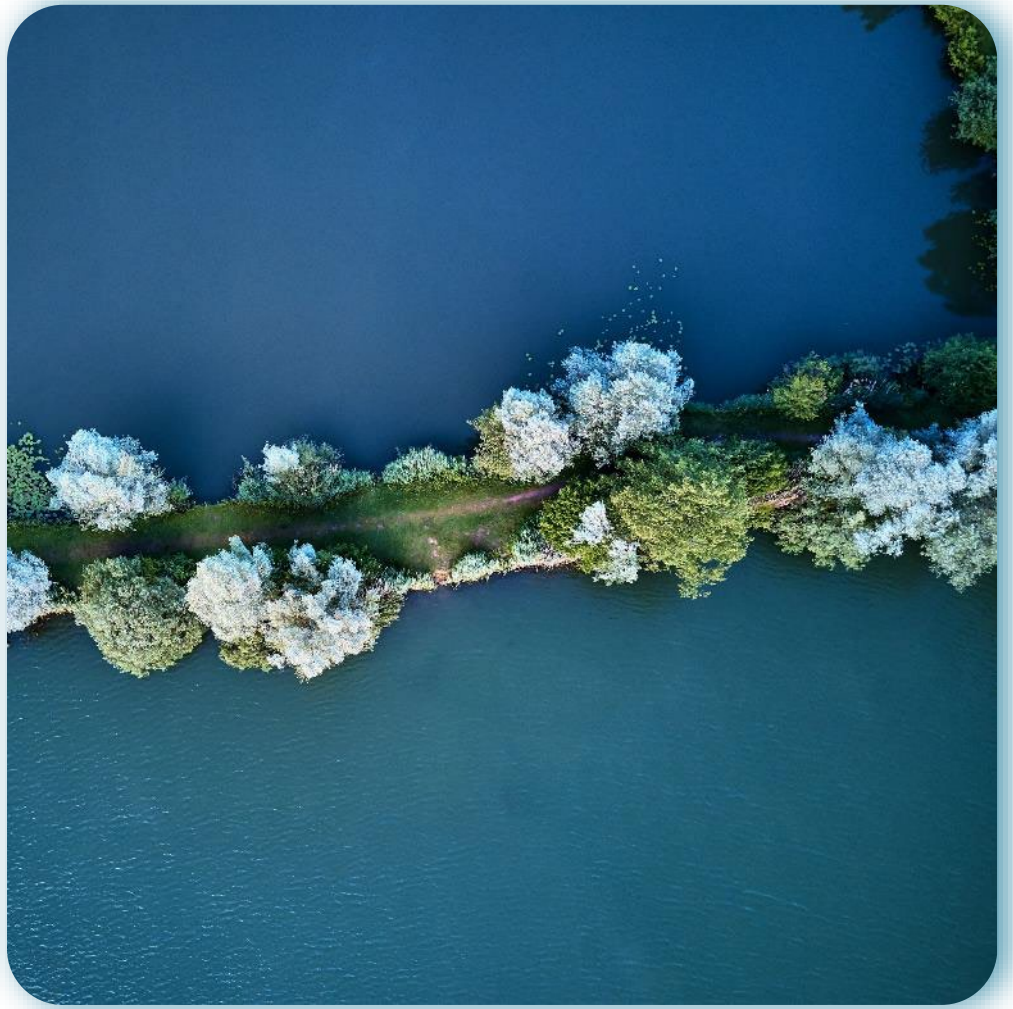

Exposure Data Requirements for Effective Risk Management

Henry Bovy
Property Accumulation Lead
25/09/2025

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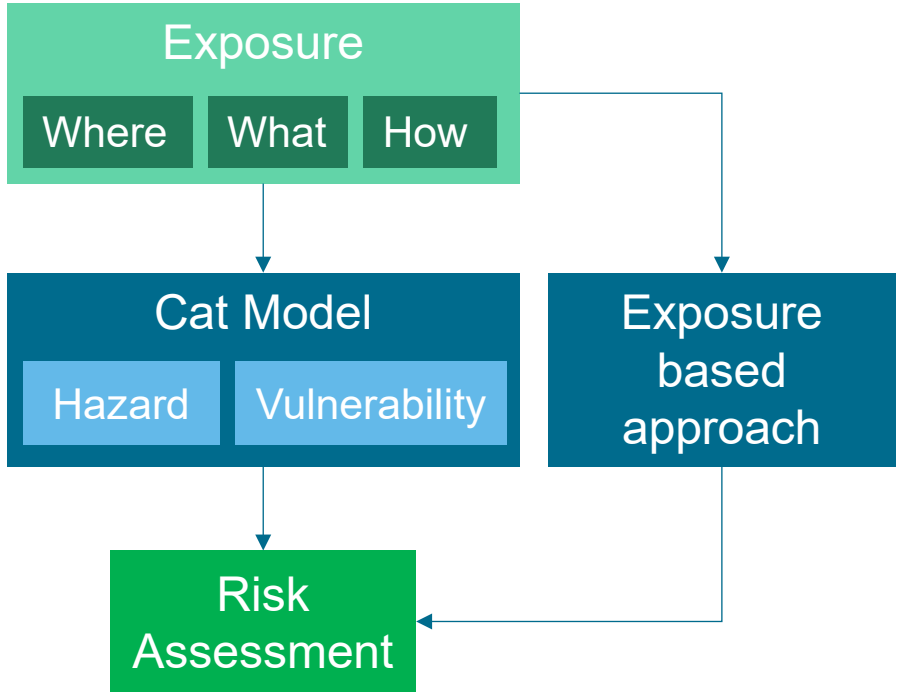
Content

Exposure Data Evolution in Cat Modelling

- **Cat Model since ~30 Years**
- **Exposure is the common input to all cat models**
- **Exposure resolution has greatly improved other the years from « Aggregate » to very detailed in some cases**
- **Vendors models have never agreed to a standard exposure format and the industry relies on proprietary format: EDM, CEDE, …**
- **Some push to get an « open source » format like OED**
