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**European Supervisory Authorities (ESAs)**

**Consultation on Use of Big Data by Financial Institutions**

The Division Bank and Insurance of the Austrian Federal Economic Chamber, as legal representative of the entire Austrian banking industry, appreciates the possibility to comment on the above cited consultation document and would like to submit the following position:

# General remarks

Financial institutions possess large amounts of data coming out of broad product offerings and a large customer base. We acknowledge that the monitoring of any emerging risk for consumers and financial institutions, as well as new and existing financial activities, is among the ESAs’ tasks. We also appreciate that the ESAs’ Discussion Paper (DP) is generally fairly accurate and complete.

However – and as also stated by the ESAs in the section dedicated to the ‘Regulatory framework applicable to Big Data’ – the current regulatory framework, with several horizontal data protection and consumer protection requirements (GDPR, ePrivacy Directive and the new proposal for an ePrivacy Regulation, the NIS Directive, the UCPD, the Distance Marketing of Financial Services Directive, etc.) and sectorial financial legislation (PSD, MCD, CCD, PAD, PRIIPS, IDD, MiFIDII/MiFIR, UCITS, AIFMD, EMIR, Solvency II, CRD IV, AMLD), already addresses the topic of Big Data, although indirectly.

We banks believe that the legislative instruments detailed above are flexible enough to cover Big Data and to promote consumer protection and the safety and soundness of markets. We do not see any reason to launch new regulatory actions specifically covering the use of Big Data.

Furthermore, we do not believe that regulation could fully and effectively drive customers’ behaviour. Consumer preferences, habits and decisions are based on each individuals’ multi-dimensional (psychological) background. The role and impact of Big Data in this respect is therefore limited.

# Questions and Answers

***Q1 (Page 12): 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 mostly agree with ESAs’ accurate description of the Big Data phenomenon. We think that the description of the phenomenon is accurate. From our point of view the usage of big data in the financial institutions is currently in a pilot/prototype phase. So far, we do not see an enterprise wide usage of big data in our markets (in the definition of high volume, high variety and high velocity of data).

However, we would also like to make some specific comments:

* Ad. Point 5 and Point 6: Big Data in the currently used meaning is more the use of available data instead of collecting them. There has ever been a lot of data available – but the possibility to track and use it with Big Data technology is new. Automatic generated new meaning and usage of data by connecting different inputs together which has been collected originally for a different reason (e.g. fitness-tracking + car tracking + social media usage = risk of sickness or sale potential for consumer loan to buy an e-bike).
* Ad. Point 12: By describing the sources of data we should also take in mind, that also machines itselves produce data which may be connected to the behavior and/or data of individuals. Starting from simple things like autonomous robots (hoover, grass-mower etc.) up to self-learning machines (eg. robo advisors; IBM Watson) - not only people/companies producing data – also the machines itselves will produce data. Furthermore this will be interpreted by other machines (Big Data analytics) and at the end, all of this self-produced data will be connected to individuals for profiling them. So there must be enough control to prevent people/companies of negative effects produced by this autonomously produced data.
* In general: We think the authorities should not focus on the fact that there is a lot of data – that is and was ever evident. The relevant point is, that by connecting and interpreting data there must be enough regulatory environment to prevent customer rights, give a stable and fair environment to the financial market and enough control especially to autonomous working machines. As mentioned before the regulation in place is able to fulfil this duty.
  + In the description of the phenomenon the following subtle but substantial aspect is missing: adequacy of Big Data prognosis. There may be fault or undetected biases in algorithms; and, even if they are correct to the last bit, correlation is not causality. All prediction machines assume that the future is like the past. If we consider human beings to have free will and to be able to change things, this assumption may hinder our ability to make use of our free will.
  + While understanding the possible logic behind the general comment made by the ESAs in paragraph 15, page 12 of the DP, where stating that ‘*the lack of access to certain important datasets could [therefore] act as a barrier to new institutions entering the market or even existing ones remaining on the market*’, the ESAs should not forget that bank and insurance secrecy stated in the laws and regulations naturally prevents the free use of data – for good reasons – except on certain conditions.
  + Strict data protection rules (i.e. the upcoming GDPR) could act as a competitive disadvantage for European innovation vis-à-vis firms operating and serving customers in other regions of the world. **European competitiveness should not be forgotten.**
  + For the sake of correctness, in Paragraph 8, page 9 of the DP, the wording ‘Account initiation *services’* should be replaced by ‘*Account* ***information*** *services*’ as per the PSD2.

