VALU3S

Verification and Validation of Automated Systems' Safety and Security

Initial communication activity report

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Project Overview

Manufacturers of automated systems and the manufacturers of the components used in these systems have been allocating an enormous amount of time and effort in the past years developing and conducting research on automated systems. The effort spent has resulted in the availability of prototypes demonstrating new capabilities as well as the introduction of such systems to the market within different domains. Manufacturers of these systems need to make sure that the systems function in the intended way and according to specifications which is not a trivial task as system complexity rises dramatically the more integrated and interconnected these systems become with the addition of automated functionality and features to them.

With rising complexity, unknown emerging properties of the system may come to the surface making it necessary to conduct thorough verification and validation (V&V) of these systems. Through the V&V of automated systems, the manufacturers of these systems are able to ensure safe, secure and reliable systems for society to use since failures in highly automated systems can be catastrophic.

The high complexity of automated systems incurs an overhead on the V&V process making it time-consuming and costly. VALU3S aims to design, implement and evaluate state-of-the-art V&V methods and tools in order to reduce the time and cost needed to verify and validate automated systems with respect to safety, cybersecurity and privacy (SCP) requirements. This will ensure that European manufacturers of automated systems remain competitive and that they remain world leaders. To this end, a multi-domain framework is designed and evaluated with the aim to create a clear structure around the components and elements needed to conduct V&V process through identification and classification of evaluation methods, tools, environments and concepts that are needed to verify and validate automated systems with respect to SCP requirements.

In VALU3S, 12 use cases with specific safety, security and privacy requirements will be studied in detail. Several state-of-the-art V&V methods will be investigated and further enhanced in addition to implementing new methods aiming for reducing the time and cost needed to conduct V&V of automated systems. The V&V methods investigated are then used to design improved process workflows for V&V of automated systems. Several tools will be implemented supporting the improved processes which are evaluated by qualification and quantification of safety, security and privacy as well as other evaluation criteria using demonstrators. VALU3S will also influence the development of safety, security and privacy standards through an active participation in related standardisation groups. VALU3S will provide guidelines to the testing community including engineers and researchers on how the V&V of automated systems could be improved considering the cost, time and effort of conducting the tests.

VALU3S brings together a consortium with partners from 10 different countries, with a mix of *industrial partners* (24 partners) from automotive, agriculture, railway, healthcare, aerospace and industrial automation and robotics domains as well as leading *research institutes* (6 partners) and *universities* (10 partners) to reach the project goal.

Consortium

RISE RESEARCH INSTITUTES OF SWEDEN AB	RISE	Sweden
STAM SRL	STAM	Italy
FONDAZIONE BRUNO KESSLER	FBK	Italy
KNOWLEDGE CENTRIC SOLUTIONS SL - THE REUSE COMPANY	TRC	Spain
UNIVERSITA DEGLI STUDI DELL'AQUILA	UNIVAQ	Italy
INSTITUTO SUPERIOR DE ENGENHARIA DO PORTO	ISEP	Portugal
UNIVERSITA DEGLI STUDI DI GENOVA	UNIGE	Italy
CAMEA, spol. s r.o.	CAMEA	Czech
IKERLAN S. COOP	IKER	Spain
R G B MEDICAL DEVICES SA	RGB	Spain
UNIVERSIDADE DE COIMBRA	COIMBRA	Portugal
VYSOKE UCENI TECHNICKE V BRNE - BRNO UNIVERSITY OF TECHNOLOGY	BUT	Czech
ROBOAUTO S.R.O.	ROBO	Czech
ESKISEHIR OSMANGAZI UNIVERSITESI	ESOGU	Turkey
KUNGLIGA TEKNISKA HOEGSKOLAN	KTH	Sweden
STATENS VAG- OCH TRANSPORTFORSKNINGSINSTITUT	VTI	Sweden
UNIVERSIDAD DE CASTILLA - LA MANCHA	UCLM	Spain
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	FRAUNHOFER	Germany
SIEMENS AKTIENGESELLSCHAFT OESTERREICH	SIEMENS	Austria
RULEX INNOVATION LABS SRL	RULEX	Italy
NXP SEMICONDUCTORS GERMANY GMBH	NXP-DE	Germany
PUMACY TECHNOLOGIES AG	PUMACY	Germany
UNITED TECHNOLOGIES RESEARCH CENTRE IRELAND, LIMITED	UTRCI	Ireland
NATIONAL UNIVERSITY OF IRELAND MAYNOOTH	NUIM	Ireland
INOVASYON MUHENDISLIK TEKNOLOJI GELISTIRME DANISMANLIK SANAYI VE TICARET LIMITED SIRKETI	IMTGD	Turkey
ERGUNLER INSAAT PETROL URUNLERI OTOMOTIV TEKSTIL MADENCILIK SU URUNLER SANAYI VE TICARET LIMITED STI.	ERARGE	Turkey
OTOKAR OTOMOTIV VE SAVUNMA SANAYI AS - OTOKAR AS	OTOKAR	Turkey
TECHY BILISIM TEKNOLOJILERI DANISMANLIK SANAYI VE TICARET LIMITED SIRKETI - TECHY INFORMATION TECHNOLOGIESAND CONSULTANCY LIMITED COMPANY	TECHY	Turkey
ELECTROTECNICA ALAVESA SL	ALDAKIN	Spain
INTECS SOLUTIONS SPA	INTECS	Italy
LIEBERLIEBER SOFTWARE GMBH	LLSG	Austria
AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH	AIT	Austria
E.S.T.E. SRL	ESTE	Italy
NXP SEMICONDUCTORS FRANCE SAS	NXP-FR	France
BOMBARDIER TRANSPORTATION SWEDEN AB	BT	Sweden
QRTECH AKTIEBOLAG	QRTECH	Sweden
CAF SIGNALLING S.L	CAF	Spain
MONDRAGON GOI ESKOLA POLITEKNIKOA JOSE MARIA ARIZMENDIARRIETA S COOP	MGEP	Spain
INFOTIV AB	INFOTIV	Sweden
BERGE CONSULTING AB	BERGE	Sweden

Executive Summary

This document aims to report all the activities carried out within the frame of the Task 6.4 "*External communication including interaction with other, related projects*" during the first year of the VALU3S Project. The aforementioned activities have been performed according to the Initial Communication Plan drafted in Deliverable 6.6 [1] at Month 4, which also establish reference KPIs (available also in Chapter 3) for the evaluation of the success of the communication campaign. Indeed, these KPIs have been assessed with the intermediate results of Month 12 to understand the adequacy of the results and, in case of negative outcome, which corrective actions shall be proposed and included in the Final Communication Plan to be delivered at Month 18 and then implemented in the second half of the project.

Contributors

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Revision History

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0.1	24/02/2021	Davide Ottonello (STAM)	Table of Content
0.2	03/03/2021	Davide Ottonello (STAM)	Detailed Table of Content with expected contribution from each partner
0.3	16/03/2021	Davide Ottonello (STAM)	First draft
0.4	22/03/2021	Davide Ottonello (STAM)	Draft ready for internal review
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0.7	27/04/2021	Behrooz Sangchoolie (RISE)	Review of the final draft while making minor formatting changes and additional comments.
0.9	28/04/2021	Behrooz Sangchoolie (RISE)	Review of the final draft while making minor formatting changes.
1.0	28/04/2021	Behrooz Sangchoolie (RISE)	Final version to be submitted.

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Acronyms

AI	Artificial Intelligence
M	Project Month
ML	Machine Learning
RADAR	RAdio Detection And Ranging
SCP	Safety, Cybersecurity, and Privacy
V&V	Verification and Validation

Chapter 1   Introduction

This document is the second deliverable of Task 6.4 "*External communication including interaction with other, related projects*" and it aims to describe all the communication activities undertaken during the first year of the project. In line with the VALU3S Dissemination Roadmap drafted in the Grant Agreement, the communication strategy of the first year of the project has been almost dedicated to the project presentation, in particular to the drafting of the Communication Plan and the consequent set up of the selected communication channels, as well as the preparation of needed materials and tools. Activities planned, as well as contents selected to be delivered, has been decided to contribute to the reaching of the main Dissemination objectives and KPIs, as well as to pave the way towards the exploitation of project results.

Following the same structure of Deliverable D6.6 "*Initial Communication Plan*" [1], the activities are subdivided according to the different communication channels in which they are undertaken, specifically:

- Website
- Newsletter
- Social medias
- Events

Furthermore, also the activities dedicated to the interaction with other related projects will be reported. In the end, the Communication KPIs set in D6.6 [1] are assessed using intermediate results of the first year of the project. This evaluation, together with a first round of collection of feedback from partners, will form the basis for defining the Final Communication Plan in D6.14 to be delivered in Month 18.

The structure of this document is made as following. In Chapter 2, the activities performed in the first year of the project in order to achieve the Communication objectives are described. In Chapter 3, the effectiveness of the actions already implemented is evaluated according to Key Performance Indicators set in the initial version of the Communication Plan, while first feedbacks from partners are collected to start working to the improvement of the Communication strategy. Finally, Chapter 4 presents the conclusions derived from the analysis of the first year of activities developed. In Appendix A, useful communication templates are presented.

Chapter 2   Initial Communication Activity Report

This chapter aims to describe all the Communication activities carried out in the first year of the project, with regards to the Initial Communication Plan drafted in D6.6 [1]. The Chapter is subdivided according to the different communication channels set up for the project, and on which the VALU3S communication strategy mainly relies on. For each channel, the outputs of the communication activities are reported, highlighting the adherence with the Initial Communication Plan and the strategic pillars defined in that document.

2.1   Web Media

Most of the communication strategy of VALU3S project is focused on web media. This choice has been taken in light of the target audience of the project, which is supposed to be used to navigate these kind of channels, but also due to the Covid-19 outbreak and consequent restrictions which have significantly reduced opportunities for live meetings and events. As stated in the Initial Communication Plan, the communication strategy on web media is based on four main channels:

- The VALU3S website [2];
- The VALU3S LinkedIn profile [3];
- The VALU3S Twitter profile [4];
- The VALU3S YouTube channel [5].

In the following, activities of each channel are described in detail.

2.1.1   Website

The website is the main channel of the VALU3S project and therefore a large part of the communication activities has concerned the creation and publication of contents on it. The VALU3S website is designed to give to the visitor a complete overview of project scope, activities, partners, as well as ongoing and future events. The website is managed, updated, and maintained by RISE, but all the partners involved in the dissemination work package will contribute to the improvement of this tool and to the creation and implementation of valuable content.

Website Structure and Analytics

The website consists of several sections where the project details are presented, and some types of contents are published. Examples of these details are a project summary, description of work packages, use case descriptions, partners within the consortium, as well as project news and events and a list of public deliverables and scientific publications.

The Google Analytics for WordPress plugin is used for tracking the usage, reference channels and audience of the website. Every quarter a periodical report concerning the activities on the website is produced. The results are analysed to understand the trend of interaction of the audience and the results are valued in relation to the VALUES KPIs. The analysis will lead to new strategies.

New Sections on the website

The dynamic sections of the website are constantly updated to provide visitors with new contents and info. These new sections have been added during the autumn 2020, according to guidelines drafted in the Initial Communication Plan:

- *News*: a section devoted to short articles aimed at informing visitors about the progress of the project and its outcomes, e.g., internal and external events, achievements, dissemination and communication actions, etc;
- *Events*: this section contains a virtual calendar reporting all the info on events connected to the project, both internal (e.g., General Assembly) and external (e.g., workshop in which VALU3S representatives make a speech);
- *Blog*: this section is dedicated to a series of articles inherent to the project topics or to the project itself. The articles have a scientific and industrial approach but, at the same time, they are accessible to a general audience. To date, 3 blog articles have been published;
- *Publications*: this section provides access to the scientific papers published by VALU3S partners within the project. To date, 13 publications have been submitted and are accessible from the website.

