



ARTEMIS

The Power of Virtual Twins to Fight MASLD

D1.3 – RECORD OF DISSEMINATION AND COMMUNICATION ACTIONS UNDERTAKEN IN THE PREVIOUS 12 MONTHS, AND UPDATED PLAN

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Project acronym: *ARTEMIS*

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INTRODUCTION

The primary goal of this deliverable is to outline the communication tools and materials developed by ARTEMIS partners, under ELPA's guidance, over the past year to reach the different target groups.

This annual report summarises the dissemination and communication activities undertaken in the project year 1 by the Consortium members.

The target segment of patients and the civil society is of particular interest. This deliverable also compiles actions targeted to project's followers and civil society, informed and involved by sharing the project's achievements and their significance. To ensure accessibility, both the language and format of these materials have been carefully tailored to meet the needs of this audience.

The key objectives of Communication and Dissemination Work Package include:

- Bridging the gap between scientific, commercial, and patient-centered information;
- Increasing public awareness;
- Translating scientific findings into commercially relevant insights for stakeholders;
- Informing patients and the public about the study's progress;
- Sharing results in both traditional and online formats, aimed at commercial, medical, and patient audiences.

1. Legal basis

The project is funded by the Horizon Europe programme of the European Union (EU), aligned with Grant Agreement No. 101136299. Both the Grant Agreement and Consortium Agreement hold authority over this document, with the Grant Agreement taking precedence in all situations.

2. Digital presence

In EU research initiatives, a strong digital presence is indispensable. It embodies transparency, accessibility, and collaboration, creating a network that connects researchers, patients, policymakers, and the general public.

At the foundation of this digital landscape are the principles of openness and accessibility. By leveraging dedicated websites, social media, and online databases, EU research projects make information available to the public and interested stakeholders, ensuring that updates on current programs, progress, and key data are easily accessible. This openness fosters an inclusive environment where anyone can explore the latest research developments in detail.

A robust digital presence also facilitates the effective dissemination of essential information. Findings, publications, and breakthroughs can be shared promptly across multiple digital platforms, not only educating the audience but also encouraging collaboration and innovation within the research community. This real-time sharing sparks dialogue and feedback, advancing the collective pursuit of knowledge.



Beyond academia, a strong digital presence empowers patients and the general public by offering understandable insights into complex scientific topics. Accessible language, interactive content, and multimedia simplify research, helping individuals make informed decisions and increasing awareness of health-related issues. This aspect promotes public health literacy, creating a more informed society that engages with ongoing research.

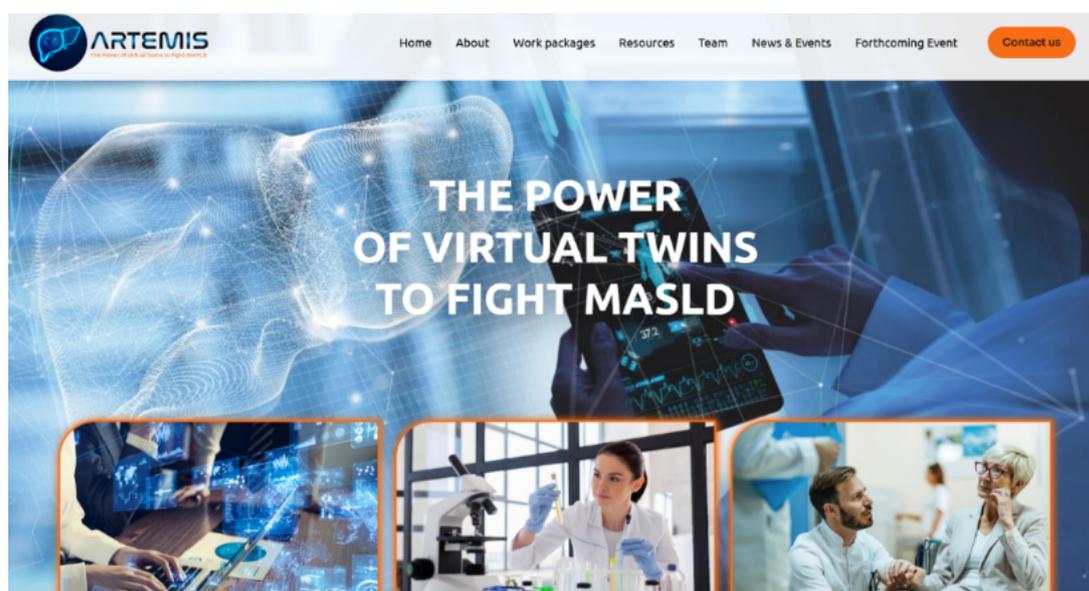
Moreover, an effective digital presence enhances visibility and support. Showcasing success stories, impactful outcomes, and the societal importance of research draws attention from a wide range of stakeholders, emphasizing the value of these initiatives and boosting their potential for positive change.

The adaptability of digital platforms also supports the evolution of EU research projects. Integrating new technologies, interactive features, and multimedia ensures that these initiatives stay relevant, responsive to emerging needs, and capable of engaging diverse audiences effectively.

In short, a well-established digital presence is essential for EU research projects. It promotes accessibility, transparency, engagement, empowerment, visibility, and adaptability, bridging the gap between science and society to ensure that impactful research resonates with and benefits the wider world.

