IAEA
International Atomic Energy Agency

Third International Conference on Nuclear Knowledge Management: Challenges and Approaches

IAEA Headquarters
Vienna, Austria

7–11 November 2016

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Announcement and Call for Papers

A. Background

Appropriate technical expertise and experience, along with a strong safety culture, must be developed and kept available throughout the nuclear technology life cycle. Nuclear equipment, installations and facilities may have long life cycles with changing operational conditions. Advanced and specialized knowledge in nuclear engineering and science is required for the safe and effective design, construction, licensing, commissioning, operation, maintenance, and decommissioning of nuclear technology-based systems. The safe use of licensed nuclear facilities and technologies is reliant on the ongoing availability and maintenance of suitable knowledge and expertise, and an adequate understanding of related safety issues. The ability of organizations that operate or utilize nuclear technology to take safe decisions and actions can be affected by knowledge gaps or knowledge loss. Appropriate methods and supporting technology are needed to establish and manage nuclear competencies, information and records, work processes, analysis and verification techniques, and the interpretation of data.

Through the presentation and discussion of issues and solutions related to building, collecting, transferring, sharing, maintaining, preserving and utilizing knowledge, the conference will aim to improve awareness of the importance of knowledge management (KM) in the nuclear sector. Member States will have the opportunity to strengthen their capabilities in this area by learning from the experiences of other Member States and other stakeholders.

This conference is a follow-up to the first and second international conferences organized by the International Atomic Energy Agency (IAEA) on nuclear knowledge management, held in 2004 in Saclay, France, and in 2007 in Vienna, Austria, respectively. It also builds on the outcomes of the IAEA-organized international conferences on human resource development held in 2010 in Abu Dhabi, United Arab Emirates, and in 2014 in Vienna, Austria.

B. Objectives

The purpose of the conference is to provide an opportunity to share experiences and lessons learned in the nuclear sector related to managing nuclear knowledge and to share practical approaches to KM that can be used at the organizational, national, and international levels to develop and maintain a strong nuclear knowledge base. Various issues related to specific human competencies, methodological or process knowledge and technology-related knowledge that are needed to support the safe and sustainable application of nuclear technology will be addressed.

C. Target Audience

The conference will address and bring together managers, decision-makers and KM specialists from all types of organizations involved in the nuclear sector, including nuclear facility owners and operators, regulatory bodies, government agencies, design organizations, reactor and technology vendor

organizations, technical support organizations, suppliers, research and development (R&D) organizations, education and training institutions, and standards development organizations.

D. Programme Format and Topics

The conference will consist of both plenary and parallel sessions, blending high-level, keynote sessions (which will address strategic and cross-cutting aspects of KM) with more practical sessions (which will include experience sharing through case studies of practices in, and approaches to, KM systems and techniques). The event will feature exhibitions, forums and panels, as well as tutorials and workshops. Computer and display technology will be deployed to support interactive poster sessions and communication platforms. Access to, and dissemination of, conference materials will be facilitated through a conference web page. Hospitality events and evening social events are also planned for participants and their partners.

The scope of the conference will be articulated through thematic tracks, exploring both cross-cutting aspects of nuclear KM and elements that are more prominent in, and specific to, distinct applications of nuclear power and technology. The planned thematic tracks are described below in terms of pertinent topics and interested stakeholders.

Thematic Track 1: Strategic and cross-cutting KM issues in organizations

- Organizational benefits of managing knowledge
- Consequences of failures to manage organizational knowledge (e.g. critical knowledge loss or deficiencies in core competencies)
- Optimization of knowledge-intensive decision processes
- Managing essential knowledge as a strategic organizational asset
- Organizational learning, building and sustaining core competencies
- Knowledge transfer: including intergenerational and interorganizational; across different life-cycle stages; between projects; and across sectors
- Developing competent workers through education and training, mentoring and apprenticeships
- KM methodologies, tools, approaches and practices to support knowledge processes, including information technology (e.g. the role of information technology in facilitating communication, collaboration and knowledge creation)
- Knowledge sharing, including dissemination of good practices and knowledge networks
- Development of KM capability and culture
- Organizational culture (its influence on knowledge management and knowledge sharing and vice-versa)

- Embedding KM in an organization's performance management system
- KM governance, policy, implementation, and sustainability considerations

Thematic Track 2: Managing knowledge for new build projects and programmes in newcomer and expanding countries

- Management of design knowledge
- Knowledge transfer between the vendor and the operator
- Licensing competencies
- Owner/operator competencies
- Role of research reactors in managing knowledge building for new build programmes in newcomer and expanding countries

Note: many cross-cutting topics under Thematic Track 1 may also be relevant here.

