

A Framework for Electronic Commerce
Second Edition

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The Internet—An Introduction for Lawyers
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Given the intense media coverage that the Internet has attracted over the past few years, one might reasonably argue that the Internet needs no introduction. It has successfully permeated into our everyday lives in a myriad of ways. Every parent must now feel the obligation to ensure that their child has access to the Internet as part of their overall education. Similarly, no advertising campaign is now complete without reference to a Web site and if you want to know something about an unknown organization (Whether company, university or law firm), the first thing you do is look up its Web site. Over the past few years, most Internet users have ceased worrying about what the Internet is and how it works and have begun to treat it more like the telephone—a convenient appliance for certain tasks. But at the same time, the Internet is becoming an increasingly complex place. There are an ever-increasing number of different terms that are being used in Internet circles—not only do we have e-mail, we now have e-any thing e.g. e-commerce, e-business, e-journals, e-solutions, and not just the Internet but intranets and extranets and extranets as well. Meanwhile the digerati are dreaming up ever more obscure terms of art—channels, clickstream and enterprise information portals, to name but a few of the current buzzwords.

This chapter is divided into two parts. The first part is designed to explain a little of how the Internet works, both in terms in of the technology and the administration. In the second part, the main legal issues relating to the Internet are addressed. This second part of this part of this chapter is intended to set the stage for the remainder of this book.

WHAT IS THE INTERNET?

Although there is no official definition of the Internet, most industry commentators would agree upon a description of the Internet as a public international network of networks. Inevitably, those working in technology introduce the notion of networks into any conversation about the field. Networks sound complicated but the principles are straightforward. On a conceptual level a network is simply a group of computers that are physically linked together with cabling. In addition all of these computers must be running particular software that allows them to recognize that they are all part of the same network. The Internet is simply a public international network of networks. Back in the late 1960s, American military researchers decided to attempt to link up various networks that they had created in order to enhance their abilities to share academic research. The benefits were obvious and the idea quickly spread—in the early 1970s, the technologists managed to establish the first trans-Atlantic link-up of computer networks. The Internet is now 30 years old and during that time a huge number of new networks have been attached to the original structure. At the same time, older networks have been

retired. In the past five years, we have seen the rapid commercialization of the Internet (hence the need for a book on the law relating to the Internet), with privately funded networks becoming far more prevalent. It is unclear exactly how many networks are currently attached to the Internet. However, current estimates (or rather, educated guesswork) suggest that about 180 million people have access to the Internet from either home or work, and this number is growing all the time.¹

INTERNET SERVICES

There are various services available on the Internet, the most important of which are e-mail and the World Wide Web (also referred to as 'the Web'). Other less important services include FTP (File Transfer Protocol), Usenet, Telnet, MUDs, Talk and Internet Relay Chat (IRC). These latter services are not addressed in this chapter because they are of minor importance to most Internet users, particularly lawyers. However, it should be noted that services such as IRC may give rise to significant liabilities for the organizations that host such services.

E-mail should now need little explanation, given its prevalence—it is a simple asynchronous mechanism for text-based one-to-one or one-to-many electronic communication. It is also the most popular Internet service. The Web, on the other hand is more complex. It can be defined as a 'wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents'.² More simply stated is a system of linking together hundreds of millions of electronic documents ('Web pages') on millions of computers³ ('Web sites') together across the Internet, each of which are reachable via a unique but changeable name or Universal Resource Locator (URL). Thus a Web site is simply a collection of Web pages. When Web sites first appeared in the early 1990s, all Web sites were publicly available. After all, it was designed as a mechanism by which academic researchers could more easily share information with colleagues. However, it did not take long for human ingenuity to dream up new uses for the same technology. Hence, we now have private Web sites or 'intranets' and semi-private Web sites or 'extranets'. Intranets were perceived as a very useful mechanism by which users within a particular company, university or other organization could share information relevant to other users. Thus, in a law firm context, an intranet can be used to share information on everything from maternity benefits to precedents. Extranets were a further extension of this idea of sharing information using Web technology. They can be used for a variety of different purposes—the first extranets were used by large corporations such as Boeing—a company that has to deal with thousands of different suppliers. By developing an extranet, they could effectively open up its enterprise to selected suppliers, making its supply chains more efficient and cost effective. It has not taken long for other companies to follow suit.⁴

WHO OWNS THE INTERNET?

