



Privacy Champions

The Power of the Default

August 1, 2019

AGENDA

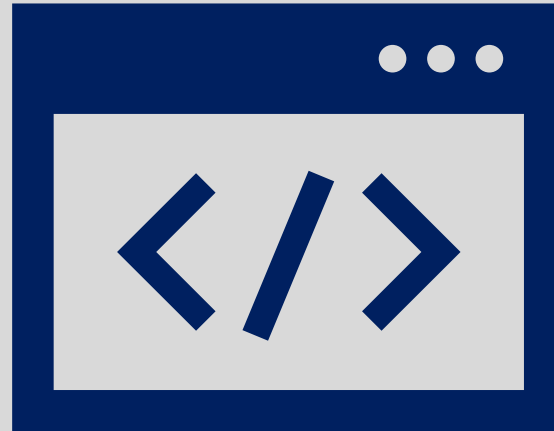
- Introduction
- What are defaults?
- Psychological background
- Defaults and privacy
- What can you do about defaults?



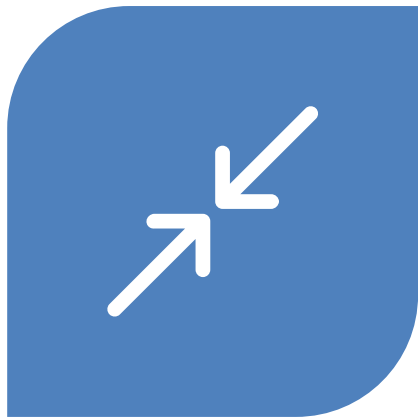
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Introduction into the power of the default



Defaults are not necessarily bad or good, but they are not neutral.

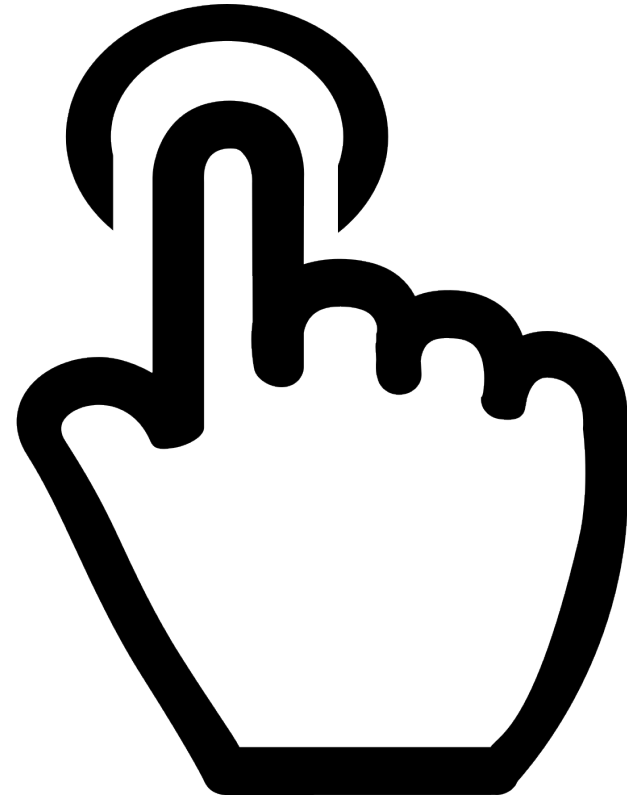


Whether you change defaults is based on personal preference.



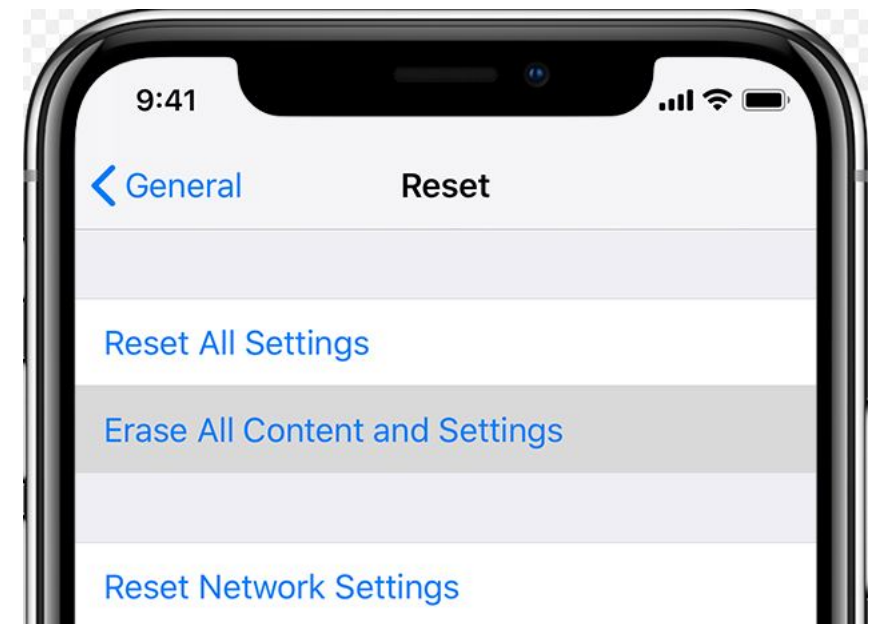
Our goal today is to explain the power they hold and to draw your attention to some defaults that have impacts on privacy.

What are
defaults?



Defaults: pre-selected choices

- The settings that come “out of the box” or the assumptions made for you that require some type of affirmative act to change.
- Nearly every product, service, or other entity we interact with will come with default settings that can be changed.
- Defaults come in many forms, from the temperature settings of a refrigerator to “opt-in” and “opt-out” regimes.
- Defaults have significant impacts on personal choice, with resulting effects on society.



