Cáritas Diocesana
de COIMBRA

SmartWork - Age-friendly Living and Working Environment

GIES2022 | A Worker Centric AI System for Work Ability Sustainability / Hong Kong

13/Oct/2022

WHO WE ARE

Cáritas Coimbra (CDC) is a Portuguese social non-profit organisation (NGO)

- **Intervention areas:** social, health, education and pastoral
- **Where:** 5 districts of the Central Region of Portugal
- **How:** 90 Centres (126 social responses) and about 1000 employees
- **Who:** supports about 14000 people/year

Intervention Areas

126
SOCIAL RESPONSES

991
OLDER ADULTS

4614
HEALTH

4924
YOUTH & EDUCATION

116
CHILDREN AND FAMILIES AT RISK/DANGER

2925
INCLUSION

361
OTHER SERVICES

SmartWork

Byte
solutions.unlimited

Cáritas Diocesana de COIMBRA

CENTER FOR ASSISTED LIVING TECHNOLOGY

IPN
INSTITUTO PEDRO NUNES

Raising the Floor
ONE-SIZE-FITS-ONE DIGITAL INCLUSION

UNIVERSITY OF PATRAS

Roessingh
Research and Development

spark works

LINKÖPING UNIVERSITY

ECHAlliance

What is SmartWork

The SmartWork project builds a **Worker-Centric AI System for work ability sustainability**, which integrates unobtrusive sensing and modelling of the worker state, with a suite of novel services for context and worker-aware adaptive work support.

SmartWork aims to **design and create age-friendly living and working spaces**.

Objectives

1. To create a Worker-centric Artifical Intelligence (AI) system for work ability sustainability
2. To achieve unobtrusive sensing and modelling of the worker state
3. To implement a novel SmartWork services suite for the context and worker-aware adaptive work support
4. To co-create and evaluate the SmartWork system, by organizing two pilots, with the active engagement of the end users in real world settings, with special attention to ethics, privacy and security

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SmartWork Services

Office Worker Services

healthyMe

Delivers precise monitoring of physiological and behavioural parameters, key for efficient self-management of chronic health conditions.

myWorkAbility

Measures the psycho-physical capacity of the office worker, suggesting flexible working practices and supporting decisions to improve their wellbeing.

ubiWork

Helps employees maintain a work/life balance and help employers improve the productivity and efficiency of their business.

workCoach

Provides on-demand training support personalised to the older worker's profile.

Employer Services

digiTeam

Enables flexible management of the workforce to increase efficiency and productivity and to optimize training and knowledge management activities.

Carer Services

iCare

An adaptable and accurate service for health monitoring allowing carers for older workers to select and personalize parameters depending on the specific disease or condition.

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Effectiveness

To evaluate the effectiveness SmartWork was defined and choose from the current:

KPIs

Examples: **Increased self-confidence and desire to return to work** of the employee after severe disease by 30%

Instruments

Examples: WHOOQOL-BREF, SF-36v2, COPSOQII, OARS, FIS, PSQI, SUS, WAI, QANECAP, Focus Group/ Personal Interview , System Performance

Different Periods

Examples: Baseline, Months 2/4/6, after pilot.

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Effectiveness | Pilot

- **USABILITY**

Assess **usability** of SmartWork services and products and system features.

- **IMPACT**
  - of SmartWork in **supporting "Independent living, and quality of life of older persons**
  - of SmartWork in **promoting "Enhanced health and safety working conditions and quality of life of older persons at work**

- **COST-EFFECTIVENESS**

Assess"**Potential cost-effectiveness"** due to **enhanced self-care, life-style, age-friendly and skills** conducive work environments and socioeconomic benefits".