The most straightforward answer is that no one does. There is no single body that controls all activities on the Internet. It is simply out there and is virtually impossible to 'switch off'. Governments in countries such as China are attempting to limit access to the

Internet but should recognize that they are fighting a losing battle. Networks within different countries are funded and managed according to national policies. Links between countries will be managed by agreements between telecommunications providers. The Internet is the first global 'institution' that has no government. This is both one of the Internet's greatest strengths and one of its main weaknesses. Ownership is distributed between countries and their own governments, corporations, universities and the major telecommunications ('telecoms') utilities. Each individual computer attached to the Internet will be owned by a corporation, firm or individual. Large telecommunications utilities such as BT and MCI WorldCom own a large percentage of the physical wires and routers over which data are transferred. Internet Service Providers (so-called ISPs) will own the majority of servers on which information is hosted. Individuals and companies will own the intellectual property rights in the information that is hosted on such servers. In addition, universities will also own some of the most critical systems without which the Internet would cease to function (reflecting the Internet's academic ancestry). Thus a wide variety of organizations are each playing a role in 'owning' the Internet.

HOW IS THE INTERNET MANAGED?

This is an intriguing and increasingly complex question. There are a number of different bodies responsible for the management of the Internet. At the highest level, there are a number of organizational bodies responsible for the technical and engineering aspects of the Internet such as the Internet Architecture Board. This comprises the Internet Engineering Task Force (IETF) which, in its own words is 'a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet',⁵ and the Internet Research Task Force. In addition to this there is the Internet Corporation for Assigned Names and Numbers (ICANN). This non-profit-making corporation was formed to assume responsibility for the increasingly important area of domain name system management (including the most important top-level domain of .com), taking over responsibility from the US Government's own organization IANA (Internet Assigned Numbers Authority). Other new-comers to the management of the Internet include the World Wide Web Consortium (also referred to as the 'W3C';) based in Geneva, which is an international industry consortium founded to develop common protocols for the evolution of the World Wide Web. These various bodies are the closest the Internet has to an executive. The relationships between these various bodies is dynamic—organizations collaborate on issues common to their constituencies, but such collaboration is rarely formalized.

As far as the user is concerned (whether individual or corporate), the body responsible for managing the Internet will be the Internet Service Providers (commercial organizations with fast links to the Internet) ranging from global telecommunications companies such as AOL, Uninet-Pipex or MCI Worldcom to small one-person start-up companies. ISPs are responsible for ensuring that individuals and companies have access to the Internet under the terms of agreements signed between the parties. ISPs are self-regulating. Most belong to an association of ISPs which provides a code of conduct. They are subject to the laws of the jurisdiction in which they are based. Access to an ISP can be provided

via dial-up connections using modems or can be via fixed land lines. These organizations may also be responsible for other services such as providing access to newsgroups, providing e-mail addresses and also the hosting of information that users choose to publish on the Internet with so-called Web site hosting Services.

Thus the internet is managed via a bizarre combination of commercial contracts between companies and individuals and also a surprisingly open and quasi-democratic structure of technical organizations which are more interested in the technological advance of the Internet than its commercial potential. This is not to say that the Internet is 'warm and cozy' environment in which all users and developers co-operate—far from it. Indeed, Internet is perhaps the most dynamic and ruthlessly competitive market-place ever to have existed. It is a focus of intense competition for hardware and software manufactures. Companies such as Microsoft have completely re-aligned their entire strategy to focus on the Internet, recognizing that if they did not, they would become a mere footnote in the history of technological development. The Internet is also an arena in which new companies such as Amazon.com, Yahoo and QXL can be created from a single good idea and within a matter on months can have an immense paper value. The Internet is remarkably democratic, yet at the same time is a forum that allows markets to be incredibly competitive. It is also inevitably a forum where business come into disputes with one another and understanding what laws apply will be an essential part of doing business on the Internet.