Defaults affect organ donation rates

- In many countries, you can choose whether to be an organ donor or not.
- In the United States, the default is **NOT** to be an organ donor, that is you must *actively* check a box on the DMV questionnaire to **opt-in** to the organ donation program.
- However, in most European countries, the default **IS** to be an organ donor. You must *actively* UNcheck a box to **opt-out** of the organ donation program.
- What effect do these defaults have? Opt-out countries have much higher donation rates than opt-in countries:
 - 90% participation rate in opt-out countries
 - 15% participation rate in opt-in countries

For more information:

- <https://stanford.app.box.com/s/yohfziywajw3nmwxo7d3ammndihibe7g>

DMV Questionnaire: Organ donor box

SOCIAL SECURITY INFORMATION	TELEPHONE NUMBER (OPTIONAL)
<input type="text"/>	<input type="text"/>

OPTIONAL (CHECK ANY THAT APPLY)

- I wish to have my social security number removed from DMV Records, pursuant to RSA 263:41
- I do not wish to have my photograph retained in the records of the Department of Safety
- I wish to have my legal address appear on the back of my driver license or I.D. card.
- I am 18 years old and consent to registration with the Selective Service System as required by RSA 603:1

Check Here to Consent to Organ & Tissue Donation pursuant to RSA 263:41
Donation information will be provided to federally-designated organizations so that your decision to donate will be honored.

I have paid all resident taxes or Interest and Dividends Tax (RSA 77) for which I am eligible. My tax certificates are on file with the Director of Motor Vehicles. My driving privileges are not under suspension, revocation or suspension by any jurisdiction (does not apply to non-driver license holders). I understand the penalty of unsworn falsification pursuant to RSA 641:3.

SIGN HERE

FEE SCHEDULE

Make checks payable to: State of NH - DMV

From <https://www.nhpr.org/post/nh-recognized-highest-rate-dmv-organ-donor-sign-ups#stream/0>

Defaults have major impacts on retirement plans

Impact on enrollment

Plan Type	Participation
Opt-In (must request to be enrolled)	60%
Opt-Out (automatically enrolled)	90%

Impact once enrolled

Plan Type	Savings Rate
Opt-In (must request to be enrolled)	10-12% (recommended)
Opt-Out (automatically enrolled)	3-6%

Employers set these low rates for opt-out plans because they are afraid higher rates will cause people to opt out (research shows those concerns may be unfounded).



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Sources:

- http://www.hbs.edu/faculty/Publication%20Files/importance_of_default_options_39089d0d-1ab5-4987-820a-dcb60067aa0e.pdf
- <https://professionals.voya.com/stellent/public/6114876.pdf>

Defaults can increase voter registration rates

- **Automated Voter Registration (AVR)**
 - AVR makes voter registration “opt-out” instead of “opt-in”—eligible citizens who interact with government agencies are registered to vote or have their existing registration information updated, unless they affirmatively decline.
 - Sixteen states, including California, as well as D.C. have adopted AVR.

Sources:

- <https://www.brennancenter.org/analysis/automatic-voter-registration>
- <https://www.brennancenter.org/publication/avr-impact-state-voter-registration>

Results

Jurisdiction*	% Increase in Registrations
Oregon	15.9%
Georgia	93.7%
Vermont	60.2%
Colorado	16.0%
Alaska	33.7%
California	26.8%
Rhode Island	47.4%
Washington, DC	9.4%

*In order of implementation date

Defaults are part of “choice architecture”

- Defaults are part of a larger system called **choice architecture**, which is the design of different ways in which choices can be presented to consumers, and the impact of that presentation on consumer decision-making.
- Behavioral economists, psychologists, and other analysts research choice architecture as a concept that explores how the presentation of choices affects our decisions (opt-in versus opt-out).
- Defaults are not the only tool in influencing behavior. You can provide a menu of options, present information in a specific way, or put the donuts in a really inconvenient place.

The technology we use is filled with default settings

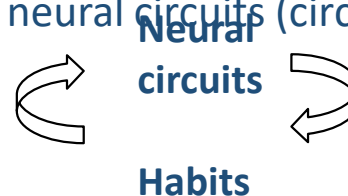
- Computers, including phones and other electronic devices, are preloaded with dozens to hundreds or more default settings.
- These defaults cover a wide array of contexts, from pre-installed applications, to default search engines, to location tracking and other app permissions.
- Many people never change the default settings on the software they use, and they may not even be aware that they have choices over these settings.
- Failure to understand and change defaults can lead to harms, such as security breaches, privacy violations, and regrettable disclosures.

Psychological background for defaults



Neural plasticity, executive function, and the conservation of energy (1 of 2)

- The concept known as **neural plasticity** sets the stage for defaults: idea that the human brain is changeable, molded by our experiences (we are not predetermined by our genes).
- Because we are molded by our experiences, we are susceptible to habitual behaviors -- humans are evolutionarily creatures of habit.
- How do we create habits? Our brain cells communicate with one another (neural connection). The stronger the neural connection, the more neurons are involved in this “neural circuit.” Our neural circuits maintain our habits and our habits strengthen our neural circuits (circular relationship).



- Habitual behavior is easy and comes naturally (almost automatic) to us. As we create habits, our actions shift from being controlled by our executive function to muscle memory.
- **Executive function-regulated actions** requiring extreme focus and attention, such as driving a car as a new driver (slightly paranoid) versus having driven for 10+ years (comfortable). Actions requiring your executive function *expel mass amounts of energy*.