Thematic Track 3: Managing knowledge for operating nuclear facilities

- KM integration into the management system
- KM in support of plant configuration management (e.g. design basis management, design change management, plant configuration management, etc.)
- KM aspects of plant life management and long term operation

Note: many cross-cutting topics under Thematic Track 1 may also be relevant under this Track, in particular to the following:

- Transfer and organization of knowledge/information from early stages of the nuclear project
- Managing external knowledge dependencies such as reliance on the competencies of outsourced services, contractors, owners group support and vendor support

Thematic Track 4: Managing knowledge for decommissioning and environmental remediation projects, including in countries with phase-out plans

- Transfer of knowledge from operations to decommissioning
- Long-term knowledge retention and archiving
- Knowledge requirements for the establishment of a management system to support decommissioning
- Lessons learned and knowledge transfer from decommissioning experiences to apply in the optimization of designs for new build projects

- Strategic KM issues in phase-out countries

Note: many cross-cutting topics under Thematic Track 1 may also be relevant here.

Thematic Track 5: KM for nuclear regulatory compliance

- Managing regulatory knowledge: regulatory competence models, assessment of needs
- KM for regulatory authorities and Technical Support Organizations
- Oversight of licensee knowledge programs
- Licensing competencies for the different phases of the facility life cycle
- Ensuring a competent workforce and retaining personnel in a competitive market
- KM issues in safety assessment and periodic safety reviews

Note: many cross-cutting topics under Thematic Track 1 may also be relevant here.

Thematic Track 6: KM for non-power nuclear science and applications

- KM in food and agriculture applications
- KM in human health applications
- KM in environment applications
- KM in water resources applications
- KM in radioisotope production and radiation technology applications
- KM in nuclear science
- Role of research reactors in knowledge development for non-power nuclear science and applications

Note: many cross-cutting topics under Thematic Track 1 may also be relevant here.

Thematic Track 7: KM in nuclear technology research, development and innovation

- Intellectual property management
- Managing the innovation and commercialization process for new technological systems
- Methodologies for predictive modelling and forecasting future benefits of R&D and innovation
- Managing knowledge in non-electrical applications of nuclear power
- R&D knowledge acquisition and transfer from other sectors
- Managing knowledge in/for global R&D initiatives

- Managing knowledge verification and validation processes in R&D
- Managing the integration of new innovations and technologies into existing technology systems (incremental innovation)

Thematic Track 8: Issues and approaches for information and records and data management

- Knowledge organization systems, managing information archives, glossaries and repositories, data mining, managing unstructured data
- Content management and semantic search technologies
- Metadata, thesauri, ontologies, taxonomies, knowledge mapping and graphs
- Information services and discovery
- Information dissemination
- Open source and data interchange standards
- Nuclear data, integral experiments and computer-code repositories and preservation initiatives

Contributions are welcome from other sectors, such as (for example) the automotive, aviation and space industries, the oil and gas industry, and the pharmaceutical sector, which are advanced in KM and would be in a position to share experiences relevant to the nuclear sector.

The conference is a multidisciplinary event drawing from a strong collaborative effort by several Sections, Divisions and Departments of the IAEA.

E. Expected Outcomes

The conference will directly support the IAEA's core mandate to assist Member States in the peaceful and safe application of nuclear technologies, contributing to their socioeconomic development.

The conference will identify key KM challenges, raise awareness and improve understanding of the issues, priorities and solutions related to nuclear KM. It will also help build and strengthen the competencies of individuals and organizations in the implementation of KM initiatives and practices within Member States.

F. Papers and Poster Presentations

All papers — other than invited keynote papers — must present original work and must not have been published elsewhere.

Persons who wish to give presentations (oral presentations or interactive poster presentations) at the conference must submit a contributed paper on one of the thematic topics listed under Section D. The paper could be in one of the following two formats:

- Technical brief; or
- Case study.

The latter format is recommended: case studies should illustrate concrete experiences or examples and should follow the template provided on the conference web page (see Section P below). Presented case studies will become part of an IAEA electronic online case study catalogue.

Submissions of both technical briefs and case studies should not be longer than four pages (five pages maximum including references). Each submission should provide enough information to enable the Programme Committee to evaluate it. Introductory and general matters should not be included. Guidelines and requirements will be further specified on the conference web page.

F.1 Submission

Anyone wishing to give a presentation at the conference must upload a paper to the conference web browser-based file submission system (IAEA-INDICO). Instructions on how to format and upload the paper will be available on the conference web page (see Section P) as of **December 2015**. The appropriately formatted paper **must** be submitted through this system by ~~**28 February 2016**~~ **31 March 2016** ***(deadline extension!).*** No other form of submission will be accepted.

