



# mHealth App Developer Economics 2014

The State of the Art of mHealth App Publishing

[www.mHealthEconomics.com](http://www.mHealthEconomics.com)

## Fourth annual study on mHealth app publishing

Size of the opportunity, mHealth app developer segments, learning from best practice, the connected elite, drivers and barriers, key trends that will shape future of mHealth app publishing

6<sup>th</sup> of May 2014

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## About research2guidance

research2guidance is a strategy advisory and market research company. We concentrate on the mobile app eco-system. We are convinced that mobile health solutions will make a difference to people's lives and that the impact on the healthcare industry will be significant. We provide insights to make it happen and to successfully lead your business.

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- Size of the opportunity or challenge for your company / business / institution
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- Impact of mHealth apps on traditional healthcare
- Analysis of competitive landscape
- Discussion of potential roles to be played

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### We have: Diabetes App Market Report

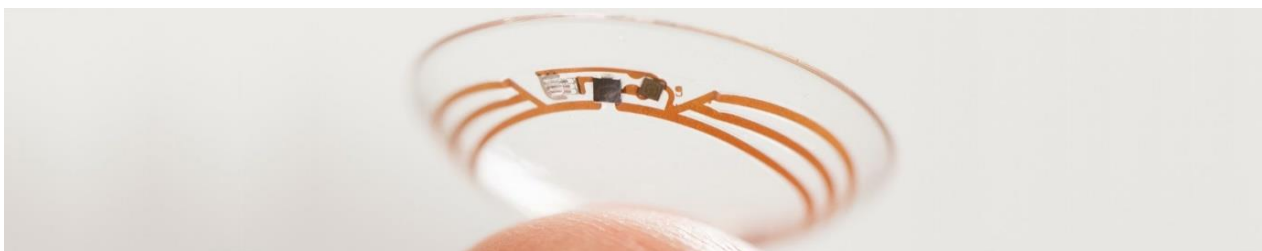


The Diabetes App Market Report 2014 is a comprehensive analysis of the market. The 113 pages report includes:

- Analysis and categorization of more than 1.000 diabetes apps
- Performance of diabetes apps, key players, best practices
- Detailed market forecast including downloads, revenues, user penetration, app related sensor shipment and service user numbers
- Analysis of country markets, regulatory impact, market trends and revenues from 2008 - 2018.

[Read report preview](#)

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## Summary

The mHealth app market has made some significant progress along the industry hype cycle. It may not be the number one topic on mobile congresses or thought leader events, but over the period of the last two years, the perception of mHealth has become increasingly business oriented. In other words, the mHealth app market has already entered the commercialisation phase.

The number of mHealth apps that are published on the two leading platforms, iOS and Android, has more than doubled in only 2.5 years to reach more than 100,000 apps (Q1 2014).

The market revenue reached USD 2.4bn in 2013 and is projected to grow to USD 26bn by end of 2017. The major source of income for mHealth app publishers will come from services (69%). These services typically involve backend structures of servers and/or teams of medical staff which monitor and consult with doctors, patients and general healthcare interested individuals. Service revenue plans are usually subscription based, but could also be structured as pay-per-use.

Today's mHealth app publishers and Wannabes predominantly target chronically ill patients (31%) and health and fitness interested people (28%). As primary users, physicians are targeted by 14% of app developers.

*“Potential is huge, first for mobile consumer health apps, medical apps will follow...”*  
Survey Participant

mHealth apps are published by 6 main groups: traditional healthcare players, helpers, mobile app specialists, connectors, medical and fitness specialists. Out of these groups, traditional healthcare players like Pharma and hospitals have the longest way ahead of themselves to find their role in the mHealth app ecosystem.

mHealth app publishers have released on average 7 mHealth apps.

The majority (36%) has entered the market only recently (2013&2014). An mHealth app publisher typically hires 3-10 (23%) or 11-100 (23%) employees.

The vast majority of mHealth app publishers (82%) generated less than 50.000 downloads with their mHealth app portfolio last year, whereas the top 5% reached more than 500,000 downloads.

68% of mHealth app publishers make less than USD 10,000 or no revenue. The middle income group, which makes between USD 50,000 and USD 1m, represents 17% of the publishers. The top 5% makes more than USD 1m. The most relevant revenue stream is linked to services which are offered via the apps.

Economically successful mHealth app publishers (>USD 1m revenue in 2013) stand out thanks to their relatively larger app portfolio, experience in the market, usage of tools for the app development and monitoring process, connection to medical databases, apps and sensors. Besides, they focus more on iOS as compared to commercially unsuccessful publishers.



mHealth app publishers who belong to the Connected Elite are role models for successful mHealth app publishing today and in the future. Such publishers allow their app users to automatically sync an app with the data of, in some cases, more than 30 competitor apps and sensors. By opening up their APIs, such publishers can concentrate on delivering their core value propositions and outsource the rest. In such a way, Connected Elite publishers can create a greater value for the user and gain a substantial competitive advantage over rivals.

Already today app users collect several hundred million of vital parameters per month. A growing share of this data is aggregated by the Connected Elite and by a new layer of API/App aggregators and infrastructure providers. If there will be a new “Facebook” for the healthcare industry, it will evolve from either of these two groups.

According to today’s and future mHealth app publishers the main market drivers for the next

*“This effort will truly  
be a patient-driven  
initiative” Survey  
Participant*

five years are the increasing penetration of capable devices (58%) and user/patient demand (43%).

The potential show-stoppers are lack of data security (34%) and standards (30%). Poor discoverability (29%) is another barrier which leaves much room for specialised mHealth app stores.

Android and iOS are the dominant mobile platforms for which mHealth app developers will continue developing their apps in the next 5 years.

Fitness apps which today constitute the app category which offers the highest business potential for mHealth app publishers are believed to diminish in their relative importance. In five-year time they are expected to no longer be the top app category and in terms of business potential are expected to be on the 5<sup>th</sup> position (22.9%). The app categories that have the highest expected market potential in the near future are remote monitoring (53%) and consultation apps (38%).

mHealth apps will have the biggest impact on healthcare system costs in two areas. They will help to reduce non-compliance and hospital readmission costs (55%).

Traditional healthcare players like physicians and hospitals are the top ranked distribution channel for mHealth apps in the next five years. The underlying assumption is again that within this timeframe mHealth apps will have made it to become well integrated into the healthcare processes.

The mHealth app market potential is the biggest in developed countries, although mHealth publishers from countries which belong to the developing and least developed regions rate the business potential of these regions as high as for countries like USA, UK Japan and Germany.

## About mHealth App Developer Economics 2014

What is the current status of mHealth app publishing and how will it develop over the next 5 years? These are the two major questions which build the foundation of the 4<sup>th</sup> mHealth App Developer Economics study conducted in the first quarter of 2014. More than 2,000 current and future mHealth app publishers as well as experts have shared their experience in an online survey. This report summarizes the results.

The study provides a comprehensive view on who is behind the increasing number of Medical and Health & fitness apps and their objectives. It analyses regional differences and highlights the differences between financially successful and unsuccessful mHealth app publishers.

The report puts an emphasis on a very dynamic market segment: the Connected Elite. A group of leading mHealth app publishers and sensor vendors allow the usage of each other's data in order to improve usability and relevance of their app. The increasing volume of data which is being collected with the help of these and other mHealth apps will demand a new mHealth strategy on the side of traditional healthcare companies like Pharma, health insurance and Med-tech companies.

*“The study represents around 10% of mHealth apps<sup>1</sup>”*

The report also looks at the future trends, drivers and barriers of the mHealth app market. This includes the changes in distribution channels, the preference of app categories and mobile operating platforms, the impact of wearable and other types of sensors and the target groups which offer the highest business potential in the next 5 years.

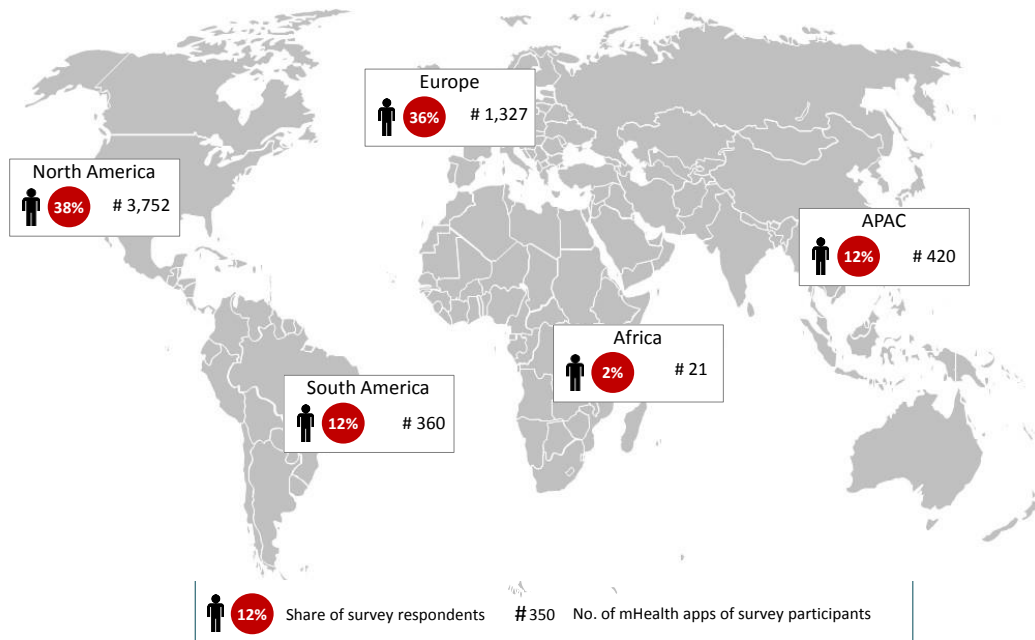
See how experts from all around the world rate what impact mHealth apps will have on healthcare costs and on how healthcare is going to be delivered in a 5-year time span.

With 2,032 respondents from all over the world the 4<sup>th</sup> mHealth App Developer Economics study is by far the largest of its kind. We like to say thank you to all who have taken part in the survey and shared their experience and views about the mHealth app market.



## research2guidance 1: mHealth App Publisher Economics 2014 study- global coverage

### Survey participants and mHealth app numbers by region



Source: research2guidance, mHealth App Developer Economics Study 2014

The study represents the experience of app publishers who altogether have developed and launched more than 5,800 mHealth apps. If an app is published on more than one mobile platform it is treated as a single app. Most publishers have published their mHealth apps both on iOS and Android. Based on this assumption and 100.000 mHealth apps listed on Apple App Store and Google Play the study represents more than 10% of the total mHealth app number.

This is the summary of the results. We invite you to reach out to us to get more detailed insights, data and strategy guidance.

Please contact Ralf at [rgj@research2guidance.com](mailto:rgj@research2guidance.com) find out more.

For now, enjoy reading the report, get insights and spread the word.

An online copy of the report can be downloaded at [www.mHealthEconomics.com](http://www.mHealthEconomics.com).

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## The mHealth app market

mHealth apps existed already before Apple has created the new app ecosystem. Most of today's app categories and business models were in place before 2008.

Since 2000, the promise of reduced healthcare costs and improved patient outcomes associated with mHealth has inspired many mHealth solution providers to build their business models around e.g. remote patient monitoring, mobile alerts and reminders. These early movers entered the market too early as its conditions did not support scalability of the existing solutions. With the launch of the Apple App Store, the mHealth market entered into the early commercialization phase. Ultimately the Apple App Store allowed mHealth solution providers to reach out to a mass market and grow their income.

*“Fitness apps are the largest group of mHealth apps (30%)”*

Apple's and its fast growing number of copycats transfigured the entire customer and developer experience (not only for mHealth solutions), making mobile applications easy to download and use, as well as easier to develop and distribute.

