

## **SAFECARE Final Newsletter – October 2021**

### **Final Message of Philippe TOURRON – SAFECARE Coordinator**

The demonstration and analysis of future uses have been a success in terms of participation of end-users, both regional and European players, enabling us to meet our objectives of contributing to the evolution of hospitals protection and our commitment towards the European Commission.

After 3 years of activities the whole consortium can be proud of the results. We are in the last straight line of the project to produce the final deliverables and initiate the prospects for industrialization of Safecare. We rely on all of our partners to bring Safecare's innovations into the hands of all end-users protecting critical health systems.

We hope that the industrialization of this project will allow a high level of protection for all hospitals and a better communication on threats and protection measures between all regional, national and European actors.

### **SAFECARE Research**

1/ Publication of the Open Access [eBook](#) of “Cyber-Physical Threat Intelligence for Critical Infrastructures Security: Securing Critical Infrastructures in Air Transport, Water, Gas, Healthcare, Finance and Industry” has now officially published. 3 SAFECARE Chapters:

- Security Analytics and Monitoring of Medical Devices, Paul Koster, Pages 375-390
- User Experience Models for Threat Monitoring and Security Management in Health Care, Fabrizio Bertone | Francesco Lubrano | Federico Stirano | Zhenjie Li | Barry Norton | Michele Petruzza | Marco Gavelli, Pages 391-414
- Attacking and Defending Healthcare Networks, Stanislav Dashevskiy | Daniel Ricardo dos Santos | Elisa Costante, Pages 415-432

2/ Contribution to the [Consolidated Proceedings of the first ECSCI Workshop on Critical Infrastructure Protection](#):

- Healthcare critical infrastructures protection and cybersecurity in the EU: regulatory challenges and opportunities | Elisabetta Biasin, Pages 43-46

3/ Unified Physical Threat Monitoring System Aided by Virtual Building Simulation. 2021 International Conference on Transport and Smart Cities. Frankfurt, Germany, Sept 17-19, 2021 - Zhenjie Li, Barry Norton.

## Updates

### Demonstration Turin

On the 21<sup>st</sup> of July 2021, the demonstration environment has been implemented in ASLTO5 premises, in which a mock-up medical device has been targeted by cyberattacks in a realistic virtual hospital. This demonstration environment was used to give a live demonstration to stakeholders, invited in one video-meeting room, showing how the SAFECARE components such as BTMS and CTMS can assist hospital cybersecurity operators to detect, analyse and mitigate these attacks without disrupting the operation of medical devices or endangering patients.

In Turin the SAFECARE demo solutions have been tested, using five of the user scenarios previously foreseen:

- Scenario 2: cyber physical attack to steal patient data in the hospital of Moncalieri
- Scenario 6: cyber-physical attack on medical devices located in the hospital of Moncalieri
- Scenario 9: physical attack against hospital staff using a gun in the hospital of Carmagnola
- Scenario 10: physical attack to steal drugs in the pharmacy of the hospital of Carmagnola
- Scenario 11: cyber-physical attack due to a personal laptop in the radiology department of the hospital of Moncalieri

Two questionnaires have been provided by our partner UG to collect feedback and proposals from the end users participating in the demonstration. One questionnaire is to be filled after each scenario demonstration, the second one was to be completed after the end of the demonstration and it has been used to allow participants to express a feedback on the whole demonstration.

During the demonstration, KEMEA's task was to present questionnaires, to discuss with end users and to collect filled surveys.

The conclusions of the demonstration, confirmed by these interviews, are positive and promising, and with useful suggestions for the conclusion of the project:

- The added value of the system is mainly the **combined management of cyber-physical security threats**.
- The SAFECARE system is considered as quite **interesting and promising** to address known security challenges in a hospital environment,
- A more concrete and simple demonstration with **realistic incidents** and co-design realistic scenarios and test related to the performance of SAFECARE would have been preferred,
- The design of the demonstrations **involving practically end-users** in planning and implementing the demo (expected an implementation closer to the end user and less technical) has been recommended.

### Demonstration Marseille

On September 28<sup>th</sup>, 29<sup>th</sup> and 30<sup>th</sup> SAFECARE pilot went live in AP-HM at "La Timone" premises.

The demonstration, led by the coordinator Philippe Tourron, involved end users, both internal and external to AP-HM and to the consortium. The professions represented were health practitioners, physical and cyber security practitioners, SOC operators, crisis managers, governmental and regional agencies. It made it possible to verify the capacity of the system carrying numerous innovations, to

operate in a hospital context and to meet the needs of the hospital professionals, through the feedback of the participants. Five scenarios of threats have been performed:

- Scenario 1 : Cyber-physical attack targeting power supply of the hospital
- Scenario 3 : Cyber-physical attack targeting IT system (including also accidental events)
- Scenario 5 : Cyber-physical attack targeting the air-cooling system of the hospital
- Scenario 7+10 : Cyber-physical attack targeting the COVID-19 vaccines
- Scenario 12 : Cyber-physical attack to block national crisis management

As for the demonstration in Turin, KEMEA and UG were the partners in charge of collecting the feedbacks from end-users. 97 questionnaires were collected from 24 unique participants.

