

# **Compiled Comments on Draft Issues Paper on the Use of Big Data Analytics in Insurance**

**02-Sep-19 to 17-Oct-19**

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q1 General comments on the draft Issues Paper</b>				
1. World Federation of Insurance Intermediaries	Belgium	No	<p>WFII appreciates the opportunity offered by the IAIS to comment on the draft Issues Paper on the Use of Big Data Analytics in Insurance.</p> <p>WFII welcomes the fact that the IAIS considered last year and this year again the impact of digital technology on the insurance value chain, on consumer outcomes and on insurance supervision. In the insurance value chain, intermediaries use and develop technology-driven business models and tools to serve their clients. They have always combined technology and human interaction - and are therefore also called "Insurhybrids".</p> <p>We believe that it is the role of regulators and supervisors to safeguard that the digital development takes place in an appropriately regulated insurance market. This means that the regulatory and supervisory framework is technology-neutral and respects a level playing field for all market players.</p> <p>This level playing field is very important for our members. All firms providing insurance intermediation services should be regarded as insurance intermediaries and should be regulated as such, regardless of the medium or techniques they use to deliver such services.</p> <p>We are of the opinion that it is necessary to put emphasis on the activity-based approach. This ensures that Insurtech firms are not treated by the regulator/supervisor differently than traditional firms.</p> <p>It is our view that regulators and supervisors should keep a neutral and objective position with regard to all acceptable business models.</p> <p>The paper gives a very good state of affairs of the use of BDA in the insurance sector and of the benefits and risks that come with it. In this respect we believe that the use of BDA is a difficult issue. On the one hand it allows a better analysis of risk and thus better products for clients, but on the other hand it also allows a better price optimisation which could lead to discrimination.</p> <p>The use of big data as such is inevitable in the future in our society. This, in itself, is probably not problematic and we believe there should be room for business development on this basis. We refer here again to the level playing field and the activity-based approach. In this respect however the following questions should be</p>	Noted.

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			<p>asked:</p> <ul style="list-style-type: none"> <li>- who owns the data?</li> <li>- did the owner gave his full consent for the use of his data?</li> <li>- is data protection regulation adapted to the insurance sector?</li> </ul> <p>We believe that these are issues to be discussed in the future in a larger societal context. Where there is a growing trend toward the notion that the consumer owns the data it is considered that when consent is given service providers are "custodians" of the data. One wonders if, upon request of the client, the data collected by for example his or her car or car manufacturer should not also be shared with multiple insurers and intermediaries. This would certainly enhance competition. Insurance supervisors could cooperate here with data protection supervisors.</p> <p>In addition, we observe that in certain markets there is growing social movement toward consumer data rights and data rights as human rights. Perhaps this development could also be taken into consideration by the IAIS.</p> <p>Some of our members use Big Data and the result of it to improve the resilience of their clients. Resilience and expert risk mitigation advice is a key component of what our members provide to clients, in particular to industrial clients and more sophisticated clients. This may improve in the future, for example in the area of health and house hold risk prevention Big Data helps a lot the client in cooperation with the intermediary and the insurer to improve his own situation. This benefit could perhaps be mentioned in the paper.</p> <p>We believe that the current regulatory and supervisory framework of the IAIS can tackle the risks that come with BDA, under the conditions that this framework is</p> <ul style="list-style-type: none"> <li>-activity-based,</li> <li>-applies to all market players on the basis of a level playing field and</li> <li>-privacy and data protection issues are well managed.</li> </ul> <p>In this respect, we regret that the paper is looking only "in the box". We wonder if the focus of the supervisors is on the right (future possible) players. Would it not be useful for supervisors to look outside the box of what is currently called insurance in order to detect and anticipate future developments? One of the main risks is disruption and in our opinion, considering the good quality of the current regulatory and supervisory framework, this disruption will probably not come from within the insurance sector but Big Data may be the driver of that disruption.</p>	<p>Agree that the entry of non-traditional players into the insurance market, such as FinTechs and BigTechs, may raise important questions about the appropriateness of current regulatory and supervisory frameworks for</p>

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			<p>Are the rules and application of the rules wide enough to capture non-insurance entities that develop "insurance-like" activities (the future Ubers of the insurance industry)?</p> <p>Perhaps the paper should have a focus / analysis of the impact of data/data ownership and these "non-insurance intermediation entities" developing insurance-like activities. Have the supervisors and regulators sufficient eyes for business models that are divided in many parts? Are Big Data entities supervised/regulated (on the basis of level playing field)? What is the future grey zone between warranty/guarantee and insurance?</p> <p>We believe this paper should also or specifically mention this "out of the box" aspect and give further thoughts to the above mentioned considerations and questions.</p>	<p>insurance. These questions relate to the larger impact of digitalisation and are not limited to the use of Big Data Analytics. The IAIS will explore this through its broader work on FinTech developments affecting the insurance sector.</p> <p>Also see references to additional material on this included in Annex 2 of the paper.</p>
2. Global Federation of Insurance Associations	Global	No	<p>GFIA appreciates the opportunity to comment on the issues paper, the effort of supervisors and the over-all balance provided in the paper. GFIA especially appreciates the openness to stakeholders exhibited by the IAIS' Market Conduct Working Group.</p> <p>Here are some general comments for consideration:</p> <ul style="list-style-type: none"> <li>- The paper should more explicitly recognise the benefits of insurers' use of big data analytics (BDA).</li> <li>- Many of the possible risks discussed in the paper, such as biases resulting in discrimination and reduction of access to insurance, lack evidence and may be mitigated by the use of BDA, in any event.</li> <li>- Algorithms are able to take in more information, which de-emphasises the reliance on any one data point and should improve accuracy.</li> <li>- The paper should explore the benefits of more personalised retail insurance products, potential risk mitigation and targeted marketing.</li> <li>- Some of the supervisory concerns mentioned in the paper, such as industry consolidation, non-compulsory insurance products and the issues surrounding genetic data, are not BDA specific concerns.</li> <li>- The supervisory concerns mentioned in the paper can be, and are being, addressed under current supervisory standards.</li> <li>- The paper should emphasise that the best way to address any residual supervisory concerns is through a dialogue between supervisors and the companies proposing the innovations.</li> </ul>	<p>Noted.</p> <p>See specific responses to comments on relevant sections elsewhere in table.</p>

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			<p>- More emphasis should be placed on the importance of supervisors holding start-ups to the same standards as traditional insurance companies.</p>	
3. Institute of International Finance	Global	No	<p>The Draft Issues Paper provides an accurate overview of the various uses of BDA by insurers and provides a helpful discussion of some of the key challenges or risks associated with the various applications of BDA. In certain instances, however, we believe the paper may not address these issues in a sufficiently detailed and balanced manner. For example, we offer suggestions for a more nuanced discussion around the use and collection of data, the potential for bias, the development of personalized products and targeted marketing. As the IAIS delves further into the topic of insurers' use of BDA, we would urge a collaborative approach with industry and other stakeholders (e.g. cross-sectoral standard setters responsible for data privacy and protection initiatives, the research and academic communities, and machine learning and artificial intelligence experts) in order to understand more fully this complex topic. We are pleased that the IAIS has adopted a collaborative approach through the publication for comment of the Draft Issues Paper.</p> <p>This letter offers feedback on the Draft Issues Paper, as well as some additional considerations that we would propose for further exploration by the IAIS.</p> <p>Relatedly, the IIF has conducted extensive cross-sectoral research into the topics of machine learning, data privacy and third-party risk management, and a number of our findings are reflected in this comment letter. In addition, the attached report may be of interest to the IAIS and we would be pleased to discuss in greater detail the topics raised in this letter or in the IIF report with IAIS members and staff addressing BDA issues.</p> <p>1. The Draft Issues Paper should focus on advice and guidance to insurance supervisors with respect to the use of BDA by insurers.</p> <p>The IAIS has stated that Issues Papers are designed to provide background on particular topics, describe current practices, actual examples or case studies pertaining to a particular topic, and/or identify related regulatory and supervisory issues and challenges. In general, the Draft Issues Paper identifies challenges related to the use of BDA by insurers for supervisory consideration but, at times, it strays into providing guidance to insurers (e.g. Paragraph 47). While we have no</p>	<p>Noted and appreciated.</p> <p>The IAIS agrees with the importance of an enhanced collaborative approach with stakeholders and other cross-sectoral bodies in tackling the issues raised in the paper. This will be a focus area for the IAIS as it continues to explore emerged and emerging trends influencing the insurance sector going forward, and is reflected in the IAIS' 2020-2024 Strategic Plan.</p>

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			<p>issue with the specific guidance offered, it may be premature for the IAIS to offer guidance to the industry on the use of BDA until there has been further dialogue among the IAIS, the industry, and other stakeholders, in order to gain a more thorough and comprehensive understanding of the use of BDA by insurers, the challenges and benefits of BDA, and the control and governance arrangements insurers have in place around their use of BDA.</p> <p>It could be helpful for the IAIS to convene a roundtable with members and stakeholders to discuss the use of BDA and related model governance and risk management issues. The IIF would be pleased to facilitate such a forum.</p> <p>2. The IAIS should recognize the considerable benefits of insurers' use of BDA.</p> <p>The IAIS should better balance the discussion of the risks of BDA with an explicit reflection of the benefits of the use of BDA by insurers. BDA tools can play an important role in promoting a customer-centric insurance value chain and in advancing the societal goals of improving insurance inclusion and narrowing insurance protection gaps. BDA can contribute to making insurance products more accessible and can facilitate the underwriting process through more refined policyholder risk assessments, better risk differentiation and, ultimately, more refined risk-based pricing. BDA can also support global financial inclusion by improving model accuracy and overcoming data deficiencies and inconsistencies and, thus, allowing insurers to better assess, price and underwrite risks that, in the past, may have been uninsurable. For example, BDA has enabled the development of parametric products that are customer-friendly and affordably priced. The claims management process can be expedited through the use of digital and geospatial tools and advanced analytics can be deployed to prevent inappropriate claims and detect insurance fraud, ultimately leading to cost savings and greater efficiencies for insurers and policyholders alike.</p> <p>Paragraph 46 appropriately recognizes the benefits of BDA in enabling the provision of usage-based insurance (UBI) but raises a concern that UBI can create risks if customers forget to activate or deactivate their cover as and when necessary. We believe this risk to be overstated and note that this concern can be easily mitigated when insurers provide alerts or periodic reminders to customers. Insurers choosing to offer UBI products have an incentive to make these products attractive to customers by enhancing convenience and ease of use.</p>	<p>Additional text has been included in various sections to highlight these benefits more clearly.</p> <p>See specific responses to comments on relevant sections elsewhere in table.</p>

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			<p>3. The Draft Issues Paper would benefit from a more nuanced discussion of insurers' use of data.</p> <p>While we recognize that insurance regulators and supervisors generally do not have a mandate to address data privacy and data protection issues, these issues are closely related to insurers' use of BDA. Section 2.1 of the Draft Issues Paper (Paragraphs 22-28) appears to treat equally all types of data when, in fact, insurers segment customer data according to the level of sensitivity, particularly in the case of personally identifiable information (PII). The segmentation of customer data cascades into the processing of the data and its use in marketing, underwriting and distribution. We believe it is important for the IAIS to engage with standard setters that have a mandate for data privacy and data protection in order to appreciate more fully how insurers are required to handle customer data in general and PII in particular.</p> <p>As a related matter, the IAIS should consider the implications of data localization laws and regulations for the development and use of BDA by insurers. Data localization restrictions impede the development and use of BDA by cross-border insurers, an obstacle that redounds to the detriment of policyholders unable to take advantage of the innovative product offerings and streamlined access to insurance markets that BDA techniques can facilitate. The IAIS may wish to consider the impacts of data localization on the global insurance industry in general and on the industry's ability to develop further innovative products and services in particular.</p> <p>The IAIS correctly observes in Paragraph 106 that legal questions related to the ownership of data may arise when data is received from insureds or third parties. We suggest that, instead of attempting to resolve the significant legal complexities around data ownership (the treatment of which varies across jurisdictions), the IAIS may wish to focus supervisors on whether insurers (and others in the insurance value chain) have received the right to use customer data in accordance with jurisdictional requirements and are using that data in a manner consistent with the fair treatment of customers.</p> <p>Paragraph 24 raises a concern that passive data collection may result in customers unknowingly sharing data with insurers. Data collection, whether passive or active, generally occurs (and should occur) with prior disclosure to and consent from</p>	<p>The IAIS agrees that the use of BDA raises important consumer privacy and data protection issues that are relevant to insurance supervisors. The paper acknowledges this, but also recognises the importance of broader cross-sectoral coordination on these issues. These developments will be monitored closely and flagged for potential further work in future. Also see updated text and references in section 4.4.</p> <p>See specific responses to comments on relevant sections elsewhere in table.</p>

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			<p>customers that clearly identifies the type(s) of data collected and the intended use(s) of the data collected. Supervisors have an interest in ensuring that those disclosures are transparent, understandable and meaningful and that consent is knowingly given, considerations that are not unique to the passive collection of customer data.</p> <p>Paragraph 71 raises a concern that customers who do not have or want access to digital devices or do not wish to provide detailed personal data may become marginalized and excluded from insurance. We do not agree that this should be a significant concern. Insurers can and do serve customers who do not adopt technology, just as they can and do serve customers with a wide variety of risk profiles and needs.</p> <p>Finally, the Draft Issues Paper would benefit from a further discussion of supervisory approaches to the use of open source data and code by insurers. While the use of open source data and code has many benefits, the IAIS may wish to consider offering guidance to supervisors on the risks that can arise from the failure to inventory, track and update open source components, faulty, underdeveloped or abandoned open source data or code, or slow patching that can allow hackers to take advantage of vulnerabilities.</p> <p>4. The Draft Issues Paper would be enhanced by a more thorough discussion of bias.</p> <p>The Draft Issues Paper would be enhanced by a more thorough discussion of the challenges around bias. While we agree that machine learning and AI can manifest or perpetuate existing biases, this risk of bias is not new as a result of the development of BDA. Insurers have an obligation to be vigilant in preventing bias, regardless of the methods used to market, underwrite or distribute their products. The benefits of BDA need to be balanced with the risks of bias and improper discrimination. The fact that the risk of bias is not new as a result of the development of BDA should be highlighted in discussions among supervisors at the IAIS.</p> <p>The Draft Issues Paper also could be enhanced by a definition of bias that distinguishes and emphasizes statistical bias as opposed to more popular, social definitions of bias. Different types of bias (e.g. selection bias, survivorship bias and association bias) could be highlighted, along with techniques and processes for overcoming these sources of bias. For example, to counter potential association</p>	<p>Noted.</p> <p>While the paper touches on this important issue, the risk of bias and unfair discrimination in the use of AI raises complexities and challenges that require deeper exploration. The IAIS has flagged this as a potential focus area for future work.</p>

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			<p>bias, or the use of data in the training set that correlates positively with protected or sensitive characteristics that cannot be used explicitly, an insurer could, among other measures: (i) track the lifecycle of the training dataset, (ii) review the dataset to detect encoded bias in the features, (iii) improve the representativeness of the dataset to include underrepresented data, (iv) consider the need for a posteriori bias correction to neutralize the impact of a sensitive attribute, and (v) apply quality control processes to ensure that the integrity of the dataset is maintained over time. Moreover, BDA can be used proactively by insurers to identify sources of bias and errors in data.</p> <p>5. The Draft Issues Paper should reflect insurers' governance and risk management of the use of BDA.</p> <p>BDA models, like other models used by insurers, are subjected to rigorous model risk governance and independent testing and validation policies and processes throughout the life of the model. Insurers subject key model assumptions and model output to independent human expert oversight, review and control to prevent overconfidence in model solutions. Insurers can use a range of techniques in order to help detect and address potential sources of model bias or error, including challenger or benchmark algorithms and models and the use of different datasets for training, testing and validation. When models are less explainable, additional processes are considered to assure that results can be meaningfully interpreted. Centralized data lakes, warehouses and inventories can help track data and improve data quality. Documentation and an audit trail can facilitate good model governance and provide for management accountability.</p> <p>The IAIS should elaborate on the suggestion in Paragraph 100 that supervisors may wish to conduct (either directly or through the use of independent third-party audit and validation parties) sample verification and integrity checks on the algorithm process as well as the outcome of the process in ensuring fair customer outcomes. If the IAIS determines to adopt such a suggestion, we would value additional discussion on the criteria for determining the parties capable of performing such analyses, as the state of the art in BDA and modeling is dynamic and expertise is limited.</p> <p>6. The IAIS should avoid the duplication of existing Insurance Core Principles that also apply to the ethical use of BDA.</p>	<p>Noted.</p> <p>The development of supervisory criteria falls outside the scope of Issues Papers. If this suggestion is taken forward, the IAIS will engage in further discussion and consultation before suggesting or developing any such criteria.</p>

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			<p>ICP 19, Conduct of Business, provides extensive guidance to supervisors in their development of standards that require insurers to treat customers fairly. This guidance applies equally to the supervision of the use of BDA by insurers. The IAIS should review ICP 19 and other ICPs related to the fair treatment of customers to determine if there are any gaps that need to be addressed in order to reflect the use of BDA by insurers. New principles and guidance should be proposed only in the event that there are material gaps in existing supervisory materials.</p> <p>7. The IAIS should coordinate with global standard setters in order to align and coordinate insurance principles and guidance where appropriate.</p> <p>The IAIS should consider further coordination with global standard setters, particularly those with a cross-sectoral mandate to address data privacy and data protection, in order to align insurance principles and guidance where appropriate. These standard setters would include, at the global level, the Organization for Economic Cooperation and Development (OECD). Coordination with global standard setters can promote a level playing field among market participants engaging in the same or similar activities and can avoid regulatory and market fragmentation. However, while alignment and coordination generally should be a goal of standard setters, there are situations in which different principles and guidance are appropriate for different sectors. The IAIS should carefully consider whether, and to what extent, global principles and guidance reflect the insurance business model and practices and make adaptations as appropriate.</p> <p>8. The benefits of more personalized retail insurance products and targeted marketing should be more fully explored.</p> <p>The Draft Issues Paper describes the use of targeted marketing to "nudge" customers towards specific products and services and the IAIS raises concerns that targeted marketing could limit the ability of customers to compare a wider variety of offerings, and could result in less informed decision-making, reduced choice, over-insurance, and greater difficulties in product switching. The Draft Issues Paper claims that targeted marketing could cause consumers to disengage, if consumers perceive that insurers are opportunistic.</p> <p>We encourage the IAIS to adopt a more balanced discussion of targeted marketing.</p>	<p>The Issues Paper does not introduce additional supervisory principles or standards. As explained in the draft paper, the issues raised should be considered within the context of ICP 18 and ICP 19.</p> <p>See response to comment 3 on IAIS' intention to enhance collaboration with other cross-sectoral bodies on these issues going forward. Also see updated text and reference to OECD work added to section 4.4.</p> <p>See specific responses to comments on relevant sections elsewhere in table.</p>

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			<p>Personalized products can meet customer needs by tailoring the scope and amount of coverage and by setting premium levels that reflect the personalized coverage. BDA solutions can identify individuals who could benefit from personalized products and alert those individuals to possible protection gaps or the availability of new offerings. Mass offerings, on the other hand, can lead to over-insurance and higher prices to consumers when product design is inflexible.</p> <p>Paragraphs 61 and 62 and Paragraphs 93 through 95 suggest that BDA can exacerbate disparities in the availability and pricing of insurance products. Concerns regarding insurance availability and pricing are not unique to the use of BDA by insurers and, as we have noted elsewhere in this letter, BDA can improve insurance availability and help insurers tailor coverage and pricing to customer needs and risk profiles.</p> <p>9. The Draft Issues Paper should better elaborate the benefits of BDA for commercial insurance.</p> <p>The Draft Issues Paper has a strong focus on personal lines insurance and the application of BDA throughout the personal lines product lifecycle. We would encourage the IAIS to also consider and further elaborate the benefits of the application of BDA techniques to the commercial insurance product lifecycle, including in sales and marketing, distribution, underwriting, pricing and claims handling. (For example, the Draft Issues Paper could explore the use of BDA techniques to enhance geospatial technologies used in marine and aviation insurance.) The applications and benefits of BDA techniques in commercial insurance can differ significantly from the applications and benefits of BDA techniques in personal lines insurance and these differences should be highlighted.</p> <p>10. The discussion of genetic data in Paragraph 73 and the examples following Paragraph 73 could be elaborated and balanced with a discussion of emerging best practices for governance and oversight.</p> <p>Paragraph 73 appropriately recognizes some of the concerns related to the use of genetic data by insurers. We encourage the IAIS to balance these concerns with a discussion of emerging best practices that impose strict controls on, and oversight of, the use of genetic data. We would revise the third and fourth sentences of this Paragraph to state, "Supervisors should advise insurers to proceed with due care in</p>	<p>Noted.</p> <p>Deeper exploration of BDA benefits for commercial insurance may be considered as part of broader IAIS work on this issue in future.</p> <p>See specific responses to comments on relevant sections elsewhere in table.</p>

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			<p>their use of genetic data and probabilistic models, in light of concerns about potential bias and uninsurability. In some jurisdictions, legislation restricts the use of genetic and related data for insurance purposes."</p> <p>11. Examples used in the Draft Issues Paper should be elaborated with an explanation of the underlying methodology.</p> <p>The examples used in the Draft Issues Paper would benefit from a further explanation of the underlying causes of the problematic behavior. For example, after Paragraph 37, an example is given of a BBC investigation that appeared to reveal biased data used in a car insurance comparison website. A description of the underlying causes - for example, methodological or design flaws in the BDA utilized by the insurer or the lack of proper model governance - could help to substantiate whether biased data was the reason for the difference in treatment (as opposed to other legitimate variables such as driving records). A description of the underlying causes could produce important "lessons learned" for both insurers and supervisors.</p> <p>12. As a next step, the IAIS should convene a roundtable with members and stakeholders to discuss the use of BDA by insurers and related model governance and risk management issues.</p> <p>As noted in the introduction to this letter, the use of BDA by insurers is a new, multi-faceted and quickly evolving space that necessitates a collaborative approach with industry and other stakeholders.</p> <p>We would encourage the IAIS to further engage in dialogue with a range of stakeholders, including the industry, the academic community, advocacy and research organizations, and fellow supervisors and global standard setters, including those responsible for other financial services sectors, data privacy, competition and data protection. The IIF would be pleased to facilitate such a forum.</p> <p>After engaging in significant and substantive stakeholder dialogue, we would encourage the IAIS to provide further advice to supervisors and engage in supervisory capacity building on issues related to insurers' use of BDA.</p>	<p>Example deleted and text updated.</p> <p>Noted.</p> <p>See earlier comment on IAIS' intention to enhance collaboration with stakeholders and other cross-sectoral bodies on these issues going forward.</p>
4. The Life Insurance	Japan	No	The Life Insurance Association of Japan (LIAJ) would like to thank the International Association of Insurance Supervisors (IAIS) for giving us the opportunity to comment	Noted.

