**Integration Group for the Safety Case (IGSC) Symposium 2024**  
*MOVING TOWARDS THE CONSTRUCTION OF A SAFE DGR – GETTING REAL*

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| **Abstract Title:**  **Advances in Data Management Technology: Transferring the Benefits from Big Tech to the Nuclear Knowledge Management Domain** | |
| **Abstract (300-500 words):**  In the past fifteen years, the performance and scaling demands of modern applications and platforms have driven a massive amount of innovation in data storage and management technology, creating a wide variety of tools that supplement or replace traditional relational databases and storage area networks. In parallel with this, the growth of the major public cloud hyperscalers such as Amazon, Google and Microsoft have made it easier than ever to access these technologies on demand, reducing the capital expenditure required to build Big Data platforms.  These trends have been eagerly adopted across industries where scalability is key, particularly social media and (more recently) artificial intelligence, and this has driven a continuous refinement of the best practices for designing data management solutions in the Big Tech world.  Many of these tools and patterns can offer significant value in the realm of knowledge management and digital safety case solutions. These frequently face similar challenges to social media platforms, and transferring advances in technology and best practice to this domain can help address issues of discoverability, entity relationship management, security and more. Aligning to modern best practice will also ensure that these solutions are well-placed to benefit from future waves of innovation, whether delivered by generative artificial intelligence or the next breakout technology.  This keynote will discuss the practical ways that technologies such as NoSQL databases, graph databases and enterprise search platforms can be brought to bear within knowledge management solutions for the nuclear industry, both when augmenting existing systems and designing new platforms. New patterns and tools make it easier than ever to deliver some functionality and, when planning a solution, it’s important to understand what is now a solved problem, and what’s still hard!  Building on top of that, the session will conclude with a discussion of the implications for designing data structures, providing guidance on how to balance compatibility with existing tools and the flexibility to adapt to new ones. | |