

A Critically Commented Guide to Data Literacy Tools

By Ina Sander



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Introduction

In recent years, the phenomenon of ‘big data’ has become increasingly relevant and the influence of data-driven processes on virtually all areas of personal, societal, political and economic life is increasing continuously. In this move towards a ‘datafied society’ (Mayer-Schönberger and Cukier 2013; Hintz et al. 2018), there is a pressing need for an *informed public debate* about the impacts of big data systems.

However, internet users are often unaware of the potential consequences of disclosing personal data online and few citizens have the knowledge to participate in such debates (Acquisti et al. 2016; Grzymek & Puntschuh 2019; Hitlin and Rainie 2019). While users may be aware of data collection practices, they often only have a vague idea of how “‘the system’—the opaque under-the-hood predictive analytics regimes that they know are tracking their lives but to which they have no access” is operating (Turow et al. 2015, p.20). Moreover, research shows that many consumers are uncomfortable with algorithmic practices (e.g. Bucher 2017; Miller et al. 2018; Müller-Peters 2019).

This lack of knowledge and understanding is a problem because these practices are not as neutral as often portrayed but pose risks not only to individual privacy but also to our democratic societies. Academic research has challenged big data’s “aura of truth, objectivity, and accuracy” (boyd and Crawford 2012, p.663) and has highlighted how these systems can be used to profile, target and socially sort citizens in ways that can affect their financial circumstances, ability to find employment, and access to essential services (e.g. O’Neil 2016; Redden and Brand 2017; Eubanks 2018).

I suggest one way to address people’s lacking knowledge of big data practices is through fostering *critical big data literacy*. In my prior study, I argued:

being critically data literate means to be aware of and able to critically reflect upon big data collection practices, data uses and the possible risks and implications that come with these practices, as well as being capable of implementing this knowledge for a more responsible internet usage. (Sander 2019, p.2)

Moreover, this research revealed a large amount and variety of *existing online resources* that aim to foster such literacy. This critically commented guide aims to provide a structured overview of data literacy tools that have already been identified. The collection will be continuously extended in the future and addresses practitioners from various fields who aim to educate their different target audiences about big data systems as well as just anyone interested in learning more about the collection, use and analysis of their data online.

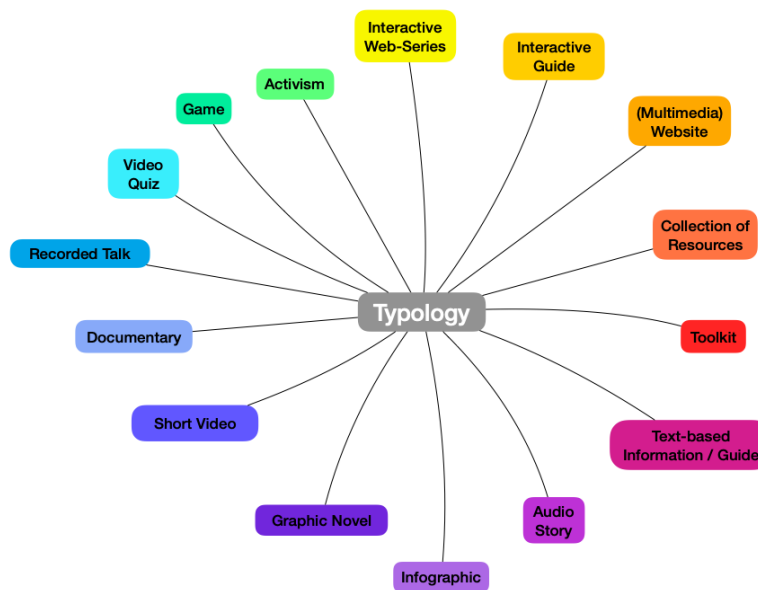
Building on the above definition, several requirements for *critical big data literacy tools* were developed. These tools should:

- Promote internet users’ awareness and critical reflection of big data collection practices, data uses and possible risks and implications
- Aim for an introduction and critical reflection of the general system of big data collection and analysis instead of focussing on one related aspect
- Address a general public – thus not require any prior knowledge, and
- Offer constructive ways forward.

Through a *snowball sampling*, a large amount and variety of educational online resources about big data could be identified in my study. Yet, it is important to emphasise that this only provides a first insight into the field of data literacy tools. This collection is not representative and there probably exist many other great educational resources about big data that are not included in this guide. At the same time, not every tool presented here is the perfect resource for every purpose. This guide merely aims to give a first insight and overview on some resources available.

During my study, a closer analysis revealed that many of the resources identified did not ideally fit the definition above, often covering only one topic related to big data, addressing a very specific target audience or mainly providing technological advice rather than a critical reflection of data practices. To clarify these differences, these tools were termed *data literacy tools* – in contrast to the more specific *critical big data literacy tools*, which ideally met the requirements as outlined above.

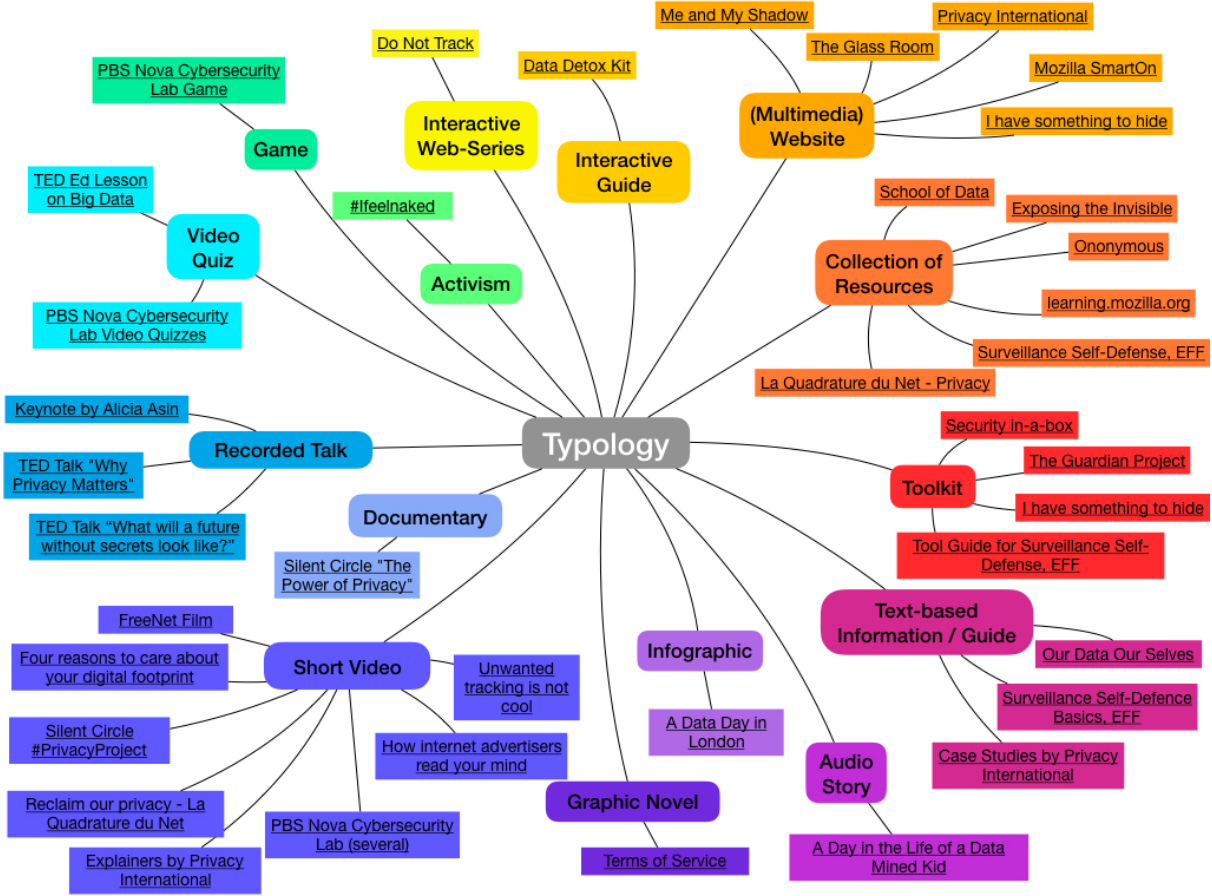
This guide will provide an overview of the entirety of tools identified. The eight tools that were assigned the term critical big data literacy tool will be highlighted. The overview will be structured along 15 different design and content approaches that were identified (see figure below).



