail on the "*Privacy Policy*" page, with an option to opt out [35].

4.1.1. KPIs

The KPIs specific to the website are defined in Table 20 with the current year being highlighted in **light blue**. The key factors to determine website efficiency are the number of unique visitors, page views as well as user sessions or total visits which evolves throughout the project lifetime. As such, these KPI values reflect, not the number of new values, but the total achieved since the start of the project. These values of course depend on the contents of the website throughout all available pages but also the number of blog posts available on the "*Communication*" page.

Activity	Year 1	Year 2	Year 3	Total
Development	1	0	0	1
Blog Content	6	6	6	18
Unique Visitors	500	800	1000	2300
Page Views	1000	1200	1500	3700
User Sessions	300	500	700	1500

Table 20: CyberSANE Website – KPIs

4.1.2. KPIs Reached

Thanks to Matomo, we can extract various types of information for analysis. Each element is presented in a different graph, analysing different aspects of the extracted data. In each graph, we present also an "evolutionary" percentage, which represents the variation between the current data, and those of the previous year, allowing us to identify if our values have increased, or stagnated.

The first graph to analyse is shown in Figure 7, and represents the different visitation metrics available, such as the number of visits, the number of unique visitors, and the number of bounced visits. This last category represents the number of users who accessed the website then "bounced" away after viewing a single page and not navigating to any others.

As we can see, there is a steady increase in values for both visitor's counters, with the total number (**blue**) slightly higher than the unique counter (**orange**). The number of bounced visits (**grey**) is also on the increase but at a slightly lower rate. All three curves, however, begin to drop and level out at around month 20, all the while keeping a relatively high result. This shows that the website is frequented on average more and more throughout the year with a total number of visits increasing by *262%* reaching *3531*, with *3109* of them being unique sessions, also increasing by *274%*. We can also deduce by these values that over *88%* of all visits were by unique users, increasing by 3% from last year. The number of bounced visits on the other hand increased

the most by *359%* at around *2306*, corresponding to approximately *65%* of all visits, an increase of *14%* from the previous year.

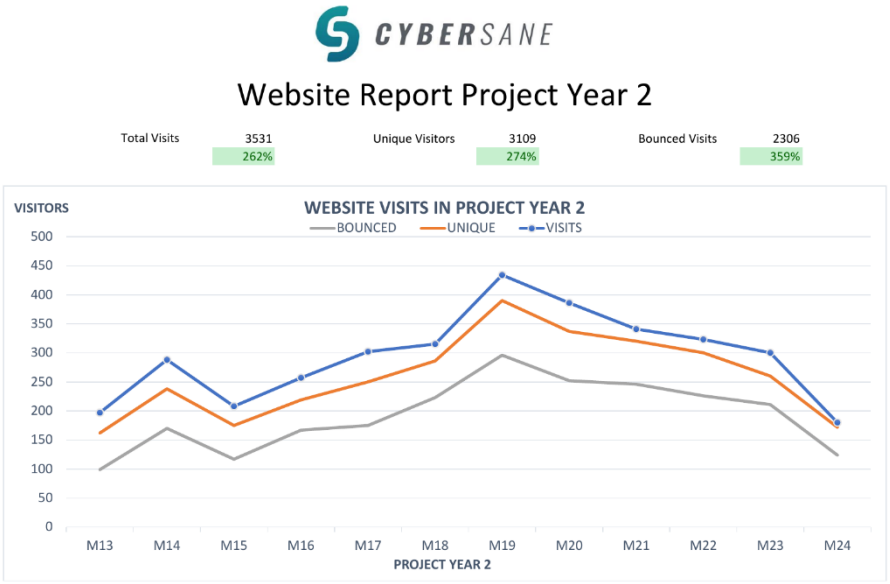

Figure 7: CyberSANE Website Metrics – Visits

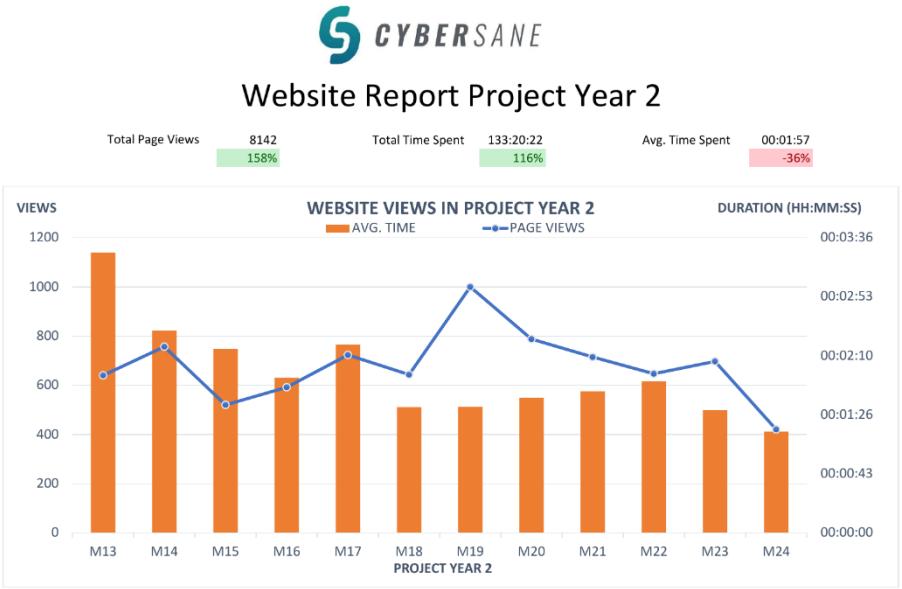

Figure 8: CyberSANE Website Metrics – Views

The next metric we can analyse is the amount of page views as well as the time spent on the site itself. This analysis is performed in Figure 8. Firstly, we can see the curve representing page views (**blue** line) which here possesses strong fluctuations, all the while following the same pattern as in the previous figure. The average time spent on the website (**orange** bar), however, presents a downwards tendency, meaning that visitors are spending less time on average viewing the website. Overall, the various webpages saw an increase of *158%* in views resulting in a total of *8142* viewings with an average of *1 minute and 57 seconds*, an unfortunate decrease of *36%* in comparison to the first year. In **D11.2**, this graph also presented the evolution of the total time spent on the website but unfortunately, the values were so large that they dwarfed the average time spent bars, thus it was removed from this version. However, we still note the total time spent, resulting to an astounding *133 hours and 20 minutes* of website view time, an increase of *116%*.

