



D7.7 Final Dissemination & Communication Plan WP7.

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Introduction

This report provides an overview of the dissemination and communication activities carried out by the ACROBA consortium throughout the implementation of the project (January 2020 – December 2024) with a focus on the last period of the project (M19-M48).

This report builds on two previous deliverables:

D7.1 Initial Dissemination and Communication Plan was submitted in M3 (March 2021) and provided a detailed overview of the communication materials and tools created at the beginning of the project and a description of the action plan to raise awareness of the ACROBA project among its target audiences.

D7.5 Updated Dissemination and Communication Plan provided was released at M18 (June 2022) and provided an overview of the actions carried out in the framework of WP7 between M1 and M18. This report was also an opportunity to review, refine and adjust the communication and dissemination strategy based on the ACROBA project progress and challenges to ensure that the project achieves its full impact.





1. Communication strategy

1.1 General principles

The overall objective of the communication strategy is to raise public awareness of the ACROBA project and ensure the highest possible visibility of the project results and activities. The communication strategy supports to the dissemination objectives (see section 2 Dissemination strategy) and contributes to engage target audiences and networks. The communication strategy is summarized in Figure 1 below:



Figure 1. Overview of the communication strategy

1.2 Visual identity and communication materials

To support the communication strategy, a visual identity and a set of communication materials were created at the beginning of the project to build the ACROBA project identity. The table





below provides an overview of these materials, which are also presented into details in the D7.1 Initial Dissemination and Communication Plan. All these resources are saved in the Microsoft Teams workspace, in the section "WP7 – Dissemination and Communication" and hence are accessible to all partners. The communication materials were updated whenever necessary to reflect the progress and evolutions of the project.

Category	Material	Responsi ble partner	Status	
	Logo		Delivered in M3 D7.1 First batch of communication materials	
Visual identity	Graphic identity (Font)	EMC2		
visual identity	Templates (Word and PowerPoint)	EIVICZ		
	Guidelines on visual identity			
	General presentation of the project	EMC2	Delivered	
Communication	Poster		Delivered in M6 D7.2 Second batch of communication materials	
events	Roll-Up/kakemono	EMC2		
	Factsheet			
Videoo	Introduction video	EMCO		
VIGEOS	Final pilot videos	EMCZ	Delivered in M48	
Press Releases	1 st Press release – Launch of ACROBA	EMC2	Delivered in M3 - D7.1	

Table 1. List of ACROBA communication materials

1.3 Communication tools and channels

1.3.1 Website

The ACROBA website (https://www.acrobaproject.eu/) is the main source of information on the project. It provides a comprehensive overview of the ACROBA objectives, use cases, partners, and activities. Specific attention is paid to making the website content adapted to a broad range of audiences, including scientists and experts, industry players, policy makers and the general public. The website is subject to continuous improvements to ensure that the project progress and results are timely showcased. EMC2, as WP7 leader, is in charge of keeping the website is up-to-date.





In the "Latest news" section, articles and video were published on a regular basis to promote the outputs and activities of the project. Although most results arrived in the last year of the project, the ACROBA partners strived to communicate on the activities and progress already achieved since the launch of the project. The publication of articles and demo videos was coordinated by the WP7 leader EMC2, and partners were encouraged to contribute with contents. The figure below provides an overview of the articles and videos published between M1-M48.



Skill Development Workflow for a 6-DOF Robotic Arm to Reach Targets Using Deep Reinforcement Learning

The University of Deusto has been exploring and designing different strategies for autonomous learning of robotic skills ...

read more



Meet the ACROBA partners: SteriPack Ireland !

During the last consortium meeting in Mullingar (Ireland), the project partners got the chance to visit SteriPack facilities and met with Alejandro Muñoz Espiago, Director of Technology who is... read more



Meet the Acroba partners : IMR !

During the last consortium meeting in Mullingar (Ireland), the project partners got the chance to visit the IMR and Steripack facilities. We met with Sunny KATYARA one member of the great IMR team...

read more



A first success for the Hackathons by ACROBA !

The University of DEUSTO (Bilbao, Spain) took the first crack at organising ahackathon by ACROBA on 15 december 2022. Twenty-four students took on the challenge to develop new robotics skills using...

read more



MEET THE ACROBA PARTNERS : NUTAI

During the last consortium meeting in Valencia, the project partners got the chance to visit the NUTAI's facilities. A great opportunity to meet with Mónica Pérez, the face of NUTAI within the... read more



Meet the ACROBA partners!

On 20-21 September 2022, the ACROBA project partners met in Valencia (Spain) for a general meeting hosted by CABKA. On this occasion, we spoke with Paula Llopis (Automation Team Lead) and Sergio...

read more



EMC2

Successful test of the pick and place skill on the ACROBA platform

The Irish Manufacturing Research (IMR) continue to test the ACROBA platform in real-situation settings : this second video shows the first tests of ACROBA software for pick and place task on real...

read more

ACROBA develops its Virtual Gym !

The ACROBA Virtual Gym serves as the digital twin of the pilot cases, whereas it provides the virtual environment for exploiting deep reinforcement learning techniques. ACROBA Virtual Gym is... read more

ACROBA provides its first results !

The ACROBA team is pleased to present the first results of the project through a video showing a pick-and-place task performed by an industrial robot. In realtime, the robot detects the workspace... read more

The ACROBA platform finally tested in a real-life setting

The Irish Manufacturing Research (IMR) already tests the ACROBA platform in real-situation settings to experience the software for bin-picking and ordered placing tasks on real robots. This video... read more



1st onsite consortium meeting for the ACROBA team

The last ACROBA consortium meeting took place in Bern, Switzerland, on 28 and 29 April 2022. 28 partners from 9 countries joined this first in-person gathering after months of online meetings. The...

read more



Dummy Tool, the future of industrial robot programming system

From some time now, robot teaching process was led by two techniques, always based on the displacement of the robot itself. On the one hand - taking into account light and collaborative robotics -... read more



Rewards in Action for Deep Reinforcement Learning of Industrial Robotics

Figure 2. Overview of ACROBA website articles and videos

1.3.2 Social media

Social media played a key role in increasing visibility, with LinkedIn serving as the primary platform for raising awareness of website content and sharing updates about partner participation in relevant events such as fairs and conferences. By M48, the ACROBA LinkedIn account had 298 followers, reflecting significant growth due to consistent and targeted publications.







We were at DEMO DAT: W

Yesterday saw the first edition of DEMO DAY. An event organized by Pôle EMC2 to highlight innovations in industrial robotics and artificial intelligence.

As a partner of this event, the ACROBA project was there to present its #AI-driven solution to help manufacturing SMEs with their #automation.

