HORIZON-CL6-2024-CIRCBIO-01-5

Programmed biodegradation capability of bio-based materials and products, validated in specific environments

MAGICBIOMAT

Manufacturing Guiding Tool for Circular and Programmed Biodegradable Materials Under Open Environment Conditions

Start Date: January 1st, 2025

Duration: 48 Months

Deliverable D13.1

Kick Off Meeting minutes

Athlone, Ireland, January 15th & 16th 2025

Dissemination Level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Funded by the European Union

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0.1V	29/01/25	Second Draft

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Meeting Guests

Participant	**Name**	**Participant Organisation**
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Table of Contents

1. Scope and Overview 6

2. Agenda 6

3. Minutes 7

3.1. EU project officer introduction 7

3.2. Partner Introductions 7

3.3. Overview of the Project 7

3.4. WP1 presentation and work plan 8

3.5. WP2 presentation and work plan 8

3.6. WP 13, 14, 15 & ethical presentation and work plan 9

3.7. WP 10, 11, 12 presentation and work plan 9

3.8. WP4 presentation and work plan 10

3.9. WP5 presentation and work plan 10

3.10. WP6 presentation and work plan 11

3.11. WP 7,8,9 presentation and work plan 11

3.12. WP 3 presentation and work plan 11

3.13. Ethical Advisor introduction 12

3.14. End of Kick Off Discussion 12

4. Actions 13

5. Next Meeting 14

6. Presentation slides 14

6.1. EU project officer presentation 14

6.2. DIGI introduction presentation 27

6.3. ISOTECH introduction presentation 32

6.4. OK introduction presentation 43

6.5. IPC introduction presentation 54

6.6. TUS introduction presentation 59

6.7. UNIPD introduction presentation _____68

6.8. USFD introduction presentation _____80

6.9. Overview presentation _____83

6.10. WP1 presentations _____87

6.11. WP2 presentation _____92

6.12. WP3 presentation _____98

6.13. WP4 presentation _____103

6.14. WP5 presentation _____106

6.15. WP6 presentation _____111

6.16. WP7, 8, & 9 presentation _____114

6.17. WP10, 11, & 12 presentation _____122

6.18. WP 13, 14, 15, & 16 presentation _____136

1. Scope and Overview

Kick off meeting to start the MAGICBIOMAT project. Providing introductions of all partners and overview of all work packages. Information session about project management and reporting by the EU project and financial officers.

2. Agenda

15th January 2025

7:30	Partner Pick up from Dublin and Transport to Athlone
9:00	Registration and coffee
9:30	Welcome from the coordinator and kick off by TUS Director of the PRISM Research Institute.
9:45	Project management & reporting (EU project officer: Stefania Rocca)
10:15	Introduction of partners (Order: TUS, UNIPD, OK, DIGI, IPC, ISOTECH, USFD,)
11:30	Coffee/tea break and Ice breaker
12:00	Overview of the project (TUS)
12:30	WP1 presentation and work plan (UNIPD)
13:00	WP2 presentation and work plan (TUS)
13:30	Lunch at the venue
14:30	WP 13, 14, 15 & ethical presentation and work plan (TUS)
15:00	WP 10, 11, 12 presentation and work plan (ISOTECH)
15:30	WP 4 presentation and work plan (USFD)
15:45	WP 5 presentation and work plan (ISOTECH)
16:00	WP 6 presentation and work plan (TUS)
16:15	End of presentations
19:00	Dinner at Thyme Restaurant

16th January 2025

9:00	WP 7, 8, 9 presentation and work plan (DIGI)
9:30	WP 3 presentation and work plan (DIGI)
10:30	End of presentations
10:45	Bus pick-up and tour in Applied Polymer Technologies Gateway, TUS Athlone Campus, Coffee/tea on arrival
13:00	Lunch at TUS Athlone Campus
14:30	End of Kick off

3. Minutes

3.1. EU project officer introduction

Presented by Stephanie Rocca

Key people:

- REA Project officer: Stephanie Rocca

Project officer role:

- To follow the progress of the project and advise as necessary if problems arise.

Key points:

- All partners need to read the grant agreement to know their role and responsibilities.
- As the project is a lump sum project, deliverables need to be on time and high quality to ensure continued financial support to beneficiaries.
- Partners need to keep the coordinator informed of progress. Any deviations from the grant agreement need to be communicated to the coordinator as soon as possible to ensure time to address the issue.
- The coordinator's main role is to act as the intermediary between the beneficiaries and the EC. The coordinator will be responsible for final submissions to the EC. Beneficiaries need to submit deliverables with sufficient time for the coordinator to submit to the EC.

Questions:

- Do we need to keep time sheets for each partner? No this will not be required by this project but will need to follow national regulations of the partners. Partners are advised to keep records of hours for personal records.
- How should monitoring reports every 3 months be submitted? These can be emailed to the project officer.

3.2. Partner Introductions

- Technological University of the Shannon (TUS) presented by Declan Devine
- Digiotouch (DIGI) Presented by Soumya Kanti Datta
- University of Padua (UNIPD) Presented by Alessandra Lorenzetti
- Organikkimya (OK) Presented by Hilal Macit
- IPC, the Industrial Technical Centre for Plastics and Composites (IPC) Presented by Guillaume Zietek
- ISOTECH Presented by Xenia I. Loizidou
- University of Sheffield (USFD) Presented by Joanna Gavins

3.3. Overview of the Project

Presented by Yuanyuan Chen (TUS)

- Overall aim of the project is developing biomaterials with tailored properties for biodegradability in open or controlled conditions.

- 7 partners across Europe
- Objectives: programmed biodegradability for open environments, enhancing circularity, AI powered manufacturing, consumer acceptance and life cycle analysis.
- Three final applications: short-term biodegradable acrylic coated paper trays, long-term biodegradable agricultural films, and reusable packaging for laundry detergent.

Questions

- Do you have reports planed? This will be discussed during the overview of project management (WPs 13,14,15).

3.4. WP1 presentation and work plan

Presented by Presented by Alessandra Lorenzetti (UNIPD)

Overview of WP:

- This WP will focus on developing materials with programmed biodegradability though a combination of compounding of different bio-based polymer blends, inclusion of biodegradable additives to support microbial growth, and/or chemical additives.

Questions:

- Are TUS and UNIPD going to work in parallel on different polymer blends? Yes, UNIPD will first do a screening of the available/potential biopolymers then once identified TUS and UNIPD will work in parallel on biopolymer blend development.
- Will we wait for OK to provide compatibilizers or source commercially available ones? We can source commercial ones if needed for initial tests.
- How long is the biodegradation testing by IPC? This can be customised, but time needs to be included for experimental testing as this will influence timelines.
- Can we do accelerated tests? Yes, IPC can do accelerated tests.
- Can IPC send information about the minimum number of samples required to do their testing? Yes, they will provide this information.
- Can UNIPD do biodegradation testing and microbial sequencing? UNIPD will perform the microbial sequencing, and IPC will conduct the biodegradation tests.
- Can the coordinator create a mailing list that is divided by WP? Yes, TUS will do that.

Decisions:

- Firstly, the compatibilized blends will be tested and the ones containing enzymes will be tested later as they need more time for development.
- There will be a WP meeting held to divide the work between the partners and plan. This will be scheduled in the next two weeks.

Actions:

- WP1 will have a meeting in the next 2 weeks to organise the work between partners.
- TUS will create WP contact mailing list.
- IPC will provide information on the minimum number of samples required to do their testing.

3.5. WP2 presentation and work plan

Presented by Yuanyuan Chen (TUS)

Overview of WP

- Improving circularity of biodegradable polymers by improving durability, recovery of multicomponent materials, creation of reusable biodegradable applications, remanufacturing of biodegradable materials, and mechanical recycling.

Questions

- How are the timelines between the biodegradability testing vs the durability testing? Is there time to go back to reassess for biodegradability if durability affects biodegradability? We need to discuss this between partners to determine timelines and how we will approach this, it is relevant and needs to be considered.

3.6. WP 13, 14, 15 & ethical presentation and work plan

Presented by Yuanyuan Chen (TUS)

Key Points Discussed:

- These work packages cover project management over the duration of the project.
- Each partner must give a periodic update of progress every 3 months for the coordinator who will then pass this to the project officer.
- A project MS team share folder has been created and partners added to it.
- Templates have been created for periodic reports, minutes, and deliverables available in the MS team.
- ISOTECH could create new templates for posters/slides for future presentations.
- Each WP leader will control their folder and record/store their work there including all meeting presentations and minutes from the meetings.
- Minutes should be recorded for every WP meeting and uploaded to MS Team folder; this is the responsibility of WP leaders.
- All partners should have their account set up on the EU portal.
- Ethical requirements in TUS requires ethical training every 3 years and management of ethics within the project will be supported by the TUS research office. Each partner is required to follow their own internal/national ethics rules as well as those of the EC.

Questions:

- Will partners update the MS teams periodic reports and then the coordinator will upload to the EC portal? Yes, the partners will upload to MS teams for periodic reports and deliverables and the coordinator will upload them to the EU portal. The periodic reports will be forwarded to the EU project officer and will be continually updated by partners for preparation of official periodic reports for the EC.
- Is there an external board that the project answers to? Is there an external advisory committee? Not at this time but TUS will assess this and advise the partners later if an advisory committee is required and if so, TUS will arrange this.
- Will every partner be invoiced individually by the ethics advisor? Yes, they will be charged individually due to differing national VAT requirements.

Agreements:

- Partners will update periodic reports every 3 months and send them to the coordinator.

Actions:

- TUS will assess the need for an external advisory board and procure one is necessary.

3.7. WP 10, 11, 12 presentation and work plan

Presented by Demetra Orthodoxou (ISOTECH)

Key Points:

- Website domain has been purchased, and the website is under development.
- The projects social media presence is being developed with accounts soon to be available on LinkedIn, YouTube, X, Instagram, etc.
- Two draft logos have been developed. Partners gave feedback to improve the logo.
- ISOTECH will create a dedicated excel template to capture Publication, Communication, and Dissemination activities.
- All partners should send their logos for the website. Also, high resolution photos of participants and bios.

Questions:

- Will you send a template for the website bios? Yes, in a future email.

Actions:

- New logo options will be created and provided to the partners to get further feedback.
- A template for partners to submit information for the website will be provided to all

3.8. WP4 presentation and work plan

Presented by Joanna Gavins (USFD)

Key Points:

- Investigating consumers experience/acceptance of biomaterials. Identifying barriers to consumer acceptance.
- Studying consumers interactions with labelling and possible interventions to improve consumer acceptance of biomaterials and consumer engagement
- Behavioural change strategies
- While the WP starts later in the project USFD expects continued engagement with the other work packages throughout to ensure continual development towards consumer behaviours.

3.9. WP5 presentation and work plan

Presented by Demetra Orthodoxou (ISOTECH)

Overview of WP:

- Assessment short-term of uncontrolled and controlled aging and degradation of developed biodegradable biomaterials environmental conditions.

Key Points:

- The first task (T5.1) of the WP will focus on existing literature to define later testing parameters and environmental conditions for biodegradation studies.
- 4 different European climates in soil (buried/exposed) and water (marine/fresh) environments.
- Local partners will be identified in different European regions to carry out the testing under the lead of ISOTECH.

- Required number of samples for environmental biodegradation tests: 224
- The data produced will feed back into the AI modelling to optimise biodegradability.

3.10. WP6 presentation and work plan

Presented by Yuanyuan Chen (TUS)

Overview of WP:

- Assessment long-term of uncontrolled and controlled aging and degradation of new biomaterial products in different environmental conditions.

Key Points:

- 4 different European climates in soil (buried/exposed) and water (marine/fresh) environments.
- The same local partners as WP 5 in different European regions will carry out the testing under the lead of ISOTECH.
- Required number of samples for environmental biodegradation tests: 224
- The data produced will feed back into the AI modelling to optimise biodegradability.

3.11. WP 7,8,9 presentation and work plan

Presented by Debolina Paul (DIGI)

Key Points:

- Life cycle sustainability assessment (LCSA)= Life cycle costing + Social life cycle assessment + LCA
- LCSA at baseline, intermediate and final stages.
- All partners will be required to provide information to DIGI for LCSA analysis and DIGI will provide all partners with a template to provide such data.

Questions:

- When will you plan the work package 7 meetings? DIGI will first send a doodle to all partners and a meeting will be arranged shortly. DIGI will hold regular meetings to inform partners of progress.
- Will lab scale data be comparable to industrial established data? This is a common concern in LCSA, lab scale data will be extrapolated by established standards to give the best representation and reliability.

Actions:

- DIGI to arrange a WP7 meeting with all partners.

3.12. WP 3 presentation and work plan

Presented by Soumya Kanti Datta (DIGI)

Overview:

- The main objective of this work package is to develop and AI tool for guiding the manufacturing of biobased biodegradable polymers with programmable biodegradability.

Key Points:

- The AI tool will be developed with combination of publicly available datasets and partner datasets.
- The process will start with quality assessment of the datasets; then training of the AI, generative modelling, screening of synthesised candidates, material assessment, and data collection that feeds back into the AI model.

Questions/Comments:

- Suggestion to have meetings with the different groups that are all working on the same application instead of each partner individually. Have initial group meeting with all partners.
- Would you like partners to send data they already have access to both public and partner data? Yes, the more data the better for developing AI models, but we need to assess all data for quality as due to limited computing power the data included in the model must be high quality.
- Who in the consortia has ready access to data sets? Do universities have better access to data sets and publications than technical centres? Yes, academic centres can have easier access and will provide any support they can to other partners.

Actions:

- DIGI will set up an initial WP3 meeting with all partners.

3.13. Ethical Advisor introduction

Presented by Javiar Valls

Overview:

- Advisor can provide guidance on all activities that involve human test participants, ensuring informed consent, ethical data management, etc.
- The ethical advisor will interact with every partner but will work particularly close with those involved in human tests.
- Official contract needs to be decided whether it is charged by the project or each individual partner.

Questions:

- Does open environment biodegradation testing involve ethics as wild animals could interact with the samples? It was not mentioned in the report from the EU commission, but we can investigate this particular issue.
- Are there issues related to data management between EU and non-EU partners? There can be but I have experience in dealing with this and it shouldn't be an issue?
- A deliverable on the ethical management of the project is due in M6, can you help and provide guidance in this? Yes, we can support this and help in the development of the deliverable.

Actions:

- TUS will send a copy of the grant agreement to the ethical advisor.
- The ethical advisor (Javiar Vallis) will send each partner an individual contract.

3.14. End of Kick Off Discussion

Key Points:

- Consortium meetings will be held twice a year, once online and once in person.
- Deliverables could be reviewed by other partners as well as the coordinator to lessen the burden on the coordinator.

A group picutre has been taken.



4. Actions

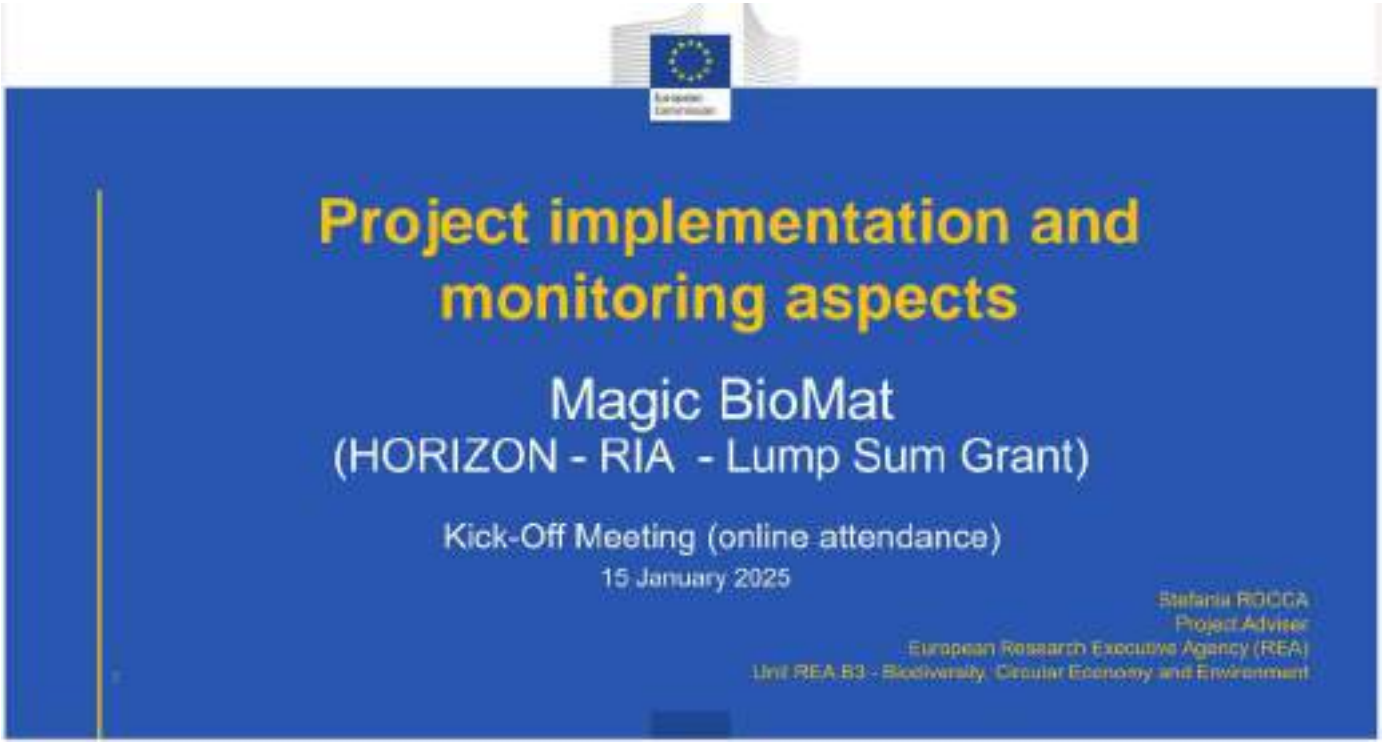
WP	Action description	Lead partner	Due date
WP 1	A meeting will be held to organise and distribute the work between relevant partners.	UNIPD	February 2025
WP 1	IPC will provide information on the minimum number of samples required to do their testing.	IPC	February 2025
WP 3	Meeting arranged with all partners.	DIGI	February 2025
WP 7, 8, 9	Meeting arranged with all partners.	DIGI	February 2025
WP 10, 11, 12	New logo options will be created and provided to the partners to get further feedback.	ISOTECH	February 2025
WP 10, 11, 12	A template for partners to submit information for the website will be provided to all	ISOTECH	February 2025
WP 13,14,15	Creation of WP specific contact list.	TUS	February 2025
WP 13,14,15	Assessment of need for external advisory committee.	TUS	February 2025
WP 13,14,15	A copy of the grant agreement will be sent to the ethical advisor.	TUS	February 2025
WP 13,14,15	A contract from the Ethical Advisor will be sent to each partner.	TUS	February 2025

5. Next Meeting

Date to be defined, Online

6. Presentation slides

6.1. EU project officer presentation



Outline

- REA and Horizon Europe
- Policy context and expected outcomes
- Administrative, Financial and Legal Aspects
- Communication, dissemination and exploitation

2

REA and Horizon Europe

3

Budget 2021-2027 | Horizon Europe



DG Research and Innovation
DG Education, Youth, Culture and Sport
DG Agriculture and Rural Development
DG Communications Networks, Content and Technology
DG Migration and Home affairs
DG Environment
DG Employment, Social Affairs and Inclusion

European Commission

Unit REA.B3 - Biodiversity, Circular Economy and Environment

- **Coordinating** evaluations of submitted proposals
- **Preparing** Grant Agreements
- **Monitoring** project implementation and dealing with contractual issues
- **Checking** on the use of resources and making payments
- **Implementing** audit results
- **Reporting** on project management and results to European Commission's Directorate Generals (RTD, AGRI and ENV)



European Commission

Policy Context and Expected Outcomes

HORIZON-CL6-2024-CircBio-01-5

- "Programmed biodegradation capability of bio-based materials and products, validated in specific environments"

POLICY CONTEXT

EU circular economy action plan
Bioeconomy strategy
European Green Deal
Zero pollution action plan

- Plastic littering and microplastic pollution
- Biodegradability in open environments: EU regulation of fertilizing products, intentionally added microplastic

EXPECTED OUTCOMES

- Circular design of bio-based technologies and products: decreasing environmental impacts on soil, water, and air quality, biodiversity and climate, allowing for high quality recycling and for biodegradability
- Innovative manufacturing processes to enable programming the safe biodegradation (time frame for specific applications)
- Information and labelling: biodegradability for specific applications and end-of-life options

Related impacts
- Circularity and sustainability by design
- Bio-based solutions with reduced environmental impacts on soil, water, and air quality, biodiversity and climate

Policy feedback: why?

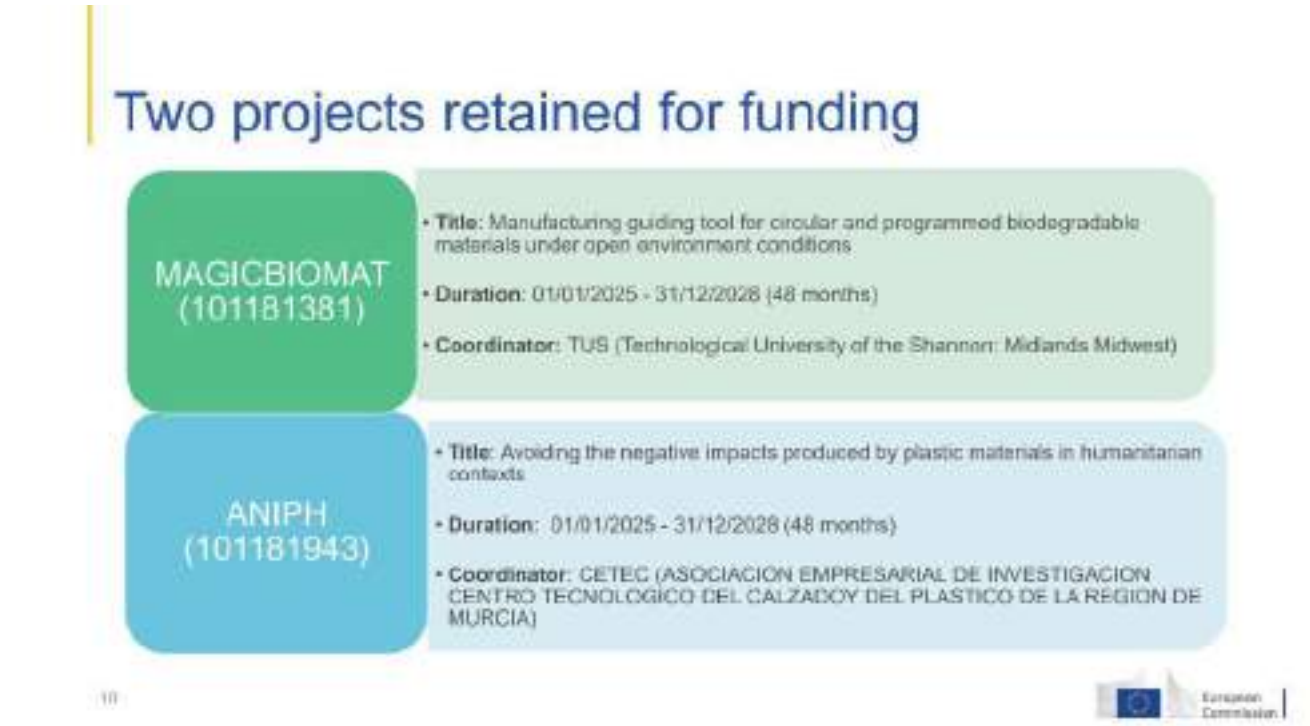
- Providing **evidence** to the design of new policies
- Monitoring the **impact** of existing policies / legislation
- Identifying **gaps**, opportunities and potential synergies for future policy design
- Enhancing the visibility of **EU funding**
- Building close **interactions** between policy DGs, REA and R&I projects



Policy feedback: examples of project inputs

- Contribution to public consultations
- Participation in working / expert groups
- Ad-hoc communication to policy stakeholders
- Dedicated case studies / use cases
- Articles, publications, success stories
- Policy briefs
- Policy events




Two projects retained for funding
MAGICBIOMAT (101181381)
• Title: Manufacturing guiding tool for circular and programmed biodegradable materials under open environment conditions
• Duration: 01/01/2025 - 31/12/2028 (48 months)
• Coordinator: TUS (Technological University of the Shannon: Midlands Midwest)
ANIPH (101181943)
• Title: Avoiding the negative impacts produced by plastic materials in humanitarian contexts
• Duration: 01/01/2025 - 31/12/2028 (48 months)
• Coordinator: CETEC (ASOCIACION EMPRESARIAL DE INVESTIGACION CENTRO TECNOLOGICO DEL CALZADO Y DEL PLASTICO DE LA REGION DE MURCIA)


Administrative, Financial and Legal Aspects

Grant Management Overview



Roles and responsibilities

If you are a Beneficiary – Art. 7

- Keep the information on the Portal Participant up to date
- Inform the Coordinator timely of any circumstances impacting the project
- Submit all the requested information timely

If you are the Coordinator – Art. 7

- Monitor the action
- Act as intermediary between the beneficiaries and REA (PO and FO)
- Review the information before sending it to REA
- Do not delegate or subcontract any tasks mentioned in Art. 7(except those approved during the Grant Agreement Preparation)

Acceptance of Work Packages (lump sum)

- Work packages are **accepted if the activities have been carried out**. We can also accept them when all essential tasks have been completed, when equivalent tasks have been carried out, or when deviations have been justified
- **Lump sum projects can be amended** according to scientific-technical needs (or deviations can be justified in the reports). Use these mechanisms to make completion of work packages feasible
- Before a lump sum work package (that you declared completed) is rejected as incomplete, you are invited to **respond to the observations of the project officer**
- If the rejection is upheld, the lump sum share concerned is not paid at that point in time. You should **complete the work package later** and declare it at the end of any subsequent reporting period
- If it is not possible to complete a work package by the end of the project (e.g., for technical reasons or due to force majeure), the **lump sum is paid partially** in line with the degree of completion. The decision on the partial amount is taken on a case-by-case basis. You will be able to make observations

14

Amendments (1/2)

- **WHEN?** In case of a change compared to the GA

"The GA may be amended, unless the amendment entails changes to the GA which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants." (*)

- **WHO** can request GA amendment?

-> REA or Coordinator

- **HOW?** fully electronically

Consult REA Project Officer in advance
(i.e. before officially launching the GA amendment)

15

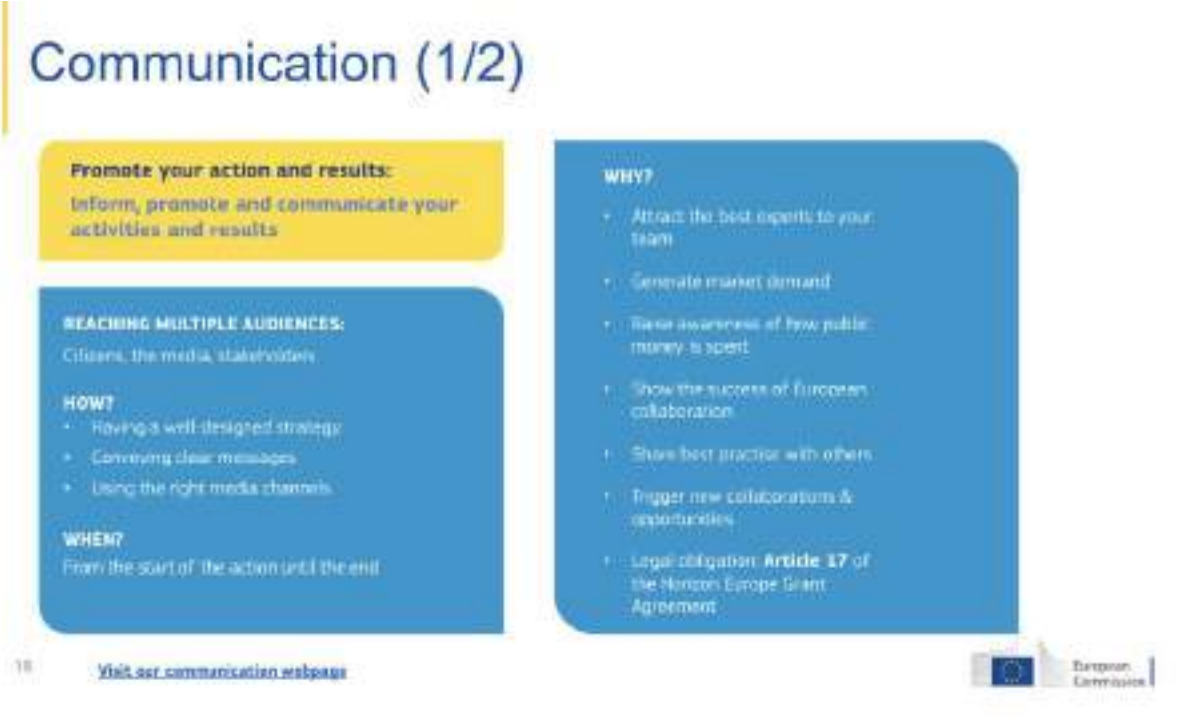
Amendments (2/2)

- Lump sum grants **can be amended**
- **Same procedure and conditions** as for all Horizon grants
- Lump sum work packages that have already been paid **cannot be amended**
- **Deviations** from the work plan can also be flagged in the periodic report (**simplified procedure**)

➡ One dedicated lump sum page on the Funding &Tenders Portal



Communication, dissemination and exploitation


Communication (1/2)
Promote your action and results:
Inform, promote and communicate your activities and results
REACHING MULTIPLE AUDIENCES:
Citizens, the media, stakeholders
HOW?
Having a well-designed strategy
Conveying clear messages
Using the right media channels
WHEN?
From the start of the action until the end
WHY?
Attract the best experts to your team
Generate market demand
Raise awareness of how public money is spent
Show the success of European collaboration
Share best practice with others
Trigger new collaborations & opportunities
Legal obligation: Article 17 of the Horizon Europe Grant Agreement
18
Visit our communication webpage
European Commission


Communication (2/2)
HOW CAN REA SUPPORT YOU?
ACKNOWLEDGE EU FUNDING
Article 17.2 of the Horizon Europe grant agreement: Visibility - European flag and funding statement
Funded by the European Union
Co-funded by the European Union
Has your project won an important scientific award? Have you made a ground-breaking discovery and are featured in the press?
Don't forget to inform your project officer!
REA's Communication team can help promote by:
Proposing your project's success story for inclusion in the European Commission's free-of-charge communication channels
Highlighting & multiplying your news and results through our own and the Commission's social media channels (please tag us!).
19
European Commission

Dissemination

Make your results public

Open Science: knowledge and results (free-of-charge) for others to use

Only to scientists?

Not only but also to others who can learn from the results: authorities, industry, policymakers, sectors of interest, civil society

How?

Publishing your results on:

- Scientific magazines
- Scientific and/or targeted conferences
- Databases

When?

At any time, and as soon as the action has results

Why?

- Maximise results' impact
- Allow other researchers to go a step forward
- Contribute to the advancement of science
- Make scientific results a common good
- Legal obligation: **Article 17** of the Horizon Europe Grant Agreement

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Exploitation

Make concrete use of results:

Commercial, societal, political purposes

Only by researchers?

Not only, but also:

- Industry, including SMEs
- Those that can make good use of them:

Authorities, industrial authorities, policymakers, sectors of interest, civil society

How?

- Creating: roadmaps, prototypes, software
- Sharing knowledge, skills, data

When?

Towards the project's end beyond, as soon as the action has exploitable results

Why?

