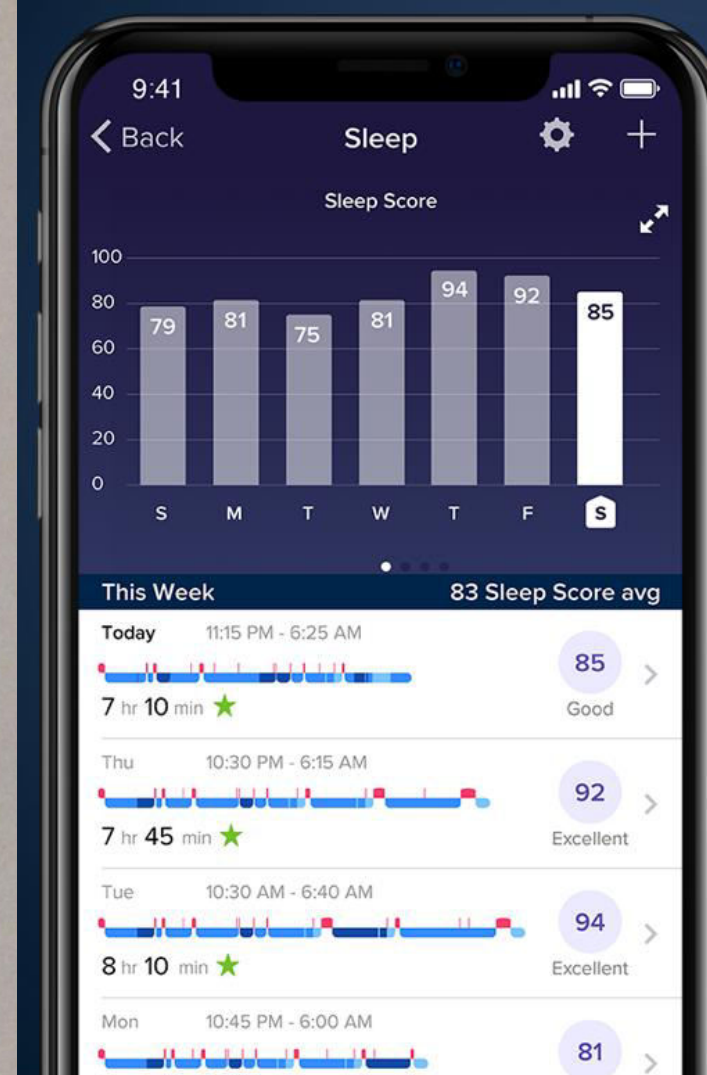
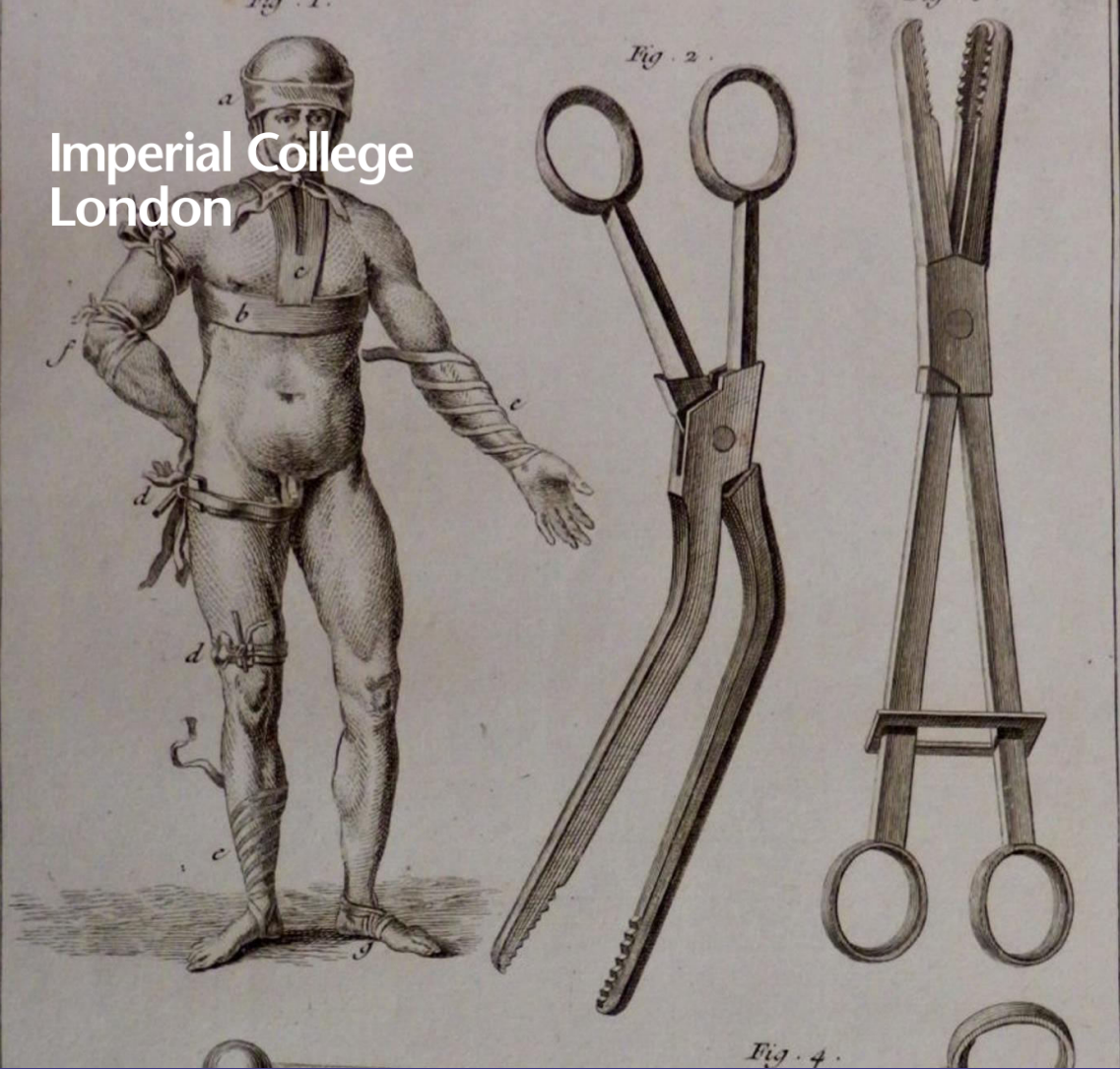


