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A DISCOURSE ON THE INTELLECTUAL PROPERTY ASPECT OF BIG DATA

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BACKGROUND

"Big Data" is a relatively new concept that refers to the constant, vast, and seemingly infinite stream of data created by our persistent interaction with technology and smart devices.[1]

The concept describes the massive collection of structured, unstructured, and multi-structured data that flow through our digital universe every day – data streamed from phones and credit cards, internet activities and embedded systems, televisions and computers; from the infrastructure of cities, sensor-equipped buildings, trains, buses, planes, bridges, factories, and the over five billion phones humans carry around.[2]

"The volume of stored information in the world is growing so fast that scientists have had to create new terms, including zettabyte and yottabyte, to describe the flood of data."[3]

Big Data is ubiquitous: the digital universe is so large – and is doubling in size every two years – that by the end of 2020, it is expected to reach 44 zettabytes.[4]

Putting that in perspective, it may be useful to note that a single Zettabyte is approximately equal to a thousand Exabytes, a billion Terabytes, or a trillion Gigabytes. In more relatable terms, "the most popular new smartphones today have 32 Gigabytes of capacity.

To get 1 [zettabyte] you would have to fill 34.4 billion smartphones to capacity. If you put 34.4 billion Samsung S5's end-to-end (length-wise) you would circle the Earth 121.8 times."[5]

"Obviously, Big Data is huge. Yet by itself, Big Data is useless."

However, with such technologies as artificial intelligence, advanced computing power and sophisticated data analysis tools, our ability to gather and store data in cost-effective ways and then mine these data for economic, social, and commercial intelligence, Big Data has become the new oil.

And just as oil fuelled the twentieth century industrial revolutions, data is fuelling the evolution and growth of the new digital economy.

[1] Karen Hallenstein & Jane Perrier, 'Big Data & Intellectual Property – Strategic Alignment for Commercial Success' [Vol. 8, No. 31, Spring 2015, 1] http://www.iicj.net/subscribersonly/15april/iicj4april-ip-karenhallenstein-telstra-australia.pdf Accessed 10 May 2019.
[2] Shaw, Jonathan, 'Why "Big Data" Is a Big Deal': [Harvard Magazine March-April 2014] http://harvardmagazine.com/2014/03/why-big-data-is-a-big-deal. Accessed 10 May 2019.
[3] Munir, Abu Bakar and Mohd Yasin, Siti Hajar and Muhammad-Sukki, Firdaus, Big Data: 'Big Challenges to Privacy and Data Protection' (May 21, 2015). [International Scholarly and Scientific Research & Innovation 9(1) 2015] https://ssrn.com/abstract=2609229 Accessed 11 May 2019.
[4] EMC Digital Universe with Research & Analysis by IDC, 'The Digital Universe of Opportunities: Rich Data and the Increasing Value of the Internet of Things' https://www.emc.com/leadership/digital-universe/2014iview/executive-summary.htm Accessed 9 May 2019.
[5] Jim Haughwout, 'The Expanding (Digital) Universe: Visualizing How BIG a Zettabyte Really Is' (12 May 2014) http://lagrangianpoints.com/2014/05/expanding-digital-universe-visualizing-big-zettabyte/ Accessed 17 May 2019.

In contrast to the digital economy, the modern economy comprises, and is driven by intellectual property (IP) — that is, inventions, ideas, and innovations.

The rapid advances in technology and the shifting of the world economy from tangible (factories, trucks, warehouses, etc.) to intangible (goodwill, software, trademarks, etc.) assets combine to make IP the most valuable form of asset in the world right now — Google's logo, the world's most valuable trademark, is worth an estimated $44 billion or 27% of the firm's overall value, measured by market capitalisation,[6] and the world's most valuable brand (Coca Cola) has an attributed value of $71.8 billion.

IP laws protect the rights of creators and authors of original works like literature, software, logos, designs, inventions, etc. In analysing and distilling actionable insights from Big Data, IP plays a crucial role—"from the patented hardware used to collect and store data, to the copyrighted software that organises and analyses it.

[Also], once a company decides to run analytics, the end result is protected under IP laws as a trade secret."[7]
Let us delve deeper into the relationship between Big Data and IP.

