IBM

To whom it may concern

Dear Sir/Madam

We are grateful for the opportunity to contribute to the ongoing discussions regarding Big Data. At IBM's core lies big data and its affiliated technologies. We utilise big data extensively, both as part of our own business and as part of our commitments to our clients. We are convinced that big data and cognitive data techniques is, and will continue to be, at the forefront of successful businesses and organisations. Saying that we recognise that with wider data use comes greater risk and in response to this we have developed a multitude of systems and technologies to safeguard data and protect our clients and our clients' clients.

Please find our responses to your questions below. We remain at your disposal for any further queries and we hope to continue engaging with you as this topic develops.

Questions:

1. Do you agree with the above description of the Big Data phenomenon? If not, please explain why. Please also mention whether you consider that other characteristics are relevant to understanding the use of Big Data.

We believe that data will be the force that drives the next revolution. Our CEO Ginni Rometty often refers to the data revolution as the period that we are currently living in and describes data as "the world's natural resource for the next century". The outcome of that revolution will most likely be wider felt across the globe than the industrial revolution was during its time due to the global nature of data. Although big data can be characterised by all three Vs, the key defining factors are volume and variety. Velocity is necessary for big data to be useful and cloud computing will most likely be the key enabler for this. The ability of technologies to analyse unstructured data is increasing the phenomenon of big data given video, voice, social interactions are a rich source of descriptive information. Additionally, Big Data facilitates the sharing of data across industry sectors through partnership that can accelerate the volumes and creation of 'profiling' data. Examples being when financial services either acquire external data sets for things such as marketing or when companies from different industries partner to offer a new service to clients.

2. Which financial products/activities are (likely to be) the most impacted by the use of Big Data and which type of entities (e.g. large, small, traditional financial institutions, Fintechs, etc.) are making more use of Big Data technologies? In light of ESAs' objective to contribute to the stability and effectiveness of the financial system, to prevent regulatory arbitrage, do you consider that there is a level playing field between financial institutions using Big Data processes and those not using them (e.g. because they do not have access to data or the (IT) resources needed to implement Big Data processes) or between established financial institutions and potential new entrants (e.g. Fintechs) using Big Data processes? Please explain.

We see, through the work with our clients, that retail banks are vastly improving their customer service centres using big data, and, in particular, cognitive data that can handle vast amounts of unstructured data. Implementing these technologies have greatly improved the customer experience through faster responses with a higher degree of accuracy and relevance. The technologies are there for everyone to use. We find that larger incumbents in the markets may struggle to transform into a big data enabled company at speed due to legacy networks that are often highly complex and difficult to change. One advantage for the larger companies is of course that they have the ability to invest more. But smaller, more agile new entrants benefit from building on the latest technology as it sits now. The use of cloud computing and variety of technologies available means that there are challenges and opportunities for all participants in the market place. Big data itself does not necessarily damage the level playing field, it may in fact assist it as it gives smaller companies who may have less observable data internally the opportunity to utilise cognitive computing for enhanced decision-making by extracting unstructured and structured data from widely available public sources. Financial Services have been quick to adopt big data technologies with Investment Banking utilising the HPC Grid environments to support new

approaches from AML to Risk analysis, Retail Banking and Insurance have also been deploying KYC type of big data tooling for some time to better tune offerings and communication. However, with the lowering of cost boundaries through 'as a service' software tooling we see more dynamic approach to the use big data. Smaller more agile companies can target specific business areas with greater intelligence and automation. For example Insurance sector with new entrants able to demonstrate payments of claims within seconds (for your ref http://www.propertycasualty360.com/2017/01/05/lemonade-continues-to-disrupt-the-insurance-sector) by using fully automated interaction and AI. Our view is that whilst established organisations have the benefit of deep data volumes and scale their business process restrict targeted innovation whereas the smaller new entrants are more agile and focused they do not have the historical data. Our view is that those companies not using Big Data, or more accurately, Cognitive data strategies will see their relevance diminish.

3. Do you offer/are you considering using Big Data tools as part of your business model? If so, please briefly describe: i) what type of entity you are, e.g., long established, start-up, a product provider, an intermediary; ii) the service you provide; iii) the nature of your clients; iv) your business model; v) whether the Big Data tools/strategy were developed by an external company or internally and whether you have related agreements with other entities (including non-financial entities)23; vi) what are the types of data used (personal, anonymised, user data, statistical data etc.) sources of data; and vii) the size of your Big Data related activity and/or forecast activity (e.g. to what extent are business decisions already taken on the basis of Big Data analysis; what other business actions could be based on Big Data in the future)?

IBM as an organisation is over 100 years old. We are a market leader in 'data technologies, services and partnerships'. Internally IBM applies these techniques to support a global organisation with complex business process and client facing activity. These experiences support our unique position when working with organisations of similar sizes through to SMEs. IBM is transforming its business in order to participate in the data revolution and we continue to invest billions ($) in cloud computing, blockchain, and cognitive solutions as we believe that big data will form the foundation for most decision-making in the future, both in the public and in the private space. This is a corner stone of our corporate strategy.

