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‘Healthy ageing, digital innovation goals, and care networks’

What do these concepts tell us about digital innovation in ageing?

3rd July 2024 – Summer school “Digital Innovations for a Happier, Healthier Aging: A Transdisciplinary Training”

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Why are the objectives of this class?

Reflecting together on how

1) Defining healthy aging

2) Thinking what it means to be FOR healthy ageing

3) The context where digital innovation impacts

Matter for the development/use/evaluation of digital innovation for healthy ageing



Propose three principles on digital innovation for healthy ageing


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What is this class based on?

RESOURCE Project



Original Manuscript

Interger Shaping older ac

SMART HOMES, OLDER ADULTS, AND CAREGIVERS: FACILITATING SOCIAL ACCEPTANCE AND NEGOTIATING RESPONSIBILITIES [RESOURCE] – Project funded by the Swiss National Science Foundation, National Research Program 77 “Digitalization Transformation”

Smart home technology is advancing and professionalizing. It is easy to see the younger adults today with its capacity to open to smart home solutions as they age. If the technology would help them live an independent, comfortable life, but what about next?

Andrea Martani, Antonina Brunner and Tenzin Wangmo
University of Basel, Switzerland

Abstract

An increasingly ageing society together with concerns about sustainability of old-age benefits call for reforming the care structure of many western welfare states. However, finding an acceptable balance between the formal care provided by institutions and informal care provided by family members is a delicate policy choice with profound ethical implications. In this respect, literature on intergenerational familial relationships can offer insights to inform policymaking in this field and help resolve the ethical concerns that excessive reliance on informal caregiving might entail. In this contribution, we start by presenting – with Switzerland as a case study – the challenges of the current care structure and discuss some of the ethical issues that reshape the balance between formal and informal care roles. We then review and analyse available theoretical literature on intergenerational familial relationships and present three dimensions that underpin such relationships: ethical, theoretical and practical. Based on our analysis, we provide two recommendations to inform policymaking on how to support care needs of the elderly and set an ethically acceptable balance between formal and informal care when familial generations are involved.

Keywords
Ethics of caregiving, informal caregiving, intergenerational relations, older persons, public policy, welfare state

ALT?

Ändern wir unseren Blick auf das Alter: Ein Projekt, um das Bewusstsein für Gewalt gegen ältere Menschen und Altersdiskriminierung zu schärfen.

Die Abteilung für Geriatrie und Geriatrie (AGG) der Universität Basel ist ein interdisziplinäres Zentrum für die Erforschung und Behandlung von Alterskrankheiten. Unser Ziel ist es, die Lebensqualität älterer Menschen zu verbessern und sie in ihrer Autonomie zu unterstützen. Unser Projekt zielt darauf ab, das Bewusstsein für die Bedürfnisse älterer Menschen zu schärfen und die Zusammenarbeit zwischen verschiedenen Disziplinen zu fördern.

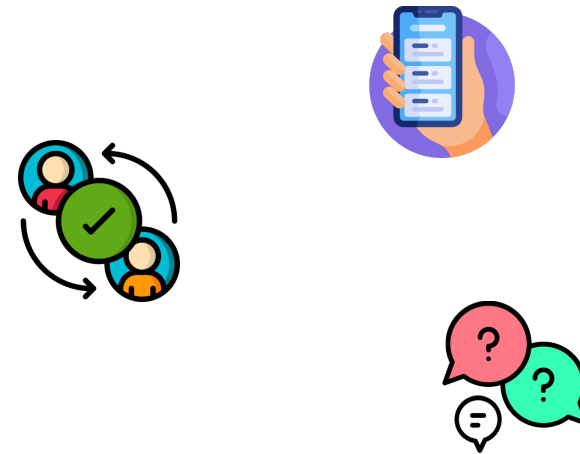
les constante de l'âge moyen de la première maternité. Peu de recherches sont menées sur la es citoyens la perçoivent. Notre recherche vise à mieux comprendre comment et pourquoi les ie et dans quelle mesure les opinions et les principes moraux jouent un rôle dans cette prendre le pourquoi du comment des décisions prises par les professionnels de la santé en matière de traitement.

proposé par l'Institut d'éthique biomédicale de l'Université de Bâle, en collaboration avec l'Institut de philosophie et des sciences morales de l'Université de Genève en Belgique.

totale du projet est de 4 ans (2021-2025).

I am exploiting you to draw some general conclusions based on this☺

What to expect?



