THE CHALLENGE OF KNOWLEDGE MANAGEMENT IN A NEWLY – FORMED NATIONAL LABORATORY

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Introduction

In the autumn of 2006, the UK government made a commitment to establish a National Nuclear Laboratory based around Nexia Solutions and its 'state of the art' facility at Sellafield in Cumbria. The initial phase of the work to establish the laboratory is now complete and it has a remit for the following roles:

- to play a key role in supporting the UK's strategic R&D requirements
- to operate world-class facilities
- to ensure key skills are safeguarded and enhanced
- to play a key role in the development of the UK's R&D supply base."

It is evident that to be successful the National Nuclear Laboratory will need a strong capability in knowledge management to underpin its activities. Our origins in the R&D communities of BNFL and UKAEA have given us a broad portfolio of capabilities which range from reactor technology through fuel cycle technology to waste management and the knowledge held by our people is one of our major strengths. However, the capabilities and knowledge do need to be maintained and developed, for which we have a four part strategy:

- Strengthen internal systems & processes
- Undertake strategic R&D programmes
- Build networks with the nuclear industry across the world
- Build links and partnerships with academic institutions

Systems & Processes

Internal systems and processes need to be strengthened to make the capture and sharing of knowledge and information more efficient. A key element will be succession planning for more experienced technologists.

R&D programmes

Work is proceeding to develop a robust portfolio of R&D programmes. As well as fulfilling our remit to play a key role in the UK's strategic R&D requirements, this will also ensure that skills maintenance goes beyond formal training. Involvement in R&D programmes will develop capabilities in our younger scientists and engineers, particularly, to generate solutions relevant to the industrial-scale application of nuclear technology. We aim to use our R&D programmes to facilitate skills transfer from experienced practitioners across a wide range of disciplines.

Industry Networks

Building networks across the nuclear industry needs to complement the R&D portfolio. We recognise that a creative approach is needed, and one example is that Nexia Solutions has

created roles called Senior Fellows. Senior Fellows are leading technologists who are expected to "act as ambassadors". That is to say that they will develop links between technologists inside the laboratory with those in academia or other industries. In this context, knowledge management is to work with the 'tacit' knowledge held by experts in a variety of organisations. Establishing the correct links ensures the knowledge is more complete than it would otherwise be and enables it to be focused more effectively on real issues.

Each senior fellow role is based around a fundamental technical discipline which provides the theme for the development of technical links. Currently we have roles in the following areas:-

- Materials behaviour
- Corrosion
- Actinide chemistry
- Criticality
- Reactor Systems

Senior Fellows are nationally and internationally known and respected in their field and are expected to maintain their specialist support role within Nexia Solutions in addition to interacting extensively with key research organisations, academia and relevant other industries.

Academic links

The National Nuclear Laboratory will aim to maximise the value of its work for the UK and therefore must find ways of increasing the synergies between its own capabilities and those in universities. One example of how the National Laboratory may work is Nexia Solutions' existing initiative called University Research Alliances (URA). The knowledge management aspect is similar to that for industrial networks, ie. dealing with 'tacit' knowledge. Academic and industrial knowledge can complement each other if the right links are established. Equally, important is the role that universities can play in renewing the knowledge base, through formal education programmes and training in research through MSc and PhD projects.

University Research Alliances are an initiative to help replenish the UK's academic base in nuclear technology. Four URAs have been established:

Radiochemistry	– at the University of Manchester
Particle Technology	- at the University of Leeds
Waste Immobilisation	- at the University of Sheffield
Materials Performance	- at the University of Manchester

Also in the university context, the senior fellow role is helping the national laboratory to develop a concept of 'seamless' teams, in which university departments are able to contribute to a given R&D project in a more direct and powerful way than the traditional ways of working.

In summary, the UK national nuclear laboratory is adopting a four-part strategy towards knowledge management. It aims to build from its current strong base and to use a number of innovative approaches.