5. Do you consider there are (non-regulatory) barriers preventing you (or which could prevent you in the future) from collecting and processing data? Are there barriers preventing you from offering/developing Big Data tools in the banking, insurance and securities sectors? If so, which barriers?

We do not see any barriers and we have a significant investment in developing tools and solutions to support Financial Institutions create new and improved ways to monitise the intelligence they can gain from smarter analysis of available data.

6. Do you agree with the above short, non-exhaustive, presentation of some of the main applicable requirements? If not, please explain why. Please also mention whether you consider that other legal requirements are essential and should be mentioned.

We would agree with the comments made, however, we would comment that across the examples referenced there are instances of duplication which create increased costs and complexity, in themselves adding to a barrier for entry for smaller organisations. This also creates an issue of just complying rather than adopting best practice. Global organisations must manage complexity across multiple business lines and geographies with different, but similar regulatory requirements in each. In some instances, demonstrated by creation of 'data silo's' this results in separate 'big data' programs.

8. Do you consider the potential benefits for consumers and respectively financial institutions to be accurately described? Have you observed any of them in practice? If so, please provide examples. If not, please explain whether you are aware of any barriers that may prevent the above potential benefits from materialising?

Behavioural data is being used by insurance companies and there are many examples of telematic devices for car drivers, specifically for young drivers. The initial challenge being faced by established insurers with this was to incentivise their customers to take 'black box' policies. The route was to offer a lower premium, clearly something organisations were reluctant to do as the up front implication is to spend more on new products and offer these at lower prices. However, what we have seen through 'new insurers' such as Marmalade is an ability

to offer targeted products for specific markets. In the instance of young drivers they developed products that had more relevance for learner drivers, with shorter term periods such as 30 / 60 / 90 days to allow for the transition between learning and passing a test. This was then used to offer incentives to renew an insurance with tailored packages based on telematics data. The reverse would be true of Saga Insurance who target the over 50s where in-car telematics is not appealing and therefore not used. We are, however, seeing that for the 50+ target market connected homes do have an interest in policies where there is a requirement to care for elderly relatives or 'young families' via 'lifestyle' type of policies.

Within retail banking we have seen many instances of 'big data' being used to better analyse risk categories for loans, issuing of credit cards, mortgage provision etc. however, these techniques are reaching a plateau in capabilities as static solutions. Where progress is being made is in the instances of a cognitive (AI) thread forming part of the business process. An example being support for financial guidance, providing natural language interaction for service men and women in America to establish what type of financial products would best meet their needs prior to speaking with specialists. The feedback on this service shows that people who felt their financial knowledge was limited were more comfortable in covering initial questions with a cognitive Q&A, so income vs credit possibilities, mortgage and savings products that may be applicable were covered without embarrassment and then a more engaging conversation was held with advisors.

9. Do you agree with the description of the risks identified for consumers and respectively financial institutions? Have you observed any of these risks (including other risks that you are aware of) causing detriment to consumers and respectively financial institutions? If so, in what way? If not, please explain why. Please also mention whether certain risks for consumers and financial institutions have not manifested yet but have the potential of developing in the future and hence need to be closely monitored by Supervisory Authorities.

We would feel that some of the risks identified are real regardless of whether Big Data is used or not, such as mis-selling of products or services, as seen, for example, with the current position on the selling of PPI. A risk mentioned that may be more significant than implied is the ability cognitive analysis brings on limiting access to financial products for people who may be in greater need or increasing costs to that sector. However, the up-side is that Financial Institutions will improve their risk management by more accurately predicting e.g. expected rates of default. GDPR will address a number of the concerns in terms of cross selling or passing data on as explicit consent will be required and any data collection will require details for 'purpose'.

11. Do you agree that Big Data will have implications on the availability and affordability of financial products and services for some consumers? How could regulatory/supervisory authorities assist those consumers having difficulties to access financial services products?

We do agree to this and we refer to our answer to question 9.

12. Do you believe that Big Data processes may enable financial institutions to predict more accurately (and act accordingly) the behaviour of consumers (e.g. predicting which consumers are more likely to shop around, or to lodge a complaint or to accept claims settlement offers) and could therefore compromise the overarching obligations of financial institutions to treat their customers in a fair manner? Please explain your response.

Market segmentation is already a well-established marketing strategy. A smart Big Data policy will improve organisations ability to interact in a more relevant way and reduce risks. There is a possibility that this may restrict offers to certain demographics, this can be seen in many ways from improved risk management to denial of offer. It is also possible that GDPR will play a more significant part in this as 'citizens' will be able to remove consent for the use of any Personal Information data for marketing purposes.

13. Do you agree that Big Data increases the exposure of financial institutions to cyber risks? If yes, what type of measures has your institution adopted or is going to adopt to prevent such risks? What could supervisory/regulatory authorities do in this area?