- **Exposure Detailed format were created 25 years ago:**

1. Ability to exchange the information in the risk transfer chain (Insurance, Broker, Reinsurance)
2. Geocoding and visualisation were limited (Google maps did not exists)
3. Flexibility on how to import data (Occupancy Mapping, Geocoding, Policy vs Account vs Inuring)

- **Cat Model is one of the purpose but the only one for a risk assessment**



Exposure based approach:
Scenario, Hazard Rating, Exposure Analysis, Exposure concentration, …

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The Risk Universe is evolving : Outlook

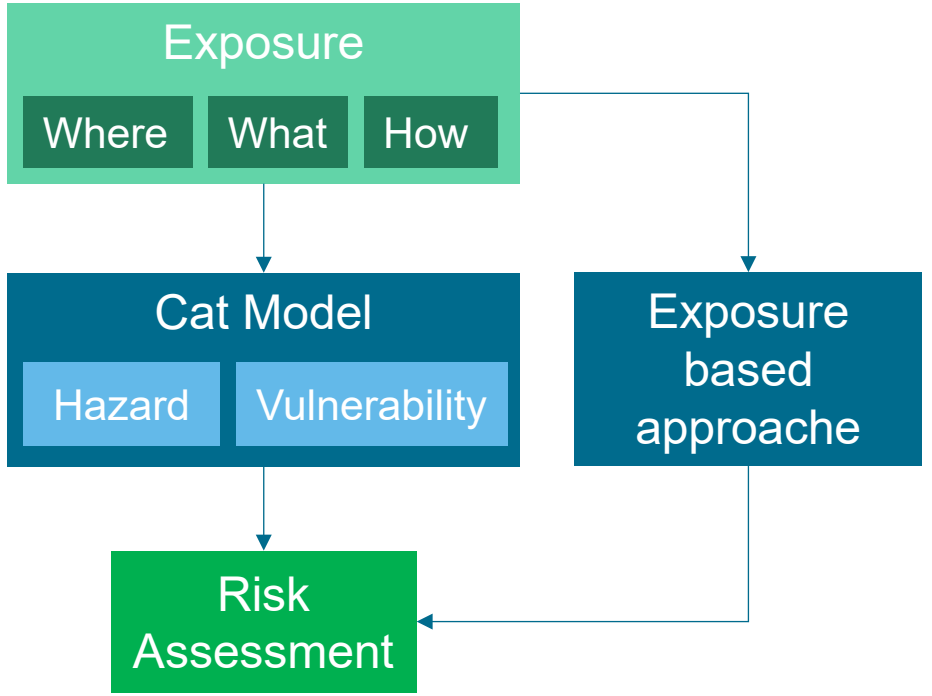
Natural Hazard, Climate Change:

1. Change of frequencies/severity in known Region perils
2. Unprecedent events (ie not foreseen in a stochastic model)
3. Event occuring in an area that was not foresee

Man Made Risk:

1. Political Instability: SRCC/Terrorism/War
2. Technological Risk: New type of accident with new technologies
3. ESG: CO_2 Emission Exposure

How to ensure that exposure content/quality evolve at the same speed that the risk universe?



Exposure based approach:
Scenario, Hazard Rating, Exposure Analysis, Exposure concentration, …

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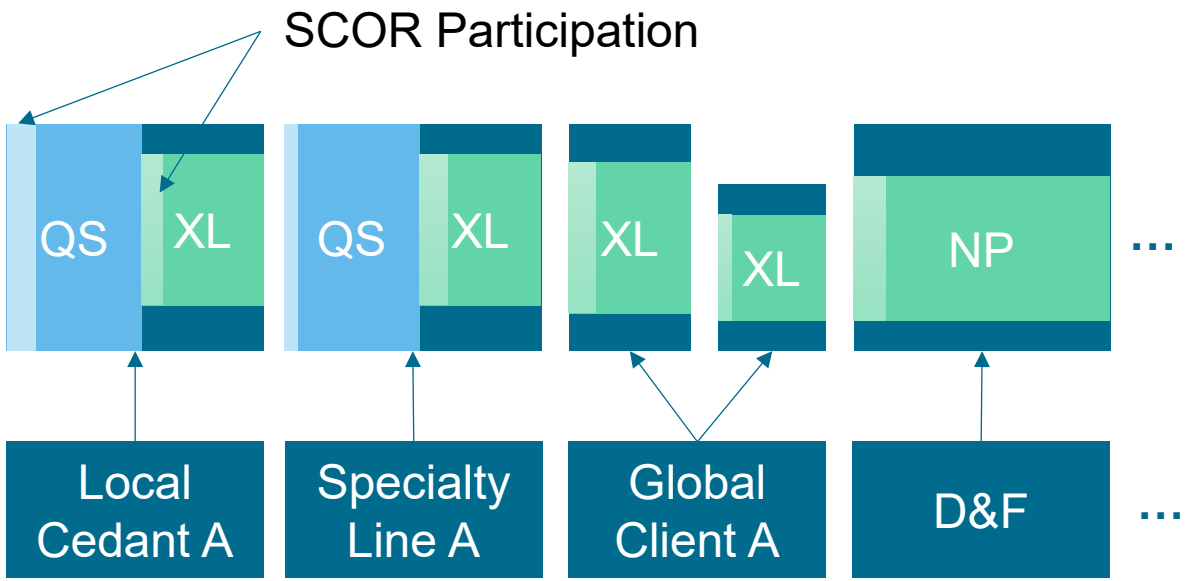
Exposure in the context of Reinsurance