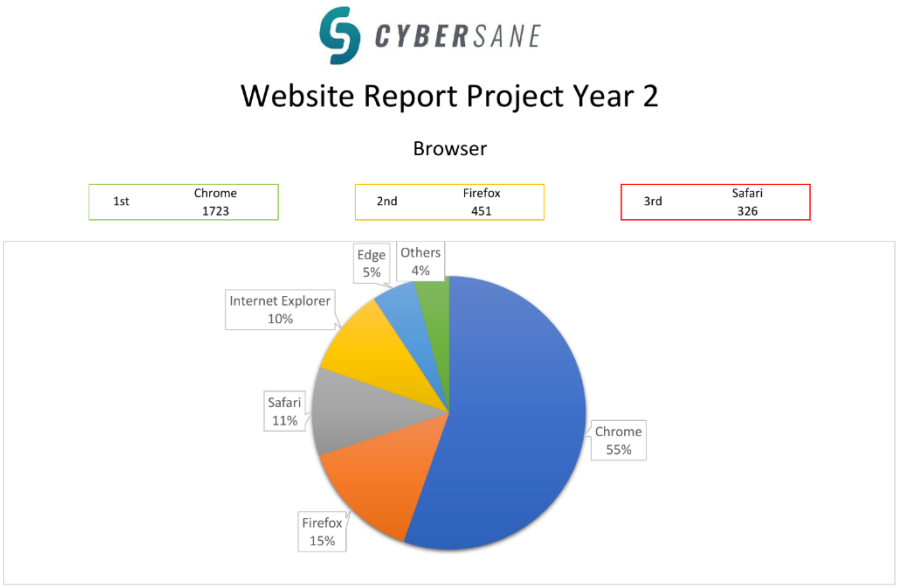

Figure 9: CyberSANE Website Metrics – Browsers

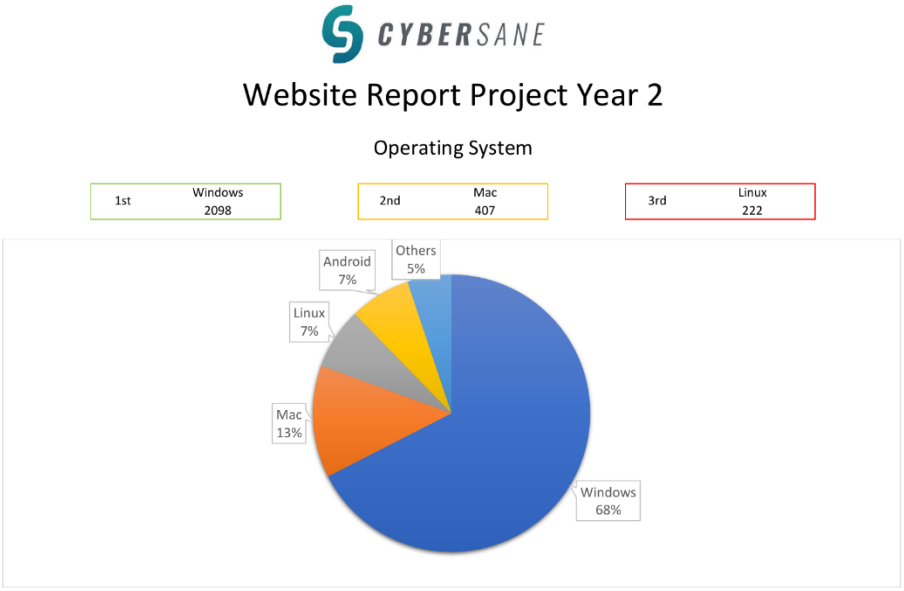

Figure 10: CyberSANE Website Metrics – OSs

Another metric we can analyse is the device and software demographic, looking at both the choice of Web Browser and Operating Systems used by the visitors, presented in Figure 9 and Figure 10 respectively. First off, we can determine that the different variations of *Chrome* (**blue**) are clearly the winner, being used by *55%* of the users, an increase of *5%* compared to last year. However, other than *Internet Explorer* (**yellow**), which has increased its userbase by *2%*, both *Firefox* (**orange**) and *Safari* (**grey**) have decreased by *7%* and *3%*, respectively with *Microsoft Edge* (**light blue**) bringing up the rear with *5%* of use. Other Browsers, such as *Opera*, *Samsung Browser* and *Duck Duck Go Privacy Browser* have also been used, but in a small number of cases and have, therefore, been compressed into the *Others* category (**green**).

In **D11.2**, we concluded that users prefer using PCs to visit the website as the mobile operating systems were surpassed by the PC systems. We can confirm from Figure 10 that this is still the case, with *Windows* (**blue**) still being the OS of choice in *68%* of cases, an increase of *10%* from last year. Although *Mac* users (**orange**) still take up second place with *13%* of visitors, decreasing by *3%*, *Android* (**grey**) now takes up third with *7%*, a drop of *1%*, matching that of the technical *Linux* community (**yellow**) which itself fell by *5%*.

The last analysis we can perform allows us to analyse the visitor demographic by identifying their geographic location from their IP address. In Figure 11, we can see a list of the most common countries to have visited the website in alphabetical order. It is important to notice that not all countries could fit onto the graph, so the less frequent origins, with visits surmounting to less than 5% of the maximum value, have been compressed into the "*Others*" category. We can immediately notice that there is no doubt as to the country who is most interested in CyberSANE since it completely surpasses the others. The next four spots are quite close in numbers and are different member countries of the project consortium, with the *UK* having visited the website *277* times, *France 241* times, *Greece 231* times and *Spain 214* times. However, the clear winner here is the *US* with an incredible *1144* visits in the last 12 months. In the same manner as the first year, we can see that many non-EU or non-partner countries are interested in CyberSANE, such as the *Netherlands*, *China*, *Russia* and *India* but also further astray such as *Australia*, *Canada* as well as *South Korea* and *South Africa*, which have been compressed into the *Others* category.

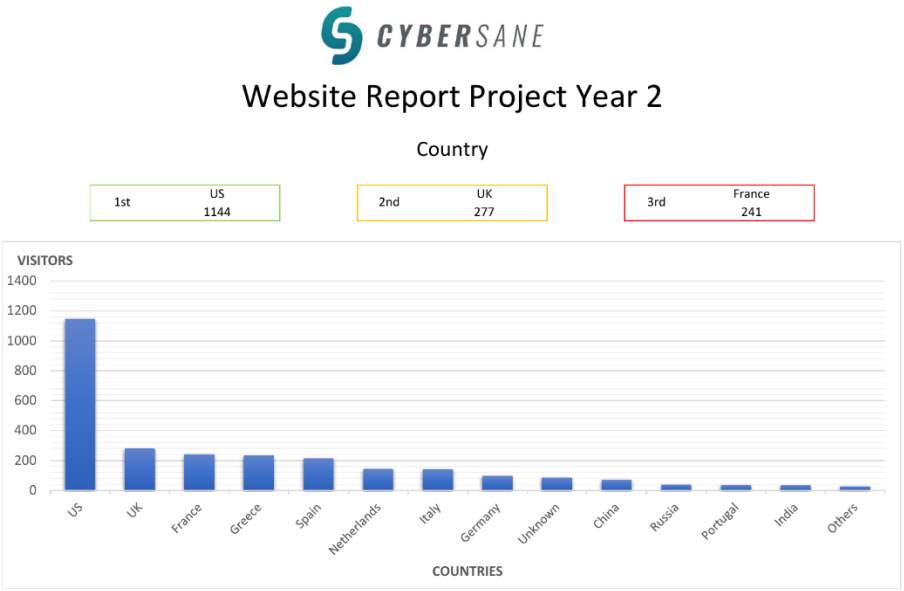

Figure 11: CyberSANE Website Metrics – Countries

From this once again extensive analysis of the website visitation statistics, we were able to extract the values corresponding to the various KPI activities. These values have been categorised into Table 21 with the current year highlighted in **light blue**. Firstly, we can see that since the deployment of the website is a onetime thing, nothing new has occurred. Secondly, the number of blog posts as presented in Section 3.1 above has been added to the table also. Finally, we can see that the values for the unique visitors and user sessions, also known as number of visits, have been extracted from the analysis in Figure 7 and the number of page from Figure 8, which have been added to the value from Year 1 to correspond to the expected values of the KPIs, which in this case do not represent the yearly objectives, but the overall targets to achieve by the end of said year.

