

Blockchain and Every Other Industry

“We have to build a world that is more transparent, a world that is more inclusive, a world that cares about others and empowers others.”¹

Meet Jack Ma. He is the founder and chairperson of the Alibaba Group – China’s version of Jess Bezos’s Amazon, one of the top 10 most valuable companies in the world, and the record-holder for highest IPO of all times.² But Ma’s backstory is not like that of most of the Silicon Valley founders that we know. He didn’t grow up in an environment conducive to breeding tech founders and, in fact, he did not own a computer until he was 33-years-old. It wasn’t until 8 years after he graduated college that he was able to travel to the United States, where he was exposed to a computer for the first time.

This juxtaposition between the technologically sub-par conditions under which Jack was raised and educated, and what he accomplished – one of the largest e-commerce companies to provide transactions between consumers and businesses – makes him such an advocate of breaking down the physical barriers to business. As Special Advisor to the United Nations Conference on Trade and Development (UNCTAD), Ma is spearheading the UN’s initiative, e-Trade For All, with the goal of increasing developing countries’ access to and benefit from e-commerce³ by harnessing the power of the Internet to create a virtual marketplace, inclusive of everyone.⁴

¹

<https://medium.com/e-residency-blog/un-and-e-residency-join-forces-to-empower-entrepreneurs-in-the-developing-world-ea834005f85e>

²

<https://medium.com/e-residency-blog/un-and-e-residency-join-forces-to-empower-entrepreneurs-in-the-developing-world-ea834005f85e>

³ http://unctad.org/en/Pages/DTL/STI_and ICTs/eTrade-for-All.aspx

⁴ Read more at:

<https://gineersnow.com/engineering/inspiring-story-behind-jack-ma-started-saved-alibaba-dark-days>

e-Trade For All's partner, the E-Residency program, described as "Estonia's gift to the world,"⁵ is a digital business nation for citizens of any country, powered by the Republic of Estonia,⁶ and built on blockchain technology.⁷ This government issued identification platform digitalizes identity and citizenship,⁸ allowing people from anywhere in the world to open a global business in the trusted environment of the European Union,⁹ with full access to EU-banking, public notary services, e wallets, and so much more.

A small eastern European nation, Estonia is not on the tech radar for many. But this is changing with Estonia's early adoption and full embrace of the blockchain technology.

"With their digital IDs, Estonians can use their smartphones to get just about anything done online, from their children's grades to their health records ... I should have called the Estonians when we were setting up our health care website." – Barak Obama¹⁰

Jie Hao is of the first e-residents from China. This author, entrepreneur, angel investor and a partner at tech fund Magma Partners gave a talk at the Sydney Remix conference last December in which he advocated for Chinese citizens to embrace global entrepreneurship, informing us that every euro invested into the E-Residency program yields 100 euros in profit for the country of Estonia. This is a good thing, he says, because as e-residents, Estonia is our nation of business and good economic health for Estonia translates to a safe business place for us. Hao even predicts that the e-residency marketplace will soon overtake physical economies, as more and more people will realize the success that they can have if they remove their physical barriers to entrepreneurialism.

Like E-Residency, many of these shifts from the centrally controlled to the autonomous world, in realms such as business to finance to personal, were

5

<https://medium.com/e-residency-blog/welcome-to-the-blockchain-nation-5d9b46c06fd4>

⁶ https://e-resident.gov.ee/?utm_source=blockchain&utm_medium=blog

⁷ <https://coincentral.com/estonia-e-residency-blockchain-governance-explained/>

⁸ <https://coincentral.com/estonia-e-residency-blockchain-governance-explained/>

⁹ https://e-resident.gov.ee/?utm_source=blockchain&utm_medium=blog

¹⁰ <https://coincentral.com/estonia-e-residency-blockchain-governance-explained/>

not possible before the advent of blockchain. So what is blockchain exactly? And how is it going to change the world?

What is Blockchain? Blockchain is the technology on which cryptocurrencies are based, but the crypto fad is only the beginning of a technology that harnesses so much more potential. This real time, comprehensive digital ledger, made up of a continually growing list of records, or 'blocks,' linked together in a virtual chain, time stamped, and secured using cryptography, contains unalterable encrypted documentation of anything that can be recorded.