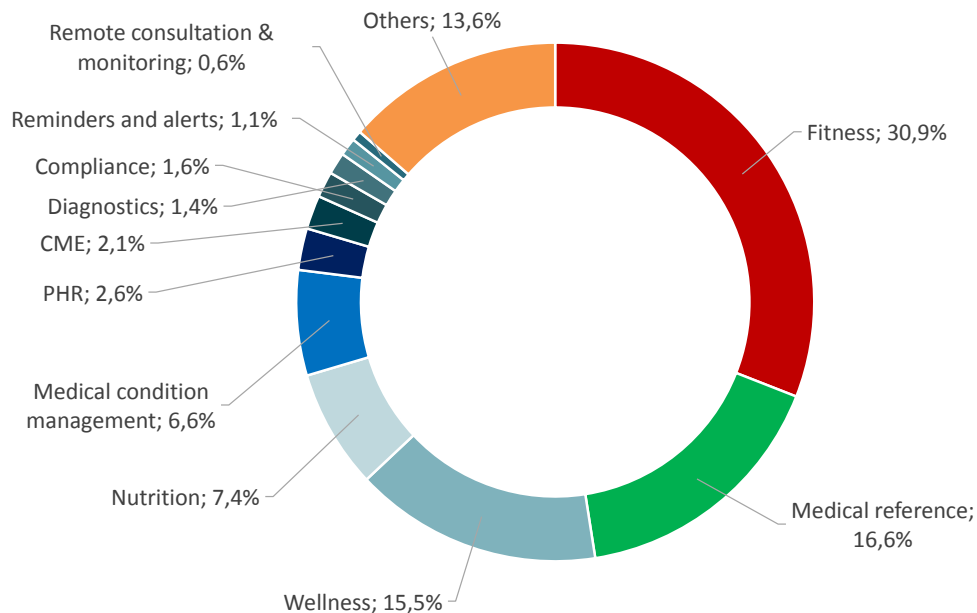
There are now 100,000 apps which are listed in the mHealth sections of major platform operators: Apple and Android. Both platforms are by far the leading mobile operating systems for mHealth apps today. Over the last two years Android, similarly to the total app count, has seen a tremendous growth of the number of apps which are listed in the Health & fitness and Medical sections in Google Play.

To develop their apps, mHealth app publishers make also use of other mobile SDKs like WindowsPhone and BlackBerry. Those platforms have released or announced mHealth segment specific solutions which should secure them larger publisher mindshare in the future. To increase their visibility and reach, they also distribute their solutions on other, sometimes specialized app stores. However, the number one and two mobile platforms and distribution channels for mHealth app publishers remain iOS/Apple App Store and Android/Google Play.

The biggest group of mHealth apps could be categorized as fitness apps. More than 30% of all apps that are listed in the Health & fitness and Medical app sections of Apple App Store, Google Play, BlackBerry Appworld and WindowsPhone Store are fitness trackers or exercise guides.

## *research2guidance 2: Fitness and Medical reference apps are the largest mHealth app categories*

**mHealth app category share**



Source: research2guidance, 808 apps from Apple App Store, Google Play, BlackBerry App World and Windows Phone Store (March 2014)

The second and third largest groups are Medical reference (16.6%) and Wellness apps (15.5%). Medical reference apps provide information about drugs, diseases, symptoms and give advice on how to take drugs or what to do in case of experiencing pain. They also show locations of pharmacies and medical centres/doctors.

Wellness apps summarize all kinds of relaxation solutions, yoga instructions and beauty tips.

Nutrition apps help their users keep track of their diet, inform them about e.g. vitamins, calories and fat content as well as socio-economic aspects of food products (e.g. fair trade).

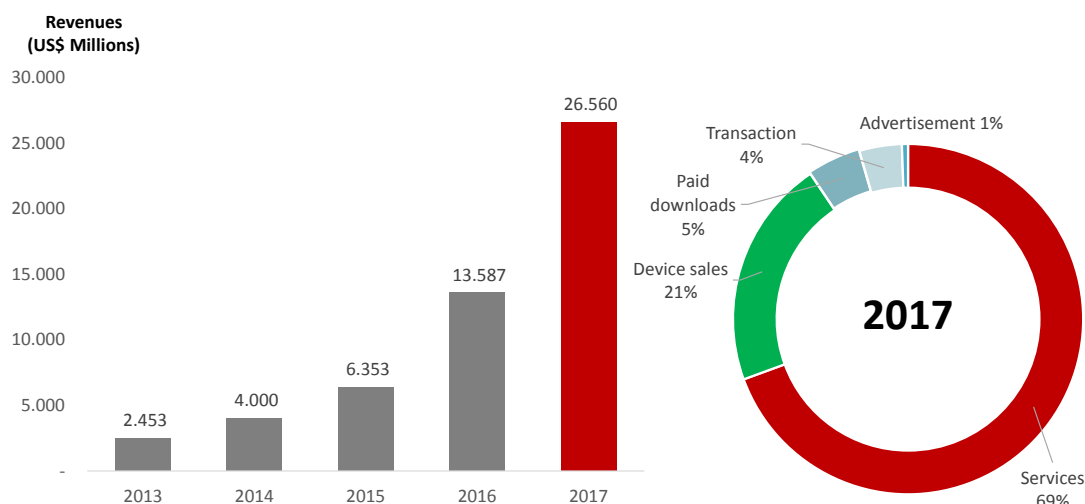
Medical condition management apps represent the 5<sup>th</sup> largest group of mHealth apps (6.6%). This group consists of all apps which track, display and share user's health parameters, medicament intake, feelings, behaviour or provide information on a specific health condition e.g. Diabetes, Obesity, Heart failure.

Even though they capture notable event and press coverage, all other mHealth app categories (PHR, CME, Diagnostics, Compliance, Reminders and Remote monitoring apps) are significantly smaller in size than the ones above mentioned.

During the initial years of the mHealth market, revenue and user base grew steadily albeit from a low base level. Despite the hype mHealth has by now caused—especially amongst mHealth publishers and mobile operators—the actual market remains to be a niche market. This will, however, change in the coming years.

*research2guidance 3: The mHealth app market will reach USD 26bn by 2017. Services will contribute with 69% of the total revenue*

**Global mHealth market revenue in USD (2013-2017)**



Source: research2guidance, mHealth App Market Report 2013-2017

The mHealth app market will grow to a substantial size of more than USD 26bn in 2017. In comparison with the global healthcare market that is estimated to have a gigantic size of USD 6 trillion<sup>1</sup>, mHealth represents only 0.5% of the whole cake.

The main sources of revenue will not come from application downloads, but from mHealth services and hardware sales. Many applications already serve as platforms to sell other health services and hardware.

*“The mHealth app market will reach USD 26bn by 2017, a 0.5% share of the global healthcare market.”*

Market growth will accelerate as early as 2016. In 2016, the mHealth market will have entered the integrated market phase, characterized by integrated solutions and health services, as well as coverage of mHealth solutions by health insurance providers.

More detailed information about the mHealth app market size and its break down by different revenue sources, downloads, mHealth subscriber base, sensor shipment and more are available in the [“mHealth App Market Report 2013-2017”](#).

<sup>1</sup> WHO, 2010.

## The mHealth publisher segments: Who is behind?

The mHealth publisher landscape is diverse as one could expect. It promises business opportunities for traditional healthcare players like hospitals, doctors, Pharma, nursing organizations, but not only. Garage type of companies as well as patients are attracted by the mHealth market too. The prospect of using a mobile app to improve one's own medical condition or that of their friends or relatives drives the mHealth hype.

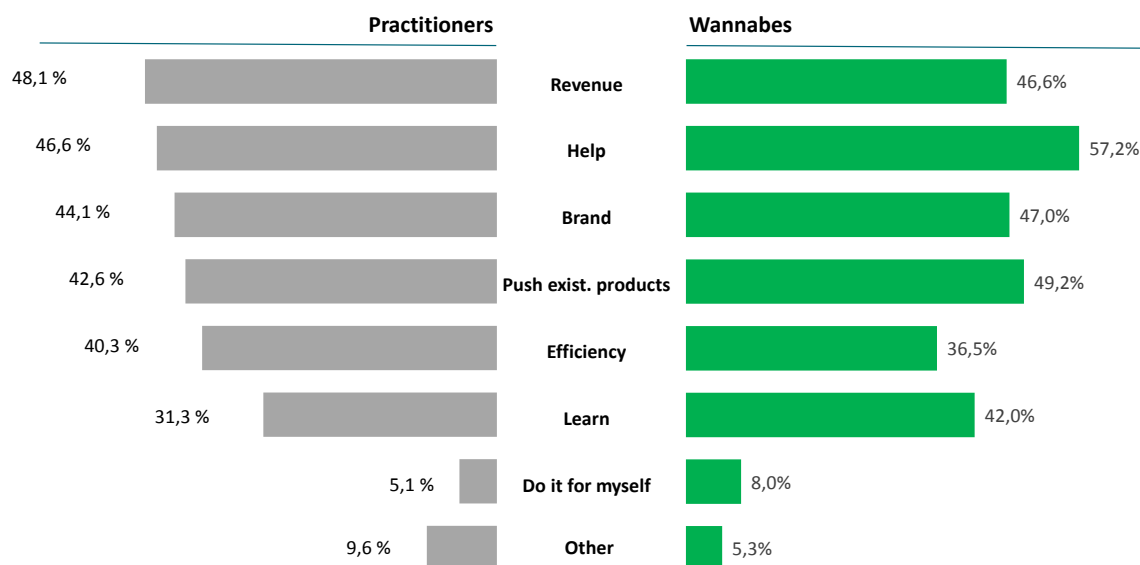
*“For 46% of current and 57% of future app publishers helping others is a reason to publish mHealth apps”*

The motivation of mHealth app publishers who have got publishing experience in mHealth is similar to the one of companies which plan to launch their first mHealth app soon (Wannabes). In contrast to other app categories (e.g. games), helping friends, relatives or just others as a reason for becoming an mHealth app publisher is important to an extraordinarily high share of today's (46,%) and future ( 57,2%) mHealth app publishers.

Besides, generating revenues with an app, increasing brand awareness within the target group of smartphone and tablet users and the sale of existing products are almost equally important for today's and future mHealth app publishers.

*research2guidance 4: Generating revenues, but also helping others are the main objectives of today's and future mHealth app publishers*

Motivation for publishing mHealth apps



Source: research2guidance mHealth App Developer Economics survey 2014, n= 2032

Already today the mHealth market offers opportunities to generate substantial revenue. 5.1% of the active players in the market have been able to generate more than USD 1m with mHealth apps last year. This includes revenues from app downloads, in-app purchases, advertisements, related devices, services and transactions (e.g. pills).

On the other hand, two thirds (68%) of the mHealth app publishers did not make more than USD 10,000 or earned nothing in the last year.

*“5.1% made more than a Million USD with mHealth apps last year.”*

For 29% of mHealth app publishers, service revenues are the most important single source of income. These services include e.g. remote diagnosis based on submitted photos (e.g. from skin abnormalities), managed company fitness monitoring programs or just the ability to share a scan of a foetus with friends.

The simple fee for the initial download is the second most important business model in the market. 24% of all mHealth app publishers primarily rely on pay per download as the main revenue source.

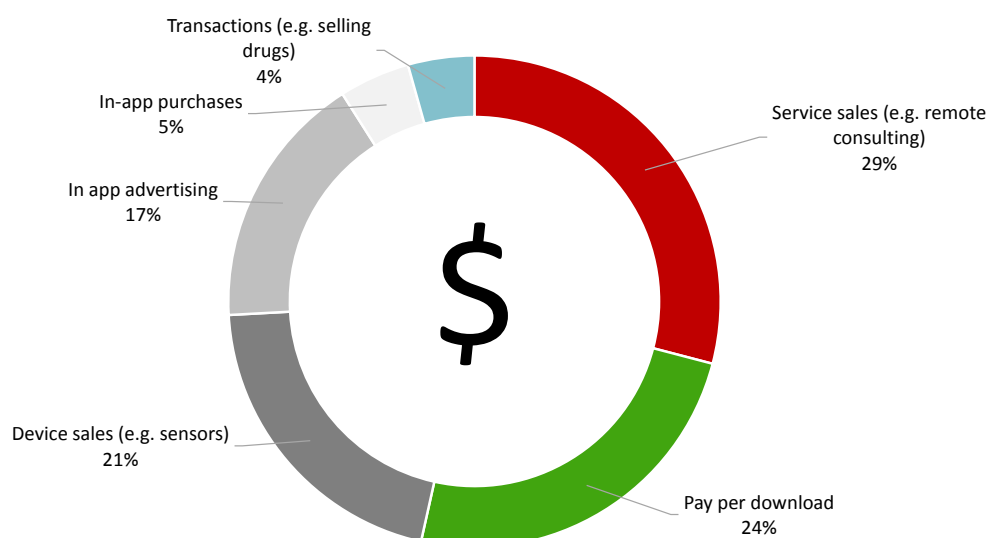
*“For 29% of mHealth app publishers, service revenues are the most important source of income.”*

Selling sensors like scales, bracelets or blood pressure units are currently the most relevant source of income for 21% of the mHealth app developers.

