Lecture Notes

Contemporary Legal Knowledge and Practice: Law and Technology

This topic is about law, but also about technology. We will study the regulation and use of technology by law, as well as the regulation and use of law by technology. We will try to put substance to such overused and abused terms as "law and technology", "cyberlaw", "technology regulation", "artificial intelligence", "blockchain", and more. This will be done by looking closely at these so-called emerging technologies, asking difficult questions about the kinds of legal issues they raise, and whether these are properly attributable to issues with the law, the nature of the technology itself, or both. The aim is to help you develop a vocabulary and mental framework for analysing and advising on technology-related legal matters and transactions. And, as a bonus, to help you more credibly claim, if you invariably must, to be a "technology lawyer".

How to study this topic

You will notice that the sub-topics and readings below differ from those of other topics like civil litigation or M&A. There will be a bit less law and legal procedure, a bit more theory and technological detail. This is because I have not practiced law and technology. Neither, for that matter, has anyone else, since law and technology is not an area of practice per se. Rather, much like technology, it attaches itself across disparate fields, lying in wait for its next unsuspecting victim to wander too close, oblivious to its existence. At which point it pounces and devours them whole. "Wait…there was a tech issue here all along?!"

This topic attempts to provide you with some basic senses for identifying legal and technical issues raised by technology, so you know when to seek expert legal or technical help when necessary. Just as law school teaches you to spot legal issues by requiring you to read a minimum set of core cases, statutes, articles in each area, you will be required here to read several cases, statutes, and articles that every aspiring (tech) lawyer should know.

As with law school, you may choose to get by using secondhand accounts and summaries of these instead. But, like going to the gym, results are usually best when you put in the work yourself. For each sub-topic below, you should first work through the reading list *before* watching the accompanying video lecture. Readings marked with asterisks (*) warrant special attention. They should be read in full if possible unless otherwise stated. Certain parts of the reading list will may also ask you to go out into the Internet and do your own research. This especially for sections dealing with how certain technologies work, as this can only be shown, not told. Work through as much of these materials as you can before each contact session.

Expectations

Try and come to each session prepared with knowledge, thoughts, and questions. Most of each contact session will be reserved for you to ask them. I will be grateful for dialogue after speaking to myself for hours to record your video lectures. As thanks, I will ask you some

questions at the end of the course as well as part of the exam. These questions will be modelled on two archetypes. First are simple, knowledge retrieval questions about course materials. Who wrote X and what was their main argument? What is this concept generally understood to mean and how is it significant? How was a certain area regulated in the past? Second are higher-order questions modelled on technology-related issues that your future superiors and clients may ask you about, whether over a 'casual' dinner, or when they're trying to assess if you are law-and-tech-savvy enough to be hired or engaged. To be clear, these are but illustrations.[1] The actual questions will vary in content and difficulty.

[1] See section 7A of the Interpretation Act (Cap 1).

I. Introducing Law and Technology

Regardless of what law school you graduated from, you've probably been reminded at some point of the importance of understanding technology and its relationship with law. Presumably, as a good and conscientious student, you took the advice seriously and sought to learn some "law and tech". This may have proven confusing. Which aspects of the nearly everything that seems to pass nowadays for law and tech were you supposed to learn? And how was, say, understanding how proof-of-work consensus mechanisms work versus proof-of-stake supposed to help you in practice? If you've struggled with this before, good for you. If not, now is the time to start. In this first sub-topic, we will try to put some form and substance to the amorphous field that is law and technology.

The problem starts early, in the field's very name. Both law and technology are hopelessly broad terms that can encompass quite many things. In certain contexts, law itself might be described as a kind of (social) technology. Worse, it is not clear whether law and tech refers to lawyers writing about tech, technologists writing about law, lawyers writing about the laws of technology, technologists writing about the technology of law, and so on. Contrast this with fields like law and economics or law and society, which have both decided to become primarily analyses of law written by economists and sociologists respectively.