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Association of Japan			<p>on the Draft Issues Paper on the Use of Big Data Analytics (BDA) in Insurance (hereinafter "Issues Paper"), following the November 2018 Issues Paper on Increasing Digitalization in Insurance and its Potential Impact on Consumer Outcomes.</p> <p>This Issues Paper is very interesting and informative, as it focuses on specific issues such as introducing positive use case examples related to the use of BDA, and regulatory examples (such as the European Commission's Ethics Guidelines for Trustworthy AI, and the Monetary Authority of Singapore's Principles on fairness, ethics, accountability and transparency (FEAT) related to the use of AI and data analytics, etc.) from each jurisdiction's supervisors and trade associations.</p> <p>The LIAJ would like to ask the IAIS to not disincentive the use of BDA in insurance such as those described in the Issues Paper and to facilitate discussions that are in line with each country or region's existing regulatory frameworks when considering international regulation while maintaining appropriate balance between innovation and policyholder protection.</p>	
5. Anonymous	Anonymous	Yes	<p>Very interesting paper regarding the use and impact of BDA in the insurance sector. The topic regarding the ethics of BDA is a hot topic, and the paper provides a good bird-eye of the issue.</p> <p>Given the fact that we are an Insurance Company that is focused on Bancassurance, overall we miss some specifics regarding the interaction with our HQ (Financial company) as well as the data, and the modelling regarding the Points of Sale, in this case, bank branches that also sell other financial products and that have a very accurate knowledge of the customer.</p>	Noted.
6. American Council of Life Insurers	U.S.	No	<p>The American Council of Life Insurers (ACLI) appreciates the opportunity to provide feedback on the IAIS big data analytics draft issues paper. ACLI advocates on behalf of 280 member companies that provide life insurance, annuities, retirement plans, long-term care insurance, disability income insurance, reinsurance, dental and vision and other supplemental benefits to 90 million American families. ACLI members represent 95 percent of industry assets in the United States.</p> <p>While we are encouraged by the IAIS's attention to the important topic of big data analytics (BDA) in insurance, we believe more attention should be given to</p>	

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			<p>consumer benefits of BDA. BDA can enhance efficiencies, reducing the time from application to policy issue; provide greater insights into consumers' insurance needs; increase touch points with consumers to meet them where they are; facilitate less invasive underwriting; and may improve access to underserved communities.</p> <p>We also think it is important to note that the concerns presented in this paper around big data analytics are not new to the industry. Long before BDA, insurers encountered and successfully incorporated new innovative tools into their business that improved risk assessment, ultimately to the benefit of most consumers. For example, life insurers did not always collect blood samples, but now it's standard practice in helping insurers to assess risk. While technology and techniques may evolve, insurers' responsibilities under the law and their commitment to actuarial standards and consumer protections do not.</p>	<p>Additional text has been included in various sections to highlight these benefits more clearly.</p> <p>See specific responses to comments on relevant sections elsewhere in table.</p>
7. Anonymous	Anonymous	Yes	<p>Thank you for the opportunity to comment on the "Draft Issues Paper on the Use of Big Data Analytics in Insurance" ("Draft Issues Paper") which builds on the November 2018 IAIS Issues Paper on the topic of increasing digitalization. The Draft Issues Paper considers the manner in which insurers are able to collect, process and use data in product design, marketing, sales and distribution, pricing and underwriting and claims handling to help understand the potential benefits and risks to consumers associated with the use of big data analytics (BDA).</p> <p>As the use of BDA continues to transform many aspects of the insurance product lifecycle, we believe that it is important for the IAIS and individual jurisdictions to take a "360-degree view" of BDA. That is, there must be consideration of both the benefits and risks of BDA and any associated regulations on both consumers and insurers. As noted in the Draft Issues Paper, BDA has provided many benefits to consumers and insurers over the past several years, such as allowing for more granular risk selection and pricing, which could allow consumers to purchase affordable coverage for previously "uninsurable" risks. As the IAIS and jurisdictional supervisors continue to respond to the use of BDA, we believe that the "360-degree view" could help to mitigate unintended negative consequences of any proposed regulations to the consumer and/or the insurer, such as insurers not offering certain products because the costs created by regulation of the use of BDA is too high.</p>	Noted.

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			<p>As the IAIS evaluates the next steps following the review of the comments on the Draft Issues Paper, we believe that the IAIS process should not seek to replace existing U.S. governance and supervisory measures or those existing in other jurisdictions. Rather, the IAIS process should leverage and complement existing jurisdictional measures and bring together information from multiple jurisdictions to identify emerging benefits and risks from BDA.</p> <p>I hope you find the responses and observations useful, and I am available to answer any questions or to provide further clarification.</p>	
8. NAMIC	United States	No	<p>The National Association of Mutual Insurance Companies (NAMIC) would like to thank the IAIS for the opportunity to comment via the public consultation on the draft issues paper on the Use of Big Data Analytics in Insurance. This topic is of considerable importance to insurers and for the consuming public as well. It is genuinely believed by NAMIC and its members that large data sets provide a level of detail that promotes healthy and robust insurance products and concomitant marketplaces that benefit all stakeholders.</p> <p>NAMIC is a property/casualty trade association with membership including more than 1,400 companies. The association supports regional and local mutual insurance companies on main streets across America and many of the country's largest national insurers. NAMIC member companies write \$268 billion in annual premiums. Our members account for 59 percent of homeowners, 46 percent of automobile, and 29 percent of the business insurance markets. Through our advocacy programs, we promote public policy solutions that benefit NAMIC member companies and the policyholders they serve, and we foster greater understanding and recognition of the unique alignment of interests between management and policyholders of mutual companies.</p> <p>As a general commentary unrelated necessarily to any specific paragraph, NAMIC encourages the authors to integrate the positive aspects of big data analytics (BDA) more fully throughout the paper. While issues in a particular market may develop, they need not necessarily be presupposed, and they need not be presented without including the demonstrable benefits data yields. The ability, for instance, to provide outstanding customer service and products as well as superior claim response should be further elucidated as there is existing support for these outcomes</p>	Additional text has been included in various sections to highlight these benefits more clearly.

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			<p>presently.</p> <p>Contrast these positive real-world demonstrable examples with seemingly negative supposition, conjecture, and innuendo that appears to permeate some of the paper. While there may be value in touching on downside potentialities, throughout the paper it seems that these concerns are highlighted as paramount absent specific material findings and without a discussion of existing adequate tools to mitigate and address possible shortcomings.</p> <p>For example, the discussion of bias focused only on possible negatives. However, more discussion and focus should be placed on the ability of artificial intelligence and BDA to remove subjectivity, make assumptions and decisions with broader and objective data, and to provide consistent and legally defensible outcomes. Also, while the paper aims to focus exclusively on insurance-specific use of BDA, in certain instances it exceeds this scope by enumerating societal or government-oriented policy concerns that are broad and not unique to this sector.</p> <p>Additionally, NAMIC believes the concept of fraud investigation, including analysis and detection, should be more fully discussed because fighting fraud is critical for the integrity of the insurance system for both consumers and insurers alike. The ability to discern illegal or otherwise untenable conduct within insurance marketplaces should provide a level of credibility and protection. BDA also routinely and in a much larger degree rules out fraud in an efficient and timely manner.</p> <p>Lastly, the use of large data sets, while perhaps warranting some discussion, fails to recognize the concept of predictive analytics has always been a hallmark and foundational principle of insurance. Insurers, by definition, forecast risk and must be able to price appropriately. While perhaps over simplifying, actuarial credibility is a concept that values large data sets as a way to improve the predictive value of statistical estimates. To the extent these principles are curtailed, prudential issues as well as the stability and competition of markets may be implicated.</p>	<p>See specific responses to comments on relevant sections elsewhere in table.</p> <p>Noted.</p> <p>The level of detail on BDA benefits for insurance fraud detection is adequate and in line with the detail provided in other sections for the purposes of the Issues Paper,</p> <p>Noted.</p>
9. PCI	United States	No	Overall, APCIA believes the paper is an accurate high-level overview of insurer's use of big. APCIA also welcomes the GFIA comments. However, due to the high-level nature of the paper it falls short in addressing some issues in a sufficiently detailed and balanced manner. For example, on page 33-37 there is a discussion of possible bias in Artificial Intelligence but there is no recognition of the fact that the risk of	See specific responses to comments on relevant sections elsewhere in table.

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			<p>possible bias is really nothing new or unique to big data analytics. The insurance sector has been working to overcome these challenges and supervisors should already be generally aware of them. We believe this fact should either be reflected in the paper or this risk/challenge should be taken out of scope of the paper.</p> <p>As to a balanced approach, the paper does not recognize the benefits that new machine learning and deep learning methods have on appropriately "unlocking" unstructured data (i.e. unstructured text information, such as medical records, customer reviews, legal documents, etc.) that could not have been used for better risk assessment previously.. Also, there is active research taking place at communities like FAT ML and Fair AI to address the issues of bias, transparency, and recourse methods, in particular. Paragraph 30 may be a good place to address this.</p> <p>The paper also misses the point about the value of competition and the role of the regulator to encourage a healthy market. Big data analytics has the potential to increase fair competition, which has a positive effect on mitigating or eliminating potential concerns that are identified throughout the paper. Healthy competition can address gaps where risk is misidentified in the market and promotes availability of coverage. A regulatory whose role is focused on ensuring big data analytics don't generate systemic biases can encourage this healthy competition.</p> <p>The paper also would benefit by recognizing insurance is committed to risk-based pricing and the use of big data has the potential to grow the risk pool to identify risk and more accurate risk-based pricing. These risk drivers are also a community concern that risk-based pricing can benefit. For instance, risk-based pricing will reward favourable changes in driving behaviour; while subsidization of premiums for high risk drivers can crate a moral hazard.</p>	<p>Noted. The suggested level of detail on machine learning and deep learning methods falls outside the scope of this paper but is as an important and complex issue. The IAIS has flagged this for deeper exploration as part of its broader work on FinTech developments affecting the insurance sector.</p> <p>Agree this is an important issue, and has been mentioned in the paper. However, detailed discussion of competition issues falls outside the scope of the paper. Text updated and additional references included to better highlight the issues and improve balance where necessary.</p> <p>The paper recognises these issues.</p>
10. Center for Economic Justice	USA	No	We thank the WG for your efforts on these important issues and for developing a balanced review of the issues associated with insurers' use of Big Data Analytics (BDA). We have provided references / documentation / citations as footnotes for many of the comments, but they do not show up in this consultation tool. We have	

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			<p>submitted separately our comments in Word format to, one, show the citations and references, and, two, show our suggested edits in redline.</p> <p>We want to respond to comments made by the U.S. trade association APCIA and global trade group GFIA.</p> <p>APCIA/ GFIA's comments - made during the WG's September 25, 2019 meeting in Kansas City and in written comments to the NAIC International Insurance Relations (G) Committee - seek to turn a balanced paper into a one-sided appreciation of any and every thing insurers do and to censor any concern or action by a supervisor with which APCIA disagrees</p> <p>APCIA / GFIA has asked that the issues paper exclude "any request from interested parties that would cite to a single U.S. regulator's action, that would elevate one U.S. regulator's views over the majority view of others, or that would argue for acceptance of a standard of conduct that has not been enacted by the States."</p> <p>APCIA is clearly referencing CEJ's suggestion that the paper reference the recent work of the New York Department of Financial Services to investigate and take supervisory action regarding insurers' use of accelerated underwriting in life insurance and the use of education levels and occupation as risk classifications for motor vehicle insurance and our comment to discuss the role of disparate impact analysis in identifying and stopping unfair discrimination against protected classes. APCIA's request must be rejected for several reasons. First, insurance is primarily regulated by the states in the U.S. Consequently, there are no national standards enacted by States. Model laws, regulation and guidelines adopted by the NAIC are just that - models that do not have the force of law. The NAIC is not a supervisor. Supervisory authority is vested in the states for insurance. Second, individual U.S. states are members of the IAIS and represent individual jurisdictions just as individual members of the European Union are members of the IAIS. And just as the issues paper cites examples of BDA efforts by supervisors in the Netherlands, France and the UK, so is it relevant and appropriate to cite efforts by individual U.S. states like New York or California. Third, APCIA falsely equates providing an example of activity by a U.S. state in the issues paper with "elevating one regulator's views." Providing examples of what different jurisdictions have done in response to insurers' use of BDA is not "elevating" one jurisdiction over another. Indeed, APCIA seeks to elevate its views by urging the WG to censor actions with which APCIA disagrees.</p> <p>The NY DFS investigations and supervisory actions are clearly relevant examples for the BDA issues paper. Regarding accelerated underrating (AUW) in life insurance,</p>	<p>Noted.</p> <p>Examples relating to the NY DFS efforts and the FHA have not been included as the risk of unfair discrimination is sufficiently captured in the paper without the proposed examples.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			<p>the NY DFS first survey insurers on the types and uses of non-medical data in AUW. Based on this investigation, the NY DFS issued a letter to insurers explaining what insurers must do to ensure that their AUW practices comply with New York unfair insurance discrimination laws. The letter stated:</p> <p>The Department fully supports innovation and the use of technology to improve access to financial services. Indeed, insurers' use of external data sources has the potential to benefit insurers and consumers alike by simplifying and expediting life insurance sales and underwriting processes. External data sources also have the potential to result in more accurate underwriting and pricing of life insurance. At the same time, however, the accuracy and reliability of external data sources can vary greatly, and many external data sources are companies that are not subject to regulatory oversight and consumer protections, which raises significant concerns about the potential negative impact on consumers, insurers and the life insurance marketplace in New York.</p> <p>This circular letter addresses two particular areas of immediate concern with the use of external data sources, algorithms or predictive models that were identified during the Department's investigation. First, the use of external data sources, algorithms, and predictive models has a significant potential negative impact on the availability and affordability of life insurance for protected classes of consumers. An insurer should not use an external data source, algorithm or predictive model for underwriting or rating purposes unless the insurer can establish that the data source does not use and is not based in any way on race, color, creed, national origin, status as a victim of domestic violence, past lawful travel, or sexual orientation in any manner, or any other protected class. Moreover, an insurer should also not use an external data source for underwriting or rating purposes unless the use of the external data source is not unfairly discriminatory and complies with all other requirements in the Insurance Law and Insurance Regulations. Second, the use of external data sources is often accompanied by a lack of transparency for consumers. Where an insurer is using external data sources or predictive models, the reason or reasons for any decline, limitation, rate differential or other adverse underwriting decision provided to the insured or potential insured should include details about all information upon which the insurer based such decision, including the specific source of the information upon which the insurer based its adverse underwriting decision.</p> <p>The NY DFS recently adopted a new rule to address unfair discrimination concerns with auto insurers' use of education and occupation as risk classifications. The background section of the rule states:</p>	

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			<p>Pursuant to Insurance Law section 308, the superintendent initiated an investigation of the use of an insured's education level attained and/or occupational status within the voluntary market by certain private passenger motor vehicle insurers in their underwriting rules governing initial tier placement. During this investigation, the superintendent learned that some, but not all, insurers in the state use an individual's education level attained and/or occupational status in establishing initial tier placement. The insurers' consideration of these factors has resulted in cases where classes of insureds have been placed in less favorably rated tiers, which may lead to higher premiums, without adequate substantiation that an individual's level of education attained and/or occupational status relates to his or her driving ability or habits such that the insurer would suffer a greater risk of loss. The insurers failed to provide sufficient support for the existence of the necessary relationship for the use of occupational status or any convincing evidence to support the necessary relationship for the use of an insured's level of education attained, whether alone or in combination with occupational status. As a result, the insurers failed to establish that their use of education and/or occupation in establishing initial tier placement was not unfairly discriminatory.</p> <p>On the issue of disparate impact, there is a well-established federal U.S. policy regarding residential property insurance. The federal Fair Housing Act prohibits discrimination in housing on the basis of "race, color, religion, sex, familial status, or national origin. Federal courts, including the U.S. Supreme Court, have consistently and unanimously recognized disparate impact as unfair discrimination under the FHA and that disparate impact in residential property insurance is also covered by the FHA. The fact that disparate impact unfair discrimination is a well established U.S. federal policy is also evidenced by procedures established by the U.S. Departments of Justice and Housing and Urban Development for the filing and adjudicating disparate impact claims.</p> <p>In summary, the examples provided by CEJ of the NY DFS efforts and the U.S. Fair Housing Act recognition of disparate impact as unfair discrimination are relevant examples to include in the BDA issues paper.</p> <p>The issues paper provides a balanced presentation of the potential impacts of more granular risk assessment and pricing (from BDA) on insurance availability and affordability. APCIA, however, asks the WG to declare that such granularity is always positive and has "often helped to promote more coverage availability." Yet APCIA provides no evidence to support its claim other than a reference to U.S. auto residual market populations. As a former insurance supervisor in Texas, where the auto residual market population grew and declined dramatically, it is clear that the</p>	

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			<p>changes in population are largely a function of price - how the residual market rates compare to those of the voluntary market. In Texas, the assigned risk population plummeted when the Commissioner dramatically increased assigned risk auto rates. APCIA's claims about more granular risk classification promoting availability and affordability of motor vehicle insurance are contradicted by other measures - such as consistent or increasing rates of uninsured motorists and lenders "force-placing" auto insurance on auto loan borrowers who have failed to maintain required insurance. The APCIA argument is also contradicted by routine reports of consumers facing availability or affordability problems due to risk classifications. Recent examples include insurers' use of wild fire catastrophe models in California resulting in reduced availability and significantly increased rates and insurers' use of socio-economic characteristics for insurance pricing.</p> <p>The issue of U.S. insurers' use of consumer credit information has been contentious with consumer organizations opposing such use. Of particular relevance to the BDA issues paper, however, are the reasons insurers seek to use consumer credit information. Consumer credit information was the first significant type of non-insurance data used by insurers for BDA, starting in the early 1990s. While insurers portray their use of consumer credit information as simply a tool to assess risk, the fact is that insurers use consumer credit information for assessing profitability and other non-risk features of a consumer. As far back as 2005 - before the current explosion in new data sources - the CEO of one of the largest U.S. insurers, Allstate, explained the role of credit information for the insurer:</p> <p>Tiered pricing helps us attract higher lifetime value customers who buy more products and stay with us for a longer period of time. That's Nirvana for an insurance company. That drives growth on both the top and bottom line.</p> <p>This year, we've expanded from 7 basic price levels to 384 potential price levels in our auto business.</p> <p>Tiered pricing has several very good, very positive effects on our business. It enables us to attract really high quality customers to our book of business. Make no mistake about it, the economics of insurance are driven largely by retention levels. It is a huge advantage. And our retentions are as high as they have ever been.</p> <p>The key, of course, is if 23% or 20% of the American public shops, some will shop every six months in order to save a buck on a six-month auto policy. That's not exactly the kind of customer that we want. So, the key is to use our drawing mechanisms and our tiered pricing to find out of that 20% or 23%, to find those that are unhappy with their current carrier, are likely to stay with us longer, likely to buy</p>	

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			<p>multiple products and that's where tiered pricing and a good advertising campaign comes in.</p> <p>Today, insurers' use consumer credit and other types of non-insurance data for a variety of non-risk segmentation purposes, including price and claims optimization. It is clear that, just as Ed Liddy explained, greater segmentation creates winners and losers. And in an era of BDA, those losers can be members of protected classes suffering as a result of discrimination by proxies for the prohibited class characteristics themselves.</p> <p>We suggest that some structure to the presentation of benefits and concerns would be helpful. We suggest a taxonomy of consumer protection issues, which are relevant for all phases of the insurance product life cycle. By presenting this list of consumer protection issues at the beginning of the paper, the individual examples cited in the paper can reference the list of consumer protection issues.</p> <ul style="list-style-type: none"> <li>- Cost-Based Pricing and Claims Settlement</li> <li>- Appropriate Uses</li> <li>- Data Quality/Reliability/Credibility/Bias</li> <li>- Algorithm Bias/Unfair Discrimination/Exclusion</li> <li>- Data and Algorithm Transparency</li> <li>- Data and Algorithm Accountability</li> <li>- Algorithm Producing Intended Outcomes</li> <li>- Consistent with Legal Standards and Public Policy</li> <li>- Digital Rights of Consumers</li> <li>- Antitrust and Competition Issues Posed by Third Party Vendors of Data and Algorithms</li> </ul> <p>We also suggest it would be useful to provide a list of potential supervisory activities that have been employed or considered to date and then reference the list with the individual examples cited in the paper.</p> <p>Stated differently, the paper provides a variety of examples of benefits, concerns and supervisory practices, but these benefits, concerns and supervisory practices are not organized. We suggest the paper start with the categories of benefits, concerns and supervisory practices observed, followed by the detailed discussion and numerous examples in the paper. For supervisory activity categories observed, we suggest:</p> <ul style="list-style-type: none"> <li>- Establish Values and Guidelines for Ethical Algorithms and Artificial Intelligence</li> <li>- Survey Insurers for Types, Sources and Uses of Data</li> <li>- Monitor Consumer Market Outcomes</li> <li>- Develop / Acquire Relevant Expertise in Data Science and Predictive Modeling</li> </ul>	<p>Suggestions on structure of the paper are noted. However, the working group considered the current structure and agreed that it is more suitable for the purpose of the paper and is consistent with the approach taken in the previous digitalisation paper.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			<ul style="list-style-type: none"> <li>- Investigate/Examine Where Indicated from Market Analysis</li> <li>- Develop Regulations/Guidance to Ensure Transparency and Accountability of Insurers' Use of Algorithms to Supervisors, including accountability for insurers' use of third-party algorithms</li> <li>- Develop Regulations/Guidance to Ensure Transparency and Accountability of Insurers' Use of Algorithms to Consumers</li> <li>- Enforce Antitrust and Competition Laws to Prevent Insurer Collusion Through Third-Party Data Vendors And Providers Of Algorithms</li> <li>- BDA for Supervisors to Develop Better Consumer Information, Education and Disclosures - Providing the Relevant Information at the Right Time in a Useable Format</li> </ul> <p>We suggest that the paper identify and discuss anti-trust and competition concerns with data brokers and vendors of algorithms. Dozens or hundreds of companies are engaging in practices that have historically required supervisory oversight to exempt the practices from antitrust laws, including the collection and sharing of insurers' experience and the provision of collective pricing and claims settlement guidance. Vendors that collect exposure and claims data from insurers, combine these data with other, non-insurance data to provide pricing or claim settlement tools present mechanisms for collective pricing and claim settlement valuations, also known as collusion. Increased antitrust scrutiny and reinvigorated competition analysis is needed to address the market power and potential collusion mechanisms of data and algorithm vendors.</p> <p>As explained in comments for specific paragraphs, we also suggest:</p> <ul style="list-style-type: none"> <li>- Clarify the components of BDA</li> <li>- Refer to "New Data" and not "Alternative Data"</li> <li>- Clarify sources and types of Traditional and New Data</li> <li>- Clarify Customer Segmentation</li> <li>- Consistent description of the Product Life-Cycle components; Add Loss Prevention/Loss Mitigation, Customer Relations and Non-Insurance Services</li> <li>- Avoid Speculative Claims - or Provide Examples or the Alleged Benefit or Harm</li> <li>- For examples referencing an insurer or intermediary program, provide the names of the organization and the product or service so the reader can investigate further.</li> </ul> <p>We particularly wish to emphasize the last point about providing citations to insurer or supervisor products or programs cited as examples in the paper.</p>	<p>See response to comment 9 on references to competition issues in the paper.</p> <p>See specific responses to comments on relevant sections elsewhere in table.</p>

