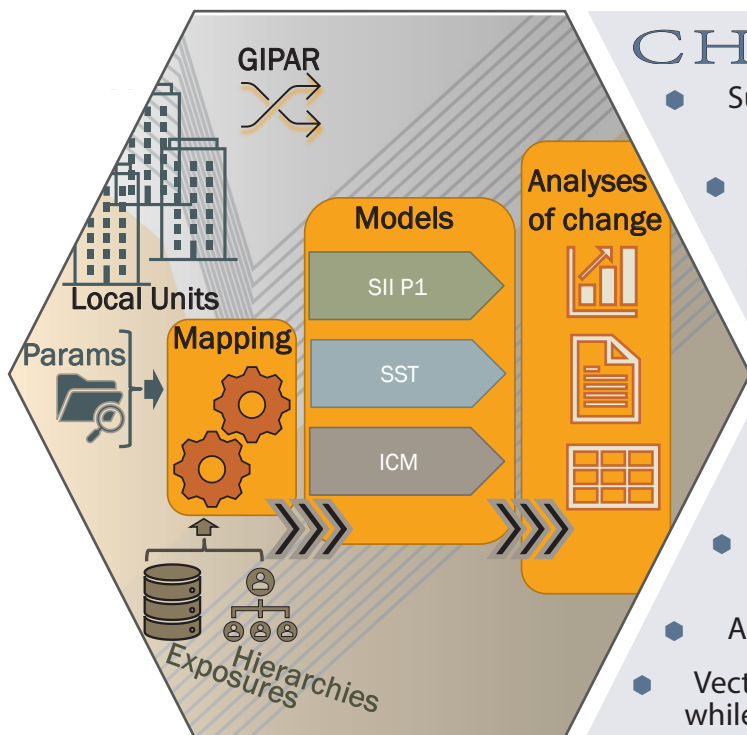


## P&R or General Insurance risk relates to the uncertainty of claims and the underwriting process.

Local underwriters parameterize P&R risk distributions and the correlations among them in their local lines of business. Gross losses are simulated on this basis, where strong focus is placed on large claims. The reinsurance structure is applied at granular level to bring gross losses to their net representation.



Serves as basis for internal economic capital modeling and risk management.  
Satisfies various regulatory Solvency Capital regimes including SST, SII, ORSA.



## CHALLENGES

- Support local units in their parameterization process. Mapping to both legal & management group views
- Desire for a uniform stochastic model to serve multiple group hierarchies, regulatory regimes and reporting
- Handle large scale Montecarlo simulations & simulate large claims with a frequency-severity convolution model, efficiently and reproducibly

## SOLUTION

- Uniform local parameterization tools, generalize hierarchy
- Separate gross and net calculations storing internal/external sessions per contract
- Allow parallel run of scenarios with a central control
- Vectorize implementation using sparse matrices while parallelizing calculations

## BENEFITS

- Involvement of local units in the production processes managed by the central platform.
- Continuous dataflow from local parameterization up to group reporting.
- One model for 3 hierarchies and 3 purposes.
- Reinsurance report at contract level, separating proportional from non-proportional contracts.
- Separation of reinsurance model for large claims.
- Fast response to requests from regulators, integration of analysis of change with quarterly report.



"This project sits at the very core of Insurance and Reinsurance risk, and it has been crucial to work in close collaboration with experienced actuaries to enable its success. We have faced and overcome many complex problems that are common to this industry."

