Cambridge Centre for Risk Studies
Risk Management Solutions Inc.

Consultation Document: Phase One v0.9

Global Exposure Accumulation and Clash (GEAC) Project

MULTI-LINE INSURANCE EXPOSURE DATA SCHEMA

Phase One: Casualty Liability; Marine; Energy; and Aviation

Consultation Document: v0.9

Centre for **Risk Studies**

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Multi-Line Insurance Exposure Data Schema: Phase One

Consultation Document v0.9

Part A: Overview and Progress

1 A Standardized Multi-Line Insurance Exposure Data Schema

Cambridge Centre for Risk Studies (CCRS) is coordinating the development of a data schema to capture insured exposure in the main classes of insurance business, with the support of Risk Management Solutions (RMS) and the guidance of insurance companies, individual practitioners, and other interested parties.

1.1 Aims and Objectives

The objective of the project is to develop an open source multi-line data schema to capture the most significant lines of insurance across all geographical markets. The data standard will be independent of the platform on which it is implemented.

The proposed schema will provide a standard minimum set of exposure data fields that will enable insurance industry participants, both insurers and reinsurers, to:

a) Provide a more comprehensive and standardised framework for monitoring and reporting exposure enterprise-wide and function as a system of record, for risk managers, brokers, consultants, and analysts.

b) Improve interchanges of data between market players to improve risk transfer to reinsurers and other risk partners, reporting to regulators, and information exchanged for risk co-share, delegated authority, and bordereau activities.

c) Apply accumulation risk model scenarios for classes of business that currently have less well-developed models available for them.

d) Support clash model analysis for scenarios that impact multiple lines of insurance.

e) Enable a new generation of models and risk analytics as well as expand the scope of potential risk management applications.

The schema will aid in the development of a more unified industry through increasing the capability for dialogue and cross communication.

2 Version 0.9 Consultation

This document requests feedback on the structure and key components of a proposed exposure data schema for the phase one classes of insurance business:

- Casualty Liability
- Marine
- Energy
- Aviation

This is the third consultation document and proposes a version 0.9 structure for the exposure data schema for four classes of insurance that constitute phase one of the schema development. This version of the schema incorporates the feedback we have received from our v0.5 consultation and consolidation of a round of structured interviews with insurance practitioners specialising in each of the individual classes of insurance.

It builds on the structure of the data schema that was proposed and refined in the v0.5 consultation and in this document, we propose the ‘dictionaries’ (lists of options for the data categories) that are specific to each class of insurance.

This document solicits feedback from the insurance community to finalise the data schema structure, agree on each of the data dictionaries, and identify the relevant standard contractual wording templates used by the market as the basis for each class of insurance. The document also trials the process of proposing definitions for each field. Definitions will be provided for all fields in the v1.0 report, pending v0.9 feedback. Within the v0.9 document, only the first two fields of each section have a definition provided.

We will take the results of this final round of consultation to release a version 1.0 for open publication as a minimal standard of exposure data description for casualty liability; marine; energy; and aviation classes of insurance. Further versions of this data schema may be produced in the future. The version 1.0 will be tested by a period of implementation and adoption by the community of participants. We will be monitoring the implementation and use of this schema as companies apply it to their exposure data.

The next stage of the multiline data schema project will be the development of exposure data in phase 2 classes of insurance: political and security risk; speciality; credit and surety; and agriculture. The third and final phase of the project will be the development of exposure data for life and health; auto; personal accident; and remaining commercial and personal lines classes.

We are grateful for your feedback and recommendations, and ask that completed consultation documents be submitted to Kayla Strong (k.strong@jbs.cam.ac.uk) by November 6th, 2017.

The Schema Structure for Phase 1 Classes of Insurance starts on page 15 of this document.

2.1 Consultation Document Process

Version 0.1: Principles and Prioritization

The first stage of the project involved setting out the key principles and prioritisation of the classes of business for development of the schema. The version 0.1 Consultation Document, available for download here, describes the objectives of the project, provides an overview of current market practice, reviews the wide range of existing and proprietary data schemas for different classes of insurance that are currently available and how a data schema can incorporate existing standards and current practice, and proposes a set of principles to be observed when designing the schema.

The v0.1 round of consultation is now closed and we greatly appreciate the feedback that we received and gratefully acknowledge the time and contributions from the various companies and individuals who worked with us to refine the objectives. We also thank those who attended the workshops and participated in telephone interviews.

We incorporated the views and feedback from the v0.1 consultation into the planning, phasing, and structure of the proposed data schema.

Version 0.5: Outline Structure and Key Components

For each class of business, the version 0.5 of the proposed data schema provides an outline structure and defines the main categories of exposure data for each class of insurance. We define this as a number of 'dictionaries' – lists of categories that can be applied to accounts to describe and classify information about them for accumulation purposes. In version 0.5 we try to identify all the dictionaries required, but do not attempt to define all the content of each of these dictionaries – i.e. the fields and categorisation, lists of asset types, or attributes of the exposures and coverages. This is tackled in version 0.9.

The v0.5 consultation document for phase one classes of insurance can be found here, and provided a structural outline of the four classes of insurance business in our first phase: Casualty Liability, Marine, Energy, and Aviation. V0.5 consultation on phase one classes of insurance is now closed, but v0.5 consultation will shortly be undertaken for phase two classes of insurance (political and security risk; speciality; credit and surety; and agriculture). Phase three (life and health; auto; and remaining commercial and personal lines classes) v0.5 consultation will follow.

Version 0.9 Detailed Structure

Version 0.9 uses the data structure agreed after the version 0.5 consultation to propose the detailed content of a minimum data requirement specification for that class. This involves identifying for the contents of each dictionary in the schema for that class of insurance: i.e. a full listing of all the categories of sub-types of insurance, coverages, insured assets, and their attributes, which will include the listing of data fields and recommended values for each. This is summarised in this v0.9 consultation document for phase one classes of insurance.

Version 1.0 Complete Schema

The feedback from the consultation of version 0.9 will be consolidated into a final consensus and published as a version 1.0 complete minimum data standard for each class of insurance.

Version 1.0 consists of complete listings of field values and reference tables, definitions and a listing of common forms in use in the market.

We expect there to be future versions of the schema for each class of insurance business, versions 2 and beyond, that could potentially be more detailed and add granularity, or evolve or extend the schema. However, that is not part of this current project. We propose to develop a minimum data requirement for exposure monitoring and accumulation risk management across many classes of insurance. We are prioritizing breadth (i.e. developing a standard and unified view across multiple classes of insurance business) above depth (i.e. the level of detail required to capture a particular class of insurance).

3 Phasing of the Schema Development

The development of the exposure data schema is proceeding in phases:

Phase 1

1.1 Casualty Liability
1.2 Marine
1.3 Energy
1.4 Aviation

Phase 2

2.1 Political & Security Risk
2.2 Specialty
2.3 Credit and Surety
2.4 Agriculture

Phase 3

Life & Health

3.1 Life (Group and Individual)
3.2 Health (Group and Personal)
3.3 Annuities and Pensions (Group and Individual)
3.4 Personal Accident

Other Non-Life

3.5 Auto Insurance (Commercial and Personal lines)
3.6 Other Commercial and Personal Non-Life Lines

3.1 Classes of Insurance with Existing Data Schemas

Existing data schemas already exist for other classes of insurance that are in use and widely adopted. A complete data schema for all classes of insurance will include these existing exposure types. These schemas will not be further refined or published as part of this project, but we recommend using existing current practice for:

- **Commercial Property**
- **Homeowner Property**
- **Cyber Insurance**
- **Workers Compensation**

In consultation document version 0.1, the global extent of all classes of business is described and categorized for a 'mapping' of the insurance industry, which accounts for an estimated $665,000 Trillion ($665 Quadrillion) of insured exposure across the world.

4 Principles

The following principles, agreed during the v0.1 consultation and onwards, have guided the development of this exposure data schema.

i. Exposure and Accumulation Focus

The primary purpose of the schema is to report and monitor exposure and to manage accumulation. We acknowledge that the schema will also be useful in other areas of insurance such as underwriting and claims management.

ii. As Simple as Possible

The schema will be kept as simple as practically possible.

The intent of the schema is to provide a consistent framework for benchmarking exposure across all classes of insurance business. Consequently, covering as many classes of business as possible is prioritised over the level of detail for any particular class. Future versions of the schema can be made more complex and detailed over time.

To aid adoption, we limit to a practical minimum the notional 'data budget' - the total amount of effort required for an insurance company to transform their internal data to meet the proposed standard.

We strive to limit each dictionary to a maximum of ten categories in the primary categorisation, and where possible, fewer than this. Each category can be further subdivided, but once more the sub-categories will be restricted to a maximum of around ten. We propose to limit the schema for version 1.0 to three layers of subdivision of any dictionary.

iii. Make the Schema Hierarchical and Extensible

The data schema is hierarchical – i.e. it is designed as a number of layers of characteristics and attributes, each of which is capable of being further subdivided to create more detail. The data dictionaries, for example, will be capable of further subdivision to create more detailed versions in the future.

