

## Draft Pending Adoption

Draft: 4/21/21

Big Data and Artificial Intelligence (EX) Working Group  
Virtual Meeting (*in lieu of meeting at the 2021 Spring National Meeting*)  
March 29, 2021

The Big Data and Artificial Intelligence (EX) Working Group met March 29, 2021. The following Working Group members participated: Doug Ommen, Chair, and Travis Grassel (IA); Elizabeth Keller Dwyer, Co-Vice Chair (RI); Mark Afable, Co-Vice Chair (WI); Katie Hegland (AK); Daniel Davis (AL); Ken Allen (CA); Peg Brown (CO); Andrew N. Mais, George Bradner and Wanchin Chou (CT); Frank Pyle (DE); Rebecca Smid (FL); Judy Mottar (IL); Satish Akula (KY); Tom Travis (LA); Kathleen A. Birrane (MD); Benjamin Yardley (ME); Matthew Vatter and Phil Vigliaturo (MN); Cynthia Amann (MO); Kathy Shortt (NC); Chris Aufenthie (ND); Christian Citarella (NH); Barbara D. Richardson and Gennady Stolyarov (NV); Lori Barron (OH); Eli Snowbarger (OK); Shannen Logue and Mike McKenney (PA); Michael Wise (SC); David Combs (TN); J'ne Byckovski and Rachel Cloyd (TX); Kathy Stajduhar (UT); Eric Lowe (VA); Christina Rouleau (VT); and Eric Slavich and John Haworth (WA).

### 1. Reviewed Prior Work of the Big Data (EX) Working Group and the Artificial Intelligence (EX) Working Group and its 2021 Charges

Commissioner Ommen said the Big Data (EX) Working Group and the Artificial Intelligence (EX) Working Group have been merged to form the Big Data and Artificial Intelligence (EX) Working Group. He provided an overview of the prior work of the Big Data (EX) Working Group and the Artificial Intelligence (EX) Working Group.

In 2018, Commissioner Ommen said the Big Data (EX) Working Group received a presentation from LIMRA on the use of data for the underwriting of life insurance products, and it was followed by the efforts of the Casualty Actuarial and Statistical (C) Task Force, which was developing guidance on best practices for the review of predictive models. He said the Big Data (EX) Working Group's discussions on accelerated underwriting led to the appointment of an Accelerated Underwriting (A) Working Group. He said the NAIC moved forward with training in 2019, as recommended and encouraged by the Big Data (EX) Working Group. This training focused on rate filings using complex algorithms, and it included technical training for actuaries and non-technical training for rate filing reviewers. Commissioner Ommen said the Big Data (EX) Working Group discussed the use of data in fraud detection and claim settlements, which included two presentations from the Insurance Services Office (ISO) and a presentation from the National Insurance Crime Bureau (NICB). He said the Working Group discussed whether state insurance regulators have the appropriate regulatory authority under existing unfair trade laws and unfair claims settlement regulations to address marketplace practices. He said the NAIC, at the urging of the Big Data (EX) Working Group, implemented technical services in 2020 to assist state insurance regulators in the review of property/casualty (P/C) rate models.

Commissioner Ommen said the Artificial Intelligence (EX) Working Group was appointed in 2019, and it developed and approved Artificial Intelligence (AI) Principles for the insurance industry. The NAIC's AI Principles outline five key tenets for AI actors, summarized with the acronym FACTS: Fair and ethical, Accountability, Compliance with existing laws, Transparency for consumers, and Safe and secure data systems. Commissioner Ommen said another important work product came from the Innovation and Technology (EX) Task Force, which adopted revisions to the NAIC's *Unfair Trade Practices Act* (#880). These revisions clarify that value-add products and services using new technology are not considered rebates if the service or value-add product relates to risk being underwritten and primarily designed to provide loss mitigation or loss control or reduce claim settlement costs.

Commissioner Ommen said the charges of the new Big Data and Artificial Intelligence (EX) Working Group will require the Working Group to adopt a problem-solving approach. The Working Group will need to take a deeper dive with more granular-level research of where the industry is applying the use of big data, algorithms, and AI. Commissioner Ommen said this work will be completed while simultaneously studying governance structures that could be considered as best practices and guidance to state insurance regulators seeking to understand how the industry should be managing risks associated with the use of big data and AI. He said the charges that will require the Working Group to develop and prioritize solutions and set deliverables, while recognizing an intermediate deliverable, will not necessarily finish the Working Group's charge.