In order to maximize the number of visitors to the website, social media channels are exploited to redirect users from social profiles to the official website. For this purpose, every new activity on the website (e.g., publication of a new blog article) is sponsored with posts on social media profiles (see Figure 2.1).
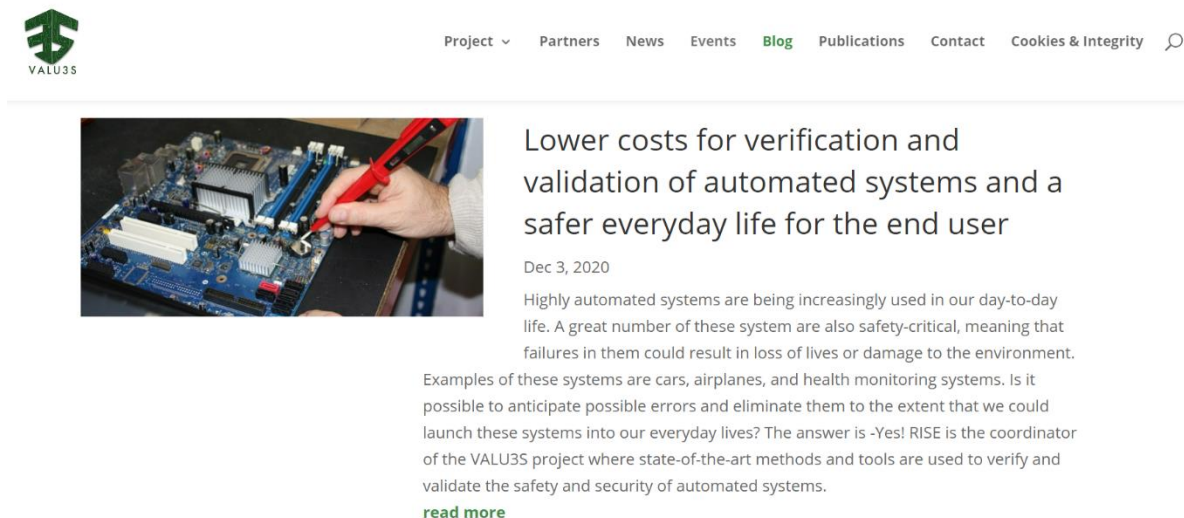
Figure 2.1 The first blog article published on the VALU3S website

2.1.2 Web Newsletter

To communicate with organizations and individuals who are interested in the project, several newsletters are being produced during the project. These newsletters are sent out to different target groups. Interested individuals and organizations could subscribe to VALU3S newsletters by filling in the subscription form which is placed on the project website as well as on LinkedIn.

Distribution Frequency, Content, and Analysis
The newsletters are being distributed every third month: the first newsletter was distributed in December 2020, while the second at the begin of April 2021.

The leaders of Task 6.1 and Task 6.4 are responsible for providing the Communication Manager with material to be used for the newsletters. Moreover, all project partners are encouraged to support leaders of Task 6.1 and Task 6.4 by providing useful material.

The newsletter contains a summary of all the new contents published on the website (news and blog articles), as well as a brief update on the progress of the project. It also presents new publications, events, and dissemination of results as well as promoting project videos and use case videos. Subscription to newsletters is monitored together with the analytics of the website.

Strategy to Increase the Numbers of Subscribers
The newsletter is, indeed, an essential means of communication because it allows to update visitors on the progress of the project and on the new contents published on the website in a pro-active way. This could significantly increase the number of returning visitors on the website and, consequently, create a strong engagement with a set of organizations and people which can be potential users of the VALU3S platform (see Figure 2.2).

Figure 2.2 The introduction of the first Newsletter published just before Christmas 2020

To gain more subscribers from the preliminary target groups, the VALU3S communication team engage the VALU3S partners to become ambassadors by spreading the newsletter in their networks. To facilitate this process a separate newsletter with a "call-to-action" subscription button is sent out to the network. Every second month, VALU3S repeats the message "not a subscriber yet" in social media to invite new members to become subscribers.

The subscription form is available online at [6].

2.1.3 Social Media Channels

Social media can be an incredibly effective tool for all types of products and communication campaigns. But the actual social networks that you choose can make a big impact on your chances of being successful. There are social media channels that reach nearly half of the earth's population, and there are others with much smaller, but more targeted audiences like Twitter in which there are most

important representatives of the industry and tech worlds. Twitter has 321 million users which is not a small quantity, but compared to other social media platforms such as Facebook and Instagram, it is. The choice of social media to use to sponsor a product must be made according to the specific needs and the target customers it aims to have.

The main social media channels on which the VALU3S project is sponsored are LinkedIn [3], Twitter [4] and YouTube [5]. In the following paragraphs, the activities carried out for each channel are reported in detail.

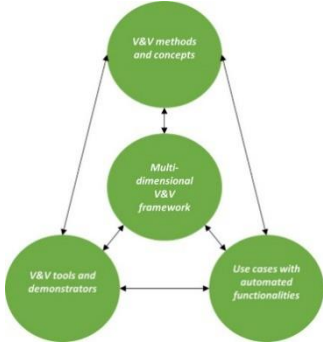### 2.1.3.1   Detailed Report About Publications of Post on LinkedIn

LinkedIn is a free social networking web service, mainly used in the development of professional contacts and in the dissemination of specific contents relating to the job market. Therefore, it is considered one of the most useful social media channels for sponsoring the VALU3S project.

LinkedIn has been populated with different and frequent contents in order to keep the channel active and maximize the engagement of the audience. The main contents are the following:

- Post to sponsor activities on the website (e.g., news, events, publications)
- A periodic column dedicated to present the partners of the Consortium, describing their competences and roles in VALU3S through an infographic.

All the posts published on LinkedIn until M12 with relevant information are reported in the following table (Table 2.1). Note that "reactions" means the sum of the responses received to each post. Currently, these are 5: the user can use *Like* to express an approval, *Celebrate* to praise an accomplishment or milestone like landing a new job or speaking at an event, or *Love* to express deep resonance and support, like a conversation about work life balance or the impact of mentorship. *Insightful* can help you recognize a great point or interesting idea, while *Curious* lets you show your desire to learn more or react to a thought-provoking topic. As a poster, these new reactions can help you better understand the impact your posts are having.

Table 2.1 Posts published on LinkedIn VALU3S page

Date of publication	04/06/2020
Caption	In January 2019, I pitched an idea at ECS Brokerage event. A two-stage evaluation process and a Grant Agreement (GA) preparation after, the GA is now signed and the VALU3S Project has started. Looking forward to the coming three years and many lessons to learn. Thanks to all the partners who have contributed to getting the project started.
Media content (picture/video/link to external website)	

Number of reactions	22 reactions
Date of publication	24/06/2020
Caption	VALU3S Remote Kick-off meeting has been held on 9/06/2020. All the 41 partners, under the leadership of Coordinator RISE Research Institutes of Sweden, have put at stake their respective expertise and capabilities matured through years of work within the Industrial and Academia fields to effectively plan the activities of the project and ensure the achievement of ambitious objectives. In fact, VALU3S project aims to deliver a platform containing powerful tools for the Verification and Validation of automated systems in order to speed the development of these systems and enhance their safety and security while operating in the real world. The tools will be tested and validated on several use-cases during the project in order to deliver a reliable and functional which can meet the expectations of manufacturers and users of automated systems. For further info, do not hesitate to visit the VALU3S website: https://www.valu3s.eu #electronics #robotics #automation #VALU3S #ECSEL #research #development #safety #security #industry #academia #transport #healthcare #agriculture #automotive #railway
Media content (picture/video/link to external website)	
Number of reactions	46 reactions
Date of publication	30/07/2020
Caption	Follow the VALU3S Newsletter. Subscribe today!

Media content (picture/video/link to external website)	
Number of reactions	26 reactions
Date of publication	5/08/2020
Caption	Get to know our project! 12 August at 11:00 CET we hold a Press Briefing describing the aims, goals and ambitions of our research. Follow us on Zoom! #verification #validation #automatedsystems
Media content (picture/video/link to external website)	
Number of reactions	18 reactions
Date of publication	12/08/2020
Caption	Now is the last chance to register for today's Press Briefing describing our projects research on Verification and Validation of Automated System' Safety and Security. Hurry, the Zoom meeting starts at 11:00 CET.
Media content (picture/video/link to external website)	
Number of reactions	12 reactions

Date of publication	19/08/2020
Caption	Did you miss out on our Press Briefing last week? Watch the video recording https://lnkd.in/e54g5BV to catch up! #verification #validation #automatedsystems
Media content (picture/video/link to external website)	
Number of reactions	15 reactions

Date of publication	21/09/2020
Caption	Job opportunity! Maynooth University is recruiting energetic and enthusiastic postdoctoral researchers to work with VALU3S. #automatedsystems https://lnkd.in/efWiVBP
Media content (picture/video/link to external website)	Link to website (my.corehr.com)
Number of reactions	10 reactions

Date of publication	29/09/2020
Caption	The 2nd Consortium Meeting of VALU3S Project will be held on 30th September – 1st October 2020. Even if remotely, this will be an occasion for all the partners to meet each other, assess the progress of the project and draft a joint roadmap for the next activities. Stay tuned, we are getting to the heart of the VALU3S project! #VALU3S #ECSEL #automation #automatedsystems #robotics #security #verification #validation #industry #transportation #healthcare https://lnkd.in/eCNQHkA
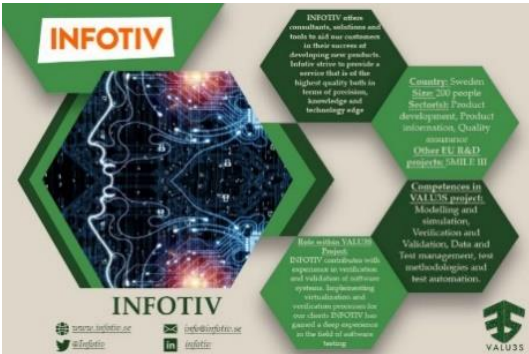
Media content (picture/video/link to external website)	
Number of reactions	34 reactions
Date of publication	2/10/2020
Caption	VALU3S is now a SAFER Associated project! SAFER – Vehicle and traffic safety centre at Chalmers, is a Swedish competence centre where 34 partners from the automotive industry, academia and authorities cooperate within traffic safety research and safe mobility. Read more: https://lnkd.in/eg-DFaz.
Media content (picture/video/link to external website)	
Number of reactions	18 reactions
Date of publication	30/10/2020
Caption	The VALU3S Project Consortium is made by 41 relevant Academia and Industrial players which deal with Electronic Components and Systems. Indeed, we would like to present you all of them through a dedicated Column called "VALU3S Partner Profile": every week we're going to post an infographic showing all the essential information of one of the VALU3S Partner. Today, we inaugurate this column with @RISE, Research Institute of Sweden AB, which is the Coordinator of the VALU3S project and is in charge of managing all administrative and technical aspect of the project. #ECSEL #VALUES #electronics #systems #components #verification #validation #safety #security #research #development #industry #automation #automotive #transportation #agriculture #healthcare #transportation

Media content (picture/video/link to external website)	
Number of reactions	24 reactions
Date of publication	5/11/2020
Caption	We are pleased to announce that VALU3S project is now part of Mobility.E Lighthouse, a collaboration and networking platform of excellent projects to keep the European industry ahead of the global competition. It assists in the uptake of future relevant technologies for electric, connected, automated driving (ECAD) and mobility solutions that address societal challenges.

VALU3S project aims to provide Verification & Validation tools for increasing the safety and security of automated systems in several domains, including Automotive and Mobility ones. These solutions will be indeed tested and validated in real-life use-cases cooperating with relevant industrial players. #mobility #automotive #ECSEL #electronics #verification #validation #safety #security #automation #industry #autonomousvehicle #ecad #research #development #europe

https://lnkd.in/eSDHTz5 |
Media content (picture/video/link to external website)	
Number of reactions	17 reactions
Date of publication	5/11/2020

Caption	Here we go again with the second post for the VALU3S Partner Profile column, in which we would like to present you the expertise and the role of our project partners. Today it's the turn of STAM, an Italian engineering SME which develops Risk Analysis and Management software tools thanks to its strong background in Safety, Security and ICT solutions. #safety #security #ict #automation #electronics #systems #engineering #risk #analysis #vulnerability #threats #ECSEL #research #development
Media content (picture/video/link to external website)	
Number of reactions	34 reactions
Date of publication	12/11/2020
Caption	Here we are again with our weekly VALU3S Partner Profile post. Today we would like to introduce you @Berge Consulting AB, a Swedish consulting agency which provides valuable services concerning design, visualization and software development. They will develop a simulator to evaluate cyber-physical security of automated systems within VALU3S project. #berge #design #visualization #simulation #SWdevelopment #automatedsystems #ECSEL #research #development #electronics #AI #cybersecurity #safety #automation #industry #verification #validation
Media content (picture/video/link to external website)	
Number of reactions	24 reactions
Date of publication	17/11/2020
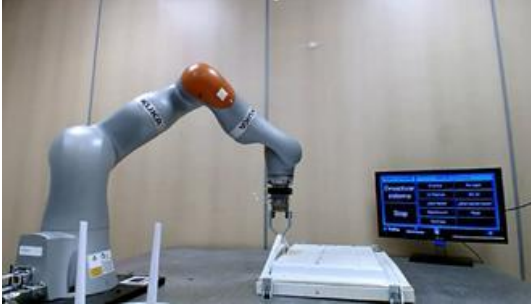
Caption	VALU3S crew will take part to EFECS 2020, the European Forum for Electronic Components and Systems, which will be held online on 25th-26th November. It will be a great opportunity to present the project to a wide audience and build fruitful relationships with other participants. We are working hard to set up a Virtual Booth in which you will find materials of the project and you will have the chance to talk with project representatives to know more about VALU3S and ask questions. We will give you further details to visit our Virtual Booth in the upcoming days. Stay tuned!!!" #EFECS2020 #ECSEL #H2020 #electronics #research #development #technology #digital #future #automation #verification #validation #safety #cybersecurity #industry
Media content (picture/video/link to external website)	
Number of reactions	24 reactions
Date of publication	17/11/2020
Caption	On Wednesday 18/11 from 10:00 to 11:30 CET the #VALU3S partner @INFOTIV will hold the online event "Science!". INFOTIV will present Carla (www.carla.org), an open-source #simulator that generates realistic simulated sensor data for #testing and #training #machine-learning based systems like autonomous driving systems. This will be the occasion also to talk about VALU3S project, which is strictly connected with the main topic of the event. The participation to the event is free of charge and open to anyone. For further info please visit: https://lnkd.in/eRCqW9y
Media content (picture/video/link to external website)	