The schema is extensible beyond the recommended minimum standard. Individual companies can create their own sub-categories and add detail as they think appropriate. These will be customisable layers of detail that will be proprietary to that company.

iv. Asset Descriptions Combined with Insurance Coverage

The design of the schema includes a set of descriptions about the asset or item-at-risk (the 'risk object') in combination with the insurance coverages, policy, terms, and conditions. Separating asset descriptions from insurance coverages enables exploration of the impacts of changing insurance coverage structures on the exposure.

v. Make the Data Schema Compatible with Other Standards as Far as Possible

Where possible, the data schema is compatible with and capable of translating into other data standards, such as regulator reporting standards, rating agency filings, and ACORD components, that are widely used across the industry. Available standards and schemas commonly in use in different sectors of the insurance market are described in the market practice review in our version 0.1 document.

4.1 Discussion Point: Signalling the relative importance of schema components?

The schema has been developed to provide a minimum level of information that would inform exposure management within these various lines, and that will support the development of models to estimate potential loss. It is evident from consultation conversations that even the proposed 'minimum' level of information may be more extensive than is currently provided in the market, or easily obtainable from their insureds or other counterparties.

Some have suggested that the schema could signal the relative importance of different components of the schema, perhaps suggesting that some elements are 'mandatory', others would be classified as 'highly important' to obtain, and others 'desirable if possible', or something similar.

Others have counter-argued that the schema is aspirational, in proposing a set of data that will facilitate improvements in market practice, and that even if this takes some years to become common practice the schema as a whole should be designed to provide, and be seen as, a proposed basic requirement. This view suggests that the market will inevitably find some data components more easy to populate than others and that this can be left to individual companies to explore the feasibility, effort required, and importance of different data elements in their exposure management. To signal that some parts of it are less important will dilute the proposition and weaken the schema's adoption.

A. Please give your opinion on whether the schema should specify 'levels of importance' to each of the elements of the data, or should be proposed as a complete schema:

5 Market Variations and Compatibility

The schema for each class of business follows how insurance practitioners typically operate their individual operations in specific markets. Each company has its own practices and there is variation across the industry and in different markets between the operational structures, terminology, and business focus of each insurance organisation. Our proposed data standard is intended to represent common practice for as much of the market as possible and to identify translations and equivalences in terminology and concepts. Our intent for a standardized schema is to have a single specification for data that will facilitate exposure management across different markets and companies, but to be recognizable and well-aligned with standard practice in each market.

Market-Specific Terminology

One of the major areas of differences in market practice terminology and organization of insurance lines of business structures is between the insurance markets of United States, London, Europe, and more broadly Internationally. US insurance market structures and terminology can be significantly different from international insurance markets. The terms and conditions, contractual forms and templates for insurance policies, are significantly different between markets. Where possible, we have included equivalences and both terms. Where one market has a different common practice to another, we offer both as options within the dictionary lists, for example 'Commercial General Liability' is a specific type of Casualty Liability insurance in the United States, whereas there is a similar but different product type 'Employers Liability' offered more commonly in markets outside the United States. The schema lists both types as options for coding a policy.

It should also be recognized that translating and recategorizing from one market practice or internal system to a single standard has the potential for introducing additional uncertainty into a company's exposure management. However, the benefits of a common standard for describing exposure are recognized as being sufficiently important to try to describe a consensus for most of the main types of exposure.

6 Structure of Exposure Data Schemas

The schema proposes a set of information that can be applied to an individual policy. A policy is an insurance contract with an insured, either an organization or an individual. An insured may represent an 'account' to an insurance practitioner, and an account may consist of several policies, possibly in different classes of insurance.

A policy may have additional schedules attached to it, such as lists of the assets that are being insured under that policy. The schema proposes a minimum set of attributes for each of the assets on the schedule.

The schema for each class of business includes a number of 'dictionaries', i.e. lists of defined categories that can be applied to accounts to describe and classify information about them for accumulation purposes. These dictionaries are defined in the schema structures for each class of insurance.

6.1 Information about the Insured

The policy holder is identified, and categorized with other high-level information that is relevant to exposure management, such as the types of the activities and operations of the policy-holder.

The information about the insured is standard across all classes of insurance. The consultation about the data standard for information about the insureds is covered in section 7, below, before the consideration of each of the four classes of insurance covered in this consultation, in part B.

For some classes of insurance, such as casualty liability, the characteristics of the insured organization are the key determinants of the exposure, so in these classes there is a more extensive set of information required on the attributes of the insured.

6.2 Policy Contractual and Financial Structure

Contract information about the policy is captured, including financial structure, inception date and expiration dates of coverage, and the legal jurisdiction in which claims or disputes are settled.

The policy-level financial structure requires information on total limit, deductible and co-share.

Information on total limit is essential for exposure management. Financial structures for insurance policies can be complex. The data schema provides the capability for defining financial terms in addition to a policy total, of sub-limits, deductibles, and co-share to any grouping and permutations of individual items on a schedule, asset types, asset attributes, locations, coverages, or terms and conditions.

6.3 Type of Insurance

[Dictionary List]

Each policy is characterized by the type of insurance business within the class of insurance, sometimes referred to as a "line" of insurance business, although the term "line" is sometimes applied to the whole class of insurance. Insurance type is provided as a standardized list of categories, as a dictionary (i.e. a list of agreed types) for each class of insurance. Insurance type is the accepted segmentation of the market into the range of insurance products offered to cover particular sets of assets and insurance needs with appropriate coverages. These products are often written using common contractual templates that are typically modified and customized for specific clients needs. The potential for the schema to identify the contractual template used is discussed below, in defining inclusions and exclusions.

6.4 Schedule of Insured Assets

The policy can include one or more schedule of assets ('risk objects') being insured under this policy. A schedule is a listing of individual assets. In some cases, only the largest assets will be individually listed on a schedule, with all other unlisted assets covered in aggregate under the policy total. The more that individual assets can be specified, the more exposure can be managed with accuracy and confidence. The schema supports the market practice of having assets being described both as schedules of individual assets and aggregate cover for unlisted assets.

For each item in the schedule, the schema provides the capability to assign the following information.

A) Type of Asset

[Dictionary List - Specific to Class of Insurance or Type of Insurance]

A categorisation of the individual asset on the schedule from an agreed list of types. The proposed schema dictionary provides a hierarchical system of categorizing the assets typically covered by the insurance type. We try to limit the dictionary to a maximum of 10 categories in the highest level of categorization, with each of these categories potentially able to be further subdivided into 10 sub-categories. For the schema version 1.0, we propose to keep this categorization as simple as possible and to limit the categorization to a maximum of these 100 subdivisions wherever possible, only using a third layer of categorization of the type of asset where absolutely necessary.

B) Attributes of Asset

Each type of asset has a relevant listing of one or more standard attributes that have major exposure implications, and for which exposure managers might want to analyze and review their portfolio of insured assets. We try to limit the number of attributes for each type of asset to a maximum of 10.

Attributes can be numerical metrics, open or free text fields, or descriptive categories. Where an attribute is a descriptive field, we provide an agreed dictionary list of the options for the description categories. For version 1.0 we propose to limit the number of categories to a maximum of 10 categories in the highest level of categorization, with the potential to further subdivide each category of asset attribute into 10 sub-categories in future versions of the schema.

[Dictionary List - Specific to a Particular Type of Asset]

C) Location of Asset

Fixed Location Geocoding

For individual assets that are in fixed locations, the physical location is a key attribute that determines its exposure to geospatial hazards and assists in exposure accumulation analysis and modelling of geographical perils. The schema captures the latitude and longitude coordinate of the geographical centroid of the asset, together with an assessment of the precision of that locator. The exposure data schema encourages the capture of geographical location information with as high accuracy as possible, using geocoding to the best precision available. Where geocoding is derived from address interpretation, for example knowing that the asset is within an administrative region, the centroid of the administrative region can be used, with an assessment of the potential radius of error uncertainty in location precision.

Mobile Asset Regions of Operation

Some of the asset types are not in fixed locations. Mobile high-value assets, such as aircraft, ships, or mobile oil production rigs, are categorized by their regions of operation, representing the range of locations where they can potentially be found. Exposure management requires assessing aggregations of high-value assets within these regions of operation, particularly where they may incur losses in different jurisdictions. Where these regions are common practice in reporting and monitoring, we propose adopting these as standard aggregation regions for mobile assets.

B. Please comment on using regions of operations as a location indicator for mobile assets. Do you currently record regions of operation?

6.5 Coverage and Compensation Types

[Dictionary List]

For each individual asset on a schedule, or for the aggregate of all other assets, the schema identifies the financial sub-limits and terms by Coverage or Compensation Types, for example, physical damage, third-party liability, business interruption. These are defined as an agreed dictionary list for each class of insurance.