A great opportunity also to showcase the power of European projects and transnational collaborations to accelerate #innovation with the presence of our guest speaker Pirita Ihamäki PhD, M.Sc. and Juha-Pekka Alanen from Robocoast EDIH from Finland. \mathcal{Q}

#AI #Innovation





Ø ₩ Exciting Innovations Unveiled: Robotics and Al Breakthroughs at the University of Deusto !

Join us at the University of Deusto to explore the cutting-edge world of robotics and artificial intelligence! Our latest research focuses on enhancing the skills of 6-DOF robotic arms using advanced techniques like Deep Reinforcement Learning (DRL).

In our pioneering ACROBA project, we're leading the way in teaching robotic arms to learn and improve their skills autonomously. We start by studying simplified mathematical models of the environment to speed up the learning process.

Moving forward, we use high-fidelity Virtual Gym simulations tailored specifically for ACROBA project scenarios. These simulations provide a dynamic environment for our robotic arms to learn and adapt effectively.

Curious about our skill development process? 💡

Check out the exciting video below for a firsthand look at our work. See how DRL is transforming how robotic arms reach targets and perform tasks autonomously.

https://lnkd.in/e-68Vk4U

#AI #Robotics



Figure 3. Examples of social media publication

1.3.3 Press, magazines and public media

Alongside the communication via the website and social media, the project was also mentioned in magazine articles:

Year	Partner	Comment / Description	Media	SCOPE
2022	AITIIP	Article in Actualidad Económica Magazine,	Actualidad	national
		one of the most popular national media in	Económica-El	
		Spain, mentioning ACROBA	Mundo	
2021	BFH	Im Interview: Dr. Norman Baier über das	Technik und	national
		EU-Projekt ACROBA	Wissen #13	

Table 2. List of articles





2021	ROB	1-page article about ACROBA in the	HIPEAC magazine	European
		HIPEAC magazine		
2022	AITIIP	Article in Guía de Prensa mentioning	Guia de Prensa	national
		ACROBA		
2022	AITIIP	Article in INTEREMPRESAS magazine	INTEREMPRESAS	national
2023	AITIIP	Mention of the ACROBA project in an	Easy Engineering	European
		interview	Magazine	
2024	ROB	interview about ACROBA played in the	Finnish National	national
		news broadcast	Broadcast company	
			YLE Radio	
			1	







Die Berner Fachhochschule und das Projekt ACROBA

PLUG – UND DIE ZELLE SUCHT DEN OPTIMALEN ABLAUF

Die Berner Fachhochschule BFH hat den Lead über das EU-Projekt ACROBA, bei dem Plug-and-Produce eine zentrale Rolle spielt. Worum es geht, was wir erwarten können und wie Firmen -früh und kostensparendvom Projekt profitieren können, erklärt II. Norman Urs Baier, Leiter des Instituts für Intelligente Industrielle Systeme 13S im Interview.

Von Eugen Albisser

ie BFH macht mit beim EU-Projekt ACROBA, bei dem kognittre Roboterplattformen entwickelt werden. Was ist das Spesielle danan? Das Projekt ACROBA ist eine «Innovation Action». Jis solche visiert es mit seinen Resultaten einen holten III. (Trehnology Reidniers Level) an.

inen theoretischen Durchbruch schaffen.

Ja, der integrierende Aspekt unserer Arbeit ist sehr ausgeprägt. Um die Übertragbarkeit unserer Resultate zu gewährleisten, haben wir von Beginn an fünf sehr unterschiedliche Anwendungsfälle im Projekt integriert, so dass die Probleme allgemein gelöst werden und die direkt

Beim Projekt wird das Plug-and-Produce grossgeschrie

Was versisted tain daminist? Der begriff wird der Tenns von Themio Arni der Untvisten Begriff wird der Tenns von Themio Arni der Untvisen immer Artikel versenden haben. Sie selber beziehen sichin dem Artikel auf die Prüge PFarr-Technologie. Sether haben isch die ublichen Grabenkämpfe zwischen Normen-Befürwertern und Ussenganzbeitern die Pfarg- Gent. das versicht der Arbeit einer einer Bertrick auf der Pfargversicht auch funktionieren. Der Grandpedanke ist, dass einer Profokalistungeber der ein Gerträck auf die Menstagen werwender wird, au einen gespierten Pfarz gestehlt wird und das Gerte auf einfallen gespierten Pfarz gestehlt wird und das Gerte auf einfallen gestehlt um eint der profokalistungeber der ein Gerträck dass einer Profokalistungeber der ein Gerträck dass einer Berträcht der Berträcht der Berträcht und der haben auf der Setten der Berträcht der Berträcht und der haben auf der Berträcht der Berträcht und der haben auf der Setten der Berträcht der Berträcht und der haben auf der Setten der Berträcht und der haben auf der Setten der Berträcht der Berträcht und der haben auf der Setten der Berträcht der Berträcht und der haben auf der Setten der Berträcht der Berträcht und der haben auf der Setten der Berträcht der Berträcht und der haben auf der Setten der Berträcht der Berträcht der Berträcht und der Berträcht der B





ntfallen. Dazu muss aber die notwendige Informatio iber das Netzwerk bereitgestellt werden.

elcher technologische Fortschritt wird hinter dem adprodukt stecken? all ACROBA nicht ein mentflecher Bachler Viere auf

ndern portabel sein soll, wirde skonform zu den bekamm-Referenzachtletuum sein In diesem Bereich hat er han EU-Projekte gegeben, aus denen nach die COPHA-AP omman Deper Flatform Reference Architecture for Agile doutcohn) hervorging. ACROM wird auf dieser aufbasen al wird dadurch konform zu RAMI-6.0 und Firaera for daturtis sein, Dertehnologische Forschnitt wird als refer sichbar in der Erhöhung des TRLa dieser bekannten choloogien.

Welche zur Verflagung stehenden Technologien wird man verwenden? COPPA AP Hellt weitzeichende Kommunikationsmög lichkeiten zur Verflagung, auf die wir aufbaren und die wir erweitern können. Im Herzen der COPPA AP steht der PIWARE Costotet Röcker, der über zahlnriche Endbers abgefragt und allemeitter verdenk kann, im industriellen Kontext sind vor allem MCIT und OP-U nennenswert und natülich FIRGS. das die Entlicke zu

P L U G - A N D - P R O D U C E

to the second se

Nor and More stallan Cir sigh word

Ech steller mir dass so wei: Ein Utsernehmen hat im Verfel der ACBOAP Herlerne bei sich umpersetzt, dann steller es einen neue Zelle oder einen Roboter in die Werthalle. Die Zelle liefert die Instrumistionen durch eine signens Stall und die eignens Benzierten auf die Plattform, und schon wird der Tach Plattomer der Plattform beginnen zu stessen, welche Stalls von der Zelle in welcher Penhendige den Pholonal animatoren. Dies aller die stessen Staller auch der Veran einen Der staller die stessen Staller auch Veran eine nur dansehniger und sicht eingesteck ist, wird ers ein klicht beringen.