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SmartWork services under test

	ubiWork
Users	Workers 55+
Type of Platform	Desktop App
Devices & Equipment	
Technical Partners	RtF

	healthyMe | Activity Coach
Users	Workers 55+
Type of Platform	Android / Web App
Devices and Equipment	
Technical Partners	RRD / IPN / Sparks

	myWorkAbility
Users	Workers 55+
Type of Platform	Desktop / Web App
Devices & Equipment	
Technical Partners	COIN / Sparks

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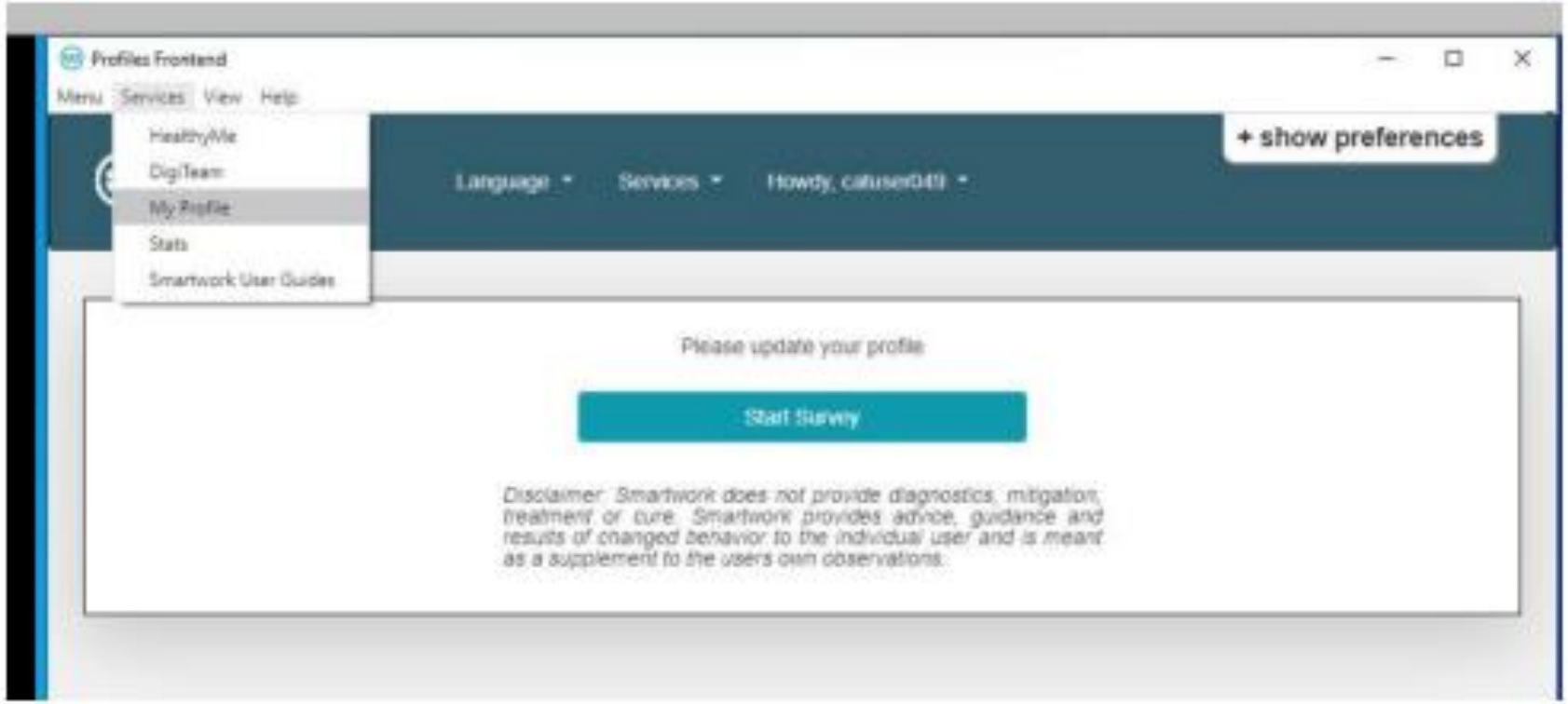
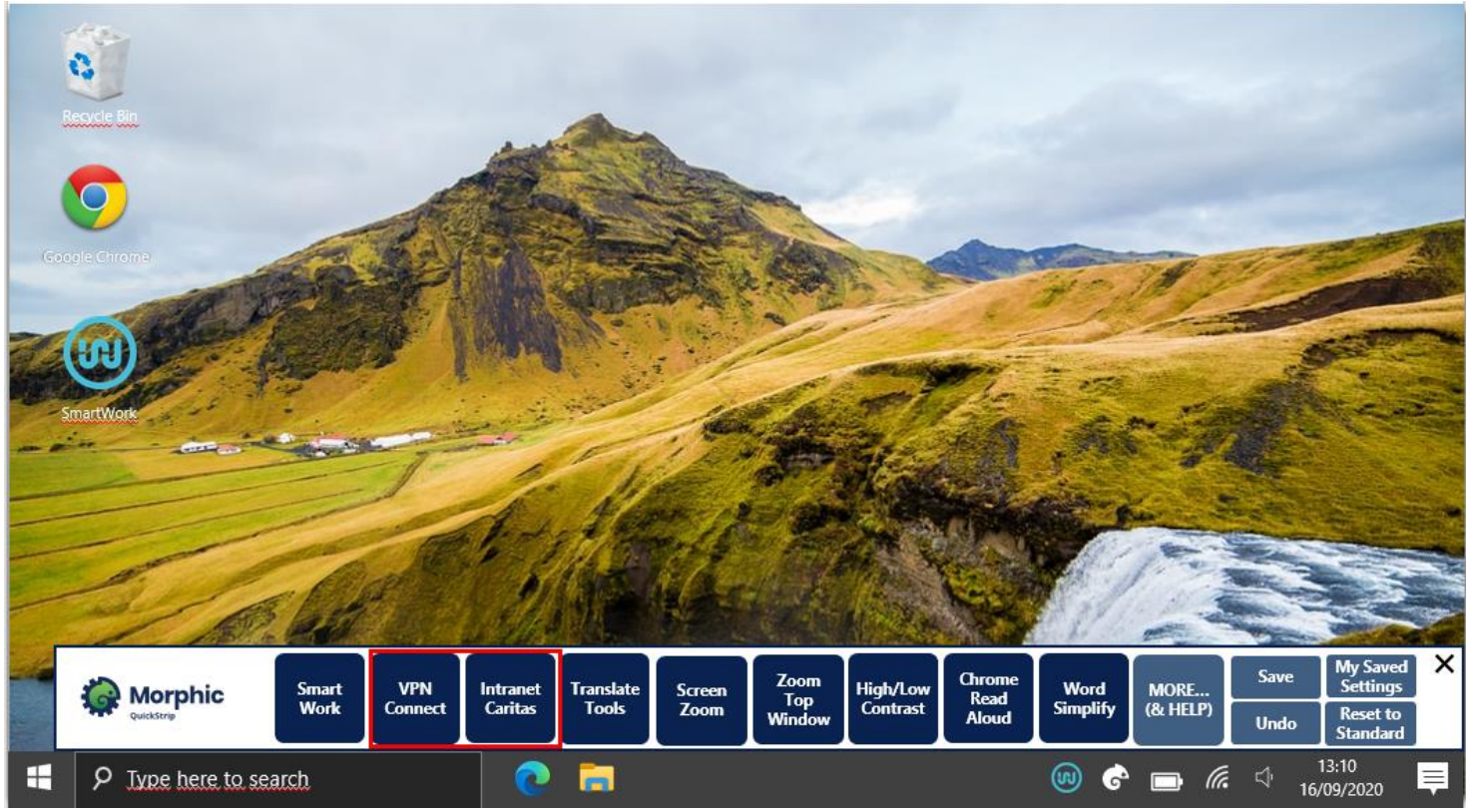
SmartWork services under test - User profile

