

Documentation for the Dataset on JonDonym Users

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1 Introduction and Important Information

This dataset was collected for research conducted within the project AN.ON-Next funded by the German Federal Ministry of Education and Research (BMBF) with grant number: 16KIS0371.

The following papers are based fully or partially on this dataset:

1. Harborth, D., and Pape, S. (2020). Explaining Technology Use Behaviors of Privacy-Enhancing Technologies: The Case of Tor and JonDonym. In *Proceedings on Privacy Enhancing Technologies (PETS)*
2. Harborth, D., Cai, X., and Pape, S. (2019). Why Do People Pay for Privacy-Enhancing Technologies? The Case of Tor and JonDonym. In G. Dhillon, F. Karlsson, K. Hedström, and A. Zuquete (Eds.), *ICT Systems Security and Privacy Protection. SEC 2019. IFIP Advances in Information and Communication Technology*, vol 562 (pp. 253–267). Springer, Cham. https://doi.org/10.1007/978-3-030-22312-0_18
3. Harborth, D., and Pape, S. (2018). JonDonym Users’ Information Privacy Concerns. In L. Janczewski and M. Kutylowski (Eds.), *ICT Systems Security and Privacy Protection. SEC 2018. IFIP Advances in Information and Communication Technology*, vol 529 (pp. 170–184). Springer, Cham. https://doi.org/10.1007/978-3-319-99828-2_13
4. Harborth, D. and Pape, S. (2018). ”Examining Technology Use Factors of Privacy-Enhancing Technologies: The Role of Perceived Anonymity and Trust”, In *24th Americas Conference on Information Systems (AMCIS)*

The dataset includes – among others – constructs from different established models of the literature like the technology acceptance model (TAM) by Davis (1985) and the Internet Users Information Privacy Concerns (IUIPC) model by Malhotra et al. (2004). Furthermore, there are extensive questions on privacy literacy covered by the online privacy literacy scale (OPLIS) by Masur et al. (2017). See Table 1 for the complete list of questions in the dataset.

Further relevant information:

1. For OPLIS, it is important to note that five questions of the original survey were excluded since they deal with European and German data protection law. These questions are difficult to answer and may not provide any insight about the privacy literacy of JonDonym users who are not necessarily only coming from Europe and Germany (e.g. from the US). Thus, our dataset only contains 15 instead of

20 OPLIS questions. The questions with the abbreviation OP1–OP5 cover participants’ knowledge about institutional practices. Questions OP6–OP10 cover knowledge about technical aspects of data protection and questions OP11–OP15 cover knowledge about data protection strategies.

2. Values for experience in the dataset are equal to 21, if participants stated to have an experience of more than 20 years (for EXP and JDEXP).
3. Demographics were not mandatory to fill out due to anonymity reasons and the highly privacy-sensitive target population. Thus, the fragmented pieces of data regarding demographic factors are not included.
4. For the items OP6–10, the answer option “I don’t know” was included. This is indicated by cell entries equal to “A5”. We recommend to count these entries as wrong answers for further calculations with OPLIS.
5. Participants could choose one purpose for using JonDonym (PUR).

Please contact David Harborth in case there are any questions regarding the dataset or the documentation.

2 Survey Distribution Channels

We conducted the study with German and English speaking JonDonym users since the service was originally developed in Germany by JonDos GmbH (2018). The translation process of the constructs into German and further details on the two versions are described in several previous research articles by the authors (see for example Harborth and Pape (2018a,b, 2019); Harborth et al. (2019); Harborth and Pape (2020b,a)). The links to the English and German version were distributed with the beta version of the JonDonym browser and published on the official JonDonym homepage.

