



mHealthHUB  
European

Your health connected

eHN meeting  
6<sup>th</sup> May 2020



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## Hub Overview

Website <http://mhealth-hub.org/>

[Promotional video](#)



- Joint collaboration of **ITU**, **WHO** and **Andalusian Regional Ministry of Health** (Spain) in digital health space. (H2020 project till Sept 2021).
- Implemented by a **Consortium of 18 partners** from across Europe led by Andalusia.
  - *Governments*: SPMS (PT), Ministry of Health (ES).
  - *Healthcare systems*: Campania Region (IT), ProMIS (IT), Health Care Zagreb – Centar (HR), Region Jämtland Härjedalen (SE), Basque Health Service (ES).
  - *Tech sector*: HL7, PCHA (Europe), Ericsson NT (HR), Tallinn Tehnopol (EE), EHTEL, empirica.
  - *NGO, Academia*: i~HD, University of Agder (NO), University of Applied Sciences Technikum Wien (AT), MDOG (NL), European Society of Cardiology (ESC).
- **Knowledge sharing and innovation fostering** in mHealth programs at large scale.

## Hub Overview



- **Toolkits**

- **mHealth Assessment Frameworks** - June 2020

Assist decision makers in creating/ adopting AF; provide grounds for common assessment components across borders.

- **national implementation of specific mHealth intervention** - November 2020

Diabetes and mHealth (prevention, integration in health systems, etc.)

- **integration of mHealth into health systems** - July 2021 (already working on it)

Governance, Reimbursement, Interoperability, Architecture, Change Management, Clinical Evidence, Assessment, etc.

- **Contributions to policy framework** - June 2021

mHealth policy areas: mHealth strategies, governance and change management, interoperability, innovation funds and reimbursement, privacy and data security, impact of innovations, public health prioritization in times of emergencies.

- **Services Portfolio on mHealth**

Aimed to countries or other organizations.

- **Ethics on mHealth**

Code of ethics for the Hub and ethical considerations in the toolkits and policy framework.

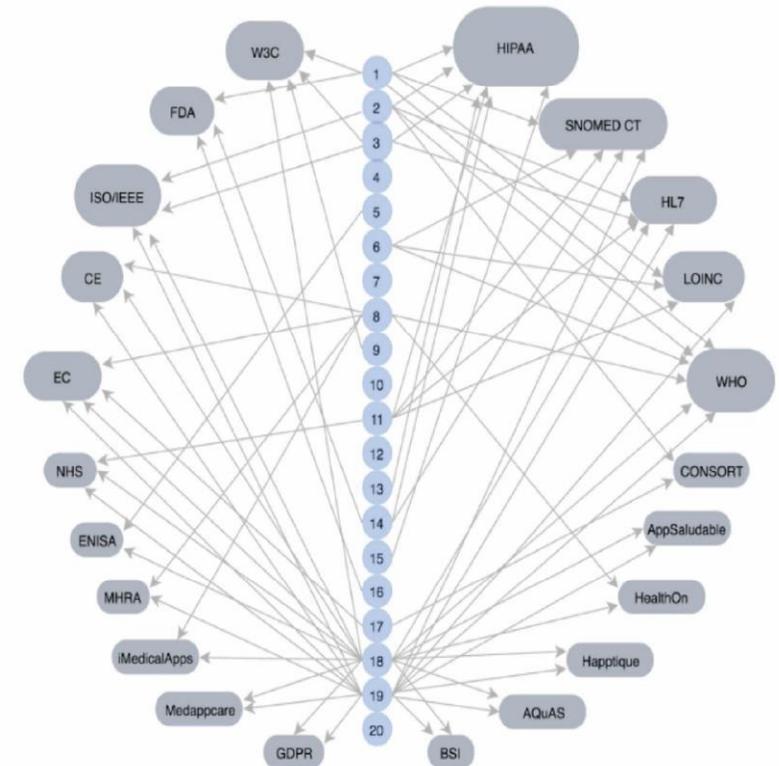
## Hub and COVID-19 response through the EU Toolbox

- Launch [COVID-19 apps repository](#): mid March; currently > 50 apps
- Early mapping of Hub expertise in response to EC Recommendation (Annex)
- **Areas** where the Hub can contribute carrying out actions:
  - Evaluation and accreditation of national apps
  - Data sharing and Interoperability
  - Integration of mHealth solutions into health systems
  - Monitoring the effectiveness of the apps



