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Abstract.

A “digital footprint” and a “digital shadow” are essentially the same concept, referring to the trail of data a person leaves behind when using the internet, including the websites visited, emails sent, and information submitted online, essentially creating a traceable online presence; "digital shadow" is simply a more figurative way of describing this data trail.

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Introduction.

A “digital footprint” and a “digital shadow” are essentially the same concept, referring to the trail of data a person leaves behind when using the internet, including the websites visited, emails sent, and information submitted online, essentially creating a traceable online presence; "digital shadow" is simply a more figurative way of describing this data trail.

Every time you interact online, you add to this digital trail. Sometimes you actively share this data—for example, when you share photos and post updates on your social media feeds. Other times, your digital data is collected passively and includes the device you use, the location you're in, and the preferences you reveal as you browse.

Types of digital footprints



Figure 1. Types of digital footprint

(Source: <https://threat.media/>)

The use of a digital footprint has both positive and negative consequences. On one side, it is the subject of many privacy issues. For example, without an individual's authorization, strangers can piece together information about that individual by only using search engines. Corporations are also able to produce customized ads based on browsing history. On the other hand, others can reap the benefits by profiting off their digital footprint as social media influencers. Furthermore, employers use a candidate's digital footprint for online vetting and assessing fit due to its reduced cost and accessibility. Between two equal candidates, a candidate with a positive digital footprint may have an advantage. As technology usage becomes more widespread, even children generate larger digital footprints with potential positive and negative consequences such as college admissions. Since it is hard not to have a digital footprint, it is in one's best interest to create a positive one.

1) Active digital footprints include all the data you consciously share online. For example, when you share social media posts, send an email, or fill out a form, you add to your active digital footprint.

Passive digital footprints are a data trail that an individual involuntarily leaves online. They can be stored in various ways depending on the situation. A footprint may be stored in an online database as a "hit" in an online environment. The footprint may track the user's IP address, when it was created, where it came from, and the footprint later being analyzed. In an offline environment, administrators can access and view the machine's actions without seeing who performed them. Examples of passive digital footprints are apps that use geolocations, websites that download cookies onto your appliance, or browser history. Although passive digital footprints are inevitable, they can be lessened by deleting old accounts, using privacy settings (public or private accounts), and occasionally online searching yourself to see the information left behind.

2) Passive digital footprints are collected without your explicit knowledge. For example, websites might track your browsing history, geolocation, and the device you use.

Active digital footprints are deliberate, as they are posted or shared information willingly. They can also be stored in a variety of ways depending on the situation. A digital footprint can be stored when a user logs into a site and makes a post or change; the registered name is connected to the edit in an online environment. Examples of active digital footprints include social media posts, video or image uploads, or changes to various websites.

Here are some other common terms that help categorize digital footprints:

Public digital footprints involve openly accessible information, such as blog posts, public social media profiles, or portfolio websites.

Private digital footprints involve data that are intended to be private, including personal emails or encrypted messages. While the content may be secured, the fact the communication happened is still trackable.

Commercial digital footprints involve data collected by companies, often through cookies and trackers, to deliver targeted advertising or sell to third parties.

Digital footprint examples

Whether browsing websites or sharing updates on social media, virtually every interaction leaves a trace. This virtual data trail includes what you actively share and data harvested without your direct knowledge.

Browsers. Your web browser exchanges different kinds of information with websites to deliver a more accurate and personalized experience. Such information can be leveraged to take advantage of you.

IP addresses. Every device you use to access the Internet is assigned a unique identifying string of characters called an IP address. You can think of it as something

of a digital fingerprint. Threat actors may use your IP address to track your location, frame you for a cybercrime, or launch compelling scams. Read in-depth here: what is IP address.

Social media. Social media platforms such as Facebook, Twitter, Instagram, and TikTok are all part of your digital footprint. Your social media interactions, such as your likes, shares, posts, uploads, friendship requests, and more, grow your digital footprint.

Online banking. Here are some types of online banking habits that expand your digital footprint:

- Applying for a credit card.
- Buying cryptocurrency.
- Selling stocks.
- Subscribing to financial newsletters.

Shopping online. Your online shopping behavior is a component of your digital footprint, whether you shop through websites or mobile apps. Online shopping platforms can carry a record of your shopping habits and your personal information, such as your name, address, contact information, and credit card data.

Trackers. As mentioned, all types of digital activities can grow your digital footprint, including using some of the following trackers:

- Fitness trackers
- Reading trackers
- Time trackers

Subscriptions. Subscribing to newsletters, blogs, and vouchers can shape your digital footprint. These activities reveal your habits and tastes to marketers.

Emails and texts. The emails and text messages you send are part of your digital footprint. Some entities can mine this data for valuable information.

Online forms. The information you enter on online forms when shopping, applying for a loan or requesting a service is stored on a computer somewhere. This data can be valuable to a marketer.

Public comments. The opinions you share on message boards, social media, or news websites can significantly impact your reputation and your credibility. Removing or modifying public comments can be more challenging with time.

Blog posts. Strongly opinionated blog posts have a significant impact on your brand and are a clear example of your digital footprint. Importance of digital footprint important.

Your digital footprint can impact your online privacy, security, and reputation. Advertisers, potential employers, and cybercriminals can harvest the online information you leave behind, potentially causing a ripple effect on your offline world.

Here are some real-world implications of your digital footprint:

Inadvertent sharing: Data from your public digital footprint may be available to anyone with internet access, such as family members, advertisers, employers, or hackers, which can lead to unintended consequences.

Impact on reputation: Your digital footprint can hurt your reputation—a single post that resurfaces years later could potentially harm your job prospects or current employment.

Vulnerability to hackers: Hackers can use your digital footprint to launch phishing campaigns including spear phishing attacks and doxxing attacks. And if your data is exposed in a data leak, it might end up on the dark web.

Targeted advertising: Companies can use your data to target you with personalized ads, which may feel like an invasion of your privacy.

How to delete your digital footprint

Unfortunately, there's no way to completely delete your digital footprint if you frequently use Internet-connected devices. However, there are ways to clean up and manage your digital footprint. For instance, if you see questionable content related to your name on a social media platform, you can delete or modify it yourself. If there is content hosted by other websites that you'd like to scrub, you can request the site administrator to remove it.

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