AMANAC CSA Project
Grant Agreement No 636239

AMANAC Cluster presentation and role of “Low Embodied Energy” Thematic Area

Sonia SARACINO, CETMA

December 3rd, 2015, Brindisi

AMANAC Cluster projects

The **participating projects** cover a wide range of different **technologies** at the service of **Energy Efficiency in Buildings** with a **special focus on the development of nano and advanced materials/ systems and building components**.

AMANAC-CSA

AMANAC

ADVANCED MATERIAL & NANOTECHNOLOGY CLUSTER

Coordination Support Action (CSA)

Grant Agreement No 636239

Call: H2020-EeB-4-2014

Brindisi, December 3rd,2015

AMANAC and AMANAC-CSA

- **AMANAC** is the cluster of all projects developing Advanced Materials and relevant Systems for energy efficiency in buildings, funded under FP7 or H2020.
- **AMANAC-CSA** is an action aiming to coordinate and promote the activities of AMANAC Cluster.
- **AMANAC** was initiated in April 2014, representing 29 projects, grouped in six **Thematic Areas.**
- **Thematic Areas** are re-defined when projects finish and when new H2020 projects enter the Cluster, covering new topics.
- **AMANAC** represents **255 project partners**, out of which 63% are Large Enterprises or SMEs.
- The **AMANAC-CSA** has **nine partners**.

AMANAC CSA partners

- **9 beneficiaries** (2 SMEs, 4 Research Org., 3 Universities)