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			<p>We also want to provide examples of BDA products or services that illustrate some of the consumer protection concerns raised in the paper. A number of such examples, including, for example, criminal history scores, are discussed in the CEJ presentation to the Insurance Regulatory Examiners Society Career Development Seminar, which we have submitted under separate cover. Other examples include:</p> <p>Fenris Digital (<a href="http://fenrisd.com">http://fenrisd.com</a>) -- Fenris Solution include "Applicant Scoring - Fenris Scores find the applicants that will be more valuable customers for your business." This is an example of BDA potentially excluding those customers deemed less valuable because of an algorithm.</p> <p>Biased algorithms (<a href="https://www.vice.com/en_us/article/xwbag4/academics-confirm-major-predictive-policing-algorithm-is-fundamentally-flawed">https://www.vice.com/en_us/article/xwbag4/academics-confirm-major-predictive-policing-algorithm-is-fundamentally-flawed</a>) - this article discusses a problem with overreliance on an algorithm despite questions about the reliability of the algorithm.</p> <p>Lexis/Nexis (<a href="https://risk.lexisnexis.com/insurance">https://risk.lexisnexis.com/insurance</a>) offers a plethora of BDA applications for insurers. For example, LexisNexis offers a suite of BDA applications for acquisition and retention of insurance customers - "Apply powerful data analytics to successfully target, attract and keep the right customers with acquisition and retention solutions from LexisNexis Risk Solutions."</p> <p>ISO ClaimSearch (<a href="https://www.verisk.com/insurance/products/claimsearch/">https://www.verisk.com/insurance/products/claimsearch/</a>) - ClaimSearch is a contributory database of insurance claims provided by and accessed by the overwhelming majority of U.S. property casualty insurers. In addition to the database, ISO provides a number of BDA "solutions" based on the ClaimSearch data, including</p> <p>Claims Director (<a href="https://www.verisk.com/insurance/products/claimdirector/">https://www.verisk.com/insurance/products/claimdirector/</a>)            Improve claims triage with our fraud analytics scoring system            ClaimDirector uses industry-based rules to analyze claims and identify fraud indicators. It then calculates a score to help adjusters decide whether to process a claim or triage it for investigation. SIU teams can use the solution to uncover potential fraud and explore suspect factors. The solution uses advanced algorithms to determine the likelihood of claims fraud:            - Compares claims to 1.3 billion records in ISO ClaimSearch® plus NICB data            - Evaluates claims by type, line of business, loss date, and loss type</p>	<p>Examples not included as they are vendor specific and not necessary to advance the issues highlighted in the paper.</p>

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			<ul style="list-style-type: none"> <li>- Provides scores for both claim and entity</li> <li>- Revises scores in real time as claims are updated</li> <li>- Customizes claims triage based on company preferences</li> </ul> Liability Navigator ( <a href="https://www.verisk.com/insurance/products/liability-navigator/">https://www.verisk.com/insurance/products/liability-navigator/</a> ) Achieve consistent settlements, accurate liability assessments, and better subrogation recovery  Insurers are charged with resolving claims as quickly and fairly as possible—while minimizing leakage and paying only what is owed. Applying accurate liability and value determinations is critical to achieving the right balance. But currently, claims handlers often are unable to identify cases in which a claimant is partially at fault. So insurers miss opportunities to improve the bottom line. With Liability Navigator®, customers report improvements—from 8 percent to more than 20 percent—in the application of comparative liability. There are many other examples of insurance BDA applications that illustrate the consumer protection concerns raised in the paper. We are happy to identify others if it will be helpful to the working group.	
<b>Q2 General comments on the Executive Summary</b>				
11. Global Federation of Insurance Associations	Global	No	It would be beneficial to frame the use of BDA as a natural extension of the practices and tools that have traditionally been used in insurance. Insurers are moving from actuaries using traditional data and simple techniques to actuaries using additional data and more complex techniques. The constant through the change is the presence of the actuary to ensure the outcomes are appropriate as governed currently by regulation and actuarial professional standards. This framing represents the reality that this is not rogue actors making unfounded decisions with no guidance, but rather a guided evolution of techniques in keeping with other insurance innovations of the past.	Noted. The paper does not suggest or imply that rogue actors are using BDA to make unfounded insurance-related decisions. The paper clearly refers to the use of new data analytics techniques and access to new data sources by <u>insurers</u> to make insurance-related decisions previously based on traditional techniques and sources.
12. NAMIC	United States	No	Using larger data sets is a natural evolution of the insurance paradigm. Its positive effects outweigh any perceived downside. Although prudent stakeholders plan for potentialities, many positive BDA results are already present and being utilized for the benefit of the public and consumers. Because the insurance industry is so justifiably based on data - to understand the risks involved in order to better underwrite and price - the paper has a responsibility to prominently discuss the	Text updated to emphasise the natural evolution and balance of benefits to insurers and customers.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			sector-specific benefits to all stakeholders gained through improved efficiency, accuracy, and fairness.	
<b>Q3 Comment on Paragraph 1</b>				
13. General Insurance Association of Japan	Japan	No	<p>As mentioned in the IAIS Issues Paper on Increasing Digitalisation in Insurance and its Potential Impact on Consumer Outcomes (the previous IP), the use of digital technology can both give rise to risks, and be a solution in ensuring consumer protection and the fair treatment of customers.</p> <p>Also, as emphasised in the previous IP, we propose expressly stating that "supervisors will need to balance the risks of new innovations against the benefits for policyholders".</p> <p>This IP focuses on topics such as affordability and how opacity in the use of algorithms could have an effect on consumer protection. At the same time, consistency with frameworks in each jurisdiction (e.g. how mandatory insurance works within them) and existing supervisory requirements on premium ratings should also be taken into account. In Japan, to ensure consumer protection, during the advance product approval processes for personal lines, the basic principles of reasonableness, adequacy, and not being unfairly discriminatory are considered, along with regular risk category reviews. Algorithms are also required to be explained within the processes.</p> <p>Considering the complexity of algorithms, it is unrealistic for supervisors to thoroughly monitor them. We think that instead of checking the details of insurers' algorithms themselves, focusing on how insurers ensure the appropriateness and rationality of outcomes is a more realistic way.</p> <p>Although the issues identified in this IP focus on the use of big data analysis by insurers (and intermediaries), non-insurance companies such as tech companies and start-ups that run insurance-like businesses should also be subject to supervision and regulation equivalent to that of insurers. This should be clearly stated in this IP.</p>	<p>Text updated.</p> <p>Text updated.</p> <p>See response to comment 1 on future IAIS work and inclusion of links to reference material on the impact of new entrants like FinTechs and BigTechs on current insurance regulatory and supervisory frameworks.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q4 Comment on Paragraph 2</b>				
14. Center for Economic Justice	USA	No	<p>We suggest the use of the term "alternative data" is unhelpful and unclear.</p> <p>We suggest the proposed language as a clearer description of BDA. BDA is not necessarily based upon patterns, trends or linkages, but is likely to be a data mining exercise. We suggest the following edits: The scope of this paper focuses on the sources and uses of personal consumer and other types of data coupled with advanced analytics by insurers to develop algorithms for improving various aspects of the insurance product life-cycle. The data, analytics and algorithms are collectively referred to as "big data analytics" (BDA).</p>	<p>Text referring to "alternative" data has been updated as appropriate for the particular context throughout the paper.</p> <p>Disagree. The current wording in the paper more accurately and clearly reflects the scope and objectives of the paper.</p>
<b>Q5 Comment on Paragraph 3</b>				
15. American Council of Life Insurers	U.S.	No	<p>Insurers' collection, processing, and use of data are not new to the insurance industry. For years, insurers have been responsible stewards of consumers' personal information and have always taken consumer privacy seriously. We suggest removing the word "now" from Paragraph 3 and inserting "new" before "manner." The sentence would then read: "...this paper considers the new manner in which insurers are able to..."</p>	Text updated.
16. Center for Economic Justice	USA	No	<p>We suggest adding the following to the stages of product lifecycle: customer relationships and loss prevention and mitigation.</p>	Disagree. These elements are subsets and apply across various stages of the product lifecycle as represented in the paper.
<b>Q6 Comment on Paragraph 4</b>				
17. Center for Economic Justice	USA	No	<p>We suggest a clarification - it is unclear what "in light of the outcomes for the fair treatment of customers" means. We suggest the follow edits:</p>	Suggested edit has not been included, but text updated for clarity.

