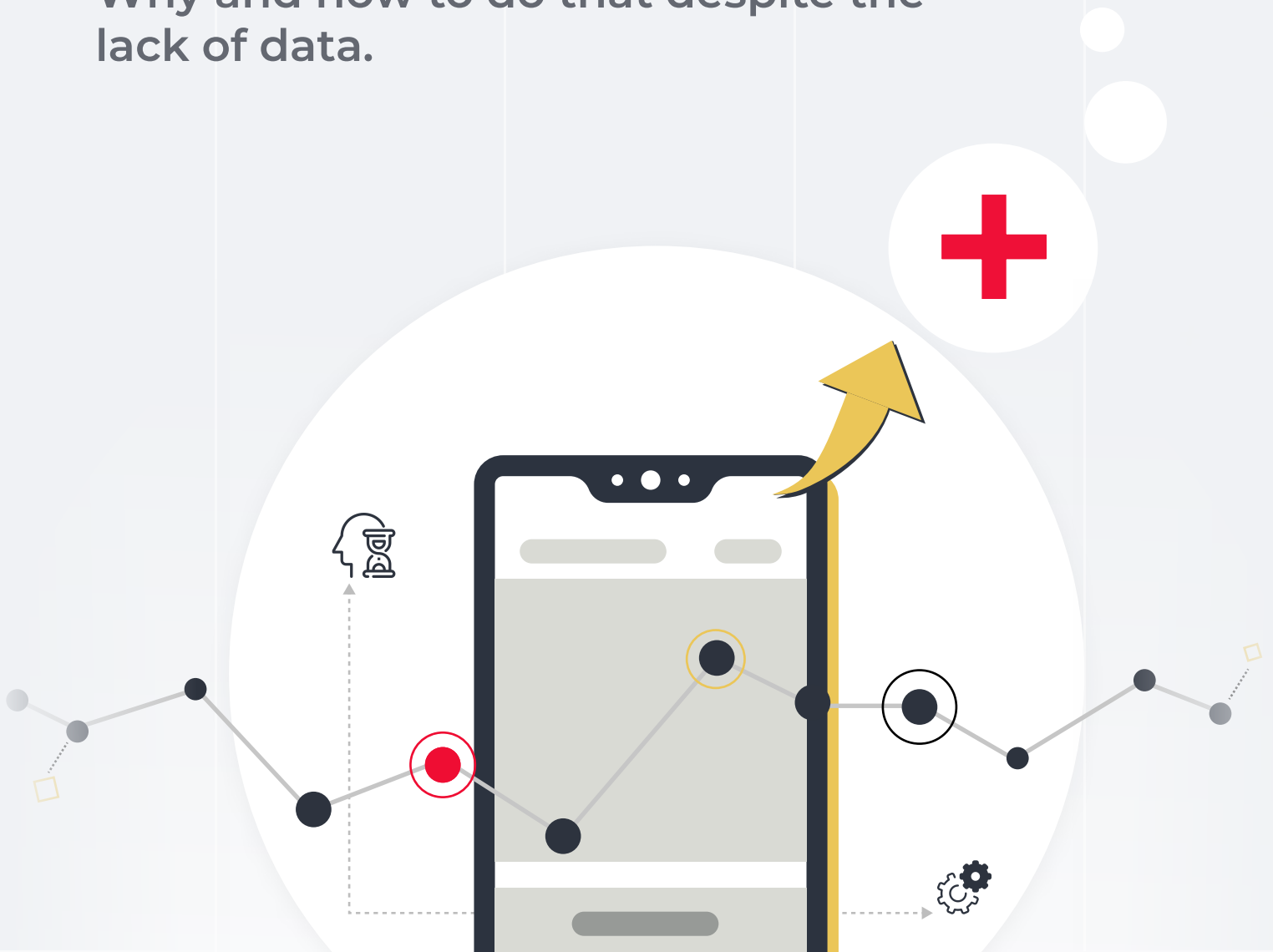# How to Measure the Effectiveness of Your Health App

Why and how to do that despite the lack of data.

Contents

Introduction

People are increasingly downloading health apps. In Q2 2021 alone, medical apps usage soared by 53% in the USA.

And developers have hopped on the trend. The number of apps available in stores has been steadily growing since the first quarter of 2020. In just one year, that number grew by roughly 22.5%.