3 Questionnaire Composition

Table 1: Constructs in the Dataset (measured on a seven-point Likert scale ranging from “strongly disagree” to “strongly agree”, if not otherwise indicated)

| | | | |
|--|--|--|--|
| Trust in JonDonym | <i>Trust_{JD1}</i> <i>Trust_{JD2}</i> <i>Trust_{JD3}</i> | JonDonym is trustworthy. JonDonym keeps promises and commitments. I trust JonDonym because they keep my best interests in mind. | Pavlou (2003) |
| Perceived Anonymity | PA1 PA2 PA3 | JonDonym is able to protect my anonymity in during my online activities. With JonDonym I obtain a sense of anonymity in my online activities. JonDonym can prevent threats to my anonymity when being online. | Benenson et al. (2015) |
| Perceived Usefulness of Protecting Users’ Privacy | PU1 PU2 PU3 PU4 | Using JonDonym improves the performance of my privacy protection. Using JonDonym increases my level of privacy. Using JonDonym enhances the effectiveness of my privacy. I find JonDonym to be useful in protecting my privacy. | Benenson et al. (2015); Venkatesh and Davis (2000) |
| Perceived Ease of Use | PEOU1 PEOU2 PEOU3 PEOU4 | My interaction with JonDonym is clear and understandable. Interacting with JonDonym does not require a lot of my mental effort. I find JonDonym to be easy to use. I find it easy to get JonDonym to do what I want it to do. | Venkatesh and Davis (2000) |
| Behavioral Intention | BI1 BI2 BI3 | I intend to continue using JonDonym in the future. I will always try to use JonDonym in my daily life. I plan to continue to use JonDonym frequently. | Venkatesh and Davis (2000) |
| Actual Use Fre- quency | USE | Please choose your use frequency of JonDonym. (10 point frequency scale from “never” to “all the time”). | Rosen et al. (2013) |
| Risk Propensity | RP1 | I would rather be safe than sorry. | Donthu and Gilliland (1996) |

| Construct | Abbreviation | Item | Adapted from |
|--------------------------------|--------------|---|------------------------|
| | RP2 | I am cautious in trying new/different products. | |
| | RP3 | I avoid risky things. | |
| Privacy Victim | VIC | How frequently have you personally been the victim of what you felt was an improper invasion of privacy? (7 point likert scale ranging from “never” to “very frequently”) | Malhotra et al. (2004) |
| Trusting Beliefs | TB1 | Online companies would be trustworthy in handling (the information). | Malhotra et al. (2004) |
| | TB2 | Online companies would tell the truth and fulfil promises related to (the information) provided by me. | |
| | TB3 | I trust that online companies would keep my best interests in mind when dealing with (the information). | |
| | TB4 | Online companies are in general predictable and consistent regarding the usage of (the information). | |
| | TB5 | Online companies are always honest with customers when it comes to using (the information) that I would provide. | |
| Risk Beliefs | RB1 | In general, it would be risky to give (the information) to online companies. | Malhotra et al. (2004) |
| | RB2 | There would be high potential for loss associated with giving (the information) to online firms. | |
| | RB3 | There would be too much uncertainty associated with giving (the information) to online firms. | |
| | RB4 | Providing online firms with (the information) would involve many unexpected problems. | |
| | RB5 | I would feel safe giving (the information) to online companies. (R) | |
| Information Privacy Collection | COLL1 | It usually bothers me when online companies ask me for personal information. | Malhotra et al. (2004) |

| Construct | Abbreviation | Item | Adapted from |
|-------------------------------|--------------|--|-------------------------|
| | COLL2 | When online companies ask me for personal information, I sometimes think twice before providing it. | |
| | COLL3 | It bothers me to give personal information to so many online companies. | |
| | COLL4 | I'm concerned that online companies are collecting too much personal information about me. | |
| Information Privacy Awareness | AWA1 | Companies seeking information online should disclose the way the data are collected, processed, and used. | Malhotra et al. (2004) |
| | AWA2 | A good consumer online privacy policy should have a clear and conspicuous disclosure. | |
| | AWA3 | It is very important to me that I am aware and knowledgeable about how my personal information will be used. | |
| Information Privacy Control | CONTROL1 | Consumer online privacy is really a matter of consumers' right to exercise control and autonomy over decisions about how their information is collected, used, and shared. | Malhotra et al. (2004) |
| | CONTROL2 | Consumer control of personal information lies at the heart of consumer privacy. | |
| | CONTROL3 | I believe that online privacy is invaded when control is lost or unwillingly reduced as a result of a marketing transaction. | |
| Facilitating Conditions | FC1 | I have the resources necessary to use JonDonym. | Venkatesh et al. (2012) |
| | FC2 | I have the knowledge necessary to use JonDonym. | |
| | FC3 | JonDonym is compatible with other technologies and applications I use. | |
| | FC4 | I can get help from others when I have difficulties using JonDonym. | |
| Trade-off Effort and Use | EFFORTUSE1 | JonDonym offers a good value for my invested effort (time-wise and monetary). | self-made |

