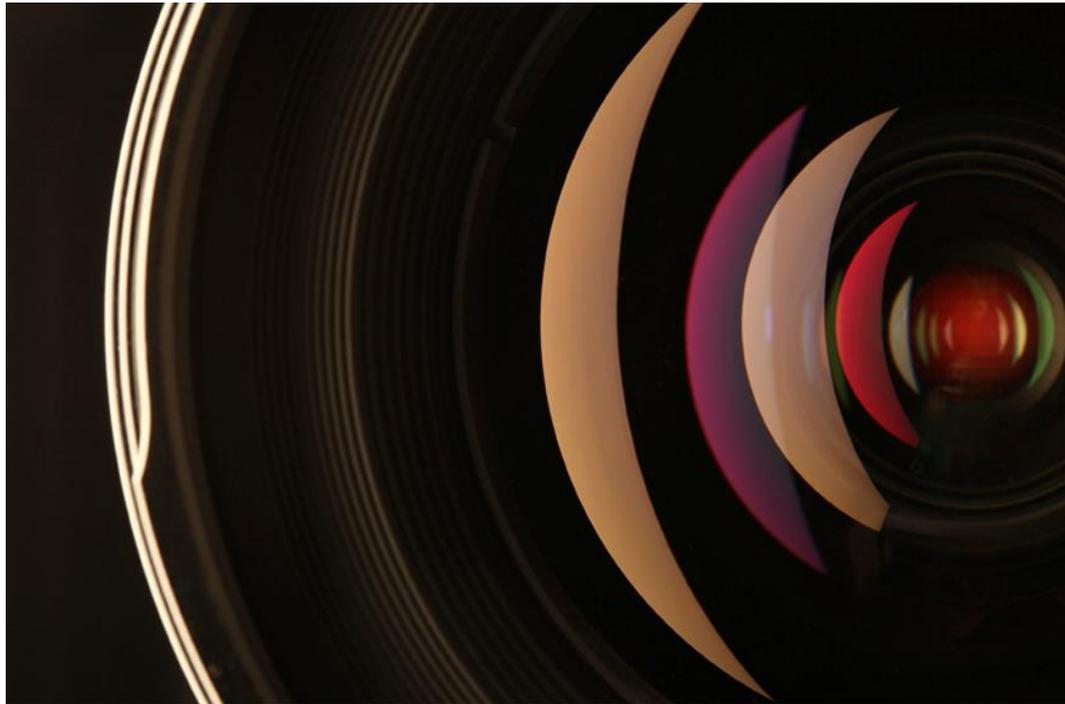


Deloitte.

An approach to designing viable and sustainable telehealth services



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1. Hypothesis

Telehealth is:

- ‘the delivery of health services via remote telecommunications... including interactive consultative and diagnostic services’ U.S. National Library of Medicine, 2013
- Potential benefits of telehealth for Australia are widely recognised DBCDE Digital Regions Initiative, 2012; DoHA NBN Enabled Telehealth Pilots Program, 2012
- Telehealth is becoming embedded in policy and planning Department of Health (Victoria), Victorian Health Priorities Framework 2012–2022: Rural and Regional Health Plan, 2011

but... the adoption of telehealth is slower than it could be, many implementations are localised, idiosyncratic and fragmented, and highly dependent upon a number of inter-related constraints and factors.

Delivery and operation of sustainable telehealth services will be improved by a focus on *holistic design* starting with each individual’s experience.

My question – what does this kind of design look like and how is it done?

2. Which particular 'telehealth'?

Synchronous telehealth is:

- 'The use of videoconferencing technologies to conduct a medical consultation'
- Between a specialist and a patient (who *may* be with a GP/allied health worker, with online information)
- Not intended to replace initial face to face consultations, but can be used to enhance and simplify ongoing specialist services to patients whose access might otherwise be limited. Royal Australasian College of Physicians



Princess Alexandra Hospital Telehealth Centre <http://www.uq.edu.au/coh/pah>

Asynchronous telehealth is:

- The use of remote monitoring technologies by health workers or patients themselves to increase the frequency and continuity of care
- Typically provide self-diagnosis, alerts/alarms, automatic monitoring

Telehealth *at scale* is:

- Embedded within routine clinical services
- Reliable, self-sustaining and expanding.

