Competence acquisition and development among Regulators

(IAEA TECDOC-1794, 2016)

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Introduction

What is competency?

Not defined in AERB / IAEA Glossary

Competent Authority

1. Any officer or authority **referred to in Section 27** of the Act – AE (RP) Rules, 2004

2. Any official or authority **appointed, approved or recognized by** the Government of India for the purpose of the Rules promulgated under the Atomic Energy Act, 1962 – AERB/SG/GLO, 2005

3. Any officer or authority **appointed by** the Central Government by notification under these rules – AE (SDRW) Rules, 1984

4. Any officer or authority **appointed by** the Central Government by notification in the official Gazette for the purposes of these rules – AE (F) Rules, 1996

27. Delegation of powers

The Central Government may, by order, direct that any power conferred or any duty imposed on it by this Act shall, in such circumstances and subject to such conditions as may be specified in the direction, be exercised or discharged also by —

(a) such officer or authority subordinate to the Central Government, or

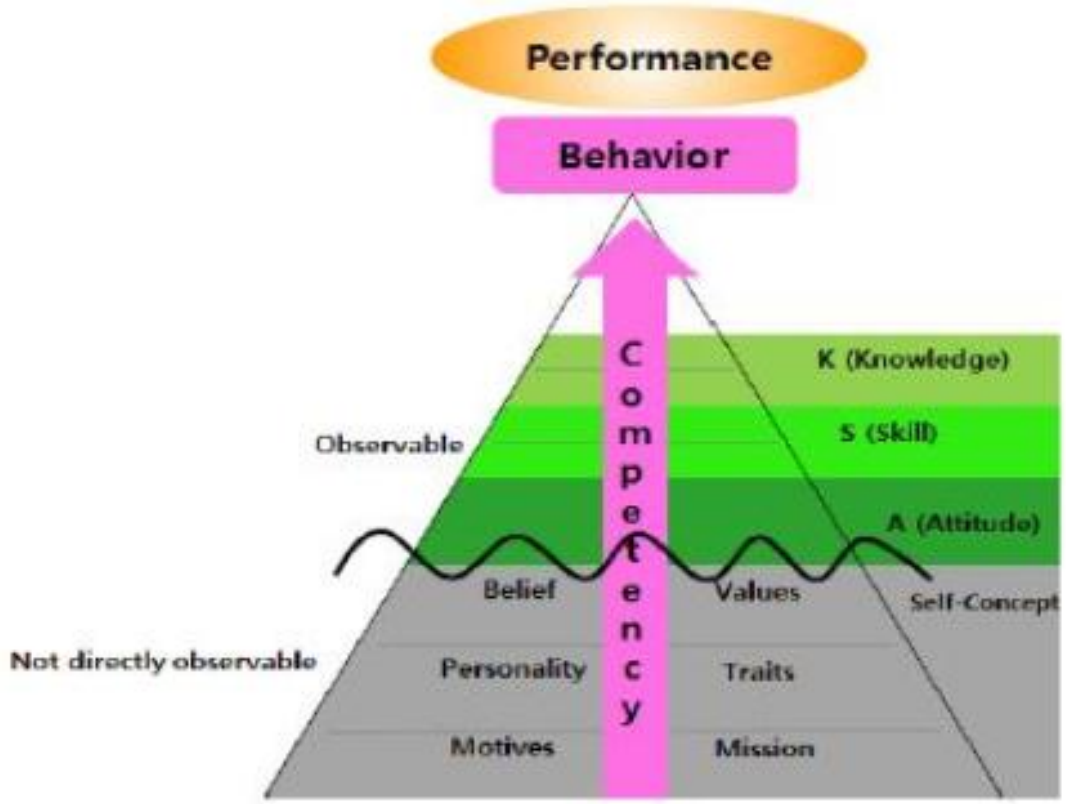
(b) such State Government or such officer or authority subordinate to a State Government as may be specified in the direction.

Introduction

Competent Person

A person, who is having the degree in the discipline mentioned or equivalent, followed by experience as specified in Rule 31 of Atomic Energy (Factories) Rules, 1996, in responsible position in the field and designated by the competent authority

– AE (F) Rules, 1996



Regulatory Competence - WHY?

IAEA-SF-1: P1: Responsibility for safety

The prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risks.

"Not having an 'authorization' would not exonerate the person or organization responsible for the facility or activity from the responsibility for safety".