Was sohn Sie als die grosse Herausforderung bei diese Projekt, um diese Plag-and-Produes en entwicklich Das grosse Hisiko in diesem Projekt ist, dass am Ende die wieder zur ein par zusammegnechnärte Einzellösung in einem Paket dastehen. Das ist entsprechend auch die glostese Herausforderung, auf die wir uns vohereitet hah Dass wir eine portable und allgemeine Lösung abliefern Können.

Einzellösungen hat es tatsichlich schon einige gegeben, aber auch der amüsante Begriff «Plug-and-Pray» weist darauf hin, dass die Technologien noch viel Potenzial na oben haben. Kennen Sie eigentlich noch dieses «Gebets»

Perfekte Übergünge von Schwarz zu Weiss gibt es nur in der Kunst. Jede Technologie muss sich zuerst etablieren. Trotzdem, mittlerweile gibt es Erweiterungskarten, auf denen mit Jumper die Adressbereiche und IRQs von Haus gesetzt werden müssen, gar nicht mehr zu kaufen.

Ich möchte noch einmal kurz zum Projekt ACROBA zurückkommen, das ja ein grosses Projekt mit 17 Parts aus neun Ländern ist: Welchen Teil in der Entwicklung wird die BEEI bier übernahmen?

> «Der integrierende Aspekt unserer Arbeit ist sehr ausgeprägt. Wir wollen keine zusammengeschnürten Einzellösungen entwickeln, sondern Resultate mit hoher Übertragbarkeit in die Industrie.»

die Roboter Die BFH ist ül

geht, an bestehende Arbeitsprozesse anzubinden oder wenn es darum geht, CAD-Daten auszubeen und aufzubereiten der auch andere Dokumente für den Computer verständlich zu machen. Wir werden uns auch an der Erarbeitung von Skulls und der Entwicklung des Task Planners beteiligen.

hat sie auch den Lead?

List is in restored scalar bein allogistationelle, wie Mokote bussen in alge Poulukinossensenisien eingebunden werden können. Besinders hat um interessiert, wie Roboter zu einem -Work boldy weiterestrichteider werden können. Am ICT Proposers Day in Heinkin haben wir eine Gruppe von Forschnungssams gehunden, die wir um dieser Vorarbeit opfinal eiginzen konnten. Wei vir mit unseren Abeiten mit GAD-beten um Liste Fahraner ignenden orieichen den Anverednungsfählen nit ihren Werkhallen und den sehr simulativen. Weiten dies Deep Peinforzenen Leuringsp

he ACROBA-Platform wird im Laufe des Projekts mit wölf Hackathons sowie zwei On-Site Labs für KMUs in der 'ertigungsbranche getestet. Was soll da getestet werden? Die ACROBA On-Site Labs sind genau unsere Vorkehruneu, um sichterzustellen, dass wir keine zusammenge-

s, nive encountermannette and a second secon

d die Häckathons? Hackathons dienen nicht so sehr dem Testen als dem Inehmen von Ideen. Sie richten sich an jüngere Forsche

Jann können wir mit ersten Resultaten rechnen und vann können Schweiter KMUS davon profilieren? as Projekt endet im Juni 2024. Ungeduldigen Wirthäftspartnern sei aber värinstense empfohlen, sich d die ACROIA-on-site-Laba zu bewerben (https:// cobagorojec.et./events. Früher und kostensparender hit Profilieren nicht.

Einzellösungen entwickeln, sondern F mit hoher Übertragbarkeit in die Ind Norman Urs Baler

"Blade-Keeper evitará muchos de los incendios que provocan las hojas de corte de las cosechadoras"

José Antonio Dieste Promotor de Blade-Keeper - Moses Productos SI y responsable de fabricación avanzada - Aitijp Centro Tecnológico



Figure 4. Overview of magazine articles mentioning ACROBA





2. Dissemination strategy

2.1 Target groups

The table below provides an overview of the target groups identified by the ACROBA partners at the beginning of the project, and the specific dissemination actions suggested to engage them.

Table 3. Target groups of stakeholders for dissemination

Manufacturers / Agile Production / Industry 4.0 stakeholders		
Manufacturing SMEs and large enterprises in healthcare, plastic industry, consumer electronics and electric motors. Other industrial sectors embracing agile production principles		
Interests in the project	 Learn/get trained on the project's results Establish cooperation agreements with related ACROBA partners to adopt the Platform for their production facilities Participate in the project's events 	
Targeted dissemination actions	Open Days; ACROBA On-Site Lab; Robotics Day; Direct pitch; presentation at industrial fairs; articles in technical magazines	
Robotics s	systems manufacturers and integrators	
Provider of robotic systems, including sensors and special equipment suppliers, robotic systems integrators.		
 Learn/get trained on the project's results Use the results to improve their customer's processes Participate in the project's events 		
Targeted dissemination actions	Open Days; ACROBA On-Site Lab ; Robotics Day ; Direct pitch; presentation at industrial fairs; articles in technical magazines	
Industry associations, clusters and DIH		
EU and national initiatives, technology clusters and DIH networks dedicated to new manufacturing technologies and agile production		
Interest in the project	 Disseminate the results and ACROBA events to their members Include the project's results in collaborative research activities Knowledge exchange. 	
Targeted dissemination actions	Robotics Day ; Direct pitch; hackathon; Robotics events (ERF)	
4	: IT and professional services	
ICT, software engineering and other professional service. companies that provide software or consulting for manufacturing.		
Interest in the project	Participate in the project's events	





	Events is the subscription of a second second in a single for a second		
	 Exploit the project's open results or get inspiration for new ideas. 		
	Hackathons: Open Days; ACROBA On-Site Lab; Direct		
Targeted dissemination	pitch: presentation at industrial fairs: articles in technical		
actions	magazines		
	5: Academia and Researchers		
Individuala a	nd arganizations angragad in Industry 4.0 research		
	Advance the project's research		
Interest in the project	 Extend the innovations to other areas of application 		
	 Inspire future research initiatives 		
	 Participate in the project's events. 		
Targeted dissemination	Hackathons ; Scientific publications and conferences		
actions			
6: Public Authorities and Policy makers			
Public authorities interacted in t	he industrial development, including Standardisation and cortification		
Public authorities interested in the industrial development, including Standardisation and certification			
	Evaluate the project's impact		
Interest in the project	 Consider project's experience for further research or 		
interest in the project	innovation initiativos		
	Cot input for standardisation activities		
	Get Input for standardisation activities.		
Targeted dissemination	Open Days; Robotics Days, ACROBA On-Site Lab;		
actions	Hackathons ; Direct pitch; presentation at European		
	events (ERF, etc)		
7: General public			
Worker unions, civil society representations.			
Interest in the preject	Understand the innovation activities and the benefits on		
interest in the project	social improvement.		
Targeted dissemination	Open Days; Robotics Days, ACROBA On-Site Lab;		
actions	Hackathons ; Website and social media publications		

2.2 Stakeholders database

A stakeholder database (D7.4) was created in M6 by IMR. This database contains 335 DIH contacts (publicly available email addresses). This database was aimed to promote the ACROBA events among DIH networks, who will act as multipliers to disseminate the ACROBA actions and opportunities among European SMEs.





