D7.4

Final Dissemination Report

WP7 – Dissemination, Standardization and Exploitation

SIFIS-HOME

Secure Interoperable Full-Stack Internet of Things for Smart Home

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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)	

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Version	Date	Name	Partner	Section Affected Comments
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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.

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1. The SIFIS-Home Communication Strategy and Results in a Nutshell

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, T7.4 will report on the results of the multi-fold dissemination strategy planned in D7.1 and summarized here. Following three strands, namely Industrial Dissemination, Scientific Dissemination and General Audience Dissemination, as shown in Figure 1.

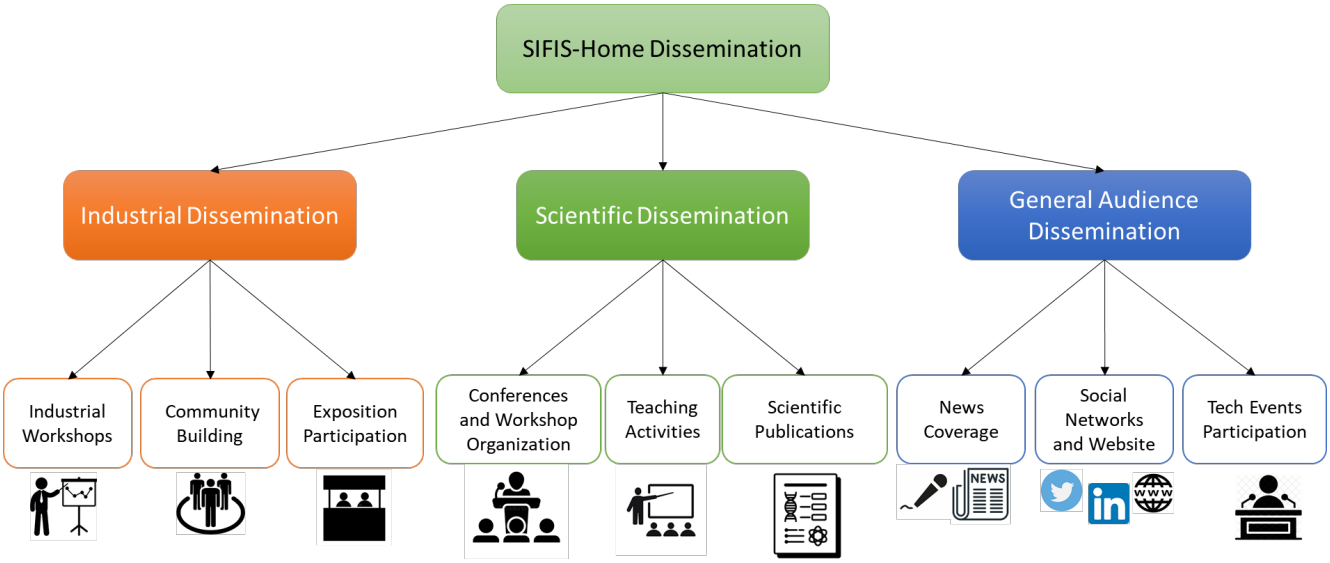

Figure 1: SIFIS-Home dissemination strategy

These activities have been carried for the overall project duration both as individual actions of standalone project partners and joint activities involving a share or the whole consortium. All of dissemination plans have been carried out successfully by the project partners.

During these 3 years, the SIFIS-Home partners have addressed the dissemination plan with the following results:

- Participated or co-organized more than 6 dissemination events related to the SIFIS-Home topics, produced dissemination material, including an article on Wired.

- More than 30 research papers, acknowledging the SIFIS-Home project have been published in high quality scientific conferences and journals. All the papers are reporting key activities or technologies exploited in the SIFIS-Home project. Moreover, a consistent number of papers have been co-authored by at least two project partners, as result of cooperation activities.
- More than 5 scientific workshops have been organized by the SIFIS-Home partners, concerning topics relevant for the project. 2 of these workshops have been co-organized with other EU projects and have included a presentation session dedicated to the project. The other workshops have been sponsored by SIFIS-Home, which has been always acknowledged. The project partners have also participated to workshops organized by third parties, presenting the activities of the SIFIS-Home project.
- The SIFIS-Home partners have participated to some industrial events to showcase the activities of the SIFIS-Home project. Among the events, the most relevant has been the participation to the IoT Solution and Cybersecurity World Congress in Barcelona, Spain.
- In the overall, the SIFIS-Home project results have been successfully delivered in a collaborative effort by all the project partners. The website and social networks have been used to boost the outreach, through blog posts and advertisement of the project dissemination and scientific activities.

