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Retirement explainer series

Building retirement solutions

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David Bell & Geoff Warren

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Brief synopsis: We outline considerations in building retirement solutions, which we define as the mechanism through which available funds are converted into financial outcomes in retirement. Retirement solutions are framed as comprising four broad building blocks that can be combined in various ways to meet the differing needs of retirees – asset carve-outs, lifetime income streams, investments (typically via an account-based pension), and a drawdown strategy. The discussion is high-level and wide-ranging, Topics covered include: funding sources; nature of financial outcomes in retirement; key features of the building blocks; retirement solution selection and implementation; personalisation; deploying member information; and modelling and assessment.

Questions addressed:

1. What is a 'retirement solution'?
2. What are the inputs, building blocks, and outcomes to be delivered?
3. How might superannuation funds approach building retirement solutions?
4. How could a suitable retirement solution be selected, implemented and delivered to retirees in a way that meets individual needs and wants?
5. What modelling and assessment techniques are required?

Key terms: Retirement outcomes; retirement income; access to funds; allocation of assets; drawdown strategies; member information; personalisation

Who should be interested? Retirement specialists, retirement leads, retirement modellers (e.g. actuaries), product designers, financial advisers, regulators, people wanting a career in the retirement income space.

Introduction

This explainer discusses the building of 'retirement solutions', which we define as follows:

Retirement solution*: Mechanism for converting available funds into financial outcomes in retirement.*

We provide an overarching, high-level overview of matters to address in building retirement solutions. Many of the matters raised are (or will be) covered in other explainers or Conexus Institute research, to links for those wanting to delve further.

We start broad by unpacking the above definition, before narrowing down to discuss how superannuation (super) fund trustees might view the design of retirement solutions for members when they are responsible only for the assets within super. We then outline a range of considerations in building retirement solutions. Topics covered include: key building blocks; funding sources; financial outcomes in retirement; retirement solution selection and implementation; personalisation; member information; modelling; assessment; and adjusting solutions over time.

The 'mechanism' as a set of building blocks

It is helpful to think of retirement solutions as comprised of the four broad building blocks – asset carve-outs, lifetime income streams, investments and a drawdown strategy. While not the only possible characterisation, it accords with how the industry might build retirement solutions in practice through a 'modular' approach.

1. **Asset carve-out** – This building block sets some funds aside for purposes other than income generation, motivated as a form of 'bucketing'. In addressing flexible access to funds, Explainer #3 discusses setting funds aside for precautionary savings ('rainy day fund'), or possibly for other purposes such as funding bequests or aged care.

2. **Lifetime income streams (or products)** – Also known as 'annuities', this building block involves sacrificing some capital in return for receiving income for life through access to '*mortality credits*'. In effect, the retiree enters a pool with other retirees where the residual capital of those who die are transferred to those who survive as mortality credits, thus sustaining income for survivors. Lifetime income streams come in a various forms, with key features outlined in the box below. Lifetime income streams will be examined in detail in a future explainer.

Features of lifetime income streams

(a) *Insured vs. member pooling* – Products may either be underwritten by an insurance company or based around pooling of members who collectively bear the risk, also known as 'group self-annuitisation'.

(b) *Fixed vs. variable* – Fixed annuities provide a 'known' income stream for life, and effectively combine a fixed income investment with mortality credits. Variable annuities – also known as investment-linked annuities – provide income that is linked to investment returns; effectively combining growth assets or balanced funds with mortality credits. They offer the prospect of higher expected income but carry income risk.

(c) *Nominal vs. real* – The 'known' payout for traditional annuities may be either expressed in nominal terms or adjusted for inflation (latter is preferred for retirees).

(d) *Immediate vs. deferred* – Income may either commence immediately or at a given age, e.g. age 85.

(e) *Access to capital* – In their pure form, annuities entail irrevocable commitment of all capital to the pool. As this has proven unpopular with many retirees, nearly all providers offer limited access to capital, albeit at the cost of providing lower income. For example, death benefits equal to the purchase value not paid out as income may be available until life expectancy.