How does it work? Blockchain is a form of data that consists of digital records of transactions. Each transaction (called a node, or block) is distributed amongst millions of users, providing a consensus network that confirms the legitimacy of each of the transactions by solving an algorithm before it can be added to the chain. This process evaluates and verifies that the history of the proposed additional block is correct and true. Once accepted, the new node is added to the chain, and can never be modified or deleted. This consensus verification network is what allows blockchain to operate without a centralized authority to verify transactions. This absence of centralized authority, and the resulting autonomy of its users, is the basis of the blockchain revolution.

Three of the main aspects of blockchain that give it so much potential to change the way we do things are that it is **secure, transparent, and fast**.

Security: Although blockchain has not reached its projected level of security, the idea is that when it does, it will be unparalleled. This security comes largely from the fact that its digital ledgers were verified with millions of users before their acceptance into the chain, so that if a hack were to occur, the true ledger is backed up by these millions of systems. This large-scale distribution means that there is no single central database with all the information left vulnerable to a hack. Although security is blockchain's main attraction, only time will tell if these convictions hold water in the static environment of our current technological marketplace. For a global adoption to occur, each investor needs to be confident in the security of the chain, a feat

that will require more real life application on the marketplace.¹¹ Blockchain is generally considered to be more secure than its current alternatives, such as the classic login process on which users are still dependent, and which has earned a title of ‘the weakest link in security.’¹² But instances such as Coincheck, in Japan, prove that large-scale hacks resulting in millions stolen are possible and so investors are in the right to watch from arms length for the moment being. And blockchain’s security mishaps are not exclusive to large actors. In the other end of the spectrum, there have been plenty of crypto users who have forgotten their login information and were therefore unable to access their coins – a flaw which could be considered one of an overly secure technology.¹³

Transparency: Once these blocks are formed onto the chain, the only way they can be altered is if every single other block on the chain is altered. So in order for information to be falsified, that information would have to pass the millions of users of that chain, either during its creation, or after the fact. This makes it impossible to add fraudulent transactions, or to delete existing ones in attempt to hide them, providing users with completely transparent data about transactions which take place on the block.

Speed. Without the need for third-party verification, blockchain transactions are real time.

Blockchain and Industry: Blockchain technology is generally considered to have the potential to completely change the way we do things, reaching to every industry. The question of *how* it will change our lives, however, is a subject for debate, as varies across each industry, based on one uniform mantra: “it depends.”

¹¹ <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>

¹²

https://research.hubspot.com/emerging-tech-for-smbs?_ga=2.264889807.1967228831.1520914240-449078886.1508723407

¹³

https://research.hubspot.com/emerging-tech-for-smbs?_ga=2.264889807.1967228831.1520914240-449078886.1508723407

Blockchain and the economic status quo: Last September, head of the IMF, Christine Lagarde, voiced her concerns that cryptocurrencies could displace central banks, conventional banking and the US dollar as the world's reserve currency.¹⁴ This would be a hard hit for the United States, not just economically, but also politically.

Conventional banking: Conventional banks make money in 3 principle ways: loaning money, holding money, and charging fees. All 3 would be affected by adoption of blockchain technology in the banking sector. If people begin to store their wealth in cryptocurrency ledgers rather than the bank, traditional banking institutions wont have access to the capital that they use to leverage their business ventures. Peer-to-peer exchanges would allow people to borrow money from each other without having to use a bank for authentication, shrinking banks' interest revenue streams,¹⁵ as well as their income from international exchanges that involve currency conversions (their biggest fee revenue).¹⁶ Blockchain offers consumers an alternative to all of these services that are right now the lifeblood of the conventional banking system. Even costs of financial reporting, which provides checks and balances to ensure that transactions are not fraudulent, protecting consumers as well as banks, are predicted to decrease by as much as 70% due to increased transparency.¹⁷

Remittances: Remittances refers to money sent from migrants to their relatives in poor countries. Last year, 192 million migrants sent

¹⁴

<https://www.forbes.com/sites/laurashin/2017/11/07/why-cryptocurrencies-could-push-the-dollar-from-world-reserve-currency-status/#5a5316466a9e>