In-app purchases, which are the main revenue source for many non-mHealth apps such as games, are the primary revenue source of 5% of the mHealth app publishers.

*research2guidance 5: Service revenues are already today the most important source of income for 29% of mHealth app publishers*

**Top ranked revenue source by mHealth app publishers**



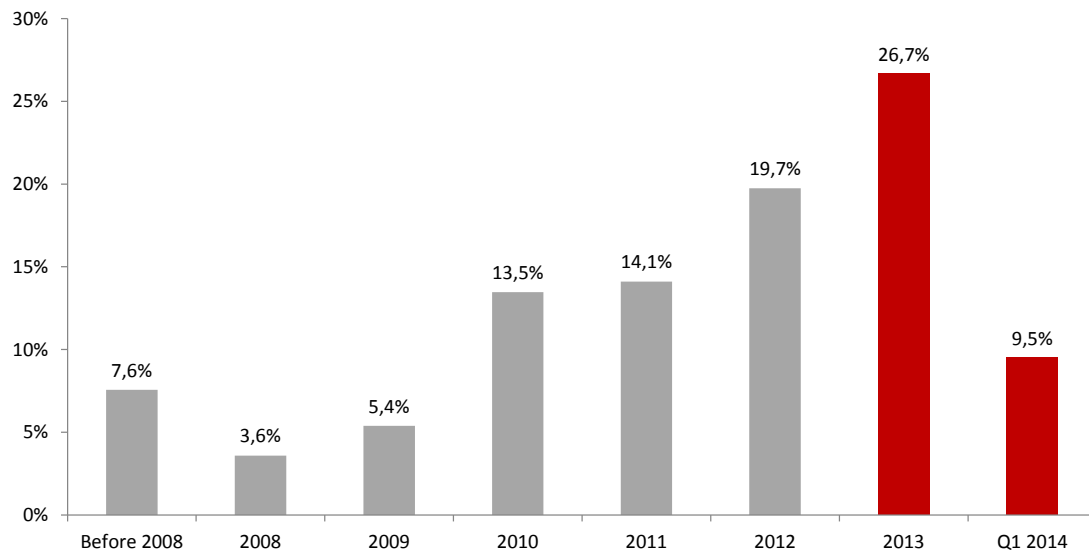
Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

The exponential growth annual mHealth apps releases is accompanied by an increase in the number of market entries/year. The majority of mHealth app publishers launched their first app in the last two years and 36% only after January 2013.



## research2guidance 6: More than 36% have entered the mHealth app market only recently

Publishing year of the first mHealth app



Source: research2guidance mHealth App Developer Economics survey 2014, n= 2032

*“50% of mHealth publishers have not released more than 2 mHealth apps.”*

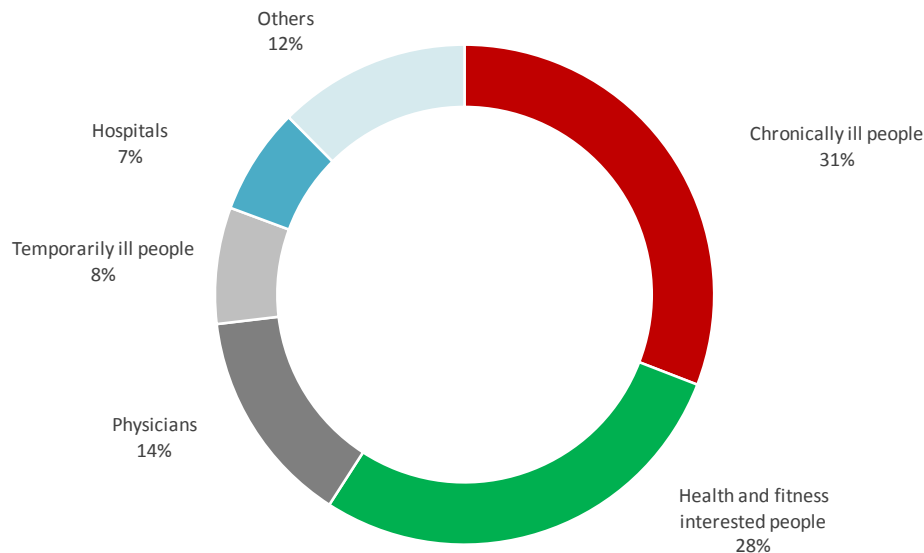
The relatively late market entry of a large proportion of the mHealth app publishers is one of the reasons why 50% of the publishers have by far released one or two mHealth apps only. There are also mHealth app publishers with more than 50 mHealth apps in their portfolio, but they represent only around 5% of the total mHealth publisher base.

Today’s mHealth app publishers and Wannabes predominantly target chronically ill patients (31%) and health and fitness interested people (28%). As primary users, physicians are targeted by 14% of app developers.

The “Other” category includes nurses (2%) and health insurers (2%) as well as still different, but significantly smaller target groups.

## *research2guidance 7: Fitness and medical reference apps are the largest mHealth app categories*

mHealth app category share



Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

The preferred mobile operating platforms for mHealth app publishers today are Android (83%) and iOS (81%). All other platforms are far behind. The importance of the second tier platforms like WindowsPhone and HTML5 is significantly higher among Wannabes. 51% and 45% of future app publishers plan to release mHealth apps for WindowsPhone or HTML5.

Today's/future mHealth app publishers select their mobile operating platform on basis of their reach within the target group (67%/63%). The second most important selection criteria is the availability of devices and sensors to be connected to an app (42%/56%).









In the much diversified landscape of mHealth app publishers, there are six groups which stand out in terms of their goals and market approaches.

1. **Traditional healthcare players:** This group includes Pharma, hospitals, health insurances and Med-tech companies, representing 3.4% of the total number of app publishers. They usually belong to the mHealth app publishers with > 5,000 employees. Their primary objective is to raise brand awareness. They have published the largest number of mHealth apps, but average reach in terms of downloads is far below the average. App publishers from this group are so far the least satisfied with the achievements in the mHealth app market. The usage of tools and APIs to improve the efficiency of the app development process and app monitoring as well as the value of the app is below its competitors.
2. **App specialists:** App specialists are small companies with typically 3-10 employees. They have entered the mHealth app market to benefit from the revenue potential. They have an app developer background and are familiar with the available development tools. The medical experts' share on board is the lowest of all the

groups under consideration (40%). This group represents 14% of the total mHealth app publisher community.

3. **Helper:** Helpers are companies or individuals with the primary motivation of publishing mHealth apps in order to help others. Revenue generation is a minor factor. In terms of goal achievement, Helpers outdo all the other groups and sometimes even state to have over-achieved their goals. Helpers are typically small companies of 3-10 employees. They represent 32% of the market. Their download profile shows the highest share of companies (61%) which attracted less than 5,000 downloads last year.
4. **Medical specialists:** Medical specialists leverage their medical know-how to develop mobile apps. Similar to the Helper group, Medical specialists have large share of members who publish apps to help others. Usually by now, they have partly reached their goals. They have the highest share of companies that made more than USD 1m with their mHealth app portfolio. They represent 20% of the market.
5. **Fitness specialists:** This group of app developers represents around 10% of the total mHealth app developer community. They primarily develop fitness apps with a clear objective to generate revenue. They connect more often to medical databases and sensors and their use of app development tools is above average. The typical company size is 11-100 employees.
6. **Connectors:** This group of mHealth app publishers represents 18% of the total mHealth app developer community. Their strategy is to create value-rich apps by enabling connection to other apps, sensors and databases. This group generates the highest average revenue and has the highest achievement level of their goals.

*research2guidance 8: Established healthcare players have not found their role yet in the mHealth app market*

	Establ. Health Players	App Specialists	Helpers	Medical Specialists	Fitness Specialists	Connectors
Percentage of total %	3,4%	14,3%	32,3%	20,2%	10,2%	18,0%
Goal of apps 	Brand awareness	Revenue	Help people	Help people	Revenue	Revenue
Goals achieved 	mainly not	partly	mainly yes	partly	mainly yes	mainly yes
# of mHealth apps # 	13.5	7.4	7.5	10.7	11.3	11.3
Downloads (<5k/ >1m) 	43.3% / 6.7%	60.1% / 6.4%	61.2% / 5.8%	58.6% / 6.3%	44.6% / 7.4%	53.1% / 7.7%
Revenues (0/ >1m) \$	67%/ 3.2%	25.7%/ 7.8%	51.4%/ 5.1%	42.7%/ 9.1%	39.4%/ 7.4%	39.0%/ 8.9%
APIs usage 	low	average	average	average	high	all
Tool usage 	low	high	average	average	high	Very heavy
Medical expert in team + 	57,6%	40,1%	47,5%	100%	43,7%	49,7%
Typical company size 	5,000+	3-10	3-10	3-10	11-100	11-100

Comments: Downloads and revenue in 2013; Download numbers refer to a) less than 5,000 downloads b) more than 1 million downloads in 2013 across all platforms; API usage includes APIs that provide access to medical info, personal health data, medical devices and Health&Fitness tracking devices; Tool usage includes tools supporting app analytics, cross platform development, storage, test, ads and social network integration  
Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

All mHealth app developer groups have similar platform preferences with iOS being the number one platform and Android the second ranked. Connectors and Medical Specialists have the highest platform preference for iOS (62%). Fitness and App Specialists have the highest share of companies which choose Android as the primary app platform (34% and 32%).

Established Healthcare Players have the highest share with a WindowsPhone preference (13%).

It seems that traditional healthcare players put a lot of effort into the mHealth app business, but have not found the right strategy yet. If they did, it would accelerate the market's development, or as a survey participant puts it: *"I feel if there were more corporate involvement in these apps that more people could be reached out to"* Survey Participant

## Lessons from successful mHealth app publishers

Given the diverse set of goals mHealth app publishers pursue, success could be defined in many ways.

In this chapter, successful mHealth health publishing is perceived from the revenue perspective. The question is: What do mHealth app publishers who are economically successful do differently as compared with those who are not?

Economically successful publishers are defined as companies which have generated more than USD 1m revenue in 2013 (Millionaires). They are juxtaposed with Low Earners who earned less than USD 10,000 and Zero Earners with no income generated in the last year.

