D7.1

Preliminary Dissemination Report

WP7 – Dissemination, Standardization and Exploitation

SIFIS-HOME

Secure Interoperable Full-Stack Internet of Things for Smart Home

Due date of deliverable: 31/03/2022
Actual submission date: 31/03/2022

30/3/2022
Version 1.0

Responsible partner: CNR
Editor: Andrea Saracino
E-mail address: andrea.saracino@iit.cnr.it

Project co-funded by the European Commission within the Horizon 2020 Framework Programme		
Dissemination Level		
PU	Public	**X**
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

The SIFIS-HOME Project is supported by funding under the Horizon 2020 Framework Program of the European Commission SU-ICT-2-2020#952652

Authors: Andrea Saracino (CNR), Tuuli Lindroos (FSEC)

Approved by: Domenico De Guglielmo (MIND), Björn Taubert (Intel)

Revision History

Version	Date	Name	Partner	Section Affected Comments
0.1	19.1.2022	First draft of the document	CNR	All
0.2	4.2.2022	Added Industrial dissemination	FSEC	All
0.3	5.2.2022	Ready for Review	CNR	All
0.4	3.3.2022	Reviewer comments addressed	CNR	All
0.4	10.3.2022	Updated with latest statistics	CNR	All
1.0	30.3.2022	Ready for submission	CNR	All

Executive Summary

This deliverable reports the dissemination activities done in the scope of the SIFIS-Home project as activities of the Task 7.1. Dissemination has been carried out following three main strands: scientific dissemination, industrial dissemination and generic audience dissemination. In particular, the scientific dissemination has been pursued by means of scientific publications covering technologies that are relevant to the SIFIS-Home project, or presenting the SIFIS-Home architecture, by participation to conferences and workshops, organization of workshops sponsored by the project and participation to events with other H2020 projects funded under the same call of SIFIS-HOME. Industrial dissemination has been planned by identifying industrial events where to disseminate, in the next months, the results of the SIFIS-Home project. The generic audience dissemination has been conducted by means of participation to technology related events directed to a general audience, usage of social networks and publishing contents on the project website.

Table of contents

1. The SIFIS-Home Communication Strategy

Dissemination is considered a key activity of the SIFIS-Home project. By the activities of T7.1, the SIFIS-Home project aims at:

- Raising awareness among general public about the security, privacy and safety issues of smart home environments where cyberthreats are not correctly addressed;
- Disseminate research findings produced by the activities of WP1 – WP5 by means of high-quality scientific publications in scientific journals and conferences;
- Raise the interest of the scientific community on SIFIS-Home related topics by organizing scientific workshops and PhD-level courses on them;
- Reaching the industrial community showing the relevance of cyberthreats in the smart home environment, fostering best practices on the correct and secure development of smart home services, and showing potential opportunities of the cybersecurity for smart home market;
- Advertising the project results aiming at reaching the largest possible audience on the scientific community, general audience and the industrial community.

To this end, T7.1 will follow a multi-fold dissemination strategy following three strands, namely Industrial Dissemination, Scientific Dissemination and General Audience Dissemination, as shown in Figure 1.

