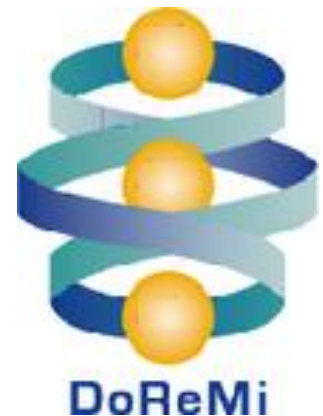


## EURATOM E&T Approach for Radiation Protection

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# EURATOM E&T Approach for Radiation Protection

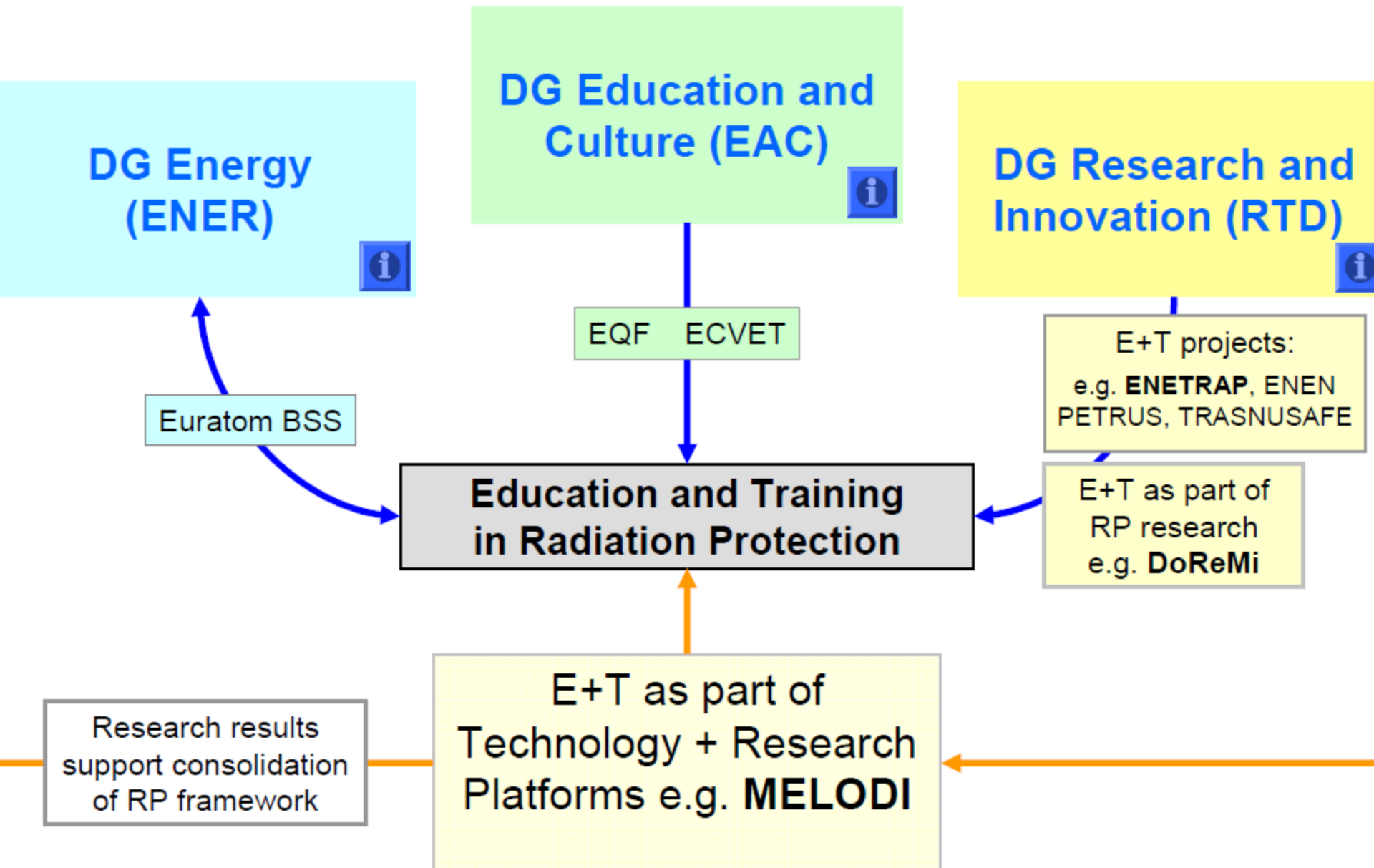
## Content

- E&T requirements of the draft Euratom BSS
- E&T networks and FP7 projects on radiation protection E&T currently support by the EC – overview
- European frameworks and tools (EQF, ECVET) with regard to E&T