Number of reactions	12 reactions
Date of publication	19/11/2020
Caption	Here we are again with the weekly post of the VALU3S Partner Profile column. Today we would like to introduce you @Università degli Studi dell'Aquila, an Italian ancient University founded in 1596. Its Department of Information Engineering, Computer Science and Mathematics is strongly contributing to VALU3S project by exploiting a solid expertise in #machinelearning and #faultdetection #ECSEL #automation #cybersecurity #research #development #industry4point0 #electronics #computerscience #mathematics
Media content (picture/video/link to external website)	
Number of reactions	17 reactions
Date of publication	24/11/2020
Caption	We're almost there! On Wednesday 25th and Thursday 26th November VALU3S Project will participate to #EFECS2020, the European Forum for Electronic Components and System online event (https://efecs.vfairs.com/). You can find our Virtual Booth in the "Exhibition" area: you will have the opportunity to take a look to our guidance material, such as Project roll-up and Introduction video, and even to have chat or phone calls with our crew members to know more in detail about the project or possible cooperation actions. We are waiting for you! #ECSEL #H2020 #research #development #electronics #automation #industry4point0 #transportation #healthcare #automotive #manufacturing #verification #validation #safety #security

Media content (picture/video/link to external website)	
Number of reactions	20 reactions
Date of publication	4/12/2020
Caption	Today VALU3S project would like to introduce you INFOTIV in the weekly column dedicated to the presentation of consortium partners. INFOTIV is a swedish innovative company which offers services and tool to customers to facilitate the development of successful products. They will exploit their know-how in modelling&simulation and Data&test management to contribute to the verification and validation of software systems of project use-cases" #verification #validation #automation #testing #datamanagement #modelling #simulation #electronics #security #cybersecurity #safety #ECSEL #H2020 #research #development
Media content (picture/video/link to external website)	
Number of reactions	18 reactions
Date of publication	10/12/2020

Caption	Today VALU3S project would like to introduce you to the first blog article of a series describing the work done by the VALU3S partners. First out is RISE Research Institute of Sweden. With decades of and research in the field of dependable computer systems, RISE has the coordinating role of the VALU3S project. As a developer of technical solutions, RISE also contribute to the work of an improved V&V workflow with our knowledge on "Fault and Attack Injection". Read the blog article here. #verification #validation #automation #testing #datamanagement #modelling #simulation #electronics #security #cybersecurity #safety #ECSEL #H2020 #research #development https://lnkd.in/e4mtETN
Media content (picture/video/link to external website)	
Number of reactions	21 reactions
Date of publication	22/01/2021
Caption	The first appointment of VALU3S Partner Profile is dedicated to ALDAKIN, a Spanish company providing solutions for #automation and collaborative #robotics. They will provide to the project a very interesting use-case concerning human-robot collaboration in a #disassembly process with workers with #disabilities #ECSEL #electronics #cobots #research #development #verification #validation #HRC #industry #manufacturing
Media content (picture/video/link to external website)	
Number of reactions	16 reactions

Date of publication	3/02/2021
Caption	On 3rd - 4th February 2021 VALU3S 3rd Project Consortium Meeting and General Assembly will be held remotely. Waiting to finally meet us live, we're working hard to make significant progress in delivering forefront #Verification and #Validation methodologies and tools tailored on end-users needs. In the meanwhile, pilots are being organized to become real test-beds for #demonstration and #validation activities within the projects. Follow us for periodic updates on the progress status of the project! #security #safety #ECS #electronics #ECSEL #H2020 #research #development #industry
Media content (picture/video/link to external website)	
Number of reactions	40 reactions

Date of publication	3/02/2021
Caption	Here again with column dedicated to VALU3S partners. This week we're introducing AIT, Austrian Institute Technology, which is a research center whose mainly activities are focused on critical infrastructures. Within VALU3S, AIT is coordinating the development of #Verification and #Validation methodologies, as well as #Standardisation activities. #ECSEL #H2020 #electronics #components #systems #industry #criticalinfrastructure #safety #security #automation #industry #automated #cybersecurity #research #development
Media content (picture/video/link to external website)	

Number of reactions (likes, comments, shares)	17 reactions,
Date of publication	3/02/2021
Caption	Today VALU3S project would like to introduce you to the second blog article of a series describing the work done by the VALU3S partners. This time we can read about Collaborative robotics – A way to ease recycling and enhance labour market inclusion, by ALDAKIN. https://lnkd.in/ey938GZ #verification #validation #automation #testing #datamanagement #modelling #simulation #electronics #security #cybersecurity #safety #ECSEL #H2020 #research #development
Media content (picture/video/link to external website)	
Number of reactions	14 reactions
Date of publication	9/02/2021
Caption	On Thursday 11th of February at 12:00-12:30, a presentation will be given by Behrooz Sangchoolie, researcher in the Department of Electrification and Reliability at RISE Research Institutes of Sweden. Title: On the use of fault and attack injection to evaluate system safety and cybersecurity. Welcome to join: https://lnkd.in/eCEHZ6Q #ECSEL #verification #validation #safety #cybersecurity #faultinjection #electrification #transportation #research #development

Media content (picture/video/link to external website)	
Number of reactions	19 reactions
Date of publication	19/02/2021
Caption	Today the weekly appointment of the VALU3S Partner Profile is happy to present you the Brno University of Technology. This is an international and modern University, as well as an important R&D center, which mainly operates in the IT sector, ranging from #intelligentsystems to #multimedia. Its main role in VALU3S consists in the development of #verification and #validation methods and tools based on dynamic analysis of program. #ECSEL #H2020 #automation #electronics #automatedsystems #safety #cyber security #industry40 #manufacturing #research #development
Media content (picture/video/link to external website)	
Number of reactions	13 reactions
Date of publication	11/03/2021
Caption	New VALU3S publication addressing the implementation of hybrid semantics. Get to know more about the contents of this publication by having a look at it in our website. https://lnkd.in/ejHNxNB

Media content (picture/video/link to external website)	
Number of reactions	13 reactions
Date of publication	11/03/2021
Caption	Today VALU3S project would like to introduce you to the third blog article of a series describing the work done by the VALU3S partners. This time we can read about Security of Automated systems – exploiting risk assessment as countermeasure against cyber-threats, by STAM. Read the full article at the VALU3S website: https://lnkd.in/eYZDZaf #verification #validation #automation #testing #datamanagement #modelling #simulation #electronics #security #cybersecurity #safety #ECSEL #H2020 #research #development
Media content (picture/video/link to external website)	
Number of reactions	12 reactions
Date of publication	21/03/2021
Caption	Watch the VALU3S training session series, part one: Wireless Interface Network Security Assessment. Introductory video on "Wireless Interface Network Security Assessment" by Fabio Patrone and colleagues from University of Genova, in the scope of the first part of VALU3S 1st training session that took place online on the 25th of March 2021. Watch it here: https://lnkd.in/eXKT3UB

Media content (picture/video/link to external website)	https://youtu.be/0Gq2DzeicJo
Number of reactions	13 reactions
Date of publication	21/03/2021
Caption	Not yet a subscriber of the VALU3S newsletter? Sign up here and get a project update 4 times a year. https://lnkd.in/esvA-Ha
Media content (picture/video/link to external website)	
Number of reactions	13 reactions
Date of publication	21/03/2021
Caption	New VALU3S publication addressing the Impact of Single and Multiple Bit-Flip Errors in Programs. Get to know more about the contents of this publication by having a look at it in our website. https://lnkd.in/ejHNxNB
Media content (picture/video/link to external website)	
Number of reactions	14 reactions

Date of publication	11/04/2021
Caption	Today VALU3S Consortium would like to introduce you CAF Signalling, a Spanish company which is part of the CAF Group. Within the project, they will develop a new semi-automatic V&V framework for railway signal detector #ECSEL #ECS #automation #railway #electronics #detection #verification #validation #railwaysignalling #transportation #safety #cybersecurity
Media content (picture/video/link to external website)	
Number of reactions	13 reactions

Date of publication	11/04/2021
Caption	New VALU3S publication addressing the Implementing Hybrid Semantics: From Functional to Imperative. Get to know more about the contents of this publication by having a look at it in our website. https://lnkd.in/ejHNxNB
Media content (picture/video/link to external website)	
Number of reactions	5 reactions

Date of publication	11/04/2021
Caption	Follow the VALU3S Newsletter. Subscribe today!
Media content (picture/video/link to external website)	https://app.bwz.se/ri/b/v?subscribeto=166&ucrc=548D0188E6
Number of reactions	26 reactions
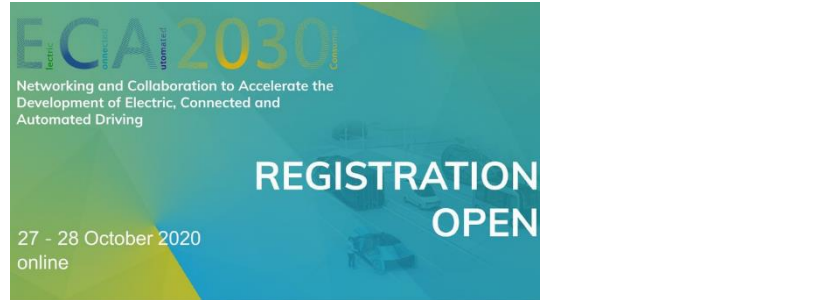
2.1.3.2   Detailed Report About Publications of Post on Twitter

Twitter is a microblogging and social networking service on which users post and interact with messages known as "tweets". Registered users can post, like, and retweet tweets, but unregistered users can only read them. Generally, users access Twitter through its website interface or its mobile-device application software ("app"). This social media channel has been chosen since it allows to expand the network of contacts interested in the fields on which the project is focused.

All the posts published on Twitter until M12 will be reported in the following table (Table 2.2) with the relative relevant information.

