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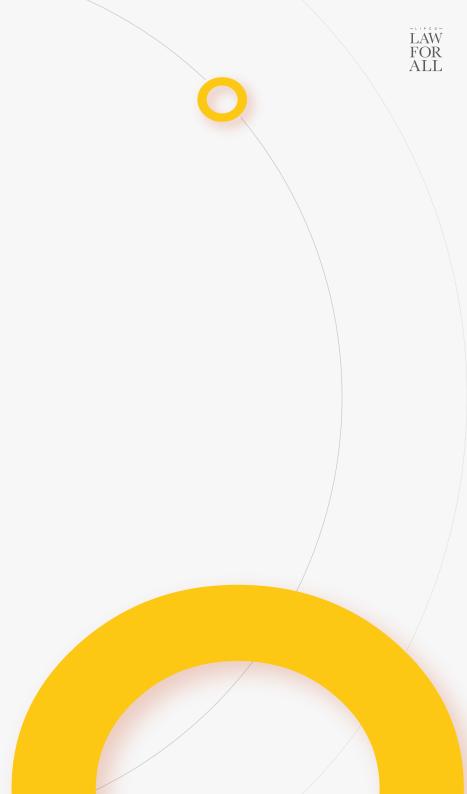
1.INTRODUCTION

To understand the impact of the 4th Industrial Revolution (4IR) on the practice of law, a scan was done of the current trends taking shape in the legal ecosystem. This implemented the 'STEEP' methodology: an external environmental analysis which considers the social, technological, economic, environmental and political factors arising from the 4IR (and more immediately, the COVID-19 pandemic).

To consider the future for law, we have to reflect on the now – and this understanding has to pivot from the global to the local, and back again. The 4IR is an age marked by emerging technologies, and that can be threateningly obfuscating (as Arthur C. Clarke famously observed: "Any sufficiently advanced technology is indistinguishable from magic.").

Yet, one key thing our outline shows is that embracing complexity is a fundamental first step (technology may in fact help us dissect, and predict, that very same complexity). The dialectical influence of many of the phenomenon within the social, technological, economic, environmental, and political spheres in some ways makes a mockery of our attempts to classify them, but at the same time key lessons in these disruptions come out starkly.

These lessons, and predictions, can serve as useful guides to practitioners in navigating the 4IR. While some of our more future-forward considerations are detailed in the report, our more immediate takeaways can be summarised as:



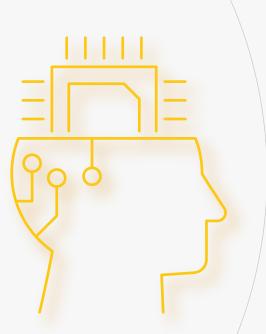
2. PRAGMATIC PREDICTIONS

The definitive social development is the prioritisation of trust as a normative priority (this is underscored, more negatively, by fear). And while some people are embracing the digital, in South Africa many people – and businesses – are being left behind in this digital rush (a phenomenon that has only been enhanced by the COVID-19 crisis).

For legal practitioners to not be left behind, embracing cloud-base service can be a low-cost introduction to dipping your toes in the digital waters. However, in the long-term, the legal industry will benefit from in-house technical talent (and will need to adapt its human resources models, and University priorities, accordingly).

In terms of skills and priorities, in is not just a question of "adapt or die" anymore in the 4IR, but also the threat of "diversify or die". This is true for both businesses, and practitioners.

The role of law itself will need to focus significantly on regulation in the technological sphere, while considering both global and local developments responsively.





3. SOCIAL | DIGITAL DISJUNCTURE & TRUST

SYNTHESIS

The law has no history, according to Marx and Engels in Die Deutsche Ideologie. It is an epiphenomenon, a superstructure determined by socio-economic relationships. In such a way, lawyers are merely the agents and supporters of the rules. Studying their history, and by implication, their future, could bring us nothing new. We have to study the world to understand the sphere of law.

There are challenges to looking to where we are, which have to be set against looking at where we will be. How far forward do we look, when we need to focus our resources on more immediate and certain priorities? This scan will consider the major trends to try and both explore the future implications of 4IR, but also flag the more immediate trends that will impact the legal practitioner environment. As the concept of law changes in accordance to society, we have to try and balance the reality of how proactive the role of law can be to regulating change. It will be the practitioners of law, as the embodiment of society at large, who really influence the passage of the industry.

How then is the 4IR affecting the social order? Digitalisation may offer benefits, but automation, robotics and Artificial Intelligence (AI) are disrupting what human skills are deemed valuable (McAfee & Brynjolfsson, 2018). If you have the right skills and opportunities, technology can be leveraged to create and capture value (McAfee & Brynjolfsson, 2018). But the exclusion of both people, and businesses, from reaping digital dividends without the right skills or access is stark. The digital opportunities are not present equally: in countries like South Africa, stark digital inequalities mean society is divided into the digital haves, and the digital have nots. (DTI, 2017).