# EURATOM E&T Approach for Radiation Protection

- Education and training is in all areas everywhere in the world of outmost importance to perform work safely and to an given standard
- European Union: adequate and appropriate education and training activities are the basis to achieve specific EU aims such as
  - **lifelong learning** and
  - **borderless mobility**
- In particular in areas where competence in radiation protection is crucial to avoid unnecessary radiation exposure of individuals, education and training in RP, together with appropriate work experience, is the key to build and maintain competence in RP

# Education and Training in Radiation Protection



# EURATOM E&T Approach for Radiation Protection



## European Commission DG Energy – Radiation Protection

- **Euratom Basic Safety Standards (BSS)**
- **Supporting Projects**
  - **EUTERP** Foundation  
(European Training and Education in Radiation Protection)
  - **MEDRAPET**  
(Medical Exposure Directive Radiation Protection Education and Training)
  - **Medical Physics Experts Project**



## Euratom BSS (Draft of 31 May 2012)

### Chapter IV: Requirements for radiation protection education, training and information

*Member States shall establish an adequate legislative and administrative framework for providing appropriate **radiation protection education, training and information** to all individuals whose tasks require specific **competences in radiation protection**. The training, **retraining** and information of relevant individuals shall be repeated at appropriate intervals and documented.*

*Member States shall establish education, training and retraining to allow the **recognition of radiation protection experts, medical physics experts, occupational health services, and dosimetry services**.*

## Euratom BSS (Draft of 31 May 2012)

### Definitions

*(42) **Radiation protection expert** means an individual having the knowledge, training and experience needed to give radiation protection **advice** in order to ensure the effective protection of individuals, and whose capacity to act is **recognised** by the competent authorities;*

*(83) **Radiation protection officer** means an individual who is technically competent in radiation protection matters relevant for a given type of practice and is designated by the undertaking to oversee the implementation of the radiation protection arrangements of the undertaking;*

## DG Energy – Projects in Radiation Protection

**EUTERP** (European Training and Education in Radiation Protection) Foundation

Objective: to establish a general system for training and qualification in radiation protection and for the mutual recognition of diplomas awarded on completion of specific professional education or vocational training. => **RPE + RPO**

**MEDRAPET** (Medical Exposure Directive Radiation Protection Education and Training)  
Radiation Protection Education and Training)