'INTERNET LAW'

The profusion of books and lectures with the phrase 'Internet law' in the title—including this one—might lead one to assume that there is a settled body of law on the subject which can be consulted. This is far from being the case.

An analogy can be drawn between Internet law, in its current state, and commercial law in seventeenth century England. In the seventeenth century there was an established body of statutes which had been drafted, and cases which had been decided, to meet the requirements of the traditional, slow-moving commercial activity of the medieval era. Yet all around commerce was taking new forms. New countries were being discovered; new institutions were being founded (banks, Lloyd's); new means of facilitating trade were being invented. The old rules did not apply—or produced unhelpful results. Most important, the volume and speed of commerce was increasing wildly. Commerce, which for centuries had been viewed by the rulers and legislators as a peripheral activity, was increasingly moving to center stage.

Faced with this conflict between the old and new, what were legislators and the courts to do? Restrict the new practices by enforcing the existing rules, or rush through changes to the existing rules to meet the new circumstances?

The perspective given by a historical analogy may make one more sympathetic to the UK Government, which, as we write, has passed into law an Electronic Communications Act 2000 which is a revision of the Electronic Communication Bill announced in the Queen's

Speech in November 1999. The Government must balance the interests of the business community with the interests of the consumer; of the UK economy with the UK's obligations to Europe; of the European economy with the global economy. And it must do so against the background of a commercial revolution which leaves a minimum or time for reflection.

But the true complexity of the situation becomes apparent—and the analogy with the seventeenth century breaks down—only when one appreciates that the UK Government is not facing a dilemma. It is being faced to a greater or lesser extent by every developed country in the world, and many of the developing countries. And the legislature in each of these countries is being pressed by influential constituents to do something to make the country a leader in electronic commerce—often in reaction to steps being proposed by a rival nation (such as the UK). At times it appears as if the developed nations will succumb to legislative panic, with each country trying to out-legislate its neighbors and the only cool heads being found in the USA—a situation which will no doubt continue only for so long as the USA believes it has such a commanding hold upon e-commerce that it has more to gain from openness than protection.

TRENDS IN LEGISLATION

There are, however, some developments which give grounds for hope that calmness will prevail and that Internet law will develop in a more harmonious fashion. Fittingly, they arise from the move towards international co-operation in the field of law-making.

First there is the influence of the European Union. While this may be an unpopular view in the UK, the interest which the European Commission has shown in electronic commerce, and the fact that two or three significant new directives are always circulating in draft form, acts as a restraint on those Member States which would otherwise be tempted to go it alone. So, while the UK Government trumpets the Electronic Communications Act as its own invention, the reality is that the sections of the Act which relate to e-commerce (in particular, digital signatures) merely anticipate provision which the UK will be required to implement in any event when the Electronic Commerce Directive comes into force. The effect of the European Unions is to increase harmonization of e-commerce law within Europe.

Secondly, there are the efforts of various multi-national bodies such as the UN and the OECD. The UN was the first into the field with the UNICITRAL Model Law on Electronic Commerce, a model for legislation which is being followed by countries as far apart as Australia and the Isle of Man. The OECD is particularly prominent in the field of taxation where it seeks, through amendment to the OECD Model Tax Convention, to achieve a degree of unanimity on the treatment of such matters as whether a Web site constitutes a 'permanent establishment' and whether payments made for data are to be treated as payments for goods, payments for services or royalties.