Rather than try to define the undefinable, we will try to understand the field by considering core examples of law and technology research, legislation, and case law. Indeed, learning by example will be a common theme throughout this topic. To start out, read the following articles (in order):

- Judge Easterbrook's analogy that L&T is like the Law of the Horse.* Does he support or detract from viewing L&T as a field in itself? Why or why not?
- Lawrence Lessig's response on what cyberlaw might teach.* What is Lessig's essential answer to Easterbrook's Law of the Horse?

The next question, assuming law and technology is or can be a standalone legal area, is how it might relate to more conventional areas of law like torts and contracts. We know what a "torts issue" or a "contract issue" would be. Was there proximity? Was the offer valid? Did the counterparty *know* of the fundamental mistake as to terms? What would a law and tech issue look like? Or, at least, when might there be a technology issue hidden within a seeming tortious or contractual matter? Read the following materials and see if you can spot any law and tech issues raised.

- B2C2 v Quoine Ltd [2020] SGCA(I) 2* (focusing on the contract law issues only)
- Vincent Ooi on Software Contracts and Mistake (skim)
- Gary Chan on online defamation (skim this, we will revisit online defamation later)

After you've done the readings and have some thoughts of your own, watch the first video lecture. By the end of this segment you should have some preliminary ideas about the field and how to study it.

II. Technology Regulation: History and Principles

The Idea of Technology Regulation

Although law and tech sounds like a hip new thing, laws and regulations have always had to deal with technological change. In this segment, we will examine how law has historically regulated technology, and how technology has, in turn, shaped law. We start by considering what it might mean to "regulate technology" to begin with. Read:

- Lessig's Code 2.0, Chapter 7.* What are the four "modalities" and how do they work? What does Lessig mean when he speaks of the modalities as "regulators"? What, who, why, and how are we regulating?
- Next, read Bennett Moses' How to Think about Law, Regulation, and Technology (focus on pp 1-10 and read also the conclusion).* How does Moses define the concept of technology regulation?
- Finally, read Yeong Zee Kin's chapter on Regulation of Technology in Law and Technology in Singapore by Simon Chesterman, Goh Yihan, and Andrew Phang (Academy Publishing, 2021).* This is a long and instructive chapter. Read pp 67–76 and 120–131 in full, skim the other case study sections. Again, what is "technology regulation" here?

Case Study I: Automobiles

The mass-produced automobile is one of the most significant technological shifts in the past decade. It prompted a radical change in law, especially but not just in America. Read:

- My Automated Vehicles piece, p 9–11 **only***
- Lewyn (2017), The Criminalization of Walking, especially p 1168–1173*
- Schiller (2020), Should Law Subsidize Driving?, especially p 526–530*

As you read these works, consider how automobiles shaped traffic law and regulation as we know it today. What were the key driving forces? Was technology the only thing at work?

Case Study II: Regulating the Early Internet

The Internet or the "Cyber" gave lawyers real headaches when it first emerged. Originally designed as a system for academics to share pre-prints and for the Army to communicate, the Internet has always raised difficult legal questions - even before Web 2.0 technologies like social media and the so-called web3. For important background, read:

- How does the Internet work?
- Chapter 6 of Code 2.0 on the essential features of cyberspace the challenges it raises for regulation.* Optional reference can also be made to Chapters 3 and 4

We will then look specifically at electronic transactions. Singapore enacted the Electronic Transactions Act in 1998 to specifically clarify certain aspects of online transactions. Skim the Act for a broad overview of its structure and sections. Now consider a rule like section 11. Was it really necessary to say this? Would the usual principles of contract law not apply automatically to similar effect? Isn't passing a law specifically for electronic transactions just another Law of the Horse? For some context on Parliament's policy here, read the parliamentary debates from that era.

Now consider the cases below in light of the ETA. Did the ETA help? Why or why not? What were the law and tech issues arising in these cases, if any at all?

- Chwee Kin Keong v Digilandmall [2005] 1 SLR(R) 502*
- SM Integrated Transware v Schenker Singapore [2005] 2 SLR(R) 651

III. Emerging Technologies and Law

The second half of this topic will cover three emerging technologies: digital platforms, blockchain, and artificial intelligence. These case studies were chosen because they raise current legal issues but are relatively difficult for you pick up on your own. Each will have its own section below.