## Evaluation and accreditation of national apps Hub Report (2018) - Main findings (I)

1. **Consumer Mobile Health Application Functional Framework (HL7):** HIPAA, SNOMED CT, WHO, W3C, LOINC, ICD, FDA
2. **Monitoring and Evaluating Digital Health Interventions A practical guide to conducting research and assessment:** HIPAA, HL7, WHO, ISO/IEEE, ICD, CONSORT, mERA
3. **Continua Design Guidelines:** HIPAA, HL7, W3C, ISO/IEEE
4. **EU guidelines on assessment of the reliability of mobile health applications:**
5. **Code of Conduct on privacy for mHealth apps:** ENISA
6. **AppSalut:** SNOMED CT, WHO, LOINC,
7. **Andalucia/AppSaludable:**
8. **Digital healthcare products (study report):** WHO, ICD, CE certification, EU commission, HealthOn, MHRA, iMedicalApps
9. **Weighted Evaluation Framework for Cross-Platform App Development Approaches:** W3C
10. **mHealth in Ethiopia: strategies for a new framework:**
11. **Evaluating Mobile Apps guide (NLM, NIH):** HIPAA, SNOMED CT, HL7, LOINC, NHS
12. **Evaluating Digital Health Interventions (Murray et al., 2017):**
13. **Privacy Framework for Mobile Health and Home-Care systems:** HIPAA
14. **Mobile Health app guidelines (Xcertia):** HIPAA, SNOMED CT, FDA
15. **APA App evaluation Model:** HIPAA
16. **CDS Coalition Guidelines:** FDA
17. **MAST - Model for evaluation of telemedicine:** EU commission, CONSORT
18. **Haute autorite de sante - Good practice guidelines on health apps and smart devices:** HL7, WHO, W3C, ISO/IEEE, CE certification, EU commission, NHS, mERA, AppSaludable, HealthOn, ENISA, Happtique, Medappcare, BSI, AQuAS, GDPR, iMedicalApps
19. **Report of the Working Group on mHealth Assessment Guidelines:** SNOMED CT, HL7, WHO, LOINC, ICD, ISO/IEEE, CE certification, NHS, AppSaludable, Happtique, Medappcare, BSI, AQuAS, GDPR, MHRA, IGES, Haute autorite de sante
20. **NHS App Assessment for Developers:**



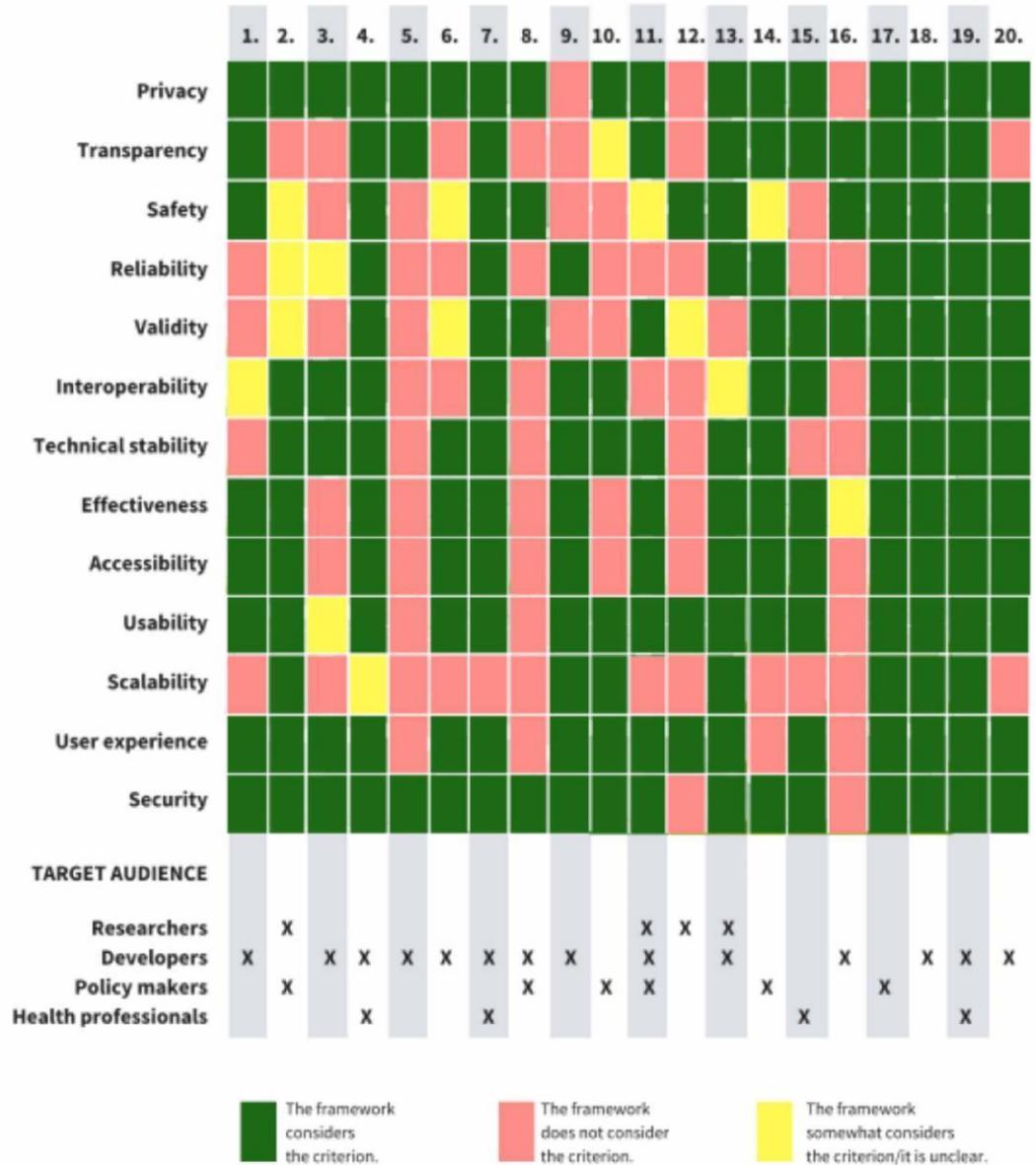
👉 Frameworks are being re-invented rather than building on any existing

