

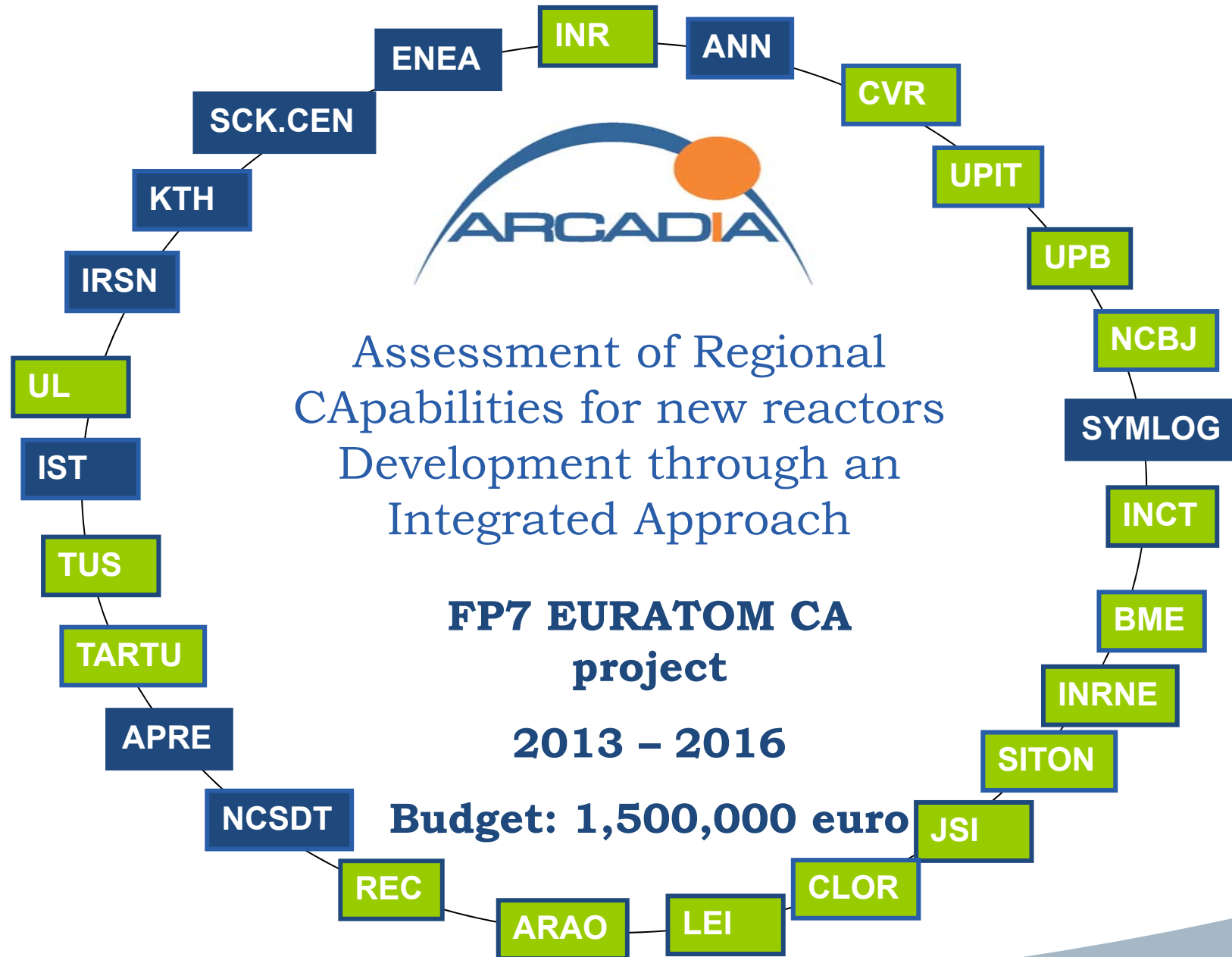
ARCADIA Project in Support to ALFRED Demonstrator

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The 7th Annual International Conference
on Sustainable Development through Nuclear Research and Education
May 28-30, Pitești, România

- ARCADIA project in brief
- Contribution to supporting skills and infrastructure
- Contribution to E&T
- Contribution to licensing
- Contribution to feasibility study
- Contribution to get national support
- Conclusions





NEWLANCER

Pilot exercise

SARRAH

Sustainable Approach for
Regional Competence
Active Integration in
Horizon 2020

WINSR

Widening Involvement of
New Member States to
Horizon2020 in Nuclear
Safety Research

EC asked:

- to merge the two projects
- to focus it on ALFRED feasibility in Romania

Mission:

go closer to ESNII and NUGENIA objectives related to:

- **demonstration the LFR technology**
- **improvement Gen III safety**

Major Objective:

