

INAUGURAL KEYNOTE

APRIL 9th, 2024, 11:00 AM-12:00 PM (CET)

AMIGDALA



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SPEAKERS

AMIGDALA

Inaugural Speakers



Professor Dr-Ing Sebastian Engell, A.SPIRE
Advisory & Programming Group
Chairman



Florie Gonsolin, CEFIC
Director Industrial Transformation
Projects



AMIGDALA Consortium Members



Stefan Luxembourg, TNO
Researcher Energy
Systems Modelling



Alex Zabeo, GreenDecision
Chief Technology
Officer



Sabrina Müller, Dechema
Senior Advisor



Joel Neave, Deloitte
Senior Manager



Wouter Nijis, VITO
Senior Researcher &
Project Manager



AGENDA

AMIGDALA

- 1 Introduction** – A.SPIRE (10')
Process industry Green Deal Challenges and how AMIGDALA will help meet them
- 2 Sector view** – CEFIC (10')
Sector view on Green Deal challenges and AMIGDALA success factors
- 3 AMIGDALA project** – AMIGDALA Consortium (25')
Objectives, Expert Leads, Launch of Community of Practice
- 4 Next steps** – TNO (5')
- 5 Q&A sessions** – TNO (10')





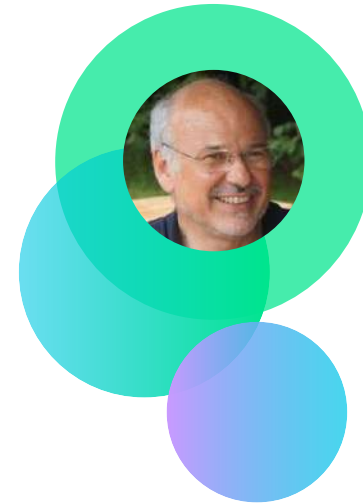
Inaugural Keynote

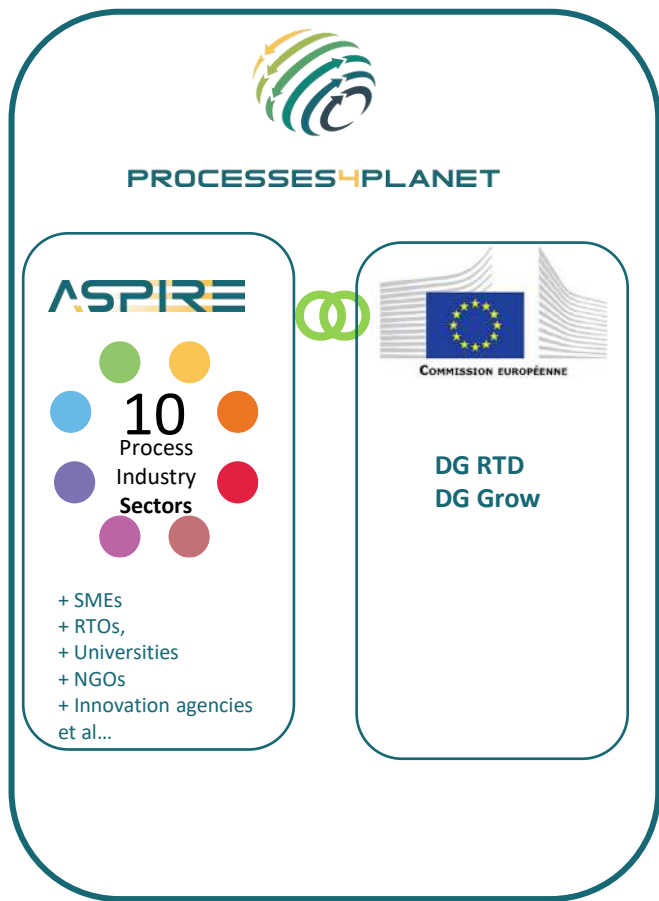
INTRODUCTION

A.SPIRE & CEFIC Points of View

Process industry Green Deal Challenges and how AMIGDALA will help meet them

Professor Dr-Ing Sebastian Engell, Advisory and Programming Group Chairman



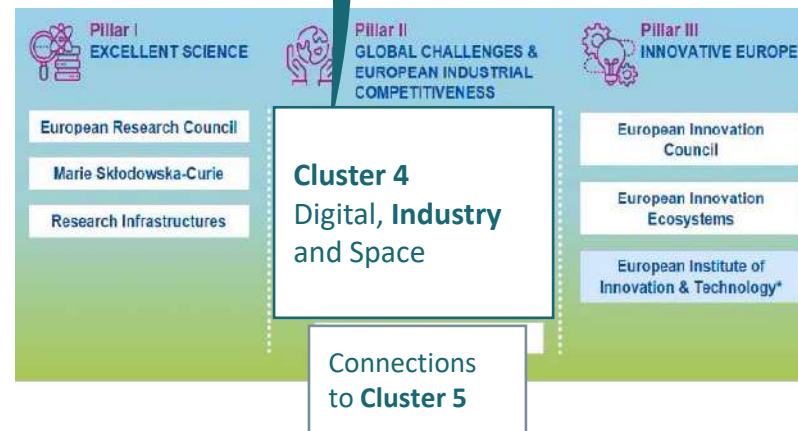


Co-programmed Partnership

MoU signed:

€1,3 bn exclusively for projects
27% more than in H2020

An arrow points from this box to the Processes4Planet logo, indicating the financial commitment and partnership.



PRIVATE PARTNER

Board of Directors
5 representatives

Executive Director
1 representative

APG
15 representatives
(Incl. Ambassadors Group Leader)