Table 2.2 Posts published on VALU3S Twitter profile

Date of publication	12/08/2020
Caption	Follow our Press Briefing today 11:00 CET. Now is last chance to register!
Media content (picture/video/link to external website)	https://t.co/clO9z3y0JC?amp=1
Number of reactions (likes, retweet, comment)	1 like, 0 retweet, 0 comments
Date of publication	29/09/2020
Caption	The 2nd Consortium Meeting of VALU3S Project will be held on 30th September – 1st October 2020. This will be an occasion for all the partners to meet, assess the progress and draft a joint roadmap for the next activities. #VALU3S #ECSEL
Media content (picture/video/link to external website)	https://lnkd.in/eCNQHkA

Number of reactions (likes, retweet, comment)	2 likes, 2 retweet, 0 comments
Date of publication	8/10/2020
Caption	Join a vibrant discussion on the implementation of ECAD at the interface of the automotive and ECS sectors and get in contact with the right people to solve current and future implementation challenges at the virtual ECA2030 event.
Media content (picture/video/link to external website)	https://www.mobilitye.eu/news/eca2030-conference-announcement-2020
Number of reactions (likes, retweet, comment)	12 likes, 13 retweet, 0 comments
Date of publication	5/11/2020
Caption	We are pleased to announce that VALU3S project is now part of Mobility. E Lighthouse, a collaboration and networking platform of excellent projects to keep the European industry ahead of the global competition.
Media content (picture/video/link to external website)	https://www.mobilitye.eu/index.php/projects/valu3s

Number of reactions (likes, retweet, comment)	2 likes, 1 retweet, 0 comments
Date of publication	24/11/2020
Caption	On Wednesday 25th and Thursday 26th November VALU3S Project will participate to #EFECS2020, the European Forum for Electronic Components and System online event: https://efecs.vfairs.com. You can find our Virtual Booth in the "Exhibition" area. #ECSEL #H2020 #research #development
Media content (picture/video/link to external website)	https://efecs.vfairs.com/
Number of reactions (likes, retweet, comment)	10 likes, 4 retweet, 0 comments
Date of publication	10/12/2020
Caption	Today VALU3S project would like to introduce you to the first blog article of a series describing the work done by the VALU3S partners. First out is RISE Research Institute of Sweden. Read the blog article here. #verification #validation #automation
Media content (picture/video/link to external website)	https://valu3s.eu/fault-and-attack-injection-based-verification-and-validation-of-automated-systems/
Number of reactions (likes, retweet, comment)	0 likes, 1 retweet, 0 comments
Date of publication	3/02/2021
Caption	On 3rd - 4th February 2021 VALU3S 3rd Project Consortium. Waiting to finally meet us live, we're working hard to make significant progress in

	delivering forefront #Verification and #Validation methodologies and tools tailored on end-users needs.
Media content (picture/video/link to external website)	
Number of reactions (likes, retweet, comment)	5 likes, 5 retweet, 0 comments
Date of publication	15/03/2021
Caption	New VALU3S publication addressing the implementation of hybrid semantics. Get to know more about the contents of this publication by having a look at it in our website.
Media content (picture/video/link to external website)	https://valu3s.eu/publications/
Number of reactions (likes, retweet, comment)	0 likes, 0 retweet, 0 comments
Date of publication	15/03/2021
Caption	New VALU3S publication addressing the problematic of bit-flip errors in software. Get to know more about the contents of this publication by having a look at it in our website.
Media content (picture/video/link to external website)	https://valu3s.eu/publications/

Number of reactions (likes, retweet, comment)	0 likes, 0 retweet, 0 comments
Date of publication	15/03/2021
Caption	New VALU3S publication addressing the Feeling of Safety and Comfort towards a Socially Assistive Unmanned Aerial Vehicle That Monitors People in a Virtual Home. Get to know more about the contents of this publication by having a look at it in our website.
Media content (picture/video/link to external website)	https://valu3s.eu/publications/
Number of reactions (likes, retweet, comment)	1 likes, 1 retweet, 0 comments
Date of publication	14/04/2021
Caption	New VALU3S publication addressing the Impact of Single and Multiple Bit-Flip Errors in Programs. Get to know more about the contents of this publication by having a look at it in our website.
Media content (picture/video/link to external website)	https://lnkd.in/ejHNxNB

Number of reactions (likes, retweet, comment)	1 likes, 1 retweet, 0 comments

Date of publication	14/04/2021
Caption	Watch the VALU3S training session series, part one: Wireless Interface Network Security Assessment. Watch it here:
Media content (picture/video/link to external website)	https://www.youtube.com/watch?v=0Gq2DzeicJo
Number of reactions (likes, retweet, comment)	1 likes, 1 retweet, 0 comments

Date of publication	14/04/2021
Caption	New VALU3S publication addressing the Implementing Hybrid Semantics: From Functional to Imperative. Get to know more about the contents of this publication by having a look at it in our website.
Media content (picture/video/link to external website)	https://lnkd.in/ejHNxNB
Number of reactions (likes, retweet, comment)	0 likes, 1 retweet, 0 comments

Date of publication	16/04/2021
Caption	Not yet a subscriber of the VALU3S newsletter? Sign up here and get a project update 4 times a year.
Media content (picture/video/link to external website)	https://lnkd.in/esvA-Ha
Number of reactions (likes, retweet, comment)	1 likes, 1 retweet, 0 comments

Date of publication	20/04/2021
Caption	Watch the VALU3S training session series, part two: Runtime Verification Based on Formal Specifications. Watch it here:
Media content (picture/video/link to external website)	https://t.co/BLJzCEWtJS?amp=1
Number of reactions (likes, retweet, comment)	0 likes, 1 retweet, 0 comments

2.1.3.3 Detailed Report About Publications of Video on YouTube

Video contents are essential for a dissemination activity. In fact, YouTube is the platform chosen to sponsor the project through videos of interest for our target audiences. It could help to increase the views and that is why a channel has been opened on this platform. The intention is to publish several video contents to increase the level of interest regarding the project. All the videos already published on the YouTube channel are reported in the Table 2.3 with the relevant information.

Table 2.3 videos published on VALU3S YouTube channel

Date of publication	18/08/2020
Title	Press Briefing 1 VALUE3S 200812

Duration	40 min and 58 sec
Description of the video content	This video is a recording of the meeting during which the VALU3S project held a Press Briefing launching the project to the media and the general public. The meeting was on August 12th 2020.
Number of views, likes, comments	100 views, 3 likes, 0 comments

Date of publication	23/11/2020
Title	VALU3S Welcome Video
Duration	7 min and 57 sec
Description of the video content	The video describes the motivation and the high-level objectives of the VALU3S project. Moreover, the use-cases are briefly presented. This video has been produced for being used at EFECS2020 virtual booth in order to provide visitors with a short introduction video.
Number of views, likes, comments	100 views, 4 likes, 0 comments

Date of publication	7/04/2021
Title	Wireless Interface Network Security Assessment
Duration	16 min and 29 sec
Description of the video content	Introductory video on "Wireless Interface Network Security Assessment" by Fabio Patrone and colleagues from University of Genova, in the scope of the first part of VALU3S 1st training session that took place online on the 25th of March 2021.
Number of views, likes, comments	31 views, 0 likes, 0 comments

Date of publication	7/04/2021
Title	Runtime Verification Based on Formal Specifications
Duration	21 min and 2 sec
Description of the video content	Introductory video on "Runtime Verification Based on Formal Specifications" by Giann Nandi from Instituto Superior de Engenharia do Porto, in the scope of the first part of VALU3S 1st training session that took place online on the 25th of March 2021.

Number of views, likes, comments	23 views, 0 likes, 0 comments

Date of publication	7/04/2021
Title	Risk Analysis for Secure Automated Systems
Duration	28 min and 55 sec
Description of the video content	Introductory video on "Risk Analysis for Secure Automated Systems" by Davide Ottonello from STAM, in the scope of the first part of VALU3S 1st training session that took place online on the 25th of March 2021.
Number of views, likes, comments	23 views, 0 likes, 0 comments

Date of publication	7/04/2021
Title	Introduction to Model Checking
Duration	30 min and 24 sec
Description of the video content	Video on "Introduction to Model Checking" by José Proença from Instituto Superior de Engenharia do Porto, in the scope of the first part of VALU3S 1st training session that took place online on the 25th of March 2021.
Number of views, likes, comments	27 views, 0 likes, 0 comments

Date of publication	7/04/2021
Title	Simulation-based fault and attack injection at system level
Duration	35 min and 50 sec
Description of the video content	Introductory video on "Simulation-based fault and attack injection at system level" by Mateen Malik from RISE, in the scope of the first part of VALU3S 1st training session that took place online on the 25th of March 2021.
Number of views, likes, comments	77 views, 4 likes, 0 comments

2.1.3.4 Analysis of Social Media Channels Statistics

The target achieved during the first year of the project provides the basis to fix the communication strategy weaknesses and set new objectives to be achieved in the coming months. In this section, the data obtained from web analytics in the first four quarter of the project are reported and analysed. For each quarter and each social media channel, the values recorded and the variation between these and

those relating to the previous quarter are illustrated. The variations will obviously not be present for the first quarter.

Analysis of Social Media Channels Statistics for the 1st Quarter (Q1)

The results of the website analysis in the first quarter are presented in Table 2.4. The web-site visitors are copious during this first phase of the project since a natural greater attention to the initial activities is natural. This is mainly due by curiosity of users, as well as by the great campaign of sponsorship made on social medias. Note that the bounce rate occurs when a user leaves the site after having viewed a single web page within few seconds. The percentage showed in the tables indicates how many users visit the website for a short time compared to the total number of users who access it.

Table 2.4 Website analytics of the first quarter

M1-3	Website (valu3s.eu)		
	Statistics	**Q1**	**Variation compared to previous Quarter**
	Number of Sessions	1217	-
	Number of pageviews	3086	-
	Bounce rate (%)	46.92%	-
	New Visitors	795	-
	Returning visitors	149	-

Moreover, the feedback received from the project's LinkedIn (Table 2.5) account is relatively high. A more in-depth analysis will be made by comparing these data with those obtained in the following quarters, identifying its strengths and weaknesses.

Table 2.5 LinkedIn analytics for the first quarter

	LinkedIn		
	Statistics	**Q1**	**Variation compared to previous Quarter**
	Number of post published	3	-
	Number of new followers	87	-
M1-3	**Number of total followers**	143	-
	New updates (reactions, comments, share)	114	-
	Engagement rate, calculated as: (Clicks + Likes + Comments + Shares + Follows) / Impressions	9%	-
	Total number of visitors	292	-

Twitter (Table 2.6) has a low number of subscriptions and interactions compared to LinkedIn. This is due to the lower popularity of this social media channel within the general audience, indeed it could be necessary to adopt a new strategy to increase attention to this channel. Even if the size of the audience

of Twitter is limited, it is essential to exploit this channel to cover a wider spectrum of potential end-users interested in VALU3S outcomes.

Table 2.6 Twitter analytics for the first quarter

	Twitter		
	Statistics	**Q1**	**Variation compared to previous Quarter**
M1-3	**Number of Tweets**	1	-
	Number of new followers	16	-
	Number of total followers	22	-
	Number of Link clicks	2	-
	Number of Retweets	0	-
	Number of Likes	1	-
	Number of Replies	0	-
	Number of Impressions	172	-

As can be seen in Table 2.7, in the first quarter no videos were published on YouTube because it was decided only later to start communication activities on this platform. The number of likes and dislikes will become crucial in the next months to understand the level of appreciation of users logged into the YouTube site.

Table 2.7 YouTube analytics for the first quarter

	YouTube		
	Statistics	**Q1**	**Variation compared to previous Quarter**
M1-3	**Number of videos uploaded**	-	-
	Number of Subscribers	-	-
	Number of likes	-	-
	Number of Dislikes	-	-
	Number of Shares	-	-
	Number of views for all uploaded videos	-	-

Analysis of Social Media Channels Statistics for the 2nd Quarter (Q2)

As previously expected, the values recorded on the website (Table 2.8) are lower in the second quarter. Such fluctuation of the data is acceptable, considering that absolute number of visitors is still high compared with expectations defined in the Communication KPIs.

Table 2.8 Website analytics for the second quarter

Website (valu3s.eu)			
	Statistics	Q2	Variation compared to previous Quarter
M4-6	Number of Sessions	847	-370
	Number of pageviews	2123	-963
	Bounce rate (%)	55.25%	+8.33%
	New Visitors	462	-333
	Returning visitors	122	-27

The LinkedIn analytics (Table 2.9) reports mostly positive data: the number of followers, reactions and post published has grown, and it is a sign that a good job has been done in sponsoring the project on this channel. The total number of visitors and new followers has decreased but this is acceptable to have this decreasing trend after the initial high adhesion of users to the page.

Table 2.9 LinkedIn analytics for the second quarter

LinkedIn			
	Statistics	Q2	Variation compared to previous Quarter
M4-6	Number of post published	7	+4
	Number of new followers	43	-44
	Number of total followers	145	+2
	New updates (reactions, comments, share)	160	+46
	Engagement rate, calculated as: (Clicks + Likes + Comments + Shares + Follows) / Impressions	9%	0%
	Total number of visitors	137	-155

The numbers relating to activities on Twitter (Table 2.10) have increased during the second quarter, probably due to more activities performed on this social media.

Table 2.10 Twitter analytics for the second quarter

Twitter			
	Statistics	**Q2**	**Variation compared to previous Quarter**
M4-6	**Number of Tweets**	2	+1
	Number of new followers	17	+1
	Number of total followers	36	+14
	Number of Link clicks	0	-2
	Number of Retweets	12	+12
	Number of Likes	18	+17
	Number of Replies	0	0
	Number of Impressions	419	+247

YouTube numbers (Table 2.11) indicate that there is a need to create numerous videos that can be interesting for those who visit the page. A comparative analysis can be performed, of course, starting from the following quarter.