# Evaluation and accreditation of national apps

## Hub Report (2018)

### Main findings (II)

☞ Most frameworks did not assess all the criteria



# Evaluation and accreditation of national apps Hub Report (2018) - Main findings (III)

## □ Heterogeneity

- Regarding comprehensiveness, depth, format, and target audience.
- Some frameworks are comprehensive and broad; others very specific to certain target audiences and criteria.

## □ Similarities

- Most frameworks assessed security, privacy, user experience, and usability.
- Most frameworks did not assess reliability and safety.
- Most frameworks targeted developers in some capacity.
- Some standards were referenced by multiple frameworks.
- Most frameworks did not reference each other.

## □ Differences in stakeholder and framework priorities

Most frameworks did not assess the criteria considered most important by the stakeholders, as interviewed by the EC Working Group on mHealth assessment (i.e. transparency, safety, reliability, validity, and interoperability).

### Report on the mHealth Assessment Frameworks

Executive summary		TABLE OF CONTENTS	
This report builds upon the previously published <b>report</b> by The Working Group on mHealth assessment, which analyzed interviews with different stakeholders groups (researchers, public authorities, health practitioners, industry, and developers) on mHealth assessment framework criteria. In order to determine the core criteria needed in a common framework, we analyzed the existing mHealth assessment frameworks to identify the similarities and differences.		Introduction	3
<b>Main findings</b>		Methods	4
1. This report identifies 3 framework categories:		Findings	6
Assessment: frameworks outlining how to assess an mHealth product.		Table 1: Descriptive analysis	6
Implementation: frameworks outlining how to assess the readiness of the environments to adapt an mHealth product.		Table 2: Criteria Analysis	9
Service: frameworks used by services to provide an assessment of an mHealth product.		Discussion	12
Frameworks can fall into more than one category. Only frameworks in the "assessment" category were analyzed in further detail.		Appendix 1: References	14
2. Large amount of <b>heterogeneity</b> : Among the assessment frameworks assessed, there is a large amount of heterogeneity regarding comprehensiveness, depth, format, and target audience of the frameworks. Some frameworks are comprehensive and broad, and others are very specific to certain target audiences and criteria.		Appendix 2: Criteria definitions	19
3. <b>Similarities</b> : Most frameworks assessed security, privacy, user experience, and usability, most frameworks did not assess reliability and safety, and most frameworks targeted developers in some capacity. Some standards were referenced by multiple frameworks. Most frameworks did not reference each other.		Appendix 3: Reference analysis	20
4. <b>Differences</b> in stakeholder and framework priorities: Most frameworks did not assess the criteria considered most important by the stakeholders, as interviewed by The Working Group on mHealth assessment (i.e. transparency, safety, reliability, validity, and interoperability).		Appendix 4: Action points	21

## Evaluation and accreditation of national apps Hub Toolkit (30<sup>th</sup> June 2020)

### Objectives:

- Assist decision makers in creating/adopting assessment frameworks.
- Provide grounds for common assessment components across borders.