6.6 Inclusions and Exclusions

[Dictionary Lists]

The schema provides an ability to include a full depiction of the causes of loss that are included in the coverage and excluded from it, as a schedule of inclusions and exclusions. Market practice is either the provision of All Risks coverage, sometimes accompanied by exclusion clauses for certain causes of loss (and write-backs where exclusions are reinstated), or the provision of Named Peril coverage, with an explicit contractual listing of specific causes of loss that are covered. The schema includes a listing of perils and coverage types that are commonly included in Named Peril coverage, or that may be potentially excluded from All Risks. These can be applied to a specific policy or to an individual asset that is identified in a schedule of exposures.

Each type of insurance is often written using common contractual templates that are typically modified and customized for specific clients needs. Different contractual templates are across the market, typically with US and European markets using different wording structures. We propose that the schema will include a listing of options of commonly used contractual wording templates, by their reference codings. We are currently collating and listing examples of these, to evaluate the feasibility of including dictionaries of common contractual wording templates used in the market. A reference code for a contractual wording template would enable exposure to be managed and accumulated by contract type.

It may be possible to collate and reference a central source for contractual wording templates, or to provide references to the various sources that currently exist for the documents that are currently in use by the markets. We request examples of the standard forms and contractual wording templates that your company and departments typically use for each of the types of insurance covered in this consultation document.

Examples of contractual wording templates include:

- LMA 3030 (Terrorism Insurance Physical Loss or Physical Damage Wording)
- CL380 (Institute Cyber Attack Exclusion Clause)
- LMA5287 (Property & Plant Testing & Commissioning Clause)
- LMA5203 (Limited Nuclear Risk Exclusion Clause)
- NMA 464 (War and Civil War Exclusions Clause)

C. Please indicate which contract wording templates you typically use for coverages in the classes of insurance covered in this consultation document

D. Please comment on the usefulness of a listing of common contract wording templates and the potential for a central depository of them as reference documents.

7 Information about the Insured: Commercial

The exposure data schema proposes to incorporate the following information about the policy-holder for each policy. Each company typically has their own account and policy-holder identification and naming practices in their own systems. In addition to these, we propose that companies adopting the exposure data schema will include the following information.

7.1 Full Legal Name of Policy Holder

The full and exact text of the legal name of the policy-holder provides a unique identification for the organisation. The legal name of an organization is typically specified in legal agreements, such as the name of the purchaser of the insurance policy.

The current practice in recording and tracking the names of policy-holder organizations held in exposure data can be inconsistent and variable, making it difficult to reconcile and match policy-holder names across different internal systems and in data exchanges with counterparties. An organization's name can be abbreviated, several different versions may be used, and data reconciliation faces the usual issues of mis-spelling and transcription errors. There are additional complications introduced by the structure of large companies, that may have subsidiaries and parent companies, holding companies, and different incorporations of companies in different geographical jurisdictions.

Commercial organisations may hold more than one type of policy with an insurer, and may buy coverage for several classes and types of insurance business. The data schema is intended to enable an insurer to track the exposure in all the policies that it has with a single organisation. It is important for insurers to identify a specific organisation as a policy-holder in data that may come from different sources across the market, such as through different distribution channels. For a reinsurer, being able to identify that two insurance company cedants hold policies for the same organization is highly desirable for their reconciliation and roll-up of exposure.

In consultation so far, the feedback has suggested that standardizing policy-holder naming is a high priority, but processes for improving the consistency of naming policy-holders pose operational challenges, for example, the exposure data management team may not have access to the legal documents that bind the insurance contract.

E. Please comment on the importance of uniquely and consistently identifying insureds as policy-holders and the use of the full and exact text of the legal name as an identifier.

7.2 DUNS Number for Organization

This consultation round is exploring the feasibility and appetite of the potential users of the schema to use DUNS numbers for coding the organization name in the exposure data schema.

The Data Universal Numbering System (DUNS or D-U-N-S) is a unique nine-digit code provided as a third-party data service by Dun & Bradstreet. Identifying the DUNS number for an individual company is a free service. Batch processing for multiple companies is apparently available through an API with appropriate commercial licencing. Geographical coverage favors the advanced economies and DUNS numbers are reportedly available for over 250 million businesses throughout the world, although smaller businesses may not have an existing registered DUNS number.

F. Please comment on the appeal of proposing the use of a DUNS Number for uniquely identifying insured organizations as policy-holders in the exposure data schema

7.3 Size of Company

Size of company is a key market segmentation for exposure management reporting. We propose two metrics for managing and monitoring exposure by the size of the policy-holder organization:

Annual Revenue
The most recently available public record of the annual revenue of the policy-holder organization in US$.

Number of Employees
The most recently available public record of the total number of employees of the policy-holder organization.

G. Please comment on capturing the size of company information in the exposure data schema.

7.4 Business Sector Coding

Business sector and activity classification is a key market segmentation for exposure management reporting.

NAICS Code

We propose that the full 6-digit North American Industry Classification System (NAICS) code is captured for the organization, together with the version of the NAICS code that applies (2017 version preferred).

Schedule of Activity Codes

Where an organization has several NAICS codes (typical for larger companies that have multiple activities), all of the NAICS codes should be captured in a schedule (listing) of activity codes.

Aggregation into Business Sectors

Business sectors can be aggregated for exposure management reporting into 20 major sectors using the first two digits of the NAICS codes. 3, 4 and 6-digit codes can be mapped to more commonly used categories of insurance sector segmentation using the mapping provided in table 3, page 16 of the Exposure Data Schema v1.0 for Cyber Insurance (available for download here).

H. Please comment on capturing NAICS codes and categorizing business sectors in the exposure data schema.

7.5 Insureds: Personal Lines

In phases 2 and 3 of the data schema development, we will develop exposure data standards for personal lines classes of business, appropriate to current practice. We expect this to be significantly different from commercial lines in the need for tracking exposure. The proposed structure for tracking commercial organisations is not necessarily appropriate for tracking the exposure of individuals, and a proposal for this will be developed during that next stage of the project.

7.6 Reinsurance Treaty Aggregation

Reinsurers may prefer to receive treaty information as a schedule of policies, and if each policy in the schedule is specified according to this common exposure data standard, and the reinsurer receives similar exposure data information from multiple cedants, they can aggregate and analyse exposure across the standardised exposure attributes.

Where treaty information is not able to be provided to the reinsurer as a schedule of policies, there may be an additional need to specify a standard for reporting aggregated exposure across these classes of business or to provide templates for disaggregating treaty information into likely exposure distributions. This is not currently part of the scope of this project.

Part B: Schema Structure for Phase One Classes of Insurance

1 Casualty Liability Insurance

Casualty liability insurance encompasses a wide range of categories of insurance, triggered when an individual or organisation causes losses or damages by their negligent acts or omissions. That is, when the damage to a person or property is caused by the failure of a person or organisation to use reasonable care. Casualty liability insurance does not extend to circumstances where the event has been caused by unlawful or intentional acts that result in unquantifiable losses. It does not cover exposures that are covered by other categories of insurance.

The coverage offered by casualty liability insurance is limited by the principles of contributory negligence and contractual liability. In the US, it is often subject to state-mandated limits.

The asset at risk for commercial casualty liability is the legal entity of the organisation, which is typically the policy holder.

Additional information about the organisation is required for managing the exposure of liability insurance, over and above the information about the organisation when managing exposure of other classes of insurance.

1.1 Information about the Insured

Information about the insured for the exposure data schema is common to all classes of insurance. Consultation on the information proposed to be collected about the insured is covered in the previous section. It consists of:

a) Full Legal Name of Policy Holder
b) DUNS Number for Organization
c) Size of Company
   i. Annual Revenue
   ii. Number of Employees
d) Business Sector and Activities
   i. North American Industry Classification System (NAICS) Code
   ii. Schedule of NAICS Codes for companies with multiple activities

1.2 Additional Information about the Insured for Liability Exposure

[Dictionary: Liability – Additional Information about Insured]

Schedule of Subsidiaries

The insured entity for casualty liability is the legal organisation, typically the policy-holder. The identification of the legal entity of the policy-holder is emphasized for all classes of insurance in the exposure data schema.

For casualty liability it is particularly important to identify any subsidiary legal entities whose liabilities could flow to the policy holder. The schema provides the potential to attach a schedule of subsidiaries covered by the policy. For each subsidiary, the 'information about the insured' should be completed.

Size of Company for Liability Exposure

In addition to the size of company categorization by revenue and employees proposed for segmentation of exposure as a standardized reporting structure across all classes of business, there are standard practices for categorizing exposure in casualty liability by size of insured within specific types of casualty liability insurance. Examples of these practices are listed below:

Size Metric	Insured	Type of Casualty Liability Insurance
Number of Beds	Hospital	Medical Malpractice
Assets Under Management	Financial Organization	Professional Liability
Annual Earnings	Corporation	Directors and Officers

Total Payroll Amount

A common practice in casualty liability as an alternative to recording the total number of employees is recording the total payroll, in US$.

I. Are there other ways which the size of company is measured within casualty policies aside from those listed? Is there any additional information which needs to be included?