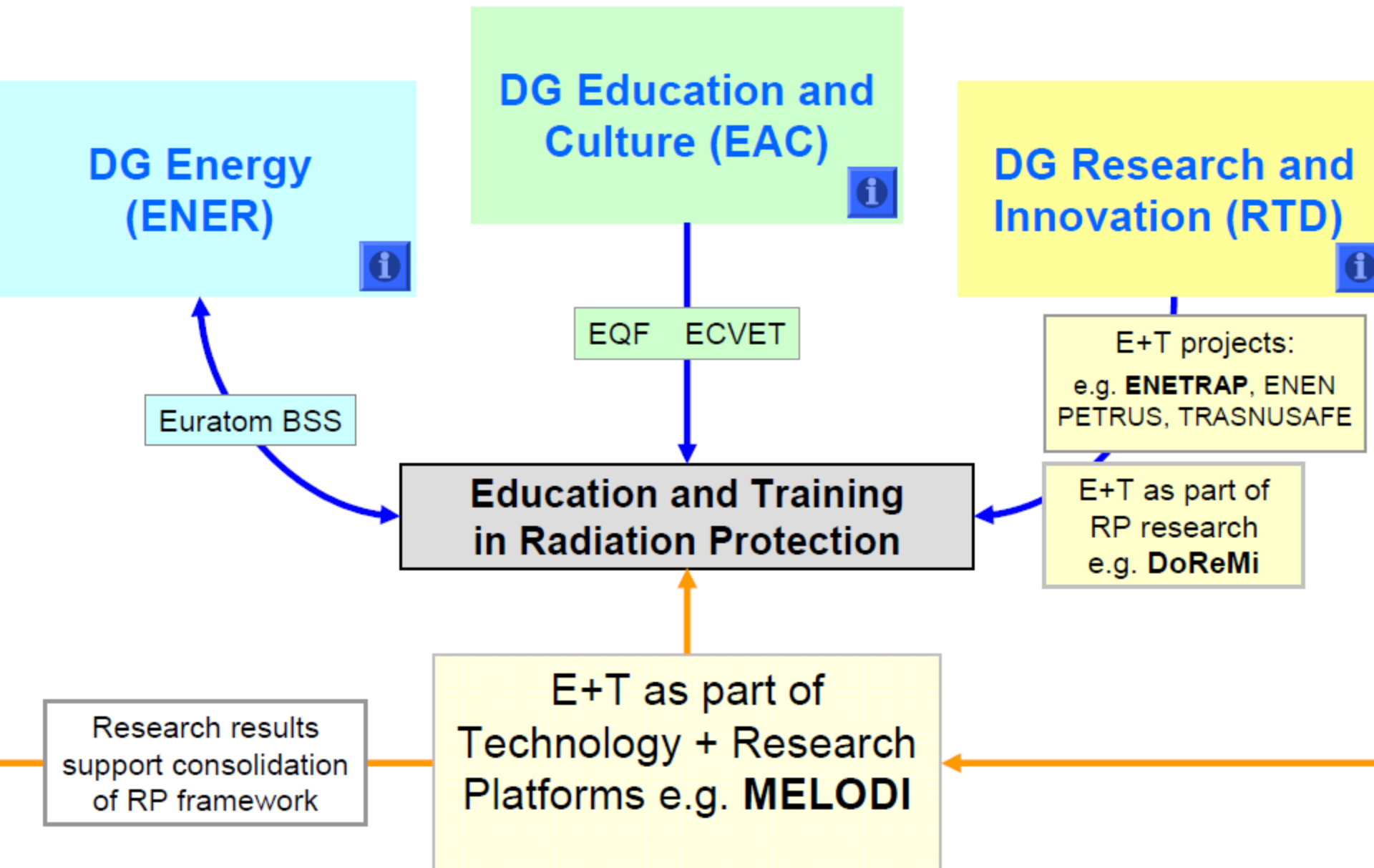
Objective: to provide an improved implementation of the Medical Exposure Directive provisions related to radiation protection education and training of medical professionals.  
=> **all medical professionals**

**Medical Physics Experts Project**

Objective: to provide for improved implementation of the provisions of the Revised Euratom BSS related to the Medical Physics Expert (MPE) and to facilitate the harmonisation of the role, education and training of the MPE among the Member States of the EU.  
=> **MPE**



# Education and Training in Radiation Protection



# EURATOM E&T Approach for Radiation Protection



## DG Research and Innovation Euratom Programme

**FP7 => Horizon 2020**

Parts of Horizon 2020 are based on the Euratom Treaty, therefore, Horizon 2020 is complemented by the

**Council Regulation Euratom Programme 2014-2018**

COM (2011) 812 final, 30 Nov 2011



## Euratom Programme

- General objective: to improve nuclear safety, security and **radiation protection** and to contribute to the long-term decarbonisation of the energy system in a safe, efficient and secure way
- One of the specific objectives: to **foster radiation protection**, considered as one of the cross cutting activities
- Another specific objective: to foster knowledge management, **education and training**

## DG Research and Innovation

FP7 research projects in the area of RP education and training - examples

**ENETRAP II** radiation protection authorities  
(RPE, RPO as required by Euratom BSS)

**ENEN III** nuclear facilities, nuclear systems suppliers  
ENEN 2003, further development of nuclear expertise by E+T

**PETRUS II** radwaste agencies (e.g., waste repositories)  
EU recognised training programme on geological disposal for rwm

**TRASNUSAFE** health physics sector (e.g., ALARA principle)  
design, develop and validate 2 training schemes on safety culture:  
1. nuclear and 2. radiation based technology (incl medical sector)

## DG Research and Innovation

### ENETRAP II

(European Network on Education and Training in Radiological Protection)

#### ENETRAP - achievements:

European Master of Radiation Protection (in cooperation with DG EAC)