Table 2.11 YouTube analytics for the second quarter

YouTube			
	Statistics	**Q2**	**Variation compared to previous Quarter**
M4-6	**Number of videos uploaded**	1	-
	Number of Subscribers	18	-
	Number of likes	4	-
	Number of Dislikes	0	-
	Number of views for all uploaded videos	104	-

Analysis of Social Media Channels Statistics for the 3rd Quarter (Q3)

The interactions recorded on the website (Table 2.12) have decreased in this quarter, but the variation decreased significantly. This could mean that the attention to the website is stabilizing after the initial audience due to the novelty of the project and of the website. The only way to enhance visitors and sessions is indeed to keep it active and convey users from social medias to it through posts.

Table 2.12 Website analytics for the third quarter

	Website (valu3s.eu)		
	Statistics	**Q3**	**Variation compared to previous Quarter**
M7-9	**Number of Sessions**	724	-123
	Number of pageviews	1678	-445
	Bounce rate (%)	52.76%	-2,49%
	New Visitors	396	-66
	Returning visitors	42	-80

The activities on LinkedIn (Table 2.13) show a positive trend: a high number of posts have been published and a bunch of new followers have been achieved also during this quarter. The content of these posts must be improved because a lower engagement rate has been highlighted.

Table 2.13 LinkedIn analytics for the third quarter

	LinkedIn		
	Statistics	**Q3**	**Variation compared to previous Quarter**
M7-9	**Number of post published**	10	+6
	Number of new followers	51	+8
	Number of total followers	196	+51
	New updates (reactions, comments, share)	220	+60
	Engagement rate, calculated as: (Clicks + Likes + Comments + Shares + Follows) / Impressions	7%	-2%
	Total number of visitors	98	-39

In this quarter Twitter (Table 2.14) also shows positive and negative variations. The number of impressions is very high, so it is a strength of this social media channel., while the number of new followers and of retweets/likes has decreased.

Table 2.14 Twitter analytics for the third quarter

Twitter			
	Statistics	**Q3**	**Variation compared to previous Quarter**
M7-9	Number of Tweets	4	+2
	Number of new followers	2	-15
	Number of total followers	38	+2
	Number of Link clicks	0	0
	Number of Retweets	0	-12
	Number of Likes	0	-18
	Number of Replies	0	0
	Number of Impressions	1244	+825

In this quarter a new video has been uploaded on YouTube (Table 2.15), so all the parameters are significantly growing. It is clear that the best way to keep the momentum is to frequently publish new videos.

Table 2.15 YouTube analytics for the third quarter

YouTube			
	Statistics	**Q3**	**Variation compared to previous Quarter**
M7-9	Number of videos uploaded	2	+1
	Number of Subscribers	22	+4
	Number of likes	6	+3
	Number of Dislikes	0	0
	Number of views for all uploaded videos	187	+83

Analysis of Social Media Channels Statistics for the 4th Quarter (Q4)

The last values recorded on the website (Table 2.16) show an increase regarding the number of sessions, pageviews and new visitors and it could be due to the high amount of new articles published in the blog and advised through the social medias. Otherwise, the returning visitors and the bounce rate decreased compared to the values recorded in the previous quarter. In the first case, it is a negative result since this could mean an insufficient involvement of visitors, while the decrease in the bounce rate indicates that whoever enters the website is really intrigued by the project and does not visit it by chance.

Table 2.16 Website analytics for the fourth quarter

Website (valu3s.eu)			
	Statistics	Q4	Variation compared to previous Quarter
M10-12	Number of Sessions	1450	726
	Number of pageviews	2922	1244
	Bounce rate (%)	43,32 %	-9,44 %
	New Visitors	1009	613
	Returning visitors	37	-5

The number shown by the analysis of the fourth quarter relating to the LinkedIn channel (depicted in Table 2.17) represent a slight increase on the engagement rate and, in general, on the visitors and total followers, but the new among these have decreased. The quality of new posts on LinkedIn could be improved by focusing on the topics that have shown a greater number of reactions.

Table 2.17 LinkedIn analytics for the fourth quarter

LinkedIn			
	Statistics	Q4	Variation compared to previous Quarter
M10-12	Number of post published	15	5
	Number of new followers	8	-43
	Number of total followers	204	8
	New updates (reactions, comments, share)	266	46
	Engagement rate, calculated as: (Clicks + Likes + Comments + Shares + Follows) / Impressions	8%	0.6 %
	Total number of visitors	108	10

Consistently with the data obtained for the previous three quarters, Twitter is the least used the social media compared to other channels (see Table 2.18). However, there is a positive variation compared to the previous quarter, in particular regarding the number of total impressions and reactions which has increased significantly.

Table 2.18 Twitter analytics for the fourth quarter

	Twitter		
	Statistics	**Q4**	**Variation compared to previous Quarter**
M10-12	**Number of Tweets**	9	5
	Number of new followers	9	7
	Number of total followers	47	9
	Number of Link clicks	0	0
	Number of Retweets	4	4
	Number of Likes	8	8
	Number of Replies	0	0
	Number of Impressions	2431	1187
	Number of total reactions (likes + comments + retweets + shares)	2443	1199

Finally, YouTube (Table 2.19) reports a significant increase in terms of views and appreciations from the channel visitors. The communication methodology followed in this quarter seems to be adequate and the partners will be further encouraged in the next months of the project to publish other interested videos concerning methods/tools designed within the project as well as results obtained within use-cases and related scenarios.

Table 2.19 YouTube analytics for the fourth quarter

	YouTube		
	Statistics	**Q4**	**Variation compared to previous Quarter**
M10-12	**Number of videos uploaded**	5	4
	Number of Subscribers	30	8
	Number of likes	4	1
	Number of Dislikes	0	0
	Number of Shares	0	0
	Number of views for all uploaded videos	231	128

2.1.3.5   Planned Contents

In order to keep the social medias active and produce interesting contents that can maximize engagement of the audience, the Consortium is already working on new contents. Specifically:

- *Method/Tool/use-case in a nutshell*: a template to support partners in recording short video presentation of methods/tools and use-cases. These videos will be published on social medias to go deeper in details of the project, providing the audience with a nice overview in short time (around 2 minutes);

- *VALU3S video-teaser*: a short video (around 1 minute and 30 seconds) to present the project in a catchy manner. The video will contain video-footages, animations, infographics and a voice-over explaining main features of the projects. This could be to sponsor the project on YouTube, to publish posts on other social medias but also as "business card" with external stakeholders in light of exploitation of the project. The video has been produced in cooperation between BERGE and LLSG.

2.2   Participation in Events

One of the pillars of VALU3S Communication strategy is the undertaking of communication activities during events, both arranging them to present project outcomes and also participation in fairs, conferences, etc.

Unfortunately, the parallel outbreak of the Covid-19 pandemics, which has heavily affected the whole first year of the project, has significantly limited the possibility to arrange and/or participate in live events. As a backup plan, VALU3S consortium has participated in several online events, even if the engagement is quite far from that of face-to-face presentation and speeches. On the other hand, online events have been also an opportunity to create dedicated communication materials to spread VALU3S project awareness among stakeholders and people of both industrial and scientific communities.

2.2.1   Creation of communication materials for events

With the goal of building typical communication materials that are suited to events, two posters and two flyers were prepared containing the fundamental information necessary to effectively convey the importance of the research, innovation, and developments that are being targeted by the VALU3S consortium, and how that can bring considerable impact to highly automated systems.

For the case of the posters, a roll-out and a typical A0 sized poster, the following information is present:

- **Identification:** name and acronym of the project.
- **Ambition:** identifies the overarching problem being addressed by the project, an provides a short text highlighting how the project will indeed address the problem.
- **Envisioned V&V framework:** an image identifying the dimensions and layers of the envisioned V&V framework, and their validation on use cases.
- **Application domains:** identification of the several application domains targeted by VALU3S use cases.
- **Consortium:** identification of the countries involved in the project, the logos of the members of the consortium, and a depiction of the geographical distribution along European territory.
- **Acknowledgments:** the legal text acknowledging the project's funding entities

The project is presented in its roll-out version in Appendix A.1 and in its A0 format in Appendix A.2.

Regarding the produced leaflet, the information present is the following:

- **Identification:** name and acronym of the project, the links for the project's pages in the three social networks considered by the project, which are LinkedIn, Twitter, and YouTube, and finally the link for the project's website.
- **Contacts:** the contact of the project coordinator and of the institution.
- **Ambition (about the project):** identifies the overarching problem being addressed by the project, an provides a diagram and short text highlighting how the project will indeed address the problem.

- **Envisioned V&V framework:** an image identifying the dimensions and layers of the envisioned V&V framework, and their validation on use cases.
- **Application domains:** identification of the several application domains targeted by VALU3S use cases.
- **Consortium:** identification of the countries involved in the project, the logos of the members of the consortium, and a depiction of the geographical distribution along European territory.
- **Acknowledgments:** the legal text acknowledging the project's funding entities

The actual leaflet is presented in Appendix A.3 and in Appendix A.4.

Finally, we consider important to note that as the project progresses, refinement to the presented materials or the production of new materials assuming the same forms will take place, according to the identified needs.

2.2.2   Past Events

Due to the impossibility to participate to live conferences and fairs, VALU3S partners have tried to sponsor the project and its activities during online events. In the following, a list of events arranged by the consortium or in which one or more partners have participated is reported.

VALU3S Press Briefing
On 12th August 2020 the first press briefing of VALU3S project has been held online, specifically on Zoom platform. The coordinator Behrooz Sangchoolie, from RISE, has presented the project to the audience, describing the needs addressed, the goals, the concept of the project and the 13 use-cases in which tools and methods will be tested.

The full record of the Press Briefing is available on YouTube at [7].

Realistic Simulation for Testing and Training Autonomous Vehicles

On 18 of November 2020, Hamid Ebadi from INFOTIV presented their work on "Realistic Simulation for Testing and Training Autonomous Vehicles" to the public audience. The event was organised as a part of the "Science by INFOTIV" presentation series with 440 members in meetup, who are mainly interested in topics related to verification and validation.

EFECS2020
On 25th and 26th November 2020, a team representing VALU3S project has participated to EFECS2020 [8] an international fair concerning electronic systems and components. The edition of 2020 has been held online, however the event has hosted speeches and presentation from relevant industrial, as well as from European Commission representatives.

VALU3S team has exploited the possibility to create a virtual interactive booth hosted in an online platform provided by EFECS organizers themselves. The booth has been enriched with information about the projects and media contents, such as roll-out and leaflet (described in the section before) and a short video explaining the project in a nutshell available at this link [9].

Furthermore, within the booth there was also the possibility to have one-to-one chat and calls with visitors, like in a real fair booth. The final appearance of the booth is shown in Figure 2.3:

Figure 2.3 Final appearance of the booth during EFECS2020

AUTOSEC + OWASP Online Lunch Seminar 2020

On 17th December 2020, this public seminar has been held on Zoom platform. One of the two speaker was a Ph.D. student from RISE, who made a presentation related to one of the VALU3S project topic, i.e., "Fault and Attack injection based Verification of Automated systems with respect to safety and Cybersecurity". This was a huge opportunity to also describe project goals and expected outcomes.

2.2.3 Planned Events

Due to continuation of Covid-19 emergency in Europe, the uncertainty around events is still high. Some important international events have been postponed, others are transformed into online ones with the consequent limitations.

In order to schedule in advance the participation to relevant events, a shared spreadsheet has been created to periodically collect input from partners about planned participation to events in coming months. Table 2.20 contains all the events currently indicated by the VALU3S partners for the second year of the project (from May 2021 to April 2022):

Table 2.20 All the planned events for the second year of the project

VALU3S participant	Event	Type	Date	Venue
Name of the VALU3S partner which will participate to the event	*Name of the event (Link to the website)*	*Industrial Workshop*	*Planned date of the event*	*Venue of the meeting (if it is online, write "Online")*
INFOTIV	Testforum 2021 (https://nfi.se/konferens/testforum?u=22)	Conference	4-5 May 2021	Sweden
ERARGE	ISCAS 2021 (https://iscas2021.org/)	Conference	23-25 May 2021	South Korea

VALU3S participant	Event	Type	Date	Venue
OTOKAR, ESOGU	6th Turkish Robotics Conference - ToRK 2021 (https://tork2020.iyte.edu.tr/en/home-page/)	Conference	June 2021	Turkey
ERARGE	EUROCON 2021 (http://eurocon2021.org/)	Conference	6-8 June 2021	Ukraine
ERARGE	MWSCAS 2021 (https://mwscas.tripod.com/id3.html)	Conference	21 August 2021	United States
ERARGE	EUSIPCO 2021 (https://eusipco2021.org/)	Conference	23-27 August 2021	Ireland
CAFS	Intelligent Rail Summit (https://events.railtech.com/intelligent-rail-summit-2020/)	Conference	21-23 September 2021	TBD
NXP	18th European Radar Conference (EuRAD 2021) (https://www.eumw2021.com/)	Exhibition	10-15 October 2021	United Kingdom
ERARGE	IEEE SMC 2021 (http://ieeesmc2021.org/)	Conference	17-20 October 2021	Australia
RGB	MEDICA Trade Fair (https://www.medica-tradefair.com)	Fair	15-18 November 2021	Germany

Furthermore, VALU3S Consortium plans to organize a series of public workshops during summer 2021, as well as other conferences to disseminate first outcomes of the first year of the project. A detailed schedule of events arranged by the Consortium will be drafted in the Final Communication Plan (Deliverable 6.14 "Initial communication activity report" at Month 18).

