



Technology: The unrealised legal challenge

by Nicholas Gould, Partner, Fenwick Elliott

Introduction

Advances in technology, especially information technology, are moving at an incredible pace. Complex technology comprising hardware, software and electronic data is also an international phenomenon. Existing legal systems, which vary from country to country, are clearly struggling to meet the challenge. Factors relating to control, ownership management and the resolution of disputes in this field are only just beginning to reveal the extent of the issues, whilst satisfactory solutions are yet to be found.

Electronic data, search engines and social media

The enormous impact that search engines such as Google, making use of complex algorithms, have had on the electronic exchange of everyday data and communications has been enormous. A similar impact has taken place in relation to social data such as Facebook, and also through business applications such as Linked-In. These resources provide not only a worldwide connection to anyone who chooses to use them, but also an exponentially expanding electronic knowledge base of data and human interaction.

These questions only relate to electronic documents. Hardware is a different matter altogether. The US Reaper Drones fly regularly over the Pakistan and Afghanistan war zones. Initially for surveillance, the Ministry of Defence accepts that they have caused fatalities since 2008. They now carry a range of weapons. The killing of humans by machines raises a series of not just moral, but also legal and ethical issues. As this technology develops and proliferates, these questions raise more issues than the intellectual property ownership of the algorithms used in software.

This crucial dilemma is no doubt a substantial challenge ethically and legally. Currently issues about software and document ownership have raised our awareness of the need for not just domestic but international laws and treaties to establish boundaries for everyday use of data and commerce.

Dispute resolution in cyberspace and outer space

The Technology and Construction Court in the UK is part of the High Court, and it deals with technically complex issues. Whilst most of its work relates to building, construction and engineering, it also deals with claims relating to the design, supply and installation of computers, computer software and related network systems. In recent years, cases in these areas have started to increase. Initially dealing with the supply of equipment, more recent cases have involved software and also ownership of electronic data. For example, in *Fairstar Heavy Transport NV v Adkins [2012] EWHC 2952 (TCC)* Judge Edwards-Stewart found that there was no practical basis for deciding that an email was "property". The use and distribution of an email could be adequately dealt with by a confidentiality clause or the existing law of copyright.

In any event, for the purposes of litigation all relevant electronic documents that can be obtained on a reasonable search must be disclosed in the proceedings. The Civil Procedure Rules and Practice Direction governing disclosure of documents in litigation also require disclosure of electronic documents and data. In *Earles v Barclays Bank [2009] EWHC 2500 (Mercantile)* the Judge imposed a cost sanction on the defendant for failing to disclose electronic data.

Internationally, commercial arbitration is frequently chosen for the resolution of disputes. Established rules produced by the International Chamber of Commerce (ICC), the London Court of International Arbitration (LCIA) and other institutions already provide the framework for resolving commercial technology disputes. However, in December 2011 the "Outer Space" Rules for the resolution of satellite disputes by arbitration were introduced. This is not, of course, strictly arbitration in outer space, but arbitration relating to space law, and so in reality disputes relating to the construction and launching of communications satellites together with the investments relating to that industry. The global space industry is now estimated to be worth more than US\$275 billion. It continues to grow in turnover and importance to industry and everyday life.

The management of electronic data generally and also in relation to the disputes has proved challenging. The ICC Commission in May 2012 published a report on the management of e-documents recognising the issues of the increased volume of material, its dispersal, but also its durability and fragility. Some useful techniques such as managing the production of electronic documents, including their metadata, are helpfully reviewed by the ICC's report.

Application for construction and engineering

The UK Government wants to introduce Building Information Modelling (BIM) by 2016. This is part of a managed approach to the entire procurement of construction work including a fully integrated electronic management and delivery system. Cost savings in construction work should apparently follow. This is about managing construction projects. A perhaps more important recent development is the entire automation of the building process; 3D building printing technology has already arrived.

Industrial control systems (ICS) make use of computers to monitor industrial processes. Supervisory control and data acquisition (SCADA) are large scale version of ICS, and often cover wide areas and multiple sites. They are used in manufacturing, industrial process, power plant, rail, heating and ventilation systems, wind farms etc. Leak detection can also play a part, to monitor the escape of gas or oil from pipelines. Road traffic telematics, to monitor and manage traffic flow, and rail signalling system, to monitor trains maintain efficiency and safety, are other examples.

Behrokh Khoshnevis, Professor of Engineering at the University of Southern California, has produced a contour-crafting process. His machine uses an inorganic binding ink spread through a nozzle in order to construct three-dimensional structures. This can be used for creating buildings, and NASA is currently researching the potential use for lunar applications. In other words, the construction of a 3D structure in space by an unmanned robot is almost a reality.

Where is this heading?

In 1997 IBM's Deep Blue beat Garry Kasparov at chess. In 2011 Watson (Deep Blue's successor) beat the best two contestants of Jeopardy, the TV quiz based in the USA. Watson has since been helping to diagnose patients' illnesses. The next step has to be identifying and responding to emotions. Massachusetts Institute of Technology (MIT) is developing software that can classify a human emotion based on facial expression. It follows 22 points around the eyes, mouth and face. In addition, MIT's Kismet can identify joy, sorrow, fear, anger etc. and behave in a particular way. In other words respond appropriately to that emotion.

Professor Kevin Warwick has taken a different approach. Instead he has tried to fuse man and machine. So in 2010 he removed the silicon chip from a small robot and replaced it with an organic one, grown from rat brain cells and linked by Bluetooth to the robot. In 2012 he obtained a licence from the government to repeat this with human brain cells. He predicts that organic computers will be developed, and microchips will be inserted into a human in order to give them extra brain power, for example to perform maths at incredible speed or speak 20 languages. Those who become a "human plus" will be more employable, while the "Luddites" no doubt will do the best they can.

Conclusion

Technology is moving at an incredible pace and, in particular, hardware and software computer-related applications. The challenge for the legal profession is quite unrecognised. Contracts dealing with technology are common, and issues relating to the ownership of intellectual property and the cross-border nature of these transactions raise issues about applicable law and standards. A specialist technology (and construction) court is already starting to deal with some of the issues in England, while international arbitration rules tailored for satellite disputes are now available. The legal challenge faced by this expanding technology is yet to be fully recognised.

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