



SINALYS

.....

OUR CREATIVITY
STRENGTHENS
YOUR INSURANCE

SINAL^{ys}

EXPERTISE AND IT SOLUTIONS FOR SOLVENCY II



"MORE SIMPLICITY, MORE RELEVANCE,
MORE TIME FOR DECISIONS"

SINAL*ys***S**

SINALYS

Created in 2001, Sinalys is an independent company owned by its managers. It is a consulting company and a designer of actuarial webbased IT tools targeted at Insurance sector.

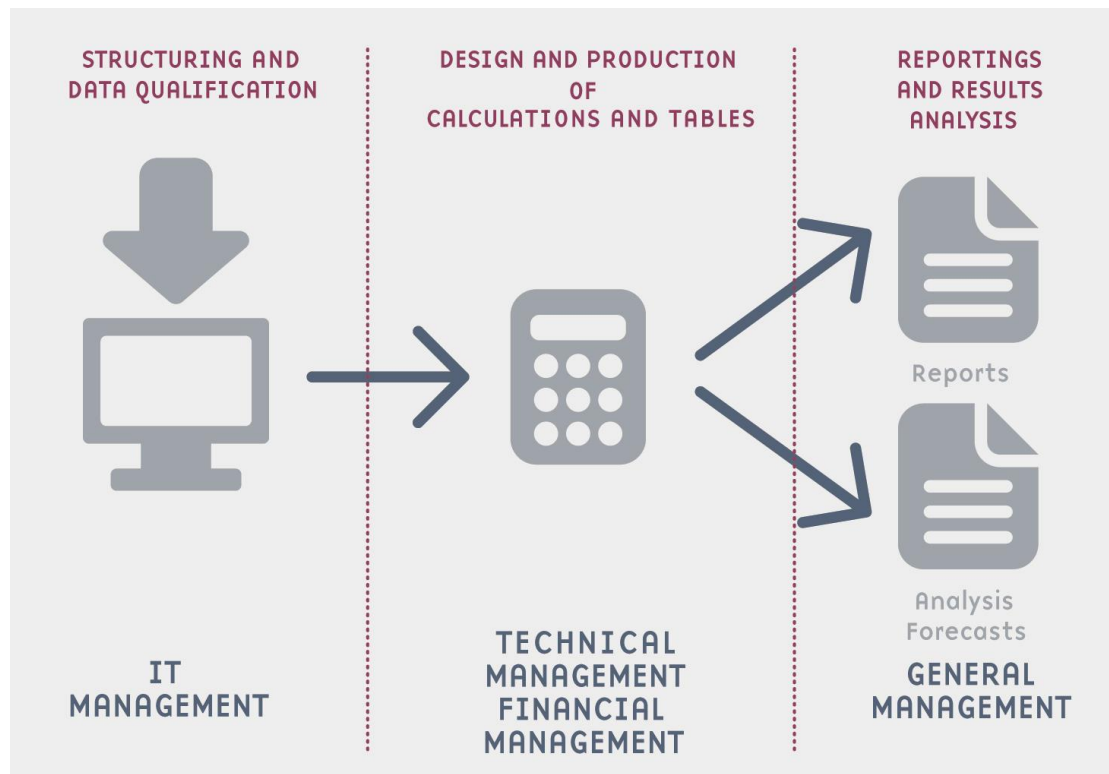
Our expertise covers needs of Insurance and Social Welfare industry for actuarial calculations, inventories and Solvency II.

Our ambition is to help you to gaining time and enhancing the relevance of your reporting

$$\begin{array}{ccccc} \text{Relevant} & & & & \text{More accuracy and} \\ \text{information} & \times & \text{Time saved} & = & \text{more time for} \\ & & & & \text{strategic decision} \\ & & & & \text{making} \end{array}$$

SINALYS

Sinalys acts across the 3 key steps in the data chain to provide simplicity, fluidity, compliance and value-added.



OUR POSITIONING



OUR POSITIONING

Innovation and Creativity are at the centre of our activity.