- Leads to new legislation or recommendations
- For the benefit of innovation, the economy and society
- Helps to tackle problems and respond to an existing demand
- Legal obligation: **Annex 5 (specific rules)** of the Horizon Europe Grant Agreement

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European Commission

Free-of-charge European Commission communication, dissemination & exploitation tools (1/2)



22

Free-of-charge European Commission communication, dissemination & exploitation tools (2/2)

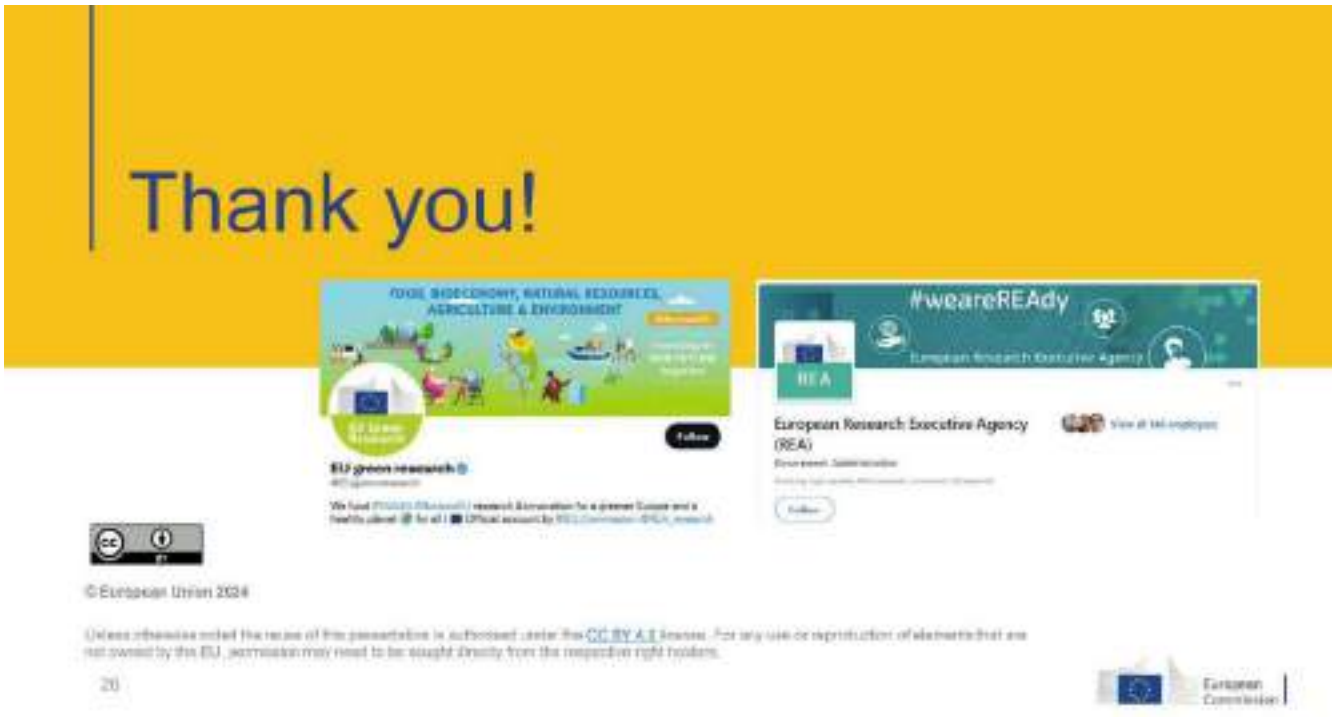


23





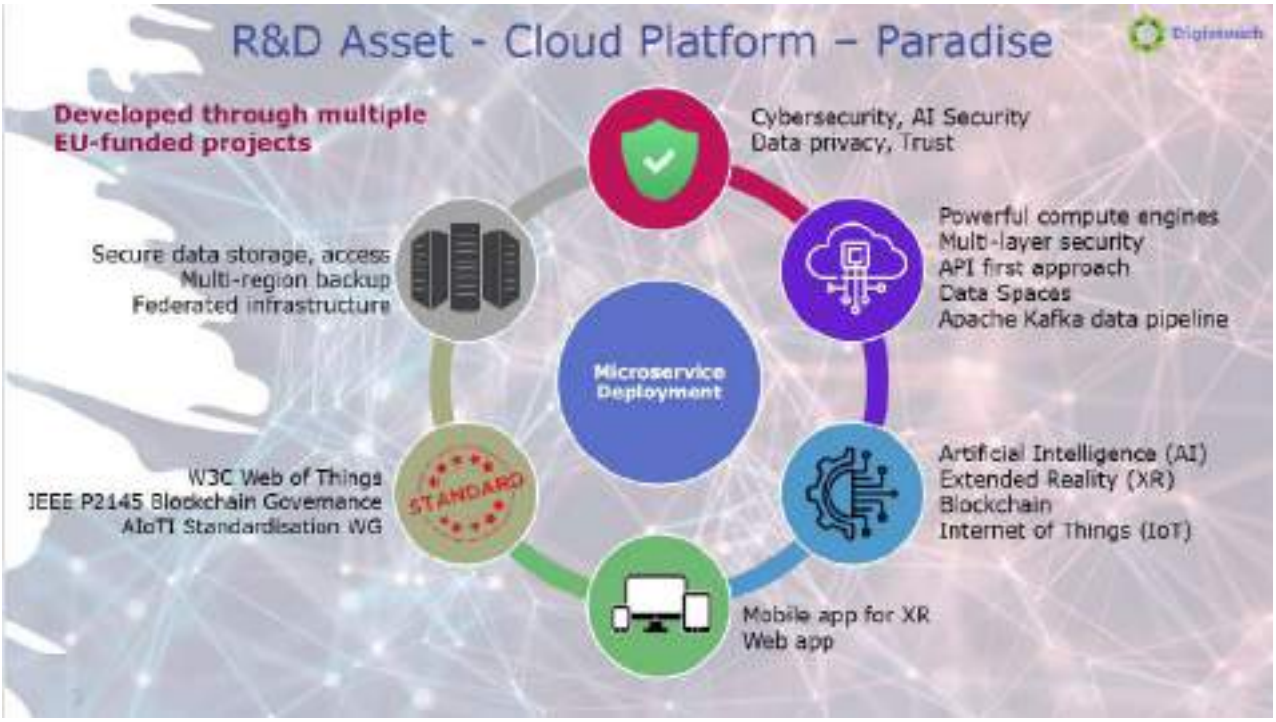
- The **3rd Annual Forum of Mission Restore Our Ocean and Waters** will take place on **4 March 2025 as part of the** European Ocean Days and back-to-back with a series of connected events in Brussels, Belgium.
- Learn about progress and achievements as well as to discuss the needs and shape the strategic steps for reaching the 2030 Mission targets for the restoration of the ocean and waters.
- Registration is now open

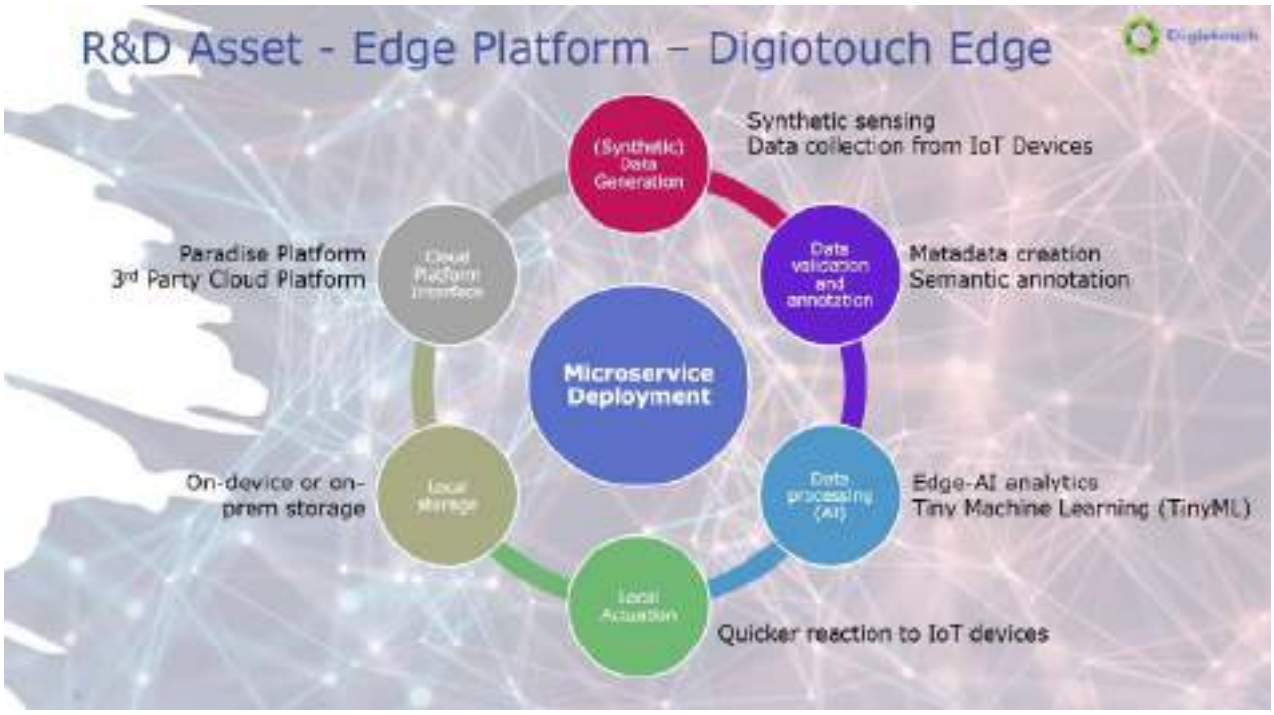


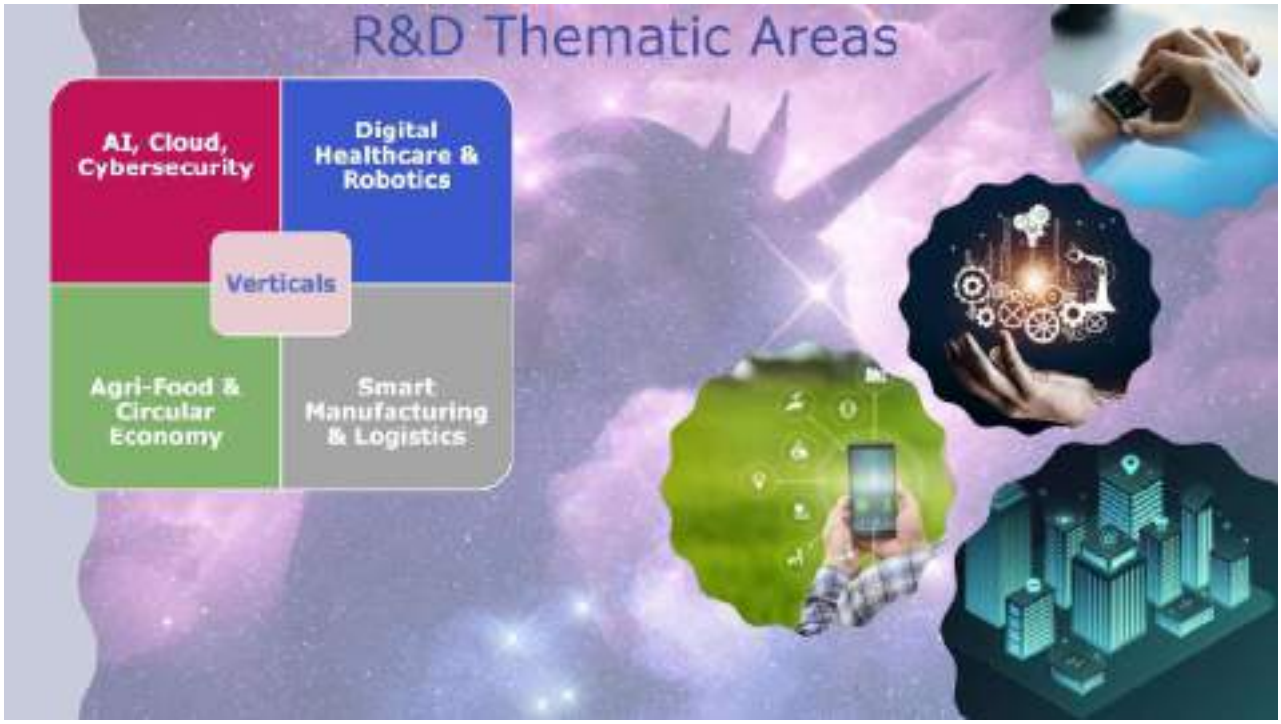
6.2. DIGI introduction presentation




Background
Digiotouch
• Inception at Tallinn in Estonia – June 2018 (PIC – 905282474)
• 2nd office at Nice in France – December 2022 (PIC – 883938400)
• Fast-growing SME providing secure, sustainable, trustworthy AI powered solutions
• Paradise Platform (Cloud platform)
• Digiotouch Edge (Edge platform)
• Recent customers
• Italy, Hungary, Portugal, and Serbia.
• Commercialising H2020/Horizon Europe project results
• Digiotouch Academy – GenAI powered digital learning and upskilling platform
• XR app – Visualising complex industrial processes with 360-degree, immersive videos


R&D Asset - Cloud Platform – Paradise
Digiotouch
Developed through multiple EU-funded projects
Cybersecurity, AI Security
Data privacy, Trust
Powerful compute engines
Multi-layer security
API first approach
Data Spaces
Apache Kafka data pipeline
Secure data storage, access
Multi-region backup
Federated infrastructure
Microservice Deployment
W3C Web of Things
IEEE P2145 Blockchain Governance
AIoTI Standardisation WG
STANDARD
Artificial Intelligence (AI)
Extended Reality (XR)
Blockchain
Internet of Things (IoT)
Mobile app for XR
Web app


R&D Asset - Edge Platform – Digiotouch Edge
(Synthetic) Data Generation
Synthetic sensing
Data collection from IoT Devices
Data validation and annotation
Metadata creation
Semantic annotation
Data processing (AI)
Edge-AI analytics
Tiny Machine Learning (TinyML)
Local Actuation
Quicker reaction to IoT devices
Local storage
On-device or on-prem storage
Cloud Platform Interface
Paradise Platform
3rd Party Cloud Platform
Microservice Deployment


R&D Thematic Areas
AI, Cloud, Cybersecurity
Digital Healthcare & Robotics
Verticals
Agri-Food & Circular Economy
Smart Manufacturing & Logistics


R&D Partners
Digiotouch
110+ partner organisations from 22 European countries, Turkey, Israel, and USA
RITHERDON
TEDIRO
NEUROPUBLIC
durukan
ITC
ENGINEERING
THE DIGITAL TRANSFORMATION COMPANY
farplas
NTNU
WAGENINGEN
UNIVERSITY & RESEARCH
ILVO
LUT University
inlecom
Inlecom Commercial Pathways -Ireland


Digiotouch
Dataspace
CO_2 Valorisation
Threading-CO_2 (Jan 2023)
Digital Building Logbook
openDBL
Artificial Intelligence
BIAS
Smart Cities

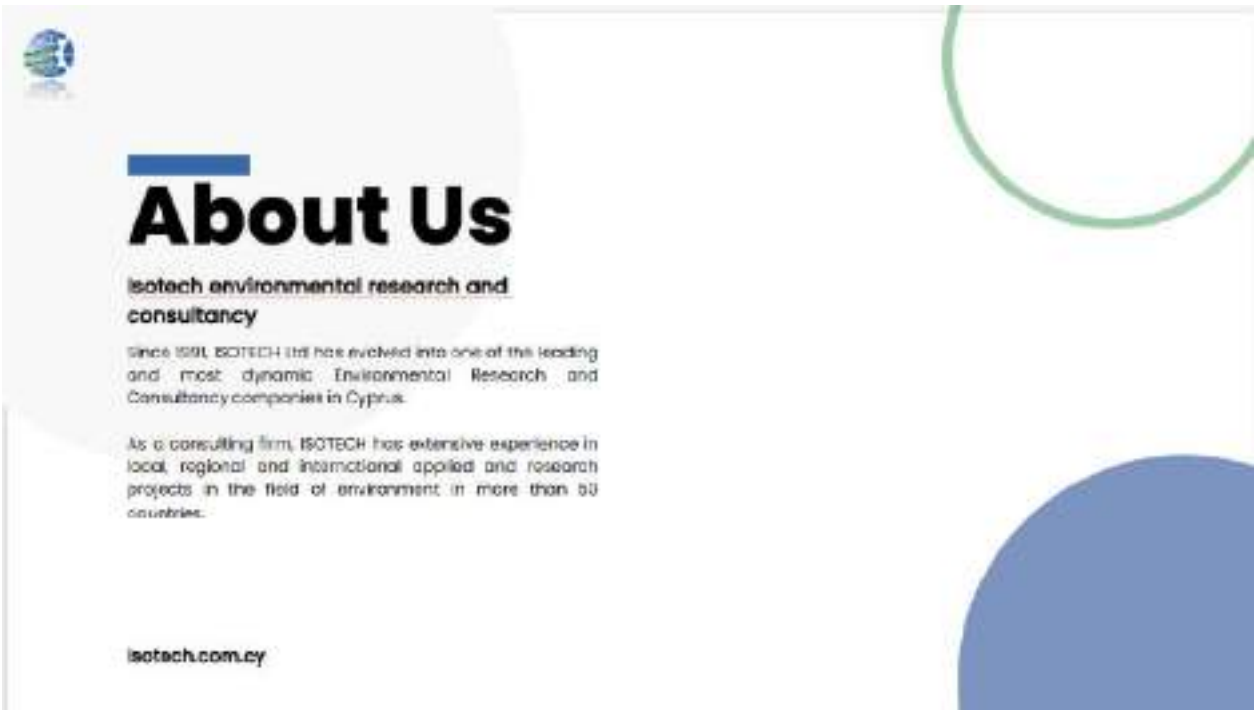

Digiteach
5G Testbed
H2020 Triangle
Data Economy
EUH4D
Standardization
StandICT.eu
StandICT.eu 2023
Blockchain
Block.IS
BLOCK START
Healthcare & Robotics
SHAPES
Health
ACTIVAGE PROJECT
2TH HERO
DIGIBCUBE
Next-Gen Internet
NGI EXPLORERS
Smart Manufacturing
L4MS
Circular Economy and Green Deal
ZEROW
upPE-T
DIGICIRC
Cybersecurity
FED4FIRE
DigiFed


Horizon Europe – Expertise Offer
Digiteach
Exploitation and IP
Business Model
IPR Management
Commercialisation of KERs
6
Cybersecurity, Data Spaces
Security, data privacy, trust
Security certification
European Data Spaces
1
Project Coordination
Team Member with MBA
Certified Scrum Master, and
Scrum Product Owner
Led mini consortia for FSTP
5
ICT R&D
Computing Continuum (IoT, Edge, Cloud)
AI, XR and data-driven solutions
Platform Development
2
Digital Learning
Cloud based MOOC Platform
Upskilling of workforce
4
Access to Finance
Cascade funding
Synergy with H-E, DEP, ERDF
Fundraising for TRL 8-9 solutions
3



6.3. ISOTECH introduction presentation




About Us
Isotech environmental research and consultancy
Since 1991, ISOTECH Ltd has evolved into one of the leading and most dynamic Environmental Research and Consultancy companies in Cyprus.
As a consulting firm, ISOTECH has extensive experience in local, regional and international applied and research projects in the field of environment in more than 50 countries.
isotech.com.cy


WE WORK GLOBALLY
Denmark
United Kingdom
France
Spain
Portugal
Netherlands
Ireland
Belgium
Croatia
Greece
Italy
Slovenia
Bulgaria
Romania
Czech Republic
Norway
Austria
Qatar
Israel
Turkiye
India


Fields of Expertise
Applied Environmental Research
ESG & GHG Monitoring & Reporting
Community Annoyance Studies
Circular Economy and Waste Management
Environmental Engineering Studies and Audits
Knowledge Transfer and Sustainability Vocational Training
Indoor Air Quality
Blue Growth & Shipping
Public Engagement, Stakeholder
Development


Applied Environmental Research

SEALIVE

Strategies for circular economy and advanced bio-based solutions to prevent plastic contamination and keep our lands and seas alive. Horizon 2020. 2019-2024

Research into novel bioplastic materials and their behaviour in the environment.





SEACLEAR 1 & 2

SeaClear2.0 - a Horizon Innovation Action - supports the achievement of the EU Mission "Restore our Oceans and Waters" by preventing and eliminating seabed and floating marine pollution.

This is achieved through a combination of technological innovation, stakeholder engagement, citizen activities, and contribution to policy-making





TERRASAFE

Terrestrial Resilience and Restoration Strategies for (Semi) Arid and Fragile Ecosystems. Horizon Europe. 2024-2029

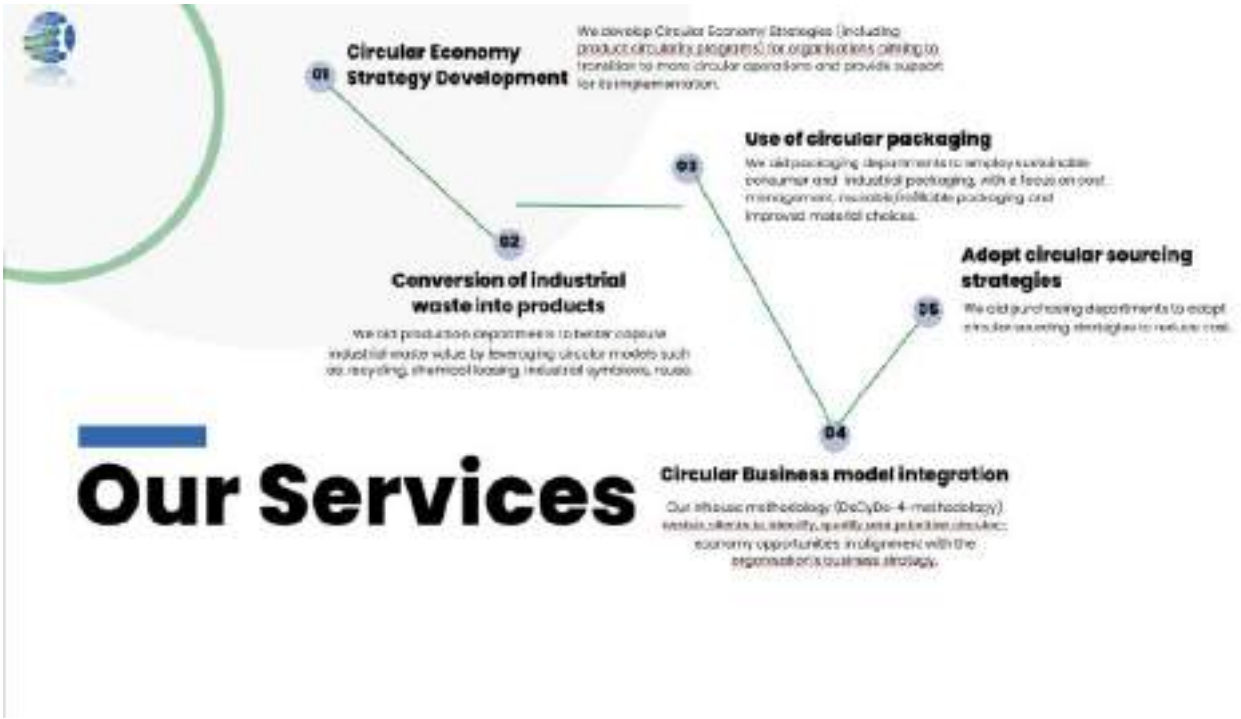
Introducing a socially and technologically innovative low-cost waste management scheme for co-composting organic waste at the local level.



Investigation of the reasons leading to the low quality of RDF at the Integrated Waste Management Facility of Pentakomo.

Contracted by the Ministry of Agriculture, Rural Development and Environment.

Circular Economy & Waste Management



Our Services

Be-UP

Boosting the Industrial Uptake of Biodegradable polymers for packaging applications by implementing digital tools and advanced techniques to achieve a holistic sustainability goal. Horizon Europe, 2025-2028.

Development of circular business models for the projects bioplastic and biodegradable demonstrators.



Preparation of the National Circular Economy Action Plan of the Republic of Cyprus.

Funded by the Ministry of Energy, Commerce and Industry.

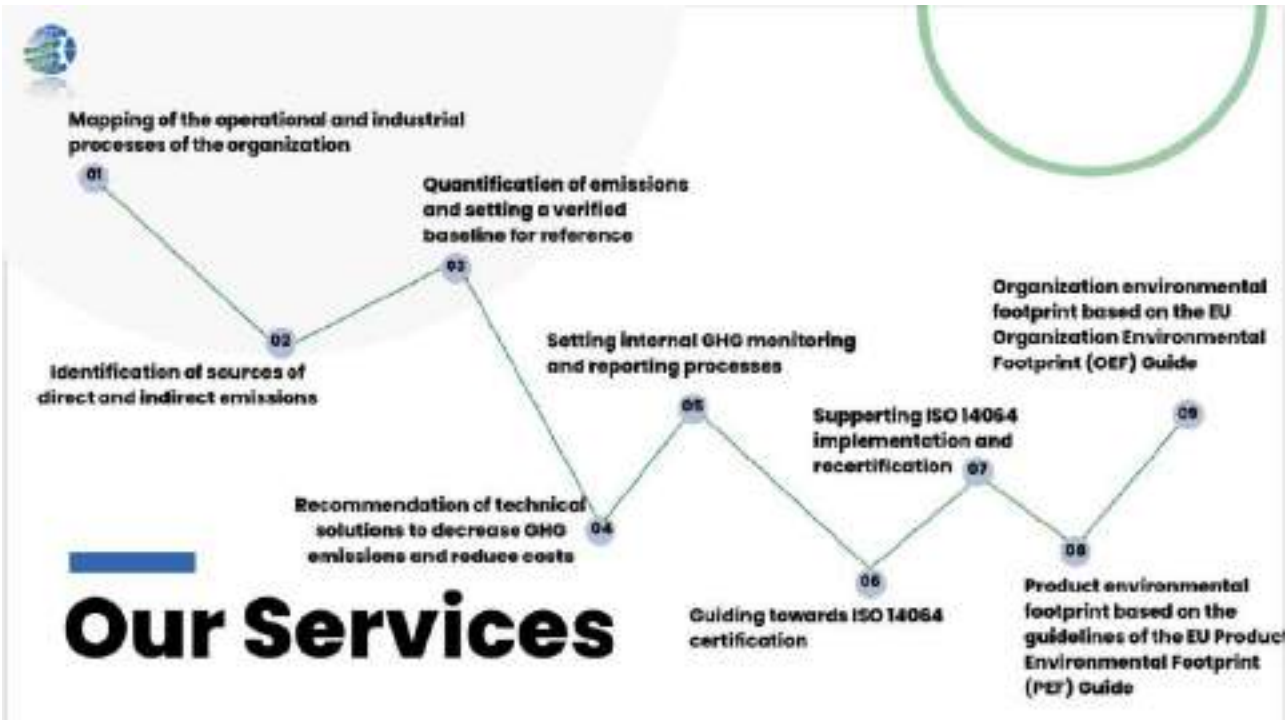


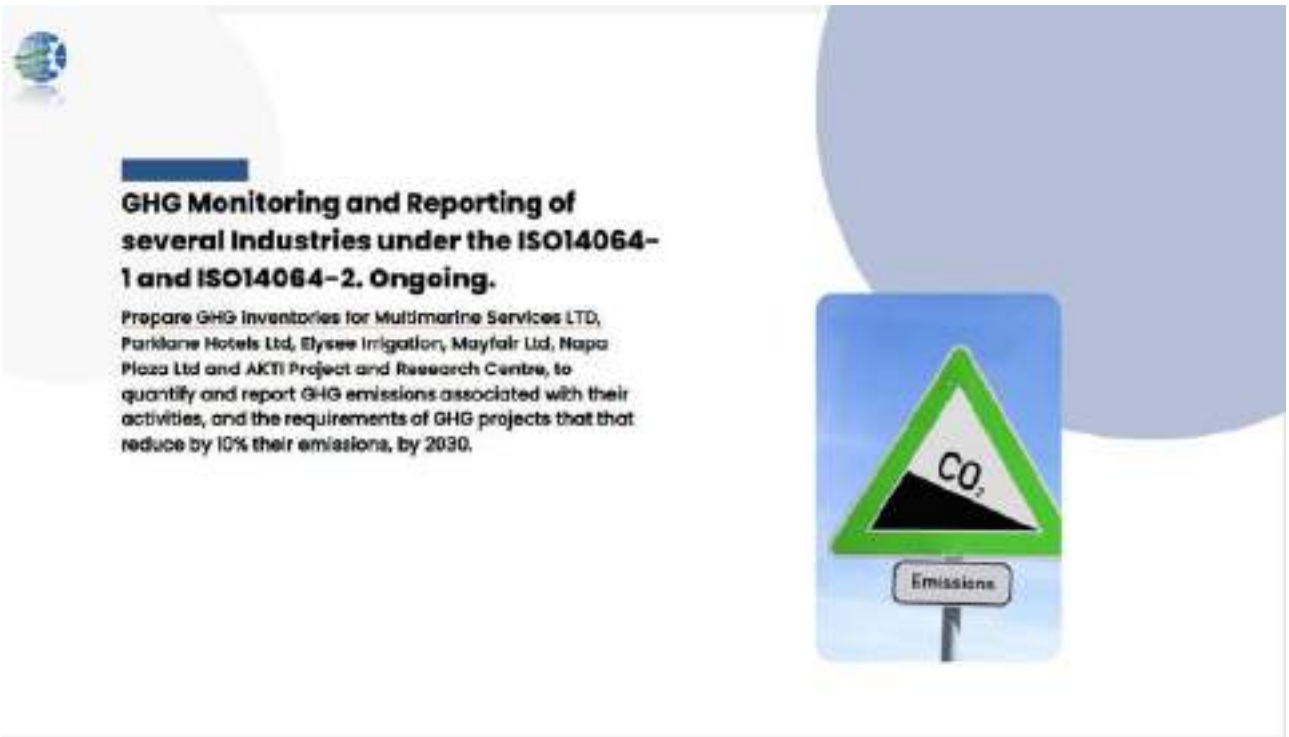
Design and development of the Business Plan and Feasibility Study for the Deposit Refund Scheme of Cyprus.

Private contract. Aims: to address the challenge of low packaging recovery rates in the Republic of Cyprus and to create a favorable landscape for waste management for the harmonization with the latest European Directives on Waste and Packaging Waste.



Environmental, Social & Governance (ESG) & Greenhouse Gas (GHG) Monitoring & Reporting


Mapping of the operational and industrial processes of the organization
01
Identification of sources of direct and indirect emissions
02
Quantification of emissions and setting a verified baseline for reference
03
Recommendation of technical solutions to decrease GHG emissions and reduce costs
04
Setting internal GHG monitoring and reporting processes
05
Guiding towards ISO 14064 certification
06
Supporting ISO 14064 implementation and recertification
07
Product environmental footprint based on the guidelines of the EU Product Environmental Footprint (PEF) Guide
08
Organization environmental footprint based on the EU Organization Environmental Footprint (OEF) Guide
09
Our Services


GHG Monitoring and Reporting of several Industries under the ISO14064-1 and ISO14064-2. Ongoing.
Prepare GHG inventories for Multimarine Services LTD, Parklane Hotels Ltd, Elysee Irrigation, Mayfair Ltd, Napa Plaza Ltd and AKTI Project and Research Centre, to quantify and report GHG emissions associated with their activities, and the requirements of GHG projects that that reduce by 10% their emissions, by 2030.
CO2
Emissions

Benchmarking, Roadmap Development and Technical Support for Elysee Ltd's GHG reporting. Ongoing.

Implementation of a thorough baseline study of manufacturing and operational activities, identification of solutions for more circular products and operations, development of a relevant strategy, and preparation of a publishable GHG emissions report.



ESG Self-Assessment Tool developed by ISOTECH's expert team evaluating ESG materiality assessment and monitoring progress through 114 indicators. Ongoing.

Development of a proprietary tool to guide our customers in their ESG materiality assessment and to support them through their ESG monitoring and reporting.