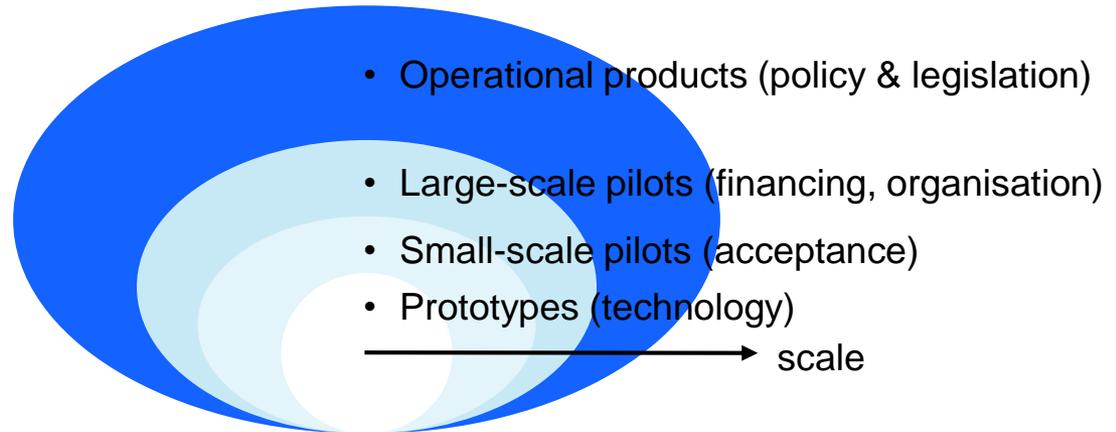


mySmartCare powered by GrandCare Systems®

3. A model of telehealth service implementation

Telehealth implementations:

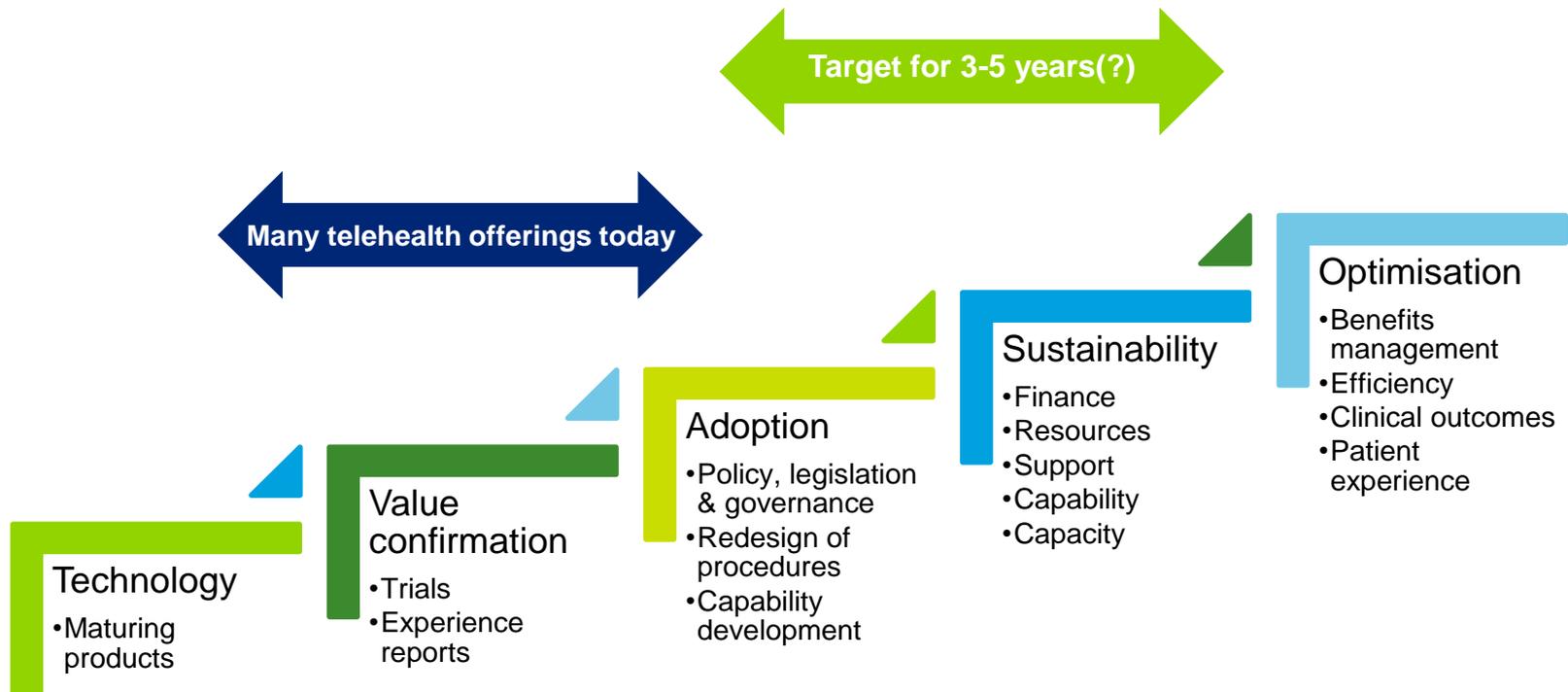
- Start with a technology prototype
- Gain acceptance within a constrained domain
- Get funded to expand the footprint
- Become embedded in operations, practice and policy.