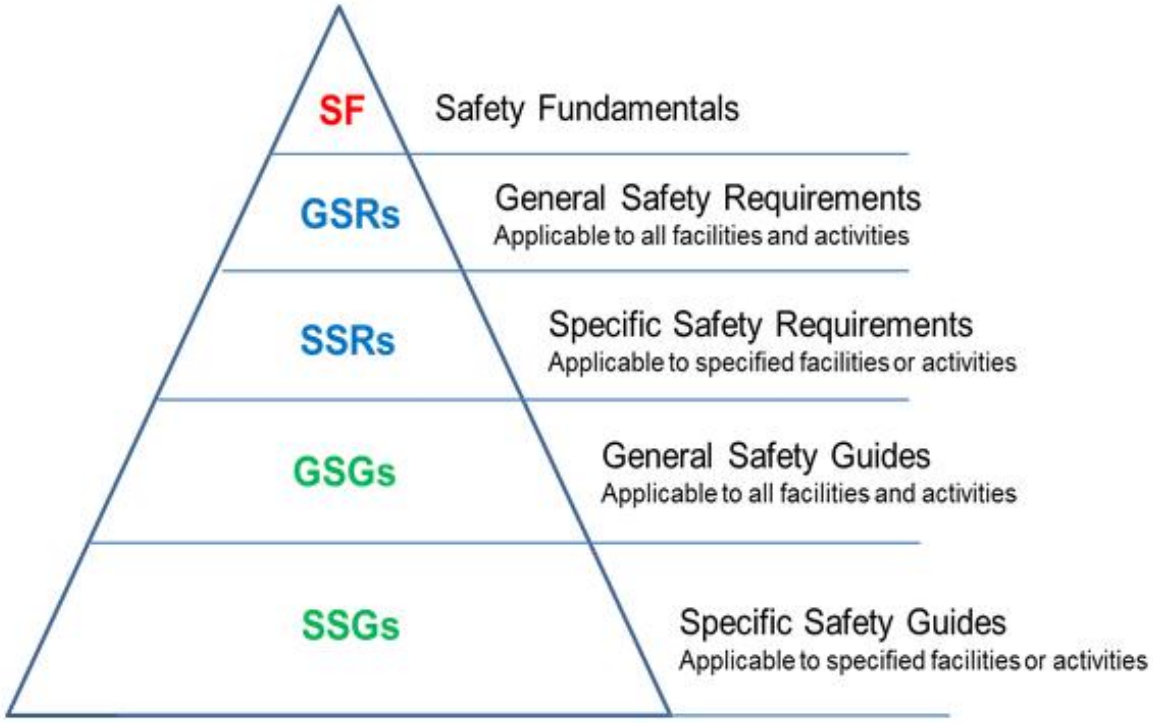
Regulatory effectiveness means	"to do the right work".
whereas	
Regulatory efficiency means	"to do the work right".

It is difficult to say that less number of significant events in the regulated organizations is an indication of effective regulation.

However, the consistently poor safety performance of the regulated organization and increase in significant events does indicate the poor effectiveness of the regulatory body.

Competency needed for being 'Effective' and 'Efficient' Regulator

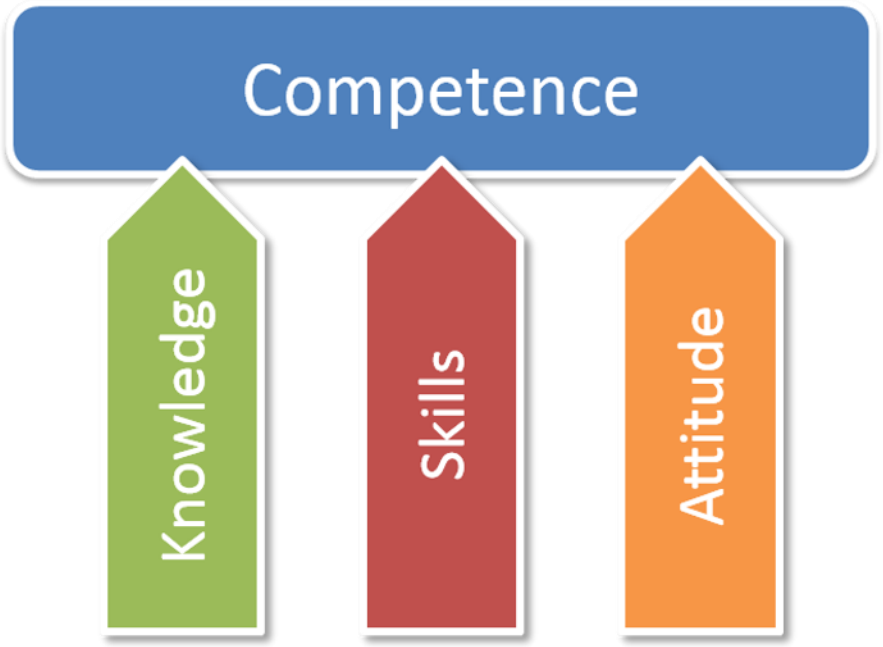
IAEA Recommendations - Competency



GSR P1: R18: THE REGULATORY BODY SHALL EMPLOY A SUFFICIENT NUMBER OF QUALIFIED AND **COMPETENT STAFF**, COMMENSURATE WITH THE NATURE AND THE NUMBER OF FACILITIES AND ACTIVITIES TO BE REGULATED, TO PERFORM ITS FUNCTIONS AND TO DISCHARGE ITS RESPONSIBILITIES.