1.3 Policy Contractual and Financial Structure

Data on the contractual and financial structure for the policy as a whole is common to all classes of insurance in this exposure data schema. This includes:

a) Inception date of policy
b) Expiration date of policy term
c) Legal jurisdiction in which claims or disputes are settled
    - Legal jurisdiction is typically a country, defined by the ISO 3166-1 alpha-2, two-letter country code. In the United States, legal jurisdiction is identified by State.
d) Total Policy Limit (US$)
e) Policy-Level Deductible (US$) if applicable
f) Co-share (%) if applicable

Financial structures for insurance policies can be complex. The data schema provides the capability for defining financial terms in additional to a policy total, of sub-limits, deductibles, and co-share within a policy that applies to any grouping and permutations of individual items on a schedule, asset types, asset attributes, locations, coverages, or terms and conditions.

1.4 Additional Contractual Information for Casualty Liability: Coverage Trigger

[Dictionary: Liability – Coverage Trigger]

A characterisation and differentiation of Casualty Liability insurance is coverage trigger. Policies will be categorised to identify coverage trigger, as follows:

a) Claims Made
b) Occurrence Basis
    a. Occurrence
    b. Occurrence Notified
    c. Loss Discovered

J. Please review and comment on the proposal for the dictionary of 'Liability – Coverage Trigger'.

1.5 Types of Insurance within Casualty Liability

[Dictionary: Liability – Types of Insurance]

We categorise each casualty liability policy by the common types of liability insurance in the market. The dictionary of types of liability consists of primary categories which can be sub-divided into secondary categories where appropriate (and third levels of categories if essential).

A suggested listing of primary level types of liability insurance commonly offered within the class of casualty liability business is:

a) Commercial General Liability (CGL)

An insurance policy which provides coverage to business organizations for bodily injury, personal injury, and property damage caused by the business' operations, products, or injury that occurs on the business' premises.[1]

"Commercial General Liability (CGL)." Investopedia, 2017, http://www.investopedia.com/terms/c/commercial-general-liability-cgl.asp#ixzz4rL7ikOak.

   i. Premises and Operations

A liability coverage for potential hazards to a business operation or the business' premises

"What Is Premises And Operations Liability Insurance? Definition And Meaning." Businessdictionary.Com, 2017, http://www.businessdictionary.com/definition/premises-and-operations-liability-insurance.html.

   ii. Products and completed operations
   iii. Advertising and personal Injury
   iv. Personal Injury

b) Employers Liability
c) Automobile Liability
d) Public Liability
e) Professional Liability/ Errors and Omissions/ Professional Indemnity
   i. Advisory/ Consulting Services Liability
   ii. Architectural and Engineering Liability
   iii. Medical Liability
   iv. Information Technology Liability
   v. Other
f) Directors and Officers
g) Environmental Liability
   i. Premises EIL
   ii. Contractors EIL
h) Workers Compensation[2]
   i. Contractors Professional
i) Cyber
j) Construction Wrap Up
   i. Owner
   ii. Contractor
k) Accident and Health
l) Product Liability

[1] The document trials the process of proposing definitions for each field. We intend to provide definitions for all fields in the v1.0 report, pending v0.9 feedback. Within the v0.9 document, only the first two fields of each section have a definition provided.
[2] American market specific

K. Please review and comment on the proposed dictionary of 'Liability – Types of Insurance'.

1.6 Schedules of Liability Exposures

The policy can include one or more schedule of liability exposures being insured under this policy, i.e. listings of individual locations, business operations, products, counterparties, or activities giving rise to potential third-party liability exposure. In some cases, only the largest exposures will be individually listed on a schedule, with all other unlisted exposures covered in aggregate under the policy total.

Where schedules consist of individual fixed locations, the exposure data schema encourages the capture of geographical location information with as high accuracy as possible, using geocoding to the best precision available, ideally the latitude and longitude coordinate of the location, together with an assessment of the precision of that locator.

Employee location schedule

Where the type of liability insurance includes liabilities for the health and safety of employees, a schedule of the locations of the workplaces with the largest concentrations of employees will be part of the exposure data, identifying the location and number of employees. For example:

a) Commercial General Liability (CGL)
b) Employers Liability
c) Workers Compensation

Jurisdiction schedule of activities with liability

Where the type of liability insurance includes liabilities arising from international commercial activities that could give rise to liabilities in jurisdictions beyond those of the home jurisdiction of the insured, as specified in policy, the exposure data will include a schedule of other jurisdictions where the insured has business. For each jurisdiction (typically a country, defined by the ISO 3166-1 alpha-2, two-letter country code) the schedule will specify the relevant amount of business activity exposed to that type of liability in that jurisdiction, as represented by total revenue.

Counterparty and other schedules

In the schema, we propose to include the ability to add other schedules representing liabilities of other types. These may be location schedules or non-geographic listings of assets or relationships with significance to liabilities. Potential schedules that might be added could include:

a) Customers or sectors of the public for whom the insured has third-party liabilities, segmented by attributes of liability, or geography of location
b) Suppliers, customers, or counterparties with financial relationships to the insured, where the insured has a policy with potential liabilities arising from financial relationships with counterparties
c) Product inventories, consumers, and potential total exposures from product liabilities and recall
d) Site locations with potential to create environmental liability

L. Please comment on the usefulness of including schedules of employee locations, jurisdictions, counterparties and other schedules for tracking liability

1.7 Coverage Inclusions and Exclusions

The schema provides the potential to identify causes of loss that are excluded from coverage and those where write-backs may see exclusions reinstated, or specific coverages named.

The policy information can include one or more schedule of exclusions or inclusions that apply to this policy.

Each type of casualty liability insurance is often written using common contractual templates that are typically modified and customized for specific clients needs. Different contractual templates are used in different parts of the market. We propose that the schema will include a listing of options of commonly used contractual wording templates, by their reference codings. We are currently collating and listing examples of these, to evaluate the feasibility of including dictionaries of common contractual wording templates used in the market. A reference code for a contractual wording template would enable exposure to be managed and accumulated by contract type.

M. Please indicate which contract wording templates you typically use for coverages in casualty liability in any of the types of insurance identified in 1.5

N. Please comment on including definitions for each field within the Liability schema. Would you like to have this continued in the v1.0 document?

2 Marine Insurance

The marine market is one of the oldest classes of insurance, and is wide-ranging in its coverage and the assets it includes. It typically covers the loss or damage of ships, cargo, terminals, and any transport or cargo by which property is transferred, acquired, or held between the points of origin and destination.

The following information should be appended to describe marine insurance policy-level exposure.

2.1 Information about the Insured

Information about the insured for the exposure data schema is common to all classes of insurance. Consultation on the information proposed to be collected about the insured is covered in the previous section. It consists of:

e) Full Legal Name of Policy Holder
f) DUNS Number for Organization
g) Size of Company
   iii. Annual Revenue
   iv. Number of Employees
h) Business Sector and Activities
   iii. North American Industry Classification System (NAICS) Code
   iv. Schedule of NAICS Codes for companies with multiple activities

2.2 Policy Contractual and Financial Structure

Data on the contractual and financial structure for the policy as a whole is common to all classes of insurance in this exposure data schema. This includes:

a) Inception date of policy
b) Expiration date of policy term
c) Legal jurisdiction in which claims or disputes are settled
   - Legal jurisdiction is typically a country, defined by the ISO 3166-1 alpha-2, two-letter country code. In the United States, legal jurisdiction is identified by State.
d) Total Policy Limit (US$)
e) Policy-Level Deductible (US$) if applicable
f) Co-share (%) if applicable

Financial structures for insurance policies can be complex. The data schema provides the capability for defining financial terms in addition to a policy total, of sub-limits, deductibles, and co-share within a policy that applies to any grouping and permutations of individual items on a schedule, asset types, asset attributes, locations, coverages, or terms and conditions.

2.3 Types of Marine Insurance

[Dictionary: Marine – Types of Insurance]

We propose to categorize each marine insurance policy by the common types of marine insurance in the market. The dictionary of types of marine insurance consists of primary categories which can be sub-divided into secondary categories where appropriate (and third levels of categories if essential).

A suggested listing of primary and secondary level types of marine insurance commonly offered within the marine market is:

i) Hull

An insurance policy that provides coverage for the physical integrity of a ship.[3]

[3] The document trials the process of proposing definitions for each field. We intend to provide definitions for all fields in the v1.0 report, pending v0.9 feedback. Within the v0.9 document, only the first two fields of each section have a definition provided.

"Hull Marine Insurance." Farlex Financial Dictionary. 2009. Farlex 31 Aug. 2017 http://financial-dictionary.thefreedictionary.com/Hull+Marine+Insurance

i. Loss of Hire

A Hull coverage which protects the shipowner from a daily loss of income arising from physical damage to the vessel.

