

Module 4

Introduction to eHealth apps and services



HEAL
E-HEALTH LITERACY



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Imprint

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Learning Outcomes

After this training you will be able to:

1. Classify and match different types of e-health services to target groups.
2. Have in depth knowledge on specific apps and ability to facilitate the use to the beneficiaries.
3. Understand tracking devices and sensors of mobile devices.
4. Ability to bring online pharmacies and e-prescriptions closer to the benefices, present usefulness and reduce fear.



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eHealth is “the collective term for the tools based on information and communication technologies for improving **prevention, diagnosis, treatment,** and the **control** and **management** in the area of **health and lifestyle.**”

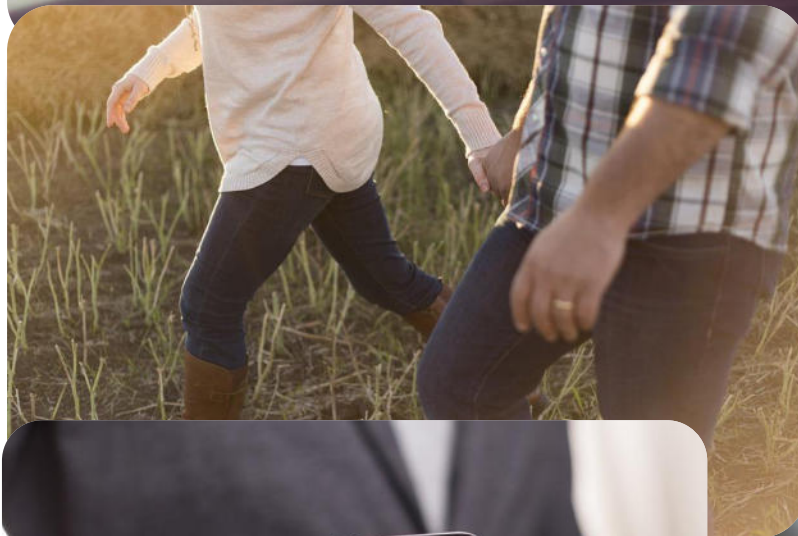
Source: *Europäische Kommission 2003*

eHealth is “the collective term for the tools based on information and communication technologies for improving **prevention, diagnosis, treatment, and the control and management in the area of health and lifestyle.**”

Source: *Europäische Kommission 2003*

Activity 1

Lifestyle! Health!
For what do you
need apps?



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 **HEAL**
E-HEALTH LITERACY

Activity 2

Check your
own device!

Do you have the apps from the cluster on your phone?

What health and lifestyle apps do you have?
Add them to the cluster!