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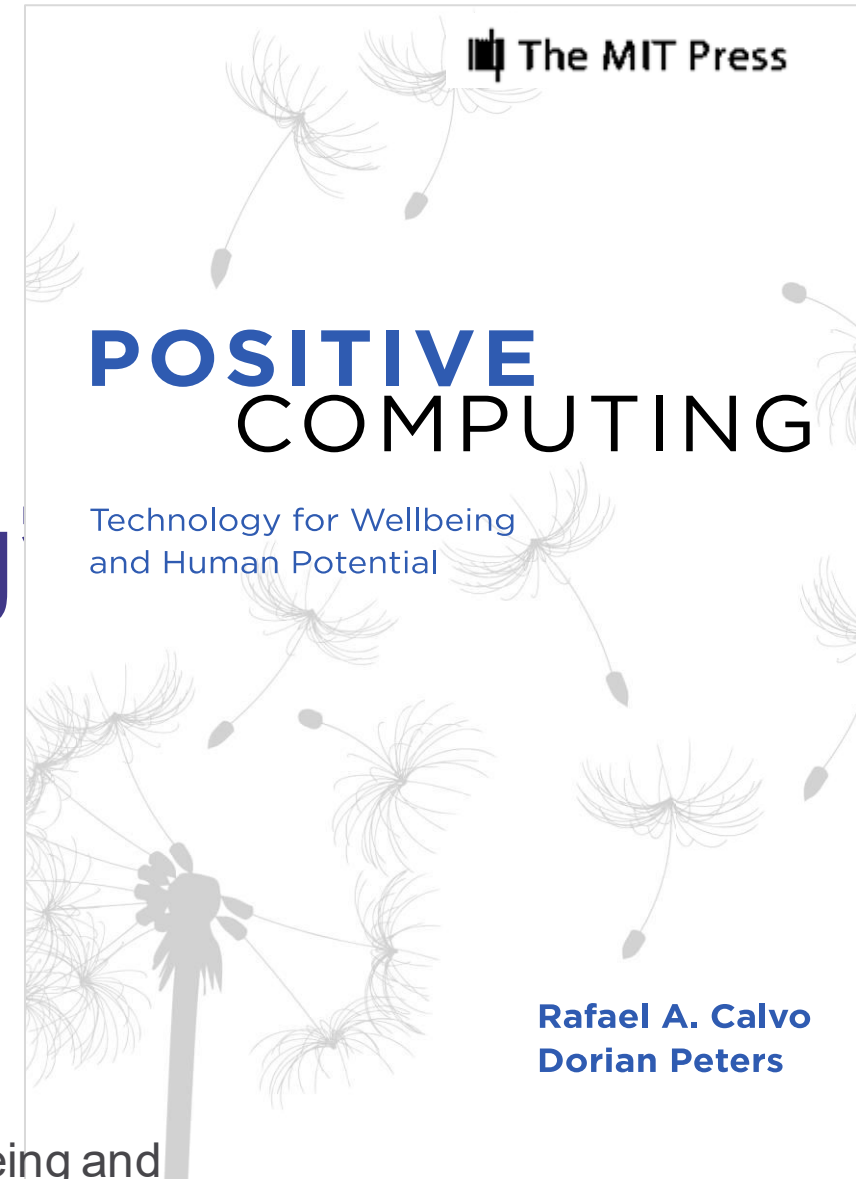
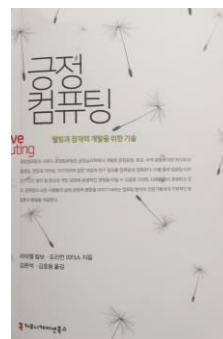
How to safeguard autonomy and why it matters

Dyson School of
Design Engineering

Prof. Rafael A. Calvo

@Rafael_A_Calvo

“All Technology should be designed to support psychological wellbeing



R.A. Calvo and D. Peters. (2014) “Positive Computing: Technology for wellbeing and human potential” MIT Press.

Basic Psychological Needs & SDT

1. **Autonomy** - *feeling willingness and volition in action*
2. **Competence** - *feeling able and effective*
3. **Relatedness** - *feeling connected to others*

AUTONOMY

Feeling that one has the power to influence the outcome of an experience.

Theory

- Self-Determination Theory (Ryan, Deci)
- Ryff Scales of Psychological Wellbeing (Ryff, Keyes)