South Africa is considered to have one of the most advanced telecom infrastructures across the African continent, with considerable investment that has be received by municipal providers and mobile network operators aimed at ultimately improving network capabilities and improving internet service connectivity through Fibre and LTE networks. ¹

However, despite the well suited infrastructure South Africa may have in regard to telecom and internet service connectivity and high smart device penetration, South Africa is one of the most unequal countries in the world, measuring 0.62 on the Gini Co-efficient used in measuring inequality between the rich and the poor, meaning that nowhere else in the world is there such a stark difference and significant gap between people that are privileged and living comfortably and people living on or below the poverty line. (Rawson "South Africa's Gini Coefficient Highest in the world)

South Africa has a very real digital divide, evidenced in the Competition Commissions Data Services Market Inquiry Report of 2019, calling on mobile service providers to eradicate the so-called "Poverty Premium".

The poverty premium encapsulates the fact that within South Africa the poor pay more for data and thus access to the internet than their wealthier counterparts.² How this occurs:

1. Prepaid data is more costly and expensive than prepaid/contract data per megabyte.

¹Z Khan & Z Ghadialy High Data Prices in South Africa means Great 4G coverage but Poor Subscription Rates 16 July 2020 accessible at https://www.operatorwatch.com/2020/07/high-data-prices-in-south-africa-means.html



2. The prices for low volume, small value data bundles most frequently purchased by the poor are not as highly discounted as the prices charged for high volume, high value packages which are purchased by the wealthier population. ³

Apart from high data costs, the significant expense of smart devices serves as an additional barrier to internet access (most accessed through mobile phones) and connectivity, while the high costs of data serves to limit the optimal use of smart devices where it can be afforded. Consequently it is clear that reducing cost of data will not redress the digital divide if the costs of smart devices are not simultaneously addressed and capped. ⁴

Given the digital divide in South Africa there is significant doubt whether online courts would ultimately serve to increase access to justice. Despite fact that South Africa has the right infrastructure to provide online courts and provide free internet access through public WIFI's or zero-rated websites, the high cost of data limit the viability of online courts in South Africa, which may serve only to amplify inequality and widen the digital divide given that the high data costs and access to the internet can only be paid by the wealthier households, leaving the poor outside the benefit and increased access to justice that online courts can provide.

This digital inequality is a key feature not just of the social order for citizens, but for businesses as well. Many businesses that are unable to embrace digitalisation, but also the broader disruptions we will go on to define, will be left behind (Dell Technologies, 2018). COVID-19 has influenced the immediacy of many of these digital disruptions and transitions. In other words, it is no longer a question for businesses about if they will adapt, but rather how they will adapt.

In South Africa, there are serious infrastructural and policy challenges that are expanding on these inequalities (DTI, 2018). In other words, digital inequalities are created, and are not just a natural attribution of the 4IR. This means that legal practitioners will need to consider strongly the reality of the digital in seeking to implement digital solutions.

However, the social environment of 4IR also requires the embracing of complexity, as previously siloed areas begin to merge. Social, economic and political imperatives no longer diverge – because technology has such cross-cutting impacts (Schwab, 2016). This kind of environment is beginning to necessitate a new kind of lawyer: the role of the lawyer is shifting from a commercial focus, to a vocational focus that will consider social, political, economic and environmental ends (Furlong, 2019). Those in the legal fraternity should pay close attention to the disruptors, the technological advancements and the shift in society to ensure relevance of practice, but also, fundamentally, aid society in answering new questions on rights, regulations and ethics.

A key shift in what is prioritised by both society and the businesses that reflect it, is the manner in which questions of 'trust' and 'safety' influence social responses to technology (Future Institute Today, 2020). These issues emerge strongly across the STEEP fields.

²Alison Gilwald " Digital Equality: South Africa Still Has a Long Way to Go" The Conversation March 2020 accessible

https://theconversation.com/digital-equality-south-africa-still-has-a-long-way-to-go-131864

³lbid ⁴lbid

 Leading Agile Transformation: The New Capabilities Leaders Need to Build 21st Century Organisations | A De Smet, M Lurie, A George | McKinsey & Co | October 2018 |

Read Here.

The fourth industrial revolution has launched us into times of volatility, Uncertainty, Complexity and Ambiguity. And as our world grows more complex with the myriad of connected systems and relations, traditional lawyers no longer meet the needs of changing customer demands and economic conditions. Clients are demanding more agility from their legal professionals to offer assurance and guidance during these VUCA times we live in.

the agile leader should shy away from the comfort of certainty and fully embrace discovery as a daily mantra. Discovery seeks diversity, embraces risk and encourages creativity, innovation and experimentation [CITATION ADe18 \ldot 7177], skills that are of vital importance today to provide innovative and creative solutions to clients legal problems and imagine new ways of delivering legal service and assistance to clients, to ensure advantage is taken of the innovation offered by the Fourth Industrial Revolution, grasping new market opportunities before the traditional law firms make the same realisation.

