

# Ways and Ideas to train Aviation Professionals for Today and Tomorrow

*How to assume That Initial  
training and Education prepare  
for a complete and perhaps long  
career with big evolutions in  
working tools and methods*

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Ressources, territoires et habitats  
Énergie et climat  
Prévention des risques  
Développement durable  
Infrastructures, transports et mer

Présent  
pour  
l'avenir

Présentation de .... du .... Direction générale de l'Aviation civile  
Ministère de l'Écologie, de l'Énergie, du Développement durable et de la Mer,  
en charge des Technologies vertes et des Négociations sur le climat

# *Plan of the presentation*

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- Contents and Competencies Definition
- Prepare for the actual operational reality and next steps in career
- The impact of regulation
- Career development and academic recognition
- Maintain and update the know-how of an academy



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# *Coordinate Contents and Competencies to allow permanent adaptation of the training plan*



# *Our primary Need: Hire and maintain a competent person*

## .Competency: the definitions

- Implementation of capacities to **act properly** in a professional situation
- **Validated** Operational Know-how
- Combination of know-how, experiences and behaviors, used **in a precise context**

*Be Competent ≠ To Have some Competences*



“Act with Competency”  
(Implement professional skills and use pertinent resources)



“To Have Resources to Act with Competency”



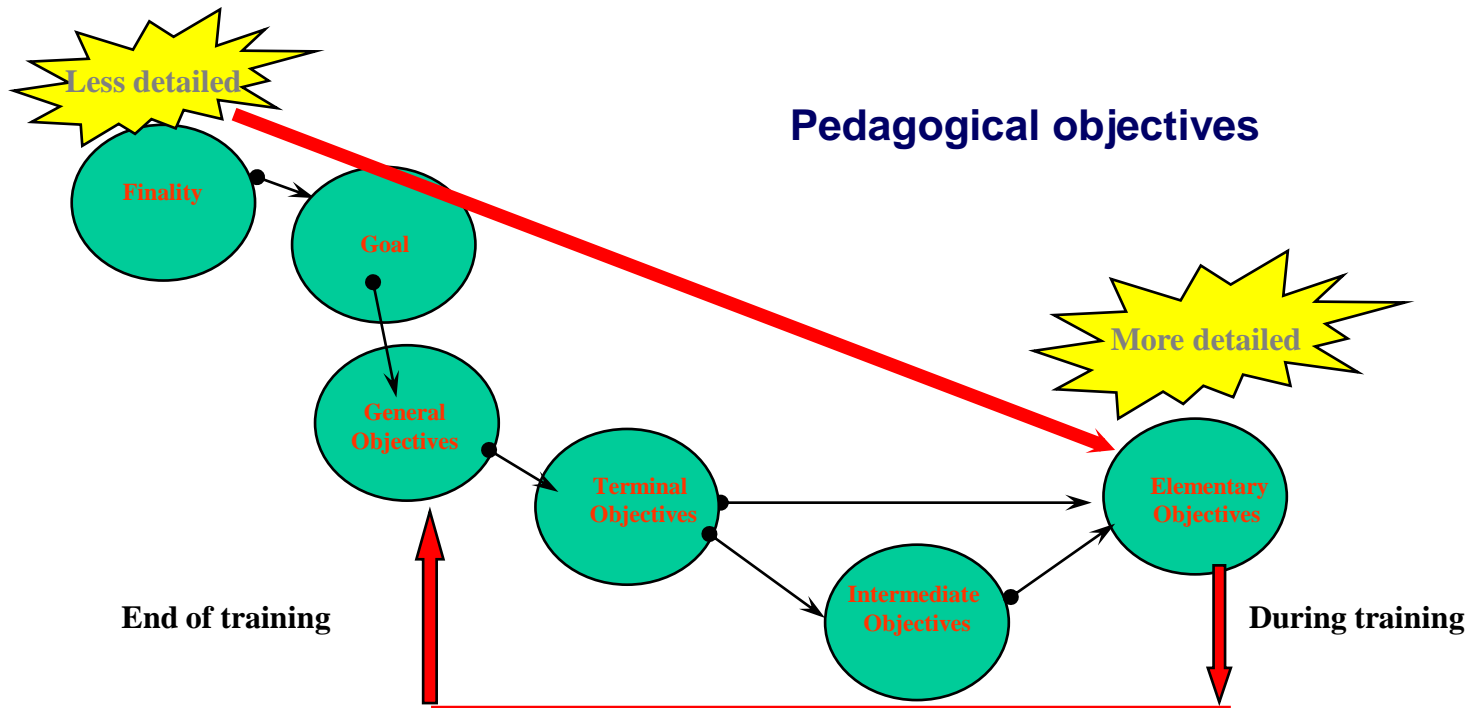
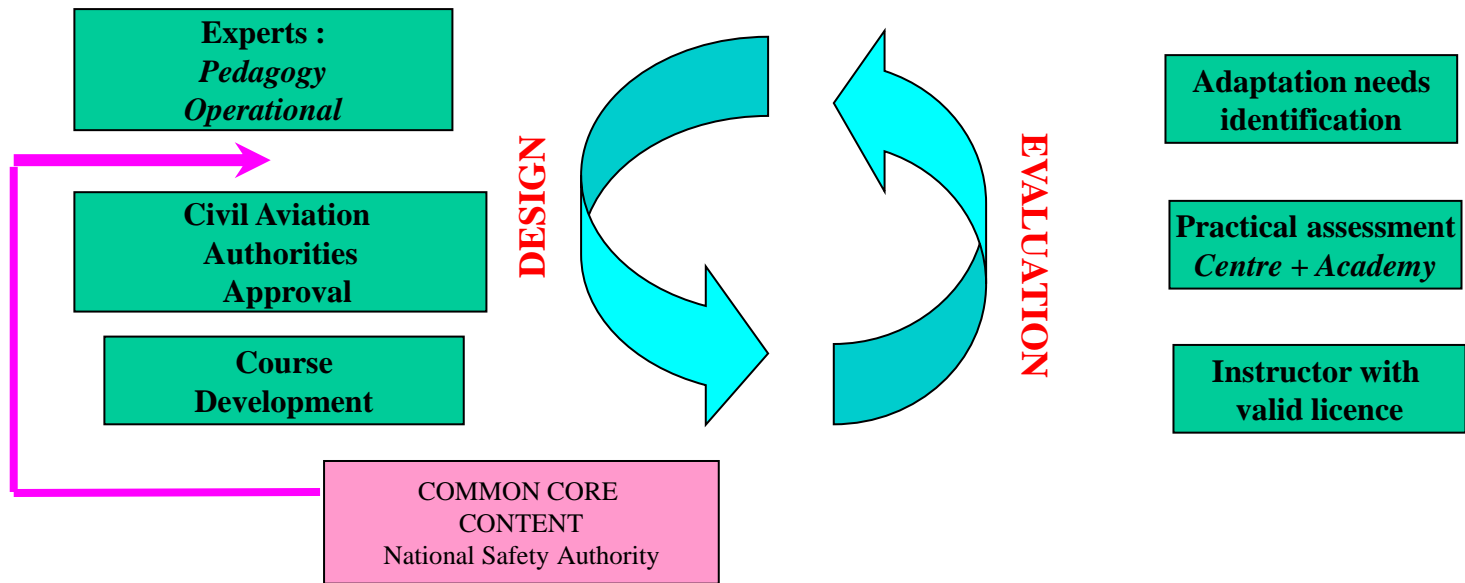
# Competency based Approach

