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FINAL EVALUATION REPORT

eCAN
Strengthening eHealth for Cancer Prevention & Care

DELIVERABLE 3.2

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Glossary of Acronyms

CBHC	Cross-border Healthcare
EBCP	Europe's Beating Cancer Plan
eCAN	Strengthening E-health Including Telemedicine and Remote Monitoring in Health and Care Systems for Cancer Prevention and Care
EU	European Union
HCP	Health care provider
JA	Joint Action
MS	Member States
TM	Telemedicine
WP	Work Package

Authorship Acknowledgements

Elaboration:

Magdalena Rosińska, Maciej Burski (WP3, Evaluation). Maria Sklodowska-Curie National Research Institute of Oncoogy, Warsaw, Poland

Revision & contributions:

Victoria Leclercq (WP1, Project Management &Coordination). Sciensano, Belgium

Elisa Piñón Hermida, Edgar Hans Cano (WP2, Communication) The Catalan Institute of Oncology, Spain

Katharina Habimana, Claudia Habl (WP4, Sustainability) Austrian National Public Health Institute

Andrea Pace, Vittorio Castaldo (WP5 & WP6, Teleconsultation & Legal, ethical Framework and Cybersecurity). Regina Elena Cancer Institute, Rome, Italy

Efthyvoulos Kyriacou (WP6 & WP7, Telemonitoring & Legal, ethical Framework and Cybersecurity). Electrical Engin., Computer Engin. and Informatics Cyprus University of Technology, Lemesos, Cyprus

Christina Plomariti (WP8, Stakeholder engagement, education and training), Aristotle University of Thessaloniki, Greece

1. Objective

The Final evaluation report is the deliverable D3.2 of the eCAN Joint Action and part of task T3.1. Monitoring and evaluation.

The main objectives of this report are the final evaluation regarding:

I. Achievement of JA objectives

In this report we capture the Key Performance Indicators (KPIs) of the project and the measures of effect of the Joint Action.

Effect of the JA was defined by producing guidelines, recommendations and the roadmap, relevant and feasible to implement by the Member States promoting the wider roll-out of eHealth in the field of oncology.

II. Risks, challenges and mitigation strategies

We summarise the risks and challenges identified before and during the project and the lessons learnt.

III. Participant satisfaction

We assessed the overall satisfaction with the project among participants and its outcomes as well as what was the most appreciated in the project.

2. Evaluation methodology

The evaluation is based on a mixed methods study. The following data sources were used (also summarized in Table 1):

1. Quarterly monitoring reports and the project leadership council meetings minutes

Quarterly reports were prepared by the WP3 team based on the input from the WP leaders, including both quantitative (process indicators, achievements of milestones and deliverables) and qualitative (risk identification). The WP leaders took part in monthly leadership council meetings organized by WP1 to present progress of the activities in their respective WPs, to align the activities, identify synergies, risks and the mitigation strategies.

2. Final stakeholder survey targeting the projects' steering committee members

The steering committee met quarterly to discuss the project progress, outputs and plans. All eCAN participants were invited to these meetings as well as external experts. Given that this group was well informed about the project outputs they were asked to respond to a short online survey to evaluate the relevance of the eCAN JA outputs and feasibility of their implementation in the future. The results included the quantitative and qualitative results.

3. Exit meetings with the pilot sites

The WP5 leaders organized exit interviews with the pilots sites to collect the information about the experience, challenges and the outlook of implementation of the telemedicine solutions in their respective clinical settings. These data were coded for the identifiable themes around challenges, relevance and feasibility of the future use, for the purposes of the evaluation report and a narrative review was prepared.

4. Final meetings with the work package leaders

The final meetings of WP3 and all the WP leads were organized to discuss the achievement of the project indicators and the key challenges that could be identified in their work packages.

Source	Details	Purpose
Quarterly reports	Online surveys to WP leads summarised in 7 quarterly progress reports (WP3 milestones). Summary table was prepared.	Summarise achievement of milestones and deliverables
Leadership council minutes	Monthly meetings organized by WP1 with other WP leads to monitor activities and risks. Narrative summary was prepared.	Inform risks and mitigation strategies summary
Final meetings with WP leads	Final meetings organized by WP3 to discuss challenges and lessons learnt. Narrative summary was prepared.	Inform risks and mitigation strategies summary Inform lessons learnt from the JA
Exit meetings with the pilots sites	Final meetings with all pilot sites organized by WP5 to understand the experience of the pilots, challenges and future outlook. Relevant themes were coded and summarised.	Inform feasibility of implementation Inform risks and challenges Inform lessons learnt
Final Stakeholder Survey	Online survey launched at the last Steering Committee, targeting the Steering Committee members	Inform the relevance and feasibility of the future implementation (effect of the JA) Measure participant satisfaction

Table 1: Data sources for evaluation

3. Project achievements

3.1. Milestones and deliverables

Overall the eCAN JA was able to complete all the planned milestones and deliverables. Necessary time adjustments were made, adhering to the general project timeline and without impact on the successful completion of all project activities.

Work Package		WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8
Months	M1								
	M2	MS1.1							
	M3	MS1.2	MS2.1; D2.1	MS3.1; MS3.2					
	M4			MS3.3				MS7.1	MS8.1
	M5					MS5.1			
	M6					MS5.2	MS6.1		
	M7		D2.2	MS.3.4		D5.1	D6.1		MS8.5
	M8								
	M9					MS5.3	MS6.2; MS6.4		
	M10			MS3.5; MS3.6; MS3.7					
	M11								
	M12	MS1.3; D1.1	MS2.2 MS2.3; D2.3					MS7.2; D7.1	MS8.2; D8.1; D8.3
	M13			MS3.8 D3.1		MS5.4 D5.2			MS8.3 MS8.5
	M14								
	M15								
	M16			MS3.9	M4.2				MS8.7
	M17								
	M18				MS4.3				
	M19			MS3.9					
	M20					MS5.5		MS7.3	
	M21								
	M22			MS3.12 MS3.13					MS8.4
	M23								
	M24		MS2.3		MS4.1	MS5.6	MS6.3 MS6.5		D8.2

	M25						D6.2	D7.2	D8.4
	M26			MS3.11 MS3.14 D3.2					
	M27	MS1.4 D1.2	D2.4		D4.1	D5.3			

Table 2: Milestones and deliverables. MS – milestones; D – deliverable; status: yellow – delay, red: not achieved

3.2 Key Performance Indicator Analysis

This chapter presents the Key Performance Indicators (KPIs) of the Joint Action along the Specific Objectives.

Specific Objective 1

Specific Objective 1: Allow for a better response in case of an epidemic and in crisis situations, where isolation of patients will be an urgent requirement to respond to events

Key Process Indicator(s)	Target Measure of success	Status
Enable remote monitoring and teleconsultation of patients	- Apply the system through pilot studies and prove its usefulness. - Qualitative and quantitative evaluation. - Patient Public Involvement (PPI) in evaluation.	Achieved

Description of progress:

The process is implemented through development of the remote monitoring and teleconsultation system, which includes technical development (WP7), legal analysis (WP6), clinical guidelines (WP5 and WP8) as well as piloting (WP5) and evaluation of the pilots (WP3).

In the framework of technical development there was an initial assessment of the technical and legal solutions in the participating countries, revealing little expertise in the field in the potential pilot sites (only 5 sites had experience with telehealth) (MS6.1). This led to important changes in the design of the system also impacting the data security (MS6.2) and assessment of the cyber risk and data protection issues (MS6.2). This latest resulted in the guidelines to the sites on how to approach the data protection issues, which will be reviewed after the pilot implementation. The central teleconsultation platform was selected and activated (EDUMEET), as part of the eCAN ecosystem (see also Specific Objective 2).
The clinical guidelines and information for patients (booklets, factsheets, videos) were created and 3 train the trainer workshops delivered (MS8.2, MS8.3, D8.3) to complement the protocol for the pilot procedures (see also Specific Objective 3). The protocol for the pilots was developed by WP5 team in close collaboration with other WPs in the form of generic protocol (D5.1) and then site-specific protocols in the national languages (M5.1). It reflects the use of digital tools as well as randomised clinical trial design procedures and analysis plans. Randomisation platform was set up at RedCap in and the tools to measure the effect of intervention selected (standardised quality of life and pain/distress questionnaires). The protocol was registered at the clinicaltrials.gov (ID NCT06007001).
Overall, all tools were found relatively easy to use and technically sound. The details are provided in the Pilot Evaluation Report (D7.2).
Over the duration of the project 16 of 18 clinical centers were able to recruit patients. In two centers it was not possible to activate the study due to legal or ethical barriers. These difficulties are reported in the Final Clinical Study Analysis (D5.3).

In the framework of evaluation, the experience with the telehealth system was collected from the patients (PREMs questionnaires) and of health care workers (SWOT focus groups) and perform cost-effectiveness analysis. Framework for these activities was developed (MS3.2, M3.5, MS3.6) and final results are reported in the Pilot Evaluation Report (D7.2, MS3.14).

Patients were involved in participatory design focus group and 'think-aloud sessions' conducted by WP8 (MS8.5, reported in D8.1 and D8.3), that informed the functionalities of the eCAN ecosystem. The patient experience with piloted solutions was collected as part of pilot evaluation (MS3.14, WP3) and the feedback from the patient reported technical issues was collected from both the intervention and the control group and included in the Pilot Evaluation Report (D7.2). In addition, WP2 created 2 interviews with the patients to elaborate on the experience of participation in the eCAN pilot (see the Dissemination report D2.4).

Key Output Indicator(s)	Target Measure of success	Status
Remote monitoring and teleconsultation system	Meet consultation and monitoring targets: Total of >120 patients monitored for 8 weeks in 10 different countries	Achieved

Description of progress:

The immediate output for this objective is pilot release of the system. The eCAN ecosystem was launched in 17 centres in 10 countries (Italy, Greece, Cyprus, Spain, Lithuania, Hungary, Ireland, Portugal, Slovenia, Belgium – Belgian centre was finally not recruiting) and the staff is trained how to use it, through 'train-the-trainers' workshops and digital training tools (see also Specific Objective 3).
The recruitment is planned to start in the second half of September, gradually in the sites that already have ethics approval.
Finally, the total number of patients enrolled in the pilot study and in the final pilot analysis was 251, of whom 118 were included in the intervention group. This sample size is smaller than intended due to difficulties in recruitment in the Pilot 1b. Overall the study demonstrated that tele-rehabilitation and tele-psychological support significantly improved Patients Reported Outcome measures like HRQoL, pain and distress in specific conditions. We note that although only 251 patients were included in the analysis 270 patients underwent the study procedures and thus the indicator target value was met (details are reported in the D5.3).

Outcome/ Impact Indicator(s)	Target Measure of success	Status
Policy recommendations to promote eHealth and telemedicine for cancer prevention in care in the event of health emergencies and crisis situations considering the lens of equity taken up by national authorities	Final sustainability report (Roadmap) endorsed by Governmental board of participating JA countries.	Achieved

Description of progress:

The outcome for this objective is development of policy recommendations and the roadmap for the future in the form of report endorsed by the consortium members (D4.1).
This document bases on the results of the pilot analysis (WP5, D5.3) and pilot evaluation (WP7, WP3, D7.2), but also extensive mapping of the existing situation in EU Member States (WP4, MS4.1, MS4.2, WP7, MS7.1), literature reviews, guidelines on legal and cybersecurity issues (D6.2) and the foresight exercise (WP4).
WP4 has developed 29 country factsheets based on desk review and 2/3 of these factsheets were validated by relevant stakeholders. The findings were also be published on the eCAN project website in the form of interactive dashboard (see also Specific Objective 4). The dashboard is a tool of structuring the information for decision makers in a comparative way.
The literature reviews completed within the project explored: 1) state of art in equalities in telehealth (WP1, MS1.2); 2) the relevance of the telehealth solutions in cancer care including using the COVID-19

pandemic as case study (WP4, MS4.2); 3) legal and ethical issues of telehealth in cancer care (WP6, MS6.4); 4) contextual factors influencing adoption of telemedicine at different levels (policymakers, health care providers, patients) as part of Foresight exercise. The Foresight study included also surveys and workshops to stakeholders to rank the limiting and enhancing factors for different stakeholders. The Roadmap was presented to the Governmental Board and the recommendations were found relevant. The feedback from the GB member and to incorporate the latest eCAN project results were integrated into the last version of the Roadmap.