Development of an RPE training scheme and of standardized training material

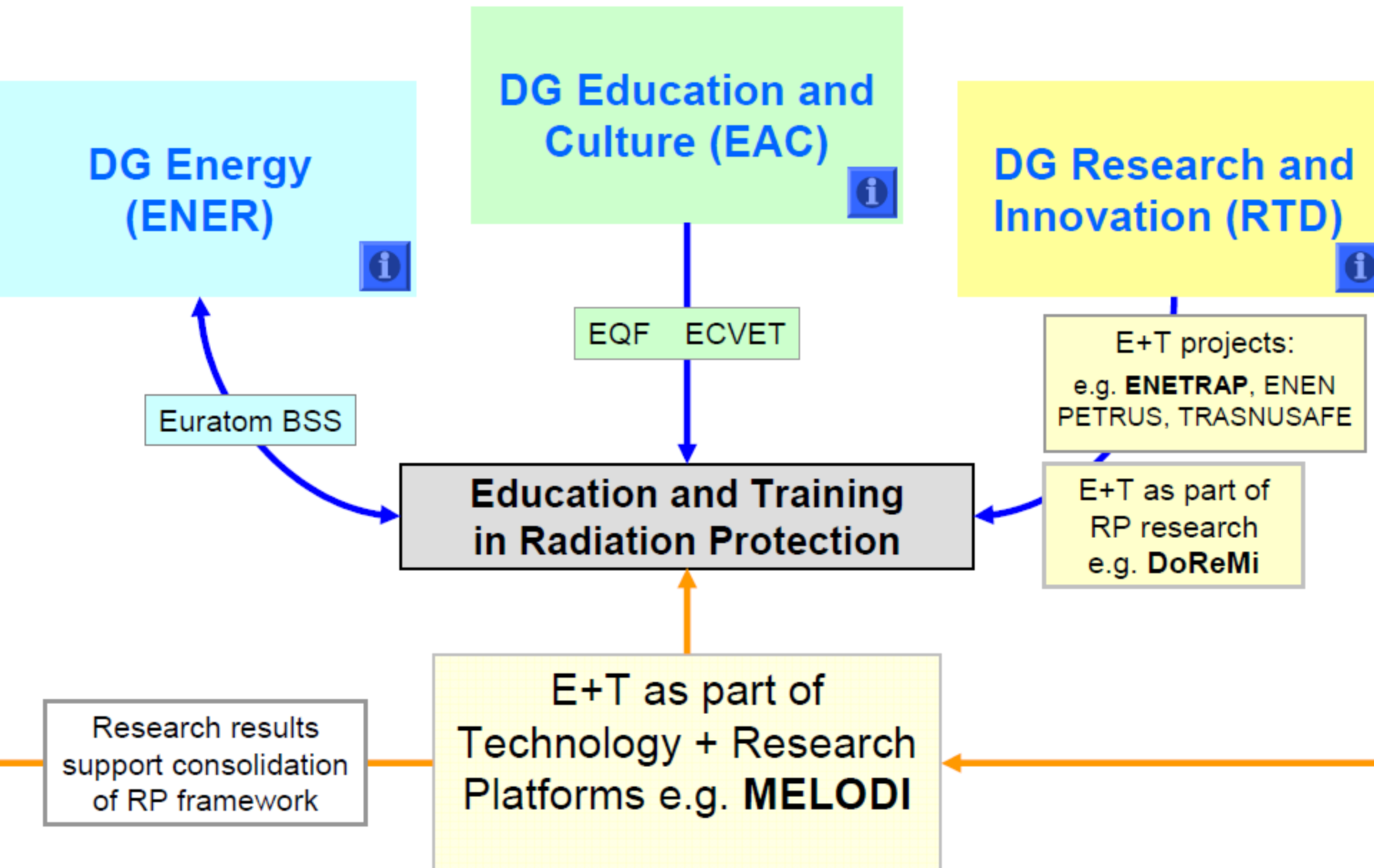
#### ENETRAP II - objective:

to develop European high-quality "reference standards" and good practices for education and training in radiation protection, in particular with regard to the radiation protection expert (RPE) and the radiation protection officer (RPO) in all sectors where ionising radiation is applied (industrial, medical, research).

Asked by the Commission to develop „reference standards“ on the basis of ECVET.

Future efforts: Develop **guidance documents** to support implementation of BSS requirements on E+T of RPE and RPO, establish links to MPE and workers, in consultation with EFOMP, EFNDT, etc.

# Education and Training in Radiation Protection



# EURATOM E&T Approach for Radiation Protection



## DG Education and Culture

Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the

### **European Qualifications Framework For Lifelong Learning (EQF)**

Aim: create links between national qualification systems, making competences and qualifications more transparent

Recommendation of the European Parliament and of the Council of 18 June 2009 on the establishment of a

### **European Credit System for Vocational Education and Training (ECVET)**

Aim: make qualification systems compatible by providing an interface between existing national provisions on the accumulation, recognition and transfer of credits (complements ECTS)



## European qualifications framework for lifelong learning (EQF)

The EQF is a common European reference framework which links countries' qualifications systems together, acting as a translation device to make qualifications more readable and understandable across different countries and systems in Europe. It has two principal aims: to promote citizens' **mobility** between countries and to facilitate their **lifelong learning**.