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- Define objectives and sub-objectives of know-how and knowledge needed to be a professional on a defined function
- Select the proper profiles to limit the risks of failure
- Minimise theoretical knowledge acquisition and optimise skill acquisition
- Choose the proper methodology and pedagogical tool to serve the defined objective
- Adapt the curriculum to the operational need of the job
- Train to take pertinent initiative in complex, evolutive and multidisciplinary situations
- Prepare to develop and progress professionally as well aso adapt to the potential evolution of the job



# French implementation: The loop of training process



# European Experience in ATM

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- Define Common Core Contents towards jobs to be harmonised on a competency based approach
- Define objectives and approach with a common taxonomy
- Support implementation by harmonising training practices and tools
- Define Common Approach and Definition on dedicated Ratings to be harmonised

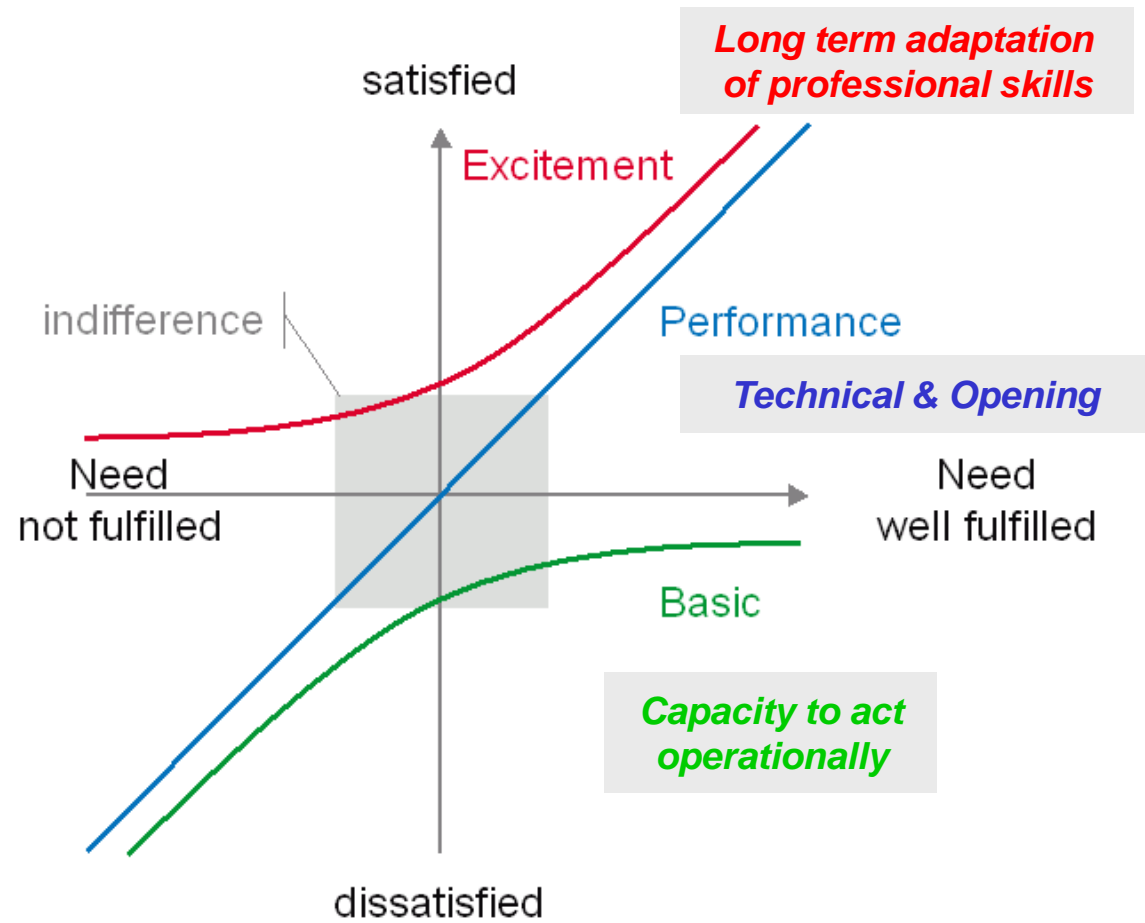
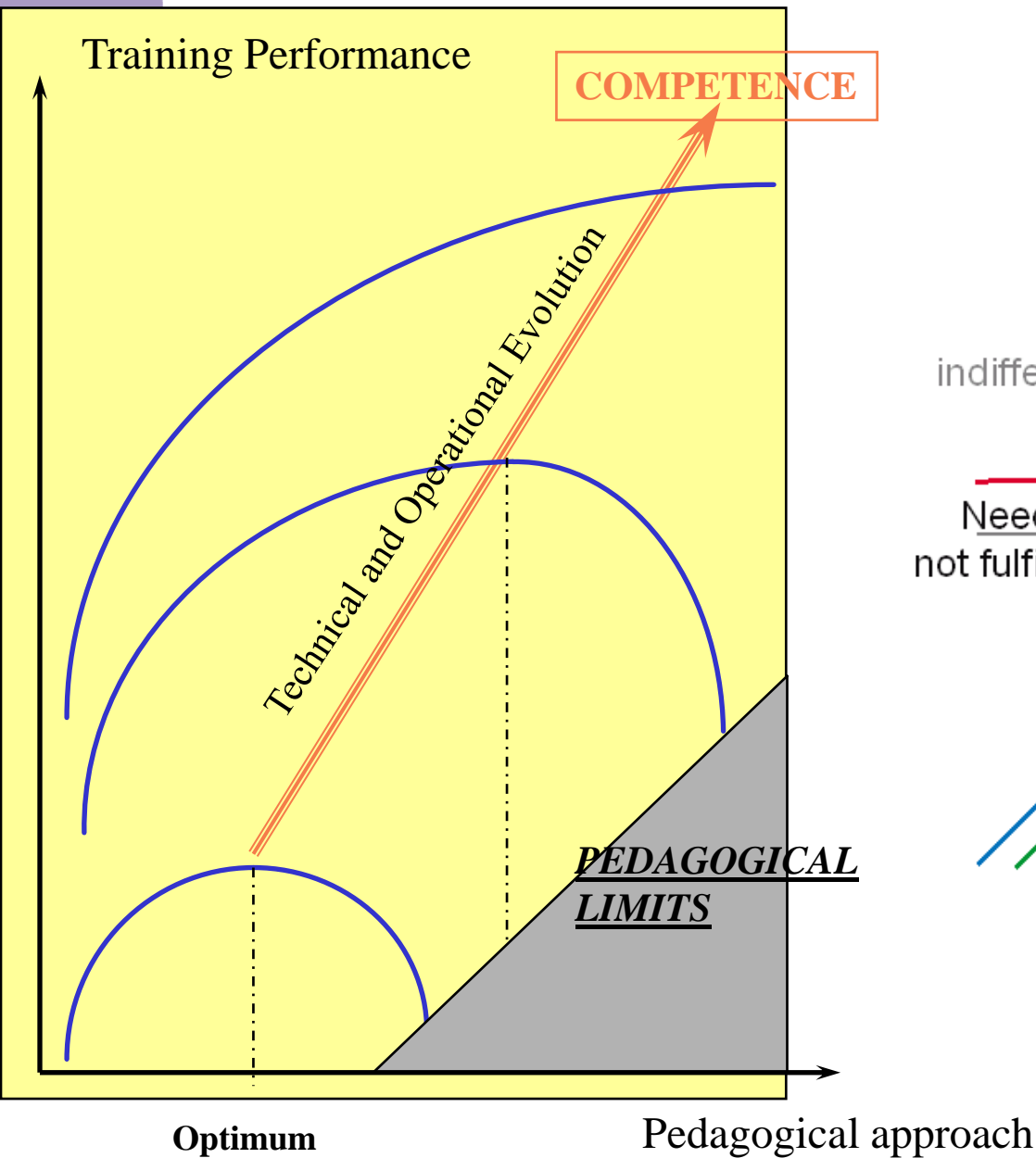
**Communality in knowledge and skills respectful of local specificities**