2. 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.

2.1. 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 32 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.

2.1.1. 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.

2.1.2. 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.

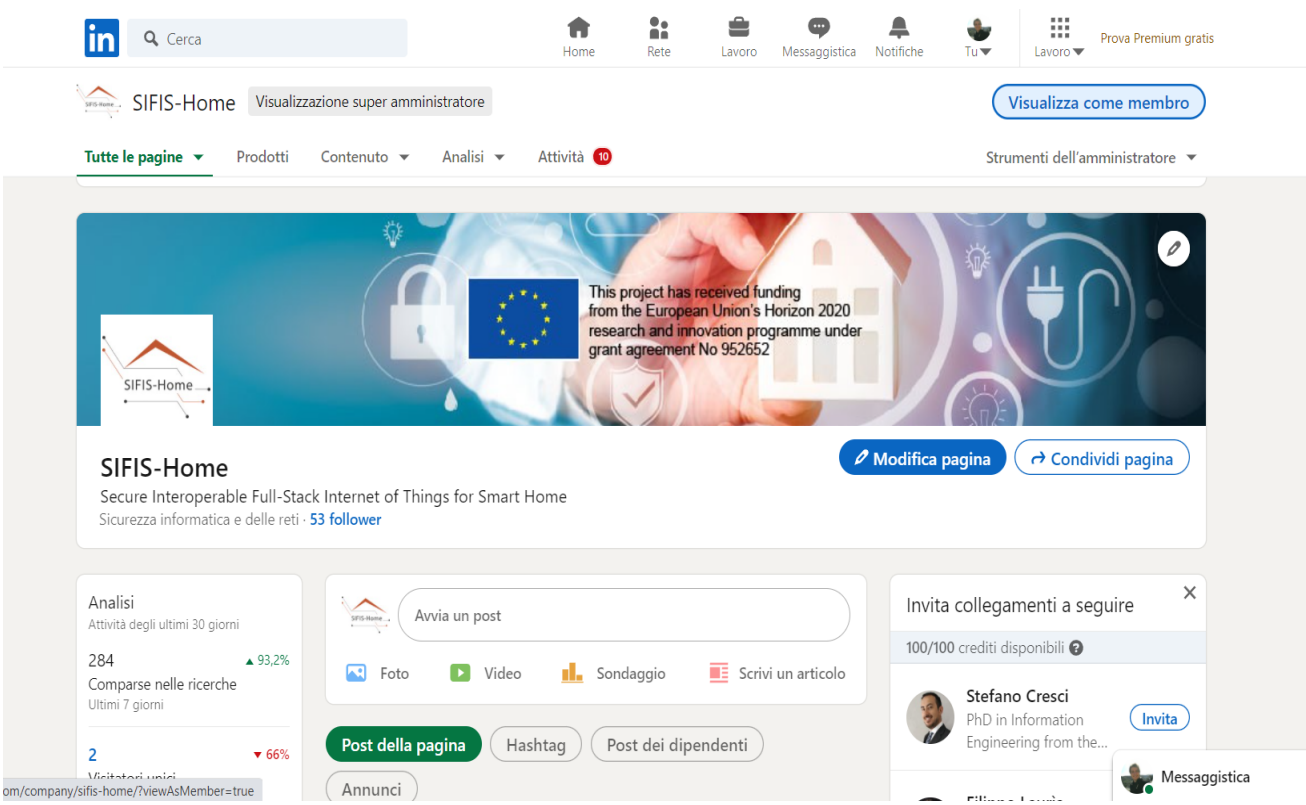

Figure 4: LinkedIn page of SIFIS-Home

2.1.3. 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.

The channel is currently featuring 16 videos reporting the SIFIS-Home concept and a set of demo videos.

2.2. 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

During the second half of the project, following the lifting of COVID-19 restrictions, the project partners have actively participated to more event, including physical participation. The participation to dissemination events has been performed both as joint action of several partners, or as occasional standalone events. In November 2022, POL organized in collaboration with the NEXA center a round table discussion on smart home security and privacy, where our coordinator has been the main speaker. The event has been streamed via the web channels of the NEXA Center.