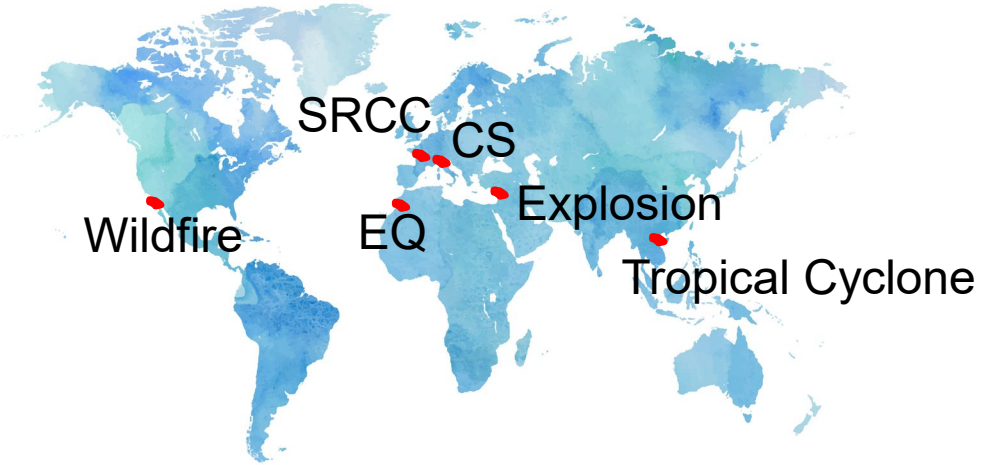
1. Risk from a reinsurer comes from contractual obligation via a treaty or contracts.

2. Any losses in a given area will come via different channel where Exposure are captured/coded differently.



Primary vs Secondary Perils

One Type of Perils: the one that are cover by a contract and on which there is significant exposure on which we could have a loss



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Exposure Data at SCOR

Since 2022 SCOR created a central library of all our client exposure:

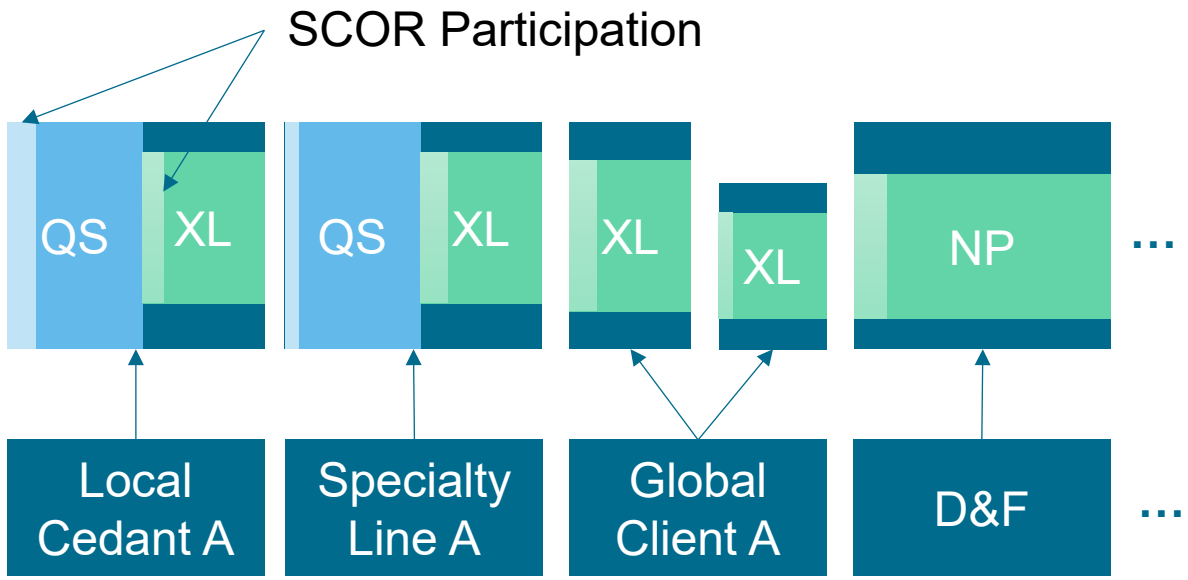
One year of Underwritting Represents:

~1500 Detailed Exposure + 3000 D&F Schedule of Value

~1.5 bn Adresses, 3.3bn Adresses/peril

~Thousands billon € of Sum insured

Do I have what I need to assess risk and its evolution?