"The Swedish Club: International Marine Insurance - Insurance - Loss Of Hire." Swedishclub.Com, 2017, http://www.swedishclub.com/insurance/marine/loss-of-hire/.

ii. War
iii. Increased Value
iv. Total Loss
v. Hull and Machinery

b) Cargo
   i. Cargo in Transit
      1. Trade Fairs/ Exhibition Risks
   ii. Cargo in Storage
   iii. Stock Through Put

c) Marine Liability
   i. Pollution Liability
   ii. Ship Repairs Liability
   iii. Protection and Indemnity
      1. Poolable
      2. Non Poolable
   iv. Charterers
   v. General Liability

d) Construction/ Marine Builders Risk
   i. Vessels
   ii. Offshore Energy

e) Ports and Terminals
   i. Terminal Operators legal Liability
   ii. Warehouse Legal Liability
   iii. Wharfingers Liability
   iv. Port Property
      1. Combined Coverage Property
      2. Vehicles

f) Offshore Energy
   i. Mobile Production
   ii. Floating Production Storage and Offloading (FPSO)
   iii. Fixed Platform
   iv. Floating Platform

g) Specie
   i. General Specie
      1. Precious Metals
      2. Documents
   ii. Fine Art
   iii. Jewellers Block
   iv Cash and Transit

h) Inland
   i. Warehouse Liability
   ii. Builders Risk

iii. Contractors Equipment
iv. Motor Truck Cargo

O. Please review and comment on the proposed dictionary of 'Marine – Types of Insurance'.

2.4 Asset Types Covered by Marine Insurance

[Dictionary: Marine – Asset Types]

Assets typically covered in marine insurance can be broadly categorised as:

a) Vessels

A vehicle designed for navigation in or on water

"Vessel - Dictionary Definition." Vocabulary.Com, 2017, https://www.vocabulary.com/dictionary/vessel.

b) Cargo

The goods or merchandise conveyed in a ship

"Cargo." Merriam-Webster.com. Merriam-Webster, n.d. Web. 31 Aug. 2017.

c) Specie
d) Legal Entity of Policy Holder
e) Marine Construction Projects
f) Port and Terminals
g) Incidental Cargo
h) Offshore Energy Facilities

Each of these is further categorized as a sub-list, defined in the asset type dictionary.

a) Vessels
   i. Tankers
   ii. Container Vessels
   iii. Passenger Ships and Ferries
   iv. Bulk Vessels
   v. Off Shore Vessels
   vi. Fishing Vessels
   vii. Pleasure Craft
   viii. Special Purpose Vessels
b) Cargo
   i. General Cargo
      1. Automobiles
      2. Consumable
      3. Electronics
      4. Heavy Industry and Machinery
      5. Pharmaceuticals
      6. Livestock
      7. Other
   ii. Bulk
      1. Break Bulk

2. Dry Bulk
3. Liquid Bulk

iii. Project Cargo and Specialist
1. Project Cargo
2. Heavy Lift
3. Satellite

iv. Rolling Stock

c) Specie
i. Cash in Transit
ii. Fine Art
1. Gallery
2. Private Collectors
iii. Jewellers Block
1. Trade Show
2. Retail
3. Wholesale
iv. General Specie
1. Precious Metals
2. Valuable Documents
3. General Specie

d) Legal entity of the policy holder (for marine liability)
i. Person
ii. Company
iii. Government Organization

e) Marine Construction Projects
i. Vessels
ii. Offshore

f) Port and Terminals
i. Sea Ports
ii. Inland Ports

g) Offshore Energy Facilities
i. Fixed Platform (FP)
ii. Mobile Platform (MP)

P. Please review and comment on the proposed dictionary of 'Marine – Asset Types'.

2.5 Asset Attributes

[Dictionary: Marine – Asset Attributes]

A suggested categorisation of the attributes to be captured about the insured asset includes general and sub-asset specific attributes. Sub-assets with no additional attribute requests are assumed to be sufficiently covered by the broader listed attributes.

a) Vessels

- Value of Vessel

  The monetary worth of the watercraft

- Name of Vessel

The legal name of the watercraft

- Type of Vessel
- Age of Vessel
- Size of Vessel (Tonnage)
- IMO Number

b) Cargo

- Policy Maximum, Storage
- Policy Maximum, Transit
- Policy Average, Storage
- Policy Average, Transit
- Type of Content
- Number of Storage Locations

i. General Cargo

1. **Automobiles**
   - Number of Units
   - Brand of Automobile
   - Protective Storage Measures in Place
2. **Consumable**
   - Temperature Controlled
   - Perishability
   - Number of Units
3. **Electronics**
   - Theft Attractiveness
   - Number of Units
4. **Heavy Industry and Machinery**
   - Packing
   - Protective Storage Measures in Place
   - Number of Units
5. **Pharmaceuticals**
   - Handling Risk
   - Temperature Controlled
6. **Livestock**
7. **Other**

ii. Bulk

- Amount of Contents per Unit
- Content Type
- Weight of Cargo
- Storage Container Type
  1. **Break Bulk**
  2. **Dry Bulk**
  3. **Liquid Bulk**

iii. Project Cargo and Specialist

1. **Project Cargo**
2. **Heavy Lift**
   - Weight of Cargo
3. **Satellite**

iv. Rolling Stock

c) Specie

- Value of Property
- Policy maximums
- Personal Carrying Limit

- Secure Transit Limit
- Fragility
- Protective measures in place

i. Cash in Transit

- Relative Location (Vault/ Processing/ Carrying)

ii. Fine Art

- Relative Location (Exhibition/ Museum/ Secure Store/ Transits)

1. Gallery
2. Private Collectors

iii. Jewellers Block

1. Trade Show
2. Retail
3. Wholesale

iv. General Specie

1. Precious Metals
2. Valuable Documents
3. General Specie

d) Legal entity of the policy holder (for marine liability)

- Name of Policy Holder
- Policy Number
- North American Industry Classification System Code
- Cambridge Centre for Risk Studies Business Classification Category

i. Person
ii. Company
iii. Government Organization

e) Marine Construction Projects

- Start date of project
- Policy Limit
- Name of project

i. Vessels
ii. Offshore

f) Port and Terminals

- Total Number of Berths
- Port Area (Meter Squared)
- Gross Revenues (USD/ Equivalency)
- Vessel Calls per Annum
- Days of Operation per Annum
- Policy Maximums

i. Sea Ports
ii. Inland Ports

g) Offshore Energy Facilities

- Reference in third-party database
- Facility Age
- Value of Facility
- Policy Maximum

i. Fixed Platform (FP)
ii. **Mobile Platform (MP)**

Q. Please review and comment on the proposed dictionary of 'Marine – Asset Attributes'.

2.6 Fixed Locations and Mobile Assets Regions of Operation

Fixed Location Geocoding

For individual assets identified on schedules that are in fixed locations, such as such as ports, terminals and construction sites, the physical location is a key attribute that determines its exposure to geospatial hazards and assists in exposure accumulation analysis and modelling of geographical perils. The schema captures the latitude and longitude coordinate of the geographical centroid of the asset, together with an assessment of the precision of that locator. The exposure data schema encourages the capture of geographical location information with as high accuracy as possible, using geocoding to the best precision available. Where geocoding is derived from address interpretation, for example knowing that the asset is within an administrative region, the centroid of the administrative region can be used, with an assessment of the potential radius of error uncertainty in location precision.

Mobile Assets Regions of Operation

Much of the asset types in marine insurance, such as vessels and cargo, are not in fixed locations. It is not common practice to track the locations of vessels and cargo and other exposure. However potential high-value concentrations of mobile exposure is of interest, such as major ports where cargo and vessels may coincide for periods of time. The jurisdiction of potential marine losses is of significant interest in marine exposure management.

Mobile high-value assets, such as major vessels and cargo accounts, can be categorized by their principal regions of operation, representing the range of locations where they can potentially be found. Major ports within these principal regions of operation have some potential for having that asset present at some point in time. Principal regions of operation for marine vessels and cargo are defined from ocean regions and the major trading routes monitored and reported in Lloyd's List. We propose adopting major ports and ocean regions as standard aggregation zones for mobile assets in marine insurance.

R. Please comment on fixed location geocoding and mobile assets regions of operation for use as standard aggregation regions for marine insurance exposure.

2.7 Coverage or Compensation Types

[Dictionary: Marine – Coverage Types]

The primary types of coverage that apply in the policy include the following, defined in the coverage type dictionary:

a) Physical Damage

Coverage for damage done to property.

Physical damage. BusinessDictionary.com. WebFinance, Inc. August 24, 2017 <http://www.businessdictionary.com/definition/physical-damage.html>.

b) Liability

Coverage for both legal costs and any legal payouts that the insured would be responsible for if found legally liable.

"Liability Insurance." Investopedia, 2017, http://www.investopedia.com/terms/l/liability_insurance.asp.

   a. Personal Injury
   b. Product Liability
   c. Third-Party Liability
   d. Grounding Liability

c) Hull
   a. Hull War
   b. Hull All Risks

d) Business Interruption

S. Please review and comment on the proposed dictionary of 'Marine – Coverage Types'.

2.8 Coverage Inclusions and Exclusions

The schema provides an ability to include a full depiction of the causes of loss that are included in the coverage and excluded from it, as a schedule of inclusions and exclusions. Market practice may be either the provision of All Risks coverage, sometimes accompanied by exclusion clauses for certain causes of loss (and write-backs where exclusions are reinstated), or the provision of Named Peril coverage, with an explicit contractual listing of specific causes of loss that are covered. The schema includes a listing of perils and coverage types that are commonly included in Named Peril coverage, or that may be potentially excluded from All Risks. These can be applied to a specific policy or to an individual asset that is identified in a schedule of exposures.