Activity	Year 1	Year 2	Year 3	Total
Development	1	0		1
Blog Content	7	20		27
Unique Visitors	832	3109		3941
Page Views	3155	8142		11297
User Sessions	975	3531		4506

Table 21: CyberSANE Website – KPIs Reached

4.1.3. KPI Comparison

With the numerical data extracted from the statistical analysis, we can compare the achievements made with the target values for this year. Table 22 contains this comparison with the colour code as mentioned previously.

Activity	Reached Year 2	Year 2
Development	0	0
Blog Content	20	6
Unique Visitors	3109	800
Page Views	8142	1200
User Sessions	3531	500

Table 22: CyberSANE Website – KPI Comparison

Immediately, we can see that all KPIs have been surpassed by a substantial margin. Naturally, since the website was deployed previously, nothing was expected, however, we managed to more than *triple* the expected number of blog posts. Furthermore, we have also *tripled* the visitation metric, with a significantly higher number of unique visitors that expected and surpassed almost *six and a half times* the expected values in number of page views and over *seven times* the number of user sessions.

4.1.4. Improvement Strategies

Immediately, we can see that our current strategies are paying off, since the website is not only on track, but much more advanced than hoped. However, that doesn't mean that we shouldn't keep up the work and try to get more out of it. As such, a potential solution could be to continue creating blog posts, presenting the project through the Project Updates, but also presenting other elements, such as events, presentations and even bringing more attention to the various publications made by partners.

However, before thinking about how to make more content for people to read on the website itself, we must find ways to bring people there. One way is to increase our promotion on social media, thus drawing more attention to us and our website. Another lies to the use of media outlets to promote work done as part of the project, which could be of interest, all the while referencing that the work has been done as part of CyberSANE, thus capturing the reader and luring them back to our website for more details.

4.2. CyberSANE Social Media

4.2.1. Twitter

The analysis regarding the various twitter activities were achieved using Twitter's own analytical service [36]. This information was extracted using Twitter's own API to recover large quantities of statistical information, including the number of tweets and their associated statistics (impressions, interactions, retweets, likes, etc), as well as profile visits and follower evolution.

4.2.1.1. KPIs

For this analysis, the Twitter KPIs are presented in Table 23 with the current year highlighted in **light blue** to facilitate reading. We can clearly see target values for number of yearly tweets as well as yearly interaction goals for all publications, such as the various retweets and likes by other people. It also presents a target value for publication impressions, which represents the number of times the post has been seen by anyone on the platform. Furthermore, similar to the website statistics, the *Followers* activity does not present a year-by-year count, but rather the total value to be attained during each year. This value naturally leads up to the defined total expected by the end of the project lifecycle.

Activity	Year 1	Year 2	Year 3	Total
Tweets	180	180	180	540
Followers	80	150	250	250
Retweets / Likes	150	200	250	600
Impressions	6000	7000	8000	21000

Table 23: CyberSANE Twitter – KPIs

4.2.1.2. KPIs Reached

With the information extracted from Twitter's Analytical platform, we can begin the analysis of achieved activities. For starters, we can evaluate the various metrics associated with the different tweet posts themselves, such as the number of tweets and the number of impressions received. Presented in Figure 12, we can see the number of tweets made per month, represented by the twitter logo with the corresponding tweet count above. The **yellow** graph on the other hand represents the number of organic impressions, these are the number of interactions made directly with the tweet, not through paid or promoted content.

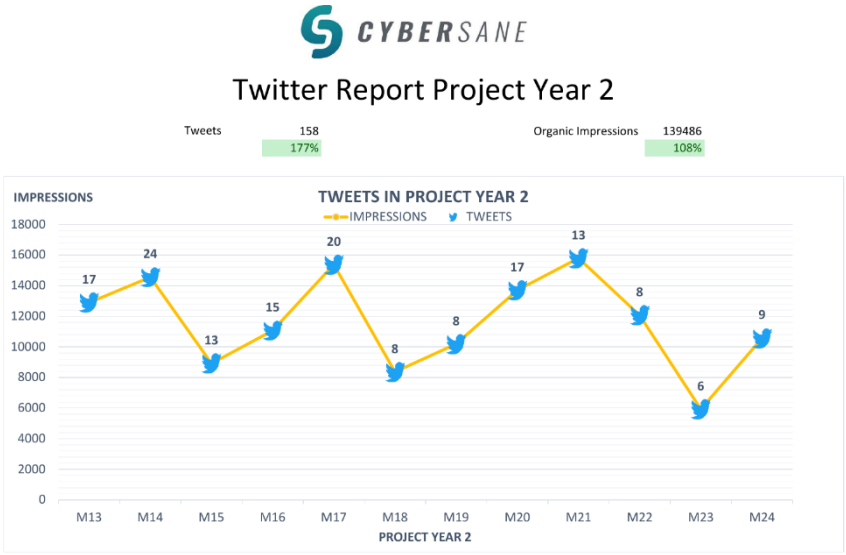

Figure 12: CyberSANE Twitter Metrics – Tweets

As we can see, there is a clear repetitive variation in the curve with periodic drops before climbing back up to the maximum value again. We can also see that this is not due to a lack of tweets since the values are relatively high overall. We can, however, notice that on month *23*, the repetitive decrease in impressions doesn't jump back up like the previous months, but continues its downwards trajectory, increasing instead on *M24*. This, unfortunately, is due to the lack of contributions towards the technical tweet campaign as explained previously, which resulted in multiple weeks without any activities. In total, *158* tweets were published during the second year, a significant increase of *177%* to last year's value. Furthermore, our number of organic impressions has also increased by *108%*, up to a significant *139486*. There isn't much more to analyse in this graph since, although the number of impressions is related to the tweets made, we can determine that it reflects more the contents of the tweet, rather than the amount itself.

Another element to analyse is the different interactions with the Twitter profile itself. Figure 13 presents these interactions by permitting the analysis of the quantity of profile visits (**blue** line), which represent the number of times our Twitter profile has been accessed by other people, as well as the number of profiles mentions (**yellow** bar) where other people have tagged CyberSANE in various publications. Firstly, we notice an irregular variation of profile visits, nonetheless increasing during the 12-month period with a large drop in *M18* and following *M20*. When it comes to mentions on the other hand, we can notice that we are mentioned

periodically throughout the months, with a significant increase during *M14*, not corresponding to any increase in profile visits. In total, CyberSANE received an increase of *320%* in people viewing our Twitter profile, corresponding to *3143* visits and was mentioned *129* times on other parties' tweets, an increase of *105%*.

