ACTUARIAL SOCIETY
OF SOUTH AFRICA

QUANTIFYING RISK, ENABLING OPPORTUNITY

Who are we benefitting with employee benefits?

What are we trying to achieve?

- **Is this a social protection?**

  Are we part of a public/private partnership with government?

- **Is this an employee benefit?**

  What do employees need most?

Our challenge

Our system originated from European and British models –

Focus is on formal economy….

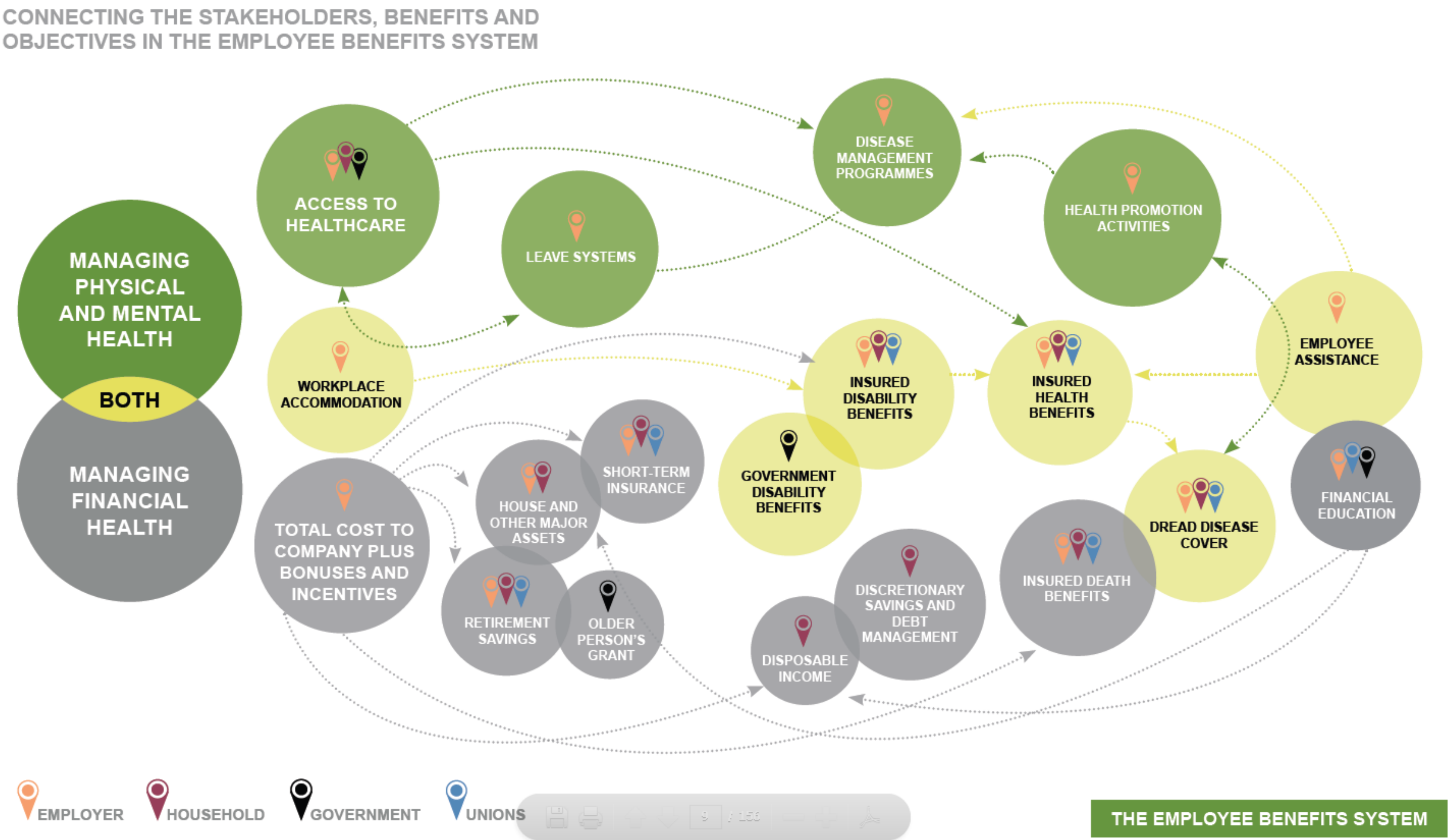
- **This means we exclude:**
  - **Informal, "working poor"**
  - **Structurally unemployed**

- **Use a pension to "lure" employees into retirement**

- **Introduced at a time mid-1900's when the family as fallback was beginning to fragment**
  - **US Social Security 1935**

- **Does South Africa have different challenges?**

Connecting the dots for member well-being



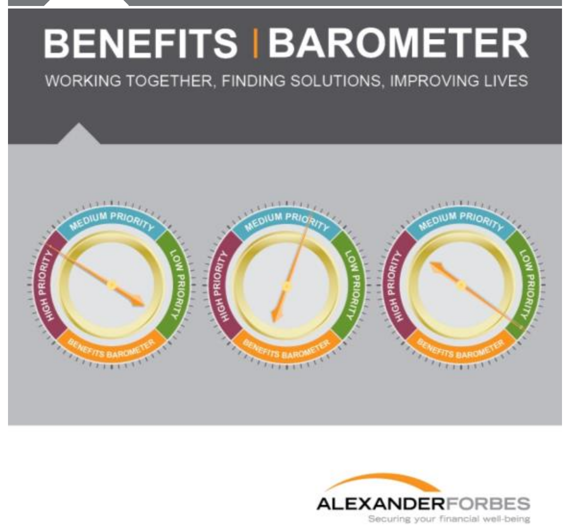
We are not winning as an industry

Why retirement savings are ripe for disruption

2013

The retirement fund industry is a failed savings model for creating financial stability in South Africa

2014



We need to solve for the journey not just the end goal to keep people from cashing out on these critical savings

2015

Getting financial stability for members is probably the more relevant problem for employers than solving for retirement

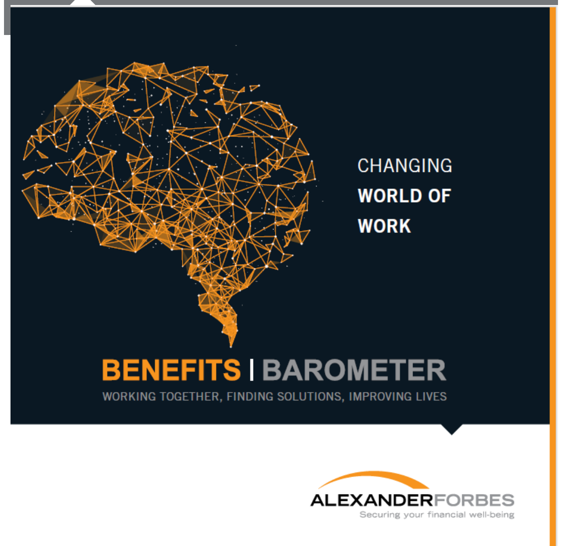
Why retirement savings is ripe for disruption