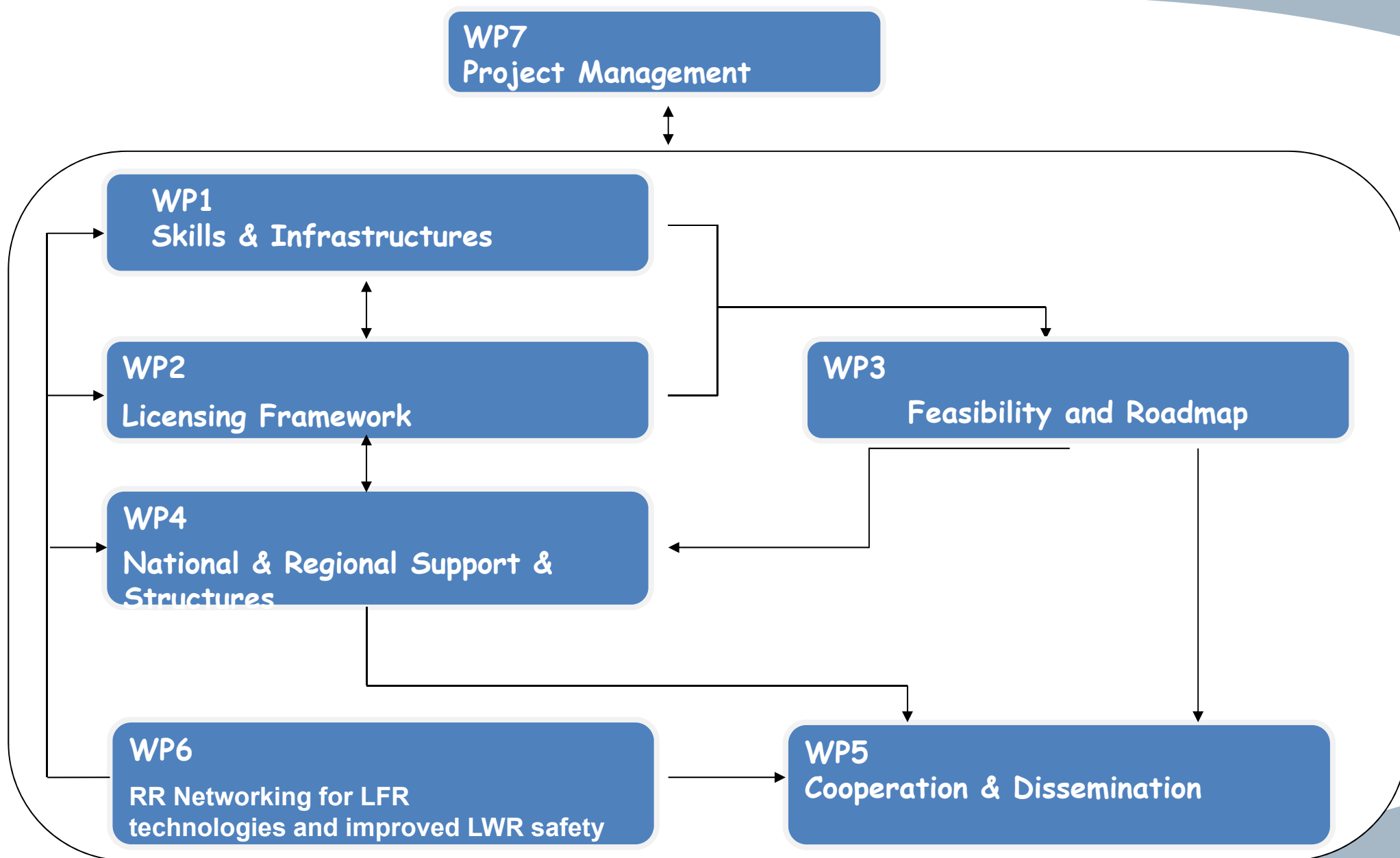
support to the further development of nuclear research programs in the NMS, targeting two major areas included in the SNETP's Strategic Agenda:

- **ALFRED project towards its realization in Romania (ESNII),**
- **Gen III/III+ remaining safety aspects (NUGENIA)**

Final major goal:

assessment of ALFRED feasibility in Romania

- identify the primary needs for the ALFRED project
 - in terms on **competences, E&T, supporting infrastructures,**
 - propose **approaches** to fill the gaps
- clarify aspects related to licensing, feasibility and funding,
 - produce a detailed and **realistic** ALFRED Roadmap
- initiate and promote a dialogue with all stakeholders involved in further implementation of ALFRED
 - following the **European governance principles**
- investigate the potential contribution of research reactors from the NMS to LFR development and improved safety of Gen III;
 - create a **multi-disciplinary RR network**
- Cooperate with other ongoing projects and European structures
 - **Efficient and effective exchange of information**