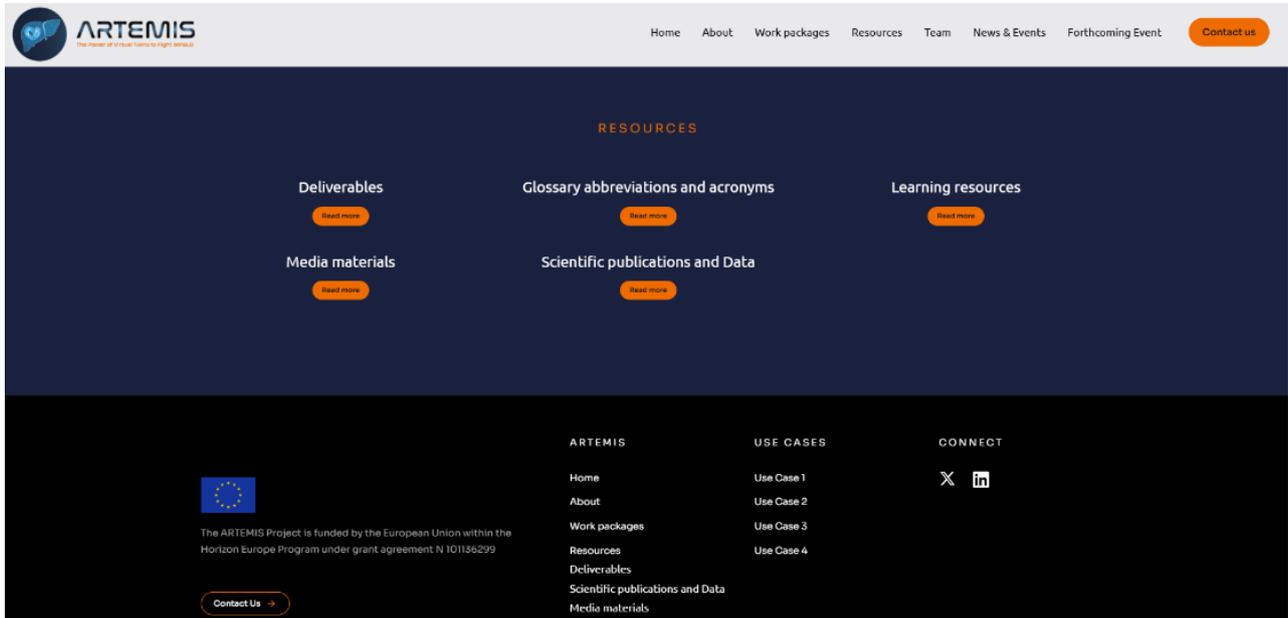
2.1 ARTEMIS website

The ARTEMIS website (artemis-euproject.eu) has been launched in July 2024 and has had already 6872 individual visitors since its launch, and 15 108 visits in total. The website is used as the primary platform for public communication, dissemination, and engagement. It hosts essential information, project updates, results, scientific publications, public deliverables, and other reports generated by the project. The website also serves as a central hub for training, learning activities, and patient engagement, providing a comprehensive knowledge center for all stakeholders. Visitors can learn about the project's objectives and methodology, explore the various work packages, and find an in-depth overview of each partner. Downloadable resources and explanatory materials are already available to the public, with additional resources to be added as the project advances.



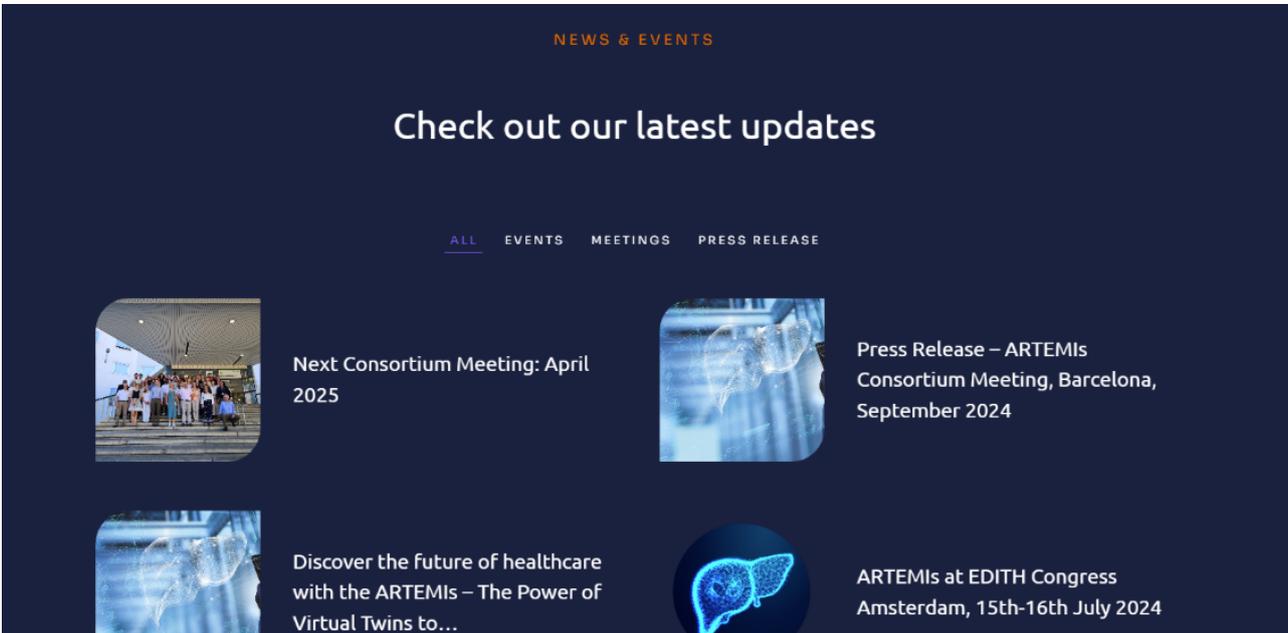
Dedicated Patient Section:

Acknowledging the essential role of patients, ARTEMIS offers a section specifically designed for them. This space provides accessible information, helpful resources, and relevant updates to support and empower patients and their families throughout their journey.



Events Space:

A dedicated section features an overview of upcoming workshops, seminars, and conferences. These events provide valuable opportunities for knowledge sharing among researchers, healthcare professionals, patients, and other stakeholders.



ARTEMIS website is also shared on the ELPA website, in the EU Research projects section:



**14. Artemis**www.artemis-euproject.eu/

In 2023, ELPA web page traffic counted more than a million visitors.



2.2 Scientific publications

As of yet, there is no scientific publications for year 1 of the ARTEMIS project.

2.3 Social media presence

The ARTEMIS projects owns 2 social media accounts. On X, ARTEMIS counts 55 followers, and 241 on LinkedIn.

Those social media accounts are mainly used to publish updates on project progress and share important insights relevant to our followers in a language that is easily understandable by the general public.

ARTEMIS - The Power of Virtual Twins to Fight MASLD
243 abonnés
4 mois • Modifié •

Discover the future of healthcare with the **ARTEMIS - The Power of Virtual Twins to Fight MASLD** EU #FattyLiverMonth #FattyLiverDay

Join us in witnessing a groundbreaking collaboration in the fight against Metabolic-Associated Steatotic Liver Disease (**#MASLD**), affecting over 25% of Europeans. The ARTEMIS EU project unites the brightest minds in computer modeling and clinical practice to leverage the power of virtual twins in revolutionizing healthcare.

