

An introduction to the

# Income Manager Tool

For professional use only

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## 1. Purpose of this guide

Our Income Manager Tool (IMT) is a sophisticated but easy to use modelling system, aimed at delivering better customer outcomes from a more rational approach to retirement planning.

This guide aims to make it quick and easy for you to:

- pick up and run with the software
- understand the underlying concepts at work.

## 2. What is the IMT?

The IMT is a tool, underpinned by sophisticated stochastic and longevity distribution models, designed for UK Financial Advisers who are looking to:

- Test the relative likelihood of success of the strategies recommended to their clients, in particular long-term retirement planning, pension consolidations, and DB transfers.
- Educate their clients on the key concepts underpinning the advice they receive.
- Consider their PROD and TCF obligations.
- Manage strategy and business risk, and build business value in their firm.
- Understand longevity risk in their clients, using highly personalised estimates from Club Vita
- Utilise an easy-to-use, but highly sophisticated stochastic model to measure uncertainty in their retirement plans.

### 3. What does the IMT do?

The IMT helps advisers tackle the issues at the heart of retirement planning. Although other financial planning challenges (e.g. saving for a goal) can be easily analysed too.

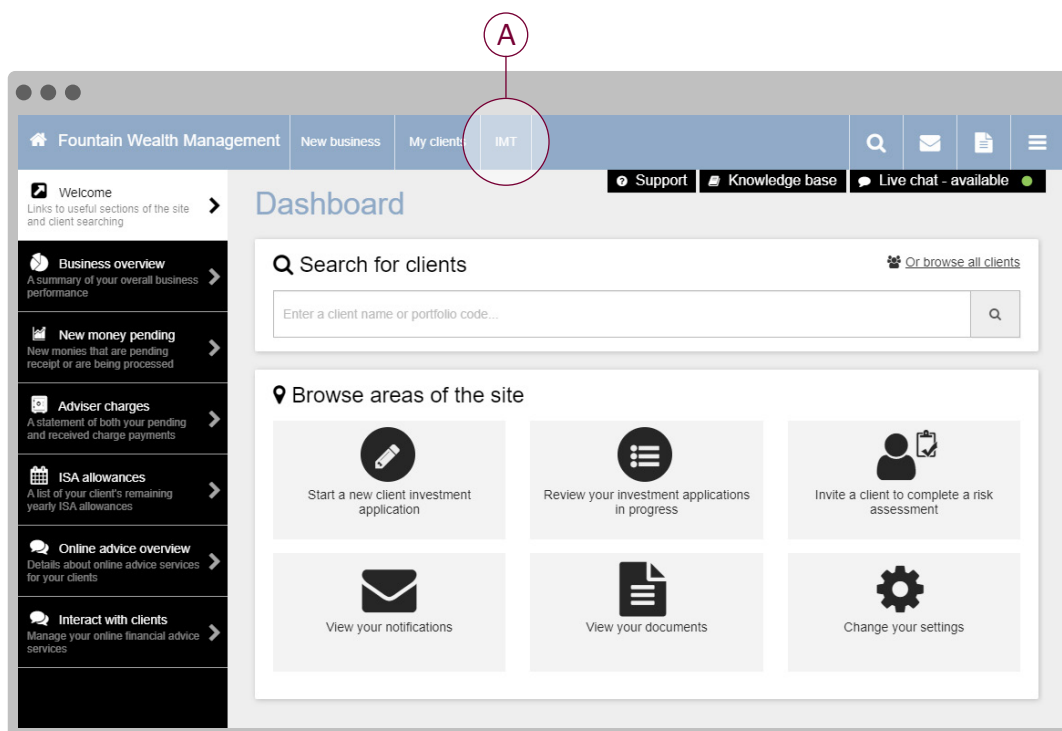
The IMT offers:

- A graphical presentation of a set of separate investment plans or pots for a client
- A personalised longevity estimate for that client
- A Viability Score that combines the forecast investment outcomes, with the personalised longevity estimate, to give a credible probability of success for each pot outcome
- A summary plan timeline bringing together multiple pots into one view
- A white labelled client-friendly retirement report
- A client plan that can be linked to the value of a live portfolio, and will alert the adviser of any major changes in the Viability Score
- Management oversight capability of all plans created and respective Viability Scores

## 4. Getting started with the IMT

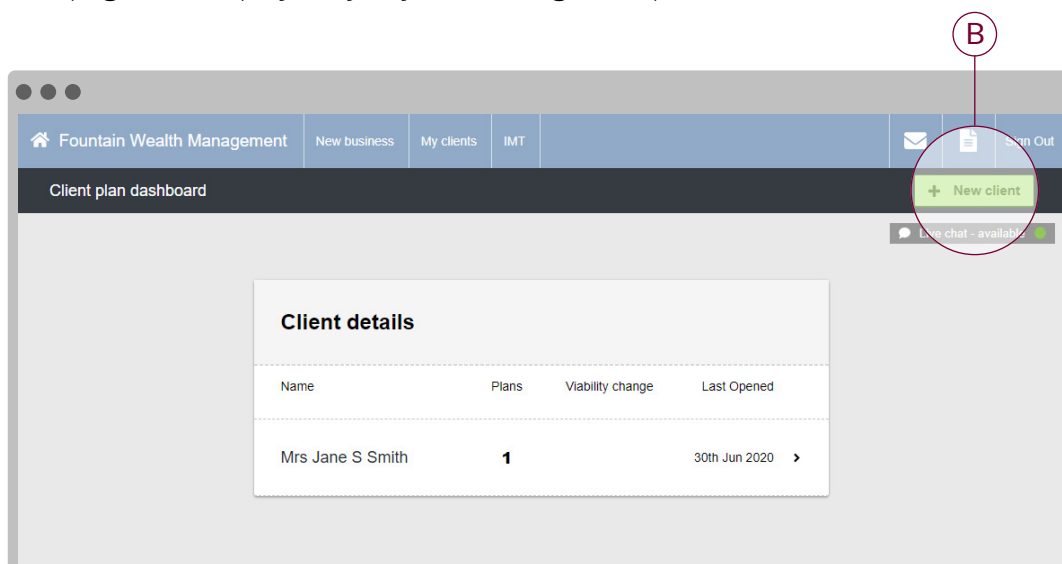
### Accessing the IMT

You can access the IMT directly from the Adviser dashboard. You'll find the **IMT** button 'A' next to **My Clients** in the header. The IMT is available to all users of the platform in your firm once it has been activated.



### Creating a new plan

You can create a new plan by clicking on **New client** 'B' on the IMT homepage. This page also displays any of your existing client plans.



## New client

From here you are asked if the **New client** you are creating a plan for is an existing Parmenion client. If they are, their personal details can be pulled through from the live system. Next, the system will ask you for confirmation of consent for personal details to be held and used for the purpose of creating this plan (see Appendix for data usage details).

The screenshot shows a web application interface for 'Fountain Wealth Management'. A modal window titled 'New client' is open, overlaying a 'Client plan dashboard'. The modal contains the following elements:

- A header bar with the title 'New client' and a close button (X).
- A question: 'Existing Parmenion client?'. Below it are two buttons: 'Yes' (highlighted in green) and 'No'.
- A search input field with a magnifying glass icon and the placeholder text 'Search client name'.
- A checkbox with the text: 'I agree that my client has provided consent for their data to be stored for this purpose'.
- A green 'Continue >' button at the bottom right.

The background dashboard shows a 'Client plan dashboard' with a '+ New client' button and a 'Live chat - available' indicator.

## Client details

Completion of this stage will produce a median life expectancy. This figure is derived from the age, gender, health status and postcode provided and uses Club Vita data to calculate a median life expectancy for that client.

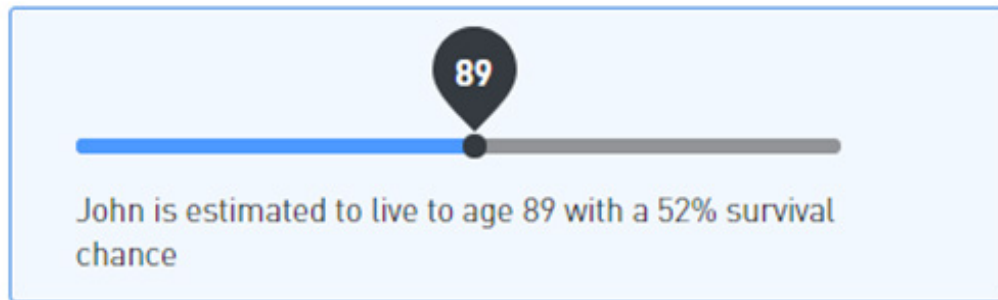
The screenshot shows the 'Client details' form within the 'Fountain Wealth' application. The form is titled 'Client details' and includes the following input fields:

- 'Title' with a dropdown menu showing 'Please select...'.
- 'First name' with a text input field and a small icon to the right.
- 'Middle name' with a text input field.

The form is set against a light gray background with a dark header bar containing the application name and navigation links.

You can also add in their partner's details to calculate their longevity, as well as the likelihood that one or both will still be alive at any point.

For more information on life expectancy estimates and Club Vita, please refer to section 6. "Viability Score in detail" and section 10. "About ClubVita".



### Employment details

The next screen lets you to enter employment status, including salary if appropriate.

**i** Self-employed persons should choose Employed status.

**Employment Details**

Current employment status

**Employed** Not Employed

Your Salary

€ 40,000 A year

**Continue >**

## Client Events

From here, a plan timeline showing events created so far, including State Pension, is displayed. Basic State pension is automatically calculated; however, you can amend the state pension age, amount, including the addition of state pension, and other pension income amounts if needed.

You can also add further events at this stage by clicking **Add Event**. However, most find it more helpful to add events once the graph has been generated, in order to visualise the relative impact of adding, changing or removing events from the plan.

