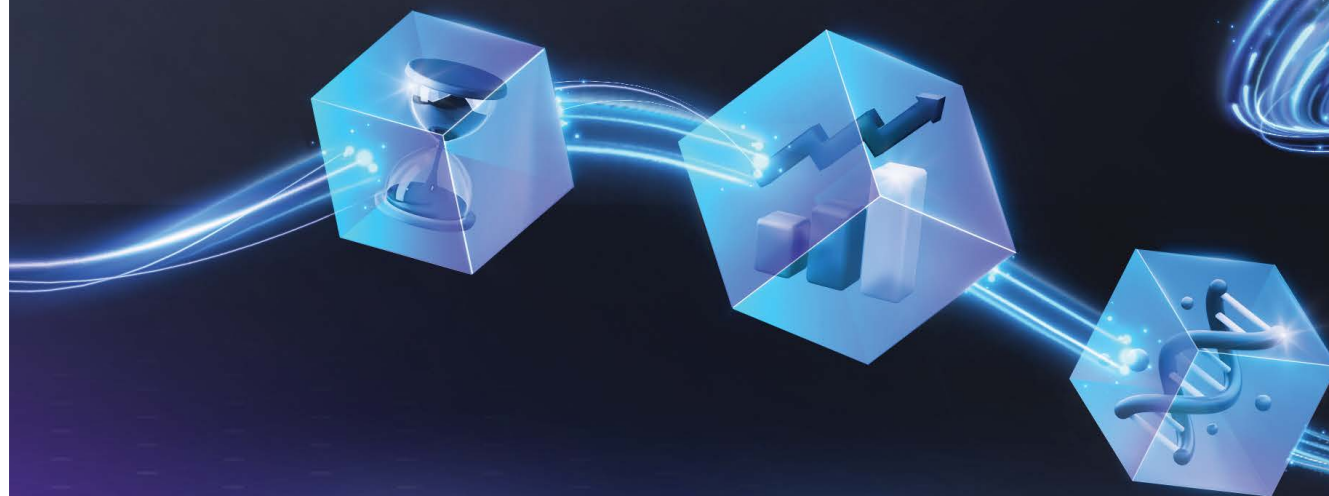


A solution for retirement

IN A WORLD OF LONGER LIFE.



A solution for retirement in a world of longer life



Abstract

The longevity revolution has significantly extended human life expectancy, presenting new challenges and opportunities for retirement planning. This paper explores the implications of increased lifespan, and its economic and healthcare impacts, and proposes a new comprehensive solution to optimise retirement quality while simultaneously removing the risks of outliving savings.