The policy information can include one or more schedule of exclusions or inclusions that apply to this policy.

Each type of marine insurance, listed in 2.3, is often written using common contractual templates that are typically modified and customized for specific clients needs. Different contractual templates are used in different parts of the market. We propose that the schema will include a listing of options of commonly used contractual wording templates, by their reference codings. We are currently collating and listing examples of these, to evaluate the feasibility of including dictionaries of common contractual wording templates used in the market. A reference code for a contractual wording template would enable exposure to be managed and accumulated by contract type.

T. Please indicate which contract wording templates you typically use for marine insurance policies in any of the types of insurance identified in 2.3

U. Please comment on including definitions for each field within the marine schema. Would you like to have this continued in the v1.0 document?

3 Energy Insurance

The energy insurance market serves the oil, petrochemical and renewable energy industry, and covers offshore and onshore risks for energy and related businesses.

The following information should be captured to describe energy insurance policy-level exposure.

3.1 Information about the Insured

Information about the insured for the exposure data schema is common to all classes of insurance. Consultation on the information proposed to be collected about the insured is covered in the previous section. It consists of:

a) Full Legal Name of Policy Holder
b) DUNS Number for Organization
c) Size of Company
    i. Annual Revenue
    ii. Number of Employees
d) Business Sector and Activities
    i. North American Industry Classification System (NAICS) Code
    ii. Schedule of NAICS Codes for companies with multiple activities

3.2 Policy Contractual and Financial Structure

Data on the contractual and financial structure for the policy as a whole is common to all classes of insurance in this exposure data schema. This includes:

a) Inception date of policy
b) Expiration date of policy term
c) Legal jurisdiction in which claims or disputes are settled
    - Legal jurisdiction is typically a country, defined by the ISO 3166-1 alpha-2, two-letter country code. In the United States, legal jurisdiction is identified by State.
d) Total Policy Limit (US$)
e) Policy-Level Deductible (US$) if applicable
f) Co-share (%) if applicable

Financial structures for insurance policies can be complex. The data schema provides the capability for defining financial terms in additional to a policy total, of sub-limits, deductibles, and co-share within a policy that applies to any grouping and permutations of individual items on a schedule, asset types, asset attributes, locations, coverages, or terms and conditions.

3.3 Types of Energy Insurance

[Dictionary: Energy – Types of Insurance]

We propose categorising each energy insurance policy by the common types of energy insurance in the market. The dictionary for types of energy insurance consists of primary categories which can be sub-divided into secondary categories where appropriate (and third levels of categories if essential).

A suggested listing of primary and secondary level types of energy insurance commonly offered within the energy market is:

a) Upstream (Offshore)
    It covers all activities related to searching for, recovering and producing crude oil and/or natural gas from underground or underwater fields.[4]

[4] The document trials the process of proposing definitions for each field. We intend to provide definitions for all fields in the v1.0 report, pending v0.9 feedback. Within the v0.9 document, only the first two fields of each section have a definition provided.

Jerina, Amy. "Differences Between Upstream, Midstream & Downstream In Oil & Gas." Croftsystems.Net, 2017, https://www.croftsystems.net/oil-gas-blog/differences-between-upstream-midstream-downstream-in-oil-gas.

i) Exploration and Production

Insurance related to the finding, augmenting, producing and merchandising of different types of oil and gas

_____

"Exploration & Production - E&P." Investopedia, 2017, http://www.investopedia.com/terms/e/exploration-production-company.asp.

ii) Contractors
iii) Construction

b) Downstream (Onshore)
i) Construction
ii) Transmission and Distribution
iii) Production
iv) Midstream

c) Renewables
i) Construction

V. Please review and comment on the proposed dictionary of 'Energy – Types of Insurance'.

3.4 Asset Types Covered by Energy Insurance

[Dictionary: Energy – Asset Types]

Assets typically covered by Energy insurance can be categorized as:

Upstream (Offshore)

a) Platform

A structure above an oil well on land or in the sea that has special equipment attached to it for drilling and removing oil from the ground

_____

"Oil Platform." Merriam-Webster.com. Merriam-Webster, n.d. Web. 4 Sept. 2017.

i. Fixed Platform (FP)

A platform extending above and supported by the sea bed by means of piling, spread footings or other means with the intended purpose of remaining stationary over an extended period.

_____

API RP 2FB, Recommended Practice for the Design of Offshore Facilities Against Fire and Blast Loading, First Edition, April 2006.

IADC. "Definition Of Fixed Platform - IADC Lexicon." IADC Lexicon, 2017, http://www.iadclexicon.org/fixed-platform/.

ii. Compliant Tower (CT)
iii. Tension Leg Platform (TLP)
iv. Mini-Tension Leg Platform (Mini-TLP)
v. SPAR Platform (SPAR)
vi. Floating Production System (FPS)
vii. Subsea System (SS)
viii. Floating Production, Storage & Offloading System (FPSO)

b) Onshore Assets
i. Land Rigs

ii. Onshore Oil Field Assets
iii. Storage

c) Mobile Unit
i. Offshore Mobile Units

d) Pipelines
e) Wells
f) Gas Processing Plant
g) Terminal
h) Miscellaneous/ Equipment
i) Complex

Midstream

a) Pipelines & rail
i. Gas pipeline
ii. Oil pipeline
iii. Rail containers & product

b) Storage
i. Gas
ii. Oil

c) Fractionation Plant
d) Blending Plant
e) Liquid Natural Gas
i. Regasification plant
ii. Liquefaction plant

Downstream (Onshore)

a) Power & utilities
i. Gas power plant
ii. Oil power plant
iii. Diesel power plant
iv. Coal power plant
v. Power barge
vi. Transmission lines
vii. Distribution lines
viii. Renewable power plant

b) Oil Sands & mining
i. Oil sands refinery
ii. SAGD (steam assisted gravity drainage) facility
iii. Mining facility

c) Refining
i. Complex
ii. Non-complex

d) Petrochemicals
i. Oil
ii. Gas

e) Chemicals
i. Chemical plant

f) Storage Facilities

Renewables

a) Solar
i. Power generation facility

b) Wind
    i. Power generation facility
c) Geothermal
    i. Power generation facility
d) Tidal
    i. Power generation facility
e) Hydro
    i. Power generation facility
    ii. Wave Generation
f) Nuclear
    i. Power generation facility

W. Please review and comment on the proposed dictionary of 'Energy – Asset Types'.

3.5 Attributes of the Insured Assets by Type

[Dictionary: Energy – Asset Attributes]

A suggested categorisation of the attributes to be captured about the insured asset includes general and asset-specific attributes. Assets with no additional attribute requests are assumed to be sufficiently covered by the listed general attributes.

General:

- Date Asset was Built

  Year, month (optional), day (optional) asset was constructed

- Policy Limit

  The maximum dollar amount of coverage provided by an insurance company for a certain policy.

  _____

  "Policy limit." Financial Glossary. 2011. Campbell R. Harvey 4 Sep. 2017 http://financial-dictionary.thefreedictionary.com/Policy+limit

- Name of Asset
- Inception Date of Asset
- Expiry Date of Asset

Asset Specific:

Upstream (Offshore)

a) **Platform**
    - Area
    - Water Depth
    - Location: Coordinate
    - % of Platform Insured
    - Number of People on Site

b) Onshore Assets
    - Area
    - Water Depth
    - % Insured

- Number of People on Site

c) Mobile Unit

- Area
- Water Depth
- % Insured
- Number of People on Site

d) Pipelines

- Pipeline Diameter
- Length of Line
- Pipe Material

e) Wells

- Well Depth
- Well Area
- Location: Coordinate
- Well Type

f) Gas Processing Plant

- Area
- Number of People on Site

g) Terminal

- Area
- Number of People on Site
- Railcar Capacity
- Modes Inbound
- Modes Outbound
- Product
- Location

h) Miscellaneous/ Equipment

- Item Description

i) Complex

- Area
- Water Depth
- Location: Coordinate
- % of Complex Insured
- Number of People on Site

Midstream

a) Pipelines & rail

i. Gas pipeline

- Number of River Crossings
- Diameter
- Length Underground
- Length Overground

ii. Oil pipeline

- Number of River Crossings
- Diameter
- Length Underground
- Length Overground
- Capacity

iii. Rail containers & product

- Capacity

b) Storage

i. Gas

ii. Oil

- Roof Type (Fixed/ Floating)

c) Fractionation Plant

d) Blending Plant

e) Liquid Natural Gas

i. Regasification plant

ii. Liquefaction plant

Downstream (Onshore)