| Construct | Abbreviation | Item | Adapted from |
|---------------------------------------|--|---|----------------------------|
| | EFFORTUSE2 EFFORTUSE3 | JonDonym offers a good value for my invested time effort. JonDonym offers a good value at the current price. | |
| Result Demonstrability | RESULTDEMON1 RESULTDEMON2 RESULTDEMON3 RESULTDEMON4 | I have no difficulty telling others about the results of using JonDonym. I believe I could communicate to others the consequences of using JonDonym. The results of using JonDonym are apparent to me. I would have difficulty explaining why using JonDonym may or may not be beneficial. | Venkatesh and Davis (2000) |
| Consumer Independent Judgement Making | CIJM1 CIJM2 CIJM3 CIJM4 CIJM5 CIJM6 | Prior to purchasing a new brand, I prefer to consult a friend that has experience with the new brand. (R) When it comes to deciding whether to purchase a new service, I do not rely on experienced friends or family members for advice. I seldom ask a friend about his or her experiences with a new product before I buy the new product. I decide to buy new products and services without relying on the opinions of friends who have already tried them. When I am interested in purchasing a new service, I do not rely on my friends or close acquaintances that have already used the new service to give me information as to whether I should try it. I do not rely on experienced friends for information about new products prior to making up my mind about whether or not to purchase. | Manning et al. (1995) |
| Consumer Novelty Seeking | CNS1 CNS2 | I often seek out information about new products and brands. I like to go to places where I will be exposed to information about new products and brands. | Manning et al. (1995) |

| Construct | Abbreviation | Item | Adapted from |
|-------------------------------|--------------|--|---------------------|
| | CNS3 | I like magazines that introduce new brands. | |
| | CNS4 | I frequently look for new products and services. | |
| | CNS5 | I seek out situations in which I will be exposed to new and different sources of product information. | |
| | CNS6 | I am continually seeking new product experiences. | |
| | CNS7 | When I go shopping, I find myself spending very little time checking out new products and brands. | |
| | CNS8 | I take advantage of the first available opportunity to find out about new and different products. | |
| Online Privacy Literacy Scale | OP1 | The National Security Agency (NSA) accesses only public user data, which are visible for anyone. (True/false/don't know) | Masur et al. (2017) |
| | OP2 | Social network site operators (e.g. Facebook) also collect and process information about non-users of the social network site. (True/false/don't know) | |
| | OP3 | User data that are collected by social network site operators (e.g. Facebook) are deleted after five years. (True/false/don't know) | |
| | OP4 | Companies combine users' data traces collected from different websites to create user profiles. (True/false/don't know) | |
| | OP5 | E-mails are commonly passed over several computers before they reach the actual receiver. (True/false/don't know) | |
| | OP6 | 1. What does the term "browsing history" stand for? In the browsing history... A. ...the URLs of visited websites are stored. B. ...cookies from visited websites are stored. C. ...potentially infected websites are stored separately. D. ...different information about the user are stored, depending on the browser type. | |