 The Second Machine Age: Andrew McAfee and Erik Brynjolfsson | W. W. Norton & Company | 2018 |

Read Here.

This book outlines the disruptions to work being wrought by digital technologies. Focusing on industrial transitions, it seeks to posit the adjustments and adaptations people should make to thrive in the face of this change, whilst maximising the benefits of technological advancement, which can have very positive social, political and economic benefits.

• The Fourth Industrial Revolution: What it Means, How to Respond: Klaus Schwab | World Economic Forum | 14 January 2016 |

Read Here.

Schwab, a seminal thought leader on the 4IR, introduces how 4IR related technology are marked by the potential scale, scope and complexity of their impact. Outlining key developments across the different industrial revolutions, who notes key attributes for the 4IR like shifts in consumer demands for transparency and engagement, and disruptions to production and business models.

 The Digital Industrial Revolution: Department of Trade & Industry | 2017 |

Read Here.

The Department of Trade and Industry's paper introduces key domestic conditions relating to the 4IR. A strength of South Africa's position in the context of the DIR is its access to market opportunities across the African continent. Potential advantages include a broad youth base, a fast-growing growing continental middle class, access to global value chains as technology suppliers, and the chance for SMEs to capitalise on new technologies. However, it notes that currently, we are not very "digital ready" in terms of enabling infrastructure or policy.

• Dell Technologies Index: Dell Technologies | 2018 |

Read Here.

This narrative to the Dell Technologies Index notes South Africa's strong digitalisation of business. Yet, it notes that businesses, which fail to transform digitally will be left behind. From the supply side, cyber security and insufficient resource allocation are seen as key inhibitors to business digitalisation.

 Through the Legal Looking Glass: An LOD Collaboration Report with Jordan Furlong | 27 March 2019 |

Read Here.

This futurist piece predicts a growing trend toward socially-conscious legal practice (and the realisation of law as a 'vocation') over commercially focused practice, as a result of changes in both the lawyers themselves, but as a result of how technology is diminishing commercial opportunities (whilst also expanding on public interest challenges).



4.TECHNOLOGY | TRENDS SHAPING PRACTICE

SYNTHESIS

Technology shapes legal practice, and practice shapes technology. Most of the dominant technologies in practice today are focused on enhancing the practice of law as it stands by enhancing operations, research capabilities, and also aim at achieving greater accuracy and efficiency in practice. Yet technology is influencing the law much more broadly: from how the justice system conducts itself, to the nature and content of the law we practice, to how we practice itself.

There are naturally divergent views on how technologies are developing and what they hold for the practice of law. The tech-evangelists preach about AI replacing lawyers altogether, while the more pragmatic hoist the noise as simply that: noise (Gupp, 2019). These sober agents believe that the hyped-up trends are mostly elaborate labels for old technologies that strengthen what already exists, and that the tech hype is in fact slowing down. Yet, if a lot of that hype is because of misunderstanding, it remains absolutely pertinent for practitioners to learn about the source of the hype, and its full realities, to remain relevant.

So, what are the emerging technologies of importance? Al presents massive opportunities in terms of operations and security (Future Institute Today, 2020). Yet, the big data demands of these technologies are a major challenge for small to medium size businesses, which is why the launch of data- and Al-as-a-service by the dominant data oligopolies may be a vital opportunity moving forward.

Blockchain continues to garner interest. Its distributed nature allows for authenticity and security of assets, which should immediately flag it's important to the legal industry (Suzuki, Taylor & Merchant, 2020). The centrality of blockchain in engendering trust is its most interesting conceptual contribution to the current environment.

This is because the other major developments in technology are directly undercutting traditional barometers of authenticity. It is a new "synthetic" age (Future Institute Today, 2020). The emergence of "deep fakes" have benign and interesting impacts on culture, but – given the broader political age of polarization – is a massive threat to the world's relationship with media as a source of information that can be "trusted" (Future Institute Today, 2020).

There have been radical developments in different forms of recognition software, supported by AI (Future Institute Today, 2020). Recognition technologies and surveillance technologies (whether private or publicly developed) mean that everyone "everyone alive is being scored", and this eradication of privacy is a central them to the technology impacts of the 4IR. IOT only erodes this even further (Allan 2019).