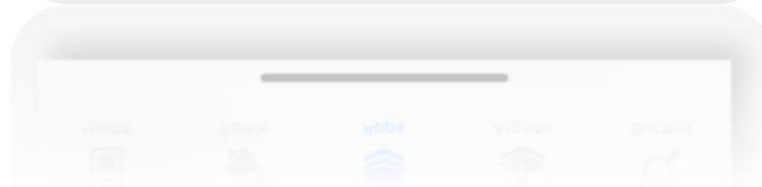
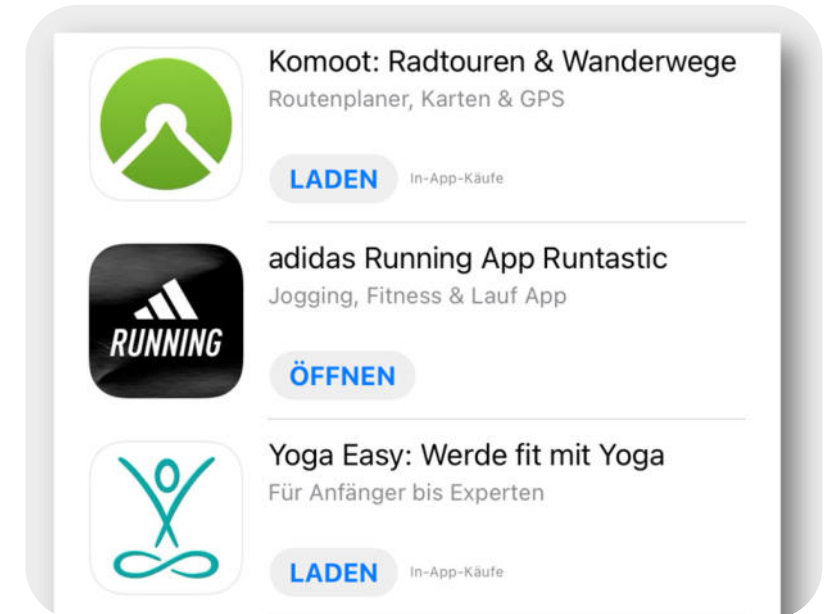
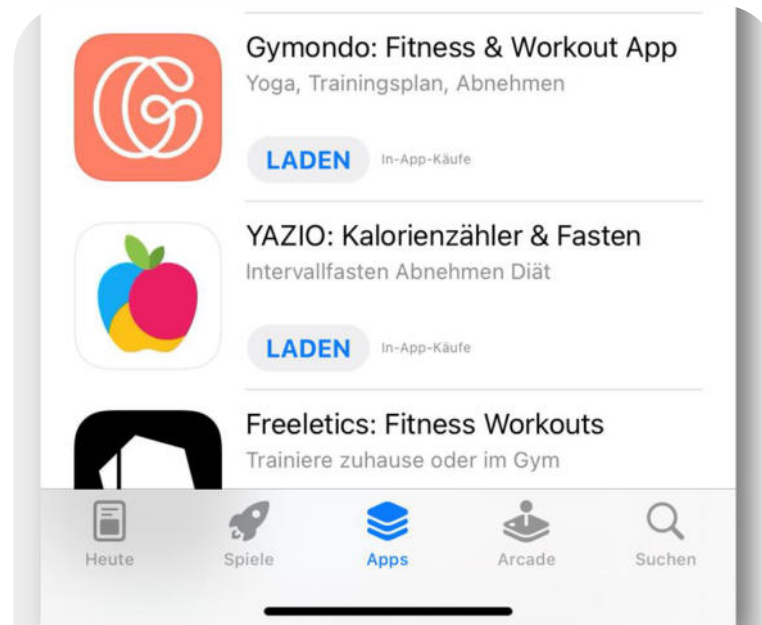


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Check out the app store!

Activity 2

Check your
own device!



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Activity 2

Check your own device!

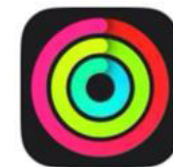
Category "Healthy Body & Mind" (AppStore)

- Reminders, e.g. drink water or take pills
- Structure, e.g. habits, motivation,
- Relaxation, e.g. meditation and breathing
- Sleep and wake up
- Nutrition & diet
- Menstruation tracking
- Fitness, e.g. yoga, walking, running, cycling

Combinations usually consist of diet and fitness



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Lecture 1

How do health and lifestyle apps work? & What can they really do?



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Lecture 1

How do health & lifestyle apps work?

Example: “Water drinking” reminder

- Sets an average need of water per day
- The more personal data the user provides the more accurate will the app calculate the advised amount
- The apps works like a **diary**
- It uses incentives to keep using it
- It can be connected to other health apps



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Lecture 1

How do health & lifestyle apps work?

Example „Meditation“

- The apps offer different sessions to relax, reflect, fall asleep etc.
- Often the user sets a goal that they want to achieve and the app provides a more specific program



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Lecture 1

How do health & lifestyle apps work?

Example „Health“ (often pre-installed)

