

Training and skills management for creating value in Nuclear Industry

International association dedicated to
safe, reliable and competitive nuclear
energy technology

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NUGENIA is mandated by SNETP to coordinate nuclear
Generation II & III R&D

Context of education and training in Nuclear industry

- Nuclear Industry has always needed high qualified personnel .
- After the huge development of Nuclear in Europe in the 80 s , the retired personnel are progressively being replaced by young generation.
- New projects across the world will be developed but at slower pace.
- Current generation optimization and life time extension together with decommissioning and dismantling plants still requires additional high qualified personal . New technologies and industry attractiveness must be promoted.

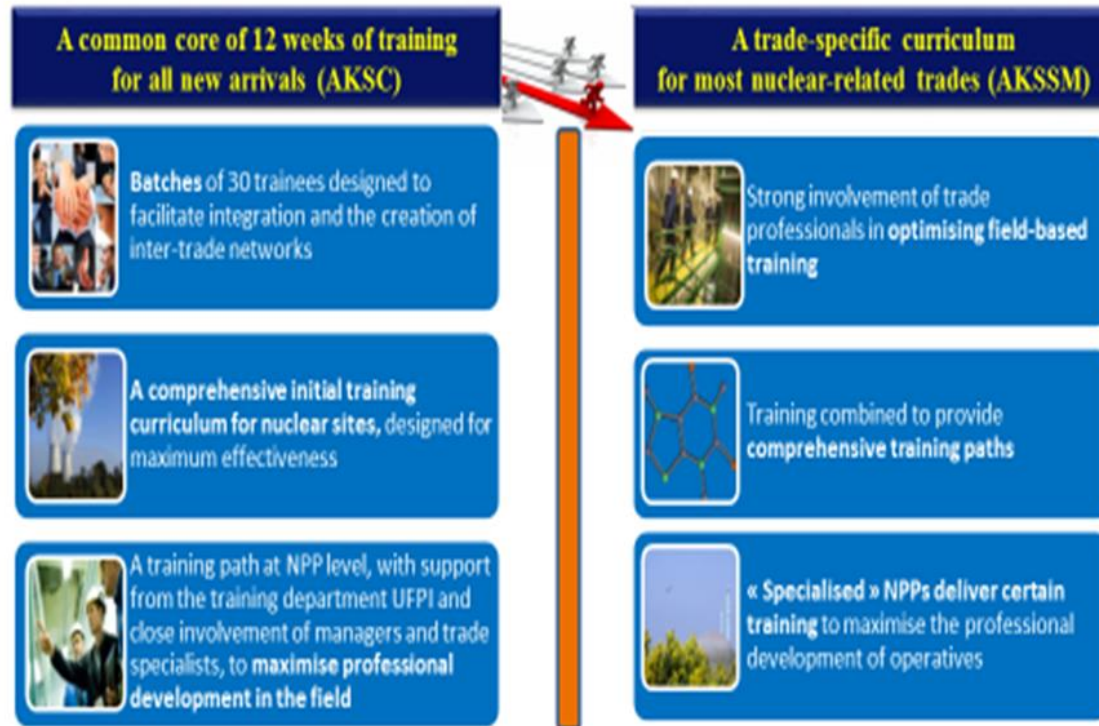
NUGENIA objectives support ENEN activity

- Facilitate the emergence of innovation
- Achieve projects with high added value to the community,
- Maintain and develop the needed skills, competences and infrastructures to tackle the up-coming challenges (LTO, new build, dismantling,)
- Strengthen the involvement of NUGENIA-bodies in the decision making process
- Support education, training and knowledge management

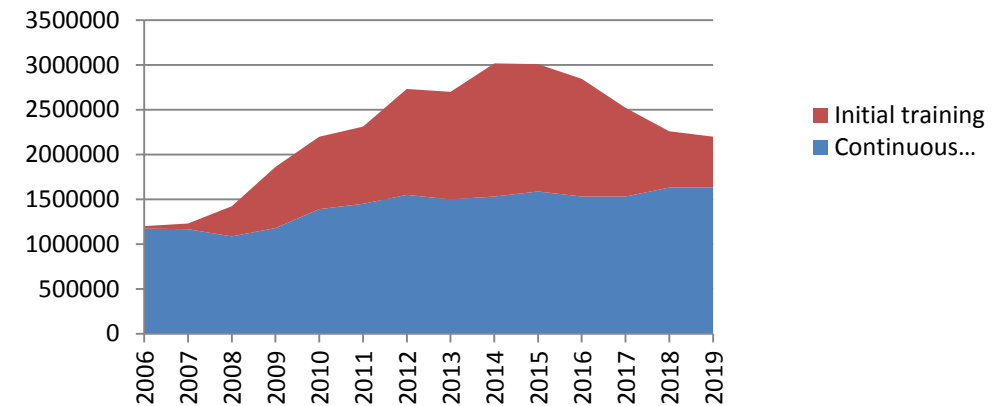
**ENEN is honorary member of NUGENIA
and NUGENIA support ENEN+ Project**

EDF Training organization and methods

Standardisation of initial training curricula to meet the volume of training



Training volumes for the Nuclear Generation Division from 2006 to 2019



At EDF the retirement of people who started and design the existing fleet required large recruitment of engineers average of 1500 / year in the last 10 years (among 100 / year in R&D) .

