

RUNNING ORDER (all timings approximate)

13:00 – 13:10 Introduction & Journal Scanning Recommendations

13:10 – 13:45 Implementation Science and Behavioural Economics

13:45 – 14:00 Break

14:00 – 14:50 Behaviour Change Frameworks and Applications

14:50 – 15:10 Exercise on Behaviour Change Intervention

15:10 – 15:25 Discussion

15:30 – Wrap-up



Implementation Science and Behavioural Economics

Dr Ed Conley



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

WIDI Wales Institute of Digital Information
Athrofa Wybodaeth Ddigidol Cymru

Outline

- Acknowledgements
- Definitions
- Behavioural economics concepts
- Applying the concepts in implementation science
- How does this apply in digital transformation?
- Q&A

Primary Sources

Hodson et al., 2024; Kahneman, 2011.

Hodson et al. *Implementation Science* (2024) 19:33
<https://doi.org/10.1186/s13012-024-01362-y>

Implementation Science

DEBATE

Open Access

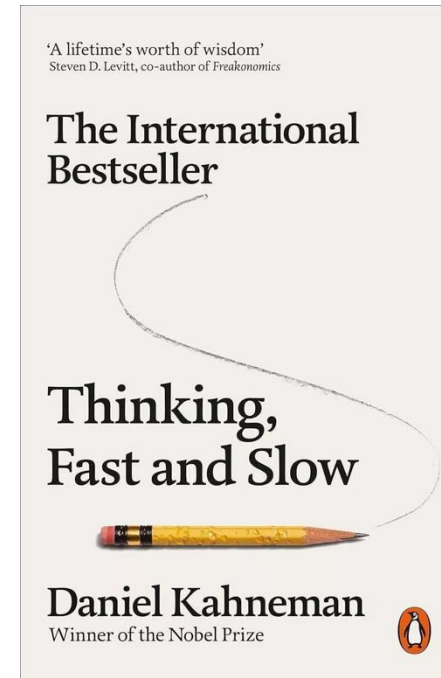
How can a behavioral economics lens contribute to implementation science?



Nathan Hodson^{1,2,8*}, Byron J. Powell^{3,4,5}, Per Nilsen^{6,7} and Rinad S. Beidas^{8,9}

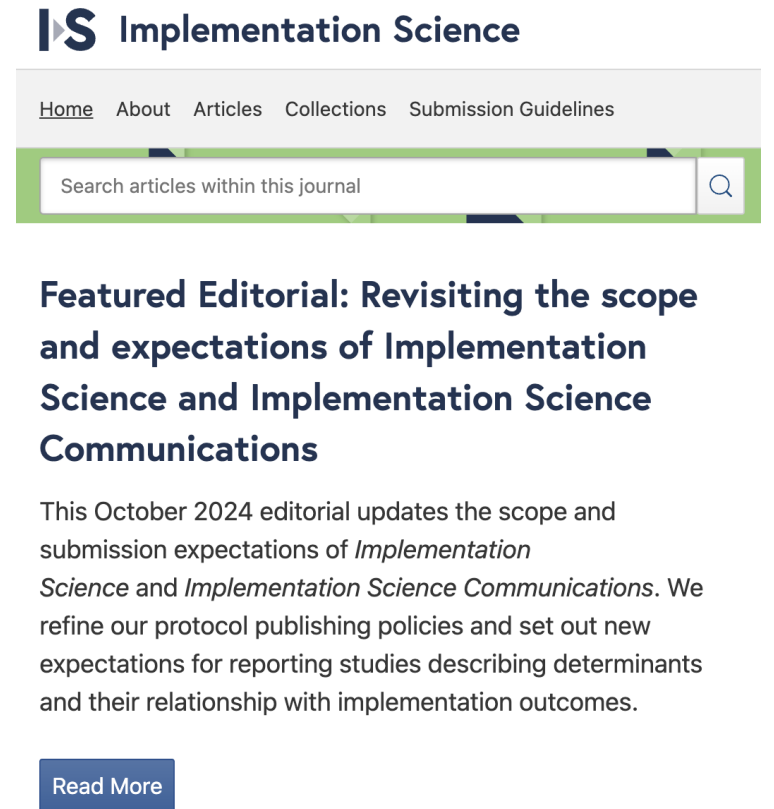
Abstract

Background Implementation science in health is an interdisciplinary field with an emphasis on supporting behavior change required when clinicians and other actors implement evidence-based practices within organizational constraints. Behavioral economics has emerged in parallel and works towards developing realistic models of how humans behave and categorizes a wide range of features of choices that can influence behavior. We argue that implementation science can be enhanced by the incorporation of approaches from behavioral economics.