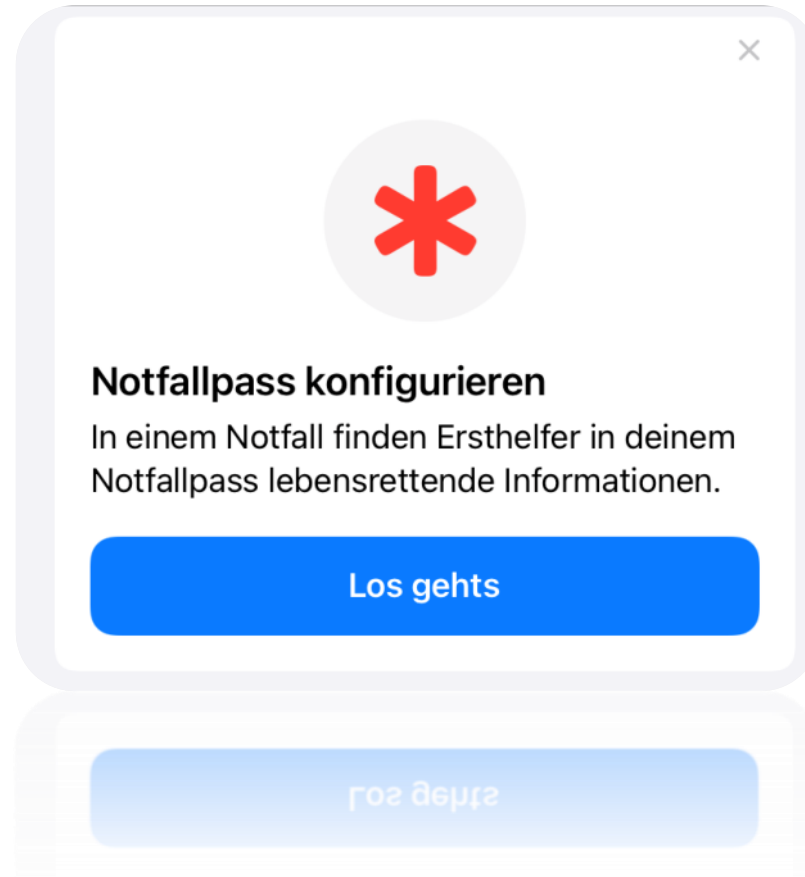
- They run in the background without being activated
- Counting steps, distance, stair climbing, step length etc.
- They offer more functions which can be measured with a smartwatch.
- These apps work with built-in sensors



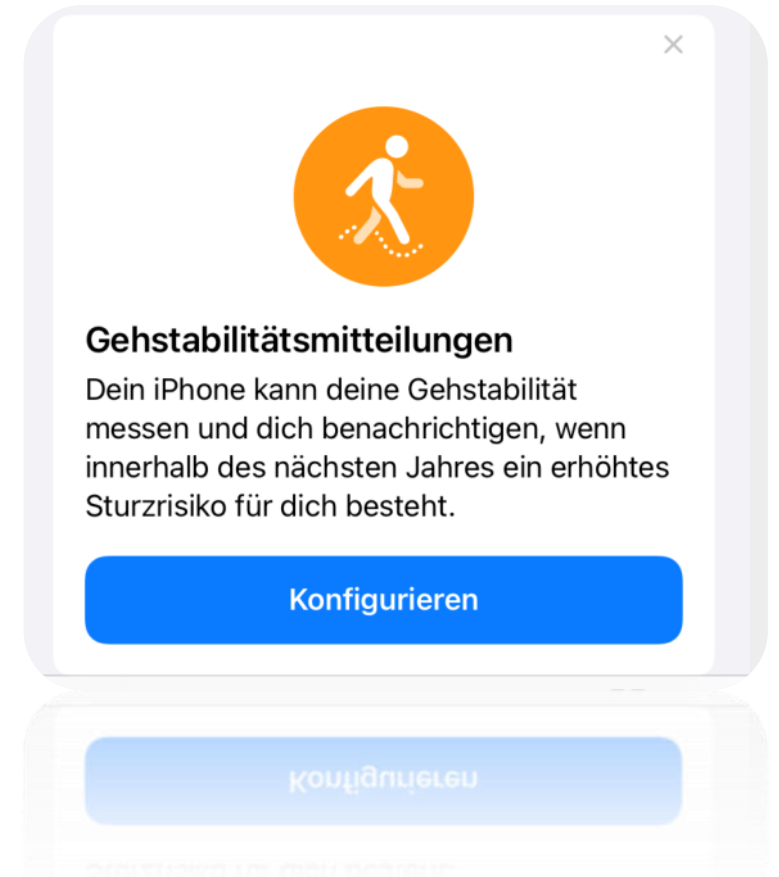
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Lecture 1

How do health & lifestyle apps work?



Configure emergency passport



Walking Stability Message



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Lecture 1

What can these apps really do?