There are six areas where Millionaires show significant deviations. These have been the distinguishing factors based on the survey results:

1. The size of the mHealth app portfolio
2. The preferred revenue model
3. The number of years in the market
4. The current use intensity of tools
5. The current and planned usage of medical databases and devices (APIs)
6. The platform preference

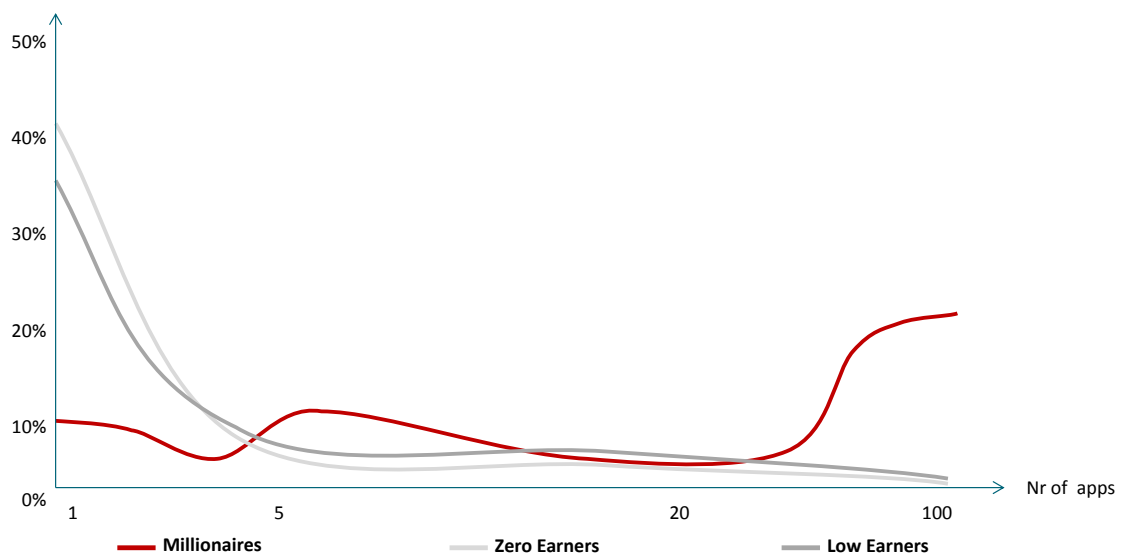
Millionaires have a significantly higher share of app publishers with a considerable app portfolio. 35% of Millionaires have released more than 20 mHealth apps. In contrast, Low & Zero Earners focus on one or two apps.

The analysis also shows that within the group of Millionaires a single-app strategy is not the preferred approach. A larger app portfolio offers relatively larger cross selling potential and helps companies balance the risks in case of unsatisfactory performance of an individual app/s. As a result, such a company can better care for the overall economic performance of its mHealth app portfolio.



## research2guidance 9: 37% of Millionaires have published more than 20 mHealth apps

Number of mHealth apps published by a revenue group



Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

*“Millionaires have Service Sales as their primary source of revenue. Low Earners bet on PaidDownloads.”*

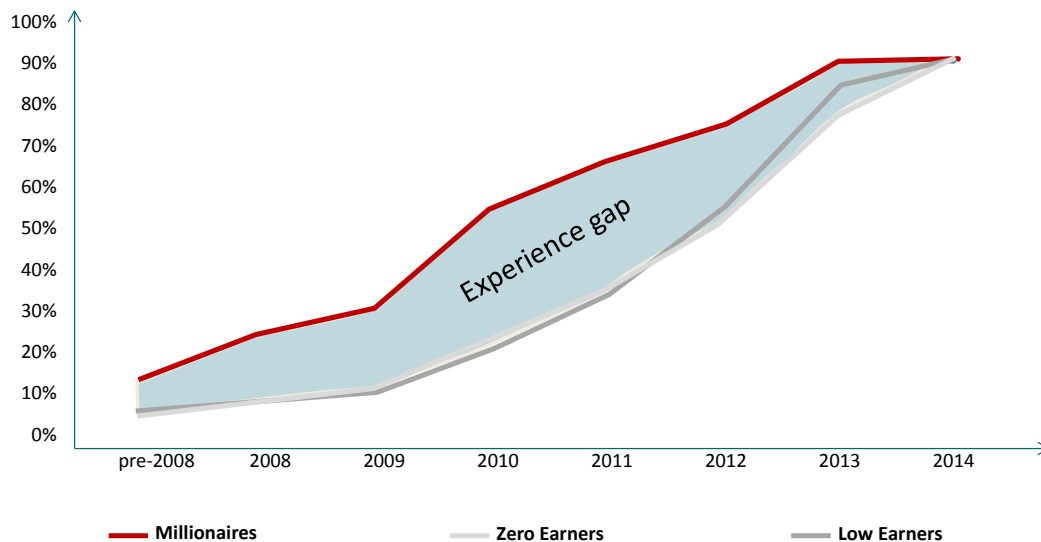
Low & Zero Earners.

Millionaires also differ in their business model preference. As much as 35% of Millionaires state that their top revenue source are Service Sales. On the other hand, 31% of Low Earners state that their 1<sup>st</sup> rank revenue source are Paid Downloads.

The time span an app publisher has been active in the mHealth industry also shows significant variations between the groups. More than 60% of the economically successful publishers have released their 1<sup>st</sup> mHealth app before 2010- within two years after Apple's App Store launch. In contrast, this share is only 20% in the group of

## research2guidance 10: 60% of Millionaires have published their 1st app in 2010 or earlier

Year of the 1<sup>st</sup> mHealth app release by a revenue group



Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

In fact, Millionaires have been involved in mHealth app publishing for 3.9 years on average, whereas Low & Zero Earners for 2.4 and 2.2 years respectively.

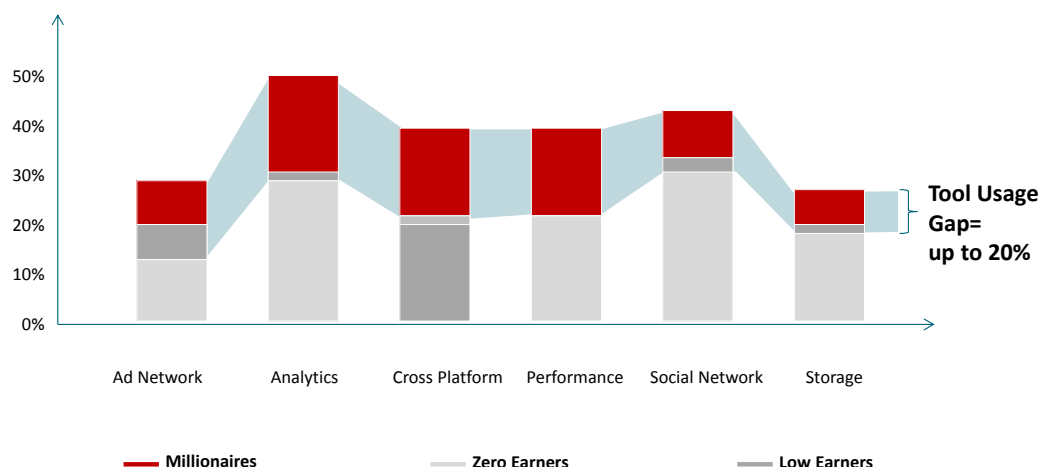
*“Experience pays off: Millionaires are nearly twice as long in the market as Low Earners.”*

Millionaires also make more use of tools to support development, performance monitoring and monetisation of their apps. These tools include Ad Network (e.g. Admob, inMobi, Apple), Analytics (e.g. Flurry, Distimo, Localytics), Cross Platform (e.g. Marmalade, Unity, Adobe AIR), Performance (e.g. Crashlytics, Testflight, Hockeyapp), Social Network (e.g. Facebook, Twitter) and Storage tools (e.g. Dropbox, Box, Google Drive).

The gap is largest in the category of Analytics and Cross Platform tools. In contrast to 30% of Low & Zero Earners, more than 50% of Millionaires track app performance. Tools that support multi-platform app development are being used by 40% of the Millionaires and by approximately 20% of Low & Zero Earners.

## research2guidance 11: Millionaires make more use of tools/SDKs- especially Analytics

Tools/SDKs used by a revenue group



Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

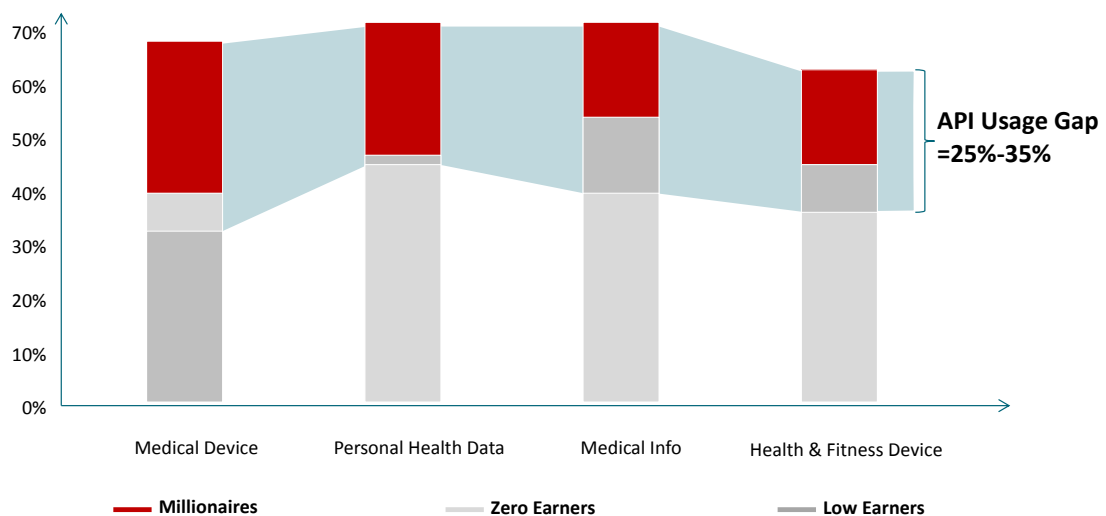
The gaps in use levels are getting even more noticeable with regards to the way publishers connect/plan to connect to medical databases, devices and apps via APIs.

There are four groups of APIs that companies make use of at a different level:

- Medical info APIs: APIs that provide access to general health information databases for e.g. drug, food, disease, device information (MyNetDiary Food Search, FatSecret)
- Personal health data APIs: APIs that provide access to personal health databases e.g. calorie intake, steps, weight, blood pressure (MyFitnessPal, Withings)
- Medical device APIs: APIs that provide access to a medical device of a third-party vendor e.g. glucometer, blood pressure monitor (Accu Check, Freestyle, Withings)
- Health & fitness tracking device APIs: APIs that provide access to health tracking devices of a third-party vendor e.g. heart rate monitoring belts, step tracking bracelets, scales (Fitbit, iHealth)

## research2guidance 12: Millionaires make or will make more use of APIs

API categories today's usage or planned usage by a revenue group



Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

Millionaires outdo Zero & Low Earners across all the categories of APIs. The API Usage Gap between Millionaires and Low/Zero Earners is considerable- at the level of 25%-35%. On the other hand, the use gaps between Low & Zero Earners themselves are not more than 10%.

The significantly higher tool and API usage by Millionaires might be a consequence of the larger app portfolio and longer “time in market”. Given that Millionaires tend to manage more apps, they attach greater importance to efficient development and management of the apps. All of these tools and APIs have to be identified and mastered, which for these reasons is a considerably time-consuming process. See a report on [Cross Platform App Development Tools](#) to get a detailed analysis on e.g. Cross Platform tools’ performance, familiarisation time and user ratings.

*“Millionaires preference for iOS over Android is more than twice as high as compared with Low Earners.”*

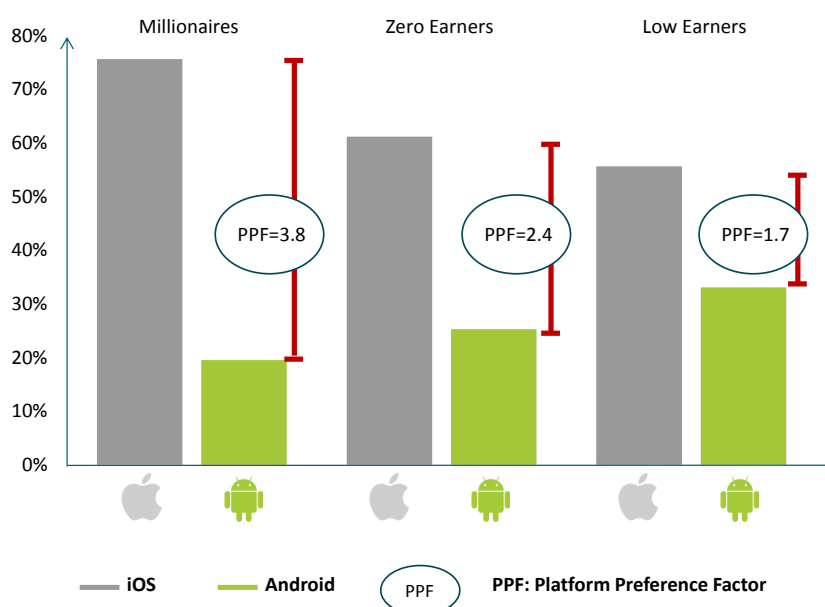
However, higher tool and API usage is not the silver bullet for commercially successful mHealth apps publishing, it is simply another important piece of a puzzle.