Neural plasticity, executive function, and the conservation of energy (2 of 2)

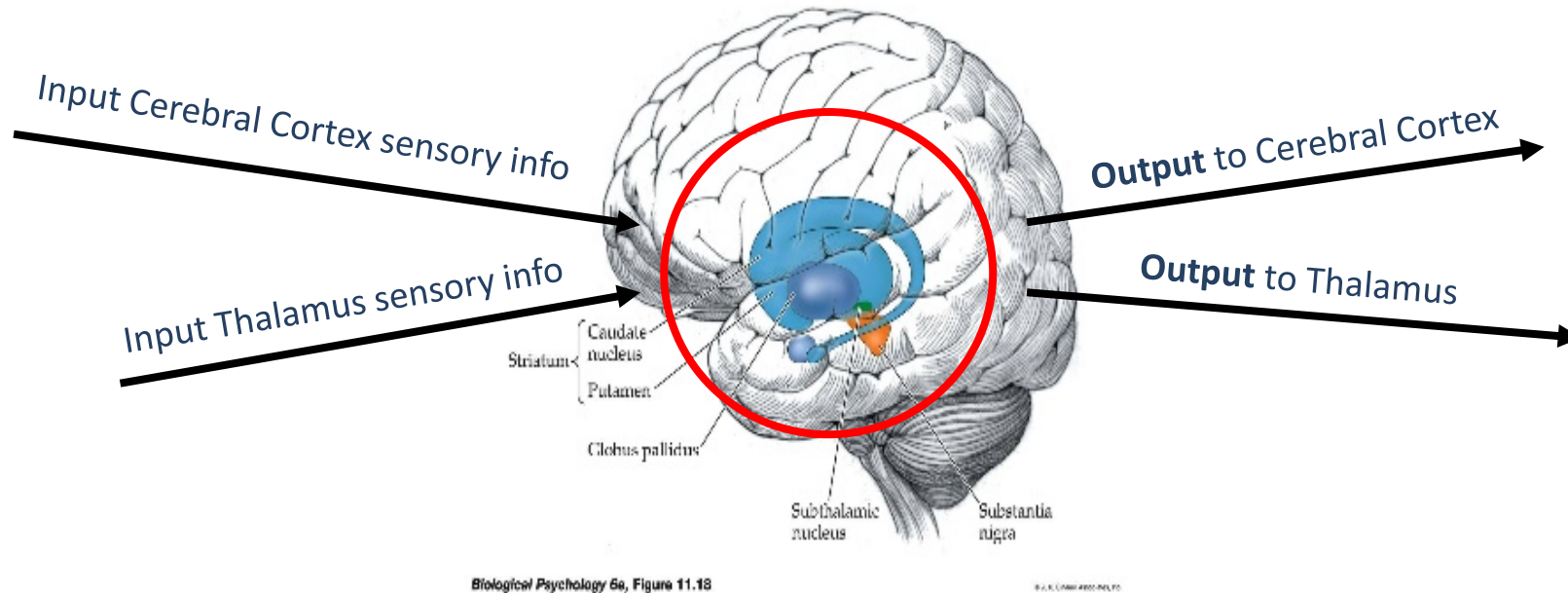
- Harder (more intricate) tasks require the executive function, while easier tasks occur more automatically.
- The brain falls into this habitual behavior because it requires MUCH less effort. Humans are lazy, by nature: ***conservation of energy***
 - Think: If our ancestors decided to run around to the point of exhaustion, right before encountering a predator, how would they run away? There would be no energy reserves left!
 - **We have evolved to avoid expending energy unless necessary.**
- Defaults were created to make our lives easier
 - Consisting of decisions that have already been made for us in our “best interest.” This, in theory, allows us to conserve energy.
- Neuroanatomical structures, such as the Basal Ganglia, Thalamus and Cerebral Cortex (specifically the Frontal Lobe) are associated with these hypotheses.

Neuroanatomy of Defaults

- The **Basal Ganglia** is a neuroanatomical structure most associated with defaults. It involves the *input of sensory information* from other brain structures and then the *output of associated functions*.
 - These *outputted* functions consist of voluntary motor movements, emotions, procedural and habitual learning, and motivation.
- The **Cerebral Cortex** and **Thalamus** input sensory information to do with motor movements, decision-making, and regulation of alertness and consciousness (executive function).
- How does this relate to defaults?
 - The Basal Ganglia will receive *input sensory information* from various neuroanatomical structures relating to defaults and categorize them as requiring a decision (executive function) OR potentials for easier, more automated actions that require less effort (default, habitual behavior). They most often send an *output* to the same structures that the default should be accepted because it requires less expended energy (conservation of energy).

Neuroanatomy of defaults visual

Basal Ganglia: processes input sensory information and outputs associated functions to SAME brain structures
Responsible for voluntary motor movements, procedural & habitual learning, emotions, and motivation.