Table 3: Key process indicators for Specific Objective 1

Specific Objective 2

Specific Objective 2: Increase capability and capacity to communicate between cancer services during an emergency situation and health crises

Key Process Indicator(s)	Target Measure of success	Status
Enable Telemonitoring services	Availability of monitoring information to appropriate experts	Achieved
Description of progress: This process is closely connected with the implementation of the Specific Objective 1, focussing more on the remote monitoring aspect and the use of digital tools to review the patients' information coming from the remote monitoring. The telemonitoring landscape review (systematic literature review) was conducted by WP7, to support the design of eCAN ecosystem (MS7.1), submitted for publication. The eCAN ecosystem was designed through participatory approach with stakeholder representatives. The system includes the central teleconsultation platform, eCAN app (connected with the selected wearable devices and adapted for Android and IOS systems) and the dashboard for clinicians enabling them to review the data collected during teleconsultation sessions, data entered by the patients through the eCAN mobile app as well as data collected through the wearable devices. The deployment on the servers was carried out by by WP7 (MS7.2, D7.1) and was accompanied by the data management plan which was prepared jointly by WP6 and WP7 (D6.1).		
Key Output Indicator(s)	**Target Measure of success**	**Status**
Remote telemonitoring system	- Availability of information, time analysis of information. - - Investigate the application of AI AI techniques in order to proof the concept. -Total of >120 patients monitored for 8 weeks in 10 different countries	Achieved
Description: The clinician's dashboard presented the list of patients and summarised results of quality of life and pain/distress questionnaires. Also it enabled immediate connection to teleconsultation platform. The patients completed weekly and bi-weekly questionnaires (HRQoL, pain/distress level) on the eCAN app. Overall 251 patients were enrolled in the study, 118 in the intervention group (monitored through eCAN App), 65 used the smartwatch in connection with eCAN App. Given that the acceptance of the smartwatches was not universal, the project did not collect sufficient data to develop AI, but as proof of concept analysis of wearable data how it could be used for development of AI system was conducted (see DL7.2).		
Outcome/ Impact Indicator(s)	**Target**	**Status**
Patients continuous monitoring	-Patient continuous monitoring. -Enable feedback and better response when continuous parameters are recorded	Achieved

Description:
The tools were available in all the pilot sites and clinicians were able to monitor the wearable parameters and the questionnaire data on the dashboard. They found the idea of collecting the data in a single dashboard useful, although the inputting data was burdensome for the patients. Smartwatches were only an axillary study for eCAN, but they are potentially useful for continuous monitoring even if currently were not considered "medical device". There were transient technical difficulties with setting-up the smartwatches and not all patients were confident about the privacy issues related to continuous data transfer.

Table 4: Key process indicators for Specific Objective 2

Specific Objective 3

Specific Objective 3: Improve knowledge of the cancer care workforce in the virtual consultation of patients and survivors resident in areas that are difficult-to-reach, as well as improving preparedness to respond to emergency and crisis situations

Key Process Indicator(s)	Target Measure of success	Status
Number of training events	Up to 10	Achieved
Number of professionals participating in different knowledge enhancing actions	Up to 200	
Satisfaction of participants regarding the setting and delivery of knowledge enhancing actions	80%	
Description: This objective targets the health care professionals. As the first step the training activities were directed towards the staff of the piloting centres. Firstly, 9 'think-aloud' sessions were organised to familiarize the health care workers and patient representatives with the eCAN ecosystem functionalities, which also served to collect feedback on the usability of the system (27 participants). Moreover, the WP8 developed digital platform and training materials (MS8.2) to be distributed to the health care workers, including video recordings of the telehealth solutions used, which will be uploaded to training platform (MS8.3), currently 3 activities are available. In addition, 3 'train-the-trainer' workshops were organized to review the use of the eCAN ecosystem functionalities with representatives of the pilot site staff (details provided in the D8.3), with an overall number of 78 participants. Based on this experience and rapid literature reviews WP8 team identified knowledge gaps and the training needs. Four train-the-trainers events with health care professionals and 1 train- the – trainer workshop with the patient organisation on how to use the training materials were organised, also to test the training curricula developed and deployed on the training platform – MOOC (D8.4). These training events attracted 72 participants. The final evaluation of the MOOC curriculum revealed 90% of HCPs and 82% of patients and caregivers were very or extremely satisfied with the training delivery.		
Key Output Indicator(s)	**Target Measure of success**	**Status**
Training guidelines for HCPs aiming to enhance their digital competencies applied to telehealth for cancer care	Final evaluation report regarding training methodology and activities	Achieved
Description: The initial version of training guidelines and materials was prepared targeting the health care professional working in the eCAN pilot sited. WP8 prepared the educational and training activities analytical report (D8.3), which describes the training methodology used for identification of the training needs and the structure of the training and courses to be implemented, including the literature reviews and co-creation workshops. The final curricula were prepared based on the feedback from the training target population and released on MOOC platform. Two pathways were created – for the healthcare		

providers and for patients and caregivers and evaluated based on the feedback section of the course (D8.4).

Outcome/ Impact Indicator(s)	Target	Status
% of HCPs that improved their knowledge and skills Perceived improvement of knowledge and preparedness by patients	80% approximately 80%	Achieved

Description:
The evaluation of the training showed the following indicator values: 60% of HCPs and 80% of patients/caregivers perceived that their knowledgeds and skills in telemedicine improved very much, 70% of HCPs and 77% of patients/caregivers felt very/extremaly comfortable to integrate telemedicine in regular practice, 90% of HCPs and 70% of patients and caregivers would feel very/extramaly comfortable to asist others with telemedicine; 90% of HCPs and 77% of patients and caregivers felt very and extramaly well informed on benefits and challenges of telemedicine. In addition, 90% of HCPs and 92% of patients/ caregivers found the provided information very/extremaly useful and 90% of HCPs and 82% of patients/caregivers were very/extramaly satisfied with the mode of the training delivery.

Table 5: Key process indicators for Specific Objective 3

Specific Objective 4

Specific Objective 4: Increase communication to support knowledge-sharing among healthcare professionals

Key Process Indicator(s)	Target Measure of success	Status
Identification of stakeholders and communication channels Number of thematic workshops held	Mapping of the local stakeholder groups Creating targeted communication channels At least 1	Achieved

Description:
The increase of communication and knowledge-sharing is to be fostered by engagement of stakeholders at national and international levels with tailored communication to these groups. The initial stakeholder mapping was performed jointly by WP2 and WP8 and analysed to understand eCAN stakeholder groups (MS8.1) and to identify the main channels and tools to reach out and engage with them for communication, dissemination and visibility purposes (MS2.2). Further, WP2 developed the dissemination plan, the visual identity and defined the different communication strategies (website, written and audio-visual social networks, newsletters, etc) that would be used to engaged the identified stakeholders (D2.2, MS2.1). The reports on the dissemination activities were prepared by WP2 (D2.3, D2.4).
Based on the mapping of the stakeholder groups, 4 thematic workshops on stakeholder engagement strategies were conducted by WP8 and stakeholder engagement activities report produced (D8.1). Moreover, foresight methodology workshop and 2 workshops with stakeholders during the foresight exercise were conducted. Policy level stakeholder engagement was initiated by WP4 to obtain the validation of mapping on the state of telemedicine in EU/EEA member states, reaching out to approximately 60 individuals in 32 countries. In addition, all work packages actively engaged to prepare workshops and presentations at the scientific and policy events.

Key Output Indicator(s)	Target	Status
Number of meetings with stakeholders	>20 approximately	Achieved

Number of presentations at scientific and policy events Number of stakeholders engaged	>40 approximately up to 15 per pilot site	
Description: The website and social networks channels are operational with continuous interest in the content provided. The stakeholder meetings included the 4 workshops on stakeholder strategies with 72 participants(see above) and regular meetings. eCAN has organised or participated in 65 dissemination activities, including congresses, webinars and meetings and 24 eCAN consortium entities participated in these activities. Moreover eCAN teams has been involved in 6 social media campaigns. eCAN JA was also presented in other EU projects meetings to ensure synergies. The details are provided in the Dissemination Reports (D2.3, D2.4)		
Outcome/ Impact Indicator(s)	**Target**	**Status**
Key performance indicators (KPIs) for evaluating dissemination tools. All of them are detailed in the Dissemination and Communication Plan (D2.2) and the achievement of those KPIs are addressed in the Dissemination Report 2 (D2.4) Number of dissemination and communication activities undertaken during the project and targeting identified stakeholders.	Active participation in professional events including scientific meetings, developing scientifc publications and policy briefs, website and social media channels.	Achieved
Description: eCAN JA partners were invovled in 33 scientific conference presentations/ posters/ workshops. 5 manuscripts were finalized and 1 is accepted for publication (https://doi.org/10.1093/eurpub/ckae206). In addition work is ongoing to complete full manuscripts reporting the key clinical and evaluation findings from the pilot study and the development and valudation of the training materials.		

Table 6: Key process indicators for Specific Objective 4

Specific Objective 5

Specific Objective 5: Enable cross-border cooperation and uptake of results

Key Process Indicator(s)	**Target Measure of success**	**Status**
Number of meetings with eCAN governmental board (includes MS representatives) Number of events with EU-level expert groups on cancer (including professional societies, e.g. ERN EURACAN and PaedCan)	4 meetings (2/year) 4 meetings (2/year)	Achieved
Description: The representatives of all member states involved and international organizations are invited to the steering committee meetings (DG SANTE, HaDEA, European Observatory on Health Systems and Policies, OECD, European Cancer Organisation, WHO- Digital health). Eight Steering Committee meetings (WP1) were held including one during the kick-off event (MS1.1) and one at the final event (MS1.4) with participation of EU level expert groups, other Joint Action representatives and European Commission representatives. In addition there were 2 full Governmental Board Meetings and 8 bilateral meetings with the members of GB. Multiple informal meetings with WHO, EUREGHA and EU level initiatives were also held.		
Key Output Indicator(s)	**Target**	**Status**

Policy brief based on discussions from eCAN governmental board and expert groups	2 policy briefs	Achieved
Description: The project focused on peer-reviewed publications. Specific policy recommendations are included in the review papers (WP4 MS4.2). In addition, summary of the GB meetings, summary of the final conference and a policy brief on the eCAN roadmap will be published on eCAN website		
Outcome/ Impact Indicator(s)	**Target**	**Status**
% coverage of EU MS in eCAN governmental board events (even beyond the partners of consortium)	27 EU MS	Achieved
Description: Although eCAN partners collaborated with decision makers in their respective countries, and many of them validated the policy mapping, convening every MS representative in a single meeting proved challenging. Finally, representatives of 13 MS participated in GB activities.		

Table 7: Key process indicators for Specific Objective 5

4. The Final eCAN JA Stakeholder Survey results

A participant satisfaction survey was developed to measure opinion the success of eCAN Joint Action and satisfaction the participants in the project with project outputs. The aim of the survey was to understand to what extent the outputs of the eCAN Joint action are relevant and feasible to implement in the EU/EEA Member States.

