

Addressing Ageing of the Workforce Issues by Enabling Knowledge Management Systems with Social Networks Analysis Capabilities

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A method of addressing ageing of the workforce and knowledge transfer issues, especially in the area of potential loss of knowledge, is presented through the integration of social networks analysis capabilities within knowledge management systems.

In the context of the ageing of the workforce, a key component is the identification of not only the individuals that are about to retire, but also the knowledge and the knowledge transfer capabilities that they will take with them they do so. This loss impacts decisions made about human resources “supply side” programs such as education, but also programs for building “communities of practices” within the IAEA community to foster development and research across regions and countries. Within this context, an integrated social network analysis component provides the ability to map out the network of knowledge on any specific topic. The stability of the network itself is a measure of the robustness of the knowledge within the selected IAEA community. Further, the network, by identifying “brokers” and “bridges”, pinpoints key weaknesses that have to be addressed. In the case of ageing of the workforce, balancing, stabilizing and building redundancies within this social network is key to maintaining a safe nuclear policy.

The core of the method relies on a system that has a holistic view of the body of knowledge accumulated within the IAEA community. For scalability issues, this system cannot replicate the plethora of potential sources of information, but rather has to harvest from each of them a set of metadata which in turn enables the knowledge management system. This metadata is defined and stored in a way to allow the rendering of a complete picture stored within the sub-systems. A key component used by the social network analysis component is, of course, the name of all individuals tied to any knowledge object within the database, but also their affiliation, country, seniority or “age to retirement” (when allowed by relevant government human resources guidelines).

Social network analysis can initially be performed on the broad collection of valuable databases within the IAEA, such as the rich INIS database and the IAEA Web Resources. The subsequent social networks provide a view of the occurring knowledge transfer within the IAEA community through collaboration networks and affiliation networks. The techniques have already been shown in [1,2,3] to provide an effective overlook of the current state of affairs. We extend the approach in [1] to 1) render it more precise within a topic area, 2) allow it to consider disparate sources of information and 3) integrate it within a knowledge management system and/or a portal. For example, integrating this information within the “Find-an-Expert Facility” embedded within the INIS database, would not only provide the names of the experts but also the communities of experts. In this regard the ACM Portal, through its Digital Library, has already taken the first step.