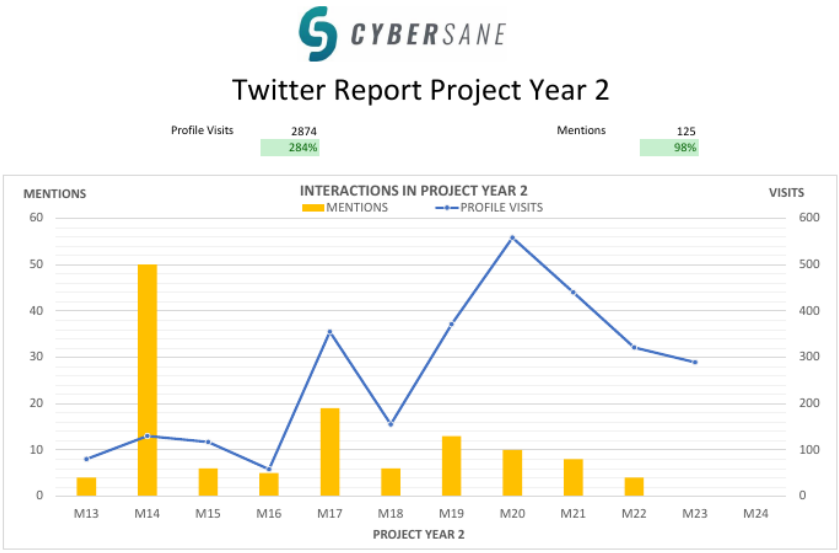

Figure 13: CyberSANE Twitter Metrics – Interactions

Moving away from the interactions, we can look at the different engagement metrics as presented in Figure 14. When it comes to Twitter, engagements correspond to interactions with a post itself, such as likes, retweets, replies or link clicks if any are available. In our case, we decided to interest ourselves with only the first two possibilities: likes and retweets. Thus, these values were combined together into a bar chart with the **green** bar corresponding to retweets and the **yellow** to likes. Furthermore, the average engagement rate per month is superimposed on top of the engagement values (**blue** horizontal bar), corresponding to the percentage of interactions when compared to the impressions.

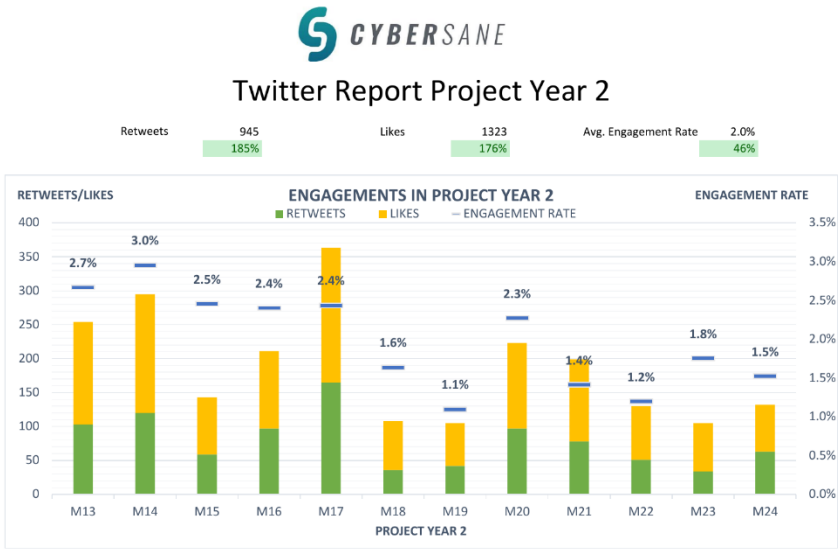

Figure 14: CyberSANE Twitter Metrics – Engagements

We can see, that overall, the engagements are quite present with no blank or empty months. We can also distinguish an up-and-down pattern to the engagements, which coincidently corresponds to the variations observed in the impressions curve in Figure 12. As observed last year, there are more likes made than retweets with a total of *1323* likes in relation to *945* retweets, an increase of *176%* and *185%* respectively. However,

the average engagement rate can be seen as on a slight decrease as the months progressed more than halving its value between *M13* and *M22*. Even though the tendency was on the downfall, the yearly average rate showed an increase of *46%*, reaching approximately *2%* across all *158* tweets.

The last and probably most publicly accessible metric is the study of followers, as shown in Figure 15. As we can immediately see, the number of followers (**yellow**) is still on a constant steady incline. This means that even after a year of tweets, we are producing interesting information which is making more and more people want to keep up to date with the project. Thanks to the continued support towards CyberSANE, in the last 12 months we saw an uptake of *128* new followers, an increase of *28%*, resulting in an overall rise in the number of followers by *128%*, bringing the count up to *228*.

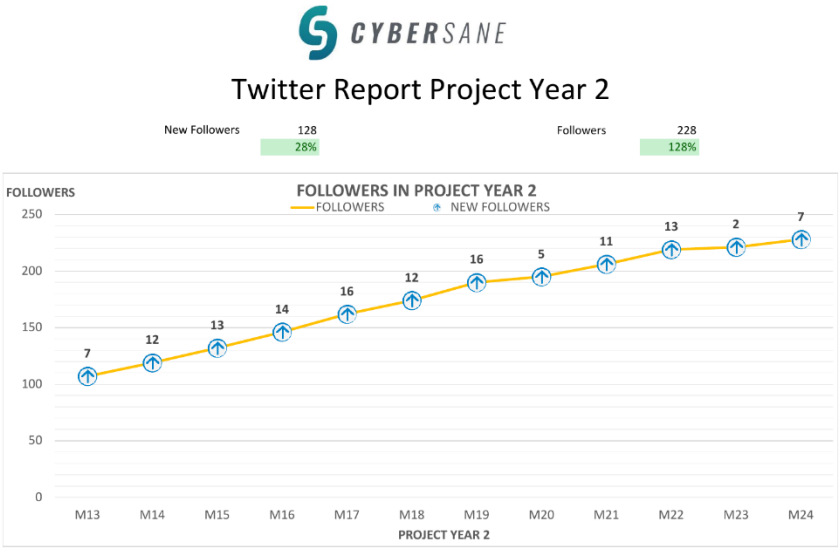

Figure 15: CyberSANE Twitter Metrics – Followers

Based on all of the aforesaid analysis regarding the various activities on Twitter, we were able to extract the corresponding values for the KPIs, presented in Table 24. As we can see in the current year, highlighted also in **light blue**, various information has been extracted from the previous figures. The tweet count and total impressions have been extracted from Figure 12, whereas the number of retweets and likes have been taken from Figure 14. Finally, the current follower count has been copied from Figure 15, completing the KPIs reached table.

Activity	Year 1	Year 2	Year 3	Total
Tweets	57	158		215
Followers	100	228		228
Retweets / Likes	811	2268		3079
Impressions	66 955	139 486		206 441

Table 24: CyberSANE Twitter – KPIs Reached

4.2.1.3. KPI Comparison

From the previously obtained results we are able to perform a comparison between the values reached and those expected from the KPIs. This comparison is presented in Table 25.

Thanks to the colour code, it is immediately apparent that, once again, we didn't reach all objectives. Indeed, we are off by *13%* from the expected number of tweets with *158* compared to *180*. The bad news aside, we can, however, note that the other three KPIs have been successfully reached and surpassed, with the

Retweets/Likes and *Impressions* metrics presenting a huge gain margin, surpassing expectation by a factor of *ten* and *18.5* respectively. In the case of *Followers*, the overall value surpassed expectations by *52%*.

Activity	Reached Year 2	Year 2
Tweets	158	180
Followers	228	150
Retweets / Likes	2268	200
Impressions	139 486	7000

Table 25: CyberSANE Twitter – KPI Comparison

4.2.1.4. Improvement Strategies

Similar to **D11.2**, the main interest for improvement was an increase in tweets. Our original hypothesis of an average of three tweets a week was sound, but as expected fell just short of the *180* mark. The main issue isn't the rate at which tweets can be published, it's the lack of available materials for tweets. Currently, with our technical Twitter campaign, we are able to tweet during the dry summer periods, where work slows down due to people escaping on holiday. To be able to reach the target next year, we would need to significantly increase the contributions on behalf of the project's partners.

