A brief evaluation of icons suggested for use in standardised information policies


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1. Informed consent and UI objects that make a user understand privacy policies

The principle of “informed consent” as prescribed by national laws and EU directives makes it necessary to inform users about all the intended data processing when they submit data. Conveying the sometimes highly complex clauses of privacy policies to the subjects concerned is generally hard. The solution of providing situated or “just-in-time” information to internet service users has been discussed and investigated in several projects and reports. At the same time, it is known that for psychological reasons it might be hard to divert a user’s attention from the primary goals of a transaction to the details of privacy policies.

In order to solve these competing requirements expandable short texts as well as icons have been proposed by different authors and project teams (see e.g. the overview and discussions in Angulo, Fischer-Hübner & Pettersson 2013, esp. Chapter 2 and section 5.5.2). This report takes a look at the icons appearing in Annex 1 to Article 13a of a European Parliament document on the proposal for new EU regulations. ¹

The set of icons presented in the Annex raises some questions. Are these icons as suggestive of the content as intended? The proposal states that icons, texts (= verbal statements of the “essential information”), and a kind of evaluation of whether the statements are met or not shall all be presented in a table. However, as experienced in several experiments, indications of deviations of desired conditions should be marked close to the corresponding data entering fields or close to any OK or ACCEPT button rather than in a separate window or as a text that the user is likely to scroll away from in order to find the OK button. It is therefore of interest to see how a user would understand the icons in themselves, especially if understood as implied by Annex 1 so that they can be used in notifications and not only in the table (otherwise a user interface designer might end up having two sets of icons with similar meanings).

Furthermore, as the table presents evaluations which are made according to a desired policy, the composition of statements and evaluation symbols is of interests to investigate. (The statements stating the desired policy are called “essential information” in Annex 1.)

Section 2 presents the proposed amendments to the wording of Article 3a as well as the bulk of Annex 1.

Section 3 explains the rationale of a minor survey made with Media and Communication undergraduates to see how they apprehend the icons.

Section 4, finally, summarizes the survey and also presents some further thoughts on the composition of icons for information and alerts.

2. Article 13a and Annex 1 of the proposed amendments from 2013

The following is found in the document (on the next page follows the Annex referred below):

Article 13a (new)
Standardised information policies

1) Where personal data relating to a data subject are collected, the controller shall provide the data subject with the following particulars before providing information pursuant to Article 14:

a) whether personal data are collected beyond the minimum necessary for each specific purpose of the processing;
b) whether personal data are retained beyond the minimum necessary for each specific purpose of the processing;
c) whether personal data are processed for purposes other than the purposes for which they were collected;
d) whether personal data are disseminated to commercial third parties;
e) whether personal data are sold or rented out;
f) whether personal data are retained in encrypted form.

2) The particulars referred to in paragraph 1 shall be presented pursuant to Annex X [final text from 12 March 2014 reads “...to the Annex to this Regulation] in an aligned tabular format, using text and symbols, in the following three columns:

a) the first column depicts graphical forms symbolising those particulars;
b) the second column contains essential information describing those particulars;
c) the third column depicts graphical forms indicating whether a specific particular is met.

3) The information referred to in paragraphs 1 and 2 shall be presented in an easily visible and clearly legible way and shall appear in a language easily understood by the consumers of the Member States to whom the information is provided. Where the particulars are presented electronically, they shall be machine readable.

4) Additional particulars shall not be provided. Detailed explanations or further remarks regarding the particulars referred to in paragraph 1 may be provided together with the other information requirements pursuant to Article 14.