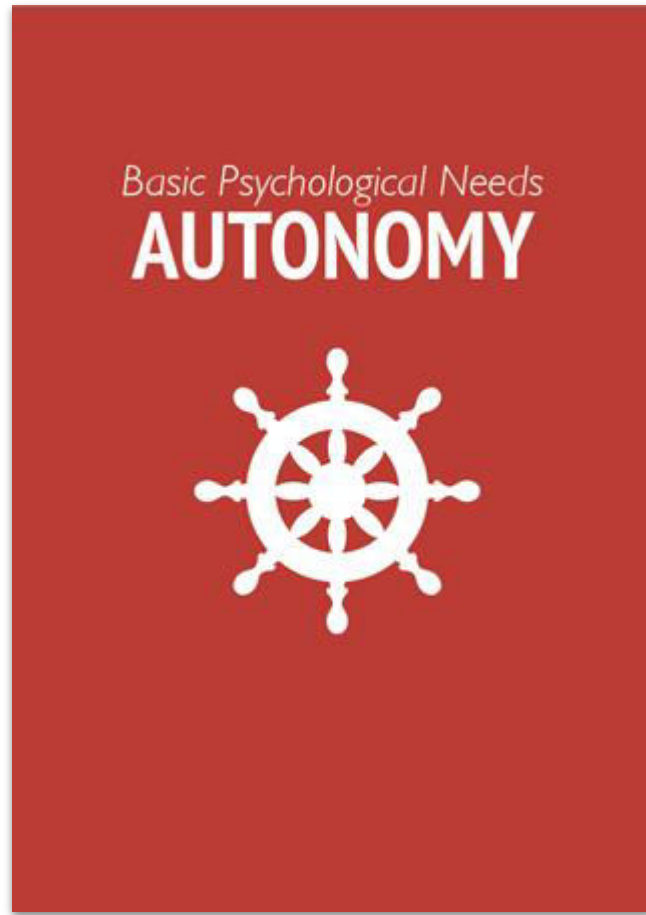
Examples

- The iPhone allows users to decide if, when and how to receive notifications from individual apps.
- Screen readers provide a non-visual way to access internet content for users with limited vision.
- Mint provides new ways for users to visualize, understand and take control of their spending.

Full citations and details at:
PositiveComputing.org

Autonomy
=
Endorsement
(willingness)
+
alignment
with
goals and values

Autonomy frustration in the user experience



“It won’t do what I want it to!”

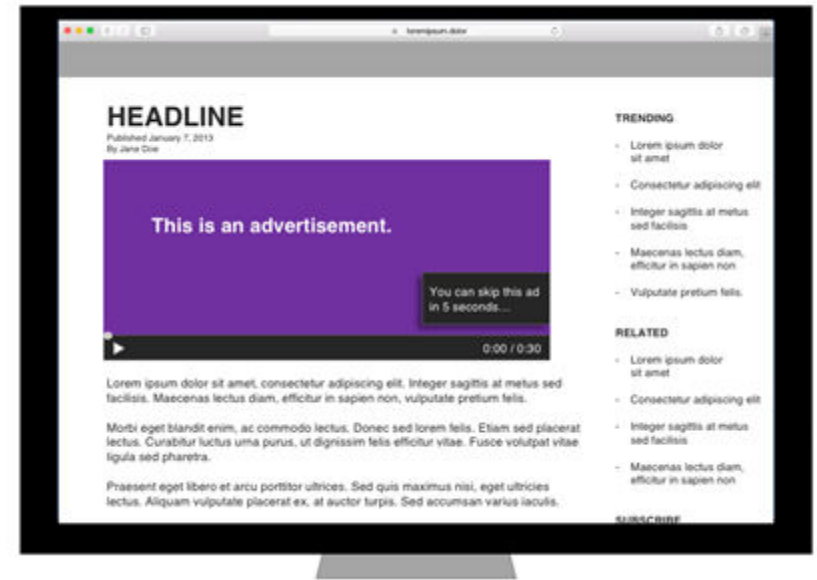
“I hate it when it does that.”

“It doesn’t fit my situation.”

“It’s too restrictive.”

Autonomy frustration

- ▶ Controlling
- ▶ Manipulative
- ▶ Intrusive
- ▶ Nagging
- ▶ Inflexible
- ▶ Surveillance
- ▶ Action taken without consent

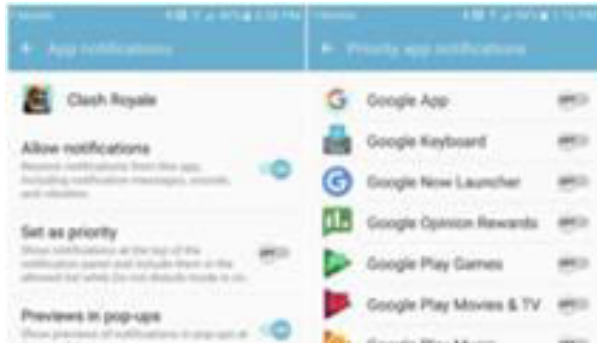


*The modal ad and autoplay video are the two most hated online ad types.
<https://www.nngroup.com/articles/most-hated-advertising-techniques/>*

Examples of **autonomy-supportive design**

1. Notification settings

Fine-tuned controls over notifications have increased the extent to which our mobiles support our autonomy.



Example from Android settings

2. “I can change my mind later”