- Software patent for Calfitec in France, Rest of Europe, United States, Canada and Australia
- 10 experts working in R&D
- Teachers in professional French actuarial seminars
- Responsible for XBRL France Solvency II working group

We are experts in Solvency II issues

- Our team works exclusively on Solvency II
- We support our clients with respect to Pillar 1 standard formula calculations
- We are often involved in Pillar 2 (governance, internal control, ORSA...) missions

Particularly for Pillars 1 & 3

- Many successful experiences in developing complete Solvency II systems
- Design of deterministic and stochastic models
- Development of specific reporting functionalities for Pillar 3 in Rfitec
- XBRL specialists among our development team for EIOPA QRT reportings

SOFTWARE

2 IT tools for your actuarial and regulatory needs

CALFITEC The only actuarial software in mathematical language for assessment of commitments, provisions and solvency

- Deterministic and stochastic calculations and modelling
- Estimation of claim triangles
- Standard libraries : provisions, SCR, ALM, IAS19
- Traceability and automatic documentation

RFITEC Software to product regulatory reporting

- Complete Solvency II QRT
- In XBRL taxonomy

THEY TRUST US



AG2R LA MONDIALE



Groupe
Intérieure



**BNP PARIBAS
CARDIF**



SPHERIA
Vie

MUTUELLE
Saint-Christophe
ASSURANCES

GFC

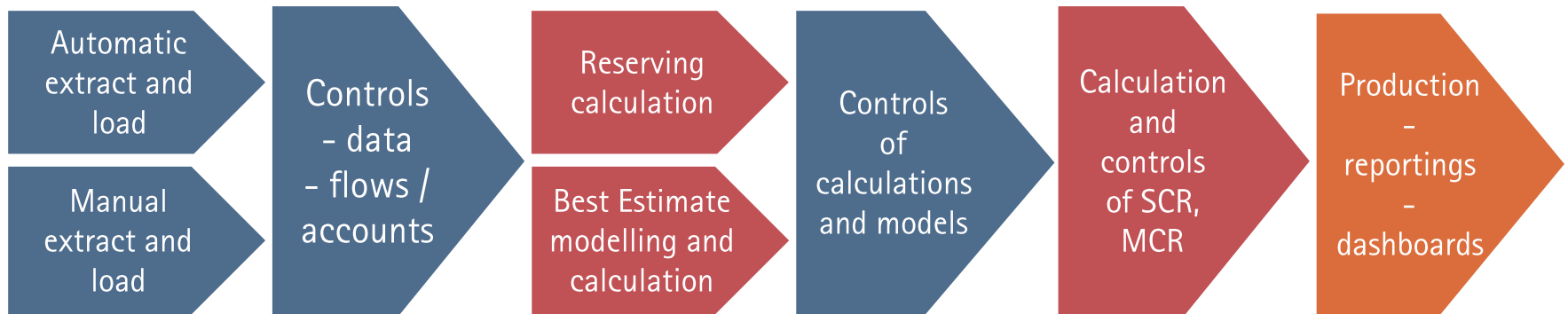


CAISSE DE GARANTIE IMMOBILIÈRE
DU BÂTIMENT

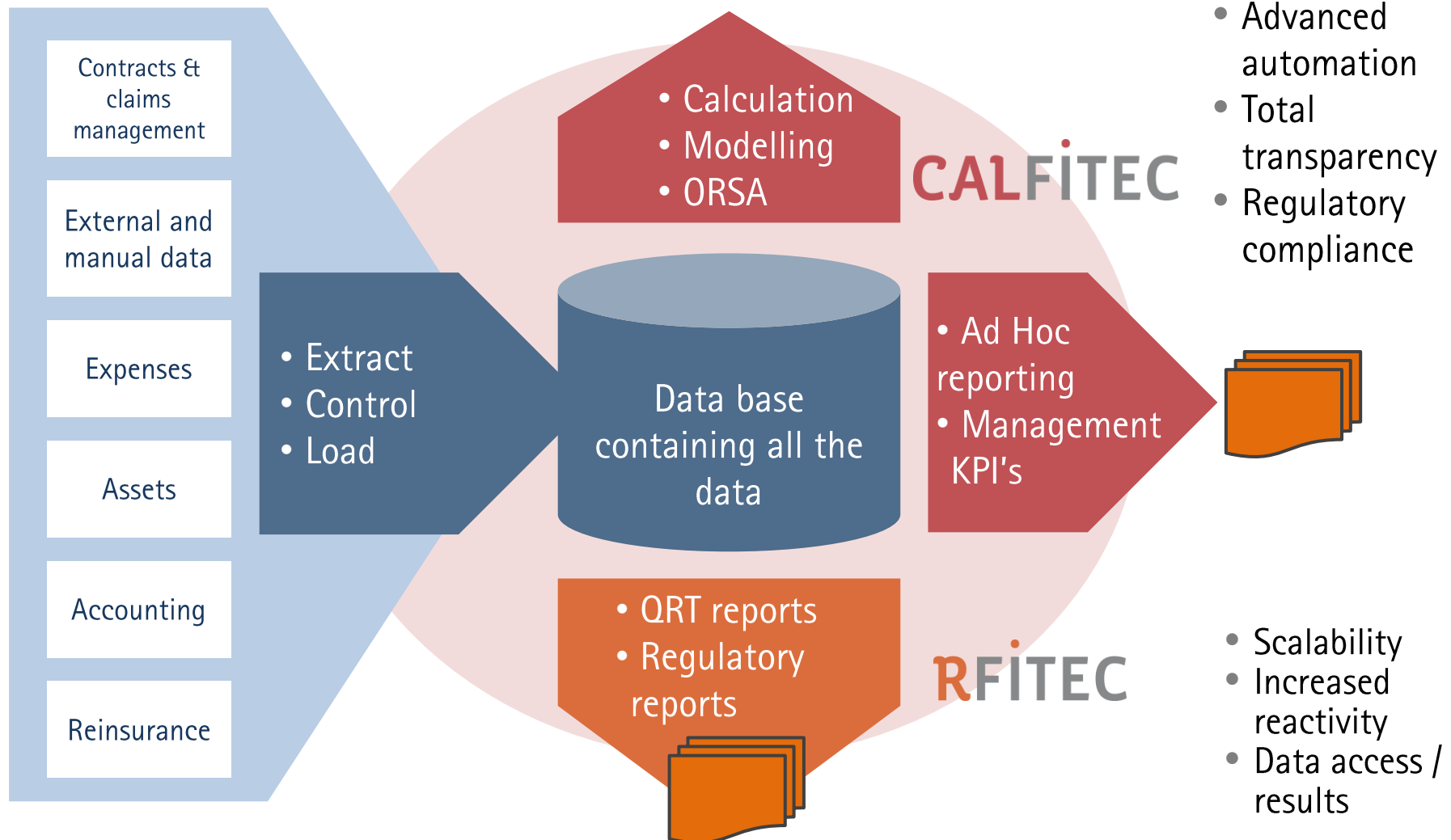
INDUSTRIALIZED PROCESS

We know how to industrialize the whole process, so as to provide you with time, flexibility and simplicity :

- Fast implementation (3 to 12 months)
- Easy to adapt to your specific environment
- Includes all involved managers
- Possible interface with a workflow



