IFRS17 Solution presentation

SHIELDERS

SINALYS

Aqaba Kempinski Hotel - 23/06/2021

Agenda

1. **Shielders & Sinalys in a few words**

2. **Our solution for the whole IFRS17 process**

3. **Architecture of our IFRS17 solution**

4. **Differentiating features**

1

Shielders & Sinalys in a few words

Shielders in a few words

Shielders is an independent consulting firm offering a wide range of actuarial advisory, Insurance and Reinsurance consulting services.

Shielders has 30 years of industry experience, extensive insurance, reinsurance technical expertise and a proven track record in delivering actuarial solutions.

Our teams cover a range of disciplines, offering first-hand experience and practical insurance industry knowledge across actuarial, technical, financial, operational and IT functions.

Shielders partnership with Sinalys

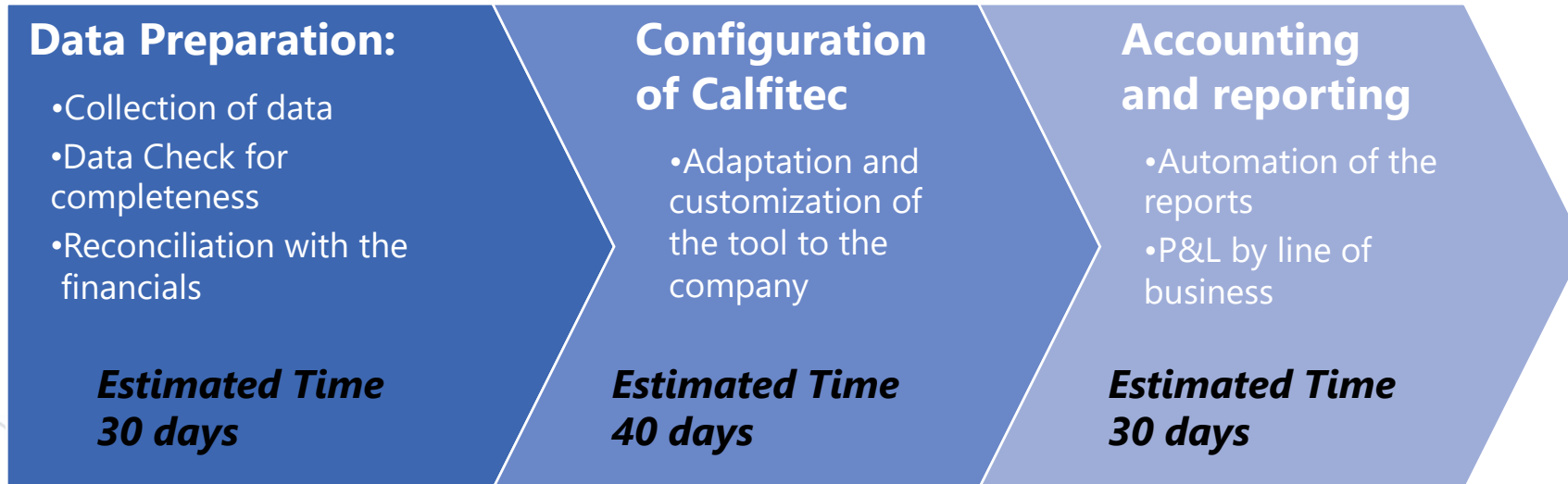Shielders has partnered with Sinalys France to offer its customers a complete IFRS17 solution.

The collaboration between Shielders actuaries and Sinalys specialists allows us to offer our customers a flexible, intuitive process that supports analysis, review, reporting, validation and the sensitivity tests required to provide the IFRS 17 financial statements efficiently and profitably.

Our "one-team approach" allows us to share resources and capabilities to provide our clients with a complete IFRS 17 solution.

We ensure that our IFRS 17 actuarial advices are clear to help our clients make decisions in what is a complex and rapidly evolving technical area.

Implementation

The process of implementation is divided into three phases as follows:

Data Preparation:

- Collection of data
- Data Check for completeness
- Reconciliation with the financials

Estimated Time 30 days

Configuration of Calfitec

- Adaptation and customization of the tool to the company

Estimated Time 40 days

Accounting and reporting

- Automation of the reports
- P&L by line of business

Estimated Time 30 days

Sinalys in a few words

Sinalys has been created in 2001 and is both a software editor and a professional services organization. The company is owned by its founders. We work mainly for the Insurance Industry and for the Social Welfare sector.

