

Putting digitalization for care in context

Embracing complexity



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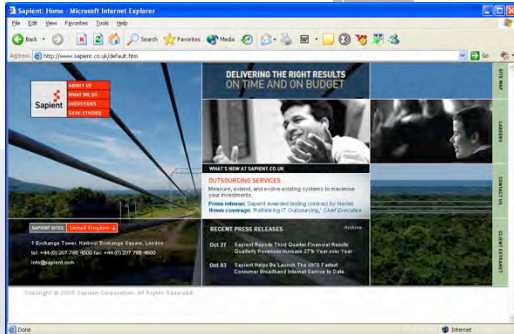


TEAM
Technology Enabled Mental Health

eHealth

Participatory
Design

Human Computer
Interaction



Midwives given admitting rights at Mater Mother's

By Michael Toal

A group of Brisbane independent midwives has embarked on a campaign against what they say is a medical monopoly in the care of pregnant women, new mothers, and their babies.

The group, comprising Jenny Gamble, Geraldine Fitzpatrick, Jenny Fenwick, and Sally McCrae, are the only "independent" midwifery practitioners in the State to have gained admitting rights and visiting privileges to a major maternity institution.

The Mater Mother's Hospital in South Brisbane provides the option of private midwife care for patients.

While obstetric nurses are employed in all maternity institutions, they do not provide the same continuation of care throughout pregnancy, birth and

tertiary dedicated midwife care," she said. "There needs to be more independent midwives in hospitals, and health funds should offer rebates for midwife care."

Ms Fitzpatrick said independent midwives were further restricted in their work because they did not have prescribing rights, which remain solely with doctors.

Australian Medical Association spokesman, obstetrician Dr David Molloy said doctors had no argument against the principles of midwifery, and in fact considered midwives an integral part of the medical profession.

"Midwives play a very important role which can't be fulfilled by the doctor, however they shouldn't be solely responsible for decision making in patient care," said Dr Molloy.

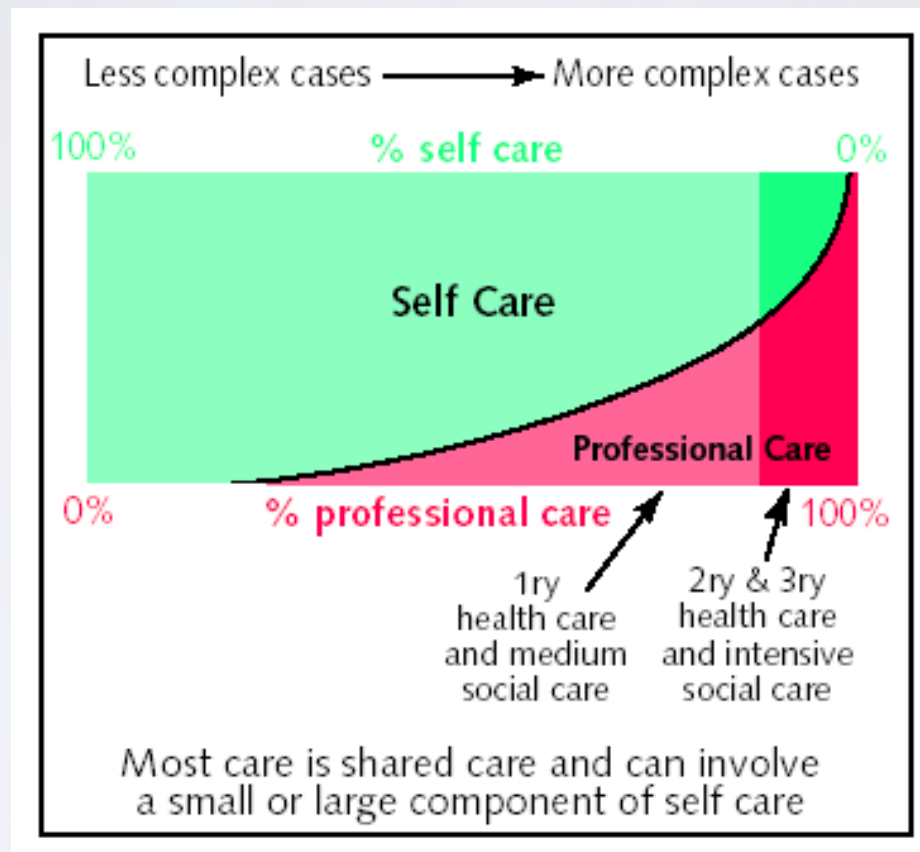
"Mothers and their babies




Healthcare – complex multi-dimensional space

At home

Informal
care network



In hospital

Professional
care network

Increasing costs, aging population, chronic disease burden

Digitalization as enabler



Health & well being Ambient Assisted Living (AAL) Electronic records

Telecare eHealth Telemedicine

Personal Health Records (PHR)

Digitalization Discourses

Conflicting but overlapping assumptions, values, world views:

- **Modernist** (technology-focused, futuristic, utopian)
- **Humanist** (person-centred, small-scale, grounded in present reality)
- **Political economy** (critical, cautious)
- **Change management** (recognising complicatedness but not conflict)

[Greenhalgh et al, 2012]

Key messages

1. Increasing pressures on health care delivery

- Digitalization as the key enabler – *modernist/utopian, political*

2. Limited success and evidence base very mixed

- Despite substantial investment in health IT

3. Critical issues beyond just the technology

- *Humanist & change management* issues
- Studies of health IT in use repeatedly point to e.g., organisational, cultural, professional, work practice issues

4. Raises new challenges

- For how IT is designed/procured, integrated into use, and evaluated

⇒ Need a more holistic realistic view ... beyond 'determinants'

⇒ More effective inter-stakeholder dialogue & accommodating all discourses



Digitalization of health records

Electronic Health Record Initiatives

1960s Dr Lawrence Weed - PROMIS project



1961 electronic medical records

<https://www.youtube.com/watch?v=t-aiKllc6uk>

'Maturing' Electronic Health Record Initiatives

From small scale – pilots & localised initiatives:

- 1960s Dr Lawrence Weed - PROMIS project

To large scale national agendas:

- **Australia:** 2001 National eHealth Project -> HealthConnect
- **Canada:** 2001 Canada Health Infoway 2001 CAD\$2.1 billion
- **UK:** 2002 National Programme for IT -> Connecting for Health £12-14bill
- **US:** ~2008 Nationwide Health Information Network; \$20 billion to digitize health system
- **Austria:** 2015 implementation of ELGA into public hospitals

UK Politicians' view in 2002 – EPRs for all by 2005!

– set at Downing Street meeting (Tony Blair) 18 Feb 2002

- **Patient** by 2004/5:
 - receive telecare at home
 - access my own electronic records
 - book appointments convenient for me (and get reminders)

- **Doctor**, by 2004/5:
 - EPRs will enable clinical data online & results reporting
 - prescribe drugs using computer support
 - save 30 mins/day
 - use patient summaries from EPRs eg for emergency care


Abandoned NHS IT system has cost £10bn so far

Bill for abortive plan, described as 'the biggest IT failure ever seen', was originally estimated to be £6.4bn

the **guardian**

Rajeev Syal

The Guardian, Wednesday 18 September 2013

 [Jump to comments \(](#)

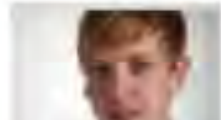
An abandoned NHS patient record system has so far cost the taxpayer nearly £10bn, with the final bill for what would have been the world's largest civilian computer system likely to be several hundreds of millions of pounds higher, according a highly critical report from parliament's public spending watchdog.