AN EFFICIENT ARCHITECTURE



CALFITEC

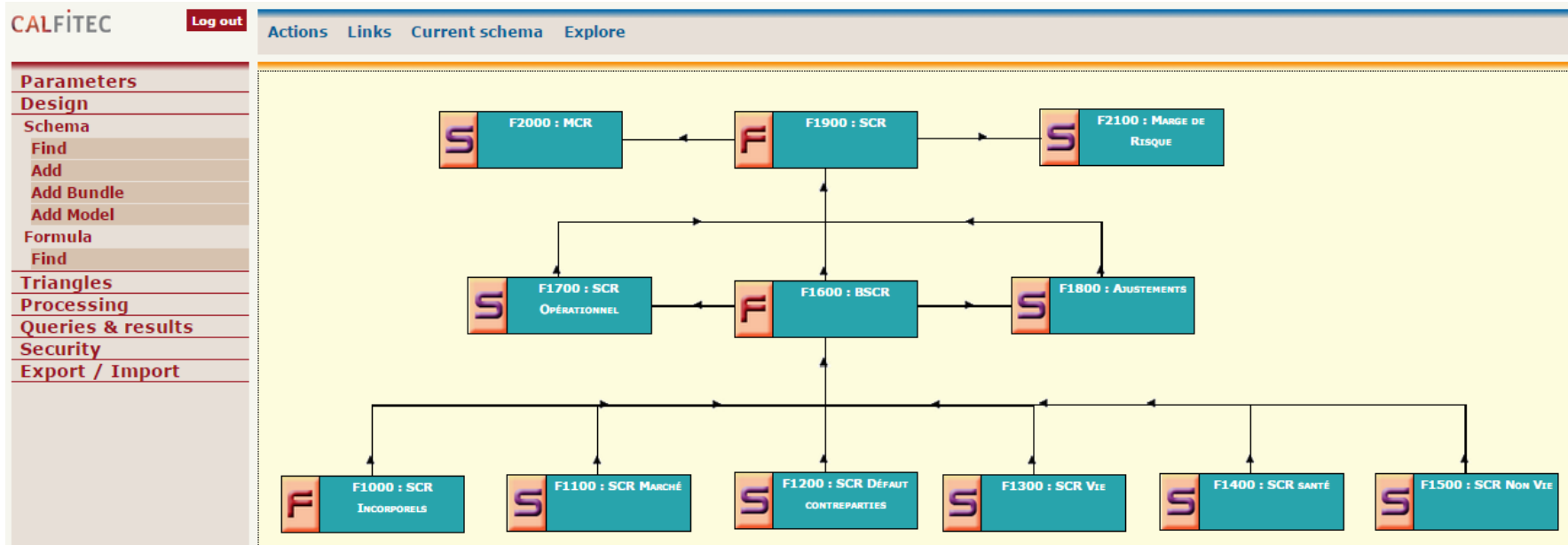
.....
THE ONLY ACTUARIAL SOFTWARE
IN MATHEMATICAL LANGUAGE

ACTUARIAL LIBRARIES

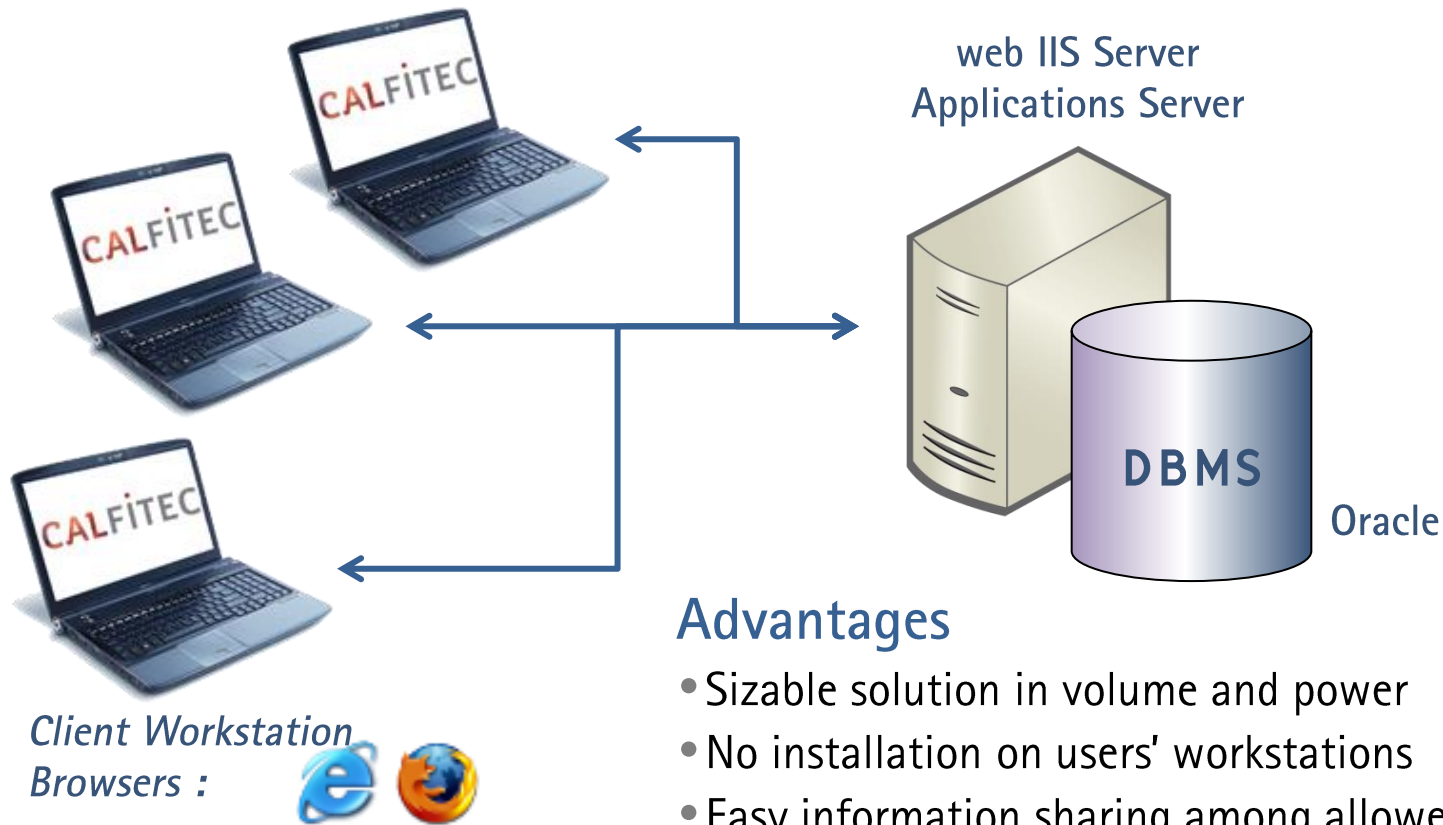
Reserving, BE, Risk Margin, ALM, SCR/MCR, IAS19, ORSA...

