CIRCATEC

Investment and Superannuation Funds

Fully integrated administration of:

- Client account

- Client administration

- Fund accounting

- Asset management

- Pensions

Built in 10-12% of the time it would take following traditional software development methods!

Key system features:

The system design caters for the administration of an Investment Fund and a Superannuation Fund under common administration.

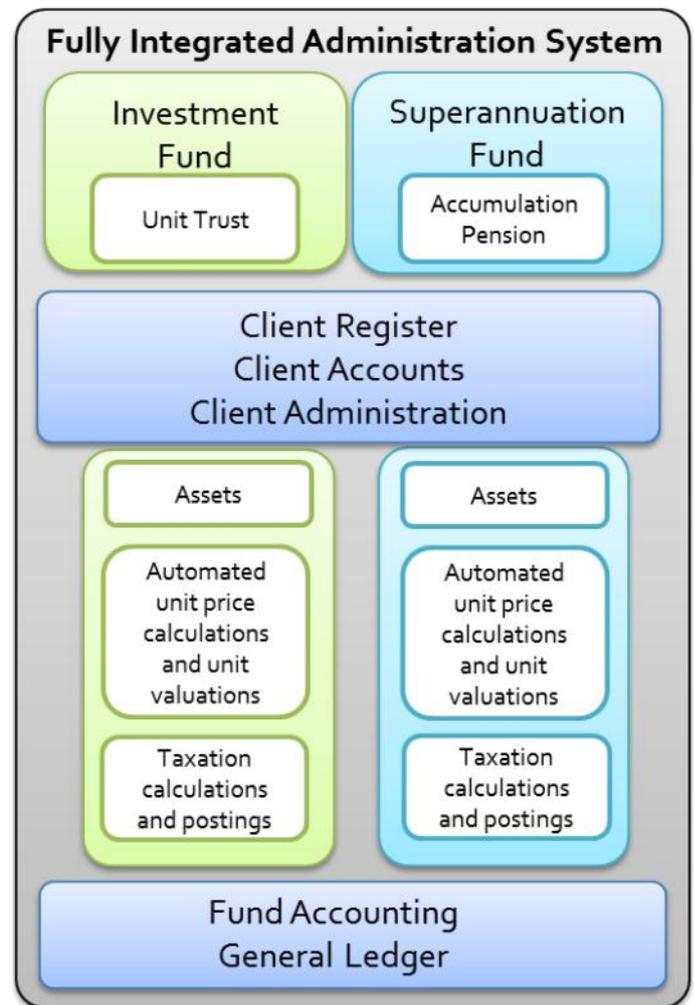It is a fully integrated system providing:

⇒ A single client file for all funds and products.

  ∗ Each Client can have one or many accounts related to the following products:
    – Unit Trust
    – Accumulation
    – Account Based Pension
    – Term Allocated Pension
    – Transition to Retirement Pension

  ∗ An account can have multiple investment options

⇒ Client Administration, which includes:

  ∗ Contributions processing with contribution cap rules

  ∗ Benefit Payments with tax rules and payment summaries

  ∗ Switches and Transfers

  ∗ Distributions and Rebates

⇒ Fund Accounting, which includes:

  ∗ Asset Trading: Term deposits, unitised investments, redemptions, cost base and unit adjustments

  ∗ Dividend and Distribution processing

  ∗ Journal functionality

  ∗ Facility to record and validate asset prices

  ∗ Unit Pricing:
    – Calculations for provisions and unrealised gains
    – Interest Accruals
    – Management Fees
    – Deferred tax adjustments

  ∗ The Unit Pricing sign-off process:
    – Automatically allocates Client Transactions
    – Automatically revalues all Client Accounts

⇒ High level of security

  ∗ Menu structure linked to user security level

  ∗ User defined security levels down to an individual or workgroup level

  ∗ User defined audit trails — every field in every database table can be selected for audit

The project

A Circatec client administers a Unit Trust and a Superannuation Fund with accumulation and pension products.

The Unit Trust is the primary investment vehicle for clients. The superannuation fund can either invest in the Unit Trust or hold investments in its own right at the Trustee's discretion.

Circatec undertook to build a single, fully integrated administration system using Rapid Application Development (RAD) tools and Agile development methodologies.

The outcome

A fully integrated administration system that allows a financial planning group to provide their clients with a range of products - Investment, Superannuation, Pension and Insurance.

All the products, plus an almost unlimited number of investment options, are administered on a single system with one client file and one accounting system.

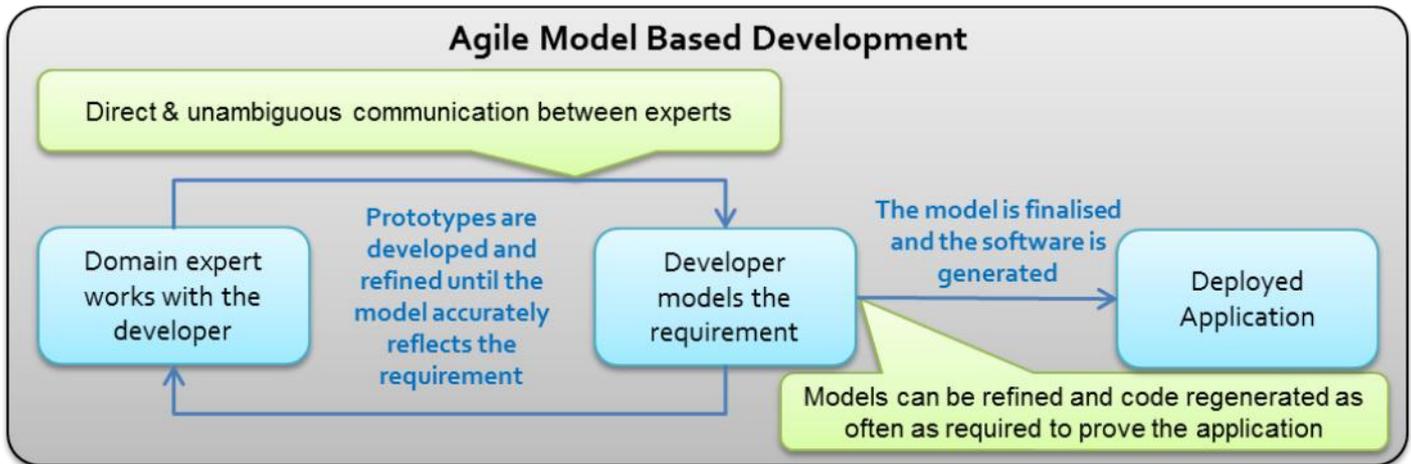**The benefits to the planning group are enormous.**