5) The Commission shall be empowered to adopt, after requesting an opinion of the European Data Protection Board, delegated acts in accordance with Article 86 for the purpose of further specifying the particulars referred to in paragraph 1 and their presentation as referred to in paragraph 2 and in Annex 1. [The final text from 12 March 2014 ends: “…and in the Annex to this Regulation”]

The first page of Annex 1 is here reproduced in Fig. 1 together with two symbols a) and b) to be inserted in the right-hand column of the table. Nota Bene, the figure is not included in the official amendment text (2014). This is probably just a mistake but we have to refer to the 2013 document.
**Annex 1 - Presentation of the particulars referred to in Article 13a (new)**

1) Having regard to the proportions referred to in point 6, particulars shall be provided as follows:

<table>
<thead>
<tr>
<th>ICON</th>
<th>ESSENTIAL INFORMATION</th>
<th>FULFILLED</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="icon1.png" alt="Icon" /></td>
<td>No personal data are collected beyond the minimum necessary for each specific purpose of the processing</td>
<td><img src="green-check.png" alt="Green Check" /></td>
</tr>
<tr>
<td><img src="icon2.png" alt="Icon" /></td>
<td>No personal data are retained beyond the minimum necessary for each specific purpose of the processing</td>
<td><img src="red-x.png" alt="Red X" /></td>
</tr>
<tr>
<td><img src="icon3.png" alt="Icon" /></td>
<td>No personal data are processed for purposes other than the purposes for which they were collected</td>
<td><img src="green-check.png" alt="Green Check" /></td>
</tr>
<tr>
<td><img src="icon4.png" alt="Icon" /></td>
<td>No personal data are disseminated to commercial third parties</td>
<td><img src="red-x.png" alt="Red X" /></td>
</tr>
<tr>
<td><img src="icon5.png" alt="Icon" /></td>
<td>No personal data are sold or rented out</td>
<td><img src="green-check.png" alt="Green Check" /></td>
</tr>
<tr>
<td><img src="icon6.png" alt="Icon" /></td>
<td>No personal data are retained in unencrypted form</td>
<td><img src="red-x.png" alt="Red X" /></td>
</tr>
</tbody>
</table>

**Fig 1. First page of Annex 1. a) and b) are symbols presented on its second page.**

The Annex thus presents a table matching icons to “essential information” and then continues by explaining that the symbols a) and b) shall be used in the third column if the conditions in the second column is met or not met, respectively. It is also stated specifically that the words in bold shall be in bold.
3. Design of the questionnaire

In order to have some idea of whether people would have a fairly consensual comprehension of the table in Annex 1, especially its iconographic parts, a survey aimed at a university class was designed. More diverse respondent groups can of course be considered, but if the students of a university class have very divergent notions of the iconography presented, there is no reason to assume that a larger survey would suddenly reveal a coherent conceptualization of it.

The presumption of the suggested reformulation of Article 13a is that a table can easily (meaningfully) be presented to a data subject “Where personal data relating to a data subject are collected”. Probably, a table with icons, legends, and evaluation indicators may give a good explanation because different parts can be related to each other – “We seek and use visual structure” as one user interface expert and psychologist puts it (Johnson 2014, Chapter 3). The icons, for instance, can be quite arbitrary symbols as they will occur next to what is called the “essential information”. However, always presenting a whole table may be problematic if the icons and texts are to be used in recurring or varied UI situations.

Thus, the first question in the questionnaire simply reads: “Describe what you think the icons below are about. You can write one single word or 1-2 sentences.” It was followed by the six symbols encircled by red in the same order as they have in the Annex 1 table.

The second question requested the respondents to match icons with the “essential information” as defined in Annex 1. The order of the icons remained the same while the texts were put in alphabetical order of the main word (the bold face words). Naturally, as only six alternatives were available, a fairly high score on this question could be expected if respondents use a strategy of mutual exclusion. However, as the goal of this questionnaire was not primarily to see if a user can understand the full table, the instruction included an invitation to the respondent that, “If you think several icons match a text or that one icon would fit several of the texts, you just mark that.” It would be interesting to see if there were alternative interpretation of one and the same symbol (and vice versa).