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			Furthermore, in light of the concerns for the fair treatment of customers and the standards for consumer protection described in Insurance Core Principles (ICPs) 18 and 19, this paper makes certain observations about the potential implications for consumer protection and supervisors' responses to the use of BDA in insurance.	
<b>Q7 Comment on Paragraph 5</b>				
18. Center for Economic Justice	USA	No	<p>We suggest the following edits:</p> <p>The paper observes that the increased generation of and availability of data and enhanced processing capabilities now accessible to insurers can result in a number of benefits. The granularity of data from multiple sources can lead to more personalised and affordable insurance products emphasizing loss prevention as well as more efficient servicing for customers. Insurers can also benefit from BDA by expanding their distribution reach, ensuring more accurate pricing and lowering their cost margins due to claims savings and better fraud detection</p>	Disagree with proposed edit, but text improved for balance.
19. National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	As paragraph 4 states "this paper makes certain observations", suggest the slightly awkward "the paper observers" could be deleted and the paragraph simply begin with: "For example, the increased availability..."	Text deleted.
<b>Q8 Comment on Paragraph 6</b>				
20. Global Federation of Insurance Associations	Global	No	Affordability is an issue insurance markets face. However, risk-based granular pricing signals the need for greater resilience/risk-reduction responses where high premiums reflect the nature of a given risk. BDA, which is a tool that more accurately assesses risk than traditional underwriting and rating models, sends important financial signals to people and businesses that encourage them to change their behavior and invest in measures to improve their risk profile. Supervisors limiting how insurers apply BDA to keep insurance affordable for high-risk customers in the short-term could lead to long-term adverse customer outcomes, such as encouraging development in high-risk flood and earthquake areas.	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
21. American Council of Life Insurers	U.S.	No	<p>Maintaining the confidentiality of algorithms is crucial for protecting insurers' intellectual property from outside competitors.</p> <p>Regarding enhanced governance, ACLI does not believe additional supervisory oversight is needed with respect to BDA. We believe supervisors are already adequately equipped to assess insurers' use of big data analytics and as/if necessary, to put in place guardrails.</p> <p>Supervisors should continue to enforce the staunch laws and regulations under which insurers already operate, while working to facilitate thoughtful insurance innovation that benefits consumers.</p> <p>Supervisors and insurers should actively communicate throughout the implementation of new processes, so that supervisors are appropriately informed of and confident in the processes being used. And if issues arise, insurers and supervisors will have a shared understanding from which to work.</p>	Noted.
22. NAMIC	United States	No	<p>While the paper projects worst case scenario outcomes and promotes a one-size-fits-all mentality with heightened regulatory scrutiny, it omits an important opportunity to draw attention to the essence of insurance. Not only for the sake of balance, but for an educational responsibility as a body esteemed on insurance matters, IAIS could also highlight the potential adverse effects of regulation on affordability/availability. Data, "big" and/or "small", has led to better matching of price to risk and that in turn prompts greater availability. More products tailored to consumer needs is good for the public at large. Without meaningful justification and reasonable restraint, enhancement of governance, oversight, and third-party risk management requirements, come with associated cost, both in terms of time and money, slowing down innovation and possibly increasing costs. Regulatory supervisors cognizant of these practical concepts and recognizing them in this paper would provide a more complete and full understanding to their readers.</p>	<p>Disagree. The paper does not promote a "one-size-fits all" approach but rather highlights certain issues to help supervisors assess whether their current frameworks are adequate or whether more appropriate, proportionate responses are required depending on individual jurisdictional contexts.</p> <p>Text updated to make this clearer.</p>
23. Center for Economic Justice	USA	No	<p>We suggest adding an additional supervisory and consumer protection concern regarding accountability for the outcomes of algorithms to supervisors and consumers.</p>	Text updated.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
24. National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	Suggest the paragraph would read better without the "the paper" wording. Revise first sentence to "On the other hand, the complexity and opacity..." and last sentence to "Additionally, supervisors may consider whether there is a need..."	Text updated.
<b>Q9 Comment on Paragraph 7</b>				
25. NAMIC	United States	No	Regulatory authority is an essential component in a discussion of next steps and the paper could recognize the existing authority to handle such concerns in place today. As an example, the paper could refer regarding the United States to state laws (driver privacy protection laws) that insurance regulators utilize as well as some specific examples of federal laws in the United States that already provide significant protections. More recently, some U.S. state regulators have gained specific powers on the matter while others can resort to financial examinations or other avenues for further oversight. State insurance regulators, as well as federal regulators, are watchful of privacy protections and the use of collection, as well as the use and processing of data more generally. Regulators and supervisors have many tools at their disposal to handle such perceived concerns	See response to comment 3 on privacy and data protection issues.  Text has been added to highlight need for engagement with data protection agencies in individual jurisdictions. It is not necessary to list specific laws from each jurisdiction to illustrate the point. Also see additional reference material included in footnote 65.
26. National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	Footnote 2, put quotes around the text of 19.12	Text updated.
<b>Q10 Comment on Acronyms</b>				
<b>Q11 General comments on Section 1: Introduction</b>				
<b>Q12 General comments on Section 1.1: Background and purpose</b>				
<b>Q13 Comment on Paragraph 9</b>				
<b>Q14 Comment on Paragraph 10</b>				
<b>Q15 Comment on Paragraph 11</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
27. Center for Economic Justice	USA	No	<p>A key concept is the increased generation of new data by consumers as well as more intensive use of traditional data, discussed below. Further, the sequence of activity is data to analytics to algorithms to new practices by insurers. We suggest the following edits:</p> <p>The purpose of this paper is therefore to consider the use of personal and other data by insurers as a result of digitalisation and to identify the benefits and risks for consumers associated with such use. Specifically this paper focuses on the increasing use of advanced analytics by insurers applied to massive data sets, fueled by the increasing generation of and greater availability to insurers of traditional insurance and new insurance and non-insurance data sources, to produce algorithms used in all parts of the insurance product cycle. In the paper this will be collectively referred to as "big data analytics" (BDA).</p>	Disagree with proposed edits. Current wording retained due to better readability and accuracy.
28. National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	As benefits and risks may not arise in every use and there may be additional benefits and risks, suggest saying "...to identify potential benefits and risks for consumers..."	Text updated.
<b>Q16 Comment on Paragraph 12</b>				
29. American Council of Life Insurers	U.S.	No	We agree intermediaries have responsibilities in the management of big data analytics. In fact, in the U.S., there is an actuarial standard of practice that details appropriate behaviors and processes for dealing with data and/or results from intermediaries (U.S. Actuarial Standard of Practice No. 23 on Data Quality). Big data may be more complex, but the obligations governing insurers remain the same.	Noted.
30. Center for Economic Justice	USA	No	This paragraph states that references in the paper to "insurers" should be understood to include insurance intermediaries. What is the role of third party data vendors / algorithm providers and what is their relationship to insurers who use their algorithms and accountability to supervisors. We suggest that this issue be highlighted.	Section 4.3 of the paper highlights this issue.
<b>Q17 Comment on Paragraph 13</b>				
<b>Q18 Comment on Paragraph 14</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q19 Comment on Paragraph 15</b>				
31. Center for Economic Justice	USA	No	<p>. We suggest deleting this paragraph. It is unclear what the distinction is between direct and indirect consumer interactions. Assessing a customer's risk profile through credit assessment or designing a policy specific to a consumer or verifying a consumer's identify seem to be direct interactions.</p> <p>The second sentence doesn't follow from the first. Further, it is not diversification of customer data sources that has led to microsegmentation or micropricing. Rather, microsegmentation is a result of the increased volume and granularity of consumer and environmental data coupled with advanced computing power and tools for analyzing the data and speedier internet to be able to access and deploy these analytics in real time.</p>	Text updated.
<b>Q20 Comment on Paragraph 16</b>				
32. Global Federation of Insurance Associations	Global	No	<p>The accessibility and affordability concerns associated with greater individualisation in underwriting and rating from BDA are similar to the concerns associated with telematics devices, such as usage-based insurance, and to the concerns expressed for decades as insurers' traditional rating algorithms became more sophisticated. Insurers are used to managing these concerns. Greater opportunities to segment the market also provide opportunities for new or incumbent insurers to specialise in certain market segments. GFIA also notes that most insurance lines offer many ways to tailor insurance coverage to make it more affordable, the most obvious being different limits above any statutory minimums and deductibles.</p>	Text updated to highlight opportunities for specialisation in certain market segments.
33. General Insurance Association of Japan	Japan	No	<p>Customers generally compare several insurance products by considering points such as coverage and premium. The "opacity of algorithms' alone does not necessarily lead to decreased comparability of products. Therefore, we believe the following sentence in the IP should be deleted: "The opacity of algorithms may lead to decreased comparability of products, especially if customers are only able to see or access product offerings that are individually tailored".</p>	Disagree that sentence should be deleted. Text updated to clarify that the opacity of algorithms may be a contributing factor to decreased comparability, rather than a factor on its own.
34. American Council of Life Insurers	U.S.	No	<p>Individualization through the use of BDA can indeed improve insurers' understanding of consumer needs. With more accurate risk assessment, insurers can provide more appropriate, tailored services and products that better match consumers' preferences. The use of BDA may also improve access to populations historically underserved. For example, some insurers today are able to offer insurance to</p>	Text updated.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			individuals with chronic illnesses like diabetes due to BDA and other important innovations like wearables (article link: <a href="http://news.ambest.com/ArticleContent.aspx?pc=1009&amp;altsrc=158&amp;refnum=285595">http://news.ambest.com/ArticleContent.aspx?pc=1009&amp;altsrc=158&amp;refnum=285595</a> ). With greater consumer insights, insurers are better able to partner with their policyholders to help them mitigate their risks and manage their health.	
35. NAMIC	United States	No	The paper does not provide realistic examples of the type of concerns identified in the following paragraphs nor does it highlight in a balanced manner the availability and affordability benefits of greater "granularization" resulting from the use of BDA. Focus should also discuss better outcomes for consumers, more detailed options for customer needs, faster underwriting and claim response, determination of outliers that require attention, fraud detection, and better pricing availability. A few anecdotal cites should not outweigh the overwhelming amount of positive consumer outcomes of BDA. Possibly some of these concerns should be footnotes at best.	Text updated to highlight benefits of increased granularisation.
36. Center for Economic Justice	USA	No	<p>Individualisation is a response to better understanding of consumer needs, preferences and characteristics and not the other way around. We suggest the following edits to clarify the important point raised in this paragraph:</p> <p>Digitalisation and BDA may provide insurers with detailed data about customer characteristics, needs and preferences and thereby permit greater individualization of products and services from insurers. However, greater individualisation may lead to accessibility and affordability challenges and possible market exclusion for some customers. The opacity of algorithms may lead to decreased comparability of products, especially if customers are only able to see or access product offerings that are individually tailored.</p>	Text updated to better reflect this point.
<b>Q21 Comment on Paragraph 17</b>				
37. Global Federation of Insurance Associations	Global	No	For decades, insurers have been working to refine their underwriting and rating practices to offer consumers insurance at prices that reflect their unique risk profiles. BDA is just another innovation to help insurers achieve that objective. Other innovations before it are actuarial science, statistical modeling and telematics. While the previous innovations brought significant change to the market, consumers always benefited from more product choice and more pricing options. Very few people became uninsurable. Although there are indeed possible risks to the use of	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			BDA, GFIA does not see any reason for the IAIS to assume at this time that the use of new techniques will cause detriment to consumers.	
38. American Council of Life Insurers	U.S.	No	We do not believe more refined risk categories will undermine most consumers' ability to obtain coverage. The application of BDA is another tool insurers can use to help to price consumer risks more appropriately, creating more choice in products and pricing.	Noted.
39. Center for Economic Justice	USA	No	<p>Customer segmentation is not the basis of risk classes. Risk classes are one form of customer segmentation. Other types of customer segmentation appear for marketing and claim settlement purposes. A discussion of cost-based pricing is needed. We suggest replacing this paragraph with one explaining cost-based pricing.</p> <p>Cost-based pricing - assigning premiums to consumers to match the cost of the transfer or risk from the consumers to the insurer - is a bedrock principle for insurance to help ensure insurance company solvency and fair treatment of consumers. Cost-based pricing requires the grouping - segmentation - of policyholders into classes with similar expected costs. BDA creates the potential for far greater customer segmentation than ever before.-to the point of individual (as opposed to group) marketing, underwriting, pricing, claims settlement and customer relations. One important potential benefit of greater individualization is the ability of the insurer to engage in loss prevention partnerships with the customer. Potential consumer harms from greater segmentation and individualization, however, include exclusion of certain non-favored groups - either directly or indirectly through unaffordable pricing. If algorithms used by insurers are opaque to consumers, there is potential to undermine the risk reduction role of insurance. Another potential harm from BDA for micro-segmentation is a lack of accountability of the insurer to both consumers and supervisors.</p>	Disagree with proposed edits. The current text across the various paragraphs in this section captures the issues raised in a more accurate and readable manner.
<b>Q22 Comment on Paragraph 18</b>				
40. Global Federation of Insurance Associations	Global	No	Jurisdictions have usually defined "fairness", which may differ based on their own balancing of social and political norms. Accordingly, GFIA urges the IAIS not to adopt or reference any particular standard out of its total legal context. For example, the concept of "disparate impact" in the U.S. is advocated by some, but opposed by	<p>Disagree.</p> <p>As explicitly stated in the paper, "fairness" must be read in the</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			many and has not been legislated by the states. In addition, linking to a single U.S. regulator's action on a highly controversial matter, when it is only one of 50 plus regulators in the U.S., would give a false impression of the true state of the law and regulatory standards in the over-all U.S.	context of the outcomes and terminology used in ICPs 18 and 19, which are well established and commonly understood across the IAIS community and which have been the subject of extensive market consultation.
41. American Council of Life Insurers	U.S.	No	We recommend removing both instances of "fair" in Paragraph 18. Laws constituting "fair" treatment vary by jurisdiction, and thus, broad statements cannot properly encompass these nuances. In the U.S., life insurers must be able to demonstrate that they treat similarly situated applicants the same, based on sound actuarial principles and actual or reasonably anticipated experience.	Disagree. See response to comment 40.
42. NAMIC	United States	No	In the field of insurance, the concept of "fairness" is not a common definition and it can include social overtones. Rather, insurance underwriting is driven by sound actuarial science and measuring risk. To avoid confusion in which a reader may conflate fair treatment of customers with inability to obtain affordable and available insurance, NAMIC urges that the paper integrate discussion of foundational insurance concepts. While a consumer can be engaged with the utmost integrity and opportunity, a risk profile might be such that the risk cannot be underwritten in a voluntary market or at a particular price point. In the field of insurance, objective risk-based analysis and pricing that is actuarially sound is not unfairly discriminatory. Many of the terms herein are susceptible to broad interpretation and therefore should not be used without more aptly and carefully defining them. The broad concept of "fair treatment" must not conflict with or overturn the long-standing statutory/regulatory definitions of "unfair discrimination" such as in the United States' state insurance codes.	Disagree. See response to comment 40.
<b>Q23 Comment on Paragraph 19</b>				
43. Global Federation of Insurance Associations	Global	No	The fact that privacy laws fall out of the remit of insurance supervisors does not mean that supervisors should not be aware of the impact of these laws on the use of technology and, more specifically, BDA tools in insurance. Supervisors should help other policymakers understand the unique and appropriate use of data by insurers	See response to comment 3 on privacy and data protection issues.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			and so help to draft constructive laws and apply them to support competition and beneficial innovation in insurance.	
44. American Council of Life Insurers	U.S.	No	We believe it is important to note that in the U.S. insurers are subject to—and for decades have been subject to—laws and regulations at the federal and state levels, governing the privacy and use of consumer data. Some of these regulations and laws include the NAIC Insurance Information and Privacy Protection Model Act (#670), the NAIC Privacy of Consumer Financial and Health Information Regulation (#672), HIPPA, and the Fair Credit Reporting Act (FCRA). Each of these offer consumer protections in application of BDA in the U.S.	See responses to comments 3 and 25 on privacy and data protection issues.
45. NAMIC	United States	No	The United States federal and state governments already provide some significant statutory and regulatory directives as it relates to the protection of certain types of data, including limitations on the usage. Most importantly, the oversight of such usage in the United States is best reserved for the state of domicile via the financial examination powers. Otherwise, inconsistencies and potential inappropriate disclosures of protections may occur and may increase the vulnerability to cyber-attack.	See responses to comments 3 and 25 on privacy and data protection issues.
46. National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	Standard 19.12 should be quoted, not paraphrased or alternatively delete the last sentence and add a footnote to the previous sentence that directs the reader to footnote 2 which quotes 19.12	Text updated.
<b>Q24 General comments on Section 1.2: Approach and structure</b>				
<b>Q25 Comment on Paragraph 20</b>				
47. Center for Economic Justice	USA	No	In line with the approach adopted in the previous Digitalisation Paper, this paper discusses the applications of BDA across various phases of the insurance product lifecycle. The specific elements covered are: product design, marketing, sales and distribution, pricing and underwriting, claims handling, customer relationships and loss prevention and mitigation.	Disagree with proposed edits.  See response to comment 16.
<b>Q26 Comment on Paragraph 21</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
48. Anonymous	Anonymous	Yes	<p>We do not believe that the Draft Issues Paper uses a consistent framework to address the risks and benefits of the application of BDA. For example, in section 3.1.2 on targeted marketing, the paper only discusses the risks to customers. On the other hand, section 3.1.1 on personalized insurance products discusses the risks faced by both insurers and customers.</p> <p>We believe that an evaluation of BDA should use a holistic, consistent framework to consider the benefits and risks of new technology and processes. This framework should have a "360-degree view" and consider the benefits and risks of BDA for both insurers and customers. By looking at benefits and risks from the perspective of multiple stakeholders, IAIS and individual jurisdictions could better understand the full impact of BDA. If IAIS and individual jurisdictions focus only on one group of impacted by BDA, we believe that view could lead to unintended negative consequences on insurers, customers, or both groups.</p> <p>We suggest that each example in section 3 of the BDA include a discussion of the benefits and risks of the use of BDA.</p>	Disagree. See paragraphs 8 and 10 of the paper, which provide the context for the development of the paper. The focus of the paper, in line with the remit of the Market Conduct Working Group, is to consider potential risks and benefits to customers. However, additional text has been included throughout to present a more balanced view of potential risks and benefits to customers and insurers, and the sector as a whole.
<b>Q27 General comments on Section 2: Sources, collection and processing of data in insurance</b>				
49. Anonymous	Anonymous	Yes	Typically, Insurance company focus on data at policy level, but all the data at customer and also derived from different behaviours in different products by the same customer, is a new source of data, and we miss some of this approach, more customer centered rather than policy centered.	Noted.
50. American Council of Life Insurers	U.S.	No	<p>In many jurisdictions, during the application process, applicants must first give permission to insurers before they are allowed to collect various types of data to inform their risk selection process (pricing/underwriting). This important point should be noted somewhere in section 2 or as a footnote to the table on p. 9.</p> <p>For example, in the United States, consumer authorizations are required before insurers are allowed to collect sensitive information about a consumer such as prescription drug history, motor vehicle reports, credit data, protected health information, etc. Insurer notices clearly outline consumers' rights during the risk selection process and insurers' obligations to consumers with respect to the usage, storage, and protection of their data.</p>	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q28 General comments on Section 2.1: Sources and collection of data</b>				
51. Institute of International Finance	Global	No	<p>While we recognize that insurance regulators and supervisors generally do not have a mandate to address data privacy and data protection issues, these issues are closely related to insurers' use of BDA. Section 2.1 of the Draft Issues Paper (Paragraphs 22-28) appears to treat equally all types of data when, in fact, insurers segment customer data according to the level of sensitivity, particularly in the case of personally identifiable information (PII). The segmentation of customer data cascades into the processing of the data and its use in marketing, underwriting and distribution. We believe it is important for the IAIS to engage with standard setters that have a mandate for data privacy and data protection in order to appreciate more fully how insurers are required to handle customer data in general and PII in particular.</p> <p>As a related matter, the IAIS should consider the implications of data localization laws and regulations for the development and use of BDA by insurers. Data localization restrictions impede the development and use of BDA by cross-border insurers, an obstacle that redounds to the detriment of policyholders unable to take advantage of the innovative product offerings and streamlined access to insurance markets that BDA techniques can facilitate. The IAIS may wish to consider the impacts of data localization on the global insurance industry in general and on the industry's ability to develop further innovative products and services in particular.</p>	<p>See response to comment 3 on privacy and data protection issues.</p> <p>More context has been provided regarding the use of the Table (also see addition of Annex 1).</p> <p>Paragraphs deleted.</p>
52. Center for Economic Justice	USA	No	<p>22. We strongly disagree with the characterizations in the table and don't find the table useful.</p> <p>First, we suggest the use of the following use categories as more descriptive and useful and consistent with the phases of the product life cycle identified in paragraph 20: marketing, sales/distribution, underwriting, pricing, claims settlement, customer relationships and loss prevention and mitigation.</p> <p>Second, much of the data are available from sources other than those listed Third, the chart mixes types of data (in the traditional data section) with sources of data (in the new data section). Fourth, we don't find the term "alternative data" accurate or descriptive. We suggest traditional versus new data and note that traditional data may become new data. Traditional Data can become new data as a result of greater ability to collect and</p>	<p>See response to comment 51.</p> <p>Text referring to "alternative" data has been updated as appropriate for</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			<p>process the more refined and voluminous data. For example, historical claims data might have consisted of the type of coverage, type of claim, amount of claim and attorney involvement. BDA allows the collection of more detail about the claim and more data about the claim settlement process, the claimant, the damage, and the settlement offer and ultimate settlement. Just as BDA creates opportunities for more refined pricing, so too does BDA create opportunities for more refined claim settlement practices. For another example, insurers are now able to collect more information about consumer behavior during the insurance search and application process or more information about policyholder interactions with agents and insurers - creating new sources of information for any of the part of the insurance life cycle. For another example, insurers have often collected information about the number of miles driven or distance from home to work for motor vehicle insurance. Insurers are now able to get more detail on those miles driven - time of day, particular routes, environmental conditions and more.</p> <p>Demographic Data are used for all categories and are obtained from applicants (not just policyholders) and from data brokers. Access to these data from data brokers is what makes application pre-fill and accelerated underwriting possible.</p> <p>Medical data are used at least for underwriting, pricing and claims settlement and likely used for marketing and customer relationships. These data are obtained from third parties as well as from policyholders. For example, US insurers can access a database of prescriptions/medicines of the consumer.</p> <p>Exposure data are used for all categories and are predominantly obtained from third party sources. Insurers typically rely upon data vendors for information about property structure to a greater extent than information provided by consumers. Insurers utilized drones and aerial photo databases. Insurers utilize catastrophe models for a variety of perils as well as models to assess driving routes (see ISO Environmental Score for personal auto insurance).</p> <p>Behavioural Data - again used for all categories and sources include data vendors who mine social media, as well as more intensive use of traditional claims and payment data.</p> <p>IoT and Online Media data are examples of new sources of consumer-generated data - they are not types of data in the same sense as the prior categories.</p>	<p>the particular context throughout the paper.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			Personal preference data is an unclear term, but could be applied to a variety of data generated by consumer purchasing, subscriptions, web browsing, social media use.	
<b>Q29 Comment on Paragraph 22</b>				
53. Global Federation of Insurance Associations	Global	No	Supervision of various data elements differs among jurisdictions with regard to the data elements and for what purposes they are used. For example, it may be appropriate to use a data element for pricing but not for the decision to provide cover, such as age of the auto driver.	See response to comment 51.
54. General Insurance Association of Japan	Japan	No	<p>The purposes of data usage do not necessarily apply to the description in the table. Therefore, we propose deleting the "Use" column from the table and revising the first sentence as follows: "The insurance sector is heavily reliant on various types of data, which is used for many purposes, such as risk selection, marketing, and claims management, and is drawn from multiple sources".</p> <p>Regarding the second sentence, other examples not currently included in the table could also exist. As such, we also propose revising the sentence as follows: "Although not an exhaustive list, some examples are given in the following table".</p>	See response to comment 51.
55. Anonymous	Anonymous	Yes	We miss all the data derived from the interaction of the customer with the company, such as phone calls to the call center, modifications of the conditions of the policy subscribed, and all about the customer journey with the company, also quality polling.	See response to comment 51.
56. American Council of Life Insurers	U.S.	No	Again, we strongly encourage the IAIS to note, somewhere in section 2 or as a footnote to the table on p. 9, that consumer consent is required during the insurance application process before insurers can collect nonpublic personal information for risk selection purposes.	Not necessary for this section of the paper.
57. NAMIC	United States	No	Some of these data examples may create a false impression that they are in fact used or are unregulated today. Some may currently be prevented from usage by public policy or laws in various jurisdictions.	Noted.
58. PCI	United States	No	The table in this paragraph appears to have some gaps and is confusing as it appears to treat all types of data equally. For instance, there seems to be an	See response to comment 51.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			implication that individual and anonymized data are synonymous, which is perplexing. Likewise, insurers, and in fact businesses generally, will treat data differently based on its sensitivity, which IAIS should recognize. Additionally, the IAIS should consider revising and clarifying what the purpose of this chart and paragraph is. Finally, the terms "personal" and "non-personal" are referenced but depending on the jurisdiction may have many different meanings. A base-lien understanding for the purposes of this paragraph and chart would be helpful.	
59. Center for Economic Justice	USA	No	See comments for Q28	See response to comment 51.
<b>Q30 Comment on Paragraph 23</b>				
60. Center for Economic Justice	USA	No	It is unclear what purpose is served by categorizing insurer data collection as active, passive, direct or indirect. The relevant characteristics are whether the data are generated by the consumer, generated by the insurer or generated by others to describe environmental conditions and whether the data are collected by the consumer, by the insurer or by a third-party. These are the characteristics that affect consumer protection and supervision. We suggest elimination of paragraph 23 and editing of paragraphs 24 to 26 to focus on the actual sources of data - traditional data, new data based on more intensive use of traditional data, new data generated by consumers and new data granular environmental data. See discussion in paragraph 27	Paragraph has been deleted for improved readability and relevance.
<b>Q31 Comment on Paragraph 24</b>				
61. Global Federation of Insurance Associations	Global	No	Not enough attention is provided to the importance and prevalence of upfront notices and permissions to access data already provided by insurers. Many countries have privacy laws that address access to data as well as dedicated regulators for enforcing those laws, including consent provisions. People are used to using phones with GPS technology and telematics devices so they understand the nature of the data being generated and potentially shared. GFIA does urge, however, that insurance regulators actively engage in the drafting and implementation of privacy laws to assure that appropriate and efficient access and use by insurers is permitted for legally permissible purposes.	Paragraph has been deleted for improved readability and relevance. Also see response to comment 3 on privacy and data protection issues.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
62. Institute of International Finance	Global	No	Paragraph 24 raises a concern that passive data collection may result in customers unknowingly sharing data with insurers. Data collection, whether passive or active, generally occurs (and should occur) with prior disclosure to and consent from customers that clearly identifies the type(s) of data collected and the intended use(s) of the data collected. Supervisors have an interest in ensuring that those disclosures are transparent, understandable and meaningful and that consent is knowingly given, considerations that are not unique to the passive collection of customer data.	Agree. This issue is highlighted in section 4.4 of the paper.
63. General Insurance Association of Japan	Japan	No	Regarding the collection of data through telematic devices, we believe that insurers generally obtain consent from their customers, and that many jurisdictions seek prior consent from the viewpoint of personal information protection. Japan has a law on the protection of personal information and the GIAJ provides personal information protection guidelines to secure personal information protection by its member insurers. Therefore, we propose adding a comment indicating that such laws and guidelines could reduce the possibility of collecting/using customers' data without the customers' consent.	See response to comment 61.
64. American Council of Life Insurers	U.S.	No	Insurers provide an abundance of notices proactively before collecting consumer data.	Noted.
65. Anonymous	Anonymous	Yes	<p>We do not agree with the IAIS's characterization of passive data collection across all jurisdictions. Regarding telematics in the U.S., insurers do not utilize passive collection methods; customers typically have a section in the terms and conditions of their telematics device / mobile application agreement that describes the data that insurers collect. Customers typically must agree to the terms and conditions by clicking a button within the mobile application, and they can access the terms and conditions at any time to see the data that is being shared.</p> <p>We suggest either: (1) focusing on jurisdictions that may not have robust regulations around data sharing; or (2) adding additional context at the beginning of the last sentence, with suggested updates included in brackets (to separate the proposed updates from the existing text): With passive collection[, which may be prominent in certain smaller jurisdiction].</p>	See response to comment 61.
66. NAMIC	United States	No	Insurers take privacy very seriously and already dedicate significant resources to the protection of consumer data.	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
67. PCI	United States	No	Paragraph 24 implies that customers unknowingly share data through telematics devices that are designed to track driving activity. As presented, this is a confusing assertion given the insureds choice to engage in telematics programs.	See response to comment 61.
68. Center for Economic Justice	USA	No	See comment for Q30.	See response to comment 61.
<b>Q32 Comment on Paragraph 25</b>				
69. Center for Economic Justice	USA	No	See comment for Q30.	See response to comment 60.
<b>Q33 Comment on Paragraph 26</b>				
70. Center for Economic Justice	USA	No	See comment for Q30.	See response to comment 60.
<b>Q34 Comment on Paragraph 27</b>				
71. American Council of Life Insurers	U.S.	No	In this paragraph "alternative data" is defined as data "not collected or produced by the insurer as a result of direct customer interactions." This imprecise description would include Attending Physician Statements, traditional data sources used by insurers that do not come directly from applicants. This description of alternative data should be removed or edited for clarity.	Text referring to "alternative" data has been updated as appropriate for the particular context throughout the paper.
72. Center for Economic Justice	USA	No	<p>We suggest replacing paragraph 27 with the following, per the comment in paragraph 23.</p> <p>New data sources have come largely from three sources - more intensive analysis of traditional data, vast amounts of new data generated by consumers and from more granular descriptions of the built and natural environments. Consumers generate vast amounts of data through web browsing, social media use, purchases, mobile-phone use geo-tracking, telematics and the Internet of Things. In some instances the data are collected with consumer knowledge and permission, and in other instances without knowledge and permission, New databases of environmental conditions are generated by high-definition aerial photography, video surveillance, weather/environmental sensors and more giving insurers and others the ability to view, assess and monitor micro locations.</p>	Proposed edit not necessary due to significant streamlining of section.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q35 Comment on Paragraph 28</b>				
73. Global Federation of Insurance Associations	Global	No	Yes, data collected from a telematics device falls within an insurance context. While information posted on someone's social media account is not for an insurance context, people understand that by posting this information on certain social media sites, the information becomes available to other parties. However, GFIA is not aware of widespread use of social media information for pricing and underwriting. The European Insurance and Occupational Pensions Authority made a similar finding (page 27).	Noted.
74. American Council of Life Insurers	U.S.	No	Behavioral data has long been used in insurance underwriting and its use is expanding with more data availability. Most behavioral data is generated outside of the insurance context, but that does not make it any less relevant to insurance concerns. For example, criminal history or avocation data can be collected without direct client interaction and are very pertinent to the underwriting process.	Noted.
75. Center for Economic Justice	USA	No	It is unclear how these examples are related to the issues in the paper, since the overwhelming amount of traditional and new data at issue is consumer generated data or new environmental data collected and distributed by private parties to private parties.	Text has been significantly revised for improved context and relevance.
<b>Q36 General comments on Section 2.2: Processing of data</b>				
<b>Q37 Comment on Paragraph 29</b>				
76. Center for Economic Justice	USA	No	<p>We don't find the term "alternative" data useful. It is not "alternative" in any sense of the word. The data at issue are new, consumer-generated or environmental data. The data at issue supplement traditional data. We suggest deleting paragraphs 29 to 31 and replacing them with the following.</p> <p>BDA involves the collection of vast amounts of personal consumer and environmental data, the analysis of these data for actionable insights and the deployment of these insights through algorithms. The scoring models generated by data mining and predictive analytics are algorithms. Algorithms are lines of computer code that rapidly execute decisions based on rules set by programmers or, in the case of machine learning, generated from statistical correlations in massive datasets.</p> <p>With artificial intelligence (AI) or machine learning, the models change automatically.</p>	<p>Text referring to "alternative" data has been updated as appropriate for the particular context throughout the paper.</p> <p>Disagree with proposed edits. Current wording more accurately and concisely captures the intent of the section.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			<p>Coupled with the increased volume and granularity of data is the digital technology to generate, access, process, analyze and deploy big data and big data algorithms in real time.</p> <p>The consumer protection concerns arise from the sources and uses of traditional and new data sources and the nature, transparency and accountability of the algorithms to consumers, insurers and supervisors.</p>	
<b>Q38 Comment on Paragraph 30</b>				
<b>Q39 Comment on Paragraph 31</b>				
<b>Q40 Comment on Paragraph 32</b>				
77. Center for Economic Justice	USA	No	<p>Credit worthiness is not a relevant factor for insurance. When insurers utilize consumer credit information, it is not for the purpose of assessing credit worthiness since insurers do not extend credit to consumers. See discussion in general comments. We suggest deleting the reference to credit worthiness.</p> <p>Algorithms can be used by insurers for direct customer servicing (eg to provide automated advice and pre- and post-sales support) or more indirectly (eg to design targeted advertising campaigns, obtain insights on consumer preferences, influence consumer behaviour, inform product design, risk selection and pricing, conduct "know your customer" and other identification and verification checks).</p>	Text changed to "determine credit history", which is a relevant factor for insurers in some jurisdictions.
<b>Q41 Comment on Paragraph 33</b>				
78. Global Federation of Insurance Associations	Global	No	Insurers have been improving their data and models so that their underwriting and rating practices, as accurately as possible, reflect a customer's risk profile. BDA is one of the latest innovations in modeling.	Noted.
79. PCI	United States	No	AI isn't the sole catalyst for possible biases. Possible biases have existed for a number of years and will continue to exist in the future. There are biases that are substantiated and those that aren't. It is the insurer's job to monitor experience, regardless of the method we use, to further refine our assumptions. This comment applies Paragraphs 34 - 37 as well.	Text updated to clarify that possible biases are not new or unique to AI.
<b>Q42 Comment on Paragraph 34</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
80. Global Federation of Insurance Associations	Global	No	Explaining algorithms to supervisors and consumers is not an issue unique to BDA. Insurers have been managing it for decades. Disclosure to supervisors should likely be more detailed than to consumers. Preferably, supervisors should structure and encourage upfront dialogue with companies so as to make this disclosure as efficient and effective as needed. Disclosure to consumers will need to be more general to make the information more useful to them and to protect insurers' intellectual property and encourage investment in beneficial innovation. GFIA also notes that supervisors usually have a full tool kit of measures to require disclosures to them and to enforce the relevant standards.	Text updated.
81. General Insurance Association of Japan	Japan	No	<p>As we mentioned in our comments on paragraph 1, algorithms are required to be explained within the product approval processes in Japan. We believe that any lack of transparency and asymmetry of understanding could be reduced in that case.</p> <p>We think it would be effective to disclose it to customers in a manner that contributes to customer understanding of, for example, what kind of data is used in insurance and how behaviour affects insurance premiums.</p> <p>Obtaining accurate understanding from supervisors through explanations of algorithms while providing customers with easily comprehensible information could help insurance companies protect their intellectual assets and encourage them to innovate more effectively.</p>	Text updated.
82. American Council of Life Insurers	U.S.	No	As indicated in an earlier response, algorithms should remain confidential to the general public and outside competitors. However, we strongly support appropriate transparency with regulators and consumers as we have for decades, based on existing laws and regulations.	Noted.
83. NAMIC	United States	No	The paper fails to discuss a concomitant duty on behalf of regulators or supervisors to be able to understand the complexity and detail of BDA and be able to timely, efficiently, and with least invasive means endeavour to understand modelling without undue learning experiences or added costs to compliance. Excessive requests for information or data unlinked to specified concern is wasteful of all party's time and creates unnecessary costs to the system. Dialogue with insurers is critical to alleviating any potential concerns.	Disagree. Both this paper and the previous Issues Paper on Increasing Digitalisation in Insurance clearly recognises the need for, and calls on, supervisors to focus their efforts on understanding the various complexities, risks <u>and</u> benefits of innovation in insurance before