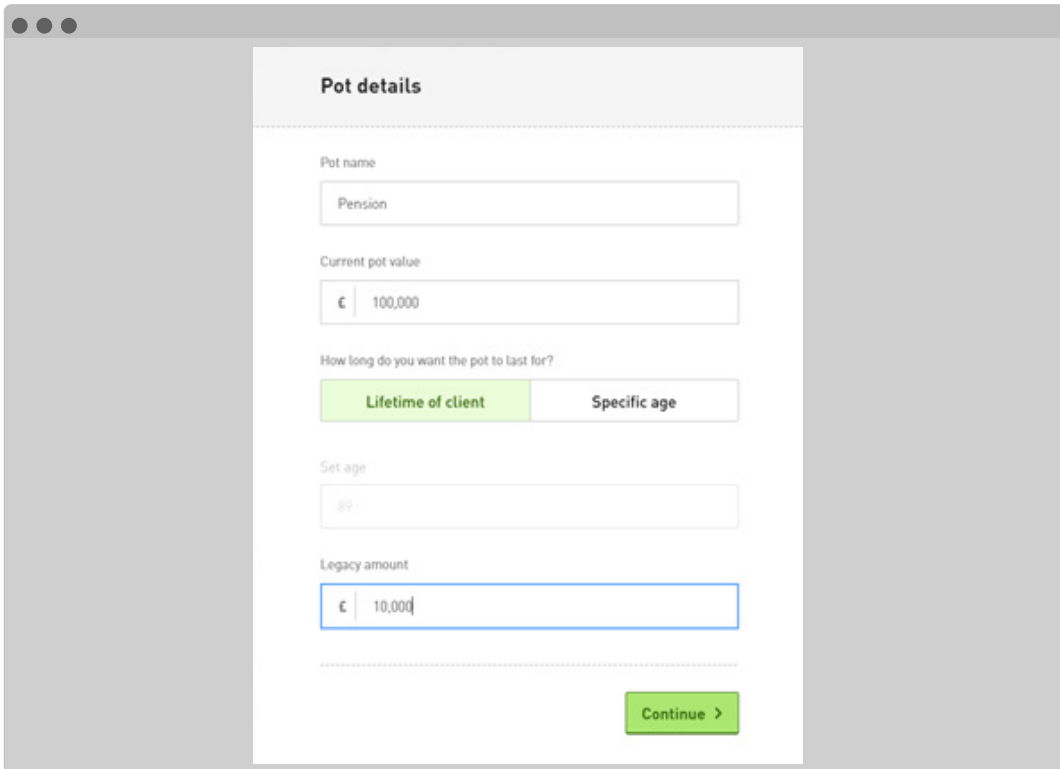
Alternatively, you can proceed to the next screen allowing you to enter the investment pot (set of assets) that underpin the plan.

The screenshot displays the 'Client Events' interface. At the top, the title 'Client Events' is centered. Below it, a message states: 'Below is a timeline of your events, you can edit these events or add new events.' To the right of this message is a green 'ADD EVENT' button. The timeline consists of two entries, each with a circular age marker on the left and a description box on the right. The first entry has a green circle with the number '52' and is titled 'Working life' in green. The description box below it says 'Work full time earning £40,000 a year' and includes an 'Edit' link with a pencil icon. The second entry has a blue circle with the number '67' and is titled 'State pension' in blue. Its description box says 'Receive a state pension income of £8,297 a year' and also includes an 'Edit' link with a pencil icon. At the bottom right of the timeline area is a green 'Continue >' button.



## Creating the client's pot

The **Pot details** screen asks for pot name, current pot value, whether you want the income to last for the **Lifetime of client**, or to a **Specific age**. You can also define a legacy amount, intended to be available on death.

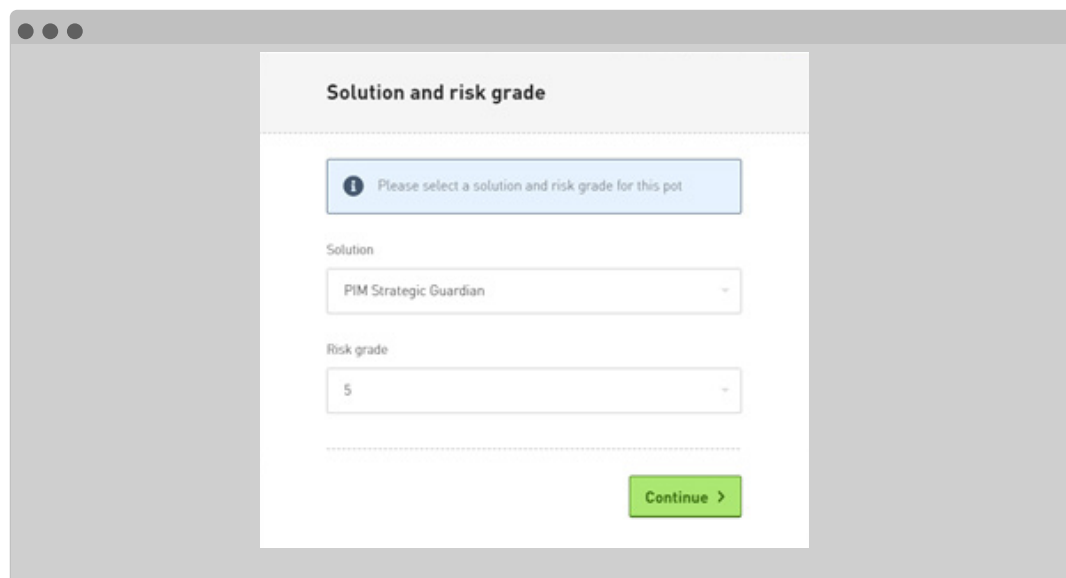


The screenshot shows a web application window with a title bar containing three dots. The main content area is a light gray rectangle. Inside this area is a white rectangular form titled "Pot details" in bold black text. The form contains several input fields and a button:

- Pot name:** A text input field with the value "Pension".
- Current pot value:** A currency input field with a Euro symbol (€) and the value "100,000".
- How long do you want the pot to last for?:** Two radio button options. The first is "Lifetime of client" and is selected, indicated by a green background. The second is "Specific age".
- Set age:** A text input field with the value "89".
- Legacy amount:** A currency input field with a Euro symbol (€) and the value "10,000".
- Continue >** A green button with white text and a right-pointing arrow.

## Choosing the solution and risk grade

The next screen asks you to select an investment solution and risk grade. These options are pulled through from the chosen investment solutions, selected when you signed up to use IMT.



The screenshot shows a web application window with a title bar containing three dots. The main content area is a light gray rectangle. Inside this area is a white rectangular panel titled "Solution and risk grade" in bold black text. Below the title is a dashed horizontal line. Underneath the line is a light blue box with a white information icon (i) and the text "Please select a solution and risk grade for this pot". Below this box are two dropdown menus. The first is labeled "Solution" and has "PIM Strategic Guardian" selected. The second is labeled "Risk grade" and has "5" selected. Below the dropdowns is another dashed horizontal line. At the bottom right of the white panel is a green button with the text "Continue >".

## The output

At this stage a graph will be revealed displaying a projection of the pot value in constant £s.

Median life expectancy is denoted by a green triangle on the graph. If you have selected a plan to run to **Lifetime of client**, an orange annuity purchase tool tip will show at age 75, showing the value of an annuity income bought with the projected pot value at that age.