**Sensory Information
Processing:
Basal Ganglia**

The Basal Ganglia receives input from two main brain areas: *Cerebral Cortex & Thalamus*

Cerebral cortex: primarily considering the frontal lobe, the area is responsible for motor movements and decision-making

Thalamus: regulation center of the brain, controlling alertness and consciousness (executive function)

Defaults and privacy

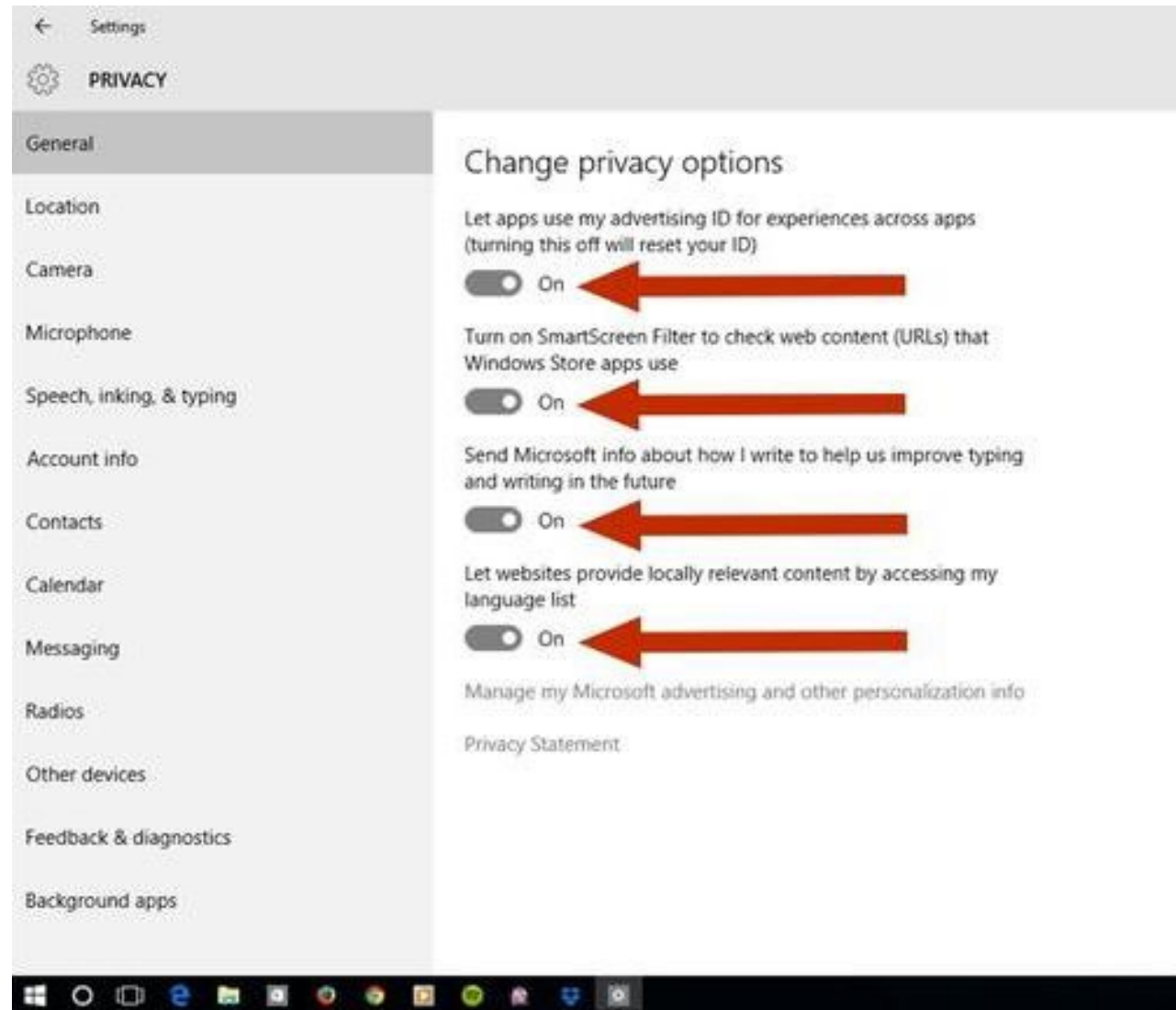


Defaults have a profound impact on privacy

- We now carry and interact with devices that collect thousands of data points continuously.
- On their own or combined, this data can reveal extremely detailed (but never complete) information about our lives: where we live, work, and play; who we spend time with; what we buy; our health status; our hopes and fears; our financial security (or lack of it).
- Collection of this data is often on by default. This is because many of the most valuable companies in the world (by market cap) have core business models revolving around gathering and sharing user-related data. Do you know who has access to your data? Many third-party vendors are sold/given access to personal data via popular apps, websites, and mobile devices.
- We often do not change these defaults, for many reasons.
 - We don't know about them.
 - We don't understand them.
 - Choice fatigue.
 - And other psychological reasons discussed previously.