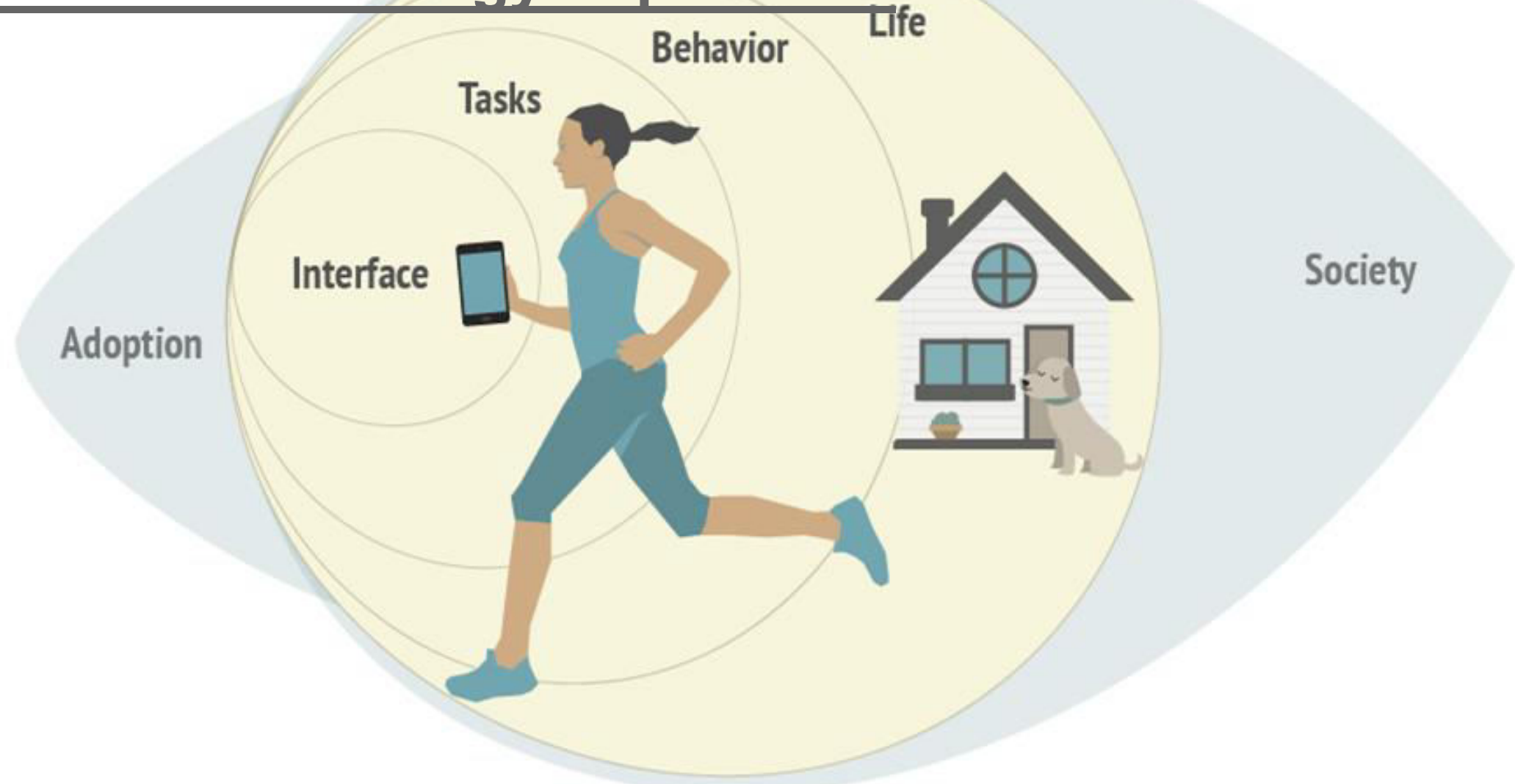
Design features that ensure the user retains control and can adjust based on changing goals and needs ongoing, are more autonomy-supportive.



You can always customize or select other Training Journeys in the app.

Example from freeletics.com

But Autonomy can be supported in the different Spheres of Technology Experience



Peters, D, Calvo, RA, Ryan, RM (2018) "Designing for Motivation, Engagement and Wellbeing in Digital Experience"

It's not a zero sum game between safety and privacy

—when both sides endorse wellbeing as the jointly valued goal, health surveillance can be a positive sum game, both effective and chosen freely.

Calvo, R. A., Deterding, S., & Ryan, R. M. (2020). Health surveillance during covid-19 pandemic. *BMJ*, 369, m1373.