Big Data and Copyright

Ordinarily, copyright laws protect software and computer programs used to gather and analyse Big Data. Original data analysis tools used to mine, clean, separate, and transform data can also be copyrighted in Nigeria and under the IP laws of most countries.

It is important to note that to be eligible for protection, a piece of software and other data analysis tools sought to be protected by copyright must have been reduced into writing—or expressed in a fixed medium—and must possess some level of originality. In arriving at what constitute "originality", the Berne

Convention, to which Nigeria is a party, states that the "[c]ollections of literary or artistic works such as encyclopaedias and anthologies which, by reason of the selection and arrangement of their contents, constitute intellectual creations shall be protected as such, without prejudice to the copyright in each of the works forming part of such collections."[8]

[6]Sean Stonefield, 'The 10 Most Valuable Trademarks' (June 5, 2011) https://www.forbes.com/sites/seanstonefield/2011/06/15/the-10-most-valuable-trademarks/#4e64e58736b8 Accessed 16 May 2019.
[7]Spathika Ram, 'How Big Data can help in Understanding Intellectual Property' (2015) https://suyati.com/blog/how-big-data-can-help-in-understanding-intellectual-property/ Accessed 17 May 2019.
81] Article 2 (5), Berne Convention for the Protection of Literary and Artistic Works (as amended on September 28, 1979) (Authentic text) https://wipolex.wipo.int/en/treaties/textdetails/12214 Accessed 19 May 2019.

Thus, like encyclopaedias and anthologies, Big Data may also be eligible for protection (as long as it is expressed in a fixed medium of expression, possesses some level of originality in its arrangement or selection, and shows that reasonable human efforts have been expended.)

The difficulty, from a practical point of view, rests on the fact that it is difficult, if not impossible, to select or arrange Big Data, mostly because of its sheer volume, variety, and velocity, and also due to the fact that Big Data is almost always automatically generated in segment from varying sources.

Big Data and Patent

Because Big Data is essentially a stream of data, it does not exactly fit into the description of an "invention." Yet it should be noted that while Big Data is not itself patentable, it is possible to patent the algorithm[9] used to analyse Big Data in some countries.[10]

On the flip side, insights or intelligence —such as a new beverage recipe— mined from Big Data may also form the basis of a patent application.

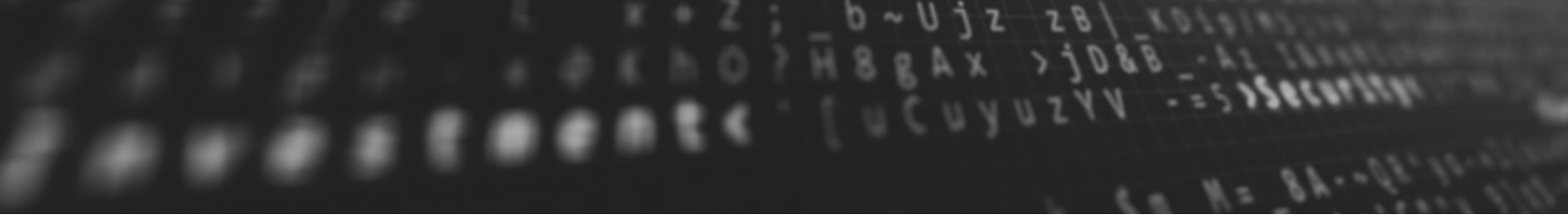
What is really interesting to note here is: just like artificial intelligence, the increasing use of Big Data may also challenge our traditional conception of IP.

Patent, for instance, may become very difficult to obtain as we move into the future. "The reason is simple: the number of patents does not double very fast [enough, and] the exponential growth of prior art means that the amount of information that would disallow the granting of a patent – and that is any patent – also grows exponentially.

So, unless the granting of patents also grows exponentially, the area of technology that is patentable will shrink accordingly."[11]

It appears that the major reason why the evolution and impact of Big Data has not become a big issue yet is because patent offices have not begun to consider non-patented technology information and data in assessing novelty or non-obviousness.

[9] 'Algorithm' here refers to a unique, concrete series of steps or processes that have practical and real applications as against mere mathematical algorithms which are just ideas.
[10] In Nigeria, the Trademarks, Patents and Designs Registry refuses patent protection for software.
[11] Joren De Wachter, 'Big Data and IP business strategy', (2013) http://jorendewachter.com/2013/11/big-data-ip-business-strategy/ Accessed 21 May 2019.