ALFRED - Innovative reactor – first of this kind

- **technical aspects requesting R&D&I**
- **need for large spectrum of competence and infrastructure for materials, technologies, processes qualification**

ARCADIA will

- review the existing competences and infrastructure
 - **expertise**
 - **research & experimental facilities**
 - **computational tools**
 - **infrastructures - including social and management skills**
- identify the gaps to meet the targeted supporting capabilities for innovative reactors in each participating New Member State;
- propose appropriate approaches in order to fill these gaps; integrated approach primary based on the efficient use of resources, avoiding duplication and promoting cooperation at regional level.
 - **Existing European Education & Training schemes**
 - **Proposing new curricula**

- University from Pitesti - UPIT
- University Politehnica Bucharest - UPB
- Institute for Nuclear Research - ICN

- Propose a new curricula
 - aligned to the needs for research, licensing, construction and operation of ALFRED demonstrator

- Process in progress:
 - collaboration agreement between UPIT and UPB signed
 - new curricula - elaborated and it is under approval process
 - a contribution is expected from ICN specialists

Siting, licensing and public acceptance – important milestones in ALFRED implementation

- **steps of this process – known**
- **level of details must be agreed with the Regulatory body**

ARCADIA will:

- **analyze the national, regional and European licensing framework**
- **propose a communication approach with the regulatory body, local and national authorities, and public, based on nuclear systems international experience**
- **discuss the ALFRED concept in the existing regulatory framework and to produce an action list of open issues for ALFRED licensing**
- **assess the impact of waste management issues on ALFRED licensing, taking into account the construction, operation and decommissioning phase**
- **elaborate the Safety Design Criteria (SDC) and analyze its compliance with national and international regulations and recommendations**
- **propose and implement an approach on public participation.**
 - **construction of public participation in ALFRED issues (creation and functioning of the stakeholders' group),**
 - **Select some social methods appropriate for nuclear issues and introduce them in the local context of community.**

ALFRED is an investment –

- feasibility study and a roadmap - elaborated according to the Romanian rules
- analyze the requirements to produce a feasibility study and to define the needs to accomplish them
- provide input for the key elements for ALFRED feasibility study taking into consideration the Romanian context and experience of other successful investments (SUSEN, ELI, G4V4)
 - **Competitive Advantage and Core Values**
 - **Expected Social Impact**
 - **Analysis of Reliable Funding Plans (European Funds, Industry, R&D, loans)**
 - **Risks and mitigation strategies**
- produce a detailed **ALFRED Roadmap** adapted to the real context (estimated calendar for competence building, siting, licensing, etc.)

ALFRED project implementation requests:

- to be declared **priority objective** in the national strategies – achieved - Government Decisions
- **coherence** among the official national documents (RDI strategy, energy strategy, Partnership Agreement with the EC, Operational Program on Competitiveness, etc.)

These documents must be identified, links to the representatives of the Ministries in charge with their elaboration must be established and an **active dialogue** has to be initiated with all stakeholders playing a role in ALFRED decision making process.

ALFRED Working Group – part of the European governance approach

Approach Implementing ALFRED: European governance principles:

openness, participation, accountability, effectiveness, coherence

- ALFRED working group - gather experts, policy-makers, regulators, lawyers, economists etc. aimed at facilitating the dialogue and initiate the support for future decisions

Working Group, suitably created to:

- discuss the appropriate documentation supporting ALFRED project

The aim of the dialogue organized during 3 workshops is to clarify aspects related to safety, social, and economical impacts of such investment in the region, potential benefits, needed steps, and needed resources in order to pave the way for their future support.

ALFRED needs also

- a **Legal Entity** to manage this investment, from the application for license, construction permit and structural funds to the construction and operation stages.

ALFRED – European project – FALCON consortium coordinating activities

- a legal entity is needed to coordinate its actual implementation:

ARCADIA – through its coordination actions will investigate the existing legal entities formula and select the most appropriate one

- produce key elements for a Legal Entity responsible for ALFRED implementation
 - model for governance,
 - type of legal entity,
 - optimal structure,
 - roles and responsibilities

- ARCADIA is an opportunity to create a team that includes a large regional component, and to prove that New Member States can synergic cooperate for LFR technology development;
- ARCADIA it is a first step in planning future development of competencies and infrastructure in the region, strengthening collaboration among research and education, and among New and Old MS organisations.
- Assessing ALFRED feasibility, ARCADIA expected outcomes will contribute to some of the most important milestones. These outcomes are:
 - **Needs for competences & infrastructure and methods for competence building**
 - **ALFRED construction roadmap adapted to the local context**
 - **Definition of the Licensing procedure, siting procedure, feasibility study**
 - **Approach on public participation**
 - **ALFRED Working Group**
 - **Models for Legal entity and Management**

Thank you for your very kind attention!

Acknowledgement: The activities in this project are founded by the EC through the GA 605116 under FP7 EURATOM