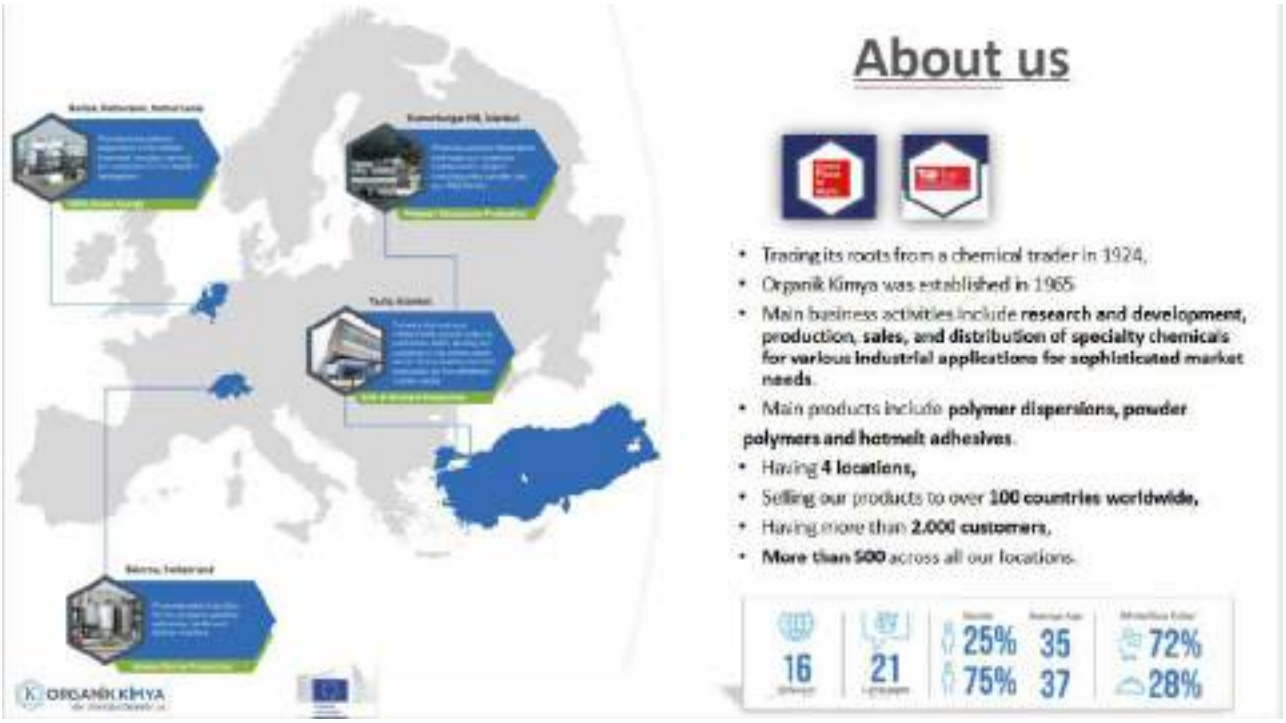


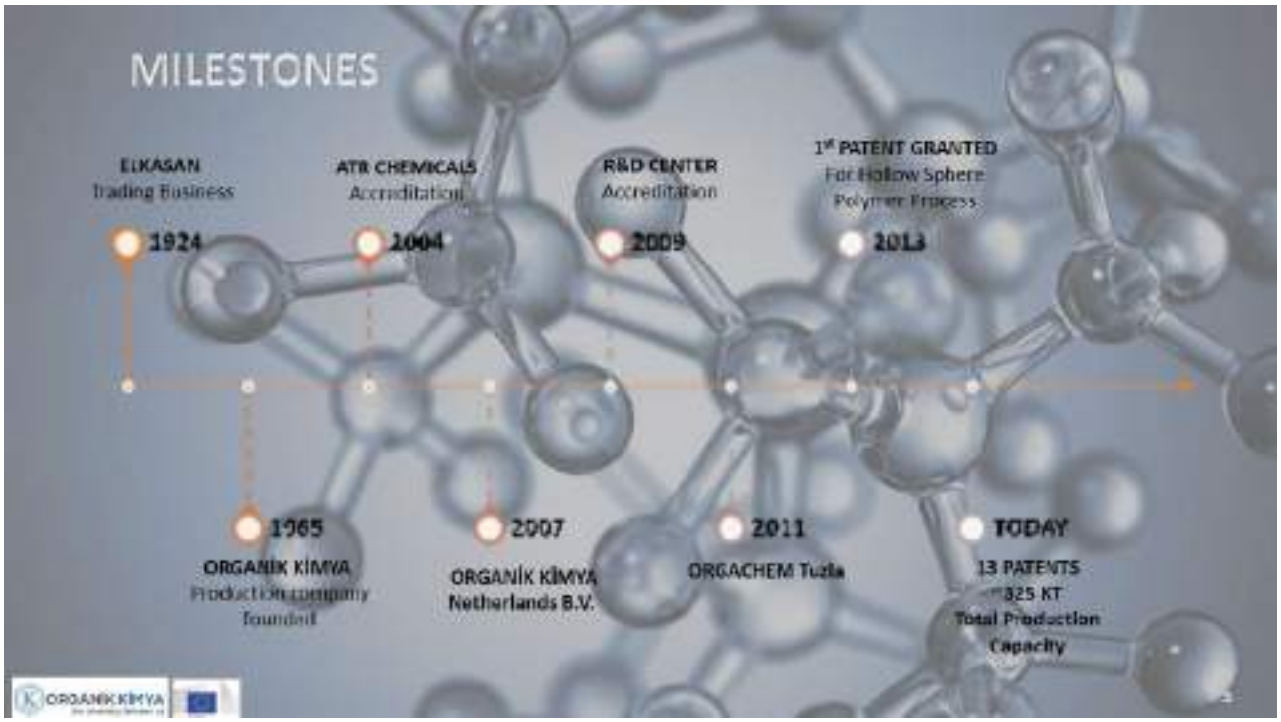


Our Services

6.4. OK introduction presentation






MILESTONES
ELKASAN
Trading Business
1924
ATR CHEMICALS
Accreditation
2004
R&D CENTER
Accreditation
2009
1st PATENT GRANTED
For Hollow Sphere
Polymer Process
2013
1965
ORGANİK KİMYA
Production Company
Founded
2007
ORGANİK KİMYA
Netherlands B.V.
2011
ORGACHEM Tuzla
TODAY
13 PATENTS
325 KT
Total Production
Capacity


Towards a Sustainable Future...
Electrical Consumption
-13%
Natural Gas Consumption
-25%
Renewable Energy in Rotterdam Kemerburgaz and Tuzla
100%
Waste Water Amount
-37%
Water Consumption
-43%
Innovation Patented Products
44
Lost Time Injury (LTI)
0%
Signatory of UN Global Compact
Signatory of Business World Plastics Initiative
GRI core report is on our webiste
ecovadis
Silver CSR Rating
United Nations Global Compact


Sustainable Products Portfolio
VOC FREE
Zero/low VOC
Biomass balance
Biobased monomers and X linkers
Circular economy based solutions
COMPOSTABLE
BIODEGRADABLE
Degradable and compostable solutions
FORMALDEHYDE FREE
Formaldehyde free solutions


Business Units & Technologies
Construction Solutions
Emulsions: Acrylic Polymers, Acrylic Copolymers, Styrene Acrylic Copolymers, Vinyl Acrylic Copolymers
Redispersible Powders: VAM/VV, VAM/VV/AC, VAM/AC
PSA & Paper Solutions
Emulsions: Acrylics Copolymer, Styrene Acrylics Copolymer, Vinyl Acrylics Copolymer, Acrylic Compounds
Coating Solutions
Emulsions: Acrylic Polymers, Acrylic Copolymers, Styrene Acrylic Copolymers, Vinyl Acrylic Copolymers
K
Textile & Leather Performance Solutions
Emulsions: Acrylics Copolymer, Styrene Acrylics Copolymer, Vinyl Acrylics Copolymer, Acrylic Compounds
Industrial Adhesives Solutions
Hotmelt Adhesives
Waterborne Adhesives
Life Sciences & Material Solutions
Different technologies for variety of applications
ORGANİK KİMYA



Construction Solutions

Emulsions:
Acrylic Polymers,
Acrylic Copolymers,
Styrene Acrylic Copolymers,
Vinyl Acrylic Copolymers

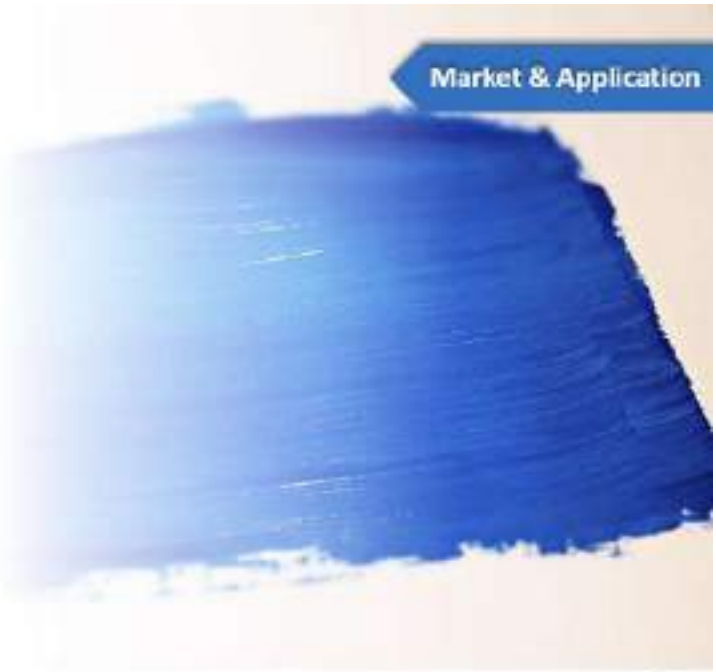
Re-dispersible Powders: VAM/VV, VAM/VV/AC, VAM/AC

- Waterproofing & Sealing
- Cement Modifiers
- Sealants
- Tile Adhesives & Grouts
- ETICS Applications
- Self Leveling Compounds

Coating Solutions

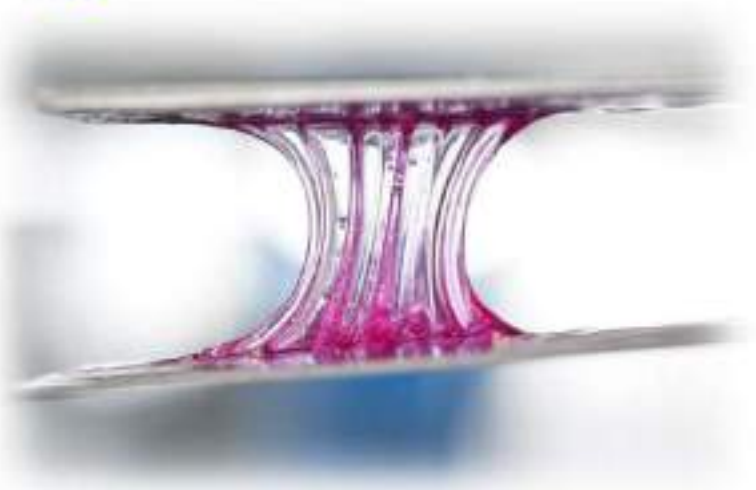
Emulsions:
Acrylic Polymers,
Acrylic Copolymers,
Styrene Acrylic Copolymers,
Vinyl Acrylic Copolymers

- Architectural Coatings
- Wood Coatings
- Speacialty Coatings
- Dispersants & Thickeners



Industrial Adhesive Solutions

Market & Application



Hotmelt Adhesives
Waterborne Adhesives

- Bookbinding
- Furniture & Solid Wood
- Hygiene & Personal Care
- Packaging
- Tapes & Labels
- Tobacco

Market & Application



PSA & Paper Solutions

Emulsions:
Acrylics Copolymer,
Styrene Acrylics Copolymer,
Vinyl Acrylics Copolymer,
Acrylic Compounds

- Labels
- Tapes
- Protective Films
- Packaging Tape
- Specialty Papers
- Other Special Applications

Textile & Leather Performance Solutions

Market & Application

Emulsions:
Acrylics Copolymer,
Styrene Acrylics Copolymer,
Vinyl Acrylics Copolymer,
Acrylic Compounds

- **Textile Polymers:**
  Finishing, Coating, Flocking, Nonwoven, Printing
- **Textile Auxiliaries:**
  Pretreatment, Dyeing, Printing, Finishing
- **Leather:**
  Wet End, Finishing



ORGANİK KİMYA

11

Life Sciences & Material Solutions

Market & Application

Different technologies for variety of applications.

- Cosmetics
- Detergents
- Plastic
- Rubber
- Polyurethane
- Metallurgy
- Silicones
- Waxes
- Additives for Coating & Construction



ORGANİK KİMYA

12


Sales Revenues in 2024
AMERICAS
35%
EUROPE
63%
TURKEY
23%
5%
AP
2%
ROW
1%
AFRICA
3%
51 % | Coating Solutions
14 % | PSA & Paper Solutions
10 % | Textile & Leather Performance Solutions
4 % | Industrial Adhesives Solutions
20 % | Construction Solutions
1 % | Distribution & Industrial Solutions


Innovation Culture and Ecosystem
Accreditation as R&D Center: 2009 in Kemerburgaz (HQ), İstanbul. 1st in Chemical Industry in Turkey!
More than 90 R&D Specialists, 50 Technical Commercial Interface, 60 Process Technology Engineers
Dedicated Synthesis & Application Labs
State of the Art Lab and Pilot Scale Synthesis and Application Equipments
Pilot production facilities for each different technology: Emulsion Polymerization, Powder Polymers and Hot Melt
13 Cross-Functional Innovation Boards
Spending ~4 % of Turnover
New Business Development & Technical Solutions
Analysis
Sustainable & Adjacent Technologies
University Collaborations
Synthesis
Process Development
Application Development
IP
Scale-Up
Regulations
Innovation management


Research & Development Capabilities
Flexible synthesis approach with different monomers / Functional monomer combinations possible
Simulates working conditions of scale-up and different production facilities in Istanbul and Rotterdam
40 automated laboratory glass reactors configurations with versatile equipment for different adjustments
3 pilot reactors, sizes between 100 and 300 kgs, and 2 pilot reactors work 7 days in a week with a dedicated team for scale up activities


Research & Development Capabilities
Analysis & Characterization
UV Spectrum
Particle Size Analyzer
Differential Scanning Calorimeter
Bubble Tensiometer
FTIR
Gas Chromatography-HS
Tensiometer
Drop Shape Analyzer
Rheometers

Research & Development Capabilities

Performance Testing


QUV Weathering


Thermal Aging Cabin

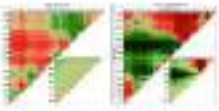

Tensile Testing


Adhesion Testing at Hot-Cold Environments


Adhesion Tester


Loop Tack


Static Shear Tester


Visual Data Analyzer

EU Projects

NEW

MAGICBIOMAT

Manufacturing Guiding Tool For Circular And Programmed Biodegradable Materials Under Open Environment Conditions

Project: MAGICBIOMAT aims at developing a portfolio of circular bio-based materials with programmed biodegradability demonstrated through 3 applications with highly concerning rates of littering: mulching films and paper-based packaging, tested in open environments conditions (soil, fresh water and marine) and different EU climates.

ORGK Role: Acrylics formulations development

Ongoing

NEW

RESURGENCE

Industrial Water Circularity: Reuse, Resource Recovery and Energy Efficiency For Greener Digitised EU Processes

Project: The general aim of RESURGENCE is the obtension of a comprehensive portfolio of modular and flexible treatment and digital technologies for (re)mediation of water efficiency and circularity in process industry. **ORGK Role:** ORGK is end-user.

Ongoing

NEW

RENOVATE

A circular and chemistry-neutral approach for recycling and recovery of battery waste feeds

Project: RENOVATE aims at developing and demonstrating new circular economy solutions for the European battery value-chain, targeting the re-use of 100% of (specification) cell fractions (e.g. metallic foil, graphite, electrolyte, fluorinated compounds and cathode active materials) within the battery value chain.

ORGK Role: It will focus on selective recovery of valuable materials from wastewater.

Ongoing

PERFECOAT

High performance Bio-Based functional coatingsfor wood and decorative Applications

Project: The goal of the PERFECOAT project is to develop and validate a new generation of industrial wood and decorative coatings with significantly more than 25% bio-based components that meet and even surpass the current quality and sustainability standards.

ORGK Role: Application tests

Ongoing

ECOFUNCO

Eco sustainable multifunctional biobased coatings with enhanced performance and end of life options

Project: The overall objective of project was to extract-functionalize molecules (proteins, polysaccharides, cutin) from highly available, low valorized biomass such as tomato, legumes, sunflower, etc. for the development of new bio-based coating materials.

ORGK: Coating aplication test.

Completed

Project Team



Hilal Macit, PhD candidate
(RD Specialist)



Esin Akdeniz
(Corporate R&D Manager)



Zeynep Alpay , MSc
(PSA & Paper RD Manager)



Sibel Altınok, MSc (Chief R&D and Polymer Technology Officer)



Cansu Akarsu, PhD
(Consumables Platform RD Manager)



Sercan İlğın
(R&D Senior Technician)

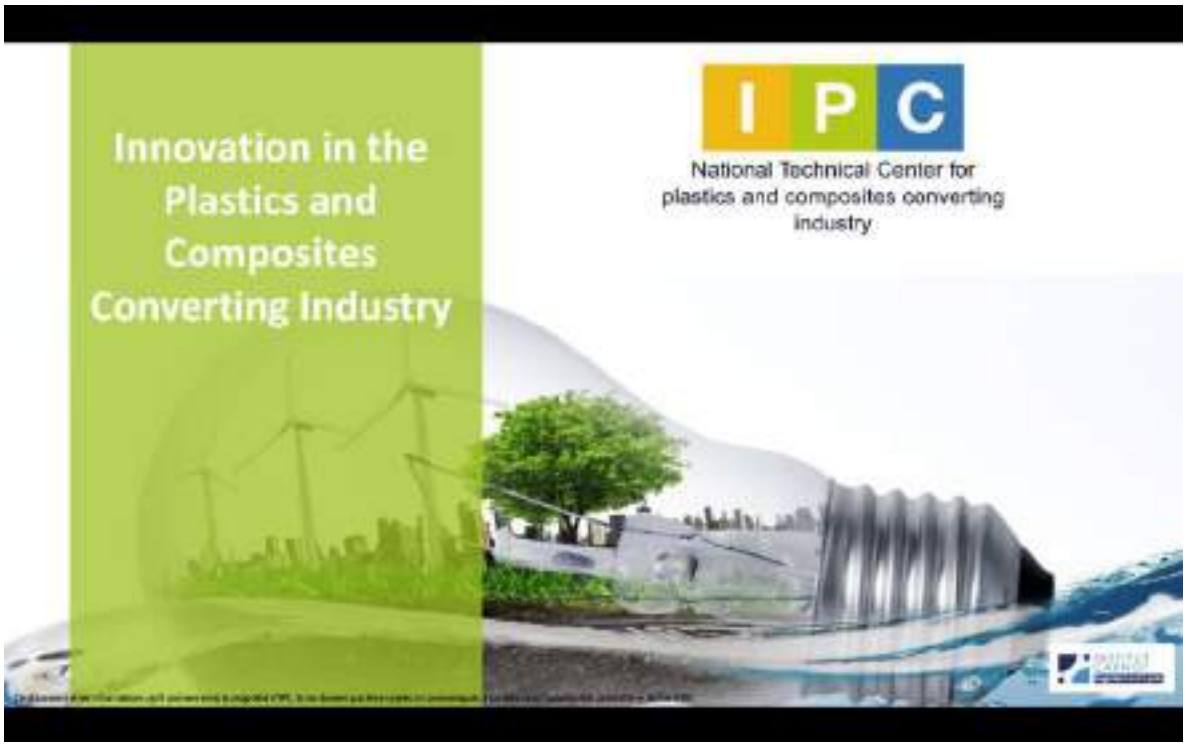
University Collaborations



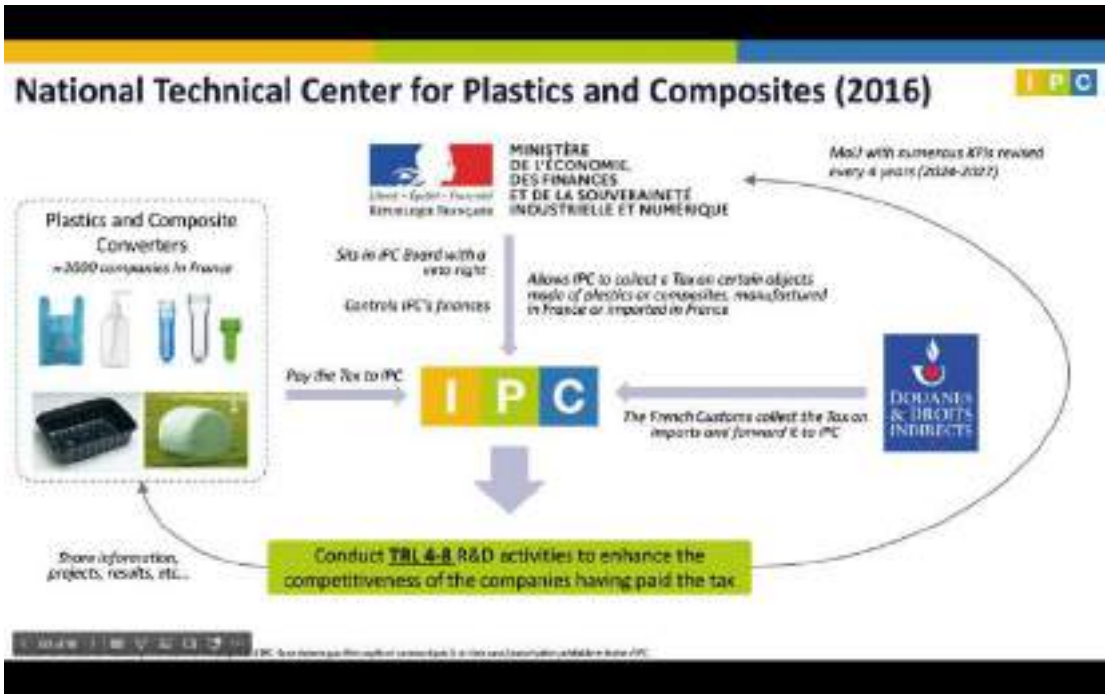

Innovation Culture and Ecosystem
External Partners
KİMYA -SI
Academia & Institutes
Funding Projects
ecofoni
STARTUP
Innovation Days


ORGANİK KİMYA
the chemistry between us
THANK YOU

6.5. IPC introduction presentation

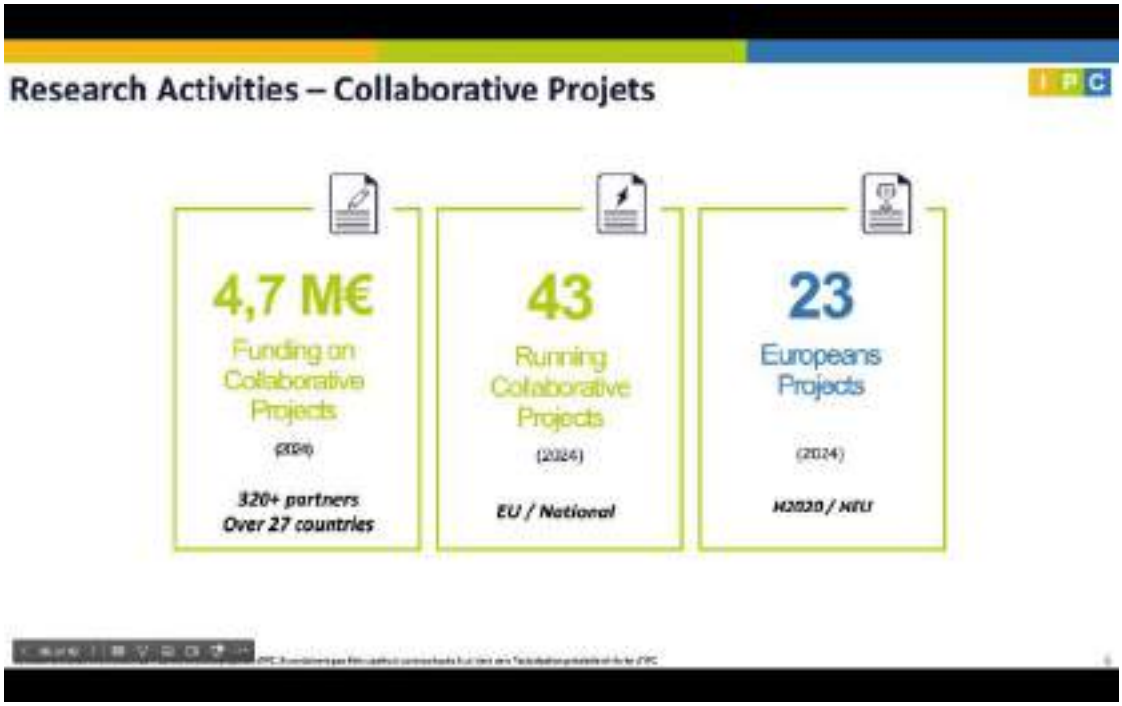





National Technical Center for Plastics and Composites (2016)
MINISTÈRE DE L'ÉCONOMIE, DES FINANCES ET DE LA SOUVERAINETÉ INDUSTRIELLE ET NUMÉRIQUE
MoU with numerous KPIs revised every 4 years (2020-2027)
Plastics and Composite Converters
~3000 companies in France
Sits in IPC Board with a veto right
Controls IPC's finances
Allows IPC to collect a Tax on certain objects made of plastics or composites, manufactured in France or imported in France
Pay the Tax to IPC
I P C
The French Customs collect the Tax on imports and forward it to IPC
DOUANES & DROITS INDIRECTS
Share information, projects, results, etc...
Conduct TRL 4-8 R&D activities to enhance the competitiveness of the companies having paid the tax


Our 5 locations
I P C
Business Intelligence Unit
Standard Office
Plastics extrusion
Development of extruded plastic products
Plastics processing by extrusion processes
Bio-sourced materials
Composites
Composites materials selection
Development of composites products
Conception/Design/Simulation
Industrialization support
Composites processing
Laboratory
Biodegradability (EN / Austria)
Food Contact
Migration Tests
Substances identification and quantification
Safety
LCA / LCC
Plastics Processing
Plastics product development
Design/Simulation
Plastics processing using injection and thermoforming techniques
Industrialization support
Rheology, thermal optimization of tooling
Process digitization
Plastics materials selection
Plastics formulation
Recycling, recyclability, eco-design
Plastic and composite materials characterization and testing laboratory
Additive manufacturing (polymers, composites,


National Technical Center for Plastics and Composites
IPC
Budget
19 M€ in 2024
175 collaborators
5 locations
Research
30%
of incomes
20+ EU Projects
20+ FR Projets
Private
R&D Services
25%
of incomes
R&D for
members
45%
of incomes
Technical watch / Economic Intel. / Standards


Research Activities – Collaborative Projets
IPC
4,7 M€
Funding on
Collaborative
Projects
320+ partners
Over 27 countries
43
Running
Collaborative
Projects
(2024)
EU / National
23
Europeans
Projects
(2024)

A new european strategy for plastics in Europe



A EUROPEAN STRATEGY
FOR PLASTICS
IN A CIRCULAR ECONOMY

4. THE WAY FORWARD: TURNING **VISION INTO REALITY**

4.1 IMPROVING THE ECONOMICS AND QUALITY OF PLASTICS RECYCLING

- improve design and support innovation to ***make plastics and plastic products easier to recycle***
- expand and improve the separate collection of plastic waste, to ***ensure quality inputs to the recycling industry***
- ***create viable markets for recycled and renewable plastic***

A paradigm shift in our innovation approach



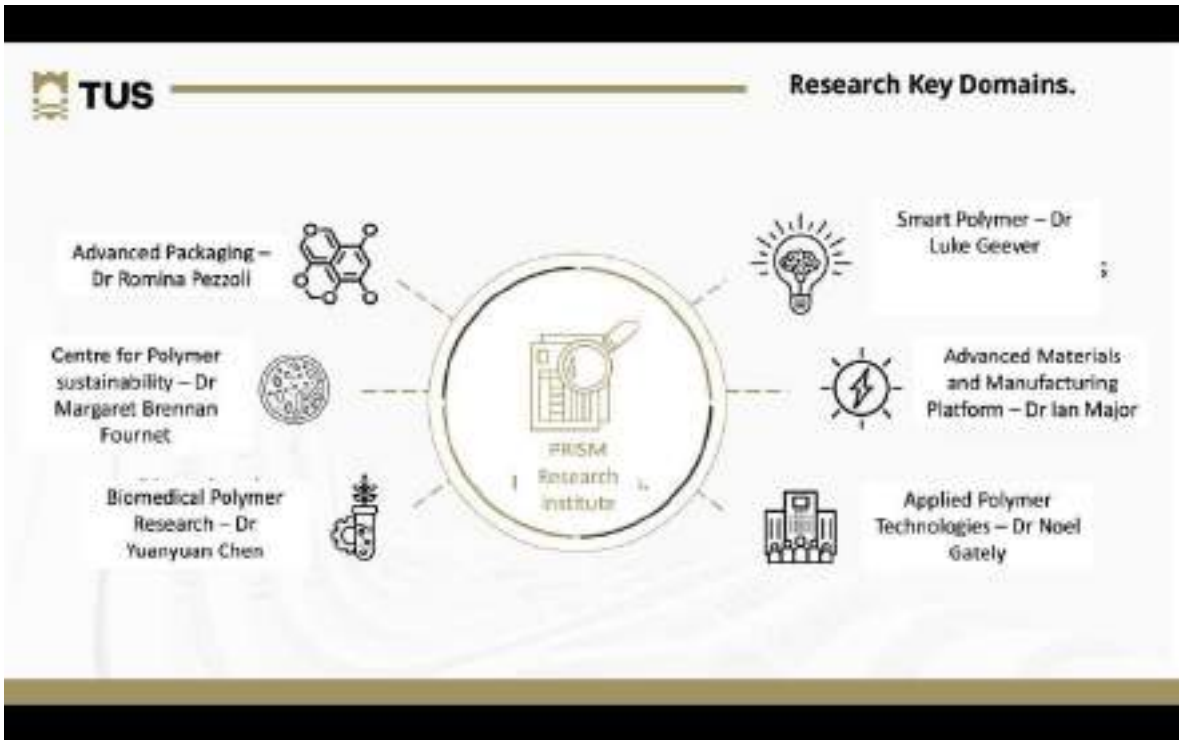



CONFIDENTIEL
Research Roamaps 2024-2027
I P C
Axe 1 Ecological and Energy Transition
1. Improving the eco-design of plastic products and develop new usage models (ex. reuse)
2. Ensuring the quality of Recycled Materials (PCR)
3. Developping low environmental impact alternative solutions for a sovereign industry
4. Protecting human health and natural ecosystems
Axe 2 Digital Transition and Industry of the Future
1. Developing new processes and tooling to produce better, in France
2. Implementing digital solutions for design, production and control
3. Creating high-quality databases and secure their exchange for a resilient industry
4. Deploying new digital applications to support efficient production
Axe 3 High value-added products
1. Improving the life cycle of composites from design to end-of-life
2. Enhance the technical, functional and environmental performance of composites
3. Deploy plastronics in an innovative and responsible way
4. Give new properties and functionalities to the surfaces and volumes of plastic object


LE CENTRE DE LA TECHNIQUE ET DES INDUSTRIEL PLASTURGIE COMPOSITES
I P C
SFE
NOUS CONTACTER
IPC OYONNAX
2 rue Pierre & Marie Curie
01100 BELLIGNAT
IPC ALENCON
Pôle universitaire de Montfoulon
61250 DAMIGNY
IPC LAVAL
Parc universitaire et technologique
Rue Léonard de Vinci
53810 CHANGÉ
IPC CLERMONT
Biopôle Clermont-Limagne
Rue Michel Renaud
63360 SAINT-BAUZIRE
I P C
Gilles DENNLER
Directeur de la Recherche
Tel : 06 48 58 99 08
gilles.dennler@ct-ipc.com
INSTITUT CARNOT
Gulfstream
SGS
CIR
Vous pouvez bénéficier d'un bonus Crédit Impôt Recherche pour votre étude d'innovation grâce à notre statut de CTI.

6.6. TUS introduction presentation

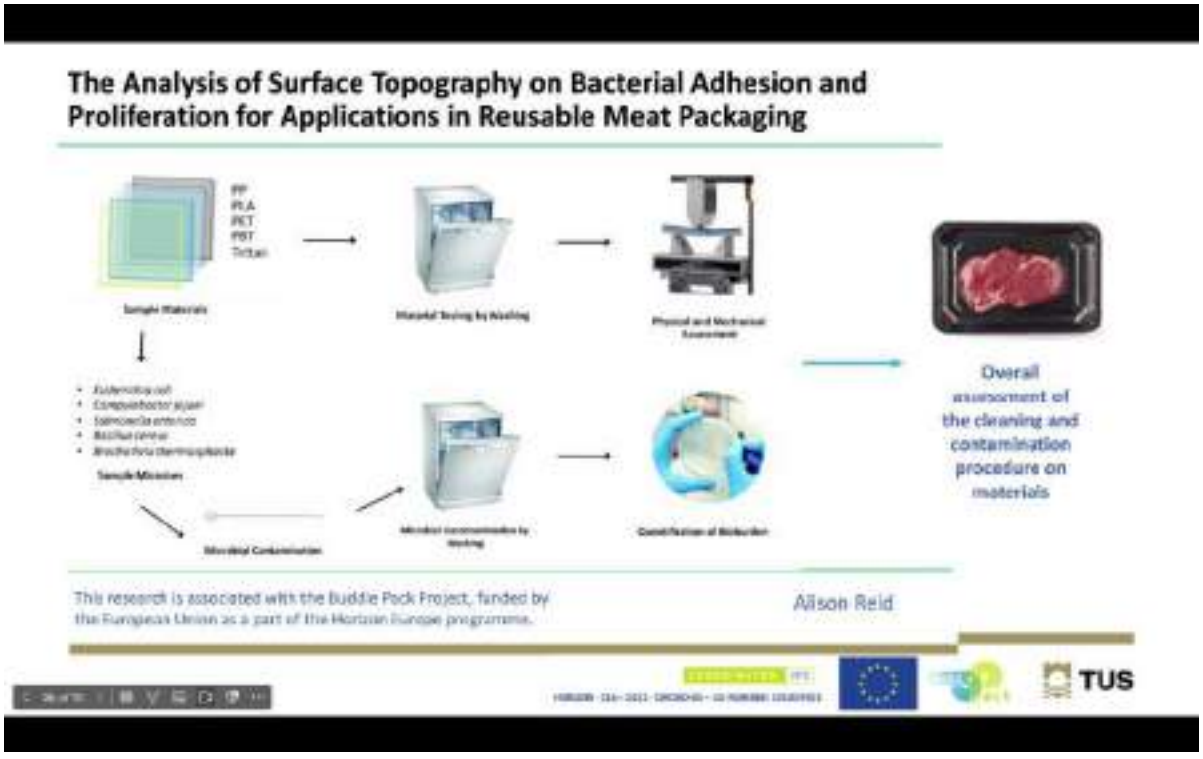





Nationally and Internationally connected centre
atimcluster
esa
TECHNOLOGY GATEWAYS
afbi
EcoPlastiC
Taighde Éireann
Research Ireland
biOrbic
cúram
APT
CISD
TUS
Enterprise Ireland
TUS


Sustainability


Buddie Pack
Business-driven systemic solutions for sustainable plastic packaging reuse schemes in mass market applications
Collaborating with Dawn Meats, TUS is developing a reusable meat tray for Bead Vacuum Skin Packaging
Material Assessment
Microbial Assessment
Materials and Manufacturing
Quality and Safety
Social and Behavioural Innovation
Sustainable Business-Driven Strategies
REUSABLE PACKAGING
Technical and Socio-economic Specifications
Circularity
6 case studies for food-contact and personal care applications
Funded by the
HORIZON - CL6 - 2021 - CIRCBIO - 01 - GA NUMBER: 101059933
TUS


The Analysis of Surface Topography on Bacterial Adhesion and Proliferation for Applications in Reusable Meat Packaging
PP
PLA
PET
PBT
Tritan
Sample Materials
Material Testing by Washing
Physical and Mechanical Assessment
Overall assessment of the cleaning and contamination procedure on materials
Sample Microbes
Microbial Contamination
Microbial Decontamination by Washing
Quantification of Reduction
This research is associated with the Buddie Pack Project, funded by the European Union as a part of the Horizon Europe programme.
Alison Reid
TUS


PRiMe – Sustainable Packaging Systems for Fresh Meat
Meat Technology Ireland
Reduce the environmental impact of meat packaging items while preserving their role for food safety
Enhance packaging recyclability and recovery methods to transition to a circular economy
Preservation and extension of shelf life to assure food safety and minimise food waste
Upcoming packaging and plastic waste EU legislation
Waste management solutions targeted to specific meat packaging systems
Validation of sustainable packaging solutions and food safety
TECHNOLOGY CENTRE
Dr Romina Pezzoli
Dr Yvonne Cortese
TUS


Beyond Peat - Utilising organic bio-resources and novel technologies to develop specifically and sustainable peat replacements for professional horticultural crop production
•Beyond Peat (€1.69m) funded by DAFM, seeks to assess current alternatives, from an agronomic, economic and environmental perspective
•Utilise waste materials available locally, either processed or transformed to support Irish growers and insulate from increased International demand for GM
•TUS is developing biopolymer-based growing substrates
Beyond Peat
Dr Yuanyuan Chen
UCC
cogasc
TUS

Advanced Materials and Manufacturing Platform (AMMP)



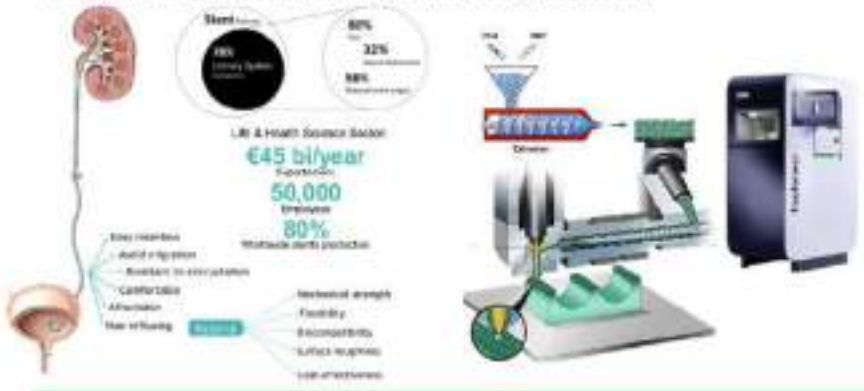
AMMP

Core Topics

1. **Advanced materials: materials beyond conventional**
   i. Thermoplastic composites
   ii. High-performance materials
   iii. Resins and adhesives
2. **Advanced manufacturing: better ways to make things**
   i. Composite manufacturing
   ii. Low-energy processing technologies
   iii. Smart manufacturing

Development of bioresorbable ureteral stents (BUS)

3D printing for optimised and fast degradation / Droplet deposition



1. Freeformer: Process parameters optimisation. (DOI: 10.3390/jcs6100309)
2. Degradation rate assessed for optimised blends (PHB/PLA/PCL)
3. Flexible stents with tailored degradation behaviour.
4. Antimicrobial agents (Ag/Zn), tests on artificial urine solution (AUS).