GSG-12: 6.18: THE REGULATORY BODY SHOULD DEFINE THE ORGANIZATION, LEVELS OF AUTHORITY, RESPONSIBILITIES AND ACCOUNTABILITIES FOR **COMPETENCE MANAGEMENT** PROCESSES; AN INDIVIDUAL OR A TEAM SHOULD BE APPOINTED TO BE RESPONSIBLE FOR THESE PROCESSES.

Competency Management



IAEA Competency Framework

"A competency is generally defined as a combination of skills, knowledge, attitudes and behaviors that enables an individual to perform a task or an activity successfully within a given job. Competencies are **observable behaviors** that can be measured and evaluated, and thus are essential in terms of defining job requirements and recruiting, retaining and developing staff"

Competency Management - Responsibilities

Management Commitment

Ongoing development of a professional, competent, versatile and motivated workforce

Competence Policy

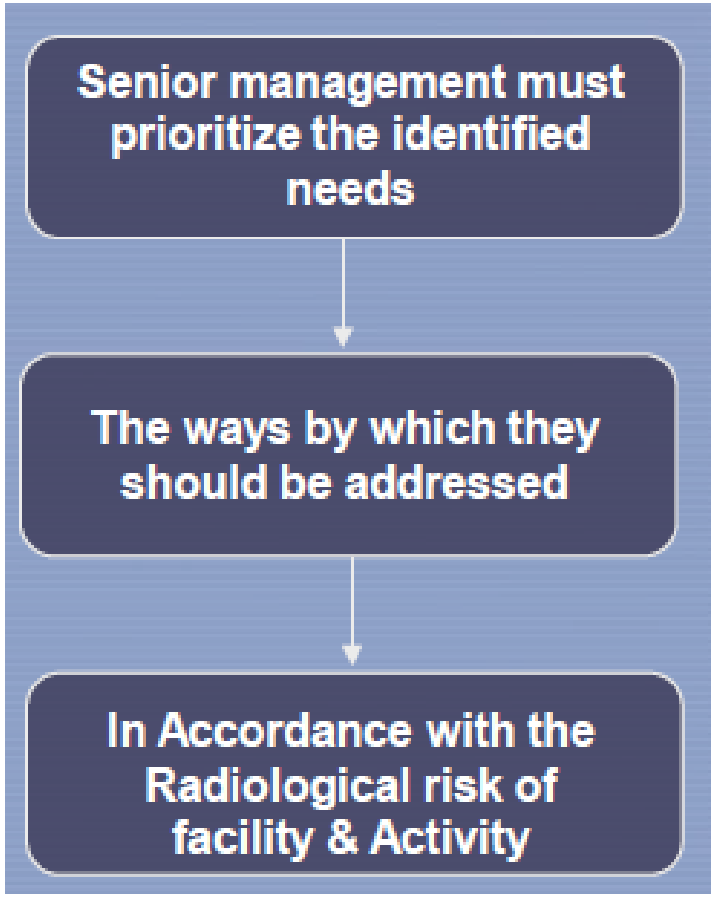
Primary means of communicating its commitment, expectations and strategies

Planning

Strategic Plan - Training and development, staffing plans, use of external support

Responsibilities for Competence management

A person, or team, needs to be appointed to be responsible for the processes of the competence management