Greece **Poland** **Italy**

England **Germany**

Spain **Sweden**

- Starting date: 01.01.2015
- Duration: 24 months

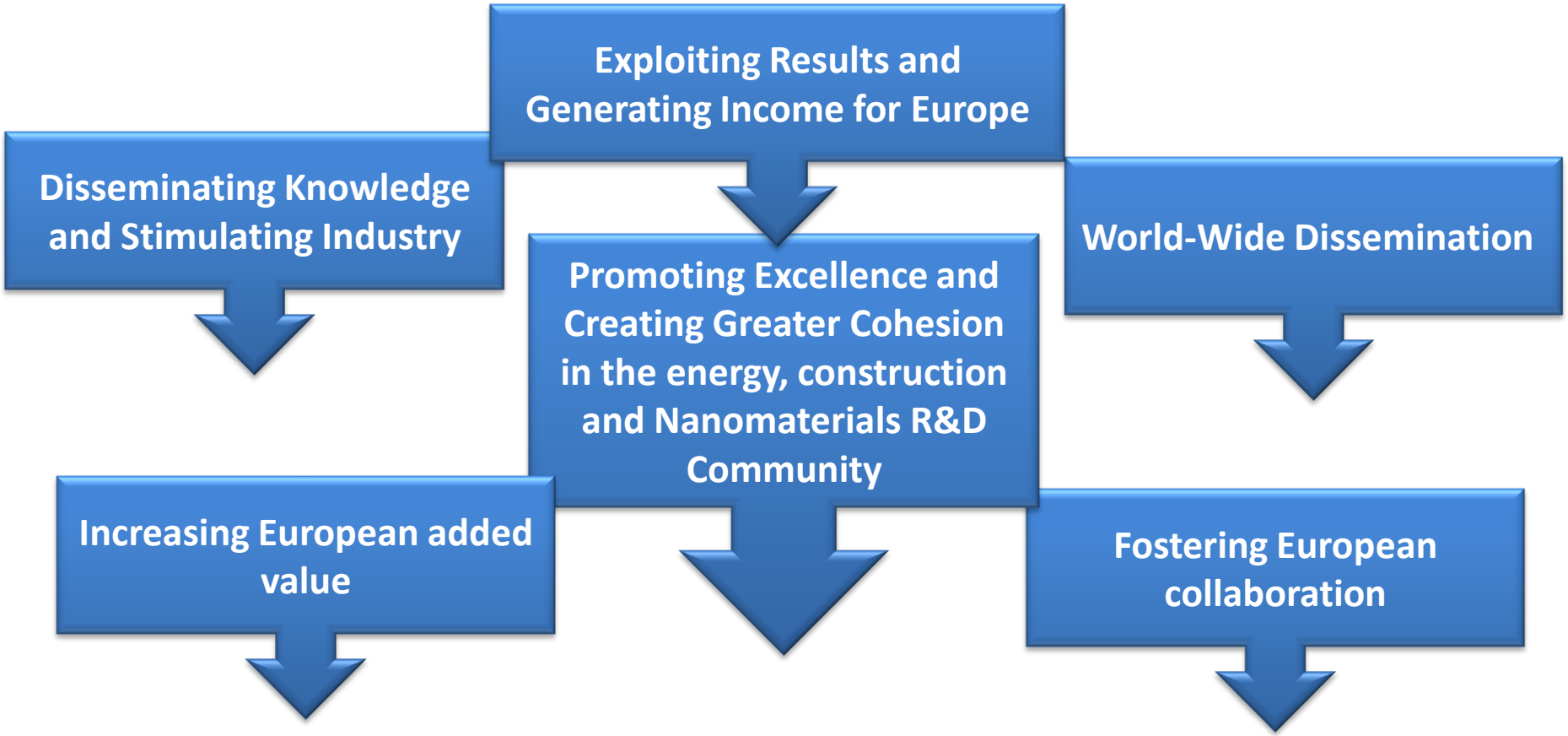
AMANAC Motivation

- Increase visibility of the **Materials domain**.
- Develop **market driven efforts** to bridge the existing "valley of death" between the knowledge-based science and the successful commercialization of materials and products.