As these arguments of which future is more probable continue, there is a continual, gentle shift in the tectonic plates of our society and as a result, in the legal fraternity. The world is changing. And the COVID-19 has accelerated a significant amount of the digitalisation trends businesses (and the public sector) were already starting to embrace (Erasmus, 2020).



There are many technologies that can be embedded within practice tomorrow: Software as a service, and other cloud-based platform services, provide a low-cost, easily scalable option for firms to test out in-house legal technology, today (Erasmus, 2020).

Investments in technology are also responding to the world that technology has helped to create. The emerging security threats must be immediately responded to by firms (Linklaters, 2020). This is especially true when we begin to understand our roles as data creators and processors, as both info-metrics and data analysis begin to dominate our practical decision-making. But developments in deep fake technologies, and even phishing and 'spearfishing' (Future Institute Today, 2020), as dominant security threats point to the importance of the human element: an entire businesses human resources need to be brought into cybersecurity strategies to be effective.

Legal practitioners will need to embrace technology, as it is being incorporated across the sector, even within the justice system itself (Nagtegaal, 2019). We are heading to an "adapt or die" scenario, with technology facilitating different kinds of law firms, referred to as NewLaw, which are able undercut traditional big law firms through their reduced costs, and flexibility (Christie, 2016). Yet reflexively, the social reality of digital division will necessarily impact the relevance of technologies designed, or selected, by firms. Technology should be considered within your client and staff reality (Christie, 2016).

This centrality of technology implies that in the long-term, firms and practitioners will need to consider in-house legal technology expertise (Bryan, 2020). This means, immediately, that practitioners should become involved in encouraging the various law schools to help develop these skills (and identifying those schools that do focus there as the source for their talent pool).

Technology is also impacting the nature and role of law in challenging ways. How will law maintain its relevance? Though that question will be considered across the report, it is worth noting here the particular conceptual challenge technologies posit to law. This

links to the "Collingridge Paradox", 5 which notes that efforts to influence or control the further development of technology face a 'double-bind': an information problem (because in emerging technologies the real impacts can't yet be predicted), and a power problem: because control or change is difficult when the technology has become entrenched before regulation or law being place. This associate to the law's "pacing problem", which refers to the notion that technological innovation is increasingly outpacing the ability of laws and regulations to keep up. As Larry Downes noted: "technology changes exponentially, but social, economic, and legal systems change incrementally".

This scan focuses on a closer future, but it is worthwhile to bear in mind the possibilities of tech in a further future to understand the more radical risks and opportunities at play. It as an exciting time to embrace these opportunities, with the many of the most important risks being from a failure to embrace these technologies mindfully, rather than from adopting them at all.

⁵These issues are well fleshed out in an academic article by Nicolas Petit (2017) Law and Regulation of Artificial Intelligence and Robots - Conceptual Framework and Normative Implications, available here: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2931339

• The futures of Jobs Report 2018 | World Economic Forum | 2018 |

Read Here.

The report makes it clear that bold leadership and entrepeurnial spirit will be required to grasp and apply the potential and actual benefits provided by new technologies, such as automation and algorithms, brought on by the Fourth Industrial Revolution which will ultimately lead to higher-quality jobs and substantial increases in the productivity of the existing work of employees. [CITATION Wor182 \ I 7177] Although the Fourth Industrial Revolution will no doubt decrease the demand for certain basic skills, it is believed that the demand for new skills and new job roles such as app development and/or drone piloting, will offset the decrease in demand for the outdated, routine skills which will eventually be automated. [CITATION Wor182 \ I 7177]

Thus universities, law societies and its related vocational training institutions should not only provide the theoretical basis for the interpretation, application and practice of law in general, fostering techniques and skills of analytical thinking, critical problem solving and reasoning, however should in addition to same provide and encourage the teaching, development and nurturing of humanity skills including, but not limited to creativity, originality , initiative, leadership , social influence, resilience, stress tolerance , flexibility and emotional intelligence. This merging of the legal and humanities field should not be done exclusively nor in isolation but should utilise modules and study materials from other disciplines such as design thinking, systems thinking, futures studies, engineering and computing to provide for a diverse, future skilled augmented legal practitioner to effectively apply and practice the law of the future.

The application of blockchain in the legal sector | The Legal Executive Institute | January 2019 |

Read Here.

Blockchain holds significant potential in the changing legal landscape, in particular with regard to the automation of routine legal procedures and processes by way of Smart Contracts, comprised of scripted logic, terms and conditions which allow for automatic execution of basic contracts, such a the renewal of a lease agreement or conclusion of a non-disclosure agreement, which does not require human oversight or negotiations.

With smart contracts, Blockchain also creates the potential for the automatic transfer of assets between participants on the peer to peer network where the preprogramed (conveyancing) rules and regulations are complied with, without the need for a controlling, central deed of registries to validate the transfer of ownership, saving time and costs and allowing for easier transfers and better customer relations.