¹⁵

https://research.hubspot.com/emerging-tech-for-smbs?_ga=2.264889807.1967228831.1520914240-449078886.1508723407

¹⁶

https://research.hubspot.com/emerging-tech-for-smbs?_ga=2.264889807.1967228831.1520914240-449078886.1508723407

¹⁷

<https://www.forbes.com/sites/larrymyler/2017/11/09/transparent-transactions-how-blockchain-payments-can-make-life-easier-for-b2b-companies/#1f66e68970b5>

remittances,¹⁸ totaling \$574 billion.¹⁹ Sender of remittances are usually poor migrants themselves who have emigrated from their home country in order to find work to support the families they left behind, and they unfortunately incur transfer fees that they cannot afford. Usually about 7.45% of the total remittance value,²⁰ these fees can be much higher depending on many factors, including the political relationship between the two countries between which the transfer takes place.

Cuba and remittances: The amount of money that Cubans can send from the United States back to their families in Cuba has historically been capped and controlled by the United States. When the Soviet Union collapsed, for example, the US Office of Foreign Assets Control decreased remittance allowance to Cuba by 40% in attempt to increase pressure on the regime when it was weak, hoping to finally collapse it.²¹ As Cuba's national wage is about \$20/ month, cash flow from the US is one of the most important assets for Cubans to create their own private enterprises, as well as basic things such as buying clothes and fixing up their houses (which are in such bad shape that 3 collapse in Havana daily)²².

USD as global currency: This demise of the US dollar may be even more disconcerting, as it reaches past individuals and corporations to the realm of US-global policy. For the last 50 years (and arguably much longer) the United States' dominance in the global arena has relied heavily on its economic influence over other states. After World War II, the dollar was coded into the Bretton-Woods institutions as the world currency, essentially extending US domestic powers internationally. Right now, we can see this political authority via

¹⁸ <https://www.economist.com/blogs/dailychart/2010/12/remittances>

¹⁹ <http://www.pewresearch.org/topics/remittances/2018/>

²⁰

<https://www.fastcompany.com/3067778/the-blockchain-is-going-to-save-immigrants-millions-in-remittance-fees>

²¹ http://balseros.miami.edu/pdf/15_remittances.pdf

²² Peters, P. *Cuba's New Real Estate Market Latin America Initiative Working Paper*. (Brookings Institution: February 2014). Page 13.

<http://www.brookings.edu/~media/research/files/reports/2014/02/21-cuba-real-estate/phil-peters-cubas-new-real-estate-market.pdf>

economic means being leveraged recently against both Iran and Russia.

Iran: When the European Union (EU) sanctioned Iran for its non-compliance with EU nuclear codes, Iran's access to SWIFT, the code for standardized international banking, was blocked, preventing Iran from sending money outside of the country. This punitive sanction caused hyperinflation that devalued Iran's currency by 50% against the USD – an economic catastrophe from which Iran has yet to rebound.

Russia: The American inclination to flex its political dominance muscles while hiding behind its economic authority is nothing new for Russia. Most notably during the Cold War, when eastern Germany was effectively barred from the rest of the world, US economic sanctions have had the power to severely affect Russia's economy. And this continues today, with Russia's most recent invasion of Crimea and the US's responsive sanctions. With the long sought-after de-dollarization of the world market entering the realm of possibilities, however, Russia looks forward to regaining its sovereignty and international influence. In fact, Russian president Vladimir Putin has already met with the founders of Ethereum and has announced that Russia will be issuing a blockchain-based CryptoRuble.

Judgment on whether these possible effects of blockchain on the economic status quo are good or bad depends on the point of view in question. Those who benefit from the United States remaining a world economic power will not like the effects of blockchain on the world economic forum, and those benefit from its demise, will. This is because if trust in the value of currency and economic transactions is taken from US-controlled financial institutions and put into the hands of the individuals, then the US stands to lose the most powerful tool in its arsenal, displacing it from its status of global hegemon.

Bitcoin and economic stabilization against Venezuelan inflation: Bitcoin (which is a cryptocurrency, and therefore based on blockchain) may offer salvation to some in the collapsing state of Venezuela. As the Venezuelan bolivar's hyperinflation is

projected to reach 1,600% next year, the most basic necessities have become prohibitively expensive under the economic phenomenon of hyperinflation. But because electricity is heavily subsidized, it is one of few commodities that Venezuelans have access to, and some have begun converting it to Bitcoin.²³ While on an individual basis, this offers survival in the most literal sense; one can imagine the repercussions of this as a collective action problem.