***Q2 (Page 12, 13): 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.***

The most attractive products in the financial industry for big data usage will be inter alia lending products with big data analytic risk evaluation and stock market products (fonds, ETFs etc.) also using big data for market interpretation and investment decisions. The most attractive activity will be sales and service – clearly individualized offers on the customers prioritized channel.

To the type of entities regarding the size of companies: size is no differentiation because big data processes can be combined with external services – not everything must be done in-house. Taking into account already existing solutions (e.g. new calculation solutions like network based evaluation like Bitcoin; single providers offering their power like IBM Watson; Fintechs offering special services on Big Data analytics like ZestFinance) the intelligent usage and integration in company processes is more essential than the size of the company.

First of all standardized products are affected by the use of big data in the following step we expect complex products, such as relationship based products, will be affected by the implementation of big data engines.

The credit risk, insurance, marketing, sales and asset management products will likely be the most affected. This product groups´ management (i.e. development, distribution, maintenance) can be most affected by Big Data and statistical analytics.

Generally large technology companies outside the financial technology space already use and collect large amount of data. Traditional financial institutions and Fintechs will likely be the most impacted. Financial institutions possess large scale of data coming out of broad product offer and large customer base. Fintechs companies are well advanced in IT/ data management and infrastructures.

From our perspective, Big Data will have the highest impact in the following areas (in a descending order):

**Web Behaviour Analysis** - Marketing departments will utilise information on client behaviour on our website to produce better experience for the customer, offer the products clients shows interest etc.

**Customer Relationship Management CRM** – Analytical CRM can be enlarged by Big-Data components and even further be enriched with other external data. This will help to further customize the offers and sales-lead generation in the transactional context of the customer.

**Fraud Management** - To retrieve fraudster scheme we see very big value of using big data, as this requires very precise pattern to be analysed. There are not many cases that are actually frauds, and not to endanger our relationship with our customers, methods of fraud detection can be very much improved with big data.

**Risk Modelling** - Although the data used may not be structured and still contains a lot of noise, more and more data is available to assess customer creditworthiness. Yet, in order to process big volumes of data, to find signals in the data, to reduce dimensionality of the modelling problem etc., more advanced statistical methods need to be used. However, such methods are very difficult to implement into traditional systems. Big data platforms can handle such tasks in a much more efficient way.

**Data Warehouse upgrades** - We think upgrades to data warehouses and reporting platforms will also come from big data technologies, since the operational costs for such systems are much more favourable.

Regarding the types of companies which will first start to use big data technologies we would separate them by their activity:

**For marketing and CRM purposes** – This could be the first use case by banks as they have resources to hire data scientists, data engineers etc.

**For risk purposes** – This could be the first area for FinTechs to engage as banks need to follow prudent regulation on risk management process.

Regarding the **level playing field** we highlight the following:

Banks are the “Guardians of their clients’ data”. However, this important function will be weakened by the PSD2 which makes client data available to FinTechs.

**FinTechs are not bound by such strict regulations as credit institutions, e.g. as regards the implementation of risk models which are not under such scrutiny compared to banks.** Advantageously, FinTechs can change their models much faster than banks, which is even more important when we speak about big data models.

It is important to better define which data can be used by all parties and what types of controls and regulations have to complied with. Especially as regards risk modelling, credit institutions have to comply with strict rules when applying their own models for the purpose of calculating regulatory capital. These models even have to be approved by the national supervisor, a process which nowadays takes up to one year. It’s obvious that banks cannot base these models on big data. On the other side, consumer finance companies and FinTechs are not bound in the same extent by regulation. Thus, their ability to use big data models in this area is much higher.

Therefore, it is essential for the financial stability to define a level playing field as regards access to data and ability to use data. In order to provide for a harmonised framework, the preferred legal form shall be a regulation and not a directive. In general, with a view to ensure a level playing field legislation and supervision in the area of FinTech shall be based on the principle of “same business, same risks, same rules”. Adhering to this principle, a healthy balance between the traditional banking sector and FinTechs will be created. Such a balance will promote innovation, a more competitive environment and subsequently, a better service for consumers and an increased access to financial services in general.