Figure 6: NEXA Center seminar

In January 2023, representative of the SIFIS-Home consortium participated to the IOT Solution and Cybersecurity Congress in Barcelona. The participation to the event has been done in cooperation with the other EU projects funded under the same call of SIFIS-Home, proposing a joint stand named ERICYB (European Research Innovation for Cybersecurity) Cluster. CNR, DOMO, CEN, SEN, FSEC, and POL participated to the event, which attracted thousands of commercial practitioners in IoT and cybersecurity.

Figure 7; IoT Solutions and Cybersecurity World Congress

Between 2022 and 2023, CEN has organized two matchmaking and dissemination events in Finland presenting

to general audience, industrial partners, prospective students and researchers the activities and the mission of the SIFIS-Home project.

Figure 8: Matchmaking event organized by CEN

The last dissemination event of the SIFIS-Home project has been the webinar on Increasing Cybersecurity and empowerment in the digital environment in Europe.

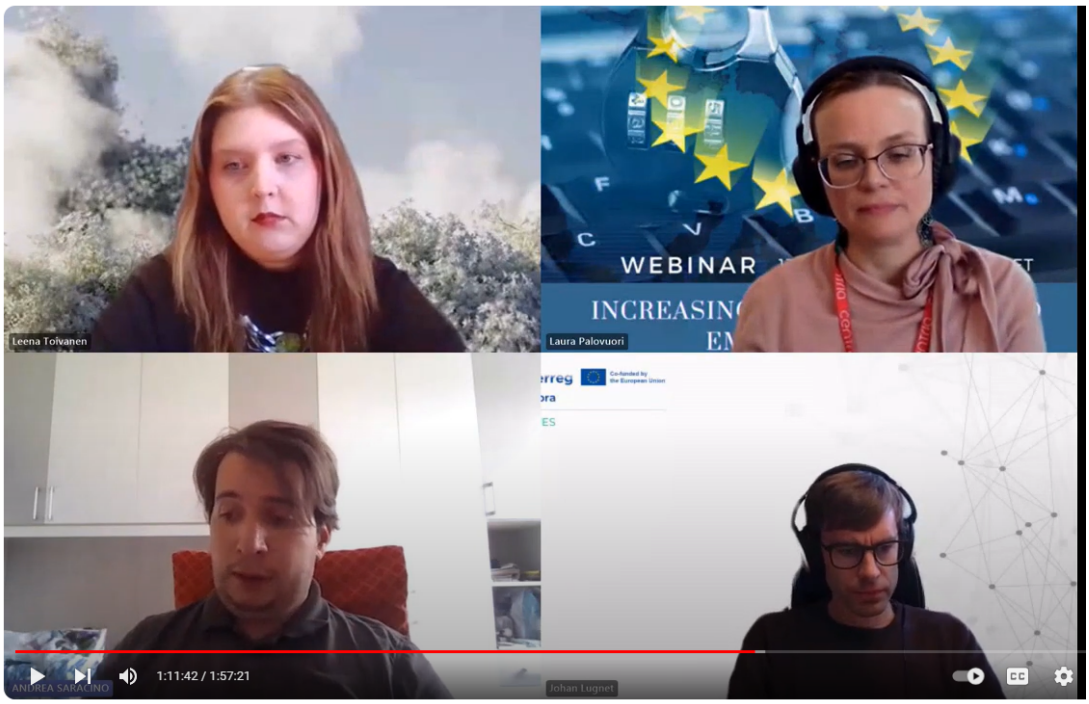

Figure 9: Webinar on Increasing Cybersecurity and empowerment in the digital environment in Europe

The Webinar was organized together with DistansLAB: Distance LAB – Interreg Baltic Sea Region (interreg-baltic.eu) and with ISSUES: CyberNorth – A highly informative site about Information Security and Cyber Security. The webinar has featured an invited speaker and then a panel with representatives from three partner EU projects.

2.3. 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 10: 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

3. 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 papers, 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.