Leonardo Galli Engler

TUS Presidents Doctoral Scholarship

TUS

Improve Shape Memory, Mechanical and Fracture Properties of 3D-Printed Epoxy/Acrylate Nanocomposites

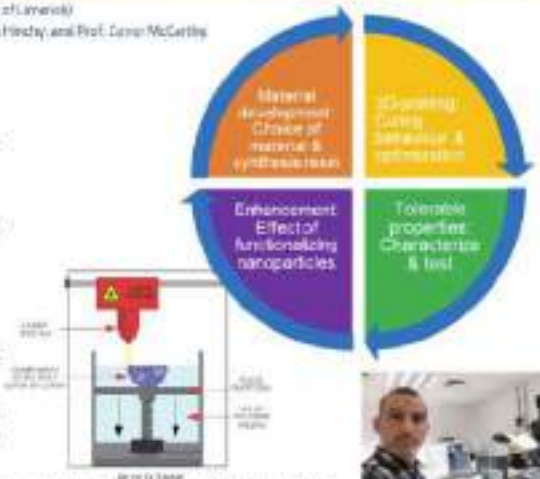
Mohamed Alkaati (IRIGM-Technological University of the Shannon (TUS) & University of Limerick)
This project is carried out at TUS under the supervision of Prof. Declan Devine, Dr. Eoin Hinchy, and Prof. Conor McCarthy

Challenges:

- The poor mechanical and thermal properties resulted from the 3D printing of resins;
- 3D printing of epoxy resin;
- Nanoparticle agglomeration drawbacks of liquid-based 3D printed nanocomposites;
- Environmental resistance of 4D-printed components;

Solution:

- Hybrid photopolymers composed of both epoxy and acrylate;
- Chemical surface modification of nanoparticles with melamine can prevent aggregation, enhance printability and improve mechanical and thermal properties;



This research project is funded by Marie Skłodowska-Curie grant agreement No. 847577 cofunded by the European Regional Development Fund and Science Foundation Ireland (SFI) under Grant Number SFI/16/RC/3918 (Smart Manufacturing, Confirm Centre, UL). The industrial partner is 3D Technology LTD company

Confirm SMART4.0 3D Technology Ltd TUS

Vision-Guided Robotic System for Self-Adjusting Pick and Place Tasks

- **Overview** → Development of a self-adjustable robotic system for the execution of a pick-and-place tasks.
- Capable of locating the moulded part sprue and picking it up in the moving conveyor belt autonomously, regardless of:

(a) Placement, (b) Orientation, and (c) Size.







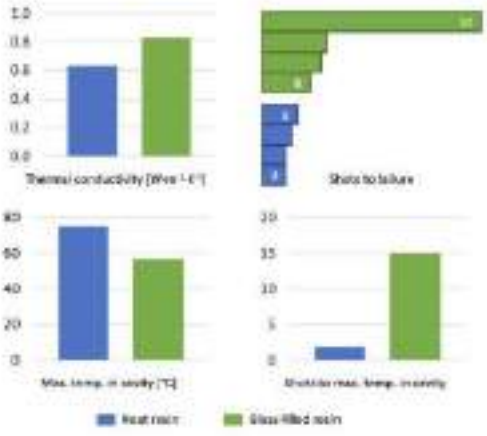


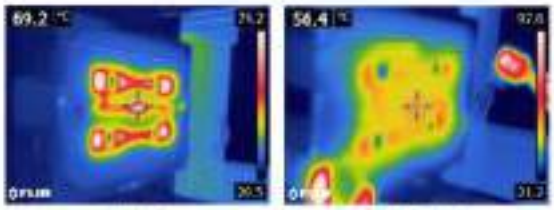
Pick-and-place system components assembled in the manufacturing line and its digital twin.

Science Foundation Ireland / Johnson & Johnson

Confirm Smart Manufacturing TUS

Improved Thermal Conductivity of 3D-Printed Moulds for Plastic Injection





- Enhanced heat dissipation with glass filling
- Greater mechanical behaviour and higher durability
- Steel mould and glass-filled insert produce parts with similar properties



PhD candidate: Vince Moritz, BEng

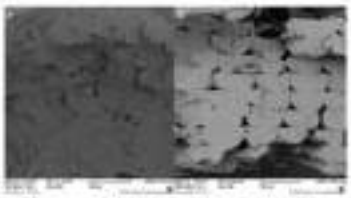
Supervisors: Dr Declan Devine and Dr Seán Lyons

TUS

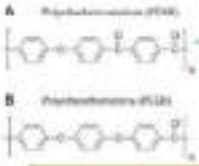
UV Stabilization and Recyclability of High-Performance Polymers for In Space Additive Manufacturing

The objectives of this study are;

1. Investigate high performance polymers that are suited to 3D printing and can withstand the conditions for in-space manufacturing.
2. Optimise the 3D printing process for selected materials to set a baseline for comparison with traditional manufacturing i.e., injection moulding.
3. Identify suitable UV stabilisation additives and coatings to create feedstock for 3D printing.
4. 3D print with UV stabilised filament/ coat 3D printed samples and test the mechanical properties and compare to optimised 3D printed and injection moulded samples.
5. Access the recyclability of the UV-treated materials.



SEM images of PEKK-A at different 3D printing process parameters (A) print speed – 30 mm/s, layer thickness – 0.1mm, nozzle temperature – 350°C, build platform temperature – 140°C (B) print speed – 10 mm/s, layer thickness – 0.2mm, nozzle temperature – 330°C, build platform temperature – 140°C



IRISH RESEARCH COUNCIL An Chomhairle um Thaighde in Éirinn

Student: Aaron Maloney



TUS

APT

TUS Technology Gateways Enterprise Ireland

Applied Polymer Technologies

Noel Gately, Centre Manager
https://www.aptireland.ie/

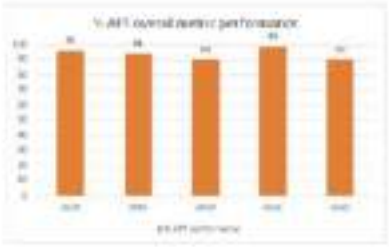


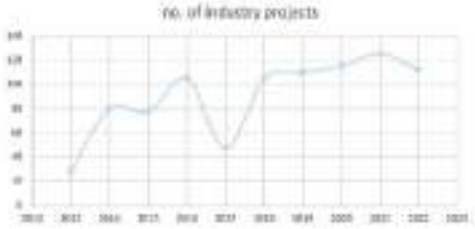
Enterprise Ireland

The Enterprise Ireland Technology Gateway Programme is co-financed by the Government of Ireland and the European Union through the ERDF Southern, Eastern & Midland Regional Programme 2021-27 and the Northern & Western Regional Programme 2021-27.

APT

- Founded in 2013
- Specialises in Polymer Processing
- Consistently ranked as one of the lop Gateways nationally by Enterprise Ireland
- Current themes:
  - Polymer Characterisation
  - Advanced Materials Inc Construction & Composite materials
  - Advanced and smart Polymer Processing
  - Biomedical Materials
  - Packaging and Sustainability





TUS

APT

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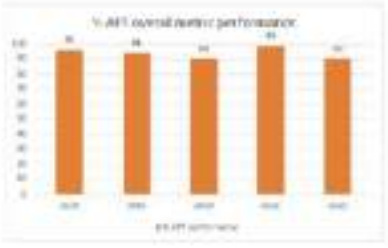
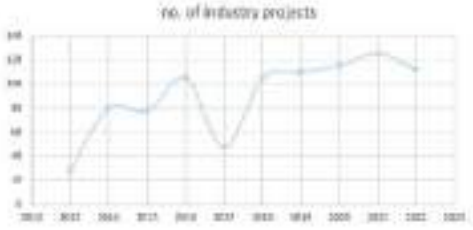




TUS

6.7. UNIPD introduction presentation

MAGICBIOMAT Partner introduction

Università degli Studi di Padova
(UNIPD)

Who is who – UNIPD team



Prof. Alessandra Lorenzetti

PhD in Chemical Engineering
Associate Professor – Department of Industrial Engineering – Padova University (Italy)

Main Research Topics

- Polymers formulation, processing and application;
- Chemical and biological recycling of polymers;
- Chemicals and polymers from renewable or waste materials;
- Thermal degradation and flame reaction of polymeric systems.

What I like to do in my spare time.....





Who is who – UNIPD team



Lara Facchini

Master's degree in Materials Engineering
PhD student in Industrial Engineering
PhD topic: Development of bio-based polymers with controlled biodegradation rates

Main Research Topics:
- Characterisation and processing of biopolymers and biopolymer blends
- Chemical recycling of PA6

Research team: **the Polymer Engineering Group**



Who is who – UNIPD team



Prof Lorenzo Favaro

PhD in Agricultural Biotechnologies
Associate Professor – Department of Agronomy Food Natural resources Animals and Environment (DAFNAE) – University of Padova

Extraordinary Professor – Microbiology Department – University of Stellenbosch – South Africa

Main Research Topics
- Bacterial and yeast biotechnology;
- Processing waste into bioproducts (ie, bioethanol, biogas, biohydrogen, biopolymers, ...);
- Recombinant enzymes production in yeast.

What I like to do in my spare time.....



Who is who – UNIPD team



Dr. **Marthinus Wessel Myburgh**

PhD in Microbiology and Agricultural biotechnologies

PostDoc – DAFNAE

Main Research Topics

- Yeast biotechnology;
- Enzymatic bioplastic hydrolysis;
- Recombinant enzyme production in yeast;
- Low-cost substrate conversion (Starch/Lignocellulose -> Ethanol/Lactic acid).

SPEARFISHING

European Commission

Who is who – UNIPD team



Leonardo Faggian

PhD Candidate - DAFNAE Department

Master Thesis in Industrial Biotechnologies

1-Year Research Fellowship: Development of enzymes as a biotechnological solution to accelerate the anaerobic digestion of end-of-life bioplastics

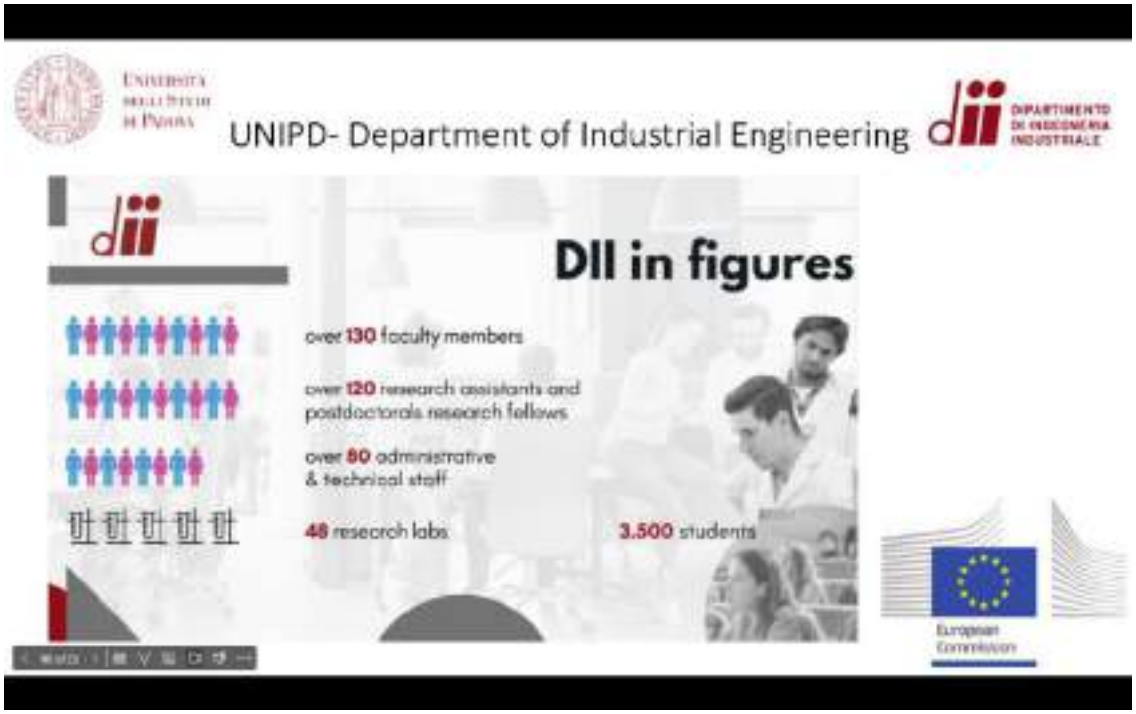


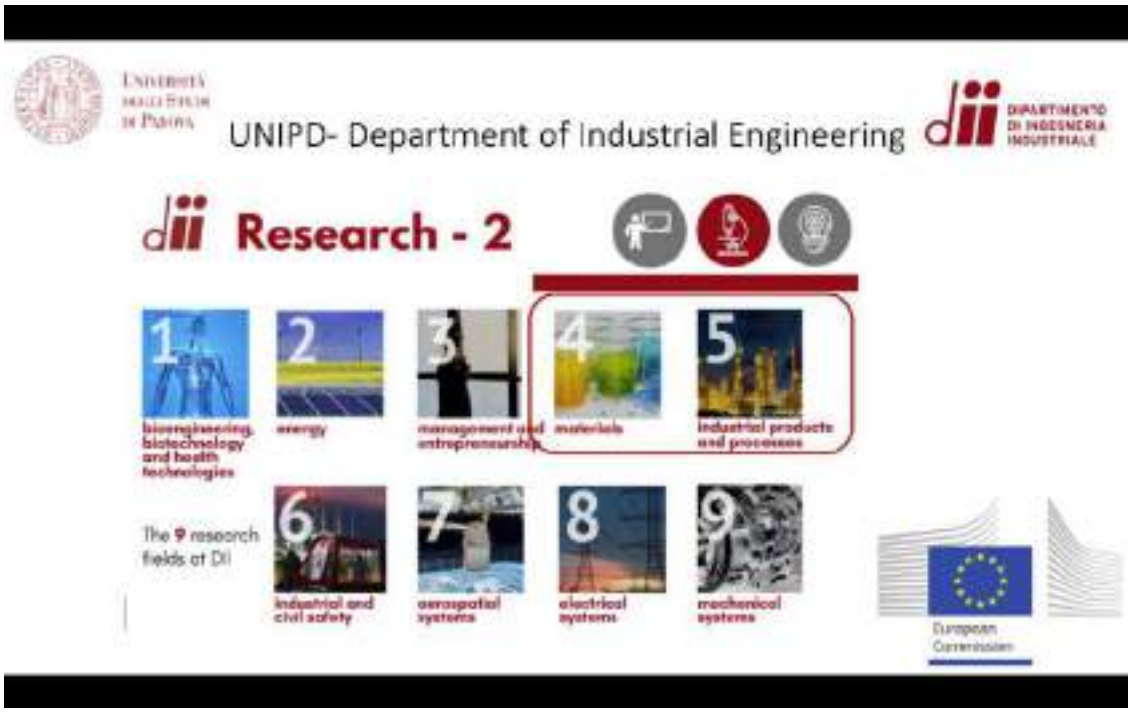


WASTE TO BIOPRODUCTS LABORATORY

European Commission


UNIPD- Facilities
Department of Industrial Engineering
Designing the future, since 1865.
European Commission


UNIPD- Department of Industrial Engineering
DII in figures
over 130 faculty members
over 120 research assistants and postdoctorals research fellows
over 80 administrative & technical staff
48 research labs
3.500 students
European Commission


UNIPD- Department of Industrial Engineering
Research - 2
1
bioengineering, biotechnology and health technologies
2
energy
3
management and entrepreneurship
4
materials
5
industrial products and processes
The 9 research fields at DII
6
industrial and civil safety
7
aerospatial systems
8
electrical systems
9
mechanical systems
European Commission


Polymer Engineering Group
POLYMER ENGINEERING LABORATORIES


UNIPD - Research activities
Polymer Engineering Group
POLYMER ENGINEERING LABS
DEPARTMENT OF INDUSTRIAL ENGINEERING
University of Padova


UNIPD - Facilities
Thermoplastics processing lab
• Twin screw extruder L/D = 27, D = 25mm
• Twin screw mini-extruder L/D = 25, D = 9mm
• Single screw extr./rheometer L/D = 25, D = 19mm
• Plastograph 50cc Brabender
• Injection molding press 55Ton
• Platen press


UNIPD - Facilities
Thermal analysis and Rheology
TGA interfaced with FT-IR or GC-MS
Modulated DSC (mDSC)
Dynamic-mechanic analyzer (DMA)
Limiting oxygen index (LOI)
Capillary rheometer
Melt flow index tester (MFI)
Automated capillary viscosimeter
Thermal conductivity


UNIPD - Facilities
Physical and Chemical Analysis Lab
FT-IR
Micro-Raman
GC-MS
HPLC- UV and HPLC-MS
Mechanical testing
Precision electrometer/multimeter
Moisture content evaluation
Gas permeability test (O_2, CO_2 and water vapor)

UNIPD - Facilities

Thermosetting processing lab

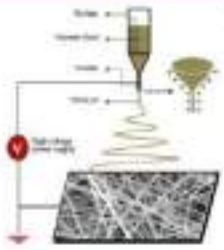
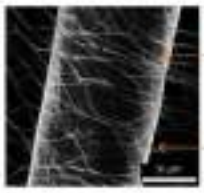




- Rigid PU foams for thermal insulation
- Flexible PU foams (memory shape)
- Epoxy based thermosetting
- Thermosetting by casting (Reaction Injection molding)

UNIPD - Facilities

Electrospinning/electrospraying



- 2 Electrospinning stations
- 1 high throughput spinning system
- Coaxial spinneret device
- Static & rotating drum collectors




UNIPD - Facilities



Morphology

- Scanning electron Microscopy (SEM)



- Transmission electron microscopy (TEM)

Crystallography & composition

- X-Ray Diffraction for identifying crystalline phases in pure materials and complex mixtures; semi-quantitative estimates and quantification



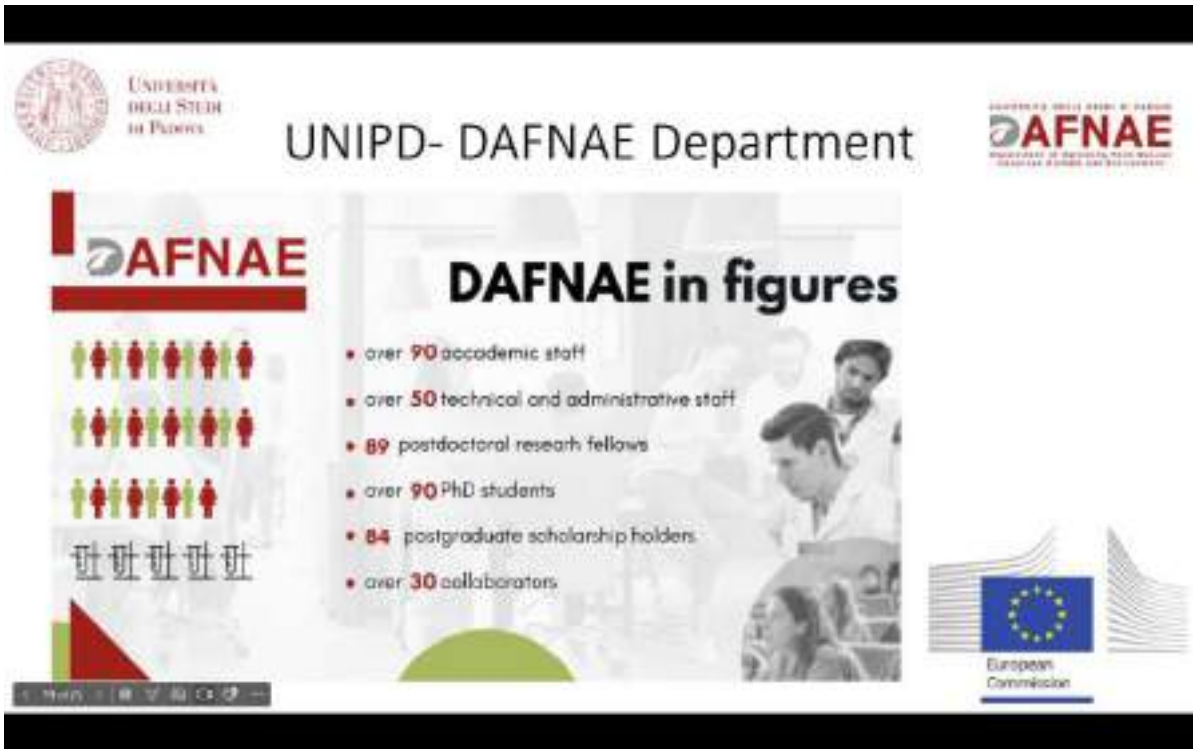


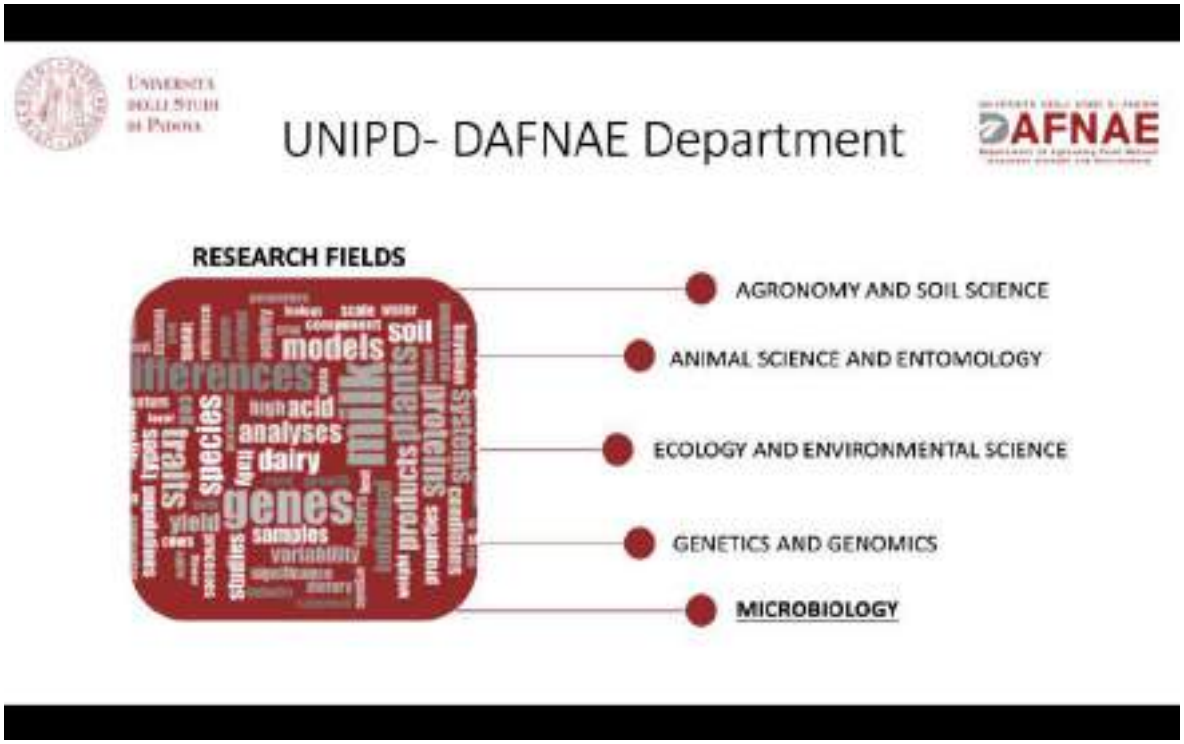
POLYMER ENGINEERING LABS
DEPARTMENT OF INDUSTRIAL ENGINEERING
University of Padova

UNIPD- Facilities



European Commission


UNIPD- DAFNAE Department
DAFNAE
DAFNAE in figures
over 90 accademic staff
over 50 technical and administrative staff
89 postdoctoral research fellows
over 90 PhD students
84 postgraduate scholarship holders
over 30 collaborators
European Commission


UNIPD- DAFNAE Department
DAFNAE
RESEARCH FIELDS
AGRONOMY AND SOIL SCIENCE
ANIMAL SCIENCE AND ENTOMOLOGY
ECOLOGY AND ENVIRONMENTAL SCIENCE
GENETICS AND GENOMICS
MICROBIOLOGY

UNIPD- Facilities

3 specialized common laboratories:
- Central Chemical Laboratory (LaCHI)
- Genomics Laboratory (LabGEN)
- Sensory Analysis Laboratory (AnSen-LAB)

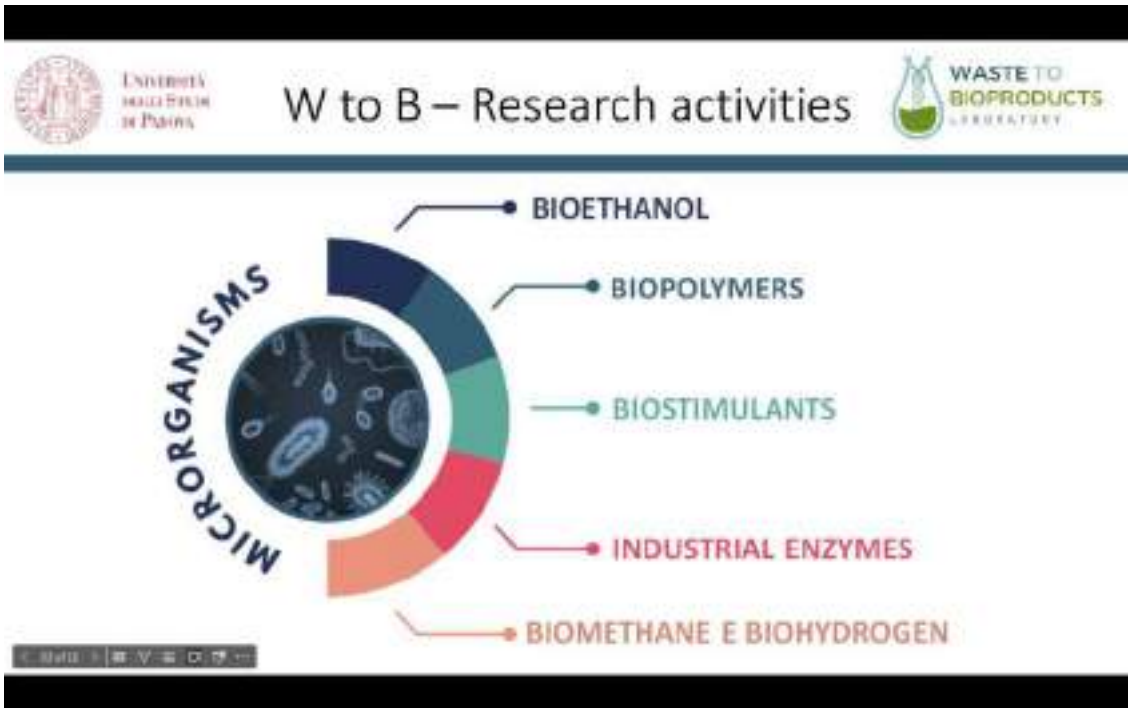
45 research laboratories



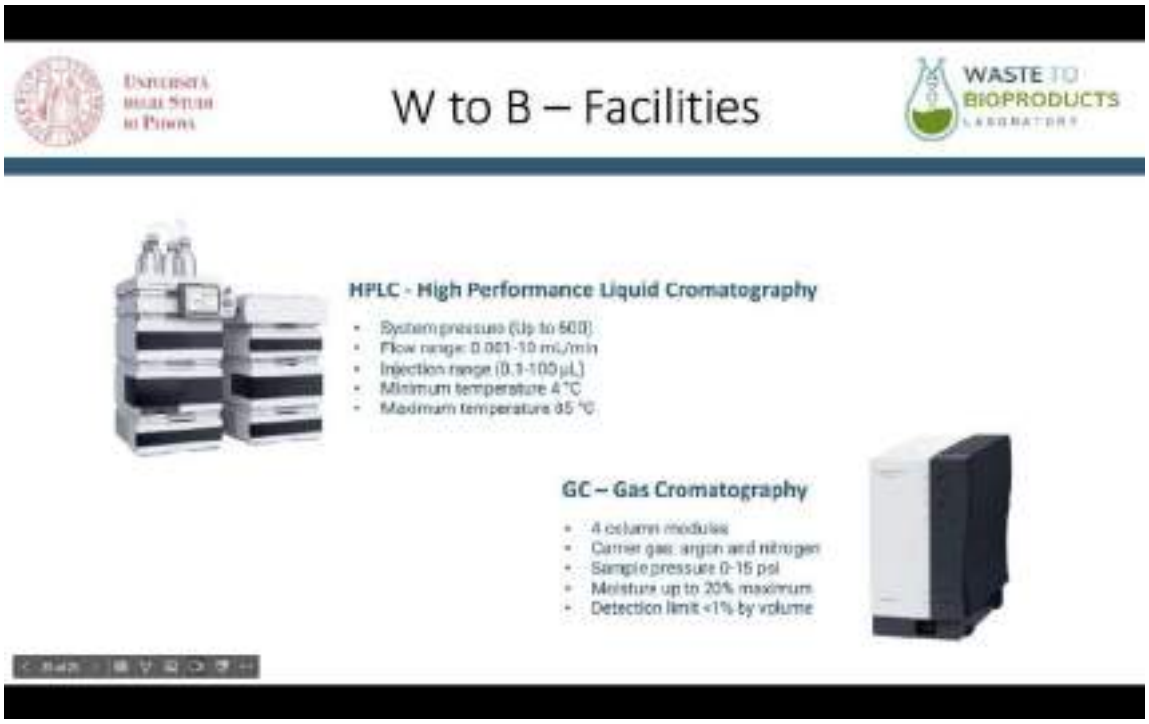


UNIPD- DAFNAE Department




W to B – Research activities
WASTE TO BIOPRODUCTS
MICRORGANISMS
BIOETHANOL
BIOPOLYMERS
BIOSTIMULANTS
INDUSTRIAL ENZYMES
BIOMETHANE E BIOHYDROGEN


W to B – Facilities
WASTE TO BIOPRODUCTS
AUTOCLAVE
MULTIPLATE READER
BIOREACTORS



6.8. USFD introduction presentation



The University of Sheffield team

Dr Nicola Buckland (Psychology)

- Drivers of behaviour and ways to increase engagement in healthy and sustainable behaviours.
- Developing real-world interventions in partnership with organisations to encourage pro-environmental choices.

University of Sheffield

European Commission

The University of Sheffield team

Recent projects:

- Compostable Coalition UK (working with Vegware)
- Capturing and Processing Compostable Packaging - Behaviour Change (funded by Innovate UK)

https://www.youtube.com/watch?v=bz8G6emQ_sU

University of Sheffield

European Commission

The University of Sheffield team

Professor Joanna Gavins (Linguistics)

- The relationship between language, cognition and the environment.
- Helping organisations to develop linguistic strategies to help shift behaviour and encourage pro-environmental choices.
- Reframing language to change our understanding of our environment and our interaction with specific materials.

