

THOUGHT LEADERSHIP

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DATA ANALYTICS & PROFILING— WHAT SHOULD THE LAW DEMAND?



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Technology, Media & Entertainment Sector

Part One

Outline

- ▣ Introduction – Why we need data privacy regulations
- ▣ What are Data Analytics and Data Profiling?
- ▣ Why are There Privacy Concerns about Data Analytics and Profiling?

Introduction – Why we need data privacy regulations

The growth of data analytics and its relevance to businesses is evidenced by available statistics: the world's biggest retailer generated 35% of its revenue from consumer insights derived from data analysed by Artificial Intelligence (AI) algorithms;¹ the global big data and business market, valued at \$122 billion in 2015 is predicted to grow to \$274.3 billion by 2022²; and Netflix is reported to save up to \$1 billion each year on customer retention as a result of data analytics. Data analytics is enabling businesses to make INFORMED decisions that enhance the bottom line in no small measure.

How easy it is for the conversation around data analytics to focus on maximising profits with little thought for the data privacy of consumers. It is a fact that at the other end of the conversation on the commercial value from data analytics is a huge volume of personal data. Just like oil, to which data is considered to be akin, data analytics enables industrial and business advancement but leaves in its trail a potential for personal data abuse, with consequences that possibly outmatch the environmental hazards from oil exploration.

A bottom line is that, unlike oil, data collection and analytics represent an inexhaustible potential for market growth – at least as long as it is legal, and the internet exists.

The highlight of this article is how the legal and regulatory apparatus can be used to assist in the building of public trust in the processes, logic and algorithms of companies that analyse and profile datasets to predict consumer behaviour.

What are Data Analytics and Data Profiling?

Data Analytics is the use of tools, techniques and processes to extract insights from datasets to understand trends and make logical conclusions based on the information

1 Ian MacKenzie, Chris Meyer, and Steve Noble, "How retailers can keep up with consumers", McKinsey & Company (2013) accessed via <https://www.mckinsey.com/industries/retail/our-insights/how-retailers-can-keep-up-with-consumers> on 30th April 2021

2 Accessed via <https://www.statista.com/statistics/551501/worldwide-big-data-business-analytics-revenue/> on July 12, 2021.

provided. For example, data collected from employees in an organization can be analysed to determine the metrics of job satisfaction within the departments of that organization. In a digital age as ours, DA is quite beneficial for –

- ▣ businesses to understand their customers and the target audience better and to make enlightened decisions
- ▣ businesses to increase revenue by exploiting concentrated channels with superior consumer insights and to open up new market channels as well
- ▣ organisations to put in place better crisis management strategies (lack of quality data analytics can lead to very fatal consequences from bad decisions e.g., health diagnosis, business management)
- ▣ governments to understand trends and make informed public decisions
- ▣ **scientists and researchers** to increase the efficiency of their models, substantiate hypotheses and solve scientific problems³
- ▣ inventors to create effective technological solutions.

Data Profiling (DP) is sometimes used interchangeably with DA but it has some significant differences. DP is the evaluation of aspects of collected personal data⁴ to:

- ▣ identify the patterns in behaviour, lifestyle, habits or needs of an individual; in order to
- ▣ make predictions based on the identified patterns; and subsequently
- ▣ make decisions based on all the information gathered.

For instance, DP can be used to make decisions regarding the kind of healthcare to be received by an individual from a particular demographic or occupation or medical history.

Clearly, DP would necessarily involve the processing of personal information such as age, gender, marital status, location, demographics, etc. However, DA may not necessarily involve the processing of personal data as anonymised data can be used to analyse and produce outcomes.



It is a fact that at the other end of the conversation on the commercial value from data analytics is a huge volume of personal data.

3 Craig Stedman, “data analytics (DA)” (2021) accessed via <https://searchdatamanagement.techtarget.com/definition/data-analytics> on 20th April 2021.

4 Personal data is information that can be used to identify a natural person. See Reg 1.3. (ix), Nigeria Data Protection Regulation (2019)

The interesting fact is that Data Analytics and Profiling have been integrated into a large percentage of internet activities and can be achieved with the right tools and expertise. For instance, the development of the Internet of Things (IoT) is a major source of Data Analytics and Data Profiling. Furthermore, when IoT is combined with Machine Learning (ML) and other predictive algorithms, the quality of customer insights derived is more accurate within the shortest possible time.⁵ The use of technological tools to analyse or profile data is what is known as “automated data processing”.

DA can be deployed for different in different categories such as Business Intelligence (BI), Statistics Analytics Tools, SQL Consoles, General-Purpose Programming Languages, Data Visualisation Platforms and Tools, Spreadsheet Applications, Predictive Analytics Tools, etc.

Tools used in DA include Azure HDInsight, Google Data Studio, Python and C# programming languages, Microsoft Power BI, Tableau, Plotly, Excel, and many more. More specific DP tools include IBM InfoSphere Information Analyser, Talend Open Studio, Atlan, etc.

Why are There Privacy Concerns about Data Analytics and Profiling?