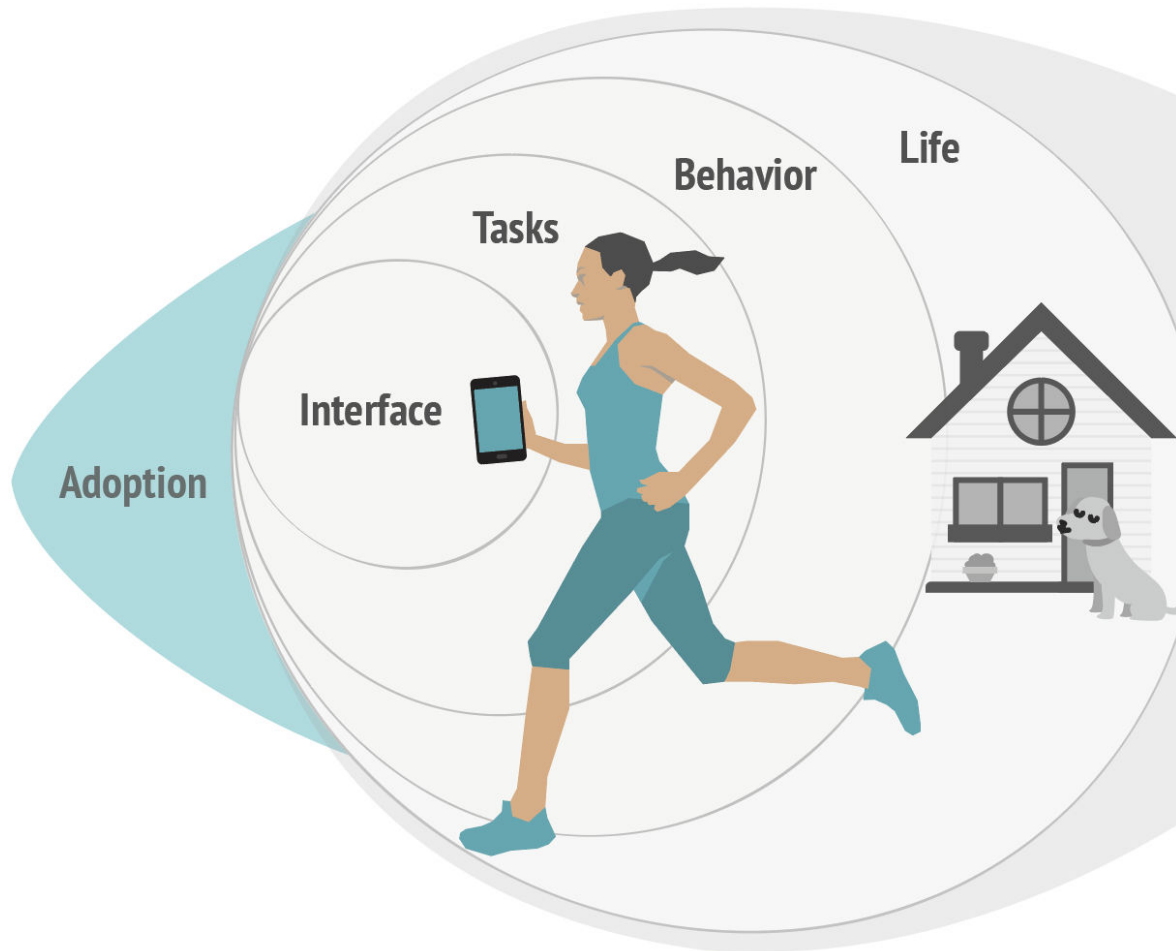
A participatory process is important



Peters, D. Vold K. , Robinson D. and Calvo R. A. , “Responsible AI -Two Frameworks for Ethical Design Practice,” in *IEEE Transactions on Technology and Society*.

Support – at every level

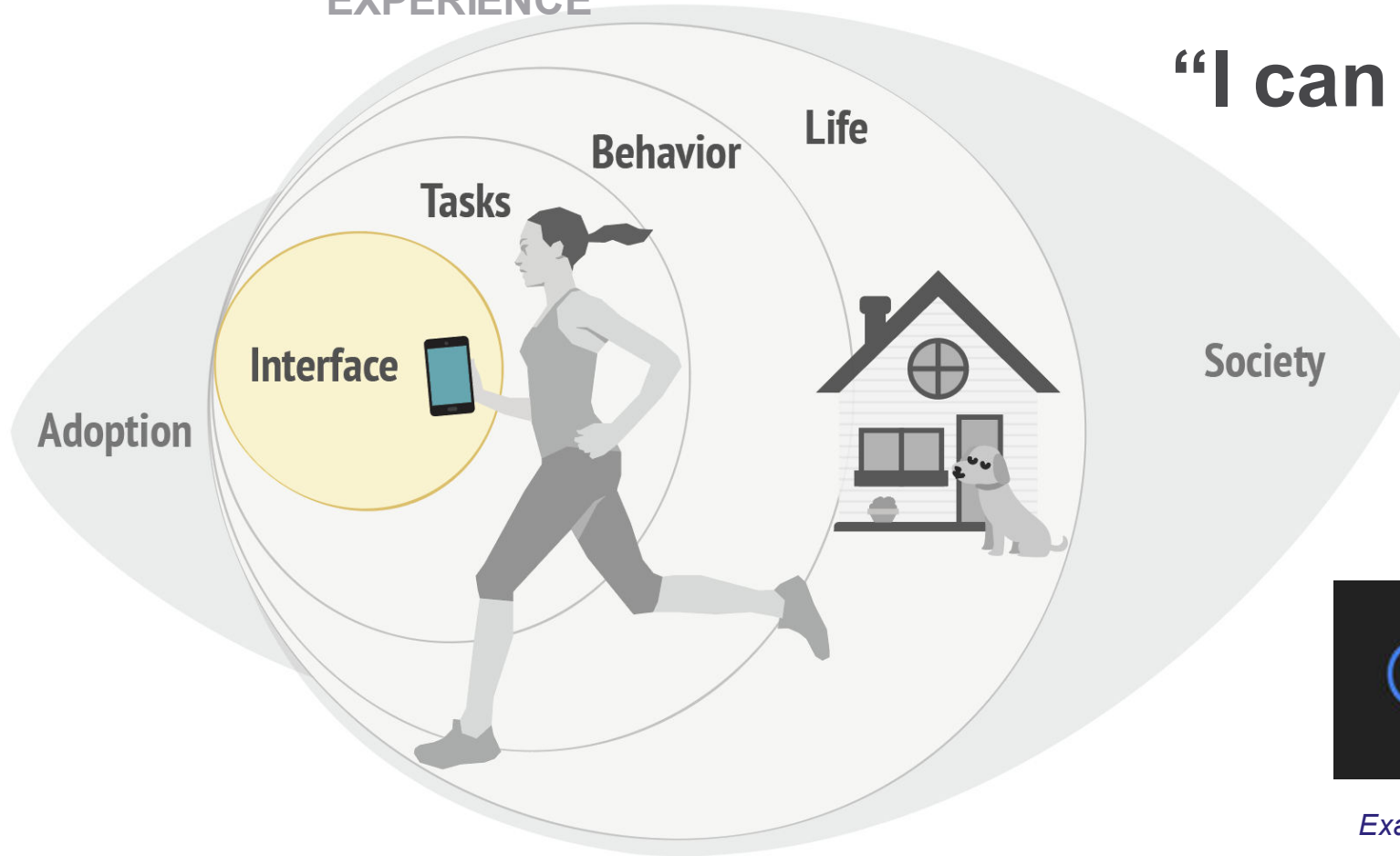
ADOPTION



Support – at every level -

INTERFACE

SPHERES OF TECHNOLOGY
EXPERIENCE



“I can change my mind later”

Design features that ensure the user retains control and can adjust based on changing goals and needs ongoing, are more autonomy-supportive.