Definition 1: Implementation science

- Aims “to close the gap between what we know and what we do” (Hodson et al., 2024), with focus on behaviour change.
- “Study of methods to promote the uptake of research findings into routine healthcare” (<https://implementationscience.biomedcentral.com/about>).
- *Implementation Science* journal founded in 2006.
- Critical to successful digital transformation.



Definition 2: Behavioural economics

- Elements of economics and psychology to understand how and why people behave the way they do in the real world.” (<https://news.uchicago.edu/explainer/what-is-behavioral-economics>)
- what people “*should*” do and what they *actually* do and consequences
- Whereas classical economics assumes that people make well-informed decisions based on rational preferences, *behavioural* economics talks about “bounded rationality”: behaviour is often emotional, biased or irrational.



Some behavioural economics concepts

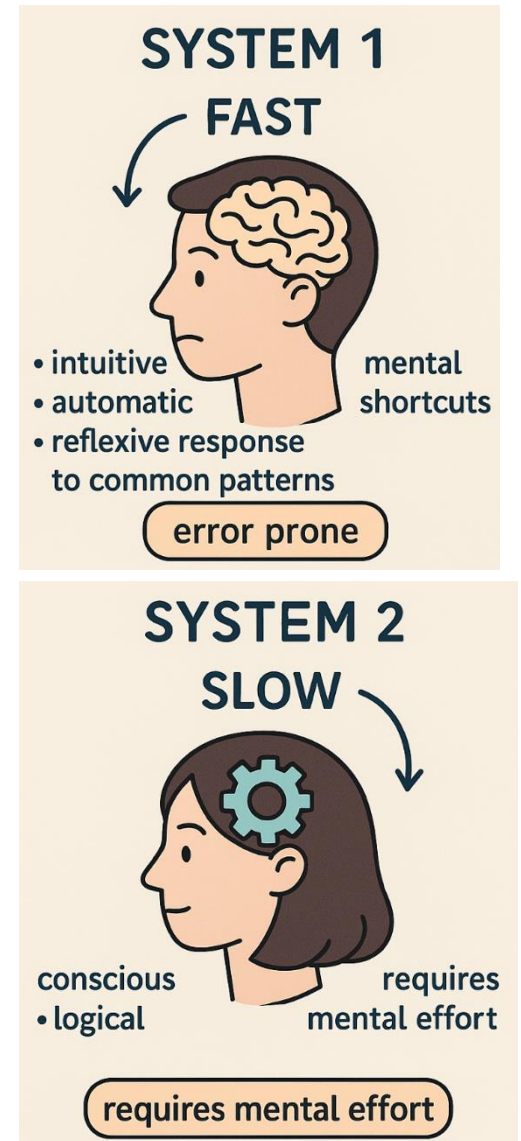
- Dual process theory
- Present bias
- Availability heuristic
- Commission bias
- Sludge
- Bounded rationality
- Choice architecture



