Webinar Series on

Training and Qualification for Nuclear Facility Personnel

IAEA

01

Building the blocks of nuclear facility training:

Starting out

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Training Specialist
IAEA Division of Nuclear Power

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Learning Objectives

By attending this webinar, you'll be able to:

- Explain why high quality and effective training is important and different ways to achieve it
- Identify who is trained and why it is important
- Describe the difference between training in pre-operational vs operational facilities

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Today's Speakers

Brian Molloy

Tiina Kuusimäki

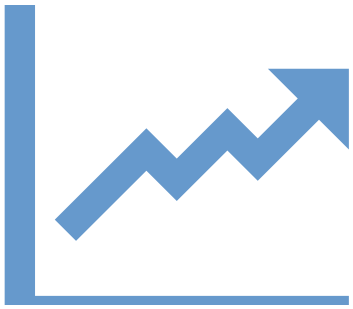
Simon Earp

Systematic Approach to Training

Strategic

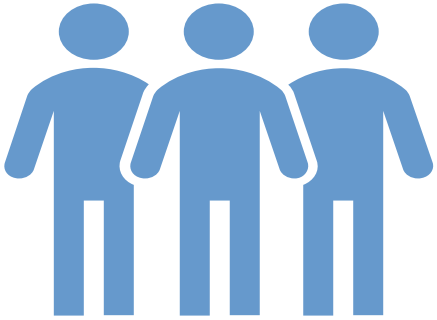
Process

Essential elements of an effective SAT model



Seeking a Performance Improvement Output

Systematically Derived Initial and Continuing Training Programmes



Consultation & Involvement of Managers Leaders and Workers

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Let's interact

How well do you know the Systematic Approach to Training (SAT)?

- I can explain it to others
- I know what it is
- I have heard about it before
- I don't know what it is

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Today's Speakers

Brian Molloy

- Training and HRD expert
- Retired IAEA staff member in the Human Resources field

- 40 years of experience in the nuclear industry
  - Previously Corporate Training Manager for British Energy
  - Prior to this was the Training Project Manager for the Sizewell B project, the UK's first PWR plant
  - Still works extensively with the IAEA, running workshops and developing guidance document in Training and HRD

- Bachelor Degree in Electrical Engineering

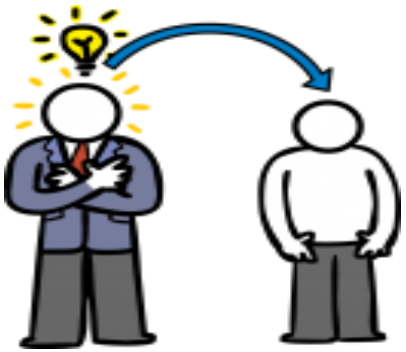
IAEA Webinar series on Training and Qualification for Nuclear Facility Personnel

01 The Building Blocks of Nuclear Facility Training – Starting Out:

Different Approaches to Training

Brian Molloy
Human Resources and Training Consultant

WHY TRAIN?



Individually:

- Since the beginning of time, we've been transferring knowledge and skills to each other
- We (most of us!) are inherently programmed to share knowledge and skills to help each other to improve
- All parents are trainers - we take pride in seeing our children/ friends learn and grow

Organisationally:

- We train others to make sure they can compete tasks effectively and efficiently to improve performance and profit
- In the nuclear context training to be safe is a minimum requirement

