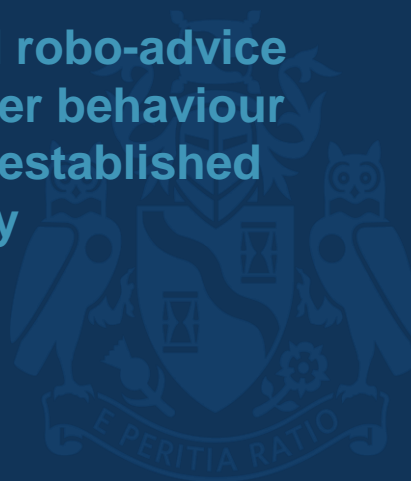**Institute and Faculty of Actuaries**
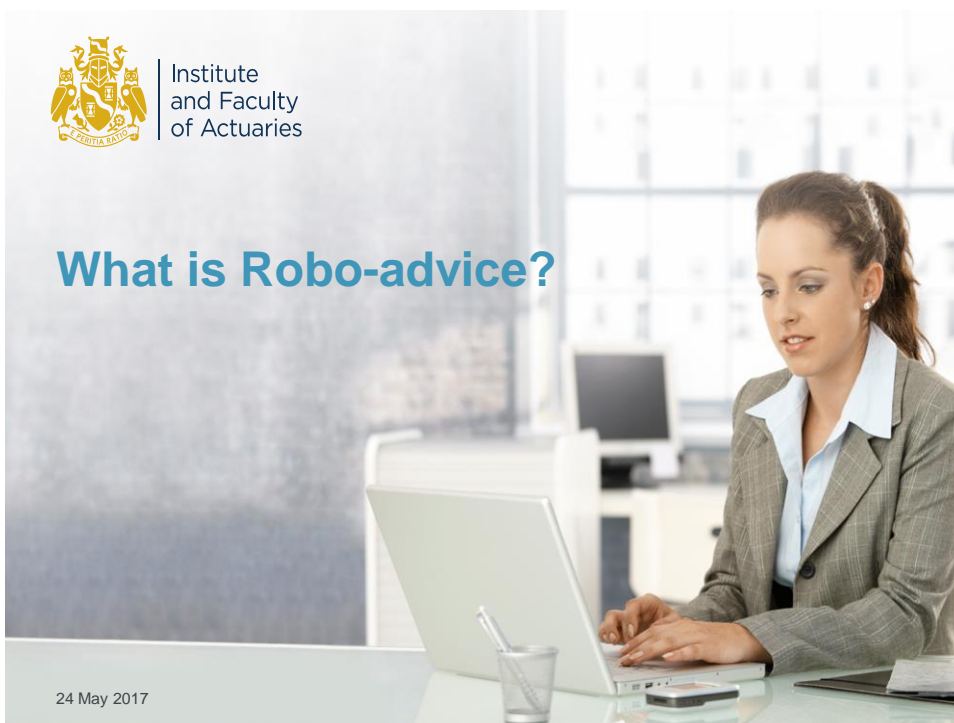
How technology and robo-advice is changing consumer behaviour and disrupting long-established models: a case study

John Taylor

Institute and Faculty of Actuaries

What is Robo-advice?

24 May 2017

A broad church

What is a 'Robo-Advisor (Robo-Adviser)'?

A robo-advisor (robo-adviser) is an online wealth management service that provides automated, algorithm-based portfolio management advice without the use of human financial planners. Robo-advisors (or robo-advisers) use the same software as traditional advisors, but usually only offer portfolio management and do not get involved in more personal aspects of wealth management, such as taxes and retirement or estate planning.

