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TECHNOLOGY LAW IN LEGAL EDUCATION: RECOGNISING THE IMPORTANCE OF THE FIELD

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I INTRODUCTION

Legal education must adapt to reflect changes in law, society and the profession in order to effectively prepare graduates for the workforce. The requirements of contemporary legal education are prescribed by professional accreditation bodies (such as the Legal Profession Admission Board (LPAB) of New South Wales), and are continually reviewed and assessed by these authorities, as well as by higher education regulators (such as the Tertiary Education Quality and Standards Agency (TEQSA)), student evaluations of teaching, and university oversight committees. Present areas of reform include the integration of Indigenous cultural competency and resilience training for future legal practitioners.¹ The focus of this article is the development of legal education to ensure students are prepared for the rapidly growing impact of technology on society and the law.

This article argues that a technology law subject should be a required part of the law school curriculum, in order to ensure law graduates are prepared for legal practice. This is an issue not yet examined in any detail in the literature: how best to convey substantive knowledge and understanding of technology law and regulation to law students. It argues that technology law can no longer be considered part of the broader context of law; but must be viewed as central to business transactions, government administration, healthcare provision, law enforcement, data security, and taught in its own right. As technology related issues become increasingly central to almost all areas of law, it becomes more relevant to lawyers, and therefore, to legal education. In light of this, a new approach is required.

The use of new technologies in law teaching is a related, but different concern to teaching the substantive content of technology law. Commentators have already drawn attention to this related issue as an area of necessary development, given the impact of technology on professional practice and the need to train future lawyers in skills they will require for practice. Galloway (2017) argues for a ‘whole of

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¹ Kate Galloway, ‘A Rationale and Framework for Digital Literacies in Legal Education’ (2017) 27 *Legal Education Review* 1, 2.

curriculum, or immersion, approach to digital literacies’, and considers digital technologies a ‘broader context of the law’,² cognisant that the impact of technology on the law will be very significant. Limiting their analysis to the ‘first step’ of digital literacies in legal education;³ scholars have not, to date, discussed in detail the next step that this article addresses, the need to further improve the education of law students in legal and regulatory approaches to technology in a core subject.

Part II of the article begins by considering the purpose of contemporary legal education and the regulatory framework that prescribes the content of legal education in Australia, describing the existing accreditation body requirements that could be amended to integrate technology law into the prescribed areas of knowledge (or otherwise encourage its inclusion in a less prescriptive manner). Part III examines technology law: the evolution of the field as a discipline, its scope, coherence and key issues, emphasising both its breadth and interrelatedness, providing a foundation for curriculum development in this area. Finally, Part IV of the article describes technology law education: a suggested syllabus, learning outcomes and materials for an appropriate technology law subject. While the legal profession and legal education remain relatively conservative fields, given the rate at which new technologies are being adopted, it is important that there be more debate and urgency in evolving the curriculum in this area, establishing technology law as a core, stand-alone subject in the law school curriculum, and improving students’ knowledge of this important field.

² Ibid 2.

³ Ibid 4.

Technology has shaped contemporary legal practice, requiring practitioners to have a broader skill set, including a capacity to practise law in online and partially automated settings, along with a focus on team-based collaborative work facilitated by integrated technology platforms. This has led to law schools increasing their range of collaborative, technology-focused tools to facilitate practical learning opportunities for students. It is widely accepted that digital technologies are required to be used in law teaching to prepare students for future legal practice and to develop their general capacity to use these forms of technology.

See e.g. Qian Hongdao et al., ‘Legal Technologies in Action: The Future of the Legal Market in Light of Disruptive Innovations’ (2019) 11 *Sustainability* 1015; Marcus Smith ‘Integrating Technology in Contemporary Legal Education’ (2020) 54 *Law Teacher* 209; Michele Pistone, ‘Law Schools and Technology: Where We Are and Where We Are Heading’ (2015) 64 *Journal of Legal Education* 586, 592; Zhiqiong Wang, ‘Between Constancy and Change: Legal Practice and Legal Education in the Age of Technology’ (2019) 36 *Law in Context* 64; Sari Graben, ‘Law and Technology in Legal Education: A Systemic Approach at Ryerson’ (2021) 59 *Osgoode Hall Law Journal* 139; and Kate Galloway et al ‘The Legal Academy’s Engagements with Lawtech: Technology Narratives and Archetypes as Drivers of Change’ (2019) 1 *Law, Technology and Humans* 27.

II CONTEMPORARY LEGAL EDUCATION

A *The Role of Legal Education*

Prior to focusing on the discipline of technology law, why it is important, and how it is best taught to law students—this part of the article examines the role of legal education and its regulation in Australia. Again, it should be emphasised that the focus of this article is not digital technologies in legal education (or ‘lawtech’ in legal practice); but on a less widely recognised and discussed issue, technology law as a field of education and study. In considering the development of the law curriculum to encompass technology law, the existing literature on the role of legal education should be considered. Legal scholars have previously framed the question of how law schools should approach educating their students as threefold: educating lawyers for practicing law as it exists in the present day; educating lawyers that have the ability to adapt to an evolving legal system; or educating law graduates to not only practice law, but also work in other professions, as it is known that a significant proportion will never actually practice law (a number likely to grow as technology automates more aspects of the profession).⁴ Arthurs (2014) describes these roles:

The first sees their primary, if not their sole, function as producing “practice ready lawyers” for today’s profession. The second proposes that they should produce ‘tomorrow’s lawyers’, lawyers with the capacity to adapt to the rapidly and radically changing circumstances of legal practice. And the third insists that the leading role played by law schools in the creation and transformation of legal knowledge, legal practice, and the legal system requires them to provide their students with a large and liberal understanding of law which alone will prepare them for a variety of legal and non-legal careers.⁵

Regarding the teaching of technology law, irrespective of which of these is viewed as most important, all law students should be taught technology law. Whether law schools are educating today’s lawyers, tomorrow’s lawyers, or graduates that will work in related fields, such is the importance of technology in contemporary society, that it must be considered a necessary area of study. Accreditation bodies that prescribe the requirements of law degrees are focussed on appropriate preparation for legal practice. In considering the prescribed components of the degree, regardless of whether one prefers to take the perspective of ‘practice ready’ lawyers or ‘tomorrow’s lawyers’, technology is having such an impact on law and regulation today, that all law students require an understanding of technology law: it can no longer be considered an area of the law for the future.⁶

⁴ Harry Arthurs, ‘The Future of Law School: Three Visions and a Prediction’ (2014) 51 *Alberta Law Review* 705.

⁵ *Ibid* 706.

⁶ For a detailed discussion of ‘tomorrow’s lawyers’, in the context of likely future changes to legal service provision and the implications for practice, see Richard Susskind, *Tomorrow’s Lawyers: An Introduction to Your Future* (Oxford University Press, 2nd Ed., 2017).

The legal education literature also discusses whether law schools provide a form of professional instruction that trains lawyers for legal practice, or teach law as a broader field of academic study:

The main divide lies between those who regard legal education in instrumental terms, namely training individuals as future legal practitioners, and those who regard it as an academic discipline with its own intrinsic value.⁷

Technology law is associated with ethical questions about the nature of society: for example, how personal data should be obtained, used, stored, and governed, given that technology applications and capabilities can change more rapidly than laws. This raises the question of whether technology-based restrictions are required to effectively regulate data in addition to laws that govern how it should be used. A question that is further complicated by the global nature of the internet and the limitations for a single jurisdiction to implement or enforce their laws. The field of technology law will continue to develop quickly—lawyers need to understand these broader perspectives as well as the contemporary black letter law. There is a need to educate future lawyers in a way that enables them to provide advice on the law, but also train them to undertake higher level thinking about law reform, to practice in a rapidly developing field and work in a society that will continue to be shaped by technology innovation, and to undertake the work of senior bureaucrats, judges and future academic researchers. For students, learning about technology law and associated theoretical and regulatory perspectives, will be of value in a wide range of future careers.

As an emerging field, technology law requires more expertise to deal with the disputes that will increasingly arise as more services, businesses, and communications move online and integrate new forms of technology. A lack of understanding and expertise may explain why the development of technology law as a field of study, education and scholarship has not kept pace with the development of technology in society, just as a lack of understanding of science and technology among legislators may contribute to protracted law reform in this area. Merryman has argued that examining legal education in a society provides a window on its legal system:⁹

Here one sees the expression of basic attitudes about the law: what law is, what lawyers do, how the system operates or how it should operate. Through legal education the legal culture is transferred from generation to generation. Legal education allows us to glimpse the future of the society.⁸

Perhaps nowhere else in the law school curriculum at the present time is this statement more pertinent than in relation to technology law.

⁷ David Barker, *A History of Australian Legal Education* (Federation Press, 2017), 3.

⁸ John Merryman, 'Legal Education There and Here: A Comparison' (1975) 27 *Stanford Law Review* 859, 859.

B *The Regulation of Legal Education*

A range of legal education options exist in Australia. There are currently 38 law schools – 10 of these having been established since the year 2000. The traditional law degree is the undergraduate Bachelor of Laws (LLB) (at level 7 on the Australian Qualifications Framework (AQF)). It has a duration of four years of full-time study and is often combined with a generalist degree such as a Bachelor of Arts, taking five years to complete. More recently, the postgraduate Juris Doctor (JD) degree has been introduced by Australian universities in addition to the LLB. The JD degrees require three years of full-time study following the completion of an undergraduate degree in any discipline. The JD is the most common law degree in North America and is considered a master's degree at level 9 on the AQF.⁹ Data from the Council of Australian Law Deans indicate that there are approximately 7,000 new law graduates each year, and approximately 60,000 lawyers currently working in Australia.¹⁰ The question of what areas of the law are required to be taught to law students in law degrees, along with how many hours of instruction is required, is determined by accreditation bodies. Law schools have general autonomy over how law degrees are taught, especially in relation to elective offerings which make up approximately half of the law degree.

The admission authorities in each jurisdiction require that a number of core subjects, known as the 'Priestley 11', be completed as part of the law degree in order for graduates to qualify for admission to practice. The Priestley 11 are named after Justice Priestley who developed the requirements in the early 1990s and are set out in the Law Admissions Consultative Committee (LACC) *Background Paper on Admission Requirements*.¹¹

The LACC Guidelines also specify the particular topics within each of these subjects that must be taught, for example, in relation to

⁹ Australian Qualifications Framework, *AQF Qualifications* (2018). Available: <<https://www.aqf.edu.au/aqf-qualifications>>. The AQF is the "policy for regulated qualifications in the Australian education and training system". It was introduced in 1995, providing a national system of and encompasses higher education, vocational education and training and school-based education, and has been agreed by Commonwealth, State and Territory ministers. The AQF includes: learning outcomes, the requirements for issuing AQF qualifications, and the requirements for qualification linkages. The AQF designates levels for qualification types. These range from a level 1 technical college certificate, to a doctoral degree at level 10. Bachelor's degrees are placed at level 7, honours degrees and graduate diplomas at level 8, and master's degrees at level 9.