A starting point



DIGITAL INNOVATIONS FOR A HAPPIER, HEALTHIER AGING: A TRANSDISCIPLINARY TRAINING

Prof. Katarzyna Wac
1 - 5 JULY 2024

QoLife Technologies age.int

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1. The meaning of healthier ageing
2. Digital innovation FOR what exactly?
5. Happier and healthier aging and care networks
6. Take home messages and Q&A

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1. The meaning of Healthier ageing

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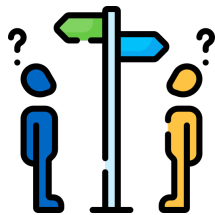
Many countries are experiencing a demographic shift towards older populations. According to the United Nations Department of Economic and Social Affairs (UN DESA), the number of people aged 65 years or older is projected to double globally to reach 1.5 billion by 2050.



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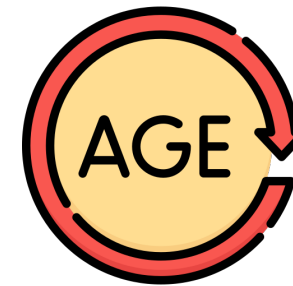
We hear everywhere that digital innovation should target the increasing share of “aged/old” people, and promoting “healthy ageing”...



...but who is a “aged/old” person?
What counts as “ageing”?

Is it really straightforward to define ageing?

Is it easy to tell “how old” one person is?




Or go to mentimeter and
use code **7958 3102**

CASE 1

Person 1

Lives isolated, is retired, his kids are far away and his spouse died a few years ago. Struggles to deal with his smartphone and prefers doing everything in person (e.g. shopping)



Person 2

Is working, single, no kids, and changed 10 partners in the last year, as he loves using Tinder. He is very practical using smartphone and smartwatches.

Who would you say is older?

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CASE 2

Person 1

Is fit, has good nutrition and great medical tests, and often runs marathons

Person 2

Has had one hip replacement, smokes 20 cigarettes per day, suffers from type 2 diabetes.



Who would you say is older?

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Person 1

CASE 3

Person 2

Turned 65 years today

=

Turned 65 years today

Who would you say is older?

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Person 1 = John

Person 2 = Adam

Lives isolated, is retired, his kids are far away and his spouse died a few years ago. Struggles to deal with his smartphone and prefers doing everything in person (e.g. shopping)

Is fit, has good nutrition and great medical tests, and often runs marathons

Turned 65 years today

Is working, single, no kids, and changed 10 partners in the last year, as he loves using Tinder. He is very practical using smartphone and smartwatches.

Has had one hip replacement, smokes 20 cigarettes per day, suffers from type 2 diabetes.

Turned 65 years today

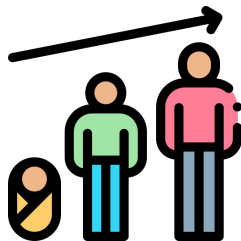
Who would you say is older?

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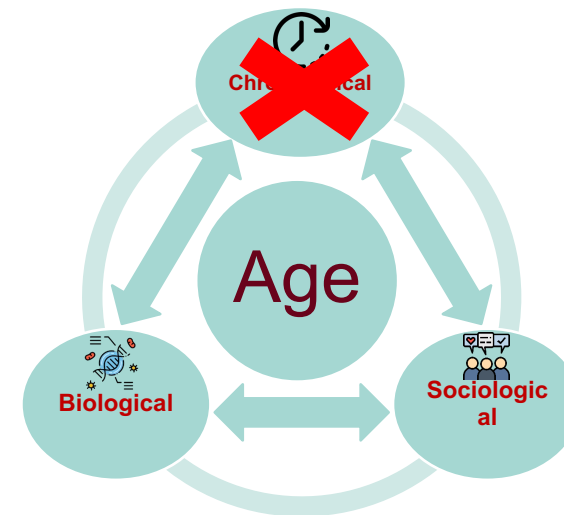
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Measuring and indicating age and the ageing-process is not so straightforward as it seems