Finally, a noteworthy circumstance of the “essential information” is that the sentences are negatively phrased (“No ...”). It might not be a problem in itself, but it means that the icons are intended to signal a negative statement. Thus the icons have the red circle found in traffic signs. However, a red circle with a diagonal bar is presumably clearer for a negative statement. This is the first problem one can envisage: the proposed icons try to make a compositional statement with an unwanted condition in the middle and a red circle to signal, “It is not the case that...”. The case if further complicated by the table’s third column, where an indicator is to be put to signal whether or not the composite statement is fulfilled or not. The symbol a) in Figure 1 is presumably understood as affirmative, but the symbol b) should mean that “It is not the case that the statement in the left and middle column is fulfilled.” Thus, for each row with a red cross, the interpretation should run, “It’s not the case that it’s not the case that...”.

To see if people were prone to generate such interpretations, the third question was placed above a depicted sample row, and ran as follows: “When you are about to enter some personal data at a site, you notice the row below. What do you think the site is trying to say?”
The questionnaire is found in Appendix A with English translations. Admittedly, there are points where the design of the study be questioned. For instance, situating the icons (or the whole table) on actual web pages would have been fairer to the proposal. On the other hand, research projects such as PRIME, PrimeLife, and A4Cloud have made clear that there are functions which would provide similar information to data subjects but without the purpose of consent giving (cf. in particular the Data Track; Pettersson et al. 2006, Angulo et al. 2013, section 5.3.1). Thus, there are reasons to explore how generally understandable the icons are as well as the doubling of negations.

Pilot questionnaire: Before the questionnaire was handed out to the class, four people were asked to read the introductions and answer the questions. These were one administrator, two academic psychologists, and finally one student union representative. The intro was slightly rephrased after the first pilot tester. Moreover it was obvious that the “necessary information” texts had to be given in Swedish (e.g., a word like dissemination was not understood by all pilot testers). The order of the texts was not rearranged when Swedish translations were.

4. Summary of the answers and some implications for UI design

The questionnaire was handed out to an undergraduate class in “Visual communication and design”. Everyone was willing to participate which provided 21 responses. The answers (translated into English) are given in Appendix B.²

In question 1, only one respondent, #21, understood the red circle as some kind of negation.

All in all, the interpretation deviated quite often from the concepts intended in Annex 1 of the proposal. Considering how many times the phrase “personal data” is used in the introduction, it is disappointing to see how few references to privacy policy issues that are found in the answers. The actual word in Swedish for personal data (personuppgifter) seems however to have influenced the wording in some answers as some respondents have used the Swedish non-technical term uppgifter rather than data or information.

Question 2 “Try to match”: Only one respondent made multiple matchings so a simple evaluation of the result is reached by counting the total number of correct matches for each respondent. On average, it was not very high:

<table>
<thead>
<tr>
<th>Matches</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

A more thorough inspection of the answers, however, reveals that the translation of “are retained” to bevaras might be a reason why some respondents (in fact 12; these are marked by ‘*’ in Appendix B) did not match the icon containing a disk with text b: the standard Swedish term for saving files in computer programs is Spara and this is often associated with the floppy disk symbol. There is simply no reason not to use the word spara in association with the disc symbol.³ Choosing Sparas instead of bevaras in the questionnaire might have raised the number of all-corrects with some 30-50%.

² Credits to Julio Angulo for distributing and collecting the questionnaire, to Malin Wik for discussing the translations of the received responses, and to Sofie Liljeborg for the initial draft translations of icon texts.

³ It is to be noted that the Swedish Personal Data Act from 1998 hardly uses any word for passively storing data: lagring and lagra (‘store’) occur 1+3=4 times, but otherwise behandla (‘process’) is used while the person
The lesson to be drawn from this is that if icons are used that distinctly resemble well-known icons from other user interfaces, the wording in each language must match the standard “textual” translation of the icon. Thus, the intended message must be conveyed in that word and also be close in meaning to the standard use of the icon + word.