2.3   Liaisons with Other Related Projects

The establishment of liaisons with other related projects has been included into VALU3S Communication activities in order to build fruitful relationships with other R&D projects concerning

the topics faced in VALU3S, as well as to maximise the impact of the dissemination actions by reaching the widest audience possible. Projects have been selected when the establishment of a mutually beneficial liaison is possible, when the topics treated in both projects are similar, as well as the objectives they aim to achieve. Moreover, these actions aim to ensure the birth of opportunities for exploitation of the VALU3S platform after the project. Initially, partners carried out a screening of potential related projects in which at least one partner of T6.4 is involved. In order to facilitate the communication between the two Project consortia, a Liaison Manager has been appointed, i.e. a specific person in charge of managing the communication related to the aforementioned actions and representing VALU3S at external events of the other Project. Specifically, the Liaison Manager should fulfil the following duties:

- The Liaison Manager should contact the Coordinator of the Other Related Project, send to him the Informal Letter for Liaison establishment (see Appendix A.5) via email and wait for a positive feedback;
- The Liaison Manager should invite a representative of the Other Related Project to join any event open to public arranged by VALU3S Consortium by sending an official invitation to the Coordinator of the Other Related Project at least 30 days before the date fixed for the event. This action should be carried out both for online and live events;
- The Liaison Manager should participate to any public event (remote or live) arranged by the Other Related Project and, if possible, represent the VALU3S project by means of speech, presentation, distribution of material or any other communication actions;
- The Liaison Manager should inform the Coordinator of the Other Related Project about any dissemination and communication action whom the VALU3S Communication team consider worth to be shared with external entities;
- The Liaison Manager should contact the Dissemination Manager of the Other Related Project to gather a content to be used to prepare a post concerning the Other Related Project which will be published on VALU3S social media channels;
- The Liaison Manager should provide the Dissemination Manager of the Other Related Project with a content to be published on social media channels of the Other Related Project. This content will be prepared in Task 6.4.

2.3.1 List of Other Related Projects

The following tables (from Table 2.21 to Table 2.34) contain the selected other projects invited to the Liaison and a brief description. The projects have been selected starting from the first screening made within D6.6 [1], which has been refined in the following months.

In detail, for each project some information will be reported such as the partner coordinating the project, its duration and one or more points of contact with VALU3S project (e.g., topics, activities, etc.).

Table 2.21 SAFETY4RAILS project

Acronym of the project	SAFETY4RAILS
Complete title of the project	Data-based analysis for SAFETY and security protection, FOR detection, prevention, mitigation and response in trans-modal metro and RAILway networkS
Type of project	H2020: SU-INFRA01-2018-2019-2020, Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe; Innovation Action
Coordinator	Fraunhofer-Gesellschaft, Ernst-Mach-Institut

Duration	24 (October 2020 – September 2022)
Description	Railways and Metros are safe, efficient, reliable and environmentally friendly mass carriers, and they are becoming even more important means of transportation given the need to address climate change. However, being such critical infrastructures turns metro and railway operators as well as related intermodal transport operators into attractive targets for cyber and/or physical attacks. The SAFETY4RAILS project will deliver methods and systems to increase the safety and recovery of track-based inter-city railway and intra-city metro transportation. It addresses both cyber-only attacks (such as impact from WannaCry infections), physical-only attacks (such as the Madrid commuter trains bombing in 2014) and combined cyber-physical attacks, which an important emerging scenario are given increasing IoT infrastructure integration.
Common aspects with VALU3S	- Vulnerability analysis of digitised infrastructures - Cyber-physical security and safety threat modelling - Verification and validation of automated systems in critical infrastructures Shared partners: ERARGE, STAM

Table 2.22 SECREDAS project

Acronym of the project	SECREDAS
Complete title of the project	Product Security for Cross Domain Reliable Dependable Automated Systems
Type of project	ECSEL
Coordinator	NXP Semiconductors (NL)
Duration	36 months (May 2018 – April 2021)
Description	The SECREDAS project consortium will build a reference architecture for Secure and Safe Automated systems compliant with the new GDPR Regulation. SECREDAS strives to increase trust into cyber-physical systems by establishing new design and development methodologies to integrate cross-domain cybersecurity and safety related technologies.
Common aspects with VALU3S	SECREDAS is one of the first funded ECSEL Joint Undertaking projects that looks at security, safety and privacy across multiple application domains: Road, Rail and Health. VALU3S follows up on this, sharing the aspects of security, safety and privacy in an even larger group of domains (including industrial control), but with a focus on validation and verification instead of design and development. Shared partners are: AIT, BUT, FRAUNHOFER, RISE

Table 2.23 SHAREWORK project

Acronym of the project	SHAREWORK
Complete title of the project	Safe and effective HumAn-Robot coopEration toWards a better cOmpetiveness on cuRrent automation lacK manufacturing processes.
Type of project	H2020
Coordinator	EURECAT, Centre Tecnologic de Catalunya
Duration	48 months
Description	SHAREWORK project develops a Europe-wide smart modular solution integrated by different software and hardware modules to allow robots to physically interact with humans within a collaborative production environment without the need for physical protection barriers. The project boosts process productivity and improves the ergonomics and safety of those workstations where it is implemented.
Common aspects with VALU3S	• SHAREWORK is totally focused on automated systems, especially collaborative robots • One of SHAREWORK topic is safety of the robotic system • Validation and verification methods are exploited to ensure safety of automated systems Shared Partners: STAM, FRAUNHOFER

Table 2.24 CyReV project

Acronym of the project	CyReV (phase I and II)
Complete title of the project	Cyber Resilience for Vehicles
Type of project	Swedish national project funded by Vinnova FFI
Coordinator	Volvo Technology AB (RISE is a partner in the consortium)
Duration	42 (April 2019 – December 2022)
Description	The introduction of autonomous and connected vehicles has brought new cybersecurity challenges to the automotive industry and put requirements on the dependability of vehicles in the presence of cyber-attacks. CyReV focuses on cybersecurity for automotive in-vehicle systems in a changing environment.
Common aspects with VALU3S	Verification and validation, fault and attack injection, safety and cybersecurity analysis, interplay between safety and cybersecurity.

Table 2.25 Critical-chains project

Acronym of the project	Critical-Chains

Complete title of the project	IOT- & Blockchain-Enabled Security Framework for New Generation Critical Cyber-Physical Systems In Finance Sector
Type of project	H2020- SU-DS05-2018-2019 - Digital security, privacy, data protection and accountability in critical sectors Research & Innovation Action
Coordinator	University of Reading
Duration	36 Months (July 2019-June-2022)
Description	Cyber-physical systems refer to systems requiring interaction between computers, communication channels and physical devices. These are used in numerous transactions including banking processes, insurance infrastructures, financial procedures and others. Designed to make things easier, they also face many threats. The EU-funded Critical-Chains project aims to offer a triangular accountability solution bringing a novel integrated security model and framework to effectively support privacy and protect from illegal transactions, money trafficking and internet fraud. Fast and client-friendly, thanks to innovative cloud-based "X-as-a Service", it will be tested for social, ethical, legal and reliability values and validated for banking, insurance and financial markets.
Common aspects with VALU3S	• Both projects cover the topics related to the protection of critical infrastructures which are defined in the NIS Directive • ENISA threat taxonomy and cyber-physical protection in IoT-enabled smart financial systems are parallel to the SCP notion in VALU3S • Use of AI for flow modelling and anomaly detection similar to the V&V notion in VALU3S • Hardware- and software-based cyber resilience solutions are being developed in both projects. Shared Partners: ERARGE

Table 2.26 DCE3C Programme

Acronym of the project	DCE3C Programme
Complete title of the project	Dependability Co-Engineering Programme
Type of project	Project in preparation (ECSEL KDT (Key Digital Technologies) or H2020/Horizon Europe)
Coordinator	Thales France
Duration	Continuous Activity
Link	LinkedIn group: https://www.linkedin.com/groups/13935472/
Description	SIEMENS and AIT were part of the predecessor project AQUAS, where Dependability Co-engineering (DCE) was in focus. Since Dependability attributes like Safety, Security and Reliability are at the heart of VALU3S

	there is a very strong link to DCE. Even AQUAS is over now there are ongoing activities to foster DCE and establish a sustainable community. SIEMENS and AIT are part of the coordination comity of the "DCE Programme" founded by Thales. This informal initiative is a good hub to interlink VALU3S with other ongoing and upcoming projects.
Common aspects with VALU3S	Six of the VALU3S partners were already involved in AQUAS: RGB, BUT, INTECS, SIEMENS, UNIVAQ and AIT AQUAS Methodology includes Combined Safety/Security analysis methods as enhancement of standard V&V processes. There is as strong link to Industrial Drives for Motion Control use case, which build up on results of AQUAS.

Table 2.27 Treasure project

Acronym of the project	Treasure
Complete title of the project	Improved Automated Traceability for Assurance of Safety-Critical Systems
Type of project	Regional
Coordinator	UCLM, Jose Luis de la Vara
Duration	39 months (Jan 2020 – Mar 2023)
Description	Treasure aims to increase the cost-effectiveness of automated traceability for SCS assurance by developing a model-driven and ontology-based approach.
Common aspects with VALU3S	Both VALU3S and Treasure deal with the improvement of traceability management by means of techniques that exploit ontologies. Traceability information quality is another area of interest in common.

Table 2.28 iRel40 project

Acronym of the project	iRel40
Complete title of the project	Intelligent Reliability 4.0
Type of project	ECSEL
Coordinator	Infineon (TRC and UCLM are partners)
Duration	36 months (May 2020 – Apr 2023)
Description	iRel40 has the ultimate goal of improving reliability of electronic components and systems by reducing failure rates along the entire value chain.

Common aspects with VALU3S	Quality of automated systems is an area on which both projects will work. The use of model-based techniques and of ontology-based ones to this end is another point in common. Shared partners: TRC, UCLM

Table 2.29 Arrowhead Tools project

Acronym of the project	Arrowhead Tools
Complete title of the project	Arrowhead Tools for Engineering of Digitalisation Solutions
Type of project	ECSEL
Coordinator	Luleå Tekniska Universitet
Duration	39 months (May 2019 – Jul 2022)
Description	The Arrowhead Tools project aims for digitalisation and automation solutions for the European industry, which will close the gaps that hinder the IT/OT integration by introducing new technologies in an open-source platform for the design and run-time engineering of IoT and System of Systems. The project will provide engineering processes, integration platform, tools and tool chains for the cost-efficient development of digitalisation, connectivity and automation system solutions in various fields of application.
Common aspects with VALU3S	The engineering processes, integration platform, tools and tool chains that Arrowhead Tools is considering includes V&V aspects. Shared partners: TRC

Table 2.30 NewControl project

Acronym of the project	NewControl
Complete title of the project	Integrated, Fail-Operational, Cognitive Perception, Planning and Control Systems for Highly Automated Vehicles
Type of project	ECSEL
Coordinator	AVL List
Duration	45 months (Apr 2019 – Dec 2022)
Description	NewControl will develop and deliver virtualized platforms for each vehicular sub-system essential to autonomous operation at SAE Level 3+. Each of these unifies the critical components required to realize a specific function – perception, cognition, control – through vertical integration within an adaptive (not rigid) architectural framework. The resulting virtual platforms effectively deliver specific functionalities as services to the vehicular platform, abstracting internal implementation, enabling

	portability to different application domains, and facilitating modular development of automation that is guaranteed as safe by design.
Common aspects with VALU3S	NewControl also deals with V&V of automated systems; more concretely, of autonomous vehicle features. Solutions that consider system artefact quality management and compliance with standards will be developed in NewControl and in VALU3S. Shared partners: TRC

Table 2.31 IoD project

Acronym of the project	IoD
Complete title of the project	Internet of DevOps
Type of project	Celtic-Plus
Coordinator	KTH
Duration	36 months (Jan 2019 – Dec 2021)
Description	IoD is developing a methodology on how to apply DevOps principles in large organizations, taking into account typical constraints from classical Telecom & CPS industries, e.g., related to the integration of legacy systems, or the need to perform quality assurance of processes. Basic integration services deployed on Internet and Cloud technologies will be provided for supporting lifecycle traceability across data silos, and for enhancing process automation, i.e., paving the way towards Future Internet for integrated development and operational environments for software-intensive applications.
Common aspects with VALU3S	Method integration, tool integration, and traceability are areas that both IoD and VALU3S address. Shared partners: TRC

Table 2.32 HUBCAP project

Acronym of the project	HUBCAP
Complete title of the project	Digital Innovation HUBs and Collaborative Platform for Cyber-Physical Systems
Type of project	H2020
Coordinator	Aarhus University
Duration	36 months (Jan 2020 – Dec 2022)
Description	The HUBCAP project aims at establishing a cloud-based center of innovation and collaboration among companies, research institutes and competence centers to help SMEs try and adopt Model-Based Design

(MBD) technology. It builds on seven established Digital Innovation Hubs (DIHs) in seven European countries, each embedded in its regional innovation ecosystem, offering complementary technical expertise, experimental capabilities, and specialist knowledge in Cyber-Physical Systems (CPS) application domains. From this base, HUBCAP will create a growing and sustainable European network offering SMEs opportunity to undertake experiments, seek investment, access expertise and training, and form new business links.