At least ~~three~~ two relevant understanding of ageing



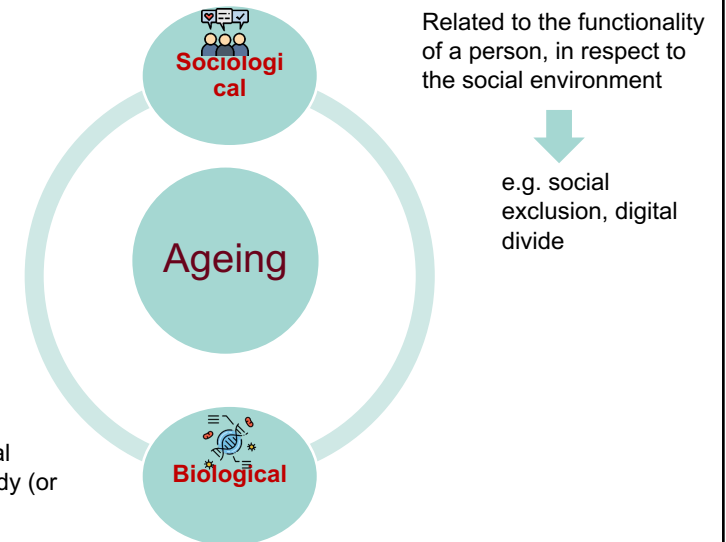
At least ~~three~~ two relevant understanding of ageing



Why disregard
'chronological
ageing'?

*Which age-cutoff would we pick
then to define 'young', 'old' etc.?
→ The history of "65" as a limit
for defining 'old age'*

*If we look at chronological age,
then older people become an
incredibly heterogeneous group*



When developing/testing/using digital innovation for ageing...



→pick which dimension of ageing the digital innovation should focus, and consider which effects it could have on the other



E.g. teleconsultations as digital innovation for monitoring biological ageing from a distance, but they have impact on social isolation

There is a strong interaction in the two, dimension of ageing, because...

Definitions of HEALTHY ageing often entails both

Australasian Journal on Ageing

Full Access

Healthy ageing: how is it defined and measured?

Nancye Peel, Helen Bartlett, Roderick McClure

First published: 30 September 2004 | <https://doi.org/10.1111/j.1741-6612.2004.00035.x> | Citations: 118

Get full text

“the optimal state of overall functioning and well-being measured across physical, social and psycho-cognitive functioning and on feelings of well-being”

“sustained personal autonomy in domains of activities of daily living, ability to participate in valued activities”

“active life expectancy with criteria for successful ageing being good functional ability and high social participation”



Both the aspect of participating in social activities and the biological aspect. Indeed this also corresponds to the definition of health itself

Definitions of HEALTHY ageing *mirror the modern conception/definition of health*

WHO definition of health



"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"

Modern definition of health

Gezondheidsraad
Health Council of the Netherlands

"moving from the present static formulation towards a more dynamic one based on the resilience or capacity to cope and maintain and restore one's integrity, equilibrium, and sense of wellbeing."

→ Health as **"the ability to adapt and to self manage"**
<https://doi.org/10.1136/bmj.d4163>

The centrality of self care



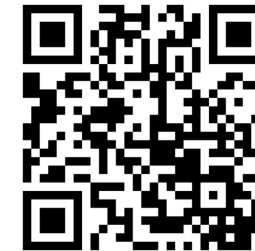
Digital innovation for "healthy ageing", means digital innovation **for** a better **ability to adapt and self manage (?)**

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Which definition of HEALTH (and thus indirectly of HEALTHY ageing) you prefer? And why?



Or go to mentimeter and use code **7958 3102**



"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"

Gezondheidsraad
Health Council of the Netherlands

"moving from the present static formulation towards a more dynamic one based on the resilience or capacity to cope and maintain and restore one's integrity, equilibrium, and sense of wellbeing."

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What does it mean of digital innovation to be **FOR** happier/healthier ageing?

At least 2 ways how digital innovation can be **FOR** healthy ageing

1) It can help **postpone** the time when we are 'unhealthily aged' (dependent, incapable to self manage)

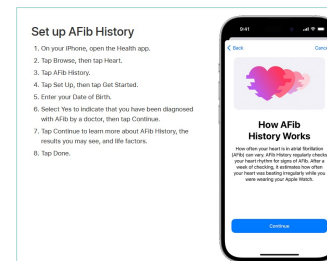
2) It can **help us to tackle** our unhealthiness (i.e. our dependency, inability to self care) once it is there

1) Digital innovation **for postponing un-healthy ageing**

Definition

Digital innovation that help, whilst still, 'young' to postpone social and biological ageing→ preventive nature.