Blockchain and Corporate Social responsibility: Corporate Social Responsibility (CSR) along with its counterpart, ethical consumerism, is a trend on the rise. But the difficulty for consumers to be sure that what they are purchasing is actually as responsibly produced as claimed has always been a major setback for the movement. Without this security, consumers have a disincentive to spend more money on ethical purchases because they may be paying a premium that goes directly back into the pockets of the corporation, with no benefit to potentially exploited parties. With blockchain technology, however, tracking supply chains become more transparent, and this CSR blockchain model can extend to all consumer products – from chicken eggs to coffee to diamond engagement rings.

Ripe.io and Farm-to-Fork: Farm-to-Fork tracking company Ripe.io has created a system to track food production from the beginning of the process through to its consumption. Through their system, consumers can ensure that they are receiving the farm-to-fork value – organic, local food that was processed in a responsible manner, fair to all parties involved.

Bext360 and Fair Trade coffee: Bext360 is a startup that has plans to bring blockchain into the fair trade coffee industry. Using the AI-blockchain hybrid model, Bext360's first product will be a kiosk, into which farmers in developing countries pour their coffee so that it can carry out the next steps in the supply chain. The kiosk uses smart image recognition technology to get an immediate read on the quality of their product, and then payment is delivered immediately into the farmer's digital wallet. This eliminates third parties that have been known to

23

<https://www.forbes.com/sites/laurashin/2017/11/07/why-cryptocurrencies-could-push-the-dollar-from-world-reserve-currency-status/#5a5316466a9e>

exploit poor farmers with unfair prices, and it allows people who are short on cash and in countries with little or no access to credit access to real time payment.²⁴

De Beers and the Kimberly Process: The world's largest diamond producer, which has had its share of bad press for producing conflict diamonds, has announced that it will be adopting the first industry-wide blockchain to ensure both the quality of their diamonds, as well as the integrity of their processes. De Beers CEO Bruce Cleaver said that the global giant will work with both governments and others the industry to ensure that they uphold the regulations of the Kimberly Process Certification Scheme, set up in 2003 to rid of conflict diamond production. Should De Beers uphold their word, this would be a great feat for human rights activists of African diamond nations, and could mark an unprecedented shift from what many consider to be De Beer's monopolistic hold on the industry. But Clever actually communicated enthusiasm that the incorporation of blockchain in their supply chain model will rid them of the false reputation that they are a monopoly, and that they embrace working with competitors on this initiative. "It's a bold step going public with a pilot," he said, "but we're going public because we're interested in the entire industry participating."²⁵

Blockchain and supply chain / shipping: A more general precursor of the supply chain as a whole, shipping becomes completely traceable under the blockchain model, and therefore more transparent. The real time nature of the blockchain not only provides live shipping updates, but also leaves us with a detailed record of the journey of a product, so that any mishaps along the way are attributed to the responsible party.

Blockchain Food Safety Alliance: Perhaps a product of the recent food contaminant scares, a coalition of food suppliers, including Walmart, Unilever, Nestle, and Dole, are working with Tsinghua University

²⁴

<https://www.optimistdaily.com/2017/04/blockchain-technology-could-bring-fair-trade-to-the-coffee-industry/>

²⁵

<https://www.reuters.com/article/us-anglo-debeers-blockchain/de-beers-turns-to-blockchain-to-guarantee-diamond-purity-idUSKBN1F51HV>

National Engineering Laboratory for E-Commerce Technologies and IBM to create the Blockchain Food Safety Alliance. The Alliance will use blockchain technology to increase accountability of sanitation conditions while consumable products are being transported. They will keep detailed records of variables that affect sanitation conditions such as temperature, shipment and delivery dates, and facilities' safety certifications.²⁶

Blockchain and Notary: Notary services is one area of which we may see its quick demise with the application of blockchain, as blockchain essentially does exactly what the current notary does. The authenticity of identity, along with the time stamp, and the fingerprints for media files that come with blockchain implementation will make the notary obsolete very quickly.²⁷ However, as of now, notaries are required to be human and to hold state residency and identification; in many states also being required to take a training course and pass a notary exam.²⁸

Blockchain and foreign aid: As it deals with the transfer of wealth between economically polarized states, foreign aid is naturally riddled with corruption. Meant to even the playing field and transfer money from wealthier countries to poorer ones, it is misused on both sides. Donor countries use it as a mechanism to control recipient countries, while on the other side of the market, in the often politically unstable recipient countries, there is a natural inclination for theft and misappropriation. Blockchain has the potential to help settle foreign aid's market failures, as the United Nations is already preparing for.