3.1. Scientific Publications

For the overall SIFIS-Home duration, the project partners succeeded in publishing 24 scientific papers, in top ranked journal and conferences. In detail, papers acknowledging SIFIS-Home, presenting research results exploited in this project amount to 11 journal papers and 13 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. It is worth mentioning that a considerable share of the published papers come as collaborative work of more than one authors. The following table reports all the publications acknowledging the SIFIS-Home project.

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
Conference proceedings	An application of Netspot to Detect Anomalies in IoT	Tom Tuunainen, Olli Isohanni, Mitha Jose	2022 IEEE 8th International Conference on Network Softwarization (NetSoft)	2022
Conference proceedings	Privacy vs Accuracy Trade-Off in Privacy Aware Face Recognition in Smart Systems	Wisam Abbasi, Paolo Mori, Andrea Saracino, Valerio Frascolla	12th Workshop on Management of Cloud and Smart City Systems (MoCS 2022)	2022

Article in Journal	Vulnerabilities of the 6P Protocol for the Industrial Internet of Things: Impact Analysis and Mitigation	F. Righetti, C. Vallati, M. Tiloca and G. Anastasi	Computer Communications	2022
Conference proceedings	Privacy-Preserving Speaker Verification and Speech Recognition	WIsam Abbasi	ETAA2022	2022
Conference proceedings	Demo: Usage Control using Controlled Privacy Aware Face Recognition	Arpad Müller, Wisam Abbasi	12th Workshop on Management of Cloud and Smart City Systems (MoCS 2022)	2022
Article in Journal	Lightweight Authenticated Key Exchange With EDHOC	Mališa Vučinić; Göran Selander; John Preuss Mattsson; Thomas Watteyne	Computer	2022
Conference proceedings	Secure Software Updates for IoT based on Industry Requirements	Ludwig Seitz, Marco Tiloca, Martin Gunnarsson and Rikard Höglund	9th International Conference on Information Systems Security and Privacy (ICISSP 2023)	2022
ePrint Archive	On using the same key pair for Ed25519 and an X25519 based KEM	Erik Thormarker	Cryptology ePrint Archive, Paper 2021/509	2022
Conference proceedings	Key Update for the IoT Security Standard OSCORE	Rikard Höglund, Marco Tiloca, Simon Bouget and Shahid Raza	2023 IEEE International Conference on Cyber Security and Resilience (CSR 2023)	2022

Conference proceedings	Research, Implementation and Analysis of Source Code Metrics In Rust-Code-Analysis	Luca Ardito, Marco Ballario, Michele Valsesia	The 23rd IEEE International Conference on Software Quality, Reliability, and Security (QRS 2023)	2023
Conference proceedings	The Explainability-Privacy-Utility Trade-Off for Machine Learning-Based Tabular Data Analysis	Wisam Abbasi; Paolo Mori and Andrea Saracino	The 20th International Conference on Security and Cryptography - SECRYPT 2023	2023
Conference proceedings	Privacy-Preserving Object Recognition with Explainability in Smart Systems	Wisam Abbasi ; Paolo Mori and Andrea Saracino	PriST-AI 2023	2023
Conference proceedings	Graph-Based Android Malware Detection and Categorization through BERT Transformer.	Marco Simoni; Andrea Saracino	ARES 2023	2023
Article in Journal	An Artificial Intelligence-Based Approach to Detect the Quality of Wooden Panels using Convolutional Neural Networks	T. Tuunainen, O. Isohanni, M. Jose	International Journal of Engineering Research in Computer Science and Engineering	2023

Other research papers, extremely relevant for the SIFIS-Home project, are currently under review of relevant journals.

Type of submission	**Title**	**Authors**	**Venue**	**Status**
Article in Journal	Trading-off Privacy, Utility, and Explainability in Deep Learning-based Image Data Analysis	Wisam Abbasi, Paolo Mori, Andrea Saracino	IEEE Transactions on Dependable and Secure Computing	2nd review round

Article in Journal	Using the ACE Framework to Enforce Access and Usage Control with Notifications of Revoked Access Rights	Marco Rasori, Paolo Mori, Andrea Saracino, Marco Tiloca	Springer International Journal of Information Security	1st review round

3.2. 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.

3.2.1. 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.

3.2.2. 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.

3.3. 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
- 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.
- 5th International Workshop on Cyber-Security in Software-defined and Virtualized Infrastructures (SECSOFT 2023) co-located with NetSoft 2023.

4. 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

5. 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