→ For 'young' people



"[behavioral interventions even with digital tools have] limitations in the late-middle-aged cohorts in whom intervention is most urgent. These improvements are most effective when applied relatively early in life, especially during development"
[10.1126/scitranslmed.3000822](https://doi.org/10.1126/scitranslmed.3000822)

"The evidence suggests that deterioration, instead of being stretched out, is being postponed: levels of mortality and other indices of health that used to prevail at age 70 now prevail at age 80, and levels that used to prevail at age 80 now prevail at age 90."
James W. Vaupel, *Biodemography of Human Ageing*, 464 Nature 536 (2010).



'disease free' parts of life are increased, thus also the part where people can live **independently**

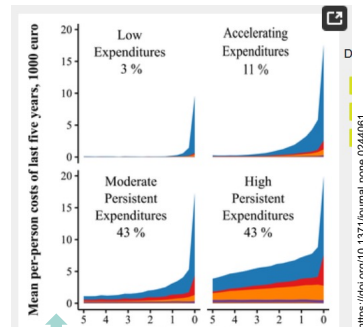
2) Digital innovation for dealing with un-healthy ageing

Definition

Digital innovation that helps us reduce the dependency, the inability to self care, once they are there



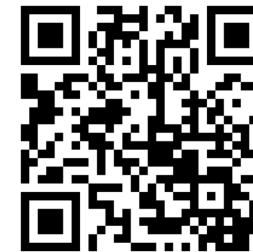
Improve quality of life and increase independence in the most demanding years of life



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Which one of the two ways how digital innovation can be FOR healthy aging is more promising in your view? And why?



Or go to mentimeter and use code **7958 3102**

1) Digital innovation for postponing un-healthy ageing

2) Digital innovation for dealing with un-healthy ageing

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When developing/testing/using digital innovation for ageing...



Decide what digital innovation addresses (postponing lack of independence or dealing with lack of dependence) and why it matters more for that goal



Also in the **use** of digital innovation, this distinction is very important



Review article
Medication Adherence in Older Adults With Cognitive Impairment: A Systematic Evidence-Based Review

Nelli L. Campbell PharmD^{1,2,3,4}, B. S. Molaz A. Boustanti MD, MPH^{2,3,5},
Elaine N. Skoedon MALS, AHIP⁶, Sujuan Gao PhD^{2,3}, Fred W. Unverzagt PhD⁶,
Michael D. Murray PharmD, MPH^{1,3,5}

→ medication reminders used with people with (mild cognitive impairment)→ what is it used for and what should it be used for?

“Successful interventions suggest that frequent human communication as reminder systems are more likely to improve adherence than nonhuman reminders”

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Learning from medicine development..

The key difference between efficacy and effectiveness

CLINICAL/NARRATIVE REVIEW

A Primer on Effectiveness and Efficacy Trials

Amit G. Singal, MD, MS^{1,2}, Peter D.R. Higgins, MD, PhD³ and Akbar K. Waljee, MD, MS^{3,4}

Efficacy can be defined as the performance of an intervention under ideal and controlled circumstances.

Effectiveness refers to its performance under 'real-world' conditions

The point is: context of application
matters to see if something works!

So what about "the context" in regards to digital innovation for healthy ageing?

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What do you think are the most important “contextual” factors that determine whether a digital innovation tool for healthy aging is not only efficacious, but also effective?



Or go to mentimeter and use code **7958 3102**

The centrality of the network of care

Even if we conceive healthy ageing to be about better self care (through technology), the network of care is crucially important



International Journal of Nursing Studies
Volume 116, April 2021, 103402



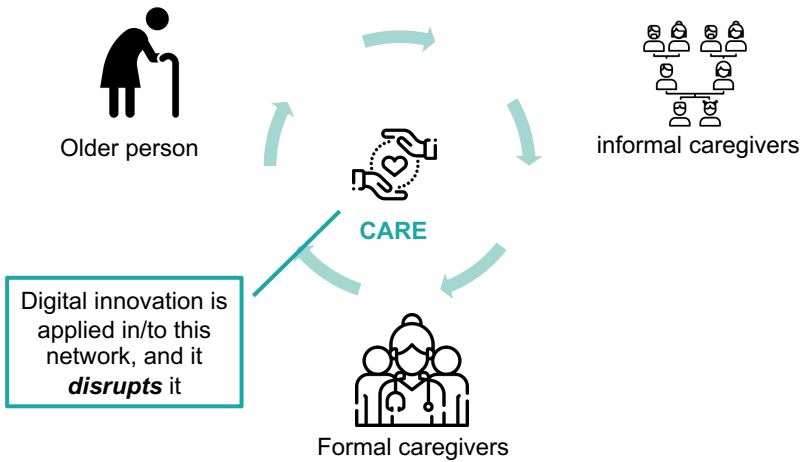
Self-care research: Where are we now? Where are we going?