¹⁰ Council of Australian Law Deans, *Data Regarding Law School Graduate Numbers and Outcomes* (2018). Available: <https://cald.asn.au/wp-content/uploads/2017/11/Factsheet-Law_Students_in_Australia.pdf>.

¹¹ Law Admissions Consultative Committee, *Background Paper on Admission Requirements* (2016). Available: <www.lpab.justice.nsw.gov.au/Documents/background_paper_on_admission_requirements_211010.pdf>.

These eleven subjects are: Criminal Law and Procedure, Torts, Contracts, Property, Equity, Administrative Law, Constitutional Law, Civil Procedure, Evidence, Ethics, Company Law.

company law, ten topics are prescribed.¹² In addition to curriculum, accreditation bodies have other requirements, including that a law degree require at least three years of full-time study, that teaching staff are appropriately qualified, that there is appropriate review of teaching quality, and that subjects deliver specified minimum hours of instruction.¹³ Technology law is not included in the Priestley 11 (which were defined in the 1990s) and is not required to be taught to all law students in the way that these eleven subjects are required. However, it encouraged that technology be ‘embedded into the curriculum’ and ‘incorporated into the design and delivery of teaching’, with the LACC requiring law schools to outline how they achieve this as part of their accreditation (or reaccreditation) applications.¹⁴ This should be interpreted as referring to substantive content on technology law and knowledge of the subject (the focus of this article), as well as the more widely recognised issue of applying digital technologies to legal education and assisting students to gain practical ‘lawtech’ skills.

While technology law is not a required subject within the law degree, there is increasing acknowledgement of its importance, with law schools required explain how technology is incorporated into the curriculum. Legal education must evolve over time, in unison with the profession itself, and in the context of societal and technological developments that shape the provision of legal services. More formal direction in relation to the teaching of technology law is likely to follow in the future as the importance of technology within society and the legal profession becomes further recognised.

In the context of this background on the purpose and regulation of legal education, Part III and Part IV of the article explain the importance of technology law in relation to other law subjects, why it should be taught as a stand-alone subject as opposed to being integrated throughout the law degree, how this can be achieved in terms of the

¹² Students studying corporations law in an accredited law degree in Australia must be instructed in: (1) Corporate personality; (2) The incorporation process; (3) The corporate constitution; (4) Company contracts; (5) Administration of companies and management of the business of companies; (6) Duties and liabilities of directors and officers; (7) Share capital and membership; (8) Members' remedies; (9) Company credit and security arrangements; and (10) Winding up of companies.

¹³ Examples of recent reviews by representatives of the admitting authority in each Australian jurisdiction are:

Law Admissions Consultative Committee, *Review of Academic Requirements for Admission to the Legal Profession* (Review, Council of Chief Justices 2015) and Law Society of New South Wales, *Flip: The Future of Law and Innovation in the Profession* (Commission of Inquiry Report, Law Society of New South Wales 2017). 77. Government review of the topic includes the Council of Australian Governments, *COAG National Legal Profession Reforms: Report on Key Issues and Amendments Made to the National Law Since December 2010* (Report, Council of Australian Governments 2010). For an example of academic commentary, see Christopher Gane and Robin Hui Huang (eds), *Legal Education in the Global Context: Opportunities and Challenges* (Routledge 2016). The Priestley 11 subjects must include, at a minimum, 36 hours of direct interaction.

¹⁴ Law Admissions Consultative Committee (LACC), *Accreditation Standards for Australian Law Courses* (2018). Available: <<https://www.legalservicescouncil.org.au/Pages/about-us/law-admissions-consultative-committee.aspx>>.

subject content and approach, and the clear benefits of adopting it. First, technology law is important because it is now central to all aspects of society, and consequently the legal system, and it continues to rapidly evolve and become further integrated and entrenched. Second, it should be taught as a stand-alone subject in order for students to appreciate the vital ethical, regulatory and international contexts and linkage between regulatory approaches to technology across the legal system. Third, the benefit of the stand alone, core subject approach, is that all students gain a broad appreciation of technology law, are better able to understand and adapt to technology issues they will confront in legal practice, and are prepared for more focused electives or honours research in specific areas of technology law, such as cybercrime or financial technology.

III TECHNOLOGY LAW

Prior to considering how technology law should be taught within law degrees, the definition and scope of this relatively new and emerging field should be clarified in order to inform how it can best be presented to students through structured topics and learning objectives. While specific areas of technology law (e.g. artificial intelligence, cybercrime) can be taught in standalone subjects, there is a need for a subject canvassing a more general overview of the field of technology law that all law students require an understanding of, given the importance of the field, and which could then be complemented by further elective subjects.