Layered implementation model for telehealth*

* Broens, TH et al. Determinants of successful telemedicine implementations: a literature study, J Telemed Telecare 2007;13(6):303-9.

4. A view of telehealth maturity



5. Considerations for telehealth service designers

Some questions to be considered:

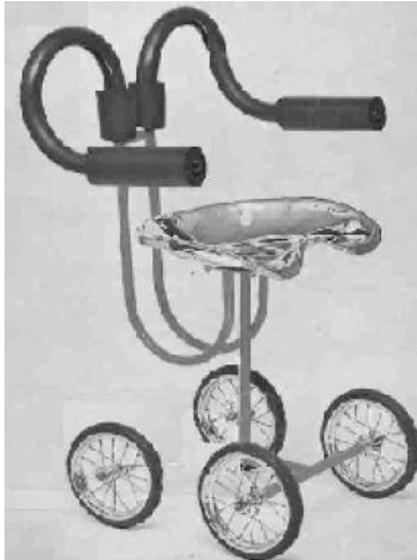
Clinical process	User experience	Resourcing and adoption	Sustainability
<ul style="list-style-type: none">• Are my clinical services suitable for telehealth delivery?• Which parts of the clinical process can be delivered via telehealth?• How will telehealth delivery change the service?• Where are the 'edges' of the telehealth service and do they imply risk?	<ul style="list-style-type: none">• Will my patients engage with a telehealth service offering?• What information will they be required to provide?• What will make them repeat users?• What will 'delight' them about the service?	<ul style="list-style-type: none">• How will appointments, administration, exceptions be handled?• How and when will the service be staffed?• What staff training and support will be required?• What technology investment will be required	<ul style="list-style-type: none">• What regulatory compliance is required?• How will the service be promoted?• What is the projected take-up rate?• Will the service pay for itself?• How will we know that the service has been successful?

Reprise: *What does this kind of design look like and how is it done?*

6. Remember, this is design, not science...

'Design is an intervention that makes the world slightly more suitable for the designer's purposes that it was before' Simon, H.A. (1985). *The Sciences of the Artificial*, MIT Press, Mass.

Design is pragmatic, incremental, iterative, almost never optimal, and sometimes surprising...