Co-chair of PB



PARTNERSHIP BOARD



PROCESSES4PLANET
Signatories

- Commitment
- Decision making

Co-chair of PB



PUBLIC PARTNER



IMPACT PANEL

Dialogue with public investors beyond HEU

FEEDBACK PANEL

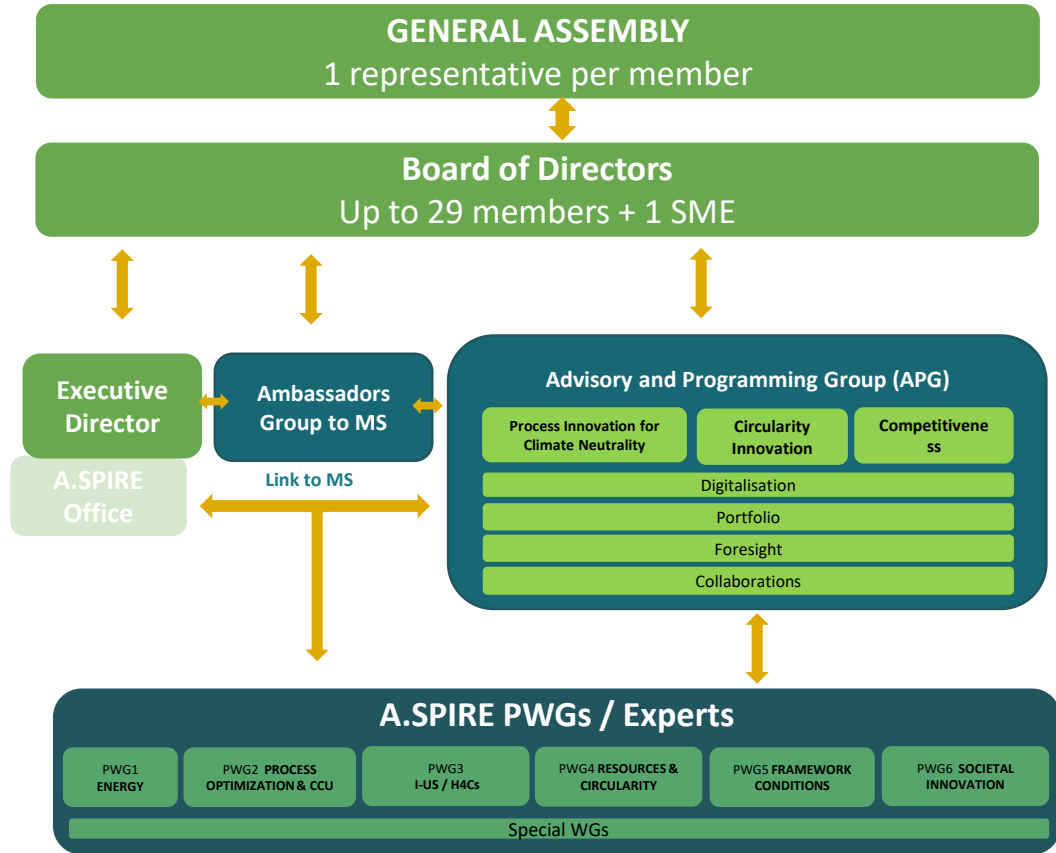
Dialogue with civil society



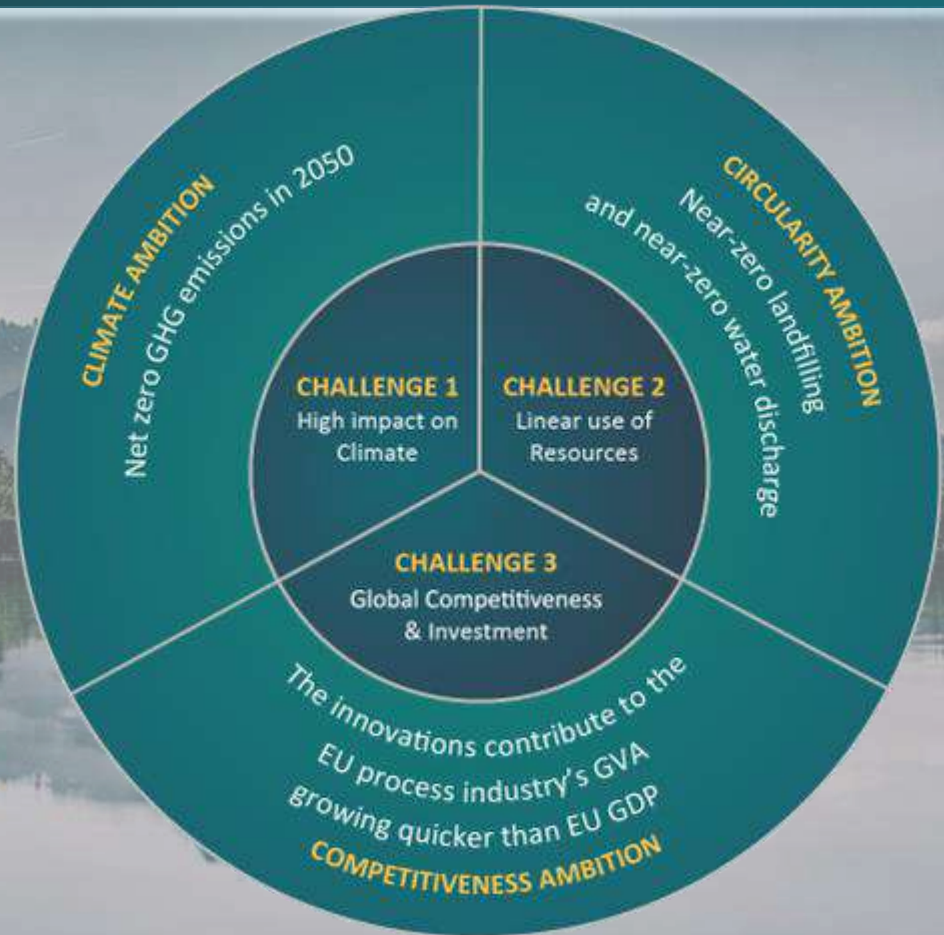
+22
EU
Countries

+170
Members
teaming up

- 6.3 million direct jobs
- 19 million indirect jobs
- 450,000 enterprises
- €1,8 trillion/y turnover
- 4.7% OF EU28 GDP



Ambitions and Challenges



Industrial strategies for decarbonization and circularity



- Shift to energy input from renewables
- Fundamental changes of the process technologies through electrification and the use of hydrogen
- Improved energy and material efficiency
- Carbon capture, utilisation and storage (large funding by the Innovation Fund)
- Use of renewable feedstock
- Generation of feedstock from end-of-life and production waste



Huge investment projects



Availability of energy from renewable sources is a critical factor in the future

P4P R&I Priority Themes for the coming years

R&I Priority Themes



1

Electrification of the process industries

2

Alternative carriers of energy and their integration

3

Accelerated improvement of energy and material efficiency

4

CO₂ capture and utilisation

5

Production processes and products that are safe and sustainable by design – Towards zero pollution

6

Circular economy

7

Digitalisation and human-centric industry

Importance of projects on modelling

- Each enterprise has its **own strategy** how to achieve climate neutrality and circularity and to stay/become competitive and resilient
 - Based on assumptions on the framework conditions
 - E.g. availability and price of electric power from renewables, cost of CO2 certificates
 - Based upon technical feasibility
 - Based upon market predictions and customer behaviours
- The sectors of the process industry **compete with each other for energy and materials** from renewable sources as well as with other activities (heating and cooling of buildings, transportation, agriculture, ...)
- It is **key to understand these dependencies** and to base investments into research, innovation and into real full-size plants on realistic and compatible assumptions
- These decisions have **long-lasting impacts** (5 years of more from idea to operation, pay-back times of 10 years or more)
- It is **not only energy** but also **materials**, especially wrt. recycling

Urgency

Customers are waiting for the results

- Companies and sectors
- Research and innovation community around the process industry, P4P
- Policy makers
- Public

Time is running out

- Results are needed fast
- Critical situation with the danger of de-industrialization
- Outcomes may be coarse at first but should be based on the full picture

Collaborate!