Will illustrate all

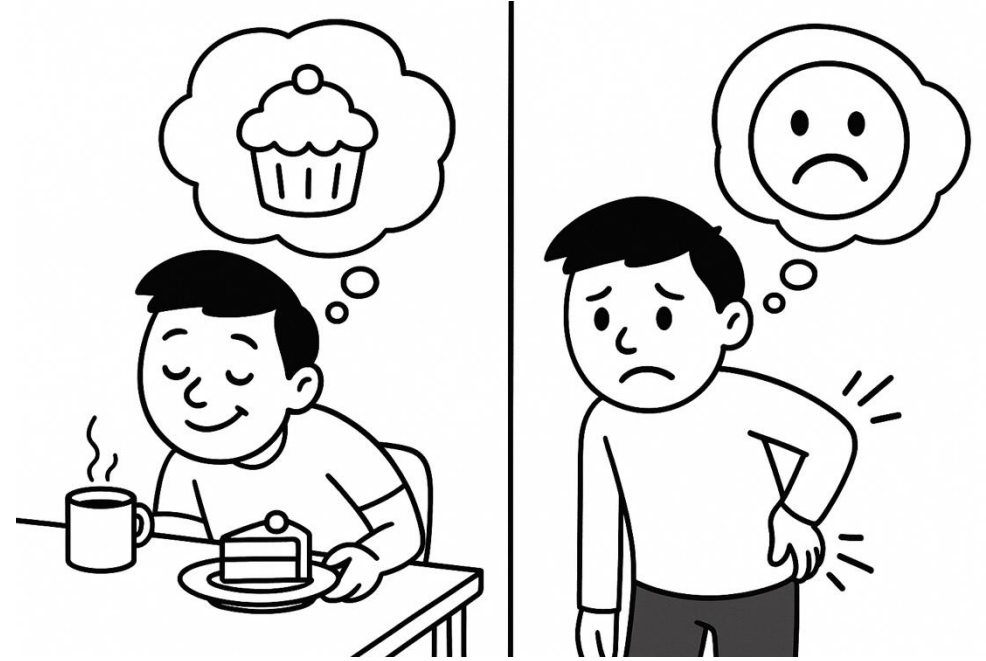
Dual process theory

- The human mind has two systems:
 - **System I**: fast, intuitive, automatic, based on mental shortcuts and reflexive response to common patterns – **but error prone**.
 - **System II**: slow, **conscious, logical, analytical** – **requires mental effort**.
 - ‘Thinking fast and slow’ in Kahneman 2011.
- Transformation programmes are often idealistic and assume everyone is using System II. **In practice, our default is System I.**
- “Steering the brain toward the analytical mode has limited prospects for improving diagnosis” (Dhaliwal, 2024).



Present bias

- *Present bias* is over-valuing immediate reward compared to long-term consequences.
 - Immediate pleasure is preferred to delayed pleasure.
 - More pain later is preferred to small pain now.
 - Meta-analysis: “the literature shows that people are on average present biased for both monetary rewards... and nonmonetary rewards” (Cheung et al., 2021).
- What’s in it for me? (WII4M)



Availability heuristic

- *Availability heuristic* is viewing outcomes as more likely if easily recalled/imagined.
 - People may think shark attacks are a common cause of death if they've read about one, but the incidents are actually very rare.
 - People can easily imagine a kitten or a puppy, but not something "invisible" like efficiency of a business process or the gradual progress of a chronic disease.



Commission bias

- *Commission* bias is the tendency to act rather than not act.
 - Preference for actions with known risk probability over inaction.
 - Preference for ambiguous actions over known probability, especially when framed as loss (Song et al., 2024).
 - Examples: **Board agrees a business case even though they don't really understand it;**
GP prescribes unnecessary antibiotic for child.



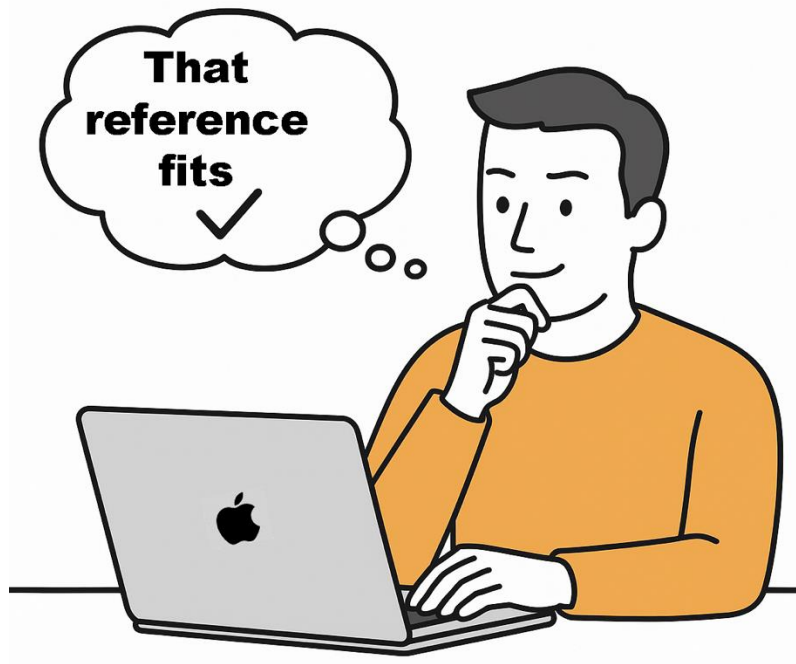
Sludge

- **Things that make doing the right thing laborious and unappealing.**
 - Easily justifies quick, easy, wrong actions.
 - Too much bureaucracy (e.g. levels of approval, handling exceptions, not sharing data).
 - Too many clicks / pages / overrides.
 - Workflow design that ignores cognitive load, bad timing (e.g. shift change, end of day)
- Similar to 'waste' in Lean – is this step *really* necessary or can we skip it?
- **If there is sludge in a transformation, people will avoid it and keep doing the old, wrong, inefficient thing.**



Other cognitive biases...