2.3 Monitoring process

EMC2 as WP7 leader is in charge of supporting and monitoring partners dissemination efforts. A continuous monitoring of the communication and dissemination activities has been implemented to measure the quantitative and qualitative impact of WP7 activities and implement corrective actions whenever needed.

ACROBA partner has a news to share	Research results, article, videos, public deliverables, promotion of the project in external events (fairs or conference), organisation of ACROBA specific event, etc
Inform WP7 leader EMC2 + complete the monitoring table	By email (<u>lucie.soulard@pole-emc2.fr</u> or <u>margaux.houllier@pole-emc2.fr</u>) Via Teams on the WP7 channel Share update during the WP7 Monthly Meeting
EMC2 includes the news in the editorial calendar of the project	Take into account regularity of publications
EMC2 and partner work together on content and editing	Ensure that the content is understandable by a wide audience
EMC2 release the news on the website and the social media	The news is also included in the Newsletter EMC2 sends the relevant link to the consortium for futher communication
EMC2 WP7 monitoring and reporting	EMC2 keeps track of dissemination activities, consolidate data and follows up on KPIs
	·

Figure 5. Communication and dissemination monitoring process

A common Excel file has been set up to collect data on all dissemination and communication activities undertaken by project partners. Each partner must report in this Excel file their activities, and provide information such as the type of activity, the date, the place, the target group(s) addressed, the geographical coverage (local, national, European or international), the number of people reached. Pictures, attendance lists and feedback must be saved in the relevant folder on the Teams repository. This monitoring file serves as a basis to complete the technical periodic reports, to keep track of the KPIs and facilitates the identification of risks and deviations related to established objectives and performance indicators previously set.





3. Dissemination activities

3.1. Actions targeting the scientific community

3.1.1 Journal publications

At M48, the project totalizes 6 journal papers published, 1 under review, 4 in preparation.

Table 4. List of journal papers

Journa	Journal papers published (6)				
Title	Authors	Journal			
	BFH				
RTMN 2.0—An Extension of Robot Task Modeling and Notation (RTMN) Focused or Human–Robot Collaboration	C. Zhang Sprenger, J. A. Corrales Ramón, N. U. Baier	Special Issue AI Technologies for Collaborative and Service Robots, applied sciences Journal			
ORPP – An Ontology for Skill-based Robotic Process Planning in Agile Manufacturing	C. Zhang Sprenger, J. A. Corrales Ramón, N. U. Baier	Electronics Journal, Special Issue Application of Artificial Intelligence in Robotics			
	SIGMA				
Multi Actor-Critic for Robot Action Space Decomposition:A Framework to Control Large 3D Deformation of Soft Linear Objects	Melodie Daniel, Aly Magassouba, and Youcef Mezouar	IEEE Robotics and Automation Letters			
	IMR				
Collaborating for Success: Optimizing System Efficiency and Resilience under Industrial Settings	Sunny Katyara, Ted Morell, Francis O'Farell, Philip Long, Court Edmondson	IEEE CASE 2024			
	DEUSTO				
Adaptive Robot Behavior Based on Human Comfort Using Reinforcement Learning	Gonzalez-Santocildes, A; Vazquez, J.I.; and Eguiluz, A.	IEEE Access, vol. 12, pp. 122289- 122299			
Enhancing Robot Behavior with EEG, Reinforcement Learning and Beyond: A Review of Techniques in Collaborative Robotics	Gonzalez-Santocildes, A.; Vazquez, JI.; Eguiluz, A	Applied Sciences. 2024, 14, 6345			
Journal papers in review (1)					
Title	Authors	Journal			
BIBA					





Interaction Clustering in Human-Robot Co- work using Spatio-Temporal Graph Convolutional Networks	Aaron Heuermanna, Zied Ghrairi, Anton Zitnikov, Abdullah al Noman, Klaus- Dieter Thoben	Frontiers in Robotics and AI: Human-Centered Design for HRI in Manufacturing (edited by Marcello Valori, Ganix Lasa, Irene Fassi)
Journal	papers in preparation (4)	
	BIBA	
Key Performance Indicators for Human- Robot Collaboration in Industry 5.0	Zied Ghrairi, Guoyi Xia, Aaron Heuermann	Frontiers in Robotics and AI: Human-Centered Design for HRI in Manufacturing (edited by Marcello Valori, Ganix Lasa, Irene Fassi)
Human-centric risk assessment procedure for human-robot interactive workspaces	Zied Ghrairi, Guoyi Xia, Aaron Heuermann	Frontiers in Robotics and AI: Human-Centered Design for HRI in Manufacturing (edited by Marcello Valori, Ganix Lasa, Irene Fassi)
Technology selection framework for the design of human-centred industrial applications	Zied Ghrairi, Guoyi Xia, Aaron Heuermann, Klaus-Dieter Thoben	TBD
Enhancing Sustainability of Human-Robot Collaboration in Industry 5.0: Context- and Interaction-Aware Human Motion Prediction for Proactive Robot Control	Guoyi Xia, Zied Ghrairi, Aaron Heuermann, Klaus-Dieter Thoben	Journal of Cleaner Production

3.1.2 Scientific conferences

At M48, the project totalizes 11 conference papers published, 2 in process of publishing, 1 under review.

Table 5. List of conference papers

Conference papers published (11)					
Title	Authors	Conference			
DEUSTO					
On the creation of a robotics software architecture for AI-based advanced applications	Ignacio Fidalgo, Alberto Tellaeche, Borja Sanz, Juan- Ignacio Vazquez, Iker Pastor	ETFA 2022, Stuttgart, 6-9 September 2022			
A method for multi-robot arm system implementation using the ROS framework	Ignacio Fidalgo, Alberto Tellaeche, Juan-Ignacio Vazquez	ICMECE 2022, Barcelona, 6-7 October 2022			