As will be further outlined when presenting the individual tools, some design approaches are more or less suitable for certain goals of teaching data literacy and it might make sense to combine some of the tools when educating about data practices. For example, many of the short videos presented in this guide constitute great introductions to the topic but should be combined with more in-depth information and constructive advice. Toolkits, on the other hand, give great advice about a more privacy-sensitive internet usage, but often do not educate about risks of big data practices in sufficient detail.

Finally, my study examined three tools in more detail. “Do Not Track”, “Me and My Shadow” and “Reclaim Our Privacy” were tested with participants in order to examine their influence on people’s critical big data literacy (see Sander 2019). This also led to interesting findings about the suitability of certain design and content characteristics for promoting data literacy, such as the importance of interactivity, easily understandable information about complex technical mechanisms and appealing visualisations (these findings are being prepared for publication). Also the great value of constructive advice on how to curb data collection online became apparent. Based on these findings, this guide will provide a brief assessment of each tool’s content, design and suitability for different purposes of teaching data literacy.

The following mind map gives an overview of the so far identified tools, which also highlights that some tools apply more than one design approach.



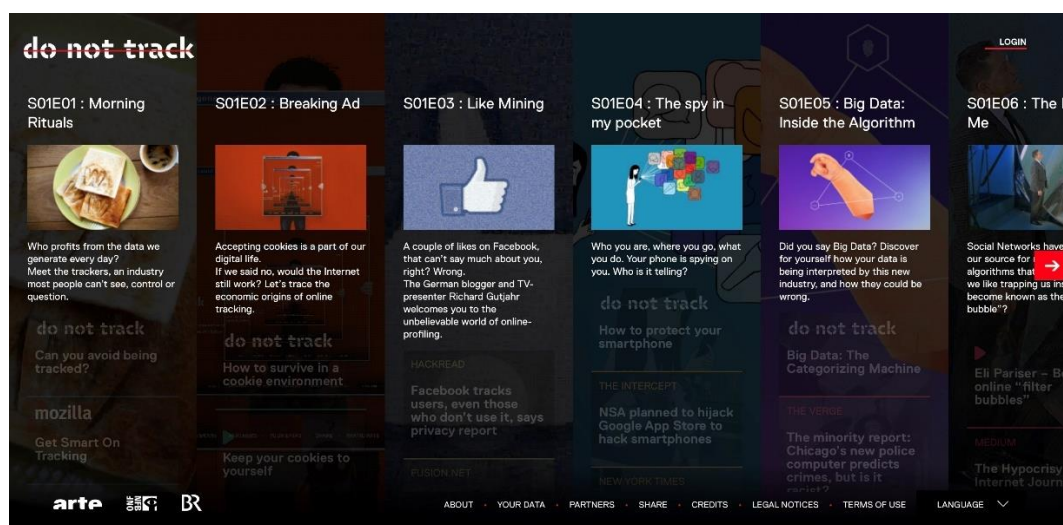
As mentioned above, eight tools could be identified as particularly suitable **critical big data literacy tools**. These are:

- Do Not Track, p. 6
- Me and My Shadow, p. 7
- Privacy International, p. 9
- Mozilla SmartOn, p. 9
- I have something to hide, p. 10
- Terms of Service, p. 16
- Reclaim our Privacy, p.18
- Why Privacy Matters, p. 21

Interactive Web-Series

Do Not Track

- <https://donottrack-doc.com/en/>
- “Do Not Track, a personalized web series about privacy and the web economy. Directed by Brett Gaylor, coproduced by Upian, Arte, ONF & BR.”
- Produced by various actors from different countries.
- Available in English, French and German.
- → This **critical big data literacy tool** provides a great introduction to various aspects around the collection of personal data online. In seven episodes, the viewer learns about issues such as data collection, data protection laws, online tracking and big data analytics, and is often encouraged to interact with the series. For every episode, a variety of additional information is provided, for example news articles, blog posts or short videos related to the topic of said episode. However, the tool was produced in 2015 and has likely not been updated since. Thus, some information may be outdated.
- → This tool was by far the *most popular tool* of the three tools used in the study outlined above. Participants loved the interactivity of the series as well as the appealing content and style.

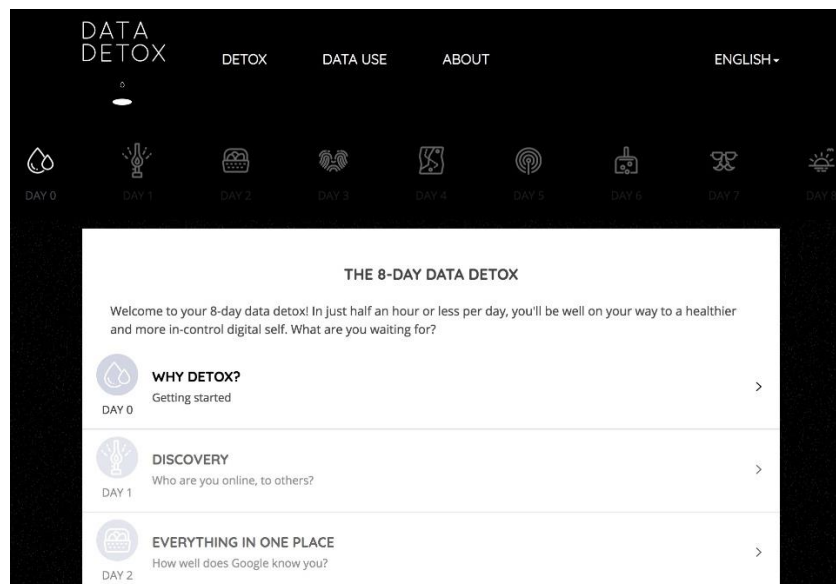


Interactive Guide

Data Detox Kit

- <https://datadetox.myshadow.org/en/detox>
- “The Data Detox Kit is an 8-day step-by-step guide on how to reduce data traces online. Each day has a different focus - from cleaning up your apps, to social media, to your phone's connectivity - informing you of the data processes, walking you through some changes you can make, and giving you a small challenge at the end of each day.”
- Produced by the Berlin-based non-profit organisation *Tactical Technology Collective*, originally for the exhibition *The Glass Room NYC*.