**Potential lack of common experience and feedback on real situations**

- The level of regulation is depending of the will of the actors
- Real tool for safety oriented approach: homologation of training centres and training plans



# *Finding the Optimal way for efficient training*





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*Prepare for the actual operational reality and next steps in career and technological changes*



# *Main Challenges in a professional career*

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- Conformity to operational requirement
- Technical evolution
  - ✓ Technology
  - ✓ Working methods
  - ✓ Regulation
- Evolution of working organization
- Internal mobility
  - ✓ Access to management level
  - ✓ Access to training responsibilities
  - ✓ Involvement in Regulation and System development
- Necessity of cooperation skills
  - ✓ Team working
  - ✓ Networking
- Looking at systems and organizations from above



# *The need to define professional navigation*

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- Primary and secondary steps in a probable career
- Common competencies to navigate professionally
- Capacity to adapt to the evolution of environment and organization
- Capacity to move to external bodies to share benefit of personal experience
- Competency Measurement instrument to prepare next steps
- Return of experience on previous professional itinerary
- Conditions and Rules of professional navigation



# *Necessity to share the sense of evolution*

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- Experts involved in training development process should share a common vision!!
  - ✓ On System evolution
  - ✓ On Career development
  - ✓ On Operational evolution
  - ✓ On Regulation
- They should come from all parts of global ATM system
- The SESAR Master plan is one example of common roadmap.





# SESAR Challenges

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- A Program launched by the European Commission
- SESAR : Single European Sky ATM Research
- Allocating Europe with the world most efficient Air Transport infrastructure



Enabling handling 2 times the traffic

Improving safety by a factor of 10

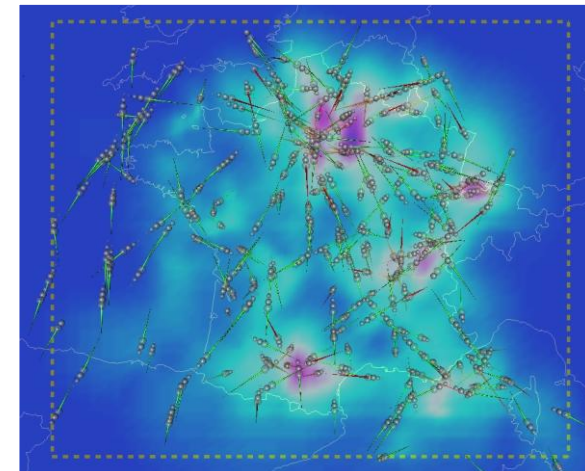
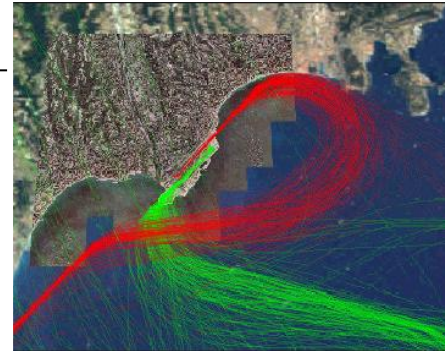
Reducing by 10% the environmental impact per flight