Our starting point was linked to the fact that recording and calculation of technical provisions are very expensive both in development and maintenance.

That is the reason why we developped :

A tool
The Calfitec software allows actuarial calculations and modelisations, with online documentation.

A triple expertise
Actuarial, accounting and IT expertises.

Sinalys in a few words

Right information

❌

Time savings

=

More time for strategic decisions

Every year, **40% of our turnover** is devoted to Reaserch and Development.

International patents have been applied for Calfitec. Our technology propose innovations both in the fields of actuarial calculations and intensive-calculations applications.

We are leaders in **regulatory figures in insurance.**
We propose to our customers a flexible, customized and reasonable cost.

We cover the needs of the Insurance industry and Social Welfare Sector. Our solutions give answers for Solvability II, IFRS17, decisional and actuarial issues.

Sinalys and IFRS 17

A team dedicated to the whole IFRS 17 process

22 qualified consultants and engineers, with 5 to 30 years of experience, work since 2017 on our solution

This team is organized in 3 poles :

- Actuarial with 12 actuaries

- Tax and Accounting with 4 experts

- IT with 6 engineers

Our clients are all from the insurance industry. Our main references are : GROUPAMA, AG2R LA MONDIALE, CAA, GROUPE PASTEUR MUTUALITE, OCIRP and UNEO

Data-centric solutions

A centralized database dedicated to financial regulatory multinorm projects

We are convinced that achieving multinorm projects (social, taxes, Solvency II, IFRS) is made possible if all the informations (sources, calculations, disclosures) are stored in a structured way in a relational database

The main strengh of Calfitec, as a code generator processed in the database, is that all the data used in calculations remain solely in the database, none is extracted nor reintegrated

The implementation of this kind of database for statutory accounts helps Groupama and AG2R LA MONDIALE to implement Solvency 2 with just a few changes in the data model

The use of such database facilitates both data traceability and results analysis. It gives the users the opportunity of zooming on the data at every stage of the process and to define its own indicators

SINALYS

Our software offer

A global solution for regulatory calculations needs

Sinalys' software offer provides integrated solutions to our clients which cover the needs of insurance financial departments for social, Solvency 2 and IFRS 17 calculations. These solutions are based on the CALFITEC Engine which is a robust and mature calculation and modelling tool

Our eight modules were aimed at industrializing the financial evaluation processes. They give a high level of flexibility to integrate your own products and evaluations specificities. The automatic production of an exhaustive documentation linked with an integrated audit trail provides our solution with an outstanding traceability capacity

The eight business modules based on Calfitec Engine

Computing plugin

Grid
Computing

CALFITEC **Grid**

Grid technology used to improve
computation performance

Workflow application

Process
Workflow

CALFiTEC WORKFLOW

Industrialize the production of Solvency 2
or IFRS 17 figures

2

Our IFRS17 solution for the whole process

A global approach for IFRS 17

- A robust calculation engine : Calfitec
  - Ready to use parameters for IFRS 17 standard
  - Optional modules: SCR/MCR Solvency 2…

- Multi-standard calculation approach
  - Social and fiscal
  - Solvency II
  - IFRS 17

- Audit trail
  - Traceability of calculations

- Simulations
  - Test scenario
  - Data version management

- Reporting Excel or Qlikview
  - Financial statements and analysis reports
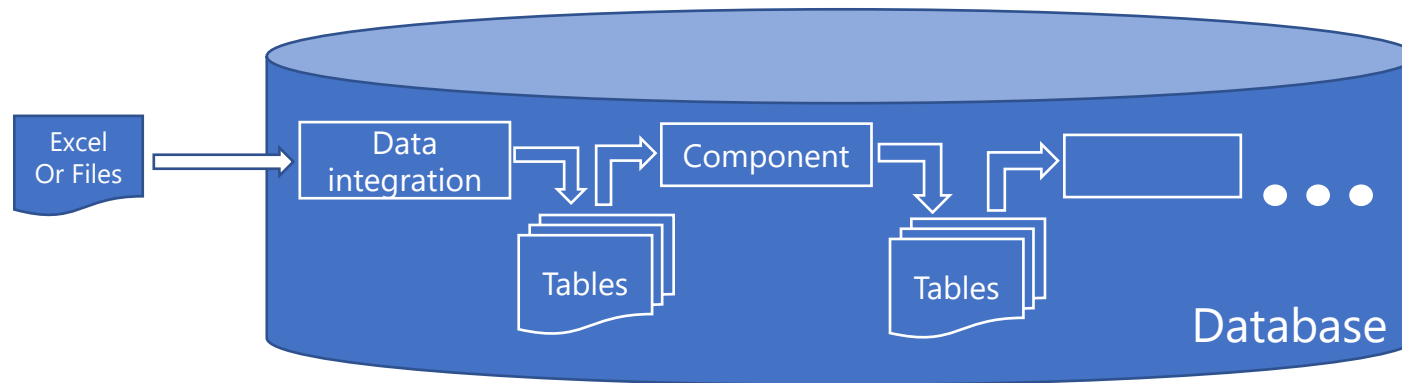 - On demand reports