Until now, we've been able to rely on twitter campaigns to get through the lack of results at the beginning of the project, such as our partner presentation campaign or our "Cyber News" tweets. However, with the partner campaign having run its course and having used the majority of "Cyber News" tweets during the first year, we need to produce a new source of information. To do so, we must increase the rate of contributions on behalf of the partners, as well as begin tweeting generic tweets to present elements from the website, such as the list of publications or the appearance of CyberSANE in news articles, thus drawing attention to our Twitter account, but also to our website.

4.2.2. LinkedIn

Similar to Twitter's analytical system, LinkedIn allows direct access to statistical analysis of visitor activity directly through the admin view. This allows to visualise multiple data tracks such as page views, impressions, various interactions and follower count.

4.2.2.1. KPIs

To analyse LinkedIn activities and efficiency, we will evaluate the activities against the KPIs of the current year presented in Table 26, where the current year stands out once again due to its **light blue** highlight. We immediately notice that there are only two distinct activities defined for the analysis of LinkedIn operations. Similar to Twitter, the impressions are yearly target values which add up to a total objective to be obtained after the three years. Followers, however, present the overall total value to reach and not a year-by-year statistical increase.

Activity	Year 1	Year 2	Year 3	Total
Followers	20	50	70	70
Impressions	1000	1200	1500	3700

Table 26: CyberSANE LinkedIn – KPIs

4.2.2.2. KPIs Reached

Thanks to LinkedIn's data analysis capabilities built into company pages, we are able to analyse multiple factors of our activities on the platform. We start the analysis in Figure 16 by evaluating the number of posts

made as well as the different impressions perceived. Similar to the fashion presented in Twitters posts and impressions analysis, the frequency of posts is presented by LinkedIn's logo with the precise number overhead. The impressions, however, are presented on two graphs. The first graph represents the total number of impressions (**yellow**) perceived throughout the months, whereas the second (**green**) concerns only unique impressions due to the return of multiple users over time.

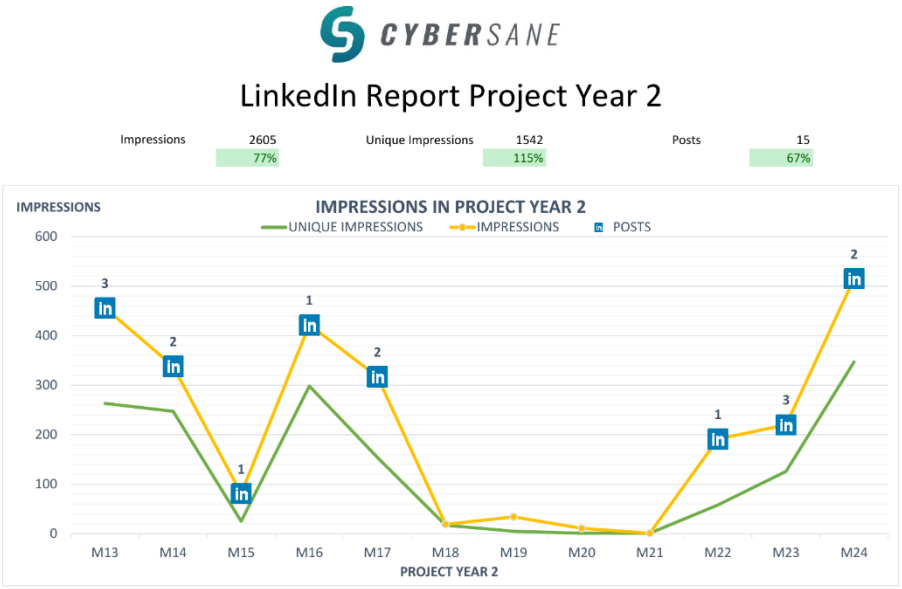

Figure 16: CyberSANE LinkedIn Metrics – Impressions

We can immediately see that, unlike Twitter, LinkedIn saw yet again a period of inactivity, spanning four months from *M18* to *M21*. This is due to the lack of concrete information for publication on the platform and a lack of input. Here the target audience is one of a professional nature, thus meaning that posts cannot simply be short phrases like those on Twitter, but slightly longer with a corresponding choice of vocabulary. To resolve this issue, contributions and aid was requested from the other partners and we are looking into implementing a new strategy to salvage our LinkedIn presence for the upcoming year.

On the other hand, even though this period severely impacted our performance on the platform, we were still able to produce some posts and amass some attention from users. We can also see that, even though a post was made during *M15*, there was a significant decrease in impressions which then recovered for the following month. In total, during the last 12 months we increased our publication rate by *44%*, publishing a total of *15* posts, receiving *2605* total impressions and *1542* unique impressions, a further increase of *77%* and *115%* respectively, even with the lengthy period of inactivity.

Similar to Twitter, the various engagements with visitors are an important factor to analyse, concerning reactions, shares, comments and event clicks. In Figure 17, we turn our attention to this analysis, however, we do not consider comments in any of our analyses. We can see here the concatenation of the three interaction possibilities into one bar chart, similar in fashion to Twitters analysis. This mix represents the total combined number of engagements with the **yellow** bar representing *Clicks* on the post, the **green** showing the number of *Reactions* and the **orange** representing the number of *Shares*. We can therefore see that the majority of interactions which took place were *Reactions*, increasing their number by *72%* when compared to previously to *117*, with *Clicks* right behind at *107*, an increase of *52%*. The number of *Shares*, however, is significantly lower witnessing an increase of only *56%* up to a value of *28*. From these interactions, we can also extrapolate the engagement rate relative to the number of impressions during the month. As shown, the values fluctuate considerably, with an interaction rate reaching as high as *12.2%* during *M13* and *M16*. We can also note that even without any activity between *M17* and *M22*, there is still a high engagement rate of *4.5%* in *M18*, falling to *0.3%* in *M20*. This is due to the small number of impressions relative to the number of total interactions, which manages to raise the percentage significantly when compared to Twitter. Overall, the average

engagement rate of each month throughout the year resides around *5.2%*, increasing on the previous year by *61%*. It is, however, not visible on this figure, but it can be viewed in Figure 18.

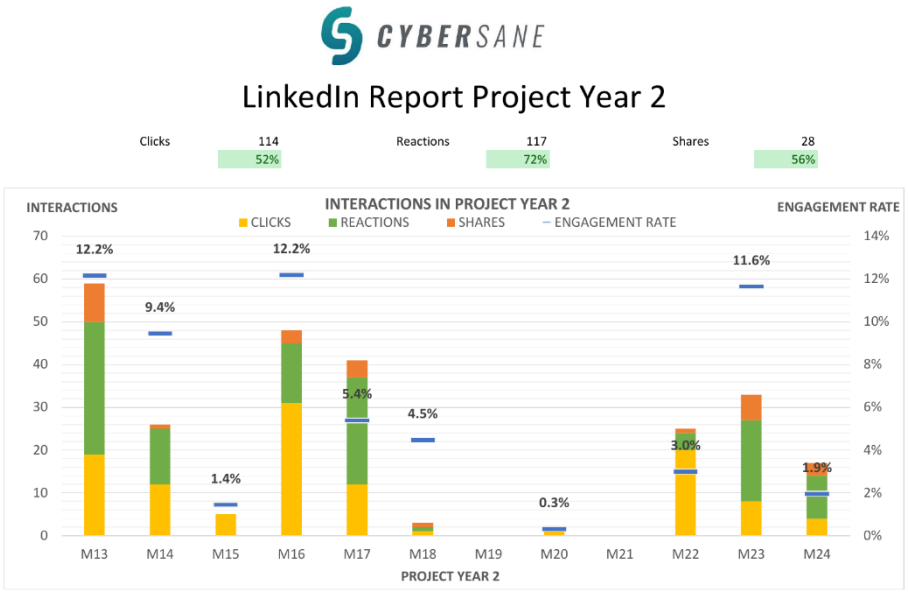

Figure 17: CyberSANE LinkedIn Metrics – Interactions

The next step in this analysis is the observation of the evolution of visitors. Shown in Figure 18, the evolution of visitors (**blue**) is quite uneven with an unfortunate downwards tendency. Even though there are slight rises from time to time, the overall number of visitors is quite low with a high of only *24* visitors in M14. Overall, during these 12 months only *127* visitors have passed through our company page, falling by *22%* in comparison to the first year. During their passage, our page was unfortunately viewed *19%* less with a total of *306* times from various visitors, recurring or otherwise.

