The transformational effect of technology on how we live, and its application to different work disciplines are some of the ongoing societal challenges of the future. Radically rethinking our education system in order to cultivate creativity, innovation and thinking across the disciplines is one way of preparing for this future.

There is evidence of change within higher education; in the need for research-based responses to the grand challenges facing society; and in the employability of graduates and post-graduates. Key features of these changes identified by the European University Association (EUA) and the Irish University Association (IUA), include quality research training, inter-disciplinarity, partnerships with industry, and a mentality of innovation.

Post-graduate and post-doctoral researchers need to develop cross-disciplinary skills to communicate with, and apply their research to, industry organisations working in a similar discipline (such as IT or medicine) and with organisations working in other disciplines. Therefore researchers must develop new and different skills and perspectives. They must also learn insider inquiry; how to be immersed in local situations and generate contextually embedded knowledge that emerges from direct experience. Transforming graduate and post-graduate thinking and learning beyond their disciplinary boundaries is central to the transition from university to working life and to the need for research-based responses to the societal challenges identified earlier.

In particular, those working in research and development (R&D) environments must come to see that to explore and exploit the value of their research, it may be necessary to inquire from the inside and interact directly with researchers from other disciplines, from other research organisations, and from those in industry. This will encourage researchers to progress from disciplinary and interdisciplinarity interaction to cross-disciplinary outcomes.

This study explores how an R&D project environment can create opportunities for researchers to develop the skills of insider inquiry and the ability to think and talk across disciplines; exploiting the potential of their research, which was carried out in their primary discipline, while being aware or open to its application in other disciplines. More precisely, the aim was to identify how to create learning spaces that enable one to think beyond one’s own discipline; to inquire from the inside; and to communicate across professional disciplinary divides. The overall objective was to explore how distinctive learning spaces can be built into R&D learning environments (RDLEs) in order to create opportunities for cross-disciplinary transformative learning to occur.

The context for this study was a commercialisation R&D project in the Telecommunication Software & Systems Group (TSSG). The TSSG is a research centre in the Waterford Institute of Technology (WIT). The study investigates the nature of transformative learning in the Bio-Inspired Networking research unit (BioNets) and its relation to the creation of a distinctive R&D learning environment (RDLE) or learning space.

The focus of this paper is on how to create opportunities for BioNets researchers to learn how to ‘think and talk’ across the disciplines, in order to

- Build competence in working in an inter-disciplinary environment
- Build strong relationships between the R&D centre and its industry partners
- Create a strong ethos of creativity and innovation
- Ensure ongoing industry partnership and commitment to the research initiatives

Methods used included a client questionnaire, interviews, an end-of-project evaluation, and document analysis. The research results identify aspects of the RDLE that impact on the researchers’ ability to communicate across the disciplines, and to move from ‘intradisciplinary’, to ‘interdisciplinary’ to ‘cross-disciplinary’ ways of thinking and practicing (WTPs).

Further steps are identified for developing BioNets RDLE, the challenges associated with RDLE creation and also suggestions for initiatives within and between the TSSG, its commercial partners, WIT, and other research centres. The need for more research into creating cross-disciplinary graduate and post-graduate R&D project learning environment spaces in general is identified.

**Keywords:** Graduate and Post-graduate Learning Spaces, Innovation, Cross-Disciplinary Thinking, Transformative Learning, Insider Inquiry.