University of Sheffield

European Commission

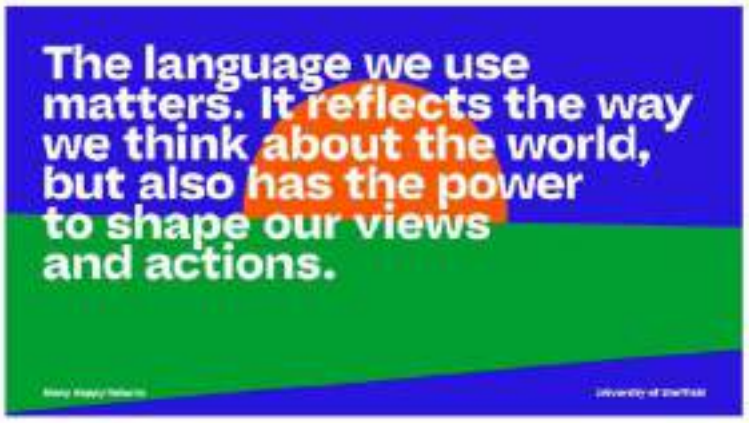
The University of Sheffield team

Recent projects:

- Plastics: Redefining Single Use (2018)
- Many Happy Returns (2020-2024)
- Biobased and Biodegradable Regulatory Network (2023-present, funded by Innovate UK and working with the Biobased and Biodegradable Industries Assocation)

University of Sheffield

European Commission



https://grantham.sheffield.ac.uk/how-to-talk-about-plastics/

6.9. Overview presentation

MAGICBIOMAT

Manufa**c**turing **g**ui**c**ding tool for **c**ircular and programmed **bio**degradable **mat**erials under open environment conditions

HE101181381

€3.8 million

Jan 2025 – Dec 2028

Funded by the European Union

[redacted]



No.	Participant	Short name	Country
1 (Coord.)	Technological University of the Shannon	TUS	IE
2	Università degli Studi di Padova	UNIPD	IT
3	Organik Kimya	OK	TR
4	Digiotouch OU	DIGI	EE
5	Centre Technique Industriel de la Plasturgie et des Composites	IPC	FR
6	ISOTECH	ISOTECH	CY
	niversity of Sheffield	UNFD	UK

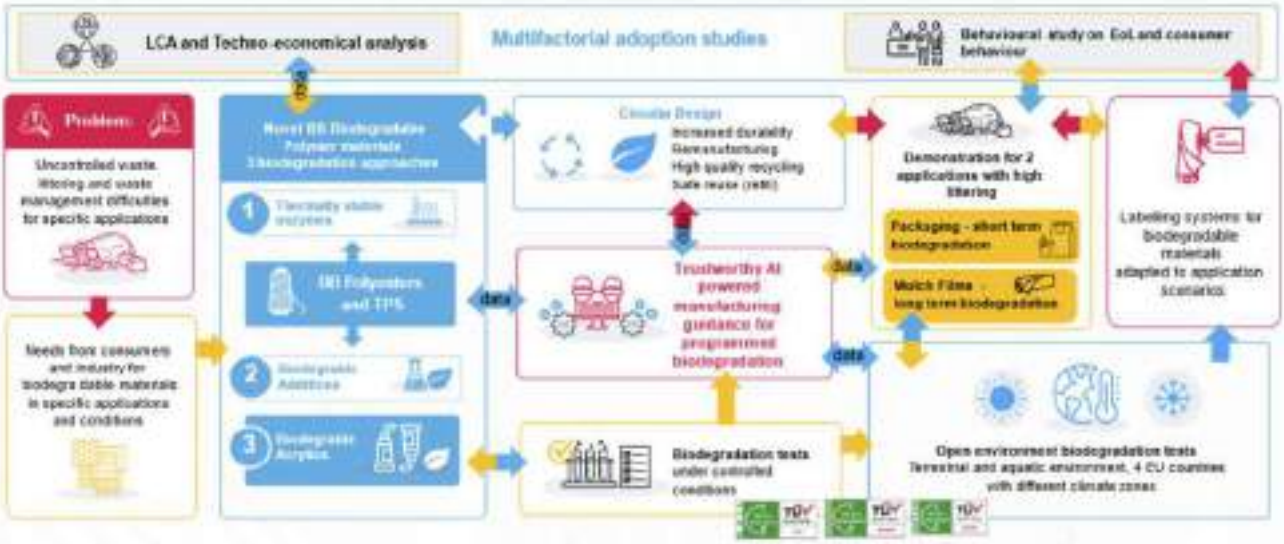
[redacted]

[redacted]

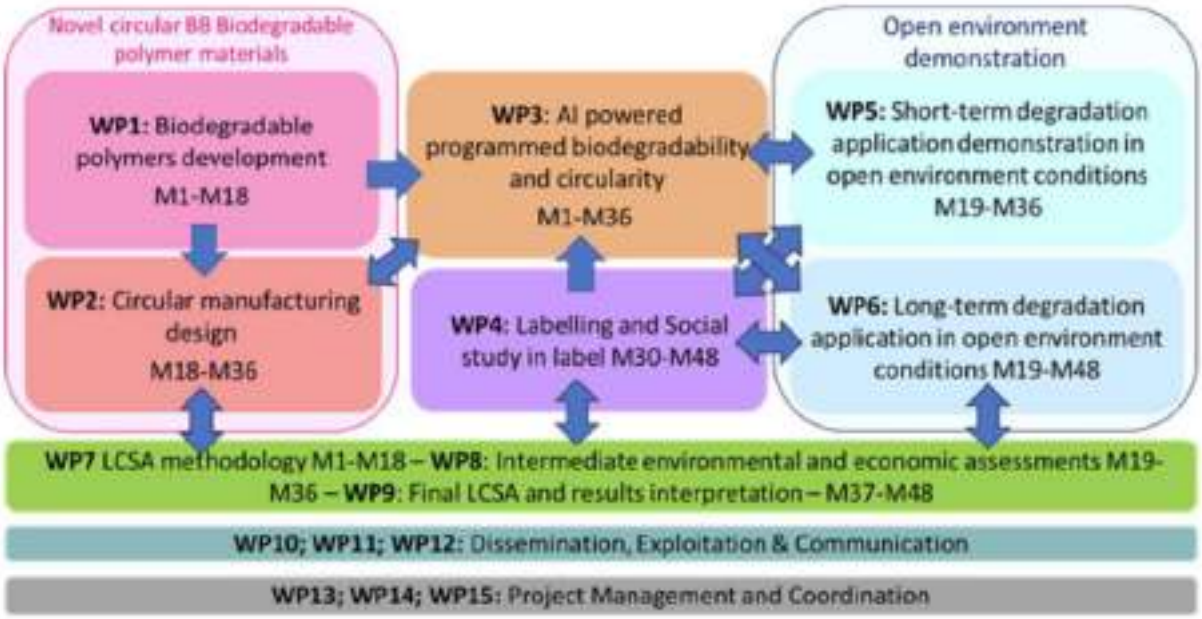
Objectives:

1. Developing materials with **programmed biodegradability** with 3 approaches: chemical, biotic, compounding
2. Enhancing the **circularity** of developed biodegradable materials for their safe and efficient reuse, recycling and remanufacturing
3. Developing an **AI powered manufacturing guidance software** for sustainable biodegradable materials
4. Improving **social acceptance and appropriate use and disposal** of biodegradable materials through labelling systems and behaviour change interventions
5. Investigating the biodegradation of the developed bio-based materials in different **open and controlled environments**, and holistically assess their sustainability

[redacted]


LCA and Techno-economical analysis
Multifactorial adoption studies
Behavioural study on EoL and consumer behaviour
Problem
Uncontrolled waste littering and waste management difficulties for specific applications
Needs from consumers and industry for biodegradable materials in specific applications and conditions
Novel BB Biodegradable Polymer materials 3 biodegradation approaches
1
2
3
Circular Design
Increased durability
Remanufacturing
High quality recycling
Safe reuse (refill)
Demonstration for 2 applications with high filtering
Packaging - short term biodegradation
Mulch Films - long term biodegradation
Labeling systems for biodegradable materials adapted to application scenarios
Trustworthy AI powered manufacturing guidance for programmed biodegradation
data
Biodegradation tests under controlled conditions
Open environment biodegradation tests
Terrestrial and aquatic environment, 4 EU countries with different climate zones


APPLICATIONS WITH PROGRAMMED BIODEGRADABILITY
Short term application
Biodegradable acrylic coated single use paper trays – Roll coating
Short term application
BB biodegradable agricultural mulches – Blown film extrusion
APPLICATIONS OF CIRCULAR BB BIODEGRADABLE PRODUCTS
Reuse
BB biodegradable reusable laundry washing liquid bottle – Extrusion blow moulding
Remanufacturing
BB biodegradable agricultural mulch remanufactured into bin bags – Ultrasonic sealing
Recycling
Mechanical recycling of BB biodegradable polymers – Twin-screw extrusion
Recovering multiple components – Solvent borne and water borne acrylic adhesive


Novel circular BB Biodegradable polymer materials
WP1: Biodegradable polymers development M1-M18
WP2: Circular manufacturing design M18-M36
WP3: AI powered programmed biodegradability and circularity M1-M36
WP4: Labelling and Social study in label M30-M48
Open environment demonstration
WP5: Short-term degradation application demonstration in open environment conditions M19-M36
WP6: Long-term degradation application in open environment conditions M19-M48
WP7 LCSA methodology M1-M18 – WP8: Intermediate environmental and economic assessments M19-M36 – WP9: Final LCSA and results interpretation – M37-M48
WP10; WP11; WP12: Dissemination, Exploitation & Communication
WP13; WP14; WP15: Project Management and Coordination

6.10. WP1 presentations

MAGICBIOMAT Kick-off meeting

WP1
BB biodegradable polymers with various biodegradability development

Lead: UNIPD
Participants: TUS, OK, IPC
Timeframe: M1 -M18

Funded by the European Union

WP1 - Objectives

1.2.1. Specific objectives (SO)

SO1 Developing materials with programmed biodegradability with 4 approaches

Developing novel polymer materials with 4 biodegradability approaches, both individually and synergistically:
1. Compounding approach: Compounding biodegradable polymers with BB fillers for different levels of biodegradability of the composites (e.g. PLA/lignin, PLA/nanocellulose composites). Blending various biodegradable polyester to adjust the biodegradability of the blends (e.g. TPS/bio-PBAT, PLA/TPS blends)
2. Biotic approach: Compounding biodegradable polymers with biodegradable additives that attract and promote the growth of the local microorganisms enhancing the biodegradation process. Compounding biodegradable polymer with thermally stable enzymatic additives that have proved to be effective in degrading plastics. Manufacturing with multi-screw planetary extruder to limit thermal degradation of the enzymatic additives.
3. Chemical approach: Polymerizing biodegradable acrylics with different levels of biodegradability by designing and controlling the acrylic monomer structure and polymer chain structure.
4. Acrylics: polymerizing acrylics functionalized with degradable polyesters (different side chain will be developed starting from lactide to dodecalactone) in order to obtain biodegradable acrylics.

KPI 1.1: Developed biopolymers, including biopolymer blends, composites, and acrylics, exhibit at least 4 different levels of biodegradability.

Objectives

The main objective is to develop biodegradable polymers with a number of different levels of biodegradability.

O1.1: To develop and characterise a number of BB biodegradable polymer blends;
O1.2: To develop thermally stable enzymatic additives;
O1.3: To develop and characterise BB biodegradable polymer composites with developed blends and enzymatic additives;
O1.4: To develop and characterise BB biodegradable polymer composites with developed blends and biodegradable additives;
O1.5: To develop and characterise biodegradable acrylics;
O1.6: To perform biodegradability test on the developed materials under controlled conditions.

WP1 GANNT



O1.1: To develop and characterise a number of BB biodegradable polymer blends

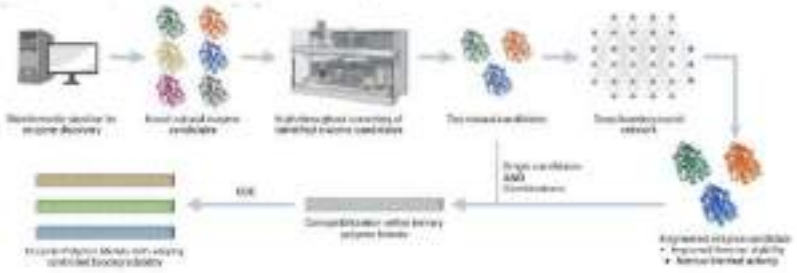
- Task 1.1: Development of biodegradable polymer blends (Lead: UNIPD; Part.: OK, TUS; M1-M12
  - 1.1.1. Screening of starch and producing thermoplastic starch (M1-3)
  - 1.1.2. Developing compatibilizers (M1-12)
  - 1.1.3. Developing biodegradable polymer blends (M3-M12)

ACTIONs:

- Blending combinations of PLA/bio-PBAT, PLA/bio-PBS, PLA/bio-PBAT/TPS, PLA/bio-PBS/TPS, and PLA/TPS to produce materials with tailored properties.
- Development of compatibilizers for polymer blends
- Full characterization of compatibilized polymer blends
- Use of DOE techniques for optimization of the blend compositions

O1.2: To develop thermally stable enzymatic additives

- Task 1.2: Enzyme development and characterisation for polyester blends (Lead: UNIPD, Partners: TUS; M1-M14)

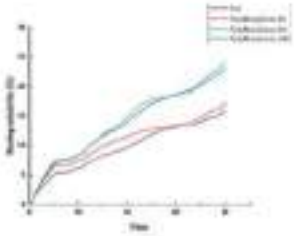


ACTIONs:

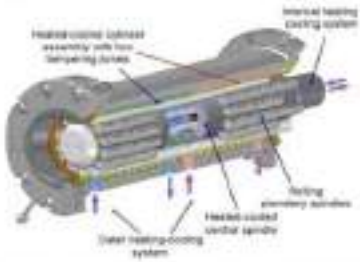
- Development of enzymes with broad industrial applications considering at least high thermo-tolerance (thermally stable for at least 15 minutes at 180°C, retaining at least 85 % of the initial enzymatic activity). (KPI 2.1)

O1.3: To develop and characterise BB biodegradable polymer composites with developed blends and enzymatic additives;
O1.4: To develop and characterise BB biodegradable polymer composites with developed blends and biodegradable additives;

- Task 1.3: Biodegradable polymer blends with biodegradable and enzymatic additives (Lead: TUS, Partners: UNIPD; M12 – M15)



Biosphere speeds up the degradation of PLA



Multi-screw planetary roller extruder

ACTIONs:

- Selected polymer blend from Task 1.1 will be compounded with biodegradable and enzymatic additives via twin screw compounding. To improve mixing, multi-screw planetary roller extruder can be used.

O1.5: To develop and characterise biodegradable acrylics

- Task 1.4: BB biodegradable acrylics development, mechanism and characterisation (Lead: OK; M1-M18)

ACTIONs:

- Novel biodegradable acrylics will be developed starting from -OH and -NH2 bearing acrylic monomers and then applying Ring Opening Polymerization (ROP) for attaching degradable moieties to the acrylic double bond
- The final polymer degradability will be designed by varying the macromonomer composition, the final polymer MW, the particle size dimension and distribution.

[redacted]

O1.6: To perform biodegradability test on the developed materials under controlled conditions.

- Task 1.5: Biodegradation test and ecotoxicity under controlled conditions (Lead: IPC; Partner: TUS, UNIPD, OK; M3 – M18)



ACTIONs:

- Respirometry to quantify emitted CO2
- Monitor microorganisms on the samples.
- Ecotoxicity assessment – germination and plant growth
- Microplastic measurement

[redacted]

[redacted]

KPI 1.1: Developed biopolymers, including biopolymer blends, composites, and acrylics, exhibit at least 4 different levels of biodegradability. For instance, biodegradability (conversion rate of plastic carbon into carbon dioxide) of 5, 10, 20 and 30% by month 1, and 60, 70, 80, and 90% by month 3 under controlled conditions of composting, fresh water, marine conditions, tested by the international standards. Furthermore, the developed biodegradable composites are tested to be fully biodegradable with 90% biodegradability by month 6 (e.g. EN 13432:2000).

[redacted]

Deliverables

D1.1 – Biodegradable biopolymers blends (M12, UNIPD) - R

D1.2 – Enzyme development (M14, UNIPD) - R

D1.3 – Bio-based biodegradable polymer composites with enzymatic and biodegradable additives (M15, TUS) - R

D1.4 – Biodegradable acrylics (M18, OK) - R

D1.5 – Biodegradation and ecotoxicity tests for WP1 (M18, IPC) - R

Milestone

1. BB biodegradable composites (M15, UNIPD)
2. Biodegradable acrylics (M18, OK)

6.11. WP2 presentation

MAGICBIOMAT Kick-off meeting

WP2
Circular design of BB biodegradable polymers

Lead: TUS
Participants: OK, UNIPD, IPC
Timeframe: M19 - M36



Objectives:

The main objective is to **improve the circularity** of the developed BB biodegradable polymers.

O2.1: To improve the **durability** of the biodegradable acrylics for prolongs service period of paper trays coated with the durable biodegradable acrylics;

O2.2: To **recover the multiple component** materials by decoupling with the developed solvent-borne and water-borne acrylic adhesives;

O2.3: To improve the **durability** of the BB biodegradable polymers for reusing and remanufacturing;

O2.4: To **reuse** the developed BB domestic laundry bottles for at least 5 times;

O2.5 To **remanufacture** the BB agricultural mulch into bin bags with appropriate properties;

O2.6 To **mechanically recycle** BB biodegradable polymers and maintain at least 80% of properties after 3 recycling processes.

Task 2.1: Prolong the lifespan of single-use paper trays coated with durable biodegradable acrylics (Lead: OK; Partner: TUS; M19-M30)

1. Selection of co-monomer and lactone for acrylics.
2. Optimization of emulsion free radical polyerisation parameters.
   - nanoparticle size and dispersion, nanoparticle architecture, polymer composition, latex viscosity and solid content, etc.
3. Coating thickness and characterisation.

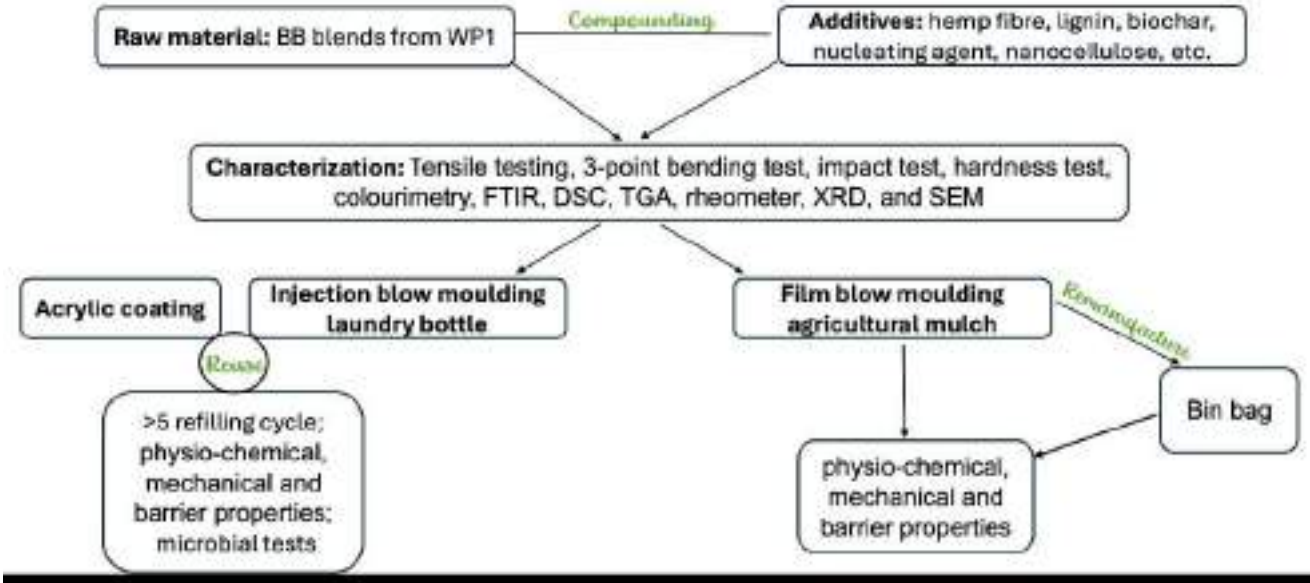
KPI 2.1: Paper trays coated with durable biodegradable acrylics coating maintain their structural integrity and functionality for at least 300% longer than uncoated paper trays, and 100% longer than paper trays coated with standard nondurable biodegradable acrylics. The developed solvent-borne and water borne acrylics-based adhesives for multilayer materials allow > 99% of materials separation.

Task 2.2: Solvent-born and water-borne acrylics for recycling multi-materials (film and film, film and metal) (Lead: OK; Partners: TUS; M19-30)

1. Design reversible cross-links responsive to thermal and moisture changes.
2. Regulate the cross-linking degree for degradation.
3. Recover multiple component materials.

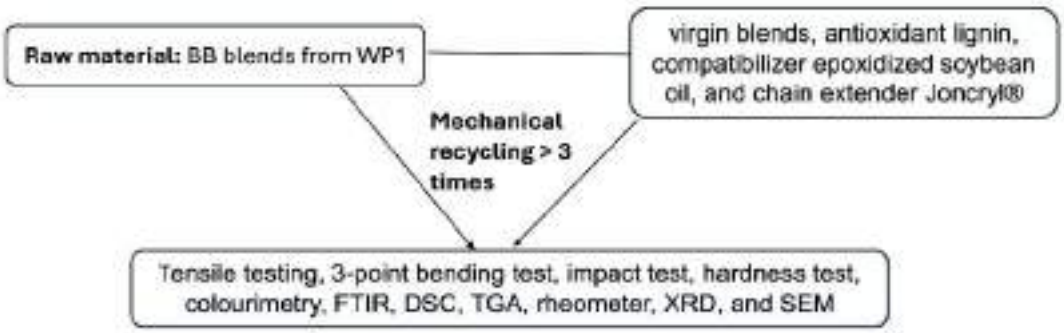
KPI 2.1: Paper trays coated with durable biodegradable acrylics coating maintain their structural integrity and functionality for at least 300% longer than uncoated paper trays, and 100% longer than paper trays coated with standard nondurable biodegradable acrylics. The developed solvent-borne and water borne acrylics-based adhesives for multilayer materials allow > 99% of materials separation.

Task 2.3: Improve **durability** of the BB biodegradable polymer composites for **reuse** and **remanufacturing** (Lead: TUS; Partners: OK, UNIPD; M19-30)



Task 2.4: **Mechanically recycle** BB biodegradable polymer composites (Lead: TUS; Partners: OK, UNIPD; M31-36)

Goal: To maintain 80% of properties after 3 recycling processes



Task 2.5: Biodegradation tests under controlled conditions with optimized materials (Lead: IPC, Partners: TUS, UNIPD, OK); M30-M36)

1. Respirometry for CO_2 production.
2. Microbial study.
3. Ecotoxicity.
4. Microplastic.

KPI 2.2:

The developed **durable** biodegradable polymer composites show > 200% increase in elongation, 100% increase in impact strength, and 10% increase in the degree of crystallinity for safe reuse and remanufacturing, compared to PLA.

The domestic laundry washing liquid bottles made from the developed durable biodegradable polymer composites show safe usability with **> 5 reuse** cycles.

The agricultural mulch made from the developed durable biodegradable polymer composites can be **safely remanufactured** into bin bags.

The developed biodegradable polymer composites maintain **> 80% of their mechanical properties after 3 mechanical recycling** processes. The active additives within the composites remain effective ensuring that the biodegradability of the polymer composites is preserved at 80% efficiency.

Deliverables

D2.1 – Durable biodegradable acrylics (M30, OK) - R

D2.2 – Solvent-borne and water-borne acrylics (M30, OK) - R

D2.3 – Durable bio-base biodegradable polymers (M30, TUS) - R

D2.4 – Mechanically recycled bio-based biodegradable polymers (M36, TUS) - R

D2.5 – Degradation study and ecotoxicity tests for WP2 (M36, IPC) - R

Milestone

3. Single-use paper trays coated with durable biodegradable acrylics show prolonged service period. (M30, OK)

4. Solvent-borne and water-borne acrylics allow the separation and recovery of multiple component materials. (M30, OK)

5. Durable BB biodegradable polymers allow safe reuse and remanufacturing (M30, TUS)

6. The developed BB biodegradable polymer composites can be effectively recycled through mechanical recycling (M36, TUS)

6.12. WP3 presentation

MAGICBIOMAT Kick-off meeting

WP3
Artificial Intelligent (AI) powered programmed biodegradability and circularity

Lead: DIGI, Participants: all, Timeframe: M1 -M36

WP Leader – Soumya Kanti Datta (soumya@digiotouch.com)

Funded by the European Union

Objectives:

The main objective is to develop an AI tool to guide the design and manufacturing of BB biodegradable polymer with programmed biodegradability.

O3.1: To collect data and inspect the quality of the data for the AI components of MAGICBIOMAT;

O3.2: To extend DIGI's existing AI components of Paradise platform to demonstrate programmed biodegradability in open and controlled environments;

O3.3: To implement a novel AI-powered solution for material lifecycle analysis to optimise the circular lifecycle of products;

O3.4: To demonstrate the AI powered solutions in real-world degradation tests.

Deliverables

Deliverable	Title	Month	Lead	Type
D3.1	AI-driven data quality inspection tool	M8	DIGI	DEM
D3.2	AI powered framework for material lifecycle analysis	M24	DIGI	R
D3.3	AI powered solution for programmed biodegradability	M24	DIGI	DEM
D3.4	AI-driven data quality inspection tool solution deployment and validation report	M36	DIGI	R

Milestone – WP3

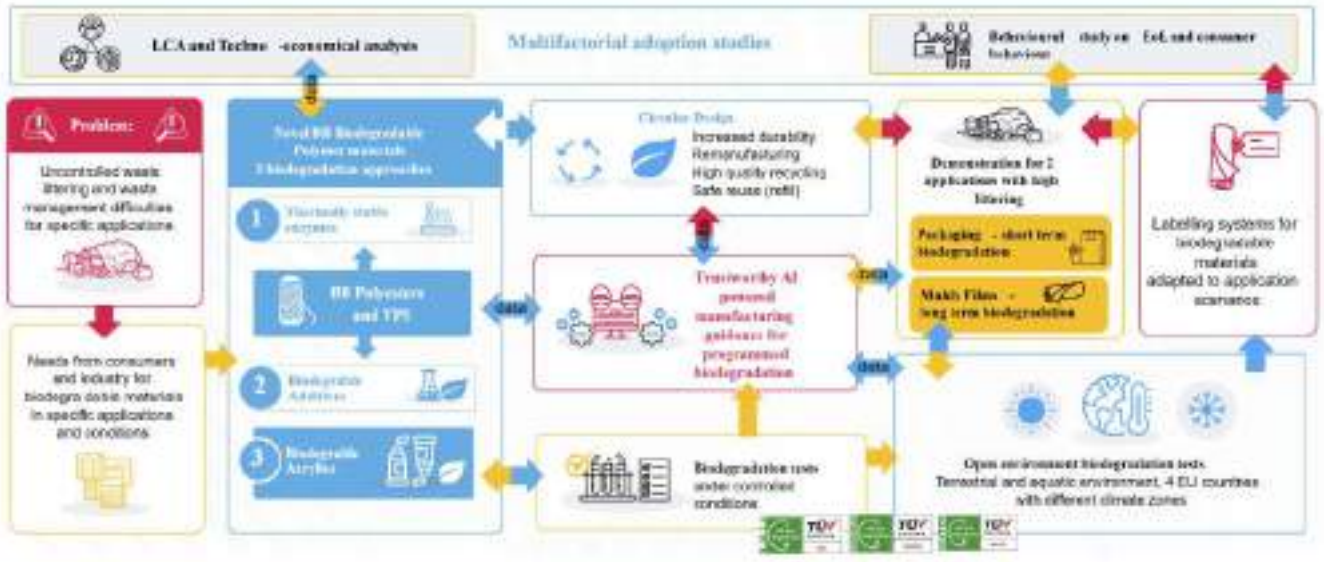
#	Milestone Name	Means of Verification	Month
7	Trustworthy AI powered manufacturing guidance software developed and ready for deployment in use cases	AI software is successfully developed by DIGI and it allows the next steps of uploading data from real-world use cases.	DIGI

KPI – WP3

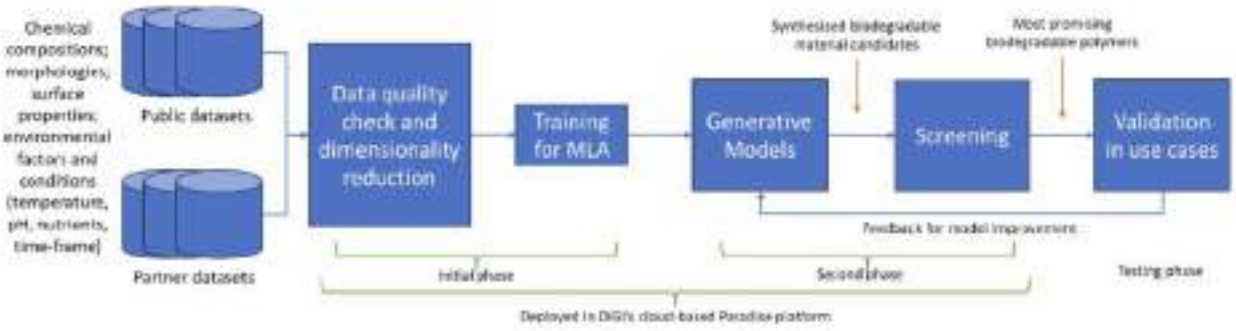
The KPIs will be verified with D3.1 and D3.2 at M24 and M36 respectively.

KPI#	Description	Target
3.1	Exploit at-least 5 publicly available datasets and 2 datasets generated in this project to train the trustworthy AI tool on the relationship between chemical structure and biodegradation of molecules	5 public datasets 2 dataset from the project
3.2	Developing at-least 5 new functionalities extending the Paradise platform for optimising the circular lifecycle of products	5 new functionalities

AI in the MAGICBIOMAT Methodology



Trustworthy AI powered manufacturing guidance software for sustainable biodegradable materials



Task 3.1 and 3.2

Task 3.1 Data collection and AI-driven quality inspection (Lead: DIGI; Participants: all partners; M1-M8)- DIGI will liaise with all project partners finalising the data requirements (e.g., types, GDPR compliance, data security, platform setup) for data collection in compliance with the DMP set up in WP13. It will research and classify different forms of anomalous behaviour/error conditions of the collected data and create classifiers to recognise them. Such data inspection will ensure high quality data is fed to the subsequent AI models and solutions. T3.1 will also involve collecting large public datasets on material properties, polymer structures, environmental impact assessments, and recycling processes needed for T3.2 and T3.3, with support from partners. Moreover, it will ensure compliance with the seven criteria mentioned in Section 1.4.1.4 ensuring development of trustworthy AI. This task co-delivers D3.1.

Task 3.2 Implementing AI powered material lifecycle analysis (Lead: DIGI; Participants: all partners; M9-M24) - DIGI will implement the novel, trustworthy AI-powered framework for comprehensive material lifecycle analysis (MLA). T3.2 will exploit AI algorithms to analyse the entire lifecycle of materials used in this project, from extraction and processing to usage and EoL disposal or recycling, with data and expertise support from all partners. The solution will be capable of identifying key areas where environmental impact can be reduced and suggest alternative materials or processes that are more sustainable. Gradient Boosting Machines (GBM) will be used for modelling non-linear relationships in data that are common in MLA and autoencoders will used for dimensionality reduction in large public datasets, helping to identify the most significant features for MLA. It co-delivers D3.1.

Task 3.3 and 3.4

Task 3.3 AI powered solution for manufacturing of biodegradable polymers (Lead: DIGI; Participants: UNIPD, TUS, OK; M9-M24) – DIGI will train generative models on public datasets and that provided by the partners on polymer structures and properties to synthesise viable biodegradable polymers digitally. DIGI and the partners will create a framework to accurately predict critical properties like biodegradability, mechanical strength, and thermal stability for the viable options. Finally, it will implement an AI-powered screening algorithm to efficiently filter the potential polymer candidates to identify the most promising biodegradable polymers for further development and real-world testing in T3.4. It co-delivers D3.1.

Task 3.4 Deployment and validation in use cases (Lead: DIGI; Participants: UNIPD, TUS, OK, ISOTECH; M25-M36) - DIGI will deploy the AI-powered solutions developed in T3.2 ad T3.3 to real world applications in WP5 and WP6. Technical, operational, and result validation (internally with the project partners) will be done together with UNIPD, TUS, OK to demonstrate the effectiveness of the AI powered programmed biodegradability and circularity solution. Validation with external stakeholders will be anticipated by ISOTECH. It delivers D3.2.

Next steps

- Connecting with all partners
  - 1-to-1 meeting during early Feb 2025.
  - Goal - finalising the data requirements (e.g., types, GDPR compliance, data security, platform setup) for data collection in compliance with the DMP (WP1).
- AI-driven data quality inspection tool
  - Research and classify different forms of anomalous behaviour/error conditions of the collected data
  - Create classifiers to recognise them.
- Investigate large public datasets on material properties, polymer structures, environmental impact assessments, and recycling processes needed WP3 tasks.
- Ensure compliance with the seven criteria of trustworthy AI.