Figure 18: CyberSANE LinkedIn Metrics – Visits

The final aspect for any social media account is the study of the evolution of followers. In Figure 19 we can see this evolution (**yellow**) as well as the increase of followers on a monthly basis. As we can see, there is a steady increase in the number of followers, even during the period of inactivity with a total of *35* new followers, a fall of *24%*. It is important to notice that even with the lack of posts, we didn't lose any followers, but instead

gained a small amount, with only *M21* presenting zero new followers. In total, over the last 24 months of the project we have reached a grand total of *81* followers on our LinkedIn page, increasing the number by *76%* when compared to last year.

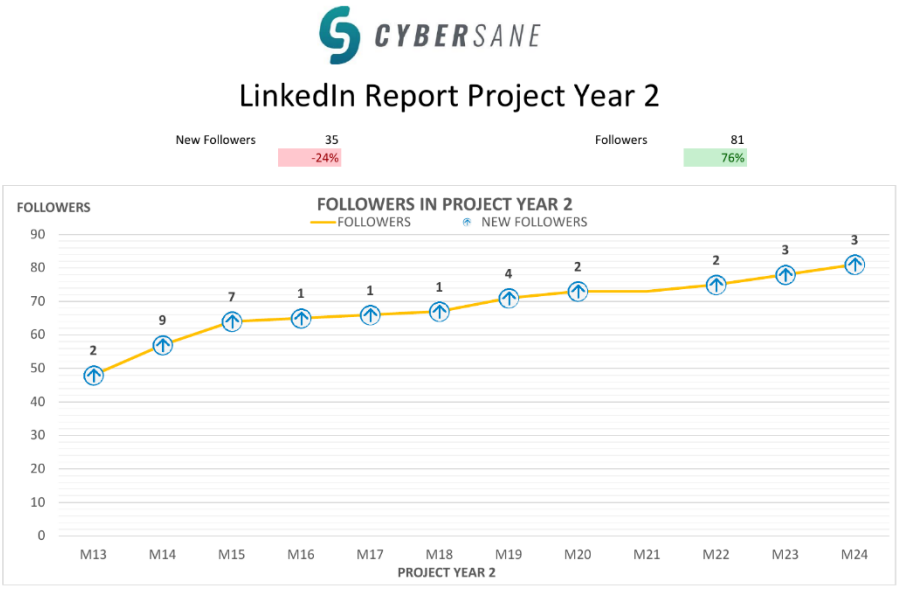

Figure 19: CyberSANE LinkedIn Metrics – Followers

From these various analytical graphs, we can extract the values corresponding to the different KPIs to evaluate our activities on LinkedIn. Table 27 presents the only two KPIs, with the current year once again highlighted in **light blue**. Since there are only two KPIs concerning LinkedIn, only two of the graphs provide the necessary information. As such, Figure 16 provides the number of impressions, from which we extract the total value and not the unique number to be on par with the same information from Twitter. Finally, Figure 19 provides the follower evolution.

Activity	Year 1	Year 2	Year 3	Total
Followers	46	81		81
Impressions	1432	2605		4037

Table 27: CyberSANE LinkedIn – KPIs Reached

4.2.2.3. KPI Comparison

Based on the obtained results, we can perform a KPI comparison to evaluate our achievements against the predefined KPIs. This comparison is presented in Table 28.

Activity	Reached Year 2	Year 2
Followers	81	50
Impressions	2605	1200

Table 28: CyberSANE LinkedIn – KPI Comparison

Due to the small number of KPIs for this communication method, the comparison is quite simple. We can immediately identify that both activities were achieved, surpassing their associated KPI objectives. Even with our lack of posts on the platform, our follower count is higher than expected by *62%*, proving that our page is still attracting visitors. This is solidified with the number of page impressions which more than *doubled* the expected value.

4.2.2.4. Improvement Strategies

What is the most interesting, is that even though there was a four month down period, we were still able to achieve our goals. As such, it means that with more implication and active posting, we could achieve so much more. As stated previously, the brief hiatus was due to many factors, but a solution was devised with the consortium. First off, all partners were requested to provide materials for social media, in particular for LinkedIn. This will allow us to post longer articles talking directly with other entities on the platform, which we began to achieve at the beginning on the second year. Our second solution was to attract attention through the use of videos.

Weather the video is presented on LinkedIn or Twitter, the way it is used by the potential user is different. On Twitter, the user is more likely to scroll past, stop briefly to see if it is of interest, before continuing onwards. On LinkedIn on the other hand, if the video is tailored to a professional audience, there is more chance the user will stop and watch the video, potentially captivating them and making them want to know more. Both of these solutions have been shared with the consortium, with the second currently under advisement and analysis for the feasibility and privacy implications. However, a more active approach is to be taken towards LinkedIn, so that it doesn't again fall into disarray for such a long period of time.

4.3. Communication Materials

No physical means of activity analysis exists for physical materials other than simply listing. Thus, all activities presented in in Section 3.3 above are summarised in this section.

4.3.1. KPIs

The relative KPIs regarding the creation of the various communication materials is presented in Table 29, with the current year highlighted in **light blue**. Looking closer, we can see the expected rate of production for the different materials: Leaflets, Roll-up and Videos. As we can see, the values represented here correspond to the yearly production goals of new materials as well as a total production count to be achieved by the end of the project.

Activity	Year 1	Year 2	Year 3	Total
Leaflet	1	1	1	3
Roll-Up	1	0	0	1
Video	1	3	1	5

Table 29: Communication Material – KPIs

4.3.2. KPIs Reached

Presented previously, the various activities achieved regarding the production of various communication materials have been recovered. Table 30 provides an overview of these activities, putting emphasis on the current year also coloured in **light blue**.

Activity	Year 1	Year 2	Year 3	Total
Leaflet	2	0		2
Roll-Up	1	0		1
Video	0	1		1

Table 30: Communication Material KPIs – Reached

As we can see, only a single material was produced during the last 12 months which was the official CyberSANE presentation video.

4.3.3. KPI Comparison

From this summary of activities towards communication materials, we can perform a comparison between the achieved values and the target KPIs. Table 31 presents this comparison against the KPIs for the current year.

Activity	Reached Year 2	Year 2
Leaflet	0	1
Roll-Up	0	0
Video	1	3

Table 31: Communication Material – KPI Comparison

We can immediately identify that the only activity which reached expectations, was the one where nothing was expected. Indeed, although one video was created, we are very short of the expected three, especially if we note that one video was expected during the first year which was not reached. When it comes to the leaflet, no further work was done this year towards a public brochure. However, during the first year, two versions were produces whereas only one was expected, thus even though we didn't produce a new one this year, the KPI has been, indirectly met.

