Society of Actuaries in Ireland

Embedding Wearable Health Tech into Insurance

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Disclaimer

The views expressed in this presentation are those of the presenter and not necessarily of the Society of Actuaries in Ireland

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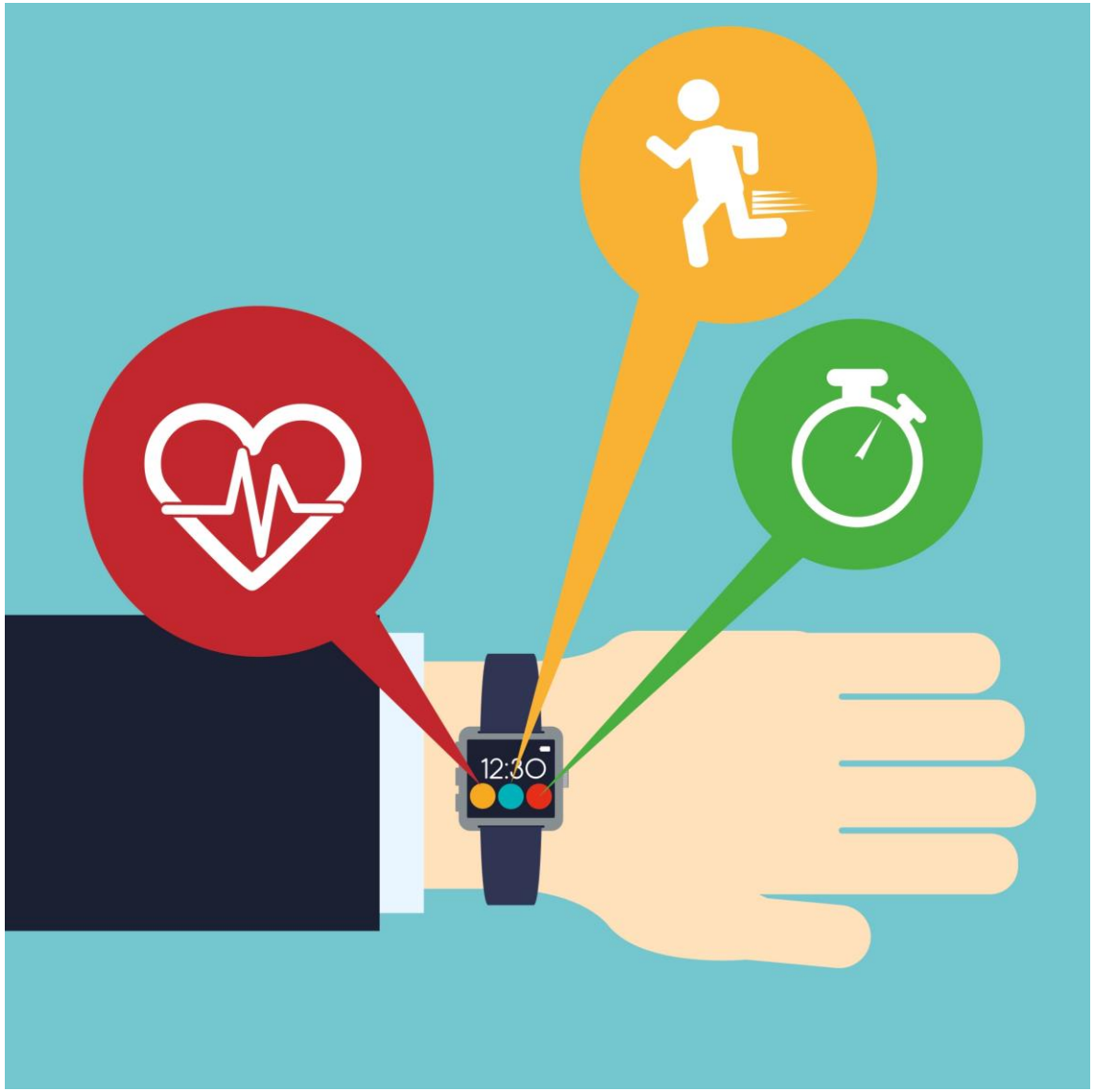
- Actuarial Pricing Consultant, Bupa UK
- Blog on topical health actuarial issues
  - www.healthactuarial.com
- Member of IFoA's "Impact of Wearables and Internet of Things" Working Party
- Independent research on wearable health tech forms the basis of this presentation:
  - "Physical Activity Tracking in Private Health Insurance" research paper for IFoA, July 2017
  - International Health Policy MSC Dissertation at London School of Economics on "The policy challenges of the use of wearables by private health insurers"