Barbara Riegel^{a, b}, Sandra B. Dunbar^c, Donna Fitzsimons^d, Kenneth E. Freedland^e, Christopher S. Lee^f, Sandy Middleton^g, Anna Stromberg^h, Ercole Velloneⁱ, David E. Webber^j, Tiny Jaarsma^{k, l}

2.2.6. The influence of others on self-care

Although our efforts address *self-care*, we are fully aware that a variety of persons contribute to self-care - care partners, family, peer supporters, healthcare professionals, home care workers, etc. [...]Technology could be used to support the care partners contributing to self-care. Technology may help with day-to-day caregiving. Wearable technologies can be used to monitor health conditions and to connect carers and providers working as a team in providing care.

What is a network of care?



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A practical example

We studied the interplay of home care technologies for older people with their the network of care



RESOURCE Project



SMART HOMES, OLDER ADULTS, AND CAREGIVERS: FACILITATING SOCIAL ACCEPTANCE AND NEGOTIATING RESPONSIBILITIES [RESOURCE] – Project funded by the Swiss National Science Foundation, National Research Program 77 "Digitalization Transformation"

Smart home technology is advancing and proliferating. It is likely that the younger adults today will be capable of and open to smart home solutions as they age if the technology would help them *lead* an independent, comfortable life. But what about now?

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A practical example

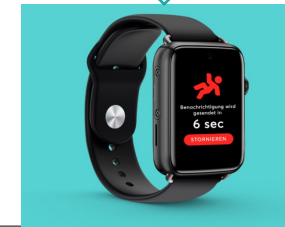


- 1) general questions to understand the participants and their care networks situations
- 2) specific questions for each of the technologies included in the study (e.g. their impressions and experiences, benefits and barriers they saw, conditions of use).
- 3) comparing the technologies and general recommendations for their use in elder care.



Emergency button

Watch with fall detection



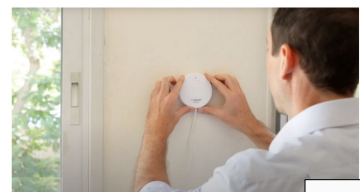
Notruf



Sturzalarm



Pillen-Erinnerung



Der Sensor erkennt jeden Sturz

Der Vayyar Home Sensor erkennt Stürze unabhängig von Körpergröße und Gewicht.

Er entdeckt jegliche Art von Stürzen, unter anderem schnelle und langsame Stürze, Stürze hinter Gegenständen und Möbeln, Stürze aus dem Bett, Stürze auf den Rücken, die Seite und den Bauch.


Home detection systems

SMART HOME CAMERAS

Helping your loved one remain in their home for longer...

Indoor Smart Camera

The miMonitor indoor smart camera enables friends and family to monitor vulnerable, elderly parents and grandparents around the clock from anywhere using a smartphone. This small and unobtrusive camera easily connects to a wifi broadband router. Features include 1080p full HD live footage, motion detection and sound alerts sent to your smartphone and two-way audio.



Cameras

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How digital innovation interplays with the care network #1

As I was still at home, I have then bought an [emergency-button] watch. With that I could go everywhere. If I am on the street and something happens, I could press then a button on the watch and then comes a voice, "What is going on? What happened?" And then I can answer, "I'm there and there, and I can't get any further" (Interview_43_OlderPerson)

Sense of security that you can communicate your care need to a caregiver....
...but also insecurity as to whether 'every' care need is truly communicated

"So I notice that with people who are still very good cognitively, they sometimes forget that [i.e. the emergency button] in an emergency. So, if a fall really happens, where you can't get up anymore, then you're in such distress and they don't even think about it." (Interview_42_ProfCaregiver)

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How digital innovation interplays with the care network #1

But sometimes you have to really encourage people to use the tool. The most blatant thing I've experienced was a lady over 90 who didn't use it. "I didn't want to disturb anyone." Then I said, "Hey, you pay so much money every month! Press it! And you can also press it if you simply feel unwell and then you talk to them briefly and then they see whether it might be good to send the doctor over" (Interview_36_ProfCaregiver)



Older people avoiding the pressure sensitive mat.

How digital innovation interplays with the care network #2

The advantage of the camera is actually for the relatives, especially those who are further away, that they can first check the camera before they have to go a long way. (Interview_50_InformalCaregiver)

Ability to decide prematurely how to address a care need....