Example : Standard Formula: SCR, MCR ...

- SCR Model of the standard Formula in Calfitec
- Quick and simple flexibility of the model to your own specifics
- Impact simulation
- Full transparency of the models



TECHNICAL ARCHITECTURE

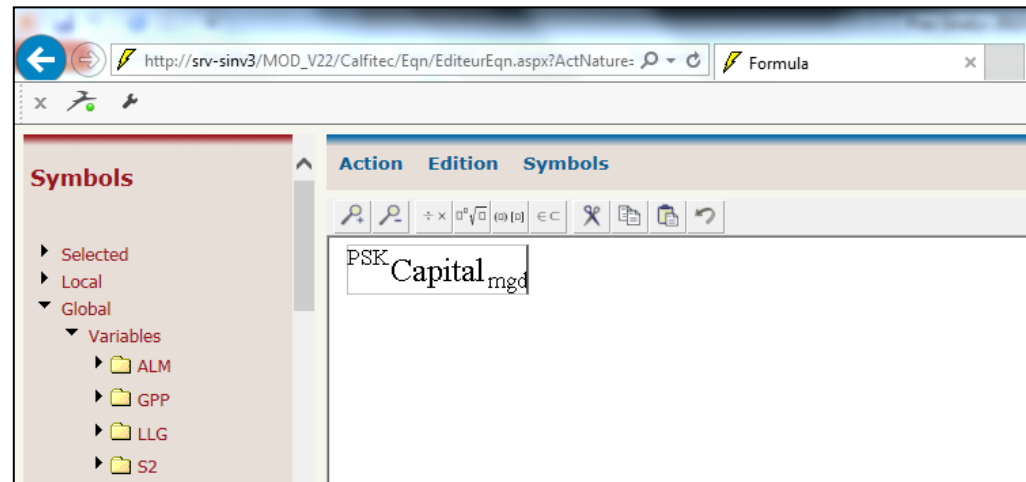
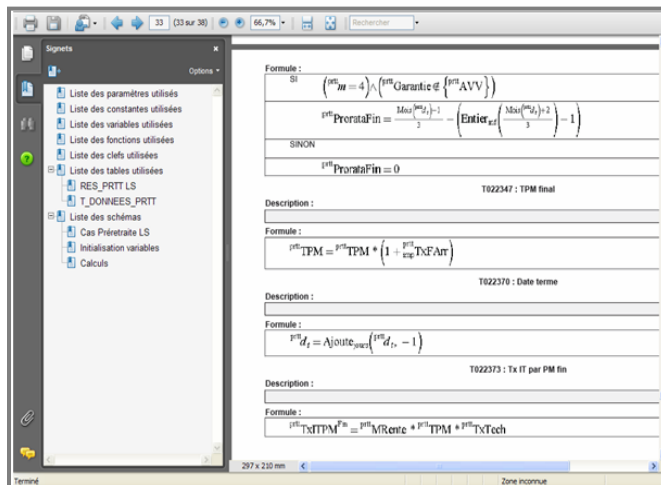
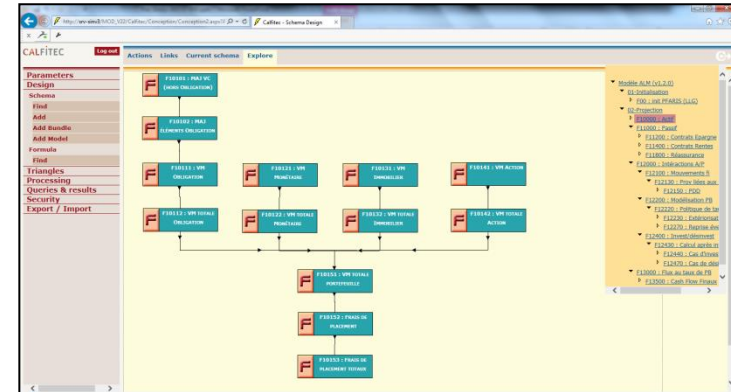