On selecting optimal hyperparameters for Reinforcement Learning based robotics applications. A practical approach.	Ignacio Fidalgo, Guillermo Villate, Alberto Tellaeche and Juan Ignacio Vázquez	ICINCO 2023			
	BFH				
Behavior Trees based Flexible Task Planner Built on ROS2 Framework	Thomas Ribeaud, Congyu Zhang	ETFA Stuttgart september 2022			
Robotic Process Automation with Ontology- enabled Skill-based Robot Task Model and Notation (RTMN)	Congyu Zhang, Thomas Ribeaud	IEEE RAAI 2022, Singapore, 09-11 Dec			
	VICOMTECH				
Simulation based initial feasibility analysis pipeline for small-sized part picking	Iñigo Mendizabal, Antonio Tammaro, Marco ojer Andres, Xiao Lin	CEIG, 5-8th july 2022, Vic, Spain			
Robot Controller Parameter Identification for Simulated Environment	Marco Ojer, Xiao Lin, Iñigo Mendizabal	AIRC 2023 9-11 Egypt 2023			
Acroba Gym: A Unity-based ROS compliant simulator for robotics	Marco Ojer, Xiao Lin, Iñigo Mendizabal, Antonio Tammarc	ERF 2024, March 13-15, 2024 - Rimini, Italy			
BIBA					
An Approach for Individual Behavior Labeling in Industrial Assembly	Guoyi Xia, Zied Ghrairi, Karl Hribernik, Aaron Heuermann, Klaus-Dieter Thoben				
Capturing and Modelling Variety of Human- Robot Interactions at Complex Production Workplaces	Aaron Heuermanna, Zied Ghrairi, Anton Zitnikov, Abdullah al Noman	57th CIRP Conference on Manufacturing Systems 2024 (CMS 2024)			
Conference	ce papers in preparation (3)				
	BIBA				
Increase Flexibility for Adaptive Human-Robot Co-Work at Complex Production Workplaces	Aaron Heuermanna, Zied Ghrairi, Anton Zitnikov, Artem Schurig	6th International Conference on Industry 4.0 and Smart Manufacturing			
Towards Human Modelling in Human-Robot Collaboration and Digital Twins in Industrial Environments: Research status, prospects and challenges	Guoyi Xia, MSc, Zied Ghrairi, Thorsten Wuest, Karl Hribernik, Aaron Heuermann, Furui Liu, Hui Liu, Klaus-Dieter Thoben	Robotics and Computer- Integrated Manufacturing			
DEUSTO					
Reinforcement Learning for Dynamic Trajectory Adjustment in Human-Robot Interaction Within Virtual Simulations	Gonzalez-Santocildes, A., Vazquez, JI., Eguiluz, A., Bringas, P.G	HAIS 2024, Salamanca, 9-11 October 2024			





3.1.3 Other scientific outputs

The project totalizes 2 book chapters and 4 PhD thesis.

Table 6. List of book chapters and PhD thesis

Book chapters						
Partner	Title	Authors	Conference or Journal			
IMR	Machine Intelligence for Agile Manufacturing	Sunny Katyara, Lubina Luxmi Dhirani, Philip Long, Ted Morell, Francis O'Farell, Court Edmondson, Bhawani Shankar	CRC book series			
IMR	Benchmarking Sim2Real Gap: High Fidelity Digital Twining of Agile Manufacturing Scenarios	Sunny Katyara, Ted Morell, Francis O'Farell, Court Edmondson	CRC Book Series			
	PhD thesis					
BIBA	PhD Research Proposal Detection, Analysis, and Prediction of Human- Robot Interactions at Complex Production Workplaces	Aaron Heuermann	APMS 2023 IFIP, Trondheim Norway			
DEUSTO	An approach for designing real-world cognitive robotics solutions using deep reinforcement learning	Ignacio Fidalgo-Astorquia	In progress, expected by the end of 2025			
DEUSTO	Reinforcement Learning in Collaborative Robotics: a Study on the Influence of Human Parameters in Robotic Skill Development	Asier Gonzalez-Santocildes	In progress, expected by the end of 2025			
BFH	Process oriented ontology based robotic task planning and modelling	Congyu Zhang Sprenger	In final stage, expected by early 2025			

The link to the open access version of the publications and conference proceedings are uploaded on the ACROBA project website to facilitate the access for potential readers.





3.1.4 Other scientific events and symposiums

Table 7. List of scientific events and symposiums

Year	Partner	Event	Comment / Description
2021	DEUSTO	Workshop on Reinforcement	Exchange and discuss research directions
		Learning for Humans,	and build a community for investigating
		Computer, and Interaction	reinforcement learning problems in human-
			computer interaction.
2022	ROB		Meeting with local Univ. representatives,
			ACROBA presentation
2021	ROB	ROS-days in RoboAI-week	Presentation of ACROBA; Pori Univercity
			consortium and Satakunta University of
			Applied Sciences co-hosted a week with
			seminars and an Innovation Challenge
			hackathon. Two days were dedicated for
			ROS.
2022	ROB	FIIF EVENT: ROBOT	ACROBA was presented to audience
		OPERATING SYSTEM	interested in ROS
2022	BFH	researchXchange of the BFH	Robot Task Model and Notation
2022	BFH	researchXchange of the BFH	Flexible Programming of Industrial Robots
			for Agile Production Environments
2022	IMR	4th International Workshop on	Invited talk and book chapter inclusion
		Functional Reverse Engineering	
		of Machine Tools	
2022	VICOM	Vicomtech Area Day	ACROBA team shared technically with
			around 20 researchers the current status of
			ACROBA. The presentation focused on the
			challenges and explored the possible
			collaborations between other projects in
			Vicomtech and ACROBA.





3.1.5 ROSConFr 2024

A major highlight from the last year of the project was the participation of the ROSConFR 2024, held in Nantes, France. ROSConFr is a scientific and technical conference dedicated to robotics engineering. It covers artificial intelligence, advanced robots and robotics technology. With the increasingly widespread adoption of the ROS open source ecosystem across the robotics community, ROSConFr is the reference conference to interact on this technology.



Figure 6. ROSConFr 2024

The 2024 edition took place over 4 days in June 2024 and attracted over 160 participants from the broader French-speaking ROS community with various profiles: experts, developers and engineers from academia or industry, but also doctoral students and students.

As a sponsor of the event, ACROBA had a great visibility. The project contributed in different activities:

 Organization of a workshop "How to create an assembly task with behaviour trees with the ACROBA platform." This 2hr-workshop gathered 20 participants and was facilitated by BFH and provided a fantastic opportunity to have robotics engineers and





researchers test and explore the functionalities of ACROBA and provide feedback for further developments.

- Pitch of the ACROBA project during the conference, in front of an audience of 160 attendees. The presentation was done by BFH.
- The project also had a booth at the venue of the social / networking evening.





Figure 7. Pictures of the ROSConFr 2024 : ACROBA workshop and ACROBA pitch

3.2 Lectures to students

The academic partners DEUSTO, BFH and SIGMA have trained students to use the ACROBA platform as part of engineering practical courses. In addition, AITIIP, IKOR and MOSES have presented the ACROBA project to students within their networks.