- Available in English, German, Spanish, French and Portuguese.
- → This tool provides a step-by-step guide on how to “detox” one’s digital life with small and easy steps to take every day for eight days. The steps are easily understandable and well-explained. However, the tool provides less exhaustive information on the potentially problematic impacts of data disclosure but focuses rather on how to protect one’s data online and how to curb data collection. That this is even necessary is, to a certain extent, assumed. Nevertheless, the Data Detox Kit provides a great resource with plenty of constructive advice for internet users.



(Multimedia) Website

Me and My Shadow

- <https://myshadow.org/>
- “Me and My Shadow is a project that helps you explore and minimise your 'digital shadows': the information traces you leave behind when you use the internet and mobile phones. The project won a Deutsche Welle Bobs Award for "most creative" online activism in 2013.”
- Produced by the Berlin-based non-profit organisation *Tactical Technology Collective*; has been called their “key project”.
- Available in English, Portuguese, Spanish, French, Russian and Arabic.
- → This **critical big data literacy tool** is a multimedia website that provides informational texts in different detail and complexity, short videos, educational material and great further resources. In its “Alternative App Centre”, the website provides a structured collection of alternative privacy-sensitive online resources that can replace commonly used services (e.g. browsers, instant messenger apps etc.). Moreover, the tool offers learning material and fully planned lessons for trainers and teachers about topics such as “Data Brokers”, “Visualising Tracking in the Browser” or “What the Facebook”. Thus, this tool is particularly useful for teachers. However, the website is no longer being updated, so some information may be out of date.

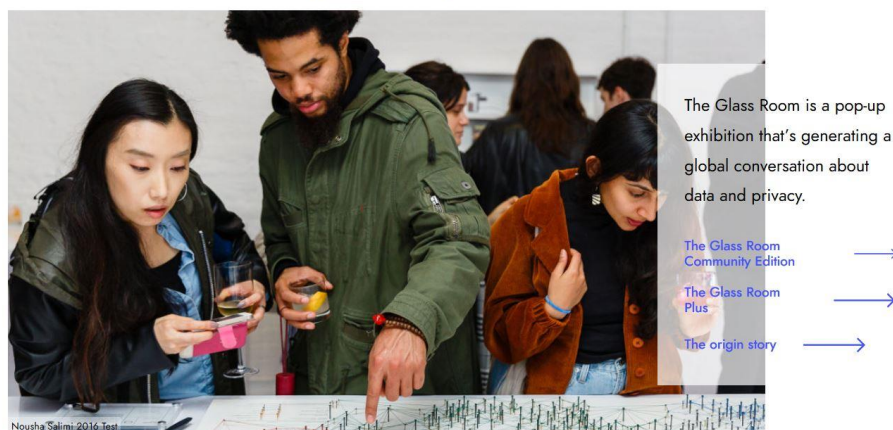


The Glass Room

- <https://theglassroom.org/>
- “The Glass Room is an immersive ‘tech store with a twist’ that disrupts our relationship with technology and encourages visitors to make informed choices about their online life.”
- Produced by the Berlin-based non-profit organisation *Tactical Technology Collective*.
- → This tool is a multimedia website that builds on a pop-up exhibition by Tactical Tech which was displayed in Berlin, New York and London. To a certain extent, the website reports on the exhibition and announces where it will be shown in the future. Nevertheless, the website also presents many exhibits online in detail, providing an interesting insight into ways in which data are being used, for example to track, analyse, profile and socially sort people.

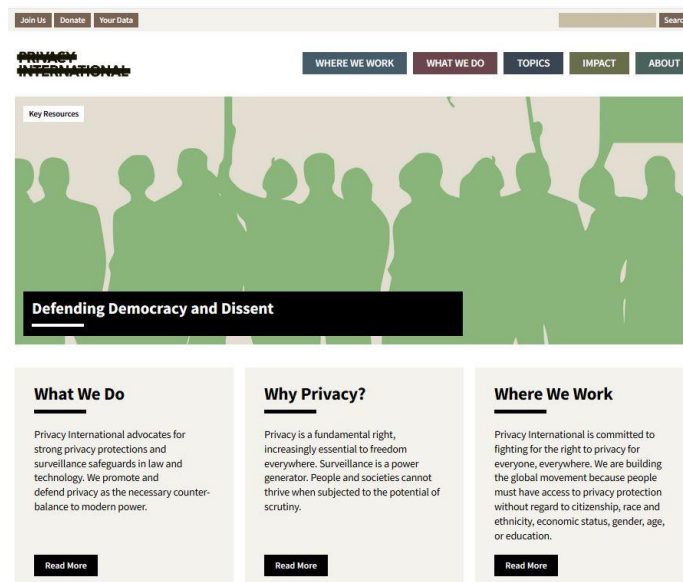


Looking into your online life



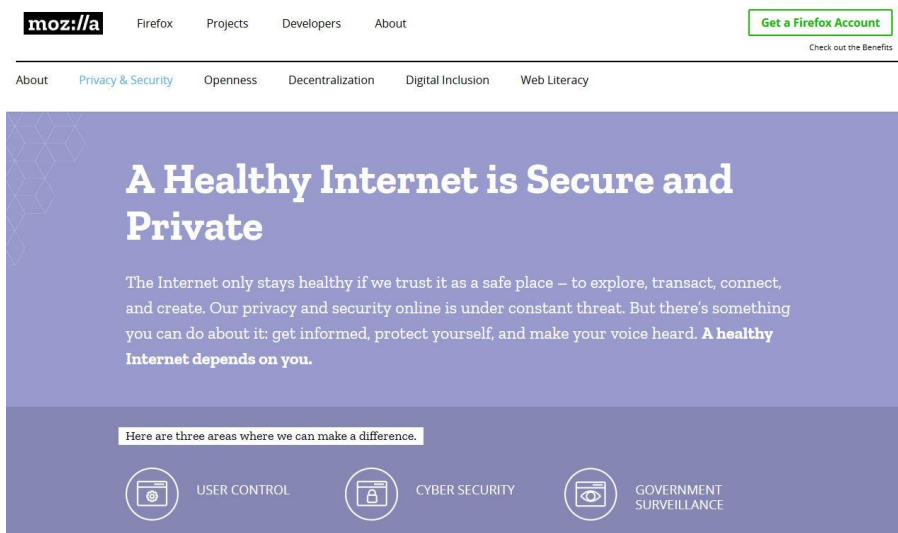
Privacy International

- <https://privacyinternational.org/>
- Registered charity based in London that “works at the intersection of modern technologies and rights; funded by members of the public through individual donations, grants from charitable trusts, foundations, and international development agencies.
- (Multimedia) website, text-based information, short videos
- → Privacy International is “fighting for the right to privacy across the globe since 1990”. Despite this focus on privacy, the website provides information on various aspects around online privacy and big data, such as tracking, targeted advertising, data exploitation, disinformation and internet regulation. Not only is Privacy International’s research, advocacy and legal work portrayed, the website also provides a great amount of easily accessible information such as blog posts, features, reports, case studies and informative short videos. Thus, this **critical big data literacy tool** addresses the general public and aims for an improved understanding and critical reflection of issues around online privacy and data practices. However, constructive advice is sometimes hard to find on this extensive website.



