

An Update On The Blockchain Patent Landscape

By **Nelson Rosario** (March 15, 2018)

Blockchain technology received a tremendous amount of **interest in 2017** that is carrying over into 2018. This interest is not merely hype about an emerging technology, or desire for quick profits by investing in cryptocurrencies such as bitcoin. Organizations have been investing considerable financial resources in the blockchain technology space. One indicator of this financial commitment to this emerging technology is the filing for patent protection on inventions in the space. Conducting a search in the U.S. Patent and Trademark Office for blockchain-related terms from Oct. 31, 2008, to March 8, 2018, produces a data set of 1,803 patent filings, which includes both issued patents and published patent applications, related to blockchain technology. The number of filings are expected to increase as organizations continue experimenting with blockchain technology. Similarly, the number of different individuals and organizations innovating in this space is also expected to increase year after year.



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Any search for blockchain-related patents is by its nature incomplete as some patent filings have not yet been published and are still secret. Additionally, some patent filings that are directed to the technology may not use language that clearly identifies that the filing is directed to blockchain technology. For example, a patent filing may not use the words "bitcoin," "ethereum," "blockchain," "distributed ledger," "cryptocurrency," "smart contracts" or the like, and as such it can be difficult to capture the filing in any search. Further complicating matters is that the term blockchain is used inconsistently and means different things to different people.

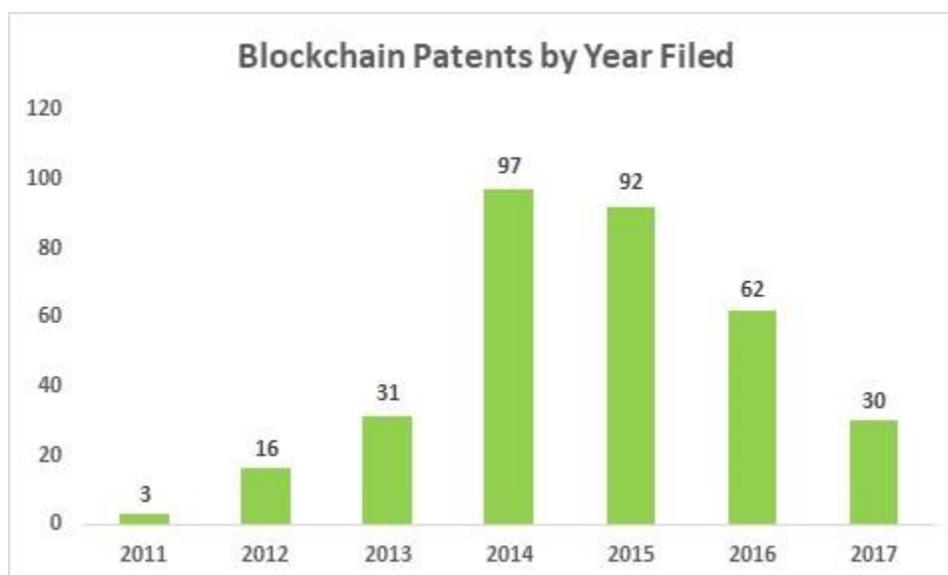
Regardless, by searching the USPTO for patent filings that mention bitcoin, ethereum, blockchain, distributed ledgers, cryptocurrency, or smart contracts, a picture emerges of a growing market. The following table breaks down the number of patent filings in the resulting data set that contained one of the words: bitcoin, ethereum, blockchain, distributed ledger, cryptocurrency, or smart contracts.

Search Term	Number of Filings with Search Term
Bitcoin	1346
Blockchain	635
Cryptocurrency	629
Distributed Ledger	293
Smart Contracts	227
Ethereum	87

Given that "bitcoin" is over 9 years old it makes sense that it would be the most common

search term to appear in the data set. The appearance of “blockchain” as the second most common search term in the data set is not a surprise because many organizations are more interested in the technology that makes bitcoin work than bitcoin itself. What is somewhat surprising is that ethereum, a smart contracts-focused blockchain network launched in 2015, only appears in 87 patent filings. Perhaps that is a consequence of the newness of ethereum.