Meet part of the visionary leaders:
Mario Aznar: Project Coordinator, Founding, and Managing Partner **MATICAL**
Irene Vignon-Clementel: Scientific Director and Research Director, **Inria**
Vlad Ratziu: Clinical Director and Professor of Hepatology, **IHU ICAN**
Cristina d'Almeida: Consortium Building Leader, Scientific Director at **Medexprim /BC Platforms**
Laure Saint-Aubert Project Director, **Medexprim / BC Platforms**

Listen as these giants of ARTEMIS discuss the integration of cutting-edge technology into healthcare. Learn about the innovative strategies aiming to transform the care of MASLD patients through the promising potential of virtual twins.

Don't miss this fascinating insight into how ARTEMIS is poised to make a significant impact on the European Liver Patients' community. **European Liver Patients' Association - ELPA**

Watch the video now and be part of the revolution in healthcare!

ARTEMIS - The Power of Virtual Twins to Fight MASLD
243 abonnés
4 mois • Modifié •

Embark on a Journey with ARTEMIS: A Revolution in Fatty Liver Disease Management!

Today is #FattyLiverDay and this month is #FattyLiverMonth! Let's raise ... plus

Afficher la traduction

ARTEMIS
The Power of Virtual Twins to Fight MASLD

2 ORGANS
7500 PATIENTS
10 BILLIONS
4 YEARS
9 WORK SPACES
4 CLINICAL CASES
21 PARTNERS
9 COUNTRIES

3 commentaires - 5 republications

J'aime Commenter Republier Envoyer

ARTEMIS - The Power of Virtual Twins to Fight MASLD
243 abonnés
6 mois • Modifié •

Witness the dawn of a new era in healthcare! The kickoff meeting for **#ARTEMIS** research EU project heralds a groundbreaking initiative to combat **#FattyLiverDiseases**. Join us as we unite clinicians, modelers, patients, and regulators to pioneer personalized medicine tools. With a focus on a regulatory-grade **#MASLD** cohort, Liver & Heart Virtual **#Twins**, and a user-friendly smart dashboard, ARTEMIS is set to lead the charge against Fatty Liver Diseases. 🙌 **#HealthcareInnovation** **#MedicalResearch** **#PersonalizedMedicine**

ARTEMIS - The Power of Virtual Twins to Fight MASLD
Laure Saint-Aubert **Cristina d'Almeida** **EU Health and Food Safety** **WHO Regional Office for Europe** **Medexprim** **Cliniques universitaires Saint-Luc** **European Liver Patients' Association - ELPA** **Bournemouth University** **Imperial College London** **AP-HP, Assistance Publique - Hôpitaux de Paris** **IHU ICAN (La Fe Health Research Institute | IIS La Fe** **MATICAL** **Sheba Medical Center, Tel Hashomer** **Charité - Universitätsmedizin Berlin** **Heidelberg University @University Biochemistr Center** **Universitätsklinikum Freiburg** **Universität Leipzig** **DKFZ German Cancer Research Center** **Bethera Medical University of Vienna** **Sapienza Università di Roma** **Inria** **Marko Korenjak** **Veronika Všeticková** **Milan Mishkovič**

Afficher la traduction



ARTEMIS's social media accounts are also used to post ambitious social media campaigns explaining the project with more details.

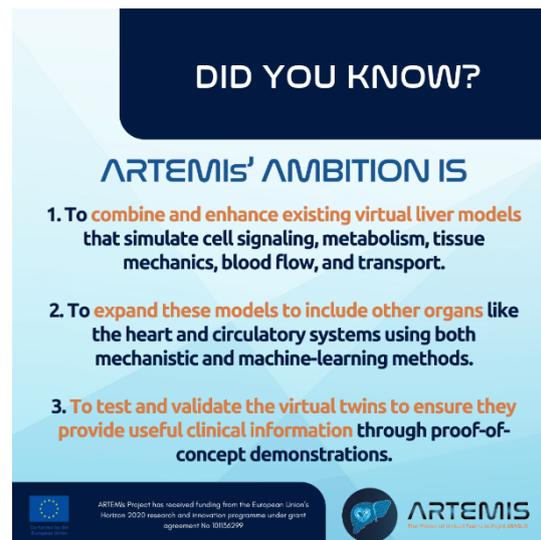
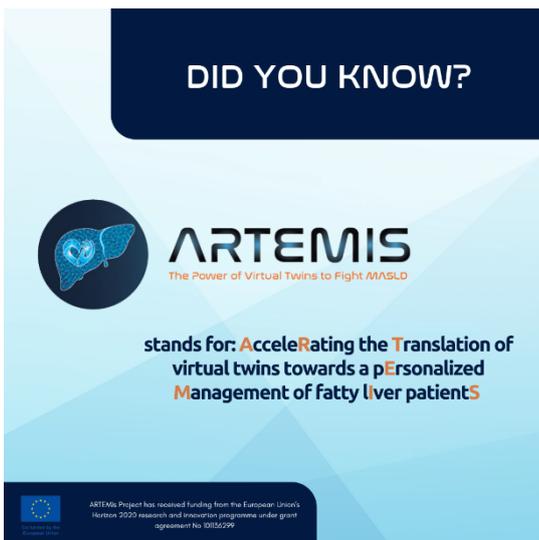
2.3.1 Social Media Campaign – ARTEMIS' partners

Starting at the end of the year 2024, ELPA developed 21 posts about the ARTEMIS project partners that were disseminated on LinkedIn and X. Visuals that incorporated the ARTEMIS' graphic style were created, with the inclusion of the logo of the partner and the country they are based in, to increase interest of the public in the ARTEMIS project and its partners.



2.3.2 Social Media campaign – Facts about the project

A second social media campaign was disseminated at the same time, consisting of 19 informative posts about the ARTEMIS project to increase visibility and curiosity of the general population.



2.3.3 ARTEMIS on other partners' social media

ARTEMIS' partners also contributed in promoting the project through social media.

-Medexprim/BC Platforms shared a few LinkedIn posts about the ARTEMIS project, notably on the launch of the project at the beginning of the year, as well as a couple reposts from other partners. The BC Platforms website with an ARTEMIS section in the EU Consortia page was also launched this year.