A *Defining Technology Law*

Over the past 20 years, law and regulation associated with technology has become a central and vital field of law, engaging with almost all aspects of society. It is a complex field: in addition to the scientific aspect of the subject matter, the issues associated with technology develop quickly and often extend beyond specific jurisdictions and have national and international dimensions and implications. Developments in one jurisdiction rapidly have ramifications for others, due to the connectedness facilitated by the internet and communications technologies. New technology is challenging from a legal perspective, new regulatory gaps quickly arise as technology can be implemented very efficiently, particularly in comparison with the process of establishing new laws. One example is the emergence of cryptocurrencies such as Bitcoin, which have required governments to issue guidelines regarding whether they constitute a form of currency, whether they are subject to taxation laws¹⁵ and how

¹⁵ Parliament of Australia, Senate Economic References Committee, *Digital Currency – Game Change or Bit Player* (August 2015). Available: <https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Digital_currency/~media/Committees/economics_ctte/Digital_currency/report.pdf>. See also, Australian Taxation Office, *Tax Treatment of Crypto-Currencies in Australia – Specifically Bitcoin* Available:

to address the anonymity they afford and their use in association with criminal activity.

The first step is to define the field of technology law. As a relatively new field, there remains some debate over its coherence as an area of legal expertise, scholarship, and consequently, teaching. It covers a lot of ground, in a similar respect to some other relatively recent and diverse fields, such as health law or environmental law. Until the mid-2000s, technology law was arguably disjointed and lacked cohesion.¹⁶ As more legal issues arose that did not fit well within the existing paradigms, it became recognised that a new field of law was needed to more clearly understand ‘how a decision will affect other interests once it is integrated within the whole law’.¹⁷ Scholars argue that from a regulatory perspective, a theory of law and technology can provide ‘a structure through which lessons learned from technologies of the past can help make decisions about how to regulate and adapt to future technologies’.¹⁸ It is apparent that technology law is a dynamic field, and it is likely that over time:

...coherence in technology law will become clearer and stronger as we continue to study and identify congruencies among the seemingly disparate topics and the complexity of interactions within the field.¹⁹

Technology is itself a very broad term, and is continually evolving across several sub disciplines, such as information technology, artificial intelligence and genomics. Defining technology law on the basis of specific areas would become dated as each developed and morphed over time. Given the rate of advancement, it seems appropriate to define the subject broadly, with the focus of technology law ‘adjusting law and regulation for sociotechnical change’.²⁰ Brownsword et al. (2017) propose that the unifying question for technology law to address is threefold: the challenge that new forms of technology pose to ‘established legal frameworks, doctrines, and institutions’, the ‘adequacy of existing regulatory regimes’, and the ‘ideas and justifications offered in support of regulatory intervention’.²¹ It is important from the perspective of the legal system, and society more broadly, that the discipline becomes more established, continues to develop, and that there are individuals with relevant expertise. It seems clear that:

<<https://www.ato.gov.au/General/Gen/Tax-treatment-of-crypto-currencies-in-Australia---specifically-bitcoin/>>. (last updated 18 June 2019)

¹⁶ Arthur Cockfield and Jason Pridmore, ‘A Synthetic Theory of Law and Technology’ (2007) 8 *Minnesota Journal of Law, Science & Technology* 475.

¹⁷ *Ibid.*

¹⁸ Lyria Bennett Moses, ‘Why Have a Theory of Law and Technological Change?’ (2007) 8 *Minnesota Journal of Law, Science & Technology* 589, 605.

¹⁹ Michael Guihot, ‘Coherence in Technology Law’ (2019) 11 *Law, Innovation and Technology* 311, 320.

²⁰ Lyria Bennett Moses, ‘Regulating in the Face of Sociotechnical Change’ In Roger Brownsword, Eloise Scotford and Karen Yeung (eds), *The Oxford Handbook of Law, Regulation and Technology* (Oxford University Press, 2017), 576.

²¹ Roger Brownsword, Eloise Scotford and Karen Yeung (eds), *The Oxford Handbook of Law, Regulation and Technology* (Oxford University Press, 2017), 7–15.

New technologies create novel issues that press at the extremes of the established laws. As has been argued, the established fields of law, weighed down by the requirements of field coherence, are often slow to respond in time or with adequate answers...The speed of change, the rate of change, the novelty of the challenges, the rapidity with which they swamp, not only local markets, but the whole world, and the depth of those changes to our society, our environment, and what it means to be human, makes it necessary to have a set of regulatory responses to new technologies that can well respond, in time and at a global level...Technology law must operate where these other laws do not, or cannot adequately. It develops among the interactions between technologies, risks, and their regulation. It works alongside, sometimes with, and sometimes outside of other established areas of law and must be defined accordingly.²²

There is a balancing act at the heart of many issues in technology law—a trade-off between individual and collective rights—in determining how the law should regulate technology. It is necessary to limit the harmful aspects of new technology, while facilitating the development and adoption of beneficial technological advancements and weighing the relevant competing interests. Technology law often deals with major issues that have big implications for individuals and societies. As with other areas of law, such as healthcare, an understanding of ethics and regulatory theory provides a background to the legal questions. For example, vast advances in communications technology have been associated with compromised privacy and autonomy due to the data generated about individuals by their use of the internet and smartphones. While increasing communication, they have led to issues such as surveillance, harassment on social media, and cybercrime. There is great value in examining these issues in an integrated way, rather than through a siloed approach that may cover these issues in other areas of law, like media law, health law, criminal law, national security law, or perhaps overlooking them altogether. Commonalities in terms of issues or regulatory options, arise in one area of technology law that can enrich understanding of other areas, and there is benefit in studying and researching the subject in an integrated manner. This is not to say that there should not be later year electives on specific areas of technology law, such as cybersecurity, these are important, but all students require a general more introductory subject on technology law early in the degree, in addition to the electives that currently cater to students with specific interests in particular subfields of technology law.