- Confirmation bias
- Motivated reasoning
- Anchoring heuristic
- Etc
- Etc



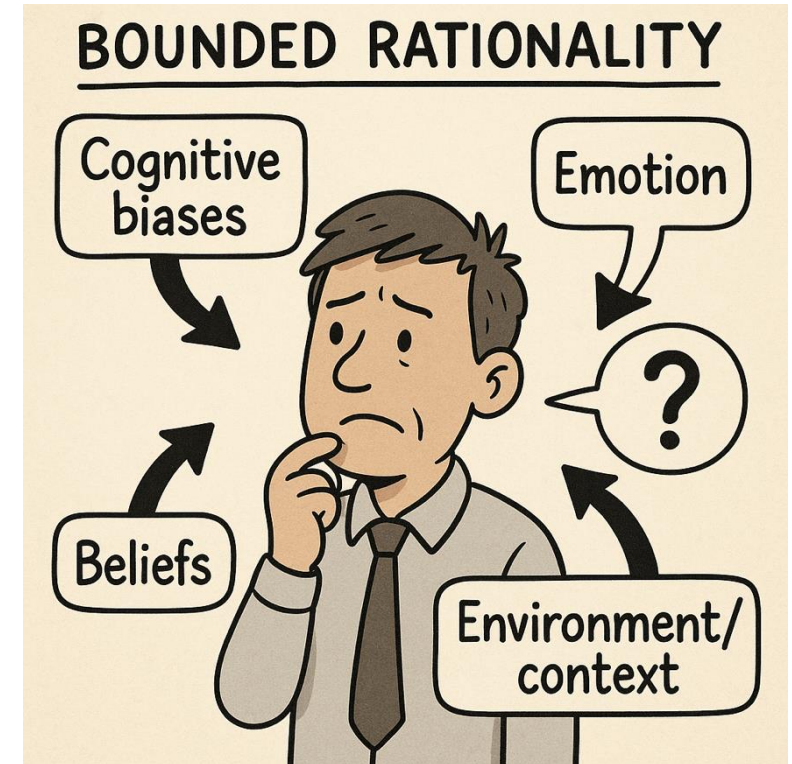
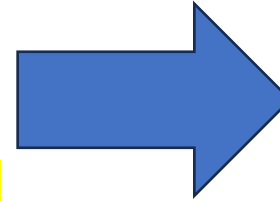
CONFIRMATION BIAS



Bounded rationality

- Humans are not entirely rational!

Bounded rationality means people make decisions with limited thinking power, emotions, beliefs, and surroundings shaping their choices—so they are never fully rational.



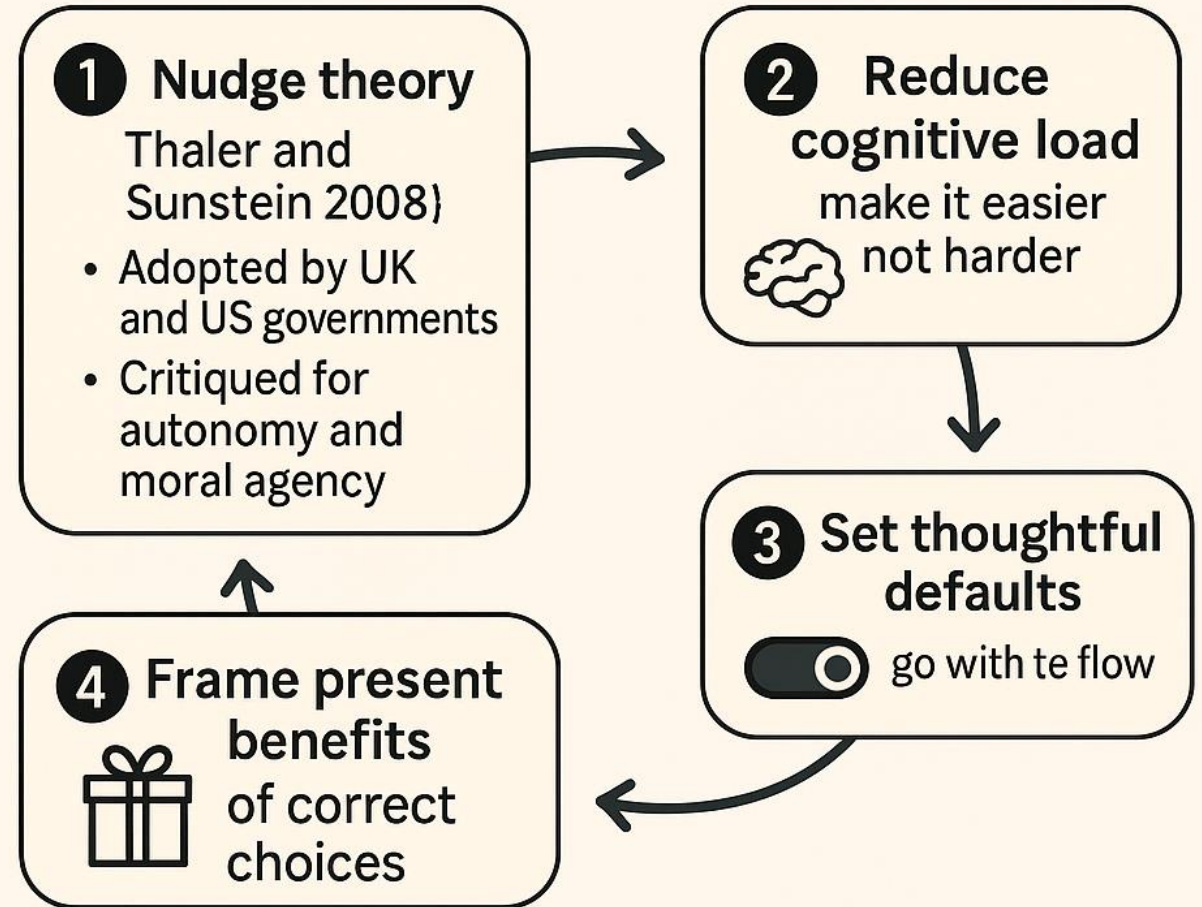
- See also: <https://plato.stanford.edu/entries/bounded-rationality/>