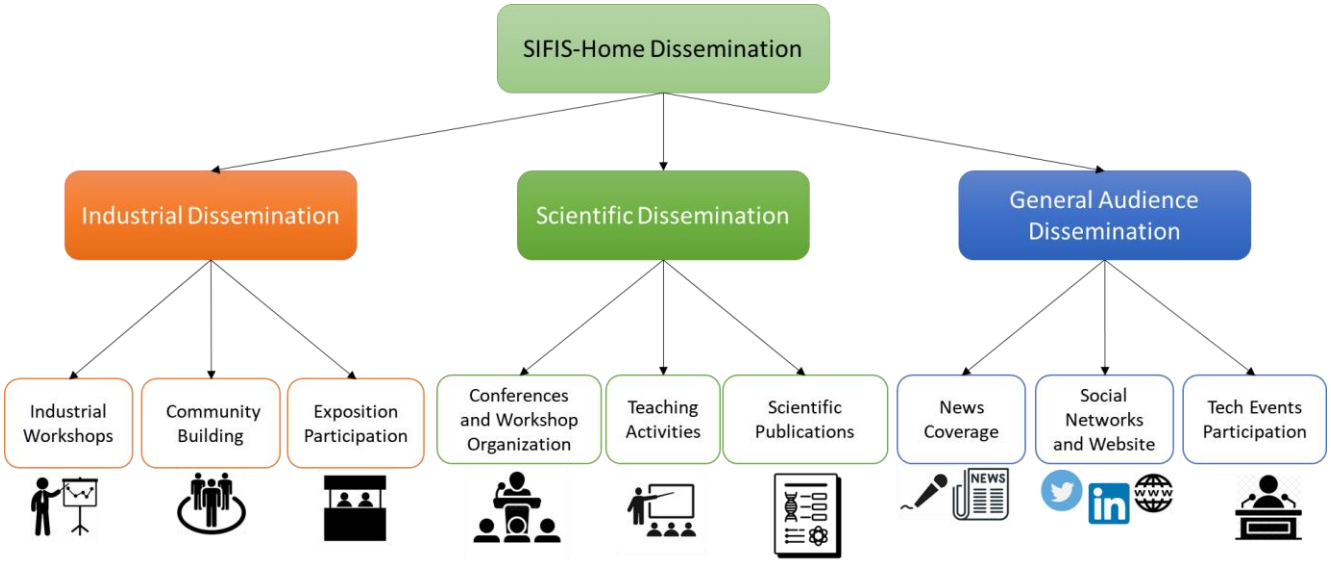

Figure 1: SIFIS-Home dissemination strategy

These activities have been carried on and planned for the next months both as individual actions of standalone project partners and joint activities involving a share or the whole consortium.

2. Partner Individual Dissemination Plans

ERI. ERI intends to disseminate the project results mainly through standardization contributions and support for open source code development. This is a direct continuation of previous and present work on IoT security protocols in the IETF and OMA Spec Works LwM2M, and code development in, for example, the Eclipse projectsCalifornium and Leshan.

FSEC. FSEC will disseminate the project results with publications, presentations, press releases, FSEC's social media channels, industry events, and participation in workshops. For instance, FSEC will be present at Broadband Forum with over 200 industry leading partners and CES, to showcase the project results. Effective dissemination and communication of project activities and its results will be also carried out through existing networks and partnerships. FSEC has an existing strong media presence globally.

INT. INT plans to exploit is leading roles in production of processors and IoT devices, to disseminate the results of the project by providing technical articles, blogs across different public resources, including own Internet locations and other communication channels.Also, INT will support different standardization and open source contributions in a timely fashion.

IC. IC will promote the project via its company website, social media accounts and Youtube channel. The company will support the depositing of journal articles in the open access repository xenodo.org managed by CERN. Also, IC will promote the SIFIS-Home framework to the Luxembourg ICT cluster.

LUM. LUM is active in the Rust community and one of the main contributors in some components of the standard library. It will exploit this role to disseminate direct and indirect SIFIS-Home results, providing best practices for development of secure code for smart home and general IoT applications. Furthermore, LUM will participate with POL and CNR in the production of scientific papers that will be published in international scientific journals and conferences.

MIND. Mind plans to disseminate the results of the project as follows. First, the achievements, studies and results obtained during the project will be advertised on the Mind website as well as on social medias and networks. Second, Mind plans to organize workshops open to other SMEs and companies as well as universities in Modena area so as to help and encourage other players to use the software services developed during the project. Finally, given that Mind has a number of established collaborations with local universities, a number of MSs thesis related to the project will be proposed.

RIO. When the project results are confirmed, RIO will create a dedicated webpage on its company website for the Riots products associated to the project. One of RIO's project deliverables will be a white paper on a subject relevant to the project outcome. RIO is especially interested in the real-life application and testing of new infrastructures and solutions.

SEN. SEN is a fast-growing SME targeting smart city and smart building markets with its horizontal IoT platform Yggio and its wireless sensors. SEN will promote the project results and the new capabilities in its products, in social media, at relevant exhibitions, in product data sheets, to customers and service partners.

CNR. CNR mainly target the communities of security and privacy, software engineering, as well as formal verification, testing, and monitoring. CNR will focus on academic conferences and journal

papers but will also contribute to SIFIS-Home related active interactions, such as social network and web portal. In particular, CNRwill disseminate the results of the project by i) event participation, presenting the main RTD results at appropriate European and International events (outside of Europe) such as conferences and fairs ii) events Organization - foster the organization of national and international events (such as workshops, tutorials, or discussion forums) where to promote the discussion on the topics covered within the project, and iii) research papers.