Millionaires have also a higher preference for iOS compared (75%) to Android (20%) as their primary mobile platform choice. Their platform preference for iOS is more than twice as high as the iOS platform preference of Low Earners (3.8 versus 1.7).

Other mobile platforms like WindowsPhone or BlackBerry are chosen by an insignificant share of publishers.

*research2guidance 13: Millionaires have a stronger focus on iOS compared to other mHealth app publisher groups*

**Mobile platform 1<sup>st</sup> preference by given revenue group**



Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

Having iOS as the leading app platform to reach commercial goals, pays off. Despite Android's impressive market share gains, iOS still offers better revenue potential for mHealth app publishing.

## The connected elite

71% of mHealth apps connect or plan to connect to an API<sup>2</sup> in order to import or export health data and in such a way to enrich the customer value of their apps.

APIs provide access to general health information databases for e.g. drug, food, disease, device information (Medical info APIs), personal health databases e.g. calorie intake, steps, weight (Personal health data APIs), access to a medical device of a third-party vendor e.g. glucometer, blood pressure monitor (Medical device APIs) and access to health tracking devices of a third-party vendor e.g. heart rate monitoring belts, step tracking bracelets (Health&fitness tracking device APIs).

*“The importance of aggregated patient data could be the difference in life and death, or simply a better outcome quicker.” Survey Participant*

Currently the majority of mHealth apps connect to one or two of these APIs only. However, there is also a Connected Elite<sup>3</sup> with a perceived strategy of connecting their apps and sensors to as many mHealth APIs as possible.

There are a few dozen of mHealth app publishers and sensor vendors who opened their APIs to allow the exchange of collected data e.g. steps, calories, mood or weight.

Some apps offer to connect to more than 30 other apps. By allowing the user to automatically synchronize the app with a competitor’s app/database, eventually these app publishers increase the amount of data the app can handle, thus increasing the apps’ value for users and doctors who the information is shared with.

By opening up their APIs, such publishers can concentrate on their core value propositions (e.g. weight loss support by incorporating diet plans and high quality food recognition tools) and outsource the rest. In such a way, Connected Elite publishers can create a greater value for the user and gain a substantial competitive advantage over rivals.

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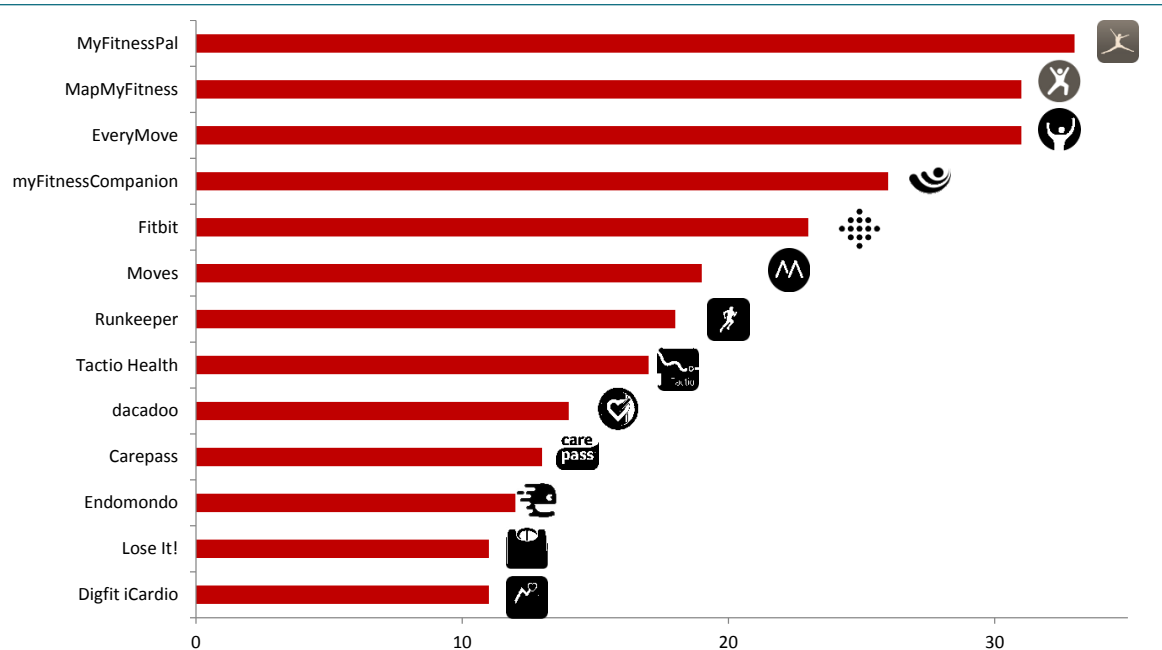
<sup>2</sup> Application Programming Interface

<sup>3</sup> Connected Elite partner quantification was based by the inclusion of those app publishers/sensor vendors with which a given app/products connect by other technology than Bluetooth or ANT+. In addition, devices such as smart watches are not included in the analysis as these devices render their max. performance, regardless of whether they are connected to a mobile app.



## research2guidance 14: App publishers connect to automate data input for their users

No. of connected app publishers & sensor vendors by an app



Source: research2guidance and app & vendor data (March 2014)

*“mHealth sensors, some of them, will become as normal as a thermometer.”*

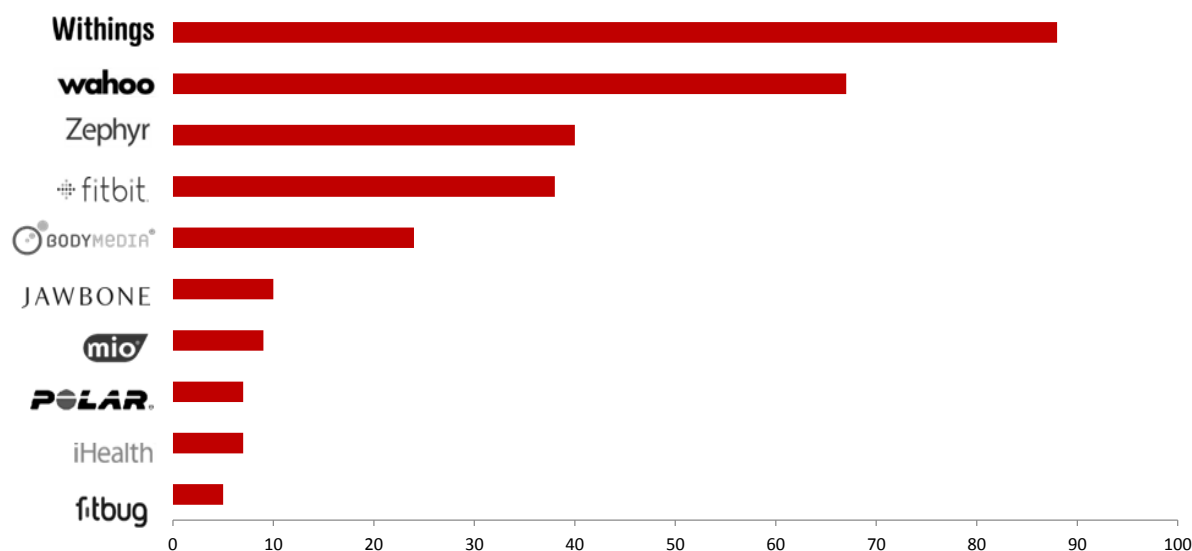
*Survey Participant /NovoWave*

The logic behind sensor vendors who allow other app publishers to import the measured data is clear: each connected app brings more potential sensor users.

Withings and Wahoo are the leading sensor vendors with more than 90 and 70 app connections.

*research2guidance 15: By connecting to as many apps as possible, sensor vendors drive sales of their devices*

Number of app connections per sensor vendor



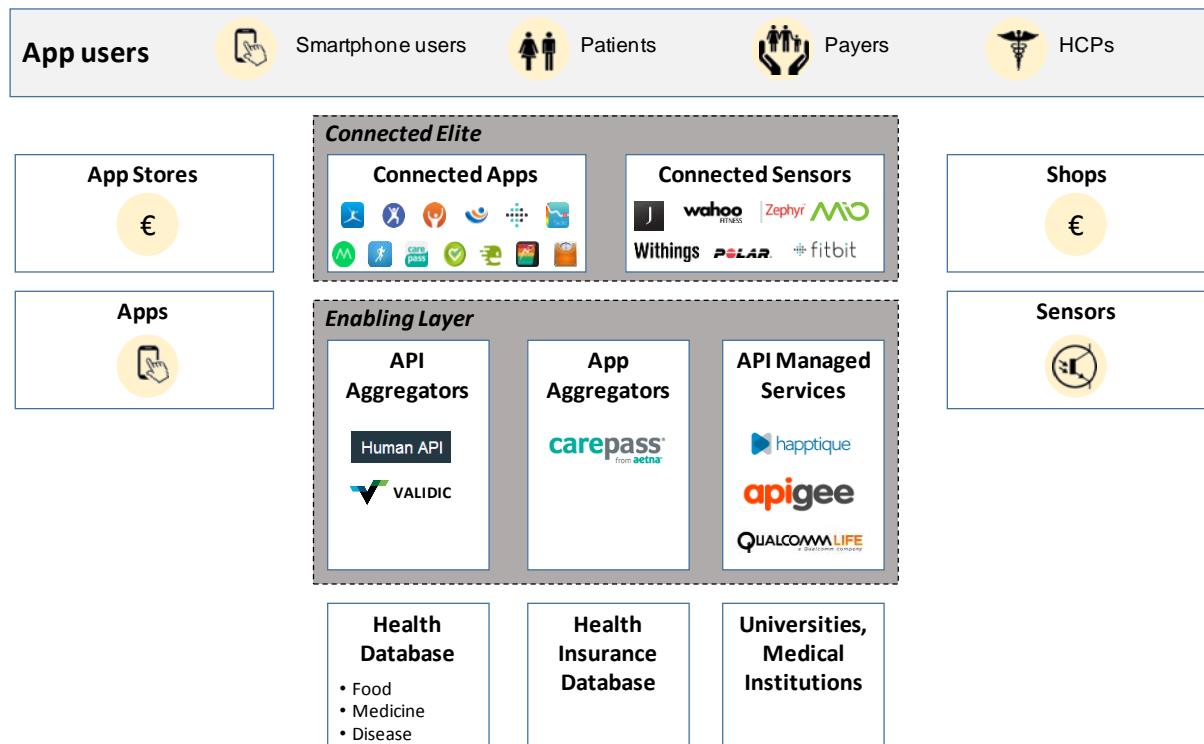
Source: research2guidance and app & vendor data (March 2014)

*“Apps will not be so stand alone as they are, but will integrate across a variety of devices and platforms to make access and information capture easier.”*

*Survey Participant/  
healthstartup.eu*

This “get connected” trend of the “inner circle” of app publishers and sensor vendors is being fuelled by a new layer of companies which enable and facilitate app-app or app-sensor connections. These companies provide “one stop connecting” models for health data API (API aggregators). App aggregators allow for the collection of mHealth apps in one place. API Managed Service players provide the technical infrastructure to facilitate the connection of apps, sensors and medical databases.

*research2guidance 16: The new layer of companies which drive interoperability and health data aggregation*



This development will lead to an explosion of health and fitness data collected by an increasing number of app and sensor users.

Three different categories of vital parameters are captured today.