In question 3, the third icon in the table gets a definite interpretation because the icon and the “essential information” are put together just as in the table in the Annex of the amendments. This of course influenced the respondents and it explains why the answers deviate from the explanations provided by the respondents to the same icon in question 1. What is interesting is instead the fact that in spite of the “essential information” provided in the table row, many respondents extended the meaning to cover also the forwarding of data.

Moreover, as the icon and the textual statement were combined with the cross-out icon (Fig. 1b), the meaning should be that “It is not the case that statement holds.” However, from the interpretations given by the respondents, it is obvious that the system of negation of negation presupposed by the table semantics does not work. One may note especially that respondent #21, who for some of the icons in question 1 actually used a negation, did not do this for the third icon in question 1, and in question 3 this respondent gave no explanation at all.

*  

For the future, the different needs of different user interface designs should be considered. For instance, icons do not have to make statements but rather only indicate area; this is appropriate when an icon is only used to open a table or dialog box with the evaluation of what pertains to the particular data request made by that particular service provider. The icon then has a classifying function (a headline function). In order to call the data subject’s attention to a specific and troublesome fact, a classifying icon can get a warning triangle superscript. The composition can still function as a place to click or hover over when one wants to read more.

There might be other alerts a user wants to have than the one prescribed by an EU directive. Therefore integration of alerts in a customer controlled way must be considered.

Finally, the information texts do not cover the information that could be conceived for cloud processing. The “essential information” may be extended and icon bits may need to be reused.

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is called ‘the registered person’. The words for collecting, registering, organizing, and storing are used in the same sentence in the initial definition of handling, ‘process’, which seems to differentiate registering and storing, but the differentiation is not drawn upon as all concepts are collected under ‘process’.
References


INTRODUCTION TO QUESTIONNAIRE ABOUT WEB ICONS FOR PERSONAL DATA PROCESSING

When shopping online, signing up for a service, contacting authorities, associations and businesses via the Web or through apps on the phone and in tablet, these sites are required by the Personal Data Act to explain what they are going to have one's personal data to. The Swedish law follows the EU directives.

It's not always easy to find that information. And even if it is easy to find information about the sites' personal data processing, the information text can be lengthy with many qualifications.

It has been suggested that users would be able to get short summaries, perhaps in the form of icons, which show the main features of the site's handling of personal information. If one uses the icons they should be simple images that say something about the processing of personal data.

This survey contains a few icons that came with a recent EU proposal for an EU directive on personal data processing. On the following pages, we ask you to comment the icons and texts to the icons.

Please, do not turn page until you have been requested to do so!

INTRODUKTION TILL ENKÄT OM WEBB-IKONER OM PERSONDATAHANTERING

När man handlar på nätet, registrerar sig för någon tjänst, kontaktar myndigheter, föreningar och företag via webben eller via appar i telefon och surfplatta, så är dessa sajter skyldiga enligt Personuppgiftslagen att förklara vad de ska ha ens persondata till. Den svenska lagen följer direktiv från EU.

Det är inte alltid så lätt att hitta den information. Och även om det är enkelt att hitta information om sajternas personuppgiftshantering, så kan informationstexten vara långgrandig med många förbehåll.

Det har föreslagits att man som användare skulle kunna få korta sammanfattningar, kanske i form av ikoner, som visar huvuddragen i sajtens hantering av personuppgifter. Om man använder ikoner så bör de vara enkla bilder som säger något om hanteringen av personuppgifter.

Den här enkäten innehåller några ikoner som kom med senaste EU-förslaget till EU-direktiv om personuppgiftshantering. På de följande sidorna ber vi dig att kommentera ikonerna och texter till ikonerna.

Vänligen, vänd ej blad förrän du blir omedd att gå vidare!
1. Describe what you think the icons below are about. You can write one single word or 1-2 sentences.