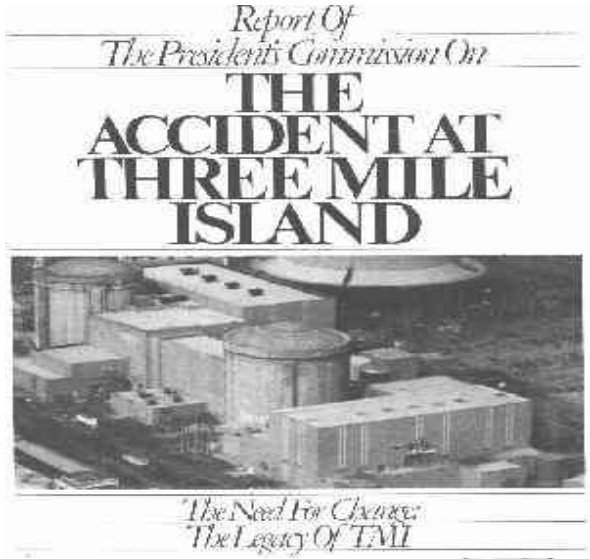
HOW TO TRAIN? – APPRENTICING

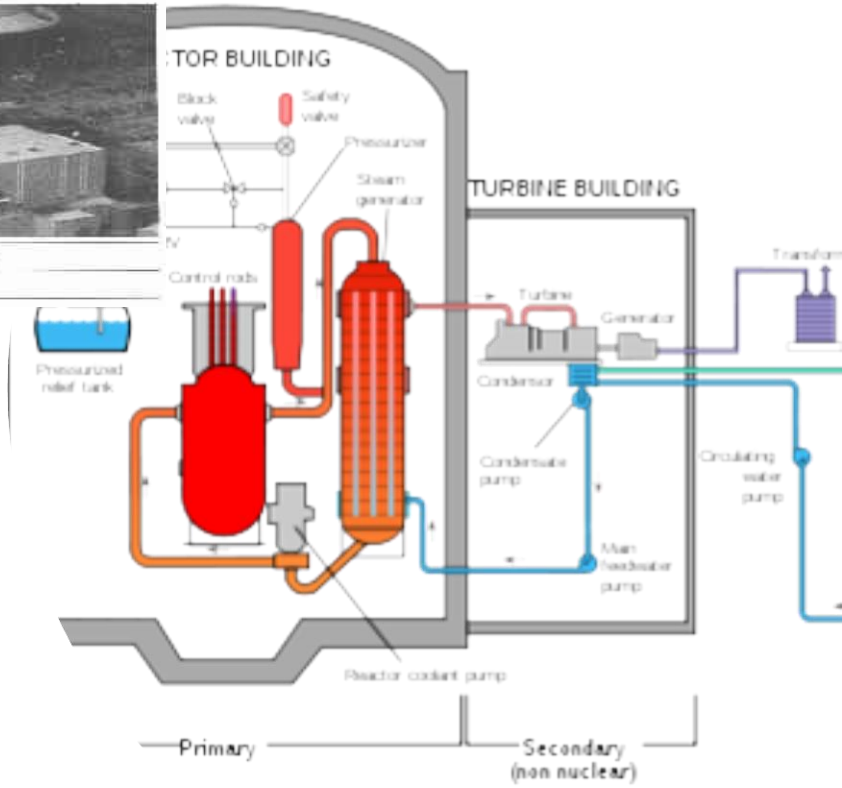
- Important to remember training is about transferring knowledge as well as skill
- Also about context and consequences
- Since the Industrial Revolution, the 'apprenticeship' approach has been common
- Using an experienced person to demonstrate and coach skills to a new worker
- Can be very effective, especially if the 'instructor' has good expertise and is a good communicator
- However, relies on personal relationship, may be inconsistent and can only be based on the experience and values of the 'instructor'
- Also limited to one-to-one, or one-to-few

HOW TO TRAIN? – INSTRUCTION

- A later evolution, based on more formal methods, usually based on written documentation.
- Usually in a formal setting (classroom?), off the job.
- May be used to supplement on-job learning.
- Has typically been based on procedures and manuals prepared by the manufacturer/ supplier
- Teaching may be provided directly by the supplier
- Provides consistency and correct technical knowledge
- More structured but often limited scope, lacking context and relies on quality of documentation

28th March 1979





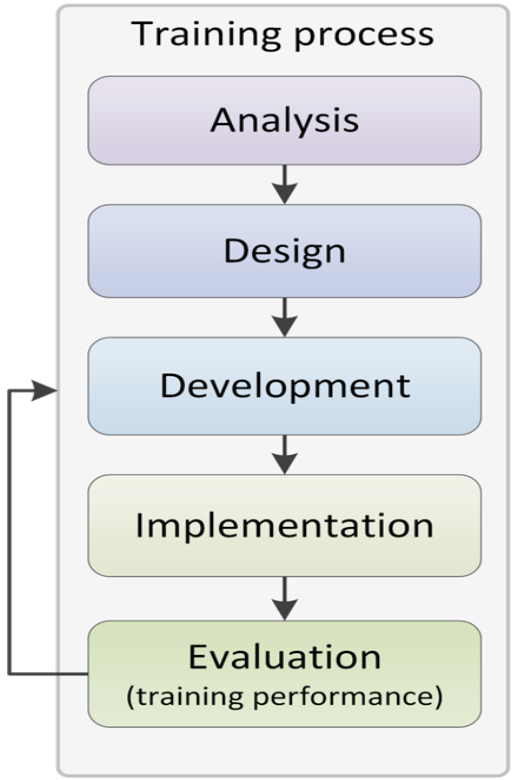
- **Procedures inadequate**
- **Operator response inadequate**

WHAT TO TRAIN – A SYSTEMATIC APPROACH?