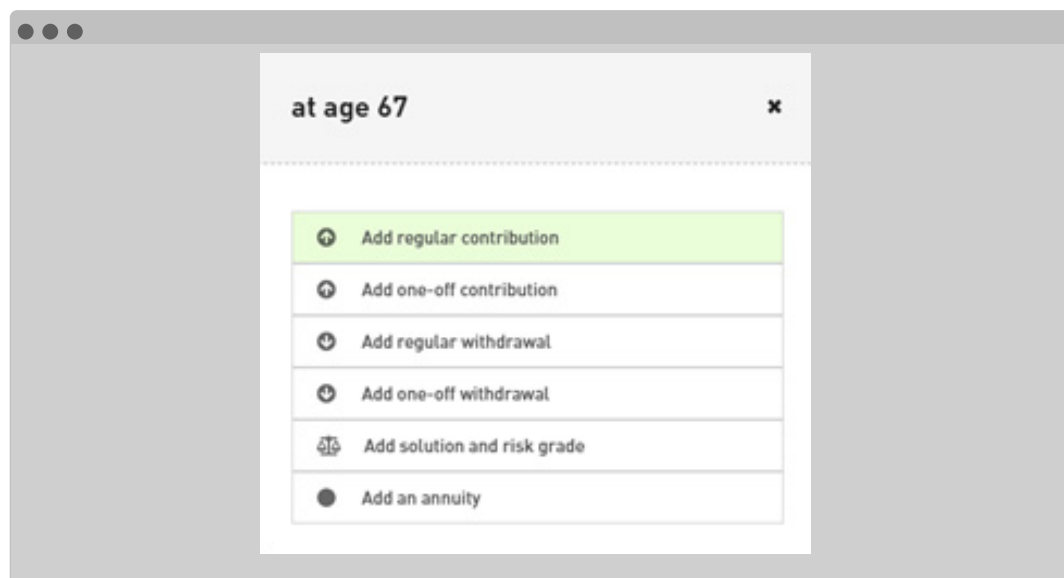


- A Value of an annuity income at age 75 (annuity nudge)
- B Life expectancy

## Adding events

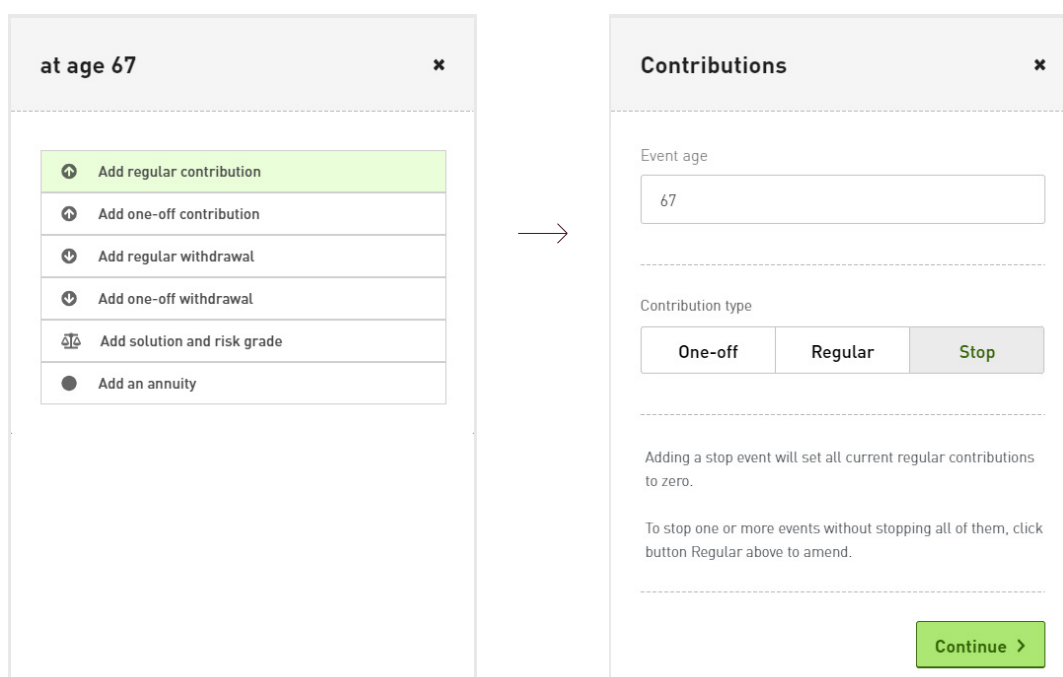
Events can be added to the plan simply by clicking anywhere on the graph or clicking the **Events** button at the top right.

When you do, a context menu will open where you will be given a choice of events to add to the plan.



## Stop events for Regular contributions and withdrawals

It is important to remember that when adding regular contributions and withdrawal events, these events need to be time boxed by adding a **Stop Event**. If a **Stop Event** is not added the computations will assume the Event continues indefinitely.



## Viability score

Unique to the IMT, the Viability Score combines the range of forecasted portfolio outcomes with the range of longevity outcomes, to calculate the likelihood of plan success as a single percentage figure.

The Viability Score will display as soon as a withdrawal or annuity event is added to the plan.

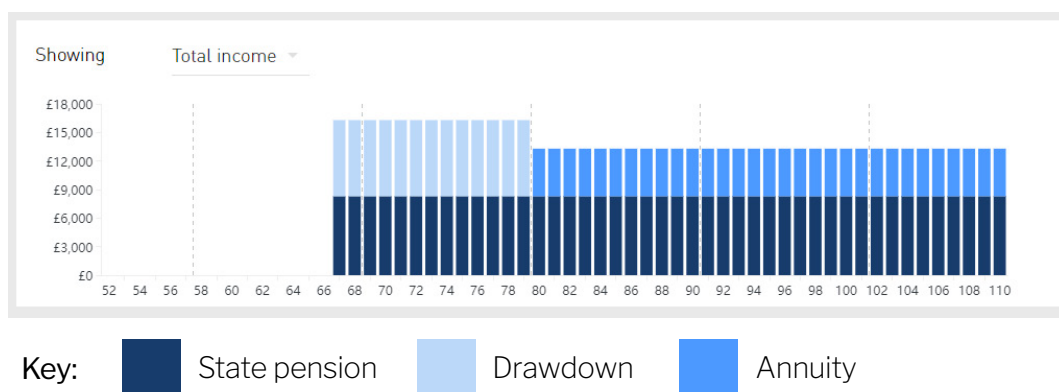
For younger clients (under 40), a Viability Score can only be generated by fully annuitizing plan capital within 70 years of the client's age.

## Annuity purchase

In income for **Lifetime of client** plans it is possible to make comparisons against annuity purchases. A default annuity nudge at age 75 shows how much annuity income the fund could buy at each specified percentile level of investment return. Viability Score calculations will be returned based on the requested purchase value.

## Income overlay

An income overlay is shown below the graph, as a bar chart summary of pot withdrawals.



## State pension

IMT will show an estimated value for State Pension at the relevant age under current rules. These amounts are fully editable if the client is entitled to a specific amount of State Pension which differs from the reference amount, or if other secure income would be usefully included in the output.



## Legacy

IMT allows a client to test if their pot will be sufficient to provide a specified legacy amount on their death. The ability to pay the legacy amount is incorporated in the Viability Score, which represents the longevity-weighted probability that all the withdrawal amounts, annuity purchases and legacy amount can be paid out of the pot.

## Tracking plans against Live portfolios

Once a plan has been committed, its details are stored and can be linked to 1 or multiple live portfolios. After three months, the IMT will calculate a Viability Score using the current value of the portfolio/portfolios linked. This Viability Score will show on the IMT dashboard. If at any stage, there is a 10% variance against the plan's Viability Score you will receive a notification.

## Resetting the Viability Score

In order to update the saved plan and reset the benchmark Viability Score, you will need to enter the current, updated pot value, and save the revised plan.

## Mismatching portfolios

If the solution selection or risk grade of the linked portfolio differ from that of the committed plan, this will not be flagged.

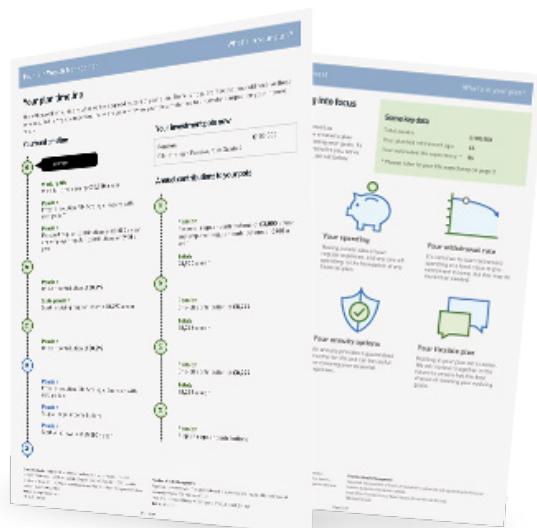
## Adviser charges

Adviser charges can be set at a firm level and therefore the charge is applied to all clients.

However, more complex charging arrangements can be modelled by overlaying or substituting firm level charges with £ or % Withdrawal Events, either Single or Regular. For more information on charges, see Assumptions in Section 7 "IMT construction in detail"

## The retirement report

Once you have agreed the plan with your client, you can generate a client facing retirement report by clicking on **Go to plan summary** and then **Download PDF**.



The report includes:

- Key talking points to consider in their retirement plan
- Information about their assets, planned retirement age and life expectancy
- A timeline of events including contributions, withdrawals, changes in risk grade, investment solution and more.

The retirement report has been designed in conjunction with a leading behavioural scientist to ensure that it delivers complex messages to clients, in an easy-to-understand and accessible way.

It can also be kept on file to support the suitability of your retirement advice.

## 5. A look under the bonnet of the IMT

### Planning retirement: how do stochastics help?

Retirement planning has two main dimensions – time and wealth. Traditional cash flow modelling represents these in the form of bar charts showing how much money is saved, spent, invested and retained each year to a point in time, often 95 or 100 years of age. Stochastic analysis adds a third dimension – uncertainty – both of investment return and longevity. This makes the model more complex to interpret but it also makes it richer in meaning, helping clients to consider the possible impact of sequence risk and to confront the risk that one or both members of a couple could live to a great age.

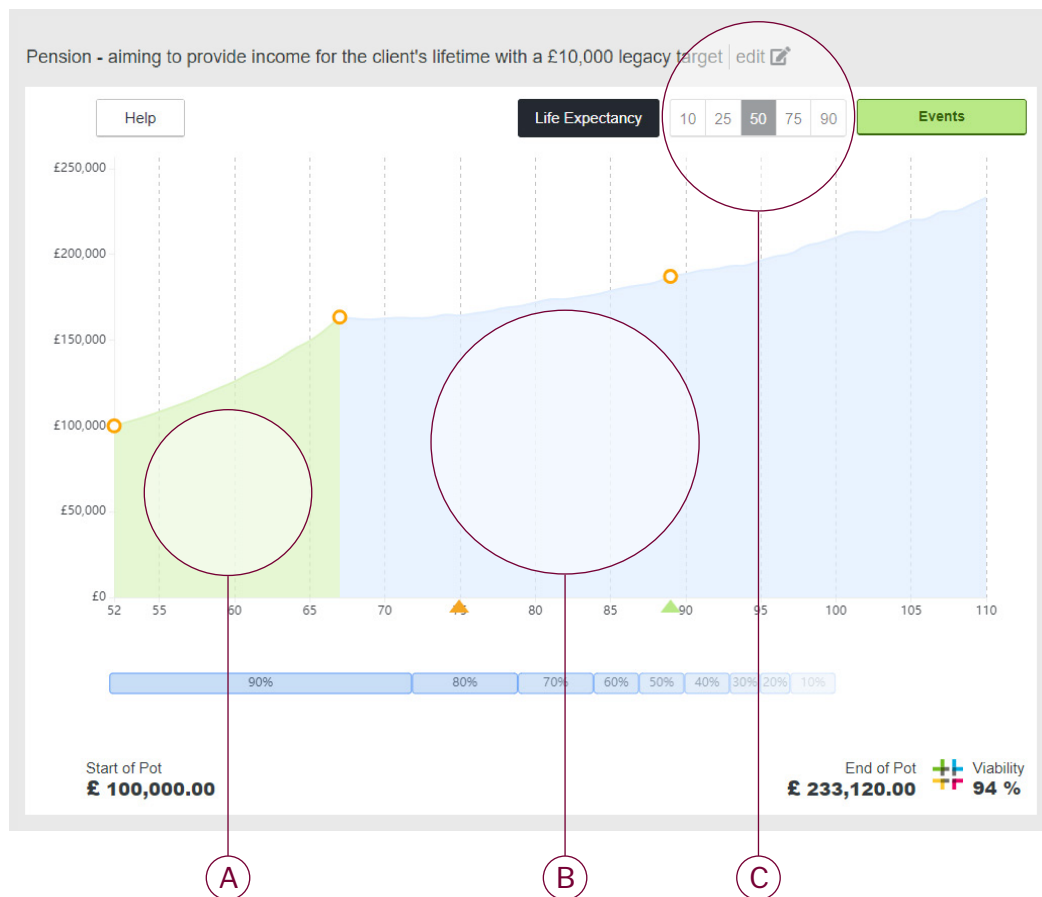
While cash flow modelling is a great way of helping clients understand how much money they will need and when, it can't demonstrate the likelihood of that plan succeeding. The IMT can help bridge this gap.