Table 8. List of lectures

	2023				
BFH	Automation course Students build a smart factory assembling fans using ACROBA to				
	handle the parts from the 3D printer and putting them on the AMR.				
	Duration of the course: 8 weeks				
DEUSTO	Reinforcement learning				
	Description of the Deep Reinforcement Learning module design for ACROBA,				
	demonstration of use, analysis of prospective industrial applications. Discussion about				
	the technical requirements for developing the course project using the ACROBA				
	architecture.				
	⇒ 4-hr course given to 35 students from 4th year of Bachelor's Degree in Data Science				
	and AI				
DEUSTO	Reinforcement learning				
	Description of the Deep Reinforcement Learning module design for ACROBA,				
	demonstration of use. Comparison with other approaches. Discussion about the				
	technical requirements for developing the course project using the ACROBA				
	architecture.				
	\Rightarrow 4-hr course given to 24 Students of the Master's Degree in Computation and				
	Intelligent Systems				
DEUSTO	Intelligent robotics				
	Introduction to the ACROBA architecture and the Deep Reinforcement Learning module.				
	Skill develoment using the DR module. Analysis of the interfaces between Gymnasium				
	and ROS and their associated technical requirements.				
	⇒ 4-hr course given to 15 students in 4th year Robotics Engineering				
SIGMA	ACROBAHand project – industrial project				
	Students' project spanning over 2 semestered and consisting in building a gripper that is				
	able is pick small electronic components.				
	Course for graduated students over 2 semesters				
AITIIP /	ACROBA presentation to Students and teachers from Industrial Mecatronics studies (30				
MOSES	people).				
	2022				
BFH	Distributed Control Systems Lecture 3: Acroba				



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	The structure and the benefits of using Acroba have been presented as part of an		
	advanced laboratory course in automation technology. Emphasis was put on flexible		
	programming of robots and its advantages in production of smaller lot sizes.		
IKOR	Prentation of Acroba project to students from Industrial Electronics Engineering from		
	TECNUN		
MOSES /	Dummy Tool showcasing and presentation of ACROBA project to 30 bulgarian		
AITIIP	commerce students form Erasmus + Programme		
2021			
DEUSTO	Advances in application of AI techniques		
	the ACROBA project was presented and discussed, especially in terms of AI applied to		
	robotics and its implications. The event inc reased awareness about application of AI in		
	robotics and its implications and helped to gather students interested in colaborating in		
	research and final-degree projects, aligned in ACROBA goals.		





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Figure 8. Lectures at BFH and DEUSTO

3.3 Actions targeting industrial stakeholders

3.3.1 Industrial fairs

The ACROBA project partners attended a number of industrial fairs, where they promoted ACROBA among an audience of industrials.





Partner	category	Event	Location	scope
BIBA	oral presentation	Hannover Messe 2021	Online	international
AITIIP	oral presentation	Advanced Factories 2022	Zaragoza, Spain	national
AITIIP	booth / demonstration	Advanced Factories 2022 Industry 4.0 Congress	Barcelona, Spain	international
BFH	oral presentation	Burgdorfer Industrienacht	Burgdorf	local
AITIIP	oral presentation	SUM 2022	Capri Island	international
ICPE	oral presentation	Eurosatory 2022	Paris, France	international
ICPE	oral presentation	Space and Security for Eastern Europe	Bucharest, Romania	international
BFH	booth / demonstration	Schweizer Digitaltage	Biel	national
BFH	oral presentations	SAMCE 2022	Zürich	national
AITIIP	Networking	Metalmadrid /Advanced Manufacturing	Madrid	international
EMC2	Booth / demonstration	Robot4Manufacturin g	La Roche sur Yon	local
AITIIP	oral presentation	COMPOSIFORUM 2022	Zaragoza, Spain	international
NUTAI	booth / demonstration	Hispack 2022	Barcelona, Spain	international

Table 9. List of industrial events





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NUTAI	booth / demonstration	BIEMH 2022	Bilbao, Spain	international
IKOR	Networking	BIEMH22 - BEDIGITAL22	Bilbao, Spain	international
EMC2	Oral presentation + booth / demonstration	Full Robotics 2023	La Roche sur Yon, France	local
ALL	Oral presentation + booth / demonstration	Automatica 2023	Munich, Germany	international
AITIIP	booth / demonstration	Meetech 2023	Madrid, Spain	national
BFH	booth / demonstration	SINDEX 2023	Bern, Switzerland	national







...



Our partner NUTAI is presenting the ACROBA project at BIEMH - Bienal
Internacional de Máquina - Herramienta, the International Machine-Tool Exhibition
in Bilbao I

Meet them booth 3/A-19 until tomorrow 18:00 PM !

Monica Perez • 1st



Electronics Engineer with a Master of Engineering 2yr • 🔇

ACROBA project present in BIEMH - Bienal Internacional de Máquina -Herramienta.





😁 ACROBA in Barcelona

NUTAI and Cabka presented the ACROBA project in #collaboratePack in #hispack2022, the leading Spanish fair for packaging innovation

A good example of the many possible applications of the ACROBA platform, which has the potential to be used in any industry applying agile production principles.



....

Monica Perez • 1st Electronics Engineer with a Master of Engineering 2yr • **(**

Cabka visits NUTAI in #collaboratePack in #hispack2022 Barcelona. Both companies present ACROBA project to the packaging industrial sector.



Figure 9. Fairs attended by ACROBA partners





Among those events, a major highlight was ACROBA's participation in Automatica **2023**: the ACROBA consortium attended this leading fair in smart automation and robotics in Munich, Germany in June 2023. This event attracted over 40 000 visitors from 92 countries and hence represented a unique opportunity to showcase ACROBA. In addition to a booth presence with a robot demonstration, this event was an opportunity to conduct a market survey among potential end users to nurture the exploitation strategy of ACROBA. On the top, ACROBA was selected to pitch¹ during the Automatica Forum, which was a great opportunity to raise awareness of the project among top players in the field of automation.







Figure 10. ACROBA partners at Automatica 2023

¹ The pitch is available on Youtube :

https://www.youtube.com/watch?v=si2Z17y5oJE&list=PLGD8fyzcQSRGecH03QKIIh8VnKYb4yHCj&in dex=12&t=1s





3.3.2 Open Days and trainings

ACROBA partners actively engaged with their industrial networks by organizing sites visits at their facilities to present the ACROBA pilots and provide trainings to professionals.