...but also questions about the actual capacity of the care network to cope with care needs

When my mother presses the emergency button [...] they call my house first. And I can't pick up the phone for example because I'm somewhere in Paris. Then they call my son. My son is also not available, then 10 more minutes pass. The third person is my daughter, and the fourth person I don't know who that is. In other words, by then my mother is dead. (Interview_58_InformalCaregiver)

How digital innovation interplays with the care network #3

Why do I have to measure blood sugar every day? This time is then lost for other things, I can use it more sensibly. [...] I spend so much time to measure fever, to measure blood pressure, to measure weight... Does that really have to be the task of nursing in the future? (Interview 7_ProfCaregiver)

Decreasing some of the hands-on work necessary to promote healthy ageing
...but also creates new hands-on work

OPN5: we have already experienced a school friend who [...] was sitting in the in the villa and there was an alarm and it was said, "Oh no, something is happening to dad." Then the dad was just sitting there, was looking post stamps and they came to him and he said, "Yes, what are you doing here?". Then they said: "Father! You've given us the alarm -" [...] He didn't know that [he had set off the emergency alarm].

How digital innovation interplays with the care network #3

For example, this participant noted that what may seem menial labour (e.g. visiting a patient for measurements) can actually constitute an essential part of the caring process.

"[caregivers] might be happy if they didn't have to do that anymore, because a machine does that. But those are the few contacts you still have with a human being. And if that is also taken away by such an instrument, then you are completely isolated." (Interview_08_OlderPerson)

What 'hands-on work' does digital innovation eliminate when applied to a care network?

When developing/testing/using digital innovation for ageing...





Analyse/study/test how digital innovation interplays with the existing care network, which is made of a complex net of human interaction, even in respect to self care



e.g. if it is a digital technology to help manage healthy ageing (rather than postponing it), what 'hands-on work' does the technology save? Which one does it create? Is the tradeoff positive?

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Consider 3 principles That matter for the development/use/evaluation of digital innovation for healthy ageing

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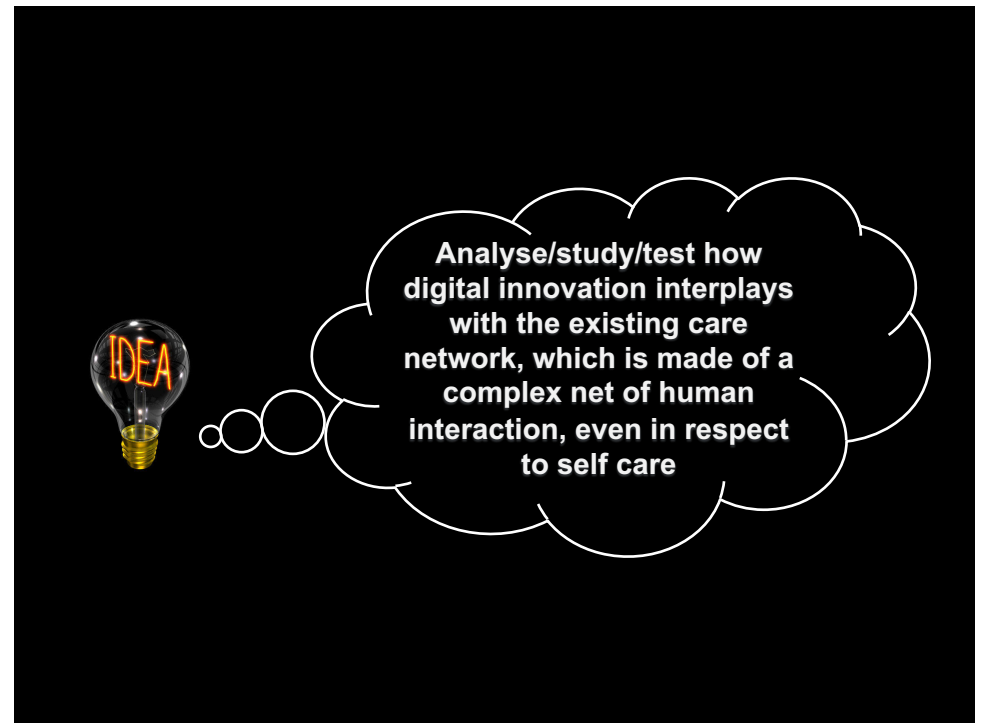


Pick which dimension of ageing the digital innovation should focus, and consider which effects it could have on the other


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Merci!



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