The survey targets all stakeholders interested in telemedicine roll-out in EU/EEA in the field of oncology who are aware of the outputs of the eCAN JA, including but not limited to the Colleagues directly involved in eCAN Joint Action.

We asked about views and opinions how the elements of eCAN can be useful for professional development and implemented for wider use. The survey questionnaire was developed by the WP3 team and consulted with WP1, finally prepared in an online format.

The survey was distributed to the most up-to-date eCAN contact list, including all participants even if involved only in a limited number of eCAN activities. The survey was available online for a total of 4 weeks in September and October 2024. Two reminders were sent in order to improve the participation rate.

4.1 Who responded to the survey?

32 of 140 invited eCAN participants representing 13 countries involved in eCAN responded to the survey, with variable number of responses per country (Figure 1).

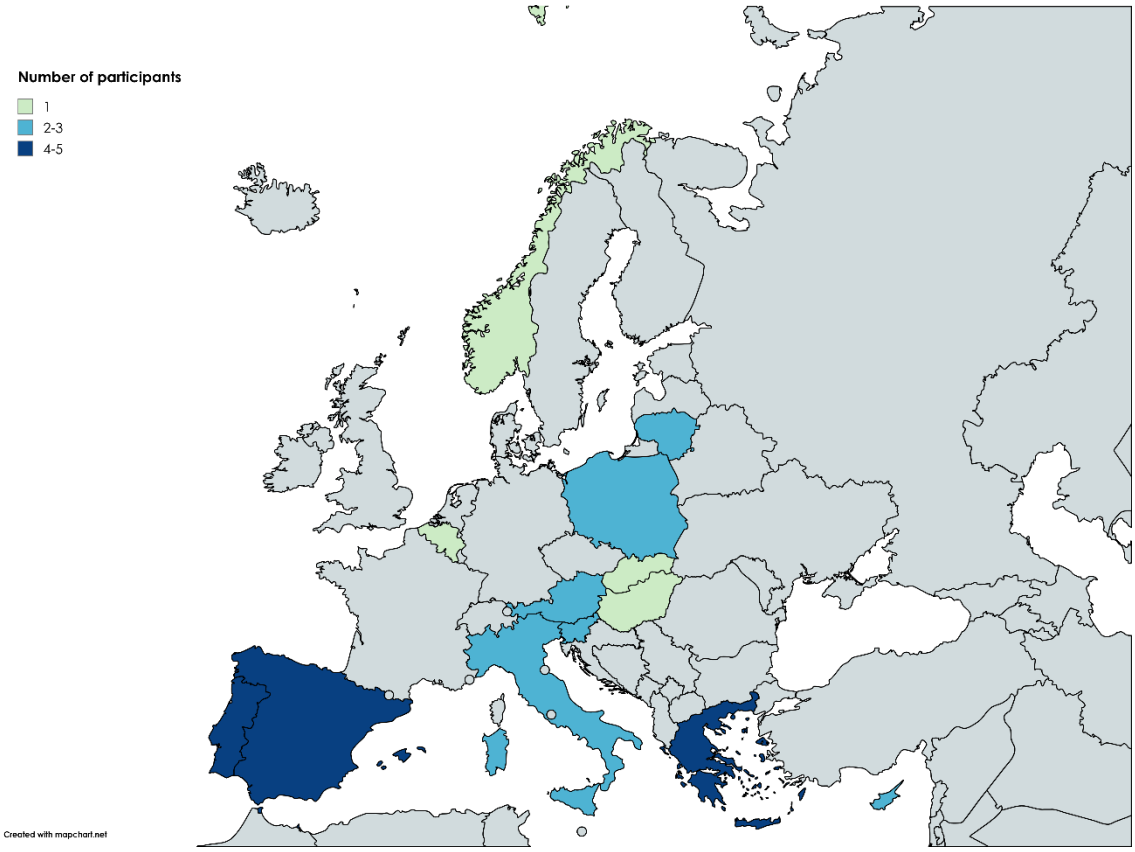

Figure 1. Countries represented in the final stakeholder survey

Participants of the survey are divided into 3 groups: (1) eCAN JA pilot site participants, (2) eCAN JA non-pilot site participants, and (3) not eCAN participants. (Figure 2)

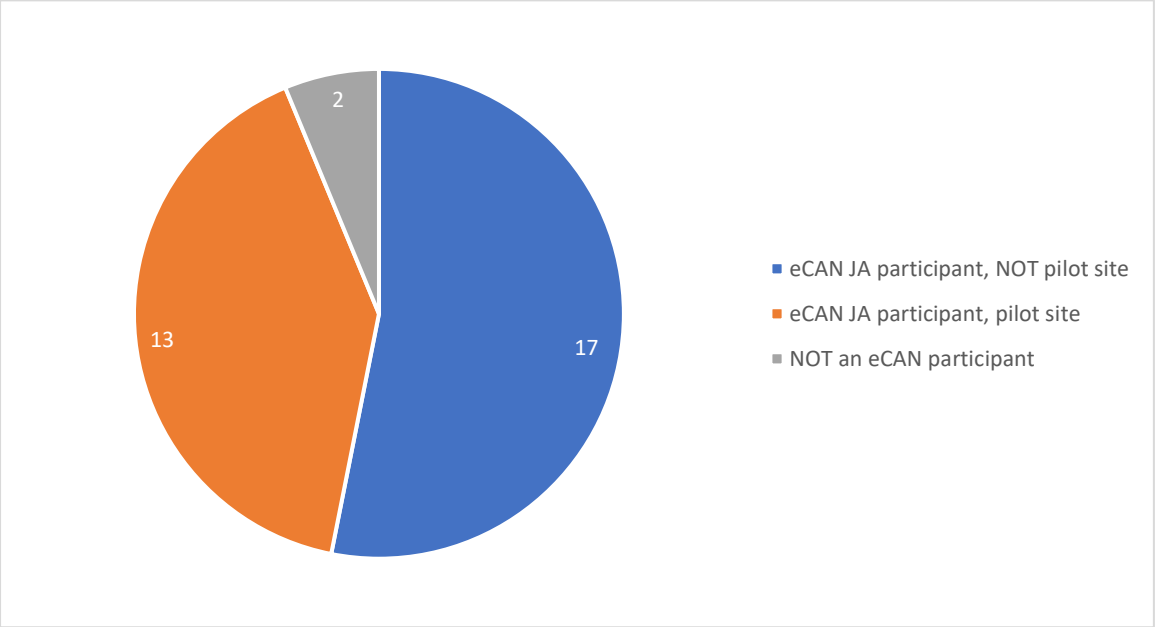

Figure 2 Groups represented in the final stakeholder survey

Participants of the survey are represented in all work packages (WP) and often contribute to more than one WP (Figure 3).

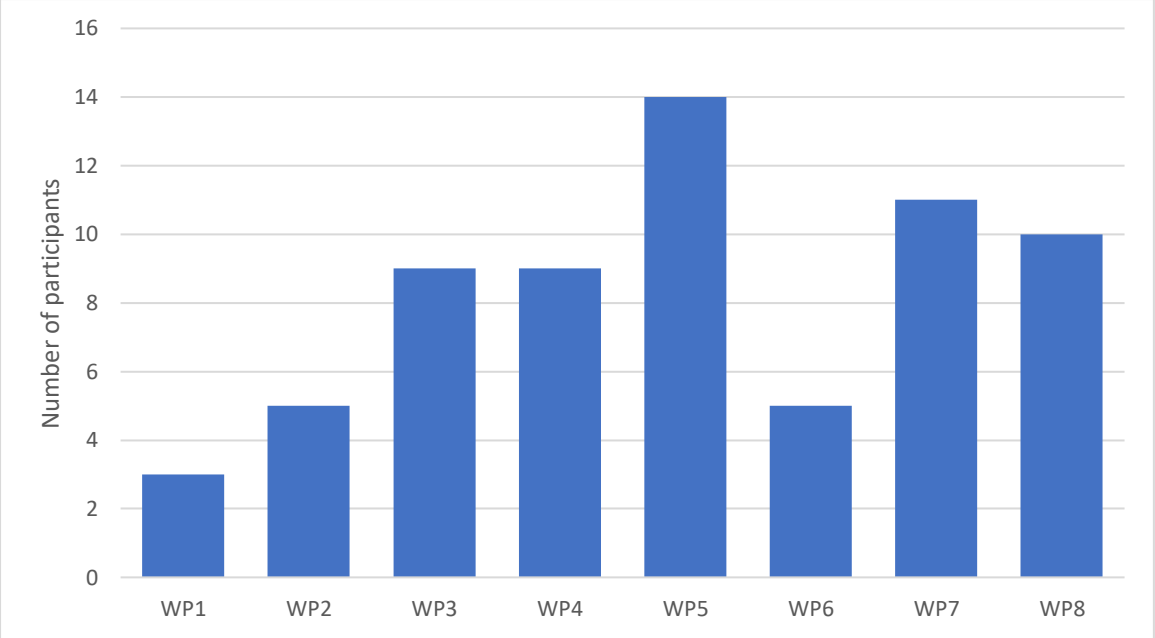

Figure 3. Work Packages (WP) represented in the final stakeholder survey. The respondents often work in more than one WP

The respondents work across different areas, which is typical for the eCAN community bringing together expertise in different fields of scientific and research communities, public health/HTA agencies, health care providers, policymakers, as well the patients' perspective (Figure 4). Many individuals and respondents have experience in managing projects and many work at the junction of the disciplines listed in the figure below.

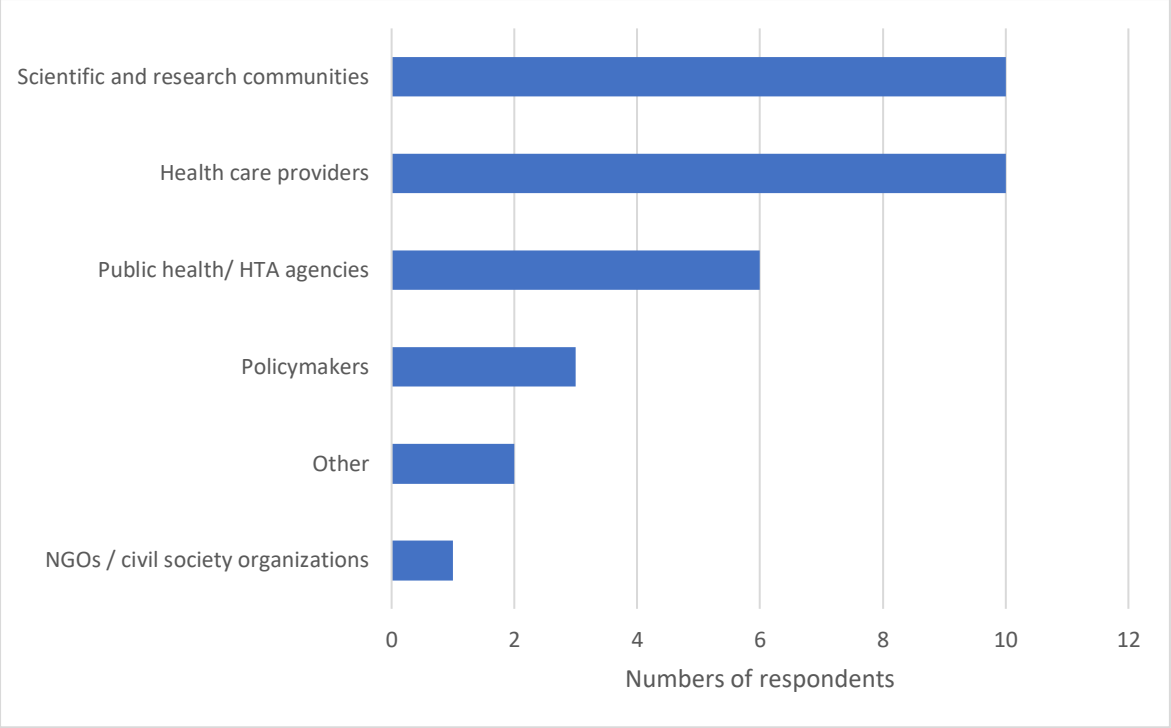

Figure 4. Respondents' characteristics: main areas of work

Finally, the distribution of professional experience of eCAN participants that contributed the survey is roughly equal in the groups <10 years, 10-20 years and <20 years of experience (Figure 5).