2016

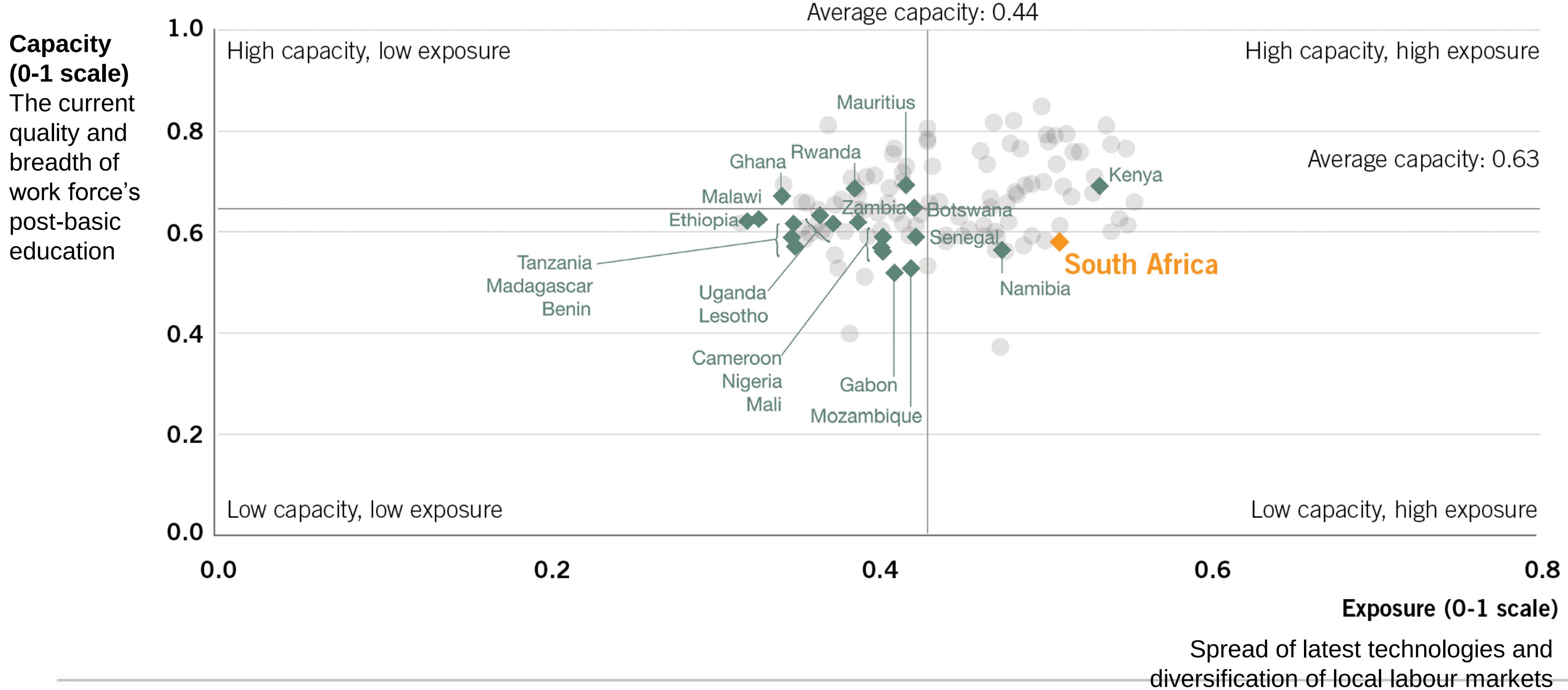
While compulsory savings are essential, perhaps saving for retirement shouldn't be the primary focus in South Africa

Why retirement itself may be irrelevant

2017



Africa's exposure to the future of jobs and capacity to adapt



ACTUARIAL SOCIETY OF SOUTH AFRICA

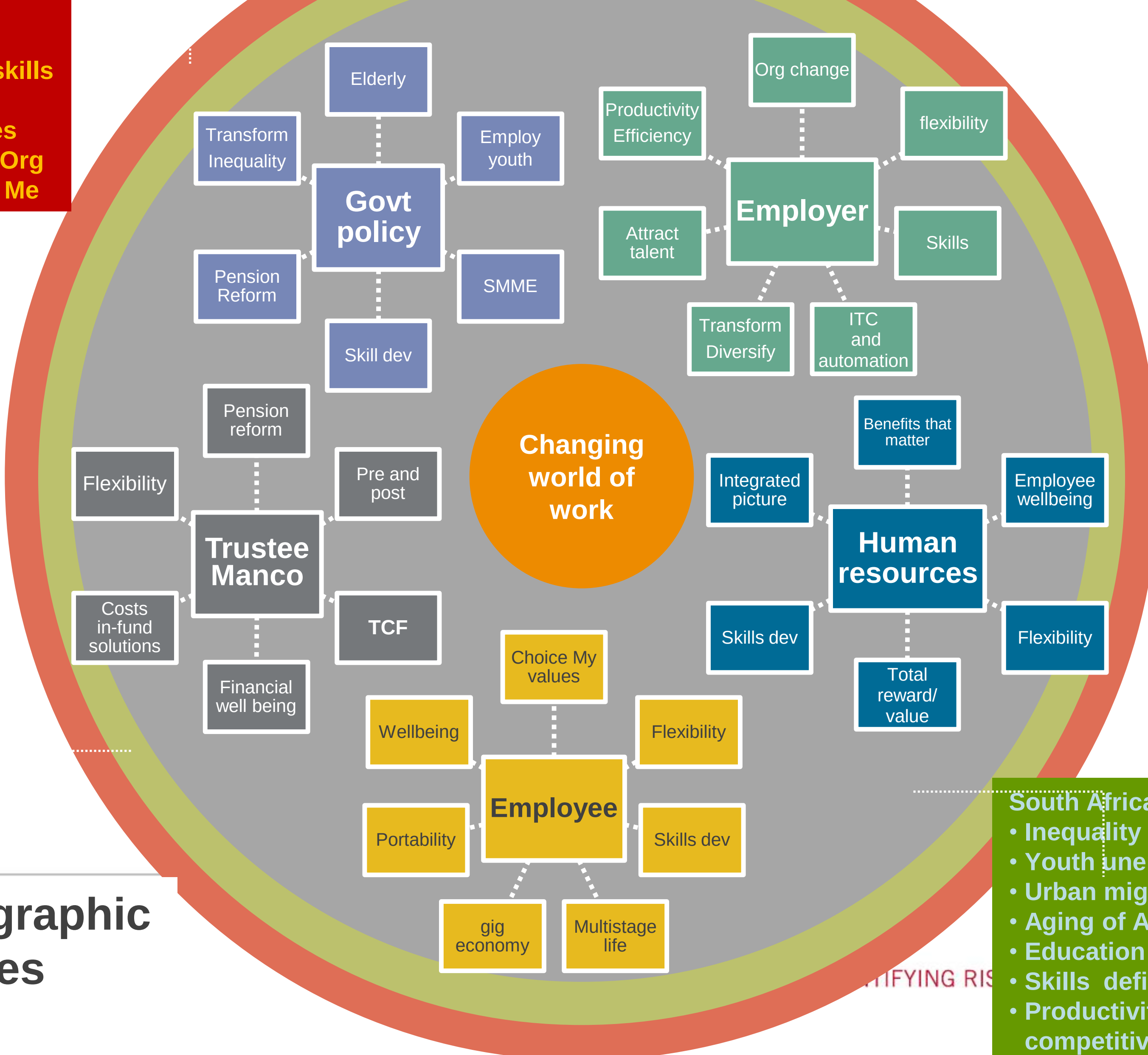
QUANTIFYING RISK, ENABLING OPPORTUNITY

What is 'systems entrepreneurship'?