CALFITEC IFRS 17 solution

This scheme provides a synthetic picture of the IFRS 17 solution which relies on 4 functional spaces in Calfitec: data space, calculation space, reporting space and accounting space.
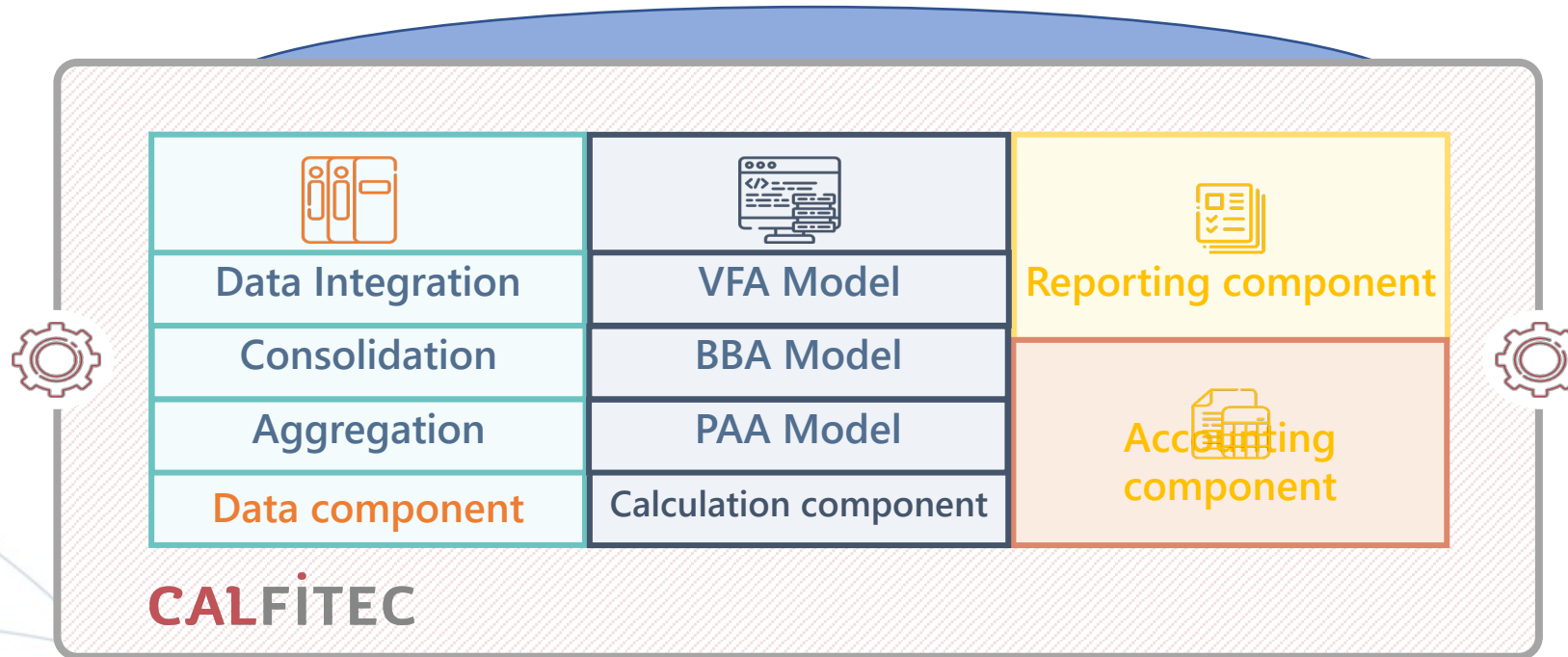
Sandbox environments may be exported to other environments in Calfitec

Data integration

How does a component work ?