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01

The longevity revolution



The longevity revolution

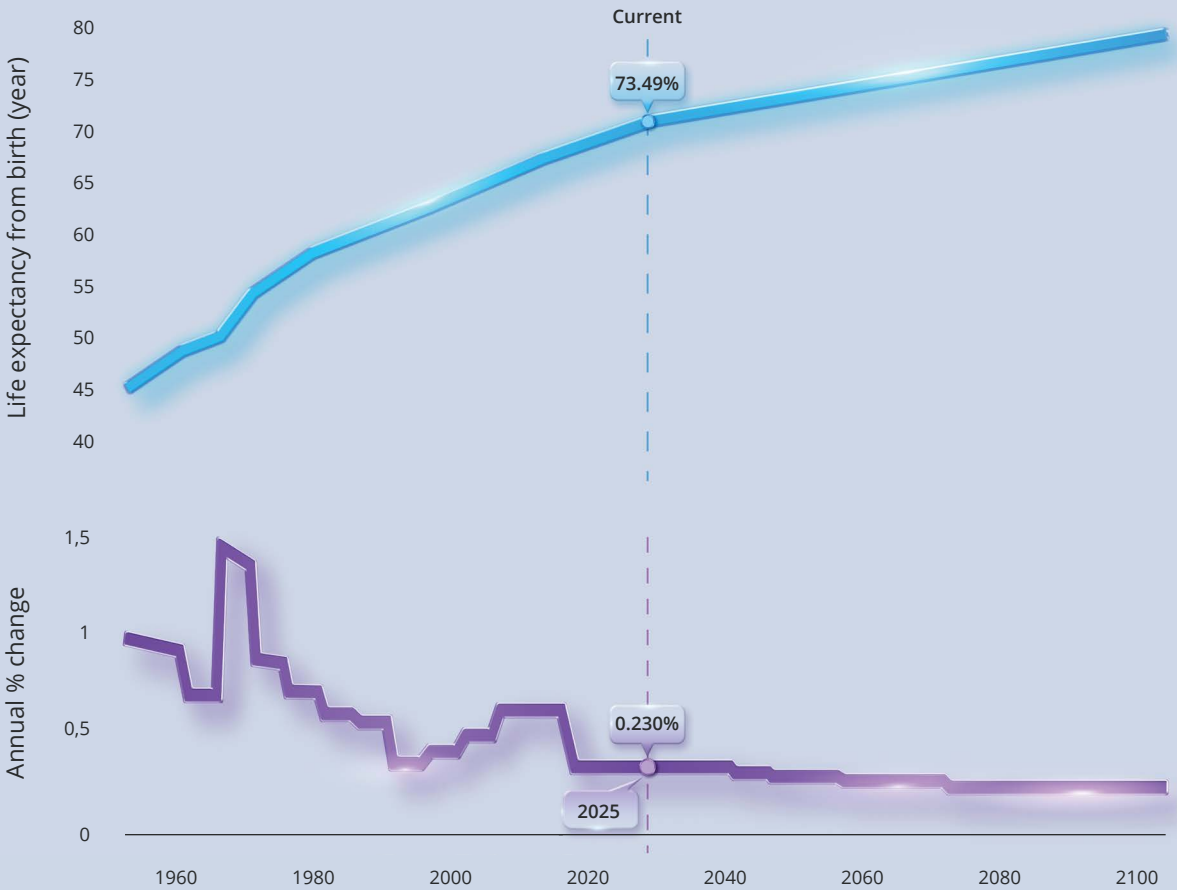
People are living longer

Perhaps the greatest triumph of modern civilisation is its ability to extend human life. Breakthroughs in medical science, improved living standards, and a deeper understanding of health and wellbeing have ensured that people worldwide are living longer than ever before.

A century ago, the world was a very different place. In the 1920s, the global average life expectancy was just 34. By 1950, the longevity revolution was well underway, pushing life expectancy to 48 years. Today, the global average life expectancy has risen to 73.49¹, meaning that, on average, **people are living twice as long** as they were a little over a century ago.

¹ World Life Expectancy 1950-2025 | MacroTrends

Average global life expectancy from 1950 to 2025



Source: MacroTrends

People are living longer everywhere

For decades, the world's longest lifespans have been found in wealthier nations. Japan, where life expectancy is 84.5 years, Switzerland at 83.9 years, and Australia at 83.2 years, have led the way in longevity, thanks to advanced healthcare systems, economic stability and healthier lifestyles.

However, life expectancy gains are now accelerating in developing regions.

Estimated life expectancy at birth

Between 1970 and 2015, life expectancy gains in developing countries **grew at double the pace** of developed nations, according to the United Nations².

For example, in Africa, life expectancy surged by 10.6 years – rising from 53 years in 2000 to 63.6 years in 2021. Over the same period, the global average increased by 6.3 years, according to the World Health Organization (WHO)³.



Source: United Nations Population Division, as at 2022, Statista

² Life expectancy at birth increasing in less developed regions, December 2017 | United Nations
³ South Africa Health and Data overview, 2024 | WHO

Longevity meets biology: Are we reaching a limit?

Longevity gains have been remarkable. A recent study published in Nature Aging⁴ analysed data from eight countries with the highest life expectancies between 1990 and 2019. The findings revealed that while populations gained up to three years per decade in the 20th century, they gained an average of 6.5 years over 30 years. One might think that this suggests that the pace of the global longevity revolution is decelerating as science meets the biological limits of ageing. However, breakthroughs in ageing control and regenerative medicine are expected to drive further gains in life expectancy. Combined with continued improvements in global health, medical innovations are expected to drive the longevity revolution, promoting longer lives worldwide. Many of these innovations – set to revolutionise healthcare – are just a few years away.

Some recent cancer treatment developments reported by the World Economic Forum include⁵:



Personalised cancer vaccines

Thousands of NHS cancer patients in England could soon access trials of a new vaccine treatment designed to prime the immune system to target cancer cells and reduce recurrence risk. These vaccines are also hoped to produce fewer side effects than conventional chemotherapy. Over 200 patients from the UK, Germany, Belgium, Spain and Sweden will receive up to 15 doses of the personalised vaccine, with the study expected to be completed by 2027.



Seven-minute cancer treatment jab

England's National Health Service (NHS) is to be the first in the world to make use of a cancer treatment injection, which takes just seven minutes to administer, rather than the current time of up to an hour to have the same drug via intravenous infusion. This will not only speed up the treatment process for patients, but also free up time for medical professionals.



Using Artificial Intelligence to fight cancer

In India, World Economic Forum partners are using emerging technologies like AI-based risk profiling to help screen for common cancers like breast cancer, leading to early diagnosis. AI technology can also be used to analyse X-rays to identify cancers in places where imaging experts might not be available. MIT scientists have developed an AI learning model to predict a person's likelihood of developing lung cancer up to six years in advance via a low-dose CT scan that humans can't see.



CAR-T-cell therapy

Involves removing and genetically altering immune cells, called T cells, from cancer patients. The altered cells then produce proteins called chimeric antigen receptors (CARs), which can hunt down, recognise and destroy cancer cells.

⁴ Implausibility of radical life extension in humans in the twenty-first century | Nature Aging

⁵ <https://www.weforum.org/stories/2025/02/cancer-treatment-and-diagnosis-breakthroughs/>

The cost of poor health in retirement

A longer lifespan is only meaningful if it comes with good health, allowing individuals to stay active and fully engage in the life they have saved for.

Good health is a core component of the retirement funding equation. Individuals in poor health not only retire earlier but face significantly higher medical expenses, leading to a faster depletion of retirement savings.