The wearables market is growing

- Wearables market set to grow from $10.8bn in 2017 to $16.9bn by 2021.
- Activity tracking devices comprise the majority of wearables sales, with smartwatch sales forecast to double by 2021.
- Provides an opportunity for wearables to become embedded into insurance.



CCS Insight (2017). Global wearables forecast, 2017-2021.

Embedding wearables into insurance

- Short-term: increasing uptake
- Medium-term: use in underwriting
- Long-term: encouraging behavioural change

SHORT-TERM

Does increased activity reduce risk of chronic diseases?

Systematic literature review screened >1,000 articles

Long-term relationship

77 studies met inclusion criteria

Altmann-Richer (2017). Physical Activity Tracking in Private Health Insurance.

Limitations need to be overcome

Limitations	Potential solutions
• Studies use self-reported measures of physical activity • Studies not representative of insurance pool • Limited number of studies for certain NCDs • Contradictions between subgroups	• Insurers to encourage uptake through discounts and rewards • Broaden appeal to wide range of policyholders not just most physically active
• Accuracy of devices can differ by up to 20% • Fraudulent use of devices	• Medical grade wearables could improve accuracy and allow use of biometrics to help prevent fraudulent use

MEDIUM-TERM

Classing policyholders according to health risks

- 84% of included studies found evidence of long-term association between increased physical activity and reduced risk of chronic disease even when controlling for other variables.
- Once relationships have been refined there may be the opportunity to use data from physical activity trackers to class insurees to help adjust premiums in line with risk.
- Physical activity trackers may set a precedent for how other health data is used by insurers going forwards.
  - ECG, core body temperature, respiration, blood sugar

Balancing classing with risk-smoothing

Insurers may want to use data from wearables to charge premiums according health risks:

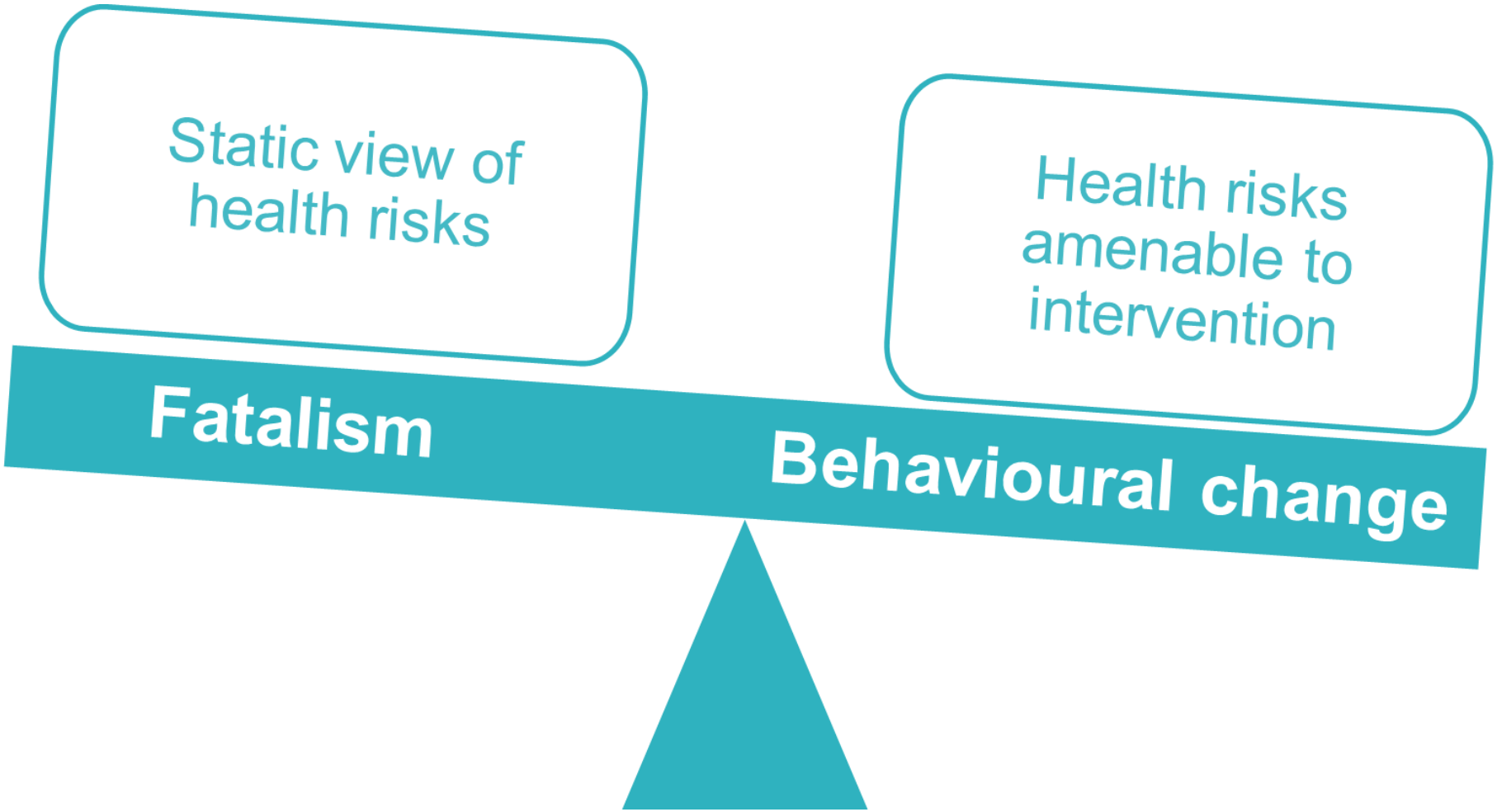
- Cheaper premiums for the more physically active
- More expensive premiums for the less physically active

Regulators may want to prevent prohibitively high premiums for those who:

- lead less healthy lifestyles
- can't afford wearables
- choose not to share their data with insurers

LONG-TERM

Moving towards a behavioural change approach



How effective are wearables for behavioural change?