The data integration component is a built-in functionality of Calfitec IFRS17

In a manual approach, the user prepares an Excel folder or .csv tables containing parameters and data tables. This component exports the files from the laptop to the server, performs various controls on the data and if the results of the controls are positive then load the results in the database

All the informations and parameters needed for IFRS 17 are loaded at the beginning of the process. The Dataset is the identifier used all through the process to give the audit trail

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Intercompany statement

This component is a built-in scheme of calculation in Calfitec IFRS17. From a parameter table giving the group structure, a Calfitec user can reprocess intercompany cash-flows. This component allows the intercompany reprocess of every level of the group, including the umbrella company

This scheme works as follows :

- A Calfitec user prepares a parameters file describing the group entities, level entities, held percentages. This file is loaded in the Calfitec database through the files integration component

- Thanks to the Calfitec interface, a user may start the intercompany processing, which, from source table of detailed Cash Flows by entity, is going to generate each level of consolidation cash flows

- A Calfitec user may follow and control the execution of the process and automatically generate the documentation of this process

- A status control (entry-exit) is generated, giving, by entity and kind of cash flow, the differences of reciprocity with the counterpart

Aggregation

This component is a built-in calculation scheme integrated in Calfitec IFRS17. From a parameter table giving data fields to be aggregated and the kinds of cash flow for possible redistribution, a Calfitec user may aggregate the amounts of cash flow. In our IFRS17 solution, this component allows to go from fine granularity to calculation granularity

This scheme works as follows :

- A Calfitec user prepares the parameters file which gives the detail of fields to be aggregated. This file is loaded in the Calfitec database through the files integration component

- Thanks to the Calfitec Interface, a user may start the aggregation processing, which, from fine granularity detailed cash flows of the source table, is going to generate calculation granularity aggregated cash flows

- A Calfitec user may follow and control the execution of the process and automaticaly generate its documentation

- A status control (entry-exit) is generated, giving, by entity and kind of cash flow, the differences between detailed and aggregated amounts

Calculations

The calculation part of our solution is based on three elements :

- The provision module which calculates BE and cash flow projections using various actuarial methods

- The risk adjustment modeling (RA)

- The IFRS17 own calculations

These elements are made to genuinely interact and share the same database scheme

Provision module calculations

This module covers most of the non life and life technical provisions evaluations. It covers products like Motor, Death, GAP, Disability, Illness, Incapacity, Personal accident, Borrowers, Pensions…

It integrates quota share reinsurance

The runs can be proceeded in parallel to accelerate the calculation time

Various actuarial methods are available : triangle, litteral calculations …

Discount rate curves and exchange rates are at your hand

The frequency of data and reporting calculations are input parameters

Risk adjustement calculations

You can provide your own RA cash flows or positions, or you can use our RA modeling tool

Our tool is aimed at evaluating the cover for the uncertainty of future cash flows date and amount due to non-financial risks

It uses as input a confidence threshold, for example 80% or 90%

We can evaluate RA using 3 methods :
1. Cost of capital
2. Confidence threshold based on VaR : $P(R \leq VaR_\alpha(R)) = \alpha$
3. Confidence threshold based TVaR: $TVaR_\alpha(R) = E(R|R \geq VaR_\alpha(R))$

An example of results provided :

Distribution of the reserve

Legend:
— Best Estimate
---- VaR at 80%
---- VaR at 85%
---- VaR at 90%
---- VaR at 95%
---- TVaR at 80%
---- TVaR at 85%
---- TVaR at 90%
---- TVaR at 95%