Competency Management - Processes

Processes related to competence analysis

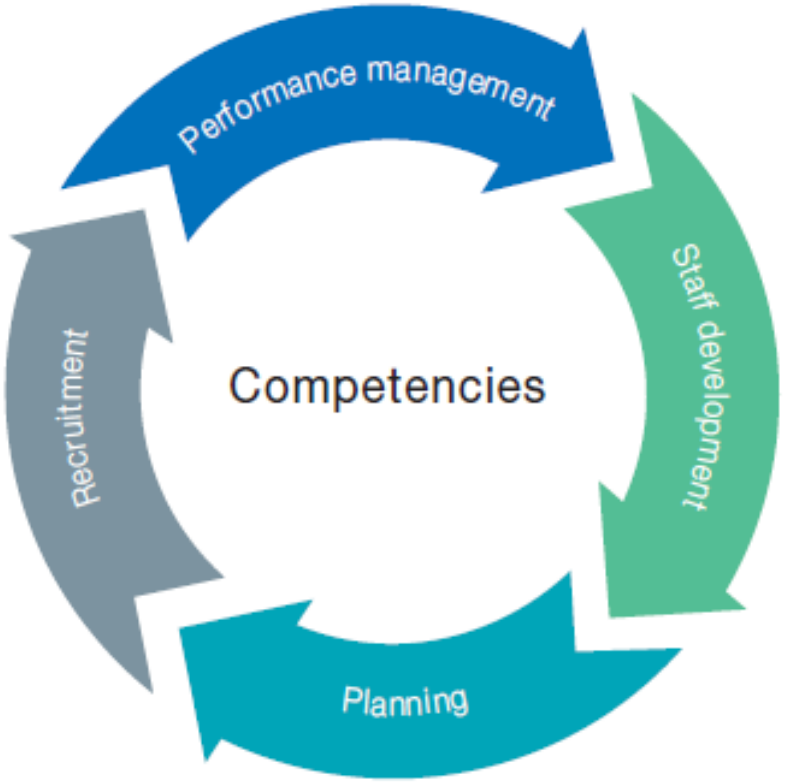
- Task Analysis (Regulatory functions to competency required)
- GAP Analysis (Personnel performance review and assessment)

Processes related to competence management

- Processes related recruitment
- Processes related to training
- Processes related to External Support

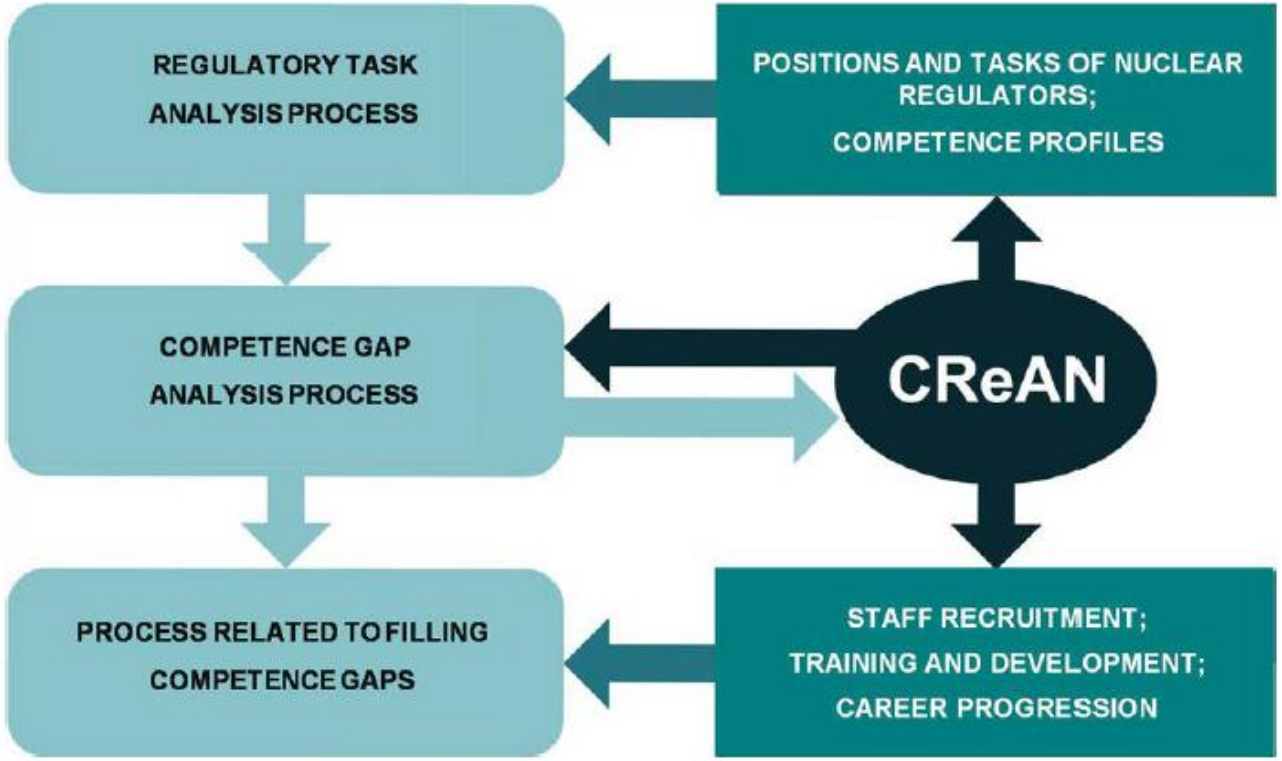
Management Processes (Measurement, Assessment, review)