Findings on how specific **criteria** relevant for COVID-19 are covered by those frameworks: e.g. interoperability, privacy, safety, security or effectiveness.

### Around 25 frameworks

AppSaludable (ACSA, Andalusia, ES)  
 cMHAFF (HL7)  
 CEN/ISO 82304-2  
 Code of Conduct (final draft) (EC)  
 Continua Design Guidelines (PCHAlliance)  
 Digital Assessment Questions (NHS, UK)  
 Digital healthcare products (IGES Institute)  
 EU Guidelines (EC Working Group)  
 Evaluating Digital Health Interventions (Murray et al.)  
 Evidence Standards Framework (NICE, UK)  
 Good practice guidelines (HAS, France)  
 iSYS Score (Fundación iSYS, Catalonia, ES)  
 MAST (MethoTelemed Project)  
 Medappcare Certilife (FR)  
 Medappcare Quality Approach (FR)  
 mHealth (Ticsalutsocial, Catalonia, ES)  
 mHealth Belgium  
 Mind Apps (DK)  
 Monitoring and Evaluating Digital Health Interventions (WHO)  
 My Health Apps (Patient View, UK)  
 My SNS Seleccção (SPMS, PT)  
 ORCHA review process  
 Our Mobile Health (UK)  
 Privacy Framework (Kotz et al.)  
 Quality Assurance Checklist (NHS, Scotland)  
 Weighted Evaluation Framework (Rieger et al.)  
 Weisse Liste (Bertelsmann Stiftung, DE)

# Evaluation and accreditation of national apps Hub Toolkit (30<sup>th</sup> June 2020)

Compilation of **13** health apps  
repositories in Europe.

Findings on the process of building  
and keeping a health apps repository  
(e.g. transparent methodology; how information is  
organized; languages...)

## Health apps repositories in Europe



**UK**

- NHS Apps Library**  
by National Health Service (NHS)  
[EN](#)
- EMIS App Library**  
by EMIS App Library  
[EN](#)
- Your health app finder**  
by Organisation for Review of  
Care and Health Apps (ORCHA)  
[EN](#) / [NL](#) / [ET](#)
- My health apps**  
by Patient View  
[EN](#)
- Our Mobile Health  
App Curated Library**  
by Our Mobile Health  
[EN](#)

**SCOTLAND**

- The Right Decision - Apps Library**  
by NHS Scotland  
[EN](#)

**Portugal**

- MySNS Seleção**  
by Shared Services of the Ministry of Health  
[PT](#)

**Belgium**

- mHealth Belgium - All apps**  
by mHealth Belgium  
[FR](#) / [EN](#) / [NL](#)

**Spain**

- ANDALUSIA**  
**AppSaludable Health  
Apps Catalogue**  
by Andalusian Agency for  
Healthcare Quality  
[EN](#) / [ES](#)
- CATALONIA**  
**Catálogo de Aplicaciones  
de la Salud**  
by iSYS Foundation  
[ES](#) / [CA](#)

**France**

- Kiosques de recommandation**  
by Medappcare  
[FR](#) / [EN](#)
- Kiosque de services digitaux**  
by AGZR LA MONDIALE-Medappcare  
(partnership)  
[FR](#)

**Denmark**

- SOUTHERN DENMARK**  
**MindApps. Apps for Mental Health**  
By Centre for Telepsychiatry in  
the Region of Southern Denmark  
[DA](#) / [EN](#)

This is a non-exhaustive list of  
health apps repositories  
developed in Europe. If you know  
of anyone else, please  
contact to  
[mhealthhub.acsa@juntadeandalucia.es](mailto:mhealthhub.acsa@juntadeandalucia.es)

## Evaluation and accreditation of national apps Summary of valuable Hub contributions

- The Hub as a one-stop shop → **European repository** of mHealth solutions deployed for different purposes in the pandemic management.  
*Further and more sophisticated development of the Hub COVID-19 repository.*
- **Catalogue** of assessment frameworks and repositories in Europe; Brief Technical Notes on **gaps / common assessment components / recommendations**.
- Brief Technical Notes with guidance for countries on **how apps are assessed by different criteria** in the existing frameworks. (interoperability, accesibility, privacy, effectiveness, etc.)