Reserve amount
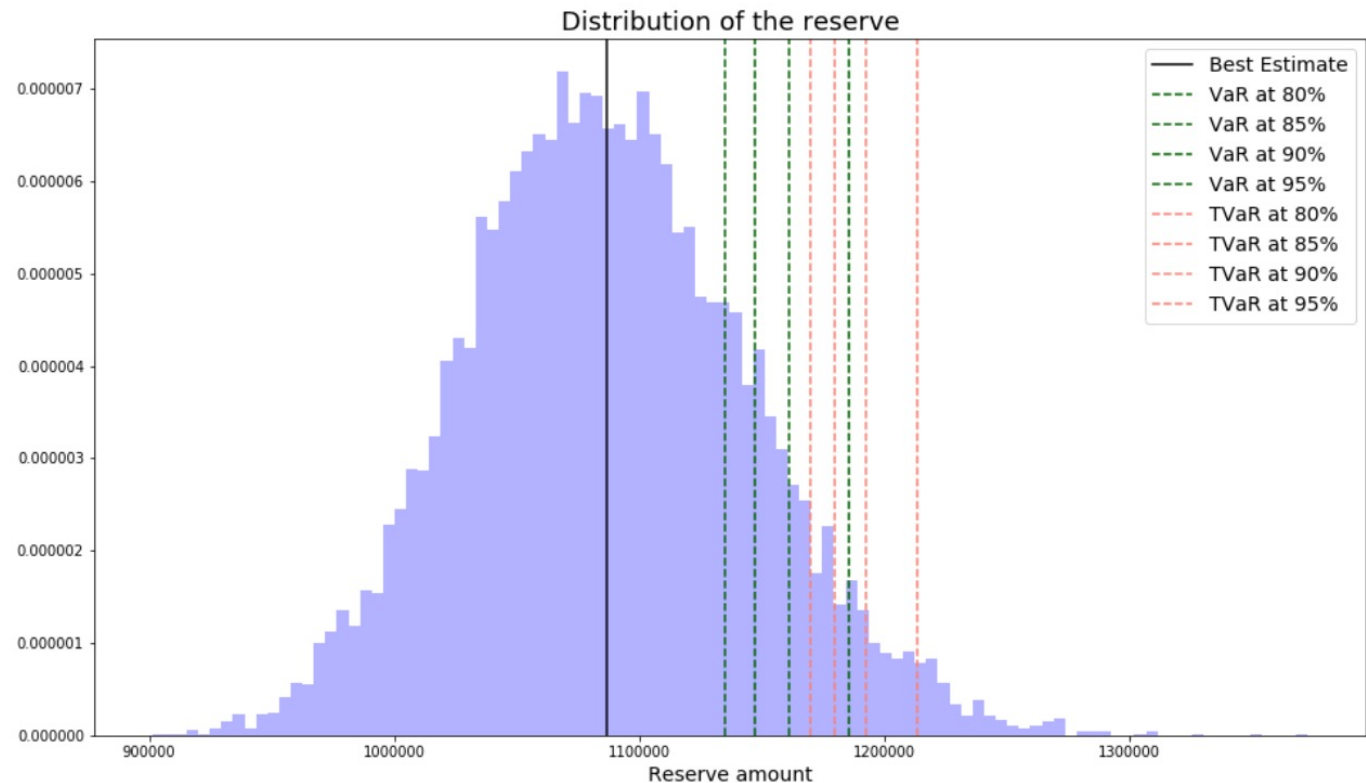
Calculations

The Calfitec IFRS 17 module is made up of three main calculation schemes

- Standard method : BBA with reinsurance ceded BBA or/and PAA

- Method applied to contracts with PB : VFA with reinsurance ceded BBA or/and PAA

- Method for contracts with short period of commitment : PAA with reinsurance ceded BBA or/and PAA

This module relies on a data model made up of three Oracle or SQL Server schemes

You can make changes in the scheme of the IFRS17 module, in the same way as in the other Calfitec modules

Accounting component

This component is a built-in calculation scheme integrated in the Calfitec IFRS17. From a table of accounting entries scheme which gives, by group, the accounting entries scheme for every heading of balance sheet or P&L which have been calculated by Calfitec, a user may generate accounting entries. In our solution, this component is able to generate a sub ledger accounting for every level of the group and for the umbrella company

This scheme works as follows :

- A Calfitec user prepares the parameters describing accounting scheme, which gives the detail of fields to be aggregated. This file is loaded in the Calfitec database through the files integration component.

- Thanks to the Calfitec interface, a user may start the accounting process which, from the items of balance sheet and P&L calculated by Calfitec, is going to generate a sub ledger accounting.

- A Calfitec user may follow and control the execution of the process and automatically generates the documentation of this process.