In Marseille demonstration, the questionnaires provided to end-users for the prototype evaluation, had been enriched with supplementary 16 questions related to the performance of the prototype compared to the present situation and ethical aspects.

This demonstration permitted to validate an hybrid technical architecture (cloud and local environment), the high integration with existing components which permits cost-effective approach and the capability of the modules to integrate accidental events.

Among the various feedbacks received we list here below the general ones:

- very positive impression for the efficiency and performance of the SAFECARE system
- impressive work has been done in the framework of this EU project
- recommendations for further developments should be carefully taken under consideration for future developments.

After 3 years of research we could show a prototype of which several innovative tools have been put in the hands of the participants. In particular, the mobile application (MAS) for communicating alerts (TRAS) and interventions in real time and the system for predicting and visualizing potential impacts to patients (HAMS), staff and essential hospital functions, in order to act preventively or facilitate crisis management, could be tested by end users.

The General Manager of APHM, Mr. François Crémieux, spoke in support of the project, emphasizing its response to the challenges of global security in the current complex and constrained context of hospitals.

## **Communication and Dissemination**

### **The 3S Clustering Event**

SAFECARE partners have recently participated in the organisation of the 3S clustering event which took place in Heraklion (Greece) between the 12<sup>th</sup> and the 13<sup>th</sup> of October 2021.



The event brought together three EU-funded projects ([SATIE](#), [SAFECARE](#) and [SecureGas](#)) in the field of the Critical infrastructure protection, presenting the innovative results they have achieved through focused presentations and interactive sessions.

In particular, the event has been structured around common themes approached from different perspectives (namely air transport

infrastructures, healthcare infrastructures, natural gas infrastructures) and it represents a unique opportunity to get relevant insights on the use of integrated cyber-physical security solutions for critical infrastructure protection.



The conference also offered the possibility to attend specific sessions regarding best practices, innovative technological solutions, security framework and demonstration results. Moreover keynote speakers from the three projects presented policies, frameworks, security studies, emerging findings as well as lessons learned.

*Philippe Tourron introducing SAFECARE during the 3S event*

### **The Final SAFECARE Focus Group**

On the 11<sup>th</sup> of October the SAFECARE Final Focus Group was organised both physically (in Heraklion – Greece) and remotely.

Several crucial points were raised: the demonstrations results were presented, the KPIs and objectives to reach by the end of the project were discussed and of course the Final Review and Commercial Event to come were the subject of the two final important points.

### **Upcoming events**

The consortium is delighted to announce that SAFECARE will hold its Commercial Event on 30 November 2021. Due to the particular circumstances, we have decided to host the event both online and onsite (in Paris, in the CNAM premises).

The participants will have the opportunity to learn about the project main achievements and to be shown the SAFECARE solutions developed to better protect critical health infrastructures.

The event will be chaired by Philippe Tourron, from the Assistance Publique – Hôpitaux de Marseille and Coordinator of the project.

Please see the agenda below as well as the link for [registration](#).



## Agenda

### Commercial Event

292 bis Rue Saint Martin 75003 Paris, France

**NOV 30 2021**

09.00-09.45	Welcome Coffee and Registration	
09.45-12.30	<b>MORNING SESSIONS SAFECARE Conference</b>	
09.45-10.05	Overview of the SAFECARE Project and End-user benefits	APHM, Airbus, ISEP, AMC, ASLTO5
10.05-10.20	Presentation of the SAFECARE architecture	Airbus
10.20-11.30	Presentation of the main Results/Impacts from a research and technical point of view (followed by Q&A)	ISEP, Airbus, Milestone, LINKS, BEIA
11.30-11.45	Coffee Break	
11.45-12.25	SAFECARE Exploitation (followed by Q&A)	ENC
12.25-12.30	Closing Words	APHM
12.30-14.00	Lunch Break	
14.00-16.30	<b>AFTERNOON SESSIONS</b>	
14.00-16.15	<b>Carrousel Stations</b>	
Carrousel 1	Building Threat Monitoring System	Milestone
Carrousel 2	Cyber Threat Monitoring System + Advanced file analysis system + Cyber Range	Airbus
Carrousel 3	Hospital Availability Management System + Impact Propagation Module	LINKS, CNAM
Carrousel 4	Threat Response and Alert System + Mobile Alerting System	ENC, LINKS
Carrousel 5	Medical Device Security Monitoring & Risk Management	Philips Research Philips Healthcare
Carrousel 6	End-users and risk-management / Integration of the SAFECARE solutions – Roleplay on risk simulation to facilitate SAFECARE integration	APHM, Santé Publique France
16.15-16.45	Cocktail	

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HORIZON 2020