2025 Detailed Exposure Data						Net of Primary Policies Sum insured (bn€)					
EDM Type	**Detailed Expo**	**Avg Nb Country**	**Avg Nb Peril**	**Nb Adress (m)**	**Nb Adress /peril (m)**	**EQ**	**WS**	**CS**	**FL**	**WF**	**TR**
Local	986	1.4	1.91	783.8	1 152.2	175 904	189 455	212 203	35 294	7 063	7 928
Regional	142	12.4	1.90	223.6	354.4	26 643	69 183	16 227	12 292	6 585	2 019
Global	106	129.3	4.24	429.2	1 531.5	65 191	72 122	45 316	36 859	51 288	9 868
Speciality	185	80.6	3.59	123.2	212.0	7 343	8 063	7 339	6 289	6 099	41 703
D&F	3038	13.4	5.14	2.3	11.9	140	168	214	139	214	69
Total	**4457**	**22.4**	**3.70**	**1 562**	**3 262**	**275 221**	**338 991**	**281 298**	**90 874**	**71 249**	**61 586**

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Exposure Data from a Reinsurer Perspective in practice

When a reinsurer want to investigate a particular area for a peril

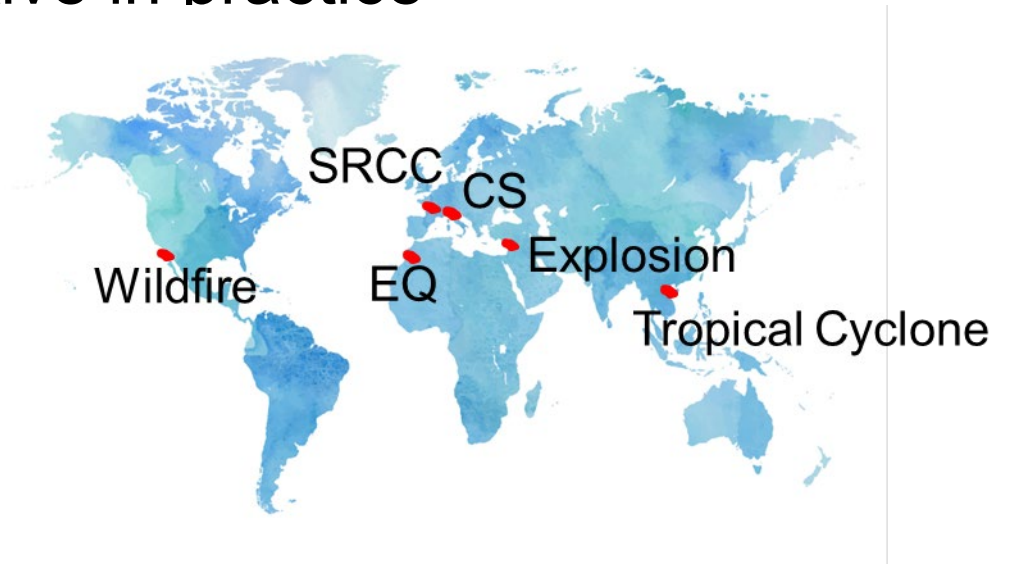
Need to understand the exposure of each undelying business and how the contract will react:

1. **Nature: Per Risk/per Event**

2. **Specific Sublimit, Coverage limitation, …**

In given area, we can have several hundreds participations.

Too often the expsoure is provided to the reinsurance market because there is a cat model, not because on what is contractual especially for local/regional cedant.



	Country/Region	California	Morocco	France		Italy		Lebanon	Viet Nam
	Peril	WF	EQ	Wind	Fire	EQ	CS	Fire	WS
Detailed Exposure	Local	45		33	4	15	5		
	Regional	18	3	40	10	22	9	1	3
	Global	58	68	93	76	94	77	52	79
	Specialty	68	69	95	81	97	85	40	80
	Total	**189**	**140**	**261**	**171**	**228**	**176**	**93**	**162**
Nb Address (K)	Local	420.6	-	28 665.5	201.7	2 274.1	260.9	-	-
	Regional	642.5	0.0	24 002.8	3 664.9	2 573.7	634.3	0.2	9.8
	Global	17 452.9	22.1	2 970.5	2 246.4	4 386.7	2 588.0	6.0	113.0
	Specialty	4 967.2	5.0	297.3	270.3	198.2	202.3	0.9	12.3
	Total	**23 483.1**	**27.0**	**55 936.0**	**6 383.3**	**9 432.7**	**3 685.4**	**7.1**	**135.0**
Sum Insured (bn€)	Local	341.6	-	5 321.1	18.8	469.5	36.2	-	-
	Regional	669.4	0.015	9 047.3	1 402.2	1 096.7	549.5	0.148	4.730
	Global	2 869.5	30.177	4 477.5	1 716.5	1 783.2	873.3	5.174	59.821
	Specialty	243.1	8.416	280.6	236.4	122.3	119.4	1.591	13.377
	Total	**4 123.5**	**38.609**	**19 126.5**	**3 374.0**	**3 471.6**	**1 578.5**	**6.913**	**77.928**