- For each sub ledger accounting, a general ledger statement and a blance sheet is generated. A check control validates the balance. If the process is validated, it is locked, which allows the sign-off

- Then, the Calfitec user may run the accounting flows manager to send data in the general ledger

IFRS 17 module : provisions reports

BBA Model gross amounts	Profitable contracts					Profitable contracts					Onerous contracts				
	Estimates of the Present Value of future Cash-Flows	Risk Adjustments	Contractual Service Margin	Time value of Options and guarantees	Total Liability	Estimates of the Present Value of future Cash-Flows	Risk Adjustments	Contractual Service Margin	Time value of Options and guarantees	Total Liability	Estimates of the Present Value of future Cash-Flows	Risk Adjustments	Contractual service margin case profitability change	Time value of Options and guarantees	Total Liability
Closing date and iteration	31/12/2012	1				31/12/2013	2								
Balance as at the first day of the period	-2 930 797	1 189 070	1 741 728	0	0	39 395	795 819	1 165 701	0	2 000 915	2 445 049	597 843	0		3 042 892
Changes that relate to future service					0					147 753					-336 012
New profitable contracts recognized	0	0	0	0	0	0	0	0	0	0					
Estimates changes - profitable contracts	0	0	0	0	0	1 206 109	119 002	-1 177 358	0	147 753					
New onerous contracts recognized											0	0		0	0
Estimates changes - onerous contracts											-306 064	-29 948		0	-336 012
Changes that relate to current service					-998 585					1 287 786					-1 510 452
Contractual service margin earned			-593 444		-593 444			0		0					
Release from risk		-405 141			-405 141		-324 937			-324 937		-303 602			-303 602
Experience loss (expected claims - claims incurred)	0			0	0	1 612 723			0	1 612 723	-1 206 850			0	-1 206 850
Changes that relate to past services					0					0					0
Past service-adjustment to past claims					0					0					0
Insurance service result					-998 585					1 435 540					-1 846 464
Insurance finance income															
Insurance finance expenses from insurance contracts issued															
Accretion at historical rate - P&L	20 192	11 891	17 417	0	49 500	39 981	7 958	11 657	0	59 596	54 096	5 978		0	60 074
Assumption changes P&L or OCI	20 192	11 891	17 417	0	49 500	79 962	15 916	23 314	0	119 193	162 287	17 935		0	180 222
Foreign exchange differences															
Total changes in the statement of profit or loss and OCI					49 500					59 596					60 074
Losses recognized on initial recognition															
Further losses recognized on onerous contracts															
Total loss on onerous contracts					-949 085					1 495 136					-1 786 390
Premiums received	5 000 000				5 000 000	4 003 722				4 003 722	2 999 502				2 999 502
Claims, benefits ans other expenses paid	-2 000 000				-2 000 000	-4 411 881				-4 411 881	-3 320 821				-3 320 821
Insurance acquisition cash-flows	-50 000				-50 000	-45 000				-45 000	-35 000				-35 000
Cash flows					2 950 000					-453 159					-356 319
Balance as at the last day of the period	39 395	795 819	1 165 701	0	2 000 915	2 445 049	597 843	0	0	3 042 892	629 911	270 271	400 652	0	1 300 834

IFRS 17 module : provisions reports

| BBA Model gross amounts	Liabilities for remaining coverage		Liabilities for incurred claims	Total Liability	Liabilities for remaining coverage		Liabilities for incurred claims	Total Liability
	Excluding loss component	Loss component			Excluding loss component	Loss component		
Closing date and iteration	**31/12/2012**	**1**			**31/12/2013**	**2**		
Opening Balance					915	0	2 000 000	2 000 915
Insurance revenue	-4 998 585	0	0	-4 998 585	-3 535 976	0	0	-3 535 976
Contracts under MRA				0				0
Other contracts	-4 998 585			-4 998 585	-3 535 976			-3 535 976
Insurance service expenses	0	0	4 000 000	4 000 000	0	147 753	4 823 762	4 971 515
Incurred claims and other insurance service expenses		0	4 000 000	4 000 000		0	4 823 762	4 823 762
Amortisation of insurance acquisition cash flows				0				0
Losses and reversal of losses on onerous contracts	0	0		0	0	147 753		147 753
Adjustments to liabilities for incurred claims				0				0
Investment components				0				0
Investment component				0				0
Insurance service result	-4 998 585	0	4 000 000	-998 585	-3 535 976	147 753	4 823 762	1 435 540
Net finance expenses from insurance contracts	49 500	0		49 500	59 596	0		59 596
Effect of movements in exchange rates				0				0
Total changes in the statement of profit or loss and OCI	-4 949 085	0	4 000 000	-949 085	-3 476 379	147 753	4 823 762	1 495 136
Premiums received	5 000 000			5 000 000	4 003 722			4 003 722
Claims, benefits and other expenses paid			-2 000 000	-2 000 000			-4 411 881	-4 411 881
Insurance acquisition cash-flows	-50 000			-50 000	-45 000			-45 000
Cash flows	4 950 000	0	-2 000 000	2 950 000	3 958 722	0	-4 411 881	-453 159
Closing Balance	**915**	**0**	**2 000 000**	**2 000 915**	**483 258**	**147 753**	**2 411 881**	**3 042 892**