| Construct | Abbreviation | Item | Adapted from |
|-----------|--------------|---|--------------|
| | OP7 | 2. What is a “cookie”? A. A text file that enables websites to recognize a user when revisiting. B. A program to disable data collection from online operators. C. A computer virus that can be transferred after connecting to a website. D. A browser plugin that ensures safe online surfing. | |
| | OP8 | 3. What does the term “cache” mean? A. A buffer memory that accelerates surfing on the Internet. B. A program that specifically collects information about an Internet user and passes them on to third parties. C. A program, that copies data on an external hard drive to protect against data theft. D. A browser plugin that encrypts data transfer when surfing online. | |
| | OP9 | 4. What is a “trojan”? A trojan is a computer program, that... A. ...is disguised as a useful application, but fulfills another function in the background. B. ...protects a computer from viruses and other malware. C. ... was developed for fun and has no specific function. D. ... caused damage as computer virus in the 90ies but doesn't exist anymore. | |
| | OP10 | 5. What is a “firewall”? A. A fallback system that will protect the computer from unwanted web attacks. B. An outdated protection program against computer viruses. C. A browser plugin that ensures safe online surfing. D. A new technical development that prevents data loss in case of a short circuit. | |
| | OP11 | Tracking of one's own internet is made more difficult if one deletes browser information (e.g. cookies, cache, browser history) regularly. (True/false/don't know) | |

| Construct | Abbreviation | Item | Adapted from | |
|-----------|--------------------------|--|--|--|
| | OP12 | Surfing in the private browsing mode can prevent the reconstruction of your surfing behavior, because no browser information is stored. (True/false/don't know) | | |
| | OP13 | Using false names or pseudonyms can make it difficult to identify someone on the Internet. (True/false/don't know) | | |
| | OP14 | Even though It-experts can crack difficult passwords, it is more sensible to use a combination of letters, numbers and signs as passwords than words, names or simple combinations of numbers. (True/false/don't know) | | |
| | OP15 | In order to prevent the access to personal data, one should use various passwords and user names for different online applications and change them frequently. (True/false/don't know) | | |
| 6 | Internet Experience | EXP | How many years of experience do you have with computers? (Answer options range from 0 years to "more than 20 years".) | self-made |
| | Experience with JonDonym | JDEXP | How many years are you using JonDonym? (Answer options range from 0 years to "more than 20 years".) | self-made |
| | Current JonDonym tariff | TARIFF | Please choose your current tariff of JonDonym. (Free of charge option; Flat-M (monthly 2GB / 6 months / 50€); Flat-L (monthly 5GB / 6 months / 100€); Volume-S (650 MB / 6 months 5€); Volume-M (1500 MB / 12 months 10€); Volume-L (5000 MB / 24 months 30€)) | self-made (answer option based on actual tariff options) |
| | Tariff preferences | PREF1 | I would use JonDonym regularly with a data volume ten times higher than before (at the same price). | self-made |
| | | PREF2 | If the price decreased by half, I would use JonDonym regularly. | |
| | | PREF3 | I would perceive a service with a lower anonymization level for half the price more attractive than JonDonym. | |

| Construct | Abbreviation | Item | Adapted from |
|-----------------------------------|--|--|---------------------|
| Perceived fairness of new tariffs | TARIFFNEW1 TARIFFNEW2 TARIFFNEW3 TARIFFNEW4 TARIFFNEW5 | <i>Please indicate the extent to which you, as an individual, agree or disagree that the provided tariffs are fair.</i> Monthly 100 GB with a duration of 12 months for 100€ (total price). Monthly 100 GB with a duration of 3 months for 30€ (total price). Monthly 100 GB with a duration of 12 months for 10€ per month. Monthly 40 GB with a duration of 3 months for 5€ per month. Monthly 200 GB with a duration of 12 months for 15€ per month. | self-made |
| Recommendation of JonDonym | REC | Would you recommend JonDonym? (y/n) | self-made |
| Purpose of JonDonym Use | PUR | For what purposes are you using JonDonym? (1: Surfing the internet; PUR2: E-Mail Service; 3: Audio and Videostreaming; 4: Filesharing; 5: Instant Messaging; 6: Cloud Services) | self-made |
| Knowledge about Tor | TOR | Do you know the anonymization service Tor? (y/n) | self-made |

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