The public accounts committee found that new regional IT systems for the NHS are

Australia's 'struggling' e-health records under review

Summary: *The Australian government has announced an inquiry into the rollout of the AU\$1 billion e-health record system implemented under the former government.*



By [Josh Taylor](#) | November 3, 2013 -- 22:13 GMT (14:13 PST)

Labor's e-health 'scandal' cost \$1bn

FINANCIAL REVIEW

Joanna Heath

Online Political Correspondent

Updated Nov 4, 2013 — 6.18am,
first published at 12.07am

Health Minister Peter Dutton has launched an inquiry into the former Labor government's e-health records system, after what he described as a poor take-up by doctors and patients.

Elga ist für 70 Prozent der Spitalsärzte ohne Mehrwert

6. Dezember 2018, 13:57

DERSTANDARD › Arzt und Patient

Die Ärztekammer zieht eine durchwachsene Zwischenbilanz zu Elga und fordert mehr Benutzerfreundlichkeit, Vollständigkeit und Suchfunktion

Wien – 70 Prozent der Spitalsärzte nehmen die Elektronische Gesundheitsakte (Elga) als wenig hilfreich wahr. Sie sehen darin keinen Mehrwert. Dieses Umfrageergebnis präsentierten die Vizepräsidenten der Österreichischen Ärztekammer (ÖÄK) Harald Mayer und Johannes Steinhart sowie Dietmar Bayer, Referent für medizinische Informatik der ÖÄK, bei einer Pressekonferenz am Donnerstag.

Verbesserungspotenzial orten die Ärztevertreter insbesondere bei der Benutzerfreundlichkeit, der Vollständigkeit und der Schnelligkeit der Datenbank. Außerdem fordern sie eine Suchfunktion und eine Vereinfachung der IT-Strukturen. Die fehlende Benutzerfreundlichkeit Sorge derzeit dafür, dass die Elektronische Gesundheitsakte den Ärzten eher Zeit kostet als spart. "Wir haben noch immer keine zeitgemäße Usability. Ich werde von einer Reihe von PDF-Dateien erschlagen", sagte Mayer. Die benötigten Informationen seien oft nicht zu finden, für das Durchlesen sämtlicher Dokumente fehle die Zeit.



BOTCHED OPERATION

Death By 1,000 Clicks: Where Electronic Health Records Went Wrong

The U.S. government claimed that turning American medical charts into electronic records would make health care better, safer, and cheaper. Ten years and \$36 billion later, the system is an unholy mess. Inside a digital revolution that took a bad turn.

By Fred Schulte and Erika Fry, *Fortune* • MARCH 18, 2019

(The Voorhes for *Fortune*)

A politician's view in 2007...



“...my thinking was that people in the health system were at least as capable as those in the finance system.

If eftpos could **link billions of bank accounts and financial institutions** around the world, it should **surely be possible for every Australian patient's file** to be copied, indexed, stored and securely made available to the patient and authorised treating professionals via the internet.

In retrospect, I had **underestimated the difficulty ...”**

*[Tony Abbott - 2007 Speech '[An e-Health Report Card](#)']
(prev Health Minister/Opposition Leader; now Prime Minister)*

A politician's view in 2017...

“The fact that there are still just mountains of paperwork...

We put a big slug of money into trying to encourage everyone to digitalize, to catch up with the rest of the world ...

that's been **harder than we expected....**”

[Barack Obama – Jan 2017 interview with Vox]

Key reasons

Issues:

- Workflow issues
 - Complexity of work, multiple stakeholders, not understood
 - Poor fit to clinical work tasks
 - Adding additional work, work-arounds
 - Taking time away from the patient
- Usability issues
- Lack of integration, interoperability
- ...

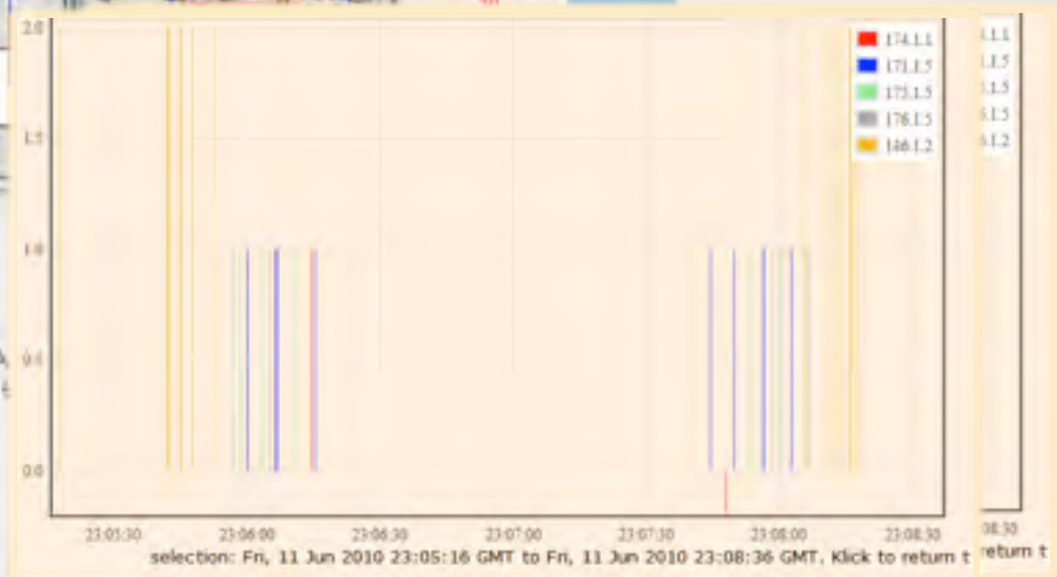
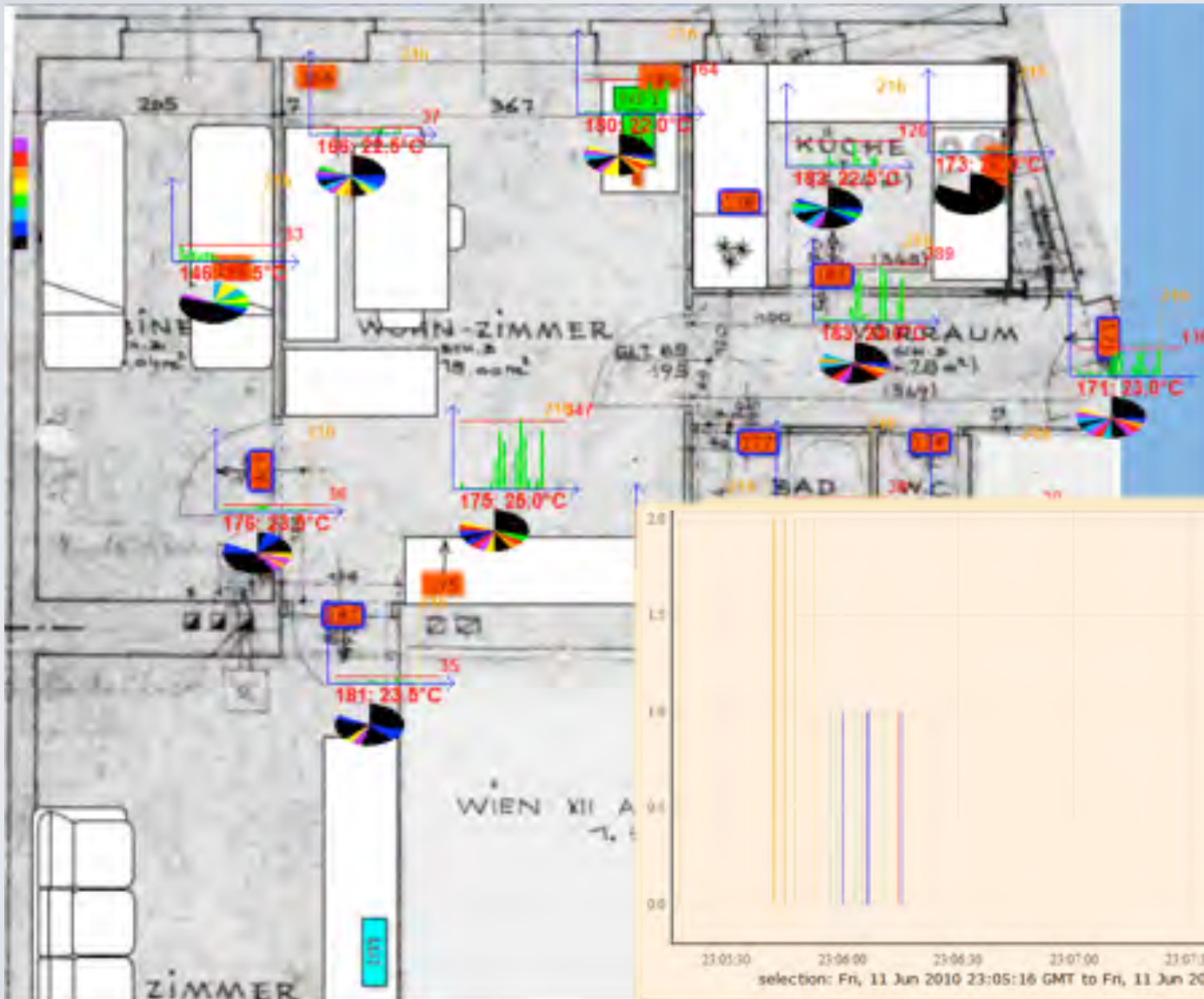
Impacts:

- Increasing burnout among hospital staff in large part contributed to by EHRs
- Patient harm/deaths due to computer errors
- ...



Digitalization for aging care

Bringing 'care' into the home



Förderungen suchen.

- Thema -

- Zielgruppe -

- nationale Förderung
- internationale Förderung

Förderungen suchen

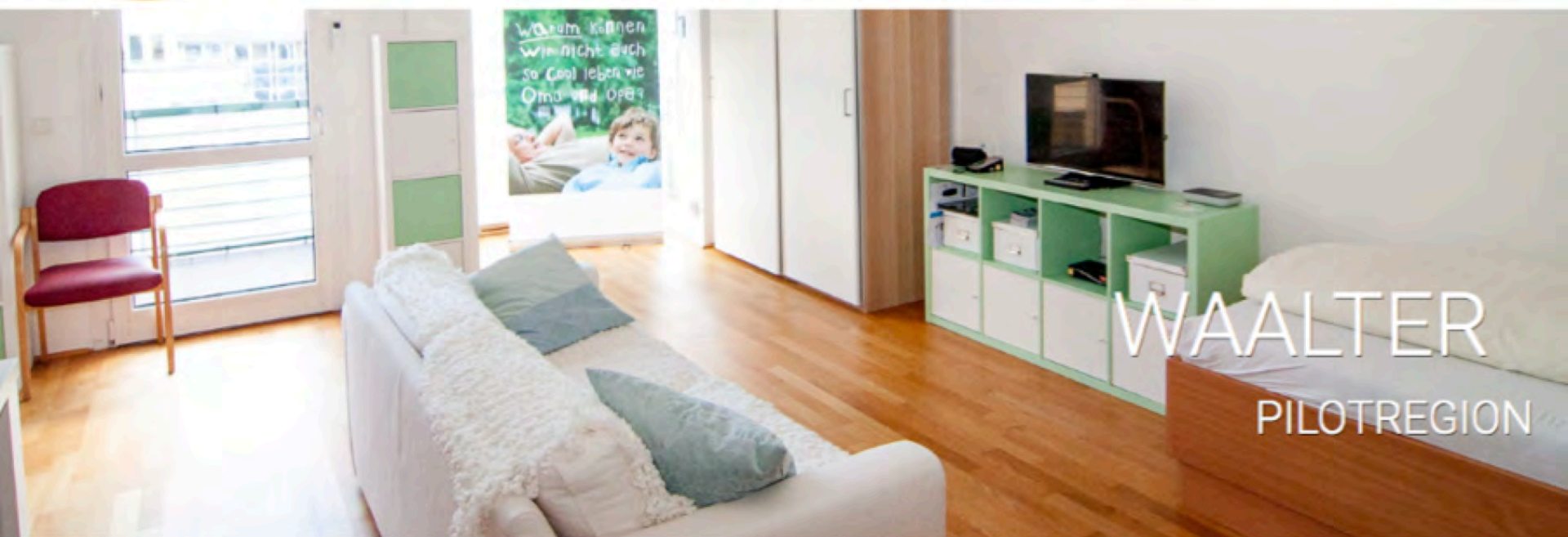
benefit - Demografischer Wandel

Intelligente Technologien für ältere Menschen
benefit



[Info](#) [Details](#) [Kontakt](#) [Ausschreibung](#) [Links & Downloads](#)

Im Fokus steht die Entwicklung von Produkten und Dienstleistungen auf der Basis von Informations- und Kommunikationstechnologien. Durch diese innovativen Entwicklungen wird die Lebensqualität älterer Menschen, ihre Selbständigkeit, Sicherheit und ihr Wohlbefinden gesteigert. Vor allem ein möglichst langes und selbständiges Leben im privaten Umfeld soll gewährleistet sein. Um eine hohe Anwendbarkeit und Akzeptanz der geförderten Produkt- und Dienstleistungsentwicklungen zu garantieren, werden die späteren End-AnwenderInnen in die geförderten Forschungs- und Entwicklungsprojekte miteinbezogen.