Meanwhile, more and more people have acquired smartphones across the world during the past few years. Compare 3.7 billion smartphone users in 2016 with 6.4 billion in 2021 and you get a 73.9% growth. The current figure shows that about 80% of the world's 7.9 billion inhabitants are now in.

3,7 billion
2016

6,4 billion
2021

We have unprecedented and growing numbers of smartphone owners, health apps, and health app users. That raises an important question for health app companies: how do we measure the effectiveness of our app to improve it?
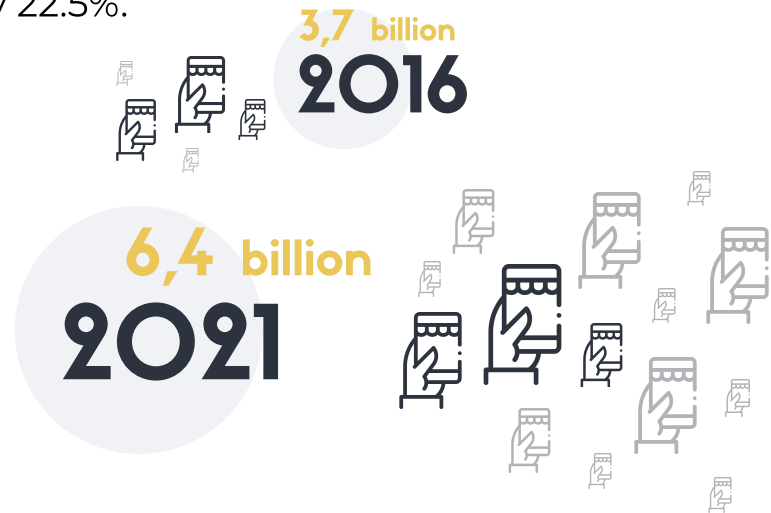
And there is no one-size-fits-all answer. The effectiveness of each app will depend upon its purpose — and those are many.
Mobile health software ranges from hospital apps for making appointments to self-diagnosis tools using computer vision to help identify malignant tumors.

In this white paper, we examine the benefits of measuring the effectiveness of a health app. We also consider what app types are currently available and what purpose each type serves.

In the following section, we'll outline the metrics applicable to all apps from the developer's perspective. Finally, we'll provide advice on how to best set up health metrics for your own app.

Who this white paper is for:

**Health app companies**

Healthcare providers

Digital marketers

Why Measure Effectiveness

Developers build apps to make money. However, ways of making money through an app may vary.

For example, a private healthcare provider may build an app to improve communication between its facilities and patients.
The provider then makes money by removing roadblocks to using its services and building a loyal clientele.
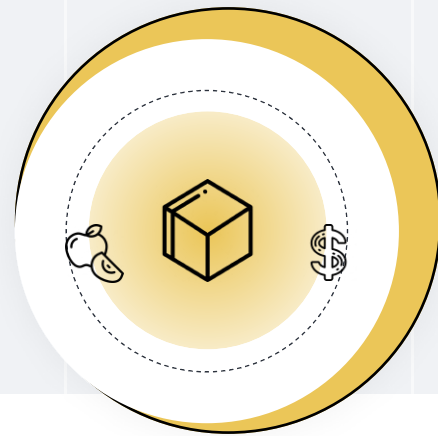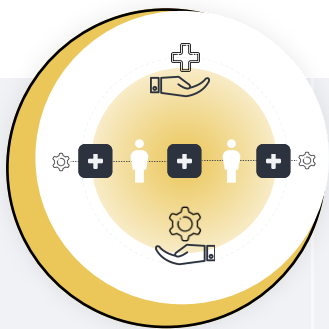
But a startup developing an app to help people fix their diet is a different story. It will need to use things like premium features and advertising to return the investment.

In other words, health app developers aim to achieve the same end goal differently. This means they need to set interim targets to track their product's performance, and those targets will depend on the app's specific purpose.

That said, a hospital app's effectiveness can be measured by the number of user sessions that result in an appointment. If you notice that people drop it halfway through, then you will need to find out why that happens. The reason could be a screen that doesn't load or user instructions that are unclear. Whatever the problem is, you will need to fix it.

And if your app is a diet tracker, you may need to know how often users open it to record their meals or check their progress. Whenever customers take such actions, you could be showing them ads. But if they don't, they won't see those ads, and your monetization will go out the window.

Measuring your health app's effectiveness is imperative. It helps you identify both bottlenecks and growth opportunities, so you can address them in a timely manner.