Big Data and Trade Secret

The alternative to obtaining patent protection is to keep the information confidential. Confidential information that gives an enterprise a competitive edge is generally referred to as trade secrets.

Trade secrets may include such things as chemical compounds, dosage regimens, improved variations, processes, and — in this case — a huge, undisclosed assembly of data. And there are several foreign cases which suggest that trade secret protection can extend to Big Data. [12]

Trade secret is generally preferred to patent because trade secrets last indefinitely, involve no registration cost, and do not require compliance with formalities, such as compulsory disclosure to any government agencies. [13]

The big 'but,' when it comes to protecting IP using trade secret, is: where a process or innovation becomes known to the public, there are usually no remedies and exclusive right is forever lost.

Because of this, some firms and businesses have been known to go to ridiculous extent to protect their invention: Google's constantly-evolving, top-secret search algorithm, the undisclosed ingredients for Kentucky Fried Chicken's original recipe, and Coca-Cola's heavily guarded beverage formula (also known as Merchandise 7X) are famous examples of well-kept trade secrets.

A Counterintuitive Approach to Managing Big Data

Traditionally and historically, innovative firms and businesses have earned value from their intangible assets by developing IP strategies that entail the protection and exploitation of their inventions, brands, methods, etc. Once protected, the resultant IP rights becomes exclusive and can be enforced by law against, literally, the rest of the world, in case of an infringement or unauthorised use.

But the exponential growth of Big Data now puts this traditional approach at risk. This is mostly because data is an unusual asset — it does not diminish or deplete, instead it surges

[12] See, for instance, Albert (Prince) v Strange, ([1849] 1 M&G 25.
[13] Ademola Adeyoju, 'Intellectual Property as the Heartbeat of the Pharmaceutical Industry' https://infusionlawyers.com/intellectual-property-heartbeat-pharmaceutical-industry/ Accessed 23 May 2019.

and grows in abundance. Also, data does not wear out and it can be used across a number of collaborative value-creation platforms that facilitate its capture, refinement, and sharing across enterprises at near-zero marginal cost. [14]

Following from the above, it is obvious then that the value and promises of Big Data are truly realised when it is shared and allowed to flow and build up, as against when it is locked up in a virtual lake.

As Joren De Wachter puts it: “the value of a river is in having access to the flow, not control over the sources. Of course, the sources have some relevance, and control over specific forms or aspects of data can be valuable for certain applications.

But the general rule is, or will be, that gaining and providing access to data will be much more valuable than preventing access to data.”[15]

The idea of sharing is even more valid when one considers that, when broken down, Big Data is merely a pool of bits of information available in the public domain.

Companies who have expended resources in pooling these bits of information into one river earn some competitive advantage in giving access to the pool by entering into data licensing arrangements with other entities, under which those other entities will have access to a certain pool of data for a particular period of time, for a specific purpose and in return for an agreed consideration.

Conclusion

The illimitable growth of Big Data is bound to change our IP laws and transform the way enterprises conduct businesses. As noted above, current IP laws are not adequate to guard precious pools of data available in the digital universe, and nations and governments may have to choose between expanding the scope of existing IP laws or developing entirely new IP protection regime.

Even as IP laws adapt and grow with the sweeping impacts of Big Data and related technologies, enterprises looking to get more value from their wealth of data may have to adopt a generally counterintuitive approach when it comes to managing and exploiting Big Data.

[14] Bill Schmarzo, ‘Data monetization and the economic value of data’ (2018) https://blogs.sas.com/content/sgf/2018/02/14/data-monetization-and-the-economic-value-of-data Accessed 25 May 2019
[15] Supra, note 11.

The highest potential for return on investment appears to be in forming commercial alliances and strategic partnerships and share data in a way that has never been done before.[16]

So, instead of keeping data exclusive and inaccessible, it may make more business sense to share data through a licensing arrangement on an open platform.

In doing this, related issues of privacy and the purpose for which Big Data is being mined would, of course, have to be taken into consideration.

[16] Andries van Staden, 'Big Data: Cross-Industry Data Sharing' (2016) https://www.innovation.group/en-za/news/big-data-cross-industry-data-sharing/ Accessed 24 May 2019.

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