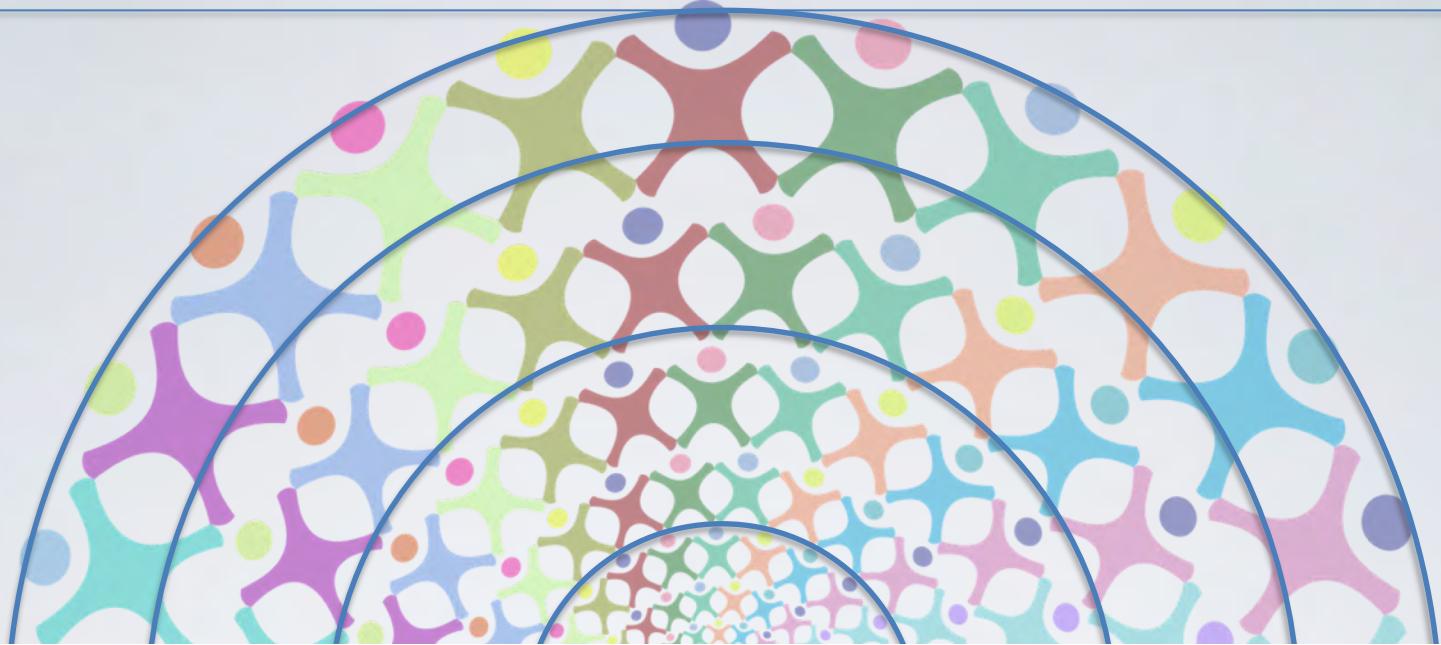


WAALTER
PILOTREGION

KURZINFORMATION

Die Wiener AAL TestRegion „WAALTeR“ setzt bei demografischen und gesundheitspolitischen Herausforderungen an und verbindet die allgegenwärtige Digitalisierung des Alltags mit den Anforderungen aktueller Wiener Konzepte.

Um älteren Menschen ein selbstbestimmtes Leben im gewohnten Umfeld mit hoher Lebensqualität zu ermöglichen, entwickelt WAALTeR Servicepakete, die auf



Fit to everyday life?