HUBCAP will lower barriers for SMEs to realize the potential of growing autonomy in CPS by accessing advanced MBD technology, providing training and guidance, and acting as a gateway to the full network of all registered DIHs specializing in CPS. Half the project funding will go to supporting SMEs, including open call funding for SMEs join the ecosystem and experiment with MBD technology. HUBCAP will extend an existing open collaboration platform to enable SMEs to co-create, analyse and validate new CPS products in a virtual setting, by accessing CPS assets (models, tools, services) and experimenting with new solutions, de-risking investments in skills or resources.

Common aspects with VALU3S	Model-based design techniques for V&V

Table 2.33 SMILE III project

Acronym of the project	SMILE III
Complete title of the project	Safety analysis and verification/validation of ML based systems
Type of project	National
Coordinator	RISE
Duration	2 years
Description	The SMILE program develops method(s) that allow DML-based functions to be included into safety critical vehicular applications. The SMILE III project further develops the Safety Cage concept developed within SMILE I/II, into a reference system architecture and prototype(s), while facilitating compliance with the evolving safety standards.
Common aspects with VALU3S	V&V for safety critical ML-based system

Table 2.34 MIDAS project

Acronym of the project	MIDAS
Complete title of the project	anonyMIsing DAta collection for traffic Safety
Type of project	National
Coordinator	RISE

Duration	3 years
Description	MIDAS aims to solve the problem of anonymity regarding video data collected in real traffic environments. MIDAS develops machine learning algorithms to replace sensitive information in images, so that they can be saved for future use while complying with the GDPR.
Common aspects with VALU3S	Machine learning, privacy protection

Chapter 3 Evaluation of Initial Communication Plan Effectiveness

This chapter aims to start the evaluation of the effectiveness of activities defined in the Initial Communication Plan. Indeed, the progress status of Communication KPIs set in Deliverable 6.6 [1] are assessed and analysed to understand possible corrective actions. For this purpose, Section 3.2 is dedicated to collect feedback from partners in order to draft the Final Communication Plan in Deliverable 6.14 at Month 18.

3.1 Assessment of Communication KPIs

Table 3.1 contains the KPIs set in D6.6 [1]; for each of them, the target value is specified as well as the current status at M12. It is worth to note that some KPIs are expressed "per year", therefore it is possible to clearly define if they are achieved or not, while others are expressed as total at the end of the project. For the latter, to date it is only possible to understand if the trend is positive or negative.

Table 3.1 Communication KPIs progress status at Month 12

KPI	Description	Target Value	Current state (M12)	Variation target value – current state	Status (achieved, in progress, missed)
Comm-KPI-1	Number of accesses to the VALU3S website per year	>=2000	4238	+2238	Achieved
Comm-KPI-2	Average Number of new recipients of newsletters per year	>=100	107	+7	Achieved
Comm-KPI-3	Number of followers on VALU3S social media pages (LinkedIn + Twitter + YouTube)	>=500	281	-219	In progress
Comm-KPI-4	Number of posts published on VALU3S social media pages per year (LinkedIn +	>=40	57	+17	Achieved

KPI	Description	Target Value	Current state (M12)	Variation target value – current state	Status (achieved, in progress, missed)
	Twitter + YouTube)				
Comm-KPI-5	Number of reactions to published posts (likes, comments, shares, retweets) on social media pages per year	>= 800	2940	+2140	Achieved
Comm-KPI-6	Participation in fairs and exhibitions per years	>=3	3	0	Achieved
Comm-KPI-7	Number of speeches (and/or presentations) in public events per year	>=3	3	0	Achieved

The KPIs are briefly discussed below.

KPI-1 has been easily achieved thanks to the sponsoring done through social media pages with posts which can redirect the visitor to the website. The website has been widely visited especially in the first months of the project, while in the following quarters a progressive decrease was recorded. This should be considered natural, since in the first months the novelty can attract a high number of visitors and boost website analytics. In order to keep this trend positive, the website should be frequently updated with new contents (news, blog articles, publications, events, etc.).

KPI-2 has been reached, therefore the total number of subscribers is greater than the target value. This result shows that a good job has been done in publicizing the project newsletter, as well as the contents prepared has been appreciated by the audience.

KPI-3 is still in progress and should be evaluated at the end of the project. To date, more than a half of the target has been achieved, therefore, even considering a decrease of new followers compared to the initial months of the project, the target is likely to be achieved. This implies a request to the consortium for a greater commitment in sponsoring the project on social media by publishing posts that are more attractive for users. In particular, there is a large room for improvement both on Twitter and YouTube, which to date present smaller numbers compared to LinkedIn.

KPI-4 has been successfully achieved and this is a crucial result, since it means that the activity on social media has been sufficiently intensive and continuous.

KPI-5 has been largely achieved on the basis of the target value set previously. In the future it may be possible also to raise the target to a more ambitious threshold. In fact, as it is planned to publish more posts, consequently a greater number of total reactions is expected.

KPI-6 and KPI-7 have been achieved, even if with difficulty because of the Covid-19 outbreak and consequent restrictions which have significantly penalized the arrangement/participation of/to events. However, negative impact of Covid-19 has been mitigated thanks to the effort of the consortium in participating to online events, as backup plan, as well as to arrange online presentations and conferences.

3.2 First Collection of Hints for the Final Communication Plan

In this section, a first round of collection of hints from partners to improve the Communication Plan is reported. They are summarised from Table 3.2 to Table 3.8. These represent feedbacks and suggestions by partners which have been involved in Communication activities. Hints will be used as input to improve and refine the Communication strategy, as well as write the final draft of the Communication Plan at M18.

Table 3.2 Hint n°1 - new Press Releases

N° of hint	1
Title	Arrange new Press Releases
Communication channel	Diverse Media
Main goal	The aim of press releases is to publicize the project and its results via diverse media channels and to continuously increase awareness for the project.
Description	Press releases can be initiated by the project coordinator for important partial results, project milestones or at the end of the project. Distributed to the partners, they could also be sent out nationally to a broad press release distribution list by the respective project managers in the participating countries.

Table 3.3 Hint n°2 - Media kit

N° of hint	2
Title	Media Kit
Communication channel	Project Website
Main goal	The main goal is to provide easy access to a wide variety of media with reference to VALU3S for external reporting on the project.
Description	Logos, images, infographics and publicly available documents related to the project can be bundled together in one place on the project website to simplify reporting and increase interest.

Table 3.4 Hint n°3 - Communication with external experts

N° of hint	3
Title	Communication with other experts or teams within the same group of companies or the same holding company
Communication channel	By organising an online or oral workshop to present VALU3S achievements covering different sectorial aspects and application areas
Main goal	Some partners in Valu3s are the subsidiaries of larger group-companies or holdings which hare operating in diversified areas of industry domains. A proactive communication channel bridging VALU3S with the partnering organisations within these groups or holdings may create new opportunities to exploit project results in relevant applications.
Description	A holding company is a company that owns the outstanding stock of other companies which owns the shares of other sibling companies to form a corporate group under the parent company. For instance, Otokar, a partner in VALU3S, is a sibling company under Koç Holding which is the main parent company. Arçelik, Tofaş, Ford Otosan, TÜPRAŞ, KoçSistem and many more are other large enterprises under Koç Holding operating in a wide range including automotive, chemistry, ICT, machinery, etc. When a communication channel is established with the parent company and a common communication environment is set to create links with sibling companies with a holding or group of companies, one can find an effective way to promote the project outputs. Workshops with the representatives of these group companies may create a fruitful discussion environment where project results can be exploited and new opportunities can be settled.

Table 3.5 Hint n°4 - Meet-up with experts

N° of hint	4
Title	Inviting experts from academia/industry to present state of the art Verification and validation methods.
Communication channel	Organising open lectures under the flag of the Valu3s project i.e., meet-ups
Main goal	To spread knowledge of sate of the art and to promote the connection to Valu3s as well as networking and establishing collaboration projects.
Description	At INFOTIV we have worked with a concept we call "Science By INFOTIV" to connect leading experts from both academia and industry to share and spread knowledge and experience around V&V methods and processes. These events have attracted a wide range audience and been a good channel for networking. The event is organized through the meet-up platform and open to anyone interested. Pre-pandemic this has been a on-site breakfast event with possibilities for "mingling". With the current state of the world the event has transformed into an online event, still attracting a good number of audiences.

	INFOTIV gladly offers this stage as a forum to communicate activities from with in and around the Valu3s project.

Table 3.6 Hint n°5 - Open Day

N° of hint	5
Title	An open day to present the outcomes obtained in VALU3S.
Communication channel	Organisation of an on-site workshop in ALDAKIN's showroom.
Main goal	Promote the company's latest developments in industrial robotics and collaborative robotics. Disseminate the robotic solution not only among companies that have personnel with disabilities on their staff, but also among companies that are dedicated to disassembly throughout the region.
Description	From time to time, ALDAKIN organises an open day in one of its facilities to showcase its latest technological developments in the field of robotics. This event is usually attended by clients and stakeholders that the company has already worked with.

Table 3.7 Hint n°6 - VALU3S presence in partners' websites

N° of hint	6
Title	VALU3S presence in partners' websites
Communication channel	Partners' websites
Main goal	To increase VALU3S presence on the Web
Description	All VALU3S partners should ensure that the project is introduced in their website via some media such as a dedicated website or piece of news. Example: http://www.i3a.uclm.es/louise_w/project/verification-and-validation-of-automated-systems-safety-and-security/

Table 3.8 Hint n° 7 - VALU3S info at courses

N° of hint	7
Title	VALU3S info at courses
Communication channel	Training activities by the partners
Main goal	Increase the awareness of VALU3S outcomes in other communities
Description	It would be useful that the partners include information about VALU3S in courses that they teach, both in courses about their specific results and in

	courses about general V&V aspects. An example of the former would be webinars about tools developed or improved in the project. A clear example of the latter is the presentation of the multi-dimensional layered framework, which could be explained at university courses dealing with V&V. It would be a good way to inform students of the different facets that characterise V&V methods and impact V&V processes.

Chapter 4   Conclusion

The document has reported in detail all the activities undertaken to date within Task 6.4 "*External communication including interaction with other, related projects*", as well as the results achieved. The report highlights that the activities promised within the Initial Communication Plan have been duly performed with remarkable results. In fact, communication channels promised in the DoA [10] have been established and contents delivered through them have been frequent and appropriated for the target audience already identified. Furthermore, the Communication KPIs set up for the first year have been fully achieved, while those fixed for the end of the project show a positive trend that should be kept and possibly improved in the next year.

From Month 12, as stated in the DoA, Dissemination strategy is going to focus on the intermediate results of project. Communication activities will play an important role towards this objective, by exploiting the already set up communication channels to deliver proper contents and increase awareness and engagement of stakeholders. Furthermore, this document will represent a very solid basis for a further improvement of the Communication Plan, whose final and definitive version will be drafted at Month 18 exploiting the experience of the first year of communication activities.

References

[1]   D. Ottonello, "D6.6 'Initial communication plan,'" no. 876852, 2020.

[2]   "VALU3S | Verification and Validation of Automated Systems' Safety and Security." https://valu3s.eu/ (accessed Apr. 27, 2021).

[3]   "VALU3S Project: Panoramica | LinkedIn." https://www.linkedin.com/company/valu3s-project/ (accessed Apr. 27, 2021).