The United Nations World Food Programme: The UNWFP has already begun experimenting with blockchain technology for transfer of its aid, citing both reduced fraud and lower transfer fees as benefits of the switchover. The smart contract will transform foreign aid even farther to a futuristically sound process, as it makes it easier to place

²⁶

<https://objectcomputing.com/news/2017/12/20/8-ways-blockchain-changing-world>

²⁷

²⁸ <https://www.quora.com/Can-blockchain-replace-notaries-public>

contingencies on aid, track their fulfillment on delivery, and ensure that it is being delivered to the correct parties.²⁹

Blockchain and law:

All of these changes mentioned are essentially changes that affect our legal structure as we know it, and will therefore affect how lawyers practice law, both globally and domestically, with lines separating the two becoming more blurred. But there are some more direct outcomes of blockchain's entrance into the legal industry, and many are embracing the change. Attorneys' interest in and involvement with blockchain grew dramatically in 2017. The legal industry was one of the fastest-growing industries to join the Wall Street Blockchain Alliance last year and, of the 100 largest law firms in the world, 25 have joined the legal working group Enterprise Ethereum Alliance. Both groups are nonprofit organizations for companies interested in blockchain technology, planning to use blockchain as a basis for the management of all aspects of the legal industry, create more efficiency in the system, minimize the cost of legal services, and ensure that people have access to the legal services that they need.³⁰ A third group called the Global Legal Blockchain Consortium, created by a group of law firms and technology companies, aims to push forward blockchain technology adoption and standardization of blockchain in the legal industry.³¹

But amongst all the hype around blockchain in the legal industry, there are of course those with less enthusiast predictions, mostly prophesizing that blockchain technology will displace the lawyer. While those in the middle believe that at least, with all of the built-in security and accountability in the blockchain, certain attorney services such as disputes and due diligence will become obsolete.

²⁹

<https://www.fastcompany.com/40502720/2018-is-going-to-be-a-massive-year-for-the-blockchain-the-tech-behind-bitcoins>

³⁰

<https://bnanews.bna.com/daily-labor-report/how-blockchain-technology-is-transforming-the-legal-industry>

³¹

<https://hackernoon.com/how-blockchain-will-change-the-legal-industry-763efef1743d>

Disputes: With the transparent and irreversible nature of transactions recorded on the blockchain there is less room for disputes based on differing recollections of the truth. This is not to say that disputes won't exist anymore, but they will shift from being based on discovering what occurred in a given disputed event, to being more about interpretation of the law.³²

Due diligence: Once real services are built using blockchain, the attorney's role of due diligence of these goods and services - checking what is offered under a certain contract, and preparing terms - may no longer be needed. When paired with artificial intelligence, banking law, financial services law, and litigation support will be fully automated. Compared to the alliance between artificial intelligence and blockchain, lawyers are expensive and prone to mistakes, with more antiquated databases that can more easily be hacked.³³

Smart contracts: Many of blockchain's effects on the legal industry can be generalized under the umbrella of the smart contract. With smart contracts, agreements will become an automated process, "much like a legally-sound PayPal."³⁴ In the case of a service contract, when that service is successfully completed, a payment is triggered. If there is a contract breach then fees, penalties, or another method of resolution are triggered. In the beginning stages, lawyers are still needed to ensure the legal soundness of the contracts and make sure they are legally binding. But startups such as Agrello, are developing AI-orchestrated contracts that will allow laymen of both the legal and coding fields to form legally binding agreements themselves, on the blockchain.³⁵ Fortunately, rather than a scenario in which lawyers are cut out of this process completely, many see an attorney / technology 'hybrid' that will be used, as parts of the processes will need human interpretation. Furthermore, smart contracts will push the legal industry into uniformity and standardization, which will increase efficiency.