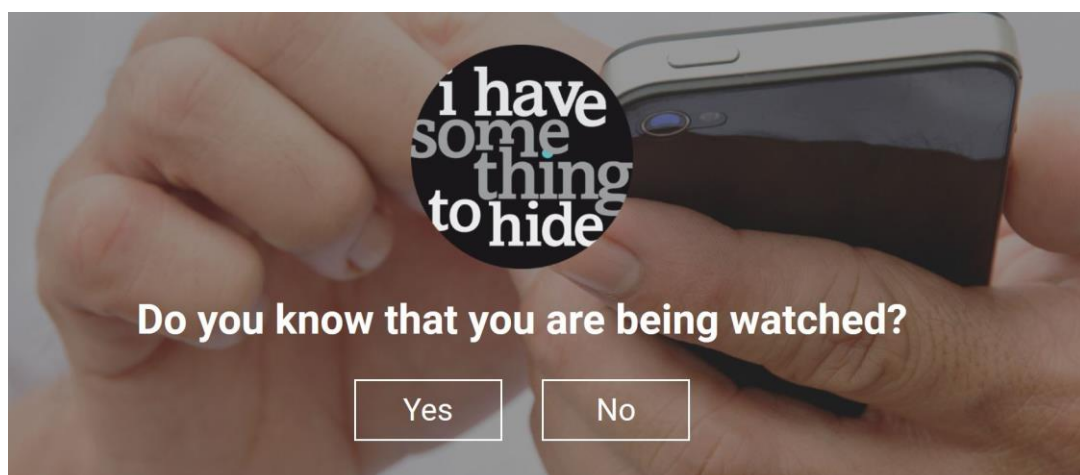
Mozilla SmartOn

- <https://www.mozilla.org/en-US/teach/smarton/>
- “Mozilla is on a mission to keep the Internet growing and healthy. Join us!”
- Produced by the American *Mozilla Corporation* / the *Mozilla Foundation*.
- Available in 29 languages.
- → This **critical big data literacy tool** has been subject to various changes in the past months and is not currently being called “SmartOn” anymore. However, much of the content remained. The website is structured around several topics, among others “Privacy & Security” and “Web Literacy” and provides a variety of easily-accessible and appealing resources informing about online privacy and big data, such as articles and podcasts but also great constructive advice for a more privacy-sensitive internet usage.



I have something to hide

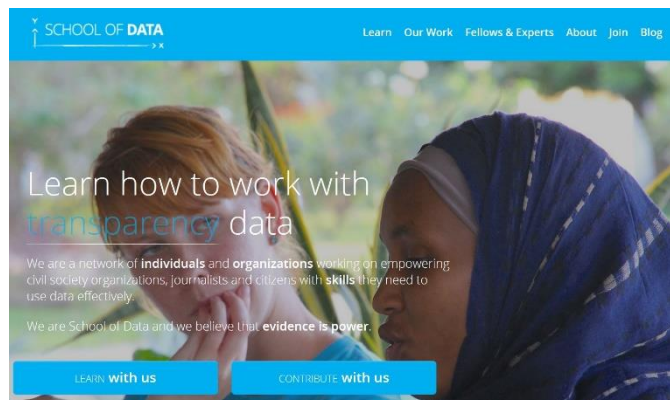
- <https://ihavesomethingtohide.de/>
- “Do you know that you are being watched?” – “Do you have something to hide?”
- Produced by “Julie, Pierre, Daniel [and] Peter”, Portuguese freelance graphics designers, programmers/activists, and a consultant.
- (Multimedia) website, toolkit.
- → This **critical big data literacy tool** is an interactive website that aims to educate visitors about online tracking and the value of privacy. In doing so, it gives a brief introduction into several related topics, but mainly provides links to interesting external resources. Particularly the website’s “data protection toolkit” constitutes a valuable resource. Here, an 11-step guide to data protection is provided. For every step, an estimated time, the required skills, the level of “spy reduction” and an “inconvenience rating” is given. Thus, this website and toolkit constitutes a great practical approach to data literacy.



Collection of Resources

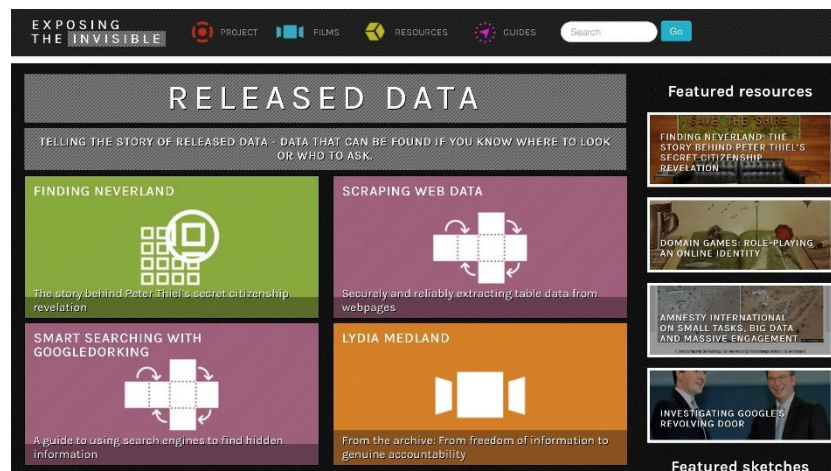
School of Data

- <https://schoolofdata.org/>
- “We are a network of individuals and organizations working on empowering civil society organizations, journalists and citizens with skills they need to use data effectively. We are School of Data and we believe that evidence is power.”
- Produced by “a network of data literacy practitioners composed of organisations and individuals”.
- → This tool provides great learning material on data, including blog posts, guides and online courses. Thus, this is a very valuable resource for educators in various fields or people aiming to learn more about what data is and how to use it effectively. However, the focus lays very much on active usage of data (e.g. “Exploring Data”, “Mapping”, “Presenting Data”) rather than education about the impacts and potential risks of big data practices.



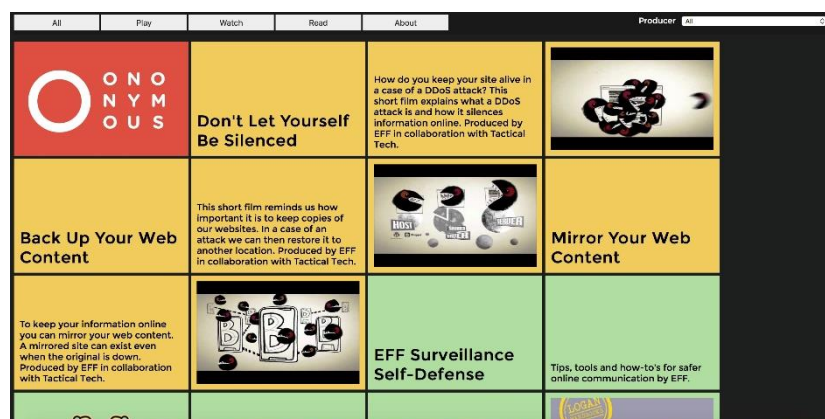
Exposing the Invisible

- <https://exposingtheinvisible.org/>
- “Exposing the invisible allows you to explore new forms of investigation through short films, video sketches, extended interview transcripts, and an extensive resource bank, as well as [...] guides, films, resources.”
- Produced by the Berlin-based non-profit organisation *Tactical Technology Collective*.
- → This tool provides an enormous amount and variety of informational resources about data (see quote), including interesting real-life examples. An overview of key content elements can also be found [here](#). While the tool is not particularly suitable for a first introduction into the topic, it provides great material for further education about various issues around big data after a certain basic knowledge is established.