As its description implies, “personal data” connotes the right of privacy of the data subject (data principal) from the intruding interests of organisations and governments or how personal data can be collected and processed by data controllers and administrators (processors)⁶. This inalienable right has formed the basis of the legislations of data protection laws in different jurisdictions.

In contrast, companies are faced with huge volumes of data that they must analyse to make the best decisions in different scenarios. In some instances, some organisations deploy DA and DP tools to solve complex Human Resource (HR) problems such as hiring and performance evaluation to save time and costs⁷. However, the salient question to ask is if the decisions made by these tools are completely meritorious. Several commentators have noted that solely automated decisions made by DP tools could have significant negative impacts on data subjects such as discrimination, stereotypes,

5 Lisa Loftis, “IoT: The customer experience accelerator you can’t afford to ignore” SAS, accessed via https://www.sas.com/en_us/insights/articles/marketing/iot-the-customer-experience-accelerator-you-cant-afford-to-ignore.html on 16th June 2021

6 This dichotomy is purely semantic and it arises as a result of the NDPR which renames data processors (defined under the GDPR) as data administrators. The qualifications to fall into this category remain very similar.

7 Köchling, A., Wehner, M.C. Discriminated by an algorithm: a systematic review of discrimination and fairness by algorithmic decision-making in the context of HR recruitment and HR development. *Bus Res* 13, 795–848 (2020). <https://doi.org/10.1007/s40685-020-00134-w> accessed on 19th June 2021.

unfair decisions and the inability of subjects to object to unfair decisions.⁸

First, it is important to establish the concept of solely automated decision-making and profiling.

A decision is said to be solely automated if it is reached by a fully automated medium that does not include or require any human input or intervention whatsoever.

An automated decision may not include the profiling of data subjects, but it involves data profiling in most cases⁹. An example of solely automated decision without profiling is the marking of exam scripts and grading results while an automatic decision to refuse a person a housing benefit based on the financial history and spending patterns.

On the surface, the logic is simple. DP algorithms and AI are more objective, consistent and more accurate than human analysts. They save time, cut costs, and increase the revenue of organisations and governments. However, this logic is seriously flawed if the quality of data supplied to the DP algorithms is of low quality or biased.

In a study published in the Harvard Business Review, only 3% of data processed by 75 entities (including government agencies) met the least requirements for standard data quality¹⁰. The impact was that it costs ten times as much to rectify a unit of work in which the data given was flawed i.e., if it would cost a restaurant \$1 to process a pizza order based on accurate data, it would cost the same restaurant \$1 + \$1 x \$10 = \$11 to rectify the order if an incorrect data was processed by the same ML algorithm deployed. This finding excludes non-monetary costs such as customer



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- 8 Ibid.
Also see UN General Assembly, Human Rights Council: resolution / adopted by the General Assembly (2017) A/HRC/34/L.7/Rev.1
Privacy International, "Data Is Power: Profiling and Automated Decision-Making in GDPR" (2017) pp. 8-9, accessed via <https://privacyinternational.org/sites/default/files/2018-04/Data%20Is%20Power-Profiling%20and%20Automated%20Decision-Making%20in%20GDPR.pdf> on 19th June 2021.
- 9 Information Commissioner's Office, "What is automated individual decision-making and profiling?" accessed via <https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/automated-decision-making-and-profiling/what-is-automated-individual-decision-making-and-profiling/> on 19th June 2021.
- 10 Tadhg Nagle, Thomas C. Redman, and David Sammon, "Only 3% of Companies' Data Meets Basic Quality Standards" Harvard Business Review (2017) accessed via <https://hbr.org/2017/09/only-3-of-companies-data-meets-basic-quality-standards> on 19th June 2021

dissatisfaction, negative social media ratings, etc.¹¹ Even this is a significant cost for the business. The consequences would be more severe in industries such as health insurance, credit, and labour (employment).

Despite the challenges posed by DP to consumers, the reaction of regulators must not be to shut down the innovation or take an aggressive stance against DA and DP by organisations. This position is well articulated by Elizabeth Denham, the United Kingdom's Information Commissioner. In her Foreword to a discussion paper, she submits that the regulator should rather seek to build consumer trust in the processes, tools and logic employed by organisations deploying DA and DP tools that make solely automated decisions with legal or other significant effects on the data subjects¹². This can be achieved with a three-pronged approach as follows:

- a. to understand the potentials and benefits of DA and DP in different industries
- b. to highlight the rights and limitations
- c. to strike a balance between the drive for profits by companies and the rights of data subjects through state apparatus (statutory and regulatory enforcement)

Therefore, there is a need to evaluate the impact of current regulations on DA and DP, that is the General Data Protection Regulation (GDPR) and the Nigeria Data Protection Regulation (NDPR). Building on the background established above, the coming sequel will explore how the regulations can be tweaked to provide a favourable context for public, private, and individual stakeholders.

11 Ibid

12 Elizabeth D., "Big data, artificial intelligence, machine learning and data protection" Information Commissioner (2017) accessed via <https://ico.org.uk/media/for-organisations/documents/2013559/big-data-ai-ml-and-data-protection.pdf> in 19th June 2021.

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