According to Discovery data, retirees in poor health spend up to three times more annually on out-of-pocket medical expenses than their healthier peers.

Without a change in how we approach retirement planning to account for longevity and health-related costs in retirement, millions of retirees will find themselves severely underfunded for retirement.

Of course, the impact of this is felt on a personal level. Of individuals aged 65, 70% will develop the need for long-term care⁶, with home nursing costing anywhere between R8,000 and R25,000 per month, and care for patients with dementia costing as much as R75,000 per month. This comes at a time when they are older and access to additional sources of revenue are lacking.

The impact of longevity, combined with poor health therefore poses a systemic and fundamental challenge to financial institutions and public benefits. The knock-on effects on long-term savings are dramatic; as people live longer and need more healthcare, they outlive their retirement savings. This in turn has a powerfully negative effect on individuals, families, their communities and even on governments and the world.

⁶ <https://aspe.hhs.gov/reports/what-lifetime-risk-needing-receiving-long-term-services-supports-0>

Global implications of longevity

Longevity impacts are being debated, not only in boardrooms of almost every insurer worldwide, but also by healthcare providers, asset managers, banking institutions, and government agencies across the globe. In response, many of these companies and institutions are dedicating substantial time and resources into analysing the implications of longer lives.



The new longevity: Financial planning for a longer Life | JP Morgan
<https://privatebank.jpmorgan.com/nam/en/insights/markets-and-investing/ideasand-insights/the-new-longevity-financial-planning-for-a-longer-life>



Dependency and depopulation? Confronting the consequences of a new demographic reality | McKinsey Global Institute
<https://www.mckinsey.com/mgi/our-research/dependency-and-depopulation-confronting-the-consequences-of-a-new-demographic-reality>



Investing in the 'Age of Aging' | Morgan Stanley
<https://www.morganstanley.com/insights/articles/aging-population-investment-opportunities>



Larry Fink's 2024 Annual Chairman's Letter to Investors | BlackRock
<https://www.blackrock.com/corporate/investor-relations/2024-larry-fink-annual-chairmans-letter>



We're spending more years in poor health than at any point in history. How can we change this? | World Economic Forum
<https://www.weforum.org/stories/2022/04/longer-healthier-lives-everyone/>



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<https://www.swissre.com/institute/research/sonar/sonar2023/medical-advances-life-expectancy.html>



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<https://www.genevaassociation.org/publication/health-and-demography/insurance-and-longevity-economy-navigating-protection-era-100>



Future of an Ageing Population | UK Government Office for Science
<https://assets.publishing.service.gov.uk/media/5d273adce5274a5862768ff9/future-of-an-ageing-population.pdf>



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<https://www.ncbi.nlm.nih.gov/books/NBK559813/>

02

Longevity risks lie with the individual



Longevity risks lie with the individual

Provision for retirement has shifted in many countries around the world, from defined benefit funds to defined contribution funds. The impact being that all risk is transferred onto the individual in terms of asset management fund selection, mortality and ensuring their fund is adequate to last them for their retirement. It is well known that a large proportion of the population is underfunded for retirement and will utilise their funds early in their retirement, thus becoming dependent on the state, family and debt for survival. This is further exacerbated by the fact that an individual does not know their own life expectancy nor what their retirement spending needs will be. A recent study found that 50% of females underestimate the life expectancy of a 65-year-old woman and 66% of males underestimate the life expectancy of a 65-year-old man⁷. A study of Discovery Vitality members shows that 60% of those aged 65 are expected to outlive the average life expectancy of their cohort⁸.

This highlights the conundrum faced by financial advisers; planning for clients based on average life expectancy will result in more than half of their clients running out of money during retirement.



During retirement years, spending needs change as individuals age.

A tale of three phases.

Active phase

In the early years of retirement, retirees are younger and more active. They often pursue leisure activities and travel, and may still have dependants to support. According to the latest Marriages and Divorces, 2023 report released by Statistics South Africa, in 2014 the median age for grooms engaging in civil marriages was 35, while brides typically married at 31. Fast forward to 2023, and those figures have climbed to 38 and 34, respectively. The knock-on effects of this are that many are having children later, meaning retirees' financial commitments to their children continue into their retirement years.

In addition, during this active phase, retirees typically have higher discretionary spending as they engage in various activities and hobbies. On average, retirement spending usually starts higher with 92% of their pre-retirement salary needed at the point of retirement⁹. The need during this phase is primarily to have income flexibility to accommodate these lifestyle choices. This phase typically lasts from age 55 to age 70.

Sedentary phase

As retirees age, they enter the sedentary phase. This typically lasts from age 70 to approximately age 80. They begin to slow down but remain relatively healthy. Their spending patterns may shift towards more routine expenses, with less emphasis on travel and leisure. However, maintaining income flexibility remains important to address any unexpected costs, such as medical expenses. Financial strategies need to balance income stability with the ability to adapt to changing needs.

Supported phase

After age 80, as retirees enter the supported phase, health concerns become more prominent, and retirees may require increased care and assistance with daily activities. This phase often involves higher medical and long-term care expenses.

Financial planning should prioritise income guarantees to address longevity risks and ensure that retirees have sufficient funds to cover their healthcare needs.