At the forefront of technology law are developments in artificial intelligence, providing ever more efficient means to analyse and solve problems, reduce data processing and storage costs, and facilitating new financial opportunities for the private sector. While artificial intelligence offers great potential for human advancement, it also brings potential encroachment upon fundamental human rights such as privacy, autonomy and data security, challenge established principles

²² Ibid.

of legal responsibility, and fundamentally alter the labour market and economy.²³ Developments in machine learning will continue to be implemented in the next decade that will have implications for medical diagnosis, human identification and service provision by government and business – and will become increasingly based on automation, with human intervention limited to oversight roles. The challenge for the legal system is to facilitate the benefits of this technology for society and limit the costs.

In setting the right level of regulation, the law has an important role to play in balancing the complex and multifaceted impact of artificial intelligence and other technologies on individuals and society. It must take account of its potential to impact basic rights and interests, as well as the environment, and democratic institutions; and potential to change the way humans interact, work, access services, obtain information and make decisions:

Adopting the right governance framework is difficult, because AI technologies are complex, are applied across all sectors of the Australian community, and have enormous capacity for social good, social harm—and often both simultaneously. However, Australian stakeholders need to consider and experiment with innovative models for ensuring that the economic gains, social influence and security impact of AI is positive for all... Protecting Australians, while powering our future economy, requires innovation that reinforces Australia’s liberal democratic values, especially human rights, fairness and inclusion. Making this vision real is a complex task. It will involve, for example, carefully crafted laws supported by an effective regulatory framework, strong incentives that apply to the public and private sectors, and policies that enable Australians to navigate an emerging AI-powered world.²⁴

Greater understanding of technology law provides a foundation for lawyers to contribute to improved regulation and dispute resolution of issues associated with technology. This is a complex area that is rapidly growing in importance and brings with it a great need for expertise, as evidenced by the imminent impact of AI technologies.

B *The Scope of Technology Law*

Having considered what technology law is, how it can be defined and why it is important as a field of scholarship and knowledge within the legal system, the next step is to define its scope. Technology law begins with a foundation in ethics, regulatory theory, human rights and privacy law, as these perspectives are relevant throughout. Technology law incorporates technology relevant aspects of existing fields of law.²⁵ These fields should be relatively stable over time: business; criminal justice; healthcare; intellectual property; communications and

²³ Australian Human Rights Commission and World Economic Forum, *Artificial Intelligence: Governance and Leadership White Paper* (2019), 5.

²⁴ *Ibid* 6.

²⁵ Theodore Ruger, ‘Health Law’s Coherence Anxiety’ (2008) 96 *Georgetown Law Journal* 625, 627; Todd Aagaard, ‘Environmental Law as a Legal Field: An Inquiry in Legal Taxonomy’ (2010) 95 *Cornell Law Review* 221, 229.

cybersecurity. A student, practitioner or researcher in the subject must understand technology law in an integrated manner in order to appreciate the regulation of interrelated topics and to apply learnings and regulatory strategies from one area to another. Gaining an adequate understanding of technology law also necessitates at least a basic understanding of the technology itself, followed by the context, relevant policy issues, legislation, case law, international perspectives and gaps in the regulatory framework. There will be some overlap between these subtopics of technology law and other areas of the curriculum, where they may be considered in more detail, in the same way that negligence is covered in the health law curriculum but explored in more detail and context in the tort law subject. The following is a brief overview of ten core fields of technology law.

1. *Technology Regulation* focuses on epistemic, ethical and regulatory perspectives, beginning with a discussion of relevant regulatory theories, the central ethical and political theories such as social contract, consequentialism and deontology; an epistemic discussion of the nature of scientific knowledge; regulatory theorists such as Lessig²⁶ and Reidenberg,²⁷ and finally, case studies of previous government and the legal system responses to new technology.²⁸
2. *Data Protection and Privacy* focuses on substantive legislation, common law and human rights instruments. It includes the principles of the law of privacy and a comparative discussion of equivalent provisions in international jurisdictions. It also encompasses how these interact (or are likely to) with respect to new forms of technology, and the ongoing need to manage the benefits and challenges of technology, particularly with respect to personal information, communications technologies and the internet.²⁹
3. *Business Transactions* include the regulation of new technologies that facilitate financial transactions, including smartphone apps and smart contracts. It includes online payment systems, cryptocurrencies, block chain and the significant and the associated issues of online fraud and financial crime, along with approaches to mitigate these concerns.³⁰
4. *Criminal Justice* issues include identification technologies such as digital fingerprints, DNA and facial recognition systems, which are increasingly important to criminal investigations and related areas such as national security. The use of other technologies such as metadata and automated number plate recognition systems to identify suspects in investigations are also relevant. A key theme is

²⁶ See e.g. Lawrence Lessig, *Code and Other Laws of Cyberspace* (Basic Books, 1999).

²⁷ See e.g. Joel Reidenberg, 'Lex Informatica: The Formulation of Information Policy Rules through Technology' (1998) 76 *Texas Law Review* 553.