***Q3 (Page 13): 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)?***

Generally speaking, banks are not all at the same stage in using Big Data tools. Some already use Big Data tools, while others are preparing to so so in order to offer better tailored products.

ad II) and IV):

Banking institutions mainly providing services as ‘universal banks’, i.e. offering the full scope of banking products across all customer segments and all customary distribution channels.

Financial institutions mainly providing services in the intermediation of deposits and loans between customers.

ad III):

Banking institutions’ clientele covers all segments, both private individuals and legal entities.

ad V):

Big Data tools were developed and are used in many areas. With regard to the Big Data tools already developed, they were developed both in-house as well as with support from external companies.

ad VI):

Generally all types of data, miscellaneous statistical methods / models and internal historical data are used.

ad VII):

Nowadays many business decisions are already supported/backed by Big Data analysis. Banking institutions currently use mainly descriptive analytics; however, the importance of predictive and prescriptive analytics is growing. The business actions that could be affected by Big Data are related to the behaviours, needs and preferences of customers and their understanding in light of possible future customer decisions.

***Q4 (Page 13): If you are a consumer or a consumer organisation, do you witness any of the uses of Big Data? In what fields?***

We start to witness usage of big data in pilot phases of projects in the area of web behaviour and fraud management.

There is a large difference between technology providers and financial institutions in terms of how big data can be used. One of the main examples for a regulatory arbitrage is the PSD2, where transaction data can be used by TPP with minor requirements compared to banks.

***Q5 (Page 13): 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?***

There are several non-regulatory barriers preventing banks from collecting and processing data, now and in the future. These barriers are mainly: legacy IT systems, bad quality of data (including mistakes, old data), budget resources and the cost of investment, access to skilled human resources, ethics, consumer attitudes.

Furthermore we are of the opinion, that the exchange of data between companies within the same holding should be possible and company own data should be free to be analyzed and used for business/sales. To be competitive in the global business, European regulatory should be the upper limit for data protection and all European players should have the same starting conditions.

***Q6 (Page 20): 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.***

In general we agree with the need of transparency of data usage, data protection and need to behave in the best interest of customers. From a practical and cost point of view there are aspects that we believe would need to be clarified in a better way. We agree that a customer has the right to know which of his data is processed and, in the first place, that we need his consent. In this context we also agree that it is important to inform the client about how his data is used and for what purpose.

In general multinationally operating institutions are faced with the challenge to comply with several different national implementations of one EU directive. Therefore, it is essential having an appropriate competitive environment based on a legislative and supervisory level playing field among all the different players across the Union.

We believe that the DP presents an already very comprehensive regulatory environment, with several horizontal data protection (particularly the new GDPR) and consumer protection requirements and sectoral financial legislation, including various prudential and organisational obligations for financial institutions using Big Data technologies.

Moreover we see a higher need to implement requirements for controls of artificial intelligence – data completely produced by machines about humans. On this topic there has to be legal requirements for all companies offering services in Europe (Artificial intelligende data should only be used with X-check of humans).

In this context we draw your attention to the fact, that care should be taken to not over-burden the financial industry with directives and legislations which are likely to increase bureaucracy (=costs) in order to remain internationally competitive.

***Q7 (Page 20): Do you consider any of these regulatory requirements as unjustified barriers preventing you from using Big Data technologies? If so, please explain why. Please also explain whether you consider that further regulation (including soft law/guidance, etc. and insofar as it falls within the scope/remit of the ESAs) should be introduced to facilitate the use of Big Data technologies.***

We do not consider the requirements to be any substantial barrier for Big Data technologies. The volume and granularity of data that must be collected (most of the time also encrypted and anonymised), analyzed, monitored and stored is growing (driven by the requirements too) therefore a maintenance complexity is growing too. It consequently drives higher demands for human resources and their qualification, IT infrastructure set up, adjusting internal processes, growing implementation and maintenance costs. We do not see reasons to launch any new law related to the usage of Big Data. We do assess current regulatory framework (MiFID II/ MiFIR, PSD2, GDPR, the Unfair Commercial Practices Directive, etc.) as sufficient to promote consumer protection and the safety and soundness of markets.