RISE. RISE is a research institute and will produce R&D know-how, specifications and software components as project results. Expected results include preventive/reactive security solutions, their assessment through related proof-of-concept SW implementations, and their transfer to project pilots. RISE will disseminate the project results according to a research dissemination and exploitation model, which includes: transferring the achieved know-how to project partners and relevant stakeholders; establishing and reinforcing collaborations for joint research and dissemination activities; enhancing competence and expertise in cyber security, with particular reference to the IoT and smart environment application/network domains; publishing research results in scientific international conferences and journals; actively participating in standardization activities, with particular reference to the premier standardization body Internet Engineering Task Force (IETF); training MSc students and PhD students; integrating software components into related R&D activities; setting-up of future research projects in IT-security related areas.

CEN. CEN will provide white paper style documentation of its pilots and activities. CEN will disseminate its results on selected conferences, journal articles and B.Sc. thesis. Conference papers will cover selected results of project activities. CEN will propose thesis projects for master and PhD students as a specific topic. CEN will also use social media and web sites to disseminate the activities of the project.

POL. POL plans to disseminate the results of the project by providing technical presentations at international conferences and workshops, publishing technical contributions in major journals and magazines addressing IoT, software engineering, empirical experiments in software engineering, holding lectures, tutorials, and seminars in the context of international schools (such as Master programs or PhD schools), training initiatives, or courses in IT companies.

3. Communication Activities

The SIFIS-Home project started the dissemination activities during month M1, October 2020. The activities of WP7 aim at reaching a multitude of stakeholders and the largest possible audience. In particular, by following the feedbacks received from the advisory board in the second plenary meeting (June 2021), we have increased our effort in reaching the general audience, as we believe that the topics of the project are of interest for common European citizens, as well as to the scientific community and the companies involved in smart-home, IoT and cybersecurity.

From M1 we have set up the social media channels and we have started working on the preparation of the website, which has been made available starting from M3 and described in detail in D7.7. Additional information and updates on the website will be reported in the following.

Furthermore, we have exploited the events organized for the European Cybersecurity Month to present the project activities to a generic audience and we have received the interest of a number of Italian news channels. These activities will be detailed in the following.

3.1. Web and Social Communication Activities

The SIFIS-Home website is active from December 2020 and is updated with new contents describing the activities of the project, news from the social networks and contents published by the consortium partners through the website blog.

Figure 2: Home Page of the SIFIS-Home Website

For more details on the website structure, we redirect the reader to Deliverable D7.7.

The website has published 9 blog articles, related to the activities of the partner related to the SIFIS-Home project.

In addition to the website, SIFIS-Home has also opened three social media channels to disseminate the project results, which are described in the following.

3.1.1. Twitter

The SIFIS-Home's Twitter account has been the most active social network channel, where SIFIS-Home disseminated the project results and aimed at raising the attention on smart home cybersecurity

and safety issues, highlighting relevant news on smart home device vulnerabilities, possible misuses of smart home services and putting the spotlight on privacy issues. Twitter has also been a way to establish connections with other H2020 projects, some of them financed under the same action of SIFIS-Home. The Twitter social channel has been active from M1, publishing 240 tweets, and collecting 87 followers.

Figure 3: Screenshot of the SIFIS-Home's Twitter profile page.

The SIFIS-Home project did not invest in Twitter advertisement campaigns and is relying exclusively on its partners and the activity on the social network. In the first year, SIFIS-Home has mainly published contents related to cybersecurity and privacy issues in smart home environments. A greater dissemination activity has been carried out in the last months, following the first scientific publications related to the SIFIS-Home architecture, the approval of IETF drafts related to the contributions on the CoAP security through ACE, and the project dissemination activities directed to the general public.

3.1.2. LinkedIn

The second social network used by SIFIS-Home is LinkedIn. LinkedIn is a professional social network, addressing a different audience and asking for a different style of contributions. Thus, we have used the LinkedIn channel mainly to advertise scientific events organized by the SIFIS-Home consortium, report news on published papers, provide information related to the project meetings and events that we are attending.
As for Twitter, we did not use any advertisement campaign to involve more followers, but we keep this as a potential strategy for the upcoming months to disseminate contents on the first demonstrators developed by the technical WPs and a number of planned events and new publications.

The social network is also being used by partners to advertise open job positions on the project's topics.