Insurer's findings

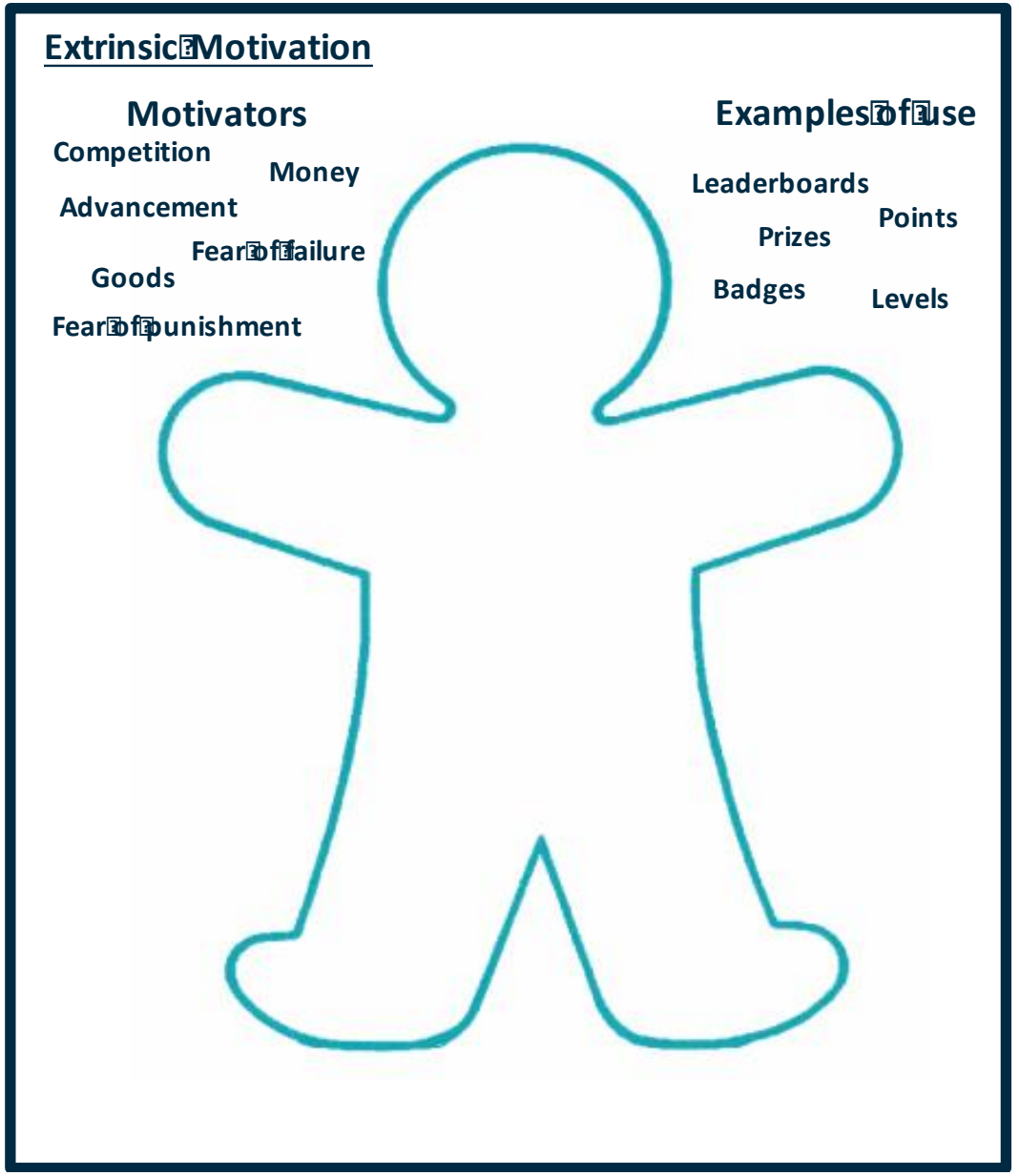
- Cigna found incentives lead to better health engagement and clinical outcomes for customers enrolled in employer-sponsored plans. (Cigna, 2015).
  - 43% more likely to meet goals when using a health coach.
  - 10% reduction in medical costs for >50s with a chronic condition.
- HumanaVitality rewards-based wearable insurance scheme found benefits for more physically active users (Finnegan, 2016).
  - 18% increase in healthcare savings.
  - 44% reduction in sickness absence.

Peer reviewed published research

- Few studies to date, and on a small scale.
- Meta-analysis found no statistically significant impact of remote patient monitoring on health outcomes. (Noah, 2018).
  - 800 person study found no significant difference for rewards-based wearables programs with no significant health improvements (Finkelstein, 2016).
  - Study of 471 overweight adults found that the addition of a wearable technology device resulted in less weight loss over 24 months (Jakicic, 2016).