3. **Investments** – Any funds not either carved out or committed to lifetime income streams are invested. This building block plays a dual role as both a source of income generation and accessible funds. While investments come in many forms, we suggest that three subsidiary building blocks may be deployed for retirement solution design (see our March 2024 report '*Investing for retirement*' for discussion):

   (a) *Growth portfolio* to deliver high returns, for instance to support higher expected income;

   (b) *(Traditional) defensive portfolio* to reduce portfolio volatility, noting that such portfolios can be exposed to inflation risk;

   (c) *Capital stable portfolio* with an objective of maintaining the real value of funds invested, which acts as a reliable source of capital to support (say) precautionary savings.

4. **Drawdown strategy** – The drawdown strategy governs how income is drawn from the investments. In doing so, it moderates not only the shape of the income stream but also how much flexible funds are retained over time. Drawdown strategies are the topic of Explainer #5, where we discuss six different categories of strategies and how drawdowns might be framed under differing income objectives.

What is 'available funds'

We intentionally use the term 'available funds' in our definition to recognise that both retirement income and accessible funds may arise from a broad range of funding sources. Retirees may have access to any of the following to fund their retirement:

- Super balance at retirement;
- Financial assets outside of super;
- Family home (and possibly other personal assets);
- Resources of a partner (both assets and income);
- Social security, most notably the Age Pension;
- Ability to earn personal income;
- Inheritances (potentially significant for some);
- Mortality credits can provide an additional source of income on purchasing a lifetime income stream;

… while allowing for:

- Any debt outstanding at retirement.

The breath of the above list raises the issue of what funding sources are being solved for. While a financial adviser may consider all sources, this gives rise to the thorny issue for super funds that solving for the super balance in isolation will deliver a solution to many retirees that may not meets their particular needs. We return to this issue below.

What are 'retirement financial outcomes'

While a good retirement has many elements, the purpose of retirement solutions is to address the *financial* component. Effectively solutions deploy the retiree's assets towards generating spending, which could be viewed under two broad categories:

(i) *Income for regular spending* – Providing a stream of income to support regular spending is the primary goal. It relates to retirement income covenant (RIC) objectives of maximising expected income and managing income risk.

(ii) *Funding for occasional spending* – Assets may also be deployed towards purposes other than regular spending, including for instance:

- large expenditures, e.g. significant health costs, home refurbishment, overseas holiday, etc
- leaving a bequest
- funding entry into aged care
- repaying debt.