Cutting ATM costs by 50%

***We need the proper  
professionals to play the game!!***

# The French way of doing it with ATCOs

- Select people with high potential
- Define clear objectives for training
  - operational objectives
  - professional development
- Awareness of the global Air Transport System
  - Cockpit view
  - Airport
  - .....
- Open mind to new problematic
- Prepare for concept elaboration and presentation



# French objectives of ATCO initial Training

- To prepare the cadet for his first operational assignment but also for all his career
  - Capacity to operate on a first importance airport or an ACC
  - Capacity to change position and centre
  - Capacity to progress towards management responsibilities
  - Capacity to adapt to the rapid transformations of ATM System
- That means:
  - a training program comprising all the domains of ATC practices
  - a progression in alternance with the first assigned operational centre
  - a project and a personal work to obtain the final diploma
  - a syllabus defined in common with operational services and ENAC
- That means also:
  - a PPL training program
  - Global knowledge about Air transport system including economy



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# *Competence development and training strategy towards regulation obligation*





# The Role of Regulation

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- In a Safety oriented world, Regulation and ruling plays a key role
- Regulation supports safety by defining clear standards to insure in order to be certified

*BUT*

- Regulation may hinder evolution in case there is poor interpretation of the rules or it is not adapted to new environment
- Too strong regulation may also hinder capacity to prepare future professionals for innovative concepts or future career steps.
- Too strong regulation may block people in one-way itinerary
- Inappropriate rules may hinder pedagogic innovation



# Regulation should be managed like an alive system

- Identification of changes and needs
- Get the flexibility to remain the basis for common and safe operation within the different states but address the proper level of regulation letting room for National Safety Authorities to adapt to their local situation
- Take at the same time a safety related approach and a human and competency based approach allowing people to adapt during their career to job evolution and move from one job to the other
  - ⇒ Do not over regulate
  - ⇒ Create some flexibility and bridges
- Identify small and productive changes to avoid non applicable change process on an international scale
- Work with the idea of the next generation competence paradigm



# *Making sure that authorities get enough competence*

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- For professional interpretation of the rules
- For proper decision on good compromise for the future
- For focusing on the right points to insure safety
- For encouraging shared strategy to support competency development

*It is a collaborative process*

- Academies and Operational centers should use regulation as a tool and contribute to its development
- Academies and Operational should anticipate on changes and be ready for demonstration on safety
- Regulators should be aware of training questions



# A Need: Adapt the regulation to the Nextgen and SESAR Context

- Definition of potential qualification of the jobs:
  - ✓ To be licensed (typically Pilots and Air Traffic Controllers)
  - ✓ Safety related, common guidelines for training and competence (European choice for ATSEP with ESARR5)
- Description of the jobs could be done after rough definition of the proposed typology using various experience among the ICAO world
- Identification of future needs created by SESAR and NextGen Context



**Air Transportation System will be a collaborative system between Aircraft, Air Traffic Management, Airports and Aircraft Operators**



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# *Career development and academic recognition*



# Aviation credits and Education credits

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- Founded on the experience of credits in Education, try to relate aviation training schemes to those credits to help people from aviation to valorise their experience in the normal world.
- Founded on aviation technicity and competency scheme, try to define a system of credits in aviation to ease the creation of professional bridges in aviation and also the entrance of non-aviation professionals in the aviation world
- Take example to the European Credit Transfer System which is based pedagogical workload of the student/trainee and other similar systems among the world
- Find similar approach in other professional domains



# *Why to deliver a diploma and not only a professional license?*

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- To insure a certain level of positioning in the civil society
- To allow readability for the academic world
- For good comprehension of potential candidates
- To facilitate move and bridges between various professional domains
- To materialize training success in conformity to recognized standards



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*Maintain and update the know-how of  
an academy*