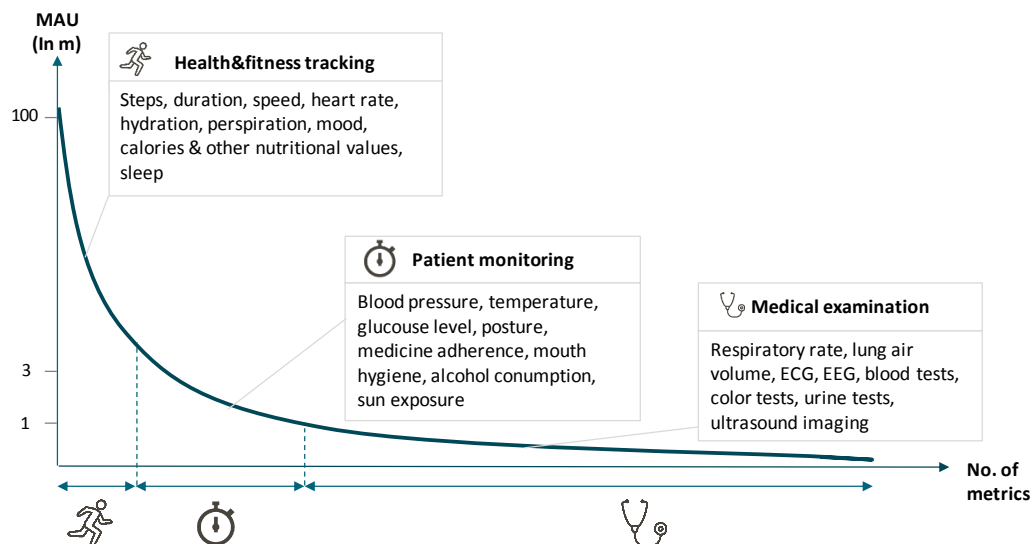
1. **Health & fitness tracking data:** The majority of today's metrics are activity and weight information like steps, kg/pounds and calories. The Connected Elite is focuses on these measures.
2. **Patient monitoring data:** The second category of vital signs belongs to apps which support the continuous management of a chronic condition. Apps which support this group of use cases allow for storage of a much broader range of different metrics such as vital signs such as blood pressure, blood oxygen, blood glucose and brain waves, but have a substantially lower app user adoption
3. **Medical examination data:** The third category of vital signs is related to medical examinations. Patients/doctors capture the data with the help of an app or a sensor on a case by case basis. The number of different vital signs which fall into this category is much more extensive than those of the first two groups, but user adoption is much lower. Examples or vital signs and examinations in this group are respiratory rate, lung air volume, ECG, EEG, blood tests, colour tests, urine tests and ultrasound imaging.

The first group has the highest number of users who actively track vital signs and the lowest number of parameters. In contrast, the third group has the lowest number of users and the highest number of collected parameters.

The estimated number of monthly active users who track at least one Health & fitness parameter is 100m.

*research2guidance 17: Up to 100m vital metrics are being collected regularly*

#### mHealth measures by Monthly Active Users



Source: research2guidance  
MAU: Monthly active users that track health parameters

The biometric data points of the second group i.e. Patient Monitoring is tracked by about 5m users (max.). Medical Examination data points are tracked even less people, nevertheless, up to 1m users are estimated to use apps for measuring any of the Medical Examination related metrics. This means that already today app users collect several hundred million of vital parameters per month. A growing share of this data is aggregated by the Connected Elite and by the new layer of the mHealth industry which enables “interconnectedness”. If there will be a new “Facebook” for the healthcare industry, it will evolve from either of these two groups.

## Outlook: What will be in 5 years time

Before looking ahead what will happen in the next 5 years, it is worthwhile to look back to where the market started 5 years ago.

In 2009 smartphones are just starting to play a role in the global mobile phones market. Only 13 % of all handsets shipped in Q1 2009 are smartphones. The vast majority of mobile phones that are purchased in this quarter are simple/feature phones such as Nokia's 63 series handsets. The most dominant mobile operating system for smartphones at that time is Symbian with an almost 50% market share (shipments)<sup>4</sup>. iPad is to be launched only one year later.

Today Google and Apple dominate the operating systems market for mobile phones. The formerly leading market player Nokia and its operating system Symbian have been sold or disappeared altogether from the market. Smartphone shipments are projected to reach USD 1.2bn in 2014<sup>5</sup>. This means that smartphones have become the global, No.1 connected device and, in addition, even tablets are sold more than laptops.

The app market is developing with exceptional speed - 15 times faster than the growth rate of stationary internet users<sup>6</sup>.

What does this mean for the mHealth app market and its potential impact on the delivery of healthcare in 2019? First of all, with a few exceptions in developing regions (e.g. some in Africa) almost everybody in the world will have a device which could be targeted with an mHealth solution.

The likelihood that soon doctors and patients will meet in the doctor's office to talk about apps which could support medical treatments is very high, given the high penetration rate of smartphones and tablets among doctors and the interest app users/patients show in mHealth apps<sup>7</sup>. It also means that not only will new players such as sensor vendors or mHealth data aggregators enter the healthcare market, but also that they will become the dominant participants. Traditional healthcare players need to understand what impact e.g. health API and data aggregators will have on their business models. A clear understanding of the growing connected mHealth app market is indispensable for those traditional healthcare players who do not wish to be left out from the new ecosystem.

*"I have been in this space since 2005 and every year people say "this year mHealth app will boom". I am still waiting."*

*Survey Participant/  
myFitnessCompanion*

Finally, even though there are and will be good arguments that mHealth apps will not have a big impact on the way healthcare is delivered given the high resistance by traditional healthcare players, consumers will set the pace and the market will need to follow.

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<sup>4</sup> Gartner

<sup>5</sup> IDC

<sup>6</sup> research2guidance, Bitkom, Worldwide-Datas

<sup>7</sup> Various studies report penetration rates of smartphones and tablets among doctors of more than 90% (USA, UK)

The outlook for the mHealth app market highlights eight trends which will shape the next five years:

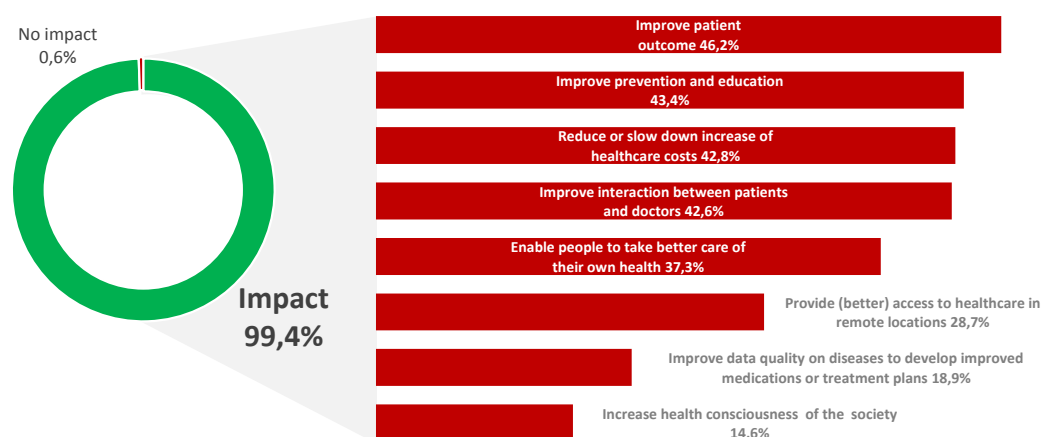
1. The areas in which mHealth apps will have the biggest impact on the delivery of healthcare
2. The drivers and barriers that will be most relevant
3. The most relevant target devices for mHealth apps
4. The mobile platforms which will be the most relevant for mHealth app publishers
5. The most promising mHealth app categories
6. The biggest cost lever mHealth apps will have on today's healthcare costs
7. The major chronic conditions which offer the biggest business potential for mHealth app publishers
8. The most relevant distribution channels

*"For a more detailed market analysis, please contact us. There is more to say."*

The vast majority of mHealth app publishers today think that apps will have a significant impact on the healthcare industry. This impact goes much further than pure revenue generation opportunity.

*research2guidance 18: mHealth apps will have an impact on how healthcare is going to be delivered*

mHealth app impact on healthcare in the next 5 years



Source: research2guidance mHealth App Developer Economics survey 2014, n= 2032

Five areas stand out as those which are predicted to have the greatest impact on healthcare. Quality benefits such as improved outcomes of treatments (46.2%) and self-care of people (43.4%) are seen as the top two domains on which mHealth apps will have a significant impact. Besides, mHealth is believed to slow down the increase of healthcare costs (42.8%), improve interaction between patients and doctors (42.6%) and, last but not least, enable patients to take better care of their own health (37.3%).



*“mHealth will reduce labour costs by e.g. increased outsourcing via apps that provide access to remote consultation & diagnostics in low labour cost countries.”*

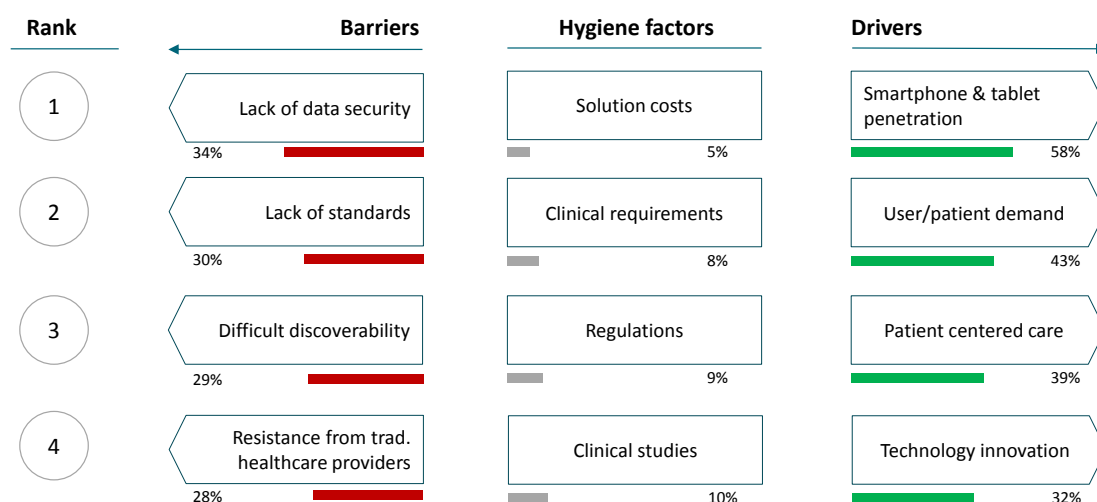
*Survey Participant*

Impact, however, is not going to take place without relevant drivers which are indispensable to trigger the changes. User and patient demand are the most important driver (43%), only second to the omnipresence of devices capable of running mHealth apps (58%). The rise of mHealth apps goes hand in hand with the upcoming of patient-centered care models (39%) which they, among others, rely on. Apps are supposed to empower patients to take a more active role in their treatment process.

On the other hand, the potential of the mHealth app market faces many obstacles. Lack of data security (34%) and standards (30%) are the major barriers market players see as those which might prevent a market momentum.

*research2guidance 19: Device penetration and user/patient demand will be the main driver for the mHealth app market the next 5 years*

Barriers, hygiene factors and drivers of the mHealth app market by rank in the next 5 years



Source: research2guidance mHealth App Developer Economics survey 2014, n= 2032

Lack of quality clinical studies or a clear regulatory framework, specific clinical requirements (e.g. sterilisation of devices) and app development costs are perceived as neither major barriers nor major mHealth market drivers.

The fact that clinical studies are rated relatively low in relevance is surprising as traditional payers in the healthcare system constantly emphasize that they need better clinical studies. They stress that they need studies run with more participants, conducted over longer time periods and ones which include cost-saving parameters. That would allow them to reimburse mHealth apps. On the one hand, mHealth app publishers are also somehow indifferent to

the existence of a regulatory framework. This is reflected by the fact that 47% of mHealth app publishers do not have a clear view on whether or not the mHealth guidelines published by the FDA last year constitute a comprehensive framework for the mHealth industry.

On the other hand, uncertainty about the regulatory impact is stated by 24% of the non-publishers as the main reason which prevents them from entering the mHealth app market.