In general, we welcome the uniform modern rules (in particular the GDPR) for consumers and companies with regard to data protection and consumer rights. However, it should be mentioned that the new provisions are often rather abstract and, therefore, may create legal uncertainty for both consumers and business. It is not always clear for companies which regularly requirements must be met and how they can be implemented in their everyday business. This may restrict the innovative activities of the companies and their initiatives with regard to Big Data. Since the new challenges for data protection concerning Big Data are not covered by the GDPR, it would be useful to introduce precise regulations also with regard to this topic.

In order not to create undue costs that would prevent the usage of big data, we suggest modest legislative approach:

* Regarding transparency to the customer of any algorithm used: Big data models are usually probabilistic models with many variables having small weight in the decision. Some models even use mathematical techniques where weight of one particular variable is not easy to extract. Therefore, it would be exaggerated if a firm has to exactly describe algorithms or has to precisely describe to the costumer the reasons why a particular decision was taken based on big data.
* Regarding the topic of data corrections: we believe there shall be defined some areas of data where customers shall be able to correct the data. However, if we speak about big data including unstructured and variable data, it is not possible to do corrections of such data. Many institutions use probabilistic models, where many variables have small weights to the decision. So even if some data are incorrect there will not be a significant impact on the decisions taken by our institution. If the data were systematically wrong, they would not prove to be significant in modelling, thus not entering the model.

As mentioned earlier, we believe that the Capital Requirements Regulation and Directive shall be discussed in this context. Capitally regulated institutions are bound by the so-called “use test” of capital risk models to decision models. Big data technology is based on fast changing models, data, doing champion challenger analyses and assessments. Capital risk models are subject to long internal and external revision processes and cannot be used in a big data context. Clearer definitions of use test of capital models with respect to big data would be welcomed, creating a level playing field between industries but also among institutions themselves.

Furthermore paragraph 21, page 16 is seen critically, as it may cause a disadvantage for European institutions due to opt-out, high transparency and reporting standards which might result in high costs as well as unbalanced competition with international players. A basic form of transparency for every customer is good – but it should be simple and affordable.

***Q8 (Page 33): 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?***

The benefits mentioned are described accurately. Banks have observed that the inclusion of more data lead to the ability of a bank to have better models. This means, that they are able to grant more loans to the customers. This means also a clear benefit of using big data in order to increase economic growth and increase financial inclusion. Furthermore, we see a clear benefit in offer a better pricing to customers based on improved prediction models.

Another benefit not mentioned is the automatic use of Big Data analyses to manage actively asset products to improve their profit. So if more data can be analyzed easier and quicker, asset strategies and trade decisions can be more accurate and prevent investors from loss. So also complete autonomous machine asset management can be an advantage for investors.

Under Question 6 mentioned transparency can burden financial institutions with costs and as a consequence customers will have transparency by higher costs – if this transparency burden costs too much, customer benefit will be reduced to a minimum because costs are too high.

Some examples of the use banks make of Big Data technologies are provided below:

* Banks offer/sell products and services to their customers based on their needs. In order to do so, some banks use different product manufacturing techniques to match customer needs with product features with the help of Big Data tools and analysis; by using Big Data analysis they can establish smaller and more detailed segments of customers in order to provide them with the best products.
* Thanks to Big Data tools, banks are able to react faster and more efficiently to market innovations as well as to changing customer needs.
* Thanks to Big Data, banks can more efficiently monitor product sales and customer reactions on the offered product features, pricing and distribution channel mix. In case of any discrepancies, banks can rectify any of these based on the collected data.
* Banks can provide customers with solid overview of their financial situation, spending and potential capacity to utilise other products. For instance, by analysing their current customers’ financial positions and having historical credit risk default data, banks can also protect customers from taking additional loans that could cause their inability to repay them in the future.
* Using Big Data technologies, banks can better analyse customer activities within a bank and, in case of any illegal or fraud activities, better react in line with all AML regulations.
* Banks have a good experience using Big Data technologies in anti-churn activities by:
  + offering customers need-based products/services,
  + proper product/service offering in different life-cycles or financial situations,
  + usage of predictive analytics and market intelligence.

***Q9 (Page 34): 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 believe that the risks for consumers and financial institutions are well described in the DP.