# *Maintaining a training facility ready for evolution*

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- The training facility should be representative from present world in its variety
- The training facility should be capable to go along with the evolution
- High fidelity tools may hinder the evolution
- Cost of development may hinder capacity to adapt
- Keep a capacity to open tools to external world



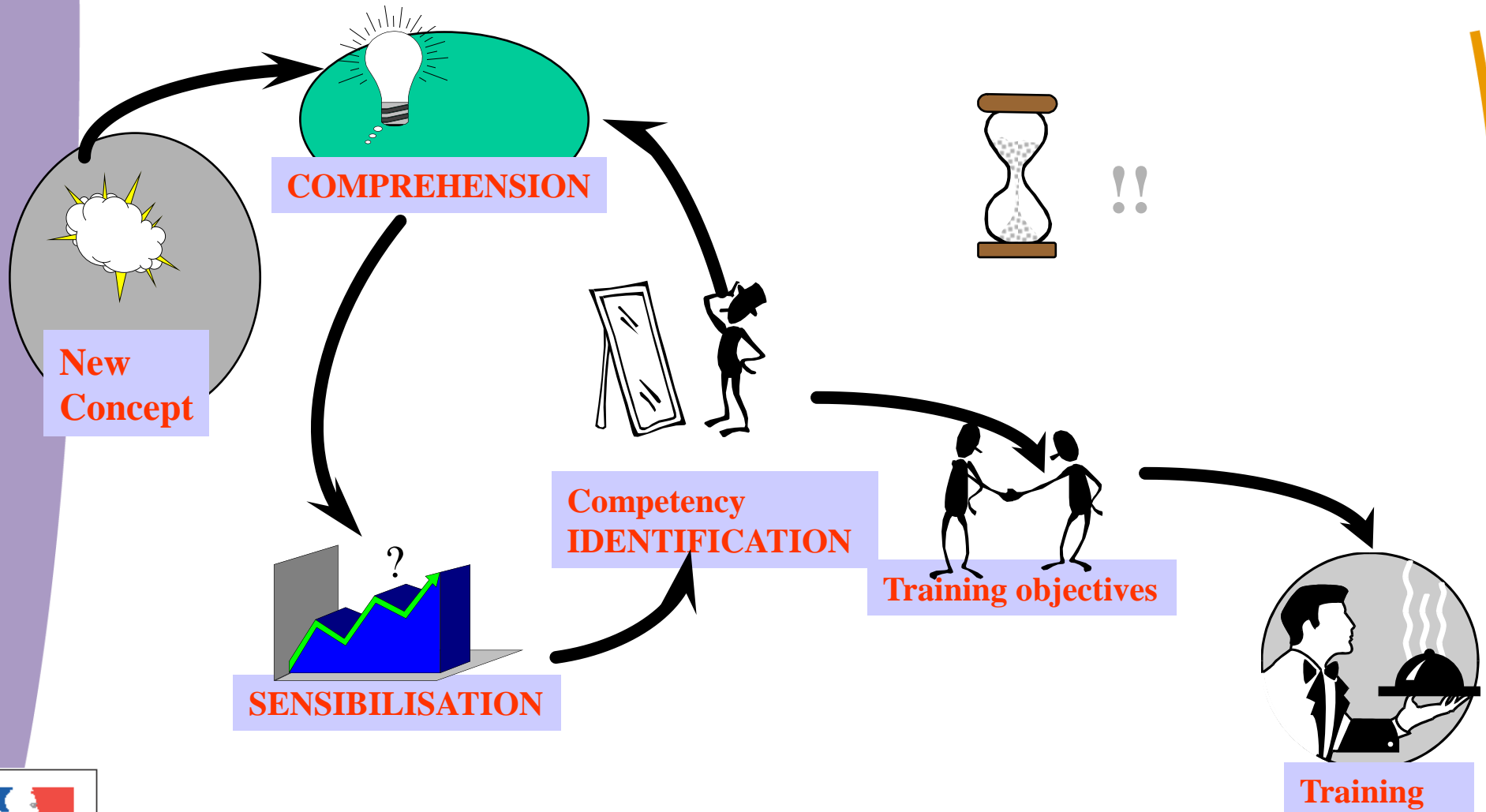
# *Maintaining competent and open-minded training forces*

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- Good experts of today world are not always sponsors of the evolution
- Reality may change during the time of training progression
- Involve training forces in future project development
- Use continuous training on new concepts in order to change instructor competency paradigm
- Involve experts of the change on course in the training process
- Use your training academy as a service provider to support the change in operational frame
- Organize transfer of competence from small teams involved in continuous training and projects to big and long term initial training process