*"Fundamentally, and on a large scale, changing the way a majority of relevant players **solve a big social challenge** such that a **critical mass of people** affected by that problem **substantially benefits."***

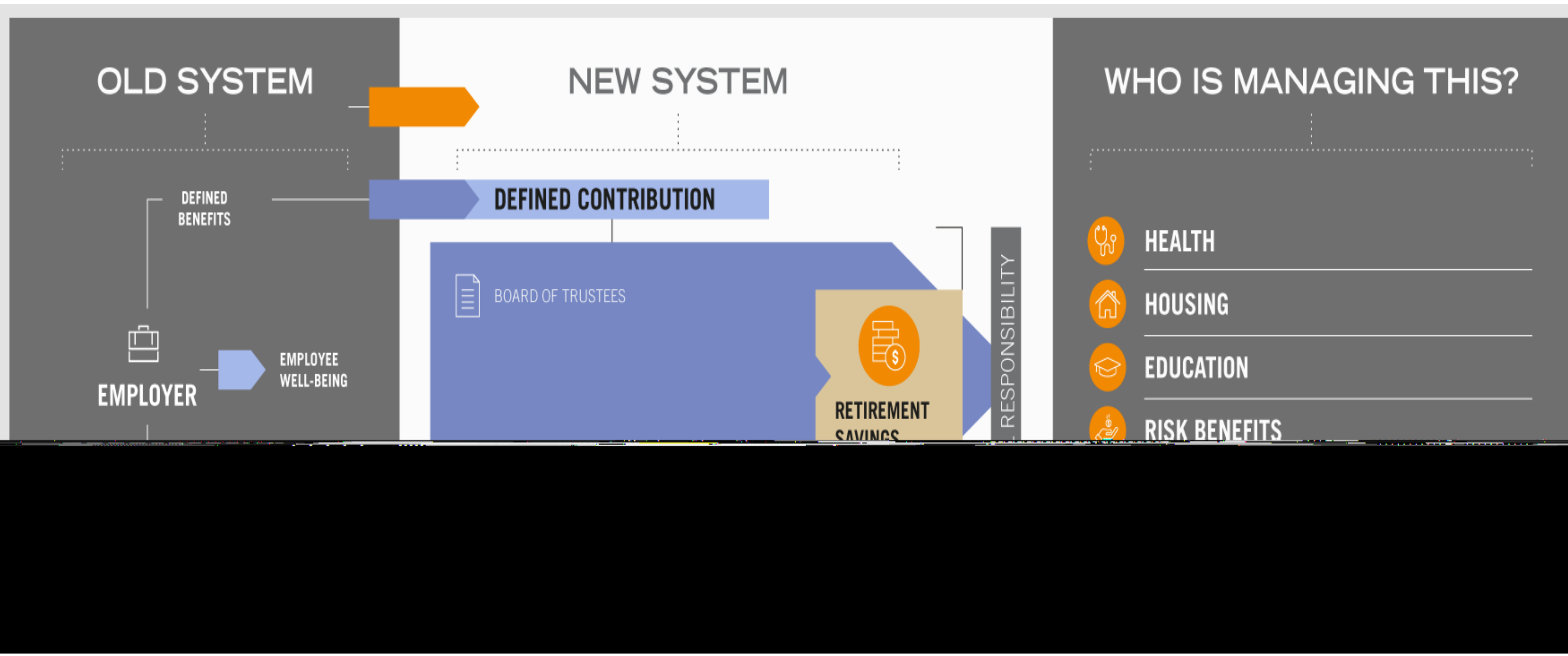
Global factors influencing the workforce

Global
- **Automation**
- **Connectivity**
  Future-ready skills
- **Disruption**
- **Multistage lives**
- **Change-Agile Org**
- **Workplace for Me**



Demographic changes

South Africa
- **Inequality**
- **Youth unemployment**
- **Urban migration**
- **Aging of Africa**
- **Education failure**
- **Skills deficit**
- **Productivity and competitiveness**



From employer to trustees

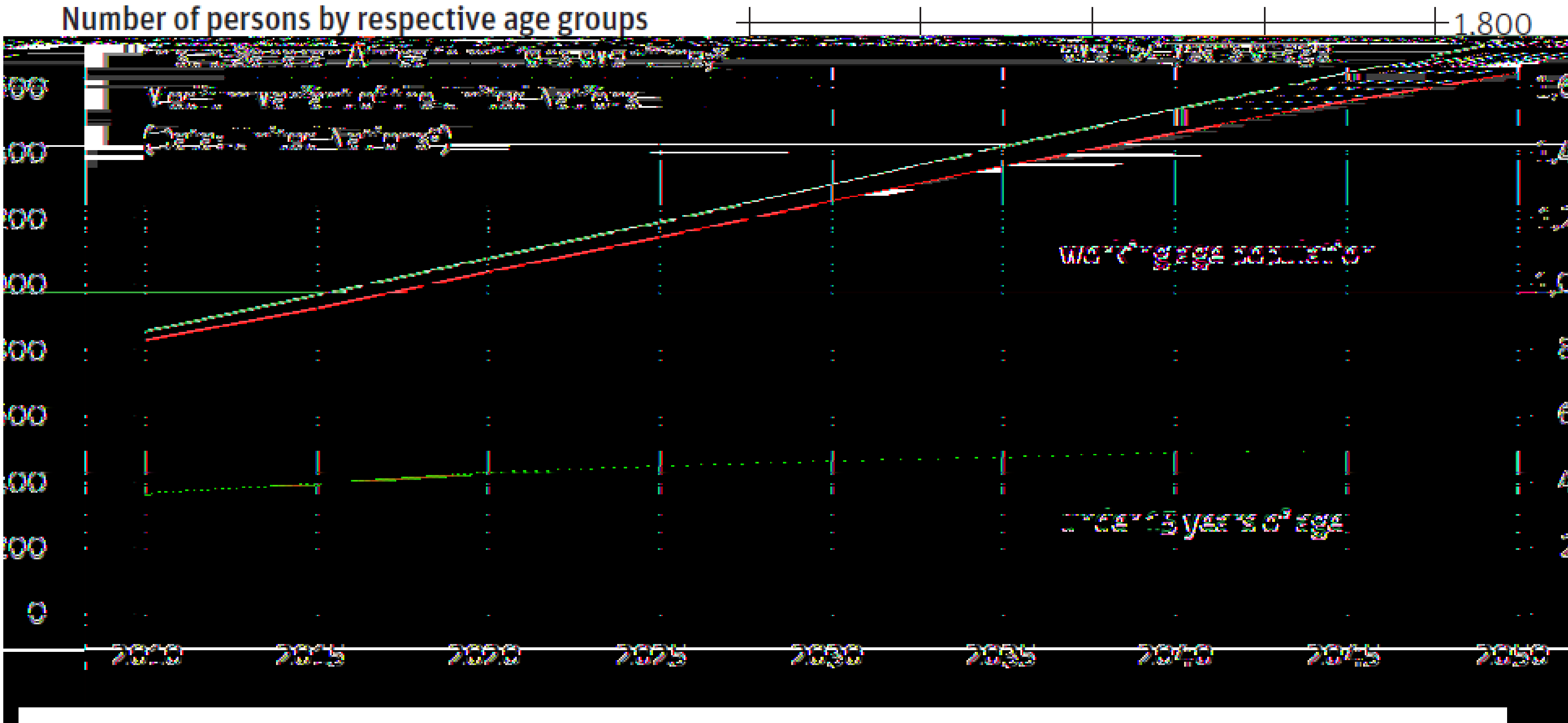
From employer to umbrella fund

What is it that South Africans require most?

- SA has a different demographic pyramid from the US, Europe & northern Asia
- SA's problem isn't retirement – at the moment ….

  it's about social mobility for its youth

What is our demographic profile?



Berlin Institute for population development:
In our study of 103 current and former developing countries, we could show that no single country has developed socioeconomically without a parallel decline in the birth rate. Therefore, the development status of a country is closely linked to its population structure.