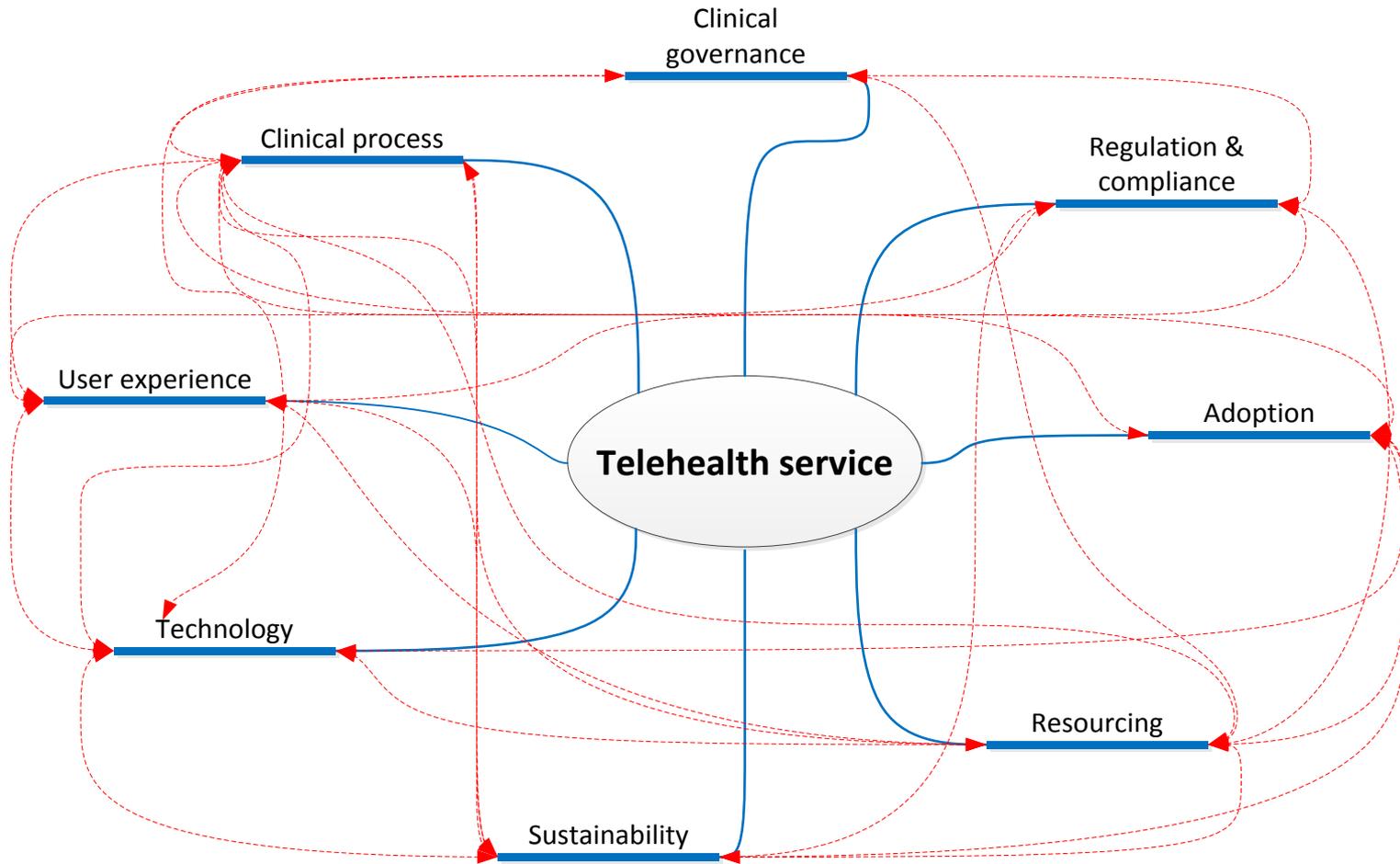


Bricolage design for an office chair by Charles Jencks and Nathan Silver.



Ad hoc resolution of cathedral roof tracery.

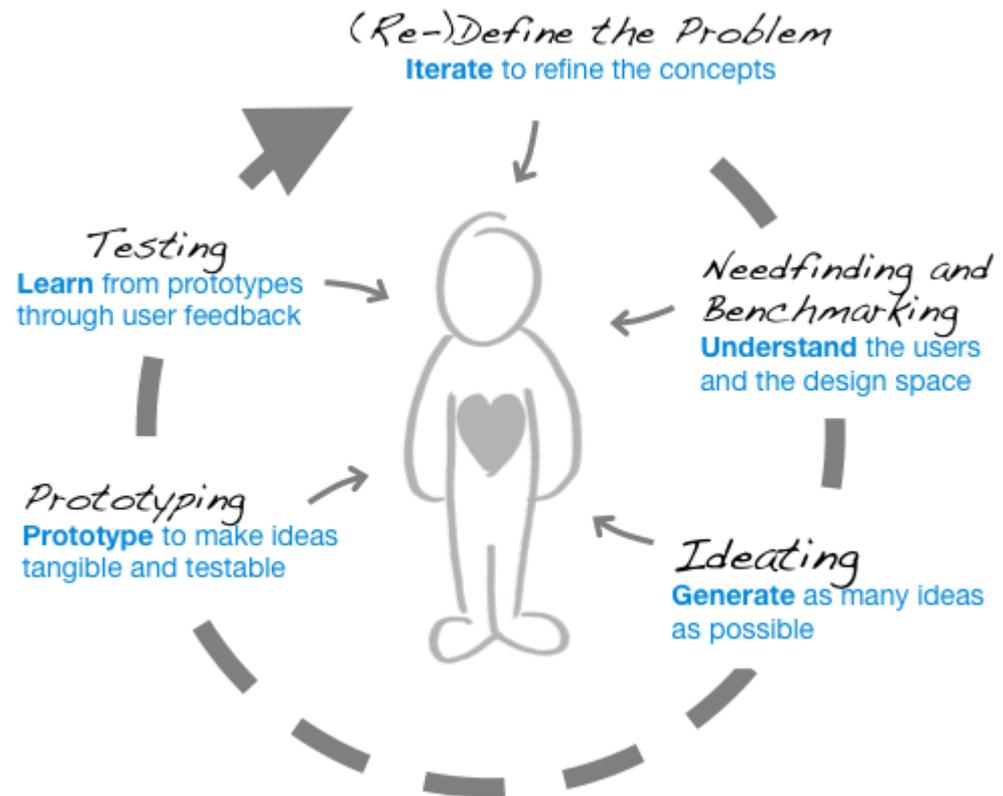
7. Interdependencies everywhere!