# From Research and Innovation to Training and Competency



# GAIA: a very good example

*The Aim of GAIA : develop Human-In-The-Loop collaborative simulation*

**GAIA will help ENAC to prepare humans for all stage of the future system development**

- By using the same standard of interoperability at each stage of new operational concept development

To identify competency needs

To prepare training plans

- It is usable for Operational requirements, validation and Operability Assessment

- It is capable to demonstrate concrete case of a new collaborative concept

Helpful to define shared responsibility

Helpful to support regulation process

Helpful to demonstrate Key point of new concept

- It is allowing safety assessment process including Human

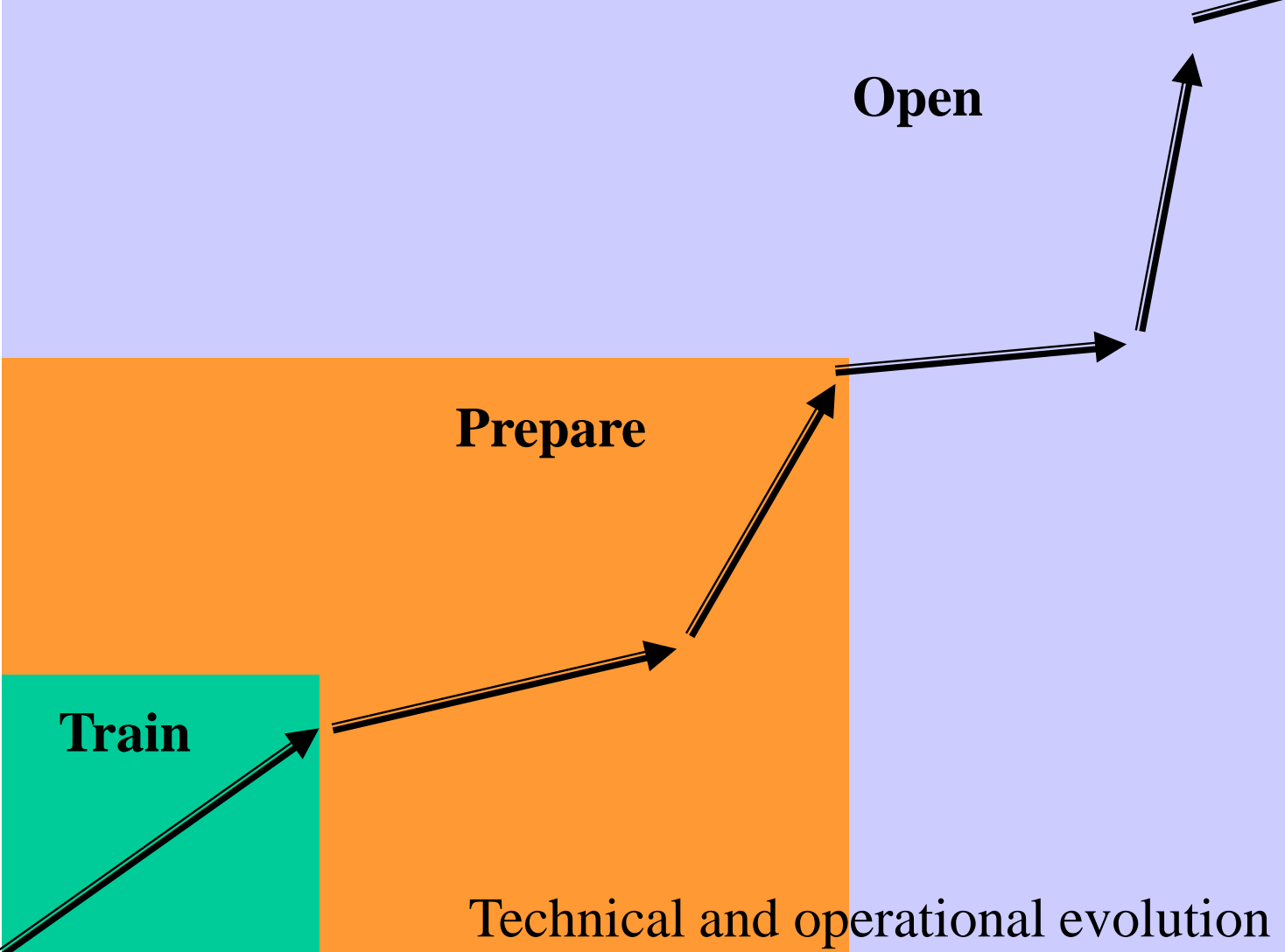
- No delay between development steps and training phase