Anonymous

- <https://ononymous.org>
- Anonymous “brings together materials around online protection. The website, launched in August 2015, features projects by ourselves as well as by others working in the field, including Front Line Defenders, EFF, Open Data City, The Tor Project, The Centre for Investigative Journalism and Access Now.”
- Produced by the Berlin-based non-profit organisation *Tactical Technology Collective*.
- → Similar to “Exposing the Invisible”, this tool provides great informational and educational material on problematic issues around the internet and big data. However, again, a certain previous knowledge is assumed and the website is not ideal for a first introduction into the topic. Moreover, some of the videos are not available anymore, which suggests that the website is not being updated anymore and some of the content may be out of date. Nevertheless, the tool provides a great collection of resources on the topic, which can even be filtered to search for content from a certain producer.



Learning.mozilla.org

- <https://learning.mozilla.org/en-US/>
- “Mozilla Learning rallies and connects leaders who want to advance the promise of the Internet for learning in a networked world.” ... “Start teaching others how to read, write and participate on the web with these free activities created by teachers, educators and technologists like you. Each featured activity includes step-by-step instructions and has been tested in schools, afterschool programs, libraries and community centers around the globe. Whether learning how to code, understanding why privacy matters, or creating openly-licensed web content, we believe teaching the web should be fun and engaging!”
- Produced by the American *Mozilla Foundation*.
- → This tool provides a wide variety of great resources such as tutorials, games and fully planned interactive lessons for teaching about various aspects of internet usage. Again, most content is geared towards active internet and data usage and also Mozilla’s concept of “web literacy” is lacking a critical reflection of big data practices. Nevertheless, some material includes critical perspectives (e.g. “Data Protection”) and this tool generally provides a great amount of valuable resources for educators.



Surveillance Self-Defense, EFF

- <https://ssd.eff.org/>
- “This is Surveillance Self-Defense: our expert guide to protecting you and your friends from online spying. Read the BASICS to find out how online surveillance works. Dive into our TOOL GUIDES for instructions to installing our pick of the best, most secure applications. We have more detailed information in our FURTHER LEARNING sections. If you’d like a guided tour, look for our list of common SECURITY SCENARIOS.”
- Produced by the American *Electronic Frontier Foundation*.
- Available in 11 languages.
- Collection of resources, toolkit, text-based information.
- → This tool is a guide to protect one’s data against surveillance and addresses both people with and without prior technical knowledge. Apart from providing some useful written “basics” as an introduction to the topic, the tool takes a predominantly technical and security-focussed approach. Its strengths are its detailed descriptions on how to protect one’s privacy through alternative services, changing settings and using encryption. Moreover, on a [related website](#), fully planned lessons and further teaching materials are provided. The tool is still being regularly reviewed and updated.



La Quadrature du Net - Privacy

- <https://www.laquadrature.net/en/Privacy>
- Produced by the French NGO *La Quadrature du Net*
- → Due to changes in the website’s structure, this tool does not provide a collection of resources anymore. However, the site still informs about the work of the NGO *La Quadrature du Net*, for example educating about regulations such as the GDPR or the ePrivacy Regulation, or their complaint against Google, Apple, Facebook, Amazon and Microsoft’s data usage.

Toolkit

Security-in-a-box

- <https://securityinabox.org/en/>
- “Security in-a-box was first created in 2009 by Tactical Tech and Front Line Defenders, to meet the digital security and privacy needs of human rights defenders.”
- Produced by the Berlin-based non-profit organisation *Tactical Technology Collective* and the Irish NGO *Front Line Defenders*.
- Available in 16 languages.
- → This tool provides very practical advice on tactics and tools that help protect one’s data online. These include basic principles, step-by-step guides and also tailored information for the needs of specific groups of people. This tool does not provide a

general introduction into the topic of big data, thus is not suitable for users without any prior knowledge. However, when looking for a more practical approach, the tool provides good and detailed advice on how to increase one's data security.



The Guardian Project

- <https://guardianproject.info>
- “Guardian Project is a research and development effort powered by technology-focused activists, concerned citizen users, and open-source security software hackers. We build tools based on real-world experience and feedback. Our process is transparent, inclusive and responsible.”
- → This tool provides an overview of alternative software produced by the Guardian Project as well as some tutorials on safer internet usage. This tool is not very extensive and does not give a good first introduction into the topic of big data but the presented apps constitute great and very safe alternatives to mainstream services.



About the Guardian Project

While smartphones have been heralded as the coming of the next generation of communication and collaboration, they are a step backwards when it comes to personal security, anonymity and privacy.

Guardian Project creates easy to use secure apps, open-source software libraries, and customized mobile devices that can be used around the world by any person looking to protect their communications and personal data from unjust intrusion, interception and monitoring.

I have something to hide

- A “data protection toolkit” with an 11-step guide to data protection that can be found on the website *I have something to hide* (see above, p. 10)

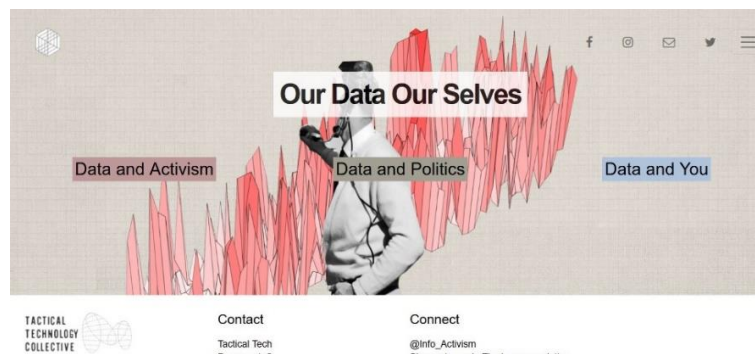
Tool Guide for Surveillance Self-Defense, EFF

- A guide to alternative tools that can be found in the collection of resources on Surveillance Self-Defense, provided by EFF (see above, p.13), or: <https://ssd.eff.org/module-categories/tool-guides>

Text-based Information / Guide

Our Data Our Selves

- <https://ourdataourselves.tacticaltech.org/>
- “Our Data Our Selves is a multi-faceted initiative that exposes the political consequences of data-driven societies. Anchored around three themes, Data and Activism, Data and Politics, and Data and You, Tactical Tech investigates how digital technologies fueled by our data shape political engagement and impact our civil liberties, providing guidance for the future of our societies.”
- Produced by the Berlin-based non-profit organisation *Tactical Technology Collective*.
- → This tool consists of various articles around the topics “Data and Activism”, “Data and Politics” and “Data and You”. These educate about the impact of data-driven systems on individuals, particularly with regards to activism and politics. While these articles give great and detailed insights, they sometimes require a certain basic knowledge about big data systems. Some texts also provide constructive advice on how to protect one’s data online.