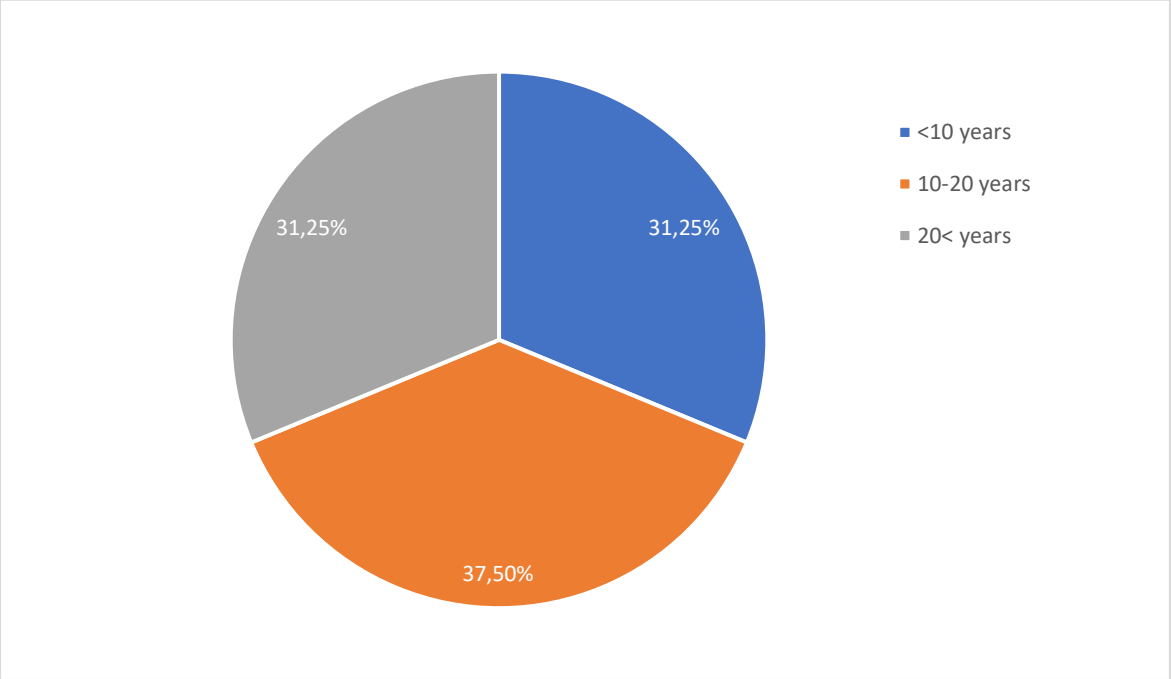

Figure 5. Respondents' characteristics: years of professional experience

4.2 Opinion of survey participants with the success of eCAN Joint Action

The respondents assessed the success of the eCAN JA project 4 or 5 on a scale of 1 to 5 in individual areas. The highest rated area is *Raise healthcare providers' awareness about the role of telemedicine in cancer care* (Figure 6).

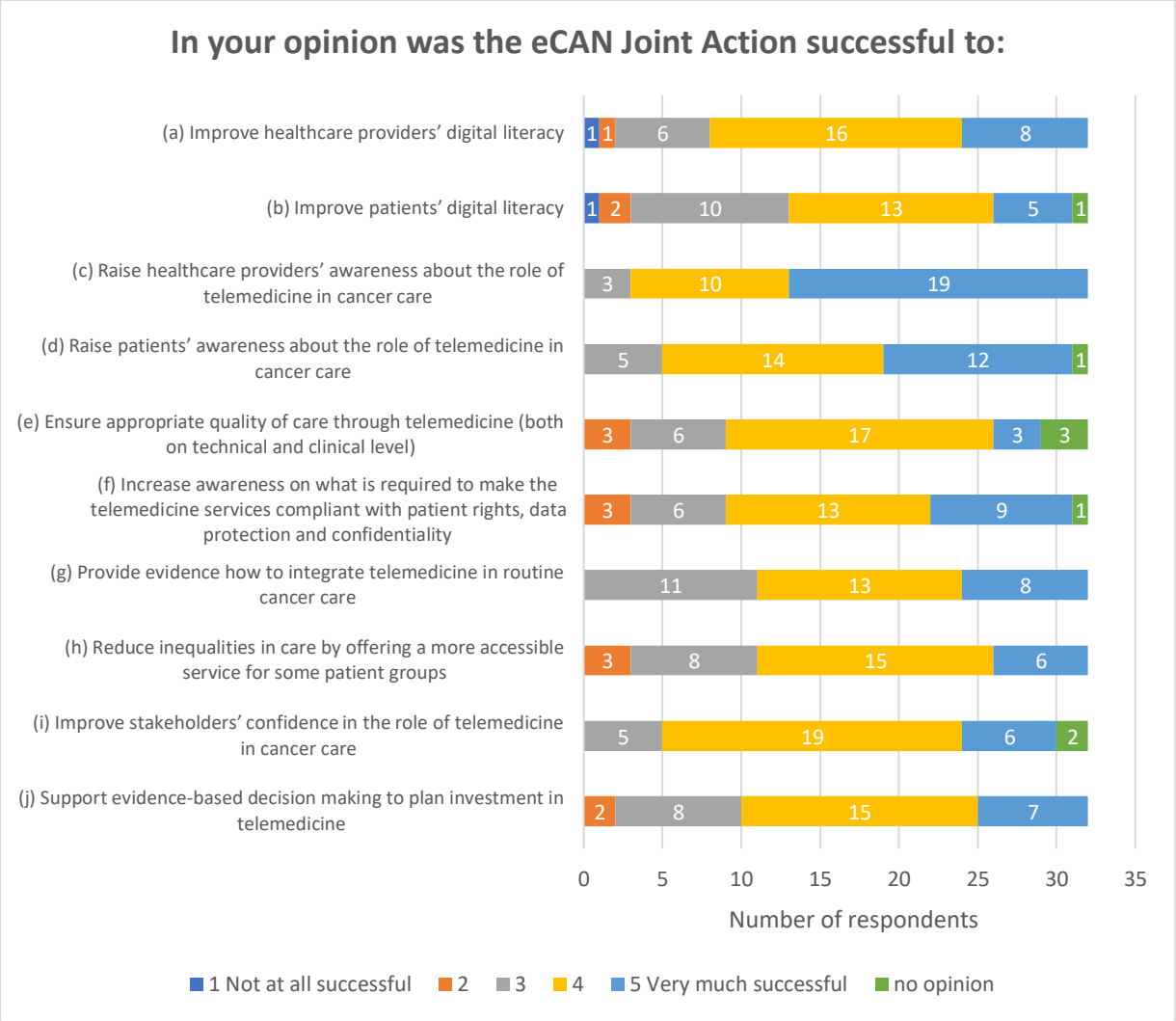

Figure 6 Opinion of survey participants with the success of eCAN

Respondents' Comments:

In terms of the success of the eCAN project, participants noted that all these goals are rather ambitious (1) for a project with the budget of eCAN, (2) with different patient characteristics regarding digital literacy and the need/desire to be close to the physician (namely, in rehabilitation care); and (3) for practical clinical application as pilots run only half a year. There was an extreme effort to collect all PRO and PREM and patients took part only 8 weeks. In regular practise it is unaffordable to make such an effort or the data would be useless.

4.3. The eCAN project outputs

When assessing the potential usefulness of the eCAN outputs for further work, respondents gave the highest ratings (4 or 5 on a scale of 1 to 5) to the *Training materials*, *Roadmap and eCAN activity in the media and social media* (Figure 7).

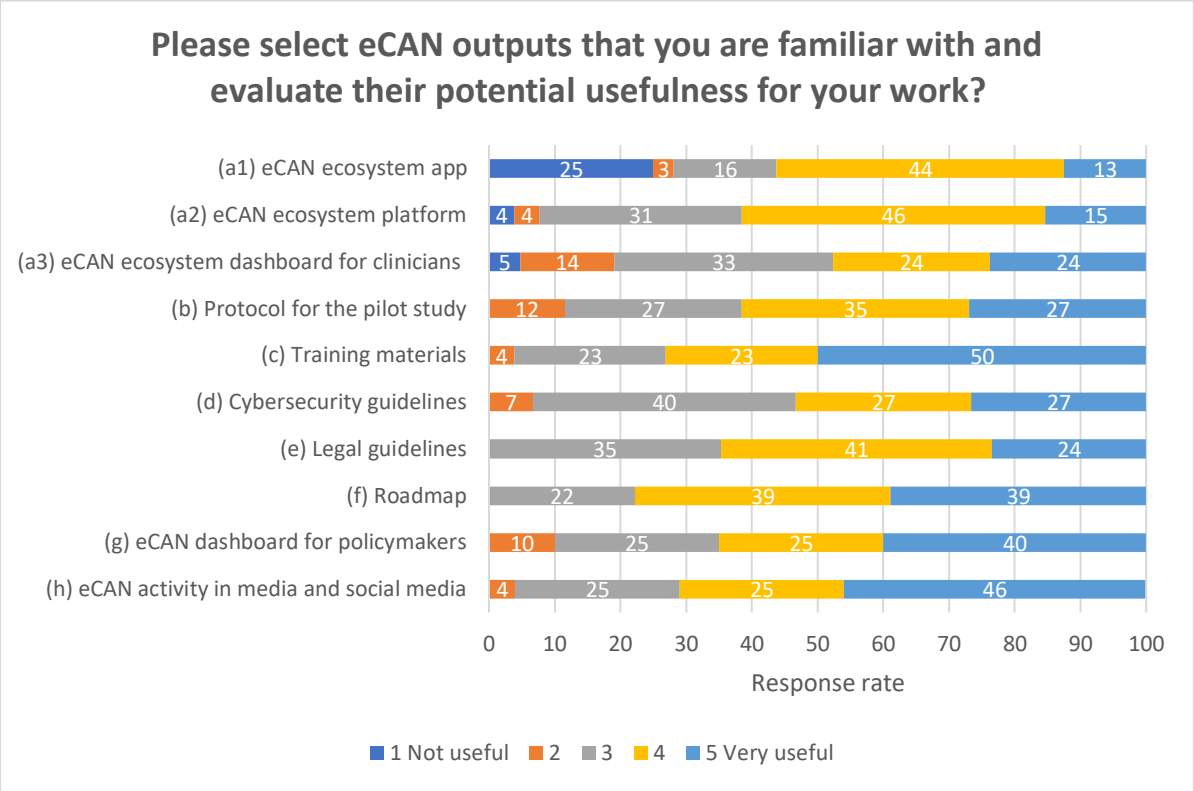

Figure 7 Percentage of eCAN project outputs usefulness for further work

Comments:

In terms of how these results could be used in their work, participants responded that (1) they could be used to promote national implementation of telemedicine, (2) improve patient care by reducing travel time and costs and offering care to patients from remote geographic areas, (3) learn from best practices and eCAN findings to leverage increased awareness of telemedicine tools among oncology healthcare professionals, (4) Part of further training—integrate eCAN practices as recommended practices, (5) routinely use PROMs collected via the app in future projects; (6) potentially a dashboard useful for reference and discussion with stakeholders/decision makers. It was also noted that the eCAN app is very basic, should be improved with more PROM options and outputs. It also needs to be improved technically: font size for presbyopes, practical usability.