We see some reputational and ethical risks in using big data. Especially, financial institutions are regarded as being more conservative in this respect. We, therefore, firmly believe that full transparency of how data is used is needed as this is in interest of both, the regulatory bodies and the institutions themselves.

However, we do not see many risks for customers, as described in the paper, being directly caused by Big Data.

* Risks pointed in the paper related to the inexperience of customers, inability to understand products offers and their comparability, aggressive marketing practices and cross selling, etc. are well known and not specifically valid for financial services only. These are valid for many other industries and consumer. These above listed risks appearing in the financial services are already regulated/ mitigated by regulations being listed above and not caused by Big Data as such. It is important to respect the ultimate condition that a customer shall be aware/ express consent for any usage of his/ her data for Big Data processing.
* Risk related to Cybersecurity may materialize due to the underestimated internal IT security measures, poor control functions and growing number of cyber-attacks.
* Risk related to the customer data quality and veracity exists and is necessary for the financial services institutions to minimize the risks by proper processes, organizational set up and control functions. It is also necessary to have in place a good complaint handling and monitoring process. We are fully aware of data protections regulations and are compliant with them.
* Risk related to the proper staffing and multidisciplinary team needs is critical and is already known. Experts having knowledge both from data as well as business fields (holistic view) are demanded and more costly.
* If any of the risk being listed above as well as in the Discussion paper would materialize then it would likely trigger reputational and legal difficulties too.
* We do not believe that any regulation could eventually, fully and effectively drive customers’ behavior. Their preferences, habits, decisions are based on individual basis with multidimensional (psychological) backgrounds. Role and impact of Big Data in this is very limited.
* The disadvantage mentioned in Point 38 can also bring a cleanup in some fields (e.g. customers that cannot afford a mortgage will not have the access to such a product; property which is not usable for living because of flood area can’t be used because insurance/mortgages are not possible – although a regional authority gives the permission).
* Under point 39 and point 40 mentioned unfairly treatment of consumers should be prevented – no different pricing for same products.
* In case of missing data (mentioned in point 41) consumers should have the possibility to give information before automatized routines calculate any segment/rating/etc. – so at the end human information should be more important than technical produced information.

***Q10 (Page 34): Is the regulatory framework adequately addressing the risks mentioned above? Bearing in mind the constant evolution of technologies/IT developments and that some of the above mentioned regulatory requirements are not specific to the financial services sector (e.g. GDPR), do you think further regulation is needed to preserve the rights of consumers of financial services in a Big Data context? Please explain why.***

We believe that, as described in the DP, there is a very comprehensive regulatory environment (horizontal and sectorial) already in place. We don’t think that further regulation is needed. The main challenge is a more harmonised implementation of such framework across the European Union by authorities, for example with regard to the implementation of the GDPR.

We think regulation is adequate in this respect. We would rather prefer making current regulation more specific, e.g. via proposing technical standards, than expanding to further regulation.

Especially the use of “Natural-Language Question Answering” like Amazon Echo or Apple Siri should be recognized for the data protection and collection issue. Such data collected via microphones installed in an office or at home must be protected to preserve the private sphere and cannot be used for Big Data analytics of financial institutions. The usage for navigation of apps etc. (e.g. online banking) should be possible.

***Q11 (Page 34): 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?***

Big Data does not change the market principle that not all financial products and services are suitable for all consumers. Consumers should have the possibility to buy every financial product which meet their needs. Even if data is missing, the customer would have the possibility to add data – even if the process is more complex than if the data is available online. Regulators can assist on this with the right for everybody to have the transparency and access to all available products of a company. There should be also the right for the customer that wrong or not any longer relevant data has to be deleted, especially data used for credit scoring.

Generally, availability and affordability of consumer products or services (not only in financial services business) cannot be fully even. There will always be conditions that would be beneficiary to certain types of customers (location, technology used, income, status, education) and the current regulatory framework already addresses this. Big Data – properly applied under human control – will allow a better and more precise understanding of customers’ needs and capabilities. It should be noted that the traditional model would have often led, less efficiently, to the same conclusions.