## **Draft Pending Adoption**

### 2. Discussed an Approach to Developing an Industry Survey for Research

Commissioner Ommen said NAIC members have heard over the past two years public presentations on the use of big data and innovation. At the same time, he said he would receive requests from state insurance regulators to hear more about insurers' electronic data variables, algorithms, and use of AI. Because of this, he said he would like to get a more accurate and objective measure of what is happening. He said individual insurers have expressed a desire to share information, but there is reluctance to do so without assurances around protecting trade secrets and intellectual property.

Superintendent Dwyer suggested that the Working Group conduct an anonymized survey in a specific line of insurance with one lead state that can provide confidentiality protections. She said the Working Group is not trying to scrutinize any individual company's practices, but it is trying to understand broader market practices. Commissioner Afbale said insurers are at different stages of using algorithms and models, and state insurance regulators need to understand how insurers are leveraging this technology. He agreed with the need to focus on a specific line of insurance, and he suggested that a small group of state insurance regulator subject matter experts (SMEs) work with NAIC staff to create an initial draft of a survey.

Mr. Vigliaturo said the survey should address insurers' use of third-party vendors and the use of models supplied by these vendors. Mr. Grassel suggested focusing on commercial and personal auto due to the large amount of data being collected for these lines of insurance. In response to Mr. Haworth's questions about the use of market conduct exam authority to collect information, Superintendent Dwyer said the Working Group would use this authority for the confidential collection of information, but it would not use this authority for market conduct enforcement or the issuance of a public market conduct report of a specific company. Mr. McKenney agreed with starting with commercial and personal auto, and he suggested looking into the use of telematics. Mr. Bradner suggested that the survey include the review of how data and algorithms are used for claims. Mr. Chou suggested that life and health underwriting might be a good line area of focus.

Mr. Vatter said the Working Group should coordinate with the Special (EX) Committee on Race and Insurance. Superintendent Dwyer said the Working Group will also coordinate with the Property and Casualty Insurance (C) Committee if the survey focused on automobile insurance. Commissioner Ommen said other groups may be informed by our research, and that is why the Working Group needs to narrow its focus and move quickly. Commissioner Afbale said the Working Group would also coordinate with the Accelerated Underwriting (A) Working Group if more research is needed for life insurance.

Birny Birnbaum (Center for Economic Justice—CEJ) suggested that the Working Group focus on one line for P/C insurance and life insurance. He said the survey tool could be used for both lines of insurance, and a survey of life insurance would help inform the Accelerated Underwriting (A) Working Group. He said the survey should ask for data used, the source of data, algorithms used, and the application of use. He said the identification of third-party vendors is important. He said the survey should help identify what percentage of the marketplace is using a specific data element for a specific application, such as criminal history information.

John Lucker (Universal Fire and Casualty Insurance Company) said the survey should focus on models, algorithms and data sources. Mr. Lucker said the output of the models and algorithms is dependent on data, and the identification of third parties should include both data vendors and developers of algorithms.

Angela Gleason (American Property and Casualty Insurance Association—APCIA) said the APCIA would like to work with state insurance regulators, and confidentiality is very important. She said some insurers may not provide information from vendors because of confidentiality agreements with vendors.

Superintendent Dwyer suggested that a small group of state insurance regulator SMEs begin working on the survey for further review by the Working Group. Commissioner Ommen, Superintendent Dwyer and Commissioner Afbale will lead this effort, and Commissioner Ommen suggested some state insurance regulators who are members of the Casualty Actuarial and Statistical (C) Task Force.

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#### 3. Heard a Presentation on a Model Governance Framework

In support of starting the Big Data and Artificial Intelligence (EX) Working Group's discussions on model governance for the use of big data and AI, Commissioner Ommen said Elisabetta Russo (NAIC), the NAIC's ERM Advisor and expert on model governance, will provide an overview of the components of a model governance framework.

Ms. Russo said the introduction of the Own Risk and Solvency Assessment (ORSA) requirements in 2012 for insurers and the expansion of the risk-based capital (RBC) formula to include catastrophe risks have brought capital models and catastrophe models onto the radar of state insurance regulators. She said these models are widely used to make important business decisions by insurers, and state insurance regulators have had to answer questions such as how the models are used, what risks are associated with the use of the models, whether state insurance regulators should examine the models, and if so, how this review should occur. She said the NAIC has been working with state insurance regulators, industry, and vendors in a collaborative manner for the past two years on answering these questions.