4.3.4. Improvement Strategies

The first strategy for improvement is to address the activity which did not reach the defined objectives. When it comes to the leaflet, a more extensive version can be created at a later date when more results are available, making place for a more graphical and technical version which could be used at events and presentations.

Concerning the video, with the new strategy for LinkedIn revolving around the creation of new videos to be shared on all platforms, we could make significant strides towards our planned KPIs. Furthermore, by using them to present different areas of the project, we can bring more information to people, through the use of multiple short videos, instead of a single long video which may cause people to click off after a few minutes.

4.4. Publications and Papers

Like the previous section, the activities regarding scientific and academic publications and papers are recovered from Section 3.4 above and summarised here.

4.4.1. KPIs

The different KPIs regarding publications and papers are presented in Table 32 with the current year highlighted in **light blue**. Here we can see that the main interests of this section are the submission destination of the various papers and publications. Thus, the objectives revolve around the number of Journal publications as well as Conference paper submissions on a yearly basis as well as the overall project total.

Activity	Year 1	Year 2	Year 3	Total
Journals	1	3	3	7
Conferences	2	5	5	12

Table 32: Publications and Papers – KPIs

4.4.2. KPIs Reached

Taken from the previous section, the various activities have been included into Table 33 with the current year also highlighted in **light blue**.

As we can see, a total of *25* submissions have taken place during this year. Indeed, *12* of these submissions have been in Journals whereas the other *15* were in International Conferences. It should be noted, however,

that as stated previously, *14* of these papers were published during the first year, and subsequently provided halfway through the second year but have been included here to provide a complete overview of all activities related to CyberSANE.

Activity	Year 1	Year 2	Year 3	Total
Journals	2	12		15
Conferences	1	15		16

Table 33: Publications and Papers – KPIs Reached

4.4.3. KPI Comparison

With this information, we can perform a comparison between what has been done and what was expected as part of the KPIs. Table 34 presents this comparison.

Activity	Reached Year 2	Year 2
Journals	12	3
Conferences	15	5

Table 34: Publications and Papers – KPI Comparison

Immediately we can see that we have achieved the expected KPIs for Publications and Papers. We can therefore confirm that our partners are doing a splendid job in disseminating scientific work and discoveries on an international level.

4.4.4. Improvement Strategies

Since we have not only achieved our target but completely overshot it, there aren't many modifications to provide to increase our performance. However, it is important that we continue this stride, publishing papers continuously to provide not only attention for CyberSANE, but also provide the community with the knowledge that we have amassed during our work.

4.5. Media and Press Release

The information regarding the various activities towards Media and Press Releases necessary for the evaluation of the KPIs have been extracted from data provided in Section 3.5 above.

4.5.1. KPIs

The different target KPIs defined for evaluating Media and Press Releases have been extracted and summarised in Table 35, highlighting the current year in **light blue**. We can see that the main interests revolve around the publication of official press releases during the project's life cycle, as well as the target number of people reached throughout media activities.

Activity	Year 1	Year 2	Year 3	Total
Press Releases	2	2	2	6
Audience Reached	1000	2000	2500	5500

Table 35: Press Release – KPIs

4.5.2. KPIs Reached

Extracted from the information presented previously, we have been able to include the different KPI data for the activities achieved for the current year, once again highlighted in **light blue**.

Firstly, there has been no new Press Release during this year, meaning that we have also unfortunately reached no one with new information. However, we have made many different internal and external communications around various subjects reaching an approximation of about *100 000* people through all available channels. We cannot be certain of this value, but we have extrapolated it from available data provided by the editors, or the newspaper reader base.

Activity	Year 1	Year 2	Year 3	Total
Press Releases	1	0		1
Audience Reached	9 000 000	100 000		9 100 000

Table 36: Press Release – KPIs Reached

4.5.3. KPI Comparison

From the extracted information, we can perform a comparison between the activities achieved and the expected KPIs. This comparison is presented in Table 37.

Activity	Reached Year 2	Year 2
Press Releases	0	2
Audience Reached	100 000	2000

Table 37: Press Release – KPI Comparison

The immediate element which jumps out is that, even without an official Pres Release, we were able to reach our target audience KPI with an increase by a factor of *50* due to the publication and dissemination of information both internally amongst our partners, but also externally through media publications regarding CyberSANE, as presented previously.

4.5.4. Improvement Strategies

Naturally, the first improvement is to generate more Press Releases at a higher rate. Indeed, only a single release has been made so far against the expected amount of four. To do so, we need to unite the technical and communication partners to find a common ground where we can share more technical information about the project, respecting at the same time the privacy and legal guidelines.

4.6. Newsletter

Here, we interest ourselves to the activities relative to the Newsletters presented in Section 3.6 above. The information has been extracted to be able to correctly analyse the activities taken place.

4.6.1. KPIs

Activity	Year 1	Year 2	Year 3	Total
Biannual Newsletters	2	2	2	6
Subscribers	40	60	100	100

Table 38: Newsletter – KPIs

Firstly, it is important to familiarise oneself with the KPIs applicable to this methodology. Table 38 presents an overview of these KPI values, putting emphasis on the current year by highlighting the corresponding cells in **light blue**. We can see that the interests of these KPIs reside around the number of Biannual Newsletter publications which is a year-by-year target value, adding together to calculate the project total. The Subscriber amount for the monthly newsletter on the other hand presents the overall total at the end of the year. Thus, the value at the end of the third year is the expected project total.

4.6.2. KPIs Reached

Extracted from previously presented information, we can recover and define the different values for the KPIs. Table 39 presents this activity overview, putting emphasis on the current project year, which in a similar fashion to previously, has been highlighted in **light blue**.

Here we can clearly see that *two* Biannual Newsletters have been created and published, containing multiple types of information in a booklet format. The other newsletter, published on a monthly basis, complements this biannual equivalent and shares project information to the different mailing list subscribers. At the end of this year, our subscribers reached *30* people.

Activity	Year 1	Year 2	Year 3	Total
Biannual Newsletters	1	2		3
Subscribers	21	30		30

Table 39: Newsletter – KPIs Reached

4.6.3. KPI Comparison

Mixing the achieved KPIs with the expected values, we can compare the activities relative to the two types of newsletters. This comparison is presented in Table 40.

Activity	Reached Year 2	Year 2
Biannual Newsletters	2	2
Subscribers	30	60

Table 40: Newsletter – KPI Comparison

We can see that with the publication of two Biannual Newsletters, we have reached our target for this year. However, we fell short with the number of subscribers, amassing only *30* users, 50% of what we were aiming for, meaning that for the second year running we are not reaching as many people through the monthly newsletter as expected.

4.6.4. Improvement Strategies

To improve activities through the various newsletters, would primarily be continuing to create the Biannual Newsletter. Now that the project is entering its third year, more technical information as well as concrete results are available, meaning more editions can be made bringing these elements to light and putting them forwards to the different readers.

As for the subscribers' count, the main strategy would be to increase the promotion of the monthly newsletter on all social media platforms, enticing people to come and signup to our monthly emails. It could also be possible to increase the rate of our social media campaigns to entice more people to join the list and be informed of what happens in the project.

4.7. Events

The final communication method is the various Event participations as presented in Section 3.7 above. All information used for the KPI evaluation has been retrieved from therein.