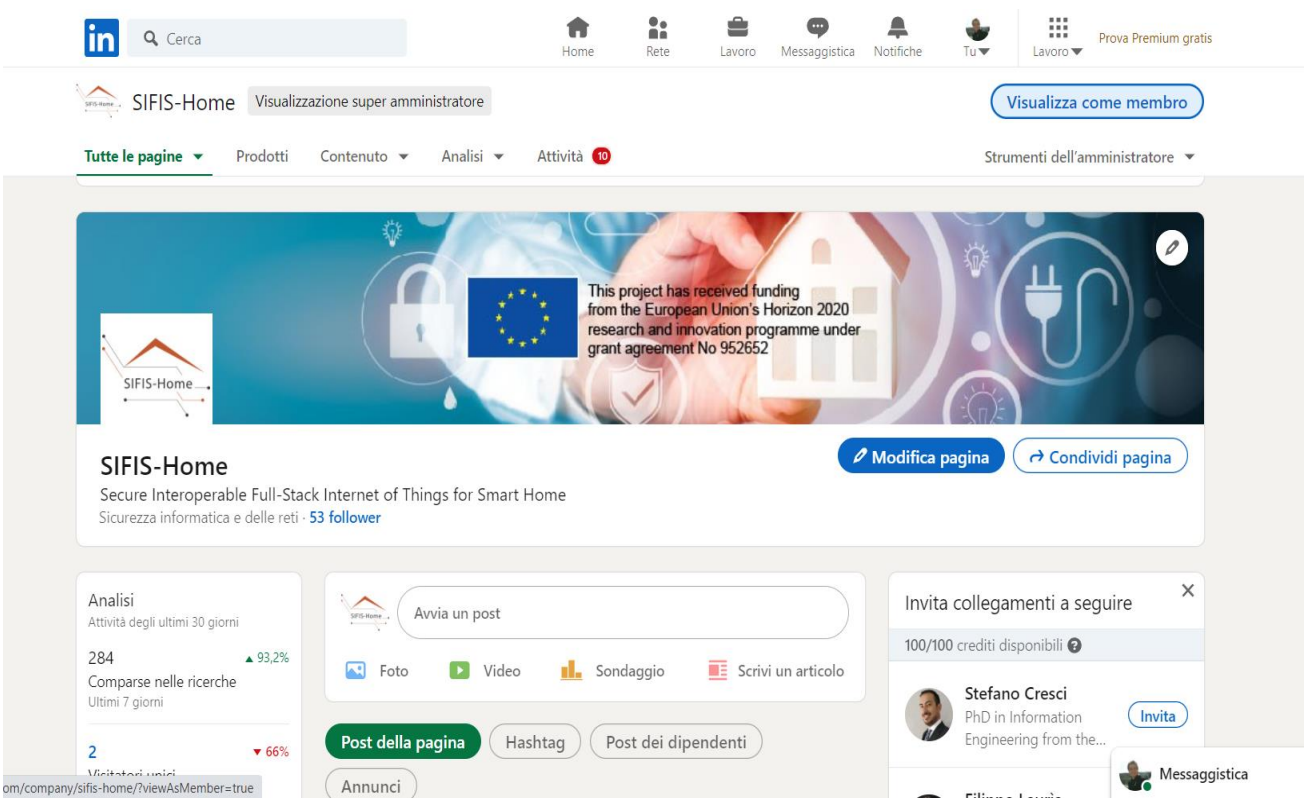

Figure 4: LinkedIn page of SIFIS-Home

3.1.3. YouTube

The YouTube channel has been created to provide live streaming and recorded videos of the project seminars as well as of the events that SIFIS-Home project is attending. As part of WP7 we are also preparing dedicated videos to present the SIFIS-Home project concepts and introduce the people involved in SIFIS-Home. The channel is available at the following link: https://www.youtube.com/channel/UC1FFAt28qBz9MOrN6Lq376g

3.2. Participation to Dissemination Events

The first year and a half of SIFIS-Home project has been run during the COVID19 pandemic. The lockdown and restrictions have affected the capability of the project partners to participate in presence to live events, following also partners specific travel bans that have persisted also out of the actual lockdown periods. Even with the intrinsic difficulties of this period, SIFIS-Home managed to participate to a small number of dissemination events, especially by exploiting the European Cybersecurity Months.

In particular, SIFIS-Home has participated to the Internet Festival 2021, a technology festival in Italy where we organized a 2 hours panel moderated by Claudia Morelli, a technology and legislation journalist. The panel attracted a variate audience of 50 people, including university students and tech enthusiasts. Moreover the event has been streamed on the social channels of CNR.

Figure 5: SIFIS-Home presentation at the Internet Festival

3.3. News Coverage

Following the dissemination events, SIFIS-Home managed to attract the attention of a number of web sites and technical blogs. Mainly the news coverage has been pursued through Italian channels, since the dissemination events have been performed only in Italy, up to now. In the following, we will provide a summary description of the news related to SIFIS-Home, published in 2021.