A consideration of the complex international dimension might lead one to the conclusion that electronic commerce is properly the province of directives, treaties and protocols and

that national legislators, courts and practicing lawyers have little to contribute. But the reality is that electronic commerce is burgeoning in the absence of any such documents and that many of the problems which it throws up are on a fairly mundane level which can be dealt with by minor adaptations to contracts or regulations—for example, the removal or amendment of a requirement that a particular transaction be ‘evidenced in writing’. Despite the apparent need for overwhelming change, a programme of incremental improvement might not only be adequate to cope with most problems, but also be preferable to any more rapid or revolutionary solution. As we have seen with early proposals in the field of security and electronic signatures it is only too easy for legislatures to be stampeded into framing legislation around the first plausible technical solution which appears on the market, only to find that market practice moves on and that alternative solutions become more widespread and important.

THE THREE LAYERS OF THE INTERNET

So how does the Internet impact upon the law? It is easiest to explain its impact by analyzing it into three layers.

First, it exists as ‘physical’ infrastructure—as a data network ‘managed’ at a high level by the international bodies referred to above and at a day-to-day level by the various public bodies and corporations whose networks it uses. This is the lowest layer.

Secondly, it exists as a service infrastructure provided by ISPs who offer access to the Internet, e-mail, hosting facilities, etc. using the physical infrastructure.

Thirdly, it exists at the level of the users where (as regards the Web) it takes the form of a series of individual ‘shop-window’ and electronic forms through which commerce can be conducted electronically.

Each of these layers impacts upon, and is impacted on by, different areas of law and the chapters in this book touch on all three.

‘PHYSICAL’ INFRASTRUCTURE—THE FIRST LAYER

Chapters 6, 7 and 14 on infrastructure and domain names cover the first layer. Domain names, in their relation to the law of trade marks, are also relevant to the third layer and the manner in which rights in the ‘shop window’ and products appearing in the ‘shop window’ can be protected (see the chapters on intellectual property rights).

SERVICE INFRASTRUCTURE—THE SECOND LAYER

The problems which particularly affect the second layer tend to concern the liability of ISPs.

The problems arise from the hybrid function of the Internet: in part it is a simple means of communication, analogous to the mail or the telephone (for example, an e-mail

service); in part it is a means of broadcasting or publishing information (for example, the BBC News channel or The Economist Web site). Difficulties arise because the existing laws of most countries prescribe different regulatory regimes for telecommunications providers (which in the main are treated as mere conduits, devoid of responsibility for the messages which pass over their wires); publishers (which can normally be held responsible for indecent or defamatory publications); and broadcasters (who normally fall somewhere between the two). It is by no means clear whether an ISP should be most appropriately treated as a communications provider, a publisher or a broadcaster.

Because they represent the public face of the Internet for most users (and hence most legislators), ISPs are particularly vulnerable to attack in those high-profile areas where morality and the law interact—particularly pornography, obscenity and defamation. However, they have also found themselves in the forefront of dealing with a problem involves both the third layer and the second—spam.

Spam is the junk mail of the Internet. It is unsolicited e-mail which can be overwhelming in its quality and unpleasant in its content. Generated by a computer programme, using addresses which have often been obtained by unlawful means, and employing various means to alter and protect the anonymity of the sender, spam is extremely difficult to control. ISPs have their own reasons—reputation and system performance—for wanting to get rid of it, but legislators have questioned whether self-regulation is sufficient. They have also tussled with the question whether consumers should have to opt in—i.e. agree to receive unsolicited mail—or opt out—i.e. have the right to request that no further mail is sent. The latter option would clearly be the choice of most consumers but would, in the view of most ISPs, create an administrative nightmare were ISPs asked to police it. Internet defamation, porn and spam are dealt with in Chapters 11, 12 and 13 in this book.

E-COMMERCE—THE THIRD LAYER

The third layer of the Internet—its use as a medium for commerce—is the focus of the remaining chapters.