- Prevention
- Diagnosis
- Treatment
- Control
- Management

Discuss with the group: Where are the limits of these apps? Are there risks?



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Lecture 1

Good to Know!

- These apps need data, that means the user needs to be disciplined in providing the data.
- The apps collect and save data all the time.
- These apps work mostly with statistical data and findings – average numbers might not apply to everyone.



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Activity 3

It's a Match!

Match the appropriate e-health and lifestyle apps to the users!

The persona in front of you came to you seeking your counsel. They would like to improve their life!

Please study the profile of your persona. In order to decide for the right apps identify the life situation of the person. What apps would help support their life? Would they use those?

Link to conceptboard:

<https://app.conceptboard.com/board/a2xm-839m-ann3-cf7u-s6c8>



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Break Time!



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Lecture 2

Wearables



Definition

"Wearable technology, also known as "wearables," is a category of **electronic devices** that can be worn as accessories, embedded in clothing, implanted in the user's body, or even tattooed on the skin. The devices are hands-free gadgets with practical uses, powered by microprocessors and enhanced with the ability to send and receive data via the Internet."

Source: Investopedia "What is wearable technology (Wearables)? Definition and Examples" [Link](#)



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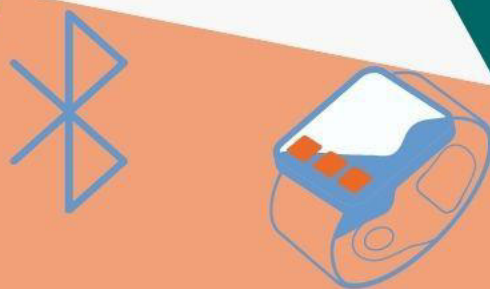
Smart Headphones

Thanks to Bluetooth connectivity, they don't need any cables. They can also attenuate ambient noise via noise-canceling. One conceivable future feature is a function that enables direct translation of speech.



Smartwatch & Fitness tracker

The "wristbands with software" are already used by many in everyday life: 24 percent of Germans drank such a wristband. Read the time, count steps - calls can be made with certain devices.



Data Glasses

They are designed to enrich their wearer's field of vision with digital information. This enhancement is known as "augmented reality." Technologically, current models are often immature and therefore not widely available on the market.



Smart Clothing

Garments with self-sewn sensors that can measure body values such as pulse rate - wearables have also arrived in the textile industry, but are not yet very widespread. the Fraunhofer institute, for example, is conducting research in the field of "Smart Textiles"

Smart Keys

"Smart keys" enable electronic access to one's own four walls. If the smart keys are ever lost, they can be located via Bluetooth. There are now numerous providers of smart home systems.



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Lecture 2

Wearables

The benefit of
a smartwatch.



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Lecture 2

Wearables

Risks & Challenges

- „Quantified Self“: sport and health
- Optimisation of the human being
- App of insecure sources may contain malware
- In-app purchases, for example for training plans, can become hidden cost traps and turn sports and meditation fun into expensive fun.
- Depending on the permissions, third parties can read out sensitive data.
- Criminals could gain access to the apps and wearables and cause personal or financial damage.



Lecture 2

Wearables

Using apps and wearables safely!

- Check settings of the app or device for privacy
- Conscious use of providing personal data
- Ask following questions:
 - What sensors, such as a camera or microphone, does the device have?
 - What data is recorded and stored?
 - Can it be traced where the data is stored?
 - Will this data be sent or shared with other applications?
 - What potential risks might be associated with using the device and am I willing to bear them?

Weighing convenience or functionality against aspects of security!



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Lecture 2

Wearables

Prices & Costs

- Wearables have a wide price range, e.g. Smartwatches vary from 39,-€ (Amazfit), to 129,-€ (Fitbit) and 199,99€ (Garmin).
- This means they are not easy accessible for everyone.
- Apps are mostly free of charge BUT the user needs to purchase in-app an abo to access most of the functions.



Lecture 2

Wearables

Smart Health Devices

- [Food Marble Aire 2](#) - Measures food incompatibilities
- [Stimulation current device](#) for pain relief through electrical nerve stimulation
- [Hapifork](#) – a fork that vibrates when you eat too fast
- Blood Pressure Monitor
- Body Fat Scale



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Activity 4

Sensors & Tracking

Let's do an experiment! Your Smartphone is a mobile laboratory!