AMANAC Aim

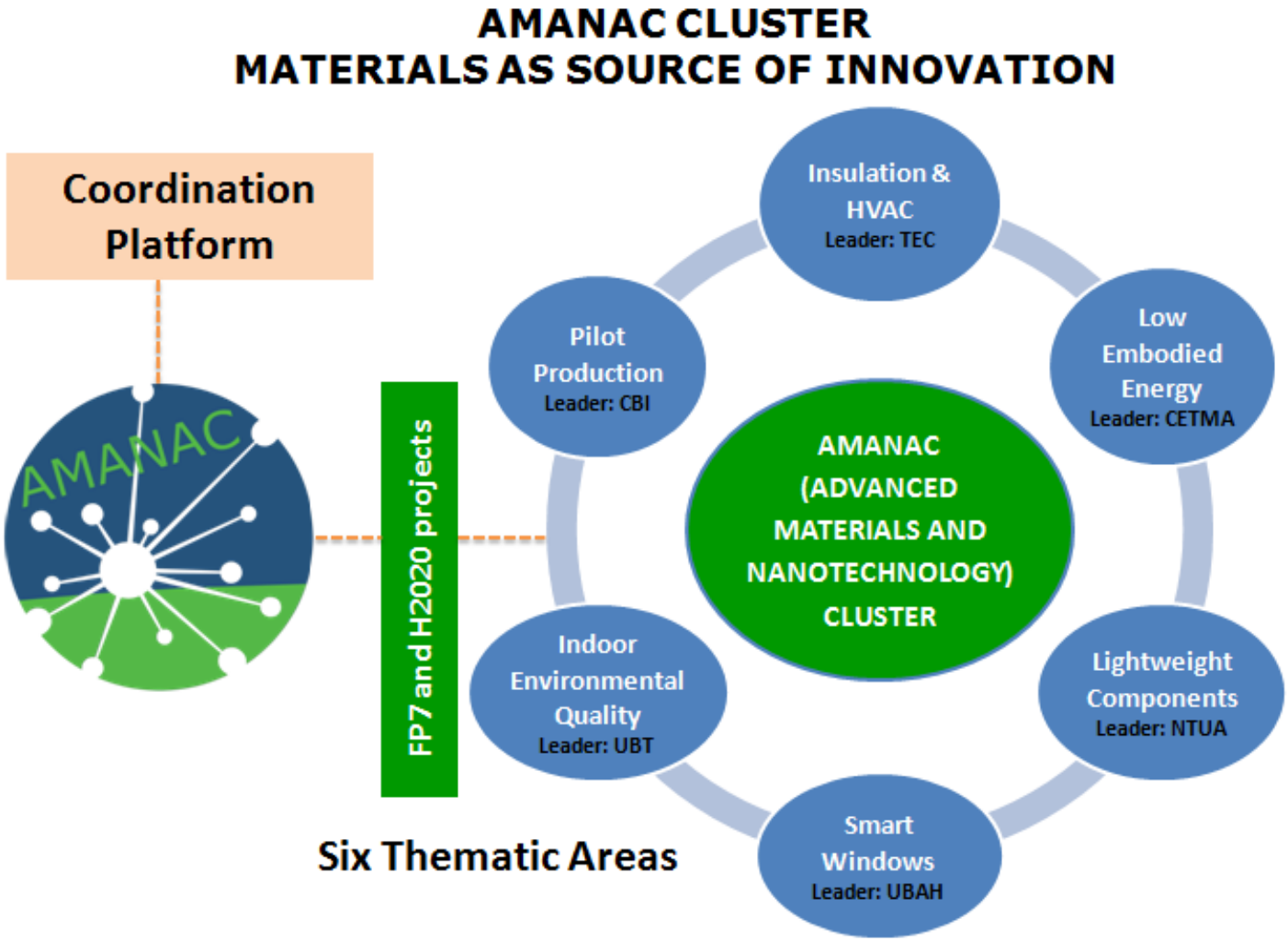

Support the objectives established by the EC and the **EeB-PPP**, in terms of Energy Efficiency in buildings
Maximize the **impact of the cluster participating projects towards the European Industry and Society**
Create long lasting **collaboration and coordination platform within all the AMANAC projects**
Address in a holistic way the relevant **technical/technolo-gical, industrial, economic, societal, organizational and regulatory challenges**

Impact



EXPECTED IMPACT

6 Thematic Areas



Thematic Areas, Leaders & Projects

Thematic Leader: NTUA

Projects: **ADAPTIWALL, SESBE, ELISSA, FOAM-BUILD, MF-RETROFIT**

Thematic Leader: CETMA

Projects: **LEEMA, SUSCON, BIOBUILD, ISOBIO, ECO-BINDER**

Thematic Leader: UBT

Projects: **CETIEB, H-HOUSE, BRIMEE, OSIRYS, ECO-SEE**

Thematic Leader: TECNALIA

Projects: **HIPIN, AEROCOINs, VIP4ALL, HOMESKIN, ENE-HVAC, NANOCOOL, NanoHVAC**

Thematic Leader: UBAH

Projects: **CETIEB, H-HOUSE, BRIMEE, OSIRYS, ECO-SEE**

Thematic Leader: CBI

Projects: NANOLEAP

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Materials with low Embodied Energy

2011-2015

Christos Dedeloudis (PC) – **S&B (LE)**
www.leema.eu

Alessandro Largo (PC) – **CETMA (RTD)**
www.sus-con.eu

Anthony Stevenson (PC) – **NetComposites (SME)**
www.biobuildproject.eu

2015-2018 NEW

Federico Meneghello (PC) – **D'Appolonia (LE)**
www.ecobinder-project.eu

Alan Taylor (PC) – **TWI (RTD)**
alan.taylor@twi.co.uk

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Materials with low Embodied Energy

Project 1 SUS-CON

Sustainable, Innovative and Energy-Efficient Concrete, based on the Integration of All-Waste Materials

- **Objective:** development of novel technologies to integrate wastes in the production cycle of lightweight concrete, producing an **all-waste and energy-efficient concrete** (structural, non structural, ready-mix, precast).

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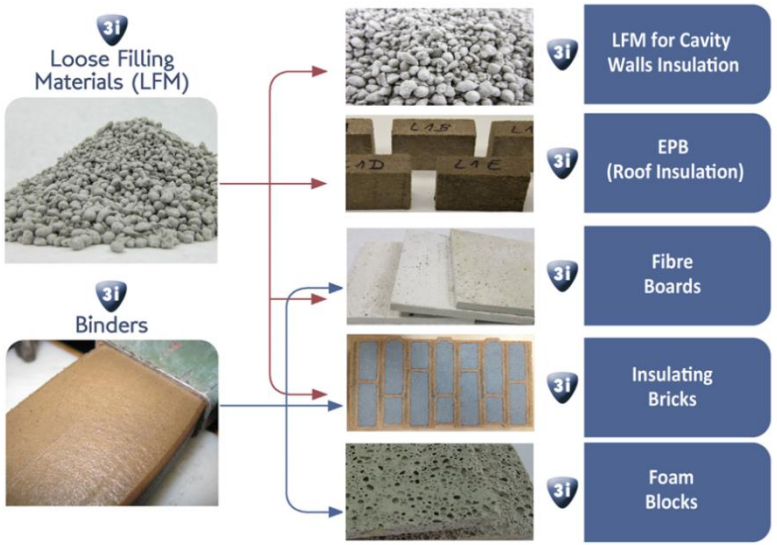
Materials with low Embodied Energy

Project 2 LEEMA

Low embodied energy advanced (novel) insulation materials and insulating masonry components for energy efficient buildings

- **Objective:** development of a new generation of insulation materials and building insulation masonry components made of inorganic polymers (geopolymers) and shaped in different forms (foam boards, loose-fill, fibre cement boards or filled geopolymer bricks).