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			There is also the need to defend the right to trade secret/proprietary information status for algorithms and models. Trade secrets create property rights that are constitutionally protected. Actuaries who use models are held to a code of conduct and professional standards that provide protections to customers.	considering appropriate ways to respond, if necessary.  Noted.
<b>Q43 Comment on Paragraph 35</b>				
84. Global Federation of Insurance Associations	Global	No	Predicting future losses to determine insurance prices is challenging with the constant potential for error. This issue is not unique to BDA. It presents itself in traditional rating practices as well as telematics. Paragraphs 35-37 also seem to be entirely speculative. Real world examples would be useful to readers.	Text updated.  See response to comment 79.
85. American Council of Life Insurers	U.S.	No	Again, this risk is not unique to BDA. It has always been the case that inaccurate data or processes may create unsuitable outcomes. Longstanding laws and regulations, professional standards, and the oversight of actuarial outcomes are just as appropriate to mitigate risks associated with machine learning algorithms as they are for more traditional processes.	Text updated.  See response to comment 79.
86. NAMIC	United States	No	Unforeseen bias must be capable of a definition or it becomes an untenable and unworkable aspirational and subjective concept that does not allow for adequate implementation of large data sets. While there are ample laws affecting illegal or unfair discrimination, there may also be institutional and regulatory bias especially as it relates to aspirational beliefs that are not rooted in law or regulation or otherwise specifically defined in public policy. Vagaries in this area can stifle innovation. Definitional certainty should be a paramount concern to provide a level-playing field and achieve desired results that are legally defined and required. Of course, whether it is claims, rating, or underwriting in general, the purpose of algorithms is to estimate forward. In fact, the example provided is not preferred at all since it does not mention the large variety of factors that are used in pricing that can affect the same. The paper should not perpetuate innuendo and conjecture. The allegation that learning algorithms "reproduce the past" is more a statement of political opinion rather than scientific reality or appropriate regulatory action. Like Paragraph 37 such language is inflammatory. The purpose of the algorithms, like actuarial science generally, is to	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			project future likelihood using historical trends. The historical trends are indisputable facts necessary for modeling.	
87. PCI	United States	No	Consider combining this paragraph with paragraph 37 as they both deal with diligence in the development process.	Order of paragraphs has been changed to improve readability and flow.
88. Center for Economic Justice	USA	No	<p>We suggest the following edits</p> <p>Algorithms - like any predictive model -- are developed using historical data. If the historical data incorporates or reflects biased or atypical outcomes, the algorithm will reflect and perpetuate those biases. The scholars Barocas and Selbst note:: Big Data's Disparate Impact</p> <p>Advocates of algorithmic techniques like data mining argue that they eliminate human biases from the decision-making process. But an algorithm is only as good as the data it works with. Data mining can inherit the prejudices of prior decision-makers or reflect the widespread biases that persist in society at large. Often, the "patterns" it discovers are simply preexisting societal patterns of inequality and exclusion. Unthinking reliance on data mining can deny members of vulnerable groups full participation in society.</p>	Disagree with proposed edits. Current wording is more balanced and concise.
<b>Q44 Comment on Paragraph 36</b>				
<b>Q45 Comment on Paragraph 37</b>				
89. World Federation of Insurance Intermediaries	Belgium	No	<p>WFII's comment:</p> <p>Any issues relating to potential consumer discrimination or financial exclusion should not be underestimated or taken lightly. Any actions by insurers resulting in either discrimination or financial exclusion will fall disproportionately on intermediaries to explain and help resolve on the part of their clients. Limiting access to coverage will limit choice. In this scenario, access to coverage has to come either from the market or from government. Other potential consequences of stricter underwriting criteria could involve limits on payment plans and options (e.g. needing to pay upfront), generational exclusion of coverages (e.g. young drivers), etc.</p>	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
90. Global Federation of Insurance Associations	Global	No	GFIA disagrees with the use of the UK example under paragraph 37, which suggests unlawful discrimination against certain customers. It is unlawful to price insurance based on ethnicity in the United Kingdom, and insurers will always act within the law. The example in question from a BBC report is based on flawed research, which produced misleading results caused by a variety of different factors, which are not taken into account in the article. For example, quote engines often put up prices automatically as an anti-fraud measure when people adjust details, as it is designed to identify where inaccurate details are entered or implausibly changed - in this example, changing the names, address or IP address in succession. After the article's publication, the insurer in question issued an explicit denial that it uses name as a factor in its pricing and, as this would be unlawful, it is telling that there has been no follow-up from the UK Equality and Human Rights Commission.	Example deleted.
91. Institute of International Finance	Global	No	The examples used in the Draft Issues Paper would benefit from a further explanation of the underlying causes of the problematic behavior. For example, after Paragraph 37, an example is given of a BBC investigation that appeared to reveal biased data used in a car insurance comparison website. A description of the underlying causes - for example, methodological or design flaws in the BDA utilized by the insurer or the lack of proper model governance - could help to substantiate whether biased data was the reason for the difference in treatment (as opposed to other legitimate variables such as driving records). A description of the underlying causes could produce important "lessons learned" for both insurers and supervisors.	Text updated. Also see response to comment 90.
92. General Insurance Association of Japan	Japan	No	As mentioned in our comments on paragraph 1, in order to secure product authorization, explaining algorithms to supervisors is a necessity in Japan. Therefore, the risks mentioned in this paragraph could be reduced.	See response to comment 81.
93. American Council of Life Insurers	U.S.	No	In the U.S. insurers cannot refuse to insure, refuse to continue to insure, or limit the amount of coverage available to an individual because of the sex, marital status, race, religion or national origin of the individual. Insurers take proper measures and have guardrails and oversight mechanisms to ensure they are always acting within the law, regardless of the process or analytics they use to price or underwrite risks.	Noted.
94. NAMIC	United States	No	Care should be taken not to use anecdotal experience to extrapolate conduct across an entire sector. Additionally, the example used is inflammatory and doesn't provide underlying data as to what was submitted and how the results were tabulated. The	See response to comment 90.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			outcome may have taken into account thousands of inputs, all risk-related but focus is potentially improperly placed on one aspect.	
<b>Q46 Comment on Paragraph 38</b>				
95. Center for Economic Justice	USA	No	<p>We suggest the following edits</p> <p>Some algorithms are based upon or developed through machine learning, which means an algorithm that collects and analyzes new data and modifies the algorithm without human involvement after initiation. Algorithms based on machine learning raise concerns about accountability and transparency of the algorithm as well as explainability of outcomes.</p>	Text updated.
<b>Q47 Comment on Paragraph 39</b>				
96. Global Federation of Insurance Associations	Global	No	Insurers' governance under existing standards for use of data should generally be sufficient, in the absence of information to the contrary.	Noted.
97. American Council of Life Insurers	U.S.	No	Absent evidence otherwise, we do not believe additional oversight or governance is necessary. Technology may evolve, but insurers' obligations--under current laws and regulations of their jurisdictions as well as their commitment to high standards and consumer protections--do not.	Noted.
98. PCI	United States	No	Standalone generalized linear models (as opposed to those leveraging algorithms) have an issue with transparency, especially in high dimensional settings, so this issue isn't anything new. Maybe the only difference today is that regulators need and ability to stay current.	Noted.
<b>Q48 General comments on Section 3: The use of big data analytics across the insurance product lifecycle</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
99. Institute of International Finance	Global	No	<p>The IAIS should better balance the discussion of the risks of BDA with an explicit reflection of the benefits of the use of BDA by insurers. BDA tools can play an important role in promoting a customer-centric insurance value chain and in advancing the societal goals of improving insurance inclusion and narrowing insurance protection gaps. BDA can contribute to making insurance products more accessible and can facilitate the underwriting process through more refined policyholder risk assessments, better risk differentiation and, ultimately, more refined risk-based pricing. BDA can also support global financial inclusion by improving model accuracy and overcoming data deficiencies and inconsistencies and, thus, allowing insurers to better assess, price and underwrite risks that, in the past, may have been uninsurable. For example, BDA has enabled the development of parametric products that are customer-friendly and affordably priced. The claims management process can be expedited through the use of digital and geospatial tools and advanced analytics can be deployed to prevent inappropriate claims and detect insurance fraud, ultimately leading to cost savings and greater efficiencies for insurers and policyholders alike.</p> <p>The Draft Issues Paper describes the use of targeted marketing to "nudge" customers towards specific products and services and the IAIS raises concerns that targeted marketing could limit the ability of customers to compare a wider variety of offerings, and could result in less informed decision-making, reduced choice, over-insurance, and greater difficulties in product switching. The Draft Issues Paper claims that targeted marketing could cause consumers to disengage, if consumers perceive that insurers are opportunistic.</p> <p>We encourage the IAIS to adopt a more balanced discussion of targeted marketing. Personalized products can meet customer needs by tailoring the scope and amount of coverage and by setting premium levels that reflect the personalized coverage. BDA solutions can identify individuals who could benefit from personalized products and alert those individuals to possible protection gaps or the availability of new offerings. Mass offerings, on the other hand, can lead to over-insurance and higher prices to consumers when product design is inflexible.</p> <p>Paragraphs 61 and 62 and Paragraphs 93 through 95 suggest that BDA can exacerbate disparities in the availability and pricing of insurance products. Concerns regarding insurance availability and pricing are not unique to the use of BDA by insurers and, as we have noted elsewhere in this letter, BDA can improve insurance</p>	<p>Noted.</p> <p>Additional text has been included throughout the paper to reflect this balance more clearly.</p> <p>See responses to these points also raised in comment 3, and in respect of specific paragraphs elsewhere in this table.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			<p>availability and help insurers tailor coverage and pricing to customer needs and risk profiles.</p> <p>Additionally, the Draft Issues Paper has a strong focus on personal lines insurance and the application of BDA throughout the personal lines product lifecycle. We would encourage the IAIS to also consider and further elaborate the benefits of the application of BDA techniques to the commercial insurance product lifecycle, including in sales and marketing, distribution, underwriting, pricing and claims handling. (For example, the Draft Issues Paper could explore the use of BDA techniques to enhance geospatial technologies used in marine and aviation insurance.) The applications and benefits of BDA techniques in commercial insurance can differ significantly from the applications and benefits of BDA techniques in personal lines insurance and these differences should be highlighted.</p> <p>The Draft Issues Paper would be enhanced by a more thorough discussion of the challenges around bias. While we agree that machine learning and AI can manifest or perpetuate existing biases, this risk of bias is not new as a result of the development of BDA. Insurers have an obligation to be vigilant in preventing bias, regardless of the methods used to market, underwrite or distribute their products. The benefits of BDA need to be balanced with the risks of bias and improper discrimination. The fact that the risk of bias is not new as a result of the development of BDA should be highlighted in discussions among supervisors at the IAIS.</p> <p>The Draft Issues Paper also could be enhanced by a definition of bias that distinguishes and emphasizes statistical bias as opposed to more popular, social definitions of bias. Different types of bias (e.g. selection bias, survivorship bias and association bias) could be highlighted, along with techniques and processes for overcoming these sources of bias. For example, to counter potential association bias, or the use of data in the training set that correlates positively with protected or sensitive characteristics that cannot be used explicitly, an insurer could, among other measures: (i) track the lifecycle of the training dataset, (ii) review the dataset to detect encoded bias in the features, (iii) improve the representativeness of the dataset to include underrepresented data, (iv) consider the need for a posteriori bias correction to neutralize the impact of a sensitive attribute, and (v) apply quality control processes to ensure that the integrity of the dataset is maintained over time. Moreover, BDA can be used proactively by insurers to identify sources of bias and errors in data.</p>	

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100. Anonymous	Anonymous	Yes	Here we miss some mention to the Asset side of a product, not only the liabilities, and that is the impact of BDA in the investment side of the premium collected by the insurer, and how algorithms can improve the profitability of a product for both the insurer and the customer as a result of a better asset allocation, and a better treasury management.	Noted.
101. American Council of Life Insurers	U.S.	No	<p>In Diagram 1 on p. 14, we recommend adding to the first bullet of the "pricing and underwriting" chevron that insurers are also using telematics to incentivize wellness and better driving.</p> <p>We also recommend adding "fraud detection" to the "pricing and underwriting" chevron because in addition to claims handling, some insurers use BDA during the application process to verify or authenticate identity.</p>	Text updated.
102. Anonymous	Anonymous	Yes	We suggest that additional examples are added to the Draft Issues Paper to show the breadth of insurers' use of BDA in situations of varying magnitude. For example, BDA can be used in catastrophe modeling to better estimate the dollar impact of large-scale disasters. Insurers can also use BDA to better partner with their policyholders throughout the insurance product life cycle. The enhanced partnership could result in more pre-emptive actions that prevent loss and injury for both the policyholder and insurer. For example, using telematics and sensors, auto insurers could pre-emptively alert drivers to behaviors that could result in imminent or longer-term losses.	These examples are already included in various sections of the paper.
<b>Q49 Comment on Paragraph 40</b>				
103. Center for Economic Justice	USA	No	<p>The chart identified five phases of the insurance product life cycle. We suggest adding loss prevention and mitigation pricing/underwriting and/or customer interactions. The most important potential benefit of BDA is the opportunity to identify and implement new consumer insurer partnerships for loss prevention, loss mitigation, resiliency and sustainability.</p> <p>We also suggest that these phases of the product life cycle be used consistently throughout the paper, including, for example, the taxonomy in paragraph 22.</p>	Text updated.
<b>Q50 Comment on Paragraph 41</b>				
104. Center for Economic Justice	USA	No	See comment on QQ49.	See response to comment 103.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q51 Comment on Paragraph 42</b>				
105. NAMIC	United States	No	<p>There are generally specific rules and regulations as well as statutes on distribution channel activity including the ability to give "advice" to customers. This conduct is generally already regulated. Usage of some of the data points may already be illegal in certain jurisdictions. Telematics are not just for underwriting as it provides valuable data for insurers to utilize by predicting and preventing loss. Telematics provides valuable data that can save lives. There is a great deal of common good that is missing from the paper regarding usage of BDA. Additionally, this serves as another example of where bolstering the discussion to include the benefits would begin to show a more complete picture of the use and value of BDA.</p> <p>Further, this IAIS paragraph fails to support the reality and importance of shopping alternatives and "self-sufficients" who price shop by various means and happily utilize and discriminate in their shopping via "robo advice." The IAIS also understate here the purpose behind such sites and "robo advice," namely to compete fairly within all segments.</p>	<p>Noted.</p> <p>As stated in the paragraph robo advice is not discussed here as it was covered in the previous Digitalisation Paper.</p>
106. Center for Economic Justice	USA	No	See comment on QQ49.	See responses to comment 16 and 103.
<b>Q52 General comments on Section 3.1: Product design, marketing, sales and distribution</b>				
<b>Q53 General comments on Section 3.1.1: Personalised insurance cover</b>				
<b>Q54 Comment on Paragraph 43</b>				
107. World Federation of Insurance Intermediaries	Belgium	No	<p>(...) Greater access to, and increased efficiencies in the collection and evaluation of, more data types such as behavioural data can make (new) risks insurable and allow consumers to get cover previously not available to them.</p> <p>WFII's comment: We propose to add to this sentence or to get cover only when needed.</p>	Text updated.
108. Center for Economic Justice	USA	No	<p>We believe the benefits of insurers' use of behavioral data are overstated in the paragraph. Specific examples would be helpful. We suggest the following edits.</p> <p>Generally there are a number of benefits in using BDA for product design purposes.</p>	Disagree. The current wording is more balanced and does not overstate the benefits mentioned. However, the reference

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			Greater access to, and increased efficiencies in the collection and evaluation of, more data types such as behavioural data can be used to create loss prevention partnerships	to “behavioural data” has been deleted as this was meant to be illustrative only.
<b>Q55 Comment on Paragraph 44</b>				
109. Global Federation of Insurance Associations	Global	No	In paragraphs 44-46, language should be added to better describe the potential safety benefits of usage-based insurance, which provides immediate feedback to consumers about issues such as speed and rapid braking.	Text updated to highlight these benefits.
110. General Insurance Association of Japan	Japan	No	Even if there are large data sources, insurance premiums may not necessarily be reduced when the costs associated with its analysis are high. Also, services associated with insurance, such as roadside assistance, are related to product design and might not be directly related to BDA.	Noted.
111. NAMIC	United States	No	In paragraphs 44-46, language should be added to better describe the potential safety and societal benefits of telematics or other similar products, which provide data to insurers, policyholders and consumers about driving conduct issues such as operating conditions, speed, and avoidance manoeuvres. This, in turn, allows for conformance of activities that mitigate or might prevent loss experience. As a result, the consumer/policyholder may see this activity reflect in more positive pricing reductions. However, the public also benefits from safer driver operation.	See response to comment 109.
112. PCI	United States	No	The paper would benefit from a clearer and more robust explanation of the benefits of usage-based insurance. For instance, the example provided in this paragraph is unclear and identifies more of an ancillary benefit. Instead highlight the benefit of episodic insurance for consumers and that reserves won't deplete as pricing becomes more proximate and real time with the risk. There are clear benefits for both the insurer and the consumer by leveraging digitalization in order to move away from annual policy renewals and to solve for real time and more accurately pricing.	See response to comment 109.
113. Center for Economic Justice	USA	No	It is unclear how this is an application of BDA. This paragraph describes insurance products marketed and sold for a hundred years. We suggest deletion.	Noted.
<b>Q56 Comment on Paragraph 45</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
114. World Federation of Insurance Intermediaries	Belgium	No	<p>(...) What would previously have taken a specialist intermediary and significant underwriting or actuarial resources to design can now be achieved quicker and with less effort as a result of BDA, potentially resulting in wider customer access and reduced underwriting costs.</p> <p>WFII's comment: "Quicker" does not necessarily means better or more accurate. A fast result is not necessarily a good result for purchasers, and it can mean that one's unique exposures and risks (especially liability risks) are not being properly managed and insured. We propose to add this to the paragraph.</p>	Text updated.
115. General Insurance Association of Japan	Japan	No	<p>Although we agree that "access to large data sets can also allow insurers to design customer-specific products more easily", such products are not necessarily complex. Also, if analysis could prove that risks would be lower-than-expected by utilizing acquired data, premiums would naturally be lower. However, it is not always the case that acquiring large amounts of data results in reduced costs. For example, we can assume it would be expensive for insurers to secure additional human resources with knowledge and experience of analysis of data sets and data science.</p>	Text updated.
116. PCI	United States	No	<p>As mentioned in our earlier comments, the benefits of competition are an important illustration for this paragraph.</p>	See response to comment 9 on references to competition issues in the paper.
117. Center for Economic Justice	USA	No	<p>This claim again seems highly speculative. Unless an example can be provided, we suggest deletion.</p>	Text updated.
<b>Q57 Comment on Paragraph 46</b>				
118. World Federation of Insurance Intermediaries	Belgium	No	<p>(...) Usage Based Insurance may also be useful for cover during periods of travel or when engaging in certain sporting activities. This could make insurance cheaper and make customers more conscious of the need to avoid or mitigate risky behaviour. However, such products potentially create risks if customers forget to activate or deactivate their cover as and when necessary.</p> <p>WFII's comment:</p>	Text updated.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			We propose to add : There is also a higher risk of fraude if customers activate their cover only after the risk has occurred.	
119. Institute of International Finance	Global	No	Paragraph 46 appropriately recognizes the benefits of BDA in enabling the provision of usage-based insurance (UBI) but raises a concern that UBI can create risks if customers forget to activate or deactivate their cover as and when necessary. We believe this risk to be overstated and note that this concern can be easily mitigated when insurers provide alerts or periodic reminders to customers. Insurers choosing to offer UBI products have an incentive to make these products attractive to customers by enhancing convenience and ease of use.	Text updated.
120. General Insurance Association of Japan	Japan	No	While this paragraph only refers to UBI, there seems to be a misunderstanding that this paragraph also describes "on-demand insurance". Therefore, we believe that this paragraph should be completely revised. In particular, the sentences below seem to deal with "on-demand insurance": "cover for only short periods of time when they require it", "UBI may also be useful for cover during periods of travel or when engaging in certain sporting activities", "However, such products potentially create risks if customers forget to activate or deactivate their cover as and when necessary". In addition, even if the sentences above refer to on-demand insurance, simply writing "cheaper" would be misleading because covering risks for a certain period concentrates risks. Also, it is also not necessarily the case that the purchase of insurance on-demand makes customers more conscious of the need to avoid or mitigate risky behaviour.	Text updated.
121. PCI	United States	No	The risks are overstated in this paragraph and can be managed through the use of notification mediums, to alert consumers that their coverage has extended beyond the customer's anticipated coverage timeline.	Text updated.
122. Center for Economic Justice	USA	No	UBI is commonly understood to include insurance whose pricing is based on use - such as pay by the mile auto insurance - and is not limited to insurance for short periods of time. Explaining the distinction would be helpful.	Text updated.
<b>Q58 Comment on Paragraph 47</b>				
123. World Federation of	Belgium	No	(...) It remains the responsibility of insurers to ensure that design decisions are made transparently and can be explained to, and understood by, customers and supervisors. It is also important for insurers to manage the risk of customers	Disagree with proposed edit. It is implicit that if intermediaries are distributing or providing advice on