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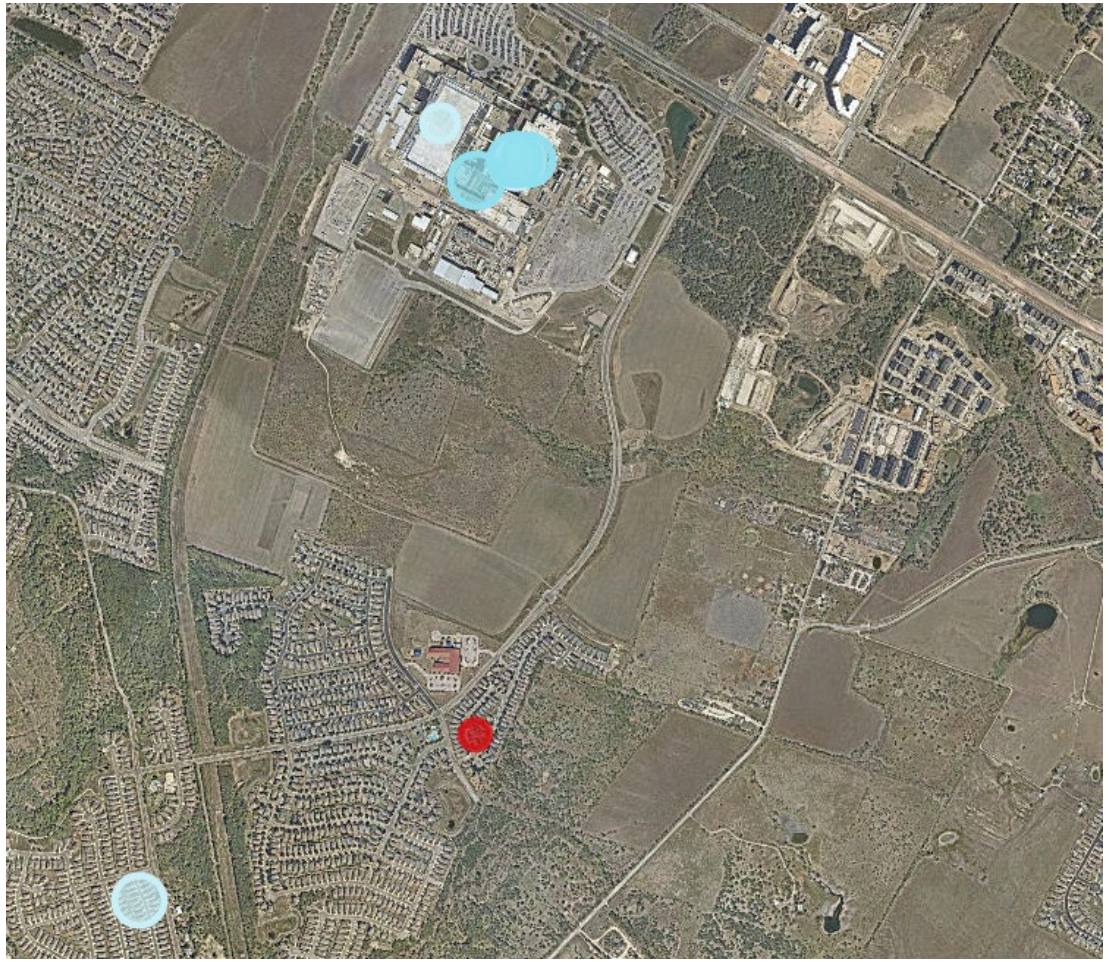
Challenges with Exposure: Where