³² <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>

³³ <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>

³⁴ <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>

³⁵

Initial Coin Offerings (ICOs): With the Securities and Exchange Commission (SEC) on the tail of the companies that are beginning to raise money by selling ICOs, lawyers are in high demand to help their clients ensure compliance. Compliance with SEC rules and regulations on ICOs are particularly important to make sure that the SEC doesn't deem an ICO the sale of a security, which needs to be registered. Lawyers involved with ICOs need to be extra careful, not only for their clients but also for their own well-being, as SEC Chairman Jay Clayton gave a recent statement citing "disturbing" instances in which lawyers should be, but are not, counseling their clients that the coins they are offering actually constitute a security, and threatening that the lawyers involved with non-compliant companies will now face disciplinary actions themselves as well.³⁶ There is a lot of money in ICOs. In 2017, companies offering ICOs raised \$3.8 billion, and they have already raised \$2.8 billion in 2018.³⁷ But they are becoming more and more regulated in the US, and even made illegal in countries such as China and South Korea.

Centra Tech and the SEC: In April 2018, the SEC charged Centra Tech founders with "orchestrating a fraudulent initial coin offering,"³⁸ after they raised \$32 million in an ICO. Centra Tech claims that the products of the ICO are financial products backed by Visa and Mastercard, but the SEC deemed it an unregistered security, as the company apparently has no relationship with either card network. They are also getting flak for paying celebrities such as boxing champion Floyd Mayweather to endorse the ICO.

Celebrities and ICOs: Centra Tech isn't the only ICO that Mayweather has endorsed. In July, he posted a picture of himself on Instagram with a suitcase full of money and the headline "I'm gonna make a shit ton of money ... on the Stox.com ICO."³⁹ And neither is he the only celebrity to endorse ICOs - Paris Hilton, rapper 50 Cent, and soccer

³⁶ <http://fortune.com/2018/01/23/sec-ico-cryptocurrency/>

³⁷

<https://www.cnbc.com/2018/03/09/cryptocurrency-scammers-of-giza-make-off-with-2-million-after-ico.html>

³⁸

<https://www.coindesk.com/sec-halts-mayweather-endorsed-ico-charges-founders-fraud/>

³⁹ <http://fortune.com/2017/09/11/ico-bitcoin-celebrities/>

player Luis Suarez have also recently done it. Unlike the endorsement of regular consumer products, ICOs are in danger of being judged as securities, in which case they are regulated by federal securities laws, and anyone involved in their unregulated sale can find him- or herself in trouble.

Blockchain and public records: Some governments have started experimenting with blockchain technology to store public records.

Estonia and medical records: Estonia for example, has created a blockchain system that allows citizens to access their medical records.⁴⁰ A blockchain data base for medical records solves three of the biggest problems that experts such as the *Online Journal of Public Health Informatics* have cited: 1) records accessibility, 2) maintaining privacy, and assuring functionality of shared information (in other words, the ability to share data without having it distorted so that it loses integrity).⁴¹ The idea expressed for this initiative is to give citizens more control over their own data.⁴² Estonians can log into their records and see exactly who else has seen them. In theory, anyone that illegally accesses someone else's records could be prosecuted.⁴³

Matrimonial Law: One way that blockchain plans to alter the legal field of matrimonial law is through smart contracts, or rather - smart divorce contracts.

Stonepaper: A blockchain app based on Ethereum that was launched in February 2016 by 33-year-old Matthew Rappard, is working to make

⁴⁰

<https://www.fastcompany.com/40502720/2018-is-going-to-be-a-massive-year-for-the-blockchain-the-tech-behind-bitcoins>

⁴¹

<https://objectcomputing.com/news/2017/12/20/8-ways-blockchain-changing-world>

⁴²

<https://medium.com/e-residency-blog/welcome-to-the-blockchain-nation-5d9b46c06fd4>

⁴³

<https://medium.com/e-residency-blog/welcome-to-the-blockchain-nation-5d9b46c06fd4>

it possible for people involved in divorce to draft and implement their own legal services in lieu of hiring an attorney. Rappard is currently working on a system that will allow subjects of breached contracts to file their claims on the blockchain, which would in turn file all the necessary paperwork for the court case.⁴⁴ Vice Media gives us a play-by-play example of this in which a mother that does not receive child support files on the blockchain. The father is notified, the paper work is filed... The father can then file a report defending himself, pay the child support, or whichever steps are necessary to resolve the issue. The important thing is that all of these steps are done on the blockchain, so there is a record of all transactions, and all parties can settle the dispute quickly and fairly.