- With TRANSCIENCE (the other project call winner)
- With ASPIRE / P4P
- With sector organizations

Thank You!

We wish you fast and smooth progress!

Contact Us:



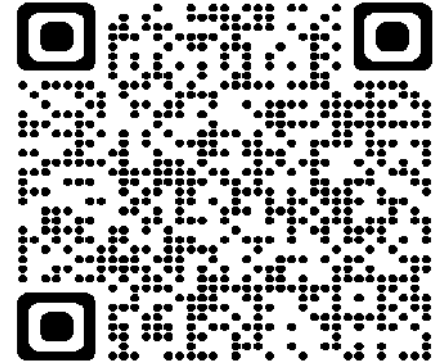
Rue Belliard 40 Bte 21B-1040 Brussels



info@aspire2050.eu



+ 32 (0) 491 71 19 72



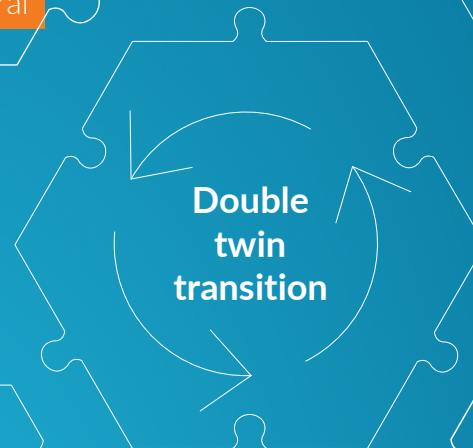
SCAN ME

CEFIC: Sector view on Green Deal challenges and AMIGDALA success factors

Florie Gonsolin, Director Industrial
Transformation Projects



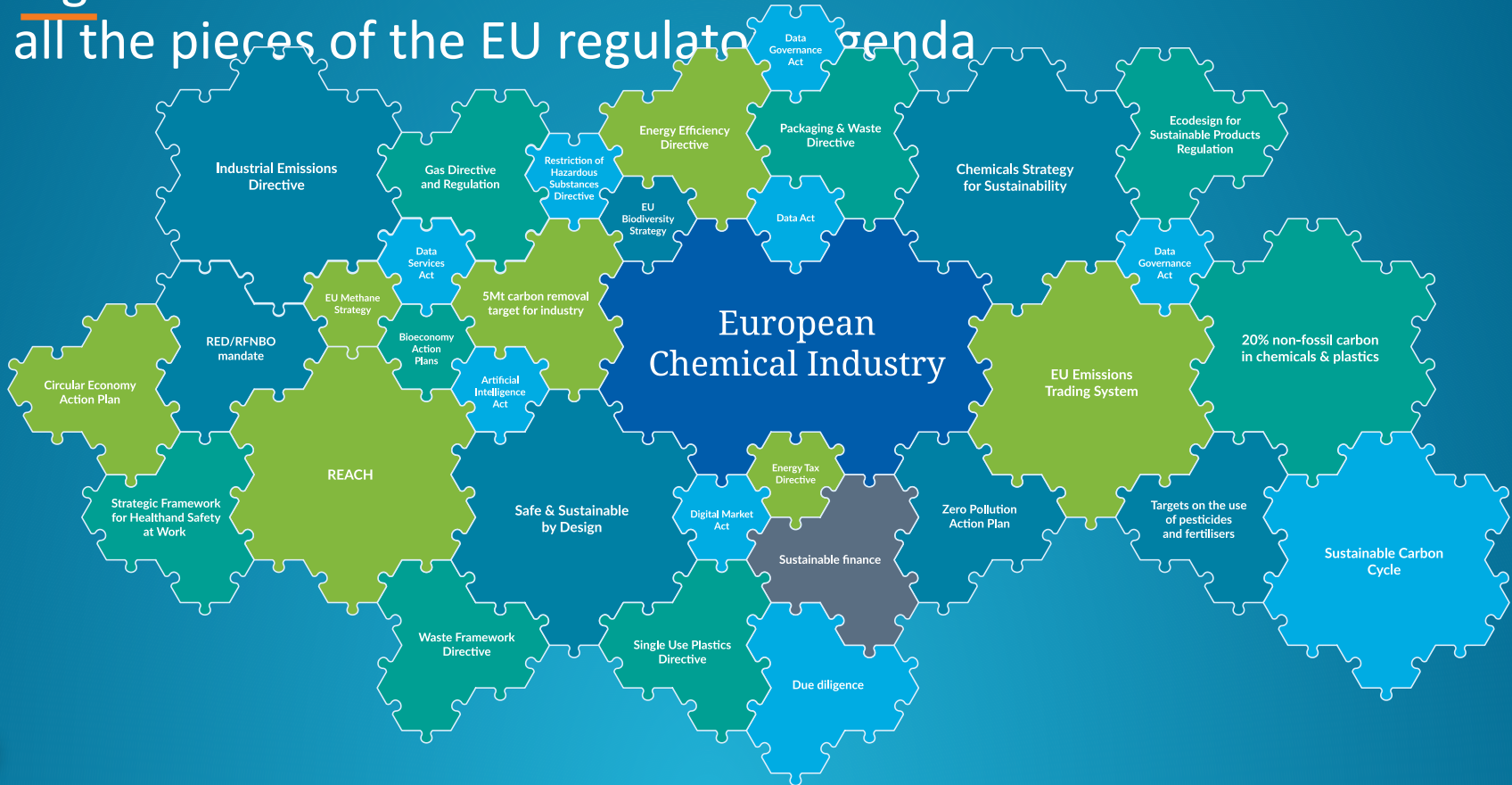
In just 30 years,
our industry will
have to change
not only **how** we
produce but also
what we produce