BC Platforms
8 555 abonnés
10 mois

BC Platforms congratulates our newest group member, **Medexprim**, on the launch of the ARTEMIS consortium, founded by the **CCPEX European Commission**. A proud funding partner, Medexprim joins forces with 20 leading institutions in 9 countries to reshape the European landscape of Metabolic dysfunction-associated fatty liver disease management (**#MAFLD**) with a 7500-patient **#cohort**, **#heart** and **#liver** Virtual Twins, and a cutting-edge Clinical Decision Support System (**#CDSS**). Cheers to @ARTEMIS striving to make personalized management the norm for MAFLD patients!

#ARTEMIS #HealthcareInnovation #Medexprim #BCPlatforms #HorizonEurope #VirtualTwins #PersonalizedMedicine

Afficher la traduction

Medexprim
4 089 abonnés
10 mois

Launch of ARTEMIS consortium: The Power of Virtual Twins to Fight MAFLD
As a proud funding partner, Medexprim has embarked on a visionary research journey with 20 leading institutions to redefine the landscape of **#MAFLD** management.

ARTEMIS - The Power of Virtual Twins to Fight MASLD will lead the way towards redefining the approach to Europe's leading chronic liver disease, with **#liver** and **#heart #VirtualTwins** and a state-of-the-art Clinical Decision Support System (**#CDSS**).

Medexprim is delighted to host the Kick-Off Meeting of this groundbreaking initiative on February 7 at the **PariSanté Campus**, with representatives from all partner institutions.

Keep informed and be part of the discussion as we work to set the stage for a future where personalized management becomes the norm for Metabolic dysfunction-associated fatty liver disease patients!

#ARTEMIS #MAFLD #PersonalizedMedicine #HealthInnovation #EuropeanResearch #HorizonEurope
European Commission MATICAL, Laura Muñoz Senovilla, Mario Aznar, Cristina d'Almeida, Montaine Marteau, Laure Saint-Aubert, BC Platforms, Thea Braren

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27 6 commentaires · 1 republication

Medexprim
10 mois

Launch of ARTEMIS consortium: The Power of Virtual Twins to Fight MAFLD
As a proud funding partner, Medexprim has embarked on a visionary research journey with 20 leading institutions to redefine the landscape of **#MAFLD** management.

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#ARTEMIS #MAFLD #PersonalizedMedicine #HealthInnovation #EuropeanResearch #HorizonEurope
European Commission MATICAL, Laura Muñoz Senovilla, Mario Aznar, Cristina d'Almeida, Montaine Marteau, Laure Saint-Aubert, BC Platforms, Thea Braren

Afficher la traduction

ARTEMIS - The Power of Virtual Twins to Fight M...
258 abonnés
10 mois

LAUNCH of #ARTEMIS.
Embark on a groundbreaking journey with ARTEMIS, an EU-funded marvel set to redefine the landscape of Metabolic dysfunction-associated fatty liver disease (**#MAFLD**) management. Launched on January 1st, this visionary initiative seeks to revolutionize the approach to Europe's leading chronic liver disease, surpassing viral hepatitis and alcohol-related causes. ARTEMIS envisions a future where advanced liver and heart **#VirtualTwins**, coupled with a cutting-edge clinical decision support system (CDSS), collaboratively pave the way for personalized management of **#MAFLD** patients. Join us in this extraordinary endeavor to accelerate the translation of virtual twins into a **#personalizedtriumph** over the complexities of MAFLD!

Our amazing partners:
EU Health and Food Safety WHO Regional Office for Europe Medexprim Cliniques universitaires Saint-Luc European Liver Patients' Association - ELPA Bournemouth University Imperial College London AP-HP Assistance Publique - Hôpitaux de Paris IJH IGCAN La Fe Health Research Institute IJIS La Fe Vall d'Hebron Barcelona Hospital Campus MATICAL Sheba Medical Center, Tel Hashomer CHARITE UNIVERSITÄTSMEDIZIN BERLIN Heidelberg University Biochemistry Center Universität Freiburg Universitäts-Klinikum Universität Leipzig DKFZ German Cancer Research Center Betherra Medizinische Universität Wien Sapienza Università di Roma Inra

#Innovation #data #clinicaltrials #horizonEurope #personalizedmedicine #realworlddata

Afficher la traduction

ARTEMIS

Accelerating the Translation of virtual twins towards a personalized Management of fatty liver patients

ARTEMIS is a four-year research project, aiming to co-design and develop a POC of a Clinical Decision Support System (CDSS)—a cutting-edge clinical visualization tool—offering an overview of patient multimodal data and therapeutic decision-aid, thanks to the integrated virtual twin models. The CDSS provides dynamic and multilevel representations of tissues and organs and will provide support to clinicians to achieve early diagnosis, prediction of disease evolution, assessment of cardiovascular outcomes, and guidance towards specific treatments or interventions. This will mark a significant leap forward in MAFLD patient's healthcare

Medexprim, member of BC Platforms Group, is the architect and a proud participant of ARTEMIS.

This project has received funding from the European Union within the Horizon Europe program under grant agreement N°101136299.

Learn more about **ARTEMIS**.



-ARTEMIS partners participated in promoting the ARTEMIS project on social media, by posting their original content, or by reposting other partners' content.

2.4 Social media - analytics

Twitter/X: Since the creation of ARTEMIS' X account, the follower count went from 0 to 55 followers, demonstrating strong growth for a new presence. In total, the ARTEMIS X account posted or reposted 71 times, accumulating 122,300 impressions, reflecting substantial reach and visibility. Engagement metrics show a total of 177 likes and 160 retweets. The most engaged hashtags were #MASH, #MASLD, and #LIVERCANCER, indicating the content resonated well with communities around these topics.

LinkedIn: Starting at 0, the account grew to 253 followers/connections, showing impressive growth within a professional network. LinkedIn's 57 posts achieved a total of 26,261 impressions, highlighting robust content visibility. LinkedIn posts saw significant interaction with 858 combined reactions, 33 comments, 27 reposts, and 2,433 clicks. In total, ARTEMIS' posts reached 13,738 members, showcasing meaningful outreach within the platform's audience.