- Need to ensure all necessary knowledge and skills developed
- Need training to address all possible work situations
- Need to know standards and conditions for job performance
- Need to understand context and consequence of action/ activity
- Hence need to analyse jobs/tasks to identify the necessary knowledge, skills and behaviour (competence); this forms the basis for training
- Still utilises coaching and instruction but training is tailored to 'need to know' of job incumbent

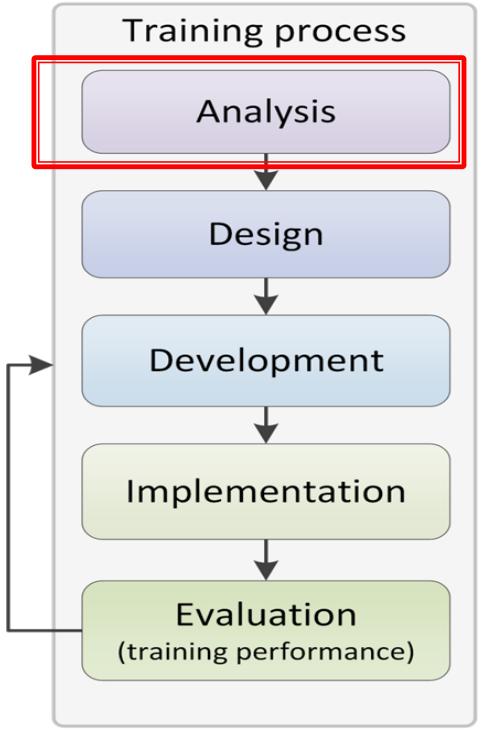
SYSTEMATIC APPROACH TO TRAINING (SAT)

- Nuclear Industry standard for over 40 years
- Five step process to ensure training is consistent, high quality, and improves performance.
- Begins with the identification of the necessary knowledge and skills, and when they should be trained (Analysis)
- Training material based on outputs of analysis – need to know (Design & Development)
- Instructors are trained and qualified (Implementation)
- Training is evaluated to ensure transfer of knowledge and skills



TRAINING NEEDS ANALYSIS

- Analysis phase critical to overall effectiveness of SAT
- Analysis techniques dependent of nature of job
- Job and task analysis (JTA) most appropriate for task based activities e.g. operating and maintaining equipment
- Job competence analysis (JCA) more appropriate for knowledge based activities e.g. preparing a maintenance plan for a system
- Many jobs require a mixture of both tools
- It is also during the analysis phase the decision is made on which knowledge and skill need to be trained, and how often



BENEFITS OF SAT

- Real training needs are identified and addressed, at the appropriate time
- Requirements are established
- Trainees know what to expect
- Personnel are competent, to a required standard
- Facility managers know what training is conducted
- A sound basis for external review
- Gives public confidence
- Additionally, with modern technology, training can be modularised, digitised, personally tailored and made easily accessible.

Thank you!

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Today's Speakers

Tiina Kuusimäki

- Training manager at Teollisuuden Voima Oyi, (TVO), Finland

- 18 years of experience in competence development in the nuclear area
- Previously worked with communication and worked as an expert in that field
- Active self-developer who wants to look for new ways of working and to involve people in new projects.
- Tiina believes in positive people management and also implements it in her free time through her dance sports hobby.

- MSc in Industrial Engineering and Management

Who do we train and why it is important?