COLOR SCALE
90% - 100%
80% - 90%
70% - 80%
60% - 70%
50% - 60%
40% - 50%
30% - 40%
20% - 30%
10% - 20%
0% - 10%

Overall score (%)

Rank	Country	Health Index	Finances in Retirement Index	Quality of Life Index	Material Wellbeing Index	Global Retirement Index
121	Botswana	29%	66%	45%	22%	37%
122	Senegal	22%	44%	47%	38%	36%
123	Afghanistan	21%	51%	35%	46%	36%
124	Madagascar	20%	51%	43%	38%	36%
125	Yemen, Rep.	26%	44%	39%	36%	36%
126	Burkina Faso	19%	44%	47%	42%	36%
127	Ethiopia	19%	38%	50%	39%	34%
128	Benin	20%	44%	37%	42%	34%
129	Myanmar	17%	33%	57%	44%	34%
130	South Africa	50%	62%	54%	8%	34%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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The significant disruptor will solve for all savings

What are the "pain points" / needs of South Africans?

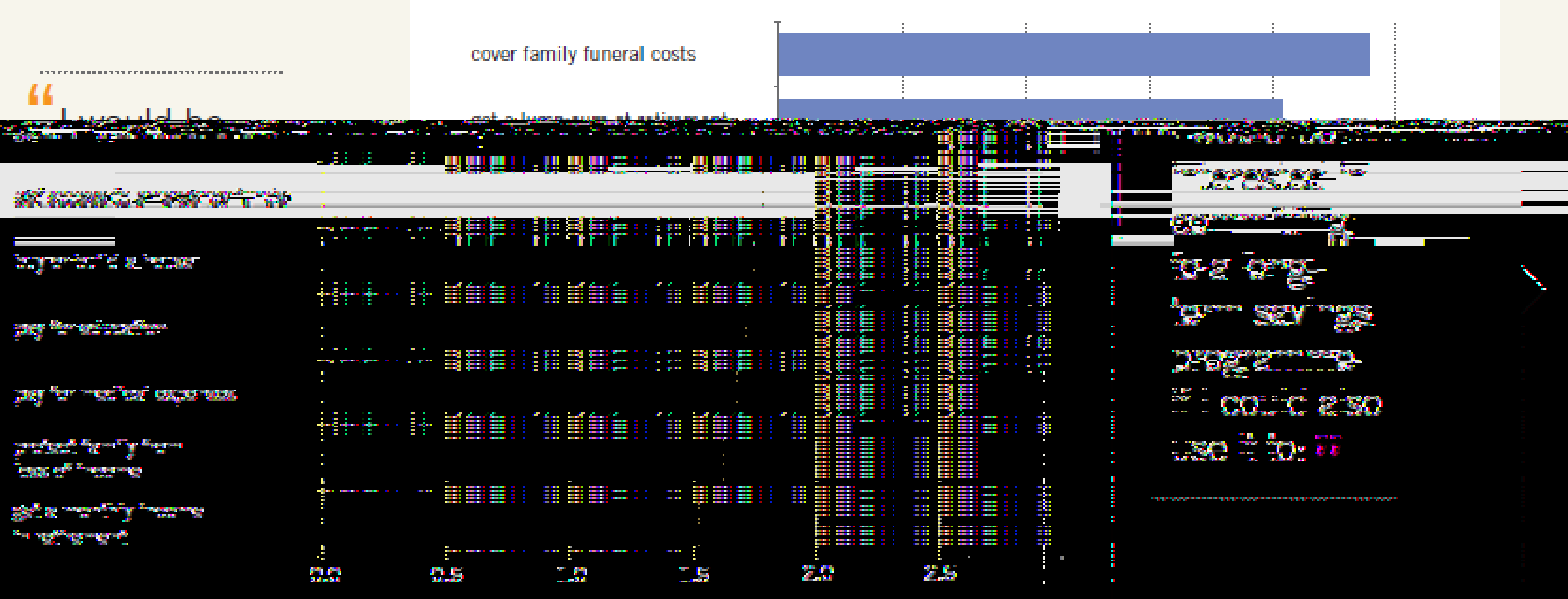
- **Social mobility not just social security**
- **Debt and the challenge of providing families with day-to-day needs?**
- **Financial capability / financial gullibility**
- **Managing the financial trade-off decisions of life – what are the long term implications to the family?**

How many of our sophisticated 1st world financial solutions actually address these issues?

This is about the top 1%....or the bottom poorest. It's about the vast swathe of South Africans that represent the invisible middle.

Research question

Members place funeral policies first but is the best use for savings? Culture is mutable – let's create that change



Savings are still important…..but not savings for annuitization at retirement

Here are the points of vulnerability:

- **What if individuals realise that this is *their* money – and demand their rights?**

- **What if individuals realise they don't need <u>you</u> to achieve their needs**
  - Is there any value to financial advisers?
  - Are asset managers necessary?
  - Do we need insurers?
  - Could all of this not be done algorithmically?

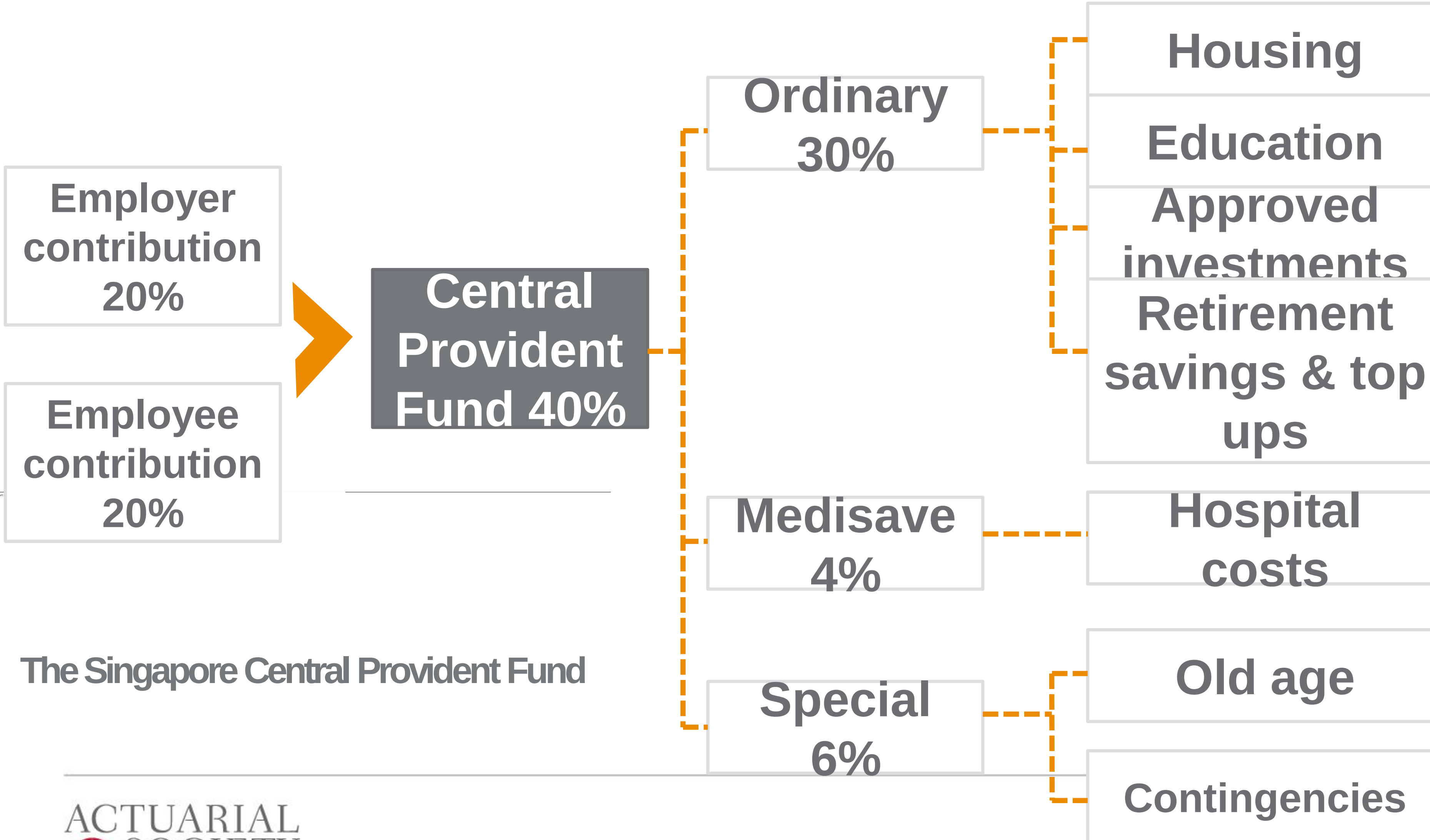
Building the disruptive savings model for SA
Here's what needs to happen:

- Making savings matter
- Start with their most fundamental financial decisions
- Provide an investment framework that can solve for the cycle of lifetime funding needs
- Help individuals understand the long term implications of choices and trade-offs
- Make it easy to address the needs that matter most

The Singapore Central Provident Fund – An Exciting Model

- Government fund since 1965 – Made policy decision on independence that Singapore would not become a welfare state.
- Asset-based development strategy as the key to self-determination and financial capability development: housing the top priority
- Minimum sum calculation at 55 years dictates what must be set aside for annuitisation
- Above and beyond this minimum sum, employee decides on priorities of what to save for

Does it only have to be about retirement?



The Singapore Central Provident Fund

The Singapore Central Provident Fund – An Exciting Model

- Compulsory savings for all employees – one central fund
- Both employer and employee contribute 20% = 40%
- Recognises family considerations are an important part of the equation
- Understands that there is a lifecycle for savings where saving imperatives change over time – savings need to help people when they it most

SINGAPORE

1. Today Singapore has one of the highest savings rates in the world (24%), ranking just behind China and India.
2. Singapore has a consumer delinquency rate of 5.97% (late payment of more than 30 days) and a credit default rate that has remained constant between 0.12% and 0.15% for some time.
3. Singapore ranks highest in the State Street Center for Applied Research 2014 Study on Financial Literacy.

Could a similar model work for South Africa?

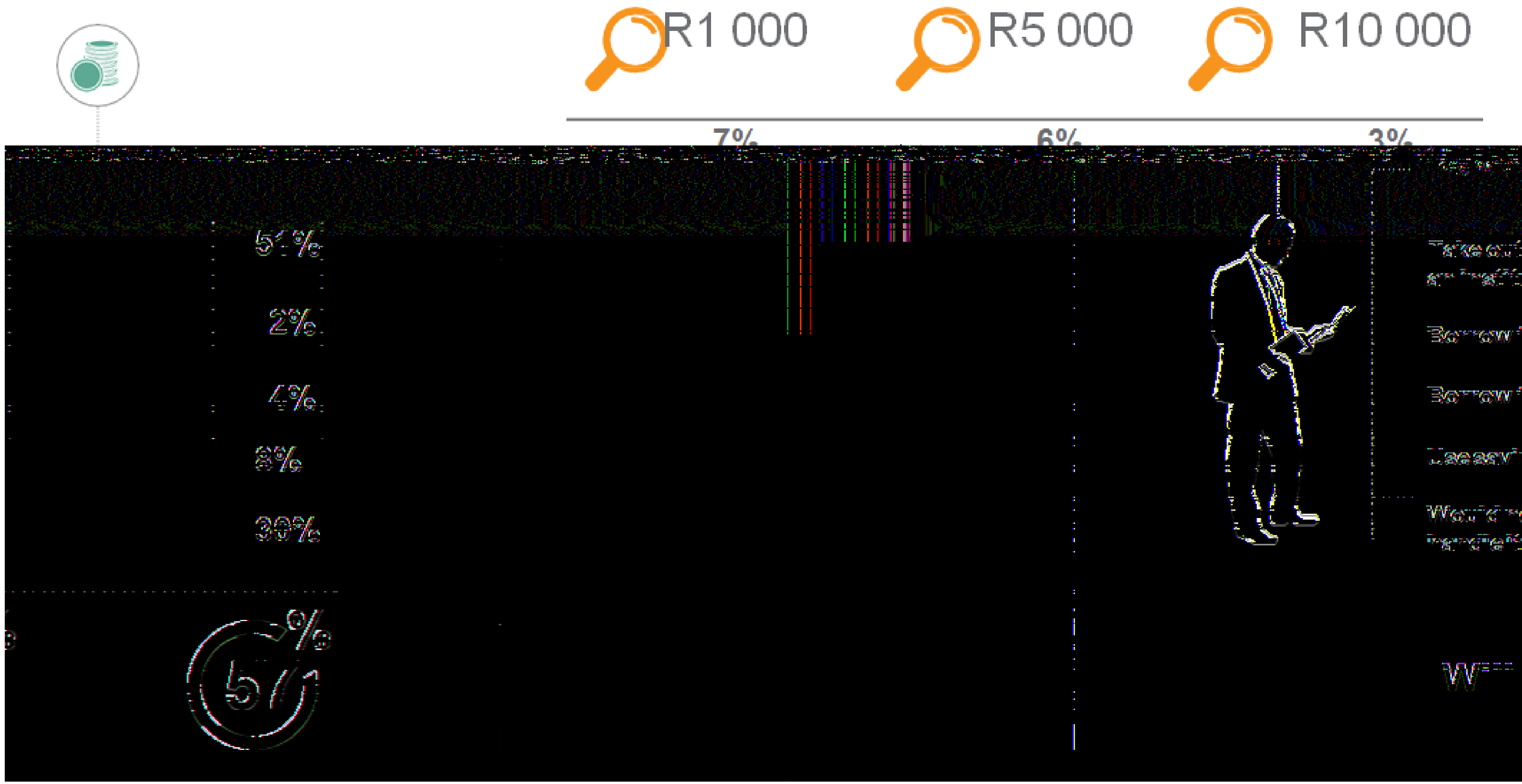
- This does not need to be a government initiative
- We can convert institutional funds into guided financial planning framework for all South Africans for all seasons
- Put control back to the individual – but provide the critical guardrails
- As a fintech solution this could have a broad reach and at minimal cost.

What would this new framework require?

1. Understanding that your starting point is to solve for:
   - Short term emergencies
   - Long term savings challenges (according to the funding requirement and the member needs – individualized solutions
   - Multiple savings objectives that can be staggered over time

Ability to cope with unforeseen expenditure

Ability to handle unforeseen expenditure (R6 000 to R19 999 monthly household income)



Source: Old Mutual Savings and Investment Monitor, July 2015

Ability to cope with unforeseen expenditure

Ability to handle unforeseen expenditure (R20 000 to R39 999 monthly household income)

	R1 000	R5 000	R10 000
Pay with a credit card	25%	27%	13%
Take out a personal loan from an institution or a micro- lender	1%	11%	34%
Borrow from a friend or relative	12%	12%	9%
Borrow from my stokvel	5%	8%	5%
Use savings	51%	39%	25%
Would not be able to handle it	0%	2%	11%
Will have to borrow	18%	31%	48%

Source: Old Mutual Savings and Investment Monitor, July 2015

When individuals try to solve for these goals on their own = requires 80% of income

In an integrated lifecycle savings solution = requirement reduces to 43% of income

Can we have it all?