The #LiverCancerAwarenessMonth Influencers

Top 10 Influential



@liverationEU 81



@HorizonARTEMIS 64



@EU_HaDEA 59

9:35 44%

← New follower metrics

Last 30 days

1	Hospital Universitari Vall d'Hebron 58,332 total followers	719 ▼ 17.2%
2	Cliniques universitaires Saint-Luc 23,850 total followers	341 ▼ 5%
3	World Obesity Federation 12,630 total followers	233 ▲ 13.7%
4	PAINLESS Horizon Europe Project 1,099 total followers	77 ▲ 8.5%
5	Le sport est essentiel 4,416 total followers	41 ▼ 29.3%
6	JaxCareConnect 581 total followers	33 ▲ 200%
7	ARTEMIS - The Power of Virtual Twins to Fight MASLD Your Page 253 total followers	18 ▼ 51.4%
8	The CHAIMELEON Project 661 total followers	18 0%
9	ProCancer-I project 766 total followers	14 ▲ 7.7%
10	RadioVal 408 total followers	7 ▼ 61.1%



3. Physical presence

3.1 Informative materials

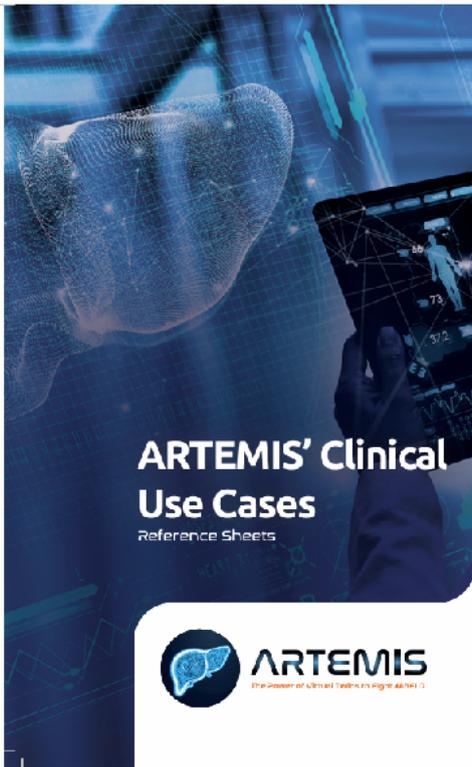
Informational materials like booklets and flyers are invaluable resources for any EU project, providing clear, accessible summaries of complex research, objectives, and outcomes. These tools effectively engage diverse audiences—including stakeholders, policymakers, researchers, and the public—by presenting a tangible overview of the project. Booklets offer in-depth insights into the project's goals, methods, and accomplishments, while flyers serve as concise visual aids that capture attention and communicate key messages efficiently. Together, these materials enhance visibility and understanding, broadening the project's outreach and conveying its importance and impact on society.

3.1.1 ARTEMIS' project brochure

A brochure introducing the ARTEMIS project was written, highlighting the project's dedication to combating Metabolic Dysfunction-Associated Fatty Liver Disease (MAFLD) by developing innovative tools like virtual twin models and a Smart Dashboard. The brochure also highlights the project's scope, including the collaboration across nine countries, the cohort of 7,500 patients, and the integration of cutting-edge computational models. It outlines ARTEMIS' commitment to improving patient outcomes and fostering precision medicine for liver health.



A second brochure was also published, providing an overview of the **ARTEMIS Clinical Use Cases**, showcasing the project's four key focus areas for improving the management of MASLD and associated conditions. Each use case is explained in detail, highlighting its primary and secondary objectives, inclusion and exclusion criteria, and expected outcomes. Through these use cases, the brochure emphasizes the application of virtual twin models and advanced computational tools to support clinicians in personalizing treatment and improving outcomes for patients.



PRIMARY OBJECTIVE

Evaluate the model's ability to distinguish patients based on their time to progression between subsequent phases of liver fibrosis and clinical phenotypes

SECONDARY OBJECTIVES

- Evaluate the model's ability to distinguish patients based on their **time to mortality**
- Evaluate the model's ability to distinguish patients based on their **time to liver transplantation**
- Evaluate the model's ability to distinguish patients based on their **time to liver decompensation**
- Evaluate the model's ability to distinguish patients based on their **time to hepatocellular carcinoma**

EXPLORATORY OBJECTIVES

- Better understanding of **mechanism of actions of specific therapeutic interventions for obesity, TZDM or cardiovascular diseases** prevention and their impact on liver fibrosis
- Evaluation of the **impact of lifestyle modifications and treatments on fibrosis stage progression**
- Measurement of **demographic, clinical, biochemical** (fibrosis stage assessment: fibroscan, liver histology, sheenwave elastography, validated biomarkers scores such as FIB4 (<https://www.hepatitiscare.org.uk/page/clinical-calculators/fib-4>) associated to progression of liver fibrosis in a large cohort of patients with MAFLD

PRIMARY OUTCOME/MEASURE

Time to progression between subsequent phases of liver fibrosis, based on the Fib-4 algorithm | Time frame: 5-7 years

SECONDARY OUTCOMES/MEASURES

- Measurement of median mortality rate | Time frame: 5 years
- Measurement of time to liver transplantation | Time frame: 5 years
- Measurement of time to liver decompensation | Time frame: 5 years
- Measurement of time to diagnosis of hepatocellular carcinoma | Time frame: 5 years
- Occurrence of non-liver cancer events | Time frame: 5-7 years

EXPLORATORY ENDPOINT

- Time to progression between subsequent phases of liver fibrosis, based on the Fib-4 algorithm
- Non-invasive biomarkers of the presence of and severity of cardiac fibrosis through metabolomics and/or analytical biomarkers | Time frame: 5 years - liquid biopsy

Fibrosis progression in MAFLD patients Objectives & Outcomes

3.1.2 ELPA's brochure

ELPA also made sure to include ARTEMIS in the "ELPA Scientific Booklet", which is a brochure presenting all European projects ELPA is currently supporting. The brochure reflects ELPA's mission to enhance patient care, promote research, and provide a bridge between the scientific community, policymakers, and patients. It highlights ARTEMIS as one of many innovative projects demonstrating ELPA's commitment to fostering collaboration and advocating for equitable and effective healthcare solutions for liver patients.



ARTEMIS

Accelerating the Translation of virtual twins towards a personalised Management of fatty liver patients

The ARTEMIS project aims to consolidate existing computational mechanistic and machine-learning models at different scales to deliver virtual twins embedded in a clinical decision support system (CDSS). The CDSS will provide clinically meaningful information to clinicians, for a more personalised management of the whole spectrum of Metabolic-Associated Fatty Liver Disease (MAFLD, MAFLC), with an estimated prevalence of about 20%, from an undetected sleeping disorder, to inflammation (hepatitis), to fibrosis development (cirrhosis) and/or hepatocellular carcinoma (HCC), decompensated cirrhosis and HCC being the final stage of the disease. However, many MAFLD patients do not die from the liver disease itself, but from cardiovascular comorbidities or complications.