IFRS 17 module : restitutions P&L reports

Statement of P&L	Date	31/12/2011	31/12/2012	31/12/2013	31/12/2014	31/12/2015	31/12/2016
	Iteration number	0	1	2	3	4	5
Insurance revenue		0	5 048 585	3 433 060	3 699 409	2 411 109	1 042 640
	CSM recognised for services provided	0	593 444	0	0	270 585	135 414
	Change in Risk Adjustment for non-financial risk	0	405 141	324 937	303 602	182 530	81 198
	Expected incurred claims and other insurance service expenses	0	4 050 000	3 108 124	3 395 807	1 957 994	826 027
	Recovery of insurance acquisition cash flows						
Insurance service expenses		0	-4 050 000	-4 868 762	-1 852 880	-1 643 920	-826 000
	Claims and benefits	0	-4 000 000	-4 823 762	-1 817 880	-1 623 920	-816 000
	Fees and commissions	0	-50 000	-45 000	-35 000	-20 000	-10 000
	Losses on onerous insurance contracts						
Net expenses from reinsurance contracts							
Insurance service result		0	998 585	-1 435 702	1 846 529	767 189	216 640
Investment return		0	0	0	0	0	0
	Interest revenue on financial assets not measured at FVTPL						
	Other investment revenue						
	Net impairment loss on financial assets						
Other finance movement		0	-49 500	-59 596	-60 074	-32 843	-18 218
	Net finance expenses from insurance contrats	0	-49 500	-59 596	-60 074	-32 843	-18 218
	Net finance expenses from reinsurance contrats						
	Movement in investment contract liability						
	Movement in third party interests in consolidated funds						
Net investment result		0	-49 500	-59 596	-60 074	-32 843	-18 218
	Revenue from investment management service						
	Other income						
	Other operating expenses						
	Other finance costs						
	Share of profit of equity-accounted investees, net of tax						
Profit before tax		0	949 085	-1 495 298	1 786 455	734 346	198 422
	Income tax expense						
PROFIT OF THE YEAR		0	949 085	-1 495 298	1 786 455	734 346	198 422
Total comprehensive income for the year		0	49 500	119 193	180 222	131 374	91 088

