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Emerging Technologies: Law & Regulation

Hilda C. Galvan

Author Contact Information:

Hilda C. Galvan

Jones Day

Dallas, TX

hgalvan@jonesday.com

214.969.4556

Table of Contents

I.	Blockchain Technology	1
A.	What is Blockchain Technology?	1
1.	Information is “Distributed”	2
2.	Information is “Immutable”	3
3.	Transactions are Approved by “Consensus”	3
B.	Uses For Blockchain Technology	3
1.	Banks and Financial Institutions	4
2.	Corporates	5
3.	Intellectual Property	6
C.	Intellectual Property	14
1.	Patent acquisition and liability	14
2.	Open Source usage	16
II.	Artificial Intelligence	17
A.	What is Artificial Intelligence?	17
B.	Uses For Artificial Intelligence	17
1.	Transportation industry	17
2.	Health Care	18
3.	Financial services	18
C.	Legal Issues To Consider When Implementing Artificial Intelligence	18
1.	Patents	18
2.	Trade Secrets	21
3.	Copyrights	25
4.	Government regulation	27
5.	Liability risks	28
6.	Data privacy and protection	28
7.	Labor and employment	29

Emerging Technologies: Law & Regulation¹

Emerging technologies have the potential to disrupt businesses in every sector. This paper focuses on two such technologies—Blockchain and Artificial Intelligence—and is a compilation of various articles and white papers written by Jones Day lawyers.² The technologies and their application are briefly described and legal issues relating to those technologies are discussed.

I. Blockchain Technology

Organizations across every sector and of every size and complexity are being told that blockchain technology will revolutionize their business—both for better (by reducing costs/transaction times or increasing security) and for worse (by disrupting or even extinguishing entire business lines that can be replaced by this new technology).

A. What is Blockchain Technology?

Blockchain is a technology for storing, tracking and processing information. At its simplest, a blockchain is a digital database of transactions.



As represented in the diagram above, each transaction is stored in a block of data that is securely linked to the blocks containing previous and subsequent transactions (hence “blockchain”). The secure link between blocks makes it simple to track and audit the validity of the data, making blockchains much more difficult to hack or falsify.

What makes blockchain technology so interesting and potentially powerful for business transactions is the characteristics that flow from this digital chain of transactions.

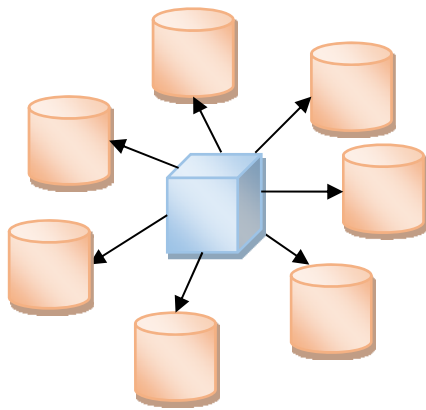
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² The section on Blockchain technology is primarily comprised of excerpts from the Jones Day White Paper, “Blockchain for Business.” The section on Artificial Intelligence is primarily comprised of excerpts from a white paper, “Legal Issues Related To The Development Of Automated, Autonomous, And Connected Cars.”

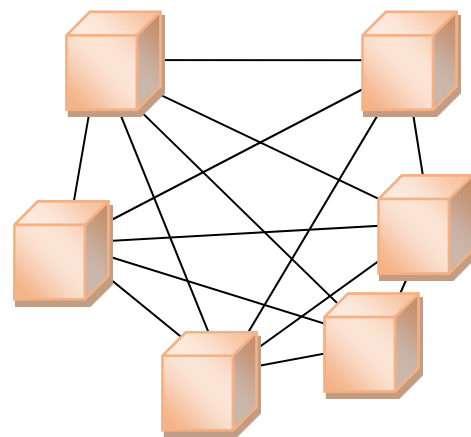
1. Information is “Distributed”

Today's information systems are typically centralized. That involves one or more central intermediaries (such as a bank) responsible for transferring actual value between two parties. Each party will maintain its own separate ledger recording every transaction, but this is normally not the authoritative ledger (which remains with the central counterparty). For every transaction, the two parties and the central intermediary need to each update and then reconcile their own ledgers. If a party loses its ledger due to an IT failure, malware attack, or physical disaster, there is a risk of loss of information due to the single point of failure.

Centralized System



Distributed System



In contrast, a blockchain system is decentralized or distributed. That means that each user of the system has its own authoritative copy of the digital transaction record where it records every new transaction among group participants. This is why distributed ledger systems are sometimes referred to as “trustless,” because they can be designed in such a way that nobody has to trust in a central party or anybody else in order for the system to function.

New transactions are immediately replicated onto all ledgers at the same time, meaning that no single point of failure exists in the system. Thus, blockchain systems have a significant advantage over standard systems, even where there is only one “user” (for example a global company tracking inventory via a blockchain system).

It is important to understand that blockchain systems can be set up with a variety of different controls and access rights. It is possible to set up a blockchain in an open way, so that any third party can access it—similar to setting up a website that can be accessed by any internet user. A much more common approach for business is to set up a permissioned blockchain, so that only certain users can access it—similar to setting up an private intranet.

A blockchain can also be set up with a main administrator, if required. Even in this case, the digital record is much harder to hack, manipulate, or be disrupted in the same way as a database

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