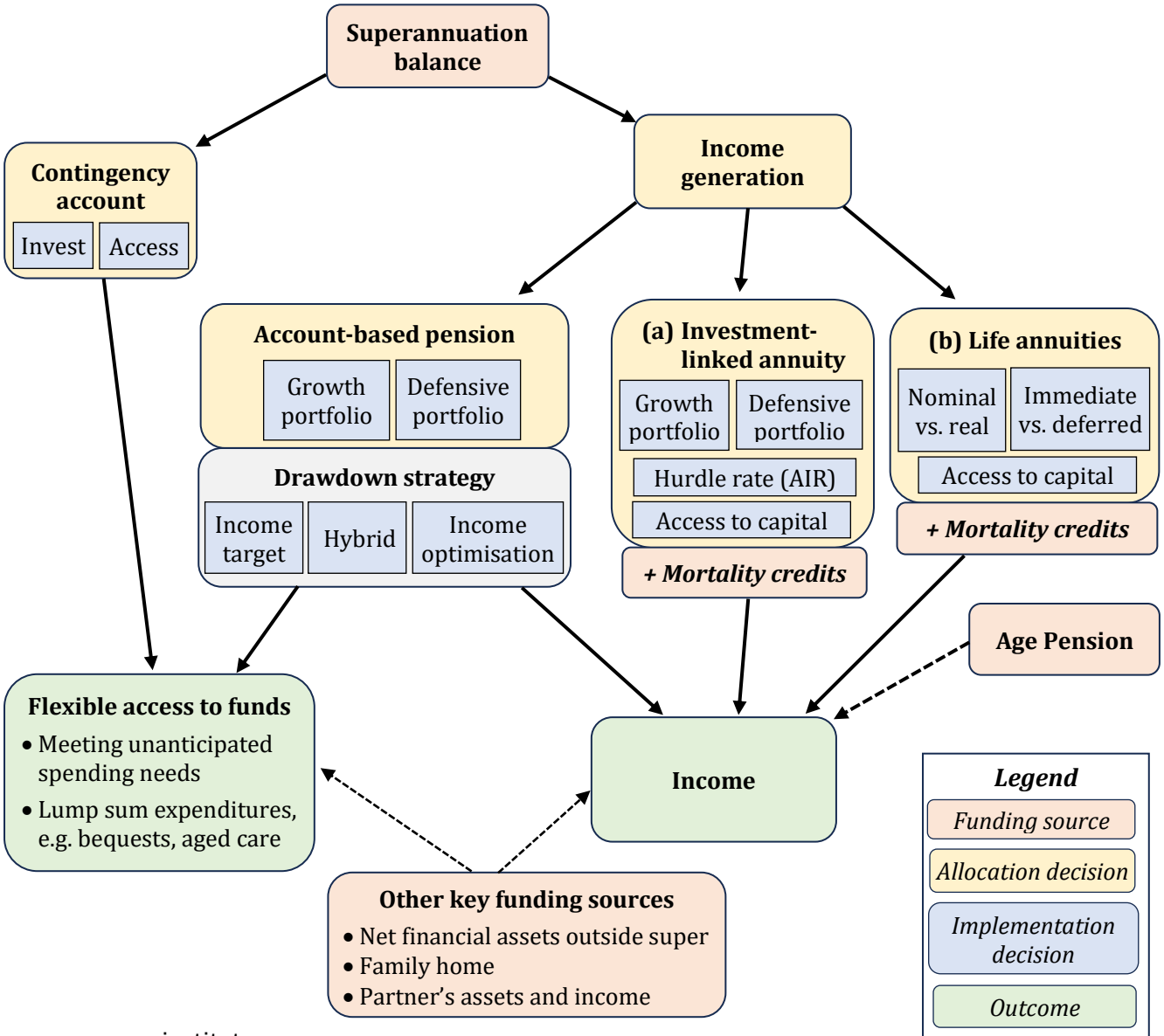
The second category motivates having flexible access to funds, the third objective under the RIC.

SUPER FUND PERSPECTIVE

Below is a flowchart outlining what retirement solution design might look like from a super fund perspective. It describes how a super fund could design a solution to convert the super balance into outcomes as a series of layered decisions, which are discussed over the page.

The wrinkle is that fund trustees hold a duty to the member individually with respect to their interest in the fund, and thus need to solve for how to best deploy the member's super balance. However, as noted above, assets in super sit against the background where most members are likely to have other funding sources that should ideally be taken into account. This complicates solution design from the super fund perspective.

Building blocks of retirement solutions: Super fund perspective



Below we discuss each of the four components within the flowchart of funding sources, assets allocation decisions, implementation decisions with respect to those allocations, and outcomes.

Funding sources *(orange shading)*

The flowchart reflects a range of 'key' funding sources from which outcomes may be generated for a retiree. In addition to the super balance, we include other funding sources that super funds should ideally consider in designing and offering retirement solutions because they are critical for determining the type of retirement solution that most members need (as discussed in Explainer #4). This includes the Age Pension, net financial assets outside super (i.e. incorporating debt), any family home and a partner's resources (if the member operates as a household). We also recognise mortality credits as a potential funding source, noting that access occurs through purchasing a lifetime income stream.

The Age Pension is a foundational funding source for retirees, and should be accounted for by super funds. Indeed, trustees are expected to do so under the RIC. While other funding sources such as assets outside of super, a family home and a partner's resources are not directly under the control of fund trustees, they should nevertheless be taken into account by funds in designing and offering solutions and designating member types. For example, members that own their home might have less need for an asset carve-out and should require lower income than renters. Similarly, significant assets outside of super or the existence of a partner with substantial resources both impacts on Age Pension eligibility, and should influence the type of retirement solution that is applied to the super balance.

Some members could have access to further funding sources not mentioned above, e.g. prospects for a large inheritance, access to personal income, etc. Super fund trustees might approach these situations as special cases that are best addressed through either the member adjusting the solution for themselves or seeking personal financial advice.