6.13. WP4 presentation

MAGICBIOMAT Kick-off meeting

WP4
Labelling and behaviour change strategies

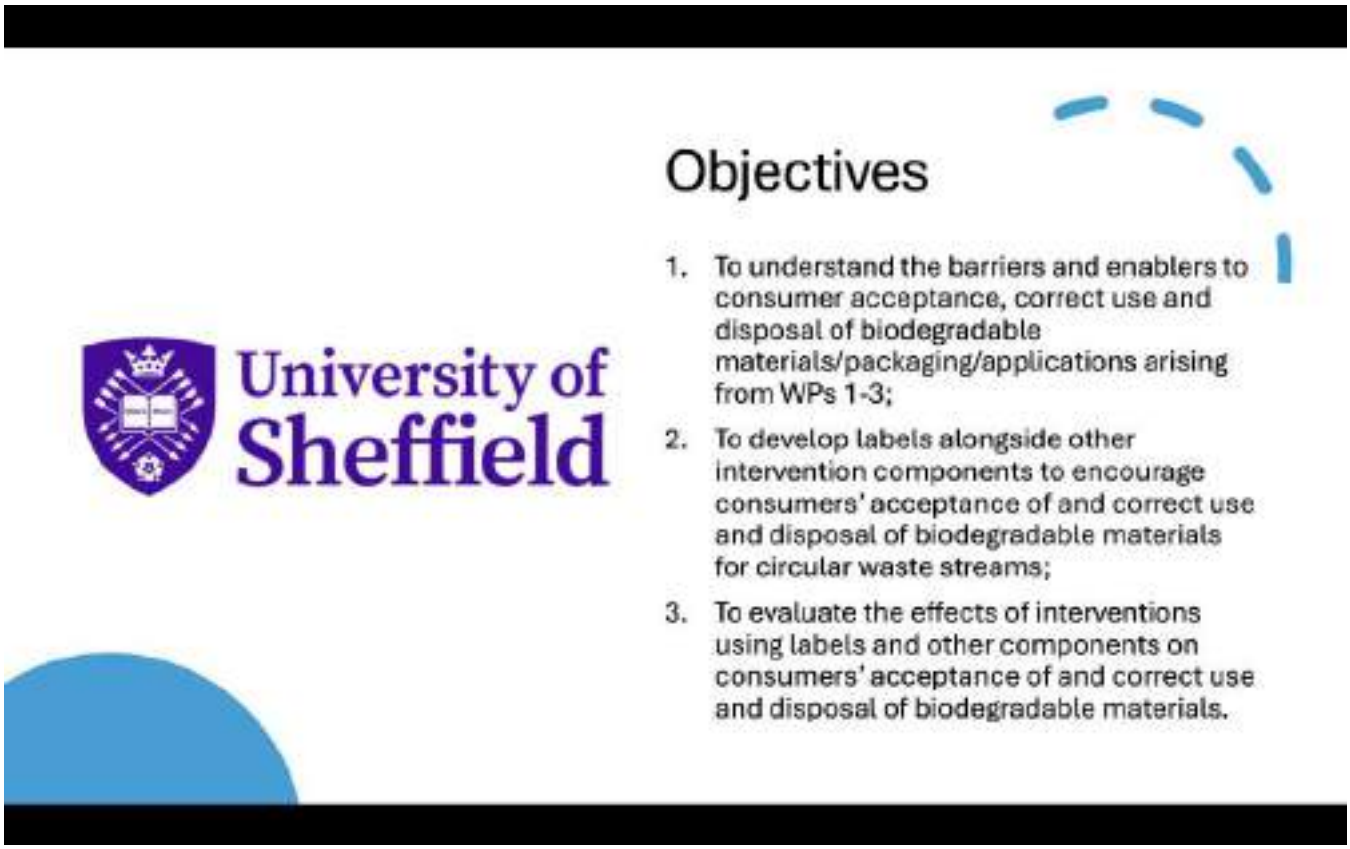
Lead: USFD
Participants: Dr Nicola Buckland and Professor Joanna Gavins
Timeframe: M30 - M48

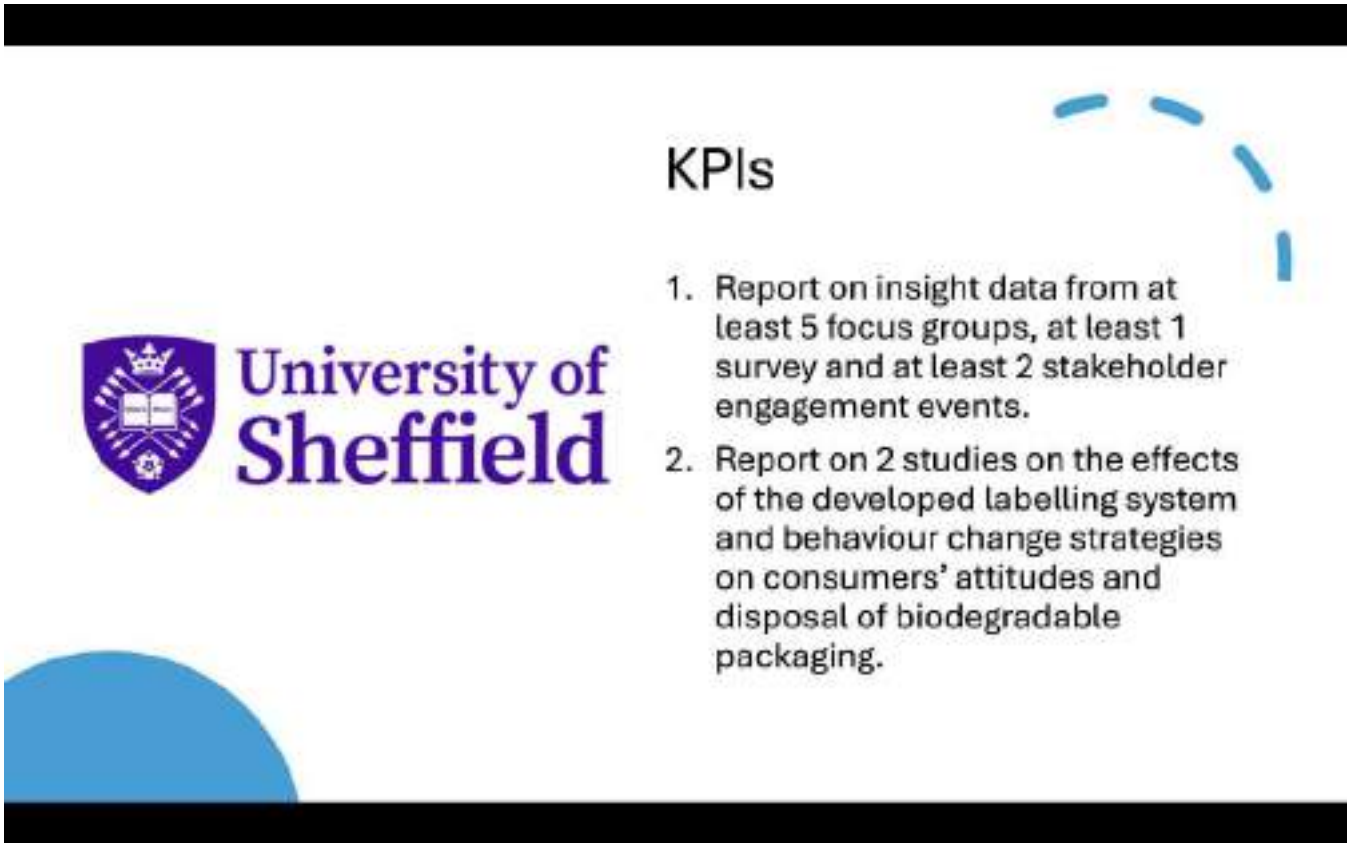
Funded by the European Union

University of Sheffield

Objectives

Our main objective is to identify the factors influencing consumer acceptance, proper usage, and disposal of biodegradable materials, and to develop and assess the impact of labelling and other strategies to promote their correct adoption for circular waste streams.


University of Sheffield
Objectives
1. To understand the barriers and enablers to consumer acceptance, correct use and disposal of biodegradable materials/packaging/applications arising from WPs 1-3;
2. To develop labels alongside other intervention components to encourage consumers' acceptance of and correct use and disposal of biodegradable materials for circular waste streams;
3. To evaluate the effects of interventions using labels and other components on consumers' acceptance of and correct use and disposal of biodegradable materials.


University of Sheffield
KPIs
1. Report on insight data from at least 5 focus groups, at least 1 survey and at least 2 stakeholder engagement events.
2. Report on 2 studies on the effects of the developed labelling system and behaviour change strategies on consumers' attitudes and disposal of biodegradable packaging.

Deliverables

1. Development of the labelling system and associated behaviour change strategies and intervention (M36)
2. Development of the labelling system and associated behaviour change strategies (M39)
3. Evaluation of the developed labelling system and associated behaviour change strategies (M48)

University of Sheffield

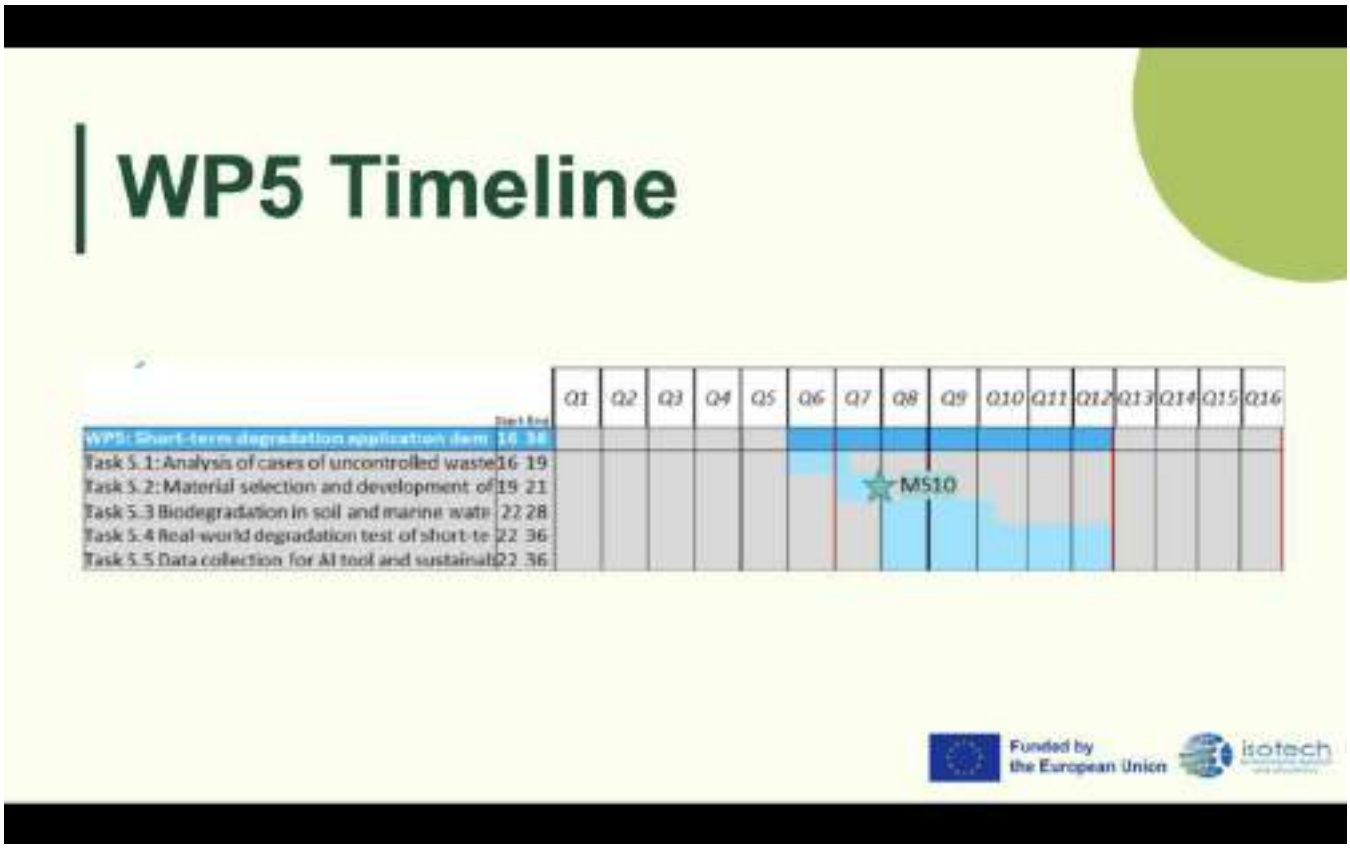
Milestones

1. Completion of focus groups, surveys and stakeholder engagement events (M36)
2. Development of a prototype for the labelling system and behaviour change strategies (M39)

University of Sheffield

6.14. WP5 presentation





Objectives

The main objective is to test single-use BB biodegradable coated paper trays with short-term degradation capabilities under 4 climates in the open environment and support AI tool development by providing monitoring data.

O5.1: To analyse cases of uncontrolled waste littering in the open environment;

O5.2: To develop biodegradable acrylic coated paper-based trays as the short-term application;

O5.3: To perform aging test on the coated paper-based trays;

O5.4: To validate the biodegradation of the short-term application in open environments under a range of physical and chemical conditions, including extreme environments;

O5.5: To provide data to calibrate/optimise the software/model.

Funded by the European Union

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Deliverables and Milestones

D5.1 – Analysis of uncontrolled waste littering in the open environment (M19, ISOTECH) - R

D5.2 – Prototypes of coated paper-based packaging tray (M21, OK) - DEM

D5.3 – Weather aging tests with trays prototypes (M36, IPC) - R

D5.4 – Short-term degradation monitoring protocol (M36, ISOTECH) - R

D5.5 – Short-term degradation data (M36, ISOTECH) - DATA

M10 - Biodegradable acrylic coated paper trays as short-term degradation application successfully produced for validation in open environment (M21, OK)

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5.1 Analysis of uncontrolled waste littering in the open environment (Lead: ISOTECH; M16-M19)

Desk-based research into the most recent literature and studies on uncontrolled waste littering to understand:

- The most frequent types of items/products found as uncontrolled waste in the open environment
- The main pathways through which they end up there
- The main open environments where these items are found.



→ D5.1 – Analysis of uncontrolled waste littering in the open environment (M19, ISOTECH) - R

Funded by the European Union

5.2 Material selection and development of coated paper-based trays with a fact biodegradability requirement (Lead: OK; Partner: TUS; M19 – M21)

- Coating weight of the paper can be varied from 2 g to 50 g depending on the polymer solid content and paper properties.
- 50-100 g wet sample will be coated on the paper using a lab scale coater, or the Mayer bar manually, or the automatic lab coater with a 30 mm to 200 mm applicator.
- The properties of the final coated paper-based trays will be assessed.
- 400 samples will be produced for Tasks 5.3 and 5.4

→ D5.2 – Prototypes of coated paper-based packaging tray (M21, OK) - DEM

→ M10 - Biodegradable acrylic coated paper trays as short-term degradation application successfully produced for validation in open environment (M21, OK)

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5.3 Weather chamber ageing test and biodegradability test under controlled conditions (Lead: IPC; Partner: TUS, UNIPD; M22-M36)

- The ageing test for single-use paper trays will be conducted by IPC and TUS using weather chambers to mimic real world outdoor weather conditions specified in T5.4, replicating temperature, humidity, and UV levels to simulate outdoor exposure.
- Test period: 3 months. An aging period of 500 hours is equivalent to 1-year outdoor real-world conditions.
- Samples of 3 replicates will be collected weekly for characterization: physio-chemical, mechanical, and barrier properties.
- Data will be forwarded to WP3 for further analysis.

→ D5.3 – Weather ageing tests with trays prototypes (M36, IPC) - R

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5.4 Real-world degradation test for short-term application (Lead: ISOTECH; M22-M36)

- Development of the short-term degradation test protocol
- Identification of partners in each of the four test locations (different EU bioclimatic zones), including extreme environments
  - Hot & dry Med Climates e.g. Cyprus, Italy
  - Temperate continental climates/humid continental climate without dry season and with warm summer e.g. France, Ireland
  - Temperate climates without dry season and warm summer e.g. Bulgaria, Hungary
  - Cold climates without dry season and cold summer e.g. Estonia, Sweden
- Various open environments, e.g. soil – exposed, soil – buried, freshwater, marine environment.
- Required number of samples: 224



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5.5 Data collection for AI tool and sustainability assessment (Lead: ISOTECH; Partners: DIGI, UNIPD, TUS; M22-M36)

	Soil Study	Water Study
Conditions	2 soil conditions (exposed & covered)	2 water conditions (freshwater & marine)
	14 replicates (2 replicates for analysis every 2 weeks i.e. 6 times + 2 extras)	14 replicates (2 replicates for analysis every 2 weeks i.e. 6 times + 2 extras)
Number of samples	4 locations x 2 soil conditions x 14 replicates = 112	4 locations x 2 water conditions x 14 replicates = 112
	• Temperature • pH • Humidity • O_2 concentration • UV exposure • Conductivity	• Temperature • pH • O_2 concentration • UV exposure • Conductivity
Sampling scheme	• Weekly: area loss, mass loss • Every 2 weeks: physicochemical characterization (by UNIPD), mechanical characterization (by TUS). • Microplastics in soil (UNIPD): time zero, week 12 (end of study). • Microbial communities (UNIPD): time zero, week 6, week 12 (end of study). • Soil fertility indicators (TUS)	• Daily: areas loss, mass loss • Every 2 weeks: physicochemical characterization (by UNIPD), mechanical characterization (by TUS). • Microbial communities: time zero, week 12 (end of study).

D5.5 – Short-term degradation data (M36, ISOTECH) - DATA

THANK YOU

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Dr. Xenia I. Loizidou
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6.15. WP6 presentation

MAGICBIOMAT Kick-off meeting

WP6
Long-term degradation application in open environment conditions

Lead: TUS
Participants: OK, UNIPD, IPC, ISOTECH, DIGI
Timeframe: M19 - M48

Funded by the European Union

Objectives:

The main objective is to test BB BDM with **long-term degradation** capabilities under **4 climates in the open environment** and support AI tool development by providing monitoring data.

O6.1: To produce agricultural film with a **degradation requirement** of degrading 30% by the end of 6 months, 60% by the end of 12 months, and 90% by the end of the 24 months;

O6.2: To validate the biodegradation of the **long-term** application in **open environments** under a range of physical and chemical conditions, including extreme conditions;

O6.3: To perform **aging test** on the developed samples;

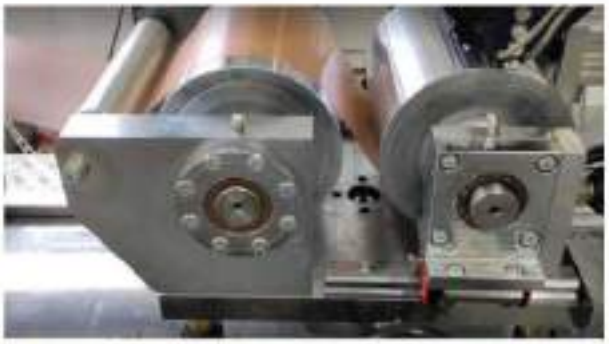
O6.4: To provide **data** to calibrate/optimise the software/model

Task 6.1: Material selection and development of **agricultural mulch** with a slow biodegradability requirement (Lead: TUS, Partner: OK, UNIPD; M19-M21)

- Material selection from WP1 and 2

KPI 5.2: Agricultural mulch degrades >30% by the end of 6 months, >60% by the end of 12 months, and >90% by the end of 24 months in at least one weather zone and one testing condition (EN 17033:2018 Biodegradability of agricultural mulch).

- Film produced via film blow moulding or film casting
- ~400 samples (10 cm × 3 cm, < 1mm thickness)





Task 6.2 Weather chamber **aging test** (Lead: TUS, Partner: IPC, UNIPD; M22-M36)

- Aging period of 500 hours is equivalent to 1 year outdoor real-world condition
- 6-month aging test
- Sample collected and characterized monthly







Task 6.3 **Real-world degradation test** of long-term application (Lead: ISOTECH; Partner: UNIPD, TUS; M22-M48)

- Development of the long-term degradation test protocol
- Same four test locations as for short-term biodegradation study
- Various open environments, e.g. soil – exposed, soil – buried, freshwater, marine environment.
- Required number of samples: 224



KPI 5.1: Implemented open environment biodegradability assessments in 3 conditions (soil, fresh water, marine water) in 4 different locations, for 2 different BB applications (biodegradable acrylic coated paper trays and BB agricultural mulch), for a minimum of 4 months (coated paper trays for short-term biodegradation applications) and a maximum of 24 months (agricultural mulch for long-term biodegradation applications).

Task 6.4 Data collection for AI tool and sustainability assessment (Lead: ISOTECH, Partner: DIGI, UNIPD, TUS, M22-M48)

	Soil Study	Water Study
Conditions	2 soil conditions (exposed & covered)	2 water conditions (freshwater & marine)
No. of replicates	14 replicates (2 replicates for analysis every 2 months i.e. 6 times + 2 extras)	14 replicates (2 replicates for analysis every 2 months i.e. 6 times + 2 extras)
Number of samples	4 locations x 2 soil conditions x 14 replicates = 112	4 locations x 2 water conditions x 14 replicates = 112
Environmental parameters to be monitored	• Temperature • pH • Humidity • O_2 concentration • UV exposure • Conductivity	• Temperature • pH • O_2 concentration • UV exposure • Conductivity
Sampling scheme	• Every 2 weeks: area loss, mass loss, colour changes • Every 2 months: physicochemical characterization (UNIPD), mechanical characterization (by TUS). • Microplastics in soil (UNIPD): time zero, month 12 (end of study). • Microbial communities (UNIPD): time zero, month 6, month 12 (end of study). • Soil fertility indicators (TUS)	• Every 2 weeks: area loss, mass loss, colour changes • Every 2 months: physicochemical characterization (by UNIPD), mechanical characterization (by TUS). • Microbial communities (UNIPD): time zero, month 12 (end of study).

→ D6.4 – Long-term degradation data (M48, ISOTECH) - DATA

Deliverables

D6.1 – Agricultural film **prototypes** (M21, TUS) - DEM

D6.2 – Weather **aging tests** with film prototypes (M36, TUS) -R

D6.3 – Long-term degradation monitoring **protocol** (M48, ISOTECH) -R

D6.4 – **Long-term degradation data** (M48, ISOTECH) - DATA

Milestone

11. BB BDM as the long-term degradation application **successfully produced** for validation in open environment (M21, TUS)

6.16. WP7, 8, & 9 presentation

MAGICBIOMAT Kick-off meeting

WP7 Life Cycle Sustainability Assessment (LCSA) methodology M1 – M18

WP8 Intermediate environmental and economic assessments M19 – M36

WP9 Final Life Cycle Sustainability Assessment (LCSA) and results interpretation M37 – M48

Lead: DIGI, Participants: all

WP Leader – Debolina Paul (debolina@digiotouch.com)

Funded by the European Union

Objectives:

The main objective is to perform environmental assessment on proposed solutions.

O7.1: To deliver a holistic methodology for life cycle sustainability assessment covering LCA, LCC, SLCA;

O7.2: To define the goal and scope for the three analyses.

O9.1: To perform a final round of data collection;

O9.2: To carry out the final assessments;

O9.3: To integrate and intemperate the final results.

Deliverables

Deliverable	Title	Month	Lead	Type
D7.1	Life Cycle Sustainability Assessment (LCSA) methodology	M8	DIGI	R
D7.2	Life Cycle Sustainability Assessment (LCSA) goal and scope definition	M18	DIGI	R
D8.1	Intermediate Life Cycle Analysis (LCA) result	M36	DIGI	R
D8.2	Intermediate Life Cycle Cost (LCC) result	M36	DIGI	R
D9.1	Final Life Cycle Analysis (LCA) result and interpretation	M48	DIGI	R
D9.2	Final Life Cycle Cost (LCC) result and interpretation	M48	DIGI	R
D9.3	Final Social Life Cycle Assessment (SLCA) result and interpretation	M48	IPC	R
D9.4	Comprehensive analysis of the social impact assessment	M48	IPC	R

Milestone

- KPI 5.3:
  - 3 rounds of data collection for LCSA – baseline, intermediate, and final data collection.
  - 2 rounds of analysis (intermediate and final) demonstrating achieving environmental, economic, and socially sustainable innovations.

Life Cycle Sustainability Assessment

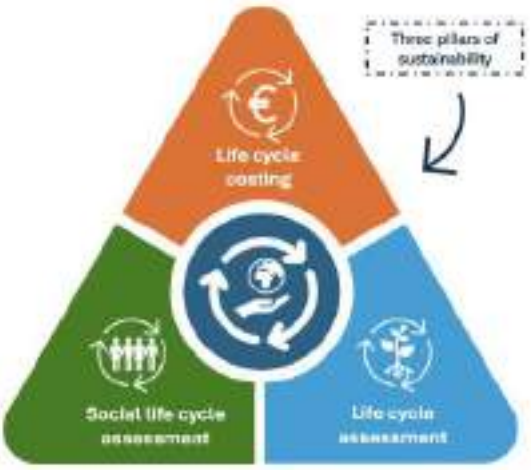
Life Cycle Sustainability Assessment **(LCSA)** is an **integrated approach** that evaluates the sustainability of a product or service throughout its entire life cycle.

It can be defined as a **broadening of impacts**:

LCSA = LCA + LCC + S-LCA

Why apply LCSA ?

To provide a **comprehensive view** of the impacts and guide toward sustainable decisions.



LCA, LCC and S-LCA

LCA
Life cycle assessment

LCA : **environmental impacts** of a product, process, or service throughout its entire life cycle. It considers various environmental impacts categories like Climate Change, Acidification, Eutrohication ecc.

Methodology: follows the ISO 14040 and 14044 standards.
Advantages: Holistic view of environmental impacts. Informs sustainable decision-making.
Disadvantages: Data-intensive and time-consuming.

LCC
Life cycle costing

LCC: **economic analysis** method that assesses the total cost of ownership of a product or system throughout its life cycle. It includes initial costs, operational costs, and end-of-life costs.

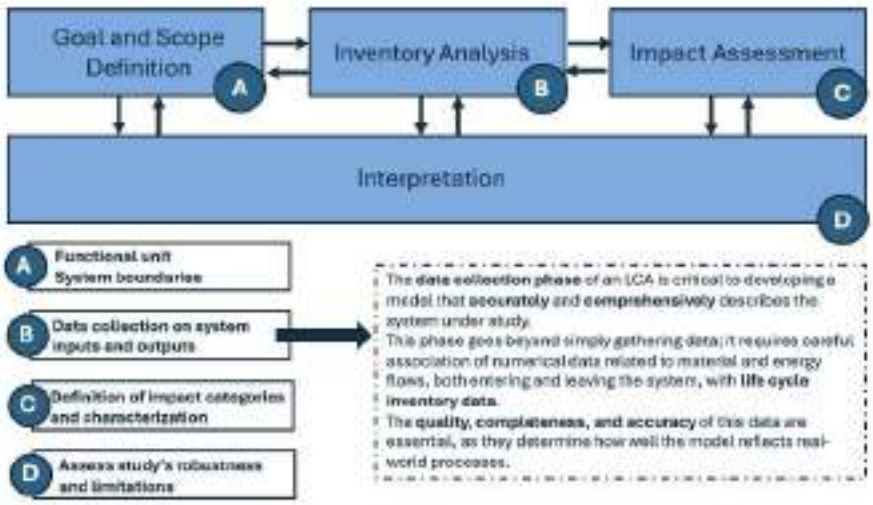
Methodology: no standardize methodology (just few articles on EU directives).
Advantages: provides a comprehensive view of long-term costs. Supports investment and budgeting decisions.
Disadvantages: Uncertainty in predicting future costs, such as energy prices or maintenance needs.

S-LCA
Social life cycle assessment

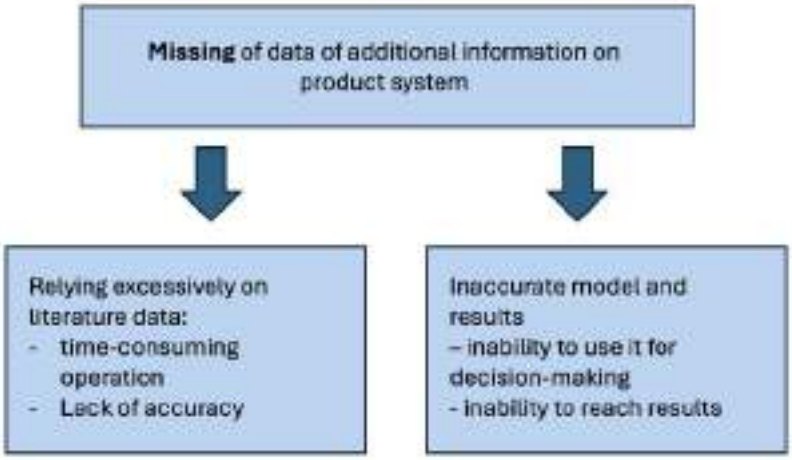
S-LCA : **social and socio-economic impacts** of a product or service along its life cycle. It considers how different stages of the life cycle affect stakeholders, including workers, local communities, consumers, and society at large.

Methodology: UNEP/SETAC guidelines.
Advantages: Supports ethical sourcing and fair labor practices.
Disadvantages: Methodologies are still developing, leading to variability in assessments.

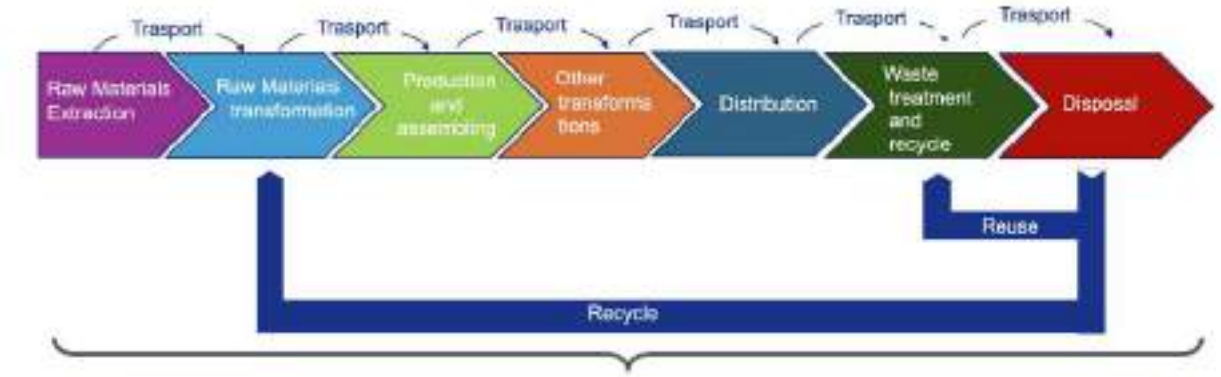
Life Cycle Assessment Framework



Possible arising risk

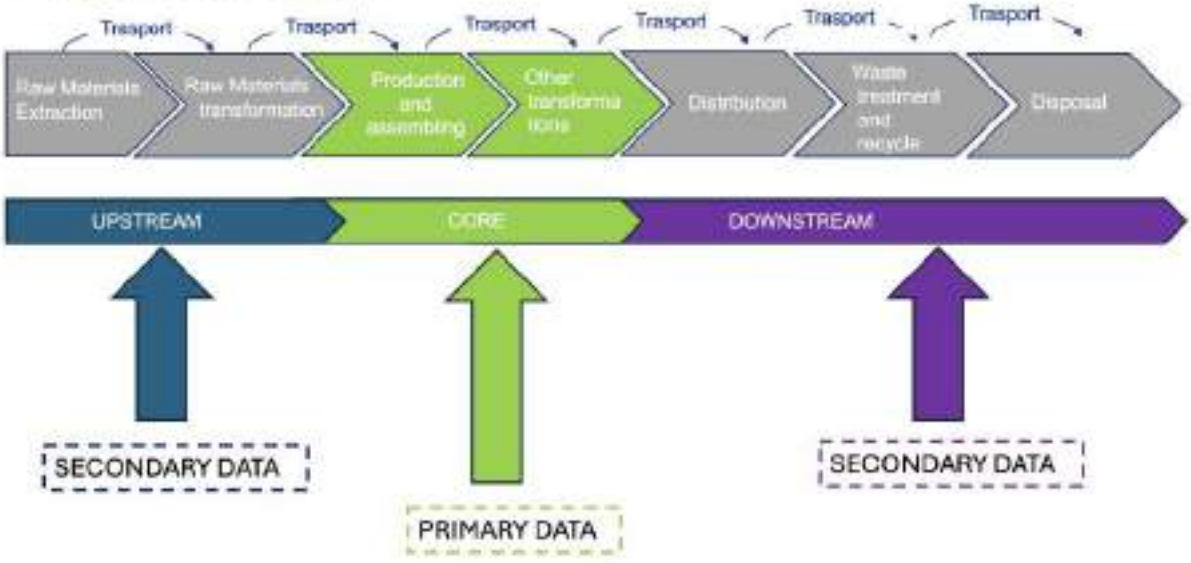


Life Cycle Perspective



To ensure a comprehensive analysis, **data is collected** considering **all stages of the product's life cycle**, from raw material extraction to production, distribution, use, and end-of-life. This approach **helps identify environmental, social, and economic impacts** across the **entire value chain**, providing a solid foundation for sustainability assessments and decision-making.

Data Collection

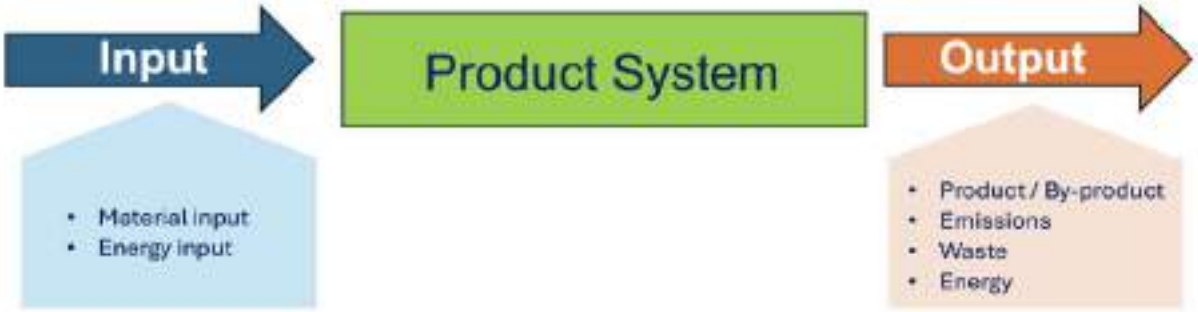


Data Collection: primary and secondary data

- **Primary Data**: These are **site-specific, directly measured, or collected data** related to a specific process, product, or activity within the system boundaries. Examples include energy consumption, raw material usage, and emissions data obtained from production facilities. Primary data **are typically more accurate and reliable**, reflecting real-world conditions.
- **Secondary Data**: These are **generic or aggregated data** sourced from **databases**, **literature**, or **industry averages**. They are used when primary data are unavailable or impractical to obtain. Secondary data often **represent broader assumptions**, such as global averages for raw material production or typical energy mix values.

To ensure an accurate and reliable model, **primary data are collected for the core phase,** representing the process under study, while **secondary data are utilized for upstream and downstream phases** to account for supporting processes, such as raw material extraction or end-of-life management.