Please, do not turn page until you have been requested to do so!
Vänligen, vänd ej blad förrän du blir omedd att gå vidare!
2. Try to match the texts on the right-hand side to the icons to the left side. Draw a line between icon and text.

If you think several icons match a text or that one icon would fit several of the texts, you just marked that.

[The matching texts were given both in their original English wording and in Swedish translation.
As show on the next page, English texts were in green while the Swedish texts were printed in blue.

The instruction (in Swedish) appeared in the original questionnaire on the same page as the icons and texts.]

2. Försök matcha texterna till höger mot ikonerna till vänster. Drag streck mellan ikon och text.

Om du tycker att flera ikoner matchar en text eller att en ikon passar till flera av texterna, så markerar du det.
No personal data are **collected** beyond the minimum necessary for each specific purpose of the processing.

Inga personuppgifter samlas in utöver de som är nödvändiga för varje specifikt syfte med databehandlingen.

No personal data are **disseminated** to commercial third parties.

Inga personuppgifter sprids till kommersiella tredjeparter.

No personal data are **processed** for purposes other than the purposes for which they were collected.

Inga personuppgifter behandlas för andra syften än för vilka de samlades in.

No personal data are **retained** beyond the minimum necessary for each specific purpose of the processing.

Inga personuppgifter bevaras utom de som är nödvändiga för varje specifikt syfte.

No personal data are **sold or rented out**

Inga personuppgifter säljs eller hyrs ut.

No personal data are retained in **unencrypted** form.

Inga personuppgifter sparas i okrypterad form.

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Please, do not turn page until you have been requested to do so!
3. When you are about to enter some personal data at a site, you notice the row below. What do you think the site is trying to say?

3. När du ska lämna några personuppgifter på en sajt, så får du se nedanstående rad. Vad tror du sajten försöker säga med den?
Appendix B Answers to the questionnaire (N = 21)

‘#’ denotes the identification number used for the respondents (#1 through #21).

1.1 Answers to question 1, icon 1. Alternative translations within round brackets. Multiple answers given on separate lines.

# Description(s) given

1. search for people (people search)  
   more info about the person
2. Detailed information
3. Examination (check, inspection)
4. Search information about a person
5. Examination of an individual
6. Alert (warning) about surveillance
7. Find a person
8. Personal data
9. Identification of person
10. Inspection area
11. This icon means that the page looks up personal data about you, the user
12. Save data [personal data]
13. In order to search person … ?
14. Background information  
   personal data
15. ?
16. Person check
17. Investigate
18. Investigate deeper (closer)
19. Check (examination) of personal data
20. Searching for people (People search)
21. not search on persons (not searching for people/individuals)
1.2 Answers to question 1, second icon. Alternative translations within round brackets. Multiple answers given on separate lines.

# Description(s) given

1. download
2. we will download your information
3. load down (lit. “load home”)
4. Save
downloading
5. Download something
6. Someone else has access to your information
7. Download
8. Save (as “load down” in Swedish can be expressed today as “save down”)
9. They keep (store) my personal data or other data
10. Download what (the one[?]) one has saved.
11. This information will be retained (stored) for use. [Later use?]
12. Download
    bring home/save
13. Download
14. Saves (stores) the information you share
15. Diskette (Floppy disk)
16. The [personal] data are stored/saved
17. “Save” Stored by them
18. Save (store)
19. The company stores (retains) the data you filled out.
20. Saves (stores) [personal] data
21. not downloading?
1.3 Answers to question 1, icon 3. Alternative translations within round brackets.

# Description(s) given

1. one can go in three different directions
2. Info come back
3. Roundabout
4. Multiple roads (routes)
5. Crossroads (choice of direction)
6. Your information is further disseminated
7. “Drive by shooting” [i.e. drive-by shooting]
8. Different alternatives
9. The information you give (provide) will be furthered (disseminated further)
10. Can go anywhere
11. The information you provide will be used for developing the page / product / company
12. Contact
13. possible to go in two directions or back  ?
14. ?
15. Don’t know
16. No idea
17. Further (pass on)
18. Send further (forward)
19. The information can be disseminated (forwarded) to other companies
20. Feedback
21. sharing [probably “sharing” is intended; Swedish delning could also mean “dividing” or “divide”]
1.4 Answers to question 1, icon 4. Alternative translations within round brackets.