In general, we believe that the usage of big data will increase the affordability of financial products to the population. The better the models the more money financial institutions are able to lend given their risk appetite. Yes, for some customers the better risk prediction may mean they will finally not qualify for some services, but we thing the former effect will be larger. Models based on big data consist of many variables each with small weight. Thus, it is only the combination of these that make the final decision. We think it is important with or without big data to ensure some groups of customers are not treated discriminatory, but it is always a person by person decision based on many characteristics with small weights. In this respect big data will help.

Regulatory authorities can motivate financial institutions to be as transparent as possible in their communication, disclosures towards customers on products features, distribution channels, service provision advantages and disadvantages, including for Big Data. This would create fair market conditions and allow a customer to make an objective and qualified decision on which products/ services and from which provider to buy/ use. Keyword: “Segment of one”; by using big data analysis we can establish smaller and more detailed segments of customers in order to provide them with the best products.

***Q12 (Page 34): Do you believe that Big Data processes may enable financial institutions to predict more accurately (and act accordingly) the behavior 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.***

We do not think big data is a significant driver of this. Already now institutions predict creditworthiness of clients in a good manner. Big data will serve as a supportive tool. But, we believe that big data will not bring significant changes to the decisions institutions make. However, on the high volumes even small improvements of models make a big difference in terms of value. Big data will support to substitute data, which is nowadays cumbersome to collecty by easily accessible big data.

We believe in Big Data analytics and their role in the defining a suitable product/ service offer for a customer. We believe that a correct identification of the customer needs is critical in the fair treatment, avoiding mis-selling practices and aggressive cross-selling. Big Data analytics outcomes can be solid assistance in this.

Generally speaking, the very purpose of Big Data is to gain a better understanding of the behaviour of consumers so as to better respond to their real needs and not to escape the obligation to treat customers in a fair manner. Moreover banks do not consider the fair treatment of their customers as an obligation but as a necessity, as customer satisfaction is the key in an extremely competitive environment.

If there are basic regulations that prohibit unfair treatment by financial institutions (FI), we see no compromise to treat customers fair. It is more an increase of fairness because FI can be more focused by offering products or services to customers. So the current situation of permanent consumer advertisement can be optimized and consumers get better information and so a better decision base.

Big Data is a matter of greater efficiency, not of radical change of business model.

***Q13 (Page 34): 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?***

On the one hand, Big Data does not necessarily change the nature of cyber risks and associated security measures for banks so long as the data is collected internally to a bank or banking group. There are no major technology differences between Big Data and ‘Non-Big Data’. The exposure to attacks has almost exactly the same probability to materialise as IT platforms and systems are based on practically identical processing principles – although in principle the sheer bigger amount (and likely value) of data could increase the probability of third parties targeting banks.

Already now banks store highly confidential information, e.g. credit card numbers thus institutions need to be very much protected against cyber-attacks. Financial institutions already have to meet, implement and be compliant with a certain amount of legal requirements (from various aspects, such as 'need-to-know') that also have to be covered by technical and organisational security measures.

On the other hand, the digitalisation of society exposes all stakeholders, not only the financial sector, to cyber risks. Deficiencies in the protection of one area or one participant may spread very rapidly to other areas and participants. The risk for customers is dramatically increased. Data once exported from a financial institution to a fraudulent or even only less protected place may be afloat the internet forever giving possible unwanted information about the client to the public.

As bank data is exposed outside of financial institutions, Third Party Providers have to provide data security. Banks apply heavy encryption standards and 2-factor authentication to support the highest security standards for their customers. Furthermore, regular security checks keep banks’ standards up-to-date.

***Q14 (Page 34): 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?***

We see no advantage in prohibiting the use and cannot think of some specific areas where the usage of big data shall be prohibited all around. But there must be the possibility for every customer to have transparency on the digital picture produced by Big Data and to correct it by his/her own information given to the counterpart. This opportunity to the customer should especially be given in any case of pre-decision phase using Big Data analyzes (e.g. before credit risk scoring, yes/no decision on credit card, decision on life insurance etc. customers should X-check their profile and adjust or give missing information).

Provided any financial institutions would show deficiencies for instance in data processing, customer services, data protection or insufficient IT security then such institutions might be banned from any usage of Big Data tools as consequence. Other measurements shall be taken too and always on individual (institutional) basis. Any new regulation is apparently not necessary to ensure this as there are already regulations in place that can serve this purpose.