1. Geocoding: Centroid of a postcode imported as « Coordinate »

2. What is the “one risk”, one location:

1. Example of 30’000 locations with the same coordinate for the same policy…

€12,119,481,997	Manufacturing with clean room (front end production, wafer fab) - semiconductor plant
€11,111,433,772	Light Industrial - Electronics
€10,168,199,645	Light Industrial - Electronics
€10,168,199,645	Heavy Industrial - General
€10,165,969,191	Light Industrial - Semiconductor
€10,165,969,191	Light Industrial - Semiconductor
€9,808,760,225	Light Industrial - Electronics
€8,398,110,687	High Technology



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Challenges with Exposure: What

Primary Characterisitcs:

- Occupancy: Why do we have General Commercial/Industrial?
- Construction:
- Number of Storey: Buiding with more than 166 storeys?
- Year of Construction:

Are Primary Characteristics a real attribute of the policy/risk, or is it what is the minimal requirement to execute a cat model?

Factual information on the description of a risk vs assumptions from a modeling perspective.

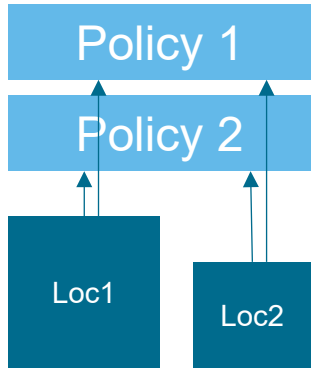
Category	Nb Risk	in %
Unknown	3 229 651 126	34.7%
Wood	2 252 910 591	24.2%
Masonry	1 055 705 944	11.3%
Reinforced masonry	76 779 447	0.8%
Reinforced concrete	804 365 892	8.6%
Steel	432 285 571	4.6%
Bridge	28 127 678	0.3%
Industrial Specific	375 313 347	4.0%
Motor	840 531 261	9.0%
Others	210 724 237	2.3%
Total	**9 306 395 094**	100.0%

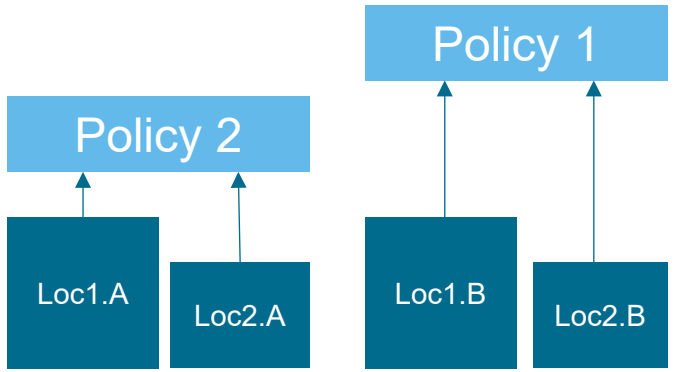
Nb Storey	Nb Property
Negative	25
No Storey	1 237 988 812
1 Storey	425 876 105
2 Storey	238 909 747
3 Storey	53 955 941
4 Storey	26 649 083
5 Storey	12 349 234
6 Storey	7 867 882
7 Storey	4 045 146
8 Storey	6 626 174
9 Storey	1 701 534
10-20 Storey	17 498 729
20-50 Storey	6 778 889
50-100 Storey	343 804
101-166 Storey	11 654
Impossible >166	54 105
Total	**2 040 656 864**