Extrinsic motivators unlikely to sustain lifestyle changes

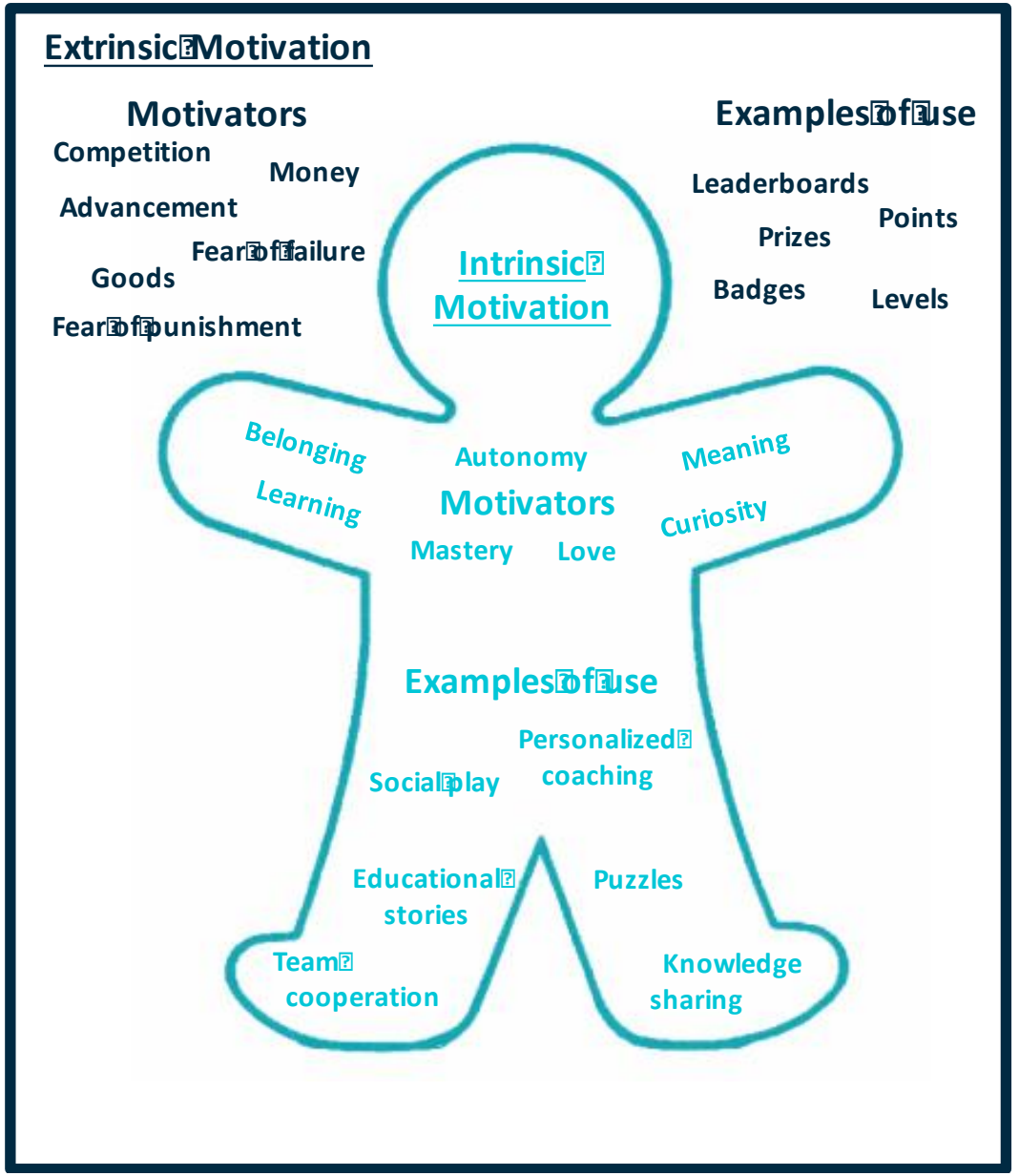
- Self determination theory suggests that extrinsic motivators aren't effective in bringing about long-term sustained changes in behaviour.
- Money is not an effective long term motivator.
- Currently companion apps with physical activity activity trackers appeal predominately to extrinsic motivation through the use of free gifts, leaderboards and digital rewards.