- Construction
- Age
- Specific safety measures
- Area
- Part of a larger complex
- Number of People on Site
- Loss record
- Details of Upstream suppliers

a) Power & utilities

- Modes Inbound
- Modes Outbound

i. Gas power plant

ii. Oil power plant

iii. Diesel power plant

iv. Coal power plant

v. Power barge

vi. Transmission lines

- Anti-cascade measures
- Windspeed design strength
- Length under ground
- Length over ground
- Voltage carried

vii. Distribution lines

- Anti-cascade measures
- Windspeed design strength
- Length under ground
- Length over ground
- Voltage carried

viii. Renewable power plant

b) Oil Sands & mining

i. Oil sands refinery

ii. SAGD (steam assisted gravity drainage) facility

iii. Mining facility

- Product

c) Refining

i. Complex

ii. Non-complex

d) Petrochemicals

i. Oil

ii. Gas

e) Chemicals

i. Chemical plant

- Product

f) Storage Facilities

Renewables

a) Solar

i. Power generation facility

b) Wind

i. Power generation facility

c) Geothermal

i. Power generation facility

d) Tidal

i. Power generation facility

e) Hydro

i. Power generation facility

ii. Wave Generation

f) Nuclear

i. Power generation facility

X. Please review and comment on the proposed dictionary of 'Energy – Asset Attributes'.

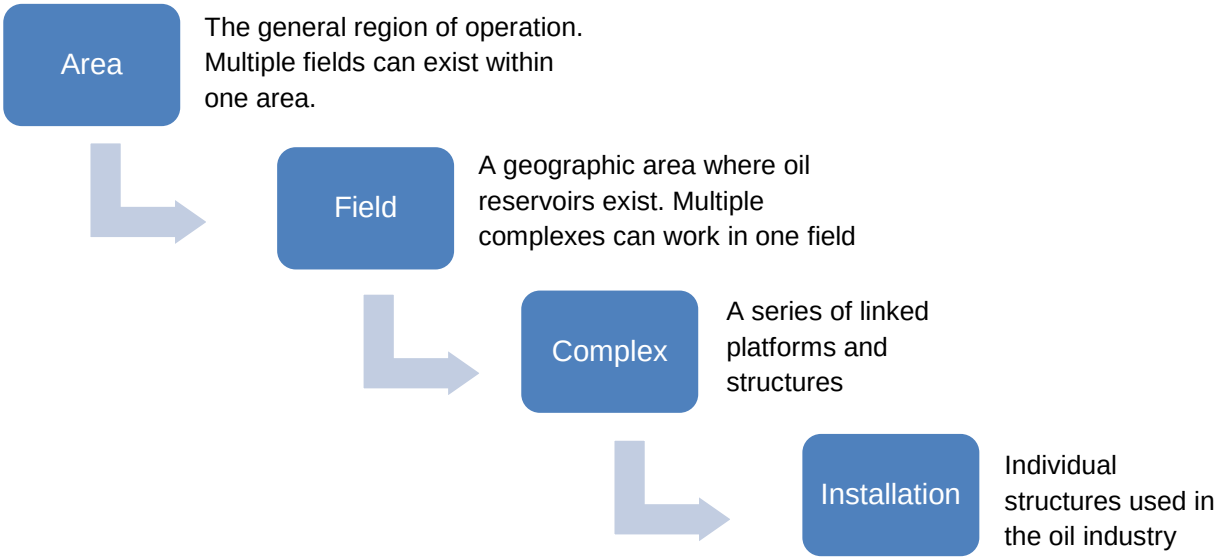
3.6 Fixed Locations and Offshore Regions of Operation

[Dictionary: Energy – Offshore Region of Operation]

Fixed facilities, such as wells or hydro power generation facilities, can be individually located by latitude and longitude coordinates or a geospatial object (such as a polygon representing the boundary of an offshore oil field) to provide geo-referencing for risk analysis and exposure management. Individual installations with separate location information may be linked into multi-unit complexes, as an insured asset.

The schema captures the latitude and longitude coordinates of the asset, or the elements of that asset, together with an assessment of the precision of that locator. The exposure data schema encourages the capture of geographical location information with as high accuracy as possible, using geocoding to the best precision available.

When considering Oil Platforms, location can be expressed across a gradient of specificity to correlate with coverage expanse. Data provision will be optional and match the amount of detail described within the policy. Location identifying options will include:



Y. Please comment on addressing fixed locations using a geospatial object, or latitude and Longitude to capture location information for energy exposure. Do you feel the suggested gradient supports Oil Platform Locations?

3.7 Coverage or Compensation Types

[Dictionary: Energy – Coverage Types]

The primary types of coverage that apply to the policy include the following, defined in the coverage type dictionary:

a) Physical Damage

Coverage for damage done to property.

_____

Physical damage. BusinessDictionary.com. WebFinance, Inc. August 24, 2017 <http://www.businessdictionary.com/definition/physical-damage.html>.

i. Total Loss Only (TLO)

Coverage which is triggered if an insured item is completely destroyed, damaged beyond use, or disappears without explanation.

_____

"Total Loss Only Insurance." Farlex Financial Dictionary. 2009. Farlex 4 Sep. 2017 http://financial-dictionary.thefreedictionary.com/Total+Loss+Only+Insurance

b) Removal of Debris and Wreck
   i. Excess Removal of Debris
c) Operators Extra Expense
   i. Re-Drill

ii. Control of Well
d) Sue and Labour
e) Business Interruption
f) Contingent Business Interruption
g) Liability
i. General Liability
ii. Pollution
iii. Construction All Risk (Erectional Risk)
iv. Third-Party Liability

Z. Please review and comment on the proposed dictionary of 'Energy – Coverage Types'

3.8 Coverage Inclusions and Exclusions

The schema provides an ability to include a full depiction of the causes of loss that are included in the coverage and excluded from it, as a schedule of inclusions and exclusions. Market practice may be either the provision of All Risks coverage, sometimes accompanied by exclusion clauses for certain causes of loss (and write-backs where exclusions are reinstated), or the provision of Named Peril coverage, with an explicit contractual listing of specific causes of loss that are covered. The schema includes a listing of perils and coverage types that are commonly included in Named Peril coverage, or that may be potentially excluded from All Risks. These can be applied to a specific policy or to an individual asset that is identified in a schedule of exposures.

The policy information can include one or more schedule of exclusions or inclusions that apply to this policy.

Each type of energy insurance, listed in 3.3, is often written using common contractual templates that are typically modified and customized for specific client's needs. Different contractual templates are used in different parts of the market. We propose that the schema will include a listing of options of commonly used contractual wording templates, by their reference coding. We are currently collating and listing examples of these, to evaluate the feasibility of including dictionaries of common contractual wording templates used in the market. A reference code for a contractual wording template would enable exposure to be managed and accumulated by contract type.

AA. Please indicate which contract wording templates you typically use for energy insurance policies in any of the types of insurance identified in 3.3

AB. Please comment on including definitions for each field within the energy schema. Would you like to have this continued in the v1.0 document?

4 Aviation

Aviation insurance is insurance coverage geared specifically to the operation of aircraft and the risks involved in aviation.

The following information should be captured to describe aviation insurance policy-level exposure.

4.1 Information about the Insured

Information about the insured for the exposure data schema is common to all classes of insurance. Consultation on the information proposed to be collected about the insured is covered in the previous section. It consists of:

a) Full Legal Name of Policy Holder
b) DUNS Number for Organization
c) Size of Company
    i. Annual Revenue
    ii. Number of Employees
d) Business Sector and Activities
    i. North American Industry Classification System (NAICS) Code
    ii. Schedule of NAICS Codes for companies with multiple activities

4.2 Policy Contractual and Financial Structure

Data on the contractual and financial structure for the policy as a whole is common to all classes of insurance in this exposure data schema. This includes:

a) Inception date of policy
b) Expiration date of policy term
c) Legal jurisdiction in which claims or disputes are settled
    - Legal jurisdiction is typically a country, defined by the ISO 3166-1 alpha-2, two-letter country code. In the United States, legal jurisdiction is identified by State.
d) Total Policy Limit (US$)
e) Policy-Level Deductible (US$) if applicable
f) Co-share (%) if applicable

Financial structures for insurance policies can be complex. The data schema provides the capability for defining financial terms in additional to a policy total, of sub-limits, deductibles, and co-share within a policy that applies to any grouping and permutations of individual items on a schedule, asset types, asset attributes, locations, coverages, or terms and conditions.

4.3 Types of Aviation Insurance

[Dictionary: Aviation – Types of Insurance]

We propose to categorise each aviation insurance policy by the common types of aviation insurance in the market. The dictionary of types of aviation insurance consists of primary categories which can be sub-divided into secondary categories where appropriate (and third levels of categories if essential).

The suggested listing of primary and secondary level types of energy insurance commonly offered within the aviation market is:

a) Airlines

An insurance policy that provides coverage for airline industries, the assets they own, and the services they provide.[5]

i. Hull

An insurance policy that provides coverage for the physical integrity of the aircraft.

ii. Liability
    1. Passenger
    2. Hull

[5] The document trials the process of proposing definitions for each field. We intend to provide definitions for all fields in the v1.0 report, pending v0.9 feedback. Within the v0.9 document, only the first two fields of each section have a definition provided.