Allocation decisions *(yellow shading)*

Fund trustees need to allocate a member's super balance across various investments and products. We suggest the following building blocks may suffice as for use by super funds in constructing solutions.

- ***Contingency (or 'rainy day') account*** – This is an asset 'carve-out' that would act as precautionary savings which the member may access as desired.
- ***Account-based pension*** – This would house the investments, and provides both a source of income generation and flexibly accessible funds.
- ***Lifetime income streams*** – A vehicle that provides access to mortality credits should be part of the mix of available building blocks to provide longevity protection for those members who required it. We envisage that many funds will opt for a limited number of products, possibly including some form of either investment-linked annuity and/or life annuity(ies).

Implementation decisions *(blue shading)*

Each allocation invokes a range of implementation decisions. Key decisions are outlined below.

Contingency account ('rainy day' fund)

The first decision is how to invest the assets. We see this building block as best implemented as a capital stable portfolio (see *Investing for retirement*). The second decision is setting the guidelines under which members may access the funds and possibly top up the account (see Explainer #3 for discussion).

Account-based pension

The first decision is how to invest the assets. We envisage a super fund combining a return-seeking growth portfolio with a defensive portfolio in accordance with the member's needs and preferences. The defensive component could be either a traditional defensive portfolio or perhaps a capital stable portfolio (see '*Investing for retirement*'). The second decision is framing the drawdown strategy that shapes up the income stream, after allowing for any income arising from the lifetime income stream and the Age Pension. Explainer #5 identifies six categories of drawdown strategy, focusing on strategies that accord with the three income objectives of income target, income optimisation and 'hybrid' baseline plus aspirational income (see Explainer #2) that super funds might look to implement.

Lifetime income streams

A super fund will need to determine how the lifetime income products included on the menu are structured. The main decisions are as follows:

- *Investment link-annuity* – Key decisions are how the (a) assets are invested and (b) the hurdle rate or assumed investment return (AIR). The latter moderates both the drawdown rate and hence the

level income that is initially drawn and the expected pattern of income over time[1].

- *Lifetime annuity* – Key decisions relate to (a) the type of income stream delivered, specifically whether it is nominal or real, i.e. inflation-indexed (with the latter preferred), and (b) whether the annuity is immediate or deferred.
- *Access to capital* – A further implementation decision is whether to incorporate some limited access to capital within the products. While doing so is the current standard in order to encourage take-up, the need may be lessened in the context of a retirement solution where significant access to funds is provided through other avenues, e.g. contingency account or account-based pension.

Outcomes *(green shading)*

Outcomes comprise both regular income and flexibly accessible funds that may be deployed in support of spending not covered by regular income. We highlight two potential types of occasional spending that might be accommodated by super funds, being (a) 'meeting unanticipated spending needs' and (b) 'funding lump-sum expenditures, e.g. bequests or aged care'. Whether super fund trustees should set out to accommodate the latter is a matter for debate.

OTHER CONSIDERATIONS

Solution selection

So far, we have outlined the building blocks but not how they can be put together in constructing a retirement solution. Butt et al. (2023, Section 5)[2] outline three approaches to solution selection and provide examples. The approaches include:

1. **Apply principles and rules** – A procedure is specified that applies principles and rules to construct a suitable retirement strategy with reference to the assumed needs and wants of the member. An example of a layered sequence of decisions to arrive at a retirement solution appears in the box above.

Building retirement solutions through applying principles and rules: Example of a decision sequence

Retirement solutions might be constructed by applying a layered decision routine that addresses each building block in turn with reference to assumptions about the member's needs and wants. An example routine is sketched out below.

Step 1: Set the allocation to a contingency account based on the need for precautionary savings. This allocation is invested in a capital stable fund.

Step 2: Set the broad allocation to lifetime income streams based on the following considerations:

- Need to ensure some minimum level of income for life in excess of the Age Pension
- Tolerance for sacrificing access to the capital, taking into account other funding sources available to the member

Step 3: Determine the type of lifetime income stream and specify its features. For example:

- Preference for guaranteed, stable income => fixed annuity
- Flexibility to tolerate income risk => investment-linked (i.e. variable) annuity to boost expected income

Step 4: Allocate remaining assets to an account-based pension, with the growth/defensive mix set to maximise expected income subject to ability to tolerate return volatility

Step 5: Choose a drawdown strategy to apply to the account-based pension based on the following considerations:

- Whether an income target or income optimisation is more appropriate for the member (see Explainer #5)
- Need to retain some level of flexibly accessible funds within the account-based pension as the member ages.