Step 1: Download the app „Phyphox“

Step 2: Go to „Alltag“ and open „Applausmeter“

Step 3: Measure the applause / noise everyone is making

If you have an elevator in the building you can check out how fast it goes!

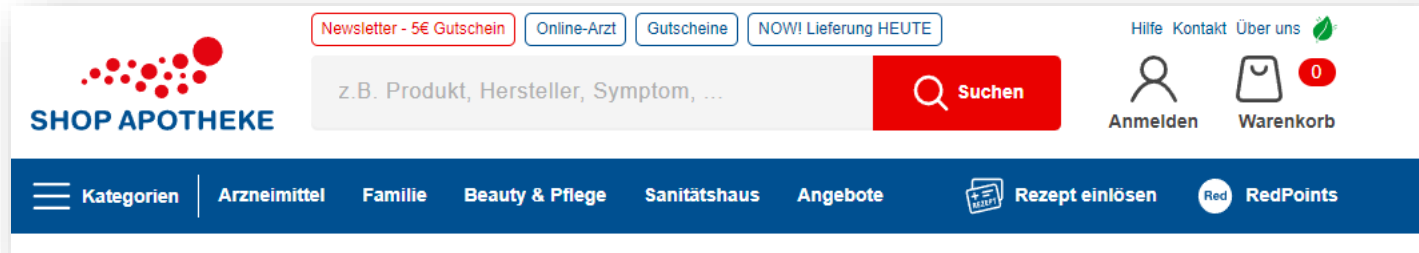
Source: Phyphox – physical phone experiments:
<https://phyphox.org/de/home-de/>



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Lecture 3

Online Pharmacies



- The standard medical products online that you see also in normal pharmacies and that are **non prescription** (e.g. cremes, pain killers) can be ordered online like any other online Shop.
- The drugs that need a prescription can be acquired also but the patient has to send the prescription per post (at the moment).



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Screenshots from <https://www.shop-apotheke.com/rezept-einloesen/>

Activity 5

Discussion

What are the advantages of online pharmacies?



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Lecture 3

Online Pharmacies

Risks & Challenges

- The users needs to have the competences and skills to shop online, that means also a method to pay (credit card, paypal).
- Online pharmacies be a fake shop and / or could offer counterfeit.

But:

- Online shopping can be taught and the biggest mistakes pointed out ([find material here](#)).
- In the EU the system to validate pharmacies is good. The countries have a seal and a list in which one can check if the online pharmacy is reliable.



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Lecture 4

E-prescription

Personal data of the patient and
Doktor

Ausdruck zur Einlösung Ihres E-Rezeptes

für Erika Mustermann	geboren am 06.11.1975
ausgestellt von Dr. Max Mustermann Praxis für Innere Medizin 089/123456 praxis@praxis.de	ausgestellt am 21.12.2022

1

2

3

1x AZITHROMYCIN Abz 250 mg
Filmtabletten / 6 St M2
morgens und abends 1
PEN:01065616 Kein Austausch

1x Ibuprofen / 800mg /
Retard-Tabletten / 20 St
0-1-0-1

Rezeptur
1x Aluminiumchlorid-
Hexahydrat-Gel 15% (NRF
11.24.)

8
e-Rez

Collective code
that bundles all
individual
prescriptions.
To submit all
prescriptions,
scan the
collective code.

1-3 individual prescriptions with intake instructions and
associated prescription codes.
If you want to redeem only one prescription of your
prescription, scan the code from the single prescription.



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Lecture 4

E-prescriptions

Advantages

- The e-prescription leads to an improvement in prescription and therapy safety, e.g. by avoiding reading errors of handwritten prescriptions or formal errors.
- The e-prescription is secure against forgery.
- With the e-prescription the patient can order 24/7 from home.
- The e-prescription can be issued in a video consultation with the doctor.



Self-learning task

- Install and try out three apps – what do they do and how do they work? Present them at the next meeting.
- Complete the conceptboard: what kind of support / training would you offer to the person of your profile?



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Quiz

1) How do e-health apps often work?

- a) Like a diary
- b) With data of the user
- c) Run by a doctor

2) Wearables are clothing with which the user gets all the nutrition they need. True or false?