We focus on emerging technologies for the simple practical reason that, given their newness, they continue to raise legal questions that remain largely unanswered. These are, therefore, areas where clients remain willing to buy advice for. You will probably not get anyone asking about the validity of an electronic contract anymore. This does *not* mean that only emerging technologies are worth studying, nor that only these technologies are of legal import.

Indeed, the very nature of technology is such that things constantly change, and the significance of specific technologies will wax and wane (who remembers the Metaverse?). Thus, on top of learning about the technical mechanics of each technology below, consider the law's general relationship with new technologies more broadly and see if you can acquire skills for taking on other areas of technology that legal practice will inevitably place before you.

Digital Platforms

The rise of e-commerce platforms like Amazon, Ebay, and Paypal as well as social media platforms Facebook and Twitter (as they then were) characterised the rise of Web 2.0 and most of the early 2000s. Although each platform serves different users, purposes, and markets, they all trade on the same thing: user-created content. Some of you may remember that when Facebook was founded in 2004, it offered a refreshing twist from traditional webpages. Users could easily create and share their own profiles, thoughts, and stories. Facebook's early days also saw the rise of indie games such as MouseHunt and FarmVille. Despite the rich user experience, very little of its substantive content was actually created by Zuckerberg and team. Instead, games and other content were created for Facebook by developers hungry for access to Facebook's user-base; Facebook's large user-base was, in part, driven by the popularity of these games.

Facebook's illustrates how a "platform", by definition, is simply a stage for interactions between its users. Users may be of different types: in any given market we need both buyers and sellers. Buyers only go on a platform if there are enough sellers; sellers only go on if there are enough buyers. Ditto for dating apps. Every user creates what economists call "positive network externalities" for the other users. To survive, a platform needs to not only attract enough users, but also keep them sufficiently engaged that they continue creating content.

This sets up a unique dynamic. On one hand, platform companies do not have full control of the content on their platforms simply because they are not the original creators. And they will never be, for that goes against the platform's core value proposition. On the other hand, they cannot leave content creation entirely to their user's whims and fancies. Many have organised their cyberspaces to maximise user engagement and retention. As Lessig would probably remind us, through code, platform do have some control over their users and content after all.

This dynamic takes centre stage when we consider the legal issues around the gig economy and online defamation.

Are Gig Workers Employees?

On-demand apps like Uber and Grab are really platforms for people to buy and sell human labour. For years these platforms have successfully maintained that those who sell their labour on the app are themselves users, and should therefore be seen in law as independent contractors, not employees. They are not entitled to any of the protections offered by employment law. You should recall from law school that the hallmark of employment status, beyond what the contract or/for services formally states, is the employer's control of the worker and the worker's integration into the business.

This is now changing. A landmark UKSC decision* in 2021 declared Uber drivers to be "workers" under the meaning of their Employment Act, though whether they are also "employees" remains an open question. Read the case carefully and consider how the UKSC arrived at this conclusion. How did they approach the issue of Uber's control over its drivers?

Meanwhile, France (by court decision) and Spain (by legislation) have already decided that Uber drivers are employees in their jurisdictions.

While Singapore does not have as strong a tradition of labour law as most Western countries, we generally do not like waiting until the problems of social policy must be resolved by the courts. A committee was set up in August 2021 to examine the status of platform workers. In November 2022 it published a substantial report which recommended, amongst other things, "requiring Platform Companies that exert a significant level of management control over Platform Workers to provide them with basic protections" (at [10]). These protections include obligations for platforms to provide work injury compensation commensurate to those of employees and rights to form representative bodies. These will kick in gradually over 2024. The committee also clearly recommended that platform workers, much like legal trainees, are not "employees". Skim through the committee's report, paying special attention to how it approaches the question of "management control".