Source: Investopedia

Strategic Context – Market for Advice

| Demand	Supply
• 30m UK adults • Unwilling/unable to pay for advice • Individual responsibility • Under-saving • Complex challenges	• c. 20k UK advisers • Cost of advice • Access/availability
Consumer Behaviour	**Technological Enablement**
• More online/mobile • Higher expectations • Increasingly comfortable with finances • Value convenience – 24/7 • Anonymity	• Broadband • Cloud • Scale • Repeatability

A broad church
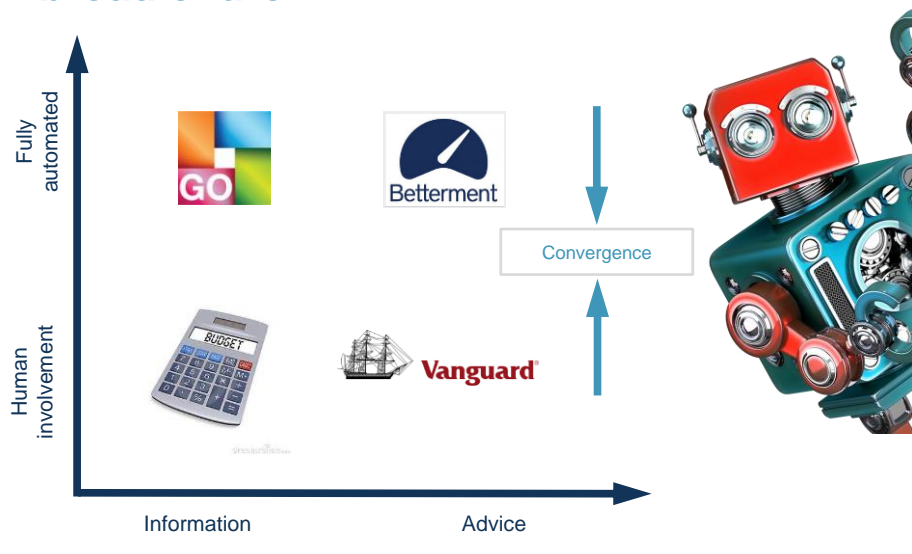
UK Workplace Pensions

A Robo-Advice Case Study

24 May 2017

Trends in UK Pension Provision

Proportion of employees with workplace pensions: by type of pension, 1997 to 2016
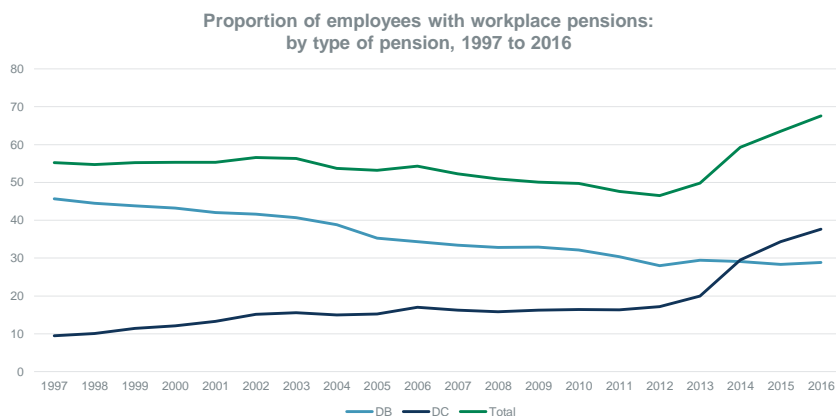
Source: Office for National Statistics

Transfer of Responsibility

	DB	DC
Investment	Sponsor	Member
Contribution	Sponsor	Member
Term	Sponsor	Member
Advice	EBC	IFA/None