The assessment of the contribution of the eCAN outputs on the wider roll-out of telemedicine in the healthcare system was mostly rated 2 and 3 on a scale from 1 to 5. The highest scores (5 on a scale from 1 to 5) were given to *Training materials and eCAN activity in the media and social media* (Figure 8).

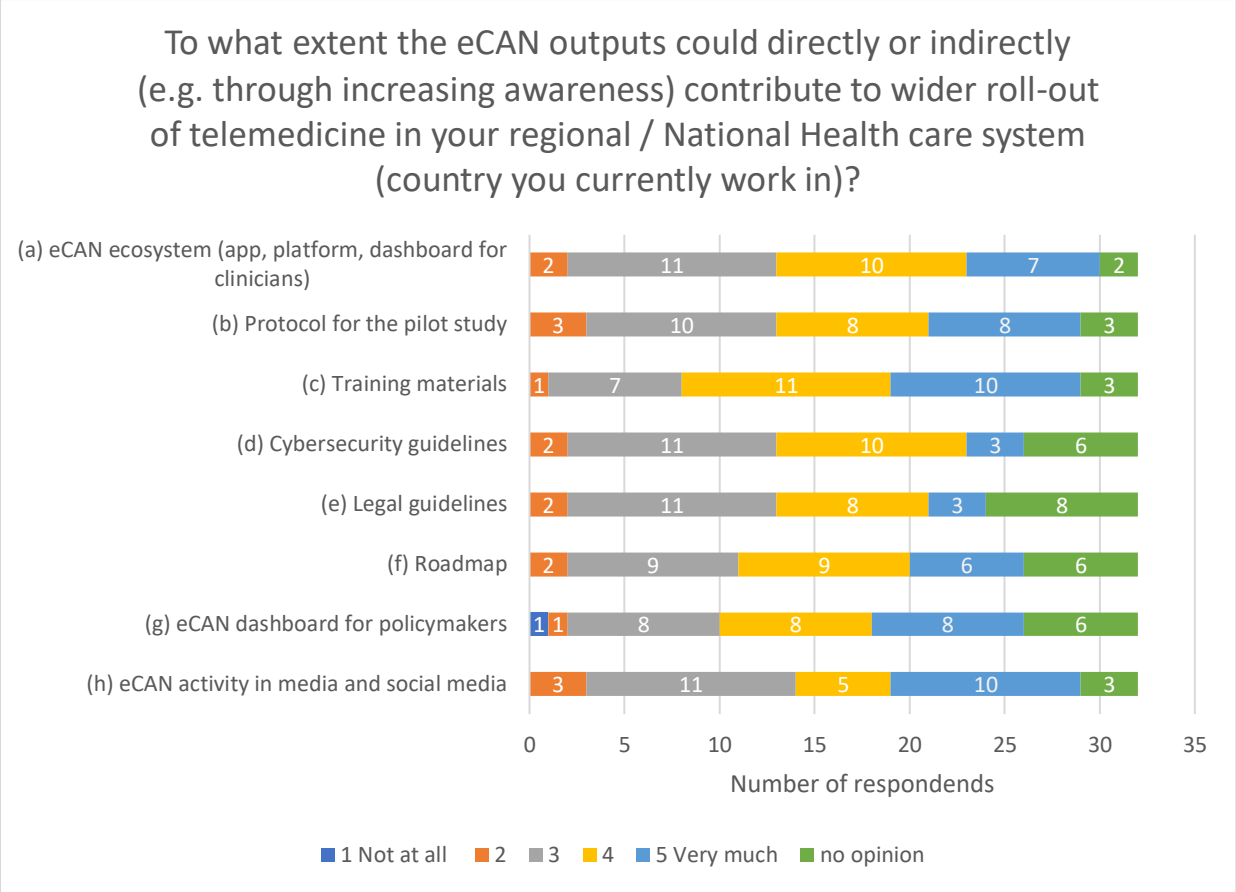

Figure 8 The contribute of the eCAN outputs on the wider roll-out of telemedicine in the healthcare system

Comment:

The participant commented that the system level decisions needed for wider implementation along with awareness raising.

4.4. The eCAN pilots experiences

Participants from the eCAN pilots positively assessed the impact of the project on improving knowledge about telemedicine and the telemedicine skills. 76.9% respondents rated the improvement in knowledge about telemedicine as 4 or 5 on a scale of 1 to 5 (Figure 9). 84.6% of respondents rated improvement in telemedicine skills as 4 or 5 on a scale of 1 to 5 (Figure 10).

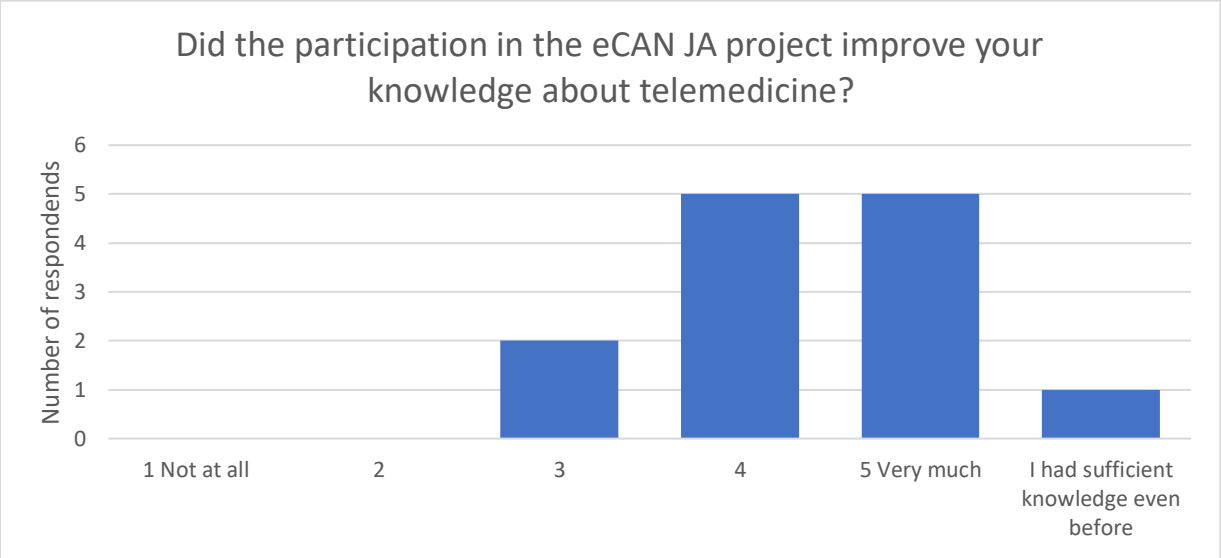

Figure 9 Improve your knowledge about telemedicine

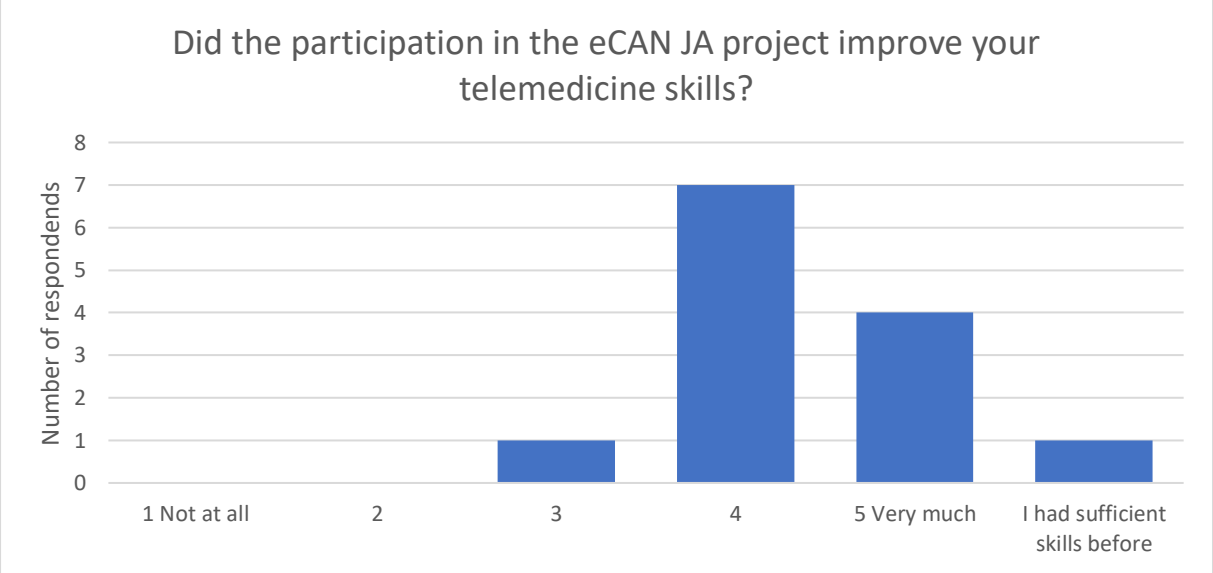

Figure 10 Improve of telemedicine skills

Comments to the question what skills the project has improved:

Adapting existing processes and techniques to new challenges

Both psychologists and physiotherapist used it before. They got more experience, more technical skills.

The assessment of confidence in the role of telemedicine in cancer treatment through participation in the eCAN JA project was rated 4 or 5 on a scale from 1 to 5 by 92.3% of respondents (Figure 11). The likelihood of integrating the eCAN ecosystem (app, teleconsultation platform, experience panel) into future routine work/projects was rated 2 or 3 on a scale of 1 to 5 by 61% of respondents (Figure 12).