Ms. Russo said state insurance regulators have engaged with industry and vendors to understand the models, developed review procedures for state insurance regulators, tested these procedures by conducting model walk-throughs with industry and vendors on a voluntary basis, and trained state insurance regulators. She said the next step is to enhance the regulatory requirements, such as the *NAIC ORSA Guidance Manual*; operationalize the review procedures by incorporating them into the NAIC's financial analysis and financial examination handbooks; develop tools for state insurance regulators; and consider not just solvency implications, but also rating review implications.

Ms. Russo said insurers that use capital models and catastrophe models have developed model governance frameworks to help their use of these models. She said this includes minimizing risks arising from models, supporting the business use of model outputs, providing assurance on model outputs to boards of directors, and providing assurance on output and use to the state insurance regulators. She said the models need to run for some time before a robust model governance framework can be in place.

Ms. Russo said AI models are new compared to other models. She said it is important to start with the anatomy of the model. There is an input, calculation engine and output. Ms. Russo said there are also business drivers and key risks, and state insurance regulators should start by reviewing these steps and risks to understand how a model works. She said state insurance regulators need to understand the key risks, which include the model risk, data risk, third-party risk, technology risk, compliance risk, and business process risk. She said state insurance regulators can then determine the appropriate oversight once the risks are understood.

Ms. Russo suggested starting with model oversight and controls and leaving validation for later when models are more mature and documented. She also suggested developing baseline requirements for the following model components: the input, the calculation engine and output. She suggested organizing the set or principles, such as the AI Principles adopted in August 2020, under baseline requirements for each component. She said the Working Group should leverage existing model governance practices and then tailor a model governance framework for big data and AI models to reflect the risks that are unique.

Mr. Birnbaum said there is a difference between financial models for prudential supervision and consumer-facing models. He said consumer-facing models should be tested against marketplace outcomes, and suggested model governance may not lead to desired consumer outcomes. He said while financial models are required by state insurance regulators, consumer-facing models are used for a variety of reasons and at the discretion of insurers. He said financial model governance has practices that can be transferred to consumer-facing models, but model governance will be different for consumer-facing models.

Having no further business, the Big Data and Artificial Intelligence (EX) Working Group adjourned.

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AI/ML Survey  
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NAIC Company Code	
Company Name	
Contact Name	
Contact Title	
Contact Phone Number	
Contact Email Address	

Big Data/AI Survey  
Draft - June 24, 2021

Does your company use Artificial Intelligence (AI)/Machine Learning (ML) as defined in this survey?	Yes	No ( <i>Skip to Row #5</i> )				
If yes, in what areas is AI/ML being used? (Check all that apply) ( <i>Spreadsheets will open for each section checked</i> )	Rating	Underwriting	Claims	Fraud Detection	Marketing	Loss Prevention
Is your company currently using or planning to use AI/ML in other areas not listed above?	Yes/No					
Does your company plan to use or explore using AI/ML in the future? ( <i>If no, skip to row 9, if yes skip to row 11</i> )	Yes	No ( <i>Skip to Row #7</i> )				
If no, please specify why your company does not plan to use AI/ML by checking all that apply: <input type="checkbox"/> No compelling business reason at this time <input type="checkbox"/> Waiting for regulatory guidance <input type="checkbox"/> Lack of resources and expertise <input type="checkbox"/> Lack of reliable data and associated security risk <input type="checkbox"/> Reliance on legacy systems requiring IT, data and technology system upgrade before starting AI/ML initiatives <input type="checkbox"/> Waiting on the availability of a third-party vendor product/service <input type="checkbox"/> Risk not commensurate with current strategy or appetite <input type="checkbox"/> Other: _____		<i>Completion of this question will end the survey</i>				
If yes, indicate the anticipated timing of implementation for each area.						
Rating	N/A	Currently Using	< 1 Year	1 - 3 Years	> 3 Years	
Underwriting	N/A	Currently Using	< 1 Year	1 - 3 Years	> 3 Years	
Claims	N/A	Currently Using	< 1 Year	1 - 3 Years	> 3 Years	
Fraud Detection	N/A	Currently Using	< 1 Year	1 - 3 Years	> 3 Years	
Marketing	N/A	Currently Using	< 1 Year	1 - 3 Years	> 3 Years	
Loss Prevention	N/A	Currently Using	< 1 Year	1 - 3 Years	> 3 Years	
Other, As Specified Above	N/A	Currently Using	< 1 Year	1 - 3 Years	> 3 Years	