Over the next few pages we'll explore what's under the bonnet of the IMT.

We'll explain how the stochastic model and the longevity distributions work and how those two different elements come together to create the Viability Score.

## The graph at a glance

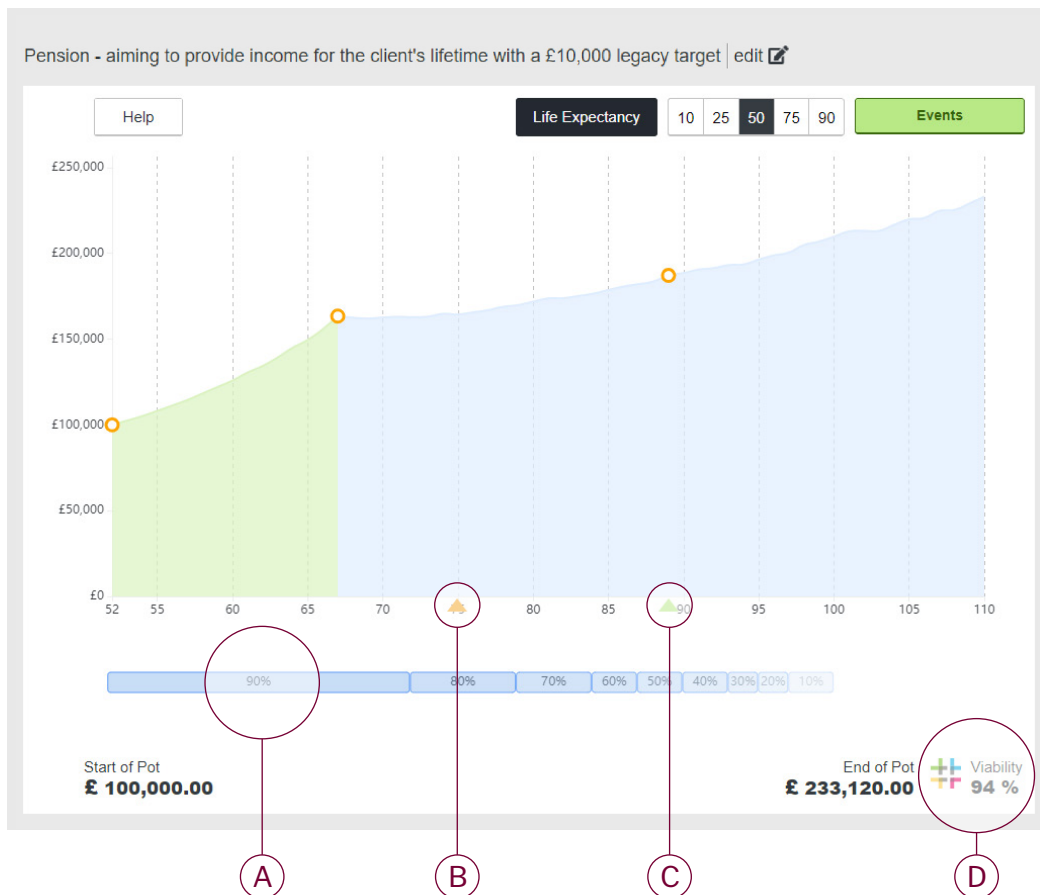
The IMT graph allows you to illustrate your client's drawdown plan, inside a clean and simple-to-use interface.



- A** Accumulation - the growth phase of a client's investment journey
- B** Decumulation - the phase where a client draws down their money
- C** Percentile toggle - to switch between percentile projections

## A few important markers

It also shows some useful information to help frame the discussion with your client.



### A Longevity distribution

A visual representation of the percentage likelihood that a client has of reaching a certain age

### B Annuity nudge

How much annuity income the fund could buy at each specified percentile level of investment return, at age 75

### C Longevity estimate

The client's median life expectancy i.e. the date at which c.50% of individuals with the same characteristics would live to.

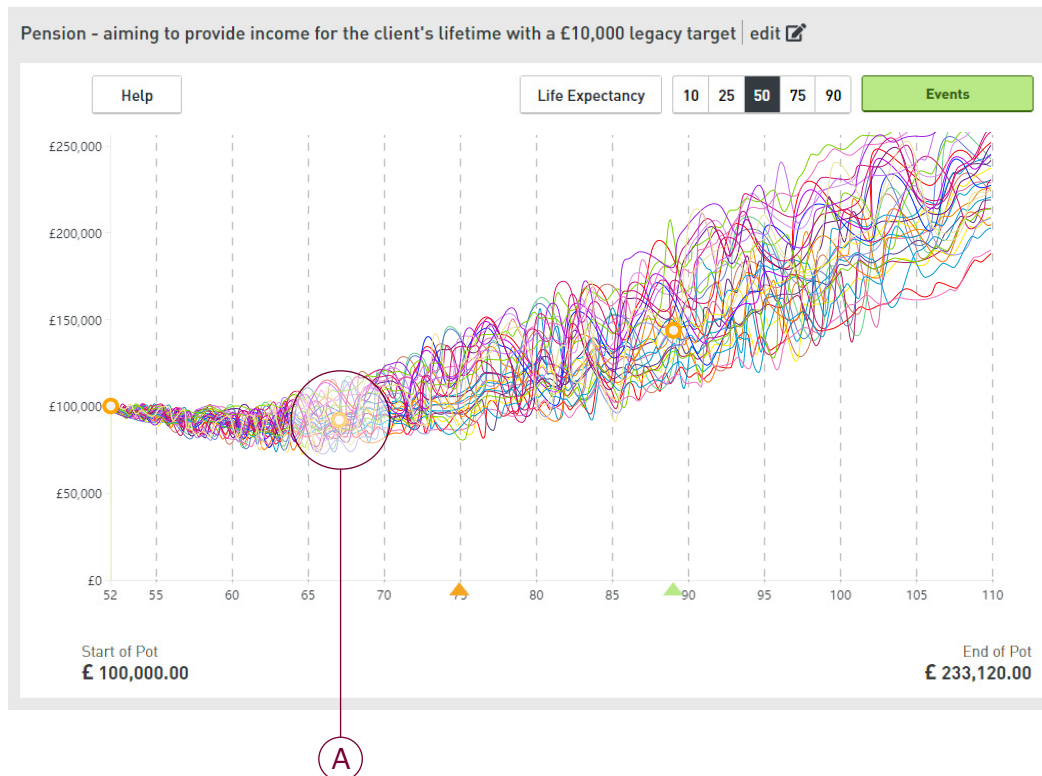
### D Viability score

A percentage score, independently calculated by Hymans Robertson, detailing your client's overall plan viability.



## How the stochastics model works

If you were to lift the bonnet of the IMT graph, you would see a complex stochastic model, powered by Hymans Robertson. How this model works is explained below..

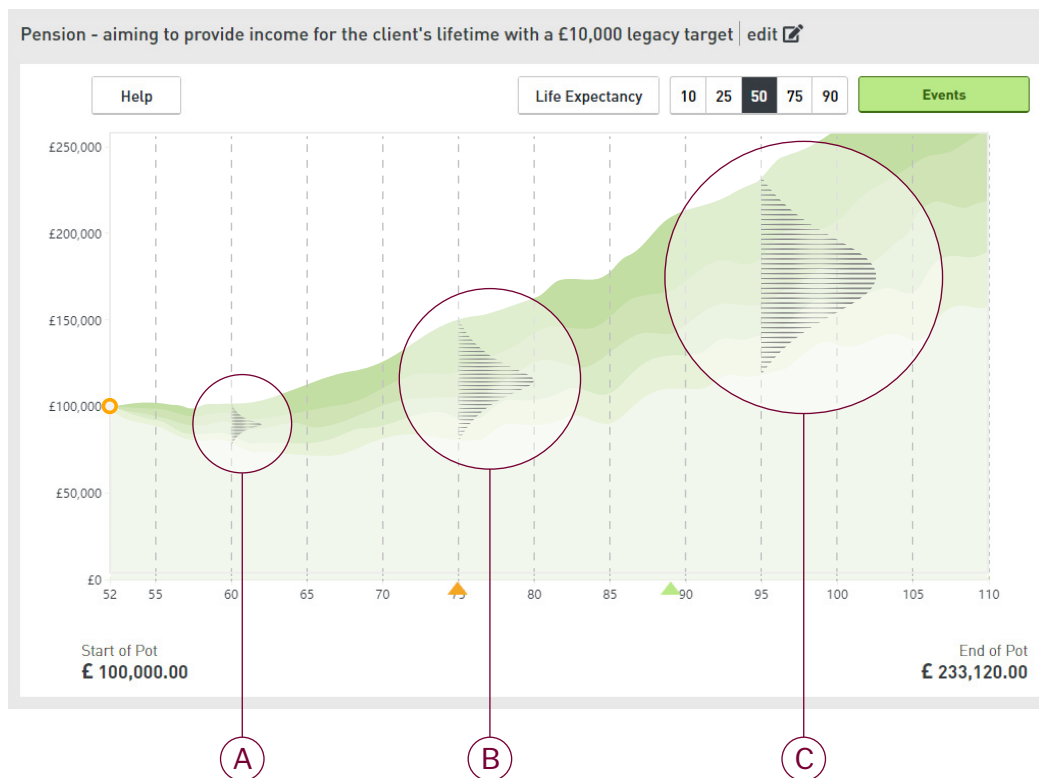


### A Generating returns

Looking 70 years out from the starting age of the client's plan, to a maximum age of 110, 5,000 potential sequences of portfolio investment returns are generated. They're generated using Hymans Robertson's capital market assumptions for the performance and volatility of the asset classes within the chosen investment solution.