²⁸ See e.g. Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law "By Design"?' (2021) 95 *Tulane Law Review* 1063.

²⁹ See e.g. Roger Clarke, 'Privacy and Social Media: An Analytical Framework' (2014) 23 *Journal of Law, Information and Science* 169.

³⁰ See e.g. Phillipa Ryan, *Trust and Distrust in Digital Economies* (Routledge, 2020).

balancing individual rights with the imperative to use available technology to protect the community from harm.³¹

5. *Healthcare* issues begin with a contemporary understanding of patient rights and regulatory frameworks, such as consent, confidentiality and electronic health records. Genomic medicine, including associated databases, assisted reproductive technologies, human cloning, gene editing and stem cell technology is a major focus, along with the development of artificial intelligence based diagnostic tools.³²
6. *Cybersecurity* is a rapidly expanding area of international criminal law and security, and a complex challenge for law enforcement and governments. Key issues include unauthorised access and disruption to computer systems, such as fraud, hacking and distributed denial of service attacks.³³
7. *Communications Law* issues include the regulation of social media applications such as Facebook, Twitter and Instagram, material posted on the internet generally, the use of personal data for advertising purposes, as well as image-based exploitation, cyberbullying, defamation and harassment. It examines the advent of the internet as a facilitator of instantaneous global communications and the challenges this poses for individuals, law enforcement and governments.³⁴
8. *Intellectual Property* examines how modern developments in data storage and transfer have impacted ownership rights in the media industry, online piracy through file sharing systems more broadly, as well as forms of copyright and digital trademark infringement, such as those relating to computer software.³⁵
9. *Artificial Intelligence* is associated with a range of unique and challenging questions for the law in light of the capability it holds for non-human decision making and the need for public safety and responsibility and liability for error. Notwithstanding these issues, it offers great potential for advancements in living standards and efficiency. Technology law has a vital role to play in mediating the benefits and potential costs of AI.³⁶
10. *International Perspectives* include the challenges of responding to technology developments, for governments, law enforcement and the private sector, in an international context, including managing

³¹ Marcus Smith and Gregor Urbas, 'A Century of Science in Australian Criminal Law' (2019) 47 *Australian Bar Review* 72; Marcus Smith and Gregor Urbas, 'Prints, Profiles and Templates: Adducing Biometric Evidence in Australian Courts' (2019) 93 *Australian Law Journal* 668; Marcus Smith, *DNA Evidence in the Australian Legal System*, LexisNexis. *Legal System* (LexisNexis, 2016).

³² Marcus Smith and Rachael Heath Jeffery, 'Addressing the Challenges of Artificial Intelligence in Medicine', (2020) 50 *Internal Medicine Journal* 1278.

³³ See e.g., Gregor Urbas, *Cybercrime: Legislation, Cases and Commentary* (Lexis Nexis, 2nd ed., 2020).

³⁴ See e.g., Alan Davidson, *Social Media and Electronic Commerce Law* (Cambridge University Press, Second Ed., 2018).

³⁵ See e.g. Mark Davison, Ann Monotti and Leanne Wiseman, *Australian Intellectual Property Law* (Cambridge University Press, 3rd ed., 2020).

³⁶ See e.g., Michael Guihot and Lyria Bennett Moses, *Artificial Intelligence, Robots and the Law* (Lexis Nexis, 2020).

economic impacts, investigating and enforcing the law in relation to technology-based offences, system interoperability and data security.³⁷

The regulation of new technology is complex and subject to continuing development. Legal and regulatory responses to technological advancement, and the risks and opportunities associated with it, must balance competing objectives and be cognisant of this ongoing development. It requires a sufficient understanding of the scientific basis of the technology in order to appreciate its current and potential application. Governments and courts are tasked with formulating responses to technologies that continue to evolve. By the time consultation has been conducted, research and comparative analysis undertaken, advice taken, and laws drafted, passed by the parliament and implemented by the executive – a process that can take years – there is a high probability that the technology itself will have progressed, adapted and been implemented in such a manner as to render ‘new’ law obsolete and ineffective. This needs to be borne in mind when engaging with technology law and regulation and means that a background of theoretical and regulatory approaches, privacy law, historical developments and international frameworks is necessary for considering the ramifications of contemporary issues and ongoing developments in the field.

IV TECHNOLOGY LAW EDUCATION

This article has discussed the role and regulation of legal education and defined the important and emerging discipline of technology law. The field is fast becoming centrally important to contemporary legal systems and society, and there is therefore a need for mainstream legal education to incorporate the field. As noted above, accreditation bodies have already expressed an expectation that law schools articulate how technology is embedded into the curriculum and how their courses prepare law students for the increasing relevance and application of technology to legal practice.³⁸ Over time, this should become a more formal requirement, perhaps as part of a future review of the Priestley 11 subjects. A compulsory technology law subject can reasonably be expected to be included within contemporary law degrees. There may be a number of reasons why this has not occurred to date. These include the conservative nature of the legal profession, accreditation bodies and legal education; a lack of expertise among existing law academics with the capacity to teach the subject; a lack of development and

³⁷ See e.g. Rosemary Rayfuse, ‘Public International Law and the Regulation of Emerging Technologies’ In Roger Brownsword, Eloise Scotford, and Karen Yeung Eds., *The Oxford Handbook of Law, Regulation and Technology* (Oxford University Press, 2017).