AI/ML Survey  
Draft - June 24, 2021

How is AI/ML used? (Check all that apply.)	Rating Class Determination	Price Optimization	Retention Modeling	Numerical Relativity Determination	
	Other: _____				
For Each Selected Above, Describe Level of AI/ML Deployment (select the highest level of deployment for each selected Use.)	Research	Proof of Concept	Prototype	Implemented in Production	
For Each Selected Above, Indicate the Level of Decisions Influenced by AI/ML (anticipated or already implemented)	Automation (No human intervention on execution)	Augmentation (Model advises human who makes decision - model suggests answer)	Support (Model provides information but does not suggest decision or action)		
	Other: _____				
List each AI/ML model used (AI/ML models only, not all GLMs), developed internally or by a third-party, and whether model governance is in place. (Iterate for each AI/ML model being used.)	Insert Model Name (if applicable)	Developed Internally (Yes/No)	Developed by third-party (Yes/No) If yes, list third-party	Model Governance in Place (Yes/No)	
If you are using data, scores and/or AI/ML models aggregated or developed by a third-party, do those contracts include any conditions that would limit disclosure or otherwise limit transparency to regulators reviewing a filing related to Rating? (Yes/No)					
If model governance in place, please check (Yes/No) if the following areas are documented in your governance program. Refer to the NAIC AI Principles for a description of each. PLEASE NOTE: It is expected for the governance levels and maturity to be commensurate with the maturity level and risk associated with the program. <b>Feedback on how best to get this addressed is specifically requested. Desire is to know if the entity has governance in place that addresses these and other risk factors and if it can be tied back to the NAIC AI Principles.</b>	Fairness and Ethics Considerations	Accountability for Data Algorithms' Compliance with Laws as well as Intended and Unintended Impacts	Appropriate Resources and Knowledge Involved to Ensure Compliance with Laws Including those Related to Unfair Discrimination	Ensure Transparency With Appropriate Disclosures Including Notice to Consumers Specific to Data Being Used and Methods for Appeal and Recourse Related to Inaccurate Data	AI Systems are Secure, Safe and Robust including Decision Traceability and Security and Privacy Risk Protections
Do you follow some other existing standards or guidance in regard to governance framework? If so, please provide a high-level overview of the components and if any standards or guidance are provided by a third party, please provide the name of the company and the name of the governance framework. (Yes/No)	Yes/Internally Developed	Yes/Provided by a Third-Party	Yes/Hybrid of Internally Developed and Third-Party Components	Name of Third-Party Governance Framework	Components of the Governance Framework
Are consumers provided information regarding the data elements being used and the purposes for which they are being used? (Answer should be no if not disclosing any information other than what is required by law.)	Yes	No	Will be When Implemented		
Outside of processes required because of FCRA, do consumers have an opportunity to challenge or correct their specific data?	Yes	No			
If yes, explain process.					

AI/ML Survey  
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How is AI/ML used? (Check all that apply.)	Automated Approval	Automated Denial	Underwriting Tier Determination	Company Placement	
	Input into Non-Automated Approval Decision	Input into Non-Automated Denial Decision	Automate Processing Thru the Agency Channel	Other: _____	
For Each Selected Above, Describe Level of AI/ML Deployment (select the highest level of deployment for each selected Use.)	Research	Proof of Concept	Prototype	In Use	
For Each Selected Above, Indicate the Level of Decisions Influenced by AI/ML (anticipated or already implemented)	Automation (No human intervention on execution)	Augmentation (Model advises human who makes decision - model suggests answer)	Support (Model provides information but does not suggest decision or action)		
	Other: _____				
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If you are using data, scores and/or AI/ML models aggregated or developed by a third-party, do those contracts include any conditions that would limit disclosure or otherwise limit transparency to regulators reviewing underwriting practices? (Yes/No)					
If model governance in place, please check (Yes/No) if the following areas are documented in your governance program. Refer to the NAIC AI Principles for a description of each. PLEASE NOTE: It is expected for the governance levels and maturity to be commensurate with the maturity level and risk associated with the program. (Need more feedback.)	Fairness and Ethics Considerations	Accountability for Data Algorithms' Compliance with Laws as well as Intended and Unintended Impacts	Appropriate Resources and Knowledge Involved to Ensure Compliance with Laws Including those Related to Unfair Discrimination	Ensure Transparency With Appropriate Disclosures Including Notice to Consumers Specific to Data Being Used and Methods for Appeal and Recourse Related to Inaccurate Data	AI Systems are Secure, Safe and Robust including Decision Traceability and Security and Privacy Risk Protections
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Outside of processes required because of FCRA, do consumers have an opportunity to challenge or correct their specific data?	Yes	No			
If yes, explain process.					