1st step - Access to the user profile from SmartWork Desk-Top



SmartWork services under test | ubiWork

ubiWork - A custom version of Morphic was installed in the CDC's workstations. This version was adapted to the specific needs and processes of the CDC workers.



Morphic

	ubiWork
Users	Workers 55+
Type of Platform	Desktop App
Devices & Equipment	
Technical Partners	RtF

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SmartWork services under test | myWorkAbility

myWorkAbility - Environmental Sensor Box and FocusBuddy were installed at the PC/Laptop

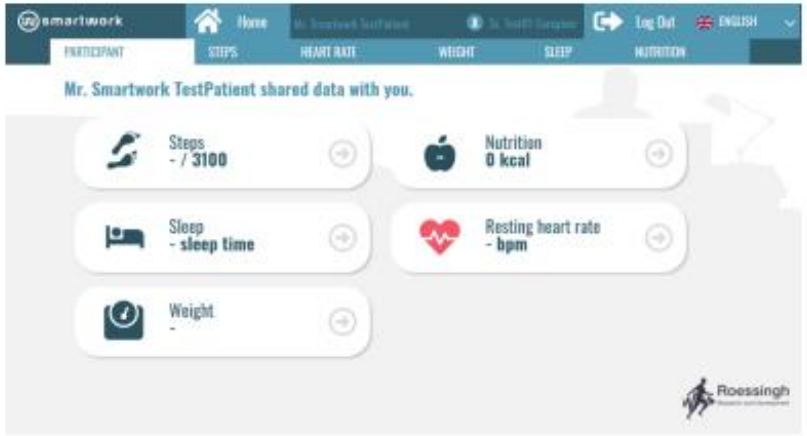
Environmental Sensor Box

FocusBuddy

	myWorkAbility
Users	Workers 55+
Type of Platform	Desktop / Web App
Devices & Equipment	
Technical Partners	COIN / Sparks

SmartWork services under test | healthyMe (Activity Coach | iCare)

healthyMe (Activity Coach | iCare)



	healthyMe | Activity Coach
Users	Workers 55+
Type of Platform	Android / Web App
Devices and Equipment	
Technical Partners	RRD / IPN / Sparks

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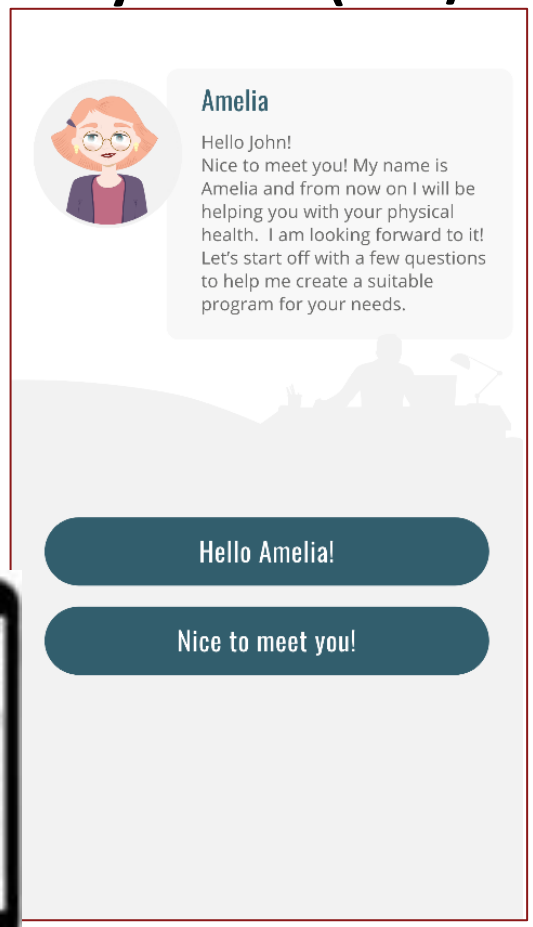
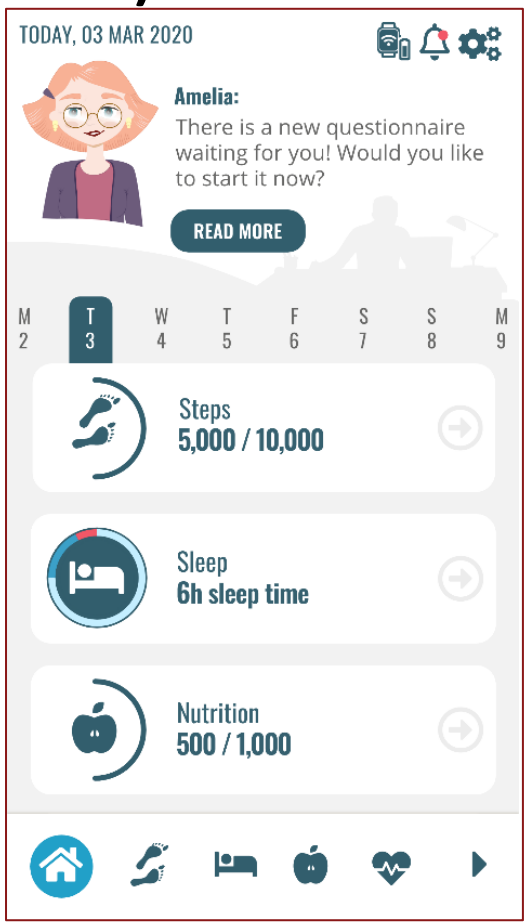
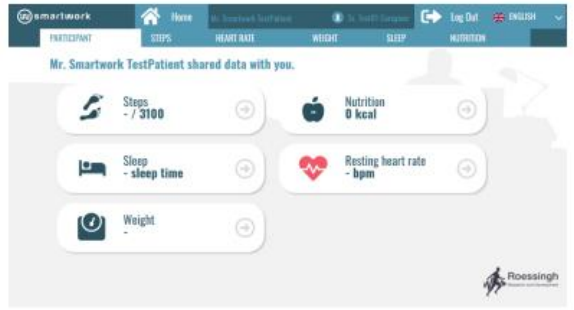
SmartWork services under test | healthyMe (Activity Coach | iCare)