We've built a simplified model using the following assumptions:

1 A man enters the workforce at age 23 and retires at age 63. We use Alexander Forbes annuity rates for males.

2 His real salary will increase according to the Alexander Forbes actuarial salary scale tables (not published).

3 He earns a starting salary of R72 000 a year.

4 He starts the savings programme for all goals from the first day of working.

5 His overall intentions are:

Get to at least a 50% replacement ratio on retirement.

Build and maintain an emergency fund of three months' salary.

Provide a full education (from age six up to tertiary) for his two children born when he is 25 and 27.

Fund and pay off a starter house with a real value of R250 000 within 20 years (using the savings and debt model illustrated in **Part 2: Chapter 8**).

6 **A real return of 4%** (after costs) is assumed for the investment strategy that linearly reduces to 2% over the last five years to retirement, representing less risky investment strategies during a period where an individual's general risk aversion increases.

7 **A post-retirement interest** 'rate' of 3.25%, five years full pension guaranteed, with 50% pension reverting to the spouse on death.

8 **The emergency fund** is topped up every five years. It assumes 0% real growth and that 50% of its value is drawn down through each five-year cycle.

9 **Primary and secondary school costs** are R29 000 a year. Tertiary education costs are at R50 000 a year funded for four years. Education costs grow at at 3% above CPI inflution.

10 **The real value of the house** purchased in 20 years is at least R250 000.

11 **Tax effects are not considered**.

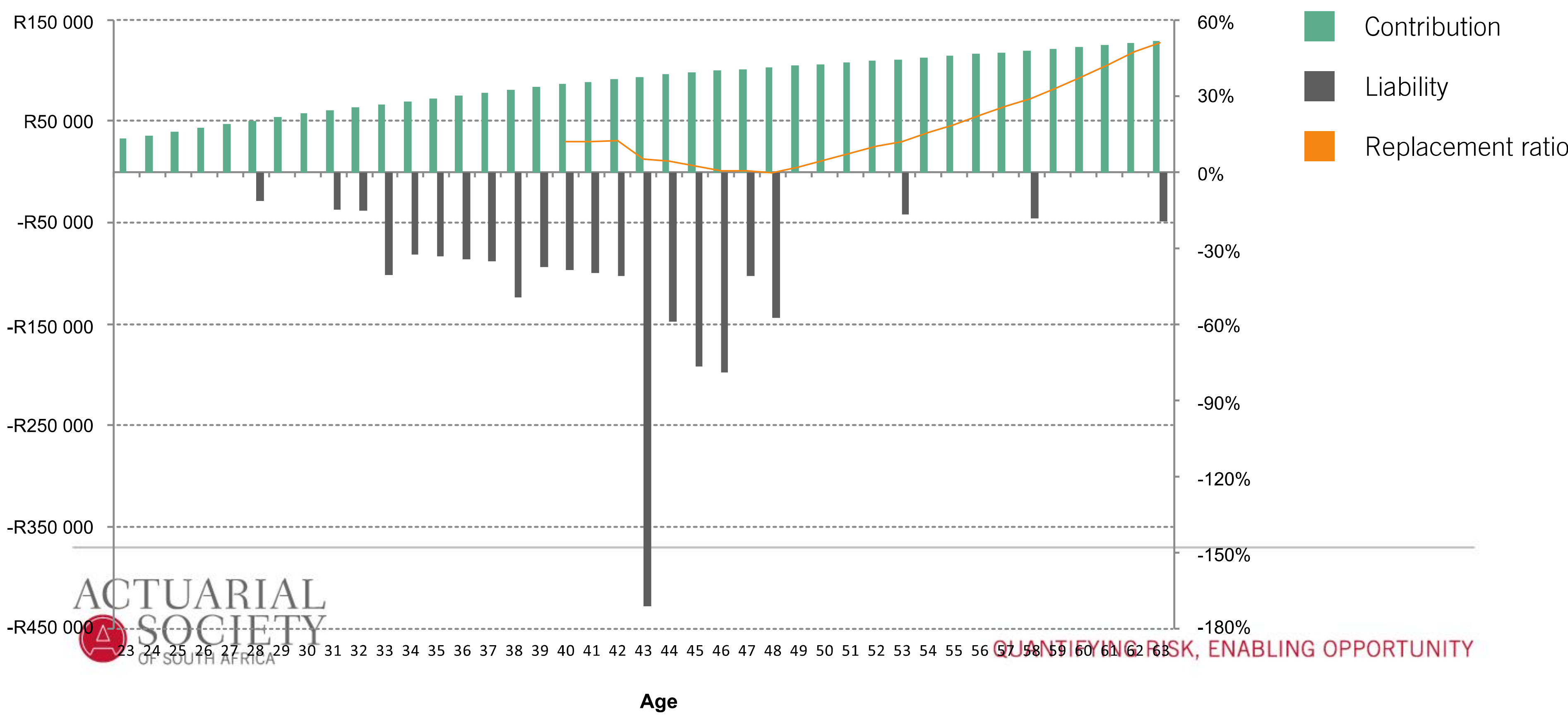
12 **Risk benefit costs** are ignored for this simplified model, but these would be based on a lifecycle model of expenditure of its own. We discuss this lifecycle risk benefit concept in **Part 2: Chapter 7**.

What did we learn

Modelling outcomes and insights

46.2% lifetime contribution to approximately meet all objectives

Estimated cashflow profile (from age 23 to age 63)



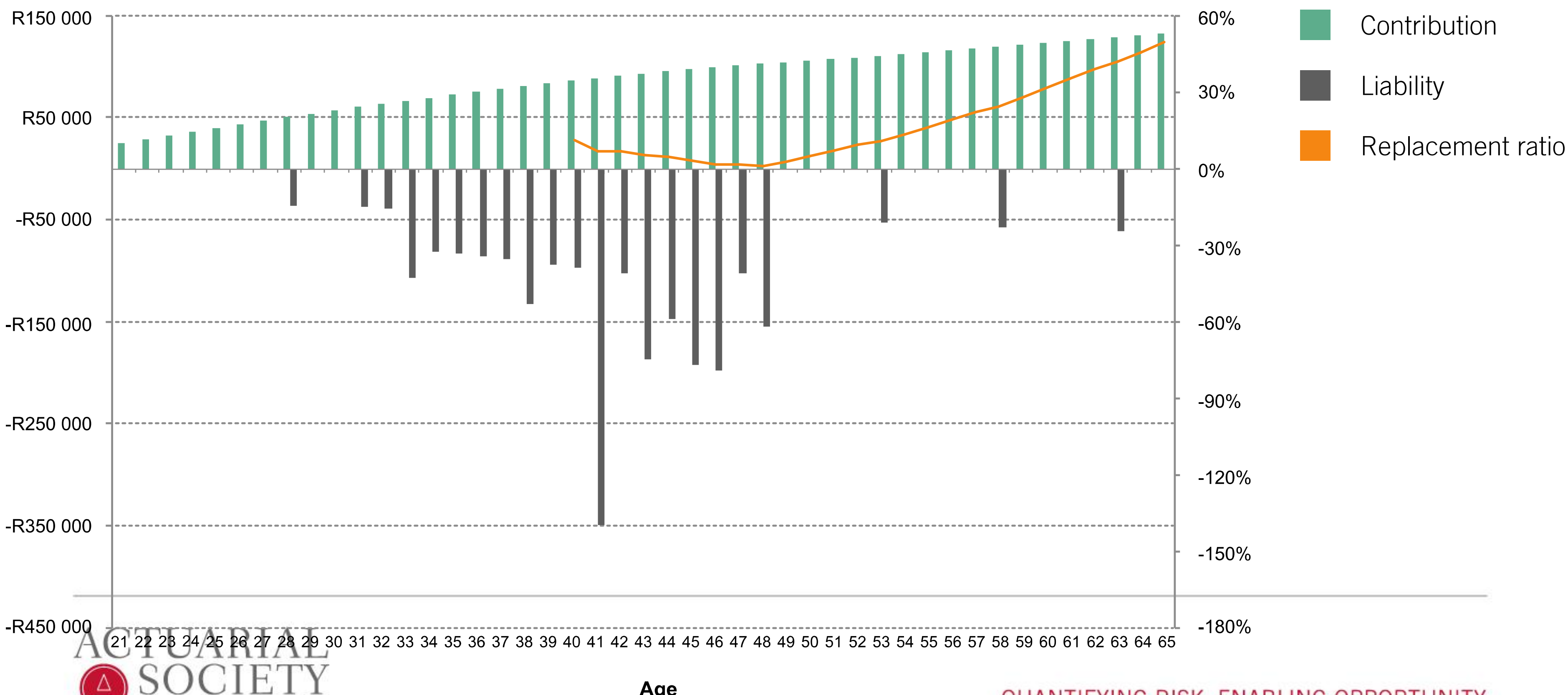
Levers to lower the overall contribution