In addition, authors must submit the following two forms to their appropriate governmental authority (see Section G) for transmission to the IAEA. These forms must be received by the IAEA no later than ~~**28 February 2016**~~ **31 March 2016**:

- Participation Form (Form A); and
- Form for Submission of a Paper (Form B).

IMPORTANT: The uploaded papers will be considered by the Programme Committee only if these two forms have been received by the IAEA through the established official channels (see Section G).

Authors should state to which of the topics outlined in Section D their contribution relates.

F.2 Acceptance of Papers for Presentation

The Secretariat reserves the right to exclude papers that do not comply with its quality standards and do not apply to one of the topics outlined in Section D.

Authors will be informed **by mid-May 2016** whether their papers have been accepted for delivery as oral or as interactive poster presentations. If accepted, the papers will also be reproduced unedited in the electronic Compilation of Papers which will be made available to all participants at the conference.

F.3 Proceedings

Conference proceedings will be made available for all participants after the conference. Only accepted papers that are presented at the conference will be included.

The opportunity is being explored for interested authors, after the conference, to expand their papers into full formal papers and submit them for possible publication in a special issue of a leading peer-reviewed nuclear journal.

G. Participation and Registration

All persons wishing to participate in the conference are requested to **register online in advance** through the conference web page (see Section P below). In addition, they are required to send a completed Participation Form (Form A) and, if applicable, the Form for Submission of a Paper (Form B) and the Grant Application Form (Form C) to their competent national authority (e.g. Ministry of Foreign Affairs or National Atomic Energy Authority), or to one of the organizations invited to participate, for subsequent electronic transmission to the IAEA (Official.Mail@iaea.org).

A participant will be accepted only if the Participation Form is transmitted through the competent national authority of a Member State of the IAEA or by an organization invited to participate.

Participants whose official designations have been received by the IAEA will receive from the IAEA further information approximately three months before the opening of the conference. This information will also be available on the conference web page.

H. Expenditures and Grants

No registration fee will be charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the conference. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Such assistance may be offered upon specific request to normally one participant per country provided that, in the IAEA's view, the participant on whose behalf assistance is requested will make an important contribution to the conference.

If Governments wish to apply for a grant on behalf of one of their specialists, they should address specific requests to the IAEA to this effect. Governments should ensure that applications for grants are:

1. Submitted by ~~**28 February 2016**~~ **31 March 2016** ***(deadline extension!)***;
2. Accompanied by a completed Participation Form (Form A); and
3. Accompanied by a completed and signed Grant Application Form (Form C).

Applications that do not comply with the above conditions cannot be considered.

Approved grants will be issued in the form of a lump sum payment that usually **covers only part of the cost of attendance**.

I. Distribution of Documents

A preliminary programme will be posted on the IAEA conference web page (see Section P below) as soon as possible. The final programme and the electronic compilation of papers will be available at the conference.

J. Exhibitions, Workshops and Training Seminars

A limited amount of space will be available for nuclear sector vendors' displays/exhibits during the conference. A limited number of workshops (including technology demonstrations) and training seminars may also be arranged.

Interested parties should contact the Scientific Secretariat by email: NKM-Conference@iaea.org by ~~**28 February 2016**~~ **31 March 2016** ***(deadline extension!)***. In particular, nuclear reactor design organizations, engineering, procurement and construction vendor organizations, three dimensional computer-aided design plant information model vendors, simulation/simulator technology vendors, and operational support system software vendors are encouraged to participate.

K. Working Language

The working language of the conference will be English. All communications and papers must be sent to the IAEA in English.

L. Conference Venue and Accommodation

The conference will be held at the IAEA's Headquarters in Vienna, Austria. Participants must make their own travel and accommodation arrangements. Hotels which are offering a reduced rate for conference participants will be listed on the conference web page (see Section P below). Reservations should be made well in advance. Please note that the IAEA is not in a position to assist participants with hotel bookings, nor can the IAEA assume responsibility for paying cancellation fees or for re-booking and no shows.

M. Visas

Designated participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

N. Key Deadlines

Submission of Form B and papers:	**31 March 2016**
Submission of Form C:	**31 March 2016**
Notification of acceptance of papers:	**Mid-May 2016**

O. Conference Secretariat

General contact details:

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Subsequent correspondence on scientific matters should be sent to either of the Scientific Secretaries of the conference, and correspondence on administrative matters to the IAEA Conference Services Section.

P. Conference Web Page

Please visit the following web page regularly for new information regarding this conference:

http://www-pub.iaea.org/iaeameetings/50805/Third-International-Conference-on-Knowledge-Management