Smart band – Activity Coach (and/or iCare)





iCare



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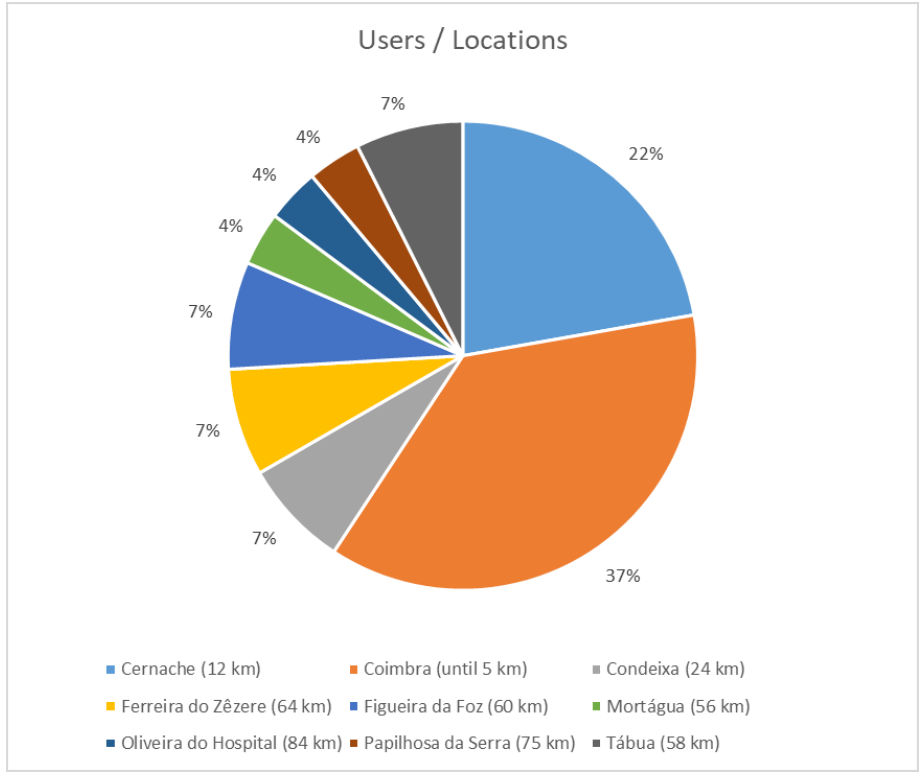
TRIAL | (Oct 21 – Mar 22)

# of participants: 26 (4 dropouts)
From 9 different locations



TRIAL | (Oct 21 – Mar 22)

Instruments	TRIAL	
	Baseline	End of trial
Study information sheet	X	
Informed Consent	X	
Sociodemographic Quest. Personalized Profiling	X	
SUS	X	X
WHOQOL and SF-36v2	X	X
Pittsburg Sleep Index		X
Work Ability Index		X
Interviews	X	X

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TRIAL | SUS evaluation

Mobile Phone applications, 57% said that would like to use the system frequently. 62% said that is easy to use; 43% said that strongly disagrees with the complexity of the system.

SUS Evaluation of PC applications 67% of respondents said that the system was easy to use; 59% of respondents said that the system is well integrated and 50% strongly disagrees or agrees with the complexity of the system.