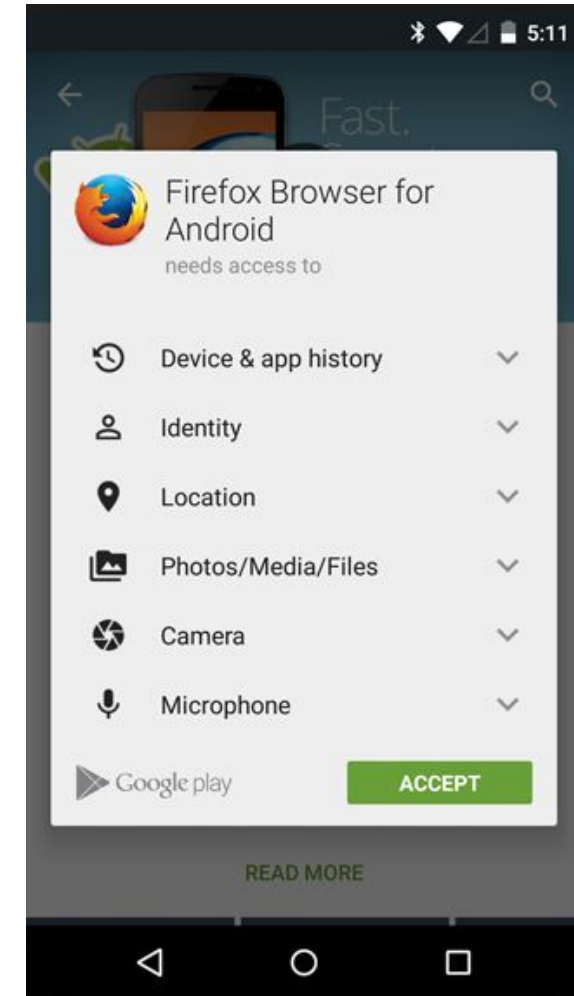
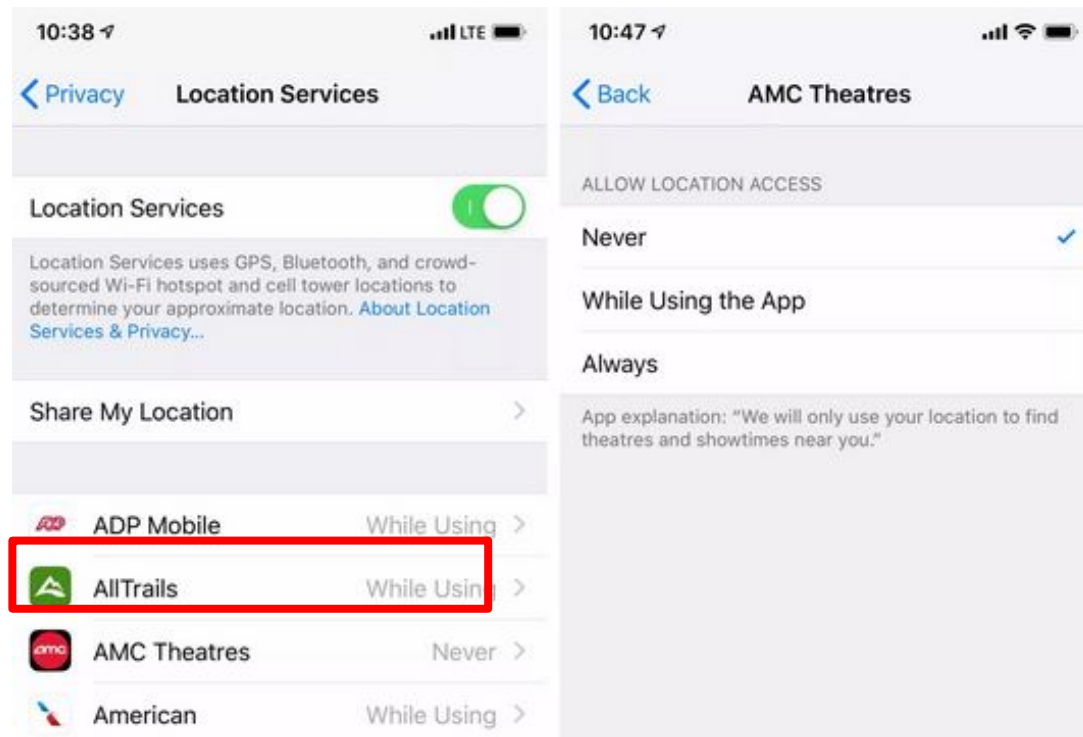
Defaults in operating systems: Windows 10

- Windows 10 comes with several defaults that impact privacy.
- Some relate to allowing data sharing with advertisers.
- Some relate to sharing data with Microsoft, for example to help “improve typing and writing in the future.”



Defaults in cell phones: location services

- Many apps have location sharing turned on by default.
- We'll discuss this later in the presentation, but the question is, does any particular app need to know your location?



Other app defaults: Spotify and pre-saved album tracking

- Spotify allows users to pre-save upcoming releases, which means the release is automatically added once it comes out.
- To do this, music labels need permission to add items to users' playlists.
- But hidden in drop down menus of this permission are lists of other default permissions that give the labels far more control than they need or that users expect.
- As of June 2019, this behavior continues.

For additional information, see:

- <https://www.theverge.com/2019/6/27/18761372/spotify-account-data-sony-warner-music-pre-save-album-permissions>

Other app defaults: Facebook and Google

- **Facebook Beacon:**
 - Facebook launched an ad platform called "Beacon" in November 2007, hoping to revolutionize advertising by **posting updates to your Facebook profile when you interacted with its partner sites.**
 - Users were automatically **opted in**, meaning that Beacon reported users' activities to their friends when they purchased products or signed up for a service.
 - The platform was shut down by a class action lawsuit and resulted in a \$9.5 million settlement fund towards privacy.
- **Google Buzz:**
 - Buzz was a social networking tool launched in 2010 through Gmail, that automatically **opted in** Gmail users into its network.
 - By default Google Buzz publicly disclosed (on the user's Google profile) a list of the names of Gmail contacts that the user had most frequently emailed or chatted with.
 - Also, by default Buzz published the user's exact location when they posted a message to the service.
 - Buzz generated several lawsuits and was shut down in 2011.