What Makes Health Apps Successful

Health apps vary greatly in what they do. Let's consider the most common types, and what it is that makes each type successful.

Information Apps

These apps allow you to browse a knowledge base to find answers to your health-related questions. Their effectiveness can be measured in how long they reside on users' phones and how often users launch it.

Nutrition Apps

Apps like these enable you to build up your personal diet and stick to it. The most successful nutrition app is where users diligently record their meal history and open it every time they go grocery shopping.

Virtual Appointment Apps

Although Zoom is considered a default conference call app, there are apps equipped with tools that make the process easier for doctors and patients. An effective virtual appointment app is one that meets the needs of both sides.

Self-Check Apps

Apps for monitoring your health independently encourage you to record indicators like blood pressure. You can consider a self-check app effective if users stick to the record schedule diligently enough to track dynamics through time.

Drug Delivery Apps

There are three things to consider when assessing a drug delivery app: how easy it is for the user to order, how fast it arrives and how accurate the delivery is.

Device-Paired Apps

The effectiveness of such apps hinges on how precisely the device (e.g. wristband) measures your health indicators (e.g. heartbeat).

Doctor Apps

Doctor apps provide medical professionals with a knowledge base, including news, research data, media, medical calculators and continuing education. Their effectiveness can be measured by how often people use the app.

Drug Adherence Apps

Like self-check apps, drug adherence apps allow users to record their medicine consumption and remind them when it's time to take another pill. You can call an app like that successful if people using it respond to reminders and routinely record their drug consumption.

Contact Tracing and Spread Prevention Apps

Most apps like these have been developed during the coronavirus pandemic. Their effectiveness can be measured by how often users respond to signals to avoid dangerous contacts and crowds.

Digital Therapeutics (DTx) Apps

DTx apps are based on evidence and used to treat conditions at home. An example would be a game that helps improve attention in children with ADHD. A DTx app can be considered successful if medical trials show it can actually help with a condition. From the developer's perspective, user engagement will be the most important metric.

Hospital Apps

Managing appointments, accessing medical test results and prescriptions, calling the hospital and chatting with the doctor are among the common features of hospital apps. An effective hospital app is one that drives the number of appointments up.

Mental Health Apps

There are apps that help people learn more about themselves through increased mindfulness — becoming more self-aware through talking with a chatbot, training themselves to handle anxiety and more. How much time users spend on those apps will determine how effective they are.

Common Metrics You Can Use

Developers don't have many opportunities to learn how their apps affect people's health due to privacy protection. In some cases, you can invite users to take a survey to better assess the impact your app has had on them. You can also apply common metrics, connecting them to your app's purpose. Here are the key ones.

Operational App Metrics

The first thing you will want to measure about your app will be its overall health. And to measure it, you will need to look at operational metrics.

Customer Retention Rate (CRR)

CRR is the share of people who keep using your app within a particular time frame. Here is how you calculate it:

CRR, % = [(Users at the end of the period – Users acquired within the period) / Users at the start of period] × 100

In 2020, retention rate for health and fitness apps was 20.2% on day 1, 8.5% on day 7 and 4% on day 30 (Statista).

CRR on day 1 and day 30 of mobile app installs worldwide as of August 2020, by category (Statista, 2021)								
■ Day 1	■ Day 7	■ Day 30						
Sport			**Finance - all**			**Music**		
27.6%	15.3%	9.9%	22.7%	9.7%	5.8%	20.4%	8.1%	4.2%
Social			**Business**			**Health & Fitness**		
26.3%	9.3%	3.9%	22.4%	10.1%	5.0%	20.2%	8.5%	4.0%
Finance - investments			**Communication**			**Travel**		
25.6%	12.5%	7.1%	22.4%	10.3%	6.0%	20.0%	7.6%	3.6%
Books			**Entertaiment - all**			**Medical**		
25.1%	11.1%	6.0%	22.0%	8.2%	3.8%	20.0%	7.0%	3.5%
Shopping - e -commerce			**Finance- financial services**			**Education**		
24.5%	10.7%	5.6%	21.8%	9.7%	6.1%	18.8%	6.3%	2.5%
Entertaiment - streaming			**Lifestyle**			**Utilities**		
24.4%	9.9%	4.7%	20.9%	8.7%	4.5%	18.3%	6.8%	3.4%

Churn Rate

Churn rate is the percentage of users who stop being meaningful to the business through a particular period of time. Once you know your CRR, you can use this formula:

Churn rate, % = 1 – CRR

So, if the average 30-day CRR for health and fitness apps is 4%, this makes for a churn rate of 96%.