# Professional Career

Level of responsibility

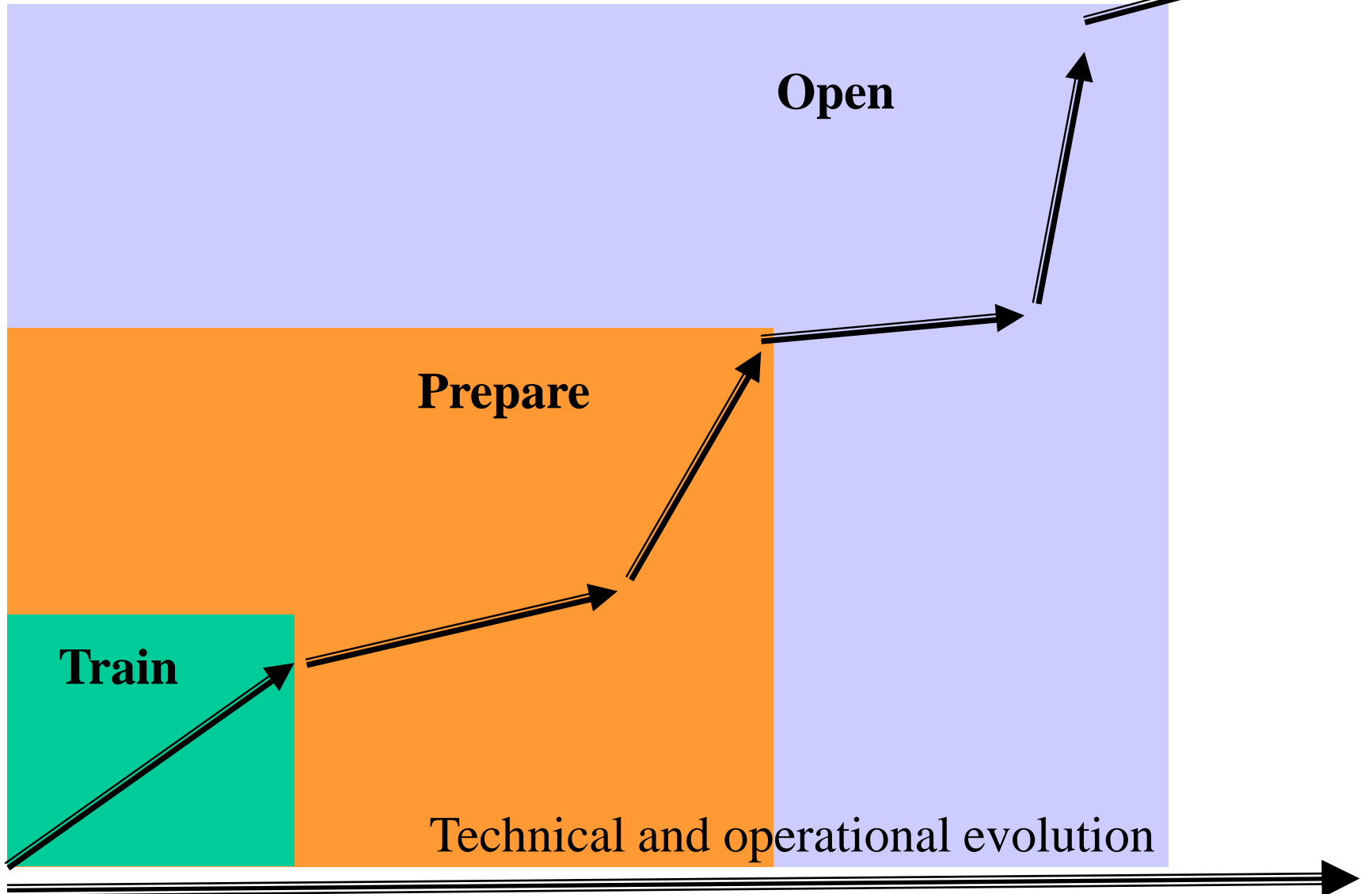
Social Reference



# Academy

Training  
resources

Credits  
Diploma



# CONCLUSION

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*Young cadets should not only be trained for first post assignment but also be prepared for a continuous professional evolution*

*There is a need to look at training with a long term perspective*

*Aviation world is not disconnected to normal society and should offer bridges from and to other domains*

*There is a need to challenge academies on the future where they are today very powerful in teaching passed reality*

*Operational and Industrial experts should be involved in the training development process*