## Plotting the distribution

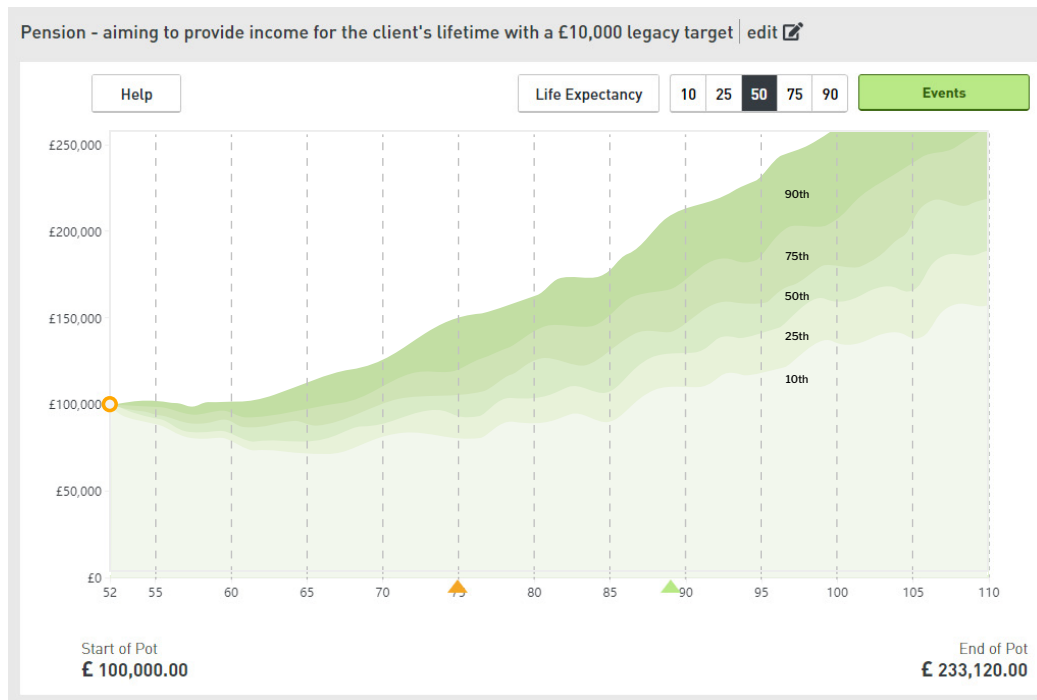
Plotting the distribution of each of the 5,000 projected portfolio values at any future point in time, as a histogram, produces a bell curve. Over time, the range of possible portfolio investment returns will expand.



- A Distribution of possible returns at age 60
- B Distribution of possible returns at age 75
- C Distribution of possible returns at age 95.

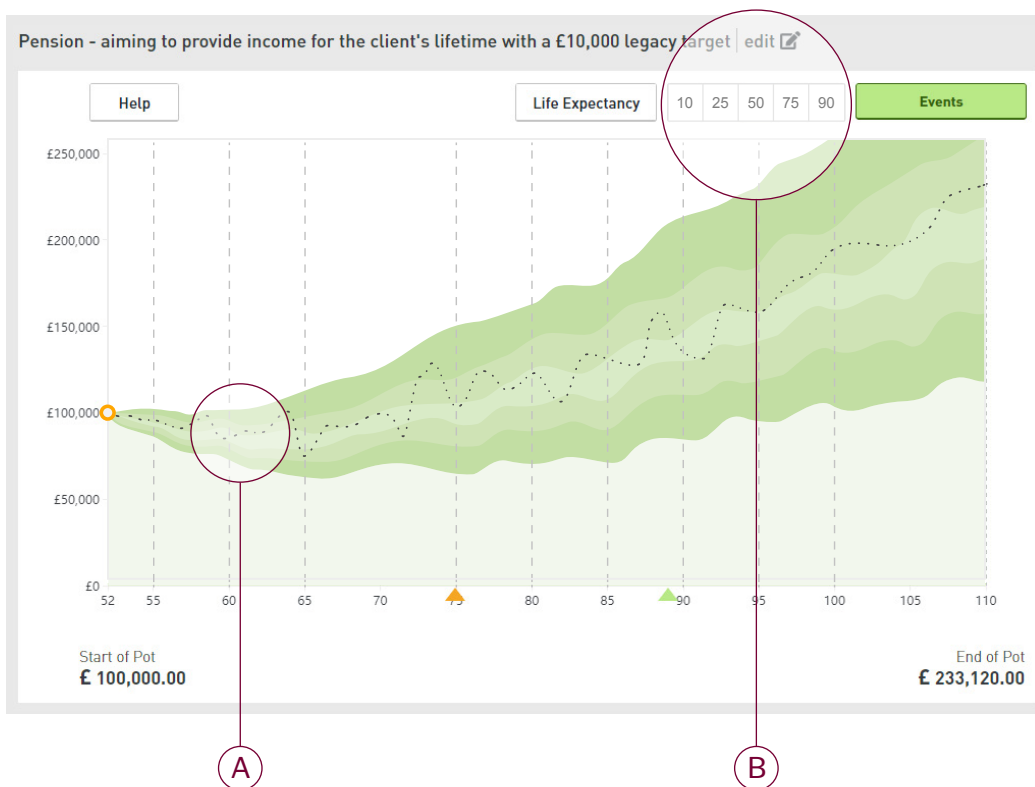
## Joining the dots

The IMT picks up the 10th, 25th, 50th, 75th and 90th percentile points on these histograms for each plan year and 'joins the dots' to create a stochastic fan chart to illustrate the range of potential investment outcomes over time.



## Interpreting the output

It's important to remember that actual portfolio returns will straddle multiple percentiles over the duration of a plan as the dotted example scenario does below.



### A Following a single track

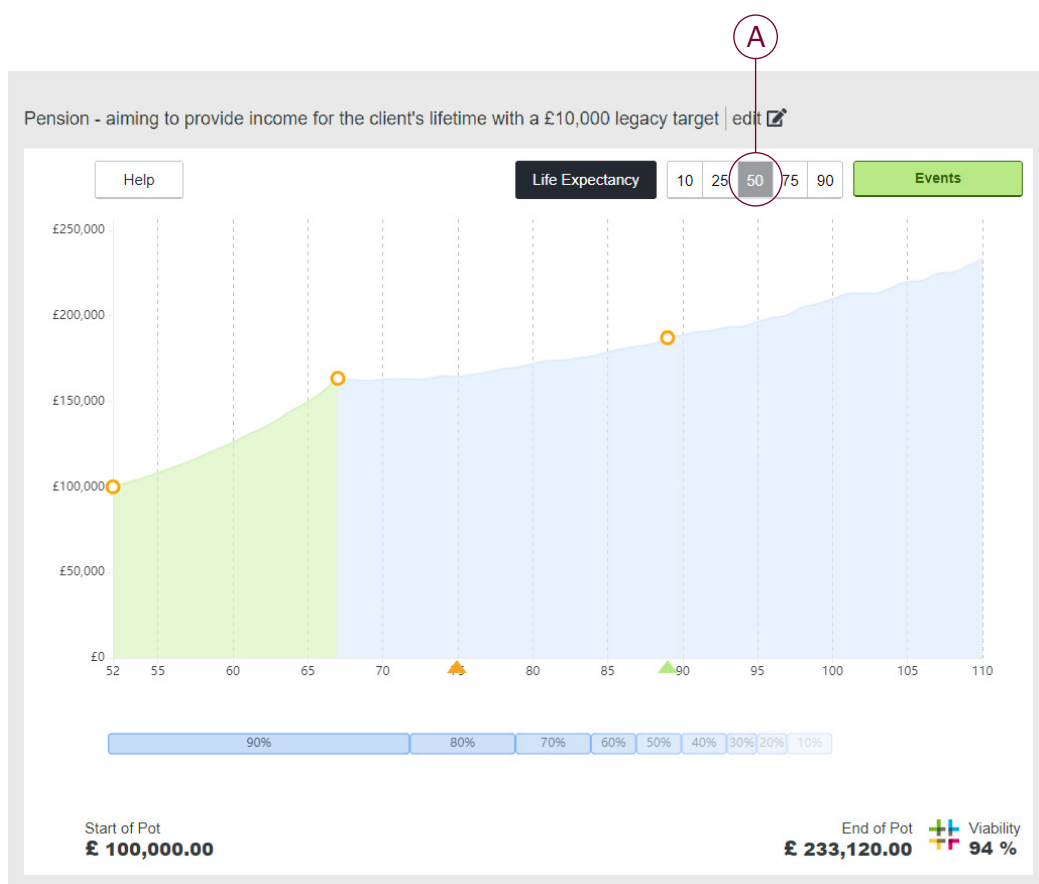
To illustrate this, we can follow the 5th projection track of the 5,000 potential investment outcomes generated by the IMT. Notice that it crosses all percentile levels in its early years and that age 75 is lying on the 50th percentile line.