Partner	Activity	Comment / Description		
AITIIP	Open Day	Presentation of ACROBA during AITIIP Open Day;		
		presentation of the dummy tool functionalities.		
IMR	Open Day	Industry Members Network Day in IMR's Advanced		
		Manufacturing Lab in Mullingar with 160+ people on site.		
STER	Open Days	Visit of the ACROBA pilot cell.		
NUTAI	Training to	NUTAI explains its client FORD about ACROBA and its		
	professionals	objectives in the context of a training course, over 10		
		sessions, along the year 2022. Keep our customer informed		
		of new advances in the collaborative technology.		
AITIIP	Training to	Training to professionals - Project presentation and Dummy		
	professionals	Tool's functionalities showcasing to 30 industrial		
		manufacturing professionals from Italy.		
NUTAI	Oral presentation	Presentation of ACROBA to an industrial audience among		
		the new reconversion and oportunities that are arising in		
		collaborative robotics in the automotive industry. Event		
		hosted by Universal Robots.		
AITIIP	Oral presentation	Presentation of ACROBA and demonstration of the Dummy		
	and demonstration	Tool at the scientific seminar at Aitiip's headquarters to		
		dozens of companies involved in IA.		
NUTAI	Oral presentation	Provate technical presentation - NUTAI explains its client		
		FORD about ACROBA and its objectives. Keep our		
		customer informed of new advances.		
ROBOCOAST	Direct pitch	Meeting with potential customer, Digital Twin creator		
		company ALL3D Ltd.		

Table 10. List of events targeting industrials





ROBOCOAST	Oral presentation	Bi annual meeting with professionals from manufacturing			
		industry and robot specialist. Presentation by Juha of the			
		concept of agile manufacturing and how ACROBA can help.			
IKOR	Networking with	Presentation of Acroba project to the Basque Goverment in			
	public authorities	order to get it visualized. basque Goverment is a key to			
		introduce Acroba project to industrial partners.			
BFH	Networking with	Burgdorfer Industrienacht - Municipality of Burgdorf			
	public authorities	organised a public event addressing all kind of public to get			
		informed about industrial progress in the region. BFH			
		presented its work in Acroba and possible uses of			
		collaborative robotics.			
NUTAI	Webinar	Webinar targeting industry stakeholders with a focus on the			
		technical problems in the industrial automation need to be			
		addressed.			
IKOR	Webinar	Webinar targeting industry stakeholders with a focus on the			
		technical problems in the industrial automation need to be			
		addressed.			
EMC2	Workshop	Matinée Techno EMC2 - Oral presentation of ACROBA			
		during workshop organized by EMC2 "Vers l'industrie 5.0			
		L'humain au cœur de l'industrie".			



Figure 11. Open Day organised by STERIPACK, 2024





3.3.3 Robotics Days

In May 2024, Pôle EMC2 in collaboration with ROBOCOAST organized a Robotics Day in the region of Nantes, France. Targeting industry players in the region, this 1-day event gathered 80 participants with an agenda focused on round tables and demonstration around novel solutions in the field of AI and robotics for the industry. This event also had a European scope since it provided an opportunity to establish connections between EDIH DIVA (Pays de la Loire, France) and EDIH ROBOCOAST to discuss collaboration opportunities.



Figure 12. Robotics Day organized by EMC2, 2024

3.4 Actions targeting the robotics community and relevant networks

3.4.1 European Robotics Forum

The ACROBA project was represented each year at the European Robotics Forum, the most influential gathering of the robotics community in Europe.

Event	Location	Comment / Description
ERF 2021	Online	Oral presentation
ERF 2022	Rotterdam, The Netherlands	Networking
ERF 2023	Odensee, Denmark	Booth presence and poster presentation
ERF 2024	Rimini, Italy	Workshop + booth

Table 11. List of ERF editions attended







Figure 13. ACROBA at ERF 2022 and 2023

In particular, the project had a strong presence in the 2024 edition of ERF:

 Organization of a workshop entitled "Shaping Tomorrow's Factory: HRC and Agile Production" together with sister projects ODIN and DrapeBot. In this workshop,





partners from STAM, BFH, and STERIPACK delved into the objectives and challenges of implementing cutting-edge technologies across various industrial sectors.

- Booth presence to facilitate connections with stakeholder from the sector as well as DIH networks (ROBOCOAST).
- Presentation of a conference paper by VICOMTECH: "ACROBA Gym: a Unity-based ROS compliant simulator for robotics".



Figure 14. ACROBA at ERF 2024





3.4.2 Other robotics events

Table 12. List of robotics events

Year	Partner	Comment / Description	Location	scope
2023	EMC2	West Data Festival	Laval,	local
		Oral presentation of ACROBA	France	
2023	ROBOCOAST	Teknologia Expo 2023	Helsinki,	national
		Shared booth between ACROBA,	Finlande	
		Robocoast EDIH and Level Up		
2023	ROBOCOAST	Teknologia Expo 2023	Helsinki,	national
		Oral presentation of ACROBA	Finlande	
2022	EMC2	Nantes Digital Week Booth presence	Nantes	local
		to showcase ACROBA at the Nantes		
		Digital Week. Conference "la robotique		
		au service de l'humain"		

...



This month, Pôle EMC2 took part to the The West Data Festival, the annual meeting place for #SMEs to discover, test and learn about AI and data management.

A new opportunity to showcase the ACROBA project as an example of a promising #AI-driven solution for #manufacturing companies !

And you, have you heard of ACROBA ? Ask your questions in the comments and visit the ACROBA website below $\$ https://acrobaproject.eu/

C Thanks to Josselyn Touzeau, PhD for his contribution !







Figure 15. ACROBA at the West Data Festival 2023 and Teknologia Expo 2023





3.4.3 DIH network

DIH² is a European network of robotics DIHs for Agile production. ACROBA partners IMR, ROBOCOAST and EMC2 were actively involved in this network and used it as a platform to disseminate the ACROBA project.

Date	Place	Partner	Description
		involved	
28/06/2022	Rotterdam	ROBOCOAST	Participation to DIH2 meeting.
20/10/2022	Bratislava,Slovakia	ROBOCOAST	ACROBA was used as an example in a workshop how to use AI to solve industry problems. Networking with manufacturing DIHs.
12/07/2023	Mullingar, Ireland	IMR	ACROBA demonstration during the DIH2 final meeting held at IMR.

Table 13. List of DIH ² events att	tended
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The final meeting of the DIH² project was held at IMR in Mullingar, Ireland in July 2023. On this robotics day, a visit of the ACROBA cell was included, giving the opportunity to present a demonstration do the 37 partners of the DIH² consortium.



Figure 16. Visit of the ACROBA cell during the final DIH2 meeting at IMR, 2023





3.4.4 Links with other clusters and EU-projects

Specific attention has been paid to developing strong links with other relevant EU-funded projects and initiatives to exploit synergies and collaboration opportunities. In particular, ACROBA was actively involved in the working group coordinated by the Robotics4EU project together with the other ICT-46-2020 projects. In addition, ACROBA co-organized a workshop together with the sister projects DrapeBot and ODIN at ERF 2024.