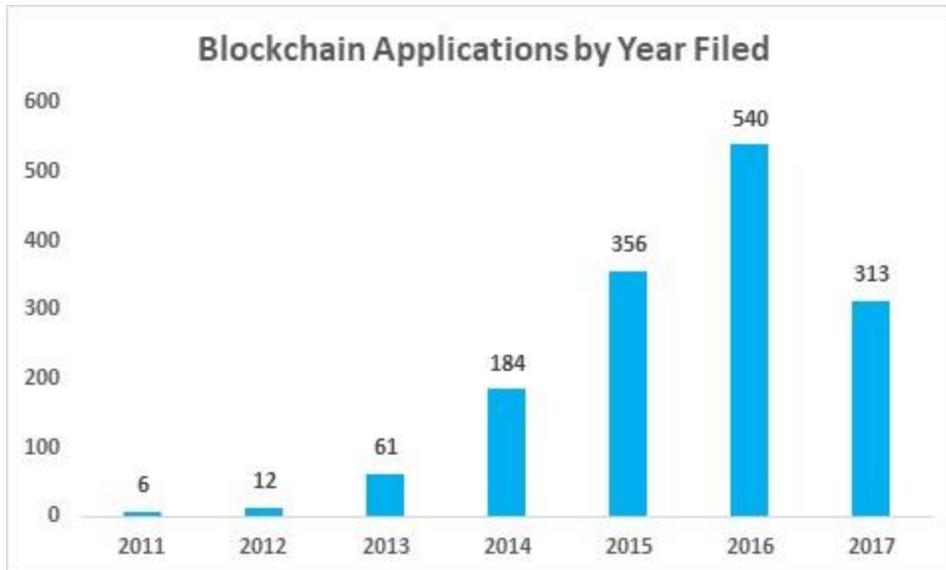
Ultimately, of the 1,803 patent filings found, 331 are issued patents. This is a small number compared to other industries, but still significant and growing with each passing year as the chart below shows.



The numbers on the right side of the above chart, specifically years 2015-2017, will go up as more and more currently pending patent applications turn into issued patents. This type of growth will likely continue as more and more companies become familiar with the technology, and deploy pilot programs that use the technology. The number of still pending patent applications related to the technology tells a similar story.

The data for issued patents also gives a sense of how long blockchain-related patents are pending at the USPTO from the date of filing to the date of issue. According to the data, the average number of days from filing to issuance of a patent for a blockchain related invention is approximately 643 days. Similarly, the median number of days from filing to issuance is 613 days. The longest pendency for a blockchain patent was 1,567 days, and the shortest pendency was only 101 days. These lengths of time for filing for a patent on blockchain-related technology to the date that patent issues is similar to most other software related inventions.

Of the 1,803 patent filings found, 1,472 are published patent applications. These are patent filings that have not yet, and may never, become issued patents. Just like the number of patents, 1,472 applications is a small number compared to other industries; however, the chart below shows a steady increase in the number of filings each year.



The first years of filing, 2011-2015, experienced significant growth in the number of filings each year. That trend will not, of course, continue indefinitely, but there is still room for considerable growth in the number of filings per year. Similar to the chart for issued patents, the year 2017 shows fewer published applications than in 2016. One reason for this is that many pending patent applications have not yet published, because patent applications typically publish after 18 months. So, you can likely expect an increase in the numbers for 2016 onward.

The subject matter covered by these patent filings is not limited to financial technology. Patent filings in the USPTO are given a classification number to organize filings based on common subject matter. This U.S. class number is used to separate one technology from another. The 1,803 filings in the data set were classified into fifty-two different classes ranging from surgery, amusement devices, cryptography and telecommunications. However, the vast majority of the filings are from the 700 family of classes that mostly deal with data processing and electrical computers. This is still the primary area where blockchain patent filings can expect to be classified.

What is perhaps more interesting than the number of patent filings, or their subject matter, is the number of assignees for blockchain-related patents. The assignee is the individual or organization that holds all or part of the rights, title and interest in a patent, or patent application. Oftentimes the assignee is the organization for whom the inventor works, but it may also be an individual or group of individuals. According to the data set, there are at least 820 different organizations, or individuals, listed as the assignee. The exact number may be more or less than 820 given the sometimes inconsistent nature of information in assignment records, such as misspellings, different names used for the same parent corporate entity, etc. Regardless, a diverse set of organizations and individuals are filing for patent protection related to this nascent technology.

The number of patent filings that are related to blockchain technology continues on its upward trajectory. This has been predicted and expected for some time. What is starting to emerge is that a broad set of organizations and individuals are innovating in the space, and the technology areas in which blockchain technology is being used or proposed is similarly broad.

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