Online Defamation

Platform liability for user-created defamation is another question that has spurred litigation. In the US, section 230 of the Communications Decency Act provides that "[n]o provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider" (47 U.S.C. § 230), raising formidable barriers to platform liability there. The High Court of Australia has considered the issue at length in Fairfax Media Publications Pty Ltd v Voller [2021] HCA 27,* a case which that led to a rather remarkable outcome. Read the case, focusing on Gageler and Gordon JJ's judgment,[2] and consider how far Singapore might, and should, adopt a similar approach. The essential question here is a difficult but far-reaching one: when does, and should, the actions of users be attributed to a platform?

[2] And optionally also the other majority judgment at [23]–[49].

Presently, Singapore does not have any provisions comparable to section 230. Neither do we have any cases on platform defamation. The Protection from Online Falsehoods and Manipulation Act and Broadcasting Act, as amended by the Online Safety (Miscellaneous Amendments) Act 2022, provide some regulatory means for shaping content on online platforms in line with public interest, but mostly leave open the question of private liability. The closest case study is one on defamation by hyperlink: Lee Hsien Loong v Leong Sze Hian [2021] SGHC 66.* *Briefly* read the case facts and consider if the *platform* in question might have been liable for defamation as well.

The Blockchain

You probably know that the blockchain was popularised by an unknown individual by the pseudonym of Satoshi Nakamoto. He/she/they created Bitcoin, the most popular cryptocurrency in existence. Blockchain has now been folded into a larger family of data structures we refer to as Distributed Ledger Technology (DLTs). Unfortunately for us, this technology is complex and difficult to understand. And for any given technology, how difficult it is for the average person to understand it is directly proportional to how easy it is for the average fraudster to misrepresent. Are blockchains truly immutable? Are they secure? Do they store value? Should blockchain be law? What is a block? Who is Satoshi Nakamoto? Why do you need to know this stuff?

Answering all this requires some appreciation of the basic computer science powering the idea. There is no better way to understand this than to read the original Bitcoin white paper. However, this paper is difficult to follow unless you have a basic understanding (~year 2 undergrad level) of computer science. Therefore I will direct you to Vincent, Kian Peng, and my work offering a more lawyer-friendly introduction to the original Bitcoin blockchain and its variants* (focus on the Technology section).

Finally, for a better idea of what blocks actually look like in the real virtual world, look at the Bitcoin blockchain on Blockchain Explorer. Click on one of the pink squares to see the data inside each block. Now that you have a clearer understanding of the blockchain, do you think cryptocurrencies should count as property? What about other types of crypto assets? Read the SGHC's recent decision in ByBit Fintech Ltd v Ho Kai Xin and others 7[2023] SGHC 199 (focusing on Issue 1).

Artificial Intelligence and Law

The beginning of wisdom in AI and law is a clear, technical understanding of what AI is. Confusion and media-driven misconceptions about this have led to wild speculation, including amongst those who should know better, about how law should approach AI. This may not always be simple carelessness or sloth; it can sometimes be wilful blindness meant to allow certain (profitable) positions for or against AI to be taken. Consider, for instance, how AI is portrayed in the following 'news' articles:

- https://www.cnet.com/news/crazy-eyed-robot-wants-a-family-and-to-destroy-all-humans/

- https://www.theguardian.com/technology/2018/mar/19/uber-self-driving-car-kills-woman-arizona-tempe
- https://www.wired.co.uk/article/generative-ai-is-coming-for-the-lawyers

Do the articles above accurately portray AI? Or are they based more on science fiction and Hollywood movies? I wrote about this in a recent piece* that will be discussed over the video lectures and during the contact session.

Finally, as a **completely optional** exercise, skim the EU's proposed Artificial Intelligence Act which tries to comprehensively regulate AI, GDPR-style. Do not spend too much time reading into the precise words of the proposal for now, as the provisions are actively being debated and refined (see the latest comparison table if you're interested). Get a sense of what it aims to do and how. EU law will *not* be examined – this is the Singapore Bar Exam after all – but some working knowledge of this Act may turn out to be helpful in practice.