The ARTEMIS will contribute to the earlier management of MAFLD patients, by proposing the development of more advanced forms of the disease and cardiovascular comorbidities, promoting active surveillance of patients at risk. The system will predict the impact of novel drug treatments or procedures, or simply better life habits. The system will therefore not only serve as a clinical decision aid tool, but also as an educational tool for patients, to promote better nutritional and lifestyle behaviors. In more advanced forms of the disease, therapeutic interventions include TIPSS to manage portal hypertension, partial hepatectomy, partial or complete liver transplant. ARTEMIS will contribute to predict pre- or post-intervention heart failure, building on existing microcirculation hemodynamics models. The model developers will benefit from a large distributed patient cohort and data exploration environments to identify patterns in data, draw new theories on the liver-heart metabolic axis and validate the performance of their models. The project includes a proof of concept feasibility study assessing the utility of the integrated virtual twins and CDSS in the clinical context.

Grant Agreement ID: 101136299
 Start date: 1 January 2024
 End date: 31 December 2027
 Funded under: HORIZON 2.1.5
 Overall budget: €9 365 095,00
 EU contribution: €9 365 095,00

14



3.2 Promotional materials

To mark the kick-off meeting of the **ARTEMIS project**, a range of promotional materials were developed to enhance visibility and foster engagement. These materials included branded notebooks, pens, and banners, all designed to reflect the project's identity and mission. The items were distributed during the event, serving as both practical tools and reminders of the project's goals. The banners prominently showcased the ARTEMIS logo, partners and key messaging, ensuring a professional and cohesive presence throughout the meeting. These efforts underscored the commitment to building a strong, recognizable brand for the project from its inception.



3.3 Events

3.3.1 ARTEMIS Consortium events

Kick-off meeting – 6th February 2024, Paris

The ARTEMIS project kick-off meeting was held on the 6th of February 2024. This meeting took place in the PariSanté Campus in Paris, France. Representatives from all 21 partner institutions were present to the meeting, all united with the will to massively improve the management of MASLD.

The meeting started with a welcome speech, presenting ARTEMIS governance, the clinical cases, and the consortium members, led by the project officer and various leaders. The introductory session was followed by a presentation on administrative tasks, an overview of timelines, reporting procedures, and compliance under Horizon Europe.

The afternoon sessions were on more specific topics, such as fibrosis and MASLD evolution, cirrhosis and cardiac complications, and hepatocellular carcinoma challenges. To follow these sessions, a team of modelers and clinicians identified transversal actions and specific strategies.

To close, the outcomes of the kick-off meeting were summarized into actionable steps for the next six months, followed by brainstorming and a welcome dinner to encourage networking among the different partners.



ARTEMIS Consortium meeting – 26th and 27th September 2024, Barcelona

Taking place on the 26th and 27th of September in Barcelona, Spain, the ARTEMIS Consortium meeting was hosted by the Vall d'Hebron Institute for Research.

Day 1: Clinical focus

The day started with an opening session, with welcoming remarks and an overall project overview, followed by discussions on ARTEMIS cohorts, use cases, and data availability. A **clinical workshop** then took place, with sessions focusing on MASLD, including its pathophysiology, natural history, diagnosis, monitoring, and management. The day ended with key takeaways, discussions on integrating clinical insights, imaging, and management strategies for MASLD progression.

Day 2: Technical and collaborative focus

The second day opened with technical sessions, discussions on data infrastructure, processing pipelines, and compliance with ethical and legal standards. Tools for data extraction and harmonization were also presented. An introduction on model development also took place, with a focus on machine learning, deep learning submodels, and integration techniques for liver and cardiac interactions.

The day ended with conclusive remarks and a general wrap-up with critical action points and a roadmap for the next year.



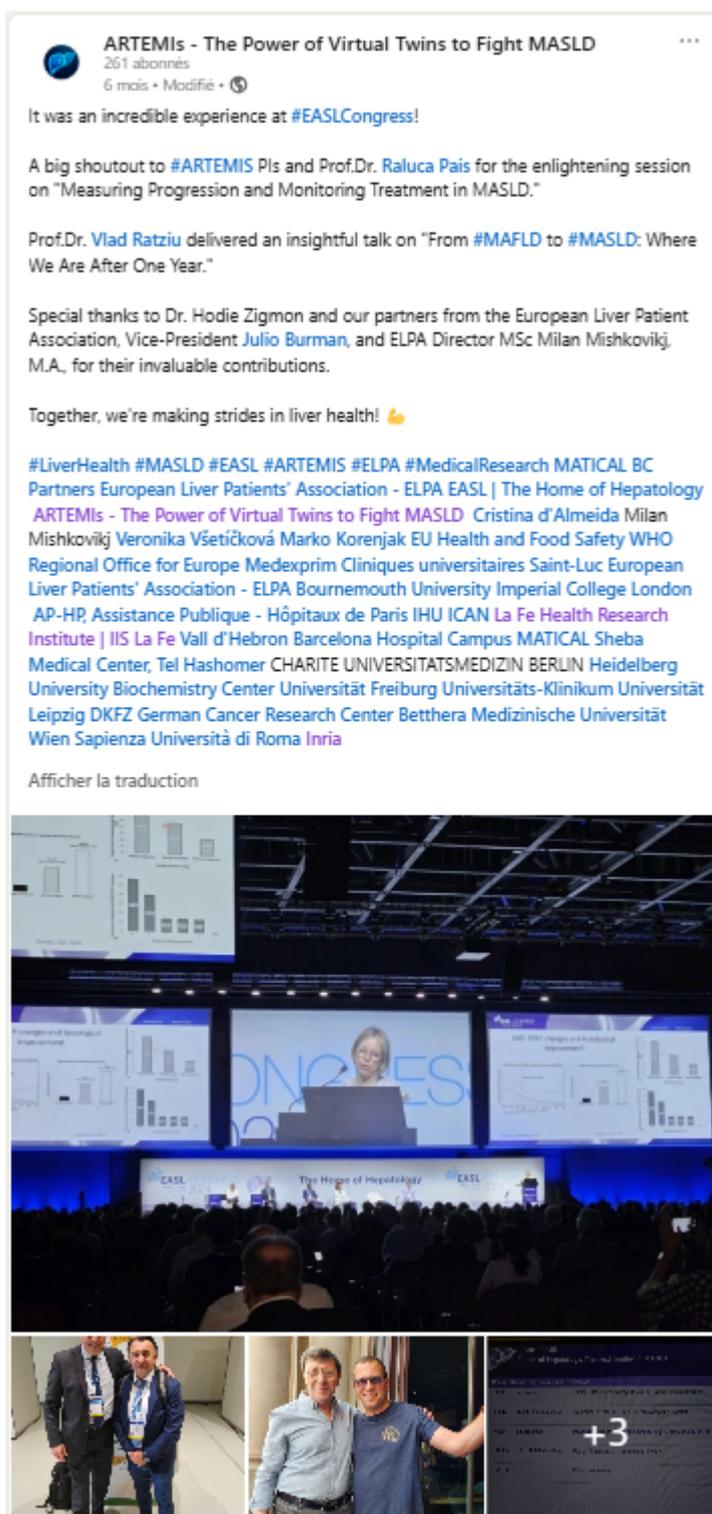
3.3.2 Scientific conferences and workshops