Systematic Approach To Training

SAFELY DESIGN, BUILD AND OPERATE A NPP A LARGE INTERNATIONAL TRAINING SERVICE PROVIDER

- Training facilities and tools
- Workshop , training mock-up and multimedia training tools
- Full scale mock up simulator per site
- Carrier courses between R&D , Engineering and Generation
- R&D Courses available on ITECH catalogue , and SFEN MOOC
- EDF can provide expert courses and training through ENPM project
- 2,7 Million training hours per year.
- 8% of annual wage bill dedicated to training
- 725 instructors
- 1500 new employees recruited and trained per year (including 100 new researcher at R&D)
- More than 27000 authorized staff

Contact ENPM@EDF.FR

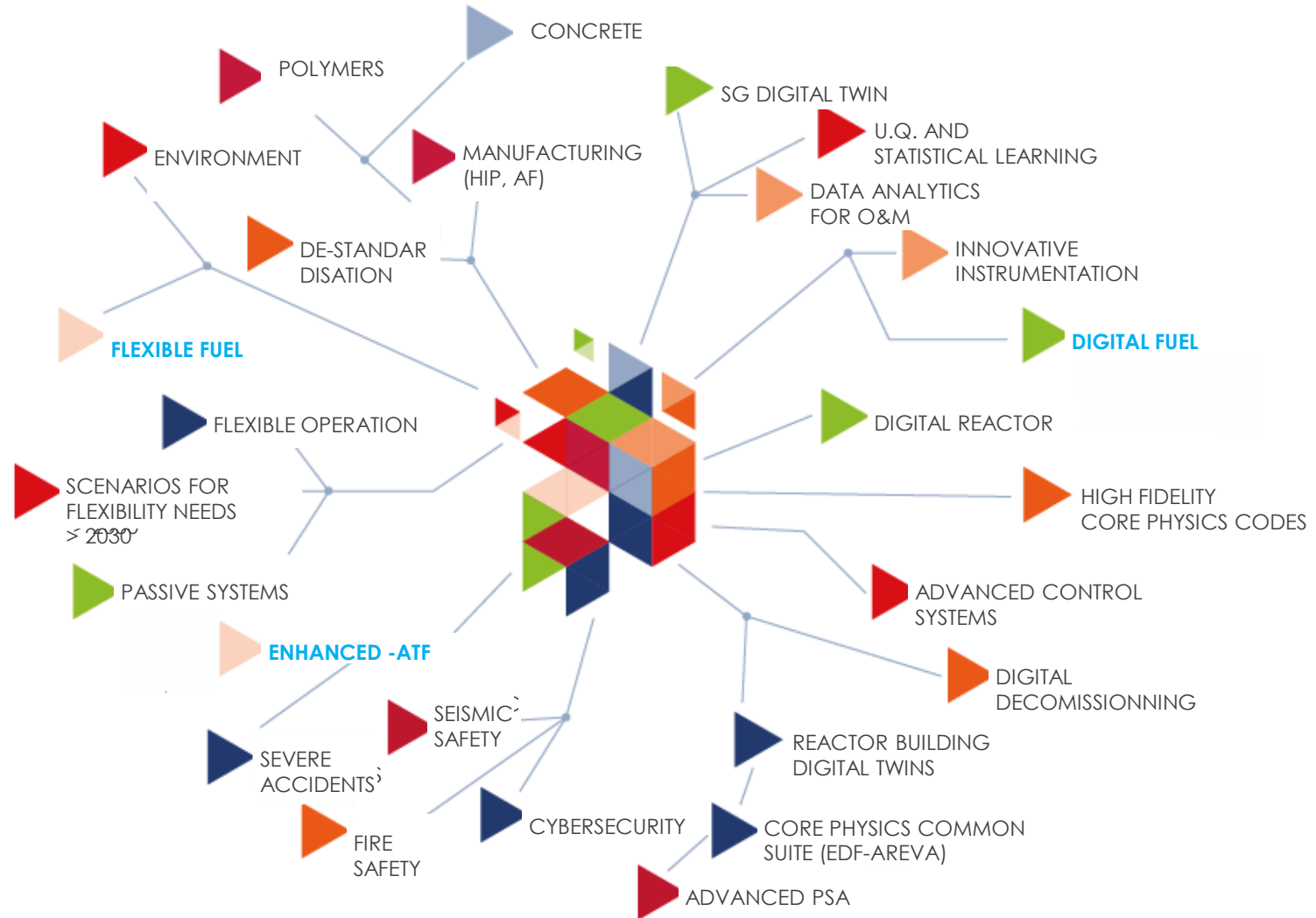
ITECH technology training institute sur edf.fr
SFEN MOOC avec France University Numerique

Nuclear industry need new skills to foster innovation

- Existing nuclear plant have launched innovative programs to be more competitive.
- Technical areas have and will integrate innovation such as
 - Simulation codes , and digital twins (SG, Containment,)
 - Digital transition to support operation and design ,
 - Data analytics and algorithm
 - New material , Concrete, additive manufacturing processes

Technological bricks for innovation

- Safety
- Digital Transition and Data Analysis for Operation
- Scenarios for flexibility needs after 2030
- New Material and Fabrication Modes



ENEN MARS 2018



Attracting young generation requires high scientific value, with industry applications

- Connection with academics , SME's Start up and institute Existing nuclear plant have launched innovative program to be more competitive
- NOIP NUGENIA platform propose collaborative projects and sharing of new ideas .
- Practicing technical and research programs with high TRL for industry application .
- Financial support of EU on collaborative project is needed open multilateral collaboration for EU

Conclusion

Nuclear has a future

Education and Training play a crucial role to attract and motivate young generation.

We all need to work together and get support from public and private stake holders

ENEN can count on NUGENIA commitment to support its projects and initiatives

Happy anniversary to ENEN

Lot of successes for the future !