Surveillance Self-Defense Basics, EFF

- Written “Basics” that educate about surveillance issues and that can be found in the collection of resources on Surveillance Self-Defense, provided by EFF (see above, p. 13) or: <https://ssd.eff.org/module-categories/basics>

Case Studies by Privacy International

- Written case studies that can be found on Privacy International’s website (see above, p. 9); e.g.: <https://privacyinternational.org/feature/1064/invisible-manipulation-10-ways-our-data-being-used-against-us>

Audio Story

A Day in the Life of a Data Mined Kid

- <https://www.marketplace.org/2014/09/15/education/learning-curve/day-life-data-mined-kid>
- “Education, like pretty much everything else in our lives these days, is driven by data. Our children’s data. A whole lot of it. ...”

- Produced by correspondent Adriene Hill for Marketplace.org.
- → This tool gives a great first insight into the topic of big data, full of real-life examples. However, this should be used in combination with other tools that provide more in-depth information and also constructive advice. Moreover, produced in 2014, it is likely to be partly outdated.



Infographic

A Data Day in London

- <https://tacticaltech.org/#/news/a-data-day>
- “Made for The Glass Room London, this info-graphic poster looks at a day through the lens of the digital services we use - apps, public WiFi networks, shopping advantage cards - and highlights key phrases from their privacy terms and conditions.”
- Produced by the Berlin-based non-profit organisation *Tactical Technology Collective*.
- → This tool summarises and visualises data traces people leave on a typical day in London. As references, terms and conditions and privacy policies are cited and links included. The infographic constitutes a great starting point for a discussion about data disclosure online, data practices and obscure terms and conditions. This should be followed up with more in-depth material on big data and with constructive advice on how to protect one’s data online.

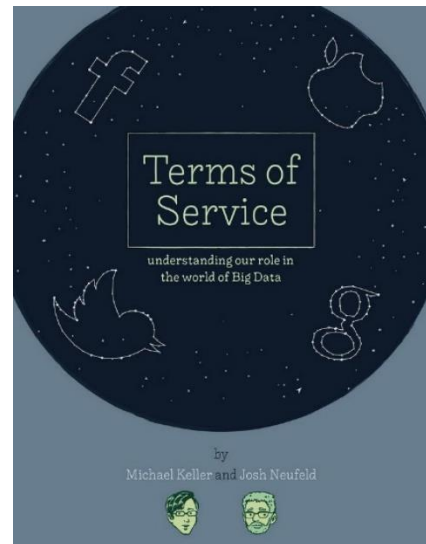


Graphic Novel

Terms of Service. Understanding our role in the world of Big Data

- <http://projects.aljazeera.com/2014/terms-of-service/#1>
- “We believe many folks want to learn more about these issues but are turned off by often dense and jargon-laden coverage. So we made a comic!”
- Authors: Michael Keller and Josh Neufeld
- Available in English, French and German. (Full version only freely available in English)

- → This **critical big data literacy tool** provides a very interesting and low-threshold approach to teaching about big data: through a graphic novel. The story focusses on many individual real cases of controversial big data usage. The novel's characters explain these examples in an easily-accessible manner and often provide a critical perspective on these cases. Moreover, experts from the field, for example researcher danah boyd appear in the comic and are interviewed. The graphic novel aims at giving “a good foundation to start asking your own questions”. Thus, this tool addresses a general public without any prior knowledge and provides a great introduction to the topic of big data as well as fostering understanding and critical reflection of data practices. However, constructive advice could be made a little clearer.



Short Video

Unwanted Tracking is not cool

- https://www.youtube.com/watch?v=UU2_0G1nnHY
- “Thousands of companies use bits of your personal information to piece together profiles of you that get bought and sold, hijacked, modified, and mucked with. Disconnect (<https://disconnect.me/>) can help. We offer you transparency, control, and privacy where and when you want it.”
- Produced by *Disconnect*, a company providing products to protect internet users from online tracking.
- → This tool is a good first introduction into the topics of online advertising and tracking. It aims to raise awareness and foster understanding. However, constructive advice mainly consists of advertising Disconnect’s products.



How internet advertisers read your mind

- <https://www.youtube.com/watch?v=8KYugpMDXAE>
- “The data we generate online has spawned a complex new ecosystem of firms tracking, interpreting and selling our data to advertisers. This raises privacy concerns for consumers.”
- Produced by the British newspaper *The Economist*.
- → This tool clearly has a goal of raising awareness, educating the general public and fostering critical reflection of data collection online. In a documentary style, several data brokers and company representatives are interviewed. However, the video focuses mainly on the



issue of tracking by privacy companies and online advertising, and no constructive advice is being given.

PBS Nova Cybersecurity Lab (several videos)

- <https://www.pbs.org/wgbh/nova/labs/videos/#cybersecurity>
- “Whenever we go online—to shop, chat with our friends, or do anything else—we put ourselves at risk of cybercrime. Computer viruses can corrupt our files, hackers can steal our data, and criminals can trick us into revealing sensitive information. But luckily there are simple steps we can take to protect our digital lives.”
- Produced by American public broadcaster *PBS*.
- → This tool addresses learners as well as educators and uses short videos, video quizzes and a game (see also below) to teach about cybersecurity. While these resources constitute great material to teach particularly children and adolescents about data security, further issues such as the system of big data collection and analysis and its impacts are being omitted. Nevertheless, the four short videos provided on the website constitute interesting introductions to questions of online security and privacy.

Cybersecurity Videos

The screenshot shows a list of four video thumbnails from the PBS Nova Cybersecurity Lab website. Each thumbnail includes a small image, a title, and a duration. The first video is 'Cybersecurity 101' (03:38) with a description: 'The Internet is fundamentally insecure. However, there are simple things you can do to protect yourself and your information. Learn what they are in NOVA's Cybersecurity Lab.' The second is 'Cyber Codes' (03:25) with a description: 'Do you trust the security of your email, text messages, and browser history? Learn how trustworthy online communication actually is and how encryption can protect your privacy. Sometimes.' The third is 'The Secret Lives of Hackers' (03:01) with a description: 'Hackers may not be who we think they are. In fact, you might be a hacker and not even know it. Learn the true meaning of hacking and some of the many reasons that hackers hack.' The fourth is 'A Cyber Privacy Parable' (3:18) with a description: 'Follow the trials and tribulations of Tim as a seemingly innocent piece of digital information threatens to ruin his life when it falls into the wrong hands.'