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
Insurance Intermediaries			<p>potentially misconstruing personalised product offerings as the provision of financial advice in the absence of any necessary suitability and needs analyses being conducted.</p> <p>WFII's comment: We propose to add intermediaries in this paragraph: It remains the responsibility of insurers to ensure that design decisions are made transparently and can be explained to, and understood by, customers, intermediaries and supervisors.</p>	<p>these products, insurers would need to ensure that such intermediaries have the requisite level of understanding to properly explain the design decisions to customers. In this context, the reference to "insurers" includes intermediaries as explained in paragraph 10 of the paper.</p>
124. General Insurance Association of Japan	Japan	No	<p>The Dutch and German examples concern "pricing and underwriting". Therefore, we believe they should be moved to 3.2.</p> <p>We are of the opinion that the way readers comprehend these examples varies according to jurisdiction, because each one has its own legal regulations that set requirements on available data. The data stated as examples in this IP might have already been used in statistical methods to calculate rates. If these examples are moved to the "pricing and underwriting" section, a description should be provided as to why they are dealt with there, what the new points are, and what we need to take note of.</p>	<p>Examples moved to more relevant paragraphs with updated text.</p>
125. PCI	United States	No	<p>Insurers do have a responsibility to explain their products, but it is impossible to ensure the customer understands it. Likewise, consumer choice is essential, but the decisions are that of the consumer.</p>	<p>Text updated.</p>
126. Center for Economic Justice	USA	No	<p>This paragraph talks about transparency of algorithms and is then followed by an example of a machine learning application that suggests a complete lack of accountability and transparency to the consumer. We have the same concerns for the Germany example, with the additional problem of using a third-party vendor so now the algorithm may not even be accountable or transparent to the insurer utilizing the algorithm. The Japan example seems better suited to the targeted marketing section.</p> <p>References to insurer applications should identify the insurer and the product/service. A reader should be able to go from the example for more detailed information and assessment.</p>	<p>Examples moved to more relevant paragraphs with updated text.</p> <p>Insurer and product examples are meant to be illustrative and not intended to profile or promote</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
				specific entities, businesses or products.
<b>Q59 General comments on Section 3.1.2: Targeted marketing</b>				
<b>Q60 Comment on Paragraph 48</b>				
127. Center for Economic Justice	USA	No	References to insurers or insurtechs should identify the company and the product	See response to comment 126.
<b>Q61 Comment on Paragraph 49</b>				
128. Center for Economic Justice	USA	No	References to insurers or insurtechs should identify the company and the product	See response to comment 126.
<b>Q62 Comment on Paragraph 50</b>				
129. Global Federation of Insurance Associations	Global	No	It should be encouraged for insurers to become more effective partners with their customers in understanding their risk and mitigating it. BDA provides the opportunity to do so, including providing tailored advice, products and services to millions of personal insureds, for example to prevent flooding, which also has larger social benefits.	Text updated.
130. American Council of Life Insurers	U.S.	No	We agree with this paragraph. BDA can help identify insurance gaps for consumers, which in turn, can assist insurers in tailoring products and services to fit consumers' needs. BDA may also extend and expand insurers' reach to populations that are traditionally underinsured. Further, as we indicated in an earlier response, we believe BDA can foster a partnership between insurers and their policyholders; insurers can work with consumers to mitigate their risks and manage their health.	Text updated.
131. Center for Economic Justice	USA	No	References to insurers or insurtechs should identify the company and the product	See response to comment 126.
<b>Q63 Comment on Paragraph 51</b>				
132. Global Federation of	Global	No	Paragraphs 51-53. Product differentiation is an opportunity for intermediaries and direct insurers to engage with their customer and provide more information on product offerings. These opportunities do not exist as much when products are	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
Insurance Associations			standardised, which is why, in many jurisdictions, there is limited understanding of the coverage provided by insurance. Through intermediaries, product/price comparison websites or directly from an insurer, consumers can easily get the information that they need to find coverage options and make an informed purchase.	
133. American Council of Life Insurers	U.S.	No	The diffusion of insurance offerings online has, in our view, dramatically increased customer access to information and choice. Whether through traditional means or innovative technologies, insurers have always attempted to make thoughtful recommendations to consumers based on their needs, but the consumer still ultimately decides which product or service is right for him/her.	Text updated.
134. NAMIC	United States	No	<p>There is more information and opportunity for comparison available to consumers than ever before. Whether on their own, or with the help of a producer/broker/agent, it is unreasonable to imply that targeted offerings make consumers unable to shop or to make informed and appropriate decisions. The "push" of products via more targeted marketing based on consumer habits and data can help close the protection gap which should be good. While there may be a risk that insureds could purchase more insurance than they need, at some point consumer responsibility needs to come into the equation with consumers determining when they have "enough" insurance and when they need more. The concept of ascertaining risk exposure is not an exact science as many elements factor into the equation. Regulators should and do have existing tools to address bad actors while still allowing innovation and new ways to market products to consumers who may need them to flourish alongside each other. At the end of the day, the market (society) will determine when/if these insurance "pushes" are appropriate.</p> <p>Further, the concerns identified seem overly-protective and possibly unrealistic. There always needs to be robust insurance marketplaces with viable competition which will benefit the purchasers of insurance greatly. Consumers now experience one of the most informed and educational environments for insurance than has ever been available to them. Customers have options on shopping for insurance and determining what products meet their needs and those that do not. It is due to this competition that some of the fallacies and other criticisms exhibited in the paper of industry do not hold merit. Reputational risk, for one, is a strong impediment to acting in a deleterious manner towards consumers.</p>	Text updated.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q64 Comment on Paragraph 52</b>				
135. General Insurance Association of Japan	Japan	No	The risk of consumers purchasing more insurance than necessary is not limited to targeted products. In Japan, in order to help ensure that consumers' needs are met, insurers always confirm consumer intention. At the same time, it is important that consumers improve their financial literacy, so that they acquire accurate knowledge about insurance and understand the level of protection they need.	Text updated.
136. American Council of Life Insurers	U.S.	No	Within the U.S., we do not believe the use of BDA creates a risk of overinsurance. Insurers underwrite in order to assess the appropriate coverage for individuals. Further, numerous studies have shown that the U.S. population is greatly underinsured. BDA has the potential to address that problem, reducing the number of people without financial protection.	Noted. This is recognised elsewhere in the paper.
137. Anonymous	Anonymous	Yes	<p>We believe that there should be additional discussion added to par. 52 that the risk of over-insurance and consideration of a consumer's financial needs / affordability can be mitigated by the insurer itself. Underwriting is one of the first steps in buying insurance, and prospective customers can typically talk to an insurance agent to discuss their overall insurance portfolio and the risks that they are trying to insure.</p> <p>Therefore, targeted product offerings based on the use of BDA do not create a risk of over-insurance themselves. Rather, we believe that there is a risk of over-insurance when targeted marketing is combined with the lack of a process to allow a consumer to interact with the insurer and ask questions before purchasing insurance.</p>	Text updated.
138. NAMIC	United States	No	See answer to Paragraph 51.	See responses to comments 134 and 137.
139. Center for Economic Justice	USA	No	It is unclear that purchase of unwanted insurance is a problems associated with BDA. There are ample examples of misselling outside of BDA, such as consumer credit insurance, life insurance replacements and more.	Agree. However, the point being made here is that targeted campaigns based on BDA could exacerbate this problem.
<b>Q65 Comment on Paragraph 53</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
140. American Council of Life Insurers	U.S.	No	We recommend removing this paragraph as it seems outside the scope of the paper. There is no evidence presented to support the theory that targeted marketing could "be perceived as opportunistic and could increase cynicism and disengagement by customers."	Paragraph deleted.
141. NAMIC	United States	No	Not sure the purpose of this paragraph. It is too broadly written to address concerns raised. See response to Paragraph 51 as well.	See response to comment 140.
142. Center for Economic Justice	USA	No	This claim is highly speculative. If there is an example, that would be helpful. Otherwise, this paragraph can be deleted. Further, this paragraph seems to describe poor or ineffective marketing by insurers. While it is reasonable and necessary for supervisors to ensure that marketing does not exclude certain groups from needed products for which the customers are eligible, it is unclear why supervisors should be concerned with ineffective marketing by insurers. The section on targeted marketing fails to emphasize the major problem with BDA for marketing - exclusion of certain consumer groups of certain products or product features or insurance markets. The flip side of the ability to personalize is the ability to exclude. Coupled with the potential for BDA to reflect and perpetuate historic biases and discrimination, BDA for targeted marketing can result in or exacerbated exclusion of non-favored groups of consumers.	See response to comment 140.  Text updated.
<b>Q66 General comments on Section 3.1.3: Sales execution</b>				
<b>Q67 Comment on Paragraph 54</b>				
143. World Federation of Insurance Intermediaries	Belgium	No	WFII's comment: We propose to add the following: People lead increasingly busy lives and those who do not have the assistance of an insurance intermediary are sometimes unwilling or unable to devote time and energy to make decisions or go through lengthy administrative processes relating to their insurance. (...)	Disagree with proposed edit. This is a general behavioural statement, not necessarily dependant on whether or not an intermediary is involved.
144. NAMIC	United States	No	Not sure what "incentivised to play on these behavioural biases to discourage customers from switching to other providers" means. Nefarious motive suggested without any concomitant proof. Market forces and competition are items of healthy and vibrant insurance marketplaces. The pre-population of data, as mentioned, is a	Text updated.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			cost containment effort and a strategy for ensuring the accuracy of data. The paper should not encourage anti-competitive conduct and disincentivize innovation and technology that has demonstrated positive results for consumers.	
145. Center for Economic Justice	USA	No	We suggest replacing paragraph 54 with the following and suggest the paper avoid broad claims about people: Insights from behavioral psychology and behavioral economics reveal consumer biases that lead people to make or avoid making decisions in their interest. Biases that impact consumer financial service decision-making include avoiding complexity and inertia. Insurers and marketing professionals have long been aware of such biases and have designed products and processes to overcome them. BDA provides insurers with increased capability to identify individual consumer characteristics and that information can be used to develop processes that overcome consumer biases. The new tools may be positive - pre-fill forms to ease and speed the application process -- or negative - utilizing price or claims optimization algorithms.	Text updated, with some of the proposed edits included.
<b>Q68 Comment on Paragraph 55</b>				
146. World Federation of Insurance Intermediaries	Belgium	No	WFII's comment: We propose to add the following: Shorter, simpler application forms should make it easier for customers to engage and reduce the risk of them making mistakes in their answers, which could later be used as a basis to repudiate their claims. A risk of relying too heavily on this data during sales execution, however, is that insurers, who do not work with insurance intermediaries who advise customers products that meet their personal needs, may not gather sufficient customer insights to offer contracts that fully meet their personal needs. Additionally, reliance on insufficient data could result in the overestimation or underestimation of premiums that are charged to customers. This could potentially impact the profitability or overall solvency of insurers.	Proposed edit is not necessary as the relevant text has been deleted.
147. American Council of Life Insurers	U.S.	No	Insurers have historically utilized longer or shorter application forms depending on the type of coverage sought by the consumer or offered by the company (e.g., guaranteed issue vs. fully underwritten). It is our expectation that insurers will incorporate BDA into application (and claims) processes in an efficient manner that is not detrimental to consumers.	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
148. NAMIC	United States	No	<p>Insurers remain responsible for having data to support actions they have taken. At some point the consumer must exercise some responsibility in properly providing enough evidence of need or question suggested avenues that should be timely and accurately responded to by industry before entering into a contract. The paragraph also fails to understand the dynamics of the distribution process today where speed in completion of the process is in strong consumer demand and is a competitive advantage for insurers. Insurers are adept at providing superior consumer service in a timely, efficient, and legal manner. Supervisors already have tools to handle such concerns.</p> <p>The IAIS statement here has a glaring omission. It disregards the aspect of customer choice, both as to premium to pay and as to coverage desired in light of the many options offered. Honoring those customer choices and matching price to risk with accurate data do not create a solvency risk for the insurer. In addition, the data being collected serves the purpose of matching price to risk or determining eligibility. Without data or with inaccurate data, insurers will suffer an inability to meet the primary insurance objective. The IAIS statement seemingly assumes that insurers are not preoccupied with gathering accurate data. Such proper obtainment constantly consumes both time and expense of insurers.</p>	Text deleted.
149. PCI	United States	No	<p>This paragraph is confusing as drafted. On one hand, insurers get more refined in segmentation and then in this case insurers rely too much on data and get less segmentation? We recommend transforming this paragraph to promote the benefits of market competition in these areas.</p>	Text deleted.
150. Center for Economic Justice	USA	No	<p>This is highly speculative and seems off point. Shorter, simpler application forms are made possible because insurers can obtain information from third party sources that they previously obtained from consumers. It is unclear why this would result in inadequate information.</p> <p>Further, the connection between shorter application forms and solvency risk seems tenuous. There is an issue of solvency risk associated with insurers' use of BDA, but it is not shorter application forms. Rather, BDA introduces model risk for insurers. The use of an unreliable type of data or a mis-specified complex algorithm can certainly create a potential for significant mispricing and solvency risk. We saw an example of model risk leading to the financial crisis of 2008 when AIG's risk models failed to predict the dangers of its credit-default swap business..</p>	Text deleted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			The examples provided drive home this point - the UK insurer doesn't collect less information for the application, but gathers less of the information from the applicant and more from other sources. In the case of the Canada example, the service provider builds a "detailed profile" of the customer. Neither example support the last three sentences of the par 55	
<b>Q69 General comments on Section 3.1.4: Distribution and advice</b>				
<b>Q70 Comment on Paragraph 56</b>				
151. Center for Economic Justice	USA	No	. This paragraph is vague and speculative. Absent an example, we suggest deletion. While BDA can enhance the capabilities of existing distribution infrastructure, it is unclear how BDA extends the reach and scale.	Disagree. The remainder of the section illustrates the point in greater detail.
<b>Q71 Comment on Paragraph 57</b>				
<b>Q72 Comment on Paragraph 58</b>				
152. Center for Economic Justice	USA	No	This paragraph seems out of place and is better located in sales execution or targeted marketing. The France example is too vague to be useful. In addition, the example refers to targeted sales as opposed to distribution and advice.	Disagree. The discussion on platforms and channels speaks directly to distribution, reach and access.
<b>Q73 Comment on Paragraph 59</b>				
153. Center for Economic Justice	USA	No	Regarding cross selling non-insurance products or services with insurance or bundled with insurance into a "protection plan," a concern that should be mentioned is anti-competitive practices - tying the purchase of one thing to the purchase of another or limiting consumer choice by requiring the purchase of a package of products and services, one or more of which may have no value for the consumer. Or the offer of additional services may be predicated on a pay-to-play paradigm where the market power is in the platform and the additional products and services offered by the insurer are those for which the providers are willing to pay the highest compensation to the insurer/bank operating the platform. Regarding the Australia example - does the bank have a financial interest in the non-bank products offered and, if so, is that financial interest disclosed? Is the bank's platform open to any qualified service provider or limited by the bank's selection process? If limited, what are the criteria for inclusion in the platform?	Text updated.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q74 General comments on Section 3.2: Pricing and underwriting</b>				
154. Center for Economic Justice	USA	No	These paragraphs (60 to 63) provide a balanced review of the benefits and concerns with increased granularity in risk selection and pricing. We ask the WG's consideration of our comments on microsegmentation in the general comment section.	See response to comment 31 and updated text in this section.
<b>Q75 General comments on Section 3.2.1: Increased granularity in risk selection and pricing</b>				
155. American Council of Life Insurers	U.S.	No	The diversity of products within the market can help to ensure access, even with increasing levels of individualized pricing in other segments of the product landscape.	Noted.
<b>Q76 Comment on Paragraph 60</b>				
<b>Q77 Comment on Paragraph 61</b>				
156. Global Federation of Insurance Associations	Global	No	Again, lower risk consumers paying less for insurance and higher risk consumers paying more has been a product of insurers' ongoing improvements in underwriting and rating for decades. Insurance also sends an important financial signal to higher-risk customers to change their behavior. These developments are positive.	Text deleted. See response to comment 161.
157. Institute of International Finance	Global	No	<p>The Draft Issues Paper describes the use of targeted marketing to "nudge" customers towards specific products and services and the IAIS raises concerns that targeted marketing could limit the ability of customers to compare a wider variety of offerings, and could result in less informed decision-making, reduced choice, over-insurance, and greater difficulties in product switching. The Draft Issues Paper claims that targeted marketing could cause consumers to disengage, if consumers perceive that insurers are opportunistic.</p> <p>We encourage the IAIS to adopt a more balanced discussion of targeted marketing. Personalized products can meet customer needs by tailoring the scope and amount of coverage and by setting premium levels that reflect the personalized coverage. BDA solutions can identify individuals who could benefit from personalized products and alert those individuals to possible protection gaps or the availability of new offerings. Mass offerings, on the other hand, can lead to over-insurance and higher prices to consumers when product design is inflexible.</p>	<p>See response to comment 140.</p> <p>Text updated to reflect these points in sections 3.1.1 and 3.1.2.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			Paragraphs 61 and 62 and Paragraphs 93 through 95 suggest that BDA can exacerbate disparities in the availability and pricing of insurance products. Concerns regarding insurance availability and pricing are not unique to the use of BDA by insurers and, as we have noted elsewhere in this letter, BDA can improve insurance availability and help insurers tailor coverage and pricing to customer needs and risk profiles.	Noted. These points are well covered in various sections of the paper.
158. General Insurance Association of Japan	Japan	No	In paragraphs 75 to 77, the effect of improving customers' behaviour by providing information on ways to reduce their risks is stated. These initiatives also contribute to solving affordability-related issues. Therefore, this point should also be mentioned.	Text deleted. See response to comment 161.
159. American Council of Life Insurers	U.S.	No	It is the nature of insurance, particularly voluntary insurance, to price consumer risks accordingly. The application of BDA is just another tool insurers can use to do that.	Text deleted. See response to comment 161.
160. NAMIC	United States	No	<p>Generally, those with past claims represent a higher risk for future losses. Why should lower risk individuals subsidize higher risk individuals? This creates a disincentivizing effect for parties to operate within expected tolerances. It creates moral and morale hazards as well as adverse selection. On the other hand, risk-based pricing with BDA may assist in parties elevating their conduct to a greater degree if risk tolerance is below acceptable. The result not only benefits the customer but society as well. This would be due to safer more risk averse individuals being in existence.</p> <p>Paragraph 61 seems to disconcertingly ignore the importance of risk/cost-based pricing and matching the price with that risk. With social focus, Paragraph 61 and 62 fail to recognize that the issue of affordability has always been around (and is not related to BDA) and relates to many aspects of life. Insurers have no control or impact on the individual's income. And, there may be actions the insured can take to reduce premium. Policymakers who fail to recognize this (by elevating Paragraph 62's statement) and take some sort of price control action may exacerbate the affordability issue and may trigger an availability issue.</p> <p>The IAIS also seemingly advocates here, contrary to U.S. state insurance laws, true</p>	<p>Text deleted.</p> <p>See response to comment 161.</p> <p>Disagree with this characterisation. The point being made here is that in</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			unfair discrimination, treating similarly situated risks differently, and the discarding of actuarial principles that prevent unfair discrimination under the insurance codes.	jurisdictions where access levels are low and financial inclusion is a social priority, the potential impact of increased granularity on affordability may need to be considered at a policy level. Text updated for clarity.
161. PCI	United States	No	This paragraph inappropriately alludes to the causation of low/high insurance costs. The circumstances identified can exist in the absence of big data analytics; however, the paragraph implies that big data analytics will increase the disparity in insurance costs. A potential solution to improve this paragraph is to combine the first sentence in paragraph 61 with paragraph 62 and deleting the balance of paragraph 61	Text updated.
<b>Q78 Comment on Paragraph 62</b>				
162. World Federation of Insurance Intermediaries	Belgium	No	WFII's comment: Any issues relating to potential consumer discrimination or financial exclusion should not be underestimated or taken lightly. Any actions by insurers resulting in either discrimination or financial exclusion will fall disproportionately on intermediaries to explain and help resolve on the part of their clients. Limiting access to coverage will limit choice. In this scenario, access to coverage has to come either from the market or from government. Other potential consequences of stricter underwriting criteria could involve limits on payment plans and options (e.g. needing to pay upfront), generational exclusion of coverages (e.g. young drivers), etc.	Noted.
163. Global Federation of Insurance Associations	Global	No	Contrary to this paragraph, the real world experience is that more granular pricing has actually made insurance more available and more affordable for most consumers. However, there are always a very few that are uninsurable. In those cases, governments must decide how to treat them but that should not interfere with more granular risk-based pricing.	Noted.
164. General Insurance Association of Japan	Japan	No	Regarding mandatory insurance, there is a need for a policy discussion concerning exactly what such insurance should cover, and how premiums should be determined in the light of affordability and inclusiveness of insurance products. For example, Japan has two types of automobile insurance; mandatory (compulsory automobile liability insurance) and voluntary. While the premiums for the former are determined across the board, voluntary premiums are risk-based. In jurisdictions like	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			<p>Japan, customers are not immediately excluded, leaving no effect on affordability. Therefore, it should also be stated that some jurisdictions manage insurance systems giving regard to the balance of these issues.</p> <p>Also, the method to provide insurance to extremely high-risk and vulnerable groups, which private insurance companies cannot undertake, has been a long-standing issue regardless of BDA. Such issues should be subject to comprehensive policy discussions, including the possible involvement of government protection instead of private insurance.</p>	
165. American Council of Life Insurers	U.S.	No	<p>In this paragraph, we recommend distinguishing between the voluntary coverage of life insurance and required coverage, i.e., with property casualty insurance. With life insurance, consumers have the choice of obtaining coverage that is right for them.</p> <p>Pricing based on consumer risks also incentivizes consumers to improve and/or change their habits for more affordable insurance options.</p>	These points are already covered in the paper.
166. NAMIC	United States	No	Affordability and risk profile should not be conflated as they are two different concepts. See answers to Paragraphs 61 and 63.	See response to comment 161.
167. PCI	United States	No	This paragraph references a concern with interpretations of driving patterns such as shift workers and parents dropping kids off at school, but it does not recognize that there are already features in the telematics models that identify the level of repeat trips, event within time of day. So, competition will drive innovation to account for these concerns and should be mentioned in this paragraph.	Noted.
<b>Q79 Comment on Paragraph 63</b>				
168. World Federation of Insurance Intermediaries	Belgium	No	<p>Paragraph 63: better alignment with paragraphs 74-75 63 -(...) As a consequence premiums are expected to come under pressure, reducing revenue streams.</p> <p>WFII's comment: Is this reduction of revenue not neutralized when insurers use BDA in claims handling resulting in claims savings as is stated in paragraphs 74-75: By using BDA to assess individual risk and claim behaviours more accurately, customers can be nudged, post-sale, towards decisions and actions aimed at reducing the likelihood of</p>	Text updated.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			risks materialising or to mitigate potential losses in the event that such risks do materialise. Perhaps these paragraphs should be better aligned.	
169. NAMIC	United States	No	This paragraph appears to conflate different principles. Affordability is a systemic market issue that has many economic factors at play and not just insurance pricing. Granular data benefits consumers by providing more ability to adequately price risk so that there isn't unfair discrimination or subsidization built into insurance market places. Appropriate conduct needs to be incentivized.	Noted.
<b>Q80 General comments on Section 3.2.2: Price optimisation</b>				
170. American Council of Life Insurers	U.S.	No	With the support of the insurance industry, price optimization has been made illegal in certain U.S. jurisdictions and has, essentially, been put to an end nationwide. Premiums must reflect risk assessment.	Noted.
171. NAMIC	United States	No	U.S. state insurance departments have addressed price optimization.	Noted.
172. Center for Economic Justice	USA	No	For personal lines, there was never discretion for underwriters to adjust prices. In the US, rates are filed and insurers must use the filed rates. Deviating from the filed rates is unfair discrimination. What occurred historically is that insurers deviated from actuarially indicated rates by filing lower-than-indicated rates for broad groups of consumers.  What has changed is the ability to deviate from actuarially-indicated rates at an individual or micro-class level. While a consumer's elasticity of demand (based on a demand model) is one part of price optimization, another component is assessment of competitive alternatives in real time. So, it is not just how much a consumer may be willing to pay before shopping for a new policy, but also what competitive options are available to the consumer. And in an era of BDA and credit-based insurance scores, competitive options vary significantly by geographic location and, by extension, income.	Noted.
<b>Q81 Comment on Paragraph 64</b>				
173. Global Federation of Insurance Associations	Global	No	Paragraphs 64-68. Price optimisation has effectively ended in the U.S. with the support of the industry. Supervisors have made clear that pricing must reflect risk, a requirement that both supervisors and insurers fully agree with. Notably, in November 2018, the European Union submitted a report to the OECD, Personalised	Noted.  It is inconclusive from the EU note referenced in the comment if the

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			Pricing in the Digital Era - Note by the European Union, which concluded that there is "no personalised pricing in the EU on any significant scale" (page 7).	review covered personalised pricing in the insurance sector. The sectors explicitly mentioned in the note relate largely to online retail shopping and not financial services.
<b>Q82 Comment on Paragraph 65</b>				
<b>Q83 Comment on Paragraph 66</b>				
<b>Q84 Comment on Paragraph 67</b>				
174. World Federation of Insurance Intermediaries	Belgium	No	WFII's comment: We suggest to add the following sentence at the end of paragraph 67: "In other words, the practice of price optimization can result in two similarly situated policyholders paying different premiums, even when they have the same loss history and risk profile."	Text updated.
<b>Q85 Comment on Paragraph 68</b>				
175. World Federation of Insurance Intermediaries	Belgium	No	WFII's comment: The first sentence of paragraph 68 makes reference to price optimization giving rise to "issues around affordability and inclusion." The practice also gives rise to concerns about "unlawful discrimination," and we recommend the addition of such a reference in this paragraph.	Text updated.
176. NAMIC	United States	No	Terms need further explanation and definition to have a fair discussion concerning their meaning.	It is unclear which terms require further definition. All terminology used in this paragraph is commonly understood or has been used elsewhere in the paper.
177. PCI	United States	No	APCIA believes this paragraph could be more balanced in identifying benefits as opposed to just the risks and concerns. It also starts to confuse very different points. For instance, alluding to a fairness of price being the responsibility of the insurer due to a lack of inertia or time to shop is one issue. This is different than other statements about not discriminating against marginalized groups.	Disagree. The current wording of the paragraph is adequately positioned to reflect a practice that is generally concerning, and must be read within that context. The reference to vulnerable groups is included only to

