Knowledge Management Webinar Summary

Webinar Date	November 25, 2021
Webinar Time	09:00 to 12:00 CET
Chair	Erika Holt and Paul Carbol
Prepared by	Tim Schatz

Background

The PREDIS project hosted an informational webinar (*Knowledge Management*) on November 25, 2021. Effective knowledge management (KM) can speed up access to information and knowledge, improve decision-making processes, promote innovation and improve efficiency within organisations. This webinar was aimed at discussing knowledge management in general and within the RWM community.

The content (see Appendix 1 for agenda) of this webinar is summarised below:

- Paul Carbol (JRC) discussed the approach to knowledge management (KM) in the PREDIS project. It includes traditional components, such as training and mobility which are to be complemented with activities on structuring, capturing, contextualising and disseminating knowledge. Specific features of PREDIS KM are outreach to beneficiaries and end-users (webinars, workshops), coordination with international organisations (IAEA, NEA) and a distinct focus on students (forming a student's community, promoting interactions and exchange). PREDIS KM will also be closely aligned with that of EURAD.

- Marta Růžičková (ČEZ) summarized current KM practices, experiences and lessons learned from the perspective of a large, energy conglomerate whose portfolio includes nuclear power plants. The ČEZ approach to KM is 1) identifying key knowledge, 2) identifying key knowledge holders, 3) identifying the risk of losing the key knowledge and 4) identifying the best means for transferring key knowledge. It is found that key knowledge and experience are important and indispensable and are not usually captured in internal documentation. Additionally, KM needs to be an established part of the corporate culture with clear buy-in at the managerial level and human-to-human knowledge transfer is the best mechanism. A major challenge is keeping KM ideas and tools at the forefront of an organization's daily activities.

- Vincent Maugis (ANDRA) explained that KM at ANDRA is a dedicated function which is hosted by the department responsible for knowledge-based crosscutting functions such as innovation management, intellectual property and long-term memory. KM methodology spans four areas: 1-strategic analysis (mapping knowledge and knowledge domains, analysing critical knowledge, planning mitigation and opportunity actions), 2-structuring and capitalisation (codifying knowledge, gathering feedback, developing best practices and courseware, identifying documents, records and memory), 3-sharing and transfer (cultivating communities of practice, knowledge or trade, providing collaboration support and creating and maintaining a knowledge portal) and 4-innovation (supporting strategic watch and foresight activities and the development of new practices and approaches). ANDRA's experience indicates that KM must be continuous and active, implemented in a culturally and organisationally transformational manner and follow an open and subtle approach.

- Eric Plaz Vélez (ica2) discussed creating KM cultures. The ideas that KM is about organisational behaviour and attitude and that it must be present in the day-to-day agenda was echoed. It was suggested that KM should be embedded organisationally through participation policies, knowledge

exchange and information management policies and reward policies. The internal KM structure should include a KM committee for outlining strategic initiatives, a KM office for operational leadership, ad hoc teams for participation in specific activities and support units for logistics. An organisation should create virtual and presential channels and spaces for KM activities. There should be widespread communication and acknowledgment of KM throughout the organisation.

- Dinara Abbasova (HZDR) explained that KM in the EURAD project is carried out by three work packages: a state of knowledge WP, a methodological guidance WP and a training/mobility WP. From the EURAD point of view, it is considered essential to implement an efficient and integrated KM programme at the EU level in order to establish, capitalize and transfer the state of scientific and technical knowledge in the field of RWM. Task 1 within the EURAD SoK WP (11) deals with the screening and review of existing KM approaches and/ tools that have been developed for similar purposes. Information is collected on the typical functionalities of KM systems in the RWM field which is assessed to identify the most helpful aspects for the development of the EURAD KM system both in terms of lessons learned and best practices. WMO, TSO and RE organisation were surveyed. The associated deliverable is available on the EURAD website (https://www.ejp-eurad.eu/publications/eurad-deliverable-111-screening-and-review-existingavailable-knowledge-management).

- Niels Belmans (SCK CEN) gave a presentation on the EURAD School of Radioactive Waste Management which is the primary mechanism by which the training/mobility WP carries out its actions. The school is structured along four "pillars:" providing needs-driven training courses (providing access to the experience and know-how of the EURAD community), running a mobility programme (focussed mainly on implicit and tacit knowledge transfer through internships and technical visits with EURAD partners), organising webinars (on broad and specific topics by subject-matter experts) and supporting the PhD community (by fostering interactions between students and principal researchers). All of the initiatives of the school are developed in a bottom-up manner from end user input.

- John Kinker, Yves Renaud Barrios and Stefan Mayer (IAEA) presented IAEA activites to capture and share RWM information and knowledge. IAEA is involved in numerous KM activities and tools. For example, IAEA routinely publishes information specific to nuclear KM and hosts the International Nuclear Information System (INIS) which receives regular contributions from 132 countries. INIS includes 7 record types (articles, books, multimedia, etc.) spanning 15 subject areas (safeguards, isotopes, nuclear fuel cycle and RW, etc.). IAEA organises the Nuclear Energy Management Foundation School, the Nuclear Knowledge Management Specialist School and the International Nuclear Management Academy. IAEA also provides self-directed e-learning modules through its Learning Management System, supports Member State nuclear organisations with direct KM assist visits and administers the IAEA CONNECT Platform to facilitate information sharing and capacity building. This platform includes a Nuclear Wiki which features access to technical information and operational experience through articles developed and maintained by the IAEA and international experts and complementary information from case studies. Nuclear Wiki content development allows for user input. IAEA also hosts conferences, publishes information and maintains professional networks in the RWM domain.