Explainers by Privacy International

- Several short explainer videos can be found on Privacy International’s website (see above, p. 9); e.g.: <https://privacyinternational.org/explainer/41/101-data-protection>

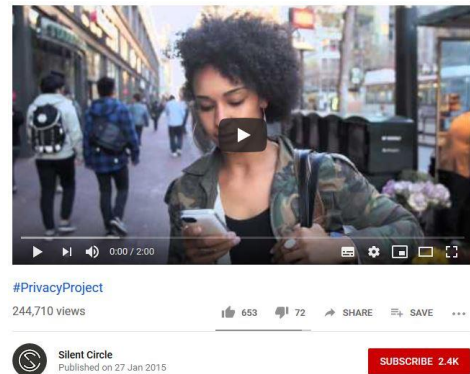
Reclaim Our Privacy – La Quadrature du Net

- <https://www.youtube.com/watch?v=TnDd5JmNFXE>
- “Thanks to the generosity of supporters who helped crowd-fund it, and of Benoît Musereau who volunteered to direct it, La Quadrature du Net publishes "Reclaim Our Privacy", a three-minute movie that explains the threat to, the importance of protecting, and the tools to reclaim our privacy online.”
- Produced by the French NGO *La Quadrature du Net*.
- → This **critical big data literacy tool** provides a great introduction into the importance of privacy and the risk of surveillance through big data collection and analysis. It aims to raise awareness, foster understanding and critical reflection of big data practices. Moreover, the video calls for changes, encourages the viewer to take action and provides links with further information. However, due its generally negative tone, it is recommended to combine this tool with further in-depth and more productive tools on big data and privacy.



Silent Circle #Privacy Project

- <https://www.youtube.com/watch?v=ZcjtEKNP05c>
- “The biggest risk to you and your company’s privacy is your smartphone. Some of the most popular apps on your smartphone ask for permissions that expose data to outside sources. We asked people on the street to read some of these permissions out loud so we could capture their reactions.”
- Produced by *Silent Circle*, a company that offers secure technologies.
- → This video presents a street experiment that aims to promote a critical reflection of data collection through a better understanding of online services’ terms and conditions. While this presents a great entrance in the topic, emphasising people’s lack of knowledge on data collection, the topic of the video is very narrow and constructive advice is not being made explicit.



Four Reasons to care about your digital footprint

- <https://www.youtube.com/watch?v=OA6aiFeMQZ0>
- “Make no mistake about it – the web is listening every time you use it! It’s important that you understand what you’re leaving behind when you visit a website. Here’s a short video on why you should care about managing your digital footprint.”
- Produced by the American non-profit organisation *Internet Society*.
- → This tool provides a great introduction to the topic of our “digital footprint”, covering issues like data collection, data traces online and the impact of big data analysis. It thus aims to invalidate the argument of “I have nothing to hide”. However, the video is very factual rather than interactive or particularly appealing, so it requires more focus than some other tools. For constructive advice, the viewer is directed to the organisation’s website.



FreeNet Film “Do you care about your privacy in the web?”

- <https://www.youtube.com/watch?v=jtGtIxgS7io>
- “Worried about it? Join us in the collaborative process to build a documentary about the future of internet freedom, share your ideas, here or at: www.freenetfilm.org”
- Produced by the Brazilian non-profit institute *Instituto Nupef* together with three other civil society organisations: *IDEC* (Instituto Brasileiro de Defesa do Consumidor), *CTS/FGV* (Centro de Tecnologia e Sociedade da Fundação Getúlio Vargas) and *Intervozes*.

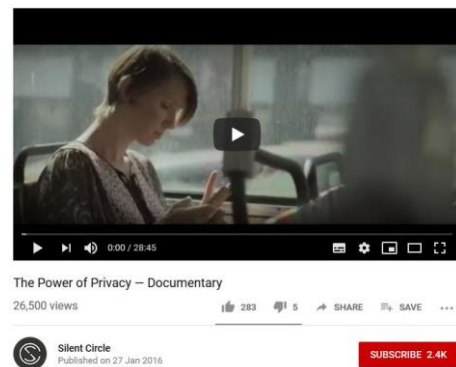


- → This tool clearly aims to raise awareness about big data collection and analysis practices. It is mainly focused on the topics of privacy and surveillance. While strongly promoting a critical reflection of these issues, the pessimistic and sometimes scaring tone of the video and its lacking constructive advice can be criticised.

Documentary

Silent Circle “The Power of Privacy”

- <https://www.youtube.com/watch?v=BvQ6l9xrEu0>
- “In this documentary, journalist Aleks Krotoski travels the world to explore the challenges of digital privacy in the 21st century and to discover how we can take back control of our personal and professional lives.”
- Produced by *Silent Circle*, a company that offers secure technologies and the British Newspaper *The Guardian*.
- → This tool gives a great introduction into issues around data collection and privacy. The documentary provides an interesting mix of background knowledge, for example on the history of privacy or hacking, various self-experiments to emphasise the risks of data disclosure, and interviews with several experts. However, constructive advice on how to address these issues is missing.



Recorded Talk

TED Talk “What will a future without secrets look like?”

- https://www.ted.com/talks/alessandro_acquisti_why_privacy_matters/
- “The line between public and private has blurred in the past decade, both online and in real life, and Alessandro Acquisti is here to explain what this means and why it matters. In this thought-provoking, slightly chilling talk, he shares details of recent and ongoing research -- including a project that shows how easy it is to match a photograph of a stranger with their sensitive personal information.”
- Talk by researcher Alessandro Acquisti, presented at a TED conference in 2013.
- → The talk provides an interesting insight into Acquisti’s research on facial recognition. It constitutes a great introduction the issue of online privacy and risks around digital technologies to a general public. However, it is from 2013 – thus partly outdated – and lacks constructive advice.



TED Talk “Why Privacy Matters”

- <https://www.youtube.com/watch?v=pcSlowAhvUk>
- “Glenn Greenwald was one of the first reporters to see — and write about — the Edward Snowden files, with their revelations about the United States' extensive surveillance of private citizens. In this searing talk, Greenwald makes the case for why you need to care about privacy, even if you're ‘not doing anything you need to hide.’”
- Talk by journalist Glenn Greenwald, presented at a TED conference in 2014.
- → This **critical big data literacy tool** emphasises the importance of privacy in an appealing manner for an audience without any previous knowledge. It uses various real-life examples and metaphors and aims to promote critical reflection of the general system of big data collection and analysis. It also gives a brief theoretical grounding of privacy (history of surveillance, panopticon). However, being from 2014, some information may be outdated.



Glenn Greenwald: Why privacy matters

539,188 views

10K

270

SHARE

SAVE

...

TED

Published on 10 Oct 2014

SUBSCRIBE 13M

“Big Data and the Hypocrisy of Privacy” – Alicia Asin

- <https://www.youtube.com/watch?v=oWwQfgpvzl>
- “A keynote address from Strata + Hadoop World Europe 2014 in Barcelona, ‘Hiding Information Inside Big Data, and the Hypocrisy of Privacy.’”
- Keynote speech by Alicia Asin, founder of IoT-Company Libelium, at the ‘Strata + Hadoop Conference’ on Big Data by O’Reilly Media.
- → This talk highlights the importance of privacy as well as risks of surveillance and tracking through big data. Open Data is introduced as a solution for current problems around big data, relating to the work of Libelium, the speaker’s company. Apart from this slight self-promotion, this tool provides interesting insights into some critical aspects of big data.



Alicia Asin: "Big Data and the Hypocrisy of Privacy" - Strata Europe 2014

14,079 views

66

12

SHARE

SAVE

...