Intergenerational transfer of wealth remains a key concern throughout all three phases.

⁷ <https://longevity.stanford.edu/underestimating-years-in-retirement/>

⁸ *Discovery Internal Data*

⁹ <https://am.jpmorgan.com/content/dam/jpm-am-aem/americas/us/en/insights/retirement-insights/retirement-income-challenge.pdf>



Traditional solutions are unable to meet these evolving retirement needs

Across South Africa, and indeed most of the world, there are two prominent in-retirement strategies. Living (or linked) annuities and fixed (or guaranteed or conventional) annuities. Retirees are made to choose between these solutions with the final decision often being one that has the fewest shortfalls as opposed to the most advantages.

Living annuities

Living annuities offer retirees the flexibility to choose their withdrawal rates and maintain exposure to market returns. However, this flexibility comes with several significant risks and drawbacks:

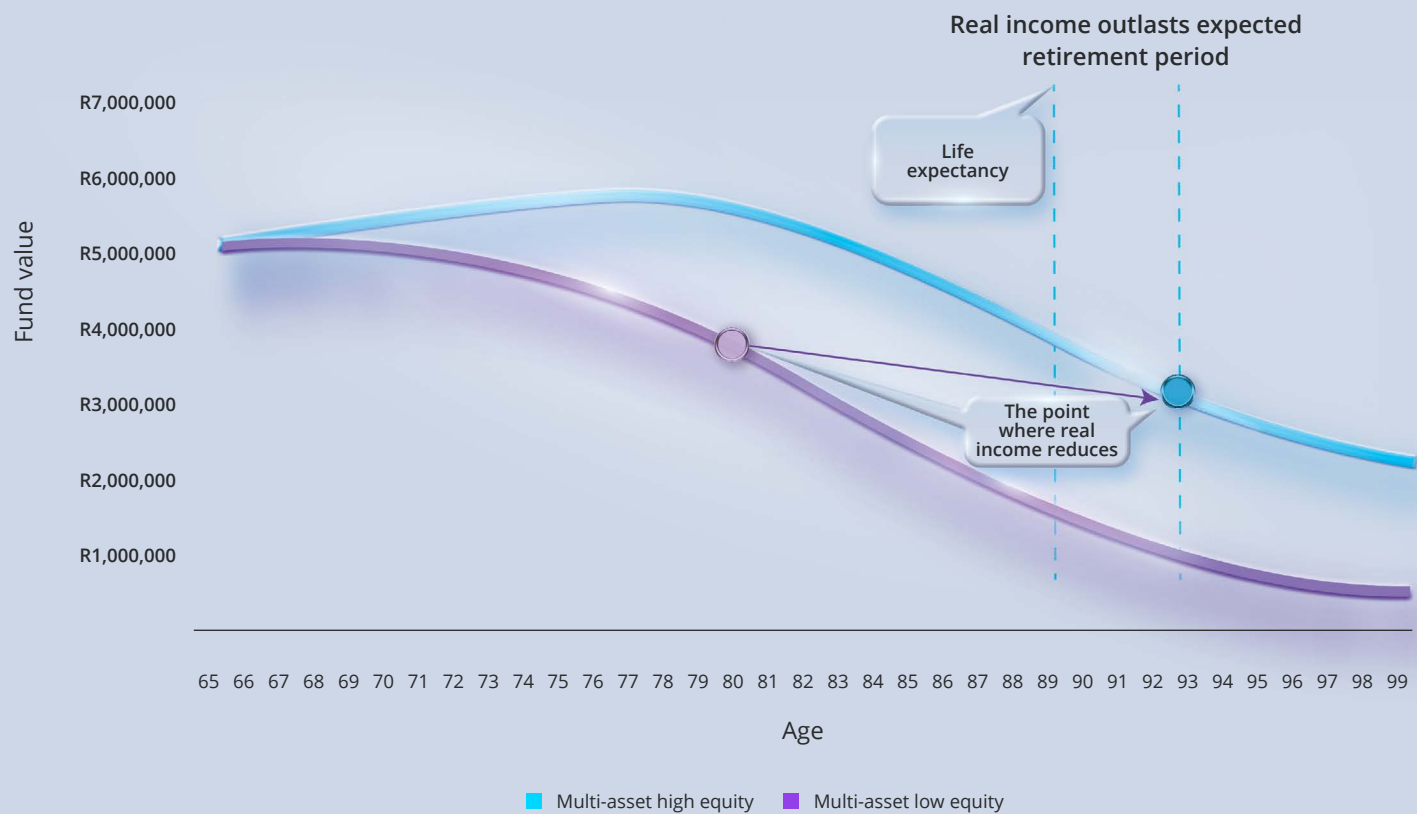
01 | Risk of outliving savings:

The primary risk associated with living annuities is the potential to outlive one's savings. If retirees withdraw too much too soon, they may deplete their funds prematurely, leaving them without sufficient income in their later years.

02 | Market volatility and ongoing management:

Managing a living annuity requires ongoing attention and financial acumen. Retirees must regularly review their investment performance and adjust their withdrawal rates accordingly, which can be challenging. The risk of outliving savings has led many investors to adopt overly cautious investment strategies, despite evidence that balanced global diversification is key to long-term success.

