

From the Director

The AKT project represents a new way of funding research in the UK. AKT is the result of a national competition - five projects were funded out of a field of some 120 bids. Selected projects had to demonstrate that they were world class, innovative, important, and timely. They had to be multi site, interdisciplinary and collaborative. In return AKT received six years of substantial unfettered funding. Moreover, AKT has attracted additional funding - in particular, from the UK e-Science initiative.

Why is AKT important? We all recognise that we are drowning in a deluge of data. We are suffering from a new kind of technological pollution – *infosmog* – so much information it is hard to make timely or effective decisions. AKT is getting the right content to the right place, at the right time and in the right form. Content managed in this way is practical knowledge. AKT is about making this vision of knowledge management a reality. It is about understanding why this is hard. It is about integrating where we can and inventing where we must the methods and techniques to realise the vision.

AKT is using the World Wide Web as its primary source of content. Tim Berners-Lee, the web's inventor, has recently outlined his vision for a Semantic Web very close to AKT's original aspirations. The Semantic Web will therefore provide a foundation for AKT's solutions to the problem of *infosmog*.

The AKT vision, and the technological basis of the Semantic Web, together provide a unified framework within which many approaches to the problem can be integrated. Rejecting a 'one-size-fits-all' vision, AKT intends to provide the components from which individually-tailored solutions can be assembled.

Chief among these components is the belief in the importance of shared conceptualisations and terminologies to describe people, processes and content. These *ontologies* are a key resource. They may refer to agreed ways of describing genes or stars, jet engines or computers, works of art or legal statutes – they provide a semantic framework within which information can be harvested, modelled, retrieved, reused, published and shared. Ontologies can be used as mark up schemes for the content itself – web pages, databases, images, streaming video - content becomes enriched and more meaningful. This process of annotation is critical if our ambitions for knowledge technologies



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are to be realised. We are exploring the use of computer based natural language processing to automatically annotate content. It is inconceivable that humans will annotate the terabytes of content that now exists and will continue to be generated at exponential rates.

AKT is building knowledge portals for a variety of areas including computer science, engineering, medicine, and news services. These portals contain tools to identify communities of practice from the information we are able to harvest, methods to automatically link large amounts of content, support for collaborative decision making and aids to corporate memory.

AKT faces challenging research questions. Can content be automatically or semi-automatically harvested? Can the annotation bottleneck be overcome? How can we understand a user's context so as to deliver appropriate content? How can we determine the quality and provenance of content?

AKT is tackling one of great challenges of the 21st Century – realising the potential of the extraordinary information repository that humankind is building. The papers that follow give a flavour of the detailed work that is being produced within AKT. As is readily obvious even from this small sample, AKT supports many different approaches, and solutions of radically variant grainsize. We are afraid neither to innovate, nor to exploit the possibilities of traditional technologies. In this way, we hope to 'cover the space', both in terms of the actual problems that large-scale knowledge enterprises will encounter, and in terms of the technologies that might be used.

It is impossible to represent AKT's breadth of vision fully in a collection of this size. Much more work is available on AKT's archive of e-prints, at eprints.aktors.org. For information about how your organization might become AKTively involved, please contact us at info@aktors.org or visit our website, www.aktors.org.