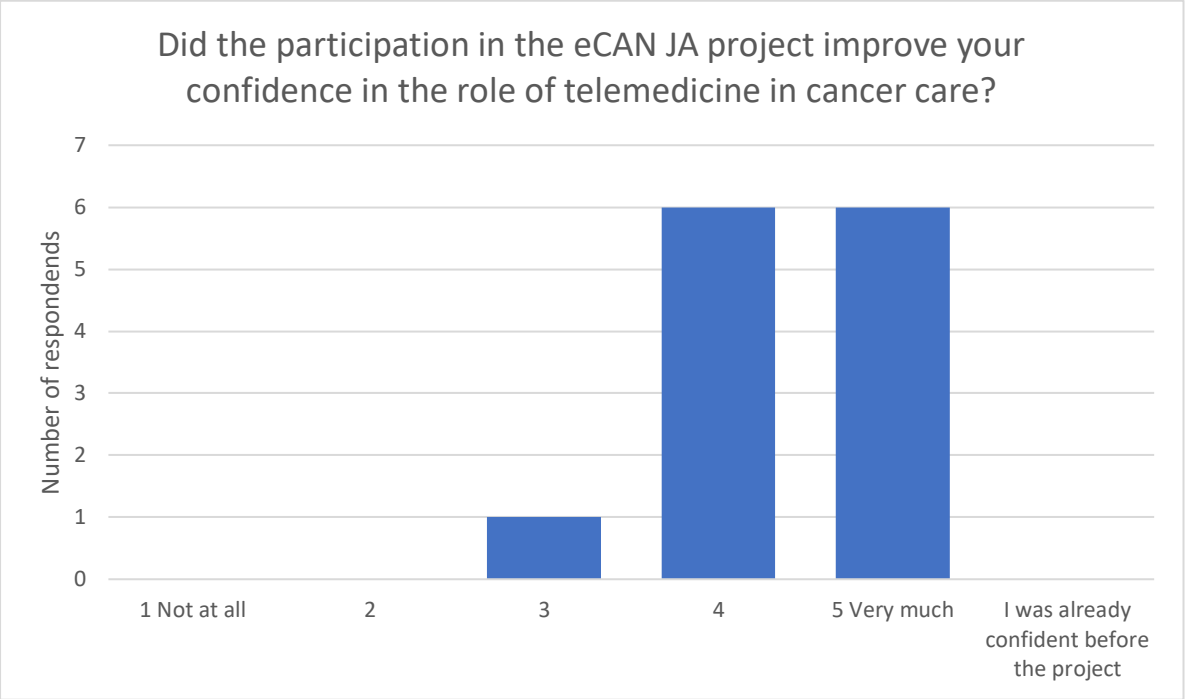

Figure 11 Improve of confidence in the role of telemedicine in cancer care

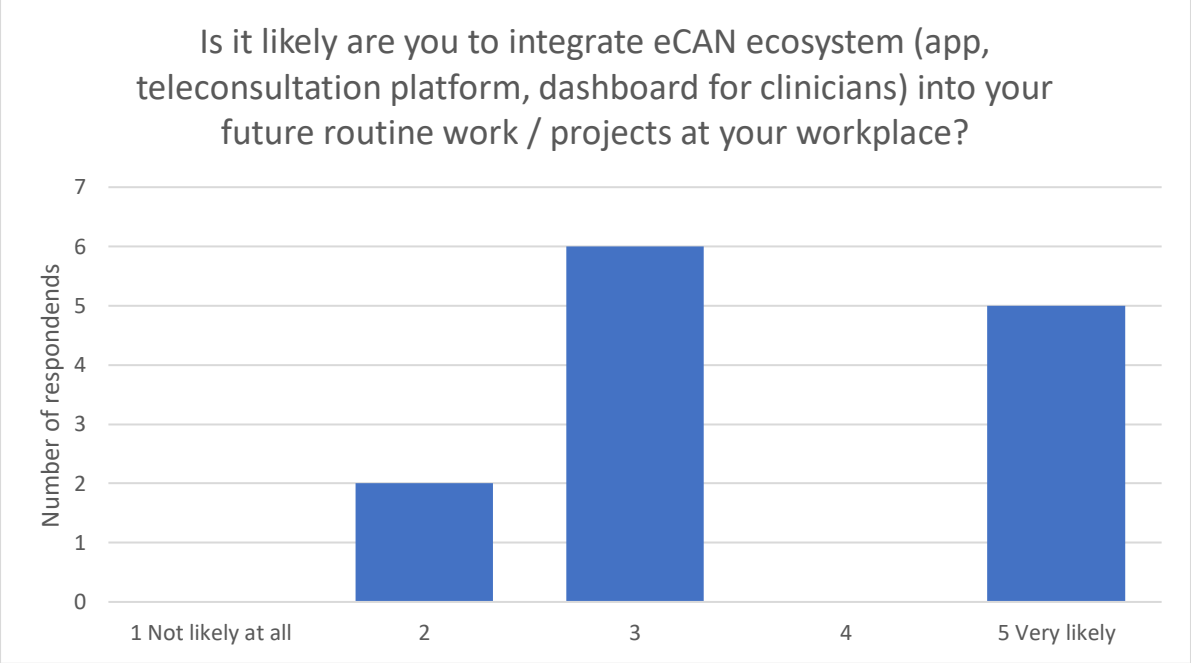

Figure 12 Likely to integrate eCAN ecosystem (app, teleconsultation platform, dashboard for clinicians) into future routine work / projects at workplace

The respondents' comments to the question about the possible barriers, changes and enablers for further use of eCAN ecosystem in work.

In public hospitals the decision to use/implement IT solutions, including telemedicine, is centralized (authorities' level).

This activity should be part of routine work and not additional activity else there will be no staff availability. Similarly, such activities should be reimbursed, which is not currently the case.

Patients on active systemic therapy need to attend in person, so TM service will not be useful for this group, while it could be used occasionally for check-ups.

In case of some patient groups the TM service is not efficient, as too much time is lost due to technical issues.

Improvements in the eCAN ecosystems would be necessary before wider roll-out. For example the PROMS results should be displayed in the patient charts. Logg-in solution should be more efficient and the dashboard output could be tweaked.

4.5. The eCAN project satisfaction

Most of respondents of the survey are very satisfied or satisfied with eCAN (75.6%) and none was not satisfied at all (Figure 13).

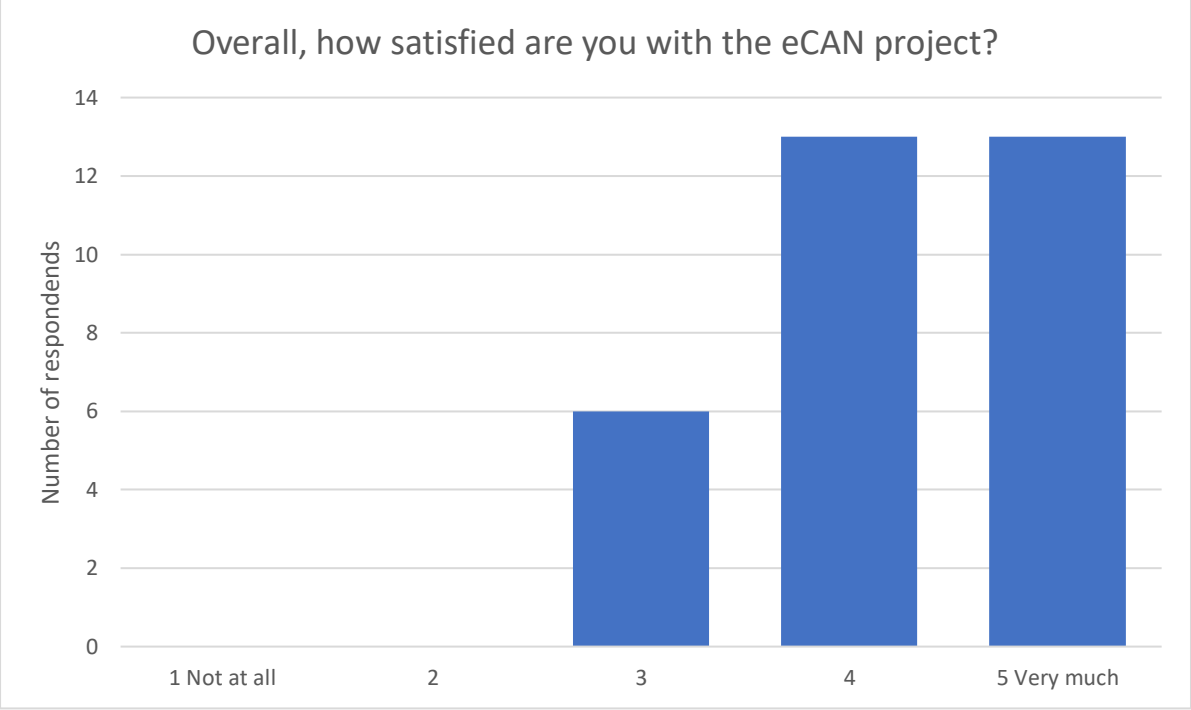

Figure 13 Overall satisfaction of survey participants with eCAN project

4.6. What were the key challenges, what was appreciated the most and what were key lessons learnt?

Finally, we asked the participants voluntary, free answer questions to understand what was appreciated the most and what were the challenges. We summarize the answers below providing also the number of participants responding.

Key challenges (15/32 responded)

Coordination and Communication: Excellent coordination despite many partners involved; Difficulty in aligning activities with other work packages (WPs) to avoid redundancy; Coordination of actions against diverse perspectives is challenging.

Technical Issues: Features of app and platform not functioning as intended, need for ensuring rapid support for technical issues; Specific technicalities in platforms like EduMEET and patient-facing apps needed improvement; The eCAN app was only available for IOS in the last 4 months, causing accessibility issues. Initial non-functionality of the app and issues like small font size for older patients; Local IT participation should have been mandatory from the outset to address these issues promptly. Manual responses to surveys due to technical issues with telemedicine platforms could have introduced inconsistencies in the data.

Pilot Study Set-up and Management: No study coordinator allocated, leading to challenges in gathering missing data from different pilot studies; Failure to meet schedules and start dates of pilots due to technical issues and lack of local IT teams to attend the proposed meetings .

Strict inclusion criteria for pilots, which did not consider clinicians' suggestions, making it hard to include patients; Specific exclusion criteria (e.g., immediate reconstruction for mastectomy patients, radiation therapy for neck dissection patients) limited participation.

Real integration of telemedicine tools into daily routines was often dependent on political/administrative decisions; Patient involvement at a distance posed challenges; Many resources were spent on meetings with similar information, leading to inefficiencies.

Appreciated the most (15/32 commented)

Impact of Telemedicine: Significant effect of telemedicine and telemonitoring in clinical practice; Valid demonstration of telemedicine's impact on clinically relevant outcomes.

Professional Satisfaction: High professional satisfaction and the introduction of new techniques to physiotherapists and psychologists, enhancing their skills; Positive feedback on patient follow-up through the app and dashboard.

Scientific and Practical Insights: Valuable scientific results for evaluating telemedicine in cancer care; Experience gained from pilots across different countries, leading to valuable recommendations, guidelines, and a roadmap.

Digital Literacy and Awareness: Patients learned about digital tools, improving their health monitoring and communication with healthcare providers; Increased awareness among healthcare professionals and patients regarding the use of telemedicine in cancer treatment.

Collaboration and Networking: Creation of a network of interested professionals (eCAN participants); Good collaboration with colleagues and engagement with national pilot sites.

Educational and Training Materials: Appreciation for the app and training materials provided; Lessons learned from pilots helped disseminate the use of telemedicine tools within oncology.

Future Potential: Utilization of Patient-Reported Outcome Measures (PROMs); Telerehabilitation and telepsychological support were found to be effective and should be integrated into routine care. The IT solution developed will be valuable for future exploitation.

Key lessons learnt (12/32 responded)

Usefulness of Telemedicine: Telemedicine and telemonitoring are useful in cancer care; Telemedicine is feasible and beneficial for cancer patients. Some patients prefer direct physical contact with physicians, especially in rehabilitation, for emotional comfort; Vulnerable patients may be reluctant to learn new skills, but telemedicine can reduce hospital visits for those willing to use it.

Technical Requirements: Meeting technical requirements is crucial for both providers and patients.

Guidance and Training: Enhancing digital literacy is necessary. Both patients and healthcare providers need guidance on using telemedicine tools; Tools like Patient-Reported Outcome Measures (PROMs) and learning materials are instrumental for implementation. Legal and ethical issues around data privacy and cybersecurity are interpreted differently, affecting readiness for telemedicine implementation necessitating training and guidance.

Preparation and Planning: Technical aspects should be fully prepared at the start of pilots; Review and improve planning and organization among work packages; Consider smaller, more frequent thematic working groups for better implementation; Prioritize pilots for the second half of the project; Consider extending the pilot period and holding physical meetings to ensure good collaboration

Pilot project value: Pilots are effective in raising awareness and changing clinicians' attitudes towards telemedicine in cancer care; The project is valuable and should be expanded; Leveraging existing tools at study sites can ease the adoption of new solutions.

Collaboration and Stakeholder Engagement: Good personal collaboration within study teams is essential. Engaging stakeholders can be challenging.