- **Power of time**
- **Subsidisation**

46% reduces to 36% starting 2 years earlier

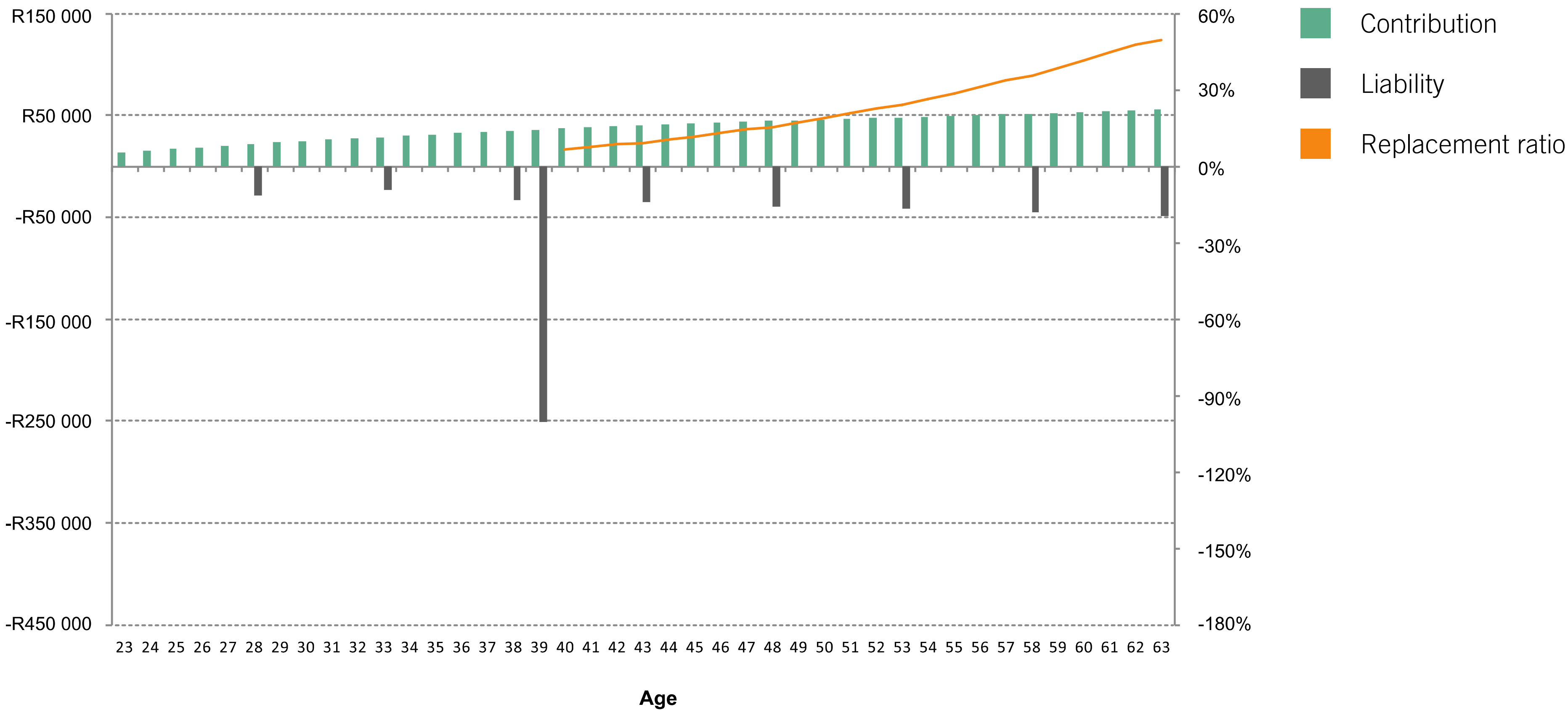
Using the power of time

Estimated cashflow profile (from age 21 to age 65)



Subsidisation

Estimated cashflow profile (from age 23 to age 63)



Removing education (subsidised at lower levels), the required contribution drops to 20%

What would this new framework require?

2. Changing our engagement and education framework

Financial education is failing

Interventions to improve financial literacy show a mere

0.1%

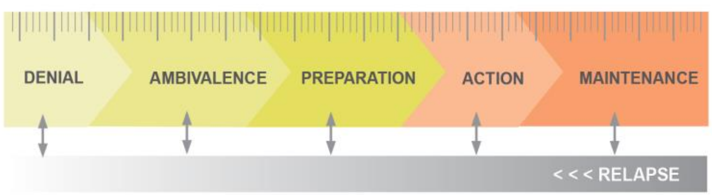
change in financial behaviours

Source: Fernandez, D., Lynch JG & Netemeyer Financial Literacy, financial education and downstream financial behaviours, 2014

What would a digital engagement require?

We need to understand these things about you:

THE READINESS RULER SHOWING THE STAGES OF CHANGE IN OVERSPENDING



What stage of receptiveness are you at?

What pre-condition s shape your ability to enagage?

Can AI help us understand how you learn best?

Meet Socos MuseBot

What would this new framework require?

2. We need to understand these things about you

How are you genetically pre-disposed to saving?

WHAT MAKES A GOOD SAVER?

Is saving something that belongs to the realm of nature, or nurture? Will individuals who are innately inclined to save become economically successful, or can individuals achieve economic mobility simply by adopting good habits around saving and money management skills?

Findings from joint Swedish and American research on identical twins suggest that **individuals are indeed born with a propensity to a specific saving behaviour[8]. Genetic differences can account for around 33% of the variation.** This genetic influence, according to the study, seems to persist throughout an individual's life. But socio-economic circumstances and parenting influences can interact to temper that genetic predisposition. That said, parenting influences (good or bad) tend to dissipate when the individual becomes an adult. In the long run, current socio-economic circumstances trump upbringing, meaning that we can potentially nurture a savings habit.

A further insight from the same study is that **"behaviours regarding savings appear to be genetically correlated with one's predispositions towards self-control or time preferences"** – in other words, one's level of tolerance for delayed gratification. You may be familiar with the famous marshmallow test conducted at Stanford University in the 1960s, where Walter Mischel made a direct connection between a child's willingness to postpone eating a marshmallow in order to gain an extra one and their professional success later on in life[9].

Perhaps the more intriguing aspect of the Swedish-American study is their finding that, while there appears to be no correlation between savings and education, there does appear to be a significantly positive correlation between an individual's savings rate and income growth. Slightly more disturbing, though, was their observation that there also appears to be significant negative correlations between obesity or smoking and savings[10].