AI/ML Survey  
Draft - June 24, 2021

How is AI/ML used? (Check all that apply.)	Claim Approval Informational Resource for Adjusters	Claim Denial Evaluation of Images of the Loss	Determine Settlement Amount Other: _____	Claim Assignment Decisions	
For Each Selected Above, Describe Level of AI/ML Deployment (select the highest level of deployment for each selected Use.)	Research	Proof of Concept	Prototype	In Use	
For Each Selected Above, Indicate the Level of Decisions Influenced by AI/ML (anticipated or already implemented)	Automation (No human intervention on execution) Other: _____	Augmentation (Model advises human who makes decision - model suggests answer)	Support (Model provides information but does not suggest decision or action)		
List each AI/ML model used, development method, and whether model governance is in place.	Insert Model Name (if applicable)	Developed Internally (Yes/No)	Developed by third-party (Yes/No) If yes, list third-party	Model Governance in Place (Yes/No)	
If you are using data, scores and/or AI/ML models aggregated or developed by a third-party, do those contracts include any conditions that would limit disclosure or otherwise limit transparency to regulators reviewing claims processing and settlement processes? (Yes/No)					
If model governance in place, please check (Yes/No) if the following areas are documented in your governance program. Refer to the NAIC AI Principles for a description of each. PLEASE NOTE: It is expected for the governance levels and maturity to be commensurate with the maturity level and risk associated with the program. <b>(Need more feedback.)</b>	Fairness and Ethics Considerations	Accountability for Data Algorithms' Compliance with Laws as well as Intended and Unintended Impacts	Appropriate Resources and Knowledge Involved to Ensure Compliance with Laws Including those Related to Unfair Discrimination	Ensure Transparency With Appropriate Disclosures Including Notice to Consumers Specific to Data Being Used and Methods for Appeal and Recourse Related to Inaccurate Data	AI Systems are Secure, Safe and Robust including Decision Traceability and Security and Privacy Risk Protections
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If yes, explain process.					

AI/ML Survey  
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How is AI/ML used? (Check all that apply.)	Fast-Tracking of Likely Non-Fraudulent Claims	Referral of Claims for Further Investigation	Detect Medical Provider Fraud	Detect First-Party Liability	
	Detect Third-Party Liability	Other: _____			
For Each Selected Above, Describe Level of AI/ML Deployment (select the highest level of deployment for each selected Use.)	Research	Proof of Concept	Prototype	In Use	
For Each Selected Above, Indicate the Level of Decisions Influenced by AI/ML (anticipated or already implemented)	Automation (No human intervention on execution)	Augmentation (Model advises human who makes decision - model suggests answer)	Support (Model provides information but does not suggest decision or action)		
	Other: _____				
List each AI/ML model used, development method, and whether model governance is in place.	Insert Model Name (if applicable)	Developed Internally (Yes/No)	Developed by third-party (Yes/No) If yes, list third-party	Model Governance in Place (Yes/No)	
If you are using data, scores and/or AI/ML models aggregated or developed by a third-party, do those contracts include any conditions that would limit disclosure or otherwise limit transparency to regulators reviewing fraud detection processes? (Yes/No)					
If model governance in place, please check (Yes/No) if the following areas are documented in your governance program. Refer to the NAIC AI Principles for a description of each. PLEASE NOTE: It is expected for the governance levels and maturity to be commensurate with the maturity level and risk associated with the program. <b>(Need more feedback.)</b>	Fairness and Ethics Considerations	Accountability for Data Algorithms' Compliance with Laws as well as Intended and Unintended Impacts	Appropriate Resources and Knowledge Involved to Ensure Compliance with Laws Including those Related to Unfair Discrimination	Ensure Transparency With Appropriate Disclosures Including Notice to Consumers Specific to Data Being Used and Methods for Appeal and Recourse Related to Inaccurate Data	AI Systems are Secure, Safe and Robust including Decision Traceability and Security and Privacy Risk Protections
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Outside of processes required because of FCRA, do consumers have an opportunity to challenge or correct their specific data?	Yes	No			
If yes, explain process.					