***Q15 (Page 34): Do you agree that Big Data may reduce the capacity of consumers to compare between financial products/services? Please explain your response.***

New technologies, often used in Big Data area, can help customers to compare and choose the most appropriate product. Provided financial institutions behave transparently then comparison of products/ services depends individually on a customer and his/ her willingness and abilities to do.

Living with algorithms is now and in the future our everyday life by using digital information. In our opinion the reduced eligibility can be prohibited by education and training of people (adults and children). Everybody has to know that data analyzes base on our usage of electronics and so every offer is focused on our electronic behavior. Another important fact is, that it is possible to have neutral information if you use anonymous browsing or apps. For the financial industry this can be supported by a mandatory complete catalogue of available products/services given to the customer.

The more data one institution has the better conditions it can give to its clients. This phenomenon may be enhanced by big data. We think it is in the interest of the customer to be able to transfer his data. Initiatives, like PSD2 are aiming in that direction.

***Q16 (Page 34): How do you believe that Big Data could impact the provision of advice to consumers of financial products? Please explain your response.***

We think that the use of big data will improve the situation in this sense. The more predictive models are the better they can provide customer based decisions and advices to customers. The better and more precise the use of big data will be the more it will boost financial literacy and support the customer in his financial live and decisions.

Based on consumer segments analyzed by Big Data algorithms also advisory models can be adapted to meet these new segments. As a consequence some segments will include full advisory – others will maybe include only basic or a reduced product sample of advisory. This is no disadvantage – you get what you need and what you are willing to pay. But important is, that every potential customer with the need for a product get access to expert advisory before buying the product/service – no matter which segment was analyzed – even if he has to pay extra fees.

Big Data analytics can use many different types of data sources (including risk ones) based on which one can create a qualified and fair type of advice proposal. For sure there shall be a human being x-check of the analytics outcome and the final advice must be presented to the customers in the way s/he understands.

***Q17 (Page 34): How do you believe Big Data tools will impact the implementation of product governance requirements? Please explain your response.***

We think there may be dependencies but it is difficult for us to assess this as product governance requirements are discussed also in the same time.

Big Data tools and analytics can positively impact the requirements as they optimize workload (costs) and quality of the outcome (product/ service). Besides that, the tools will impact the product governance by using advanced analytics to provide customers with for example the next best product/activity. Customers can benefit in the form of well-designed products/ services as well as well trained staff (e.g., there might be business cases or scenarios, created via Big Data tools support, used for training) at miscellaneous distribution channels. The monitoring of the requirements fulfillments and potential rectification processes can/ shall also use Big Data tools too.

From the current view there might be two points relevant for implementation:

1. Product governance must be given by the issuing company not on the base of any Big Data analytics maybe done by external companies or people. Especially on the volatile stock market the influence of external analyzes must be regulated to avoid Big Data produced market troubles.

2. There must be a limited responsibility for product factories/companies using Big Data algorithms for their financial products (e.g. asset management products). So there must be liability and transparency for the algorithms used for products, but what is happening in the future on external factors must be excluded.

***Q18 (Page 34): How do you believe Big Data tools will impact know-your-customer processes? Please explain your response.***

The tools can help monitoring of customers current and previous financial and non-financial activities. Provided all these activities would be analyzed and stored properly than they can serve as good input for KYC process and be easily used for any AML analysis in the future too. The Financial institutions could share any potential warning signals (out of the analysis) with relevant parties in order to minimize illegal or fraud activities.

Big data and also blockchain technology can revolutionize the KYC process. Regulations must include the fact, that not one company is the holder and approval instance for KYC – KYC data and approvals can be generated external and then be accepted by financial institutions. Only the terms of confidence hav to be regulated to ensure an accepted European wide standard for every company which offers KYC approvals.

***Q19 (Page 36): 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)?***

The key success factors in big data will be distinguishing signal from noise and interpretability of the results.

A big data strategy will touch all areas of a bank, from scalable IT infrastructure, including data governance to employees and the necessity of new skills. The use of data is in general driven by IT and the business side. As data might be of higher impact in the future, we expect to focus more on the strategic side of big data.

This could lead to a reduction of national regulations to use customer data with other external data (data protection rules).

Corporate policy could be installed which accepts usage of external data for internal processes (customer segmentation, risk profiling etc.).