Advantages

- Sizable solution in volume and power
- No installation on users' workstations
- Easy information sharing among allowed users
- Data saving
- Parallel processing on server and DBMS
- Hosting capability

INNOVATIONS

- Revolutionary calculation engine
- No computer coding
- Build and use actuarial equations
- Actuarial symbolic representation
- Protected by an international patent (EU, USA ...)
- Trace and produce documentation automatically
- Results stored and identified individually



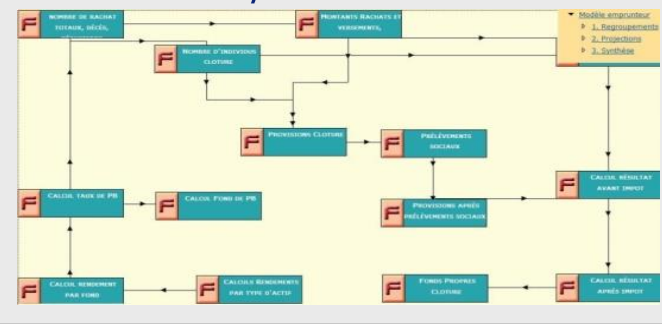
DETERMINISTIC CALCULATIONS

- Achieve any deterministic calculations :
 - Reserving: MP, Profit Sharing, PRC ...
 - Best Estimate evaluation, shocked BE
 - Pricing
 - Actuarial yield rate...
 - Method 1,3,4,5 are implemented for the Risk Margin
- On any volume of data
- Standard library including Technical Provisions
 - Reinsurance
 - Illness or disability
 - Life & Savings
 - Credit insurance
 - Social commitments

