



Management of Intellectual Property Rights in Shared Digital Environments ESRC E-Society Programme

Until recently the management of Intellectual Property (IP) was overshadowed by the importance of the management of physical and financial assets. This situation is rapidly changing. Intellectual Property Rights (IPR) issues are becoming a pressing concern. Inter-organisational collaboration is an increasingly important means of organising research and production activities. Collaboration is facilitated by the use of Information Technology (IT) networks but it can also threaten ownership over shared data and over the results of Research and Development (R&D) and design efforts. Jordi Molas-Gallart and Puay Tang from SPRU, University of Sussex have conducted one of the only academic studies into IPR problems in collaborative projects and investigated whether fears about the vulnerability of IP shared in electronic networks may slow down the diffusion and adoption of new network technologies. Focusing on the defence sector the research found:

- Although Shared Digital Environments are complex to set up, the technologies to build them have been available for some time. Despite this, the type of information systems used in large collaborative defence development and production projects fell well short of what was possible technically.
- The limited application of existing technologies could not be explained away by the concerns about the vulnerability of IP when sharing data through common-access databases.
- Generic problems existed in the ways the management of IP was being addressed by firms and customer organisations. Senior management often focus on more readily identifiable tangible assets and tend to pay relatively less attention to IP issues.
- IP professionals seldom consulted with other personnel like IT units and project engineers. Similarly IT experts rarely consulted with IP professionals and project engineers when setting the IT system to support a project.
- Even in the absence of complex IT systems to share and manage technical data across organisations, IP management remains problematic. Many of the issues emerged from the changing procurement relation between the MOD customer and its industrial suppliers.

Background

IPR issues are becoming a pressing concern and large corporations, particularly in the US, are appointing IP experts and IPR managers and directors. However, a recent study found that progress in Europe was slow although all of the companies in the survey asserted that enforcement of their IP was a key task even if they regarded it as a cost rather than a revenue one.

IT systems have complicated the process of managing intellectual capital and have led to direct losses largely as a result of the increased exchange of technical data and information through electronic networks. However, the introduction of IT systems have facilitated collaboration between organisations at a time when the escalating costs and complexity of R&D has led to more inter-organisation research and production activities.

Collaborative projects pose even more difficult challenges to managing IP within individual firms. Although collaboration is, in principle, facilitated by the pervasive use of IT networks, when two or more organisations share tasks in the design, development, and manufacture of a complex product using advanced IT tools, the management of IP can become particularly challenging. The situation can become even more problematic when one of the organisations involved is a government agency or department and when the collaboration is international, where different IPR regimes may enter into conflict.

The Project

The research aimed to improve our understanding of how organisations manage their IP in collaborative projects involving supply networks and their clients when using IT tools to share large amounts of technical data in digital format. This can be done through a 'Shared Digital Environment' involving electronic networks, software platforms and electronic data management systems used by project partners in different organisations to manage and share

technical data in real time. The research had two main objectives:

- To explore how current IP management practices affect technology transfer and the diffusion of advanced IT technologies to facilitate inter-organisational collaboration.
- To examine what IP management methods represent good practice and evaluate their transferability.

The study focused on the defence sector as a significant area where the use of information and communication technologies (ICTs) to design and support product development, manufacture and maintenance is intensive. The Ministry of Defence (MOD) has been actively promoting the use of e-commerce and advanced IT to improve project performance. In addition, in the defence sector an exceptional effort is being made to develop precise codes of practice and procedures affecting all aspects of the contractual process and project management including IPR management. Thus the MOD provided the research team with a unique opportunity to analyse the impact of formal regulations and processes on the management of IP and IPR.

Implications of the research

Although Shared Digital Environments are complex to set up, the technologies to build them have been available for several years. The research found that the type of information systems used in collaborative defence development and production projects fell well-short of what was possible technically. Data repositories shared by several organisations are usually limited to project management information and, at most, broad design parameters for the system under development. When detailed technical information is shared this is often done through one-way email transfers or is stored in data repositories that are not readily accessible by other project partners.