EQF encompasses **all levels of qualifications** acquired in general, vocational as well as academic education and training. Additionally, the framework addresses qualifications acquired in initial and continuing education and training.



## European qualifications framework For lifelong learning (EQF)

The **eight reference levels** are described in terms of learning outcomes. The EQF recognises that Europe's education and training systems are so diverse that a shift to **learning outcomes** is necessary to make comparison and cooperation between countries and institutions possible.

In the EQF a learning outcome is defined as a statement of what a learner knows, understands and is able to do on completion of a learning process. The EQF therefore emphasises the results of learning rather than focusing on inputs such as length of study. **Learning outcomes** are specified in three categories as

**knowledge, skills and competence**

## European Credit System for Vocational Education and Training (ECVET)

Towards **borderless mobility** and **lifelong learning**  
for the continuous improvement of competencies

Faced with challenges such as intensified global competition, high numbers of low-skilled workers and an ageing population, vocational education and training (VET) is vital to prepare individuals for today's society and ensure Europe's future competitiveness and innovation.

- ECVET is aimed at **facilitating the transfer, recognition and accumulation of assessed learning outcomes** of individuals on their way to achieving a qualification
- portfolio of learning outcomes or “**European Nuclear Competence Passport**”

## ECVET - Learning outcomes

to acquire specific competencies in sectors where radiation is applied

**ECVET definition:** "learning outcomes" means statements of what a learner knows, understands and is able to do on completion of a learning process

"Learning outcomes" should be achievable through a variety of education and training paths (be they in a formal, non-formal or informal context)

"Learning outcomes" refer to specific competencies and consist of a mix of:

- **Knowledge** (Learning to know)  
(needed to support operational and technical decisions)
- **Skills** (Learning to do)  
(translation of safety culture into practical terms)
- **Attitudes** (Learning to work together and/or Learning to be)

Points: 60 ECVET points analogous to 60 ECTS points for higher education

Difference: ECVET is based on learning outcomes, whereas ECTS is based on time spent in course and/or in laboratory exercises

=> ECVET is an important tool for "mutual recognition"

# EURATOM E&T Approach for Radiation Protection

EXAMPLE : Learning outcome: Analyse/understand an epidemiological study

**Knowledge** (learning to know):

- Interpret epidemiological result
- Describe the concept of radiation detriment by using  $w_{\text{tissue}}$  and  $w_{\text{radiation}}$

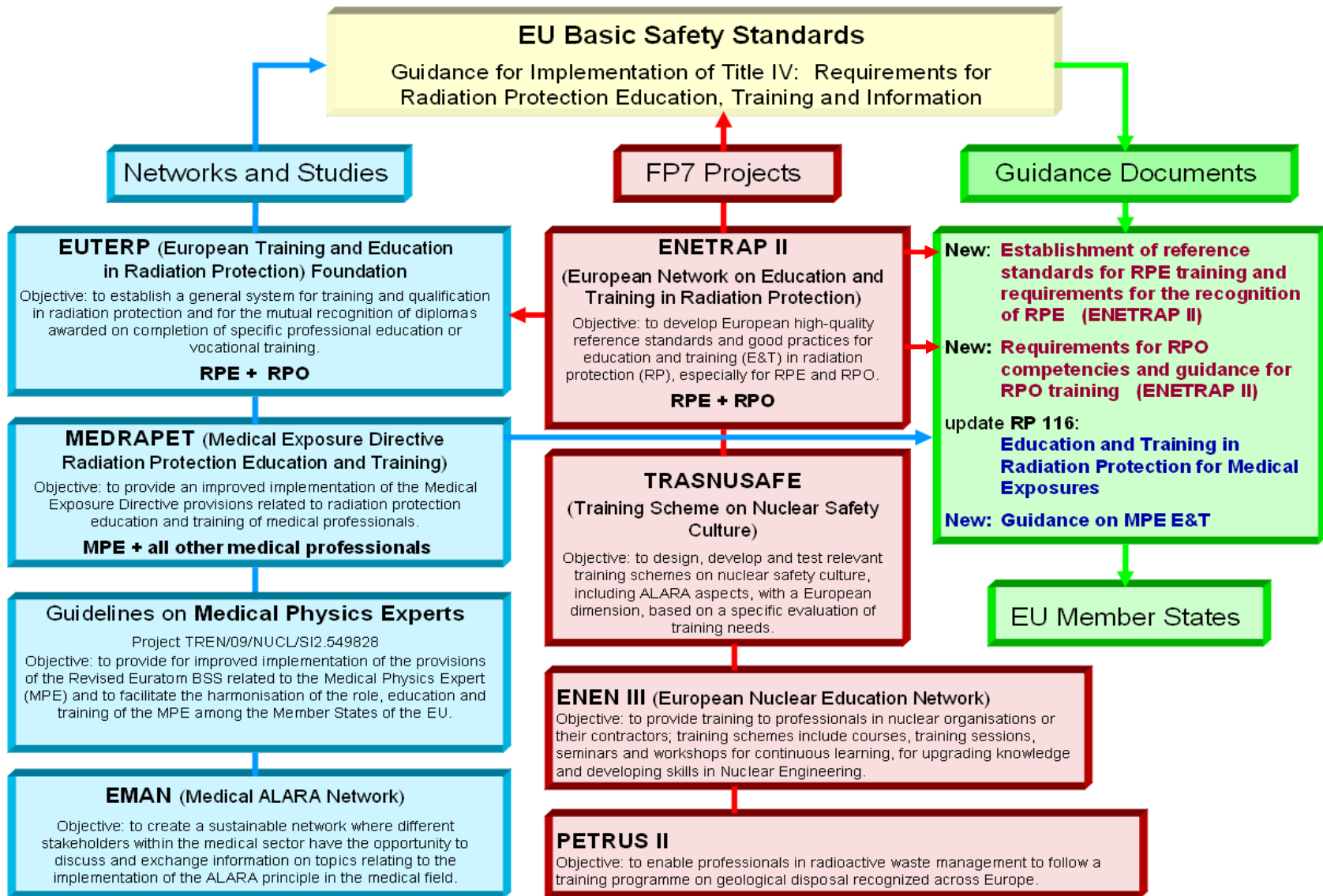
**Skills** (learning to do):