Write your formulas

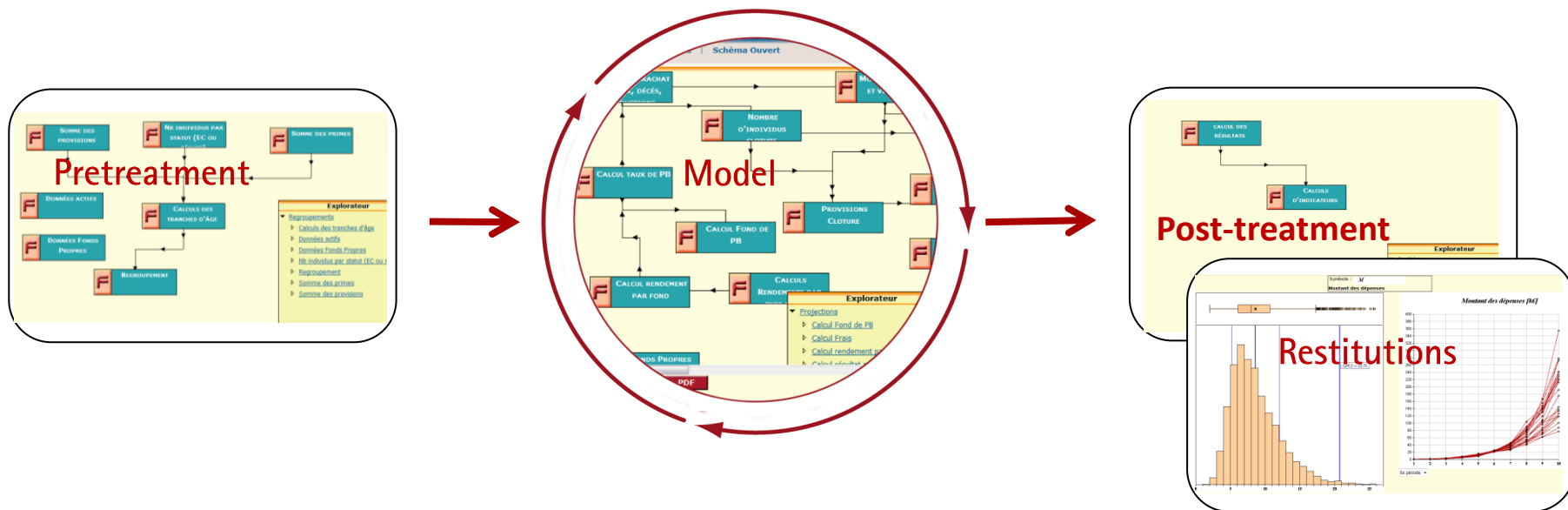
$$\begin{aligned} \text{Taux}_{\text{Rente}}^{\text{STE}} = & (\nu)^{t_m(D_{\text{Sortie}}^{\text{Rente}}, P_{\text{Bilan}})} * \left(l_{x2}(P_{\text{TM}}, x_{\text{assuré}}^{\text{Dbilan}}) \right)^{-1} \\ & * \left(l_{x2}(P_{\text{TM}}, x_{\text{assuré}}^{\text{Dbilan}}) - \left(l_{x2}(P_{\text{TM}}, x_{\text{assuré}}^{\text{Dbilan}}) - l_{x2}(P_{\text{TM}}, x_{\text{assuré}}^{\text{Dbilan}} + 1) \right) \right) \\ & * t_m(D_{\text{Sortie}}^{\text{Rente}}, P_{\text{Bilan}}) * t_m(D_{\text{Sortie}}^{\text{Rente}}, P_{\text{Bilan}}) \end{aligned}$$

Create your own scheme

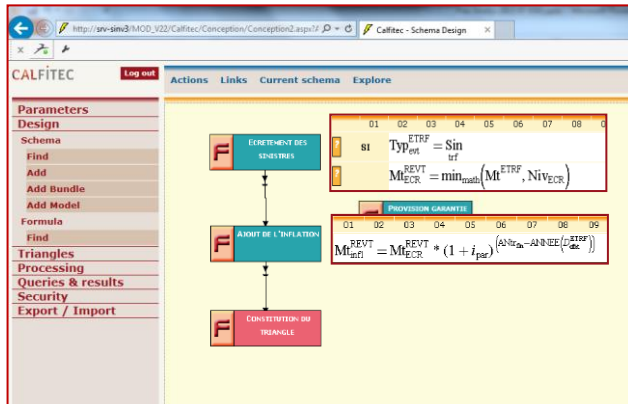


RISK MODELLING

- Answer to simulation and modelling needs:
 - Assets / Liabilities, BE (LIFE and NON-LIFE), SCR, claims distribution, extreme events...
- Possibility of random variables following classical distributions
- Generation of stochastic processes (CIR, Black and Scholes, Vasicek ...)
- Use of correlations among variables (Copulas theory)
- Graphical presentations of distributions