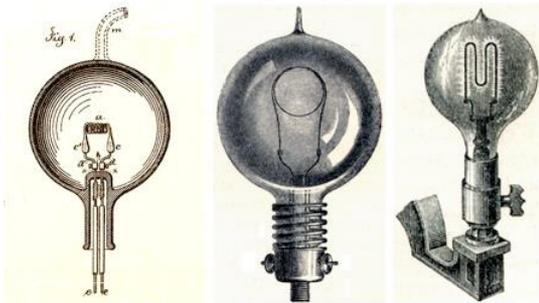
8. Appropriate design approaches – the ‘Design thinking’ cycle

‘Innovation is powered by a thorough understanding, through direct observation, of what people want and need in their lives and what they like or dislike about the way particular products are made, packaged, marketed, sold or supported’.
-- Tim Brown (IDEO) 2008.

‘What now matters is the design and delivery of value. That needs design thinking. That needs creative thinking. Judgment thinking alone is not going to be enough’.
-- Edward de Bono 2003.

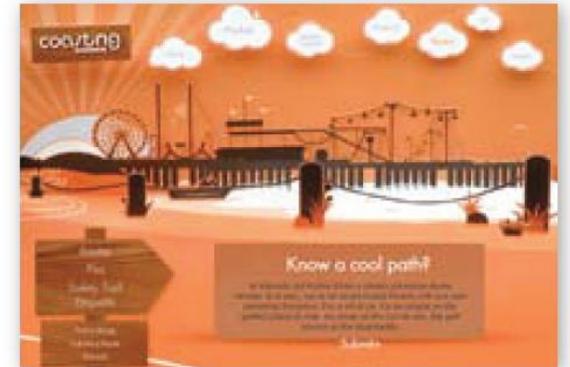
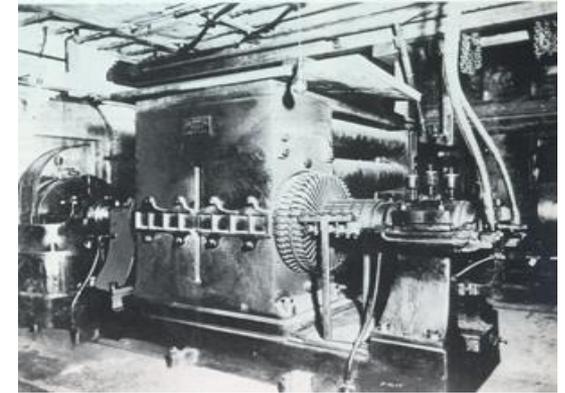
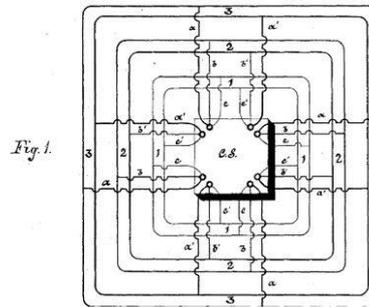


9. Three examples of 'design thinking'



Edison's electric light system.

(No Model.)
T. A. EDISON.
System of Electric Lighting.
No. 239,147. Patented March 22, 1881.



Shimano's 'Coasting' bicycles – prototyping, design for the target audience, supporting infrastructure.

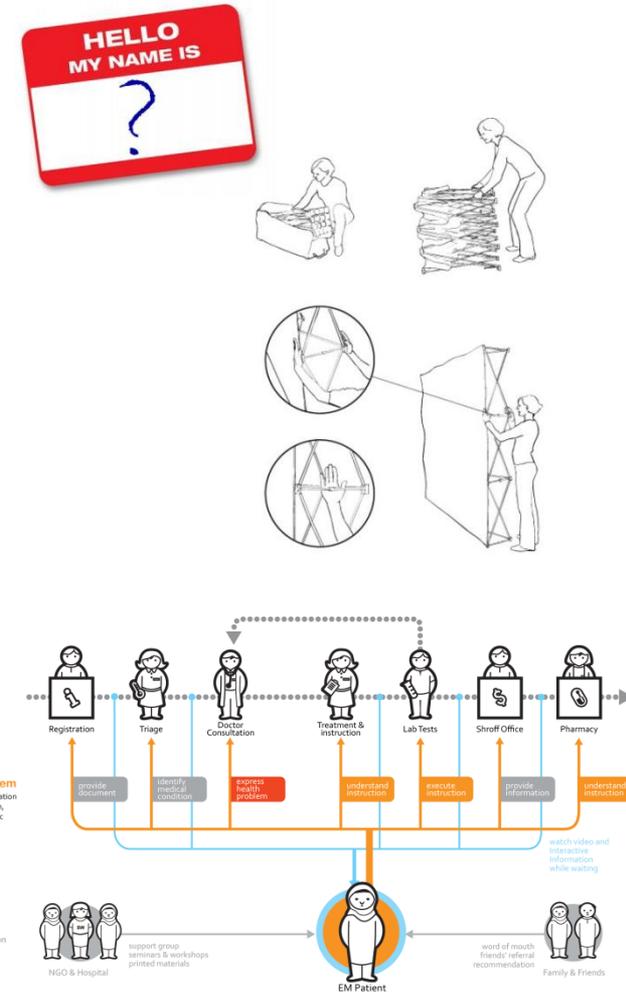


Aravind eye care system.