Product system and flows



The data collection process focuses on **identifying and quantifying inputs and outputs** associated with a product system. Inputs include raw materials, energy, water, and other resources required for production and use. Outputs encompass products, by-products, emissions to air, water, and soil, as well as waste generated throughout the system's life cycle. This **systematic approach** ensures accurate modeling of the product system, enabling reliable evaluation of environmental impacts, resource efficiency, and overall sustainability performance.

Example of data collection sheet

MATERIAL INPUT				
Material	**Quantity**	**Unit of measure**	**Geography**	**Other information**
Chemical reactant			Location of production	(like chemical information, or production process information)
Plastic			Location of production	
Packaging			Location of production	(like material information, PE, PP, ecc)
ENERGY INPUT				
Energy	**Quantity**	**Unit of measure**	**Geography**	**Other information**
Electricity			Country of usage	EX. Comes from certified renewable energy sources.
Natural Gas				
Diesel				Used for heating / process operation or used for trasport
PRODUCT				
Product	**Quantity**	**Unit of measure**		**Other information**
Main product				Economic value
By-product				Economic value
WASTE OUTPUT				
Type of waste	**Quantity**	**Unit of measure**	**Geography**	**Other information**
Plastic waste			Position of treatment facility	Type of treatment (recycling, disposal, ...)
Chemical waste			Position of treatment facility	Type of treatment (recycling, disposal, ...)
EMISSIONS				
Emission	**Quantity**	**Unit of measure**	**Air/soil/water**	**Other information**
CO2			air	(ex. from biodegradation)
CH4			air	

Data assessment framework

BASELINE

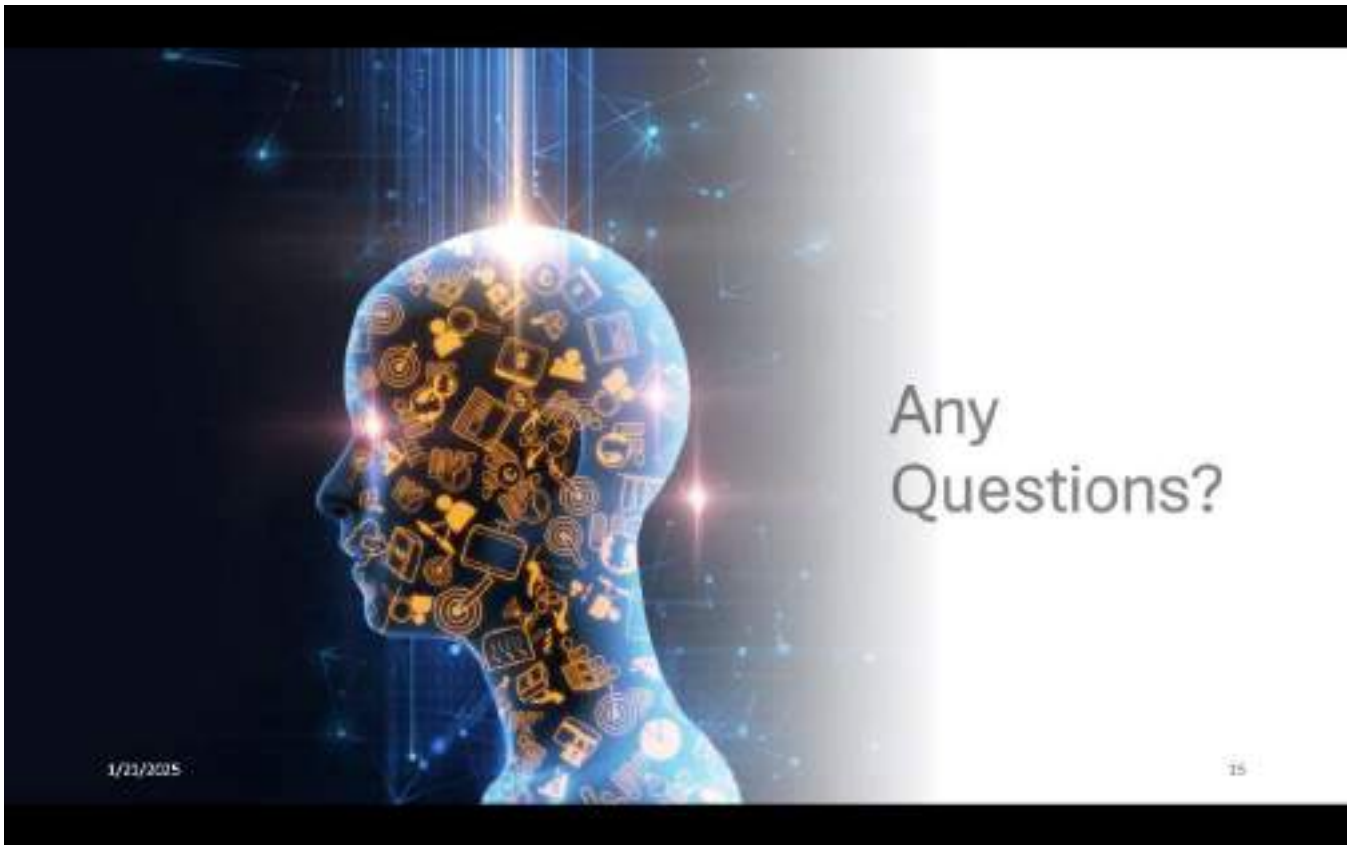
Objective: Conduct an exploratory analysis.
Key Activities:
- Data assessment to ensure completeness and reliability.
- Identification of initial hotspots within the system.

MID-LINE

Objective: Evaluate changes in the process.
Key Activities:
- Analyze adjustments in processes and their associated inputs.
- Monitor progress towards addressing previously identified hotspots

END-LINE

Objective: Conduct the final impact evaluation.
Key Activities:
- Assess overall improvements and residual impacts.
- Provide conclusive results for decision-making.



6.17. WP10, 11, & 12 presentation




Measures to maximise Impact
Dissemination is about sharing results, to stimulate their usage in further research or commercial development. Communication is about how the results are shared and Exploitation is about using the results. The dissemination, communication and exploitation activities of the MAGICBIOMAT project will be coordinated through dedicated tasks in WP10,11 and 12.
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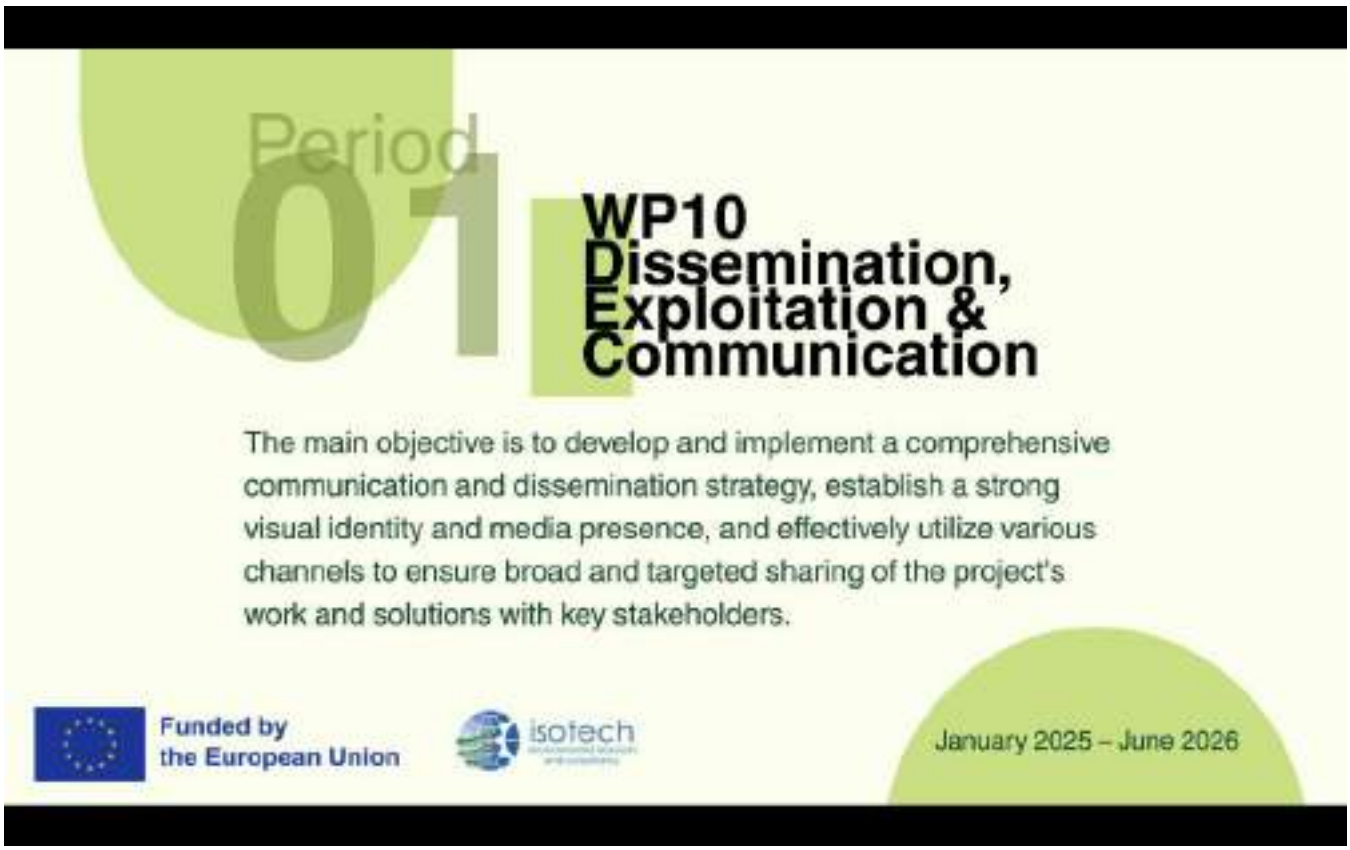
Period 01
WP10 Dissemination, Exploitation & Communication
The main objective is to develop and implement a comprehensive communication and dissemination strategy, establish a strong visual identity and media presence, and effectively utilize various channels to ensure broad and targeted sharing of the project's work and solutions with key stakeholders.
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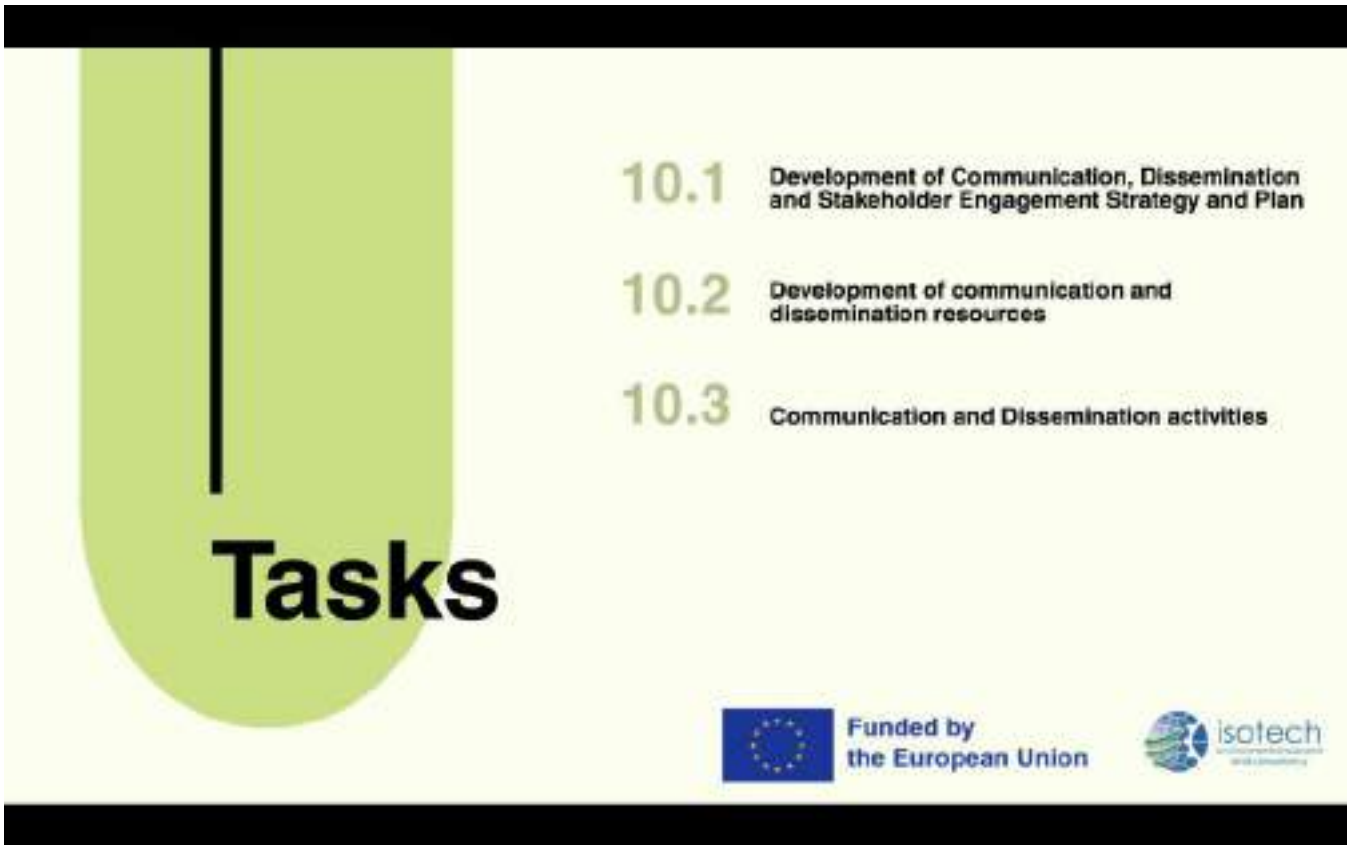
January 2025 – June 2026


10.1 Development of Communication, Dissemination and Stakeholder Engagement Strategy and Plan
10.2 Development of communication and dissemination resources
10.3 Communication and Dissemination activities
Tasks
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Deliverables & Milestones
Period 01
MONTH 4
D10.1 PLAN FOR COMMUNICATION, DISSEMINATION AND EXPLOITATION (ISOTECH)
MONTH 6
D10.2 COMMUNICATION RESOURCES (INS, ISOTECH)
M12 PROJECT WEBSITE LAUNCHED (ISOTECH)
MONTH 18
D10.3 INITIAL REPORT ON COMMUNICATION, DISSEMINATION AND EXPLOITATION ACTIVITIES (PERIOD 1) (ISOTECH)
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10.1 Development of Communication, Dissemination and Stakeholder Engagement Strategy and Plan (Lead: ISOTECH; Partners: All; M1-M4)

A Communication, Dissemination and Stakeholder Engagement Strategy and Plan (CDSEP) will be developed at the beginning of the project.

Specific KPIs will be developed and monitored yearly to ensure the CDSEP's effectiveness.

→ D10.1 Plan for communication, dissemination and exploitation (M4, ISOTECH)

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10.2 Development of communication and dissemination resources (Lead: ISOTECH; Partners: All; M1-M6)

Development of the project's visual identity, social media presence and the project website.

Project website: www.magicbiomat.eu

Social Media Channels:

Other resources: Presentation template
Roll-up banner
Project poster

→ D10.2 Communication Resources (M6, ISOTECH)
→ M12 Project Website Launched (M6, ISOTECH)

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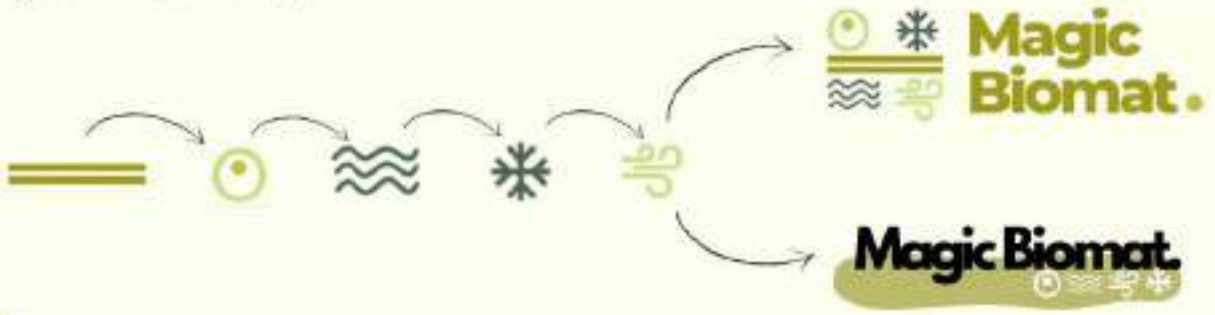
10.2 Development of communication and dissemination resources

Logo and Visual Identity



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10.2 Logo and Visual Identity



Magic Biomat.

OPTION 1

Magic Biomat.

OPTION 2

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10.3 Communication and Dissemination activities - Period 1 (Lead: ISOTECH; Partners: All; M1-M4)

Various means and media will be used to share information about the project and its activities, and to maximise the project's outreach.

In Period 1 the focus is on:

- Informing the public and selected stakeholders about the work implemented and planned within the project.
- Raising awareness about biobased, biodegradable plastics
- Sharing outputs from WPs 1 - 3

All partners contribute!

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Period 02

WP11 Dissemination, Exploitation & Communication

The main objective of Period 2 is to develop and begin implementing the exploitation strategy of the project and its products, reach out to specific stakeholders, including industry, end-users and academia as well as develop links and synergies with other EU projects and initiatives.

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July 2026 – December 2027

Tasks

11.1 Intellectual Property Management and Exploitation Strategy Development

11.2 Outreach to industry and end-users

11.3 Outreach to academia and the scientific community and development of training material

11.4 Links with other projects and initiatives

11.5 Communication and Dissemination activities

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11.1 Intellectual Property Management and Exploitation Strategy Development (Lead: TUS; Partners: ISOTECH, All; M19-M24)

Intellectual Property Management and Exploitation Strategy Development. The IP will be the property of the beneficiaries that carried out the relevant work.

→ D11.1 Intellectual Property Rights (IPR) Management and Exploitation Strategy (TUS, M24)

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11.2 Outreach to industry and end-users (Lead: OK; Partners: All; M19-M36)

The main aim of this task is to draw the attention of the industry and potential end-users of the project's products.

Includes:

- Participation at industrial fairs, conferences, congresses and B2B events (at least 3)
- Implementation of at least 1 project webinar on a topic relevant to industry stakeholders
- Bilateral meetings with potential end-users
- AI tool validation events held at each of the 4 real environment biodegradation test areas

→ D11.2 Industry and End-User Outreach Activities (OK, M36)

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11.3 Outreach to academia and the scientific community and development of training material (Lead: UNIPD; Partners: All; M19-M36)

Outreach to academia and the scientific community and development of training material.

A total of 15 publications/presentations are expected.

A MOOC will be developed by DIGI, with support from partners, and hosted on Digiotouch Academy. Five training modules on project results, e.g. circularity, application of trustworthy AI on programmed biodegradation, LCSA.

→ D11.3 Outline of Massive Open Online Course (MOOC) Modules (DIGI, M36)

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11.4 Links with other projects and initiatives (Lead: TUS; Partners: All; M19-M36)
Links with other projects and initiatives through information exchange, joint initiatives and cross-invitation to events/activities.
TUS will organise online lectures by invited experts every 3 months.
Collaboration and synergies with EU initiatives as well as the EU policy-making processes.
A Policy Brief will be developed: barrier and enablers for biodegradable materials development, conclusions and recommendations on policy interventions.
D11.4 Policy Brief: Biodegradable Materials Barriers and Enablers (ISOTECH, M36)
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11.5 Communication and Dissemination activities (Lead: ISOTECH; Partners: All; M19-M36)
Communication and Dissemination activities – Various means and media will be used to share information about the project and its activities, and to maximise the project's outreach.
In Period 2 the focus will be on sharing outputs from WPs 4 & 5 and reaching out to the WP11 target audiences.
All partners contribute!
D11.5 Mid-term Report on Communication, Dissemination and Exploitation Activities (ISOTECH, M36)
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Deliverables
Period 02
MONTH 24
D11.1 INTELLECTUAL PROPERTY RIGHTS (IPR) MANAGEMENT AND EXPLOITATION STRATEGY (TUS)
MONTH 36
D11.2 INDUSTRY AND END-USER OUTREACH ACTIVITIES (UK)
D11.3 OUTLINE OF MASSIVE OPEN ONLINE COURSE (MOOC) MODULES (DIG)
D11.4 POLICY BRIEF: BIODEGRADABLE MATERIALS BARRIERS AND ENABLERS (ISOTECH)
D11.5 MID-TERM REPORT ON COMMUNICATION, DISSEMINATION AND EXPLOITATION ACTIVITIES (ISOTECH)
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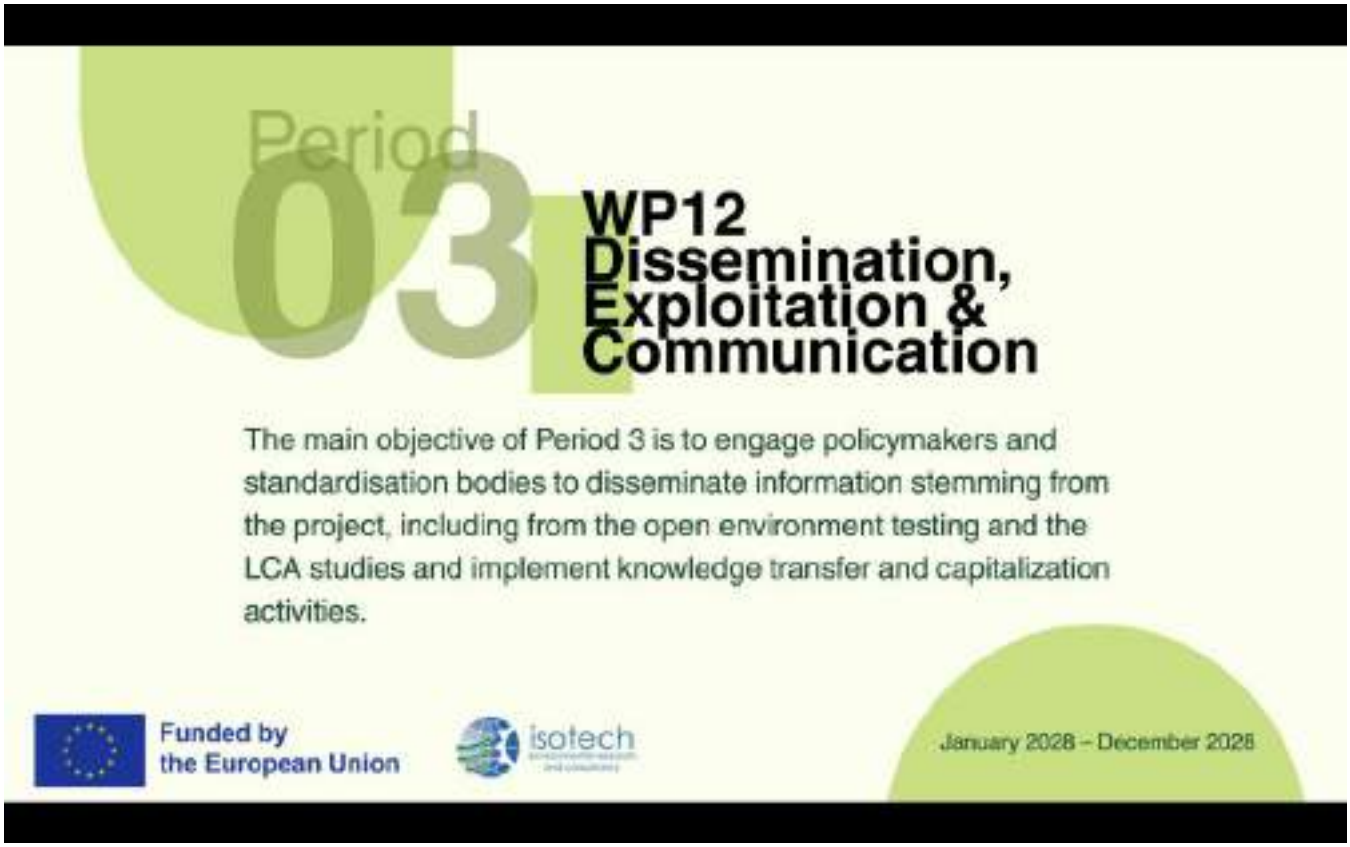
Period
03
WP12
Dissemination, Exploitation & Communication
The main objective of Period 3 is to engage policymakers and standardisation bodies to disseminate information stemming from the project, including from the open environment testing and the LCA studies and implement knowledge transfer and capitalization activities.
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January 2028 – December 2028


Tasks
12.1 Intellectual Property Management and Exploitation Strategy Development
12.2 Outreach to industry and end-users
12.3 Outreach to academia and the scientific community and development of training material
12.4 Links with other projects and initiatives
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12.1 Engaging policymakers and standardization bodies (Lead: ISOTECH; Partners: IPC; M37-M48)
Engage policymakers and standardization bodies.
A Policy Brief focusing on standardization, and including recommendations stemming from the project's work will be developed.
D12.1 Policy Brief on Standardization for Biodegradability in Open Environments (ISOTECH, M48)
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12.2 IPR and Knowledge Capitalisation and Transfer (Lead: TUS; Partners: All; M37-M48)

IPR and Knowledge Capitalization and Transfer this task will apply the IPR and exploitation strategy to capitalize and transfer the project's most relevant results and knowledge outputs, by:

- Identifying key knowledge outputs
- Define capitalization pathways
- Transfer knowledge

Completion and Validation of MOOC with stakeholders by M42. Rolling out of MOOC by M45, during the final project conference.

→ D12.2 Final Massive Open Online Course (MOOC) modules (DIGI, M48)

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12.3 Links with other projects and initiative (Lead: TUS; Partners: All; M37-M48)

Links with other projects and initiatives through information exchange, joint initiatives and cross-invitation to events/activities.

→ D12.3 Project Synergies (TUS, M48)

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12.4 Communication and Dissemination activities (Lead: ISOTECH; Partners: All; M37-M48)

In Period 3, communication and dissemination activities will focus on sharing information and progress to the public and selected stakeholders. A Final Project Conference will be implemented back-to-back with the project's final general assembly.

→ D12.4 Final Report on Communication, Dissemination and Exploitation Activities (ISOTECH, M48)

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Deliverables

Period 03

MONTH 48

D12.1 POLICY BRIEF ON STANDARDIZATION FOR BIODEGRADABILITY IN OPEN ENVIRONMENTS (ISOTECH)

D12.2 FINAL MASSIVE OPEN ONLINE COURSE (MOOC) MODULES (DIGI)

D12.3 PROJECT SYNERGIES (TUS)

D12.4 FINAL REPORT ON COMMUNICATION, DISSEMINATION AND EXPLOITATION ACTIVITIES (ISOTECH)

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THANK YOU
Eleni Panayiotou
media@isotech.com.cy
Demetra Orthodoxou
project@isotech.com.cy
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6.18. WP 13, 14, 15, & 16 presentation

MAGICBIOMAT Kick-off meeting

WP13 Project Management and Coordination (period 1) (M1 – M18)
WP14 Project Management and Coordination (period 2) (M19 – M36)
WP15 Project Management and Coordination (period 3) (M37 – M48)

Lead: TUS
Participants: all

Funded by the European Union

Objectives:

The main objective is to establish a robust project management structure to ensure the project's success by overseeing legal, administrative, and financial management, coordinating closely with EU officers, managing report preparations, and fostering effective internal communication and integration within the consortium.

O13.1: To provide a project **management structure** to enable the project to achieve its goals and innovation objectives;

O13.2: To carry out the overall **legal, administrative and financial** management of the project, in close contact and coordination with the responsible European Commission Project Officers;

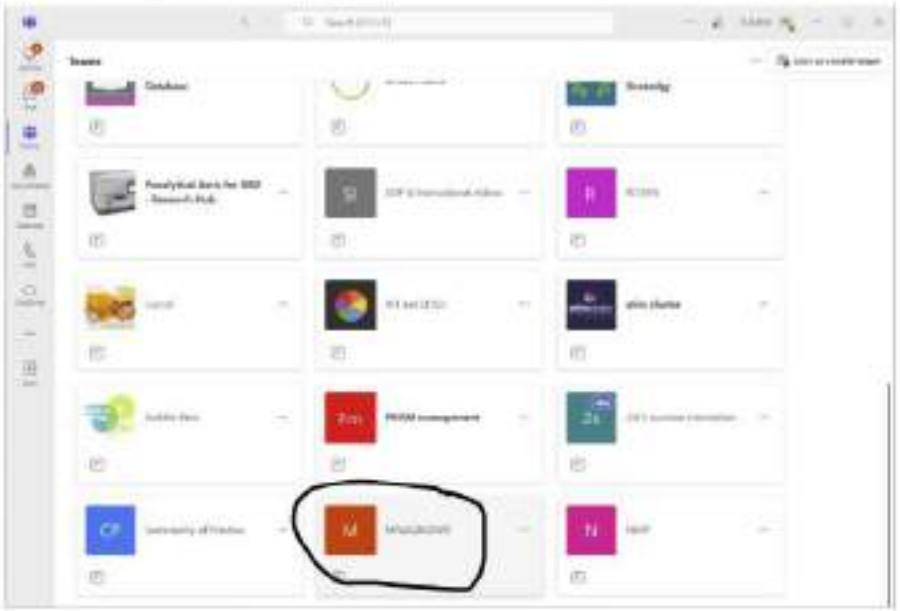
O13.3: To facilitate and manage the preparation of **internal reports** as well as all financial, periodic and other reports required by the EU;

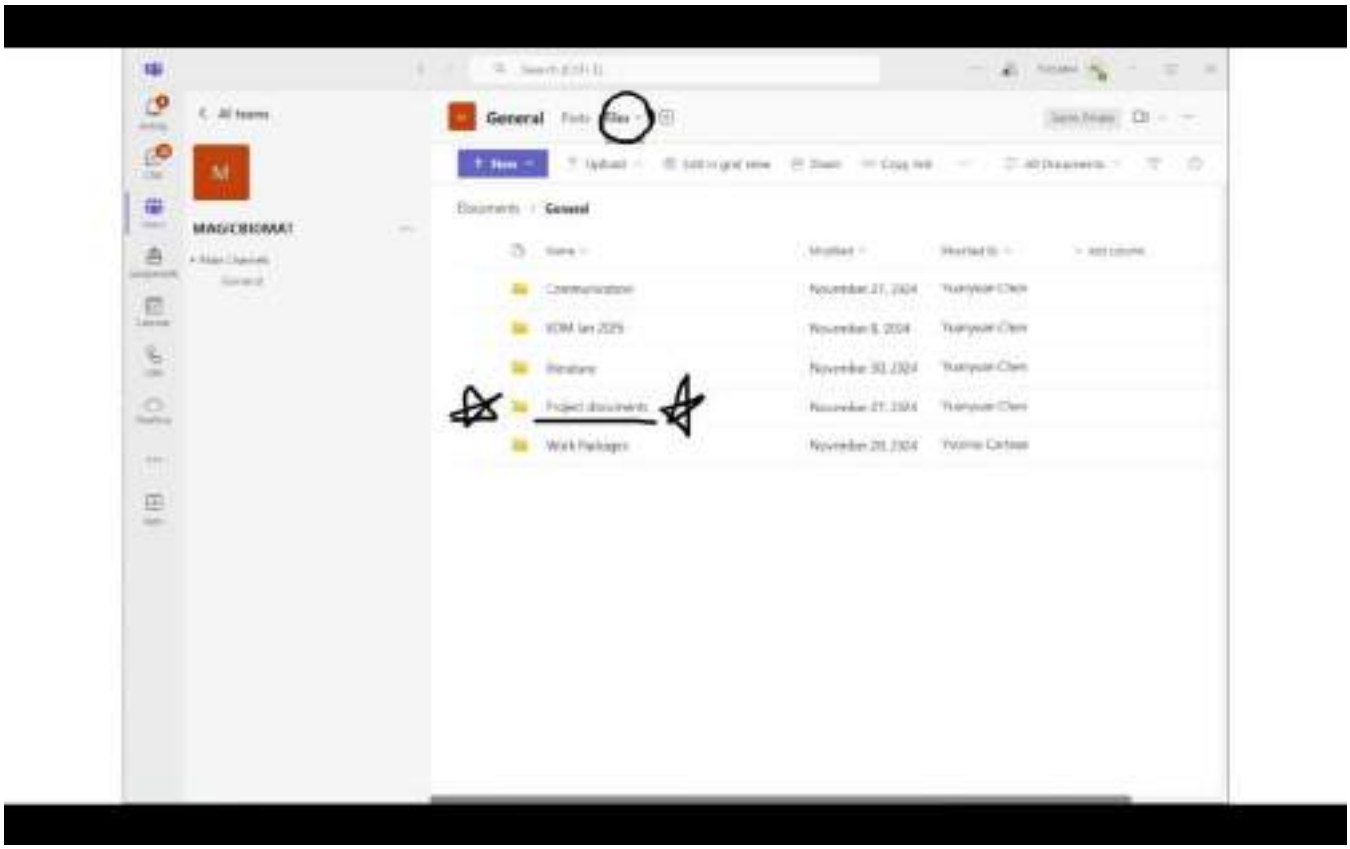
O13.4: To develop and implement structures and systems to facilitate effective internal **communication** and foster the integrative process within the consortium.