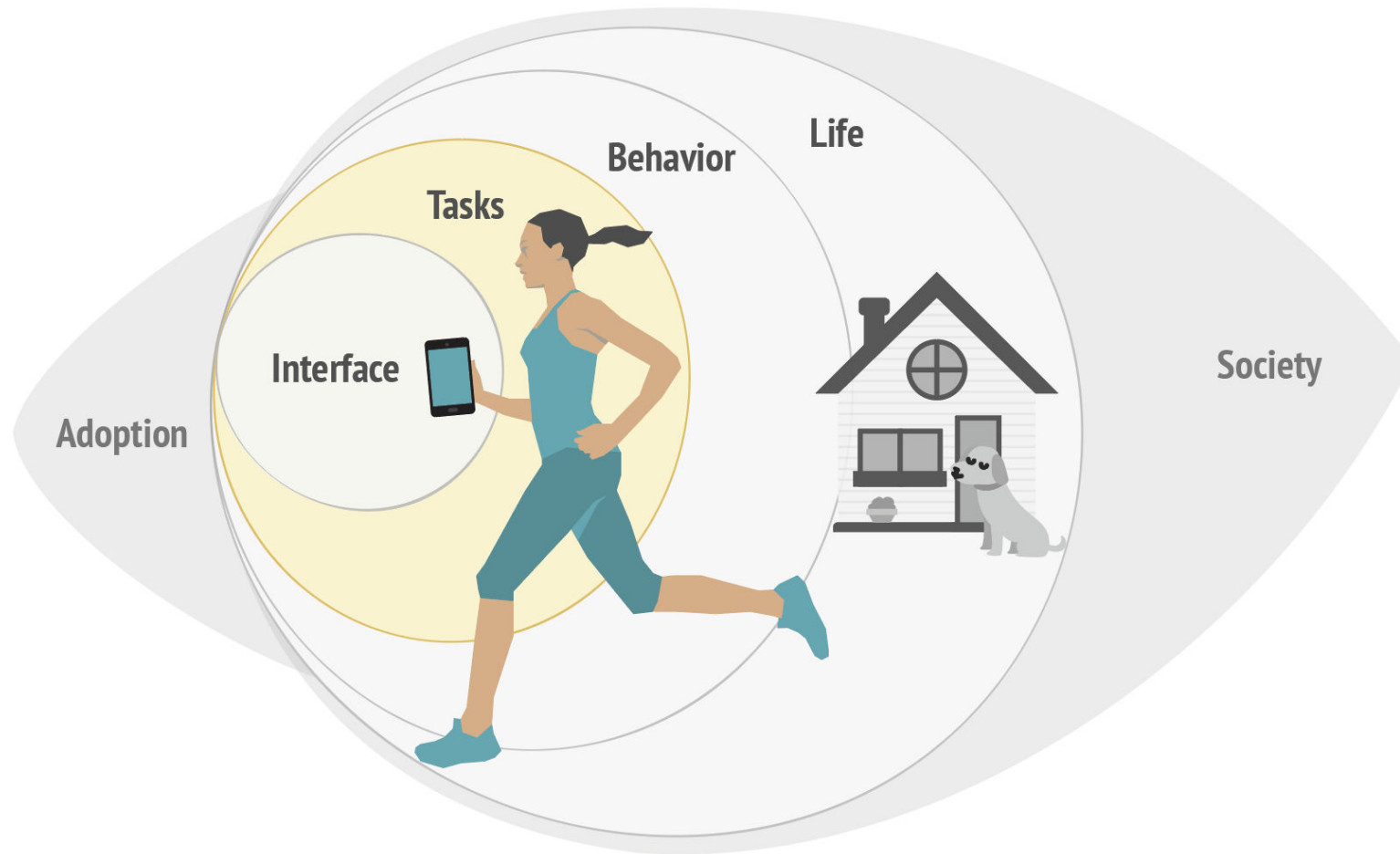
You can always customize or select other Training Journeys in the app.