Importantly, the probability of a 65-year-old maintaining their real income in retirement will depend on their living annuity withdrawal rate and their risk profile. If an individual withdrawing 5% income and investing in a multi-asset high-equity fund would have had just over 80% probability of a comfortable retirement, this percentage reduces to just 43% if they instead invest in a multi-asset low-equity fund, and to 0% if they were to hold their money in cash¹⁰. The below graph shows the living annuity fund value over the retirement term for different asset allocations using an average initial drawdown of 6.7%. Ironically, conservatism is often the riskiest investment strategy.



¹⁰Assumptions: R5,000,000 lump sum, annual income escalation of 5%, ASISA sector performance sample based on the period 01/01/2003 – 01/01/2023. Source: Morningstar, 2024.

Fixed annuities

Fixed annuities provide guaranteed income for life, offering retirees peace of mind that they will not outlive their savings. However, fixed annuities also have several notable drawbacks:

01 | Timing:

The income that retirees will receive for the rest of their lives will depend on the week that they purchase the fixed annuity. This is one of the largest gambles a retiree can make. Essentially, the sum total of all retirement savings may be at the mercy of the rates on single day. As an indication of the variability, someone retiring in October 2022 with a retirement fund of R500,000 would have locked in a monthly income of R3,419.84, whereas just seven months earlier, the same investment would have provided just R3,018.41¹¹. A reduction of 13.3% in retirement income leading to a substantial reduction in quality of living.

02 | Lack of flexibility:

Fixed annuities lack the flexibility to adjust income based on changing needs. Once the annuity is purchased, the income payments are fixed and cannot be altered, which can be problematic if retirees face unexpected expenses or changes in their financial situation. Fixed annuities are illiquid, meaning that retirees cannot access their funds if they need a large sum of money for an emergency or other significant expense. An individual needing income to increase in later years is required to start off with inflexible income that is 38% lower in their initial retirement years – a time when retirement spending needs may in fact be significantly higher¹².

03 | No bequests:

Unless guarantees or life cover are purchased, capital is sacrificed entirely on death, giving no benefit to dependants. To include a 20-year guarantee on the annuity, every monthly annuity payment would be reduced by 10%¹³.

¹¹ Discovery annuity rates as per <https://moonstonedesk.co.za/> as at 7 March 2022 and 3 October 2022.
¹² Annuity rates based on the week of 5 May 2025, comparing a level annuity to an annuity with a CPI increase. Source: Discovery Internal Data
¹³ Annuity rates based on the week of 5 May 2025. Source: Discovery Internal Data

There is no question that the primary reason for purchasing a fixed annuity is to sustain income in later years of life – typically characterised by the support phase.

However, when a fixed annuity is purchased, 90 - 95% of the capital is deployed to provide income during the active and sedentary phases from ages 55 to 80.

This is a time when longevity protection is not required, rather, income flexibility is most required and bequests are often most valued.

Hybrid annuities – the worst of both?

There is a small, but growing market of hybrid structures where a combination of living and fixed annuities is bought. There are many complex structures available but the general underlying concept is that the majority of assets start in the living annuity with a defined process of transitioning assets into a fixed annuity structure initially or over time. Although in certain cases, these may alleviate some shortfalls, they typically end up suffering from both sets.

Money transferred to fixed annuities in the early stages of retirement, fix income when flexibility is needed the most while amounts transferred at later stages will then depend not only on rates at those set times, but now additionally on the retirement fund value. This may have depleted due to market conditions on the particular day. The risk is therefore twofold.

Over time, the value available to beneficiaries on death is also depleted as money moves into fixed annuities. Retirees whose health may have deteriorated are often forced into an algorithmic set of transfers into fixed annuities leading to loss of capital on death when mortality rates are at their highest.

03

An innovative solution to retirement



Proposed solution

A solution addressing the challenges will need to not only provide security and stability in old age for retirees, but it will also need to enable income flexibility and the capital transfer on death.

All of this needs to be enabled in a sophisticated structure that remains simple and intuitive to retirees. There are two components to this product design.

There are two components to this solution:

01 | Incentivise better withdrawal patterns and make people healthier

Client withdrawal patterns need to be modified while still maintaining full flexibility in times of need. In particular, clients need to withdraw less and improve their health so that their fund values remain intact. Powerful incentives are needed in this regard.

02 | Longevity risk protection

A far more efficient structure to address tail-risk life expectancies must be offered without sacrificing large portions of retirement assets on death.



01 | Behaviour change:

An introduction to shared-value investing

Companies have often been criticised as a major cause of social, environmental, and economic problems and are widely thought to be prospering at the expense of their communities. In the Harvard Business Review, Michael Porter argues that companies should rather take an approach of shared value that connects company success with social progress.

The concept of shared value is transformational and could reshape capitalism and its relationship to society.