The presentations are available on the PREDIS website (https://predis-h2020.eu/knowledge-management-2/).

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Following the formal presentation sessions, a set of small group discussions were held. Attendees were randomly assigned to 1 of 4 moderated breakout rooms. The aim of the 30-minute discussion session was to gather perspectives framed around the following questions (although discussions were not limited):

- How to best engage with PREDIS end users and stakeholders to find and collect desired knowledge?
- How to best facilitate direct sharing of knowledge between students/younger workers and PREDIS end users and stakeholders?
- What information and knowledge will be needed in the future?

Outcomes

Some key takeaways from the deliberations of the discussion sessions were as follows:

Knowledge Management Programs

- The greatest knowledge management challenges are how to synthesis the vast amount of existing codified knowledge and how to use those with the most experience as valuable resources as they may not have that much time to give (i.e., they are busy people and/or retired).

- Culture changes are needed on everyday working practices to establish effective knowledge management systems; learning from other industries (e.g., UK National Health Service embed in their staff a culture of anytime coaching) can be beneficial in this regard.

- It is important to evolve and adapt procedures to individuals, especially during exit interviews, or to codify tacit knowledge from people retiring. It is also important to carry out this type of activity continuously and not wait until the end of a career or when someone is leaving and might resist knowledge sharing.

- The conversion of explicit and tacit knowledge into organizational knowledge is most effective when training plans are utilized. Such plans take into account not only practicalities such as access to existing knowledge but also pedagogical concerns, i.e., lesson planning and instructional goals.

- It is important to ask 'what is knowledge' and to be cognisant that it is unknown what knowledge is known (now) or what knowledge will be considered most important in the future.

- How much information is needed? How should the information/knowledge be sorted, filtered and weighted? Who decides what is useful?

Nuclear knowledge management

- The preservation of nuclear knowledge should be broadened from the individual or organizational perspective to the worldwide level.

- The IAEA and EC are the obvious long-term custodians of nuclear knowledge, linking to and accepting content from vehicles like the EURAD and PREDIS projects where the knowledgeable and experienced experts can be mobilised to capture the most critical and useful knowledge. Focussed collaboration is needed and should continue with regard to knowledge management, especially given the finite lifetimes of these projects.

- There is guidance available from IAEA about what types of knowledge should be captured, how to put it forward and how to share/store it.

- From the WMO perspective, it would be best not to be flooded with information on "upstream" PREDIS issues (linkage between waste producers and EUG), but rather to be provided with a screening of

critical know-how (and what should be best documented and moved forward on the chain). Guidelines on what is useful/relevant information would be helpful.

◙ KM could be driven from the view of end users (e.g., WMO and waste generator needs). KM should be part of the daily job of waste generators. Waste generators should also report things which did not work. Might be good idea to make "documentation of waste" part of the job description.

Knowledge transfer/sharing strategies

◙ Based on the experience of past successful knowledge transfers, one of the most important things to consider (when starting or re/starting a programme) is planning the initiation well. The Canadian Disposal Programme was cited as a good example in this regard.

◙ Common frameworks are important for sharing knowledge; new technologies should be embraced. AI will be important for KM over the next generations.

◙ Knowledge can be shared/transferred through various means. Explicit (documented, structured) knowledge can be effectively captured and shared through information technology (head-to-information interaction). Tacit (experiential) knowledge is best conveyed interpersonally through mentoring, guiding, brainstorming, etc (head-to-head interaction).

◙ Given the need for active participation and cooperation of individuals for head-to-head transfer/sharing of tacit knowledge, time and schedule constraints, particularly in project-based work environments, may be limiting. In this context, it is beneficial to have as much of the information "documented" as possible. In addition to text-based information, recorded narrative transfer, video capture and simulation are possible options.

◙ An example is that of Sandia National Laboratories where 2-to-3-hour sessions from retired persons were arranged to record stories about their work. These recordings serve as documents to learn from past experience; knowledge transfer by "story telling."

◙ In principle, mobility measures (such as those offered by the PREDIS project) can provide and promote head-to-head interactions and the associated knowledge transfer/sharing that such interactions allow.

Monitoring and evaluating knowledge management programs

◙ Best practices include the continuous review and measure of the effectiveness of knowledge transfer practices and revising them as necessary.

◙ A range of models are available to evaluate training and educational programs, most famously the Kirkpatrick model.

◙ There are distinct challenges to monitoring and evaluating training programs. Determining some of the outputs of training activities such as the number of people trained, and satisfaction levels is relatively easy. But capturing outcomes, e.g., levels of learning or benefits, is more complex.