Lifetime (LT)

LT can help you understand how long users keep your app installed or keep actively using it — whichever is more relevant in your case.

LT, months = Time period, months / Total users per period

Daily Active Users (DAU) / Weekly AU (WAU) / Monthly AU (MAU)

You can use these metrics to measure user engagement over a period of time. The changes in these numbers will show you how users respond to changes you introduce and if something is wrong.

For each of the three metrics, you need to look at the number of active users within a day, week or month, respectively.

But you might want to get the average figure for a particular period. Here is how you can calculate it:

DAU, users = Total unique active users per given period / Days

These figures differ greatly from app to app, so the best you can do is monitor them over time to track changes.

Stickiness

Once you know your DAU and MAU, you can calculate the rate at which people come back to use your app. Here is the formula you should use:

Stickiness, % = DAU / MAU × 100

According to Andrew Chen and other experts, stickiness below 10% is considered to be poor; 10%–20% shows room for improvement; and 50% and more is a great result.

Financial Metrics

Not all apps are made to make money. Healthcare providers build their apps to improve the connection between the patient and the clinic, making appointments and follow-ups less of a headache.
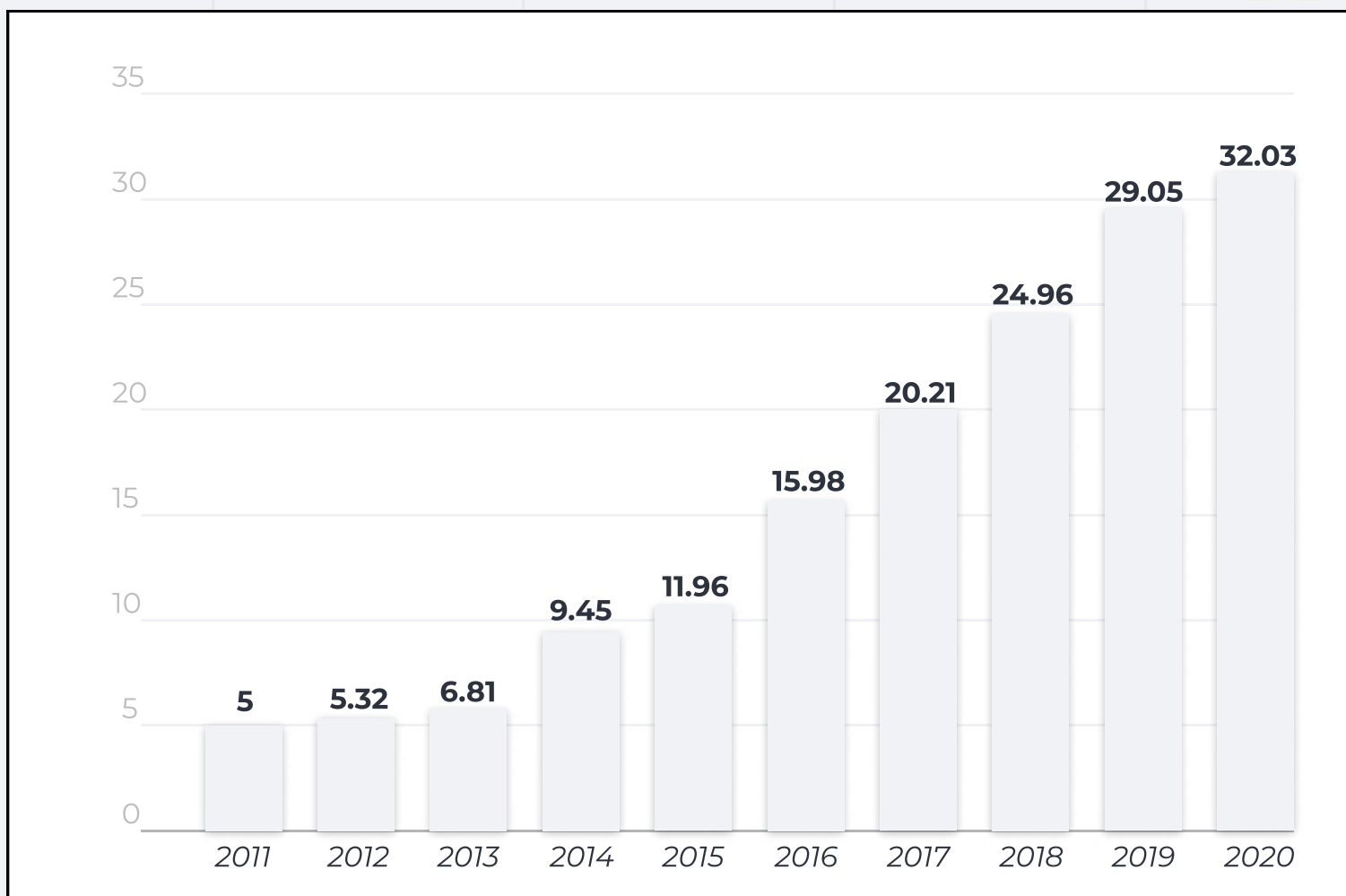
But if your app draws on monetization, you need to know the key financial metrics.
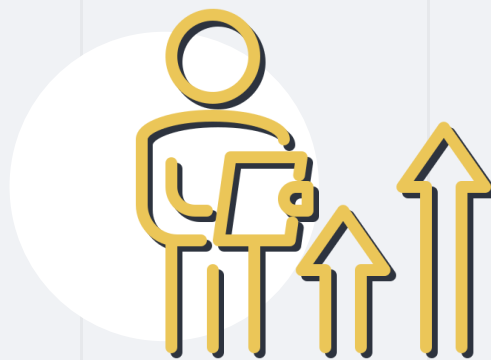
Average Revenue per User (ARPU)