Use choice architecture

- Shape likely behaviour by framing the choices
- Reduce cognitive load of the decision – make it easier not harder.
- *It does not always work: e.g. Fogg's persuasive technology theory **made no difference** to organ donation registration (Nind, 2012).*

INCORPORATE THESE STEPS

Choice architecture



Digital transformation Application Checklist

Avoid idealistic planning: acknowledge and build in ‘bounded rationality’



Choice architecture:
Optimise defaults, make the
right thing the easy thing



Plan for the 80% normal,
not the 20% edge cases
(but don't forget them)



Design and articulate WIIFM
(not vague downstream benefits)



Avoid language that is alien
to the user's routine work
(e.g. 'workflow')



Manage commission bias with
warnings where necessary, but
don't overdo alerts and reminders



Nudge not sludge!

Features that shape behaviour
by how choices are framed

Behavioural economics typologies

A behavioural economics typology just means a structured list of ways behaviour can be influenced — a map of psychological levers.

- MINDSPACE:
<https://www.sciencedirect.com/science/article/abs/pii/S0167487011001668>
- EAST: <https://www.bi.team/publications/east-four-simple-ways-to-apply-behavioural-insights/>

References

- Cheung, S.L., Tymula, A. and Wang, X. (2021) 'Quasi-hyperbolic Present Bias: A Meta-analysis', *SSRN Electronic Journal* [Preprint]. Available at: <https://doi.org/10.2139/ssrn.3909663>.
- Dhaliwal, G. (2024) "This time is different": physician knowledge in the age of artificial intelligence', *BMJ Quality & Safety*, 33(9), pp. 549–551. Available at: <https://doi.org/10.1136/bmjqs-2024-017141>.
- Hodson, N. *et al.* (2024) 'How can a behavioral economics lens contribute to implementation science?', *Implementation Science*, 19(1), p. 33. Available at: <https://doi.org/10.1186/s13012-024-01362-y>.
- Kahneman, D. (2011) *Thinking, fast and slow*. London: Penguin.
- Nind, T. (2012) *Can increasing surface credibility improve e-health intervention effectiveness?* University of Dundee. Available at: <https://discovery.dundee.ac.uk/en/studentTheses/can-increasing-surface-credibility-improve-e-health-intervention-> (Accessed: 1 October 2024).
- Song, F. *et al.* (2024) 'Moral judgments under uncertainty: risk, ambiguity and commission bias', *Current Psychology*, 43(11), pp. 9793–9804. Available at: <https://doi.org/10.1007/s12144-023-05050-w>.
- Thaler, R.H. and Sunstein, C.R. (2008) *Nudge: Improving decisions about health, wealth, and happiness*. New Haven, CT, US: Yale University Press.

Kahneman for foundations; Thaler and Sunstein for practical nudging; Hodson for the integration into healthcare; and Dhaliwal for how this plays out in the age of AI.

Q&A