3. Third-Party

iii. Spares

b) Aerospace
   i. Airport Owners Liability
   ii. Aviation Liability
   iii. Products, Premises and Hangers Insurance
   iv. Re-Fuellers
   v. Drones

c) General Aviation
   i. Hull
   ii. Liability
      1. Passenger
      2. Third-Party
   iii. Cargo
   iv. Spares
   v. Personal Accident

AC. Please review and comment on the proposed dictionary of 'Aviation – Types of Insurance'

4.4 Asset Types Covered by Aviation Insurance

[Dictionary: Aviation – Asset Types]

Assets typically covered in Aviation insurance can be categorised as:

a) Airlines

An air transportation system including its equipment, routes, operating personnel, and management

"Airline." Merriam-Webster.com. Merriam-Webster, n.d. Web. 4 Sept. 2017.

   i. Cargo Airlines

      An airline whose principal occupation is the transportation of cargo by air.

   ii. Charter Airlines
   iii. Government Airlines
   iv. Helicopter Airlines
   v. Low Cost Carriers
   vi. Military Airlines
   vii. Regional Airlines
   viii. Seaplane Operators

b) Aircraft (Individual)
   i. Fixed Wing
   ii. Rotor Wing
   iii. Unmanned

c) Passengers
d) Cargo
e) Refuelling Facilities and Stored Fuel
f) Aircraft Construction and Assembly
g) Spares
h) Airport Facilities

i. People
ii. Aircraft

AD. Please review and comment on the proposed dictionary of 'Aviation – Asset Types'.

4.5 Attributes of the Insured Assets by Type

[Dictionary: Aviation – Asset Attributes]

A suggested categorisation of the attributes to be captured about the insured asset includes general and asset specific attributes. Assets with no additional attribute requests are assumed to be sufficiently covered by the listed general attributes.

General:

- Date Asset was Built

  Year, month (optional), day (optional) asset was constructed

- Policy Limit

  The maximum dollar amount of coverage provided by an insurance company for a certain policy.

  _____

  "Policy limit." Financial Glossary. 2011. Campbell R. Harvey 4 Sep. 2017 http://financial-dictionary.thefreedictionary.com/Policy+limit

- Name of Asset
- Inception Date of Asset
- Expiry Date of Asset

Asset Specific:

a) Airlines
- Aviation Tier
- Number of operating aircraft of each size and type
- Average Fleet Value
- Geographic Hub
- Schedule of airports served, by traffic volume
- Number of Passengers
- Number of Seats
- Revenue per Km
- Location of Hub
- Officers Domicile
- Flight Schedules
- Domicile of Insured

b) Aircraft (Individual)
- Type of Aircraft
- Insured Value
- Market Value
- Year Built
- Model of Aircraft
- Flight Range

- Overall Maintenance Status
- Operator's Domicile
- Number of Passenger Seats
- Estimated hours flown annually

c) Passengers

- Passenger Seating Capacity

d) Cargo

- Value of cargo
- Travel Range
- Average length of journey
- Perishability
- Policy Limit

e) Refuelling Facilities and Stored Fuel

- Value of Fuel (annual)
- Square Area of Facilities

f) Aircraft Construction and Assembly

- Annual Revenue
- Value of Facilities
- Square Area of Facilities
- Address of Facilities
- Type of Aircraft at facility

g) Spares

h) Airport Facilities

- Number of aircraft routinely based at airport
- Policy Limit
- Value of Faculties
- Square Area of Facilities

AE. Please review and comment on the proposed dictionary of 'Aviation – Asset Attributes'

4.6 Fixed Locations and Mobile Exposure at Airports

Fixed Location Geocoding

For individual assets identified on schedules that are in fixed locations, such as such as airports and refuelling facilities, the physical location is a key attribute that determines its exposure to geospatial hazards and assists in exposure accumulation analysis and modelling of geographical perils. The schema captures the latitude and longitude coordinate of the geographical centroid of the asset, together with an assessment of the precision of that locator. The exposure data schema encourages the capture of geographical location information with as high accuracy as possible, using geocoding to the best precision available.

Mobile Exposure at Airports

The asset types that form most of the exposure of aviation insurance, such as aircraft and passengers, are not in fixed locations. It is not common practice to track the locations of aircraft and other aviation exposure. However it is of interest to track potential high-value concentrations of aviation exposure, such as major airports and hubs where aircraft are in the airspace around it and on the ground. The jurisdiction of potential aviation losses is also of interest in aviation exposure management.

We propose adopting major airport hubs as standard aggregation zones for mobile exposure in aviation insurance. A listing of the top 50 largest airports will be provided for selection. Mobile high-value exposure, such

as aircraft can be categorized by their principal regions of operation, and their potential for being present at any of the principal airport hubs as an element of exposure in an aggregation zone.

AF. Please comment on fixed location geocoding and mobile exposure regions of operation to monitor major hub airports as standard aggregation zones for aviation insurance exposure.

4.7 Coverages and Compensation Type

[Dictionary: Aviation – Coverage Types]

The primary types of coverage that apply to the policy include the following:

a) Physical Damage

Coverage for damage done to property.

Physical damage. BusinessDictionary.com. WebFinance, Inc. August 24, 2017 <http://www.businessdictionary.com/definition/physical-damage.html>.

i. Hull

Insurance protecting the owners against loss caused by damage or destruction of aircraft.

"Hull Insurance." Merriam-Webster.com. Merriam-Webster, n.d. Web. 4 Sept. 2017.

1. Hull War

b) Liability
   i. Personal Injury
   ii. Product Liability
   iii. Third-Party Liability
   iv. Passenger Liability
   v. Excess War Liability
   vi. Owners Operators Premises Liability
   vii. Aviation Liability
   viii. Airport Owners Liability
   ix. Grounding Liability

c) Business Interruption[6]

AG. Please review and comment on the proposed dictionary of 'Aviation – Coverage Types'

4.8 Coverage Inclusions and Exclusions

The schema provides an ability to include a full depiction of the causes of loss that are included in the coverage and excluded from it, as a schedule of inclusions and exclusions. Market practice may be either the provision of All Risks coverage, sometimes accompanied by exclusion clauses for certain causes of loss (and write-backs where exclusions are reinstated), or the provision of Named Peril coverage, with an explicit contractual listing of specific causes of loss that are covered. The schema includes a listing of perils and coverage types that are

[6] Note that business interruption coverage is not typically included in aviation insurance policies. The coverage is included within the schema to reflect special cases or exceptions when its use may arise

commonly included in Named Peril coverage, or that may be potentially excluded from All Risks. These can be applied to a specific policy or to an individual asset that is identified in a schedule of exposures.

The policy information can include one or more schedule of exclusions or inclusions that apply to this policy.

Each type of aviation insurance, listed in 4.3, is often written using common contractual templates that are typically modified and customized for specific clients needs. Different contractual templates are used in different parts of the market. We propose that the schema will include a listing of options of commonly used contractual wording templates, by their reference codings. We are currently collating and listing examples of these, to evaluate the feasibility of including dictionaries of common contractual wording templates used in the market. A reference code for a contractual wording template would enable exposure to be managed and accumulated by contract type.

AH. Please indicate which contract wording templates you typically use for aviation insurance policies in any of the types of insurance identified in 4.3

AI. Please comment on including definitions for each field within the aviation schema. Would you like to have this continued in the v1.0 document?

Part C: Schema Structure for Phase 2 Classes of Business

1 Inputs required for phase 2 classes of business

We request inputs to identify the key outline structural components of the classes of business scheduled for phase 2. For each class of business, we want to identify:

1. The main types of insurance commonly offered in that class of insurance
2. The types of assets typically insured in each of the main types of insurance in that class
3. The attributes commonly captured about the asset types
4. Jurisdiction or locational information typically captured as market practice
5. Coverage and compensation types
6. Typical causes of loss
7. Typical exclusions

2 Classes of Business in Phase 2

2.1 Political & Security Risk: Political Risk; Political Violence; Terrorism; War; Kidnap & Ransom; Expropriation; Strikes, Riots & Civil Commotion; Sovereign Default; Foreign Direct Investment

2.2 Specialty: Protection Extensions; Specialised Policies; Event Cancellation; Contingency Cover; Satellite

2.3 Credit and Surety: Trade Credit Insurance; Business Credit; Export Credit; Surety Bond Insurance; Contract Bonds; Mortgage and Financial Guarantees; Accounts Receivable Insurance

2.4 Agriculture: Crop (multi-peril; named peril); Livestock; Aquaculture; Bloodstock; Forestry; Greenhouse

3 Feedback

Thank you for taking part in the Phase One version 0.9 consultation for the development of a multi-line insurance data schema. We will credit the individuals and organisations who have assisted in the development of the schema in the final publication. If you are comfortable with being credited, please provide your name, job title, organisation, and list any colleagues who assisted and who should be credited.

AJ. Please list the names, job titles, and organisation of people who helped with responses to this consultation.

Please email your completed consultation document by November 6th, 2017 to:

Kayla Strong
Research Assistant
Centre for Risk Studies at University of Cambridge.
Email: k.strong@jbs.cam.ac.uk