Knowledge Management



Competence Acquisition and Development – Guidelines for devising progremme (TECDOC-1794)

(CReAN Project- Competences of Regulators in the Area of Nuclear Safety – FORO Member countries)



Members of FORO

- Argentina – Nuclear Regulatory Authority (ARN)
- Brazil – National Nuclear Energy Commission (CNEN)
- Chile – Chilean Nuclear Energy Commission (CCHEN)
- Colombia – Ministry of Mines and Energy (MINMINAS)
- Cuba – National Nuclear Safety Centre (CNSN)
- Mexico – National Commission for Nuclear Safety and Safeguards (CNSNS)
- Paraguay – Radiological and Nuclear Regulatory Authority (ARRN)
- Peru – Peruvian Institute of Nuclear Energy (IPEN)
- Spain – Nuclear Safety Council (CSN)
- Uruguay – National Regulatory Authority for Radiation Protection (ARNR)

Elements - Programme for competence acquisition and development

SA - Infrastructure & Resources, Legal & Regulatory Framework, Organizational Aspects

SD – SWOT Analysis

SO – Institutional vision established in management system

AP – 4-stages (Infrastructure, Recruitment, Training, Career progression)

ME – Monitoring, Self-Assessment and External Audit

Defining Regulatory Work Force (1/2)

	POSITION	STAGE				
		S	Con	Com	O	D
R1	NPP licensing coordinator	■	■	■	■	■
R2	Senior specialist in thermohydraulic assessment		■	■	■	
R3	Senior specialist in neutronic assessment		■	■	■	■(*)
R4	Senior specialist in natural and human-induced event analysis	■	■	■	■	
R5	Senior specialist in nuclear safety	■	■	■	■	
R6	Senior specialist in radiation protection	■	■	■	■	■
R7	Senior specialist in physical protection	■	■	■	■	■
R8	Assessor/auditor of the licensee's quality management system	■	■	■	■	■
R9	Assessor/inspector of civil and mechanical structure safety		■	■	■	
R10	Assessor/inspector of mechanical system safety		■	■	■	
R11	Assessor/inspector of electrical system safety		■	■	■	
R12	Assessor/inspector of reactor instrumentation and control safety		■	■	■	
R13	Assessor/inspector of safety systems		■	■	■	
R14	Assessor/inspector for internal flooding and fires		■	■	■	
R15	Site coordinator for engineering inspections and assessments		■	■		

Defining Regulatory Work Force (2/2)

	POSITION	STAGE				
		S	Con	Com	O	D
R16	Inspector of mechanical system construction, assembly and commissioning		■	■		
R17	Inspector of electrical system construction, assembly and commissioning		■	■		
R18	Inspector of instrumentation and control system construction, assembly and commissioning		■	■		
R19	Inspector of the main contractor's quality management system		■	■		
R20	Senior specialist in probabilistic safety assessment (PSA)		■	■	■	
R21	Senior specialist in human factors engineering			■	■	
R22	Senior specialist in organizational aspects and safety culture			■	■	■
R23	Senior specialist in severe accident analysis			■	■	
R24	Senior specialist in the assessment of operators in nuclear and radiation safety			■	■	
R25	Senior specialist in emergency plan assessment			■	■	■
R26	Site inspector			■	■	■
R27	Senior specialist in operating experience				■	
R28	Senior specialist in radioactive waste management				■	■

Competancy Model

4. Personal and interpersonal effectiveness

4.1 Analytical thinking and problem solving
4.2 Personal effectiveness and self-management
4.3 Communication
4.4 Team work
4.5 Managerial competences and leadership
4.6 Safety Culture