Almost 200 actions
are required by
EU institutions,
Member States and
industry



The Transition Pathway aims to put together all the pieces of the EU regulatory agenda



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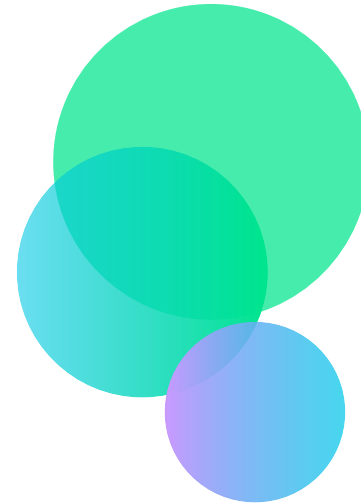
WHAT IS THE AMIGDALA PROJECT?

Consortium Presentation

AMIGDALA

What is the AMIGDALA Project?

AMIGDALA Consortium – Presented by TNO



ABOUT THE AMIGDALA PROJECT

AMIGDALA

Alliance for **M**odeling **I**ndustries towards the **G**reen **D**eal's objective **A**nd circu**LA**rity

- Horizon Europe project
- €~7M€ funding
- Timeline 1/1/2024 until 31/12/2028 (4 years)



Climate neutral by 2050
Growth without depletion
Just transition

AMIGDALA aims to define pathways for Europe's energy-intensive industry to become climate neutral, remain competitive and build resilience.

We employ decision analysis and integrated modelling of demand, trade, energy, emissions and industrial production.



OBJECTIVES

AMIGDALA provides decisionmakers on policy and investments with perspectives on the deployment of transformative solutions to make industrial production in Europe climate neutral and competitive.
















Scenario development



Outcomes:

- Development of an **integrated modelling framework** embedded in a decision framework
- **Scenarios** of public and private decisions to access the pathways
- **Transparent and verifiable pathways** of change towards the Green Deal objectives
- **Enabling conditions** for industry to invest in and deploy **transformative** solutions
- **Enhance knowledge** about **climate neutrality pathways** for academia and industry

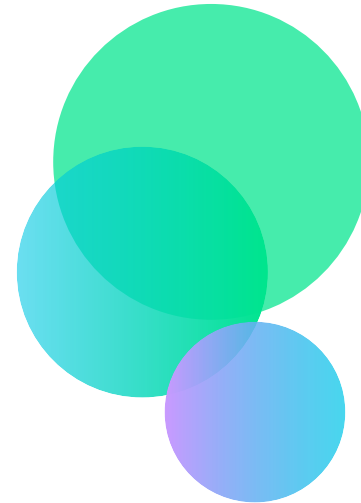


Expertises	Partner
Decision analytics & user interaction	  
Energy- and process- technology	  
Scenario's & modelling	     
Dissemination, exploitation, and communication	
Project management	 







Presentation of the Expertise Leads

AMIGDALA Consortium – TNO, GreenDecision, Dechema, VITO



4 Expert Leads

4 key expertise leads topics have been identified.

Expert Leads	Partners
Integrated Modelling	
Decision making Framework	
Data	
Scenarios	

GreenDecision – Alex Zabeo, CTO



Expertise in:

- Environmental and human health Risk assessment
- Software and models development
- Decision analysis and decision support
- Environmental and social sciences
- Sustainability assessment

Key information:

Location: Venice, Italy

Website: www.greendecision.eu

Type: Research focused SME



Roles and objectives in the project:

GD is responsible for the development of the Decisional framework dashboard tool which allows users to seamlessly run complex models.