Example from freeletics.com

Support – at every level -

TASKS

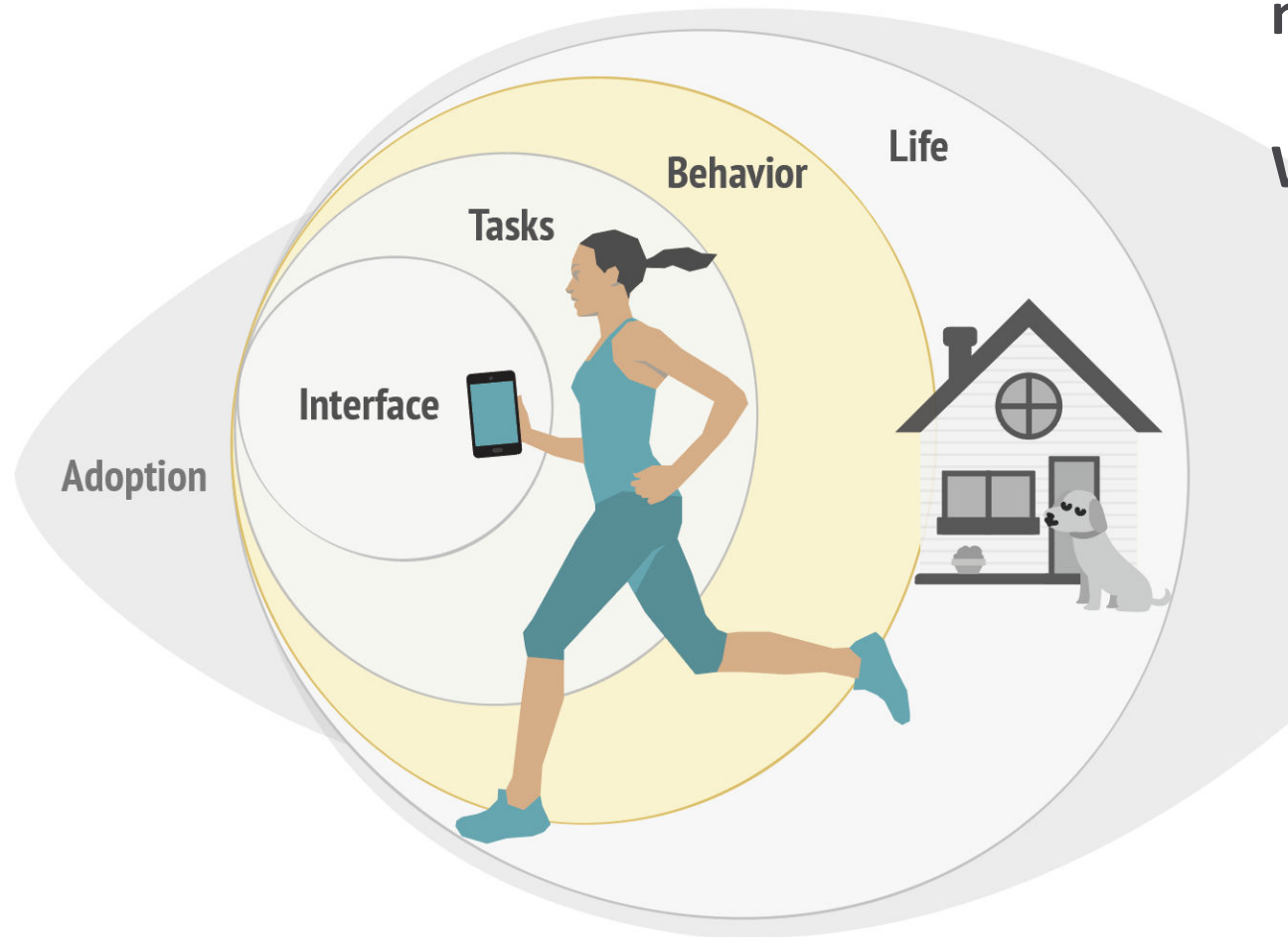
SPHERES OF TECHNOLOGY EXPERIENCE



How does this task relate to my values?
Can I do it later?

Support – at every level -

SPHERES OF TECHNOLOGY EXPERIENCE



BEHAVIOUR

Is it going to limit my freedom of movement?

Why? (needs to gain endorsement)