Year	Partner	Comment / Description
2021	STAM	ACROBA project was presented as an example of a European funded project in the field of collaborative robotics
2021	BIBA	Presentation of ACROBA at the kick off meeting of a new lunched Erasmus+ Project
2021	STAM	RAIC is a virtual conference on cross-sectoral innovation. The matchmaking event brings together stakeholders from a large number of European countries to generate cross-sectorial collaboration driving innovation through Advanced Robotics, AI, IoT, Cybersecurity and Data technologies. ACROBA project was presented as an example of project in the field of collaborative robotics
2021	BIBA	Event "Batir les competences humaines pour l'industrie du futur" organised to present interesting research and innovation activities, how research/innovation projects could contribute to business creation, success stories for Business Creation(start-ups), Industry 4.0 technologies and application scenarios. Presentation of ACROBA platform and use-cases.
2022	AITIIP	Attendance to the METRIC webinar, contact with ACRE project. In ACRE, robots and smart implements demonstrate their ability to perform agricultural tasks requiring autonomous capabilities. These abilities are crucial for the transition of traditional agricultural practices to Agriculture 4.0, where Artificial Intelligence and Robotics support Precision Agriculture
2022	BFH	Presentation of ACROBA recent achievements to representatives of ICT-46-2020 projects
2023	BIBA	Presentation and demo at ZIM-MRK Network meeting in BIBA
2023	BIBA	Presentation and demo at Rotary Club meeting in BIBA

Table 14. List of clustering actions





2024	EMC2 -	Meeting EDIH ROBOCOAST – EDIH DIVA alongside the Robotics Day organized
	ROB	by EMC2

3.5 ACROBA Hackathons

The ACROBA project has actively engaged the academic and industrial communities through a series of hackathons across Europe. The "Acrobathons" contributed to disseminate the project outputs towards all targeted audience groups, to build a community around the ACROBA solution, and strengthen collaboration with the robotics DIH.

The Acrobathons are largely inspired by the hackathons, these competition-style events where a project must be completed in a short time frame (typically 24 or 48 hours) and are designed to bring developers, designers, innovators, and other domain experts together to solve specific problems. Hackathons are inclusive, agile, multidisciplinary, and collaborative. They lead to shorter innovation cycles and hence are ideally suited to ensure that the ACROBA solution will be adopted and taken to the next level by the community.

The original plan was highly ambitious: it included the organization 11 mini-Acrobathons and 1 Master-Hackathon during the project lifespan. The mini-hackathons included:

- 8 mini-Acrobathons organized by consortium members.
- 3 mini-Acrobathons organized by DIH. DIH orchestrators would have to provide a usecase of agile production coming from a manufacturer of their region. Two DIH will be supported by ROBOCOAST, and one by EMC2, with guidelines and meetings at their facilities two days ahead of the event to help to settle the details and promote ACROBA with a dedicated booth on site during the event. The DIH organizing the further 3 minihackathons will be selected on the bases of a call for expressions of interest that will include the capacity to provide SME industrial use case as basis for the mini-hackathon challenge.

As recommended by the Project Officer and the reviewers after the review meeting held at M27, the consortium partners have agreed on reducing the number of mini-hackathons initially planned (11) in order to redirect part of the dedicated budget and efforts towards activities that





will target more directly potential users of the ACROBA solution. This deviation made it possible to ensure a participation of ACROBA in major events: the industrial fair Automatica 2023, the European Robotics Forum 2024 and the ROSConFr 2024. These three events are served as replacement of hachathons.

According to this new action plan, the ACROBA consortium has delivered 5 mini-hackathons and 1 master-hackathon with 3 mini-hachathons. All together these events have gathered +150 participants.

The majority of these hackathons have been organized in the last period of the project:

Partner	Date	#acitive participants for competition
DEUSTO	Dec 2022	24
BFH	Mar 2024	8
BIBA	Apr 2024	8
SIGMA	May 2024	16
IMR	Oct 2024	15
ROB&BFH + VICOM + BIBA – > ROB Mega-hackathon	Oct 2024	64

Table 15. List of ACROBA hackathons

A detailed overview of the hackathons organized by the ACROBA project is available in *D7.6 Report on the hackathons.*







Figure 17. ACROBA hackathons: DEUSTO (2022), BFH, IMR, SIGMA (2024)



Figure 18. ACROBA hackathons: BIBA









Figure 19. ACROBA Master-hackathon organized by ROBOCOAST and VICOMTECH in Finland, 2024

4. WP7 KPIs

The Key Performance Indicators have been established as follows:

Table 16. Communication and dissemination KPIs

No.	Indicator	Method of measurement	Target	Update M48	% completion
1	Project website / Stats	No. of unique visitors	5000	5000	100%
2	Peer-reviewed articles	No. of published articles	8	14	175%
3	Articles in industry magazines	No. of published articles	16	6	38%





	Articles and interviews in				
	industry magazine and media				
4	Participation at conferences (no.	No. of conferences,	12	13	108%
	of visitors >1000), target events	workshops, events,			
	with presentation/ papers	attended			
5	Participation at conference,	No. of visitors to presentation	1500	1500	100%
	target events with	/ poster /			
	presentation/poster/paper in	conference booth			
	proceedings				
6	Organisation of Hackathons or	No. of successful	12	12(9+3)	100%
	alternative events	Hackathons completed or			
		alternative events			
7	Organisation of target events	No. of events organised	6	6	100%
8	Organisation of target events	No. of participants	400	300	75%
9	Dissemination to networks and	No. networks and on-going	10	11	110%
	on-going projects. e.g. DIH2, AI	projects			
	Europe, AI4EU,				
10	Dissemination to networks and	No. of professionals/	1000	1000	100%
	on-going projects	organisations			
11	Relevant stakeholders' peer-to-	No. of relevant stakeholders	200	200	100%
	peer contact	contacted			
12	Relevant stakeholders involved	No. of relevant stakeholders	100	100	100%
		involved			
13	Interviews with public media	No. interviews on media	3	2	67%
14	Movie/clips	No. of published movies/clips	2	2	100%
15	Press release	No. of press releases	3	1	25%
		published			

5. Conclusion

Throughout the ACROBA project, significant efforts were dedicated by the project partners to communication and dissemination activities to maximize the visibility and impact of the project's outcomes. Key actions within WP7 included the development of a comprehensive communication strategy, the creation and maintenance of a dynamic website, and the active management of social media channels to engage stakeholders and promote project milestones.





Targeted publications in scientific journals, as well as presentations at international events, ensured the widespread dissemination of project results. The project was promoted in multiple events at the regional, national and European level to engage with stakeholders from industry, research, and the relevant robotics networks. In the last period of the project, the main highlights were:

- Automatica 2023
- European Robotics Forum 2024
- ROSConFr 2024
- Completion of the series of 8 mini-hackathons + 1 mega-hackathon

These actions have successfully contributed to raise awareness of ACROBA's achievements and laid the groundwork for the exploitation of the project's results beyond its conclusion.