The ARTEMIS partners have presented and promoted the Project at scientific conferences, workshops, and events. The overview is provided below.

EASL – From the 5th to the 8th June 2024, Milan

ARTEMIS proudly took part in the 2024 EASL Congress in Milan, Europe’s premier event for the liver health community. The Pr.Dr. Raluca Pais delivered an insightful session on “Measuring Progression and Monitoring Treatment in MASLD”, and the Pr.Dr Vald Ratziu gave an informative talk on: “MAFLD to MASLD: Where we are after one year”.

This prestigious platform highlighted ARTEMIS' dedication to advancing liver health, fostering collaboration, and driving progress in research and treatment across Europe.



EDITH-CSA – 15th and 16th July 2024, Amsterdam

On July 15th and 16th 2024, ARTEMIS was showcased at the second and final EDITH-CSA meeting at the KIT Royal Tropical Institute in Amsterdam.

The EDITH project, funded by the European Commission, focuses on advancing digital technologies, high-performance computing, and enhancing the accessibility of healthcare and research data across Europe. As part of its mission, EDITH has been tasked with uniting the Virtual Human Twin (VHT) ecosystem and guiding the creation of a roadmap to achieve VHT goals.

ARTEMIS attended the EDITH-CSA meeting, specifically due to the focus around the *Virtual Twin* concept. As part of its mission to revolutionize liver disease management through AI-driven solutions, ARTEMIS engaged with stakeholders to explore the potential of virtual twin technology in advancing personalized and precision healthcare.

[Final EDITH-CSA Ecosystem Meeting](#)

Below is the infographic created for this event, concisely presenting ARTEMIS, while keeping as much detail as possible on the project.

Accelerating the Translation of virtual twins towards a personalised Management of fatty liver patients



ICAN, ¹VHIR, ²INRA, ³Univ. Hospital Heidelberg, ⁴DHFZ, ⁵Univ. Hospital Jena, ⁶AP-HP, ⁷Univ. Leipzig, ⁸Matical Innov, ⁹BCPlatforms

MASLD, a silent and highly prevalent disease

Metabolic dysfunction-associated steatotic Liver Disease (MASLD) is the most common cause of chronic liver disease (CLD) in Europe, with a prevalence >25%, mostly due to unhealthy lifestyles.

Cardiovascular disease (CVD) is a leading cause of death in MASLD patients.

25%



Chronic Liver Disease in Europe

Objective

A better understanding of MASLD progression, its different treatments and related cardiac complications, through virtual human twins.

Virtual human twin

- a model that represents the process of interest in a patient
- at the level of fidelity coherent with the clinical question at hand
- which, tuned from data at a given state can provide new information or can predict another patient state

Four Use Cases

Clinical Case 1
Fibrosis progression in MASLD patients

Research Objective
Evaluation of the model ability to predict progression in regions with different etiologies

Clinical Case 2
Fibrosis-associated cardiovascular diseases in MASLD patients

Research Objective
Prediction of incidence of any cardiovascular complication in MASLD patients

Clinical Case 3
Cardiovascular complications after liver transplant

Research Objective
Prediction of cardiovascular events after personalized liver transplant

Clinical Case 4
Prediction of cardiac complications due to HCC treatment

Research Objective
Prediction of cardiovascular events related to personalized HCC treatment

Ambition

To bring Virtual Human Twins closer to clinical practice

- To consolidate and couple existing multiscale computational models for the virtual liver, representative of signal transduction, metabolism, tissue mechanics, blood flow and transport.
- To extend them to a multi-organ approach (to the heart, the systemic, and the splanchnic circulatory systems), through both mechanistic and machine-learning approaches.
- To evaluate and validate the capacity of virtual twins to provide clinically meaningful information, through Proof of Concept demonstrators.

Goal

To co-design with technologists, clinicians, and patients, to develop and validate the Proof of Concept of a Clinical Decision Support System (CDSS) for application in the clinical management of MASLD patients along the different stages of their care pathway.

Study Design

- Multimodal data
- 9 countries
- 21 partners
- model developers, clinical researchers, SMEs, 1 patients' association
- 12 clinical sites
- 7500 patients
- Mechanistic and AI-driven models
- Macro- and micro-structure approaches
- 1 common data model
- Federated processing
- Central storage on cloud
- GDPR compliance

Contact

Project coordinator
Laura Muñoz (MATICAL) : lmunoz@matical.com

Expected results

Smart Visualisation

A visualisation module to allow relevant information (patient history, lab studies, digitalised histology, imaging, omics) to be displayed

Virtual Twin assisted CDS

A decision support module where the user can call use-case-specific Virtual Twin models, depending on the stage of the disease and the clinical questions

Processing pipelines

Hospital Information System (HIS)

Federated infrastructure for 7500 MASLD patients, with data processed to the common data model

Processing pipelines for extraction of quantitative metrics from omics and imaging data

Multi-modal clustering of patients and pattern identification

Multiorgan Multiscale Multilevel model of liver-heart axis for MASLD-Virtual Twin models

Assessment of models' trustworthiness (accuracy, robustness, reproducibility, explainability)



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3.3.3 Fair Trades

Networking meeting for Horizon Europe Health projects – 26 June 2024, OnLine

ARTEMIS' coordinator, Matical Innovation, attended an online meeting organised by the HaDEA, with the coordinators of the other EU projects funded under different topics. This event included presentations by the HADEA staff aimed to ensure a good collaboration between the Projects and the agency, and to introduce the support services that they make available. These presentations were followed by a Breakout session for each topic. Under Topic HORIZON-HLTH-2023-TOOL-05-03, Laura Senovilla (MAT) gave a short presentation of ARTEMIS. This event was the origin of the Cluster activities (see section 4).