5. Results of the exit interviews with the pilot sites

The following summary is based on 10 exit interviews with pilot sites organized by WP5. If multiple sites in one country were involved in the pilot project, they were invited to a single exit meeting.

The exit interviews were conducted in a semi-structured format to elicit information on experience of the launch of the pilot, on the patient management, exiting TM programs/ tools other than eCAN platform, experience with the eCAN platform, legal aspects as well as impact and relevance of eCAN and feasibility of implementation of eCAN and telemedicine in the future care.

For the purpose of the evaluation report we extracted information related to:

- Feasibility of future use;
- Impact of eCAN;
- Relevance of eCAN outputs.

5.1. Feasibility of future use

Based on the interviews conducted with pilot sites, the feasibility of rolling out telemedicine services on a larger scale hinges on several critical factors. These factors span clinical management, patient-related aspects, and public health considerations.

Clinical Management

1. **Integration of Face-to-Face (F2F) and Telemedicine (TM):** A hybrid model that seamlessly integrates F2F consultations with telemedicine is essential to enhance clinical workflows and patient outcomes. Mixed approach was suggested during 4 interviews, with possible format of interchanging in-person/ TM visits to reduce travel burden or switching to TM activities such as education, control visits discussing of the results.
2. **Actionability of Data by Clinicians:** Ensuring that clinicians can easily access and act on telemedicine-generated data is critical for continuity and quality of care. It may also increase the patients' acceptance, through feeling safer due to being closely monitored. Several pilot sites provided examples of useing the dashboard outputs and the TM session to improve the service.
3. **Ensuring Contact with Healthcare Professionals (HCP):** Patients must have reliable and timely access to HCPs when needed, even within a telemedicine framework.
4. **Alignment with Clinical Management Pathways:** Telemedicine services should be tailored to fit into existing clinical management pathways to avoid disruptions and inefficiencies. A problem brought up by the pilot sites were some of the inclusion criteria that were not alligned with the clinical pathways and thus limited recruitment of many patients. In addition some patients reported that 8 weeks proposed in eCAN project was excessively burdensome. While the clinical practice would not need to adhere to rigid clinical study criteria, clear indication, where in the patient clinical pathway the TM could be applied is important.
5. **Exploration of Additional Clinical Applications:** Opportunities for expanding telemedicine beyond the current applications should be investigated to maximize its

potential. Among the possible other applications mentioned there was paliative care, survivorship,

6. **Single Point of Access to the Patient Data:** To ensure a holistic view of patient care, telemedicine data should be systematically integrated into patients' Electronic Medical Records (EMRs).

Patients

1. **Building Trust and Acceptance:** Establishing trust in telemedicine among patients is vital for long-term adoption and this includes trust in own abilities with respect to the technology and trust in effectiveness of such technologies with respect to the cancer care. Efforts to improve patient confidence in telemedicine services must continue. In the experience of the sites prior therapeutic relationship (especially psychoconsultations) with the provider increased trust and the perception of their health status being monitored increased the feeling of safety for the patients.
2. **Advantages for Remote and Frail Patients:** Telemedicine is particularly advantageous for patients living in remote areas or those who are frail and face difficulties traveling, especially under extreme weather conditions. In 8/10 interviews the ways how the TM could adress the needs of the patients were discussed. The TM service allowed to engage patients who were unlikely to otherwise receive the supportive care. This is due to the fact that for some patients traveling is an important barrier either due to the logistics (availability of means of transport, time and expences, caregivers support) or due to poor general condition. At times also patients felt less distressed not to have to come to cancer cetre and the remote service interfered less with their daily activities. This could guide targeting the TM services in the future.
3. **Increasing Digital Literacy and/or avoiding digital divide impact:** Enhancing digital literacy among patients is crucial for the effective use of telemedicine services. Educational initiatives should be prioritized to bridge this gap. The digital divide was underlined in 7/10 interviews, with the patients in the older age group, with less experience in IT technologies, less educated and with congnitive disfunctions had more diffuculties in learning to use eCAN. Moreover, some of them had older smartphones, which complicated participation.The need to caregiver support and additional training, preferably presenting only the most necessary information, was highlited.

Public Health

1. **Technology and Organizational Investments:** Investments in telemedicine technology and organizational capacity are necessary to optimize workflows and scale operations effectively.
2. **Demonstration Projects:** Further pilot and demonstration projects will help refine telemedicine applications and address any emerging challenges. It will also help to change hesitant attitudes of some health care providers and help breaking the circle of HCPs waiting for central implementation and central authorities focusing on other urgent issues.
3. **Standards and Guidelines:** The establishment of robust standards and guidelines, including those addressing data protection, is critical to ensure safe and effective implementation. Clinical protocols would be also useful, to ensure patient safety and good quality service.
4. **Adoption at the National Level:** Policy frameworks should be developed to facilitate the national adoption of telemedicine services, ensuring consistency and equity in healthcare delivery. The adoption at lower level, but still in a systematic manner (e.g.

for the whole clinical center) is key to streamline the workflow, ensure staff availability and deal systematically with implementation and maintenance management.

5. **Training of HCPs:** These findings highlight the significant potential of telemedicine to transform healthcare delivery while underscoring the need for targeted efforts to address feasibility challenges. In 7 of 10 interviews the participants underscored the needs among the HCPs regarding the new technologies. This may be also a first step to encourage the patients to participate. Finding of approprate ways to reach HCPs may not be obvious, but self-study format with good training materials could be of use.

5.2. Impact and relevance of eCAN

1. **Experience in pilot participation:** relevant for both patients and healthcare providers. Initial attitudes of the staff in many centers were partially hesitant as to what can be acheived through an online consultation especially for the rehabilitation. Participation in the project significantly increased their confidence in usefulnes of TM services in supportice cancer care as well as self-confidence in using new technologies. Similarily, the patients who at the begining were worried about the effectiveness of such service, in the end reported positive experience.
2. **Training and training materials:** these were found very relevant, both in relation to the use of the telemedicine tools and the practical guide for example describing the exercised to be performed by the patients.
3. **High potential for future use:** the majoirty of the clinical cenres saw the relevance of TM such as eCAN platform in routine practice as well as in research projects.
4. **eCAN service adressing patient needs:** majority of the pilot centers (8 of 10 interviews) observed that the TM service provided in eCAN adressed the needs of significant groups of the patients. Some centers mentioned that there was no other offer for the patients included in the eCAN study and pracitically all saw advantages for the patients in terms of cost, logistics, convenience and physical ability to attend.
5. **eCAN service potentially improving workflow effectiveness:** some centers reported that the potential role in improving efficiency of the service when using TM service
6. **Mixed effect on reducing inequalities in care:** while TM improved access to services for those with availbalbe appropriate equipement and digital skills, for some patients the participation was not as straight forward and this included commonly older age groups and patients with cognitive disorders. Some of these problems could have been resolved with technology adjustments. For example, larger font and screed adaptation in case of font enlargement was mentioned by multiple sites.

Key risks and mitigation measures

The following risks were identified either during the preparation phase or during the project implementation. These risks were identified on the basis of either delaying the project outputs or impacting the quality of the project outputs. We present also the mitigation measures applied and their outputs.

The risks and challenges fell into three broad categories: pilot related risks, engagement related risks and communication and management related risks.

Pilot-related challenges are described in the Deliverable 5.3, but for completeness we outline them also here:

A. Demanding timeline and resources

Tight timeline was identified early-on. However, the initial risk assessment included mainly the delays in obtaining the ethical board approvals for the pilots, while the study preparation was in general more time and resource consuming than expected.

WP1 and WP5 engaged with the piloting centers at the start of the project and identified the specific requirements of each center as related to the ethics approvals and other necessary legal approvals. Nonetheless, the process of ethical approvals was indeed lengthy and the mitigation measures applied were useful. On the other hand the preparation of the final pilot procedures and telemedicine tools also proved challenging so ethical approvals were not the only constraining factor. In particular, the development of the eCAN App and registering it with the app stores required time. The eCAN App development was also dependent on translation of the information and questionnaires into the languages used in the pilot sites involved. As the usability questionnaires required validated translation the delays in this process also delayed the release of the final version of the app. Of note, the app was not classified as medical device. In such case the approval process would have been significantly more demanding.

That said, it must be underlined that there was little room for optimization within the project timeline.

B. Legal challenges and constraints

Two legal challenges were observed related to data protection and to clinical studies in telemedicine.

Restrictive data protection procedures at pilot sites/ countries were identified at the project preparation phase. To mitigate this risk an overview of procedures and practices at each pilot site was planned and carried out in view to develop a strategy for data analysis allowing for data privacy restrictions, such as federated analysis. Due to the lack of possibilities to implement a federated data collection method (lack of existing telemedicine systems in pilot sites), a centralized data collection approach was adopted and checklist guidelines for compliance with EU regulations developed to assist the sites in evaluating local procedures. In addition teleconsultation platforms were evaluated also with respect to compliance with data security and data protection regulations.

In addition, most of the pilot sites did not have experience with telemedicine trials that caused interpretational challenges how to classify the study type and the sponsor. The variable interpretation of the GDPR and other legislation posed a challenge and finally 2 sites were not able to participate.

C. Organizational and technical challenges

Lack of experience with telehealth and lack of infrastructure at the pilot sites was identified only during engaging with the sites to collect their procedures and practices. The WP5 identified that the majority of the piloting centres have not had any experience in telemedicine. For this reason, the on-boarding process took longer than expected. In addition, a central data collection and teleconsultation platform needed to be set up by WP7, and endorsed by WP6. A specific training for this platform was developed by WP8 in an agile way. On the level of the pilot sites the necessity of the involvement of the IT technical personnel was not clear from the beginning and assignment of technical contact person at each site would facilitate streamlining of the technical training and support. On the side of technical development, the novel system was built for the purpose of the study and initial technical difficulties occurred. A centralized support system was organized to resolve technical issues, but some of the difficulties could have discouraged the initial users. Additionally, some sites did not use the centralized support email leading to delays in the resolution of the issues. Different parts of the system required separate log-ins (e.g. randomization platform). This was caused by parallel development, but created a difficulty for end-users.

From the pilot site management side the launch of the pilot required a demanding internal review process and internal policy / administrative decisions to integrate TM workflow and obtaining the necessary approvals was time consuming. An existing, functional telemedicine program at some sites made it not practical for implementation of an additional eCAN solution, which was necessary due to the fact that the central system had to be developed.

From the clinical point of view the inclusion criteria for the pilot 1b were difficult to meet as they did not align fully with the patient's clinical pathway. This issue was related to the clinical study protocol not to implementation of telemedicine services themselves.

D. Patient's reluctance and hesitancy of the staff

User-requirements related risks resulting in low acceptance were identified as the risk during the project preparation. A participatory design approach was planned to ensure the timely involvement of relevant stakeholders and to elicit the user needs. WP8 organized workshops (think-aloud sessions) with the target group, composed of patients and healthcare providers, to understand their concerns and user requirements. Frequent communication between the WP Leaders involved was established to discuss the findings and implement them in the technical solutions. As a result we designed the eCAN App and the dashboard according to the users' needs.