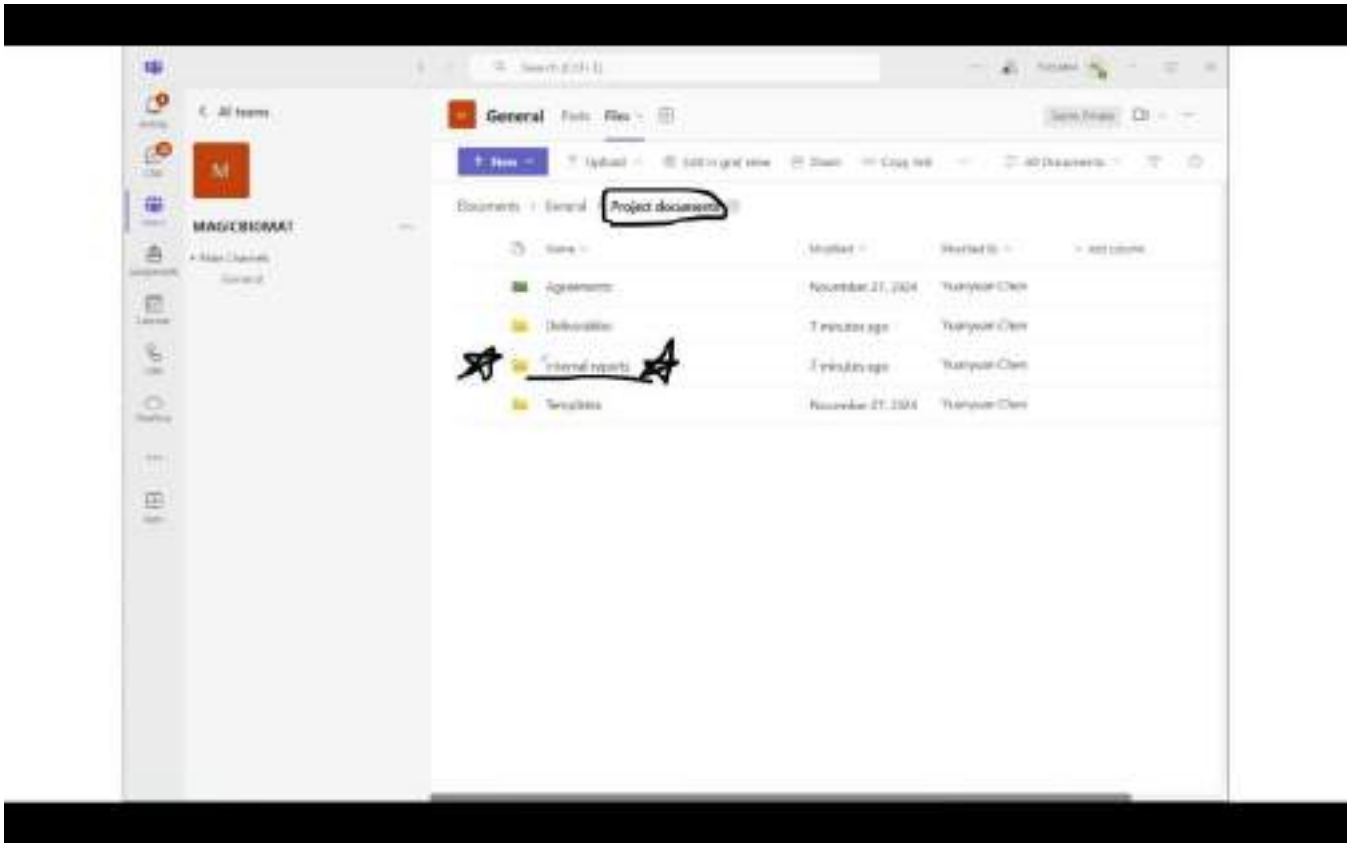
Deliverables

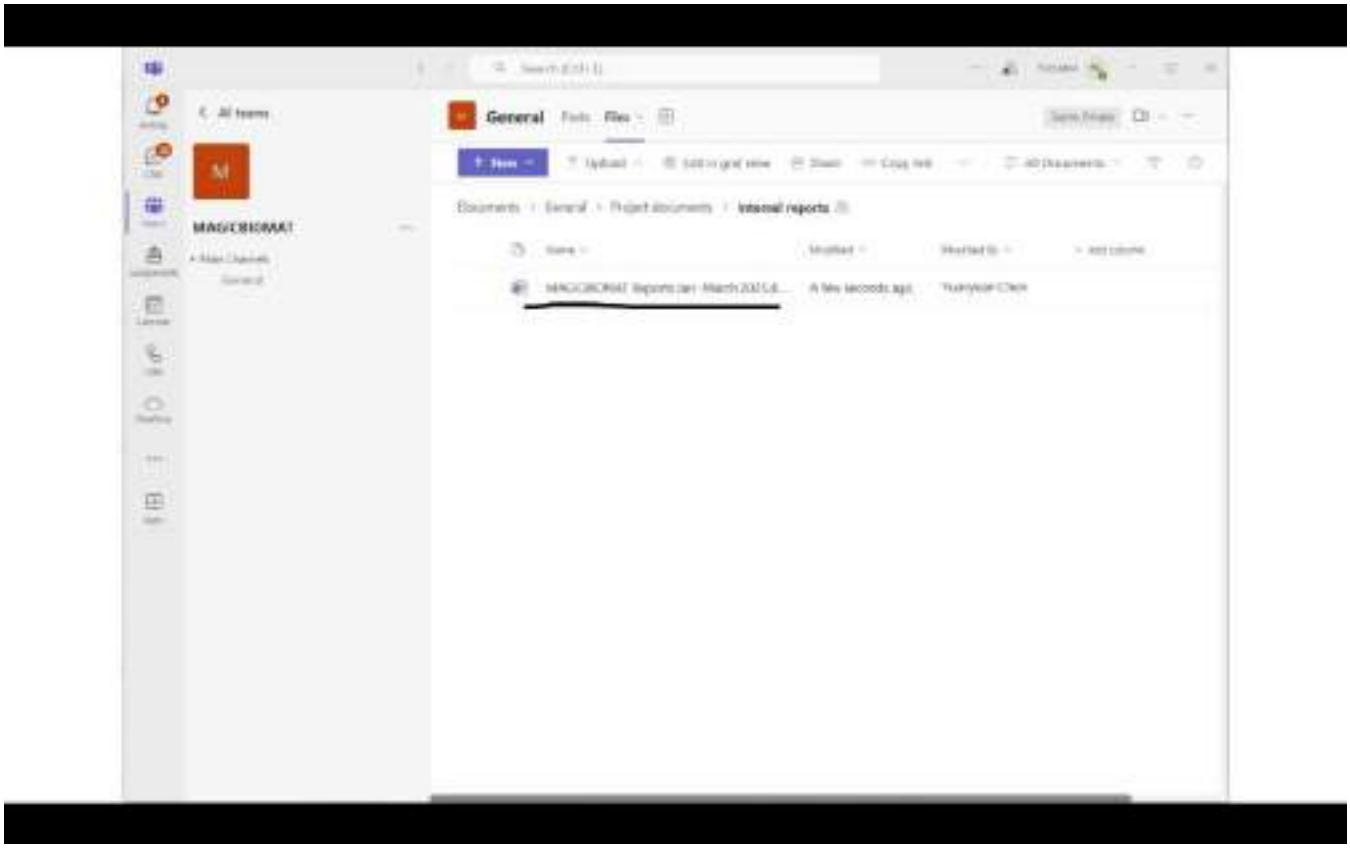
D13.1 – **Kick-off** meeting minutes (M1, TUS) - R
D13.2 – **Handbook of operation** (M3, TUS) - R
D13.3 – Initial risk register (Period 1) (M18, TUS) - R
D13.4 – Initial **data management plan** (Period 1) (M6, DIGI) - DMP
D14.1 – Mid-term risk register (Period 2) (M36, TUS) - R
D14.2 – Mid-term data management plan (Period 2) (M36, DIGI) - DPM
D15.1 – Final **risk register** (Period 3) (M48, TUS) - R
D15.2 – Final data management plan (Period 3) (M48, DIGI) - DMP

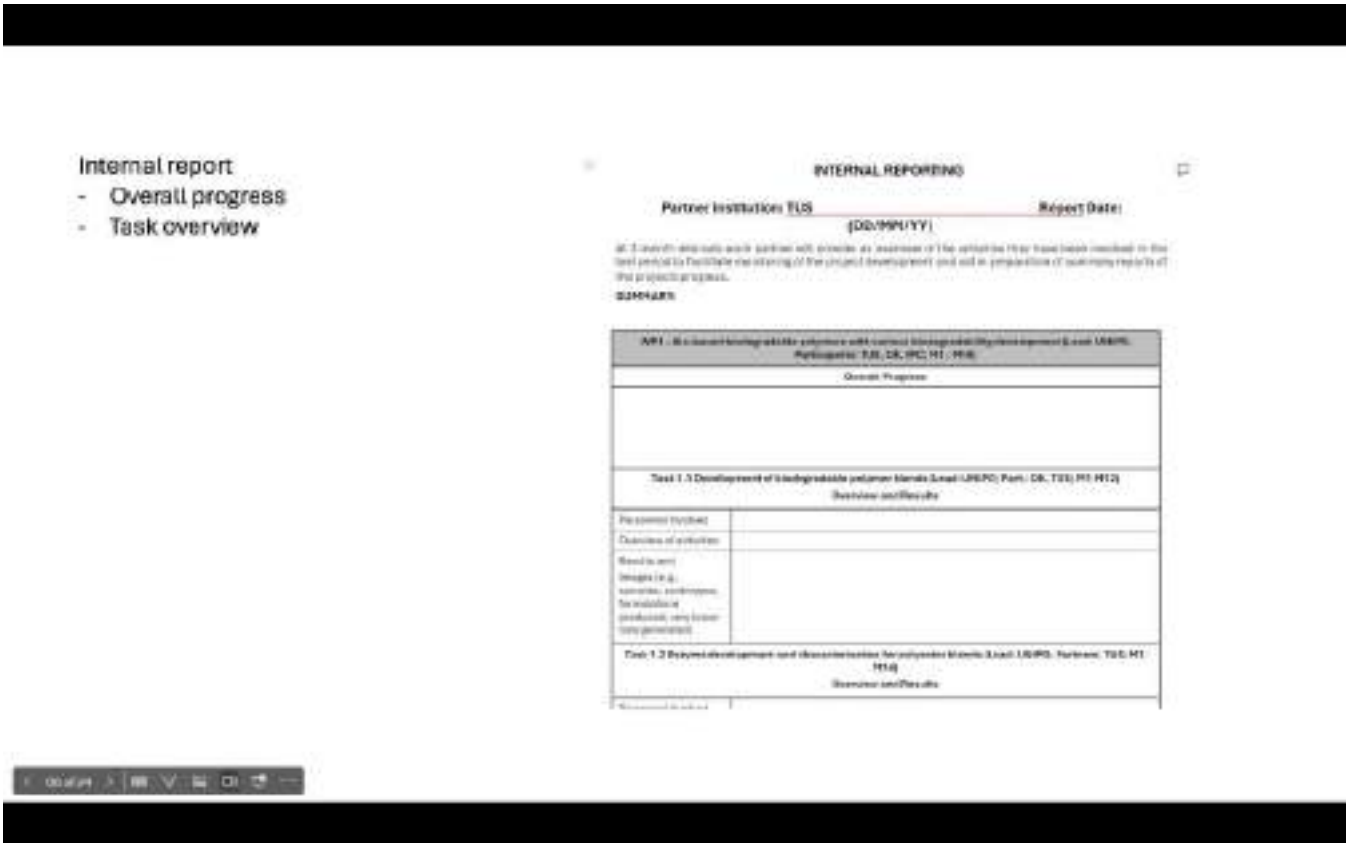
Internal reports




All teams
General
Files
New
Upload
Documents
General
Communication
Project documents
Work Packages


All teams
General
Files
New
Upload
Documents
General
Project documents
Agreements
Deliverables
Internal reports
Templates


General
MAGICBIOMAT
Internal reports


Internal report
- Overall progress
- Task overview
INTERNAL REPORTING
Partner Institution: TUS
Report Date:
(DD/MM/YY)
SUMMARY

[redacted]

Internal report
- Milestone and Deliverables



[redacted]

[redacted]

Internal report
- Risks



[redacted]

Internal report
- Publications
- Dissemination activities
- Communication activities
- Future plans



Internal report
- Meeting minutes



Repeated for
-WP3
-WP7
-WP10
-WP13
-WP16

Overall Progress

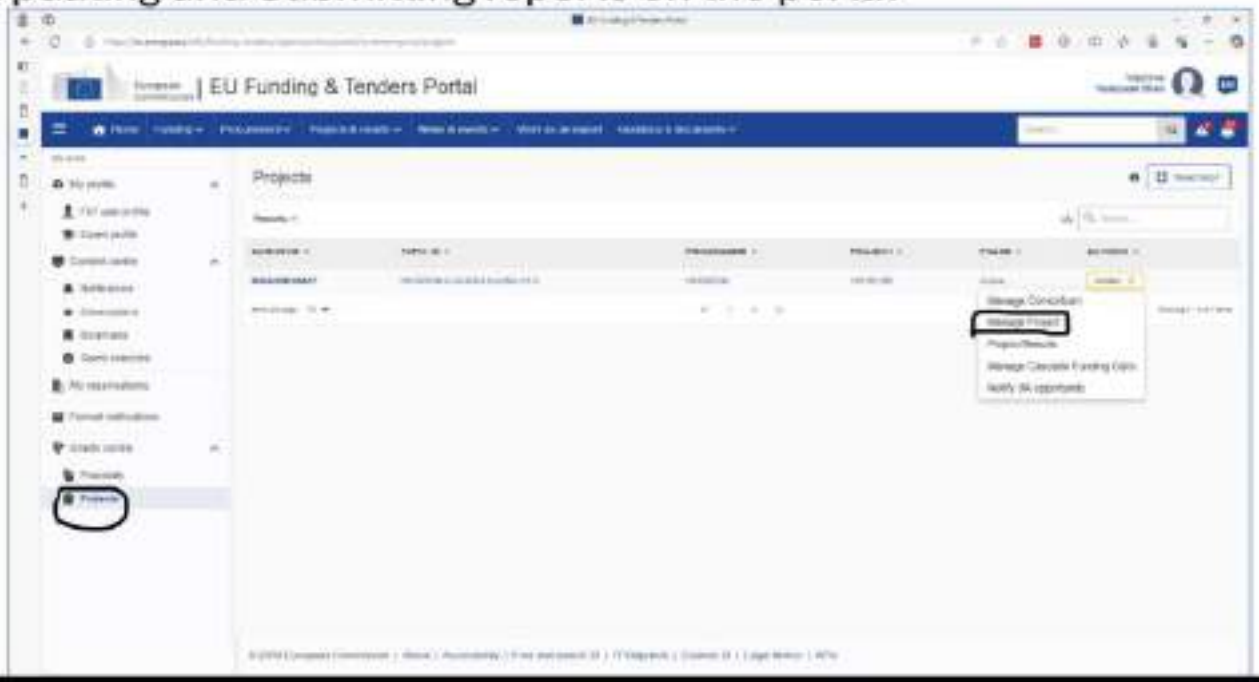
Overall Progress

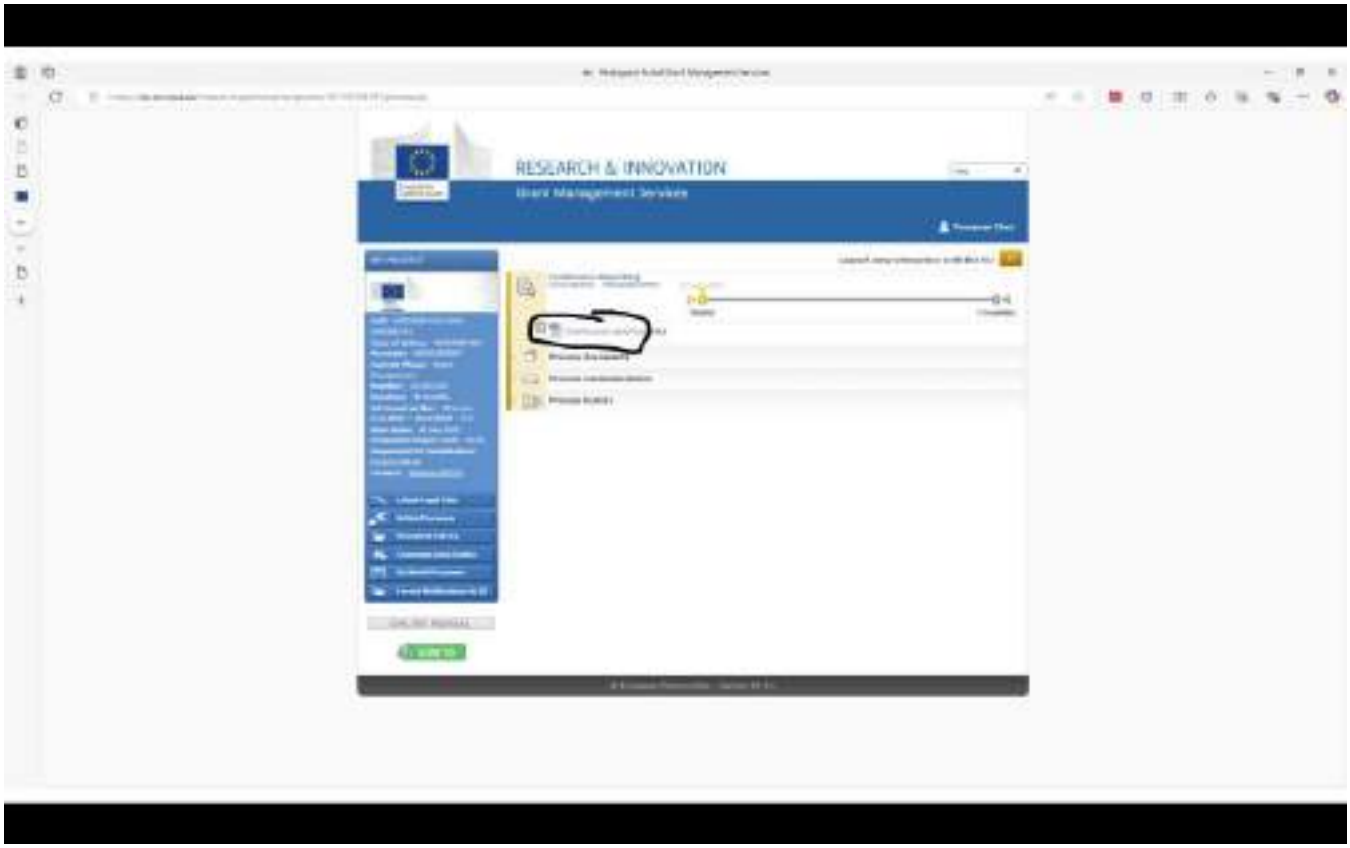
Overall Progress

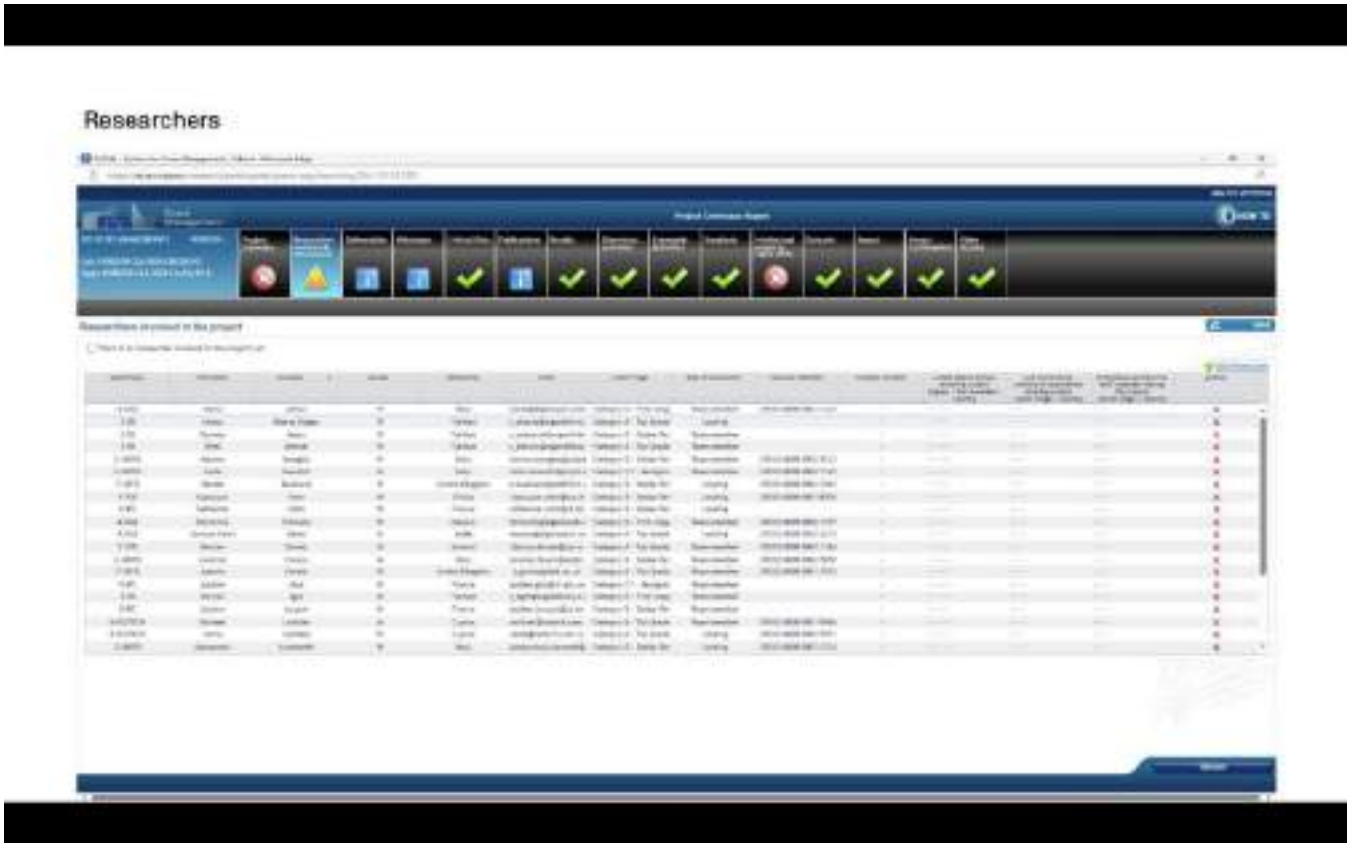
Overall Progress

Overall Progress

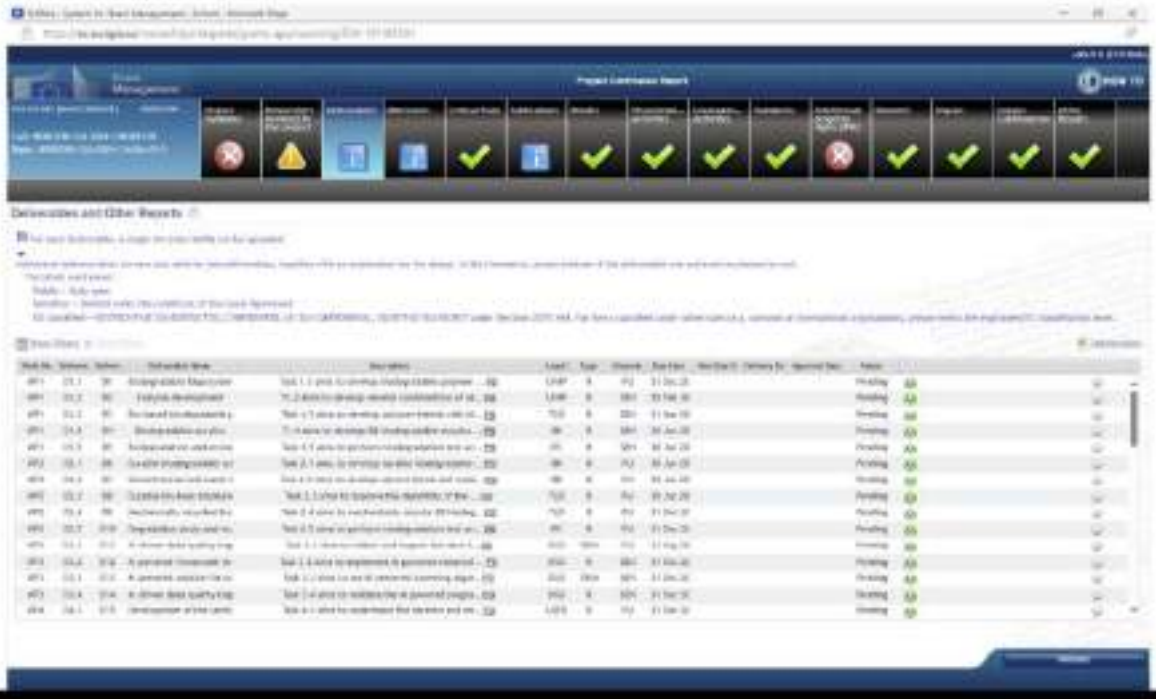
Updating and Submitting reports on the portal



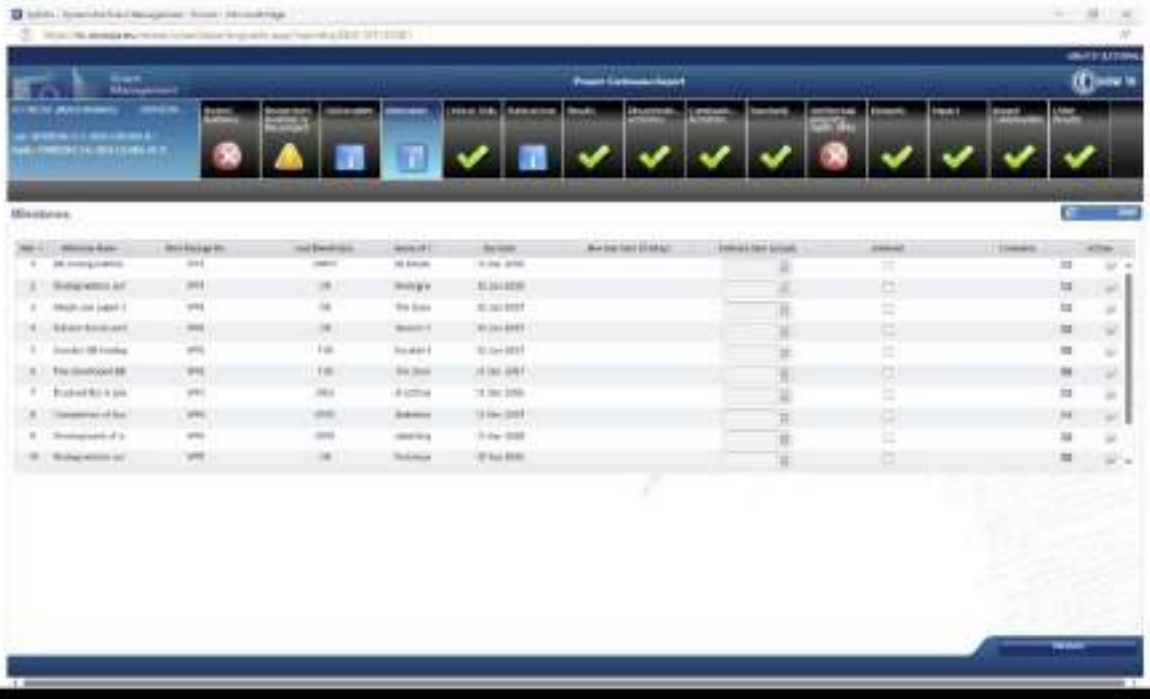

RESEARCH & INNOVATION


Researchers

Deliverables



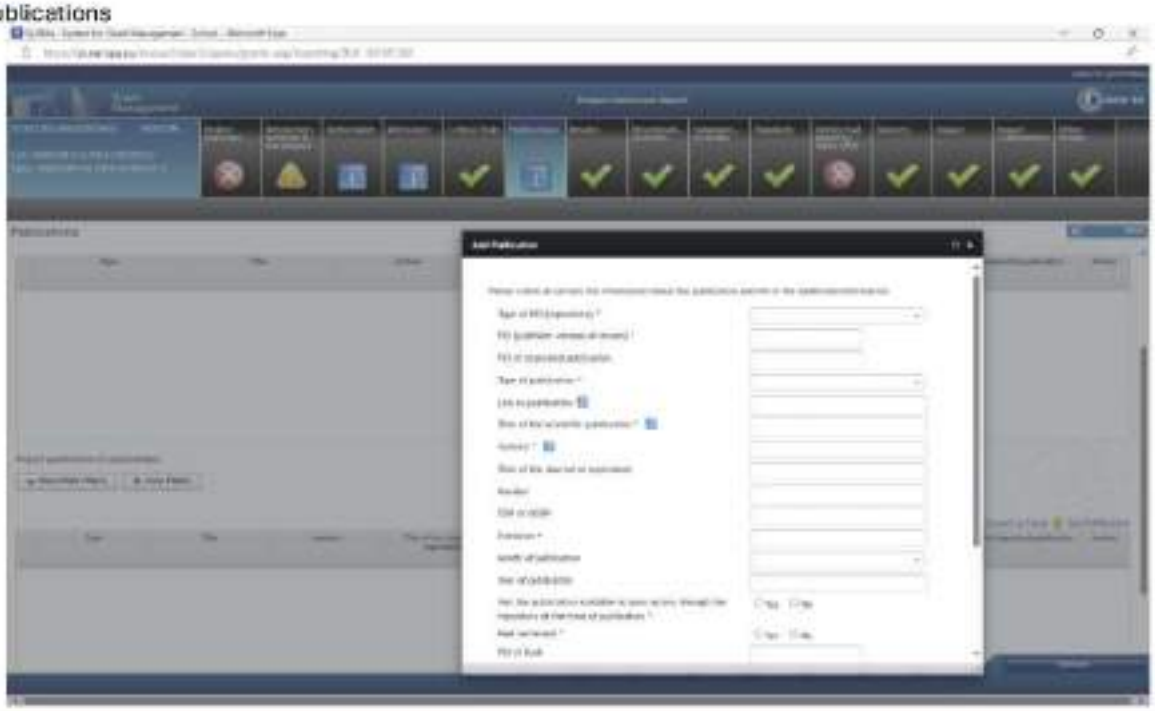
Milestones



Risks



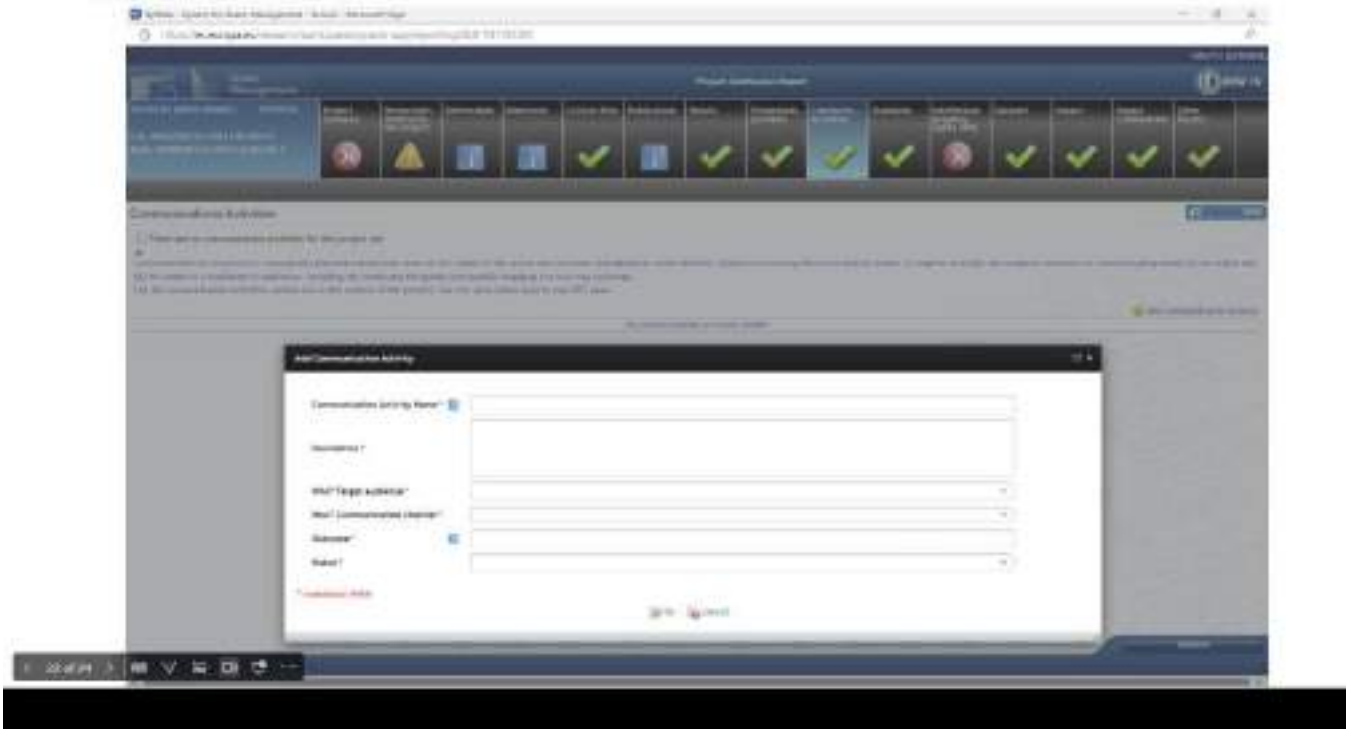
Publications



Dissemination activities



Communication activities



MAGICBIOMAT Kick-off meeting

WP16
Ethics Requirements

Lead: TUS
Participants: all
Timeframe: M1 - M48



Objectives:

To ensure compliance with the 'ethics requirements' set out in this work package.

Deliverables:

D16.1 – AI - EPQ - NEC - H - A - POPD - Requirement No. 1 (M6, TUS) - R
D16.2 – A - POPD - AI - H - NEC - EPQ - Requirement No. 2 (M18, TUS) - R
D16.3 – AI - NEC - POPD - A - H - EPQ - Requirement No. 3 (M36, TUS) - R
D16.4 – A - AI - POPD - NEC - H - EPQ - Requirement No. 4 (M47, TUS) - R