The context of real homes



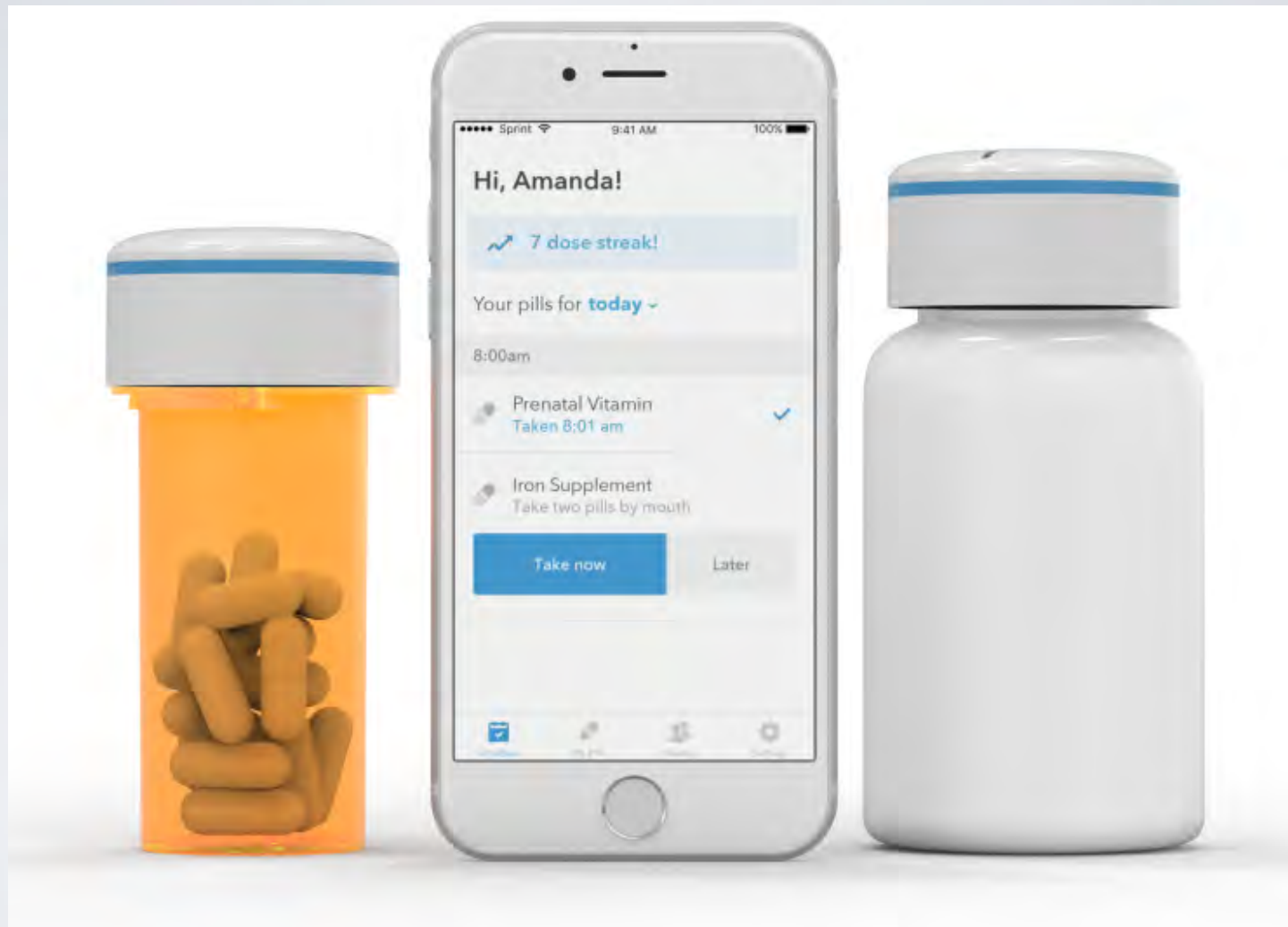
Smart home brochure

Microsoft's smart kitchen



80 yr old Sam's kitchen

Managing medications

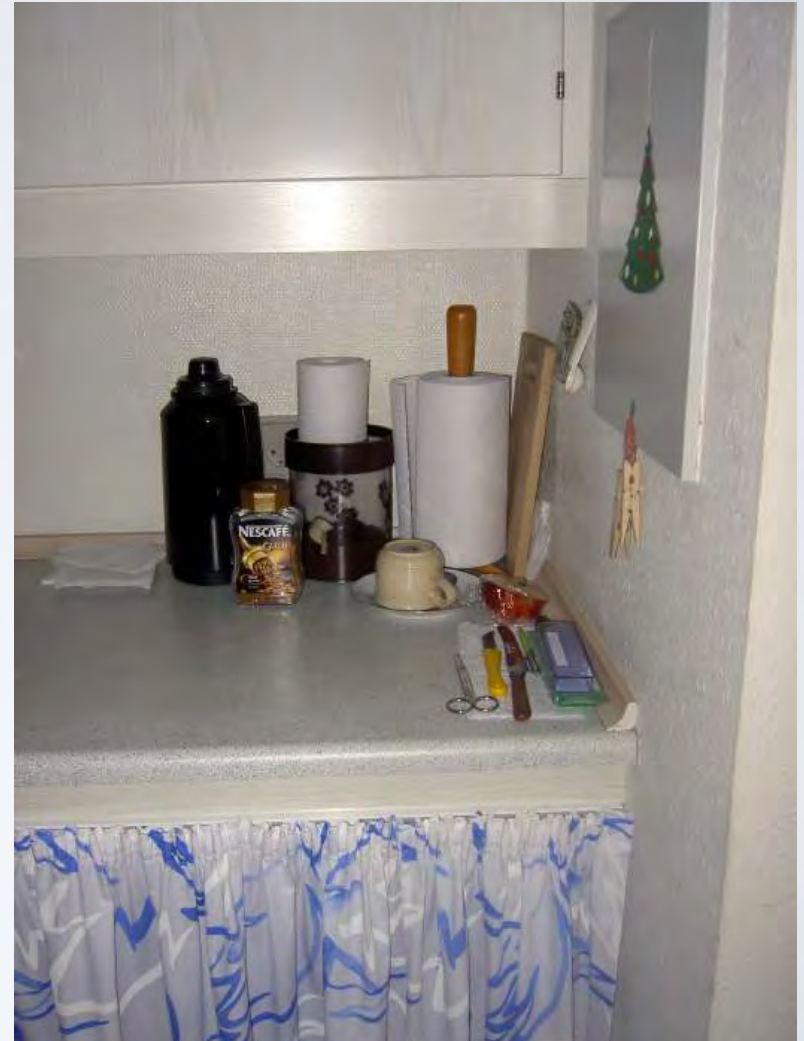


e.g., Pillsy

<http://mentalfloss.com/article/500535/smart-pill-cap-helps-you-remember-take-your-meds>

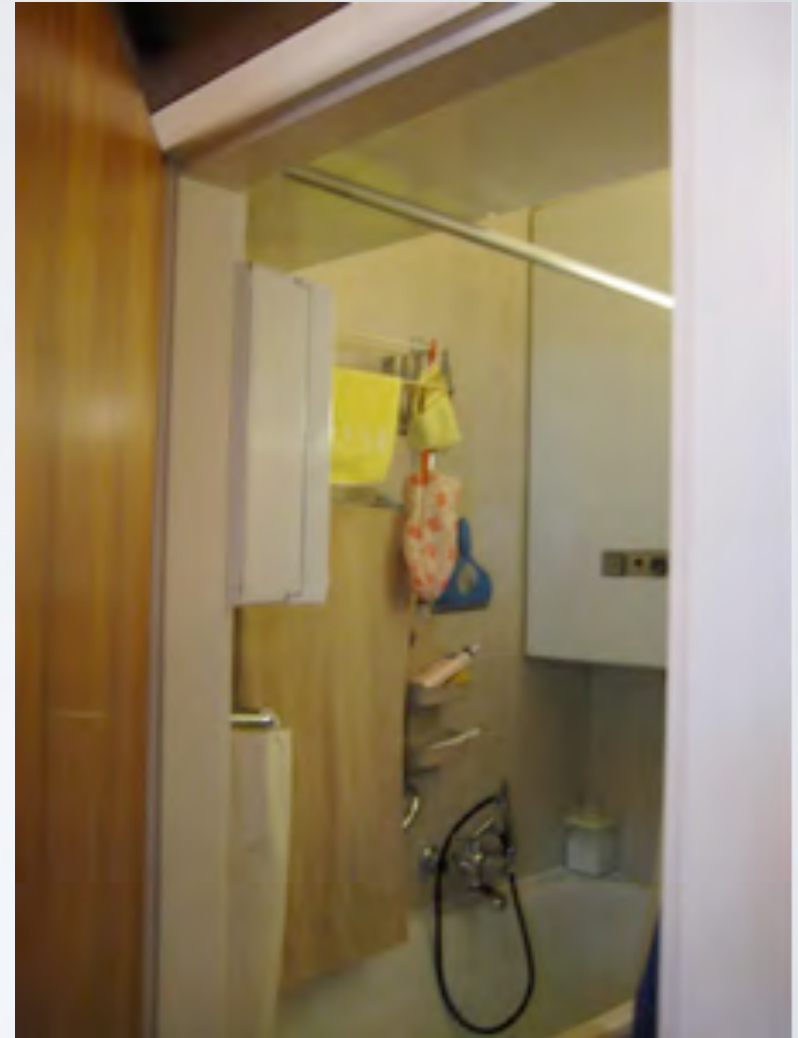
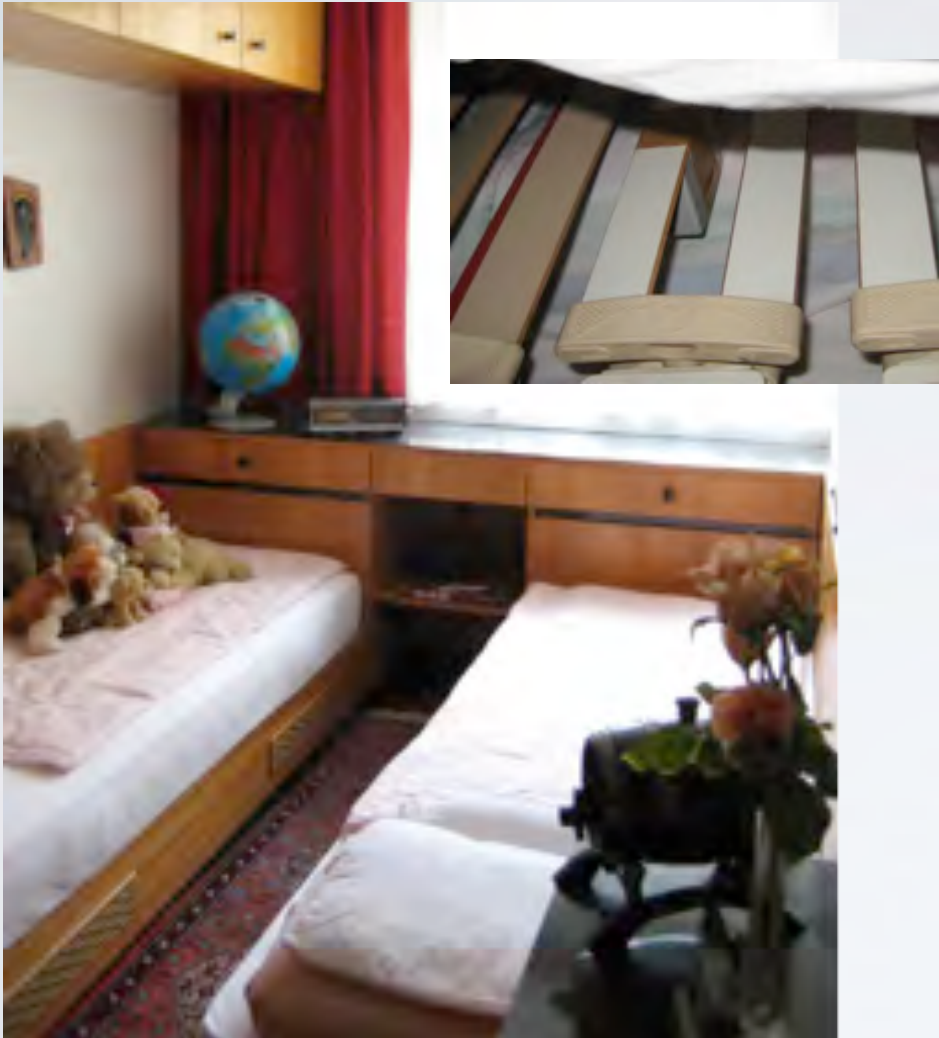
Everyday strategies in context

