**Annex**

## Table 1. List of recommendations excluded

| Main group/subgroup | | Description of the recommendation | Reason to be excluded |
| --- | --- | --- | --- |
| **Design and appropiateness** | | | |
|  | **Usability** | | |
|  |  | Recommendation 3. The health App follows the recommendations, patterns and directives included in the official manuals of the different platforms | This is the objective of the usability criteria. |
|  | **Usability/Testing** | | |
|  |  | Recommendation 4. The health App has been tested by potential users before its availability to the public | Difficult to be assessed objectively. |
|  | **Content and Information Sources** | | |
|  |  | Recommendation 13. The health App is based on ethical principles and values | Difficult to be assessed objectively. |
|  | **Risk Management** | | |
|  |  | Recommendation 15. The known risks and adverse events (near misses) are analysed, and the convenient actions start to be developed | Aimed at app developers. |
| **Provision of services** | | | |
|  | **Bandwidth** | | |
|  |  | Recommendation 19. The health App makes an efficient use of communications bandwidth | Difficult to be evaluated. |
| **Confidentiality and privacy** | | | |
|  | **Privacy and Data Protection** | | |
|  |  | Recommendation 25. The health App informs the users when it has access to other resources of the device, to users’ accounts and to profiles in social networks | It has been included in the Privacy and data protection category. |
|  | **Logical Security** | | |
|  |  | Recommendation 31. When the health App uses services from the Cloud (cloud computing), the terms and conditions of those services are declared, and the pertinent security measures are ensured | It has been included in the Privacy and data protection category. |

## Table 2. List of recommendations included.

| Main group/subgroup | | Description of the recommendation | Assessment criteria |
| --- | --- | --- | --- |
| **Design and appropriateness** | | | |
|  | **Appropriateness** | | |
|  |  | Recommendation 1. The health App clearly defines its functional reach and its purpose, identifying the target groups of information and the aims pursued regarding these groups | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **Accessibility** | | |
|  |  | Recommendation 2. The health App follows the Principles of Universal Design, as well as reference accessibility standards and recommendations | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
| **Quality and safety of information** | | | |
|  | **Suitability for the Audience** | | |
|  |  | Recommendation 5. The health App adapts itself to its target audience | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **Transparency** | | |
|  |  | Recommendation 6. The health App offers transparent information about its owners’ identity and location | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 7. The health App offers information about its funding sources, promotion and sponsorship, as well as about possible conflicts of interests | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **Authorship** | | |
|  |  | Recommendation 8. The health App identifies the authors of its content and their professional qualification | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **Information Update/Revisions** | | |
|  |  | Recommendation 9. The health App includes the date of the last revision made in the published material | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 10. The health App warns of those updates which modify or influence the functioning of health-related content, as well as other sensitive data | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **Content and Information Sources** | | |
|  |  | Recommendation 11. The health App is based on one or more reliable information sources, and takes into account the available scientific evidence | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 12. The health App offers concise information about the procedure used in order to select its content | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 13. health App is based on ethical principles and values | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **Risk Management** | | |
|  |  | Recommendation 14. The possible risks for patient safety caused by the use of the health App are identified | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
| **Provision of services** | | | |
|  | **Technical Support/Inquiries** | | |
|  |  | Recommendation 16. The health App has a support system about its use | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 17. The health App offers a contact mechanism for technical support with an assured and fixed response time | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **E-Commerce** | | |
|  |  | Recommendation 18. The health App informs about the terms and conditions on the commercialisation of its products and services’ | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **Advertisement** | | |
|  |  | Recommendation 20. The health App warns of the use of advertisement mechanisms and allows deactivating or skipping them | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
| **Confidentiality and privacy** | | | |
|  | **Privacy and Data Protection** | | |
|  |  | Recommendation 21. Before downloading and installing it, the health App informs about the kind of user’s data to be collected and the reason, about the access policies and data treatment, and about possible commercial agreements with third parties | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 22. The health App clearly describes the terms and conditions about recorded personal data | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 23. The functioning of the health App preserves privacy in the recorded information, collects express consents granted by users, and warns of risks coming from the use of online mobile health Apps | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 24. The health App ensures pertinent security measures when users’ health information or sensitive data has to be collected or exchanged | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 26. The health App ensures the right of access to recorded information and the updates regarding changes in its privacy policy | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 27. The health App has measures regarding minors’ protection in accordance with the current legislation | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  | **Logical Security** | | |
|  |  | Recommendation 28. The health App presents no sort of known susceptibility nor any type of malicious code | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 29. The health App describes the security procedures established in order to avoid unauthorised access to personal data collected, as well as to limit the access by third parties | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 30. The health App has encryption mechanisms for the storage and exchange of information, as well as mechanisms for password management | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |
|  |  | Recommendation 31. When the health App uses services from the Cloud (cloud computing), the terms and conditions of those services are declared, and the pertinent security measures are ensured | 0-2 scale (0= completely disagree;1= partially agree; 2= completely agree) |