COMPAMED Fair Trade – 11-14th of November 2024, Düsseldorf

From the 11th to the 14th of November 2024, ARTEMIS' partner Bettera was an exhibitor at COMPAMED Fair Trade, the leading international trade fair for the medical technology supplier sector, where they promoted the project.



3.3.4 Other events

Partner	Type of activity	Type of activity & Title of dissemination	Name of event	Place, Country	Date (DD/MM/YYYY)	Type of audience reached	Estimated Number of persons reached
BETT	Workshop attendance/organisation	Workshop presentation	Workshop on Medical Device Regulation Course	Ostrava, Czech Republic	13th-14th January 2024	Research communities	20
BETT	Workshop attendance/organisation	Workshop presentation	Digital Pioneering in Healthcare	Prague, Czech Republic	6th February 2024	Research communities	30
BETT	Conference poster	Poster on the conference	Prague Bio Conference 2024	Prague, Czech Republic	26th September 2024	Research communities	100
DKFZ	Conference papers/proceedings	Talk	e:MED Hamburg	Hamburg, Germany	21-23 Nov. 2024	Research communities	50
BU	Conference papers/proceedings	Keynote speech: A Short Overview of AI in Systems Medicine: Multi-omics integration and more	The 9th Conference on Systems Medicine & Mammal Cell Biology	Leipzig, Germany	13-15 May 2024	Research communities	100
MATICAL	Workshop attendance/organisation	Oral Presentation	Presentation of the Virtual Human Twins initiative by the EC	Virtual	26/06/24	Research communities	50
MATICAL	Workshop attendance/organisation	Oral Presentation	Virtual Human Twins HE projects Networking meeting	Virtual	08/07/2024	Research communities	20
MATICAL	Workshop attendance/organisation	Oral Presentation	Horizon Europe Health Programme Committee Meeting (Cluster 1- Health)	Virtual	12/12/2024	National authorities	200
BC Platforms	Workshop attendance/organisation	Attendance / one-to-one meetings	ESMO Congress	Barcelona, Spain	13-17 September 2024	Research communities	20



4. CLUSTER ACTIVITIES

The ARTEMIS Coordinator is working with the HADEA staff and the coordinators of the other projects funded under the Topic HORIZON-HLTH-2023-TOOL-05-03 “Integrated, multi-scale computational models of patient patho-physiology (‘virtual twins’) for personalised disease management” to launch a set of Cluster activities. The table below indicates the complete list of projects.

#	Title	Acronym
1	AcceleRating the Translation of virtual twins towards a pERsonalised Management of fatty liver patients	ARTEMIS
2	Towards GEMINI: A Generation of Multi-scale Digital Twins of Ischaemic and Haemorrhagic Stroke Patients	GEMINI
3	Health virtual twins for the personalised management of stroke related to atrial fibrillation	TARGET
4	Virtual Twins as tools for personalised clinicAL care	VITAL
5	A CELLulaR immunoTherapy virtuAl twin for personallsed cancer treatment	CERTAINTY
6	Stratification, Management, and Guidance of Hypertrophic Cardiomyopathy Patients using Hybrid Digital Twin Solutions	SMASH-HCM
7	Virtual Brain Twin for personalised treatment of Psychiatric Disorders	VIRTUAL BRAIN TWIN
8	Federated virtual twins for privacy-preserving personalised outcome prediction of type 2 diabetes treatment	dAlbetes

The Cluster activities will be joint actions for networking, knowledge and best practise sharing. These activities are typically articulated around some verticals of particular synergy, such as communication and dissemination, standardisation and data sustainability, to name some.

5. CONCLUSION

Throughout 2024, the ARTEMIS project has made substantial strides in establishing a comprehensive communication and dissemination framework to support its goals. A central digital presence, including the ARTEMIS website, has facilitated engagement and transparency, making project updates, scientific findings, and resources accessible to a wide audience. Targeted sections, such as the Dedicated Patient Section and an engaging Events Space, have empowered patients and provided essential forums for knowledge exchange among researchers, medical professionals, and other stakeholders.

The ARTEMIS social media platforms, further enhanced public engagement with timely updates and a targeted campaign that expanded project visibility. Informational materials, including booklets and flyers, complemented these digital efforts by offering accessible summaries of the project's objectives and achievements, allowing ARTEMIS to reach diverse audiences and broaden its societal impact.

This year's communication and dissemination efforts have laid a strong foundation for ARTEMIS to continue expanding its outreach, improving public health literacy, and fostering collaboration. The ongoing work will build on this progress, advancing the project's mission to benefit steatotic liver patients and the broader medical and research communities.



6. FUTURE WORK

- *Annual communication report* (Deliverable D1.5, Month 24): a record of all dissemination and communication actions conducted in the first 24 months, along with an updated plan for future activities will be released at the end of 2025. Those reports will be updated after each year until the end of the project.
- *Project website and social media*: ongoing updates to the project website and social media (Twitter and LinkedIn) are planned in the next twelve months and after, with the goal of sharing monthly posts about new events, publications, interviews, and contributions to open science. Metrics aim for over 100 website visits per week and more than 500 followers across ARTEMIS project social media channels.
- *Public engagement and layperson events*: ELPA is tasked with organizing two public-facing events targeted at patients and the broader society to communicate project achievements and expected impacts. These events will include interviews with principal investigators and aim to simplify project goals for public understanding.
- *Scientific publications and contributions to scientific conferences*: scientific partners will continue with their active participation in international conferences, and their activity in the elaboration of scientific articles will progressively intensify as first scientific results are delivered. The aim is to disseminate their findings to the research community in academia and industry.
- The expected outcomes of this communication and dissemination strategy are: to increase public awareness by enhancing visibility through social media, press releases, and events, and through events and informative content, the project aims to engage patients and medical practitioners, promoting the potential benefits of the ARTEMIS platform for personalized disease management.