IAEA Webinar 9th of June 2020

Building the blocks of nuclear training: Starting out

TVO – over 40 years of reliable Finnish electricity production

Principles

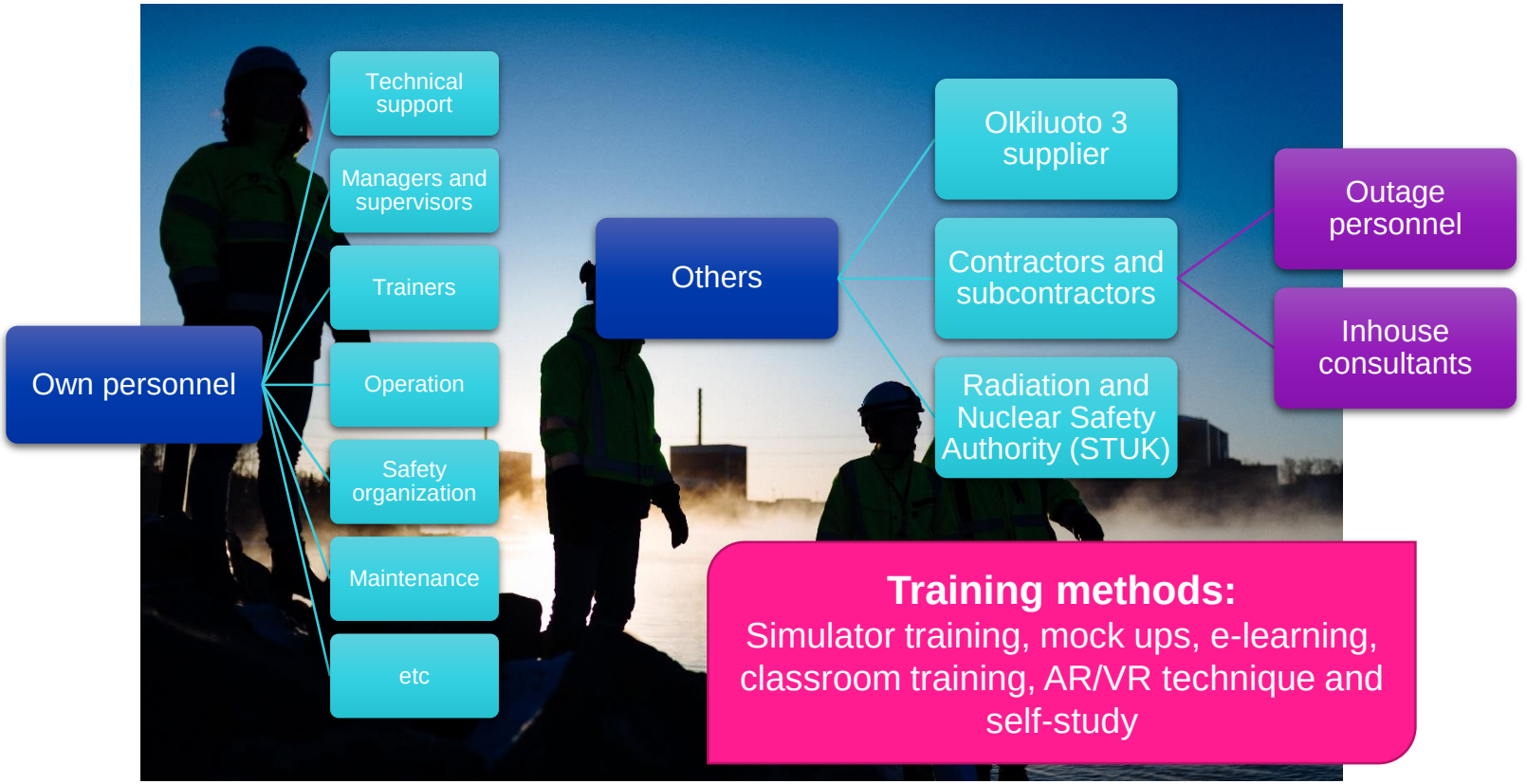
The operating organization shall have a sufficient number of competent personnel

Knowledge, skills and attitudes	Basic, continuing, and refresher training

Systematic Approach to Training (SAT)

It must be ensured that every person understands the safety significance of his/her task and is qualified for the position.

Who do we train?



Developing and maintaining competence and qualifications at TVO

Function based training requirements
- Defined for the function and linked in TAITO to all employees in that function
- Includes trainings classified as either required or recommended

Training requirements for special roles
- Ancillary work role of a specifically appointed individual
- Includes trainings classified as either required or recommended
- May also include work guidance tasks

Training requirements for permits
- Authorisations, licenses and rights assigned to an individual, which may include requirements concerning competence, qualifications and training

Competence mapping

- Defining the key competence requirements (business-critical skills) for the person's role and evaluating the person's competence level for each requirement (both supervisor and the person)
- Potential development plan

Individual training plans

- Personalised training plan consisting of training requirements from the function, special roles and permits.
- May include also additional training requirements defined by the supervisor.
- Annual training program

Qualifications and competence

Person
- Specified roles and tasks
- Background training and skills required by the role
- Required skills, knowledge and attitude

Familiarisation and on-the-job training

- Structured process for a person to get familiar with their role, tasks and work situations
- The aim is to provide needed knowledge, skills and attitude for the job.