It is the area which is most fraught with theoretical difficulty because it involves so many areas of the law. This can best be illustrated by considering an example: a company ('SalesCo') which wants to sell a particular financial product over its Web site. SalesCo is a subsidiary of an international company. SalesCo has its head office in Ruritania (the latest recruit to a newly-expanded EU) and all orders received over the Web site will be processed by staff situated in Ruritania. However, SalesCo's Web site is hosted on a fellow subsidiary's server situated in Narnia. SalesCo's products are attractive to residents of many jurisdictions, including Ruritania and Narnia, and it expects to receive orders from all over the world. SalesCo is not a fly-by-night company. It is registered with the Ruritanian authorities and regulated in its activities by the Ruritanian Financial Services Authority. SalesCo's first concern is to ensure that it enters into enforceable contracts with its customers. It therefore needs to understand the manner in which contracts can be made electronically. That is the first problem. Ruritania has not yet passed a law on electronic commerce and its current law of contract requires all contracts

to be in writing. SalesCo therefore has to restrict its Web site activities to advertisements and application forms and then deal with the remainder of the contractual process by post.

Anticipating future changes, it looks forward to the passing of the Electronic Commerce Directive which, when it comes into force in January 2002, will force Ruritania to modernize its law and allow contracts to be made electronically. (Chapter 2 in this book deals with the making of contracts electronically the Directive itself can be found in the Appendix.) However, it is advised that if contracts for its products are to be made electronically it will also have to comply with the terms of another draft directive—the Directive on the Distance Selling of Financial Products. Also, it will continue to be subject to the Ruritanian Money Laundering Regulations and will have to ensure that it takes steps to know its electronic customers which are as rigorous as the steps it currently takes to know its paper customers. (A chapter covers digital signatures and other methods of authenticating identity and evidencing the integrity of information.)

It is also advised that even if it succeeds in making electronic contracts which state they are subject to Ruritanian law and the exclusive jurisdiction of the Ruritanian courts, it may still be sued by consumers in other countries (and, if current proposals on the Brussels and Rome Conventions are implemented, in foreign courts). Worse, it may find that all the exemption clauses and limited warranties which it has so carefully crafted in order to comply with Ruritanian law are void, in their application to consumers, in Narnia or some other jurisdiction, so that not only can it be used by a Narnian consumer in a Narnian court, but it can be sued upon a contract which provides much less protection than it intended.

Those problems are to come—for the moment it is only going to use the Web site as an advertisement—a ‘shop window’. However, even the use of the Web site to advertise the product is not without its difficulties. Ruritania’s Financial Services Act contains strict prohibitions on unauthorized investment advertisements and (although the Act does not refer to Web sites) it is almost certain that a website which describes a product in a manner which is intended to attract customers will be considered an advertisement for that purpose. That does not trouble SalesCo. It is authorized to conduct investment business in Ruritania so its advertisements (provided that they comply with regulations as to warning notices) are automatically authorized for Ruritanian purposes.

Unfortunately, Narnia has an identical Financial Services Act, and the Narnian FSA takes the view that SalesCo’s Web site, being accessible by Narnian investor and clearly intended to attract their custom (there is a screen explaining the advantages of the product as a shelter from Narnian tax), is an advertisement circulating in Narnia. As SalesCo is not an authorized person for Narnian purposes (and has not had the advertisement authorized by someone who is), the Web site is in breach of the Narnian law regulating investment advertisements.

Worse, the Narnian authorities claim that because the Web site is hosted on a server in Narnia, the server is owned by a fellow subsidiary of SalesCo, and SalesCo clearly hopes

to do business with Narnians, SalesCo is in practice carrying on an investment business in Narnia. It therefore requires to be authorized by the Narnian FSA. The Narnian FSA talks to the Narnian tax authorities and the tax authorities then claim that the server (and associated activities) constitutes a ‘branch or agency’ of SalesCo in Narnia and brings it within the Narnian tax net.

This example provides the bleakest view, but it is based on the real companies, real laws and real regulatory authorities. In practice, as the UK/Narnian law currently stands, while SalesCo is still concluding contracts on paper in Ruritania, only the Narnian investment advertisement regulations probably apply to SalesCo. But the remaining arguments of the Narnian authorities—both the FSA and the Revenue—have all been deployed in practice and may still turn out to be applicable in the future. And even if SalesCo could come to an understanding with the Narnian authorities—for example, it should not be too difficult for SalesCo to become authorized by the Narnian FSA, as in practice the Narnian FSA will normally authorize any company which is in good standing with the Ruritanian FSA—it might still face exactly the same problem (certainly as to investments advertisements) in every country in which its potential investors are resident.