*“If you want FDA approval for your app, how can you achieve this with Android OS upgrades at least 3 times a year? How can you be FDA compliant with the latest platforms? FDA is so slow and not suitable for mobile apps!”*

*Survey Participant*

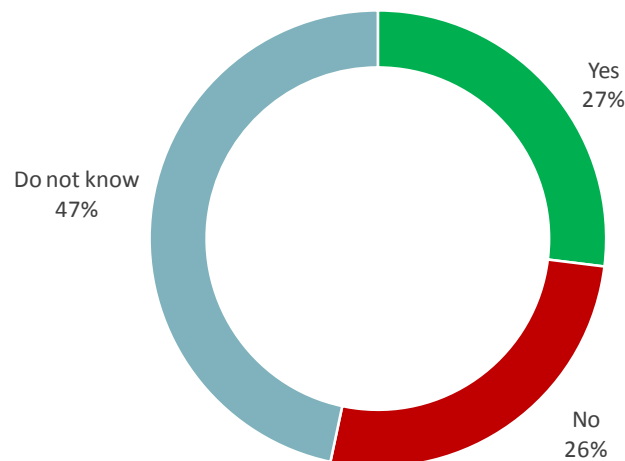
It is difficult to imagine that the need to include patient protection layers into the mHealth app market implemented with regulatory authority approval processes and the high innovation rate of the mHealth app market with quarterly app updates will work hand in hand in the future.

mHealth app publishers already today reduce the list of features in attempt not to have their solution classified as a “medical device”. Other publishers avoid regulatory framework by using old and propriety solutions that have passed regulations already.

## research2guidance 20: Only 27% of mHealth app publishers rate FDA guidelines to be comprehensive and guiding.

### Guidance from FDA

The FDA recently published guidelines for mHealth apps. Do you think that these guidelines now give the mHealth app market a comprehensive regulatory framework?



Source: research2guidance mHealth App Developer Economics survey 2014, n= 2032

Costs are seen as neither a barrier nor a driver of the market by the vast majority of the market players. mHealth apps which are not to be classified as “medical devices” could be

*“The mindset of healthcare professionals is the main barrier to overcome - to move the “power” from the professionals to the patients.”*

*Survey Participant*

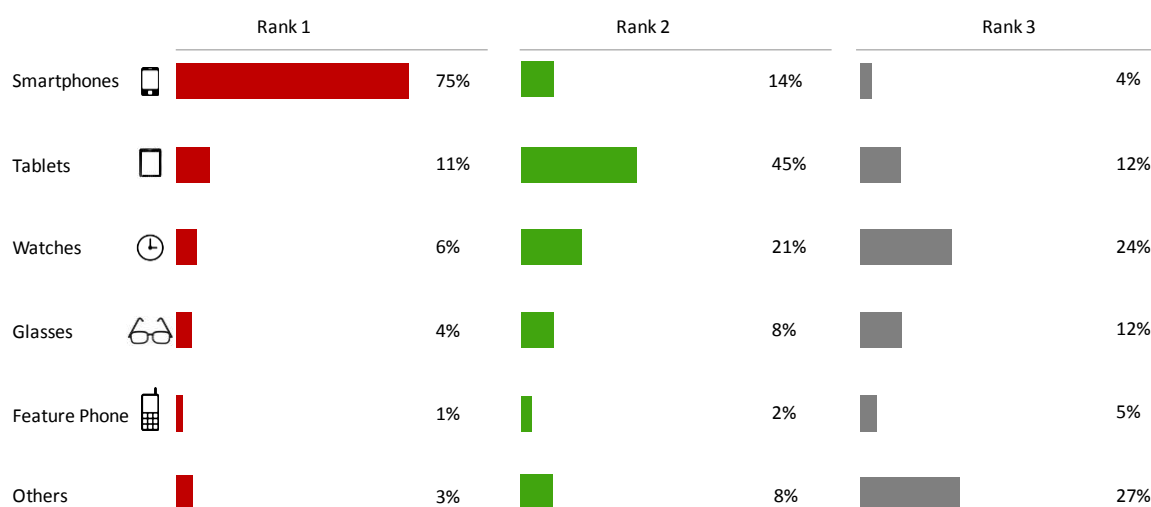
developed in just a few hours or days using app factories with existing templates for simple health use cases (e.g. MobileSmith). Still, mHealth app publishers report budgets for a single mHealth app project starting from USD 20,000 to USD 50,000 on average. There are apps out there which cost much more and the total app budget also increases with the number of platforms an app is to be delivered. Still app development costs seem not to be a relevant factor which will drive/inhibit the market’s development in the next five years.

mHealth app developers have clear preference for devices which they will target in the next 5 years. Smartphones are the main target devices for mHealth apps. Since 2010 they are constantly ranked as a

device which offers the best business potential. This year 75% of mHealth app publishers have assigned the top position to smartphones. The second most relevant device category is attributed to tablets (45% for rank 2). Smart watches, which offer only limited functionalities for health services today, are the third most promising device for the next five years (24% for rank 3).

## research2guidance 21: Smartphones are the primary device for mHealth apps

Devices with highest business potential for mHealth app by rank in 5 years



Comment: Do not sum up to 100% as not all participants provided answers for the rank 2+3  
Source: research2guidance mHealth App Developer Economics survey 2014, n=2032

*“The democratisation of availability of medical sensors and their integration with phones and tablets will make mHealth a de facto platform for DIY healthcare.”*

Survey Participant

Those devices will act as a displaying, analysing and communication hub for the growing number of sensors which will automate the data input for health and fitness apps. Nowadays, there exist six different types of sensors: wearable, build into the device, plugged into the device, implantable, ingestible and sensors that could be placed on the skin.

Wearable sensors (77%) and built-in sensors (61%) have the highest business potential the next five years. This goes hand in hand with the strategies of companies like Apple, Google and Samsung which incorporate more and more sensors into their devices or launch new wearable sensors. Sensors can have a tremendous impact on the mHealth industry and on how patients track their vital data in the future. As survey respondent envisions: *“Someday we will all be walking around with sensors on our skin or in our bodies that will be transmitting vital information to our mobile devices, perhaps to a HUD display on a future version of Google glasses alerting us when our heart beat, blood sugar or other bodily functions are abnormal.”*

Android and iOS are the dominant mobile platforms for which mHealth app developers will continue developing their apps in the next 5 years. Both platforms offer by far the highest business potential for mHealth solutions.

BlackBerry has seen a tremendous decline in mHealth app publishers' confidence. In 2010 42% of mHealth app publishers declared that BlackBerry has a significant future business potential. Since then, BlackBerry has experienced a tremendous decline in publishers' confidence, this share of more than 40% has shrunk to 5 % within the period of 2 years only.

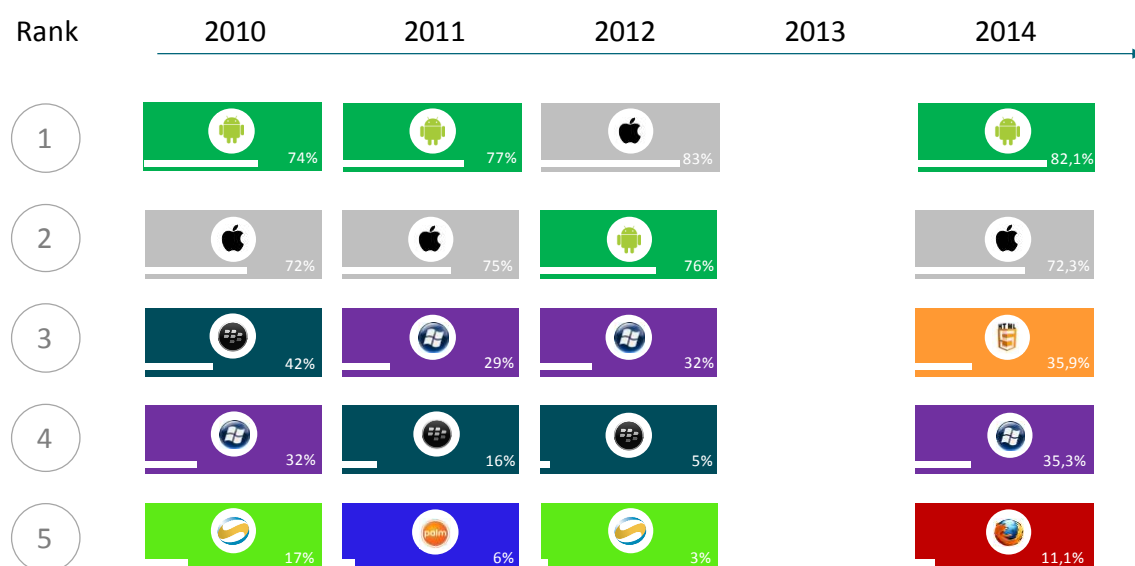
*“mHealth has the enormous potential to be a bottom up revolution. It is invented by the patients demanding tools to manage themselves.”*

*Survey Participant*

Recently mHealth app publishers have demonstrated increased confidence in HTML5. In this year’s survey, 35% of mHealth app publishers rate the future business potential of HTML5 as “high”. This is surprising, because HTML 5 has been hyped in the app market especially in the initial years of the app market and one would expect to have had this optimistic view also reflected in the previous editions of the survey.

## *research2guidance 22: Android and iOS remain the top ranked operating systems for mHealth app publishers*

Mobile operating systems with highest business potential for mHealth app by rank in 5 years



Source: research2guidance mHealth App Developer Economics survey 2010, 2011, 2012 and 2014, n= 2032

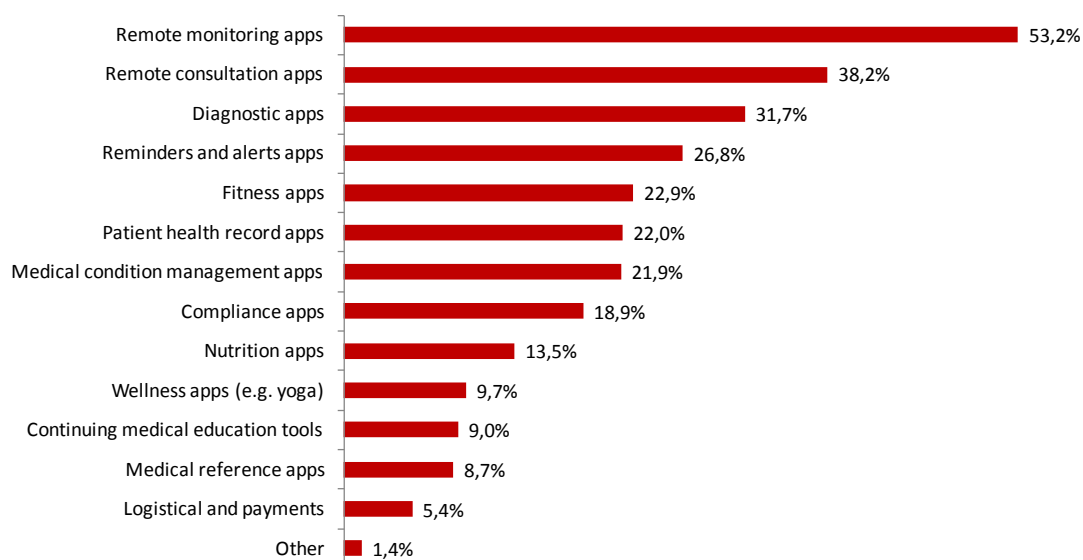
Although today remote monitoring and consultation apps represent only a small share of the available mHealth apps, their future business potential is rated as the highest in terms of app category.

The assumption behind this positive outlook for these two app categories is supposedly that by 2019 these mHealth apps will have become an integrated part of the healthcare delivery.

Fitness apps which today constitute an app category which offers the highest business potential for mHealth app publishers are believed to diminish in their relative importance. In five years they are expected to no longer be the top app category and in terms of business potential are expected to be on the 5<sup>th</sup> position (22.9%).