3

Architecture of our IFRS17 solution

Calfitec's technical architecture

PC or Laptop

Browsers

**Oracle
SQL Server**

SGBD

**IIS Web Server
Applications server**
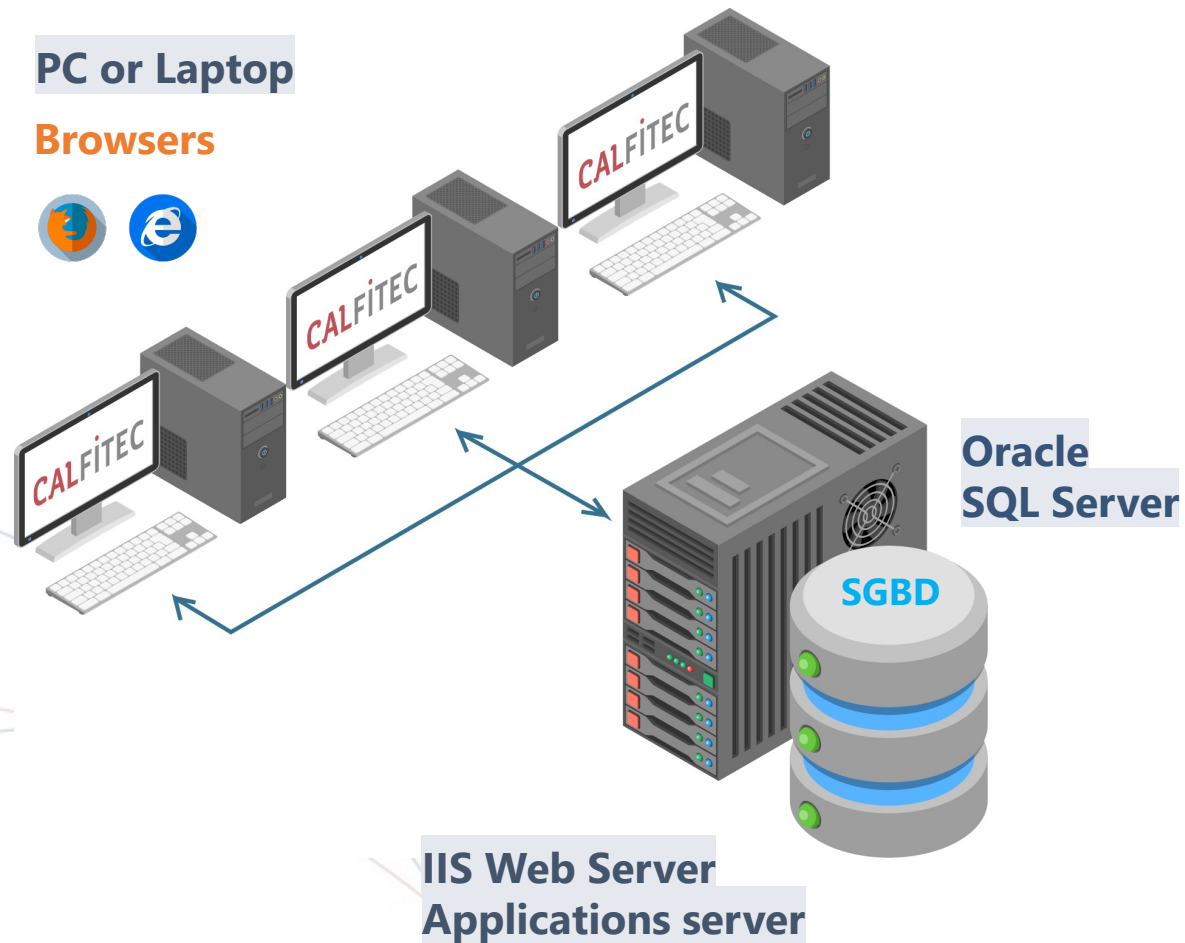
Benefits

✓ Solution Scalability of a server solution

✓ No software to be installed on the laptops

✓ Data sharing between users

✓ Data back-up

✓ Parallel processing

✓ Saas or in premise licence

Understanding of your needs

The main functionalities you need are :

+ The capability of the tool to adress data and parameters from various sources

+ The integration of an ETL (Talend) to load in the database the previous sources

+ A Data Warehouse for the storage of all informations (reporting Excel or Qlikview)

+ The calculation of BE, RA (if needed)

+ The projection of cash flows needed for IFRS17 computation

+ The calculation of all the elements needed for IFRS 17 (CSM, LC, LRC, LIC, PVFCF...)

+ A reporting tool to answer both regulatory and ad-hoc disclosures

+ A subledger to meet the accounting needs particularly the posting

Data-centric solutions

A centralized database dedicated to financial regulatory multinorm projects

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The eight business modules based on Calfitec Engine

Business advantages of our offer

- A global solution for IFRS17 deployed by experimented experts knowing your needs and your company
- A solution already in production at AG2R LA MONDIALE and at a CREDIT AGRICOLE INSURANCE subsidiary : SPIRICA.
- An IFRS17 project managed by Shielders team for you
- A limited pricing : we would like to discuss with you our new pricing allowing to respect your budget

5

Differentiating features

Differentiating elements of Sinalys & Shielders offer

Software and professional services:

- Attractive pricing for both software and professional services
- Solution already used by main international audit firms
- Proximity et and expertise of Shielders teams (actuarial services, financial and decisional IT expertise, accountig, data quality, IT architecture)
- Security : Calfitec engine is built on SQL database (Oracle or SQL Server)
- This offer is proposed in a Saas mode (Software as a Service), in an on Premise mode, or in outsourcing mode

In a few words...

- ergonomy : access to mathematical formulas
- Audit trail (central banks)
- security : central database (Oracle or MS Sql Server)
- fiability : Calfitec engine has been used by customers for more than 15 years
- autonomy : Shielders and Sinalys teams
- pricing
- expertise : IT, accounting and actuarial expertise
- innovation : 40% of the turnover
- Other Calfitec modules (ex : Solvency 2...)

Thank you

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