SUS Evaluation of the SmartWork system 65% of respondents said that the system was easy to use; and 35% disagrees with the complexity of the system.

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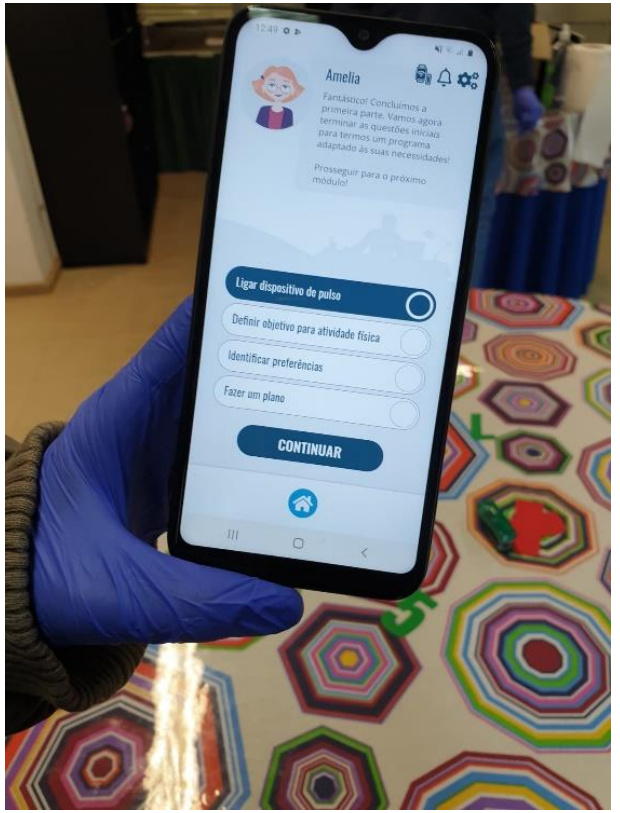
TRIAL | Better user acceptance

healthyMe | activity coach

- The app was easy to understand
- Receive regularly communications from Amélia (AVATAR).
- Met the objectives of the exercises proposed by Amelia
- Drank more water



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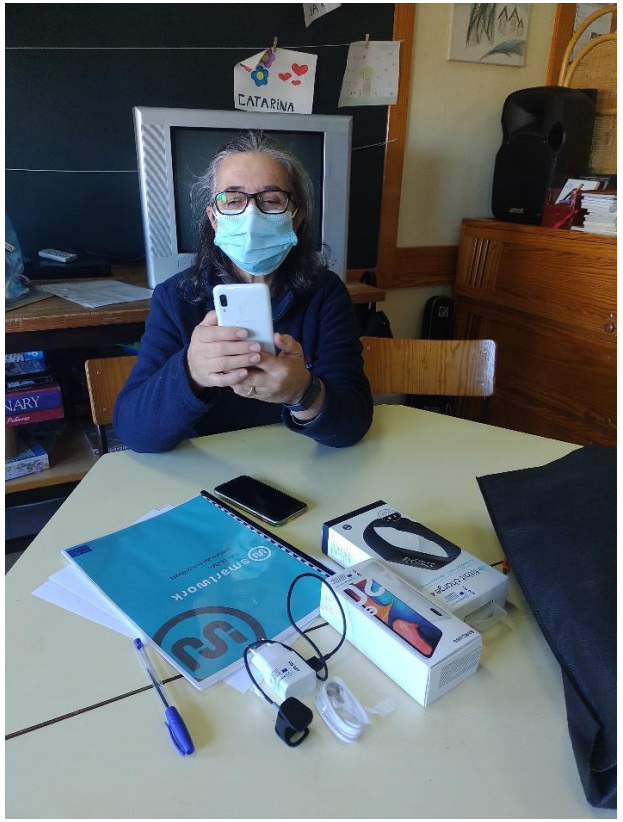
Lessons learned

Technology and Improvement of Health and Quality of Life:

- **Training**
- **Digital Literacy**
- **Health Literacy**



Final interview

"I would certainly recommend to others to go through an experience like this and then continuing the experience!"

Final interview

"I think it makes perfect sense to introduce it in our institution or even in the companies."

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Cáritas Diocesana de COIMBRA

OBRIGADO!

THANK YOU!