# Description(s) given

1. two persons is okey, not three  
2. You have been chosen  
3. Point out a person  
4. one in a crowd  
5. One person stands out  
6. Discrimination  
7. One in the crowd, somebody who is guilty of something.  
8. Chosen (selected) person  
9. The information you provide will not be shared with third party  
10. To be one of 3 persons  
11. The information you fill out will be used in a survey with several participants [Perhaps #11 sees this as a kind of anonymization.]  
12. Chat  
13. Finding key person  
14. Number of persons  
15. ?  
16. Don’t know.  
17. Select person  
18. Select  
19. ?  
20. Anonymt  
21. user(s)
1.5 Answers to question 1, icon 5. Alternative translations within round brackets. Multiple answers given on separate lines.

# Description(s) given

1. money
2. ?
3. making money
4. take money
5. Euro
6. Money handling
7. Money, Get or Give
8. Euro. A function (service) that costs money.
9. Paid service
10. Bank
11. Fill out card data to complete purchase.
12. Pay
13. Money handling  ?
14. cost (price) for the service / product
15. ?
16. Don’t know.
17. take money  ?
   make money.
18. Makes money on
19. Secure trade (commerce) [probably “secure payment service”]
20. Trade
21. may not buy
1.6 Answers to question 1, icon 6. Alternative translations within round brackets. Multiple answers given on separate lines.

# Description(s) given

1. Lock
   may not be locked (is not possible to lock)
2. we will use the info again
3. security
4. unlocked
5. open something
   lock something
6. Locked
7. Cannot be saved
   uncertain
8. Something is hidden, locked, one is unauthorized.
9. It is not possible to save the page
10. Not allowing destroying lock.
11. These [personal] data will be saved (retained) but not be available for others to see.
12. Password
13. Not locked
14. Wrong password
15. ?
16. No security (non-secure)
17. Cannot make private
18. Is used so that you as user will get access to more info
19. Not secure (non-secure) web site
20. Password
21. not possible to block ?
2 “Try to match the texts on the right-hand side to the icons to the left side. Draw a line between icon and text. If you think several icons match a text or that one icon would fit several of the texts, you just marked that.”

Only respondent #2 made multiple matching. A simple evaluation of the result is reached by counting the total number of correct matches for each respondent. This is done below. However, interesting interpretations can be seen from how some people have matched icons to texts.

# Matches (maximum score = 6)

1. 3
2. 5 (but 2 double matches, as this was explicitly encouraged in the instructions)
3. 4
4. 6
5. 6
6. 3
7. 2
8. 4
9. 2
10. 2
11. 3
12. 3
13. 2
14. 2
15. 0
16. 3 (only 5 links, missing one from the encircled disk)
17. 3
18. 6
19. 6
20. 1
21. 4
3 Explanations given to Row 3 in Annex 1 with a red cross in the third column.

Only the 6-8 answers marked with an asterisk ‘*’, or ‘(*)’ in some indistinct cases, are confined to processing and purpose of processing. These are in contrast to answers about sharing to others (to third parties).

The original text in Annex 1: “No personal data are **processed** for purposes other than the purposes for which they were collected”
A brief evaluation of icons suggested for use in standardised information policies

The principle of “informed consent” as prescribed by national laws and EU directives makes it necessary to inform users about all the intended data processing when they submit data. Conveying the sometimes highly complex clauses of privacy policies to the subjects concerned is generally hard.


In particular, the report presents the result of a small-scale test in which the participants failed to understand the graphic scheme of the proposal as well as the pictographic parts of the icons.