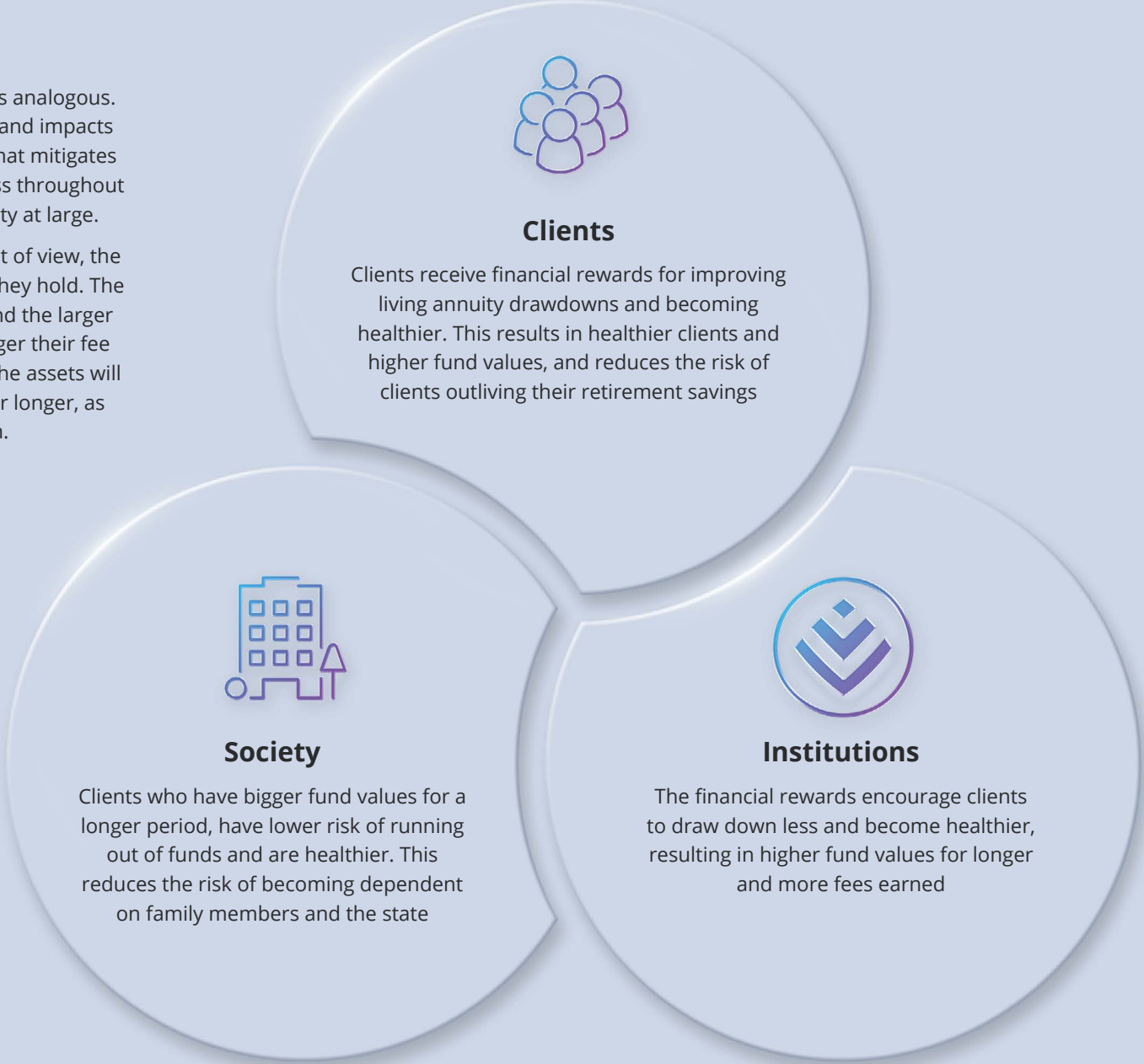
By aligning company performance and success with the addressing of social needs, clients, companies and society as a whole benefit together.

The Discovery Vitality model in life and health insurance is often cited as a strong case study for the success of the shared-value model. By encouraging clients to be healthier through a system of financial rewards, clients decrease their risk from an insurance perspective and exhibit lower rates of mortality and morbidity. This means lower loss ratios and better experience for the insurance company,