Key outputs:

1. Decisional Framework methodology and mathematical model documentation.
2. Decisional framework early beta prototype developed in excel to test capabilities and evaluate: inputs, levers and outputs.
3. Decisional framework version 1 released as a web application with basic functionality.
4. Decisional framework version 2 (final) with complete functionality.
5. Application of the Decisional framework to selected case studies as a demonstration of its capabilities.

Expertise Lead – Data



DECHEMA – Sabrina Müller, Senior Advisor

Expertise in:

- Industrial transition in chemical industry
- Industrial water management
- Techno-economical assessments
- Further topics: E-fuels, water electrolysis, hydrogen, infrastructures, CCU, circularity and flexibility options

Key information:

Location: Frankfurt am Main (GER)

Website: www.dechema.de

Type: Non-profit professional society and expert network for chemical engineering and biotechnology in Germany



Roles and objectives in the project:

- Compose a consistent set of data across the entire modelling scope.
- Create a library of unit operations and of industrial processes of the energy intensive sectors steel, non-ferrous metals, cement, fuels manufacturing, glass, paper, and chemicals with their respective feedstock demands and emissions.
- Connect data management and validation expertise with the modelling and the dashboard expertise.

Key outputs:

- Collecting of historical data for the Proof-of-Concept
- Open accessible representation of historical data
- Providing data as input to the models
 - DECHEMA responsible for data from chemical industry
 - BFI responsible for data from metal industry
- Setting up of database and a publicly available data explorer for easy data access

Expertise Lead – Integrated Modelling

TNO – Stefan Luxembourg, Researcher Energy system modelling



Expertise in:

- Macro-economic modelling
- Energy system modelling
- Life cycle/circularity analysis
- Material stock-flow modelling
- Industry process modelling

Key information:

Location: Netherlands (multiple locations)

Website: <https://www.tno.nl/en/>

Mission: create impactful innovations for the sustainable wellbeing and prosperity of society.



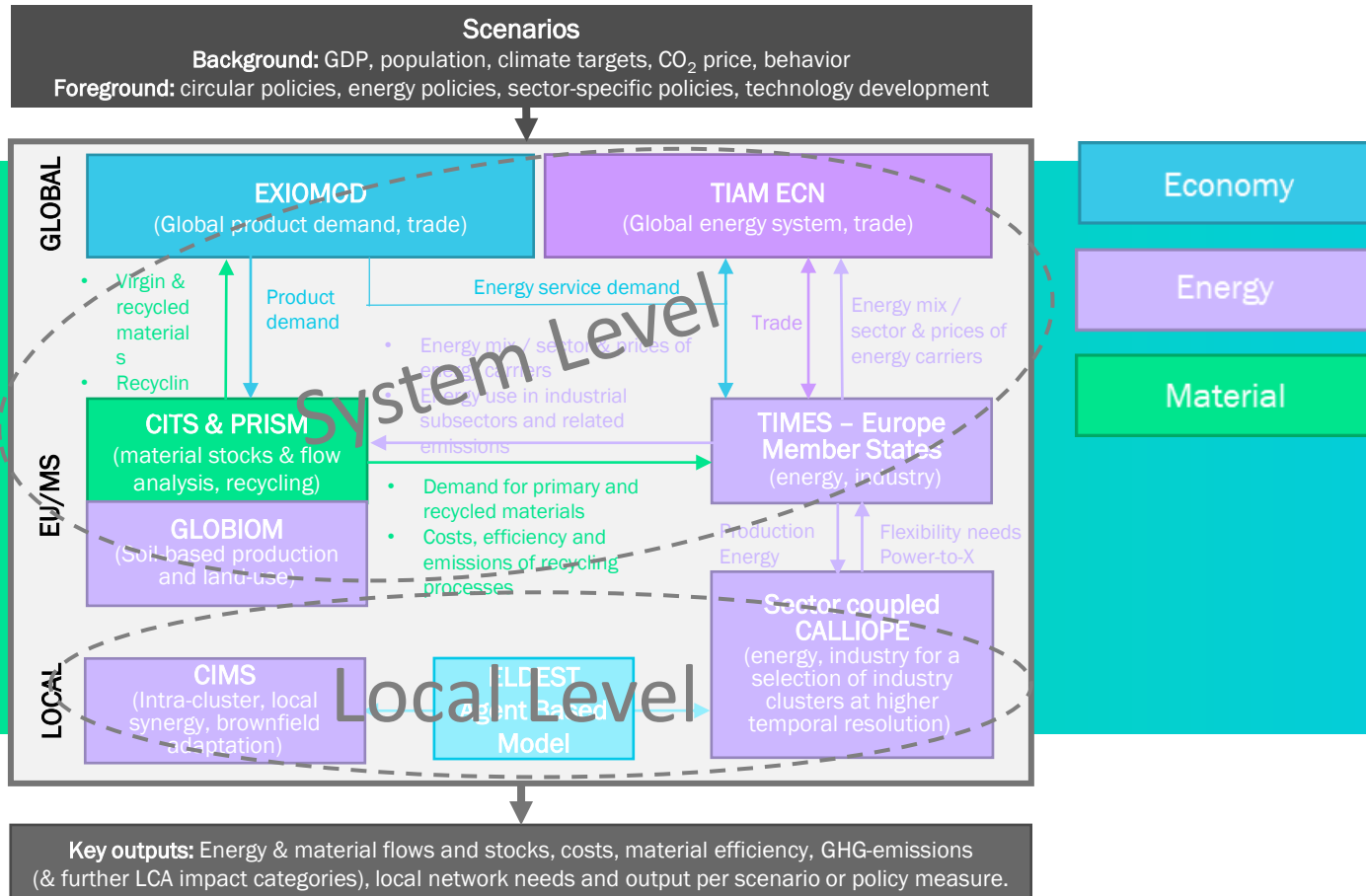
Roles and objectives in the project:

- Design the integrated model architecture for linking the models
- Demonstrate the model framework (Proof-of-Concept) focusing on one industrial subsector (Chemical Industry – Plastics)
- Progress to full scope model
- Analyses of carbon-neutral scenario runs with special emphasis on key indicators of the industrial transition

Key outputs:

- The AMIGDALA modelling framework architecture
- Improved models geared towards extensive representation of the multifaceted challenge of the industrial transition
- Report on the model framework and policy and industry recommendations

Expertise Lead – Integrated Modelling



Expertise Lead – Scenarios



VITO – Wouter Nijs, Expertise lead Scenarios and Pathways

Expertise in:

- Scenario development
- Systems analysis
- Industry sector modelling
- Energy system modelling

Key information:

Location: Belgium (Mol/Genk),

Website: www.vito.be

Type: Independent research organisation in the area of cleantech and sustainable development.



Roles and objectives in the project:

- Lead expertise Area: Scenarios and pathways
- Pathways for process industries to become carbon neutral
- Reduce market barriers and identify framework conditions

Key outputs:

- Scenario definition (background and foreground)
- Improved open sector coupled EuroCALLIOPE (industries, introduce new trade options for hydrogen and CO2, and power-to-X technologies.)
- Near optimal solutions for industry/energy sectors.
- Benchmark AMIGDALA's EU industry pathways against other pathways (external scenarios)

Launch of AMIGDALA's Community of Practice

AMIGDALA Consortium – Presented by Deloitte



What is the Community of Practice?

As part of the project, we are setting up a “Community of Practice” – or COP. This COP will ensure that the AMIGDALA model meets stakeholder needs and expectations.

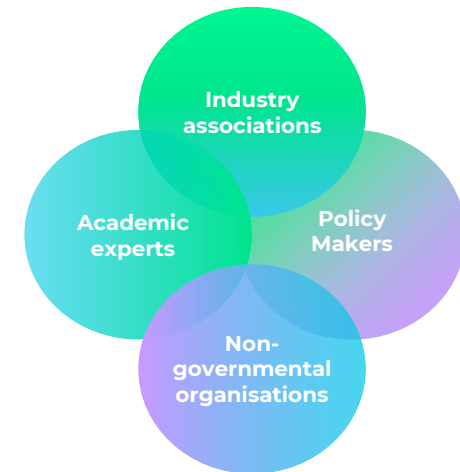
What?

As part of the project, we are setting up a “**Community of Practice**” – or COP.

- This COP will ensure that the AMIGDALA model framework **meets stakeholder needs and expectations** and enables **actionable** decision.

Who?

- Bringing together 4 types of stakeholders



Benefits for your organisation

This COP will bring together leading European industrial associations, European, national and regional policy makers as well as key companies.

Why Join?