Risk Transfer

Decision Transfer
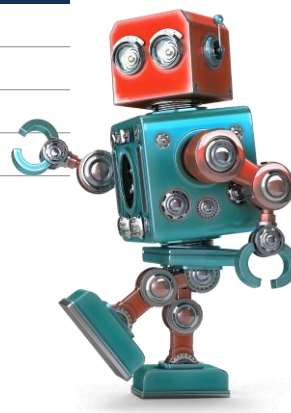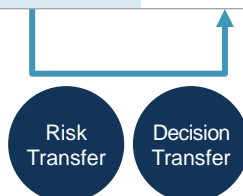
Regulatory Impact on Advice Margin
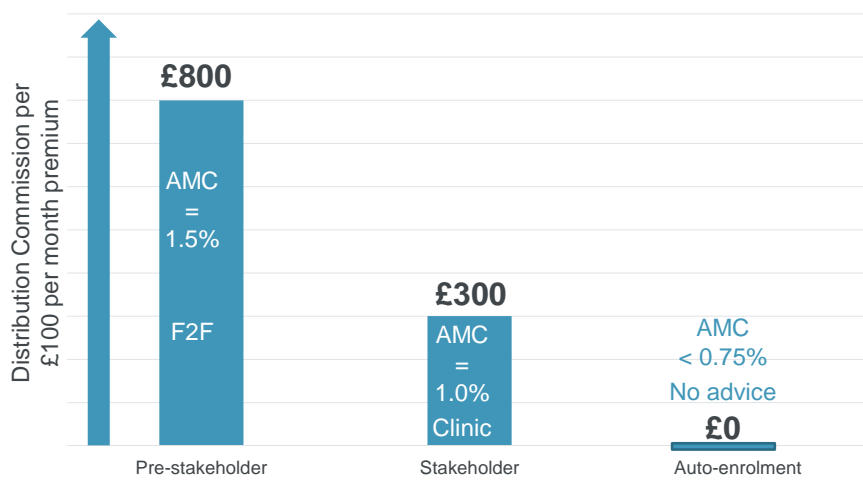
Meeting the market challenge

- How could we help DC sponsors?
  - By using the DB machinery we'd developed over decades
  - By making it easy for employees to act.

- Hymans Roberston is an independent UK-based actuarial consultancy that helps sponsors with pension plans.

Data and analytics CLUB VITA	Technology	Consulting
Rich data and modelling insights	**Customer facing tools**	**Strategy and proposition development**
Examples:	Examples:	Examples:
• Licensed longevity data	• Web-based calculators	• Workplace proposition development
• Drawdown modelling	• Pensions websites	• D2C launch
• Economic scenario generators		• Distribution strategy

- Note that we are paid by sponsors. Our "robo" service is paid via an increase to sponsor fees. Our remuneration is not affected by employee usage.

DB Machinery

Consider each DC member as
providing their own DB scheme

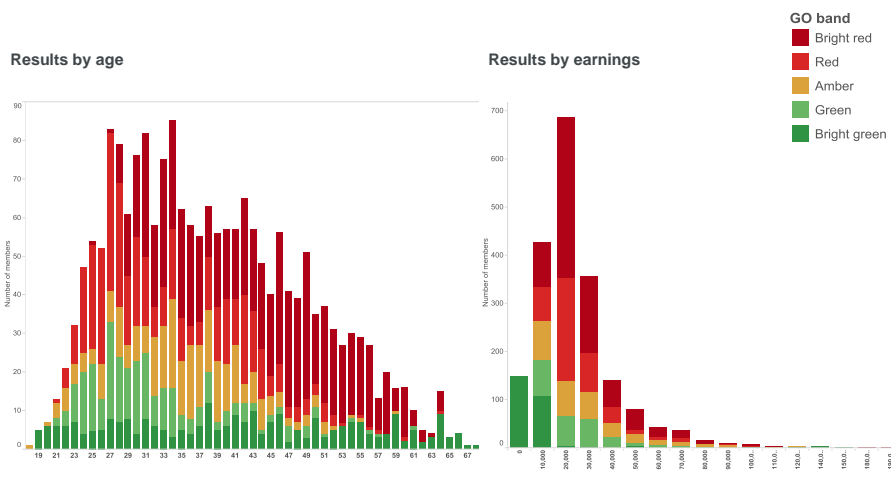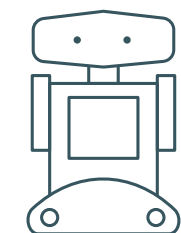| Assets	Investment	Inflows	Liability
Pot value	Investment choice	Employer and employee contributions	Pensions Commission (Salary-Related) Income (proportioned for current employment)