AI/ML Survey  
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How is AI/ML used? (Check all that apply.)	Targeted Online Advertising	Identification of Recipients of Mail or Phone Advertising	Provision of Offers to Existing Customers	Identification of Potential Customer Groups	Demand Modeling
	Direct Online Sales	Other: _____			
For Each Selected Above, Describe Level of AI/ML Deployment (select the highest level of deployment for each selected Use.)	Research	Proof of Concept	Prototype	In Use	
For Each Selected Above, Indicate the Level of Decisions Influenced by AI/ML (anticipated or already implemented)	Automation (No human intervention on execution)	Augmentation (Model advises human who makes decision - model suggests answer)	Support (Model provides information but does not suggest decision or action)		
	Other: _____				
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If you are using data, scores and/or AI/ML models aggregated or developed by a third-party, do those contracts include any conditions that would limit disclosure or otherwise limit transparency to regulators reviewing an insurer's marketing practices? (Yes/No)					
If model governance in place, please check (Yes/No) if the following areas are documented in your governance program. Refer to the NAIC AI Principles for a description of each. PLEASE NOTE: It is expected for the governance levels and maturity to be commensurate with the maturity level and risk associated with the program. <b>(Need more feedback.)</b>	Fairness and Ethics Considerations	Accountability for Data Algorithms' Compliance with Laws as well as Intended and Unintended Impacts	Appropriate Resources and Knowledge Involved to Ensure Compliance with Laws Including those Related to Unfair Discrimination	Ensure Transparency With Appropriate Disclosures Including Notice to Consumers Specific to Data Being Used and Methods for Appeal and Recourse Related to Inaccurate Data	AI Systems are Secure, Safe and Robust including Decision Traceability and Security and Privacy Risk Protections
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Outside of processes required because of FCRA, do consumers have an opportunity to challenge or correct their specific data?	Yes	No			
If yes, explain process.					

AI/ML Survey  
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How is AI/ML used? (Check all that apply.)	Identification of High-Risk Customers	Risk-Mitigation Advice to Consumers	Determination of Advance Payments	Other: _____	
For Each Selected Above, Describe Level of AI/ML Deployment (select the highest level of deployment for each selected Use.)	Research	Proof of Concept	Prototype	In Use	
For Each Selected Above, Indicate the Level of Decisions Influenced by AI/ML (anticipated or already implemented)	Automation (No human intervention on execution)	Augmentation (Model advises human who makes decision - model suggests answer)	Support (Model provides information but does not suggest decision or action)		
	Other: _____				
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If you are using data, scores and/or AI/ML models aggregated or developed by a third-party, do those contracts include any conditions that would limit disclosure or otherwise limit transparency to regulators reviewing an insurers loss prevention practices? (Yes/No)					
If model governance in place, please check (Yes/No) if the following areas are documented in your governance program. Refer to the NAIC AI Principles for a description of each. PLEASE NOTE: It is expected for the governance levels and maturity to be commensurate with the maturity level and risk associated with the program. (Need more feedback.)	Fairness and Ethics Considerations	Accountability for Data Algorithms' Compliance with Laws as well as Intended and Unintended Impacts	Appropriate Resources and Knowledge Involved to Ensure Compliance with Laws Including those Related to Unfair Discrimination	Ensure Transparency With Appropriate Disclosures Including Notice to Consumers Specific to Data Being Used and Methods for Appeal and Recourse Related to Inaccurate Data	AI Systems are Secure, Safe and Robust including Decision Traceability and Security and Privacy Risk Protections
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If yes, explain process.					



Draft: 6/24/21

## Data Survey Definitions DRAFT

### Artificial Intelligence/Machine Learning (AI/ML)

AI/ML describes an automated process in which a system begins recognizing patterns without being specifically programmed to achieve a pre-determined result. This is different from a standard algorithm in that an algorithm is a process or set of rules executed to solve an equation or problem in a pre-determined fashion. Evolving algorithms are considered a subset of AI/ML.