Even in the case that anyone can write their own contract, however, it remains that electronic contracts are governed by the same laws as paper ones. Contracts are complicated, and their authors and beneficiaries want to make sure that they hold up in the court of law. For these reasons, a lawyer will be needed for the human side of this process - to make sure the contract is seamless.⁴⁵ Divorce lawyers, who are responsible for tracking down assets that the soon-to-be ex-spouses of their clients are hiding will need to become well-versed in blockchain technology if they are to be able to find the assets that are hidden there.

Intellectual property: Startups have flooded the space of intellectual property's blockchain applications, promising a platform for registering intellectual property in a way so that it is 'anchored' to the blockchain and monitored using algorithms.⁴⁶ Payment for the purchase or consumption of intellectual property would be sped up, and royalties would be coded directly into the blockchain so that artists could be paid immediately and on

44

https://motherboard.vice.com/en_us/article/wjemxz/access-to-justice-ethereum-blockchain-bitcoin-stonepaper-legal-services

45

https://motherboard.vice.com/en_us/article/wjemxz/access-to-justice-ethereum-blockchain-bitcoin-stonepaper-legal-services

46

<https://www.techradar.com/news/7-ways-blockchain-will-change-the-legal-industry-forever>

their terms,⁴⁷ and so that copyright infringement can be better monitored using more straightforward rights of use for all parties.⁴⁸

Intellectual property rights blockchain companies: Many intellectual property rights companies have already begun incorporating blockchain technology into their model. EventChain has created a blockchain event vender, which rivals companies like StubHub, who has had its share of problems navigating the relationship between event wholesalers, retailers and secondary markets. IP startup Ascribe is currently creating permanent digital deeds for artists and their creative work, so that the work can be traded, tracked or loaned,⁴⁹ and Bittunes provides a marketplace for artists to track digital rights and control who gets to listen to their music.⁵⁰

Property rights / record keeping: Blockchain has the potential to provide solutions to the countless problems faced with records keeping. Ownership of everything from cars to art collections to houses will be easily traceable. Even if it's only the line at the DMV, government bureaucracies affect everyone, and blockchain presents solutions to many of its problems.

Land ownership disputes: Land ownership disputes due to poor record keeping and weak government capacity are a common and an ongoing occurrence in poor countries. These cases bottleneck the court systems, and governments, nonprofits, and foreign aid agencies spend a lot of time and resources trying to sort out land disputes that sometimes have been going on for decades or longer. A permanent organization of ownership records could solve some of the world's biggest land ownership problems. Money that is currently spent trying to figure out who has the rights to what property could be spent on

⁴⁷ <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>

⁴⁸

<https://hackernoon.com/how-blockchain-will-change-the-legal-industry-763efef1743d>

⁴⁹

<https://hackernoon.com/how-blockchain-will-change-the-legal-industry-763efef1743d>

⁵⁰

<https://hackernoon.com/how-blockchain-will-change-the-legal-industry-763efef1743d>

education, or other progressive programs. Over time, territorial disputes will become less common, or at least more easily resolvable. This will be widely beneficial. The only parties that will suffer from improved land ownership systems are the land title insurance companies that provide protection for parties buying property from unresolved claims, and the parties that are trying to acquire land that is not rightfully theirs.