Materials with low Embodied Energy

BioBuild

Project 3 BioBuild

Biocomposites for high-performance, low environmental impact, economical building products

- **Objective:** development of bio-based composites (natural fibres and bio-resins) for the construction industry, for external cladding, internal partitions and semi-structural support profiles.

Materials with low Embodied Energy

NATURALLY HIGH PERFORMANCE INSULATION
isobio

Project 4 ISOBIO

Development and demonstration of Highly Insulating, Construction Materials from Bio-derived Aggregates

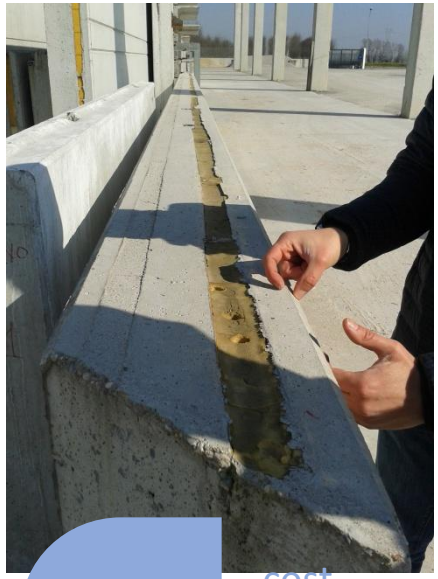
- **Objective:** development of a new approach to insulating materials through the novel combination of existing bio-derived aggregates with low embodied carbon and with innovative binders to produce durable composite construction materials.

Materials with low Embodied Energy

Project 5 ECO-Binder

Development of insulating concrete systems based on novel low CO2 binders for a new family of eco-innovative, durable and standardized energy efficient envelope components

- The main objective of the project is to demonstrate the feasibility of replacing **Ordinary Portland Cement** (OPC) and OPC based concrete (products) with new products based on the innovative **Belite-Ye'elimite-Ferrite** (BYF) class of low-CO_2 binders.



- ECO-Binder aims to address the vast market for envelope retrofitting and new construction with a new generation of prefabricated building envelope components with:

30% carbon footprints decreased

20% insulating properties improved

15% cost reduced

relative to current solutions based on Portland cement.

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The Community of AMANAC

Active & long-lasting collaboration with:

- **29 Cluster projects**
- **E2B – Energy Efficient Buildings Association**
- other **CSAs of EeB**
  - ✓**EeB-CA2** (Energy Efficient Buildings Cluster Activities – Coordination Action – **www.e2b-clusters.eu**)
  - ✓**EEBERS** (Energy Efficient Building ICT Cluster – **www.eebers.eu**)
  - ✓**SWIMing** (the project will support EeB projects to enhance the impact of their results by making their data models open and accessible)

& with external CSAs

- ✓ **Nanofuture** (European initiative for sustainable development by Nanotechnologies - **www.nanofutures.eu**)

Large scale events participation in 2016

(1) Smart Façade Conference at WSED in Wels, Austria, Feb 24, 2016
- http://www.wsed.at/en/programme/smart-facade-materials/
- AM: Plenary session
- PM: 3-4 Parallel sessions
- Exhibition, in parallel

(2) Ecobuild – at the Excel in London – Mar 8-10, 2016
- Exhibition stands for AMANAC projects
- http://www.ecobuild.co.uk/

(3) AMANAC event/workshop for the Covenant of Mayors in Brussels – Apr 2016
AMANAC – presentation of success stories – Discussion on collaboration opportunities/ bridging the gap to large scale repeatable demonstration of materials projects
AMANAC Info Day

(4) EU-Sustainable Energy Week –EUSEW in Brussels – June 2016
AMANAC – One day Session to promote project results – booth – Posters etc.
http://www.eusew.eu/about/about-eusew