There are two points to make about the example.

The first is that most of the problems which are described arise from the international nature of the transactions. A lawyer dealing with a company selling financial products to foreign nationals has always had to consider most of the problems referred to above—incorporation of terms, choice of jurisdiction, effect of foreign consumer laws, need for authorization, regulation of advertisements, whether a permanent establishment is formed. The additional elements added by the Internet are the difference in the manner of concluding contracts (and its relation to national contract law); the ‘virtual nature of the establishment (which is particularly relevant to questions of authorization and tax); and the multiplicity of jurisdictions in which potential customers may be resident (each of which has its own consumer law). Only the first of these is a ‘national’ issue. If a supplier restricts his activities to a single country and adopts rigorous measures to ensure that orders from any other country will be rejected, he still has to ensure that his electronic contracts are as enforceable as paper contracts but he is not concerned with any of the other issues.

The second point follows from the first. The risks of trading on the Internet match the benefits of trading on the Internet. Restrict your activities to a single country and the risks are easily manageable. You gain the benefits of electronic trading without an undue addition to your risk. Confine you activities to two or three countries and the risks increase but are still manageable. You have the difficulty of complying with the regulations of those countries, and the major problem of ensuring that you do not contract unawares with residents of other countries, but you can assess and manage those risks. Offer to contract with the whole world and you are dealing with the unknown (or paying prohibitive legal fees). In other words, the larger the market to which you aspire, the greater the risk.

WHERE IS THE INTERNET GOING?

This is an intriguing question. No one, not even Tim Berners-Lee (inventor of the World Wide Web) or Bill Gate has a crystal ball. The Internet is the fastest moving technological innovation ever. Furthermore, the Internet today has so many different aspects. This chapter focuses on just two.

Over the past five years we have seen the introduction of new ways of doing old business—for example online banking, online book-selling, online auctions and so forth. We have also seen new information or technology companies spring up in response to a newly identified need created by the Internet—Yahoo is a very good example of this; a company that gives users a directory by which to navigate around the ever-expanding network. There are now thousands of new small technology companies working on new faster, more intelligent applications designed to work on the Internet. At the same time there are thousands of so-called ‘dot.com start-ups’—small companies that see the potential of the Internet in fulfilling a particular need for an Internet audience category. Indeed, every entrepreneur appears to have an Internet-based project plan in his or her back pocket. But where is it all leading?

The future of the Internet is a topic worthy of a book in itself, if not several books. As Bill Gates famously said, ‘the Internet changes everything’. One of the key themes over the next five years will be convergence—the bringing together of disparate technologies. Despite its phenomenal growth, current estimates suggest that only around 14 per cent of the UK population have access to the Internet. One of the main problems is that the Internet is only available to those people who have access to a PC, either at home or at work. This will change. It is only a matter of time before the Internet will be available via more common home appliances such as the television or the new generation of mobile phones (via the Wireless Application Protocol). At the same time, the prevalent model of Internet access via the PC will come under attack from smaller hand-held appliances such as the Psion organizer, the PalmPilot or other similar devices. These new appliances will also incorporate voice capabilities. (It is already possible to use the Internet to conduct a telephone conversation but the quality is somewhat lacking—this will improve). This technology convergence based around Internet technologies will bring the likes of Nokia and Vodaphone (companies that will have to re-create themselves as information appliance companies rather than simply the makes of mobile phones) into competition with the likes of 3com and Casio. In addition, if users can access the Internet using the television (just another information appliance), there is no reason why users cannot access material traditionally available on the television, via a pay-per-view Web site. This type of scenario will bring traditional players in television media such as the BBC, ITV and News International into competition with BT, Cable and Wireless and Worldcom. The Internet provides new possibilities for companies that were traditionally confined into particular markets. It offers intriguing possibilities, and not surprisingly we are witnessing a piranha-like feeding frenzy over the potential market-places that the Internet offers.