How Blockchain Will Transform Business And The Law | Ian Altman| Forbes | June 2018 |

Read Here.

This article considers that way in which blockchain may transform the legal industry. Blockchain not only offers the ability to store an immense amount of information, which is generally regarded as unmanageable, but also provides for the decentralised, independent verification of information without a central controlling body and for increased certainty as transactions, once they have been concluded are added to the blockchain and cannot be deleted, changed or tampered with unless all parties agree thereto and the consensus rules are amended. [CITATION lan18 \ 17177]

• 2020 Tech Trends Report: Future Institute Today | 2020 |

Read Here.

The report considers trends in technology across sectors to speculate on possible influence. The scale of the report is profound: and it stands as an annual tome to futurism. Key takeaways include:

- 1. Everyone alive is being scored.
- 2. Al-as-a-service and data-as-a-service are the next 'big thing'.
- 3. The Trust Economy is emerging.
- 4. Old laws are trying, and failing, to tackle new technologies

• 4 Legal Tech Trends in 2020: Jordan Bryan | Gartner | 2020 |

Read Here.

The article starts with a caution on firms to not just invest more in legal technology, but also to invest smarter: the inclusion of technologies which don't respond to a company's own needs and processes can be a waste of both time, and money. It cites as key the rise in virtual legal assistances, the need for growing in-house legal capacity, the increase need for coordination and monitoring of third-party risk and increases in privacy and security technology.

• Technology Legal Outlook 2020: Linklaters | 2020 |

Read Here.

In considering how the 4IR is shaping legal practice, it is worth considering too how it is developing its own arm of substantive law. Within the area of technology law, this report notes trends in that field, highlighting the increasingly important and proactive



role regulators are starting to take in the face of challenges emerging from "big tech". While models seem to be moving toward AI and ethics, laws and regulation are still seeking to intervene. Big data is changing business value, and economic priorities, but all this is happening in the face of growing threats of cyber warfare and attacks.

 25 Facts About Al & Law You Always Wanted to Know (But Were Too Afraid to Ask): Micha Gupp | 2019 |

Read Here.

This important article debunks a lot of the hype around Al & Law, but also highlights how different kinds of more fundamental automation will be important to legal practice. Discoveries in recent years on Al have – in reality – had little impact on the automation of legal reasoning, and the legal industry. Legal reasoning is different from other fields—technology should reflect this. But this should not deter those in the legal industry from embracing how rules-based automation, or eventually Al, might be used to drive better operational practices.

 Blockchain: How it will change your legal practice: Bryce Suzuki, Todd Taylor & Gary Merchant | Arizona Attorney | February 2018 |

Read Here.

This article outlines the many important ways blockchain looks set to influence the legal industry. Providing a simple introduction to blockchain, it highlights its particular application to different areas of law (e.g. real estate), to legal instruments (e.g. smart contracts), and to practice (regulation and jurisdiction).

 The Age of Trust: The problem blockchain solves that others cannot: Leo Jiang | Medium | 12 December 2018 |

Read Here.

This article considers more discretely the important role blockchain could play in fostering trust, given its distributed nature, but also posits the potential future iterations of the technology.

 The Tech Revolution Stirring in SA's Legal Spaces: Sean Christie | Fin24 | 19 August 2016 |

Read Here.

This article highlights how the traditional business model for law firms is being made obsolete by new technologies in the South African context (as well as globally). In this regard, it details the NewLaw (as opposed to BigLaw) phenomenon. It also covers the very real ways South African firms are digitalising practice across large to small firms.

 The Certainty of Legal Technology in Legal Practice in South Africa: Kristi Erasmus | De Rebus | 2020 |

Read Here.

This important article introduces a range of accessible legal technologies currently available to firms. These include practice management tools, contract management tools, and security management tools.

Justice for All - Why RSA Should Invest in Legal Tech: Jackie Nagtegaal |
 Daily Maverick | 8 March 2019 |

Read Here.

Looking to the South African legal justice system, this article outlines the immediate priorities for system digitisation. It highlights the important role digitisation can play in improving access to justice of South Africans.

• Covid-19 pushes courts to new era: LexisNexis | 23 June 2020 |

Read Here.

The COVID-19 crisis has accelerated digital transformation within the South African justice system. Though e-filing has been explored for some years by the Office of the Chief Justice, the implementation of the end-to-end e-filing solution within the High Court's system was accelerated after lockdown. Digitalisation relates not just to court process, but also to court participation, and operations.