Adaptations of internal models, processes and rules as well as software used to include Big Data algorithms could be adopted.

***Q20 (Page 36): What are the greatest future challenges in the development and implementation of Big Data strategies?***

The greatest challenges for the development will be the usage of self-learning algorithms and supply of enough IT resources to be competitive. In this context especially the regulations conform usage can be difficult – how can self-learning algorithms work within regulatory barriers? Another big challenge includes finding skilled people who could use big data to deliver meaningful information. Another problem will be the connection of big data systems to the legacy systems currently in use: IT scalability and availability as well as smart tools and processes to integrate big data into the daily routines of a bank.

Besides technical issues, main challenges will be the accuracy of predictive models while keeping the process fast enough. That includes Realtime-events as they are becoming more relevant in the nearest future

The implementation of Big Data will be challenging if high national regulations are a burden and prevent international competition.

***Q21 (Page 36): This Discussion paper refers to a number of measures and tools meant to ensure compliance with conduct and organisational regulatory requirements as well as data and consumer protection rules in the context of big data analytics. Are other measures and tools needed? If so, what are they and what they should cover?***

We think regulation in this area is sufficient and that therefore no other measures are necessary. Consumer protection and fair market conditions as well as IT security topics are already covered in financial services regulations. A challenge related to Big Data remains beyond already regulated industries, i.e. by Fintechs, Retailers, E-shops).

***Q22 (Page 36): How do you see the development of artificial intelligence or blockchain technology in connection with Big Data processes?***

We see artificial intelligence use and the “Internet of Things” as an inevitable path, as more and more economic growth will be generated and connected to technology and data. With regards to blockchain, or in a broader sense the “distributed ledger technology” this will definitely lead to another kind of powerful and disruptive innovation. In the meaning of bit coins, we see no direct connection. A distributed ledger is essentially an asset database that can be shared across a network of multiple sites, geographies or institutions. All participants within a network can have their own identical copy of the ledger. Any changes to the ledger are reflected in all copies in minutes, or in some cases, seconds. The assets can be financial, legal, physical or electronic. Big data technology is an enabler of such services, but the acceptance of such services will not depend on the technology but on other factors.

The fast increasing technological progress is opportunity for Big Data area as it can stress a positive influence/ benefits (already mentioned in the paper) of Big Data on financial services industry.

The growing volume of data can be collected and analyzed faster, thoroughly and with more possible insights. Big data leads to higher accuracy of statistical models, f.ex. artificial intelligence based models. However, one of the downturns is that processing capabilities needs to be in place to further analyse large amounts of information.

We see that the use of advanced statistical models will become increasingly important in the future as in the end the analysis will provide a better product- or user-experience to the consumer.

The blockchain technologies can bring significant changes in the financial services modus operandi. Financial institutions can lose their current “monopolistic” role in transactional banking with many consequences to their organization. It is a challenge for governments/ regulators to define the role of blockchain driven companies in financial services as well their positions towards traditional financial services companies. Blockchain technology is still in an early stage, but possesses the potential for system scalability. As of now, there doesn’t exist any service which connects the blockchain technology to the analysis via big data technologies.

Artificial intelligence will produce data in other areas by learning the behavior of the human which is connected with the machine. Also autonomous generated data by machine learning algorithms will be a part of AI. Both will affect Big Data development (input and output). Blockchain technology will change the way of approval of data. Especially this change will have massive effects on regulatory environment – if the blockchain network used is worldwide how can regional regulatories be used? And if blockchain approved data will be used for Big Data algorithms – how can regulations be controlled? Maybe a new process of regulation is necessary – case related regulation instead of a pre-evaluated compendium. See also Question 1, 6 and 18.

***Q23 (Page 36): Are there any other comments you would like to convey on the topic of use of Big Data by financial institutions? In particular, are there other relevant issues that are not covered by this Discussion Paper?***

Due to the fact that the technology is still in its early adoption stage, we expect many more questions, challenges etc. still to come in the future.

In the paper often it is only mentioned “consumer” – we would extend this to the expression “counterpart” or “customer” because it is not a consumer-paper (see title). Because also B2B will be relevant for the financial industry and Big Data (especially SME business).

We ask you to give our remarks due consideration.

Yours sincerely,

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