2. **Select from candidate strategies** – This approach entails proposing a set of candidate retirement solutions from which the most suitable solution is selected based on certain selection criteria. For example, a super fund might start off by designing a menu of solutions that caters for most of members through spanning a limited number of dimensions as follows:
   - Standard allocation made to a contingency account within all solutions, e.g. $50,000;
   - Allocation to lifetime income streams covers a limited range, e.g. 0%, 20% or 40% allocation;
   - Account-based pension is either invested in a high growth portfolio (say 90/10) or a balanced portfolio (say 60/40);

[1] The hurdle rate or AIR is a key determinant of drawdown rates, which are set with reference to the expectation that investment returns and mortality credits will be available to fund income in the future if the member survives. A high AIR results in higher drawdown rates and will 'tilt' expected income stream downwards if set higher than the 'returns' expected to be generated from investments plus mortality credits. Refer to Appendix 1 in Explainer #5 for an illustration of how the 'tilting' works.

[2] Butt, A, Khemka, G., Lim, W. and Warren, G., "Primer on Retirement Income Strategy Design and Evaluation", *Society of Actuaries Research Institute*, January 2023. Available at: https://www.soa.org/resources/research-reports/2023/ret-income-strat-de/.

- Drawdown strategy either spans a plausible range of income targets (low, medium, high) or caters for an income optimisation objective.

The above combination of dimensions amount to 24 potential solutions (1*3*2*4). Metrics are then used to guide selection of the solution from the menu deemed most suitable for the member type (see Butt et al., 2023, Section 5).

3. **'Optimise' for the member** – This approach entails identifying the 'optimal' strategy for a particular member or member type, i.e. building them a tailored solution. This could be done through the following process:
   - Use some kind of objective function to identify the 'optimal' solution, e.g. apply a utility function (see Butt et al, 2023), or combine selected metrics into an overall score;
   - Assess if the 'optimal' solution is suitable through a combination of subjective evaluation and simulation of expected outcomes;
   - Make adjustments to the solution as required.

All the above approaches would likely draw on modelling of the outcomes arising from the retirement solution to varying degrees, which is discussed further below.

Personalisation

It is imperative that retirement solutions are personalised to some degree given the significant differences in needs and wants across retirees. A 'one-size-fits-all' solution is not really an option as it is likely to be quite sub-optimal for many members.

Personalisation has two elements. The first element is the capacity to deliver a range of retirement solutions that cater for differing member needs and wants. The above discussions provide a sense for how personalised solutions might be built through combining various building blocks and calibrating the implementation. Also of relevance is Explainer #4, which outlines the key member differences that retirement solutions might aim to accommodate.

The second element is ensuring that individual members are matched to appropriate retirement solutions. Below are four pathways for matching members to solutions, drawing on our November 2023 report titled '*Pathways for directing members into retirement solutions*' and Explainer #6. The last two pathways apply to super fund trustees:

- **Adviser direction** – Personal financial advice can support tailoring a retirement solution that takes into account all relevant personal circumstances including all available funding sources (provided that the advice is comprehensive in nature, or the scope of advice is appropriately defined).
- **Self-direction** – It is left up to the member to self-identify a solution that suits their needs. This could entail selecting from a menu of retirement solution options made available by a super fund, possibly with decision support such as provision of information and calculators[3].
- **Cohorting** – Super funds may use the approach of designing retirement solutions that are suitable for particular member types or 'cohorts'. A cohorting approach could be applied in two ways. First, a recommendation or assignment for a suitable solution could be made by fund trustees based on identifying the cohort to which the member belongs. We call this 'trustee direction'. Second, a member could self-identify with the cohort or a related member 'persona', and then accept the solution designed for that cohort. The latter might be considered a form of 'nudge'.
- **Individual tailoring** – This would entail super fund trustees building personalised solutions for individual members based on provision of personal information, possibly through a digital advice routine. While this level of personalisation is some way off, technology may eventually make it feasible for funds to implement as a form of personal financial advice.