1. Legal, regulatory and organizational basis

1.1 Legal basis
1.2 Regulatory policies and approaches
1.3 Regulatory and regulatory guides
1.4 Management system

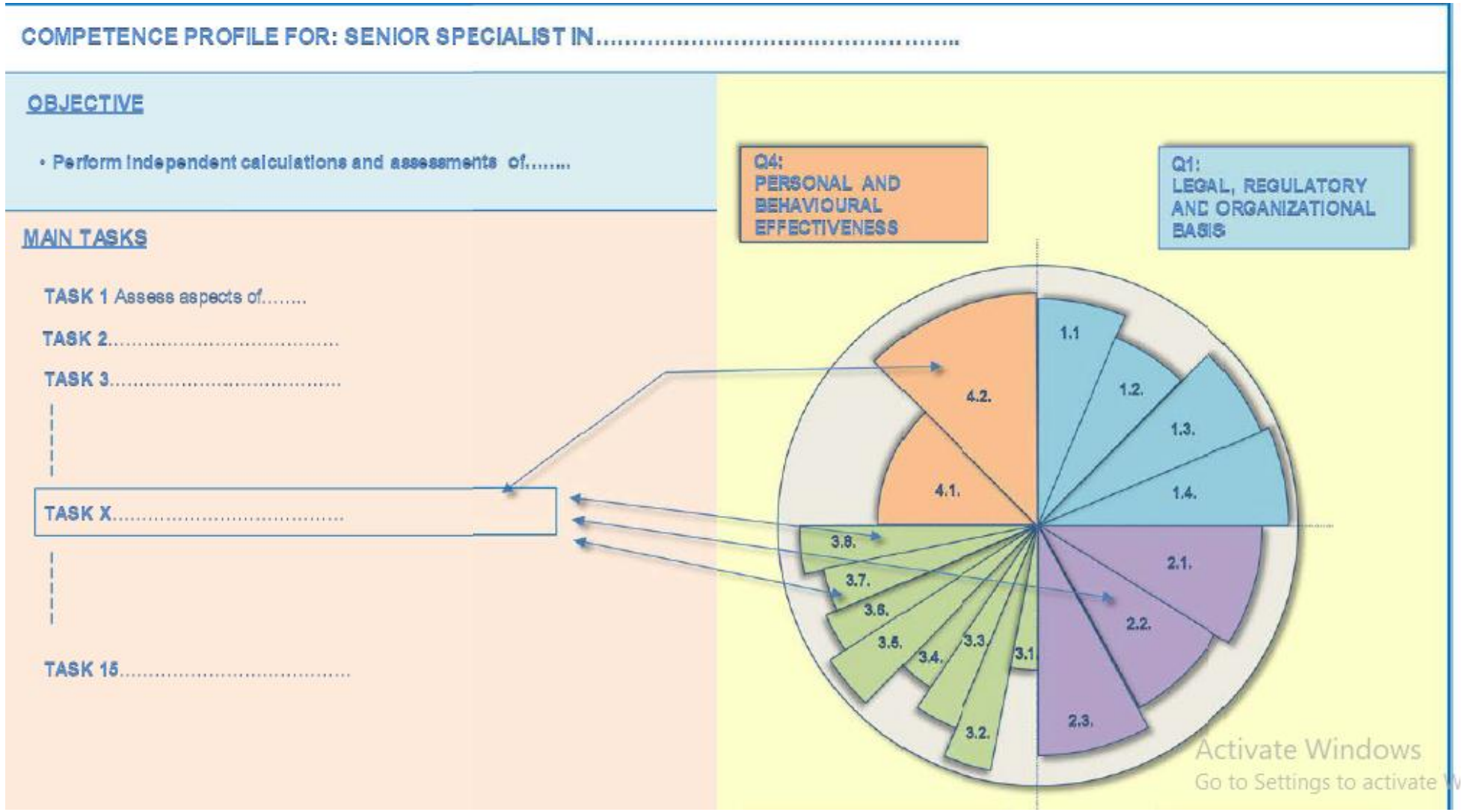
3. Regulatory body's practices

3.1 Review and assessment
3.2 Authorization
3.3 Inspection
3.4 Enforcement
3.5 Development of regulations and guides

2. Technical disciplines

2.1 Basic science and technology
2.2 Applied schience and technology
2.3 Specialized science and technology

Competence Profile



Regulatory Staff Training

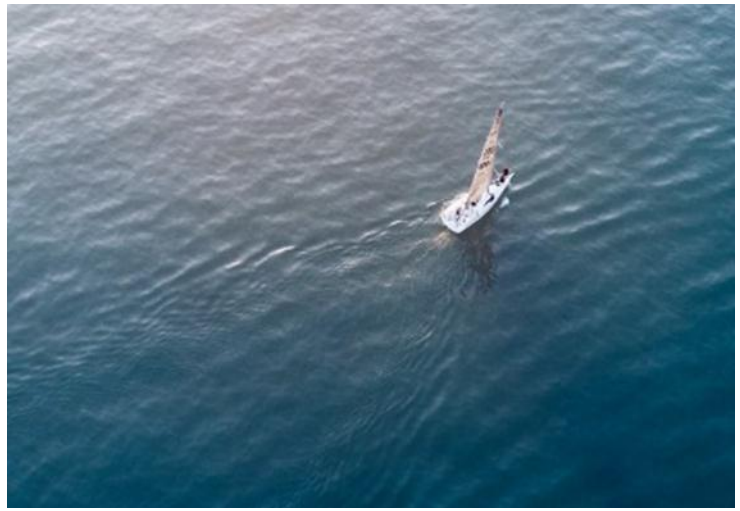
Challenge

Once the core workforce has been decided, and the competence profile defined for each position, the challenge is to guarantee the acquisition, development and maintenance of these competences through an adequate forward-looking vision….