4.7.1. KPIs

To evaluate the activities regarding events and workshops, the relative KPIs have been enumerated in Table 41, indicating the target values for the current year by highlighting the corresponding cells in **light blue**. The key activities for evaluation here involve the participation in external events and workshops, Furthermore, the various events and workshops organised by CyberSANE with various stakeholders are also to be evaluated,

before turning our attention towards the size of the audience reached through these events. Finally, the number of participants per workshop will be observed and evaluated, giving us a clear oversight of our activities and their efficiency regarding various events.

Activity	Year 1	Year 2	Year 3	Total
Participation External Events	1	1	2	4
Organisation of Events / Workshops with stakeholders	1	1	2	4
Audience reached	100	200	500	800
Participants per workshop	0	20	50	70

Table 41: Event and Workshop – KPIs

4.7.2. KPIs Reached

From the definition of the various activities towards events and workshops, we are able to extract the KPI values for the current year. This information is summarised in Table 42, once again identifying the current project year with a **light blue** highlight. Here we see the various input data extracted directly from the presentation of different activities.

Activity	Year 1	Year 2	Year 3	Total
Participation External Events	0	12		12
Organisation of Events / Workshops with stakeholders	0	1		1
Audience reached	0	500		500
Participants per workshop	0	25		25

Table 42: Event and Workshop – KPIs Reached

Thankfully, this year we were able to participate in multiple events and workshops, as well as organise our own workshop with other projects. The number of audience members reached was provided by some of the organisers, however, in many cases the value had to be estimated from the number of people online during the virtual presentations.

4.7.3. KPI Comparison

From the listing of the various KPI values which have been achieved, we can perform a comparison between the expected objectives and the physical results.

Activity	Reached Year 2	Year 2
Participation External Events	12	1
Organisation of Events / Workshops with stakeholders	1	1
Audience reached	500	200
Participants per workshop	25	20

Table 43: Event and Workshop – KPI Comparison

With the increase of activities thanks to the adoption of widespread virtual events due to the pandemic, we were able to reach our target values in participation and organisation. We were also able to reach the number of audience members reached as well as participants per workshop.

4.7.4. Improvement Strategies

When it comes to improving the previous results, it is impossible to make things worse. However, it is possible to take advantage of the cause of our difficulties and use them to get back on track. Although many events were postponed or cancelled during the COVID-19 confinement which took place in many countries across the globe, many of these events are evolving and adapting to the situation. Many upcoming events and even workshops have been transferred from the physical world to the virtual one, allowing for their event to go on through live video dissemination. This gives us the chance to participate in such events, all the while abiding by the travel limitations in place in some areas.

That being said, some events and workshops are still taking place in the physical world, albeit with significant sanitary limitations. However, once things start to return to a normal situation, these events will increase. It will, therefore, be possible to begin organising events and workshops of our own to promote project awareness, activities, and results. Through these events and workshops, we will be able to expand our network as well as prepare ties and partnerships with other partners or stakeholders.

Furthermore, to our participation, promoting these events is a big must. With proper promotion on all available dissemination channels, we can reach a wider audience meaning more potential participants in our events or workshops. Using planned Twitter campaigns, we can publicly share information on a large scale quickly, whereas direct targeted messages through our LinkedIn profile will allow us to interact with other partners or industry specialists who might be interested in joining in our events.

4.8. Overall Results

All these various dissemination and communication methodologies have each performed various activities during the previous year. They have all been compared against the KPIs defined in **D11.1** and presented in Table 19. Following that format, Table 44 contains a concatenation of the various activities achieved by each dissemination method. The colour code has been maintained, indicating which activities have achieved or surpassed the defined objectives (**green**) as well as those which need improvement to potentially reach the minimum expectations (**red**).

Platform		Activity	Year 1	Year 2	Year 3	Total
Website		Development	1	0		1
		Blog Content	7	20		27
		Unique Visitors	832	3109		3771
		Page Views	3155	8142		11297
		User Sessions	975	3531		4506
Social Media	**Twitter**	Tweets	57	158		215
		Followers	100	228		228
		Retweets / Likes	811	2268		3079
		Impressions	66 955	139 486		206 441
	LinkedIn	Followers	46	81		81
		Impressions	1432	2605		4037
Communication Materials		Leaflet	2	0		2
		Roll-Up	1	0		1
		Video	0	1		1
Publications and Papers		Journals	2	12		15

Platform	Activity	Year 1	Year 2	Year 3	Total
	Conferences	1	15		16
Media and Press Release	Press Releases	1	0		1
	Audience Reached	9 000 000	100 000		9 100 000
Newsletters	Biannual Newsletters	1	2		3
	Subscribers	21	30		30
Events	Participation External Events	0	12		12
	Organisation of Events / Workshops with stakeholders	0	1		1
	Audience reached	0	500		500
	Participants per workshop	0	25		25

Table 44: CyberSANE KPIs Achieved

As we can see, the overall values are portrayed in **green**, meaning that they have exceeded expectations. We can also see where some of the foggy areas determined during our first year, except for the Events due to the exception nature of the disruption, have been cleared and are now successfully completed. However, four areas are still in need of improvement with an extra addition which fell short of our targets during this year. Through the various improvement strategies defined herein, these values can be increased to reach, if not surpass the expected values during the next project year.

All in all, the various activities have generally performed well in their specific dissemination tasks. Certain other areas, however, need some adjustments to be able for them to join their colleagues in **green** during the next year.

5. Conclusion

This deliverable presents the different activities achieved by CyberSANE's various dissemination and communication's methods during the second year of the project. It is undertaken within the context of **WP11** and **T11.2**. This document is the second in a subset of three deliverables presenting the dissemination activities throughout the three-year project lifespan. It follows on from **D11.2**, which presented the first year of the project and will be subsequently completed by **D11.6** which will present the third year.

CyberSANE possesses a total of eight distinct dissemination methods, each with their own platforms and purposes. These methods on occasion intermingle, where content shared through one is prompted on one or many others. As such, each platform can exploit its area of expertise to interact with different types of demographics, from general public to the scientific and academic community. In each case, the various dissemination strategies must adapt to the target audience as well as the environment in which it is situated, meaning no two methods are the same.

This document provides an overview and a summary of all dissemination activities achieved across the eight platforms. Each activity is defined, presented, and explained for each communication method as well as an in-depth explanation of their contents. Each of these activities relay various types of information and are therefore subject to the contents when it comes to the choice of dissemination available. Furthermore, other dissemination methods are available to CyberSANE other than the official project owned channels. By exploiting partner channels as well as different media dissemination capabilities, more information sharing can take place.

Moreover, these activities are evaluated through comparison against the various dissemination KPIs defined in **D11.1,** as well as against the respective values achieved and presented in **D11.2**. These KPIs provide a baseline for all activity evaluations and when compared to the achieved activities, provide an understanding of dissemination efficiency. Through the various statistical means at hand for each dissemination method, each activity's achievement values have been calculated and associated with their KPI equivalent. In a nutshell, global dissemination activities exceed the expectations for the second year. However, certain areas, such as LinkedIn are in need of an overhaul due to lack of participation and contributions towards the social media platform. Other methods which didn't reach the target mark, will be adapted to resolve the issue and increase efficiency based on an in-depth evaluation of their activities and different improvement strategies.

6. List of Abbreviations

Abbreviation	Translation
KPI	Key Performance Indicator

7. References

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