Navigation discussions (Personal performance review)

- Verifying the person's individual training plan
- Evaluating the person's competence level for business-critical skills
- Defining work goals for the next 100 days
- Checking how the previous goals were fulfilled

Nuclear Professionalism

Guiding principle for everything

The way of working in a nuclear environment

Field specific expectations

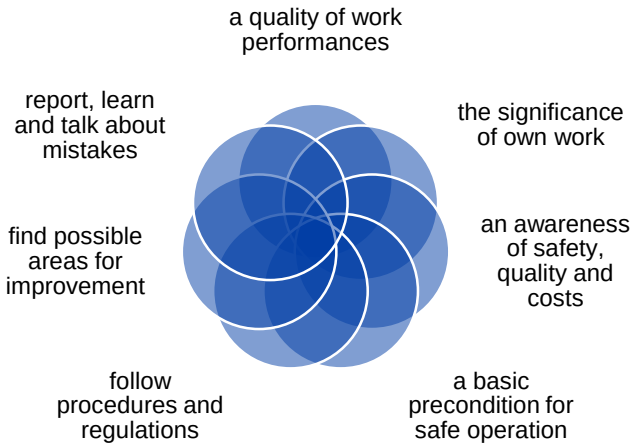
Has been included in several trainings

Personal goals

Responsibilities and commitments

The actions of everyone working at Olkiluoto play a key role in maintain nuclear safety.

Supervisor’s role – motivating and encouraging their subordinates



COMPETENCE REQUIREMENTS

LEARNING METHODS

SYSTEMATIC APPROACH TO TRAINING

Thank you!

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Let's interact

Do you have experience working in nuclear pre-operational projects?

- Yes
- No

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Today's Speakers

Simon Earp

- Deputy Pre-Operations Director, Hinkley Point C, EDF Energy, United Kingdom

- 35 years of experience in the nuclear industry.

- Experience in Operations, Maintenance and Training fields including authorisations an operator in the UK and USA on AGR and PWR reactor plants.

- A Chartered Engineer, and Full Member of the Institution of Electrical Technology with a BSc Degree in Power Engineering incorporating Nuclear Power.