10. Design approaches – ‘Service design’

Service design is:

- Designing the arrangement and utilisation of people, processes and technologies to improve the quality of the interaction between service provider and customers
- Improves the interface (‘touchpoints’) between service provider and user (patient, clinician)
- Pinpoints inconsistencies, redundant steps, sources of error or frustration
- Goes above and beyond software or device usability to the process or service and its perceived value to the user
- Valuable for rationalising an organisation’s service catalogues.



11. Example of 'Service design'



Our experiences with MYKI Service design workshop

Dharani Perera-Schulz
UX Consultant
Monash University

Nilma Perera
UX Consultant
Monash University

Purchasing Myki

LIKES Opportunity to sign up and receive a free MYKI card when MYKI was first introduced-
Ability to register your card and personalise it-
When the first school term started the bus driver handed out concession MYKI to school students-

DISLIKES Interstate travellers are unable to purchase MYKI from a bus or a tram- MYKI visitor's packs can only be bought at specific locations-

Using Myki - Topping up

LIKES



Ability to top-up your MYKI online just by entering your card number and not having to remember the username and password-

DISLIKES

24hr wait before the MYKI can be used to travel when using the online system to top-up-



Top-up machines in train stations are confusing-

Cannot top-up in buses or trams and it's not easy to find a place to top up your MYKI-

If you don't use the MYKI card for a while, the money in the card gets taken out and you have to reactivate the account-



Using Myki - Touching on and off

LIKES



MYKI is hardy, doesn't bend or tear like the Metcard-

Lost registered MYKI cards are easy to cancel and replace-



DISLIKES

The MYKI system often fails in buses- If you cannot touch off in the bus, the users have to travel to the nearest train station-

There are 3 different beeps when you touch the card- Hard to work out what each beep means-

If the MYKI is in the wallet sometimes it can touch on or off if you bump into a card reader-

Having to touch on and off at every leg of the journey is annoying-

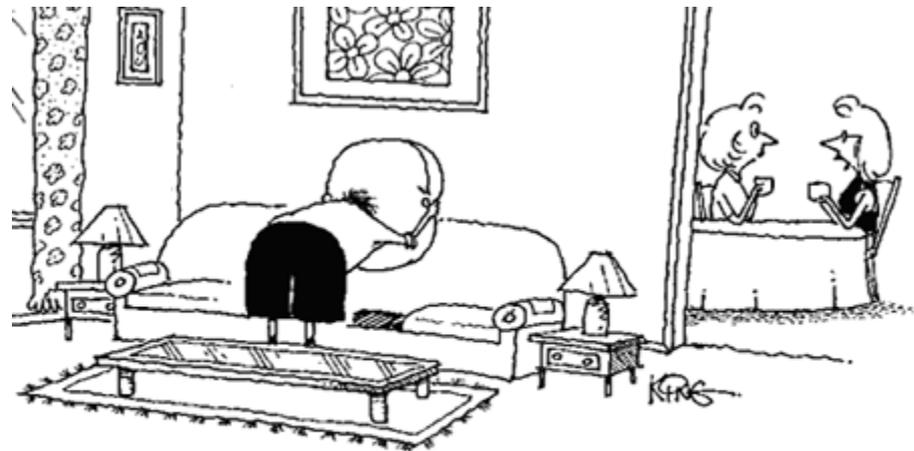
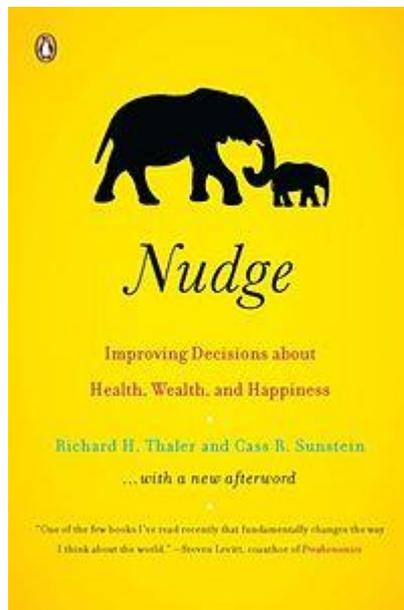