DB Machinery

- Stochastic cashflow modelling now available

- Using Economic Scenario Generator

- To assess current trajectory of member based on starting parameters:
  - Age
  - Contributions
  - Investment

- Red/Amber/Green for each employee

Fund amount (real terms)
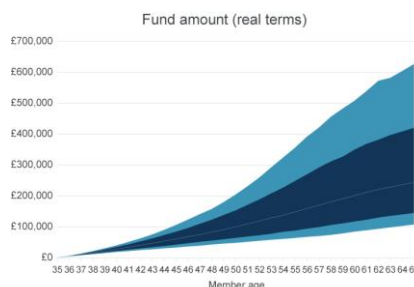
Results by demographic factors

Results by age

Results by earnings

GO band
- Bright red
- Red
- Amber
- Green
- Bright green

Who's the customer?

Homo Economicus
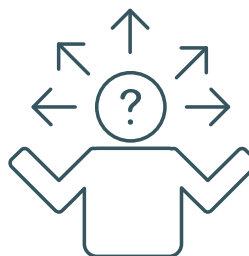
Human

Employee Action

- We have assessed member's current trajectory…
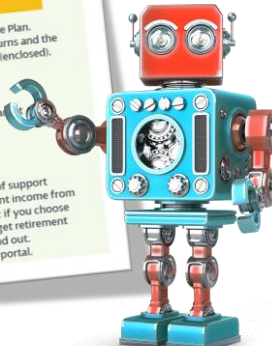
- ….but we can also assess alternative trajectories:

20 different
contributions choices

15 different
retirement ages

10 different
investment strategies

up to 3,000 different choices
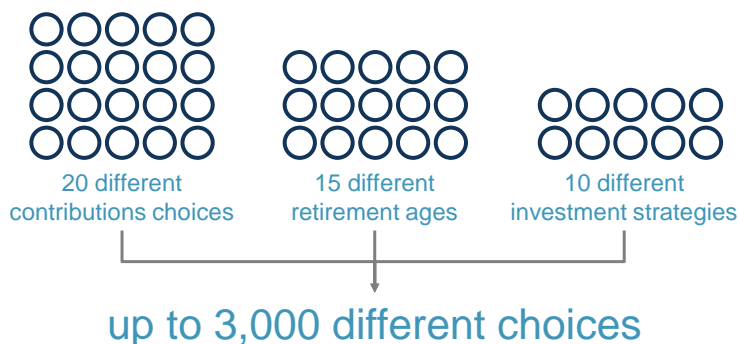
Employee Action

- Use Utility to present a preferred intervention based on:
  - A probability level agreed with sponsor
  - Employment characteristics

- Note that none of our (UK) sponsors want to vary investment choice via robo

- Individuals can reject/over-ride preferred intervention

Statements

Employee interface

Member Experience: The results
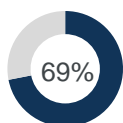
69% staff have logged in and looked around
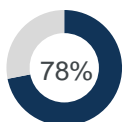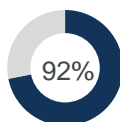(engagement on a typical pensions website can be around 10%)
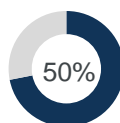
50% of staff have returned for repeated visits to the site

78% of users surveyed felt well or very well informed about their retirement savings following using GO
(compared to 40% before)

92% of users surveyed said the information GO provided was useful or very useful

1 in 5 employees immediately increased contributions
(average 3.5% increase)

"I received my pack this week and I have to say it is best pension's communication I have ever received. I was really impressed & for first time in my life actually understood what my pension could be and how I could improve it."

"It is a very good tool and very easy and intuitive to use which is what I like best about it."

IT: Compute requirements for one scheme

- Projections:
  - Scheme with 20k employees
  - 30 years of projections
  - 1000 stochastic scenarios
  - 300 trajectories per employee

- 180bn years projected (Universe is 14bn years old).

- Cloud-based computing

- Seamless data integration and fulfilment

Work in progress

Learning with A/B Testing	Pensions Dashboard	Decumulation

Questions Comments