Member information

Member information to inform retirement solution design and delivery may be sought on two levels:

- **General information** – Information on the universe of members to which solutions will be offered can assist with identifying key member types and their characteristics. This may inform design of a menu of solutions, and including being particularly helpful in forming member cohorts.
- **Personal information** – Personal information on individual members is needed in two situations. First is where a financial adviser or super fund is aiming to design tailored solutions for individual retirees. Second is where a super fund trustee wants to identify the type of member in order to assign them to a cohort or provide a meaningful

[3] In *Pathways for directing members into retirement solutions*, we express concerns over whether many members are able to successfully identify a suitable solution for themselves.

nudge to a suitable retirement solution. The use of personal information by super fund trustees is currently challenged by the personal advice rules, as discussed in *Pathways for directing members into retirement solutions* and Explainer #6.

Modelling

Building retirement solutions requires a capacity to model the outcomes that they could deliver. We emphasise the importance of undertaking stochastic modelling[4], which is essential for understanding the distribution of possible outcomes and hence the risks that members face so they can be managed.

An ability to characterise potential outcomes through modelling can be used in a variety of ways:

- **Solution design and selection** – Modelling is a fundamental part of the toolkit for designing and selecting retirement solutions.
- **Communication** – Modelling outcomes supports presentation of the outcomes that retirement solutions may deliver so they can be understood by parties such as solution designers, super fund management and boards, regulators, external researchers and of course members.
- **Assessment** – Modelling of outcomes should form a part of the assessment of retirement solutions (discussed below).

Detail on the modelling of retirement solutions can be found in Butt et al. (2023) and our thought piece of June 2023 titled '*How to Approach Quantitative Assessment of Retirement Income Strategies*' (co-written with Gaurav Khemka of ANU).

Assessment

An important element of retirement solution design is the ability to assess those solutions. Assessment can not only guide and support the initial design of solutions, but will also inform the ongoing development of solutions over time by gauging their efficacy and highlighting areas for improvement.

Currently the super industry largely lacks the capability to assess retirement solutions. This capability will need to be built. We outline how assessment might be conducted in our thought pieces of November 2022 titled '*Assessing retirement income strategies…when outcomes are but a promise*' as well as *How to Approach Quantitative Assessment of Retirement Income Strategies*. These pieces argue that the assessment largely needs to be forward-looking in nature, and should focus on whether solutions are well-configured to meet the needs of members over the course of their retirement.

Re-adjusting over time

Retirement solutions should not be approached as a set-and-forget offering at retirement. Ideally, they should be designed to dynamically adjust with changes in circumstance. A certain level of flexibility may be built into the solution design from the start, e.g. pre-programmed adjustments in response to realised investment returns. Nevertheless, a process of regular review is desirable to check that members are invested in appropriately designed solutions over the course of time.

Our take: Embrace complexity in solution design … but keep it under the hood

Financial outcomes are not everything in the retirement phase. But they certainly amount to a lot. Effective retirement solution design can help retirees enjoy the best retirement possible. This explainer has highlighted the key elements that should ideally go into building retirement solutions that ensure as many individual retirees as possible receive solutions that are suitable for their needs.

The complexities of retirement solution design should be embraced. But there is also a need to be pragmatic. For a start, the complexity should be kept under the hood, and retirement solutions presented to members as simply as possible. Further, we see it as appropriate for the industry to start small by initially designing solutions with limited functionality. However, it would be a shame if the development stalled. The industry should be aspirational in developing its retirement solution offerings, aiming to progressively expand the ability to cater for member differences, and even setting sights on eventually providing individually tailored solutions. Doing so requires building out capabilities in areas such as ability to construct solutions offering a range of features, member profiling and engagement, stochastic modelling and retirement solution assessment. Considerable investment in systems and technology is required. There is much yet to be done if all retirees are to be delivered the best possible financial outcomes in retirement.

[4] Stochastic models simulate a range of outcomes, thus revealing risk in addition to the expected outcome.