Nonetheless, not all patients were willing to trust the TM services having the preference for in-person services or low digital literacy. This was especially related to the older age group. The participation in the pilot project itself improved the perception of usability of the telemedicine service in supportive cancer care for those who decided to participate and likely demonstration projects as eCAN pilot project can contribute to developing a more positive attitudes towards telemedicine among the cancer patients. An additional issue may be related to asking substantial patient involvement while at home, to ensure monitoring (e.g. filling in multiple questionnaires), which for some may be burdensome and less acceptable for being constantly

reminded about their disease. Of note there were also patients who specifically wished to be included in the intervention group (i.e. participate through the TM service) and were disappointed in case of control group assignment. Similarly, the staff of the pilot sites at times also had preference for the in-person contact, to be able to deliver appropriate service, especially if manual assessment was needed in case of the physiotherapists. On the other hand, participation in the pilot project convinced the clinical staff about the effectiveness of the service delivery through TM, and they tended to see the potential role especially in mixed - in-person and through telemedicine - care. The idea of having the patient data in one place to be aware of the patients' status was found useful.

Lack of interest from the patients and also staff of pilot sites was identified as risk for successful patients' recruitment early on and mitigation measures were developed and applied. These included involvement of multiple sites in each pilot, which will allow to compensate for difficulties in recruitment of one site, by the other sites. In addition, pilot sites volunteered to take part in the pilot based on interest and/or experience in teleconsultations and telemonitoring. Moreover, common cancers were selected to ensure an appropriate number of potential participants. In order to keep the interest of pilot sites high, WP8 organized stakeholder engagement workshops. These were attended by the piloting centres.

E. Data quality challenges

Initially we identified the risk related to the lack of pilot outcomes data standardization, especially that no central system was planned at the beginning. The efforts was made to ensure collection of proper comparable data, including development of common data collection framework based on standardized PROMs, PREMs scales and structured clinical data collection. In addition, we documented the standards of care in each of the sites. The standards of care differ largely and this real world variability creates a challenge to demonstrate the effects of teleconsultation and telemonitoring and to design cost-consequence analysis in this multinational trial. This variability was accounted for by appropriate analytical techniques. In terms of clinical trial approach it remains a limitation, on the other hand it relates more closely to the real life situation.

In addition the risk of incomplete data, especially in the patient-reported outcome and experience measures (PROMs, PREMs) was identified early on. We took measures to mitigate this risk including standard procedures on administration of the questionnaires and structured instructions for the patients. A standard procedure was discussed during 1-1 calls to guide the piloting centers better and explain the data collection procedures. The data collection tools were carefully developed with participation of the target group and applying quality assurance measures such as standardized questionnaires, close-ended questions with validation rules, required fields and warning messages. All the same a substantial amount of missing information complicated the analysis. In general, the completeness of data was higher among the intervention group patients. On the other hand, the questionnaire reminder mechanism depended on the appropriate assignment of the start date, which underlines the importance of understanding of the system automations by the clinical staff and appropriate recording of the required information (e.g. dates).

Stakeholder engagement related challenges included appropriate engagement of stakeholders at different levels in the activities related to among others the development of the eCAN IT

solution, mapping of the existing infrastructures, policies and practices as well as endorsing the recommendations.

F. Difficulties in recruitment and engagement of stakeholders at MS level

This risk was identified early on in relation to member state and EU-wide institutional stakeholders. Country specific and EU-wide stakeholder engagement activates are embedded within WP8 with dedicated person months for local dissemination at the pilot sites. Dissemination activities but also robust ecosystem building efforts have been planned to reach a wide range of stakeholders early on, including tailored communication products i.e. translated material in pilot sites (WP5, WP7). Not all partners were able to respond to the stakeholder mapping exercise. WP8 organized a series of workshops on stakeholder engagement to foster engagement. Although not all stakeholders were available for the allocated slots, we disseminated the outcomes of the workshops via email. For patient involvement, WP8 created patient leaflets. For macro-level stakeholder engagement, WP4 helped out by getting in touch with country representatives in the network that eCAN has created. In addition the Governmental Board was established inviting representatives from the decision-making authorities in the Member States. This activity allowed to present the eCAN outputs and specifically the dashboard and create a forum for discussion of the recommendations. This proved to be useful although involvement of appropriate representatives from many Member States was not feasible due to other obligations in case telemedicine was not a high priority on the Member State level. Moreover, there are multiple European initiatives in the field, trying to capture the attention of similar stakeholders. Harmonization across these initiatives is very important.

G. Already at the beginning we identified a possible risk of stakeholder fatigue with surveys, that could affect the rate and quality of responses. We sought to reduce the burden to the stakeholders through finding synergies and eliminating overlapping surveys within eCAN. In order not to overburden the eCAN consortium, we get in touch with other country representatives outside of the eCAN consortium for their voluntary contribution to the project. Overall, the participation was satisfactory.

H. Additional challenge was to involve patients and clinicians to help to help design and use the eCAN solution. Cancer patients are often under significant distress and have different life priorities. The patient organizations were helpful to identify the groups ready to contribute to such exercise through the participatory design sessions organized by WP8.

I. Finally, communication is crucial to obtain the buy-in, especially from the general public. This was a specific challenge given generally low interest in specialized research findings. WP2 utilized novel communication methods to involve the public, including the extensive campaigns in social media, gaining a sizable group following the project findings. What's more project outputs of interest for the public only ready after some time and prior to that WP2 engaged experts in interactive interviews and created content to stimulate interest in the field and in the eCAN project to prepare for the release of the results in the second part of the project timeline.

Internal communication and management challenges:

J. With substantial complexity of the project and many different partners involved the challenge was to align the activities between work packages to avoid redundancy and ensure

appropriate workflow between different team. During the first year WP1 and WP3 held monthly meetings with each of the other WP leads to understand risks and challenges that may arise in each of the activities. During the second year of the project these meetings were discontinued and replaced by the weekly meetings of work packages involved in the pilots' implementation, the focus of the project during this time.

K. Delays in meeting JA reporting and output deadlines was a result of difficulties in achieving outputs in time that affect also other teams within the project. Despite the efforts to closely monitor the deadlines, given the ambition of the Joint Action and the short time frame, a few delays were inevitable, especially concerning the preparation of pilots in different countries with different requirements. WP1 prioritized the activities, the delays in which would also affect the other work streams. Failure to meet scheduled deadlines or additional unexpected tasks impacting tasks down the line

L. Forming eCAN network, the network of people who trust each other and know how to work together is a process. As eCAN was a new consortium with partners representing different field of expertise this could pose an even greater challenge. In eCAN we were fortunate enough to have positive and dedicated participants and the network that was formed is definitely a great asset for the future.

M. There were several tasks in the project that were found more resource consuming than initially previewed. Importantly, there was no formal procedure for the expert review and validation of the deliverables. WP1 reviewed all deliverables but at times the scope of the deliverables fell outside of the expertise of the WP1 team making it challenging to perform the review. In addition, tasks related to communication, including the complex requirements for interactive website and evaluation activities required engagement from all the JA partners. This should be better reflected in the planning of the personnel effort in the project.

N. When drafting the proposal it was reasonable to expect that the COVID-19 pandemic would continue during the project timeline. The pandemic and lockdown policies could have an impact on the feasibility of pilots and also affect the project face-to-face meetings. Fortunately, the epidemic situation in Europe improved so that the project activities were not disturbed.

7. Key lessons learnt

The evaluation of the eCAN JA provided valuable insights into its feasibility, challenges, and future potential of application of telemedicine in cancer care. Below are the key lessons:

1. Telemedicine in Cancer Care

- **Feasibility and Utility:** Telemedicine is a practical and useful tool for supportive cancer care, showing strong potential for integration into routine clinical management.
- **Hybrid Care Models:** Integrating telemedicine with face-to-face care is the preferred implementation strategy to ensure comprehensive patient management.
- **Patient-Centred Approach:** Understanding and addressing patient needs is critical. Preferences for in-person or telemedicine care must be respected, and vulnerable patients may require additional support to adopt digital tools.
- **Digital Literacy and Trust:** Enhancing patients' digital literacy and building trust in telemedicine services are essential for successful adoption.
- **Health Care Provider Needs:** Alignment with the needs of healthcare professionals (HCPs) is vital, with accessible training to build confidence and proficiency in telemedicine tools.
- **Legal and Ethical Considerations:** Clear interpretation of data privacy and cybersecurity requirements is needed, with consistent legal and ethical frameworks to guide implementation.
- **Standards and Guidelines:** Developing national standards and guidelines ensures coherence and scalability across cancer care settings.
- **Future Applications:** Participants identified strong potential for expanding telemedicine to other clinical areas, including but not limited to telerehabilitation and tele-psychological support.

2. Value of Pilot Projects

- **Awareness and Preparation:** Pilots effectively raise awareness about telemedicine's benefits and limitations while providing an opportunity to refine tools and processes.
- **Technical Readiness:** Successful implementation requires centres to meet technical requirements and engage dedicated personnel, such as IT staff.
- **Training and Support:** Comprehensive training for healthcare providers and staff ensures the effective use of telemedicine tools. Pilots contribute to enhance HCPs knowledge and skills in TM applications.
- **Time Allocation:** Adequate time for tool development and pilot extensions is necessary when planning such projects.

3. Stakeholder Engagement and Project Management

- **Engaging Stakeholders:** While challenging, effective stakeholder engagement is crucial. Leveraging existing networks can enhance collaboration.

- **Improved Project Management:** Smaller thematic working groups and focused planning improve the implementation of work packages and pilots. Prioritization of meetings and pilot activities ensures smoother execution.

4. Highly appreciated aspects of the project

- **Impact on Patients:** Telemedicine demonstrated clinically relevant benefits for patients, including improved awareness, digital skills, and high satisfaction with services.
- **Professional Growth:** Participants reported high professional satisfaction, with enhanced skills and awareness of telemedicine's capabilities.
- **Scientific and Practical Contributions:** The project yielded valuable scientific insights and practical recommendations, providing a strong foundation for future telemedicine initiatives.
- **Educational Materials:** The training materials and applications developed were highly appreciated and seen as instrumental in fostering the adoption of telemedicine tools within oncology.
- **Future Integration:** Patient-reported outcome measures (PROMs) and specialized services like telerehabilitation showed significant promise for routine integration.
- **Collaboration and Networking:** The project fostered a robust network of professionals, who are willing to collaborate even beyond the scope of the current project.

By addressing these lessons, future telemedicine initiatives in oncology can be further optimized, ensuring sustained benefits for both patients and healthcare providers.

8. Conclusions

The eCAN project successfully achieved its objectives, meeting key progress indicators, milestones, and deliverables as planned. Through its innovative telemedicine pilots across 17 clinical cancer centres, the project demonstrated the feasibility and potential of telemedicine solutions in oncology care. The outputs, including guidelines, tools, and educational materials, were highly relevant to the needs of healthcare providers, patients and the policy makers. These were widely appreciated by the respondents of the final stakeholder survey, underscoring the project's impact and significance.

Participants recognized the potential for telemedicine solutions to be integrated into routine cancer care, noting specific areas of the project, telerehabilitation, tele-psychological support, and patient-reported outcome measures, as well as other potential uses such as palliative care or survivorship check-ups. Their feedback provided valuable reflections on what is required for future implementation, including enhanced digital literacy, trust-building efforts, and the development of national standards and guidelines. These insights form a strong basis for further scaling and optimizing telemedicine in oncology.

The project also fostered professional satisfaction and collaboration. Participants appreciated the opportunity to engage in the initiative, highlighting the positive impact on their professional growth and the meaningful contributions they made toward advancing telemedicine. Beyond individual development, the project facilitated the creation of a collaborative network of professionals dedicated to improving cancer care through digital innovation.

In conclusion, the eCAN project not only achieved its immediate goals but also laid a foundation for the broader adoption and continued development of telemedicine in oncology. Its outputs and learnings will undoubtedly serve as valuable resources for future initiatives, ensuring sustained benefits for patients, healthcare providers, and health systems alike.

eCAN Strengthening eHealth for Cancer Prevention & Care

ecanja.eu

info@ecanja.eu