### B Testing the robustness of 'Plan B'

What the 10th and 25th percentile options allow is the opportunity to consider 'what if' the portfolio was badly affected at a chosen point in time to test the robustness of 'Plan B', remembering that respectively the 75th and 90th percentile outcomes are as equally likely to occur.

## The finished product

By “joining the dots” of the histograms, the IMT graph you are familiar with is generated, which by default picks up the 50th percentile line.



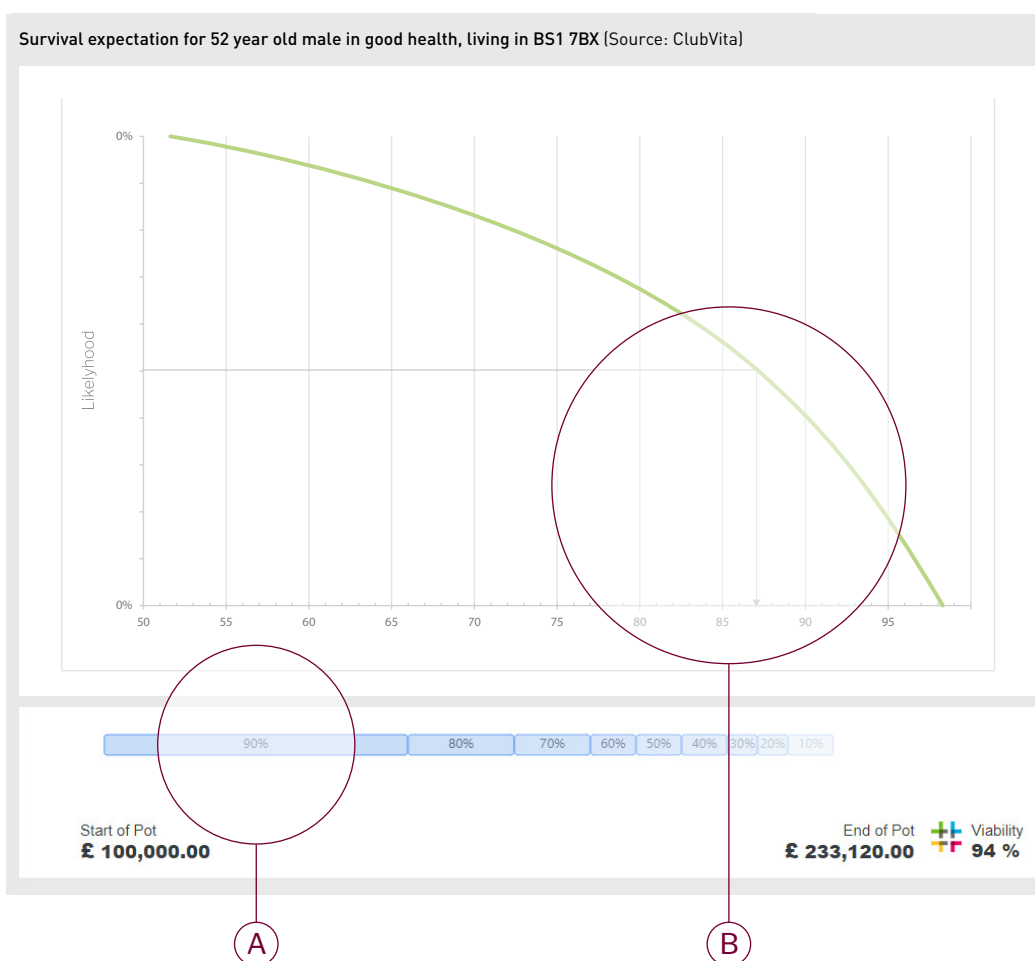
### A Reviewing the possible range of outcomes

You can easily switch to the 10th, 25th, 75th and 90th percentiles to see the degree of dispersion in potential outcomes for your client's plan by clicking on the percentile buttons at the top of the graph.



## How the longevity estimates work

The personalised longevity estimates generated by the IMT are a unique and powerful aspect of the tool. Underpinned by Club Vita, their rich dataset and insights effectively generate a personalised longevity curve behind the scenes to derive the longevity figures you see in the IMT.



### **A** Interpreting the longevity distribution

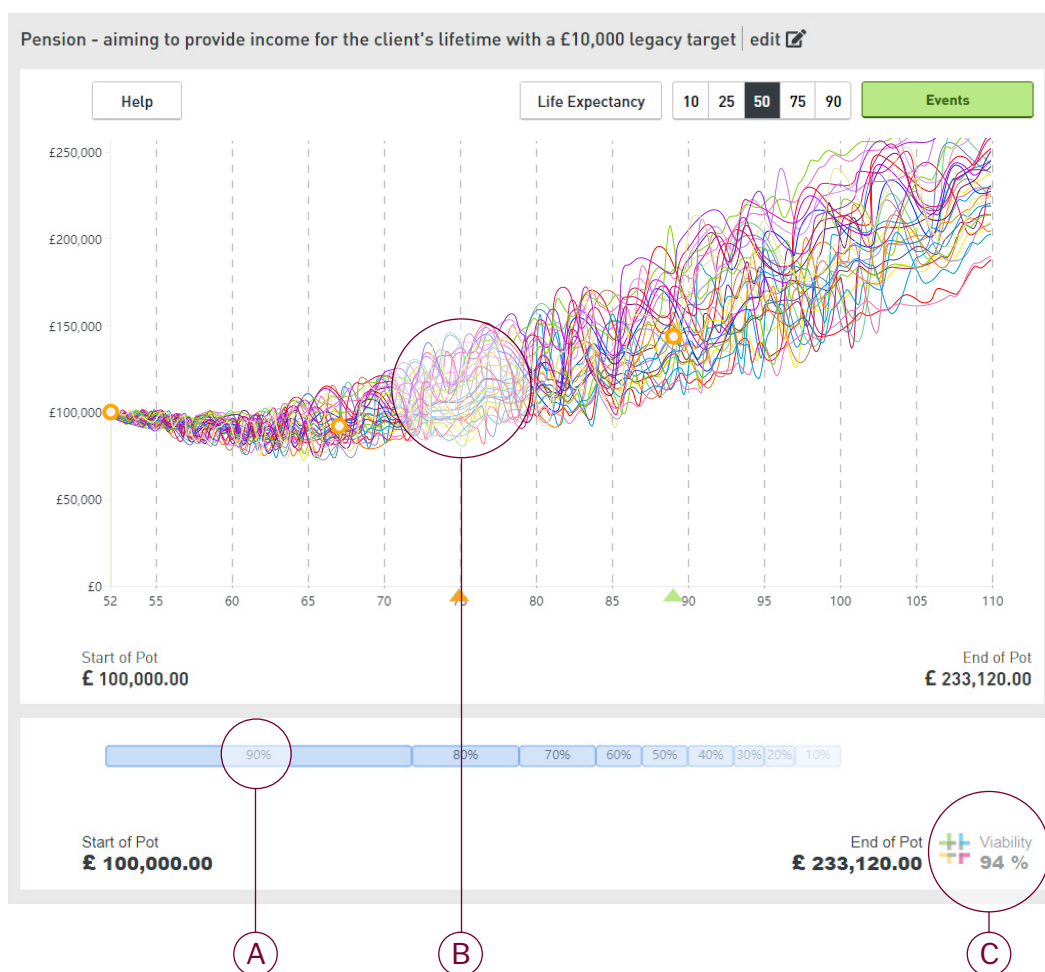
The personalised longevity distribution overlay (pictured above) utilises all data from the underlying longevity curve to demonstrate the relative likelihood your client will be alive at any future point in time.

### **B** What the life expectancy figure means

Powering all IMT life expectancy data is a personalised ClubVita longevity curve for that client. The quoted life expectancy estimate is the age in exact years by which over 50% of the cohort lives can be expected to have ended.

## How the Viability Score works

Unique to the IMT is the Viability Score, which combines the range of forecasted portfolio outcomes. 'A' With the range of longevity outcomes 'B'. To calculate the likelihood of plan success as a single percentage figure 'C'.



## 6. Viability Score in detail

The Viability Score is the probability of the client achieving their target withdrawal amounts (regular, one-off and percentage of fund) and full or partial annuity purchases over the chosen term, and where applicable, their target legacy amount and full annuity purchase at the end of the term (or on their earlier death in the case of the legacy amount). It is longevity-weighted because it allows for the possibility that the client may die at any point during the term chosen.

Specifically, it has two different components:

1. the probability of the client still being alive at the end of the term selected multiplied by the probability of the pot being sufficient to satisfy their legacy amount (after allowing for all the prior withdrawal amounts and partial annuity purchases up to that point, and if applicable for the purchase cost of their final, full annuity); and
2. the sum of the product of the probabilities of the client dying at each prior age, multiplied by the probabilities of the pot being sufficient to satisfy their legacy amount (after allowing for all the prior withdrawal amounts and partial annuity purchases up to that point).

The Viability Score therefore represents the forecast likelihood that the target income amounts in the client's retirement plan will be paid in full.

There is no Viability Score in respect of each individual withdrawal (regular, one-off or percentage), partial annuity purchase or final annuity purchase, since these are implicitly wrapped up in the Viability Score for the plan as a whole.

The Viability Score is rated from 0% (there is almost no likelihood of this sequence of Pot events being successful) to 100%. (there is a very good chance that all events will be successful).

All else being equal, lower withdrawal amounts will lead to higher Viability Scores and vice versa. An appropriate level of Viability Score for a client is therefore a trade-off between desired withdrawal levels and plan sustainability. This may differ from client to client depending on their individual circumstances, capacity for loss and attitude to risk.

### When no Viability Score shows

Typically, this will be the case where no withdrawal events have been added or where the client is under 40 and no annuity purchase has been added at age plus 69 years (see section 9. "Considerations" for more information).