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
				emphasise that price optimisation could have particularly adverse outcomes if it is applied to customers from such groups.
<b>Q86 General comments on Section 3.2.3: Underwriting</b>				
<b>Q87 Comment on Paragraph 69</b>				
178. American Council of Life Insurers	U.S.	No	The examples presented in this paragraph reflect marketing uses of BDA, more so than underwriting uses, and should be revised.	Text updated.
179. Center for Economic Justice	USA	No	<p>We suggest the following edit to better reflect the topic of the paragraph - loss prevention partnerships between the insurer and the consumer.</p> <p>BDA creates the opportunity for insurers to engage in loss prevention partnerships with policyholders. BDA can enable insurers to notify customers in real time when certain behaviours or an activity they are planning or engaged in may give rise to risks that can be mitigated with insurance cover. As mentioned previously, an example would be an insurer using BDA applied to social media updates and location tracking to identify that a customer is about to go on holiday and might need travel insurance, or if they need enhancements to their travel insurance with specific coverage such as when the customer is looking to undertake more hazardous activities such as skiing or mountain climbing. BDA may also assist customers by providing solutions to help them better understand the size of their risk exposure and the amount of coverage that would be appropriate to cover that exposure.</p>	Text updated.
<b>Q88 Comment on Paragraph 70</b>				
180. Center for Economic Justice	USA	No	This paragraph describes the benefits of third party algorithms for calculating recommended coverage amounts, but fails to mention the downside - a lack of transparency and accountability of the algorithm to the consumer. If the algorithm is considered proprietary and all the consumer sees is the result, the lack of transparency reduces consumer understanding and the insurers' and third party vendors' accountability to the consumer.	Text updated.
<b>Q89 Comment on Paragraph 71</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
181. Global Federation of Insurance Associations	Global	No	The risk that consumers who do not want to share certain data or who do not have the means to share certain data could be uninsurable is speculative. Improved underwriting and rating sophistication has a history of enhancing the availability of affordable insurance.	Noted.
182. Institute of International Finance	Global	No	Paragraph 71 raises a concern that customers who do not have or want access to digital devices or do not wish to provide detailed personal data may become marginalized and excluded from insurance. We do not agree that this should be a significant concern. Insurers can and do serve customers who do not adopt technology, just as they can and do serve customers with a wide variety of risk profiles and needs.	Noted.
183. American Council of Life Insurers	U.S.	No	Reaching consumers where they are has always presented challenges to insurers. We would argue that online devices from computers to tablets to phones have greatly increased the accessibility of insurance for most people.	Text updated for better balance.
184. PCI	United States	No	We do not believe insurers are going to stop serving markets that are reluctant to provide personal data. The insurance industry has functioned adequately with anti-selection as a risk and it will continue to do so in the future. Also, the issue of customers not having access to digital devices may be partly answered by the ability of insurers to provide some type of tech solution (e.g. OBD plug-in) that would not be viewed by a regulator as a rebate or inducement. Again, competition among insurers to devise a method to rate these risks is the best and preferred solution. Regulators have the opportunity to promote competition for these risks rather than restricting the whole market.	Noted.
<b>Q90 Comment on Paragraph 72</b>				
185. Global Federation of Insurance Associations	Global	No	Coverage for low risk vulnerable populations should be a concern shared by supervisors and the industry. However, that issue should be distinguished from high-risk populations whether vulnerable or not. These may in fact be uninsurable for entirely legitimate reasons. Government then should decide how they are treated, but this should not undermine risk-based pricing, which is fundamental to the solvency and competitiveness of insurers.	Text updated for better balance.
186. General Insurance	Japan	No	In paragraphs 75 to 77, the effect of improving customers' behaviour by providing information on ways to reduce their risks is stated. These initiatives also contribute to solving affordability-related issues. Therefore, this point should also be mentioned.	See response to comment 185.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
Association of Japan			Also, the method to provide insurance to extremely high-risk and vulnerable groups, which private insurance companies cannot undertake, has been a long-standing issue regardless of BDA. Such issues should be subject to comprehensive policy discussions, including the possible involvement of government protection instead of private insurance. For example, as we commented on paragraph 62, Japan has two types of automobile insurance; mandatory (compulsory automobile liability insurance) and voluntary. While the premiums for the former are determined across the board, voluntary premiums are risk-based.	
187. NAMIC	United States	No	<p>Paragraph 72 suffers from the same infirmities as previously-described paragraphs above, in that it makes anti-consumer claims against the insurance industry and apparently pre-supposes a non-competitive market. Paragraph 72 appears critical of responsible underwriting and fails to point out its necessity for solvency and general prudential concerns. It also does not mention how residual market mechanisms, when properly priced, resolve the matter nor how data usage to date has improved availability.</p> <p>The IAIS seemingly conflates availability with suitable pricing and eligibility decisions by first referring to high risk customers becoming uninsurable. Excessive underwriting-restricted markets, particularly when combined with rate restrictions, have not fared well over the years, and have contributed to insolvencies or private market abandonment. On the other hand, insurers' use of data, like the use of credit data, has greatly reduced the number of policies in the auto residual/higher risk markets in the United States. Profitable growth is not anti-consumer and is indeed a factor increasing availability.</p>	See response to comment 185.
<b>Q91 Comment on Paragraph 73</b>				
188. Global Federation of Insurance Associations	Global	No	Although controversial in the insurance underwriting process, in some GFIA jurisdictions, genetic data has value for health and wellness initiatives. In such jurisdictions, genetic data can also help reduce the time and invasiveness of life insurance underwriting. It should be noted that some jurisdictions that restrict genetic data use for insurance purposes do so because of societal consensus. Insurers in those jurisdictions were part of those discussions and decisions.	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
189. Institute of International Finance	Global	No	Paragraph 73 appropriately recognizes some of the concerns related to the use of genetic data by insurers. We encourage the IAIS to balance these concerns with a discussion of emerging best practices that impose strict controls on, and oversight of, the use of genetic data. We would revise the third and fourth sentences of this Paragraph to state, "Supervisors should advise insurers to proceed with due care in their use of genetic data and probabilistic models, in light of concerns about potential bias and uninsurability. In some jurisdictions, legislation restricts the use of genetic and related data for insurance purposes."	Text updated.
190. American Council of Life Insurers	U.S.	No	<p>We believe this paragraph should be removed. It is highly problematic and makes assertions that are inaccurate and unsupported. Further, we question the inclusion of genetic testing in a conversation about big data analytics.</p> <p>With respect to life insurance, only a very few conditions are underwritten on the basis of genetic data, and that is because, with certain diseases, there is a strong correlation between an individual's genetic profile and the likelihood that he/she will develop that condition (also known as "penetrance"). However, overall, genetic data is one factor of many that insurers review to assess an applicant's risk and determine appropriate coverage. (Most common diseases, like heart disease, are multifactorial.) Further, often genetic test results will confirm what is already known or has already been provided by the applicant in his/her family history information, which medical professionals provide to life insurers during the application process.</p> <p>It is also important to note that genetic testing can positively affect consumers. Positive results can lead to better insurance rates. More broadly, genetic data can positively influence lifestyle behavior and health outcomes, encouraging individuals to curb or give up unhealthy habits or begin taking proactive measures to reduce risk to certain predispositions.</p>	Disagree. The use of genetic data in insurance is an important issue for IAIS members, specifically in respect of the ethics of such use in certain circumstances. The examples provided clearly illustrate this.
<b>Q92 General comments on Section 3.3: Claims handling</b>				
<b>Q93 General comments on Section 3.3.1: Risk mitigation and loss reduction</b>				
<b>Q94 Comment on Paragraph 74</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
191. Center for Economic Justice	USA	No	This paragraph refers to post-sale nudges. BDA makes possible the design of products with the specific purpose of loss prevention partnerships between the policyholder and insurer. The post-sale nudges are only possible because of the product design and related pricing.	Noted. The point being highlighted here is the potential impact of BDA use in product design and pricing on other elements of the product lifecycle such as claims handling. The benefits (and risks) of BDA usage described in the paper should also be considered from a more overarching perspective, ie recognising the value of BDA in "connecting the dots" between the various elements of the lifecycle.
<b>Q95 Comment on Paragraph 75</b>				
192. Center for Economic Justice	USA	No	<p>We suggest the following edits to better reflect the diversity of insurer telematics programs.</p> <p>While insurers are known to rely predominantly on historical data for actuarial calculation and risk modelling purposes, they are now able to rely on data sources that are real time or even forward-looking. For example, "smart drivers" continuously produce data while they are driving. These data can be utilized like other traditional historical data to develop pricing algorithms that predict claims costs based on driving behavior and then assign a premium to the driver based on their historical driving behavior. But BDA also enables the creation of real-time loss prevention partnerships in which the policyholder's driving behavior is monitored and is given feedback in real time to avoid risky practices. While better driving behavior can be rewarded with both approaches, the second approach is a more engaged loss prevention program.</p>	Text updated, with some of the proposed edits included.
<b>Q96 Comment on Paragraph 76</b>				
193. Center for Economic Justice	USA	No	<p>We suggest the following edits to better reflect the operation of loss prevention partnerships.</p> <p>The monitoring and analysis of data from IoT sources such as sensors and other</p>	Text updated, with some of the proposed edits included.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			connected devices in homes and businesses, coupled with programs to alert consumers to risky situations creates proactive loss prevention and that may result in reductions in the frequency and severity of claims and associated claim costs. Consumers may benefit from lower premium costs resulting from the lower risk they now present.	
<b>Q97 Comment on Paragraph 77</b>				
<b>Q98 General comments on Section 3.3.2: Claims processing</b>				
<b>Q99 Comment on Paragraph 78</b>				
<b>Q100 Comment on Paragraph 79</b>				
194. Center for Economic Justice	USA	No	<p>We suggest the following edits to better reflect the benefits and concerns of BDA in claims settlement:</p> <p>The use of BDA can also allow insurers to calculate and produce claims pay outs more quickly but issues of transparency and reliability and fairness of the claims settlement algorithms exist.</p> <p>Another good example of BDA speeding up the claims process is found with travel insurance. In China, travel insurers monitor flights and automatically pay travel-delay or travel interruption claims without the consumer having to file a claim.</p> <p>In the UK example, the parametric "insurance" payment is described as a "legitimate" claim. The terms "legitimate" and "claim" are misused. Parametric "insurance" is a wager, since the payout is tied to an index and not to actual damage. There is no issue of "legitimacy," since the payment is made based on meeting the index or not. In fact, it is not legitimate to describe payment under parametric insurance as a "claim," since there is no demonstration of damage required. The "drawback" to parametric "insurance" described in the paragraph is, in fact, a product feature and, consequently cannot be described as a "drawback." This product feature calls into question whether parametric "insurance" is, in fact, insurance or simply a wager. Finally, parametric "insurance" predates BDA. While</p>	<p>Text updated to reflect this point.</p> <p>Noted.</p> <p>Agree. Text updated.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			BDA may make some new types of parametric wagering possible, the example given does not require BDA but only requires weather data.	
195. National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	In the box after paragraph 79, as the last paragraph is a broader point that may be relevant beyond the UK example, suggest moving this sentence up to para 79: "...friction for the customer. However, a potential drawback..."	Text has been deleted. See comment 194.
<b>Q101 Comment on Paragraph 80</b>				
196. Center for Economic Justice	USA	No	The second sentence does not follow from the first. Insurers have always escalated controversial or complex claims. The issue with claim settlement algorithms scoring claims is that the algorithms may reflect and perpetuate historical bias in claim settlement. Insurers may use historical insights generated by BDA to determine which claims are more likely to result in disputes or litigation and respond accordingly. However, the use of algorithms for assessing claims as suspicious or likely to result in litigation may reflect and perpetuate historic biases in claims settlement practices and data.	Text updated to reflect this point.
<b>Q102 Comment on Paragraph 81</b>				
197. Global Federation of Insurance Associations	Global	No	Paragraphs 81-82. It should be emphasised that companies should not over-rely on settlement models and should always have the capability to review individual circumstances. In addition, most jurisdictions have comprehensive prudential and market conduct regulations that place governance requirements on insurers to mitigate against the risk of under-reserving or improperly handling claims. Insurers also have enterprise risk management programs and actuarial approvals. They also tend not to rely on a single model for making underwriting and claims decisions.	Noted.
198. General Insurance Association of Japan	Japan	No	While the risks described in this paragraph are understandable, stating that they "could lead to financial stability issues" seems to be a leap in logic. This should only be stated after clarifying facts, such as the transmission channels of risks. These wordings should be deleted from this IP.	Text updated.
199. American Council of Life Insurers	U.S.	No	Insurers exercise due diligence in their claims decisions and are governed by regulations and review processes that address appropriate reserve levels.	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
200. NAMIC	United States	No	<p>Paragraphs 81-83 create a list of negative consequences that the authors allege may arise or increase due to the use of "big data" in claim handling. It is precisely those outcomes which would lead insurers to not adopt such policies as stated. It is not a good business model or practice to entertain such thoughts on a systemic basis. This paragraph doesn't point to any evidence of this concern being adopted. Ascertainment of litigation exposure for any entity occurs on many levels throughout the process regardless of BDA. There are sufficient regulatory or supervisory structural frameworks in place to address such concerns prior to the current concept of BDA.</p> <p>The paragraph, as well as 82 &amp; 83, does not address or accept the large body of regulatory laws such as unfair claims settlement practices acts which require individual consideration of each claim with appropriate investigation among other avenues insurers must comply. The paper fails to acknowledge the overarching framework that creates the reality that insurers are already one of the most highly regulated industries in operation.</p>	Text updated.
201. Center for Economic Justice	USA	No	<p>This paragraph includes highly speculative claims and throws the "kitchen sink" at the potential for an inaccurate claim settlement. If there is an example of a "specialized" claim at risk of incorrect settlement due to a "generic" claim settlement model, please provide it. Otherwise, the paragraph seems hyperbolic and describes harms that can be associated with any regime of bad claim settlement practices regardless of the cause. The immediate risk of BDA for claim settlement is reflection and perpetuation of historic bias in claim settlement practices and outcomes. The danger to insurer solvency resulting from bad models and algorithms is a function of two things - the use of data not produced or supervised by the insurer and the application of the model to thousands or millions of transactions. If there is a mistake in an algorithm, that error can be transmitted far more quickly and broadly than if a human makes an error.</p>	Text updated.
<b>Q103 Comment on Paragraph 82</b>				
202. World Federation of Insurance Intermediaries	Belgium	No	<p>WFII's comment: Intermediaries assist their clients with claims settlement and should have a good insight in the application of the BDA. They need full transparency of the claims decision making process.</p>	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
203. American Council of Life Insurers	U.S.	No	We believe the use of BDA could potentially reduce systematic issues because many data points are taken into consideration, which reduces the likelihood that any one piece of information will drive a negative outcome.	Text deleted.
204. NAMIC	United States	No	There is simply no evidence contained in the paper that this is a practice or that BDA enhances denial of claims in an illegal or improper fashion. Claims and potentially resulting litigation are traditionally an adversarial process. As mentioned, competition, reputational risk, regulatory risk, and litigation risk, to name a few, all should be discussed as impetus why insurers generally would not engage in such conduct.	Text updated.
<b>Q104 Comment on Paragraph 83</b>				
205. Global Federation of Insurance Associations	Global	No	<p>Insurers are contractually required to indemnify the customer for his/her actual loss. There are also laws and regulations in many jurisdictions that require fair treatment of claimants. Accordingly, GFIA knows of no evidence to support this suspicion.</p> <p>This paragraph implies that claims optimisation of this nature is practiced and is a real risk facing consumers. Yet the statement "It is currently unclear how widespread that practice is" indicates that this practice could be nothing more than the actions of a rogue insurer or a simple fear. The IAIS should reconsider including this paragraph in the issues paper because it can hurt the insurance industry's reputation and because there is no evidence to support claims optimisation of this nature being a market practice.</p>	Text updated.
206. American Council of Life Insurers	U.S.	No	U.S. life insurers are required by contract and/or law to provide the coverage/payments as set forth in the policy. There is no evidence that the use of BDA will adversely affect consumers. The use of BDA will likely benefit consumers in certain ways, for example, through faster payments.	Noted.
207. NAMIC	United States	No	Inflammatory statement without any evidence of support. Please see prior response to Paragraph 81 and 82.	See response to comment 205.
208. National Association of Insurance	USA, NAIC	No	Footnote 38, should be "22 March 2018"	Corrected.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
Commissioners (NAIC)				
<b>Q105 General comments on Section 3.3.3: Fraud detection</b>				
209. NAMIC	United States	No	See general comments on the draft issues paper.	See response to comment 8.
210. Center for Economic Justice	USA	No	<p>It is unclear what purpose is served by providing the various estimates of the amount of fraud. The estimates are highly speculative and likely not based on a consistent approach. Further, the dollar amounts cited have no bearing on the consumer protection or supervisory oversight issues of anti-fraud BDA. Paragraph 84 and the examples should be deleted</p> <p>The discussion of BDA in fraud cites only potential benefits. Anti-fraud efforts and claims settlement is the life cycle phase most susceptible to biased algorithms because the algorithms must be based on historical claims data. Historical claims identified as suspicious are likely to reflect the bias anti-fraud examiners and reflect the areas of fraud investigation. A claim is far more likely to be categorized as a fraudulent claim if the claim was investigated than if it was not, so anti-fraud algorithms will be a particularly severe example of algorithms inheriting and passing along historical bias.</p>	<p>Disagree. All the figures cited are appropriately referenced and researched, and are useful to estimate generally the value of more effective fraud detection tools to the insurance sector.</p> <p>The risk of bias in the use of algorithms is well highlighted several times in the paper and is relevant across the insurance product lifecycle, including claims settlement and anti-fraud efforts.</p>
<b>Q106 Comment on Paragraph 84</b>				
211. Center for Economic Justice	USA	No	See comment on Q105.	See response to comment 210.
<b>Q107 Comment on Paragraph 85</b>				
<b>Q108 Comment on Paragraph 86</b>				
<b>Q109 Comment on Paragraph 87</b>				
<b>Q110 Comment on Paragraph 88</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
<b>Q111 General comments on Section 4: Supervisory considerations</b>				
212. World Federation of Insurance Intermediaries	Belgium	No	<p>WFII's comment:</p> <p>We believe it would be helpful to highlight some of the supervisory considerations related to telematics. The very important questions related to consent to obtain telematics data and the ownership of such data are largely avoided in the paper. In addition, the paper should also highlight the potential significance of data portability and standardization. Many have argued that consumers should have ownership of and/or access to their specific telematics data and be able to share it with different insurers. If portability and standardization do not exist, then consumers could become trapped with their existing insurers and unable to obtain competitive quotes elsewhere. Greater standardization and portability also have positive competitive effects and could help ensure that insurers of all sizes have similar opportunities to access telematics data that has been collected.</p>	The issue of consent has not been avoided in the paper. See updated text in section 4.4 further highlighting data protection and data ownership issues.
213. Institute of International Finance	Global	No	<p>ICP 19, Conduct of Business, provides extensive guidance to supervisors in their development of standards that require insurers to treat customers fairly. This guidance applies equally to the supervision of the use of BDA by insurers. The IAIS should review ICP 19 and other ICPs related to the fair treatment of customers to determine if there are any gaps that need to be addressed in order to reflect the use of BDA by insurers. New principles and guidance should be proposed only in the event that there are material gaps in existing supervisory materials.</p> <p>The IAIS should consider further coordination with global standard setters, particularly those with a cross-sectoral mandate to address data privacy and data protection, in order to align insurance principles and guidance where appropriate. These standard setters would include, at the global level, the Organization for Economic Cooperation and Development (OECD).</p> <p>Coordination with global standard setters can promote a level playing field among market participants engaging in the same or similar activities and can avoid regulatory and market fragmentation. However, while alignment and coordination generally should be a goal of standard setters, there are situations in which different principles and guidance are appropriate for different sectors. The IAIS should</p>	<p>Noted. This is an Issues Paper and does not purport to introduce new supervisory principles but rather highlights BDA-related issues for supervisors to consider in their efforts to ensure observance of ICPs 18 and 19. This is alluded to several times in the paper.</p> <p>See responses to comment 3.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			carefully consider whether, and to what extent, global principles and guidance reflect the insurance business model and practices and make adaptations as appropriate.	
214. American Council of Life Insurers	U.S.	No	<p>ACLI does not believe additional supervisory oversight is needed with respect to BDA. We believe supervisors are already adequately equipped to assess insurers' use of big data analytics and as/if necessary, to put in place guardrails.</p> <p>Supervisors should continue to enforce the staunch laws and regulations under which insurers already operate, while working to facilitate thoughtful insurance innovation that benefits consumers.</p> <p>Supervisors and insurers should actively communicate throughout the implementation of new processes so that supervisors are appropriately informed of and confident in the processes being used. And if issues arise, insurers and supervisors will have a shared understanding from which to work.</p>	Noted.
<b>Q112 Comment on Paragraph 89</b>				
215. World Federation of Insurance Intermediaries	Belgium	No	<p>WFII's suggestion: The OECD - Insurance and Private Pensions Committee organized in June 2019 a Roundtable on Big Data in the Insurance sector, which complemented the Roundtable that was held on AI in Insurance in December 2018. The Committee is keen to develop work to better understand these developments, and will be publishing a Report on Big Data and AI in the second half of 2019. Perhaps this could be mentioned in this Issues paper.</p> <p>The Dutch Bank published in 2019 General principles for the use of Artificial Intelligence in the financial sector. This could also be mentioned.</p>	<p>The IAIS will continue to monitor, and contribute to, the OECD work as it progresses.</p> <p>Reference to DNB principles on AI included.</p>
216. Global Federation of Insurance Associations	Global	No	As mentioned, most jurisdictions already have comprehensive data use and privacy laws. Similarly, most insurance supervisors have comprehensive regulations governing insurer underwriting and claims practices that would apply to BDA. To avoid duplicative or contradictory regulation, GFIA advises that prior to the IAIS releasing its supervisory guidance on BDA, it document the main laws and regulations across the world. This way, any subsequent IAIS guidance on BDA would complement the existing laws and regulations which GFIA views as robust.	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			The IAIS should also emphasise that upfront and ongoing dialogue between supervisors and companies is the best way to assure the benefits of innovation and provide supervisors with the confidence they need in the application of BDA. Finally, it should be noted that disclosure mandates on insurers should differ depending on whether the recipient is the supervisor or the recipient is the consumer.	
217. NAMIC	United States	No	While supervisors may review the paper for development of "appropriate and proportionate responses to rapid advancements in BDA," care should be taken not to overreact or precipitously accept without further evidence of activity being utilized with nefarious intent. Creation of a framework in addition to that which already exists should be carefully tailored to address known and specified harms without unduly or over-prescriptively creating unnecessary barriers or burdens. It generally is the intention of all parties that the consumer receive a fair outcome. However, a "fair outcome" must be defined because it can mean many different things to many different stakeholders. Fair may not equate to what the consumer perceives it to be despite the same being a legitimate outcome.	Noted.
<b>Q113 Comment on Paragraph 90</b>				
218. Center for Economic Justice	USA	No	<p>We suggest that there is a clear set of consumer protection and supervisory oversight issues with BDA regardless of the phase of the life-cycle the BDA is employed. See our general comments. This paragraph suggests that supervisory oversight requires an ad hoc approach and we strongly disagree.</p> <p>The fairness outcomes envisaged in ICPs 18 and 19 must be achieved irrespective of the adoption of new technologies or other innovations by insurers, including the use of BDA. While there are a variety of approaches taken by or being considered by jurisdictions to address concerns with insurers' use of BDA, there are categories of consumer protection concerns, including:</p> <ul style="list-style-type: none"> <li>- Deviation from Cost-Based Pricing and Claims Settlement</li> <li>- Appropriate Uses of Data</li> <li>- Data Quality/Reliability/Credibility/Bias</li> <li>- Algorithm Bias/Unfair Discrimination/Exclusion</li> <li>- Data and Algorithm Transparency</li> <li>- Data and Algorithm Accountability</li> <li>- Algorithm Producing Intended Outcomes</li> </ul>	<p>Disagree. The paragraph does not suggest an ad hoc approach to supervisory oversight. Instead it emphasises the importance of a proportionate and risk-based supervisory approach when considering the potential impact of technological innovation, including the use of BDA, on fair customer outcomes.</p> <p>The categorisation of fair customer outcomes / principles for consumer protection relevant for this paper remains ICP 19.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			<ul style="list-style-type: none"> <li>- Consistent with Legal Standards and Public Policy</li> <li>- Digital Rights of Consumers</li> <li>- Antitrust and Competition Issues Posed by Third Party Vendors of Data and Algorithms</li> </ul>	
<b>Q114 Comment on Paragraph 91</b>				
<b>Q115 General comments on Section 4.1: Suitability, affordability and availability of insurance cover</b>				
<b>Q116 Comment on Paragraph 92</b>				
<b>Q117 Comment on Paragraph 93</b>				
219. Global Federation of Insurance Associations	Global	No	Consumers want products and prices tailored to their needs. By insurers meeting these needs, consumers will have more confidence in the market. The potential consequences to a relatively few very high-risk customers will not hurt overall consumer confidence.	Noted.
220. NAMIC	United States	No	Unfair or illegal discrimination is already a concept within regulatory frameworks. Definitional, regulatory, and legal parameters must be clearly and precisely determined and noticed to industry. The insurance industry is highly adept at conforming its activities to the requirements of a jurisdiction where possible. However, regulatory overreach or undefined concepts that incur penalization without notice should not be encouraged. Consumers want products priced by risk and generally resist subsidization of those who do not operate within societal parameters or demonstrated risk profiles.	Noted.
221. PCI	United States	No	APCIA has a concern that this paragraph is introducing an element of causality between a factor and risk of loss. Insurers must demonstrate correlation as opposed to causation.	Noted.
<b>Q118 Comment on Paragraph 94</b>				
222. Global Federation of	Global	No	History shows that granular customisation has led to the same or more product and pricing choices for consumers.	Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
Insurance Associations				
223. American Council of Life Insurers	U.S.	No	We suggest removing this paragraph as it seems to go beyond the scope of BDA.	Text updated.
224. PCI	United States	No	The IAIS should consider the impact robust anti-trust, data aggregation and sharing laws may have in alleviating some of the concerns raised by this paragraph.	See response to comment 9 on references to competition issues in the paper.
225. Center for Economic Justice	USA	No	This paragraph combines a number of issues and may be confusing in the discussion of network effects. Network effect refers to a product or service whose value changes based on the number of people using the product. The potential of BDA resulting in fewer consumer choices is not a result of network effect, but of algorithms limiting consumer options and/or channeling consumers to selected options instead of providing all available options. A separate issue is that of consumers' digital rights - whether insurers can monetize consumers' data generated as part of an insurance transaction (including, for example, telematics data or claims data or customer interaction data) by selling the data or profiles generated from the data to third parties. And yet another separate issue is the market power of large network platforms. We support a more robust discussion of anti-competition issues in the paper, including potential antitrust and collusion of third party vendors of data and algorithms, the potential for exclusion and conflicts of interest in price comparison sites and the danger of major network platforms like Google or Facebook or Amazon entering the business of insurance. We suggest that the issues in this paragraph be more clearly delineated from one another, perhaps in separate paragraphs.	See response to comment 9 on references to competition issues in the paper.  Text updated.  See response to comment 1 on entry of BigTechs to the insurance market.
<b>Q119 Comment on Paragraph 95</b>				
<b>Q120 Comment on Paragraph 96</b>				
226. General Insurance Association of Japan	Japan	No	We would like a more detailed explanation on what is meant by "back-testing".  Also, the terms of service regarding customer data and the establishment of governance to protect data are required in Japan. Additionally, there are cases	Text deleted and replaced with "assess".  Noted.