ARPU shows how much money each new user is worth. You can calculate this using the following formula:

ARPU, $ = Total revenue / Total users

Facebook's ARPU from 2012 to 2020 (in USD) (Statista, 2021)

User Lifetime Value (LTV)

LTV shows how much revenue the average user generates through their lifetime (LT). The easiest way to calculate it is this:

LTV, $ = (ARPU – Monthly expenses per user) × LT

Average Revenue per Paying User (ARPPU)

You will find ARPPU a usable metric if people can buy something within your app. It can show you how much money the average paying user brings you per month, quarter or year. Use this formula to calculate it:

ARPPU, $ = Total revenue from in-app purchases / Paying users

Average Revenue per Daily Active User (ARPDAU)

ARPDAU will help you see the big picture with your app no matter how you monetize it. It shows you how user activity benefits your business. Here is how you calculate it:

ARPDAU, $ = Revenue per given period / Average DAU

Cost per Install (CPI) and Effective CPI (eCPI)

You will want to know how much it costs to acquire new app users in order to better tailor your marketing budget. And CPI shows you how much you pay for ads to get a download. To include the organic installs that come from unknown sources, you can use eCPI.

Here are the formulas for both:

CPI, $ = Ad budget spent / Ad-driven new installs

eCPI, $ = Total marketing spend / Total installs

Always try to ensure that your eCPI is at least three times lower than your LTV.

How to Set Effectiveness Indicators

Setting effectiveness indicators for your health app is all about its purpose. We suggest the following three-step approach.

Step 1

Outline the purpose or end goal of your health app from the user's perspective. No matter how you monetize your app, its success will depend upon user satisfaction. ➡

Example:

Imagine you have a nutrition app. Its purpose is to help people create a diet based on their personal specifics and stick to it.

Step 2

Identify the particular features of your app that help users achieve that goal. This will give you an idea of what metrics to track first. ➡

Example:

You want to know how long people keep coming back to your app to take an action: record their daily meals, search for eligible foods or check food ingredients. This can be calculated using the lifetime (LT) metric.

Step 3

At this point, you will have determined what metrics matter most to estimating the effectiveness of your app. Now you can calculate those metrics using the formulas from the previous section of this white paper. What's important here is to analyze the dynamic or how each parameter has been changing over a particular period of time. ➡

Example:

You apply the LT calculation metric as follows:

LT, months = Time period, months / Total users who have been tracking their meals per period

Calculate this figure for different periods and build a chart to see the dynamic.

Conclusion

Measuring your health app's effectiveness to identify problems and highlight any room for improvement quickly is essential. However, there are a variety of apps out there, and there is no one way to measure their effectiveness.

Start by identifying your app's true purpose or end goal. Once you know it, you can recast the ultimate objective as user engagement, loyalty or similar terms used by app developers universally.

App developers use proven formulas to calculate those metrics for products in different areas, and mobile health is no exception. And you should use them, too, because without them you are unlikely to find out how your app impacts users' actual health.

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