## Table 3. Evaluated usability and assessment criteria from Arnhold et al.

|  |  |  |  |
| --- | --- | --- | --- |
| Main criterion/subcriteria | | Description of characteristics | Assessment criteria |
| **Comprehensibility** | | | |
|  | **Use of understandable semantics** | | |
|  |  | Avoidance of foreign language and technical terms | 5-point Likert scale (1=does not apply at all; 5= does fully apply) |
|  |  | Use of generally intelligible symbols and terms |
|  |  | If necessary, provision of additional explanations |
|  | **Simple comprehensibility and interpretability of displayed images and depictions** | | |
|  |  | Self-explanatory images and depictions, understandable without further support and explanations | 5-point Likert scale (1=does not apply at all; 5= does fully apply) |
|  | **Simple, self-explanatory menu structures** | | |
|  |  | Easily understandable and internally consistent menu structures | 5-point Likert scale (1=does not apply at all; 5=does fully apply) |
|  |  | Avoidance of strong hierarchical menu structures and too many functionalities |  |
| **Presentation (Image and Text)** | | | |
|  | **Sufficient color contrast** | | |
|  |  | Clear, distinguishable colors for images and depictions or choice of color-neutral depictions | 5-point Likert scale (1=does not apply at all; 5=does fully apply) |
|  |  | Avoidance of too glaring colors |
|  | **Large size of operating elements** | | |
|  |  | Sufficient size of screen as well as input and output fields | 5-point Likert scale (1=does not apply at all; 5=does fully apply) |
|  | **Ability to adapt the size of operating elements and displayed images** | | |
|  |  | Ability to adapt size of operating elements and displayed images according to individual needs, capabilities, and preferences | Dichotomous scale (applicable, not applicable) |
| **Usability** | | | |
|  | **Instant and easily understandable feedback** | | |
|  |  | Instant response to entered data, including easily understandable error messages in case of erroneous data input | 5-point Likert scale (1=does not apply at all; 5=does fully apply) |
|  | **Intuitive usability** | | |
|  |  | Ability to use the application without prior knowledge | 5-point Likert scale (1=does not apply at all; 5=does fully apply) |
|  |  | Ease of learning |
|  |  | Fast achievement of a first feeling of success |
|  | **Simple recognition of click-sensitive areas** | | |
|  |  | Simple distinction between click-sensitive and non-click-sensitive areas, also without prior knowledge of the features of the touchscreen technology | 5-point Likert scale (1=does not apply at all; 5=does fully apply) |
| **General characteristics** | | | |
|  | **High fault tolerance/efficient fault management** | | |
|  |  | Reducing probability of erroneous data input by limiting choice to meaningful values | 5-point Likert scale (1=does not apply at all; 5=does fully apply) |
|  |  | Efficient proofreading mode and/or helpful user feedback, for example, in case of erroneous data input |
|  | **Password-protected services** | | |
|  |  | Avoidance of registration at online platforms (but partly contrary to data protection regulations) | Dichotomous scale (applicable, not applicable) |