None of this suggests that social dynamics are not an important factor. What the research doesn't tell us is how life experiences might factor in here. Nor does it give us any insight into when genetic predisposition might be the dominant influence or when environment might be the dominant factor. What we can conclude though is still important. Any number of factors are at play when it comes to an

What would this new framework require?

3. Changing *what* we teach:

Embedding the "how-to" inside of the product itself

Knowing how to get from "A" to "B", not just how much you need to get there

How to know what you *don't* need:

The simple questions to ask to determine is you need insurance

Understanding product pricing trade-offs

Making the trade-offs transparent through modelling

How to avoid scams or unrealistic expectations:

Understanding probabilities may be more important than compounding

We believe this …

- **Would allow individuals to engage with compulsory savings**
- **Provide a genuine level for social mobility and economic growth**
- **Address the current impasse around pension reform**
- **Address problems that are closest to the heart of South Africans**
- **Would represent real disruption**

But, aren't we undoing our good work?

ONLY 4.7%

of people retiring during 2015

had a **replacement ratio** of

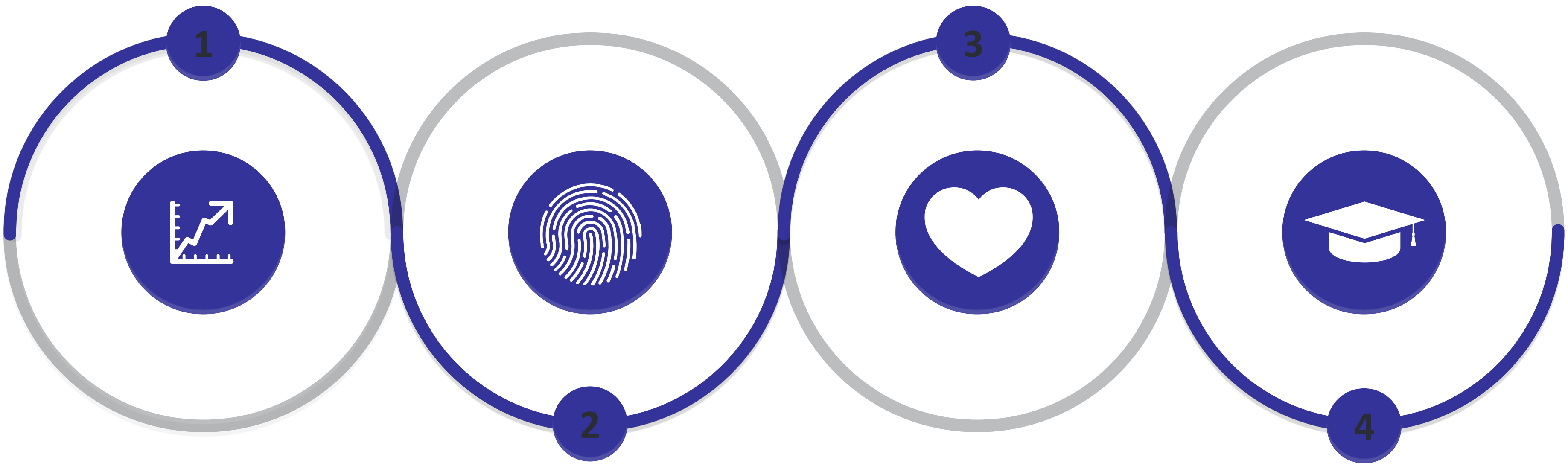
75%

or more

At the heart of it all this is a trade-off problem

Is it better to get 5% of people past 75%, or 50% of people to 50%?

Building blocks

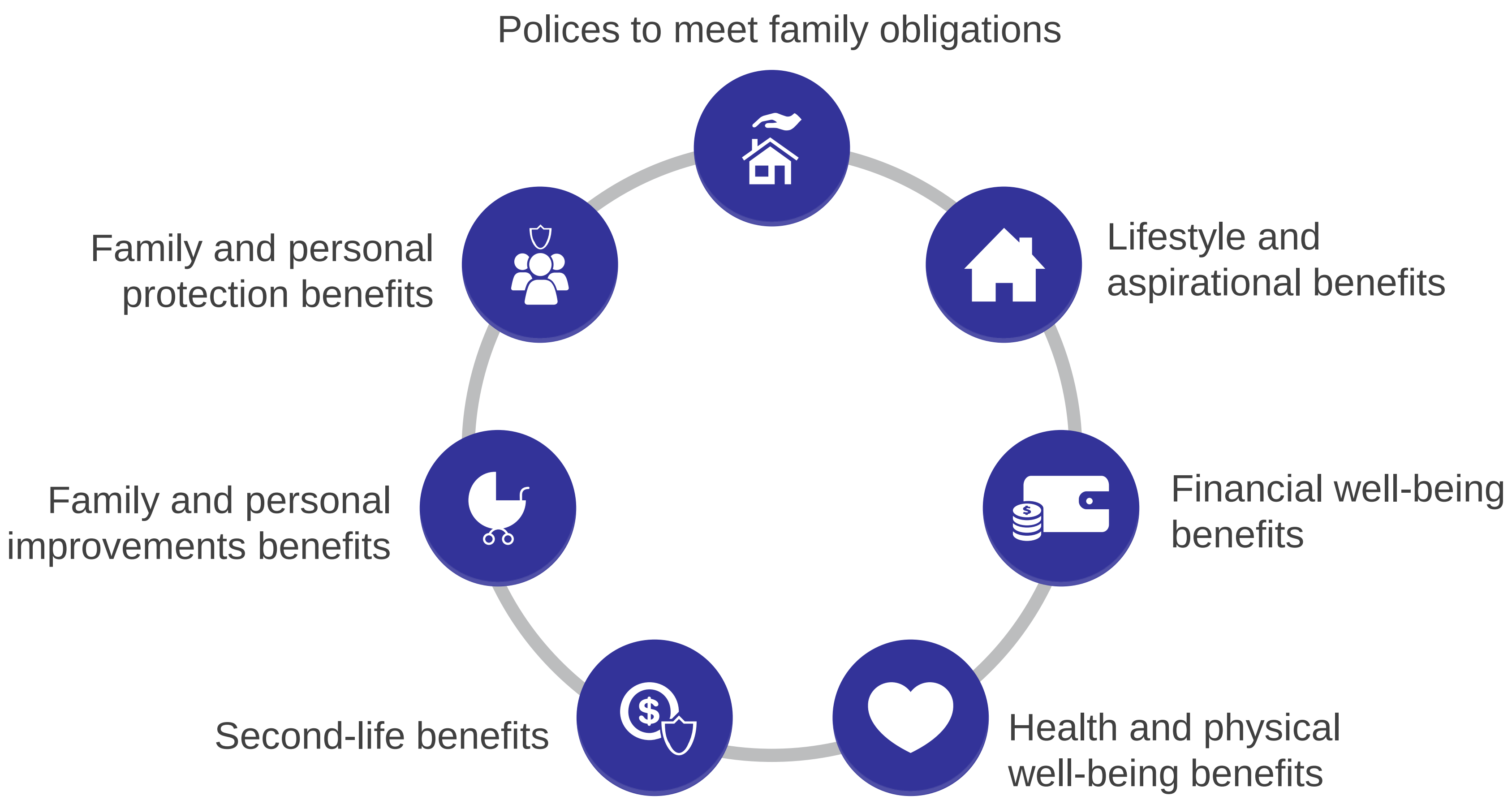


Data analytics

Customised benefit structure

Well-being programme

Skills development – on-going education


Polices to meet family obligations
Lifestyle and aspirational benefits
Financial well-being benefits
Health and physical well-being benefits
Second-life benefits
Family and personal improvements benefits
Family and personal protection benefits

Closing comments

Are you ready for the challenge?