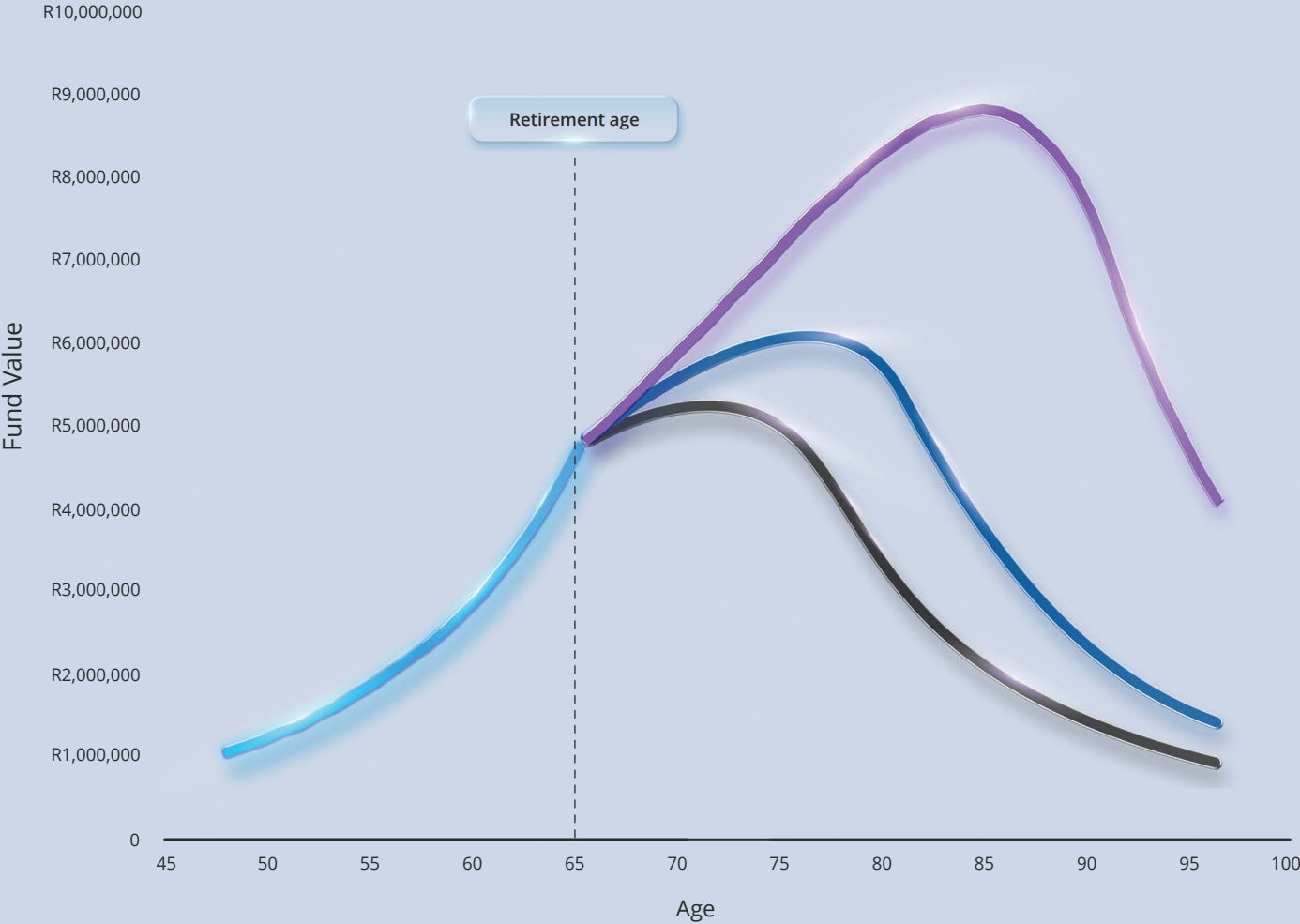
as well as lower lapse rates. The excess revenue generated by the insurance company is then used to create further rewards and encourage even healthier behaviour from clients. The results are significant; clients get healthier while getting a superior product, the insurer makes more revenue and society as a whole benefits from a lower disease burden.

The model in retirement provision is analogous. It is possible to harness the drivers and impacts of longevity to provide something that mitigates these risks, while improving wellness throughout people's retirement years and society at large.

From an investment provider's point of view, the company earns fees on the assets they hold. The longer the assets stay with them, and the larger the retirement savings pots, the larger their fee revenue is. As longevity increases, the assets will be maintained with the company for longer, as opposed to being paid out on death.



Impact of income drawdown and retirement duration on fund value



From a revenue point of view, the impact is dramatic. If the revenue at a withdrawal level of 10% is R100, the corresponding value at a lower withdrawal level of 2.5% is R147. At the higher withdrawal levels, the revenue reduces to R74¹⁴. A similar pattern emerges when we look at mortality levels. For healthier individuals as measured through the Discovery Vitality wellness programme, their margin is notably higher (x198%¹⁵) compared to those who are of average health levels.

¹⁴ Assumptions: Growth rate: 10%, CPI: 6%, No Vitality

¹⁵ Assumptions: Growth rate: 10% CPI: 6%, Drawdown: 6%, Comparing a client with no Vitality to a client on Diamond Vitality status

- 5% drawdown
- 6% drawdown
- 7% drawdown
- Pre-retirement fund

Assumptions: Growth rate: 10%, CPI: 6%, Withdrawals are increased each year to maintain real income

So, if companies can encourage individuals to withdraw less in retirement, while encouraging people to be healthier, they will be able to enhance their financial metrics. Using a shared-value approach, a portion of this enhanced revenue should be used to reward individuals for those behaviours.

02| Longevity risk protection:

A stop-loss for those who
will outlive their savings

Traditionally, addressing the risk of outliving retirement money has been done through the purchase of a fixed (or guaranteed or conventional) annuity. The client pays their entire retirement fund across to the insurer who will then take the longevity risk, but will retain the fund if the client dies early.