- Make calculations using epidemiological data taken from a specific study

**Attitudes** (Learning to work together, behavioural aspects):

- Ensure accuracy of research results
- Carry out formal quality control of work results
- Carry out individual, critical examination of all steps during specific research tasks
- Ensure proper documentation of work results
- Share all relevant information and promote information exchange (teamwork)
- Present research results at national and international meetings





## Education and Training Activities - MELODI

Good start :

A number of short courses sponsored by DoReMi have already successfully been carried out

More to do:

⇒ need for a strategy and a clear vision on education and training within the framework of the MELODI Platform.

⇒ need for a structured approach and good coordination of training activities to support the overall aim of MELODI, the consolidation of the scientific evidence in the area of low dose radiation exposures.

## Education and Training Activities - MELODI

In this context some issues have to be discussed:

- How may MELODI training activities contribute to EU political goals, such as developing and implementing energy and health policies to meet future challenges?
- How may MELODI training activities contribute to building and maintaining competence and to continuous professional development in low dose research and radiation protection?
- What impact on regulatory practice regarding radiation protection may MELODI results and training activities have? (This is one of the performance indicators of the Council Regulation)
- What is the added value for Europe in terms of borderless mobility and lifelong learning?
- Develop strategy and vision on education and training activities and include this in the MELODI vision statements

## Education and Training Activities - MELODI

There are a vast number of activities and projects in education and training on the European level.

=> MELODI: keep an eye on developments in this area

The Commission has developed the European Qualification Framework (EQF) and the ECVET tool to support their policy on borderless mobility and lifelong learning.

=> MELODI: develop a strategy in line with these policies



## Cooperation with other platforms and stakeholders

It has been pointed out several times by DG Research that cross cutting issues, such as for example education and training activities, in particular in radiation protection, should be carried out by cooperating with, where possible, or by informing the other platforms, in particular SNETP, IGDTP and MELODI of relevant activities and projects.

- MELODI: Keep in touch with, or better, **cultivate a relationship with other platforms** (invite them to project activities workshops, training events, etc)
- **Optimise the communication and dissemination of results** by stakeholder involvement in MELODI activities.

## Education and Training Activities - MELODI

New education and training platforms are emerging.

One example is the European Platform of Universities Engaged in Energy Research, Education and Training (EPUE). At present, over 160 European universities with research and training capacity in the energy field, ranging from science, engineering and technology to bio-sciences, medical/life sciences and economics have indicated their willingness to join the EUA-EPUE Platform.

- MELODI: Keep in touch with education and training platforms, projects and European networks.

**Thank you for your attention!**