TRIANGLES



Paramétrage Conception Triangles

Nom : MBS_3LB

Etat : 1. Initialisé Périodicité : Annuelle

Date de début : 01/01/1990 Date de calcul : 31/12/2006

Type de valeurs : Incréments Congés

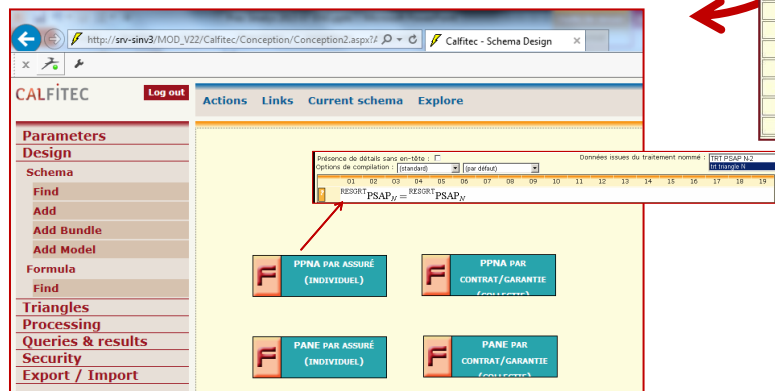
Données du Triangle

Période de survenance	Période de développement						
	0	1	2	3	4	5	6
0	1.365	4.399	4.229	4.35	445	205	110
1	859	6.940	2.619	1.515	517	570	287
2	6.482	6.463	5.890	1.420	547	759	
3	2.899	10.452	5.521	2.424	471		
4	5.703	15.872	9.178	3.214			
5	6.809	24.484	27.934				
6	11.155	30.225					
7	12.641						

Saisie des corrections (incrémentes)

	Final	Source	Salut
Final	10.641,12	39.229,59	27.927,99
Source	3.214,48	477,24	723,18
Salut	286,74	67,01	

- Native in the Database
- Automated process
- IBNR, NON-LIFE BE, NON-LIFE ALM ...

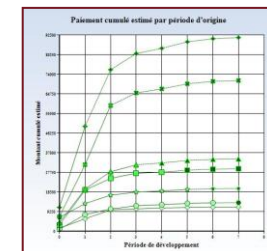


Période de développement

Période de survenance	0	1	2	3	4	5	6	7
0	1.365	5.780	10.009	10.444	10.905	11.114	11.224	11.334
1	859	7.799	10.418	11.445	12.466	13.038	13.178	13.405
2	6.482	12.945	10.945	18.360	18.907	17.575	19.993	20.072
3	2.899	10.352	24.848	27.272	27.74	28.793	29.205	29.380
4	5.703	15.836	28.014	28.285	30.345	32.205	32.857	30.038
5	6.809	31.295	30.799	65.144	67.065	69.444	70.888	71.007
6	11.155	46.423	76.103	83.714	86.185	85.245	90.707	91.248
7	12.641	46.423	75.540	78.695	81.031	83.990	85.269	85.778

Méthode de Mack (Chain Ladder stochastique)

	Facteur	1,5410	1,1000	1,0295	1,0355	1,0164	1,0060
EU	11.291						
P	13.405	80	100				
Ect	20.072	442	225				
Total	29.380	1.631	449				
Total	24.039	2.811	690				
Total	71.007	11.786	1.774				
Total	91.248	41.864	12.166				
Total	85.778	75.137	26.784				
Total	133.750	31.277					



SYMBOLIC QUERIES

Provisions intégrées en standard

- Dépendance
- PM Emprunteurs
- PM de rentes
- Provision Décès
- Provision Maintien de la c
- Provisions cédées
- Provisions par les triangl
- Provisions sur cotisations

Symbols

- Selected
- Local
- Global

Actions Results Symbols

- Id

Unique label:

Context schema: Provisions intégrées en standard

☒ display implicit keys

- Symbols to display: Remove [-]

☐ PSP Ae

- Key: Remove [-]

- Conditional: Modify

- Excel model: [+]

- Parameters: [-]

Process code: Max number of lines:

Compiled query (SQL) [-]

```
select ar20."NB1" as "NB1", sum( ar20."NB2" ) as "NB2" from D21_UNITAIRE."AUTO_RESULTAT_2" ar20 where ( ar20."TRT_CODE" = :trt_code ) and ( coalesce( ar20."NB2", 0 ) > 0 ) group by ar20."NB1"
```

NB1	NB2
735.700160	0.277630
10.20	0.277250

	A	B	C
1	NB1	NB2	
2	735,70016	0,27763	
3	10,2	0,27725	
4	7,99918	0,27819	
5	28094944	0,27696	
6	7042,1	0,27816	
7	1494,762	0,27801	
8	0	1,38875	
9			
10			
11			
12			
13			
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