The text indicating the travel fare and balance is too small and clears out before you can read all the information-

12. Design approaches – ‘Behavioural economics’

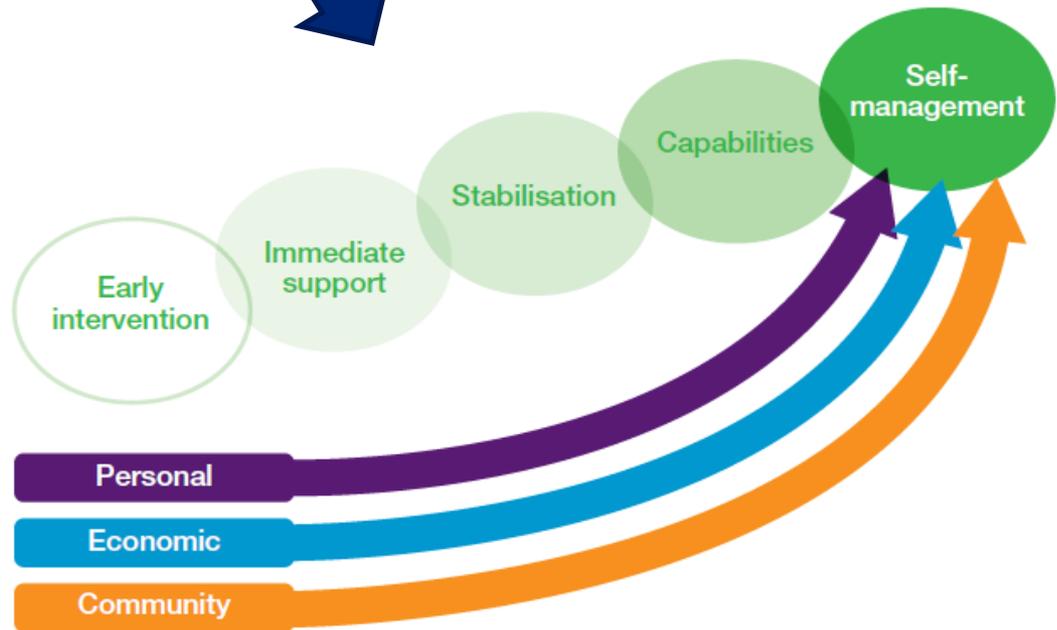
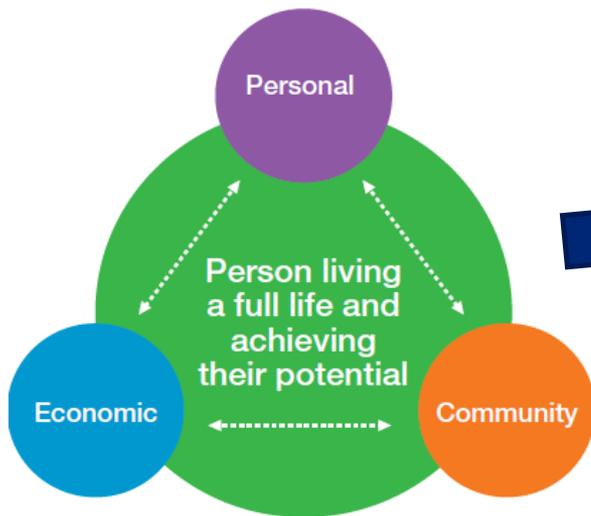
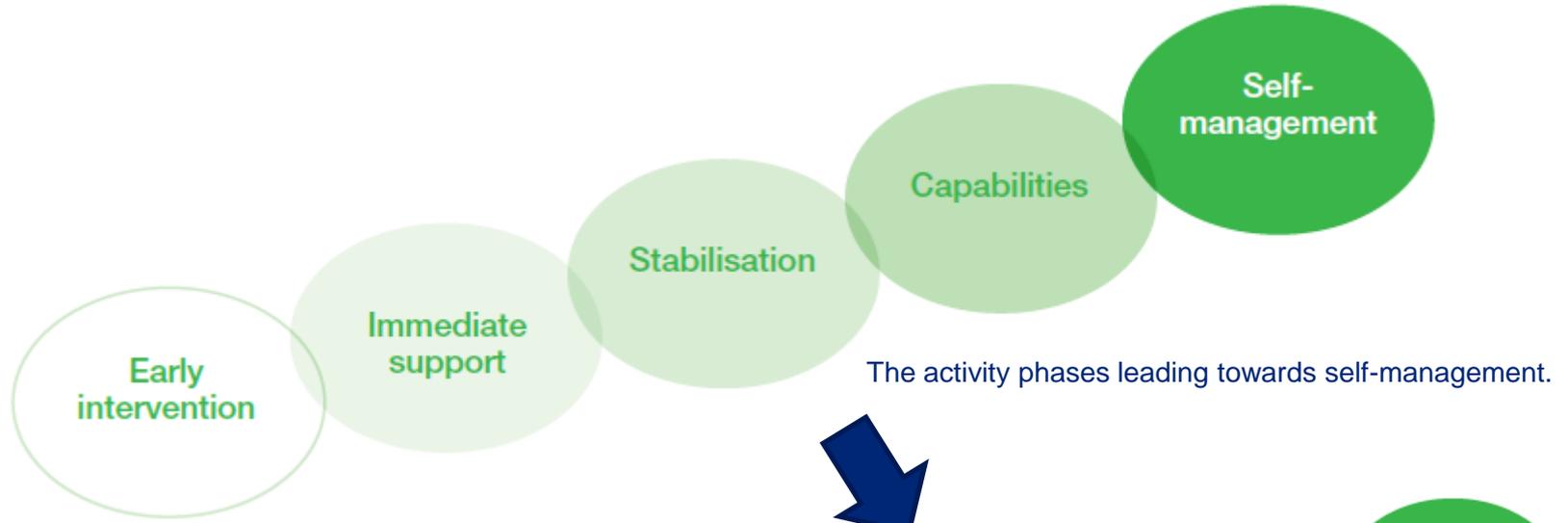
We are not rational decision-makers:

- People make more decisions reactively and in-the-moment than analytically, drawing on arbitrary factors – product packaging, convenient access, simplicity or brand familiarity – as the primary basis of choice
- People respond to being ‘nudged’ -- ‘Choice architects’ select options and defaults for the desired outcomes, such as setting savings plan enrolment and risk profile defaults to ‘on’ and ‘conservative’ or placing healthy food options at eye-level.



The doctor said he needed more activity. So
I hide his T.V. remote three times a week.

13. Service delivery redesign – OneDHS (Victoria)



An integrated approach will address the personal, economic and community aspects of a person's life.

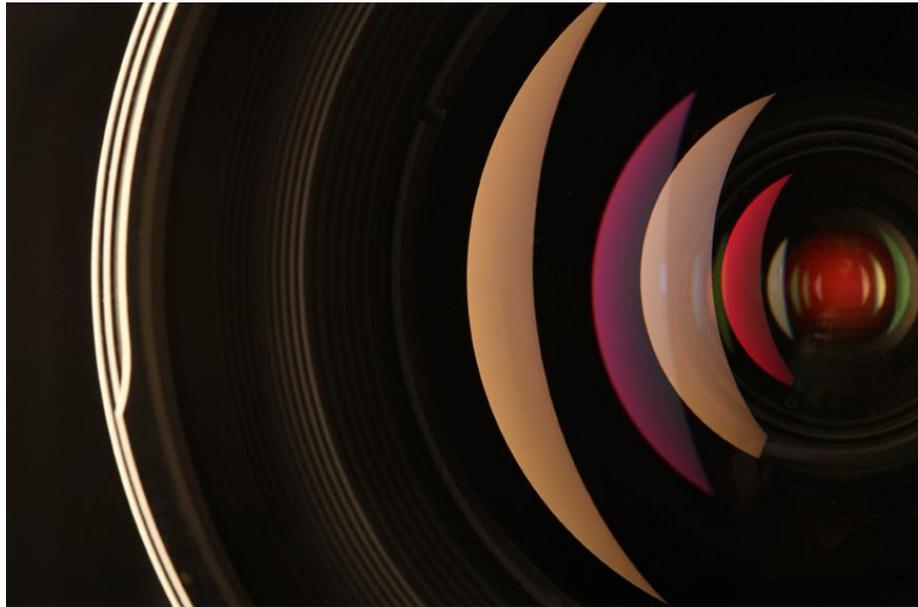
An integrated approach that will enable staff to achieve long term outcomes for clients.

15. Where to from here?

In summary:

- Successful telehealth services are planned interventions in complex socio-technical systems
- The expectations and patterns of behaviour between clinicians, patients and carers is critical
- Telehealth projects need a dose of holistic design thinking
- These approaches will improve the design of telehealth services and should also help telehealth project champions to avoid misconceptions that might lead to expensive or unwanted outcomes.

Let's continue the discussion...



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Twitter: @prt459 #telehealth #designthinking
#systemsthinking #servicedesign