- a) True
- b) False

Quiz

3) Some e-health apps work with build in sensors. True or false

- a) True
- b) False

4) Which of the following examples of a purpose of health and lifestyle apps does not exist?

- a) Water drinking
- b) Nose bleeding
- c) Menstruation

See you next
time!

- Thank You and Good Bye



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Persona (fictional)

Name: Lisa Smith



Personal background (socio-demographic characteristics)

- 73 years, woman, married
- born in Hamburg, mother tongue German, lives in a village 45 km away from Hamburg (rural).
- Profession: Nurse (retired)

Personal Situation

She and her husband live in a house with a garden 5 minutes walking distance to a forest.

Her relatives (2 children, 3 grandchildren) live in Munich and Berlin.

She has glasses.

Prior knowledge and learning experience

She has a little bit of previous knowledge / experience with a smartphone because her children bought her one last Christmas. She uses mostly WhatsApp to communicate with her children

"So far, my husband Egon has always done that with the computer."

Hobbies, interests, habits

She is very active and sporty. She likes to go for walks and ride the bike. But at the moment she mostly has to do it alone because her husband is not so interested.

She likes cooking, sewing and knitting. But she always makes mistakes when knitting, because she is out of practice and sometimes very tired in the afternoon.

Both, her husband and her, like to play board and card games. Her husband likes to keep record of the results.

With her husband she travels at least twice a year: Within Germany (e.g. Black Forest) and Europe (e.g. Gran Canaria).

Motivation, expectations, goals

Her husband is not so active and she would like to motivate him to move a little bit more. She wants that they have a healthy, active and independent life together.

Some friends of her use the smartphone for many more things than WhatsApp. She would like to be more sovereign in using it.

She has heard and read that many things will soon be impossible without computers and the Internet. (e.g. bank transactions, e-prescription and other tasks).

Fears and challenges

In principle, she doesn't know where to start.

She is afraid to download the wrong apps and to fall into a money trap.

She's afraid that once she gets home, no one can help her. Her husband only knows about the big computer.

Persona (fictional)

Name: Tom Miller



Personal background (socio-demographic characteristics)

- 58 years, man, single
- born in a medium sized town, mother tongue German
- Profession: Journalist (for a few years out of work)

Personal Situation

He lives alone in a two room apartment, 10 minutes away from the centre.

Because he is unemployed, he often sleeps in. He doesn't have many plans and feels a little but lonely.

In the last years he gained some weight and at the last doctor's appointment he was told that his blood pressure is too high.

Prior knowledge and learning experience

He has previous knowledge / experience with the computer and Office applications (Word, Excel), e-mails and researching/surfing in the Internet.

He has acquired the knowledge through his profession and still likes to browse the Internet and play computer games. He owns a smartphone but doesn't use it very much.

Hobbies, interests, habits

He loves food and especially fast food.

He likes to read and play video games.

In the past, he enjoyed meeting his friends and family but nowadays he is too shy and doesn't feel good enough to go out.

He is interested in politics. Therefore, he reads everyday the newspaper.

Motivation, expectations, goals

Tom knows that he has to change something about his life. The last appointment with his doctor made it clear that he is not healthy anymore and this cannot go on.

His friends always say that he is a good guy and it should be easy for him to find a partner. But first he needs to get his life in order.

Fears and challenges

He is reluctant when it comes to giving too much data to big companies.

Although he is tech-savvy, the smartphone is merely something he has because everyone does. He doesn't really know for what he should use it.

Persona (fictional)

Name: Walter Volkow



Personal background (socio-demographic characteristics)

- He is 81 years old and widowed
- born in Cologne, mother tongue German
- Lives in Cologne in an apartment for elderly people
- Profession: construction worker

Personal situation

He has three children and four grandchildren who live around.

He worked all his life with his body and has now trouble with his knees and his hip. So he is not able to walk long or even short distances.

Sometimes he gets dizzy and the doctor said he needs to drink more water during the day.

Prior knowledge and learning experience

He has low digital skills. Years ago he made a computer course to learn the basics but he hasn't used these skills for a while now.

His children and grandchildren would buy him a smartphone or tablet and also show him how to use it if he wanted to have one.