Besides the inflexibility of income (rates are determined based on the week of purchase and then are set for life), the deployment of retirement capital is sub-optimal. Approximately 90% - 95% of the retirement fund will be used to provide income for the first 15 to 20 years of retirement – a time when longevity is **not** a risk. Only 5% - 10% of the annuity will be used to provide income after age 80. A deferred longevity solution that specifically targets older ages and leaves the rest of the money in the client's hands is far more efficient in addressing this need.



The Discovery Lifespan Linked Income Plan | A breakthrough in retirement income

The Discovery Lifespan Linked Income Plan is built on addressing these two components head on, in a simple yet sophisticated plan: Clients invest in whichever asset classes they require, withdraw responsibly, get healthy, and the plan will provide up to 50% extra income every single month. A guaranteed minimum income will apply in their later years to prevent them from outliving their savings.

Providing full flexibility and control throughout retirement

The foundation of the product is the same as a living annuity with a full range of funds that can be chosen. Clients are rewarded for withdrawing income responsibly via a simple matrix.

Withdrawal level	None	Blue	Bronze	Silver	Gold	Diamond
2.50% - 3.00%	12.5%	12.5%	20.0%	30.0%	40.0%	50.0%
3.01% - 3.50%	7.5%	7.5%	13.5%	20.0%	25.0%	35.0%
3.51% - 4.00%	5.0%	5.0%	10.0%	13.5%	16.5%	20.0%
4.01% - 4.50%	3.5%	3.5%	7.5%	10.0%	12.5%	15.0%
4.51% - 5.25%	2.5%	2.5%	5.0%	7.5%	7.5%	10.0%
5.26% - 6.00%	0.0%	0.0%	3.5%	5.5%	5.5%	7.5%
6.01% - 8.00%	0.0%	0.0%	2.0%	3.5%	3.5%	4.5%
8.01% - 10.00%	0.0%	0.0%	0.0%	2.0%	2.0%	2.5%

As an example, a healthy client on Diamond Vitality status withdrawing 3% of their fund value will receive 50% extra income every month. If the income level would have been R10,000 per month, this client would instead receive R15,000.

What’s immediately apparent is that clients are encouraged to move to the top right section of the matrix as this will give them the highest amount of extra income. This is also where they are healthiest and withdraw most responsibly.

The structure thus not only improves client outcomes, it also improves the revenue of Discovery and is thus a self-funding, self-sustaining model.

The shared-value model has shown significant positive impacts on retirement outcomes.

For example, Discovery Invest clients in retirement have received, on average, between 17% to 46%¹⁶ in enhancements to their retirement income for those engaged in the Vitality programme. A reduction in income withdrawal rates is also evident on the Living Annuity since the launch of this structure in September 2015, with an 11% reduction¹⁷ in the amounts withdrawn. Although causality cannot be directly inferred, it appears that clients are reducing withdrawals to maximise the boosts they receive. If this trend of reduced withdrawal rates continues, clients’ retirement funds are projected to be 30% higher¹⁸ than they would otherwise have been.

¹⁶ Discovery Internal Data as at 29 May 2025
¹⁷ Discovery Internal Data as at 31 December 2024
¹⁸ Assumptions: Initial drawdown: 6.86%, Net growth:7%, CPI: 6%, 11% reduction in drawdown rate, fund value measured at average Vitality life expectancy of 83

Targeting longevity tail risk through efficient, powerful lifetime guarantees

The concept of mortality credits involves utilising money at younger ages to pay exclusively for income needed in the long term. This has the effect of dramatically reducing the required capital upfront to provide income for those in old age. Therefore, through careful targeting of the tail end of longevity risk, **only 5 - 10% of the entire fund value is needed to provide appropriate guaranteed income at older ages**. This is achieved through a specially designed fixed annuity that defers the majority of payments and is therefore approximately 90% - 95% cheaper for clients than making payments immediately. The Discovery Lifespan Linked Income Plan also allows for this to be funded via a small monthly fee instead of being deducted upfront. This enables up to 100% allocation of a client's money to their own set of funds. Importantly, the full fund value is available on death.

The Discovery Lifespan Linked Income Plan



The structure therefore has all the benefits and flexibility of a traditional living annuity, extra income every month, and comparable benefits to the longevity protection of a fixed annuity.

Conclusion

The longevity revolution is reshaping the landscape of retirement planning, requiring a fundamental re-evaluation of traditional approaches. As individuals live longer and healthier lives, current models of retirement – often based on fixed timelines and static financial assumptions – are increasingly inadequate. This shift calls for a more dynamic and integrated strategy that aligns financial wellbeing and physical wellbeing. By proactively combining financial planning with health management, individuals can not only increase their lifespan but also enhance their healthy retirement years, improving their overall quality of life during retirement.

This study presents a new framework that addresses the multifaceted challenges posed by increased longevity. Key components of this framework include the encouraging of sustainable withdrawal strategies to

preserve financial resources, the promotion of healthier lifestyles to mitigate age-related health risks, and the incorporation of longevity risk protection. Together, these elements form a resilient foundation for retirement planning that supports both financial security and personal wellbeing. As longevity continues to redefine the retirement experience, a holistic and forward-looking approach becomes essential to ensure a secure, dignified, and fulfilling later life for all.



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