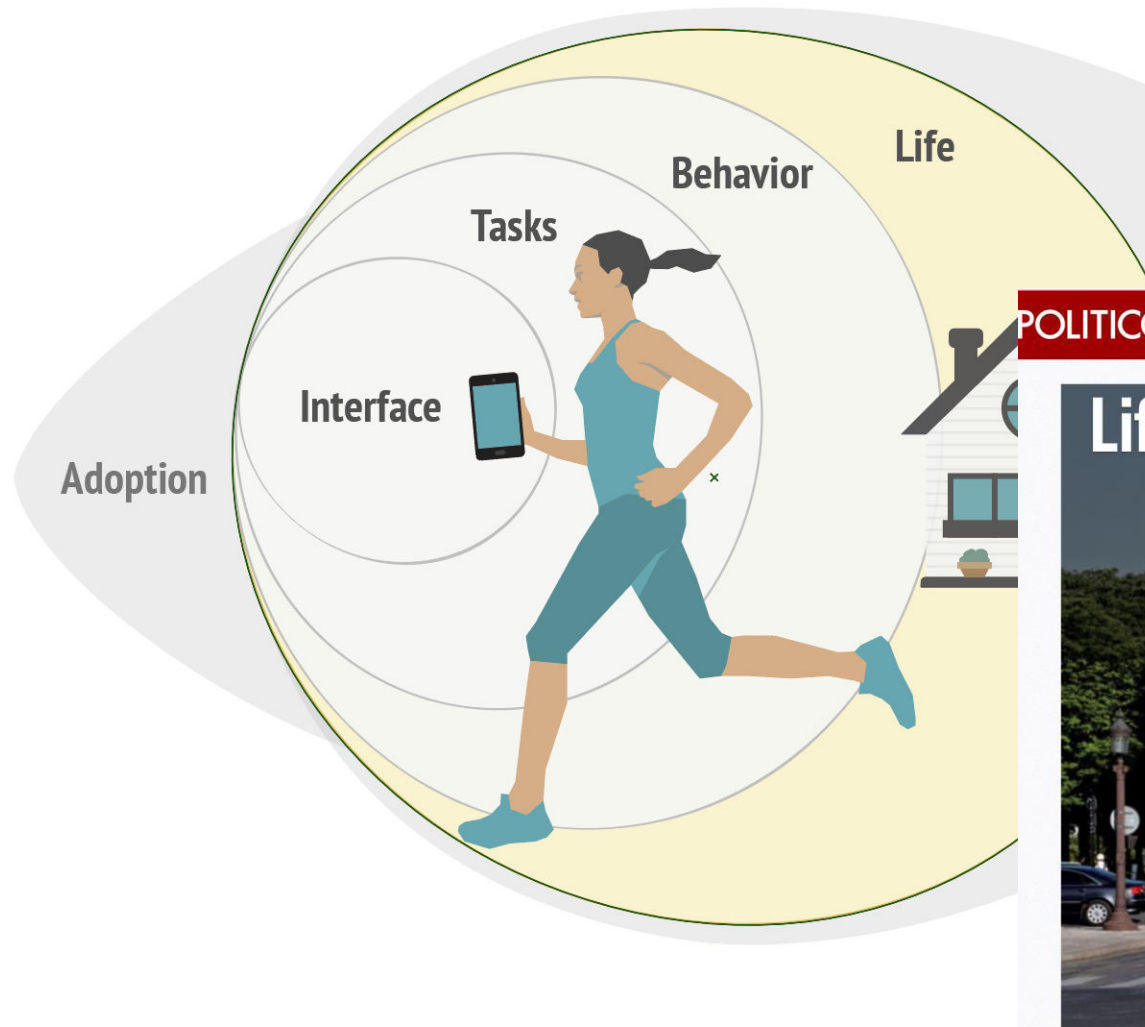


Support – at every level -

SPHERES OF TECHNOLOGY EXPERIENCE

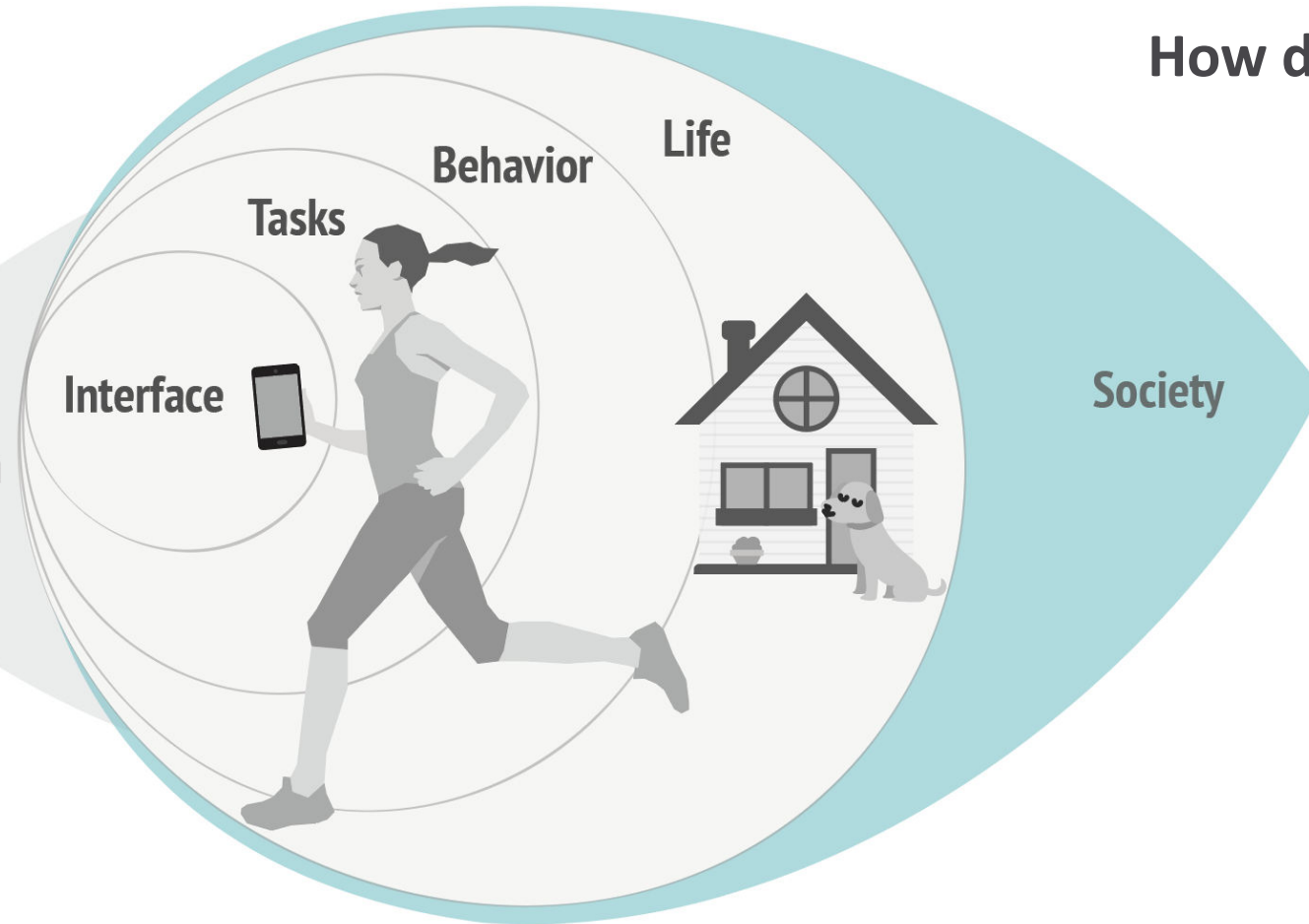
LIFE

Can this improve my Quality of Life?



Support – at every level -

SPHERES OF TECHNOLOGY EXPERIENCE



SOCIETY

How does it impact other not using the technology?



<https://bit.ly/3evSbgN>

Call for Papers

Special Issue of IEEE Transactions on Technology and Society

After Covid-19: Crises, Ethics, and Socio-Technical Change



Guest Editors

Rafael A. Calvo, Dyson School of Design Engineering, Imperial College London

Sebastian Deterding, Digital Creativity Labs, University of York

Catherine Flick, Centre for Computing and Social Responsibility, De Montfort University

Christoph Luetge, Institute for Ethics in AI, Technical University of Munich (TUM)

Alison Powell, Department of Media and Communications, London School of Economics and Political Science

Jack Stilgoe, Department of Science and Technology Studies, University College London

Karina Vold, Institute for the History and Philosophy of Science and Technology, University of Toronto & University of Ca

<https://bit.ly/37Y1BPC>

Imperial College
London

Thank you

Follow us

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COMPETENCE

Feeling that one has sufficient ability or expertise relevant to an experience.

Theory

- Self-Determination Theory (Ryan, Deci)
- 10 Features of Positive Wellbeing (Huppert, So)

Examples

- By adjusting difficulty level to player performance, video games sustain a sense of competence.
- Online courses can increase user professional competence by increasing knowledge and skills.
- Good usability supports a sense of competence by making complex software easy to operate.

Full citations and details at:
PositiveComputing.org

Feeling capable and effective.

RELATEDNESS

Belongingness and connectedness with others; good relationships; secure relational base.

Theory

- Self-Determination Theory (Ryan, Deci)
- Ryff Scales of Psychological Wellbeing (Ryff, Keyes)

Examples

- Windows phone allows users to add contacts to an “inner circle” to separate out social noise.
- Facebook made recent changes to its reporting tool to support socio-emotional skills.
- Social media allows friends and family to stay in contact at a distance.

Full citations and details at:
PositiveComputing.org

Belongingness and
connectedness with
others; good
relationships; secure
relational base.