1. **Contribute** to building a common, cross industry and policy vision of Green Deal impacts and options
2. **Shape** an approach and tool to design tomorrow's enabling conditions and accelerate decisions toward climate neutrality and circularity.
3. **Exchange** across industry and policy to gain a deeper and wider view on the key unlocking conditions, knock-effects and options.
4. **Ensure** that the AMIGDALA model meets your (and you stakeholders') needs.
5. **Help** develop an innovative model to bring integrated climate, energy, economic, raw material cross-industrial modelling to the next level.

How to contribute?

Join our **Community of practice** by registering online!

How to join the Community of Practice?

Go here; [Community of practice - Amigdala Project](#) and fill in [our registration form](#).

Commitments are limited:

- No regular meetings
- 4 workshops scheduled over the space of 4 years



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Inaugural Keynote

NEXT STEPS

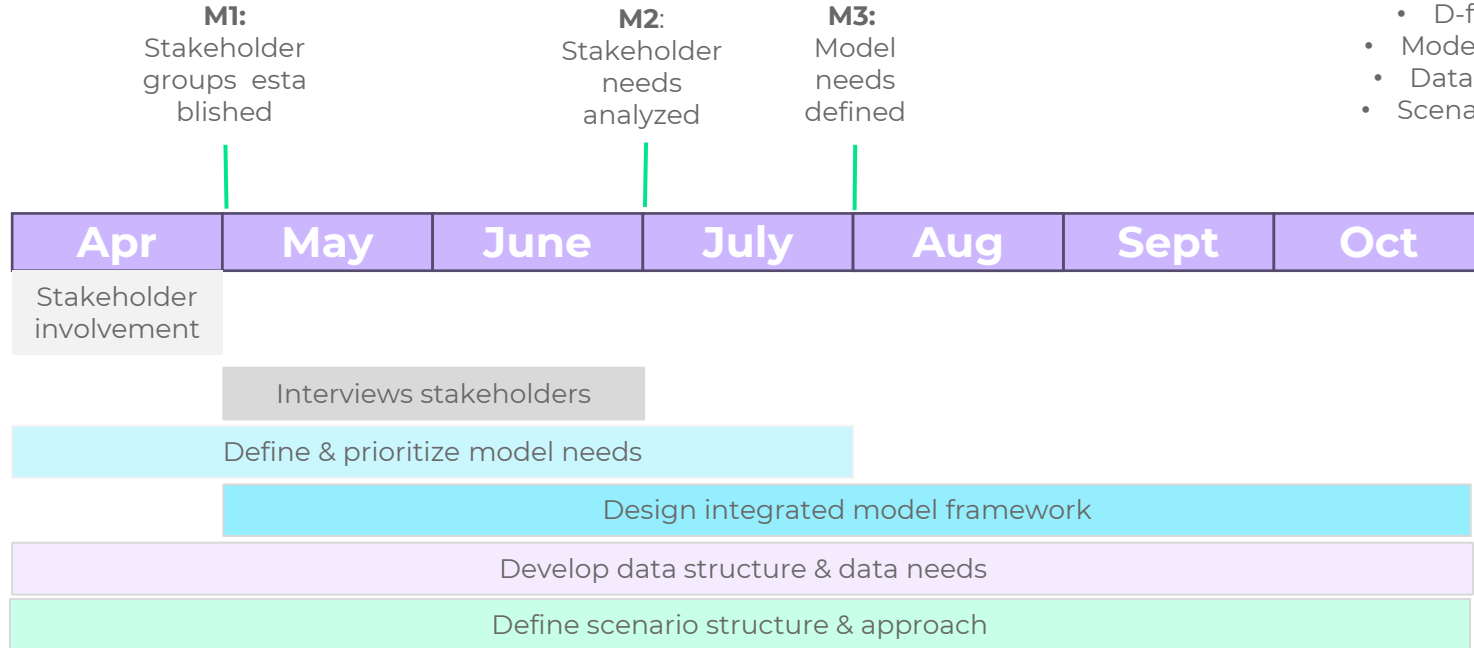
Consortium Presentation

AMIGDALA

Next steps



WP1 Design (M1-10)



D1.1 Report Design:

- D-framework
- Model framework
- Data Framework
- Scenario approach

WP2: PoC (M18) → WP3: Realization (M36) → WP4: Deployment (M48)

Save the date: a webinar to go further

AMIGDALA

23th April 2024, 10:00-11:00 AM (CET), Online

Join us on this secondary session scheduled on 23rd April 2024

More specific and detailed inputs about the AMIGDALA project on Decision-marking-framework, Model framework, Data and Scenario.

[Registration opening](#)



WEBINARS

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Inaugural Keynote

Q&A

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WWW.AMIGDALAPROJECT.EU



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@AMIGDALAPROJECT

info@amigdalaproject.eu