No, not necessarily, we have several tools that are highly effective at limiting cyber risks. The risks exist for financial institutions whether they use big data or not. The IBM Fraud and Financial Crimes Management is

designed to bridge the technology and intelligence gap to help organizations spot financial crime patterns early, and enable them to implement countermeasures more quickly to protect the institution and clients against financial fraud by using big data technology.

14. Would you see merit in prohibiting the use of Big Data for certain types of financial products and or services, or certain types of customers, or in any other circumstances?

No, with more data capabilities come the possibility for better decision-making. Restricting the use of data is not the best way to reduce potential risks.

15. Do you agree that Big Data may reduce the capacity of consumers to compare between financial products/services? Please explain your response.

No, standardised products are in the market place and if anything, the use of big data will enhance the ability of consumers to compare and contrast. We are already seeing the emergence of individual more structured financial products but these tend to target high net worth individuals. Big data is unlikely to minimise the demand for more standardised financial products such as savings and current accounts. In the future, there will remain a demand for basic banking products as well as for more advanced products. The use of Big Data will facilitate the accessibility to more complex products to lower income-bands thus increasing the number of products on offer. Smarter use of Big Data will also provide Financial Institutions the ability to identify which products or services are not delivering value and therefore simplify their portfolio.

16. How do you believe that Big Data could impact the provision of advice to consumers of financial products? Please explain your response.

We are already seeing several clients using big data and cognitive data solutions in particular to enhance their customer service. The response from consumers where this has been rolled out has been very positive as our clients are able to recommend more relevant products and advise in a timelier manner. Big Data analytics and cognitive intelligence delivers a more informed interaction with clients and therefore an improved service at point of advice / sale.

17. How do you believe Big Data tools will impact the implementation of product governance requirements? Please explain your response.

Key requirements from MiFID II relate to (i) a move away from OTC towards exchange traded products (ii) increased transparency in both pre- and post-trading by expanding the scope of transaction reporting (iii) introducing specific provisions for algorithmic and high-frequency algorithmic trading (iv) introducing position reporting for commodity trading (v) requirements that trading venues and CCCPs provide non-discriminatory access to each other.

All above requirements have in common the wish from a regulatory perspective to reduce risk, increase transparency and create a fairer playing-field across the EU Financial Markets. In order to successfully implement and validate MiFID II data must play a central role. Big Data Tools will be key to meeting enhanced reporting requirements, evaluating level playing fields, developing new products etc and thus will be essential for Financial Services Providers and regulators alike.

18. How do you believe Big Data tools will impact know-your-customer processes? Please explain your response.

The IBM AML Monitoring and Analytics for Banking utilises Big Data to augment and enhance existing Anti-Money Laundering (AML) programs with rich analytic functions including entity resolution, event triage and alert enrichment reducing false positives and accelerate fraud investigation. This solution will improve KYC processes by utilising a wider set of data than has been available to banks in the past.

19. What are key success factors for a Big Data strategy (i.e. the adaptation of the business model/plan towards Big data driven technologies and methods)?

Managing data quality, data governance and establishing data stewardship are core to a successful big data strategy. Data stewards typically are responsible for applying agreed metadata definitions to data sets and ensuring the accuracy of the data for particular use cases. Ensuring that IT infrastructure is adhering to, or developing, a relevant Governance, Risk & Compliance (GRC) methodology that links directly to the outputs required from the regulators and supports business growth. Financial Services organisations state that a significant percentage of operational budget goes on maintaining and complying rather than driving strategy. Being able to link the Big data strategy to regulation and growth at the same time would drive a more inclusive Big Data strategy.

20. What are the greatest future challenges in the development and implementation of Big Data strategies?

Companies need more than just willingness to make use of their raw information –they require the proper tools for the jobs and the know-how to apply these tools to business problems. Data quality including ensuring accuracy, completeness and reliability. Large organisations are also, in many cases, starting from the point of complex silo'd data governance structures that are governed to manage business line requirements. By definition Big Data cuts across business lines and when driven by regulation such as GDPR needs a holistic view. One of the 'design' issues here is allocating purpose to data governance. As it stands purpose is not a term generally in focus in IT architecture, however, this is relevant when being required to map 'consent' to 'sensitive data' and 'data governance mandates, at international regional and regulatory levels'. Large organisations struggle with the complexity and cost of doing this and therefore tend to default to 'good enough'.

22. How do you see the development of artificial intelligence or blockchain technology in connection with Big Data processes?

Blockchain will be one way of utilising the possibilities that Big Data offer. It will ensure velocity of payment processing with a very high level of security. AI is finding broader use cases from Robotics to front line Q&A advisory services. AI requires comprehensive and accurate data to enable learning within the context it is being deployed in and many Financial Services organisations are starting to develop test programs using this to automate business processes, augment current human based activity and analyse risk amongst others. Big data is a part of this but the deeper insight comes from the ability to analyse, at volume, unstructured data of all types.