An approach to designing viable and sustainable telehealth services

Paul R. Taylor, PhD

Deloitte Life Sciences and Healthcare, Melbourne, Australia.
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, idiomatic 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

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.
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:

- Operational products (policy & legislation)
- Large-scale pilots (financing, organisation)
- Small-scale pilots (acceptance)
- Prototypes (technology)

4. A view of telehealth maturity

Many telehealth offerings today

Target for 3-5 years (?)

Technology
- Maturing products

Value confirmation
- Trials
- Experience reports

Adoption
- Policy, legislation & governance
- Redesign of procedures
- Capability development

Sustainability
- Finance
- Resources
- Support
- Capability
- Capacity

Optimisation
- Benefits management
- Efficiency
- Clinical outcomes
- Patient experience

Many telehealth offerings today
5. Considerations for telehealth service designers

Some questions to be considered:

<table>
<thead>
<tr>
<th>Clinical process</th>
<th>User experience</th>
<th>Resourcing and adoption</th>
<th>Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Are my clinical services suitable for telehealth delivery?</td>
<td>• Will my patients engage with a telehealth service offering?</td>
<td>• How will appointments, administration, exceptions be handled?</td>
<td>• What regulatory compliance is required?</td>
</tr>
<tr>
<td>• Which parts of the clinical process can be delivered via telehealth?</td>
<td>• What information will they be required to provide?</td>
<td>• How and when will the service be staffed?</td>
<td>• How will the service be promoted?</td>
</tr>
<tr>
<td>• How will telehealth delivery change the service?</td>
<td>• What will make them repeat users?</td>
<td>• What staff training and support will be required?</td>
<td>• What is the projected take-up rate?</td>
</tr>
<tr>
<td>• Where are the ‘edges’ of the telehealth service and do they imply risk?</td>
<td>• What will 'delight' them about the service?</td>
<td>• What technology investment will be required</td>
<td>• Will the service pay for itself?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• How will we know that the service has been successful?</td>
<td></td>
</tr>
</tbody>
</table>

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!

Telehealth service
User experience
Clinical process
Sustainability
Regulation & compliance
Adoption
Resourcing
Technology
Clinical governance
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.

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’

**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 - Toping 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.
- 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.
- Top-up machines in train stations are confusing.

**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 workout 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.
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.
14. Towards a telehealth service design method

http://uk.service-design-network.org
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…

Email: pautaylor@deloitte.com.au
Twitter: @prt459 #telehealth #designthinking #systemsthinking #servicedesign