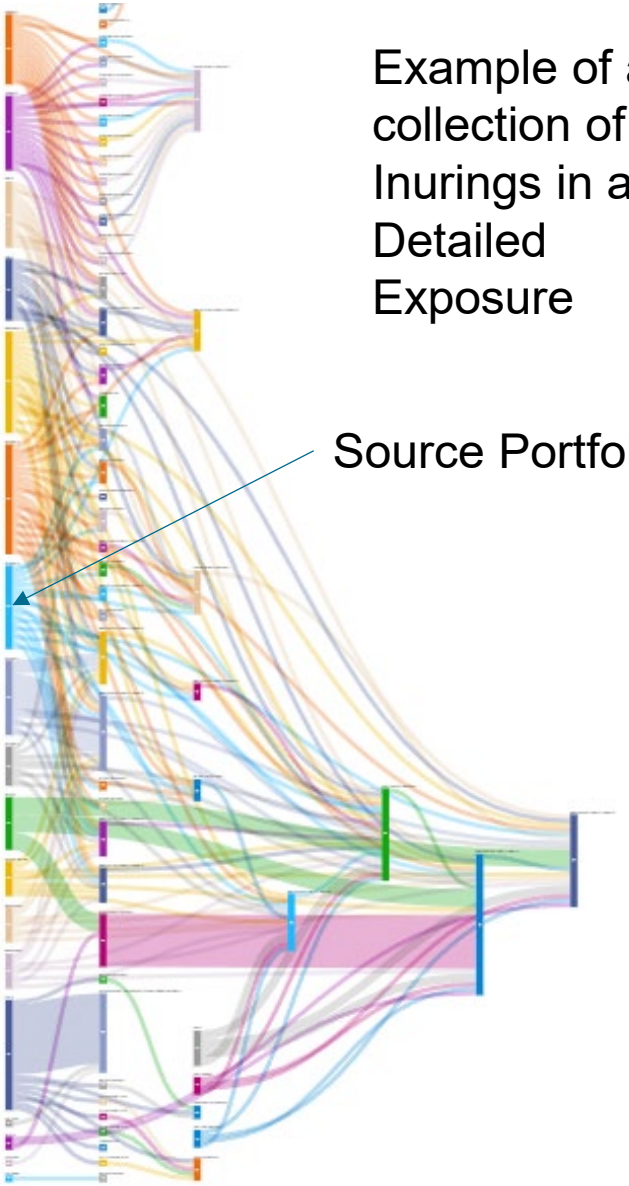
Nb Location in m	Unknown	Commercial	Industrial	Infrastructure	Residential	Total
ATC	758	1 504	219	1 126	3 302	6 909
EURO	149	111	39	145	935	1 379
EURO_FR	31	7	8	0	137	182
IBC	5	18	2	8	10	43
ISO	2	2	0	0	8	12
JPOCC	14	23	0	-	96	133
SIC	19	79	8	72	2	180
NAICS	5	18	6	6	0	35
NCCI	7	0	0	0	0	8
Vendor Specific	46	100	184	96	2	428
Total	**1 036**	**1 862**	**465**	**1 453**	**4 492**	**9 308**
% of Total	11.1%	20.0%	5.0%	15.6%	48.3%	100.0%

Challenges with Exposure: How

1. **Location/policy/account coding**
2. **Exposure Valuation**
3. **UNL of a contract:**
    1. Inuring
    2. Market Pool
    3. Complexe T&C
4. **Detailed Exposure are not self contain to be able to link *Explicity* with a treaty/contract:**
    1. Scope of Exposure/Perils
    2. Geographical Scope
    3. Representative of the UNL of a contract (Inurings, Market Pools)







Example of a collection of Inurings in a Detailed Exposure

Source Portfolio

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Conclusion

We have a lot of exposure data, thanks to the developement of cat models.

Do we receive exposure data in a such way that we can anticpate well the current and future risk landscape? Not sure…

There is definitevily room for improvement:

1. Data size is not anymore a challenge, Geocoding/Data Processing have greatly improved, to not mention AI…

2. Do we need a quality standard with some minimal requirements

Example of Exposure Quality Standard Requirements:

1. Large Risk Coding (xs 500m€ TIV)
2. Perils Completeness
3. Explicit and comprehensive link with a Contract/Treaty
4. Factual Exposure Information rather than Assumptions
5. Allowance in the data Scheme for
   - more perils (SRCC, War, Nuclear, Drought, …)

With Exposure we can do great risk assessments

Terror footprint simulation across Manhatan and across 200 Cedants with SCOR T&C

Contribution by Main Occupancies categories

With Exposure we can do great risk assessments

Global Client Exposure on 10km Grid

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Thank You

Henry Bovy
Property Accumulation Lead
25/09/2025

Looking forward to your questions

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