India: India, where most of the country's court cases are property disputes, is looking to blockchain to relive some of the pressure on the judicial system. Last year they hosted an international conference on the prospect of moving their property rights ledger system to digital.⁵¹

Ghana and Georgia: In Ghana, real estate startup Bitland is utilizing blockchain technology for land title protection,⁵² and Georgia has been experimenting with putting land titles on a digital ledger.⁵³

Criminal law chain of custody: In criminal law, the chain of custody refers to the ledger that documents the custody, control, transfer, analysis, and disposition of evidence in a criminal trial. Traditionally this has been paper documentation. With the advent of the digital ledger, however, there is a permanent record of the chain of custody, with the evidence being digitally preserved and so that none is ever thrown out. This eliminates the need for testimony about the preservation of the chain of custody as well.⁵⁴

⁵¹

<https://www.techradar.com/news/7-ways-blockchain-will-change-the-legal-industry-forever>

⁵²

<https://hackernoon.com/how-blockchain-will-change-the-legal-industry-763efef1743d>

⁵³

<https://www.fastcompany.com/40502720/2018-is-going-to-be-a-massive-year-for-the-blockchain-the-tech-behind-bitcoins>

⁵⁴

<https://www.techradar.com/news/7-ways-blockchain-will-change-the-legal-industry-forever>

Financial transactions: Because there is no central point of validation, users of cryptocurrency do not need to identify themselves when sending and receiving money via the blockchain, as they do with traditional payment systems. When a transaction request is submitted, the protocol checks all previous transactions to confirm that the sender has the necessary funds and the authority to send them. While this offers many benefits, it also poses some obvious risks regarding money laundering and other money-related crimes. In an environment of anonymity such as this, users may not need to comply with anti-money laundering and other financial legislation.⁵⁵

Insurance: Blockchain technology has some promising offers for the insurance industry, mainly centered on decreasing insurance fraud.

Antifraud software: International law firm Kennedys has gotten a head start on this by building a fraud-focused insurance prototype on IBM hyperledger software. “Most of fraud happens because clients have their own databases and there is very little interaction that is automated, so fraudsters operate in the gaps between these databases,” explains Derrick. Furthermore, blockchain will enable insurers to share their books with each other, without actually exposing the books, making roundabout tactics more difficult for parties committing insurance fraud. For example, claims will be able to be processed automatically from the various parties involved, such as insurance carriers and repair garages. Everyone can share data while keeping their sensitive information secure. Once claims can be cross-referenced like this, potential fraud can be mitigated and prevented.⁵⁶

Within law firms themselves: Attorneys that choose to adopt blockchain technology will see benefits, not only through their knowledge of clients’ needs, but also within their own law firm practices. Blockchain will provide new secure and more accessible ways for attorneys to draft contracts, record commercial transactions, and verify legal documents.⁵⁷ So projected adoption of blockchain by lawyers is no surprise: 41% of law firms plan to

⁵⁵ <https://www.coindesk.com/information/what-is-bitcoin/>

⁵⁶ <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>

⁵⁷

<https://bna.com/daily-labor-report/how-blockchain-technology-is-transforming-the-legal-industry>

use blockchain for transactional legal services, 31% for high-value legal services, and 21% for business support.⁵⁸ These adopters will see the benefits of the blockchain revolution as they begin to implement this technology in-house.

K&L Gates building their own blockchain: Law firm K&L Gates is adapting fast - already making blockchain a substantial part of their business model by working toward building their own internal blockchain to be used for time-keeping, filing deeds, and handling merger and acquisition transactions. “You don’t need to be doing initial coin offerings or issuing tokens to benefit from the blockchain,” says Judith Rinearson, partner in K&L Gates’ New York and London offices.⁵⁹

The future relationship between law and blockchain:

Lawyers don’t need to be coders to learn how blockchain will affect industries in the legal realm – they need to be adaptive. While antiquated, isolated firms may fade away, the more global practices are embracing this new technology.⁶⁰ Understanding that the responsibilities of and the necessity for attorneys will evolve is important.

When one door closes another opens. The burden of some legal services will surely shift from the attorney to the blockchain, but new services will arise that require human insight and reasoning, and a new legal forum of blockchain law itself will need to be explored and understood by attorneys so that they can help clients comply with these evolving laws.

“The key for those involved in the legal sector is to ensure they have a foot in the door with blockchain, so when other more traditional openings close, they have somewhere to go.”⁶¹

⁵⁸ <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>
⁵⁹

<https://bna.com/daily-labor-report/how-blockchain-technology-is-transforming-the-legal-industry>

⁶⁰ <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>

⁶¹ <https://www.raconteur.net/business/blockchain-revolutionising-legal-sector>