## 7. IMT construction in detail

### Economic Scenario Service (ESS)

IMT projections derive from the Economic Scenario Service ('ESS') (Hymans Robertson's proprietary Economic Scenario Generator), which supplies the simulated asset class returns and economic variables that are used to project the investment returns of the plan over time. This type of model uses probability distributions to project a range of plausible outcomes for the future behaviour of asset returns and economic variables (such as interest rates). The models are not intended to explain why interest rates or returns are as they are, but will pick up interrelationships between them.

### Capital Markets Assumptions

Some of the parameters of the model are dependent on the current state of financial markets and are updated based on market conditions (for example, the current level of equity market volatility), while other more subjective parameters are reviewed and updated, albeit on a less frequent basis than the market data driven parameters.

Key subjective assumptions include:

- the average excess equity return over the risk free interest rate
- the volatility of equity returns
- the level and volatility of yields, credit spreads, inflation and expected (breakeven) inflation, which affect bond returns.

### Modelling extreme events

While the model allows for the possibility of scenarios that would be extreme by historical standards, including very significant downturns in equity markets, large systemic and structural dislocations are not captured by the model. Such events are unknowable in effect, magnitude and nature, meaning that the most extreme possibilities are not necessarily captured within the distributions of results.

### Fund mapping

To allow portfolios held on our platform to be modelled in the IMT, their underlying funds are mapped to the most appropriate asset classes available in the ESS. This is done as objectively as possible using summary information and statistics sourced from FE and Bloomberg (including sector classification and benchmark). However, an element of subjective professional judgement is inherent in this process.

## Assumptions

### Annuity factors

In order to allow for future annuity purchases, the model estimates future annuity prices based on the customer's longevity details and projected interest rates from the ESS. These synthetic annuity figures are illustrative estimates of how much income could be secured for life for a given capital sum.

The synthetic annuity is a standard single life annuity, rising in line with RPI and with a 5-year guarantee. In reality, actual annuity pricing will be influenced by many factors, including but not limited to:

- the insurer's own assumptions around longevity
- financial conditions at the time
- allowance for expenses and profit margin
- the level of competition between annuity providers to attract new business
- adjustments made by insurers to their standard annuity pricing to reflect an individual's personal health.

The impact of these factors will vary unpredictably over time, and may lead to synthetic annuity prices that may be 20% higher or lower than the equivalent price that could be secured in the open market.

Therefore, while the synthetic annuity figures give useful estimates of the range of potential income that could be secured via annuity purchase in future, they should not be used as the basis for comparing the attractiveness of drawdown relative to imminent annuity purchase (see section 9. "Considerations")

While the synthetic annuity pricing makes allowance for the client's self-reported health status, this is intended to demonstrate the impact of being in slightly better or worse health than an average person, rather than the impact of being in serious ill-health. Extreme ill-health is therefore not taken into consideration in these illustrative annuity rates and we do not attempt to model impaired-life annuity pricing.

### Asset class characteristics

Hymans Robertson ESS uses a range of asset classes to produce its projections. Investment return characteristics are framed around assessments of their expected return and volatility characteristics over three separate time periods, namely: up to 5 years, 5-10 years and over 10 years.

Return volatilities are specified during the calibration process based on current observed and historic data.



## Charges

Charges are calculated on an annual basis, not on a monthly basis as is typical in practice. To do so would significantly increase the computational load on the model.

### Adviser Charges

Adviser charges can be set at a firm level and therefore the charge is applied to all clients.

More complex charging arrangements can be modelled by overlaying or substituting firm level charges with £ or % Withdrawal Events, either Single or Regular (see section 4. “Getting started with the IMT” for how to add Events).

No Adviser charge is accounted for on initial pot value as it is assumed that this has already been charged. A one-off withdrawal event can be added to reflect initial Adviser charge if required.

### Portfolio Charges

Parmenion’s platform fee, tiered for pot value, DFM fee, estimated dealing charges and fund OCF are accounted for in the figures supplied by IMT.

Custody charges are not calculated on an aggregated account basis.

Bespoke charging arrangements are not automatically accounted for.

### Charges on active funds

Given that charges for active funds and associated DFM fees are higher than for passive funds and portfolios, the IMT will consistently show improved relative outcomes for passive portfolios with equivalent asset allocation when compared to active portfolios. The IMT does not credit active investment management for its potential to outperform passive investment management or improve client experience by delivering comparable returns at reduced volatility. Parmenion’s view is that this effect is most clearly seen in falling markets when passive funds remain fully invested and tactical and active managers can, typically, reduce risk.

If a planner is a believer in the potential added value of active fund management and has researched the topic for the particular risk graded portfolio under analysis, they would be able to capture this effect by including an incremental % ‘addition’ to the portfolio and disclosing this in their modelling assumptions.

## Client health and longevity

When considering the sustainability of income in retirement a key consideration is how long the client is likely to live. Using a single, simple life expectancy measure based on average population statistics has two main drawbacks:

- Setting a fixed term based on life expectancy does not allow for the considerable uncertainty that exists around the client's future lifetime (since life expectancy is just an 'average' or 'expected' age of death) and therefore the required retirement investment term;
- Population statistics published by the ONS will not necessarily be representative of the specific longevity experience of advised retirees with retirement wealth, who typically have considerably higher longevity than the average of the general population.

Hymans Robertson's model addresses these drawbacks by allowing for the uncertainty around the exact timing of death. This is achieved by calculating how likely it is that the client may die in each future year, rather than relying solely on a single life expectancy figure. This uncertainty is then incorporated into a 'longevity-weighted' probability of plan success – the Viability Score.

## Club Vita

The model incorporates detailed longevity information from Club Vita, the richest longevity dataset in the UK containing 1 in 7 of all UK pensioners, with 1.4 million death records stretching back in excess of 25 years covering 230 large employee benefit schemes. This enables a far more accurate appraisal of client specific longevity analysis and allows IMT to tailor the longevity to an individual based on age, gender, postcode and self-reported health status.

It should be noted that while the longevity information is much more granular than widely used population statistics, there are factors which are not taken into account in the modelling. These include but are not limited to:

- genetic factors
- lifestyle choices
- personal health circumstances

It is important to note that the client's self-reported health status (Poor, Average, Good) is a relative measure intended to demonstrate the impact of being in slightly better or worse health than an average person, rather than the impact of being in serious ill-health. Therefore, it is inappropriate to use the longevity output of this tool in respect of individuals with severe health issues, and for those individuals who would qualify for an impaired-life annuity.

## Currency

Hymans Robertson do not assume any additional return from currency effects in the outputs of the ESS.

## Default Annuity

Shows at age 75 in income for Lifetime of client plans, identified on the plan graph by an orange triangle (annuity nudge).

## Equity risk premium

Hymans Robertson assume a stable equity risk premium to generate equity return assumptions from an assessment of forward interest rates.

## Inflation

Projections in the IMT are adjusted for simulated future inflation and are therefore shown in real terms, meaning their value in the money of today. Regular additions and withdrawals are also maintained in real terms in the accounting for client outcomes. This makes output in long run plans understandable to clients and draws out the difference in real return between lower and higher levels of portfolio risk.

Where this approach has its disadvantages is in the comparison of retirement withdrawal rates to typical annuity factors, as it is not common practice to purchase inflation proofed annuities. On balance, a real value of money approach is preferable for long term planning, and especially where the annuity functionality is being used to model the underpinning of core expenditure requirements or to consider DB benefit transfers, prospectively and with hindsight.

## Monte Carlo simulation

This technique is used to generate projections for portfolio returns. A random number generator will create a period return for a particular asset class based on its assessed average return and the standard deviation of those returns. This is done successively for each time period in a plan. These asset class outputs are then combined given the asset allocation of a particular portfolio, accounting for other variables, principally costs, additions and withdrawals, to create one assessment of the potential future performance of the portfolio or fund. This is then repeated 5000 times to generate a 'stochastic' model from which given the overall pattern of anticipated outcomes, likelihoods of particular outcomes and percentile returns can be assessed.

### Period to period returns

Successive simulation periods are not linked. So, should equities have fallen heavily in one period of a single Monte Carlo evaluation, the model does not make it more likely they will rebound in the next period. The odds of a particular outcome are the same in all periods. The large number of Monte Carlo simulations being run ensure this does not impair the model.

### Portfolio diversification (contingent correlation)

The model does not within in each simulation period represent any benefit from the diversification of a portfolio across asset classes which are seen historically to exhibit negative or contingent correlation. Generally, when equities fall bonds will tend to perform well. This short-term effect is not modelled.

### Rounding

Input amounts are handled as entered. Output values in currency are rounded down to the nearest £10. Probability scores are rounded to the nearest 1%.

### Survival probability

Survival probabilities are quoted in IMT through the Life Expectancy overlay. They represent the likelihood of being alive at future ages.

### Yield curve

The Hymans Robertson model uses the market yield curve as an input to the projection (i.e. the initial yield curve generated by the model matches the market curve). The model will then generate 5000 future yield curve scenarios, meaning that simulated yield curves at future projection horizons differ from the market curve observed at the outset.

## 8. Some example use cases

### Planning a retirement in your 40s

Clients in mid-career with some assets and capacity to save will be interested to confirm they are saving enough and to know when they might be able to retire. The IMT can assist with this task.

One of the key dimensions to any long-term saving plan will be the level of investment risk being taken. When there is no requirement to make withdrawals from savings in the short term, the volatility factor, inherent in all investment, is of reduced significance, if over time risk is tapered. Varying the level of portfolio risk will offer insight into whether goals can be advanced by prudently investing at the limit of a client's risk tolerance and how changes in risk affect Viability Scores. For example, increasing risk will generally always increase the Viability Score at the median level due to the potential for increasing the growth of the investment pot. With increased portfolio risk, the greater downside risk can be highlighted using the **Percentile toggle**.

### Bridging to a secure income, or 'burn down'

A common feature of retirement planning is assessing whether early retirement is feasible. For a client at work with a combination of a savings pot and a good level of secure income at normal retirement date or state pension age an Adviser might use IMT to assess the chance of the DC pot covering a desired level of withdrawal between a suggested early retirement date and the point in time secure income is available.