The Differences Between

Training at Pre-Operational vs Operational Facilities

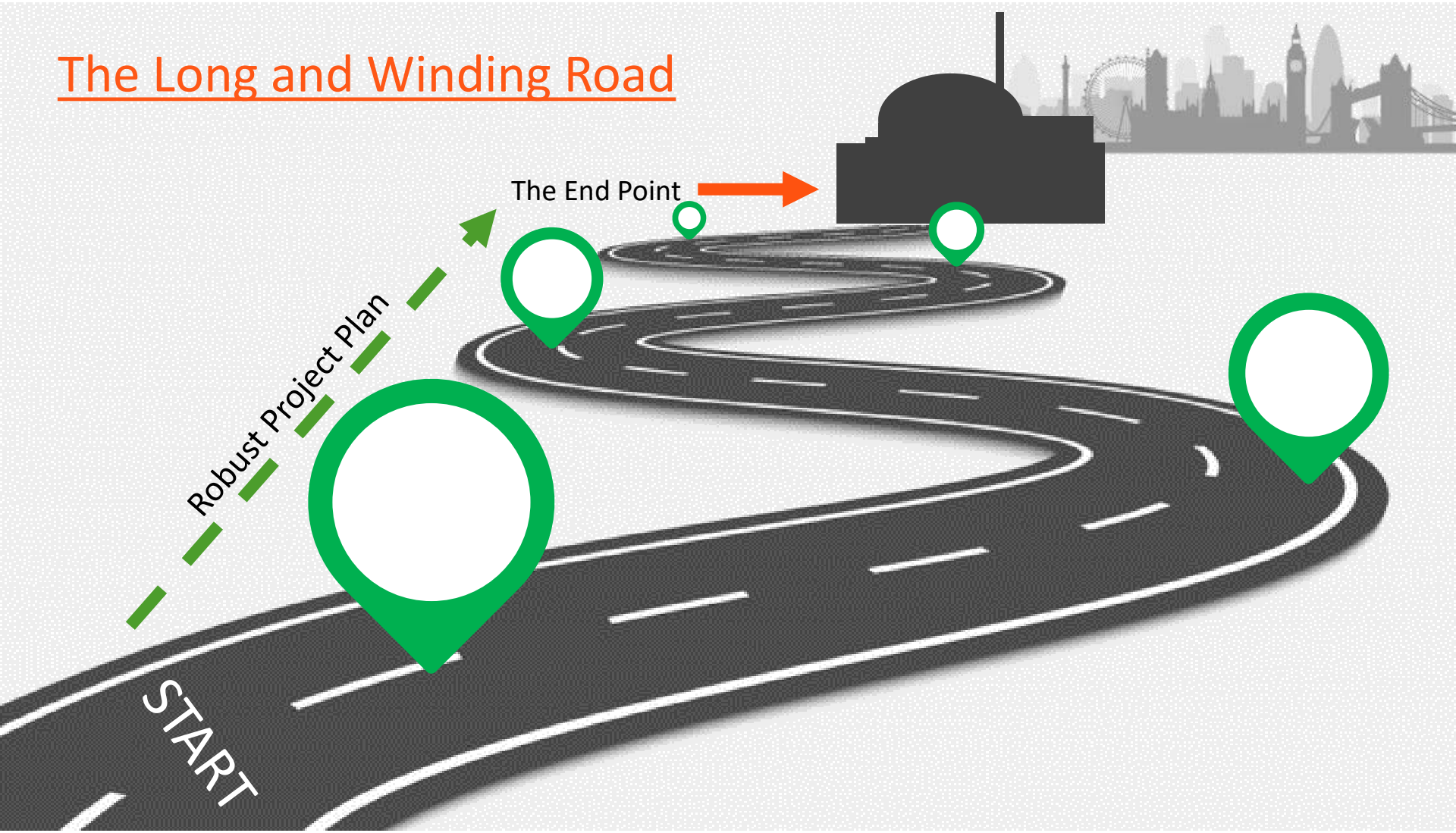
Presented By

Simon Earp

The Song Remains the Same

Pre-Operational	Operational
Right Training for the Right People at the Right Time	Right Training for the Right People at the Right Time

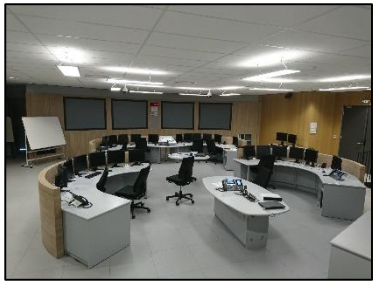
The Long and Winding Road



What's Missing?