Medication management



[Photos courtesy of Stinne Aaløkke Ballegaard]

Sensing, autonomy, identity

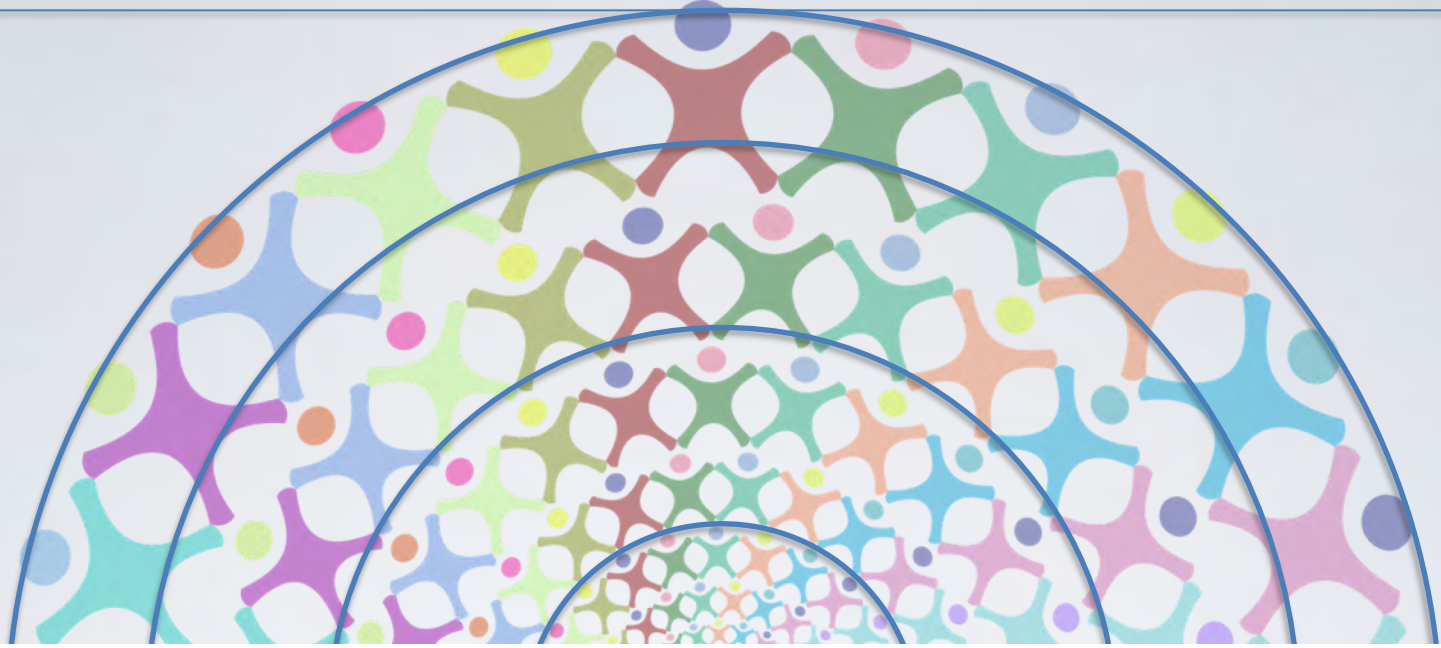




“Not for me!”

Limited uptake

[eHome project & AAL generally]



Who are the technologies for?



Man vs. Smart House: A Cautionary Tale

Noémie Jennifer — Jul 6 2015



<http://superflux.in/index.php/work/uninvited-guests/#>

(Re-)thinking values around aging, care, home ... 'patient/user'