Defaults don't have to be privacy-invasive

- Companies often have an incentive to set defaults to share information because information is valuable.
- But companies like Spotify, Facebook, and Google have seen that privacy-invasive defaults can lead to public backlash and have severe reputational and monetary consequences.
- In response, many actors have pushed for a different approaches, most prominently through calls for *privacy by design* and *privacy by default*
- *Privacy by design* is a set of principles for implementing privacy into the very design processes of an organization or company. This ensures that privacy is being considered at the earliest stages of product and service creation.
- Defaulting to privacy would allow users to opt-in to sharing information when the benefits outweigh the dangers.
 - Today many technological defaults are in the opt-out format, meaning you are automatically sharing information you may not be aware of. With opt-in defaults, you would only be sharing what you want from the beginning.

Promoting “good” defaults through custom

- A call for “ethical design”
 - Designers of technology, such as user interfaces, exert enormous control over the choices we make.
 - There is a growing call for designers to acknowledge the power they hold and to use that power in ethical ways.
 - One set of principles for example includes the following: *The creators of a persuasive technology must consider, contend with, and assume responsibility for all reasonably predictable outcomes of its use.*
- Increasing the stigma of using “dark patterns,” or design approaches that have a negative impact on users.
 - Dark patterns include small or greyed out text, autoplay videos featuring more and more extreme content, and other techniques to influence behavior.
 - These are easily implemented, and companies often utilize UX designers to create these dark patterns on their websites, tricking users into giving more money or sharing more data than they originally anticipated.

Promoting “good” defaults through legislation

- **Deceptive Experiences To Online Users Reduction (DETOUR) Act**
 - Two U.S. Senators, Mark R Warner (D-VA) and Deb Fischer (R-NE) introduced this bipartisan legislation to ban large social networking platforms from using dark patterns to trick users. This will apply to all internet tech companies with over 100 million users.
 - The bill will also ban the use of specially crafted user experiences aimed at creating usage among children under the age of 13 years old and puts the FTC in charge of enforcing this law, if approved.
- **Social Media Addiction Reduction Technology (SMART) Act**
 - Introduced by Sen. Josh Hawley (R-MO), the bill would make it illegal for social media companies such as Instagram, Twitter and Snapchat to use infinite scroll, autoplay video or techniques like Snapchat’s “streaks,” which reward a user with badges for repeated use.

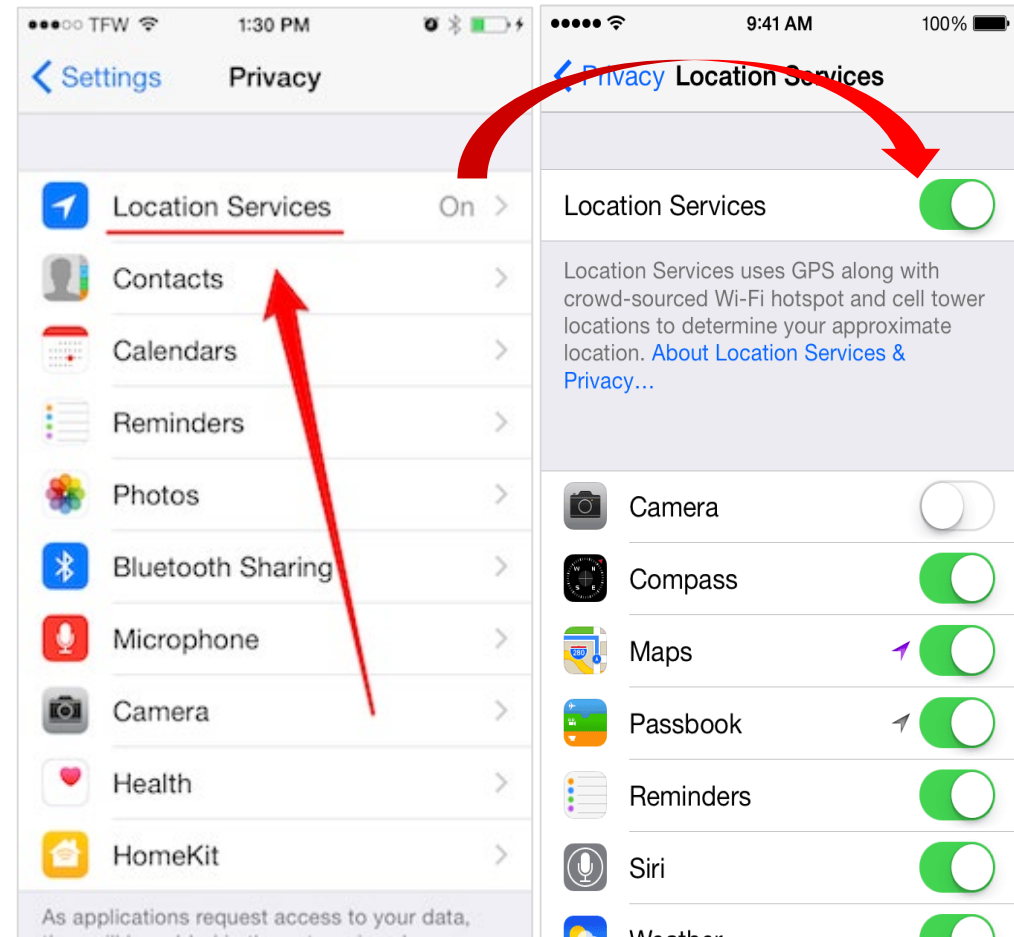
What can you
do about
defaults?



Control mobile device location tracking

- **Limit location tracking to those apps that actually need it.**
- **Limit location tracking to only when the app is open.**
- Not every app needs to know your location, and few apps need to know your location at all times. You can control this behavior in your phone's settings.