Website (www.amanac.eu)

AMANAC Wiki


http://amanac.eu/wiki/lca/
Staff | University of Bath
LCA
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LCA
May 18, 2015 by Marianna Stamatiadou • Leave a Comment
SUSTAINABLE DESIGN
RAW MATERIALS EXTRACTION
MATERIAL PROCESSING
PART MANUFACTURING
ASSEMBLY
PRODUCT USE
END OF LIFE
In a world where resources are becoming scarce and societies are realizing that the conveniences of modern life have a serious impact on the environment, it is becoming more important to analyse engineering designs and find ways to reduce humankind's environmental burden.
Life cycle assessment, or LCA, has become an accepted tool for performing these analyses and answering important questions about current topics of concern to the public, such as greenhouse gas emissions. Given its official name in 1991, life cycle assessment examines the full spectrum of processes associated with a product from the beginning to the end of its life. In construction industry, the output of an LCA can be thought of as a wide-ranging environmental footprint of a building—including aspects such as energy use, global warming potential, habitat destruction, resource depletion, and toxic emissions.
The use of LCA for buildings requires a set of guiding principles, which consider the unique character of each building design, complexity in defining systems, and related decisions.
LCA is relatively new to the building industry. As in any developing field, there is a great deal of confusion about LCA, which can inadvertently lead to misuse of LCA tools, techniques, and supporting data. Thus, there is a need for a clear working definition of LCA and related terminology to help build credibility for the methodology and make the building industry more receptive to this
Wiki Search
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LCA
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Lightweight Components
Insulation Materials
Indoor Environment
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LCA
HETRAN Simulation Code
Amanac wiki
How to Add Content and Comments
Relative Humidity
Lightweight concrete for adaptive envelopes
LCA Terminology
LCA in the Building Industry
LCA European Standards
LCA International Standards
Hygroscopic Materials
Material and Product Gallery
Austrian Initiatives
Total Heat Exchanger for Energy Recovery Ventilation
Wikis recently modified
http://amanac.eu/wiki/category/lca-build/

Material and Product Gallery

Material and Product Gallery

Click on image to reveal technical data sheet

DESCRIPTION :

COATING A is a waterborne, very low VOC, high performance intumescent coating. This product is an excellent fire barrier thanks to the special formulation and the use of nanofillers. ***COATING A*** creates a film when applied and reacts violently to fire generating a non-flammable insulating foam that protects the surface for some time. ***COATING A*** represents a stable and long term protection for steel structures.

Name of product	COATING A
Function of product	COATING A is an intumescent paint for interior use, designed for the fire protection of steel structures and tested according to the standards ENW 13381-4
Form	LIQUID PAINT
Raw Material	ACRYLIQUE DISPERSION

Properties

Property	Unit	Value	Test methods/standardisation
Chemical/physical properties			
Bulk density	g/cc	1,35	According to ISO 2811-1
Composition of materials	ACRYLIQUE	DISPERSION	
Solid content		69 +/ -1 %	
Structures and costruction			
Dimension of product	m	n.a.	
Mechanical properties			
Compressive strenght	N/mm^2	0,97	According to UNI EN ISO 12390-3
Flexural strenght	N/mm^2	0,35	According to UNI EN ISO 12390-5
Tensile strenght	N/mm^2	n.a.	
Shrinkage	mm/m	n.a.	
Thermal properties			
Thermal conductivity	$W/(m \cdot K)$	0,079	According to UNI EN 12667
Specific heat capacity	$J/(g \cdot K)$	n.a.	
Hygrothermal properties			
Water vapour diffusion resistance factor		9	According to UNI EN 1015-19:2008
Moisture buffer value	$Kg/(m^2 \cdot h^{0,5})$	CLASS W3	According to UNI EN 1062-1:2005
Water vapour permeability	m	CLASS V2	According to UNI EN ISO 7783:2012
Acoustic properties			
Sound absorption coefficient	%	n.a.	

Brindisi, December 3rd,2015

Social Media

Follow us on:

http://amanac.eu

http://www.facebook.com/pages/Amanac-Project

http://twitter.com/Amanac_eu

http://www.linkedin.com/groups/AMANAC-Advanced-Materials-Nanotechnology-Projects

Thanks for your attention!

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