Deci & Ryan (2002). Handbook of Self-determination research.

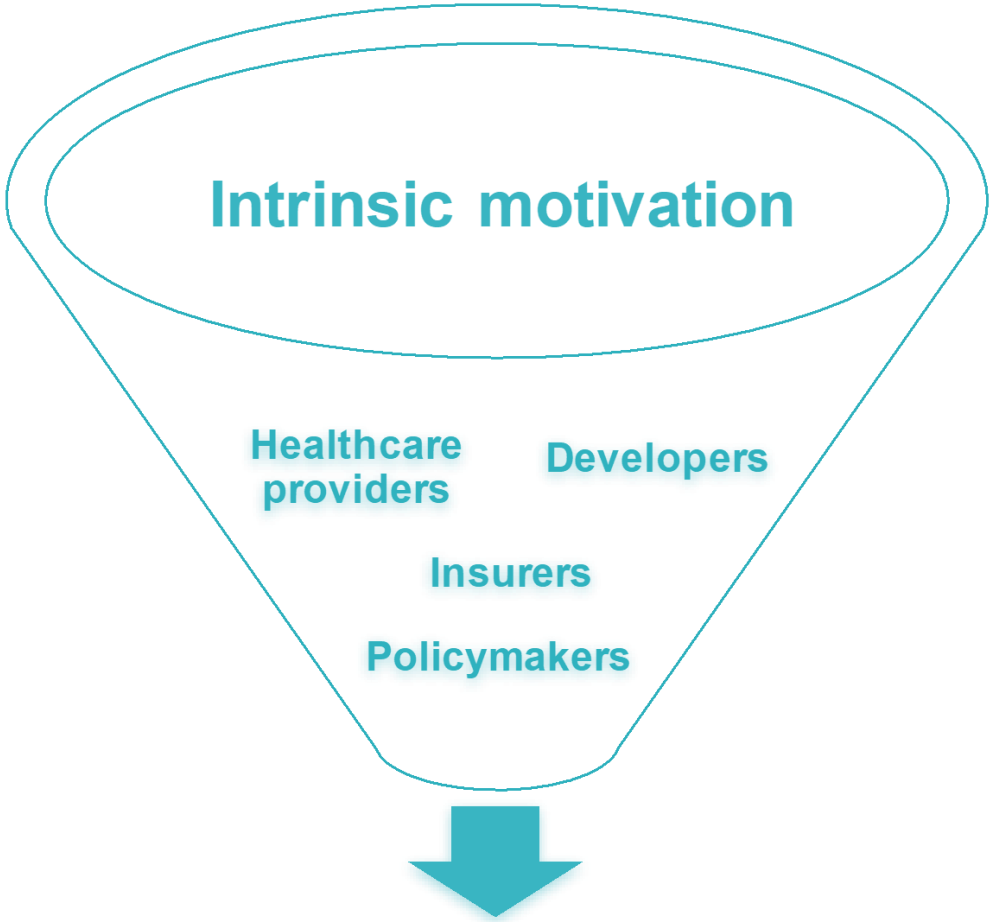
Could intrinsic motivators sustain behavioural change?

- Self-determination theory suggests intrinsically motivating stimuli are more effective at bringing about long-term behavioural change.
- Intrinsic motivators explain the virtues of the underlying behavioural change.
- Insurers could pioneer internally motivating strategies to improve health:
  - Personalized goal setting
  - Health coaching
  - Real-life simulation with VR
  - Real-time education with AR



Deci & Ryan (2002). Handbook of Self-determination research.

Collaboration with other stakeholders in the ecosystem



Any questions?

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