Training Centre

Simulators

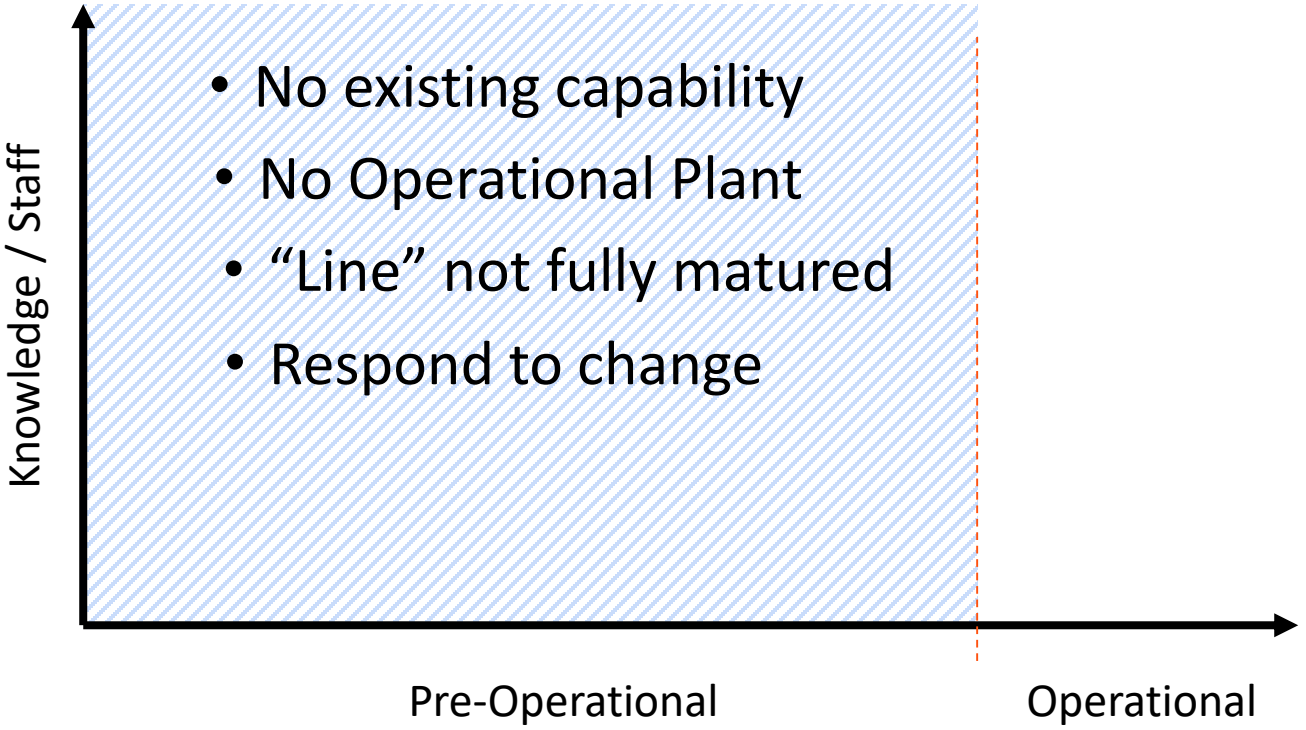


Instructors

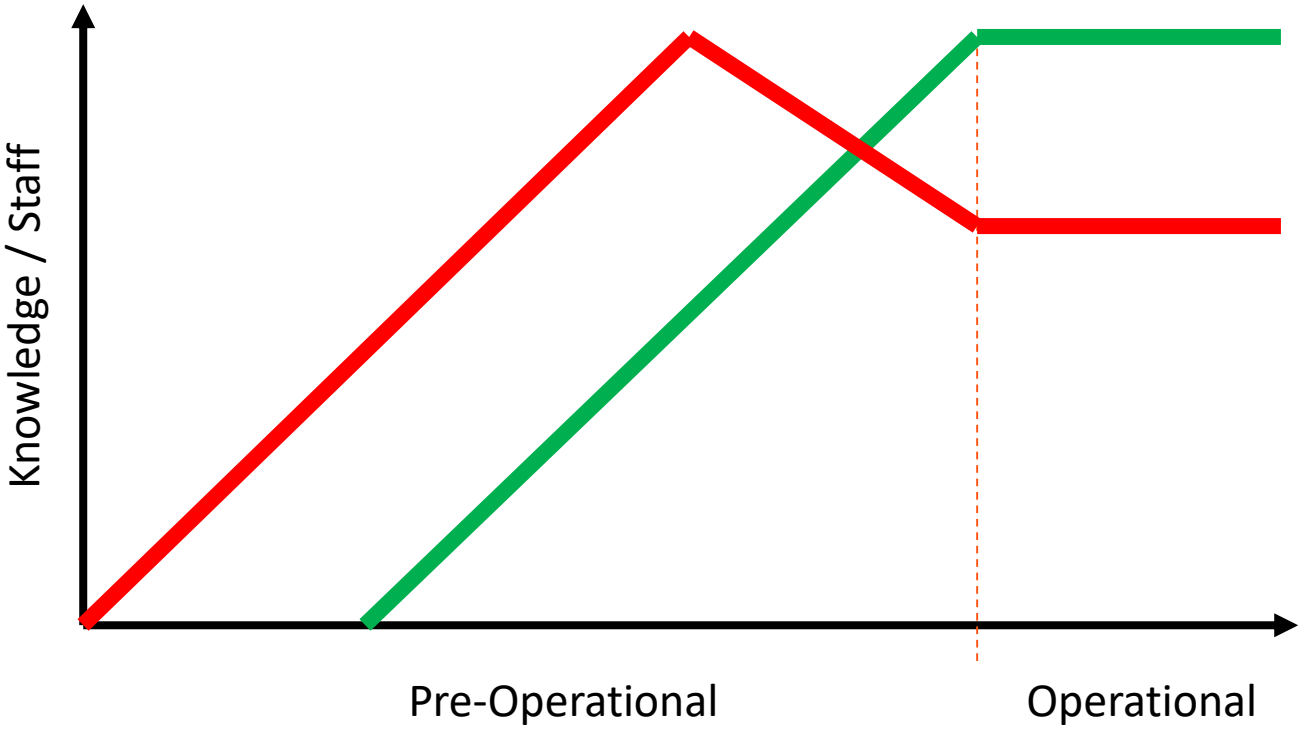
Learning Management System

Integrated Project Managers

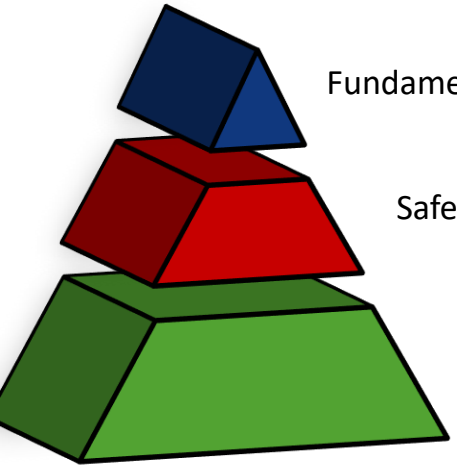
Training Day



Training Day



Culture and Leadership



Fundamental Safety Principles

Safety Requirements

Safety Guides

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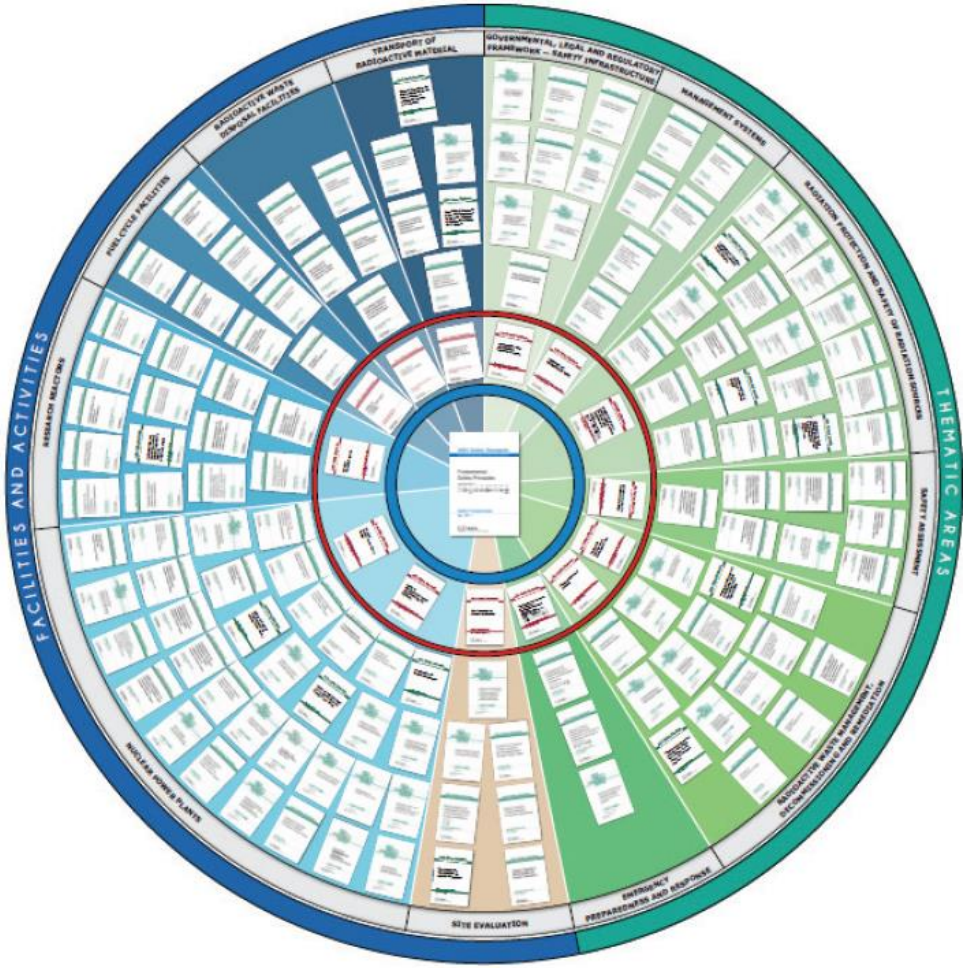
International Atomic Energy Agency
Atoms for Peace



The Goal for Pre-Operational Training

- Confident of pre-operational workforce competency?
- Will training programmes deliver the required capabilities?
- Adequate line oversight and governance in place?
- Committed to continuous improvement?

"If you don't know where you are going, you'll end up someplace else"

Thank You

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Q & A

01
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Upcoming Webinars

02 **Building an effective training environment:** Who does what and why?

03 **Is training a solution for performance improvement?** Bringing out the best

04 **Training in the 21st century:** Innovations in implementation

05 **Training completed:** Assessing its effectiveness

06 **Training the next wave:** Feeding the talent pipeline

07 **Troubleshooting SAT:** Practical solutions to common challenges