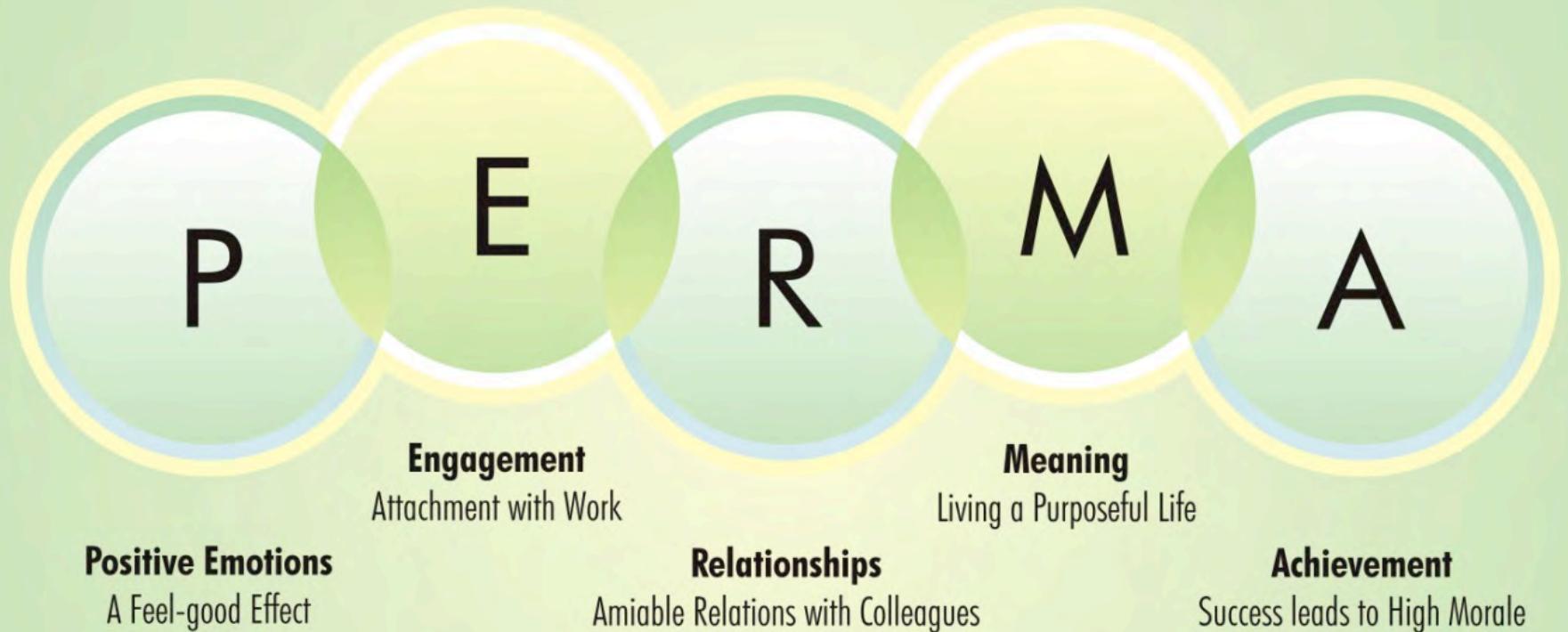


More holistic notions of well-being

e.g.

PERMA Model

[Seligman, 2012]



[Later versions add 'H' for physical health]

The background features a repeating pattern of stylized human figures in various colors (red, green, blue, orange, purple, yellow) arranged in a circular, interconnected manner. This pattern is overlaid with several concentric blue circles that create a sense of depth and focus.

Digitalization & Transformation

Ongoing co-evolution

System challenges to trial AAL

Negotiate a new partnership between health & local authority:

“**detailed flowcharts** to identify key activities, responsibilities and timings ...;

training materials for staff and patients;

shared forms to capture data

shared spreadsheets to ensure there are no gaps in service delivery

technology-related data to ensure that its location and condition (installed & in use/in stock/unavailable - awaiting cleaning) are known...

methods to address requirements for routine portable appliance (PAT) testing ... and the safe installation of the technology”



Evaluation challenges

- Complex socio-technical-organizational-political interventions
- Ongoing appropriation and adaptation in use
 - Working out new roles, processes, clinical information through trial and use...
- Limits of RCTs
- No one size fits all - Realist evaluations?
 - what works for whom under what circumstances etc

Essay

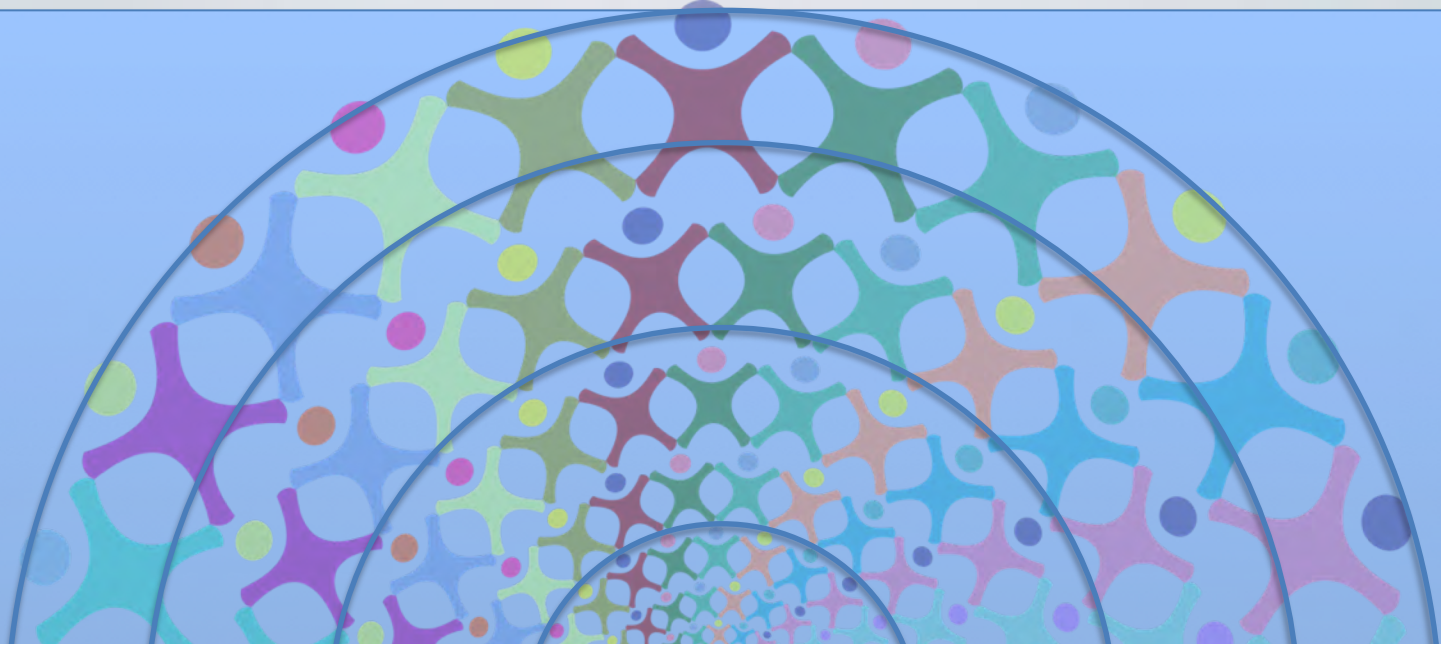
Why Do Evaluations of eHealth Programs Fail? An Alternative Set of Guiding Principles