The research found that the limited application of existing technologies could be explained largely by problems of IPR management. Furthermore, the research found that the new technologies were seen to offer the possibility for enhancing the tracing and monitoring of technical data so providing a useful potential tool for IP management. The reason that Shared Digital Environments were not being incorporated into everyday use appeared to be related to the way in which the management of IP was being addressed by firms and customer organisations.

Managing IP can be difficult as a result of its intangible nature. The research found that senior management often focused on more readily identifiable tangible assets and tended to pay relatively less attention to other IP issues. Where managing IP was attempted, firms often relied on formal practices such as patenting. The research found that the IP management 'ethos' was biased, in the main, toward formal protection processes, that is deciding whether or not to patent. The often informal practices that determine, for example, when and how to share proprietary information with clients and partners were not instituted as part of a corporate IP policy.

The research found that in practice, engineers, designers and IT managers have most direct responsibility for protecting a firm's IP. However, IP professionals seldom consulted with these professionals and likewise they did not consult with the IP professional when setting the IT system to support a project. Although current technology offers the capacity to tag and track IP in collaborative projects and provide identity management for rigorously controlled access to data and information, such IT solutions are often seen as an upfront cost. As a result, simpler, cheaper and often less capable systems are being deployed.

Even without complex IT to share and manage technical data, the research found that IP management remained problematic. Many of the issues emerged from the changing procurement relation between the MOD customer and its industrial suppliers. For instance, the

privatisation of the MOD Defence Evaluation and Research Agency (DERA) highlighted the difficult IPR problems in which firm-owned IPR and IP were to a large degree mishandled by DERA and the MOD. This led to mistrust between suppliers and government clients, which is affecting the implementation of changes.

The outcome of this situation has been substantial mistrust and suspicion among defence firms about the management of IP within Government and Government agencies. This mistrust between suppliers and government clients is affecting the implementation of changes in contractual IPR regulations that the MOD wants to introduce in order to adapt the procurement process to the changing commercial environment.

The research found that institutional and organisational problems are responsible for the slow diffusion of Shared Digital Environments, despite industry acceptance of their need and utility. The implementation of the new technologies poses an organisational and cultural (including trust) challenge, rather than a technical one.

Policy lessons and future research agenda

The research is the first academic study on IPR problems generated by the sharing of technical data in complex digital environments. The research identifies that most companies and public-sector organisations do not have rigorous policies aimed at managing IP. From a policy perspective the research suggests that because the management of IP involves different communities that have so far worked separately from each other, IP management strategies should be directed from the top to ensure effective implementation and cross-department cooperation.

The research project identified a key research priority related to problems being generated by the management of IPR in life-cycle service contracts with the MOD. Increasingly MOD procurement of weapons systems is associated with long-term life cycle support contracts stretching over periods of

up to 30 years. The MOD is wary of being locked into a single supplier over such long periods and is seeking systems that will allow it to retain a degree of freedom in the allocation of service support contracts. For the prime contractor this means that life-cycle support tasks might be contracted to other firms, in which case the new contractor may need access to the technical data necessary to maintain the system. Inherent in data is IPR. Such policy shifts raise theoretical questions on the changing nature of contracts and the shifting role of the systems integrator in the supply of complex product systems.

Further Information

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The e-Society Programme

Funded by the Economic and Social Research Council and co-ordinated by the Department of Sociology at the University of York, the e-Society is a multidisciplinary programme of research that seeks to investigate how institutions, practices and behaviours are being changed by the technologies that constitute the digital age. This £5 million programme draws on the expertise of leading academics from across the UK. Launched in October 2003, the programme will run until the end of October 2007.

Further details of the projects in the programme can be found at
[Http://www.york.ac.uk/res/e-society/](http://www.york.ac.uk/res/e-society/)

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