◙ Another challenging aspect of monitoring and evaluating training programs is demonstrating added value (e.g., stimulation of innovation and development, reduction in loss of know-how) to the organization.

◙ In the context of the PREDIS project, which has a finite four-year lifetime, post-training follow-up may not even be feasible.

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Preliminary analyses of participant responses to a post-webinar survey also indicated a very good level of satisfaction (average overall score of 4.7/5.0). Participants also reflected that more time should have been allocated for the breakout room discussions and that another webinar on Knowledge Management should be held again in the future.

Live-polling results for questions asking, "why did you register for this webinar?" and "what do you understand by knowledge management?" are provided in Appendix 2. Additionally, a word cloud generated from key words in the answers to the second question are presented in Appendix 3.

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Appendix 1. PREDIS Knowledge Management Webinar Agenda

PREDIS

Knowledge Management

Free webinar on November 25, 2021 from 9-12 CET (UTC+2)

Agenda

09:00 to 11:20 Presentations

09:00-09:10	Welcome & Introduction (Erika Holt, VTT)
09:10-09:25	Knowledge Management in PREDIS (Paul Carbol, JRC)
09:25-09:40	Knowledge Management in the Energy Production Sector (Marta Ruzickova, ČEZ)
09:40-09:55	Knowledge Management in a Waste Management Organisation (Vincent Maugis, ANDRA)
09:55-10:10	Creating a Knowledge Management Culture (Eric Plaz Vélez, ica2)
10:10-10:15	break
10:15-10:30	Knowledge Management in EURAD: Survey and Lessons Learned in RWM Organisations (Dinara Abbasova, HZDR)
10:30-10:45	EURAD School of Radioactive Waste Management (Niels Belmans, SCK CEN)
10:45-11:15	IAEA Activities to Capture and Share RWM Information and Knowledge (John Kinker, Yves Reynaud Barrios and Stefan Mayer, IAEA)
11:15-11:20	break

11:20 to 11:50 Breakout Room Discussions

- How to best engage with PREDIS end users and stakeholders to find and collect desired knowledge?
- How to best facilitate direct sharing of knowledge between students/younger workers and PREDIS end users and stakeholders?
- What information and knowledge will be needed in the future?
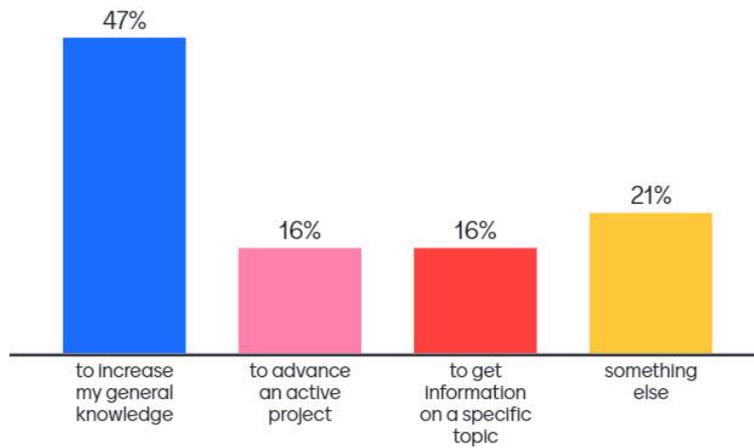
11:50 to 12:00 Close

11:50-12:00	Feedback from breakout rooms / Summary and Conclusions
12:00	Adjourn

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Appendix 2. Live-Polling Results

Why did you register for this webinar?

Mentimeter

What do you understand by Knowledge Management?

Collecting and sharing information

Control of information

Disseminating and preserving the knowledge

Collecting and transferring knowledge within/between organizations and generations.

Creating processes for sharing knowledge and developing knowledge on certain topics. Following how the competence develops. Systematic approach.

Methodology Availabilty

capturing and sharing information relevant to a specific topic

optimization of data

systematic approach to managing knowledge (sharing, capitalisation, dissemination and transfer)

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What do you understand by Knowledge Management?

Mentimeter

Capture, retention, dissemination

Being able to find answers

Dissemination of knowledge that was gained in any scientific activity

organize and utilize knowledge

the way /tool how to ensure knowledge transfer

dissemination and shearing of most resent knowledge in subject

harmonized guidance for new experts, preserving knowledge for future

Use of tools and methodologies to manage and share information within an organization

saveguarding competences

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What do you understand by Knowledge Management?

Mentimeter

Documentation and transfer of knowledge

Documentation and transfer of knowledge

Preservation and transference of know how and information between generations

collection of methods relating to creating, sharing, using and managing the knowledge and information among stakeholders

IAEA defines as Building, collecting, transferring, sharing, preserving, maintaining and utilizing knowledge .

Activity to access knowledge easily

efficient maintaining/sharing/using of information

For R&D Programmes: Any activity aiming at optimizing the value of knowledge generated

KM is the process of identifying, organizing, storing and disseminating information within an organization.

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What do you understand by Knowledge Management?

Mentimeter

knowledge transfer, knowledge preservation, active comunication between all, historical and process data management, education & training

Extraction, conversion and transformation of the generation of knowledge

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Appendix 3. What do you understand by Knowledge Management? (word cloud)