WIRED.it

An article on the Italian branch of WIRED entitled "A project to protect smart homes from undesirable guests" has been published in November 2021. The article is edited by Claudia Morelli, a legal tech reporter and present in a very simple way the issues related to security and privacy of smart home environments and how SIFIS-Home addresses them. The article can be found at the following link:
https://www.wired.it/attualita/tech/2021/10/20/smart-home-cybersecurity-cnr/

Figure 6: WIRED Italy talking about the SIFIS-Home project

POP Economy (Sky)

The thematic channel on digital economy named Pop Economy, broadcasted on Sky has published an interview to Andrea Saracino in which he describes the SIFIS-Home project at a high level the activities and the motivation behind it. The full video (in Italian) is available at the following link: https://www.popeconomy.tv/title/quando-la-casa-prende-in-controllo/?fbclid=IwAR2tUyypKMu1a3dZo_UyARf3N8FJoC8Yfch2qZQoTTGM4xf-Vqw-5LTKrss

InToscana

InToscana is a regional web channel in Italy covering events in the Tuscany region in Italy. Andrea Saracino has been interviewed at the Internet Festival and the interview has been published at the following link:

https://www.intoscana.it/it/dettaglio-video/andrea-saracino-internet-festival-2021/?fbclid=IwAR0GXm6J_Z0_PTOPkzM_02_tkfbhv08-IO0EXEN1UWWAScaoU66zcCikWd8

4. Scientific Dissemination

The scientific dissemination is a key task for T7.1. Both academic partners and industrial ones consider dissemination as a key activity, needed to address both scientific and industrial communities. From the very early stage of the project, the partners of SIFIS-Home have worked on producing high level scientific paper, and disseminating the activities of SIFIS-Home in a number of IoT and cybersecurity workshops, to which organization the SIFIS-Home partners have also contributed.

4.1. Scientific Publications

In the first 18 months, the project partners succeeded in publishing 10 scientific papers, in top ranked journal and conferences. In detail, papers acknowledging SIFIS-Home, presenting research results exploited in this project amount to 7 journal papers and 3 Conference Proceedings. The journals selected for publishing SIFIS-Home papers all fall in the first and second quartile (Q1 and Q2) of the Scimago Journal Ranking. It is worth noting how some of the papers are collaboration among different project partners.

Type of publication	Title	Authors	Venue	Year
Article in Journal	Evaluating the Performance of the OSCORE Security Protocol in Constrained IoT Environments	Martin Gunnarsson, Joakim Brorsson, Francesca Palombini, Ludwig Seitz and Marco Tiloca	Internet of Things; Engineering Cyber Physical Human Systems	2021
Article in Journal	Exploiting IFTTT and Usage Control Obligations for Smart Home Security and Management	Giacomo Giorgi, Antonio La Marra, Fabio Martinelli, Paolo Mori, AthanasiosRizos, Andrea Saracino	Concurrency and Computation Practice and Experience	2021
Conference proceedings	On-demand Key Distribution for Cloud Networks	Nicolae Paladi, Marco Tiloca, Pegah Nikbakht Bideh and Martin Hell	24th Conference on Innovation in Clouds, Internet and Networks (ICIN 2021), Demonstration track	2021
Article in Journal	Privacy preserving data sharing and analysis for edge-based architectures	Mina Sheikhalishahi, Andrea Saracino, Fabio Martinelli, Antonio La Marra	International Journal of Information Security	2021
Article in Journal	Using recurrent neural networks for continuous authentication through gait analysis	Giacomo Giorgi, Andrea Saracino, Fabio Martinelli	Elsevier PR Letters	2021

Conference proceedings	Flowrider - Fast On-Demand Key Provisioning for Cloud Networks	Nicolae Paladi, Marco Tiloca, Pegah Nikbakht Bideh and Martin Hell	17th EAI International Conference on Security and Privacy in Communication Networks (EAI SecureComm 2021)	2021
Article in Journal	Preserving Privacy in the Globalized Smart Home:The SIFIS-Home Project	Luca Ardito, Luca Barbato, Paolo Mori, Andrea Saracino	IEEE Security And Privacy	2021
Article in Journal	Quality Assessment Methods for Textual Conversational Interfaces: A Multivocal Literature Review	Riccardo Coppola, Luca Ardito	MDPI Information	2021
Conference Proceedings	A Real-Time Deep Learning Approach for Real-World Video Anomaly Detection	Stefano Petrocchi, Giacomo Giorgi, Mario G. C. A. Cimino:	ARES 2021: The 16th International Conference on Availability, Reliability and Security	2021
Article in Journal	Performance Evaluation of Group OSCORE for Secure Group Communication in the Internet of Things	M. Gunnarsson, K. M. Malarski, R. Höglund and M. Tiloca	ACM Transactions on Internet of Things	2022