Hobbies, interests, habits

He loves to cook, especially for his family.

Watching sport in the television and also on the field is his hobby. He mostly likes football but he is interested in all sports.

Because of the pain in his legs, he takes regularly medicine.

Motivation, expectations, goals

He has refused for a long time to own and use a smartphone because he didn't see the benefit. Now his oldest grandchild will leave for Latin America and told him they could stay in touch via a messenger.

And his friends and family told him that there are some apps that can help him with certain aspects of his life.

Now he wants to learn to use this device but doesn't expect much of it.

Fears and challenges

The biggest challenge is that he doesn't know how to use the smartphone.

He is willing to learn how to use a smartphone but he expects that he will lose interest in it very soon (latest when his grandchild is back home).

BENEFIT

Staying motivated by tracking improvements and being able to share them with other sportswomen and –men.

CONTENT

Tracing Routes

Following running or cycling routes, speed and time. Sharing routes and results with friends.

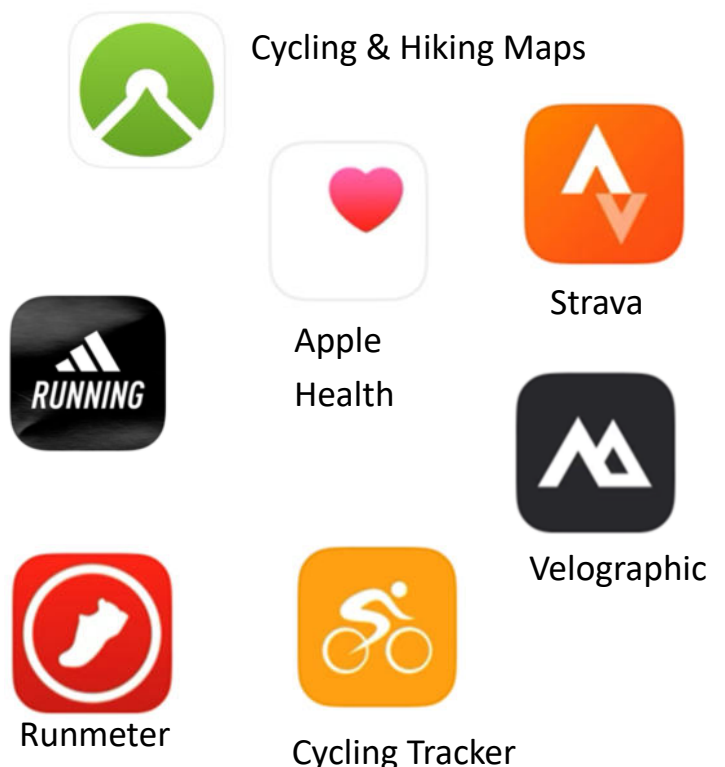
PRODUCT

Wearables



APPS

Tracing Routes



BENEFIT

Short workout sessions that can be done at home. Individual workout plans to see fast results.

CONTENT

Workouts

Training sessions are presented in videos to imitate them at home. These apps often create a sport programme along the body measurements and goals of the user.

PRODUCT

Scale



APPS

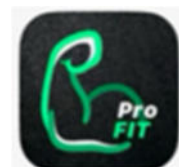
Workouts



Gymondo



Peloton: Fitness & Workouts



ProFit



Women Fitness

BENEFIT

Measure the blood pressure at home and keep track of the course.

CONTENT

Blood Pressure

Blood Pressure Monitors that are connected to app in order to track the process.

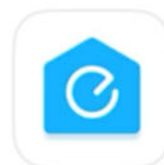
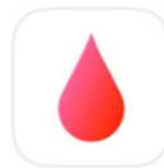
PRODUCT

Blood pressure monitor



APPS

Blood Pressure



Eufy Blood Pressure Monitor

BENEFIT

Motivation to achieve „the steps for today“. Overview and control over the own exercise.

CONTENT

Counting Steps

Apps counting the steps and distance the user makes. Often the apps can also the walking speed, stride length and asymmetrical stride.