If one does not know to

which port one is sailing,
no wind is favorable

—Seneca



Regulatory Staff Training

Learning Objectives

The steps we need to take and competencies we need to develop….

Mission and Vision of Regulatory Body

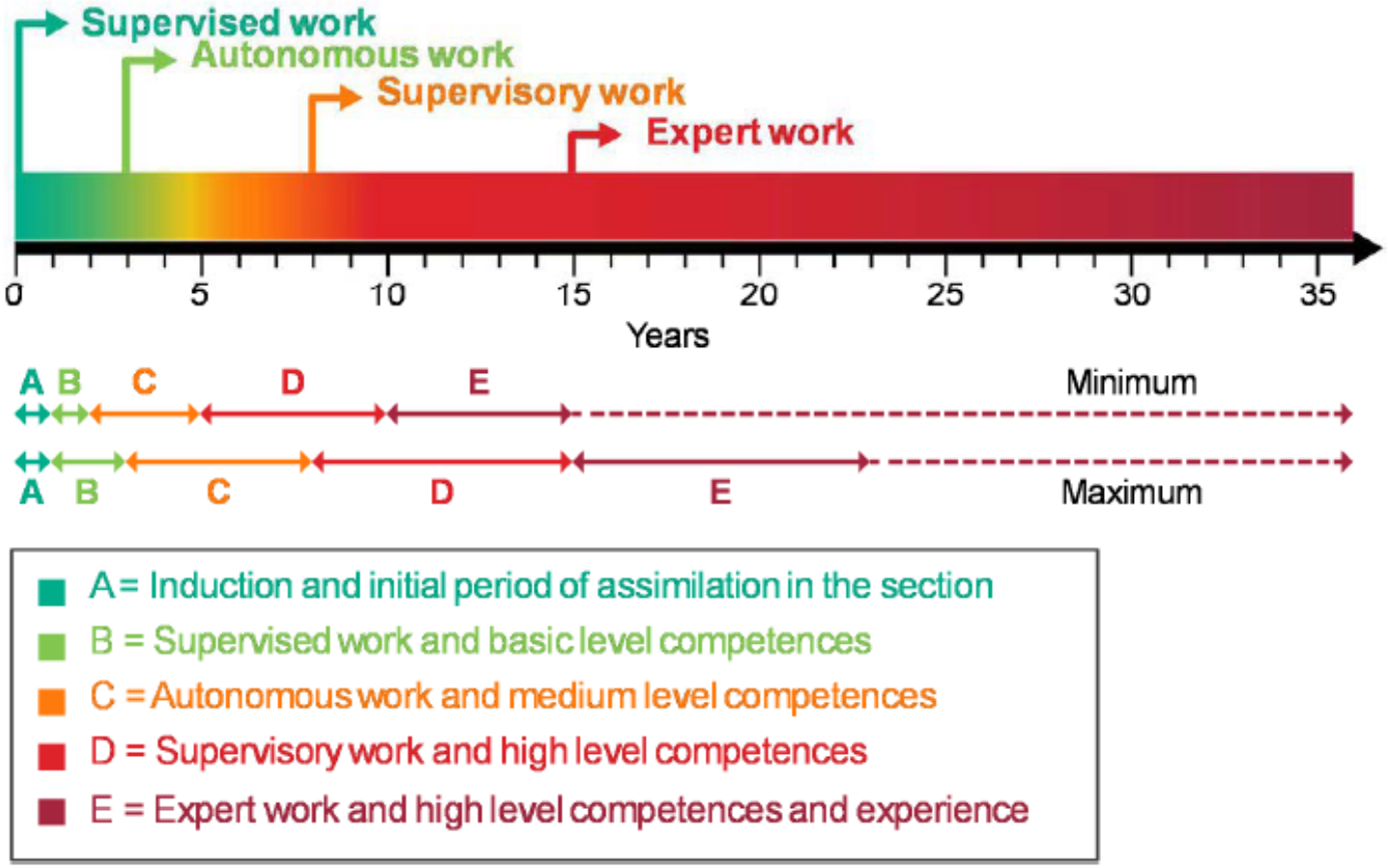
Strategic Planning

- A formal programme to identifying needs and managing training
- Job-specific training (using in-house or external human resources)
- On-the-job training (OJT)
- Continuing education through formal programmes / self-manage continuing education
- An institutional system for recording training activities with the possibility of follow-up by the individual;
- Training activities linked directly to promotion or career advancement

Career Progression Model

Objective

Establish a career model that focuses on the individual and promotes competence accreditation, development and maintenance