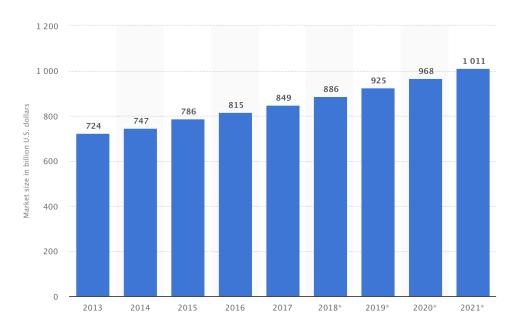




5. ECONOMIC | INVESTMENT AND INDUSTRY GROWTH

SYNTHESIS

The legal industry is growing. This fits with the global population growth, and the economic and social improvements of many people around the globe who are more aware of their rights and more enabled to enforce them through the various mechanisms of judicial systems throughout the world. COVID-19 will impact many firms (though law firms often fair better in downturns that other businesses), but this should not stop the legal industry from being forward-thinking – whilst balancing against short-term shocks (McKinsey, 2020).



Yet this growth will be reflected in a legal industry being altered by economic conditions wrought by technology and 4IR developments. The tech hype, and continuous legal demands in a complex world, have meant that an investment mania has erupted (Dolm, 2019).

The mania is driven by the entry of business into the traditionally closed off legal fraternity (Thomas Reuters, 2020). Alternative market players are beginning to reduce market share of traditional law firms: the diversifying of products from accounting firms, management firms, and others, (spurred by technological developments) are central to this (Thomas Reuters , 2020). Various countries have limitations on practicing law, just as in South Africa (where only admitted legal practitioners can run, operate and therefore profit from legal practice). However, through new avenues like investing in legal technology, and even de-regulation, big business is able to gain entry into this billion-dollar industry (Thomas Reuters, 2020).

Additionally, traditional legal business models are also being disrupted, with NewLaw models altering practice to be smaller, more responsive and cheaper (Christie 2016). Even billing models are being disrupted by the changing face of consumer expectations emerging from subscription services. (Christie 2016).

Technology is a growing investment category for firms, with associated spends shifting to security, tech talent retention, and other innovation categories (Halim, 2017). It is predicted COVID-19 will result in increased spend, as well, necessitating for instance a focus on communications and project management tools to help manage the 'new normal'.



These market shifts mean it is not simply a case of 'adapt or die' in response to the technology, but also 'diversify or die' in response to the market. The COVID-19 pandemic has only expanded this urgency to diversify skills, whilst also offering secular expertise (McKinsey, 2020). 4IR is increasing the demand for the capacity to manage complexity.

The economic influences on the legal industry are both micro-economic and macro-economic. The African Free Trade Area will only expand the opportunities for regional investment (and collaborations) between firms. (Leaders League, 2017).

And legal technology itself will be influenced by the broader innovation environment in-country, with firms increasingly being influenced by failures in Internet infrastructure, access to venture capital and unresponsive regulation that mars the technology sector itself.

In the longer term, investment into legal technology will be influenced by the changing patterns of investment seen, with growth potential in social entrepreneurships informed by legal technology (Dolm, 2019; Sullivan, 2020). Economic concerns are no longer siloed: they are increasingly associated to social, political and technological imperatives, as well – which is going to change the way both investors, and businesses, prioritise spend.

• 2020 Legal Market Report: How Innovative Technology is Reshaping the Business and Practice of Law: Thomas Reuters | 2020 |

Read Here.

Though considered within the economic trends, this report outlines broader trends within the legal industry's disruption by technology. The market share of large firms is being threatened by Alternative Legal Service Providers, such as accounting and management firms. Internally, the report also notes that there will need to be a change in how firms recruit and spend on talent to account for technological developments.

• 713% Growth: Legal Tech Set an Investment Record in 2018: Valentin Padovano & Nick Dolm | Forbes | 15 January 2019 |

Read Here

Legal tech began to see a boom in 2018: in 2016, \$224 million was invested in the industry; and in 2017, \$233 million was invested. But in 2018, there was an explosive growth to over \$1, 6 billion. The trends in investment were towards e-Discovery products (more relevant for common law countries), as well as legal research. Importantly, one of the biggest direct investments was into Docusign, the e-signature and secure agreement technology.

 Why Investors are Betting Big on Legal Tech (McDermott): Andrew McDermott | Bill4Time | 14 January 2019 |

Read Here

The Legal Geek Start-Up Map tracks the emergence of 250+ start-ups and scale-ups across Europe and presented some insights into the industry from its data. Almost half of the companies to receive funding, did so across multiple funding rounds. The data reveals key trends in legal tech investment across two distinct audiences: 1) consumers: who are interested in highly effective, low cost legal technology to solve routine or mundane problems like declaring bankruptcy, drafting a will, etc; and 2) law firms, who are in desperate need of sophisticated tools and resources that enable them to produce the highest quality work faster, and in greater volume.