## Data sharing and Interoperability



- Two big players in the Hub Consortium (HL7, PCHA Europe)
- Work on **technical specifications** for IOP for cross border alert mechanisms.
- Brief Technical Notes on **semantic interoperability** of clinical data, and clinical datasets standardization.
- Guidance to assess **barriers for interoperability** and how to overcome them.

## Integration of mHealth solutions into health systems

- Guidance with **roadmap** for health authorities to **adopt** mHealth solutions.
- Checklists or Brief Technical Notes on the challenge of **integrating** mHealth solutions, in particular contact tracing, **into the health system** and their eHR and e-prescription system.
- Disseminate lessons learnt from past integration experiences (before COVID-19) on cross cutting topics (**architecture, security, privacy, data integrity, governance, needs-solutions matching**).

## Monitoring the effectiveness of the apps

- Checklist or Brief Technical Note to help on the setting up/update of a national **monitoring system**.
- Methodological guidance for countries to build effectiveness **KPIs**.
- Guidance for health authorities on strategies for gaining **public trust** through the monitoring activities.



Thank you



[http://mhealth-hub.org/contact\\_us](http://mhealth-hub.org/contact_us)

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World Health  
Organization



Junta de Andalucía  
Consejería de Salud y Familias



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## (Annex) Early mapping of Hub expertise in response to EC Recommendation

Toolbox Areas fit into existing Deliverables	Focus Areas	Deliverables	EC Actions	Hub Expertise
<b>Use of mobile applications for warning, preventing and contact tracing</b>				
<input type="checkbox"/> Specifications for <b>effectiveness of mobile information</b> , warning and tracing applications from a medical and technical point of view	FA3	KT1		SSPA, Empirica, SPMS, University of Agder, University of Vienna, Ericsson NT
<input type="checkbox"/> <b>Governance and approval mechanisms</b> to be applied by public health authorities and in cooperation with the ECDC; Governance covering primarily the access to data generated by tracing apps	FA2	KT3, Policy		Health authorities in the consortium (HAC)
<input type="checkbox"/> <b>Identification of good practices and mechanisms for exchange of information</b> on the functioning of the applications	FA4	COVID-19 apps Hub's repository		WHO, ITU, SSPA, Hub Consortium
<input type="checkbox"/> <b>Sharing data</b> with relevant epidemiological public bodies, including aggregated data to ECDC	FA4, FA2	KT2, KT3, Policy	SA01	HAC, WHO, ITU
<input type="checkbox"/> <b>Cross-border interoperability of services and apps</b> (data exchange between Member States, trust and security), enhancing continuity of care, safeguarding rights to privacy and data protection, regardless of location of device in EU.	FA4	KT3	SA03	HL7, PCHA, University of Vienna, HAC
<input type="checkbox"/> <b>Apps types/functions:</b> epidemiological surveillance, cross-border threats to health, inform, advise, follow-up, warning, monitoring, enforcement of quarantine, health assessment, Self-diagnoses and symptom checker	FA1	COVID-19 apps Hub's repository		SSPA
<input type="checkbox"/> <b>Guidance on data security and privacy</b> , on putting in place adequate security and privacy safeguards for data collection, retention and sharing policies.	FA5	KT3	SA02	ITU, PCHA, i-HD, University of Vienna
<input type="checkbox"/> <b>Prevent proliferation of harmful apps:</b> Guidance to Member States on setting up a national system of evaluation/accreditation endorsement of national apps, following a common set of criteria	FA5	KT1		WHO, ITU, SSPA, empirica, SPMS, University of Agder, University of Vienna, Ericsson NT.
<input type="checkbox"/> <b>Monitoring &amp; measuring the effectiveness of apps.</b> Guidance on development of the KPIs to assess/reflect the effectiveness of the apps in supporting contact tracing.	FA3	KT1	SA03	WHO, ITU, SSPA, empirica, SPMS, University of Agder, University of Vienna, Ericsson NT
<input type="checkbox"/> <b>Guidance on apps performance;</b> accuracy, completeness (data), scalability, security (app), network and information security, architecture	FA3	KT1		ITU, SSPA
<input type="checkbox"/> <b>Guidance on back-end architecture and technology,</b> for deployment at scale, while ensuring a high level of network and information security	FA5	KT3		ITU, HL7, University of Vienna
<input type="checkbox"/> <b>Accessibility and inclusion:</b> how vulnerable individuals, elderly may not have access to this app	FA1..6	KT1, KT3		ITU, WHO, PCHA, MDOG, SSPA, Zagreb