³⁸ Law Admissions Consultative Committee (LACC), *Accreditation Standards for Australian Law Courses* (2018). Available: <<https://www.legalservicescouncil.org.au/Pages/about-us/law-admissions-consultative-committee.aspx>>.

coordination of the technology law curriculum and learning outcomes; and a lack of resources, such as texts, to support student learning in the subject. Just as core law subjects, such as corporations law, have a standard curriculum that law schools are required to teach, this should also be required for technology law. Technology law curriculum development, and associated material such as textbooks, are required to fill this gap. Whether seeking to educate practice ready lawyers for today, lawyers of the future, or graduates that will work in a variety of legal and non-legal careers;³⁹ or seeking to fulfill the role of law schools to create and transfer legal knowledge more broadly, contemporary legal education needs to incorporate a subject in technology law. The remainder of the article discusses existing approaches in Australia and proposes a standardised curriculum and learning material to teach technology law as a core subject in Australian law degrees.

A *Subject Scope and Structure*

There are a range of subjects taught in Australian law schools that presently include technology law content.⁴⁰ These include subjects in 'information technology law' such as *LAWS4245 Information Technology Law* at the Australian National University. This subject covers five areas: intellectual property, censorship, privacy, cybercrime and e-commerce.⁴¹ A similar subject is *LAWS5151 Law and Technology* at the University of Queensland. It covers electronic banking, electronic business transactions, cybercrime, jurisdictional issues and privacy.⁴² In addition to these more general subjects, there specialised subjects that focus in detail on specific areas of technology law, such as cybercrime, artificial intelligence, biotechnology and intellectual property. For example: *LAWS3040 Regulation for Cyber Security*, or *LAWS3196 Designing Technology Solutions for Access to Justice* at the University of New South Wales;⁴³ or *LLB341 Artificial Intelligence, Robots and the Law* at the Queensland University of Technology.⁴⁴ This type of subject will have an important place in the law school curriculum as a later year optional elective in the technology law field for students with a particular interest in specific areas. However, all law students should be required to study a more

³⁹ Harry Arthurs, 'The Future of Law School: Three Visions and a Prediction' (2014) 51 *Alberta Law Review* 705, 706.

⁴⁰ A helpful analysis of technology law related subjects at Australian and overseas law schools is provided in: Aaron Timoshanko and Caroline Lydia Hart, 'Teaching Technology into the Law Curriculum' (2020) 21 *Journal of the Australasian Law Academics Association* 1.

⁴¹ Australian National University, *LAWS4245 Information Technology Law*. Available: <<https://programsandcourses.anu.edu.au/2020/course/LAWS4245>>.

⁴² University of Queensland, *LAWS5151 Law and Technology*. Available: <https://my.uq.edu.au/programs-courses/course.html?course_code=LAWS5151>.

⁴³ University of New South Wales, *LAWS3040 Regulation for Cyber Security, LAWS3196 Designing Technology Solutions for Access to Justice*. Available: <<https://www.handbook.unsw.edu.au/undergraduate/programs/2022/4701>>.

⁴⁴ Queensland University of Technology, *LLB341 Artificial Intelligence, Robots and the Law*. Available: <<https://www.qut.edu.au/study/unit?unitCode=LLB341>>.

introductory overview of technology law within their degree. Finally, there are already some subjects that take a wider approach to technology law to incorporate policy and regulation. For example, the subject *76106 Technology Law, Policy and Ethics* at University of Technology, Sydney;⁴⁵ however, this is presently framed as a capstone subject. It addresses a wide range of law, policy and ethical issues associated with technology, including technology regulation and ethics, privacy, e-commerce and blockchain, legal practice, surveillance, artificial intelligence and autonomous weapons.

A compulsory technology law subject could be suitably incorporated as part of the second year of a law degree, following the standard three hour per week (or equivalent online approach) with the subject outcomes mapped to the course objectives, graduate learning outcomes and the AQF requirements for a level 7 qualification. The subject should include an introduction to relevant ethics and regulatory approaches, historical developments, and privacy law as part of providing students with a broad overview of technology law and its significance. A subject at this stage of the degree, could function as a prerequisite to further, more focused and specialised technology law electives, such as those existing subjects on cybercrime or artificial intelligence, or as a stand-alone subject that would provide an adequate background for understanding the implications for other areas of law within the degree and in legal practice. The broad approach is important, allowing students to appreciate the interrelatedness between different areas of technology, law, regulation, ethics and regulatory theory; and the broad relevance of technology regulation within society and the legal system. Given that the field is continually evolving and changing, it should provide students with a capacity for lifelong learning.

A summary of an introductory technology law subject, required to be taken by all law students as part of the second-year curriculum of Australian law degree could be as follows:

This subject introduces students to technology law, the regulation of modern technologies associated with business, communications, health, criminal justice, data analytics and intellectual property, as well as associated ethical, regulatory, and privacy perspectives. Students will examine the development of the legal system in response to new technologies in Australia, incorporating selected international examples. Topics include law and regulation of technology associated with data security, technology-based identification in the criminal justice system, technology-based diagnosis and treatment in medicine, blockchain transactions, social media regulation, cybercrime, intellectual property rights, and legal responsibility for artificial intelligence based decision making.

⁴⁵ University of Technology, Sydney, *76106 Technology Law, Policy and Ethics*. Available: <<https://handbook.uts.edu.au/subjects/details/76106.html>>.