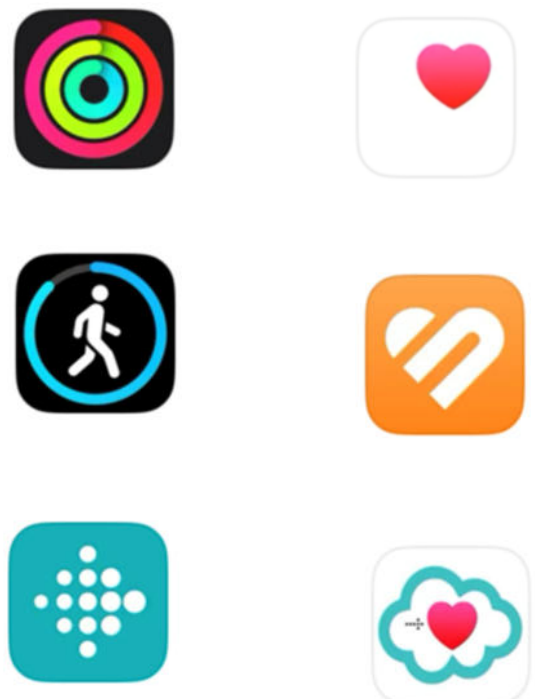
PRODUCT

Wearables



APPS

Counting Steps



BENEFIT

Loosing negative thinking
and becoming motivated to
take on new tasks.

CONTENT

Motivation & Affirmation

These apps use quotes and
reminders to remind the u-
ser of their worth.

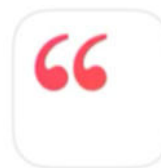
PRODUCT

Smartphone



APPS

Motivation



Motivation
Quotes



Mantra: daily
affirmation

BENEFIT

A structured life often helps to feel more in control of one's life and being able to manage more. Awareness for one's needs is important.

CONTENT

Awareness & Routine

These apps use schedules and reminders to structure the day and develop a routine. This is combined with developing awareness.

PRODUCT

Smartphone



APPS

Awareness & Routine



Morning
Routine



Gratitude
Journal



Way of Life



Fabulous



Streaks

BENEFIT

Education on calories of food and support to oversee the in-take.
Motivates to keep a healthy diet.

CONTENT

Diet

Supports the user in recording the in-take of calories.
Proposes low-calorie dishes.

PRODUCT

Food Incompatibility



Food
Marble Aire

APPS

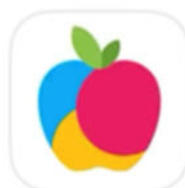
Diet



MyFitnessPal: Calorie counter



Lose It! Calorie counter



Yazio



Lifesum: more than tracking calories

BENEFIT

Concentration on one self, using simple techniques to de-stress.

CONTENT

Meditation & Sleep

Session to which the user can meditate and clear their mind. Uses breathing exercises to fall easier asleep and feel less stressed.

PRODUCT

Smartphone



APPS

Meditation & Sleep



Calm



Headspace



Breethe



Petit BamBou

BENEFIT

Not leaving home to receive medication.

CONTENT

Pharmacy

Buy online medication and even submit a prescription.

PREREQUISITE

Online Banking

APPS

Pharmacy



MAYD: Pharmacy Delivery



Pharmacy App



Medpex.Pharmacy Delivery



Shop Apotheke

BENEFIT

Works well for people
who forget to drink
enough.

CONTENT

Reminder: Drink Water

The app works like a diary in
which the user can report
how much water they drink.
The app reminds the user if
necessary. The app calculates
how much water other

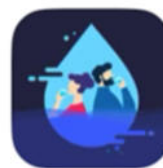
PRODUCT

Smartphone



APPS

Reminder: Drink Water



BENEFIT

Having qualitative and reliable information on medication.

Being reminded to take the medication in every situation.

CONTENT

Medication: Reminder & Info

These apps remind the user to take their medication or provide information about the medication.

PRODUCT



APPS

Medication: Reminder & Info



MyTherapy Pills



Arznei aktuell



Amboss



mediteo

BENEFIT

Improves the sleep rythm by telling when th user should go to bed and when they should wake up.

CONTENT

Sleep Tracker

These apps track the sleep of the user by using different sensors and audio recording. They analyse the best time to sleep for the user and often also promise to help to reduce snoring.

PRODUCT

Smartphone



APPS

Sleep Tracking