4.2. Participation to Scientific Events

Apart from the conference participation, in which we have presented SIFIS-Home related research, SIFIS-Home has participated and has been showcased in a number of thematic workshops on IoT and Cybersecurity. Moreover, SIFIS-Home has participated to a workshop co-organized by all the projects working under the SU-ICT-2020 action, to investigate on possible collaboration and joint organization of further events. It is worth mentioning that the participation to scientific events has been strongly affected by the COVID-19 pandemic, as we have witnessed the cancelation of many events to which the participation of SIFIS-Home or some partners was planned.

4.2.1. 1st Workshop on Trustworthy Software Ecosystems

This workshop without proceedings has been organized by the University of Genova, to showcase latest research results on trustworthy systems. The event has been conducted in a virtual manner. The audience and the speakers was international and SIFIS-Home had a dedicated slot of 50 minutes for presenting the activity. A registration of the SIFIS-Home presentation has been made available through our YouTube channel.

4.2.2. SU-ICT-2020 Cluster Workshop

This event has been organized as a virtual roundtable among the project coordinators of the actions financed under the SU-ICT-2020 call. SIFIS-Home has presented the core values of the project and the preliminary

results obtained on the side of scientific publication and standardization.

4.3. Events Organization

The partners of SIFIS-Home are involved in the organization of scientific conferences and workshops. However, a number of these events have been either canceled or moved to fully virtual, strongly reducing the possibility of exposure of the SIFIS-Home project. The events organized by SIFIS-Home partners and sponsored by SIFIS-Home are the following:

- 3rd International Workshop on Behavioral Analysis for System Security (BASS 2021), co-located with the conference ARES 2021. The event has been performed in a virtual form, because of COVID-19, still managing to attract 13 submissions and an audience of 25 people.
- 4th International Workshop on Emerging Technologies for Authorization and Authentication (ETAA 2021) co-located with ESORICS 2021. The event has been organized in a fully virtual form, still it attracted 16 publications. The event has dedicated proceedings published by Springer and edited by CNR. The website of the event is still available at the following link : https://hosting.services.iit.cnr.it/etaa2021/index.html

The following events are already planned and upcoming in 2022.

- 4th International Workshop on Cyber-Security in Software-defined and Virtualized Infrastructures (SECSOFT 2022) co-located with NetSoft 2022. The website is available at the following link: https://fulviovalenza.github.io/secsoft/
- 5th International Workshop on Emerging Technologies for Authorization and Authentication (ETAA 2022) co-located with ESORICS 2022. The workshop has been formally accepted as satellite event of the main European conference on cybersecurity and the website will be published in the next weeks.

5. Industrial Dissemination

Industrial partners are engaged in various dissemination activities based on their profile and role in the project. Utilizing company press releases, connecting SIFIS-HOME social media accounts and participating to industrial events are examples of dissemination considered by industrial partners. The focus of industrial dissemination will increase towards the end of the project, as more concrete project results will be available and more milestones will becompleted. As the industrial partners mainly communicate towards the public audience consisting of partners and customers, the dissemination content needs to be suitable for such activity, and should thusinclude concrete results that are in the interest of both existing and potential customers but, also, for general public and partner networks.

In addition, industrial partners will explore the dissemination possibilities of attending potential connected home security related events where relevant stakeholders and customers are present. Moreover, in addition to the traditional dissemination activities during the events, also technical demonstrations prepared during the project could be showcased to potential customers to receive feedback for future needs and initial review of the technical end results of the SIFIS-Home project.

6. Annex A: Glossary

Acronym	Definition
SJR	Scimago Journal Ranking
IFTTT	IF This Then That
ETAA	Emerging Technologies for Authorization and Authentication
BASS	Behavioral Analysis for System Security

7. Annex B: List of Social Channels

Social Network	Link
Twitter	https://twitter.com/SifisHome
LinkedIn	https://www.linkedin.com/company/69475683
YouTube	https://www.youtube.com/channel/UC1FFAt28qBz9MOrN6Lq376g
WebSite	https://www.sifis-home.eu