Trisha Greenhalgh^{1*}, Jill Russell²

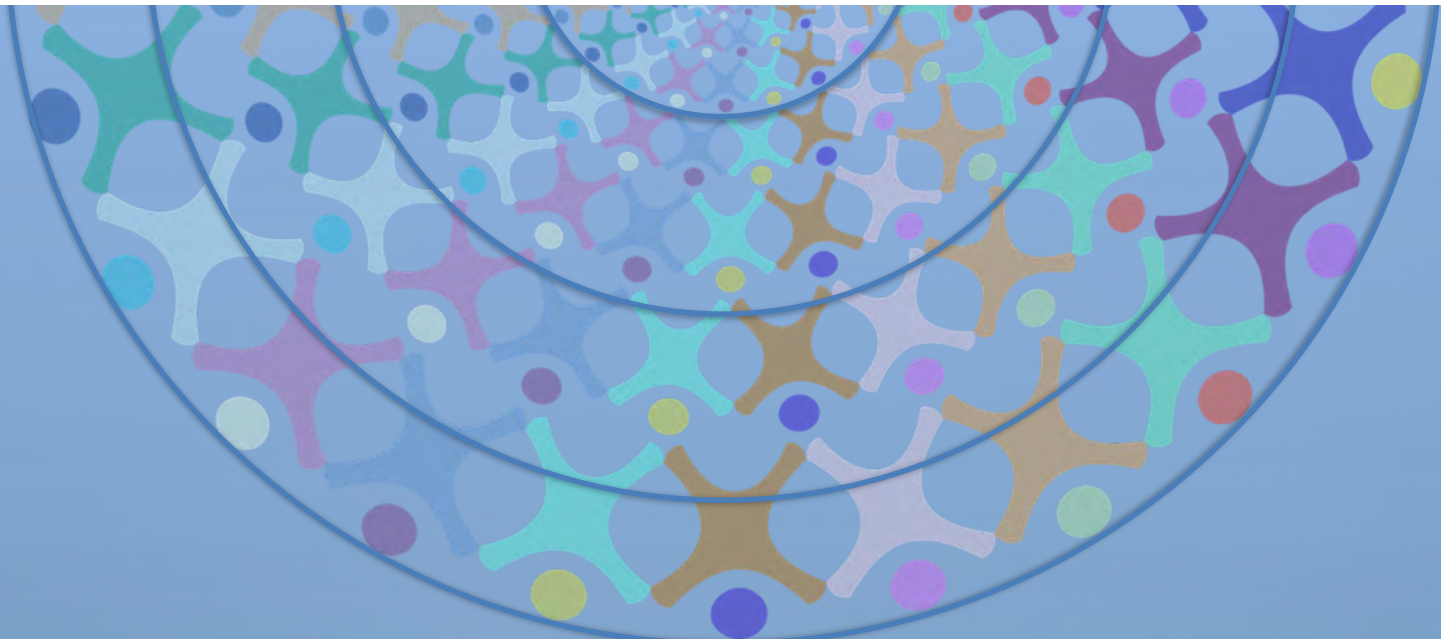
2010

Summary Points

- We argue that the assumptions, methods, and study designs of experimental science, whilst useful in many contexts, may be ill-suited to the particular challenges of evaluating eHealth programs, especially in politicised situations where goals and success criteria are contested.
- We offer an alternative set of guiding principles for eHealth evaluation based on traditions that view evaluation as social practice rather than as scientific testing, and illustrate these with the example of England's controversial Summary Care Record program.
- We invite *PLoS Medicine* readers to join a debate on the relative merits of "scientific" and "social practice" approaches to evaluation and consider the extent to which eHealth evaluation is in need of a paradigm shift.



Final Reflections



Digitalization in healthcare ...

... is about way more than

just a piece of technology

or just implementing a clinical guideline

or just setting a new policy ...

It's complex!

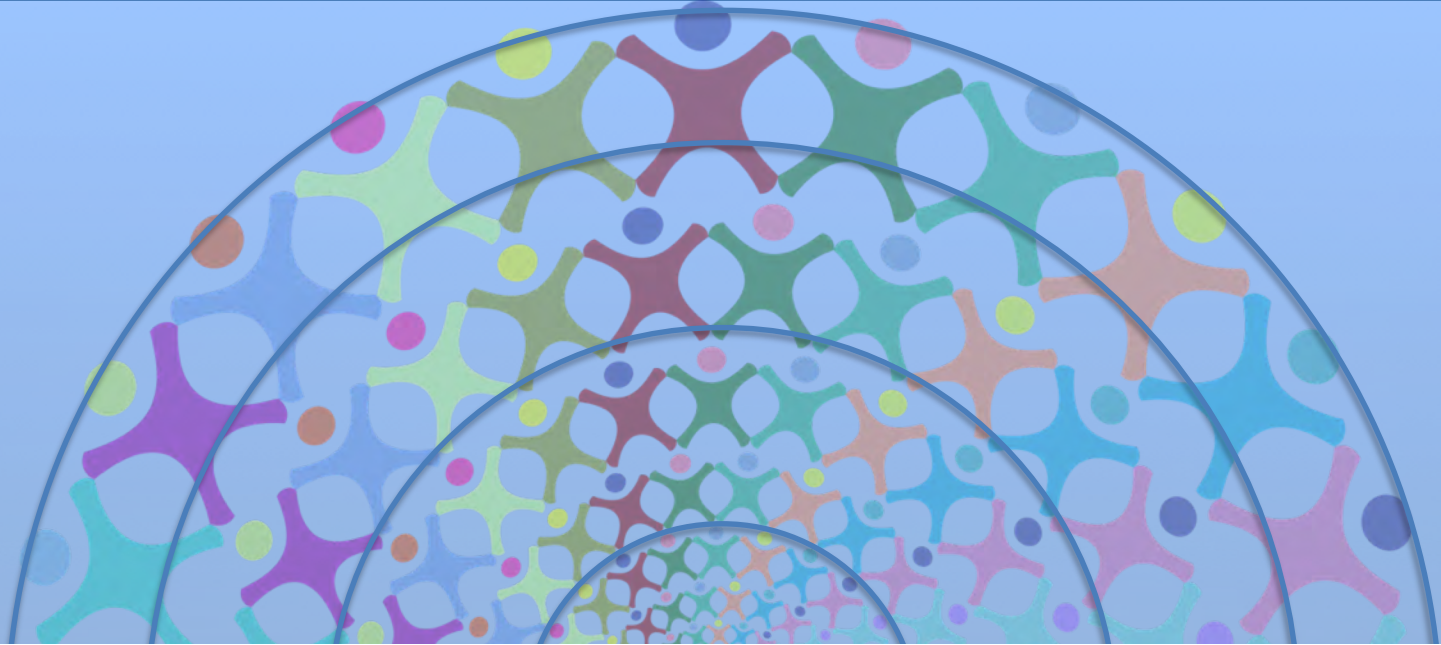
- **Complex socio-technical-org-political contexts**
 - *Continually evolving*
- **Diverse stakeholders, participants, priorities**
 - *With often competing concerns*
- **No clear right or wrong solutions**
 - *Often unintended unanticipated consequences*

Moving forward?

- Embracing the socio-technical-political...
 - Understanding complex contexts, needs, values ...
 - Integrating diverse discourses, stakeholders
- Embracing uncertainty - being more agile
 - Technologies and outcomes not given ... as installed
 - Ongoing design of tech & practices in/through use
 - Diverse appropriation processes
 - Learn by doing, evaluating, iterating

Moving forward? (Cont.)

- Exploring new evaluation approaches embracing the socio-technical
 - Realist evaluation [Pawson & Tilley 1997]
 - What works for whom under what circumstances
 - Micro randomized control trials
 - Field studies - of appropriation over the long term
 - For all stakeholders – broad ‘unit of analysis’
- Relating contexts, appropriation & outcomes
 - Developing new design & practice & policy guidelines
 - Identification of new roles, processes etc



Thank you...