#### Artificial Intelligence / Machine Learning Systems include:

- Systems that adapt and adjust to new data and experience without manual human intervention.
- Systems that arrive at results for which the outcomes and the stepwise approach toward the outcomes were not configured in advance by a human programmer.
- Systems that dynamically respond to conditions in the external environment without the specific nature of such responses being known in advance to the designers of the systems.
- Systems that utilize neural networks and/or deep-learning algorithms, such as supervised, semi-supervised, and unsupervised learning algorithms.
- Systems that engage in automatic speech recognition, facial recognition, image recognition, text recognition, natural language processing, generation of customer-specific recommendations, automated customer communications (e.g., chatbots with non-preprogrammed prompts), autonomous or semi-autonomous vehicle operation or data gathering, or any other approach that does not require either preprogramming or a manual human intervention in every instance of an action or decision.
- Systems that automatically generate adaptive responses based on interactions with a consumer or third party.
- Systems that determine which data elements to rely upon, in a non-preprogrammed fashion, among a variety of possible alternatives.

#### Artificial Intelligence / Machine Learning Systems are not:

- Static “scorecards” that deterministically map consumer or other risk characteristics to treatments or decisions. (However, an AI/ML system may use the output of such static “scorecards” as input data for the AI/ML system to consider.)
- Systems with solely preprogrammed decision rules (e.g., “If A, then B” applied invariably in all situations).
- Tables of point or factor assignments in rating plans.
- Static ratemaking and/or predictive-modeling methodologies, including linear regression, generalized linear modeling (GLM), or generalized additive modeling (GAM).  
Purely informational static databases, such as databases used to obtain reference amounts for claim settlements, or static databases pertaining to consumer characteristics or experience,

regardless of the amount of information in the database. However, if AI/ML is used to create a static predictive model, that AI/ML system is considered within the scope of this survey.

- Deterministic “phone trees” that navigate consumers through pre-recorded voice prompts.
- Any approach that an insurer could have realistically utilized in the year 2000 or prior.

### AI/ML Use Descriptions and/or Explanations

- **Rating:** AI/ML Uses
  - Rating Class Determination:
  - Price Optimization: As defined in the NAIC Casualty and Actuarial Statistical (C) Task Force white paper:  
[https://www.naic.org/documents/committees\\_c\\_catf\\_related\\_price\\_optimization\\_white\\_paper.pdf](https://www.naic.org/documents/committees_c_catf_related_price_optimization_white_paper.pdf)
  - Retention Modeling:
  - Numerical Relativity Determination:
- **Underwriting:** AI/ML Uses
  - Automated Approval:
  - Automated Denial:
  - Underwriting Tier Determination:
  - Company Placement:
  - Input into Non-Automated Approval Decision:
  - Input into Non-Automated Denial Decision:
  - Automate Processing Thru the Agency Channel:
- **Claims:** AI/ML Uses
  - Claim Approval:
  - Claim Denial:
  - Determine Settlement Amount:
  - Claim Assignment Decisions:
  - Informational Resource for Adjusters:
  - Evaluation of Images of the Loss:
- **Fraud Detection:** AI/ML Uses
  - Fast Tracking of Likely Non-Fraudulent Claims:
  - Referral of Claims for Further Investigation:
  - Detect Medical Provider Fraud:
  - Detect First-Party Liability:
  - Detect Third-Party Liability:
- **Marketing:** AI/ML Uses
  - Targeted Online Advertising:
  - Identification of Recipients of Mail or Phone Advertising:

- Provision of Offers to Existing Customers:
  - Identification of Potential Customer Groups:
  - Demand Modeling:
  - Direct Online Sales:
- **Loss Prevention:** AI/ML Uses: With advances in technology, the loss-prevention function is likely to grow in importance as insurers strive to improve their results not only through efforts at risk selection and matching the rate to the risk, but also through reducing the probability that the underlying insured losses would occur in the first place. Possible uses of artificial intelligence in loss prevention for private passenger automobile insurance may include, but are not limited to, the following:
    - Identification of High-Risk Customers: The goal of such identification in a loss-prevention context is not to make an underwriting or rating decision, but rather to recognize which specific customers may benefit most from loss-prevention advice and mitigation techniques that the insurer may be able to provide, thereby reducing such customers' frequency and/or severity of losses. For example, an AI/ML system might determine that certain households with youthful drivers are more likely to benefit from risk-mitigation advice and other approaches.
    - Risk-Mitigation Advice to Consumers: Artificial intelligence systems might be used to target messaging to consumers based on specific risks identified for a given policy. For example, in a household with youthful drivers, AI/ML-targeted messaging and incentives could focus on ways those drivers could gain experience in a low-risk manner and drive more carefully in day-to-day context. For households in mountainous areas, AI/ML systems could provide targeted advice about safe driving in rugged terrain.
    - Determination of Advance Payments: In many situations, small payments issued at or shortly after the time of loss, prior to the full adjustment of the claim, can help the insured or third-party claimant prevent much larger amounts of damage that would otherwise greatly raise the costs of the claim for the insurer. In a private passenger automobile context, examples could include, but are not limited to, (i) making a payment for minor repairs that restore the vehicle to a drivable condition, whereas the insured and/or insurer would have otherwise needed to spend much more money to rent another vehicle or to pay for storage of a non-functional vehicle; (ii) making a payment for prompt, inexpensive medical treatment of a claimant, which could prevent the emergence of a longer-term, chronic, and much more costly health condition; or (iii) making a payment for expenses related to towing an insured's or claimant's vehicle away from the scene of the accident and reasonable costs of storage for the vehicle until the insurer or vehicle owner are able to gain possession of the vehicle. In the absence of such prompt payments, vehicles at towing-company storage yards may accumulate significant charges for which the insurer may ultimately become responsible.