## research2guidance 23: Remote monitoring apps have the biggest market potential of all mHealth app categories in the next 5 years

mHealth app category business potential in the next 5 years



Source: research2guidance mHealth App Developer Economics survey 2014, n= 2032

High confidence for remote monitoring (58.2%) and consultation (38.2%) apps is in line with cost and quality benefits mHealth apps are believed to offer with regards to patient treatment.

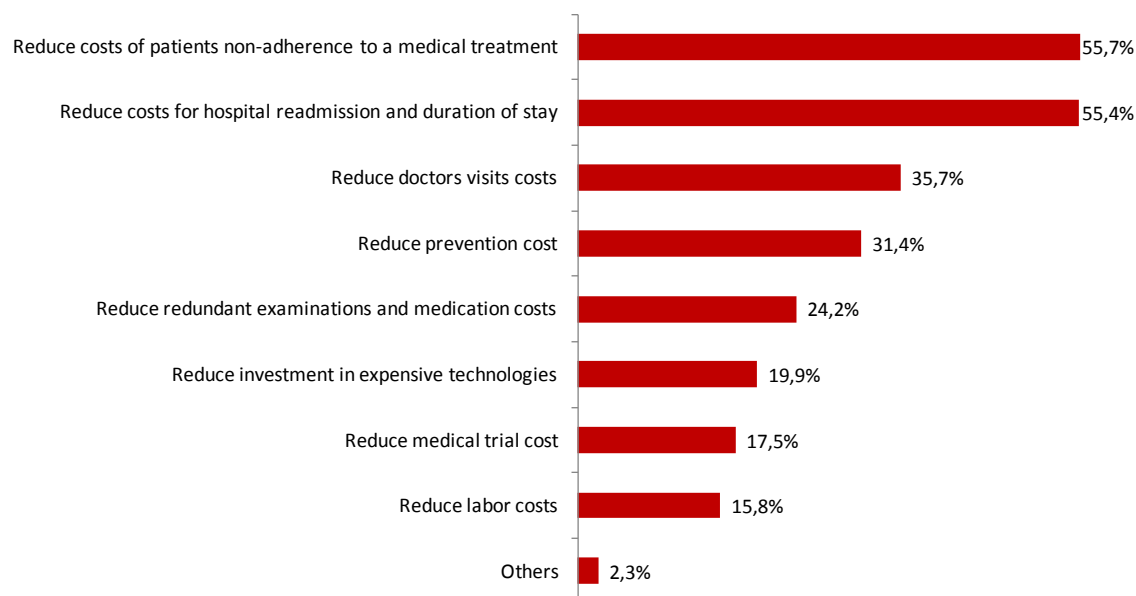
*“Until the telemedicine services are reimbursed by public healthcare systems, in my opinion the only mass market application for mHealth can be related to wellness and fitness.”*  
Survey Participant

Business potential might be realized in two ways: by generating increased revenue or by lowering the existing costs which would result in increased savings. mHealth apps’ impact on these costs is not going to be evenly distributed. The highest positive impact on costs are going to be realized thanks to a reduction of patients’ non-adherence (55.7%) and hospital stay costs (55.4%). This positive expectation rests largely on the ability of apps (with and without the help of a sensor) to continuously track, analyse, remind, display and share health parameters with a doctor who no longer needs to be consulted in person for these reasons. These app features could be largely attributed to the two app categories with the highest future

business potential.

## research2guidance 24: mHealth apps will have the biggest cost benefit on non-adherence and hospital readmission

### Biggest positive impact on healthcare cost drivers



Source: research2guidance mHealth App Developer Economics survey 2014, n= 2032

As shown in the previous chapter, patients with chronic health conditions are seen as one of the main target groups by mHealth app developers.

*“I think mHealth apps will become the new normal way of care management and self monitoring at least in the prevention field and the chronic diseases management.”*

Survey

Participant/Verizon

Amongst these, diabetics have remained the patient group that offers the highest business potential. Since the first edition of the mHealth App Developer Economics study in 2010, apps which support e.g. glucose level and insulin tracking have consistently been rated as the number one app category for chronic disease management.

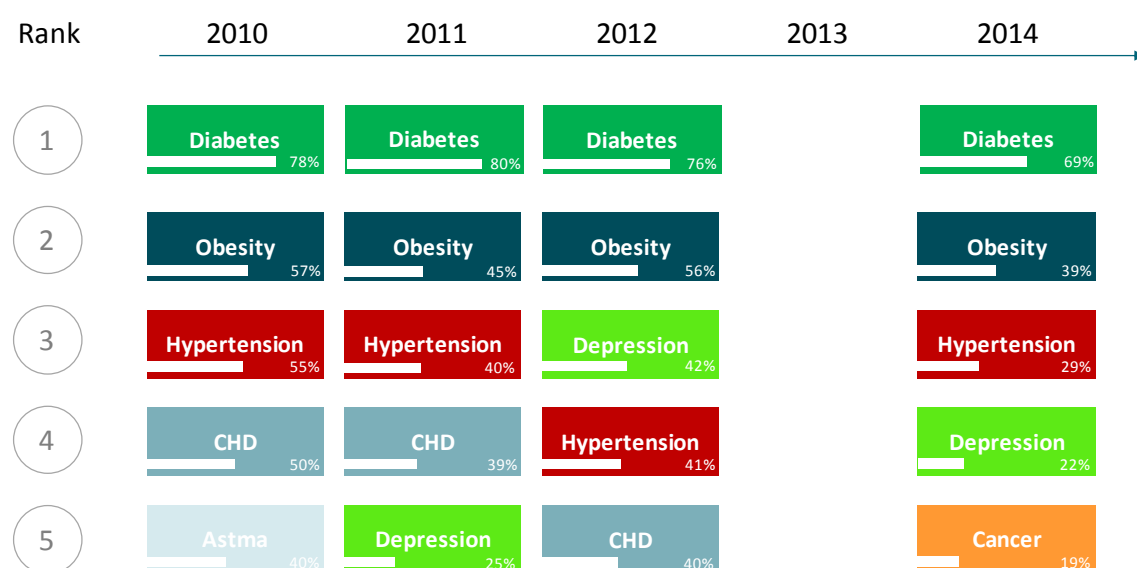
This positive expectation for apps that support diabetics is one of the reasons which made app developers publish more than 1,100 diabetes apps for iOS and Android devices.

Today's market reality has not matched this positive outlook yet. Only 1.2% of the addressable diabetics worldwide (diabetics who have a capable device) use an app to manage their condition

([Diabetes App Market Report 2014](#)). The reasons for such a low participation rate are the costs of connected devices (these could easily be 5 times higher than for a normal glucose reader) and the fact that the majority of diabetes apps are not compliant with diabetes-specific mobile app standards ([best practise standards for diabetes apps](#)).

## research2guidance 25: Diabetes and Obesity remain the top ranked therapeutic areas by mHealth app publishers

Business potential of different therapeutic areas for mHealth app by rank in 5 years



Source: research2guidance mHealth App Developer Economics survey 2010, 2011, 2012 and 2014, n= 2032  
CHD refers to coronary heart disease

*“Yes. As more studies show that apps can serve as effective means of improving patient outcomes, apps will eventually will be prescribed like a drug.”*

**Survey Participant**

Smartphone has become the most widespread connected device which accompanies its owner 24 hours, seven days a week. It has already changed the way we consume media, play games and communicate. It is not surprising that mHealth app publishers are convinced that smartphones in conjunction with their apps could prompt behavioural changes of patients who suffer from conditions such as obesity, hypertension, depression or coronary heart disease and therefore help them cope with the disease. These chronic conditions have been ranked high for their business potential in the future since the very first mHealth App Developer Economics survey was run.

Traditional healthcare players like physicians and hospitals will become the most relevant distribution channel for mHealth apps in the next five years. The underlying assumption is again that within

this timeframe mHealth apps will have made it to become well integrated into the healthcare processes. Technology providers like Happtique are seizing opportunity in this new channel by providing cloud services to list, discover, prescribe and bill mHealth apps.

This optimistic attitude has been confirmed over the years again and again although so far it has not yet become the reality.

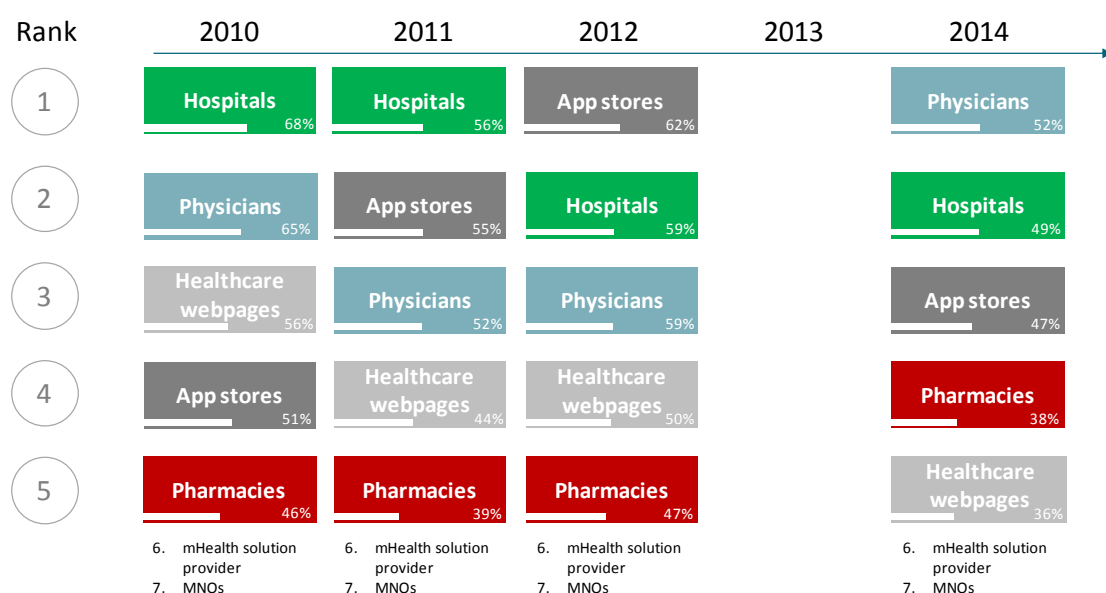
App stores still play a dominant role in the discovery and download of mHealth apps today. While their ranking as the most relevant distribution channel for mHealth apps has fluctuated over the course of the last years, they have always remained in the top five. Beside the app stores from Apple, Google and other generalists, there are more and more



purely mHealth dedicated app stores like myHealthapps and App RX by Health Tap. These specialized app stores offer a pre-selection of mHealth apps with better discoverability, enriched app description and doctors' app ratings.

*research2guidance 26: Physicians and hospitals are constantly seen as the primary distribution channel for mHealth apps in the future*

Distribution channels that offer the best business opportunities for mHealth solutions in 5 years' time



Source: research2guidance mHealth App Developer Economics survey 2014, n= 2032

Mobile network operators and vendor websites are not perceived as a relevant distribution medium for mHealth app distribution in the future.

*“I think that the use of mHealth in (least) developing countries, can have a bigger impact on personal and public health than in the developed countries. I think that in developed countries the impact will be more seen in cost reduction, than actual health improvement.”*

**Survey Participant**

by market insights which are not widely recognizable, as one mHealth app publisher puts it:

There is a clear preference for the regions which offer the highest business potential for mHealth apps in the next five years. 67% of mHealth app publishers bet on developed countries (United States, Germany, Canada, Japan, United Kingdom, France, Australia, Italy, South Korea) mainly because of the existing cost pressure, higher penetration rate of capable devices and higher purchasing power of patients who are thought to drive the market.

A smaller, but still a notable share of 22% has a preference for the developing countries (Brazil, China, India, Russia, Indonesia, Morocco, Turkey, etc.) and 11% for the least developed countries (Rwanda, Somalia, Ethiopia, Uganda, Afghanistan, Bangladesh, Cambodia, Haiti, etc.).

Companies which operate in developing and least developed countries rate business potential in those regions 50% higher than companies from the developed world. This might be driven

*“Developing nations are less worried about security and data and hence will launch service quicker.”*

research2guidance

May 2014

