

What are Application Program Interfaces (APIs)?

A software application or “app” is a type of software that allows a user to perform specific tasks on the operating system of a hardware device, like a desktop or a mobile phone. For example, Microsoft Word is a desktop application, which allows a user to create a variety of documents on his/her desktop, and Google Maps is a mobile application, which allows a user to view map and routing information based on his/her current location on his/her mobile phone.

Application Program Interfaces (APIs) are sets of rules and protocols that govern the interactions between two software applications. The information provided in an application’s API can be used by other parties to develop compatible new applications that can utilize the functions of the original application. Some examples of this include:

- When an individual opens an application, like Lyft, that allows him to log in using his Facebook login credentials, Lyft is utilizing Facebook’s login function instead of building its own separate login system. Utilizing another application’s API in this manner is useful for: a) users who only need to remember one set of login information; b) third-party application developers who do not need to “reinvent the wheel” and can focus on developing their application’s core services; and c) Facebook, because this sharing of its login API with Lyft and other such applications makes Facebook integral to the technological lives of users and functioning of other applications.
- When an individual utilizes the Yelp mobile application to locate a restaurant, Yelp utilizes the mapping function of the Google Maps application to help the user locate the restaurant instead of having to build its own mapping software. This use is beneficial for: a) Yelp, which can utilize the already technologically advanced and ubiquitous Google Maps application; b) Google Maps, because Google Maps becomes more integral to the technological lives of users and functioning of other applications like Yelp; and c) the user, who derives a benefit from Yelp and Google Maps concentrating on the services they provide best (Yelp – restaurant recommendations & reviews; Google Maps – mapping & routing information).

Lyft and Yelp can utilize Facebook’s and Google Maps’ functions in the ways described above only because Facebook and Google Maps have released their APIs telling other application developers how they can incorporate the functions available in Facebook and Google Maps into their own applications. Such instances of applications using specific functions of other applications are myriad, and the release of API information has fostered more efficient interoperability between and among applications.

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When an application developer publishes an API for his/her application, the developer is divulging information about the application's structure, which would otherwise be proprietary information. Companies can decline to publish APIs, contractually restrict use of published APIs, or withdraw published APIs to maintain some control over their proprietary information. However, several large companies such as Facebook and Google have determined that it is in their economic interest to make this information voluntarily available in order to make their presence more ubiquitous in the lives of users as well as to make themselves more indispensable to the functioning of other applications.

How does this apply to Health Information Technology?

Electronic Health Records (EHRs) are currently maintained using a number of different applications by a variety of different vendors across the country, and "interoperability [between these different applications] is a critical component to facilitate the exchange of patient information across settings of care and . . . [to make] patient information readily available to patients and providers at the point of care."¹ One of the ways to ensure interoperability between different applications is by requiring or incentivizing these companies to release their APIs in order to allow third-party entrepreneurs and other EHR application developers to build compatible applications.

To improve interoperability, the 21st Century Cures Act (signed into law in December 2016) included API requirements in its standards for EHR certification. Health technology developers or entities must have published their API to "allow health information from such technology to be accessed, exchanged, and used without special effort through the use of application programming interfaces or successor technology or standards."² The Centers for Medicare and Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC) released proposed rules in February 2019 to enforce the 21st Century Cures Act and create new API standards and certification requirements.

For more information about APIs in the ONC and CMS proposed rules, see our Fast Facts and Myth Busters here. For more information on interoperability, see our Fast Facts here:

<http://www.healthinfo.org/article/fast-facts-what-interoperability>. For more information about health information technology, see <http://www.healthinfo.org/topics/58>.

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¹ Health Info Law's Fast Facts on Interoperability. Available at: <http://www.healthinfo.org/article/fast-facts-what-interoperability>

² 21st Century Cures Act, H.R. 34, 114th Cong. (2015).