## Data Use Definitions

1. Criminal Convictions (exclude auto-related convictions)
2. Demographic (age, gender, address, marital status, other non-behavioral attributes of a consumer or population attributes of an area)
3. Driving Behavior (tickets, years of driving experience, annual miles driven)
4. Education (level of education, GPA)
5. Vehicle-Specific Data (type of vehicle(s) driven or owned, history of the vehicle(s), value of contents inside the car)
6. Facial Detection / Recognition / Analysis (picture to confirm identity, estimate biological age or gender of the consumer)
7. Geocoding (latitude and longitude coordinates of a physical address)
8. Natural Catastrophe Hazard (frequency and severity of natural hazards)
9. Job Stability (current employment, length of employment at prior employers, unemployment)
10. Income (annual income, income source)
11. Occupation
12. Personal Financial Information (net worth, type of bank account or credit account, number of bank accounts or credit accounts, available credit, payment history data)
13. Loss Experience (claim history for PPA, claims from other lines of insurance)
14. Medical (medical history, medical condition, prescription data, lab data)
15. Online Media (web searches, online purchases, social media activities)
16. Telematics (time-of-day driving data, location of driving data, braking data, acceleration data, maximum speed, turn speed)
17. Voice Analysis (speed, pitch, volume)]
18. Consumer or Other Type of "Score": A numeric value generated based on a combination of any underlying attributes or behaviors of the consumer, insured risk, or any items considered by the insurer to be relevant to the consumer or insured risk. Scores are computed using deterministic algorithms or models which are not themselves considered to be AI / ML systems. Inquiries in this survey regarding such scores seek to understand whether these scores are used as input data elements within AI / ML systems.
19. Other

## Data Use Tab Example

Example:

- **ROW 3:** Rating Section: Put a "Y" in the box for every category of data used in an AI/ML system for a Rating use.
- **ROW 3:** For columns S and T, put a "Y" in the box IF a consumer score for a category not specified in columns B – R is being used and put a "Y" in the box if some type of "Other: Non-Traditional Data Elements" are being used not specified in columns B – R.
- **ROW 4:** Put a Y in the box for every category of data used in an AI/ML system for Rating use that is a derived "score" representing that data category (for example, a consumer "education" score or a driving behavior "telematics" score).
- **ROW 5:** For each category of data element used in an AI/ML system (where there is a "Y" in the box), indicate whether it is sourced internally (I), externally (E) or both internally and externally (B). This pertains to data elements, not "scores".

- **ROW 6:** If Row 5 indicates “E” for externally sources or “B” for sources internally and externally, list the vendor.
- **ROW 6:** In column S, if in Row 5 for column S there is either an “E” or “B”, indicating consumer or other “scores” used are sourced externally or both internally and externally, list the score data providers.

**Other AI/ML Use Descriptions:**

- What is the difference between a Proof of Concept (POC) and a Prototype?

A Proof of Concept (POC) is a small exercise to test the design idea or assumption. The main purpose of developing a POC is to demonstrate the functionality and to verify a certain concept or theory that can be achieved in development. Prototyping is a valuable exercise that allows the innovator to visualize how the product will function. A prototype is a working interactive model of the end-product that gives an idea of the design, navigation, and layout. While a POC shows that a product or feature can be developed, a prototype shows how it will be developed.

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