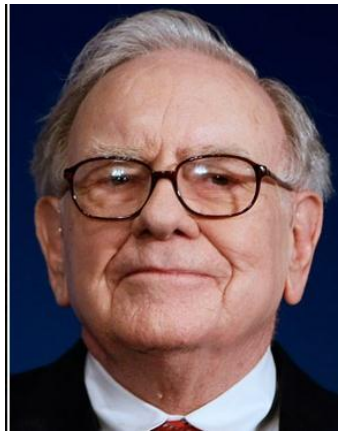
Competency Management at AERB

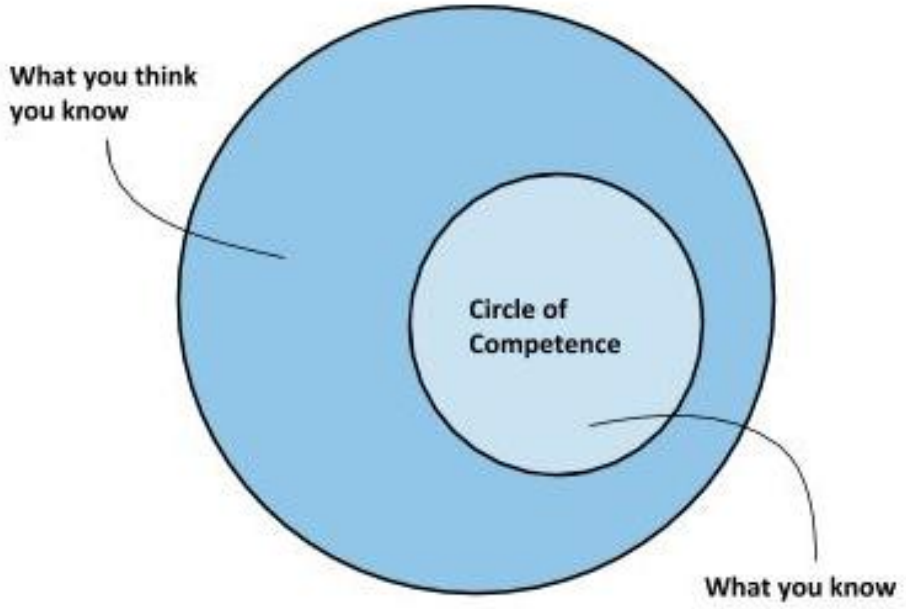
- Orientation Training (Induction)
- Refresher Training Courses (Thematic)
- Specific Training (ASME Std., PSA, HOFs)
- HBNI Technical Courses (Annual)
- AERB colloquiums (Info. sharing)
- Technical Authorization
- Inspector Authorization
- Competency Mapping DONE
- Higher Education (Individual level)
- In-house R&D capability (Good practice by IRRS Mission)
- Safety Research Institute
- Participation in International forums (Conferences/workshop/meetings)
- Participation at national forums (conference/seminar/workshop)
- AERB Bilateral/Multi-lateral Meetings

Competency Management at AERB

The size of the circle is not very important knowing its boundaries, however, is vital.

Warren Buffett





Perhaps what we think what we know…

- Q1 (Legal, Regulatory and Organizational Basis)
  - Refresher Courses on National Statutes / International conventions
  - Information sharing on outcome of AERB bilateral meetings at organizational level
- Q2 (Technical disciplines)
  - Adequate infrastructure & mechanism
  - Encouragement / incentives for enrolling for HBNI courses or for higher education at academic institutes
- Q3 (Regulatory Body Practice)
  - Every Fresher to be inducted into one of the nodal division initially….
  - Rotation of employees
  - Career progression ('Supervised' to 'Expert' Level exposure)
- Q4 (Personal & Interpersonal Skills)
  - Training on Organizing, conducting and summarizing Regulatory Meetings
  - Technical Report/Article writing
  - Summary writing
  - Communication Skill

Concluding Remarks

- IAEA-TECDOC-1794 (2016) provides guidelines for devising a program for acquisition and development of competency among regulators
- Provides outcome of CReAN Project implemented at FORO member countries
- Most of the aspects of competency managements are already covered in current AERB practices
- There is a scope for further examining current practices on competency management, in particular towards:
  - Arranging specific training on soft skills and Management aspects (tailor-made to AERB needs)
  - Mechanism for exposure to different regulatory processes
  - Progressive Roles to regulatory staff throughout their service (supervised > Autonomous > supervisory > Expert)

Thank You

COMPETENCE IS THE ENEMY OF CHANGE!

It doesn't take a lot of time to change ... to reinvent ... or to redesign. No, it doesn't take time; it takes will. The will to change. The will to take a risk. The will to become incompetent – at least for a while.

Seth Godin