African Legal Markets - An Exciting Story in the Making: Leaders League |
 27 September 2017 |

Read Here.

When thinking about economic influences of importance for the legal industry, the regional opportunities are significant. The article outlines key trends in African legal markets.

Investing in Social Good Is Finally Becoming Profitable: Paul Sullivan |
 New York Times | 28 August 2020 |

Read Here.

Changes in the broader investing environment could influence legal technology investment, too. On some level attributable to the influence of the COVID-19 on the psyche and priorities of wealthy investors, impact investments (which aim to promote a social good or prevent a social ill) have significantly outperformed traditional bets during the pandemic. These returns are enticing hesitant investors to rework their portfolios.

 Trends and the Future of the South African Legal Market: Daiyaan Halim | 26 September 2017 |

Read Here.

Advances in technology, changes in client expectations, and increasing availability of information, are leading to changes in the demand for traditional legal services within global market. To satisfy these demands, we are experiencing a rise in 'innovative' non-traditional legal service providers that act as substitutes for traditional firms and services within the legal service market.

• COVID-19: Implications for Law firms: McKinsey | 4 May 2020 |

Read Here.

McKinsey examine the likely impact on law firms in the face of the COVID-19 crisis, by examining economic data from previous downturns. While it examines short-term trends and advice, it also importantly notes how long-term strategies need to remain on the books: with a focus on diversifying service and skills offers in the face a new age.





6. ENVIRONMENTAL FACTORS | SUSTAINABILITY SHIFT

SYNTHESIS

A crucial factor to consider in relation to the environment is the issue of sustainability. We have entered the realm of maturity, finally understanding our impact on our environment, and accepting that the world is not a source of limitless resource. A greater consciousness of our consumption of resources has led to new operational models, and different ideas of consuming, living and serving. It has even altered our conceptualisations of the economic.

This is a central factor to consider in the 4IR, as it is also marked by a new geological phase called the Anthropocene. Traditionally we left matters of the environment to NPOs and organisations like the UN, while the rest went on with their business as usual. Now, however, the environment has been put on the centre stage, and every industry has a role to play in sustainability. This is true both of the exterior natural environment, but then also of the interior operational philosophies that need to flourish in addition.

Discretely, a focus on the environment, and sustainability, is impacting the nature of services firms offer businesses, as clients require more input into their own sustainability (Bourne, 2019). And this sustainable development focus necessitates local considerations being incorporated within global imperatives, which requires a firm to be both inward, and outward looking (Harban, 2019).

Technology can improve efficiencies in a company, which improve the individual firm's sustainability (Harding-Rolls, 2018). The business models of firms themselves will need to shift to be environmentally cognizant, as sustainability expands the responsibilities of all actors: this will mean prioritising environmental concerns, alongside economic concerns (such as investment decisions and client imperatives). (Harding-Rolls, 2018).

The necessities of the environment mean an increased focus on regulation, where law and business intersect (Harban, 2019). This pattern is of course synchronous with needs of the technology sector, but also the broadening of responsibilities and obligations across sectors to help confront complex problems (and complex opportunities).

• Why Lawyers Have a Part to Play in Sustainable Development: Thomas Bourne | 1 February 2019 |

Read Here.

Law can play a vital role in sustainable business innovation, yet often the law itself -as a mechanism for regulatory burden – can stifle environmental outcomes. This article outlines the way legal practice can contribute to sustainable development practices by business.

Characteristics of a Sustainable Business Model: George Harding-Rolls |
 Forum of the Future | 16 March 2018 |

Read Here.

This article addresses how a business, or firm, may itself incorporate sustainable business models. This is done through commercial success, being future ready, but also actively contributing to a broader sustainable society.

Environmental Law: Sustainable Development & Planning: Harban |
 1 February 2019 |

Read Here.

This article shifts the focus to environmental considerations, and sustainable development, in the domestic context. Poverty and inequalities remain widespread in South Africa, while our biodiversity and ecosystems persistently deteriorate at distressing rates. Local authorities are often the most challenged with the reality that South Africa, as a developing country, prioritises development. Resultantly, there is a large onus placed on local authorities to strike a delicate balance between development and enforcing policies which deviate therefrom in order to pursue the global good.





7. POLITICAL | RULES & REGULATIONS



SYNTHESIS

Politics helps us to consider power, and its distribution, across a whole range of indications. It is fitting to conclude the environmental scan with these kinds of big picture externalities and consider where law and legal practice fits within it.

The law can be both an instrument of prevailing powers, but also a force with which to disrupt them (Sattel 2014). While we understand the law as adaptive, the sheer velocity of the 4IR seems to outpace the ability of laws, lawyers, and lawmakers to full address its challenges.