Development methodology

Requirements

Following Agile methodology, system requirements are defined in no greater detail than is necessary to communicate the requirement to the developer.

In the practical application of Agile the financial transactions were defined in great detail, while many of the decision engine models were built directly from the regulations or legislative guidelines.

For example the contribution cap and taxation model was defined by a Business Analyst working directly from the ATO documentation with an Idiom decision modeller building the rules directly into the decision model. As Idiom generates documentation for every model the interpretation of the ATO rules in the decision engine is fully documented.

Agile Model Based Development

Direct & unambiguous communication between experts

Domain expert works with the developer

Prototypes are developed and refined until the model accurately reflects the requirement

Developer models the requirement

The model is finalised and the software is generated

Deployed Application

Models can be refined and code regenerated as often as required to prove the application

Development

Circatec uses two model based development tools:

* The Idiom Decision Suite uses the graphical presentation of a decision model to define the decision process. Even very complex decision processes can be defined graphically, in fact experience has shown that the more complex the problem the more effective this approach is.

* CA Plex uses models and patterns to define data models, application behaviour, user interfaces, tables, views and constraints. Plex applications call the decision engine, enabling us to embed rules based calculations and decisions within the generated application.

Both these tools generate well-structured and highly efficient software code from models or patterns, providing enormous productivity gains over traditional software development.

Circatec leveraged the strengths of both products to deliver the almost unbelievable results shown in the Benefits panel on the back page.

* CA Plex was used to build the transactional processing system, including the database and user interface.

* Complex, rules based functions were built in Idiom decision engines and fully integrated into the Plex generated transactional system.

Using Idiom we built very complex functions such as contribution processing, benefit payments, pensions and tax in less than 20% of the total build time.

Testing

Idiom decision models have an inbuilt test function. We carried out extensive preliminary testing prior to deployment. Test cases are built and stored so each version of a model is tested using the same test cases as the previous version.

Plex uses patterns and once a pattern is tested it will behave in exactly the same manner every time it is used. This enabled us to focus on testing the actual function, substantially reducing initial testing time as well as retesting following further development.

Quality is the big winner

* The formality of the Plex patterns and Idiom decision models forces discipline and consistency of development.

* Both Plex and Idiom generate software code. This means every regeneration of a model results in a fresh set of code. There are no bug fixes or obsolete code left behind as occurs in the traditional development environment.

Massive gains over traditional development

Database tables and server functions are two measures of application size, function and complexity. Software industry standards suggest anything over 100 tables is considered large and by any measure this system falls into the complex category.

Traditional software development measures are based on days per lines of code, per database table and views, or per server function. Any of these measures result in a traditional design, build and test time of 7,000 to 9,000 days.

A development of this scale would require approximately 18-20 development staff for two years. That number of staff would require a management structure and a project management office.

Circatec's team never exceeded 5 people and not all were full time.

> **By using Idiom decision engines in conjunction with CA Plex Circatec has built the entire system in 10 – 12% of the traditional software build time**

Benefits of Rapid Application Development:

In 900 working days:

Number of screens	64
Screen functions	273
Server functions	1,453
Database tables	114
Database table views	374
Table fields	1,113

This was achieved in just 15 months from April 2010 to June 2011.

At the peak of the project the team consisted of:

1 x Business analyst

2 x Plex developers

1 x Domain expert (50%)

1 x RAD tools support (50%)

The power of partnering

RAD tools are incredibly effective in the hands of developers who understand how the tools work, but more importantly understand how to interpret requirements into a model based development tool. When RAD developers are working directly with domain experts who also understand the tools the results are even more effective.

Circatec partnered with both Idiom and Plex experts on this project, bringing together domain expertise and RAD experts.

References:	Idiom	www.idiomsoftware.com
	CA Plex	www.ca.com/us/products/detail/ca-plex
	Agile Alliance	www.agilealliance.org

About Circatec

Formed in 1994 Circatec has been engaged in many complex assignments involving the application of information technology to business process improvement.

Circatec is at the forefront of the application of decision engines with business process automation to deliver significant productivity gains to Superannuation and Wealth Management.

Circatec is committed to the use of Model Based Development and Agile Methodologies to dramatically change the speed and cost of software development.

Decision Engines add a further dimension, enabling Circatec to develop complex financial functions with much greater certainty and provability, than can ever be achieved with manual programming.

We have proven results that demonstrate significant reductions in software development time with extremely high software quality. The more complex the requirement the more effective a Circatec solution will be.

Circatec is a Microsoft Partner, a member of Agile Alliance and an agent for Idiom Limited.

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