O'Reilly

Published on 20 Nov 2014

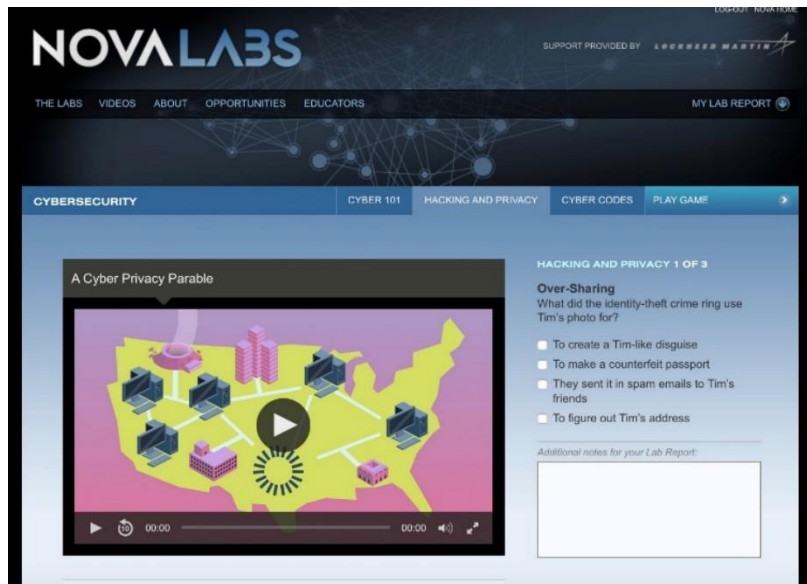
SUBSCRIBE 161K

Video Quiz

PBS Nova Cybersecurity Lab Video Quizzes

- One example: <https://www.pbs.org/wgbh/nova/labs/lab/cyber/2/1/>
- “Discover why the Internet is insecure. See how codes can protect your online secrets and what motivates hackers to hack. And learn why you should be careful about what you post online.”
- Produced by American public broadcaster *PBS*.

- The three short videos each come with three quiz questions about the content of the video. This engaging format helps users to pay attention and reconsider what they have learned. However, the topics of the videos are very narrow and mostly cover technical issues of data security; other problems of big data systems are not included. Nevertheless, particularly the “Hacking and Privacy” video quiz gives a good first insight into risks of sharing personal data online and provides constructive advice for users in their everyday internet usage.



TED Ed Lesson on Big Data

- <https://ed.ted.com/lessons/exploration-on-the-big-data-frontier-tim-smith>
- “There is a mind-boggling amount of data floating around our society. Physicists at CERN have been pondering how to store and share their ever more massive data for decades - stimulating globalization of the internet along the way, whilst 'solving' their big data problem. Tim Smith plots CERN's involvement with big data from fifty years ago to today.”
- Produced and narrated by Tim Smith, physicist and computer scientist, Head of Collaboration, Devices and Applications Group at CERN.
- → This short video-driven lesson provides a great introduction on term ‘big data’ and conveys a basic understanding of ‘data’ with engaging (and sometimes challenging) questions. Also links to further resources are provided. However, there is a strong focus on CERN and its work with big data – the lesson does not include any critical reflection of the collection of personal data online and related big data structures.

Big Data - Tim Smith

424,207 Views
11,099 Questions Answered

TED-Ed Animation

Let's Begin...

There is a mind-boggling amount of data floating around our society. Physicists at CERN have been pondering how to store and share their ever more massive data for decades - stimulating globalization of the internet along the way, whilst 'solving' their big data problem. Tim Smith plots CERN's involvement with big data from fifty years ago to today.



Watch

Think

Dig Deeper

Discuss

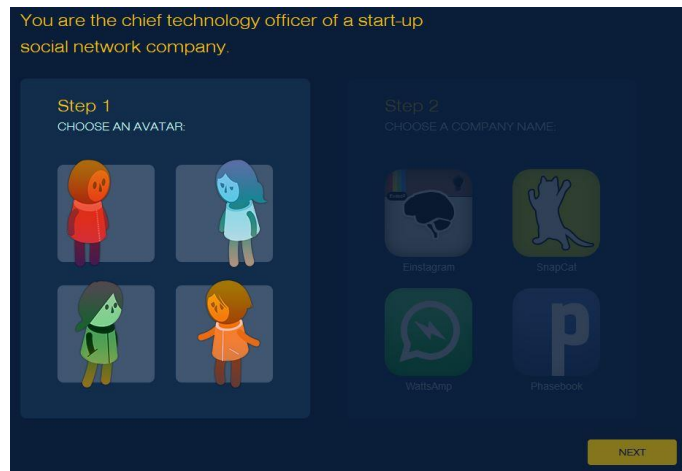
Customize This Lesson 121

Create and share a new lesson based on this one.

Game

PBS Nova Cybersecurity Lab Game

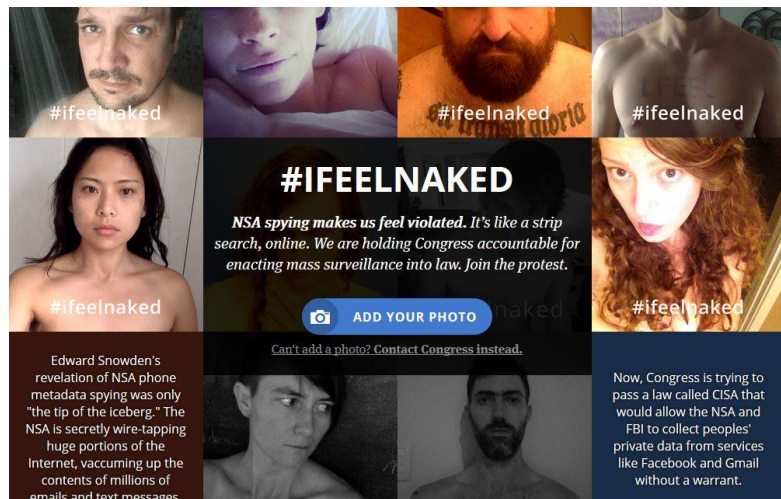
- <http://www.pbs.org/wgbh/nova/labs/lab/cyber/research#/newuser>
- “Take cybersecurity into your own hands. In this Lab, you’ll defend a company that is the target of increasingly sophisticated cyber attacks. Your task is to strengthen your cyber defenses and thwart the attackers by completing a series of cybersecurity challenges. You’ll crack passwords, craft code, and defeat malicious hackers.”
- Produced by American public broadcaster *PBS*.
- → This game constitutes a fun and engaging resource to give children or young teenagers a first idea of risks online and the importance of data security. Throughout the game, users are repeatedly asked to complete small “challenges” in which they gain an insight into, for example, coding or password security. While providing an interesting mix of fun and learning, critical aspects of big data other than data security are not being covered.



Activist Project

#Ifeelnaked

- <https://www.ifeelnaked.org/>
- “NSA spying makes us feel violated. It’s like a strip search, online. We are holding Congress accountable for enacting mass surveillance into law. Join the protest.”
- Produced by the non-profit organisation *Fight for the Future*.
- → This project assembles pictures and tweets with the hashtag #ifeelnaked, used to protest NSA’s surveillance mechanisms. While this may be a questionable teaching tool for data literacy, it nevertheless highlights a broad societal support for this protest. Moreover, the website provides many links to further information on the debate and informs about several important actors.



Appendix

Alphabetical List of Tools with URLs

- Acquisti, Alessandro. June 2013. *TED Talk* “What will a future without secrets look like?”. Available at: https://www.ted.com/talks/alessandro_acquisti_why_privacy_matters
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