[4]   "VALU3S (@valu3s_project) / Twitter." https://twitter.com/valu3s_project (accessed Apr. 27, 2021).

[5]   "VALU3S   Project   -   YouTube." https://www.youtube.com/channel/UCBvhaW8hkWgopiJWbFBrIFQ (accessed Apr. 27, 2021).

[6]   "VALU3S Newsletter." https://app.bwz.se/ri/b/v?subscribeto=166&ucrc=548D0188E6 (accessed Apr. 23, 2021).

[7]   "PressBriefing   1   VALUE3S   200812   -   YouTube." https://www.youtube.com/watch?v=q6HHfDEBSVY (accessed Apr. 23, 2021).

[8]   "EFECS." https://efecs.eu/ (accessed Apr. 27, 2021).

[9]   "VALU3S Welcome Video - YouTube." https://www.youtube.com/watch?v=hi0VB-78K_g&t=2s (accessed Apr. 27, 2021).

[10]   *VALU3S Grant Agreement, 2021-02-26, number 876852.* .

Appendix A   Communication Templates

A.1   VALU3S Roll-Out Poster

Figure A.1 VALU3S roll-out poster.

A.2   VALU3S Standard Poster
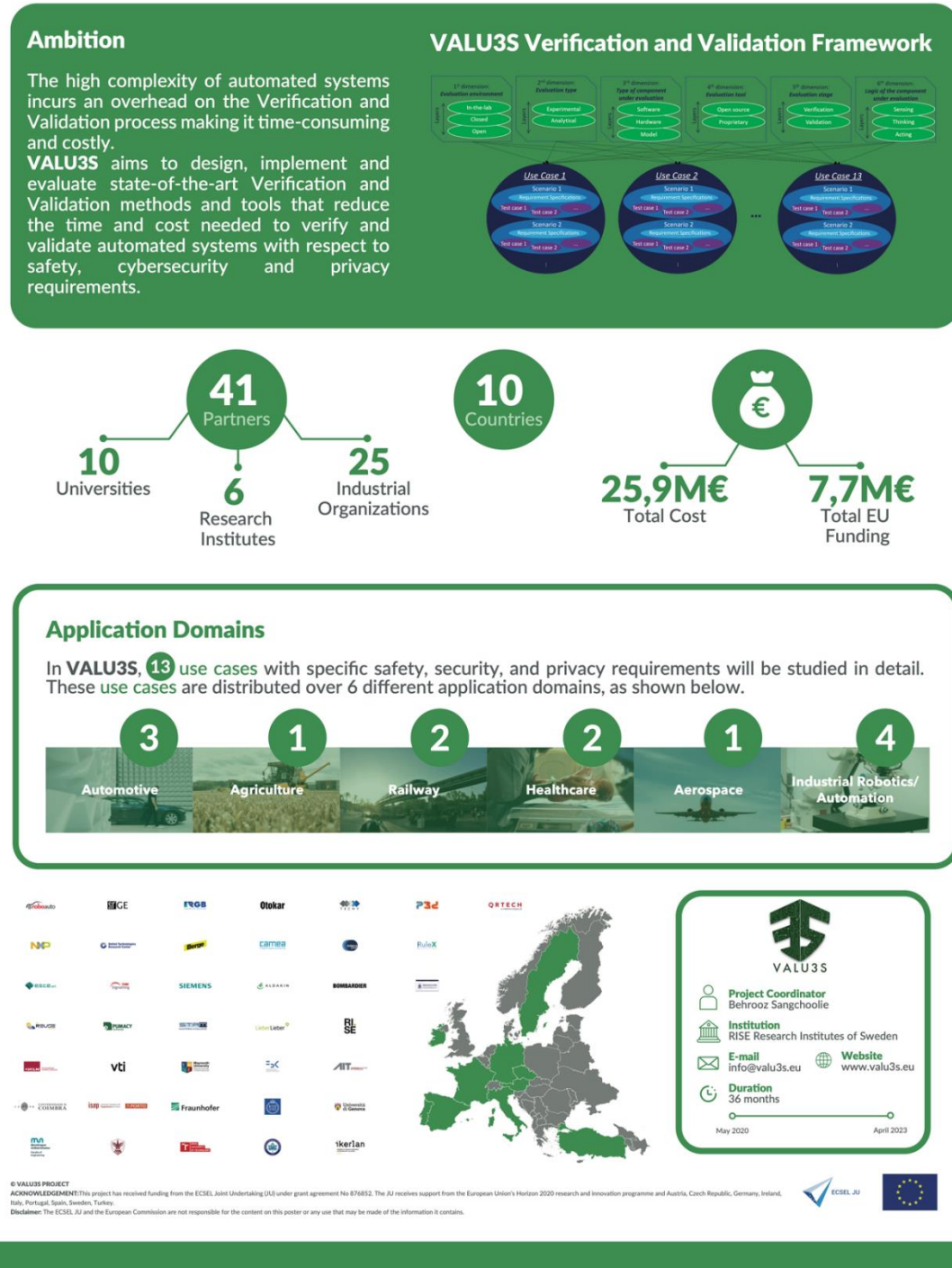
Figure A.2 VALU3S standard poster.

A.3   VALU3S Leaflet (Front)

Figure A.3 VALU3S leaflet (front).

A.4   VALU3S Leaflet (Back)
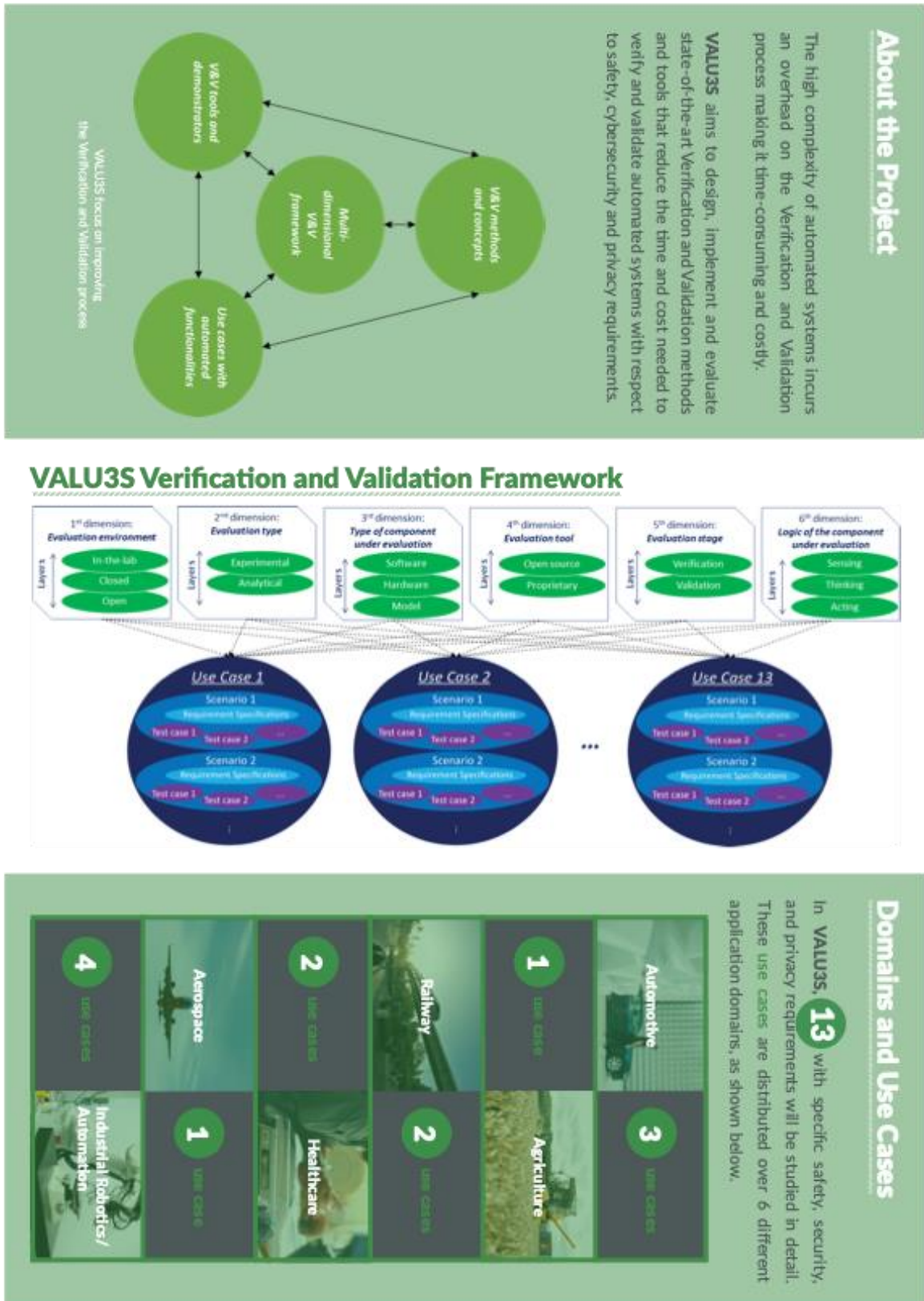
Figure A.4 VALU3S leaflet (back).

A.5 Informal Letter Liaison Establishment Template

21/01/2021

Subject: Request for the establishment of a liaison with VALU3S Project

Dear Coordinator,

I am Davide Ottonello and I am writing to you as the Communication leader of **VALU3S** (GA 876852), an ECSEL JU (Joint Undertaking) Project coordinated by *RISE Research Institute of Sweden* which aims to improve safety and security of automated systems through innovative verification and validation methods and tools.

Within VALU3S Communication activities, we have decided to include the establishment of liaisons with other related projects in order to build fruitful relationships with other relevant partners in the Electronics sector, as well as to maximise the impact of our dissemination actions by reaching the widest audience possible. For this purpose, the project you are coordinating has been selected as suitable for the establishment of a profitable liaison, since the topics treated in both projects are similar, as well as the objectives they aim to achieve.

When it comes to practical aspects of the liaison, we mainly foresee the following concrete actions:
- Your Project Consortium shall invite at least one VALU3S representative to any Project public event (live or online) and, if possible, the representative could have the possibility to present VALU3S Project by means of speech, distribution of material, etc;
- Vice versa, VALU3S Consortium shall invite at least one representative of your Project Consortium and allow it to present your Project by means of speech, distribution of material, etc;
- Your Project Social Media profiles shall follow the VALU3S ones and vice versa (limited to the channels currently used by both projects);
- Your Project Social Media profiles shall publish at least one content promoting VALU3S Project (which will be provided by VALU3S Communication leader);
- Vice Versa, VALU3S Social Media channels shall publish at least one content sponsoring your Project (provided by your Dissemination manager);
- Finally, your Project Consortium shall inform VALU3S Consortium about any opportunity to carry out joint dissemination, communication and/or exploitation actions aimed at maximise the impact of both projects on scientific and industrial community. Vice Versa, VALU3S Consortium will inform in turn your Project Consortium in case of the aforementioned opportunities.

In order to facilitate the communication between the two Project consortia, we have appointed a Liaison Manager, i.e. a specific figure in charge of managing the communication related to the aforementioned actions and representing VALU3S at external events of your Project. The Liaison Manager appointed for your Project is the same person that has sent to you this Letter. You can contact the Liaison Manager for any doubt or request for further clarifications and information.

Therefore, I kindly ask you to communicate to the appointed Liaison Manager for your Project if you are interested in cooperating with VALU3S and in engaging to undertake the actions described above no later than 10 days after the receipt of this Letter.
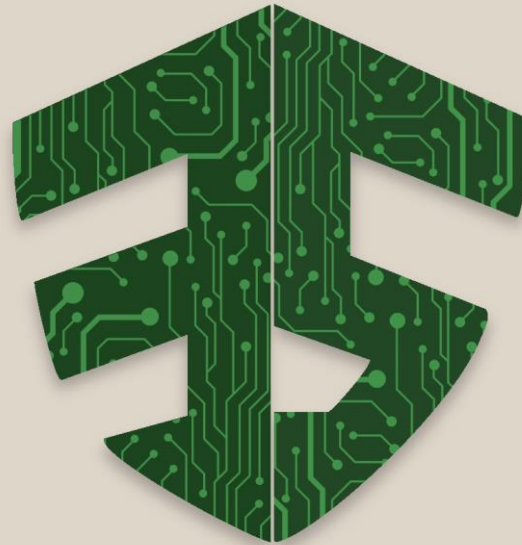
N.B. this Letter does not entail any legal or official obligation.

Sincerely Yours,

Davide Ottonello

Figure A.5 Informal letter liaison establishment template.

VALU3S

www.valu3s.eu