### Reviewing a DB transfer client

Clients are keen on achieving DB transfers to benefit from the flexibility and choice, which control of large amounts of capital can offer. The IMT can assist Advisers in assessing the risk of decision regret, by testing investment strategies against the requirement to purchase an annuity, if clients spend at a higher rate than planned or if an unsuccessful investment strategy impairs a portfolio's value.

### Allocating assets between income and capital

A valuable source of client composure in retirement planning is found in the allocation of capital to different goals or objectives, because it answers a need to feel covered against eventualities. The IMT will bring this extra clarity for clients by allowing an assessment of how much capital needs to be allocated to defined, time specific capital spending goals as well as assessing what a prudent level of income can be generated from residual capital. It is possible using the separate pot functionality in the IMT to show each of these 'pots' distinctly.

## 9. Points to note

The IMT is a model designed to indicate the relative likelihood of plan outcomes. It is important not to interpret its outputs as guarantees of future outcomes. It is also important to bear in mind the sensitivity of its outputs to the inputs supplied. In certain use cases an even greater level of care is required as outlined below.

### Investment solution

Only Parmenion portfolio solutions will be analysed in the IMT.

Bespoke asset allocations are not supported.

### Joint planning - no joint survival Viability Score calculated

The IMT will show the life expectancy for the client and for a partner separately. The partner's life expectancy is not worked into the Viability Score or other probabilities and no joint calculation is made. It should be noted that with a plan aimed at underpinning two people's wellbeing, the likelihood of either of them being alive at any time over the term of the plan is typically in excess of either of their individual life expectancy probabilities. Care is therefore required in the use of Viability Scores when two or more persons' wellbeing is dependent on plan outcome and, for example, when a dependent is considerably younger than the client for whom the plan is initially designed..

### Multi-pot contingent drawings

Separate pots modelled in the IMT do not interact with one another. For example, it is not possible for drawings to be taken from a specified pot after another has been exhausted. This would involve calculating multiple interconnected 'Monte Carlo' analyses which rapidly generates numbers of outcomes for assessment beyond practical computational limits.

### Near term annuity rates

Synthetic annuity rates derived by the IMT are not tested against actual current annuity rates. Therefore, they should not be used as the basis for comparing the attractiveness of drawdown relative to imminent annuity purchase (defined as annuity purchase within the next two years). This comparison should always be carried out using actual market quotes.

### Taxation

No automatic account is made of the effects of taxation. Contributions and withdrawals, gains and income on plan assets, and charges, make no account for the effects of tax or of tax relief. Pension contributions are particularly affected.

Tax favoured contributions should be input as the amount allowing for tax relief. Withdrawals are not distinguished between tax free or taxable or between basic and higher rates of tax payable.

The logic of this approach is that although tax optimisation of withdrawals is an important element of financial planning, year on year, it is not realistic to assume rates and bases of taxation will remain stable over very long periods of time. In particular, that PCLS relief will continue to be a feature of retirement taxation over the next 70 years.

### **UK centric**

The IMT is designed only for UK Financial Advisers and in relation to planning for UK resident clients.

### **Very short time frames**

Modelling very short time frames (defined at 3 years) is not the intended purpose of the tool. This particularly applies in circumstances where acute medical conditions are impinging on a client's life expectancy.

### **Younger clients**

The IMT will always model to 110 years if income 'Lifetime of client' is selected when building the plan. Furthermore, the maximum projection length for the IMT is 70 years. What this means in practice is that younger clients, i.e. those under 40 years old, will not receive a Viability Score automatically.

Furthermore, over such long time frames the potential variability of outcome is necessarily extreme and therefore the output becomes less coherent. For younger clients, a Viability Score can be generated by fully annuitizing plan capital within 70 years of the client's age.

## 10. About Club Vita

Club Vita exists to help manage the risks around longevity and to elevate the handling of this particular variable in professional modelling. Launched in 2008, Club Vita membership has grown to include over 230 leading UK defined benefit (DB) pension schemes.

Club Vita uses shared, anonymized data on over 2.7m living pensioners within these schemes to create the largest and richest data set of its kind, with a wide variety of applications, including retirement planning and establishing pension scheme investment strategies. This dataset comprises 1 in 7 of the UK retired population and 1.4 deceased pensioners using data stretching back to the early 1990s when electronic data storage began to change administrators' working practices. Two thirds of this data is from the private sector.

Club Vita's granular socio-economic data is more than 10 times larger than the ONS's corresponding analysis which is based on a 1% sample of the population. Annual data extracts are received from 12 different administrators and is subject to deep data cleansing, including on pensioners in receipt of income but who are believed to have passed away and correcting postcodes on around 5% of records, meaning that postcodes are held for around 95% of records – the rest are related to pensioners living overseas.

Whilst Hyman Robertson founded Club Vita, today 40% of pensioners in Club Vita receive actuarial advice from a range of other actuarial advisors. The VitaCurves model, which projects future trends in morbidity, is used by 7 out of 10 longevity reinsurers.

The key point to note is that whereas ONS averages data across a sample of the entire population, rich, poor, manual workers and the professional community, the healthy and acutely sick, Club Vita data expresses the life chances of those with pension benefits, in specific postcodes, which in themselves contribute materially to expected longevity. This is a key insight for advisers to share with clients, making the personalised longevity estimates and longevity probability distributions available within the IMT of particular relevance and value.



## 11. Our relationship with Hymans Robertson

Hymans Robertson is a limited partnership with a 90 year heritage of actuarial practice. Founded in 1921, Hymans Robertson LLP is one of the longest established independent actuarial firms in the UK and provides independent pensions, investments, benefits and risk consulting services, as well as data and technology solutions, to employers, trustees and financial services institutions. With over 800 people Hymans Robertson, advising on over £500bn of pension assets, offers services to clients across the country from its offices in London, Glasgow, Birmingham and Edinburgh. The firm are advisers to the pension scheme of many leading UK and international businesses. Full detail of Hymans Robertson can be found on their website at: [www.hymans.co.uk](http://www.hymans.co.uk).

Parmenion and Hymans Robertson have collaborated on the design and build of the IMT over a two-year period, and continue to collaborate so that we can bring institutional discipline and expertise to the retail client market.

## 12. Governance

### Joint Oversight Committee

Parmenion has formed a governance group to oversee the use, management and development of the IMT. This group spans a series of functions within the organization to ensure the effective running of the service and to give direction to how IMT is developed and that it continues to be effective in helping Advisers communicate plans and choices to their clients. The group also maintain oversight, with assistance from Hymans Robertson LLP, in reviewing how the investments included within the service remain calibrated appropriately within the model calculations. Parmenion's commitment to ensuring strong consideration of Conduct Risk themes is also a central part of the practices within this group. One of its responsibilities is reviewing the periodic calibration of the ESS to ensure it remains appropriate. However, it should be noted that the assumptions underlying the ESS and its calibration are set by Hymans Robertson, and Parmenion does not determine these assumptions, thus maintaining the independence of the sourced data and calculations.

### Updates to Club Vita Data

Hymans Robertson update their Club Vita data, specifically their life curves, annually. These changes will be processed through our Joint Oversight Committee and notifications made to users. Changes to life curves will impact plan scores. Advisers are encouraged to review plan scores and to note changes on a regular basis.

### Fund mapping

The way that portfolios are analysed for the purposes of assessment by the IMT is through mapping actual fund constituents to the asset class matrix established within the Hymans Robertson ESS. Each fund on the Parmenion platform in use in a portfolio solution is mapped by reference to its benchmark indices. In most cases this is straightforward, however in all cases Hymans Robertson will exercise its professional judgement on the appropriate mapping.

### Updating plans

The IMT will be reviewed on a regular basis by Parmenion and Hymans Robertson. After a recalibration, notified to users, it is advisable to rescore plans to ensure an up to date plan assessment is available.

## 13. Regulatory disclaimers

IMT is intended to provide an illustration of how Parmenion's range of portfolio solutions support financial planning for clients over longer periods, and in particular, through retirement.

The IMT does not produce a personal illustration or suitability report, and should not be portrayed otherwise to clients. The output from the IMT should not be interpreted as an offer of advice from Parmenion or Hymans Robertson.

The IMT is designed to help demonstrate concepts and evaluate choices, and should form just part of a wider assessment of income sustainability. It should not be used in place of any mandatory regulatory illustration and should only be used by an authorised Financial Adviser.

It is the responsibility of the Financial Adviser to satisfy themselves that the IMT is fit for the purpose for which they intend to use it, and that the client will be provided with the appropriate regulatory disclosures and documentation as part of the discussions.

Every care has been taken as to its accuracy, but it must be appreciated that neither Parmenion or Hymans Robertson, nor their representatives, can accept any responsibility for loss, however caused, suffered by any person who has acted or refrained from acting as a result of their use or reliance on the output of the IMT.

## Appendix I - Data table

Data is collected and only used for purpose of IMT. Access to this data is via the Parmenion platform which is restricted. The table below list personal data collected within IMT and summarises how it is used.

Data	What we do with the data	Passed to Hymans Robertson
Client Name	Create a client record in the IMT and to personalise output	No
Date of Birth	Used to calculated longevity	Yes
Gender	Used to calculated longevity	Yes
Health	Used to calculated longevity	Yes
Post Code	Used to calculated longevity	Yes - Anonymised
Partner's Details	Partner's Details Used to calculated Partner's longevity (no further calculations performed)	Yes

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FCA Number 462085.  
Registered in England and Wales  
OC322243.

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Investment in the stock market is not a suitable place for short term money and you may not get back what you put in. All investment carries risk and it is important you understand this. If you are in any doubt about whether an investment is suitable for you, please contact your financial adviser. Investment in the stock market and any income derived from it, may go down as well as up.