The increasing relevance of privately held power (impacted significantly by the value of information and data as forms of power) highlights the necessity for new forms of global governance and multistakeholderism (Susskind 2018). These forms of private power also highlight the role regulation must play as a form of inhibiting, and enabling, influence in society – which as an important arena for legal practitioners to engage in (Spencer 2019; Allan 2019).

While globalisation and technology undercut the traditional powers of the nation state, at the same time domestic rulemaking remains an important opportunity to protect domestic realities: if the law can respond guickly, and in a considered way (Phakati 2019).

These shifts in power are not just happening to the structures of power, but to the agents and enactors of power as well. There is an increasing relevance to the personality and political power of technology itself, rather than just the person (Hillborn 2019).

Privacy stands as an important example of how legal rights might be peculiarly challenged by technology developments, to the extent that it even challenges our more fundamental understandings of whether these rights have value, and how that value should be defined, practiced, and enforced (Allan, 2019). The 4IR is changing the way we have traditionally understood power can be exercised: these kinds of notional shifts require us to very directly the role law should be playing. Developments in technology business models even challenge the fundamental idea that ownership is a necessary form of power – value for business are being extracted without ownership (Sattel, 2014). And making this idea more public facing, whether or not ownership exists (an excellent example here is personal data), does not relate to a person's own ability to benefit in the technological reality (Brumis, 2016).

The ability of the law, and legal practitioners, to thrive within the 4IR requires an understanding of how prevailing power distributions may impact (either by inhibiting or enabling) our actions.

 Future Politics: Living Together in a World Transformed by Tech: Jamie Susskind | OUP Oxford | 2018 |

Read Here.

This book provides a vital glimpse into the future of power and its distributions; many manifestations of which we already see today. It outlines the shifts in power to technology itself that are reshaping how we think of regulation, but also the structural power holders at play.

How Technology is Creating New Sources of Power: Greg Sattel | Forbes |
 19 October 2014 |

Read Here

This article goes someway to summarising the more fundamental shifts in how power is being disrupted, or at least redistributed, by technology. If power is understood as resources, the development of information as power is highlighted as an incredible fundamental shift. In the 4IR, power is increasingly exerted through 'soft power'. The article notes too that, because the information economy makes it possible to scale without mass, the ownership of resources in not as important as access to them: "Today strategy has less to do with increasing efficiencies and acquiring resources and more to do with widening and deepening networks of connections".

The Coming Privacy Crisis on the Internet of Things: Alasdair Allan |
 Medium | 22 April 2019 |

Read Here

The Internet of Things (IOT) (alongside phenomenon like surveillance capitalism) are heading us toward a world where privacy is eradicated. IOT means that everyday objects are smarter and connected: our computing is slowly diffusing out into our environment, and whether we know it or not, we leave a trail of data behind us as we move through the world. IOT also highlights that the problem comes down to ownership: as customers we may have purchased a thing, but the software and services that make the thing smart remain in the hands of the manufacturer.

• The Right to Privacy in a Digital Age: Alyssa Brumis | Inquiries Vol 8 No 09 | 2016 |

Read Here.

Our current realisation of privacy has expanded to include rights of personal privacy that include the non-physical. Yet while the landscape has changed, the advent of the Internet and social media has fundamentally changed our social definitions of what privacy should be preserved, but the privacy laws and privacy torts developed are largely inadequate in addressing the realities of digital privacy.

Artificial Intelligence Regulation May be Impossible: Michael K. Spencer
 Forbes | 2 March 2019 |

Read Here.

Al is not just a complicated technical terrain, but it is also unchartered territory: it signifies the passing of the baton from human leadership to machine learning emergence, automation, robotic manufacturing and deep learning reliance. Al is a tool humanity is wielding with increasing recklessness. We don't have the code of ethics, laws, government accountability, corporate transparency, or even capability necessary to monitor the space, and thus achieve effective Al regulation.

Let Robots Own Property: Nick Hilborn | Legal Futures |
 19 March 2019 |

Read Here

Computers using Al could be given separate legal personalities enabling them to own property, Supreme Court Justice, Lord Hodge, has suggested. He has stated that there appears no reason in principle why the law could not create such personality for Al, especially given that the separate legal personality of a 'one-person' company had been recognised in English law since 1897 (the notion of 'personality' has been stretched across jurisdictions to include buildings, animals, and rivers). This is an important potential development of our understanding of personality.



 Ramaphosa Appoints Body to Make SA a Contender in the Digital Revolution Space: Bekezela Phakathi | Business Day | 7 February 2019 |

Read Here.

In South Africa, there is a political embrace of concepts emerging from the 4IR discourse. President Ramaphosa appointed a 4IR Presidential Commission, as a national overarching advisory mechanism on digital transformation. It will identify and recommend policies, strategies and plans that will position SA as a globally competitive player within the digital revolution space.





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