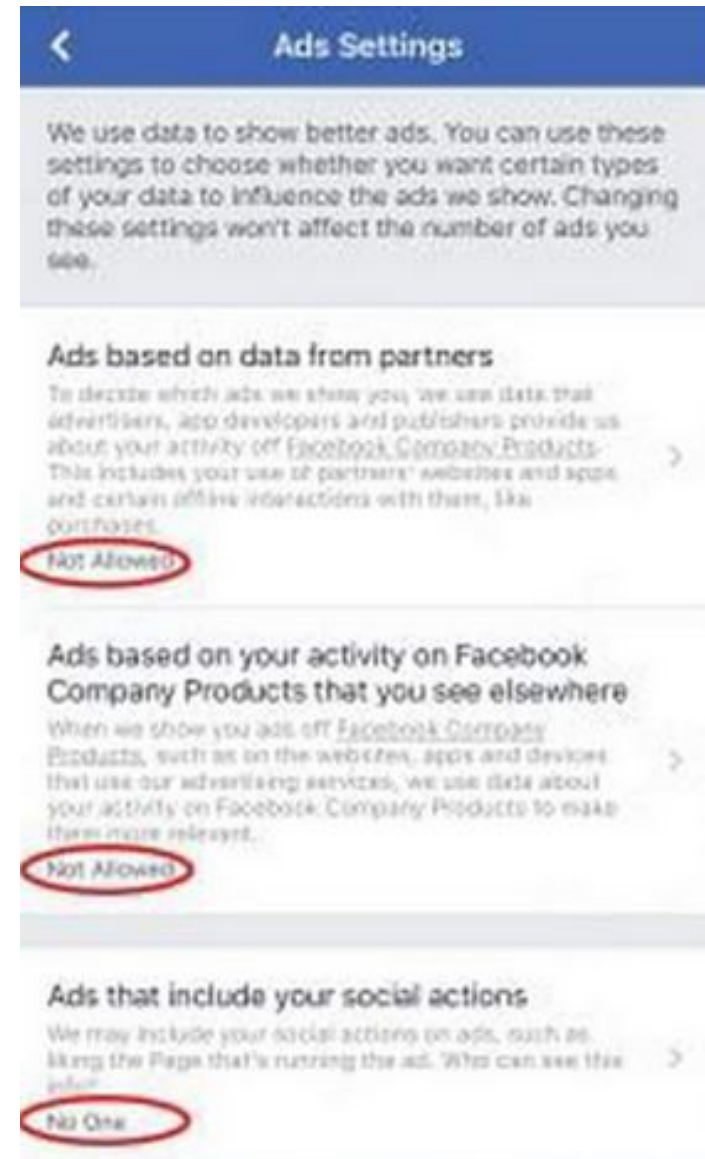
What you give up: some app features may not work, e.g. Google Maps requires constant access if you want to share your location with someone.



Control face recognition in Facebook

- **Face recognition**
 - By default, Facebook scans all the photos and videos you share to create digital face IDs .
 - To turn this off, in the Facebook app under Settings & Privacy, then Settings, then Face Recognition (or at this link on the Web) switch to “No” under Do you want Facebook to be able to recognize you in photos and videos?

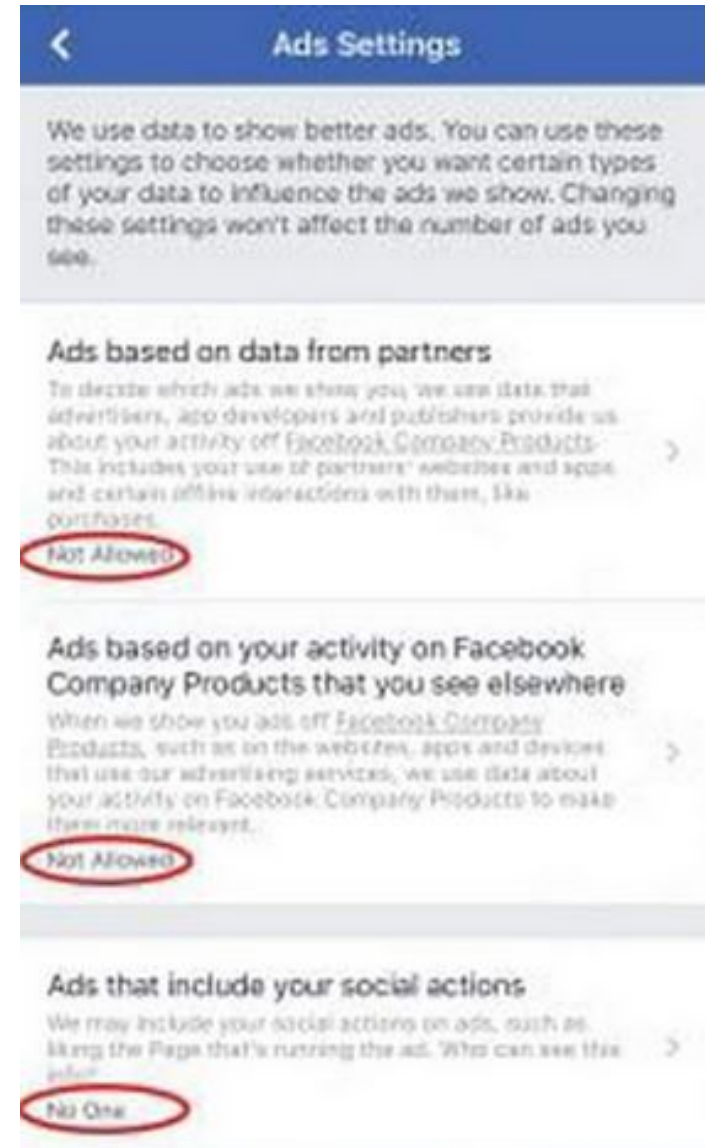
What you give up: Facebook won't recommend tagging you in photos and won't give you a heads-up when someone else posts a photo of you.