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			where the validation of algorithms (e.g. verifying accidents against data, setting a threshold of each risk element) is required within the product approval process, or within usual supervision parameters. Moreover, in order to help ensure that the consumer's needs are met, Japanese insurers reconfirm consumer intention at the time of contract conclusion. In these cases, assessing the effectiveness of advice based on BDA insights and the suitability of products offered to customers is unnecessary.	
227. Center for Economic Justice	USA	No	<p>The text of the paragraph discusses data collection by supervisors to evaluate whether the promised outcomes of insurers' use of BDA has, in fact, resulted in those consumer outcomes. We strongly support the discussion of this issue. However, we suggest that the France example do not seem to be related to the issue raised in the paragraph. The France example does not discuss supervisor testing of BDA outcomes but, rather, discusses a concern about insurers' use of prohibited data.</p> <p>We would also suggest examples from the U.S. The California Department of Insurance recently performed a study of auto insurance discounts based on membership in an "affinity" group and found broad disparities in the availability of those discounts across different racial communities</p>	<p>Agree. Example has been moved to earlier paragraph.</p> <p>Noted. Examples in the paper are sufficient to illustrate the point of the paragraph.</p>
<b>Q121 General comments on Section 4.2: Governance and oversight of algorithms</b>				
228. Institute of International Finance	Global	No	<p>BDA models, like other models used by insurers, are subjected to rigorous model risk governance and independent testing and validation policies and processes throughout the life of the model. Insurers subject key model assumptions and model output to independent human expert oversight, review and control to prevent overconfidence in model solutions. Insurers can use a range of techniques in order to help detect and address potential sources of model bias or error, including challenger or benchmark algorithms and models and the use of different datasets for training, testing and validation. When models are less explainable, additional processes are considered to assure that results can be meaningfully interpreted. Centralized data lakes, warehouses and inventories can help track data and improve data quality. Documentation and an audit trail can facilitate good model governance and provide for management accountability.</p> <p>The IAIS should elaborate on the suggestion in Paragraph 100 that supervisors may</p>	<p>Noted.</p> <p>See response to comment 3.</p>

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
			wish to conduct (either directly or through the use of independent third-party audit and validation parties) sample verification and integrity checks on the algorithm process as well as the outcome of the process in ensuring fair customer outcomes. If the IAIS determines to adopt such a suggestion, we would value additional discussion on the criteria for determining the parties capable of performing such analyses, as the state of the art in BDA and modeling is dynamic and expertise is limited.	
229. American Council of Life Insurers	U.S.	No	<p>We do not believe additional supervision or new laws or regulations are needed at this time to address BDA. Instead of regulating the tool, the focus should continue to be on the outcome, general approach, and associated professional standards (e.g., U.S. actuarial standards of practice). As noted earlier, the innovations discussed in the paper are natural extensions of traditional methods and are still subject to the same professional standards and oversight of traditional methods.</p> <p>Supervisors and insurers should actively communicate throughout the implementation of new processes so that supervisors are adequately informed of and confident in the processes being used. And if issues arise, insurers and supervisors will have a shared understanding from which to work.</p>	Noted.
230. Anonymous	Anonymous	Yes	<p>We believe that section 4.2 on governance and oversight of algorithms should include considerations around maintaining the confidentiality of an insurer's algorithms and any other proprietary information. We agree with the considerations in paragraph 98 that governance of algorithms should consider the simplicity, clarity, and adequacy of communication and disclosures to customers. However, any disclosures of information on algorithms should not negatively affect an insurer by forcing them to disclose proprietary information about their algorithms that could significantly reduce or eliminate the competitive advantage created by the algorithms.</p> <p>We suggest that the IAIS should add further discussion to section 4.2 on balancing the needs of consumers with protecting the intellectual property of insurers. By providing insurers with safeguards around the confidentiality of their algorithms and other proprietary processes, jurisdictions will continue to foster innovation in insurers' ability to reach the underinsured community.</p>	<p>Noted.</p> <p>Text added to end of section.</p>
<b>Q122 Comment on Paragraph 97</b>				

Organisation	Jurisdiction	Confidential	Answer	Resolution of comments
231. Global Federation of Insurance Associations	Global	No	<p>Paragraphs 97-100. GFIA takes the view that existing governance standards are sufficient to assure good governance of the use of BDA. Premature intervention could hamper innovation and impair the effectiveness of the insurance market and could quickly become unfit for purpose due to technological advances and market developments. Regulators and supervisors should ensure that existing rules are fully implemented and enforced. Supervisors should continue their efforts to monitor the impact of the use of big data on markets and consumers, and work together with stakeholders, including the insurance industry, to support innovation that benefits consumers.</p> <p>To the extent there are new concerns, supervisors should engage in ongoing dialogue between supervisors and companies as the best approach, not new governance standards or more intrusive supervision.</p>	See response to comment 230.
<b>Q123 Comment on Paragraph 98</b>				
232. World Federation of Insurance Intermediaries	Belgium	No	<p>The simplicity, clarity and adequacy of communication and disclosures to customers in respect of the intended operation of algorithms, how their data will be used and any associated risks and avenues for recourse may also be important considerations.</p> <p>WFII's comment:</p> <p>This paragraph should stress the importance of transparency and making sure that consumers and intermediaries are clearly informed of how data sources (especially non-traditional data) are used and the rights that consumers have with respect to such data. At a minimum, we recommend revising the sentence to indicate that these issues "will" be important considerations.</p>	Text updated with "will".
<b>Q124 Comment on Paragraph 99</b>				
233. General Insurance Association of Japan	Japan	No	As we commented on paragraph 1, it is unrealistic for supervisors to thoroughly monitor algorithms, considering its complexity. In addition, consistency with frameworks in each jurisdiction (e.g. how mandatory insurance works within them) and existing supervisory requirements on premium ratings should also be taken into account.	Noted.

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			<p>For example, the terms of service regarding customer data and the establishment of governance to protect data are required in Japan. Additionally, there are cases where the validation of algorithms (e.g. verifying accidents against data, setting a threshold for each risk element) is required within the product approval process, or within usual supervision parameters. In these cases, we think it is unnecessary for products using BDA to be subject to double supervision at the operation stage, which is not applied to other products, just because they use BDA.</p> <p>Also, the perspectives to be considered should be built on dialogues between supervisors and insurers in each jurisdiction, and any prescriptive descriptions about algorithms should be avoided at this stage given that innovation using algorithms is also expected to lead to benefits for customers.</p> <p>In addition, the examples in the third and subsequent bullet points should be deleted, since these statements could lead supervisory methods in certain directions that could impede insurer innovation.</p>	Text deleted.
234. NAMIC	United States	No	<p>The supervisory section of the paper addresses the IAIS's various concerns in terms of possible oversight. Care should be taken in attempting to implement proscribed oversight that the suggested actions are not precipitous, overly-prescriptive, unwarranted, require inordinate compliance concepts, injects too many unnecessary third parties into the matter, and otherwise requires excessive compliance. Supervisors are entitled to a baseline understanding of insurer usage and further dialogue is always encouraged where concerns or questions arise. Responses should be along a demonstrated continuum of concern and frameworks should be clearly noticed in legal and regulatory pronouncements. Existing laws provide ample protection against illegal and unfair discrimination as appropriately defined, for instance, in the states' insurance codes. Under actuarial standards and principles, there is no room for the alleged bias that seems to preoccupy the IAIS since the objective is to match the price to the risk.</p>	Noted.
235. PCI	United States	No	<p>We believe it would be constructive for the IAIS to explore in greater detail who qualifies as an external "expert" Could they also be internal experts. Although the circumstances are likely to change over time, we currently find that the existence of external "experts" to perform the tasks referenced here is minimum.</p> <p>We also recommend replacing "unnecessary" with "unsupported. Unnecessary is vague whereas "unsupported" gets at the notion that information cannot be justified</p>	See response to comment 233.

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			<p>actuarially but allows the insurer to demonstrate what might appear unusual actually has support and belongs in the model.</p> <p>Finally, this paragraph suggests that the regulator should eliminate variables that are unnecessary. Depending on the jurisdiction a legislative body rather than a regulator should determine the variables to be eliminated. The paragraph would benefit from also recognizing that the more sources that an insurer uses could mitigate gaps in individual data sources and lead to more accurate risk assessment.</p>	
<b>Q125 Comment on Paragraph 100</b>				
236. Institute of International Finance	Global	No	<p>The IAIS should elaborate on the suggestion in Paragraph 100 that supervisors may wish to conduct (either directly or through the use of independent third-party audit and validation parties) sample verification and integrity checks on the algorithm process as well as the outcome of the process in ensuring fair customer outcomes. If the IAIS determines to adopt such a suggestion, we would value additional discussion on the criteria for determining the parties capable of performing such analyses, as the state of the art in BDA and modeling is dynamic and expertise is limited.</p>	See response to comment 3.
237. General Insurance Association of Japan	Japan	No	<p>As we commented on paragraph 1, it is unrealistic for supervisors to thoroughly monitor algorithms considering its complexity., We think that instead of checking the details of insurers' algorithms themselves, focusing on how insurers ensure the appropriateness and rationality of outcomes is a more realistic way.</p> <p>If verification of algorithm processes are to be conducted, "sample verifications" and "integrity checks" should be described only as examples because other possible alternative methods are available.</p> <p>Moreover, as we stated in the beginning, consistency with frameworks for insurance systems in each jurisdiction and existing supervisory requirements on premium ratings should also be taken into account. In jurisdictions such as Japan where the effectiveness of an algorithm is already validated in the product approval process, supervising the design of algorithms for products that have already been approved may result in double supervision and verification, and should be avoided.</p> <p>We believe that a more detailed explanation on what "Traceability" and "Mechanism" mean in this context of the EU example would be helpful for readers.</p>	<p>This is covered in the previous paragraph. The current paragraph highlights an additional consideration in more complex applications.</p> <p>Text updated.</p>

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238. NAMIC	United States	No	Supervisors should be encouraged to discuss with insurers any concerns they have with algorithms or other questions as to any products or filings.	This is covered by the additional paragraph included at the end of the section.
<b>Q126 General comments on Section 4.3: Third party risk management</b>				
<b>Q127 Comment on Paragraph 101</b>				
239. American Council of Life Insurers	U.S.	No	Some data has always been shared with third parties, like reinsurers. In the U.S., a number of laws and regulations already govern data security and consumer privacy with respect to third parties. Some of these include the NAIC Insurance Information and Privacy Protection Model Act (#670), the NAIC Privacy of Consumer Financial and Health Information Regulation (#672), the NAIC Insurance Data Security Model Law (#668), HIPPA, and the Fair Credit Reporting Act (FCRA).	It is beyond the scope of the paper to specify the various privacy-related laws and regulations in different jurisdictions. Also see responses to comments 3 and 25.
<b>Q128 Comment on Paragraph 102</b>				
240. World Federation of Insurance Intermediaries	Belgium	No	WFII's comment: Regulators should require that any legal obligations on the part of insurers with respect to the use of data and privacy should be automatically extended to contracted third party providers. Financial service organizations need to be accountable for the third party providers they work with. Third-party providers should not be used as a loophole or a way to avoid the legal obligations of the primary financial service provider.	Noted.
241. General Insurance Association of Japan	Japan	No	We do not think supervisors need to set any BDA-specific supervisory frameworks because they can address this within a supervisory framework for third parties.	Noted.
242. American Council of Life Insurers	U.S.	No	U.S. insurers already follow current professional guidance that outlines how to handle data and models developed by others (e.g., U.S. Actuarial Standard of Practice No. 23 on Data Quality).	Noted.
<b>Q129 Comment on Paragraph 103</b>				
<b>Q130 General comments on Section 4.4: Issues around privacy, ownership and sources of data</b>				

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<b>Q131 Comment on Paragraph 104</b>				
243. World Federation of Insurance Intermediaries	Belgium	No	WFII's comment: These issues can have an impact on intermediaries as well, if data of the clients are not shared with them. We believe the data belong to the customer and that the intermediaries who provide services to the customer should have full access to these data, with the consent of the owner.	Noted. As mentioned in the paper references to insurers include intermediaries depending on their role and responsibilities in the insurance value chain.
<b>Q132 Comment on Paragraph 105</b>				
244. World Federation of Insurance Intermediaries	Belgium	No	Although privacy protection issues, in most jurisdictions, do not fall within the scope of responsibility of the insurance supervisor but are instead left to a dedicated data protection agency, insurers and insurance supervisors need to be mindful of the privacy related implications of customer data usage  WFII's comment: Indeed , the Data Protection Supervisory Authorities supervise the correct use of personal data. The Data Protection Supervisory Authority and the Insurance Supervisory Authority should cooperate.	Noted. This is covered in the last paragraph of the section.
245. National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	For better readability, suggest: "In most jurisdictions, the insurance supervisor is not responsible for privacy protection issues but rather a dedicated privacy protection authority; however, insurers and insurance supervisors..."	Text updated.
<b>Q133 Comment on Paragraph 106</b>				
246. World Federation of Insurance Intermediaries	Belgium	No	WFII's comment: Same comment as above, we believe the data belong to the customer and that the intermediaries and other insurers should have full access to these data, with the consent/upon request of the owner. This broad access is necessary to provide the customer with a competitive offer.	See response to comment 243.
247. Global Federation of	Global	No	If insurers do not own the data, regardless of who does, insurers should have access to the data with the driver's consent for underwriting, claims, fraud fighting and	Agree. The paragraph does not suggest otherwise.

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Insurance Associations			marketing, as all of these functions are necessary to insurance and legally permissible.	
248. Institute of International Finance	Global	No	The IAIS correctly observes in Paragraph 106 that legal questions related to the ownership of data may arise when data is received from insureds or third parties. We suggest that, instead of attempting to resolve the significant legal complexities around data ownership (the treatment of which varies across jurisdictions), the IAIS may wish to focus supervisors on whether insurers (and others in the insurance value chain) have received the right to use customer data in accordance with jurisdictional requirements and are using that data in a manner consistent with the fair treatment of customers.	Text updated.
249. General Insurance Association of Japan	Japan	No	Although we understand that inappropriate use of data could result in mistrust of the insurance sector as a whole, we believe that the data collected directly from customers by insurers is done with the customers' prior consent. This is also required in terms of privacy protection in many jurisdictions. For example, in Japan the Protection of Personal Information Act is in force, and we, the GIAJ, also publish Personal Information Protection Guidelines to encourage member insurers to protect personal information. We think that the above-mentioned points should be referred to in the IP.	See response to comment 248.
250. NAMIC	United States	No	If insurers do not own the data, they will need access to the data for appropriate operations. This concept continues to evolve. For some jurisdictions to regulate insurers market conduct, retention of data is required. Supervisors will need to clearly define what is expected of insurers so that insurers do not run afoul of regulatory concepts that conflict with privacy laws for instance. Certain protections should not hinder legitimate usage of information such as for fraud detection as an example.	Noted.
251. PCI	United States	No	This paragraph tries to define ownership, but ownership of data, especially in situations where multiple parties are involved, has significant legal complexities. Rather than define data ownership, the focus should be on ensuring access to data by obtaining the appropriate rights, where applicable. When information is not owned by the insurer, the insurer should have access and the laws/guidance/regulations should be clear and workable as to how to obtain access to that data.	Disagree that the paragraph tries to define ownership. It rather highlights that disputes relating to ownership could arise as a result of insurers using certain types of data.  Also see response to comment 248.

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<b>Q134 Comment on Paragraph 107</b>				
252. World Federation of Insurance Intermediaries	Belgium	No	<p>WFII's comment:</p> <p>We wonder if data derived from social media, where there is no obligation to tell the truth, are reliable enough to be used as a data source for any BDA application.</p> <p>Additional examples that may be relevant for the paper.</p> <p>- An example of a digital broker Cheep Insurance is a 100% online brokerage in Atlantic Canada. It was founded in 2016 by two partners from established traditional brokerages, who had a vision for a convenient online platform for selling insurance. Their business model aims to simplify the process of buying car, home, and tenant insurance through online quoting, eSignatures, and a mobile app. Operating solely with a digital storefront, Cheep allows consumers to easily compare quotes and purchase coverage over the phone with a licensed insurance broker. Signatures are captured electronically using a mobile phone's touch screen. From start to finish, the quote and bind process may take as little as 15 minutes. Once purchased, clients have access to a number of self-service tools to carry out policy changes and file claims. Cheep also offers digital proof of auto insurance slips that customers store in their mobile wallets, avoiding the worry of misplacing a physical document. The added convenience provided by Cheep attracts the younger, tech savvy customers, with step-by-step instructions and guidance for those who are not used to buying insurance online. Cheep Insurance also operates longer hours than traditional bricks-and-mortar brokerages, with brokers available on evenings and weekends. Its simple online tools and 24/7 access appeals to their modern, busy customers who are looking to streamline the insurance experience. This model has proven to be very successful. In Cheep's first year of business, it wrote over \$1MM in insurance policies, and achieved triple-digit growth in its second year. Far from being a threat, Cheep demonstrates that technology can contribute to the business success, and ultimately, the sustainability of the broker profession.</p> <p>- Canada's Digital Charter: Trust in a digital world The Charter in action Programs and initiatives to make Canada a competitive, data-</p>	Noted. The examples relate more generally to digitalisation of insurance and are not specific to BDA use.

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			<p>driven digital economy:  <a href="http://canada.ca/digital-charter">canada.ca/digital-charter</a>            The 10 principles of the Charter will help guide the federal government’s work to help address challenges and leverage Canada’s unique talents and strengths in order to harness the power of digital and data transformation.            - Admiral Firstcarquote</p>	
253. PCI	United States	No	There should be a reference to the U.S. Fair Credit Reporting Act laws and consent obligations.	See response to comment 239.