A summary of the syllabus and learning outcomes for the technology law subject could include the following:

1. Ethics and Regulation
2. Data Protection and Privacy
3. Business Transactions
4. Criminal Justice
5. Healthcare
6. Cybersecurity
7. Social Media
8. Intellectual Property
9. Artificial Intelligence
10. International Jurisdiction

Upon successful completion of this subject, students should:

- be able to critically evaluate the implications of new technology, including associated ethical, regulatory and policy considerations;
- be able to critically evaluate the role of data protection and privacy law in relation to information technologies;
- be able to articulate and apply the law relating to technology in the business and finance sectors;
- be able to articulate and apply the law relating to identification technologies in the criminal justice sector;
- be able to articulate and apply the law relating to technology-based diagnosis and treatment in the healthcare sector;
- be able to articulate and apply the law relating to cybercrime and cybersecurity
- be able to articulate and apply the law relating to social media;
- be able to articulate and apply the law relating to intellectual property protection;
- be able to critically evaluate the significance of artificial intelligence for the legal system; and
- be able to critically evaluate the role of international and jurisdictional issues associated with technology law and regulation.

In association with syllabus and learning outcome development, there is a need for an Australian academic law text on technology law, suitable for prescribing for law students (and also as a resource for legal practitioners, policy makers and researchers) to support the teaching of technology law. Despite the regulation of technology being an area of the law that is rapidly growing in importance, there are few textbooks currently available that cater for students in this area, particularly with respect to the field of technology law generally, as opposed to monographs on subtopics within the field. Ideally, such a text would also be accessible and relevant for students in other degrees associated with technology, and for practicing lawyers in this field. A number of texts currently available would be suitable for elective subjects in technology law, such as: *Artificial Intelligence, Robots and the Law* by

Guihot and Bennett Moses,⁴⁶ *Cybercrime: Legislation, Cases and Commentary* by Urbas,⁴⁷ and *Social Media and Electronic Commerce Law* by Davidson.⁴⁸ International texts that deal with these issues in an integrated manner include those on *Information Technology Law*, published in the United Kingdom by Lloyd and Murray.⁴⁹ Their scope includes data protection and privacy, cybercrime, intellectual property and e-commerce, but do not extend to healthcare, criminal justice or artificial intelligence, and are of limited relevance to Australian students and practitioners outside the United Kingdom and European jurisdictions. *Technology Law: Australian and International Perspectives* by Smith and Urbas,⁵⁰ published by Cambridge University Press, integrates this broad range of areas of technology law and provides an overview of the field of technology law suitable for undergraduate and postgraduate law students as well as lawyers, judicial officers, legislators, policy makers and researchers. It provides coverage of the areas of technology law described in the syllabus and learning outcomes outlined above. This includes a general discussion of theoretical and ethical perspectives, regulatory approaches, privacy and data protection issues, international jurisdictional issues, and chapters on technology law in healthcare, criminal justice, commercial transactions, cybersecurity, social media and intellectual property.

V CONCLUSION

Technology law is an important subject that should no longer be studied in a piecemeal fashion within other law subjects. Although its importance is beginning to be recognised by accreditation bodies and legal academics, a range of factors contribute to it not being taught as effectively as it should be, including an incoherent approach, a lack of expertise, and the pace at which technology is advancing. It is clear that technology law and regulation is now a critical issue for society: in business, government administration, healthcare, law enforcement, cybersecurity, and other fields. The law must play a vital role in regulating its use in these contexts, facilitating the advantages it can bring for the community, and limiting the costs. Knowledge and understanding of technology law should be recognised as vital for law students and a necessary part of the contemporary law curriculum.

This article has situated technology law education with the existing regulatory framework, defined technology law, and discussed its

⁴⁶ Michael Guihot and Lyria Bennett Moses, *Artificial Intelligence, Robots and the Law* (Lexis Nexis, 2020).

⁴⁷ Gregor Urbas, *Cybercrime: Legislation, Cases and Commentary* (Lexis Nexis, 2nd ed., 2020).

⁴⁸ Alan Davidson, *Social Media and Electronic Commerce Law* (Cambridge University Press, Second Ed., 2018).

⁴⁹ Andrew Murray, *Information Technology Law* (Oxford University Press, 4th ed., 2019); Ian Lloyd, *Information Technology Law* (Oxford University Press, 9th ed., 2020).

⁵⁰ Marcus Smith and Gregor Urbas, *Technology Law: Australian and International Perspectives* (Cambridge University Press, 2021). See also, Marcus Smith, *Technology Law: Cases, Commentary and Materials* (LexisNexis, 2022).

significance as an emerging field of specialisation. It has articulated a curriculum for law students, proposing a core, and ideally compulsory, technology law subject that provides a broad understanding necessary for effective legal practice, just as the existing Priestley 11 subjects are acknowledged as vital areas of knowledge for students seeking admission to practice law. The subject described can also serve as an overview of the field before proceeding to more specialised study in technology law, or simply provide the general knowledge base required for law graduates today.

Technology law is an important field for law students to understand because of its rapidly increasing centrality to society and the legal system. Requiring it be taught as a core, stand-alone subject will enable all law students to be exposed to its relevance in a wide range of areas, appreciate its ethical, regulatory and international dimensions, understand links between technologies used in different sectors and associated regulatory approaches; and prepare them for modern legal practice as well as further study and research.