Control ad settings in Facebook

- **Ad settings**
 - In the Facebook app's Settings & Privacy menu, tap Settings, then Ad Preferences. Then tap open the section called Your information. There, switch Off ads based on your relationship status, employer, job title and education.
 - While you're in Ad Preferences, head down to Ad settings and switch to Not allowed for Ads based on data from partners and Ads based on your activity on Facebook Company Products that you see elsewhere.

What you give up: More “relevant” ads, (which may be more of a problem for advertisers than for you).



Control ad settings on iPhones

- **Ad settings**
 - Apple's iPhone shares an anonymous ID for advertisers to target you.
 - To stop it, go to your iPhone's Settings, then Privacy then Advertising and switch on Limit Ad Tracking.
 - This will impact Apple-made apps, ads served via Apple's advertising system, and apps that use the iPhone's Advertising Identifier.

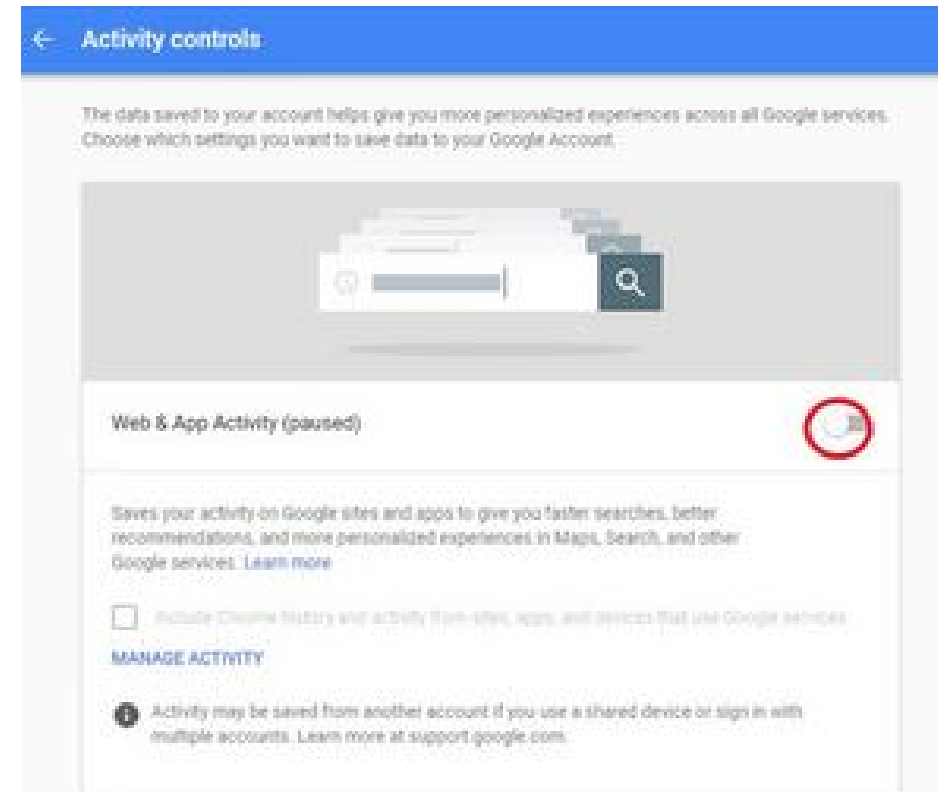
What you give up: More “relevant” ads, (which may be more of a problem for advertisers than for you).



Control what information Google tracks

- **Google keeps track of every phrase you ever search for, every site you've visited, and every YouTube video you've watched... including the embarrassing ones.**
- On the web, go to Google's activity controls to turn off Web and App Activity.
- While you're there, scroll down and also turn off YouTube Search History and YouTube Watch History.

What you give up: You won't be able to dig back up websites and videos you once visited, and Google's systems won't get to know you as well.



Other defaults to be aware of and consider

- **Wifi router and other IoT default passwords.**
 - Leaving the default password on your WiFi router or other internet connected devices leaves them vulnerable to hacks.
- **Smart TV information sharing.**
 - Smart TVs often default to sharing your information with advertisers.
- **Payment apps.**
 - Set payment transactions to private.

What you give up: A bit of time to change settings.



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For more details on these tips and additional default controls, see:

- https://www.washingtonpost.com/news/the-switch/wp/2018/06/01/hands-off-my-data-15-default-privacy-settings-you-should-change-right-now/?utm_term=.0cc61fc6ebb2
- https://www.washingtonpost.com/news/the-switch/wp/2018/06/15/hands-off-my-data-15-more-default-privacy-settings-you-should-change-on-your-tv-cellphone-plan-linkedin-and-more/?utm_term=.a6c984b4a46a#WiFi

Conclusion: Defaults are a powerful tool of choice architecture

- There are both benefits and potential risks when it comes to defaults:
- **Benefits:**
 - Efficient way to influence behavior
 - If deployed correctly can lead to “good” choices
- **Risks:**
 - Often maximize data sharing
 - Can be hard to change
 - May not be aligned with user expectations



PRIVACY OFFICE

COUNTY OF SANTA CLARA

Email: PrivacyOffice@ceo.sccgov.org

Internal website: <https://sccconnect.sharepoint.com/sites/cpo>

External website for constituents: <https://www.sccgov.org/sites/cpo>