Thus while BT and its ilk may be seeking to undermine the stranglehold of traditional media operations in the belief that eventually they will have a unique combination of content ownership and the means to deliver it (because of their ownership of residential and commercial voice and data lines) there are also organizations working to undermine their stranglehold on this access. Internet in the sky is more than a mere fanciful wish—there are a number of global initiatives under way to create global networks to deliver Internet-based information. For example, Teledesic is a \$15 billion network, partly financed by Bill Gates, comprising 288 low earth orbit satellites. Its competitor, Skybridge, is a \$4.2 billion network of 80 satellites. Both intend to offer forms of data transfer services (probably e-mail initially) as well as voice-based services. It will still be a few years before these companies offer commercial services. But theoretically satellite offers two key advantages over any form of cable-based service. The first is that satellite-based services can reach people in remote locations where it would not be either feasible or economic to lay additional cables. The second is that satellite services allow for organizations that need to deliver the same set of bulk data to multiple clients. Thus organizations will be able to broadcast information to Internet appliances very effectively.

While full convergence and Internet in the sky are still some years away, there are some technological developments that we will see much more quickly. XML stands for extensible Markup Language. The World Wide Web consists of approximately 800 million Web pages. All of the pages, hosted, hosted on millions of machines across the World are created using a mark-up language called HTML (Hypertext Mark-up Language.) HTML was an invention of Tim Berners-lee, father of the World Wide Web. It is a document description language and very good for turning pure text documents into a Web-readable format. It is very easy to learn, having a taxonomy of only about 90 tags. However, as technologists have been quick to note, it is also incredibly limited as a document formatting tool. Thus, the Internet community has set about developing a new language that could work on the Web, which allows documents to retain their original look and feel and one that improves the usability of Web documents.

XML is this new language or rather it defines the rules for all future document formatting languages. XML allows different communities of users to establish and define their own mark-up. Thus, chemists can develop a chemistry mark-up language and mathematicians can develop a Maths mark-up language. Similarly in the law, we will be able to develop and define a legal mark-up language. This will allow document creators not only to define certain worlds as having particular characteristics such as bold, underline and italicize, but also to define certain parts of documents. XML will turn unstructured documents into structured data. For example, in future when legal publishers are producing case reports for publication, they will be able to mark up the headnote, the names of the parties or the names of the solicitors involved, with particular tags. These tags will be recognized by other pieces of software used by lawyers or legal institutions and allow for much better searching, retrieval and re-use of the information. There are already trials of this technology taking place in courts in the USA, allowing for the electronic filing of court documents.

CONCLUSION

This chapter has described the Internet in terms of three levels—physical infrastructure, service infrastructure and e-commerce. The remainder of this book looks at each of these areas in turn. For example at a physical level, there are a number of outstanding legal issues to be resolved in relation to domain names and trade marks, copyright and other intellectual property rights. At a services level, there are legal issues in relation to spam (Internet junk mail) and defamation. In relation to e-commerce there are unresolved legal issues and legal concerns in relation to the formation of contracts, data protection, encryption and payment mechanisms. This book does not, indeed cannot, provide the definitive legal position. It does, however, identify the main components and provide a new perspective on that fluid mass of regulation loosely described as ‘the law of the Internet’.

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¹ See surveys by the Georgia Institute of Technology http://www.gvu.gatech.edu/user_surveys which are widely quoted in the media.

² See the WWW FAQ at <http://www.boutell.com/faq/>.

³ Five million Web sites were counted as at April 1999-see the Netcraft Survey at <http://www.netcraft.co.uk/survey/>.

⁴ Ford recently announced that it would be doing precisely this, using Oracle technologies with a system called AutoExvhange-‘Oracle system joins Ford production line’, *Computing* 11 November. 1999, 8.

⁵ <http://www.ietf.org/overview.html>
