Research 2 Guidance

DIABETES APP MARKET REPORT 2016-2021

The market potential for diabetes apps including competitor and country analysis

2nd edition, 1st November 2016

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1 SCOPE OF THE REPORT

This report is the second edition of the Diabetes App Market Report, first published in 2014. It aims to analyze the current status of the diabetes app market, discuss trends, and profile core players of the market.

The timeframe of which the market is covered is between 2008 and 2016. A five-year forecast will be made from 2017 to 2021.

This analysis concentrates on mobile applications which can be downloaded from one of the major app stores, as opposed to mobile webpages, web apps or pure SMS services. It includes an analysis of devices that can be connected to an app, and external service offerings that supplement the diabetes app offering.

Apps included into this report (*core diabetes apps*) mainly target people with diabetes (e.g. *glucose tracking apps*). Apps that include people with diabetes as a secondary / additional target user group (e.g. *a recipe app that labels certain dishes specifically for people with diabetes, but also offers other recipes*) as well as general fitness or medical apps that can be used to support the treatment of people with diabetes, but are not specifically designed for them (*non-core diabetes apps*), are excluded.

This report makes an analysis of diabetes apps, available in Q3 of 2016 in app stores for the iOS and Android operating system in fifty countries. The market study includes apps that are publicly available in the Apple App Store and / or Google Play.

The report pays special attention to the publishers of diabetes apps. It profiles in detail ten leading publishers in terms of their diabetes app portfolio, service offering, performance and strategy.

The top ten countries are analyzed in terms each country´s specific addressable market size for diabetes apps, as well as the top performing diabetes apps. The appendix includes a detailed perspective of clinical studies conducted into diabetes app services and addressable market sizes of fifty countries that have been included into the market study.

The outlook provides an update on market and target group sizes for the next five years. The forecast model includes:

- Global addressable target group
- Active users
- Number of diabetes apps
- Downloads (iOS and Android)
- Revenues:
  - App store revenues including paid downloads, in-app-purchase and in-app-advertisement
  - Connected device revenues including glucose meters, pens, connectors and accessories
  - Service revenue including ongoing coaching and one-time coaching
- Device shipments
- Service users

2 MANAGEMENT SUMMARY

Eight years following the opening of Apple´s App Store of native applications, the diabetes app market is yet to experience its breakthrough, even though it has been constantly rated as the mHealth app market segment (addressing chronic conditions) which offers the highest business potential[1].

Nevertheless, since the publication of the last diabetes app market report in 2014, the market has evolved. The following seven points summarize how the market has evolved:

- **App quality has improved**: This includes the XX, XX and XX of apps, as well as their XX. Leading diabetes apps are now XX, XX, XX and have a XX.
- **New market leaders have emerged**: Most of the diabetes app publishers that led the market some three years ago XX. These traditional leaders have made way to a new group of *XX* and established *XX* companies and their diabetes app service offerings. In addition, the market share of the top ten diabetes company declined from XX% in 2013 to XX% in 2016.
- **Diabetes apps became connected:** The degree to which devices and apps are connecting, and enabling diabetes related data automation has XX. New diabetes apps need to support XX, for example, XX, XX or XX apps to be competitive in today's market.
- **Addressable target groups increased in size**: Due to the increasing prevalence of diabetes and smartphone penetration rates, the global addressable target group for diabetes apps increased by XX% to reach XXM potential app users in 2016.
- **Competition intensified:** The number of companies (*publishers*) that entered the diabetes app market grew by XX% to reach XX in 2016. The number of diabetes apps has also grown. XX new diabetes apps have been released to the market since the beginning of 2014. There are now XX diabetes apps listed on major app stores (Q3 2016).
- **Download numbers (demand) increased:** The relatively small demand for diabetes apps three years ago (relative to other mHealth market segments), turned into a much larger demand for 2016, with download numbers totaling XXM.
- **Service pricing is diversifying to include additional services:** Some three years ago, only a few companies had service offer pricing that went beyond XX and XX. In today's market, it is now common to find a diabetes app publisher that includes a XX or XX into an XX for the app user. This is particularly common for apps that are new to the market. Price ranges of XX and XX still XX, however some services have begun to generate their own *XX*.

The country, platform and category type that a publisher chooses for their diabetes app significantly influence the number of downloads, and the app store ranking in a country. The largest country markets are *XX*, *XX* and *XX*. Top diabetes apps can generate more than XX downloads per month on one platform in these markets. Leading diabetes apps now make it into the top twenty ranks of the Medical or Health & Fitness app sections. Still, in most countries, monthly download numbers are counted in XX rather than XX.

[1] research2guidance, mHealth Developer Economics 2016

As competition continues to intensify, diabetes app publishers are beginning to concentrate their market approach around four main strategies: *XX, XX, XX* and *XX*.

The previous growth trends for the next five years are still valid, although previous market forecasts had to be reduced. In 2021, XX% of the global addressable target group of diagnosed diabetics that have access to a capable device will actively use a diabetes app to manage their condition (XXM users).

The market revenue will increase by XX% (CAGR) to reach US$XXM in 2021. The main revenue sources will be *XX* (XX%) and *coaching services* (XX%). *XX* and *XX* which can include, for example, XX or XX will have only a minor share of the revenue source spectrum in future diabetes app business models.

4 STATUS OF THE DIABETES APP MARKET

There have been significant changes to the status of the diabetes app market segment over the course of the last two to three years. Since the previous status analysis in 2014, changes are notable in the growth of diabetes app supply and demand, the preference of main app features and a preference for iOS or Android amongst publishers.

The status analysis focuses on diabetes apps that have been identified as *core*; apps that make primarily focus on diabetes. Apps have been taken from the Apple App Store and Google Play. Excluded are *non-core* diabetes apps; apps that refer to diabetes, for example, in an activity tracker or recipe app, but do not make it the primary focus. The number of non-core apps surmounts the number of core apps by a factor of two.

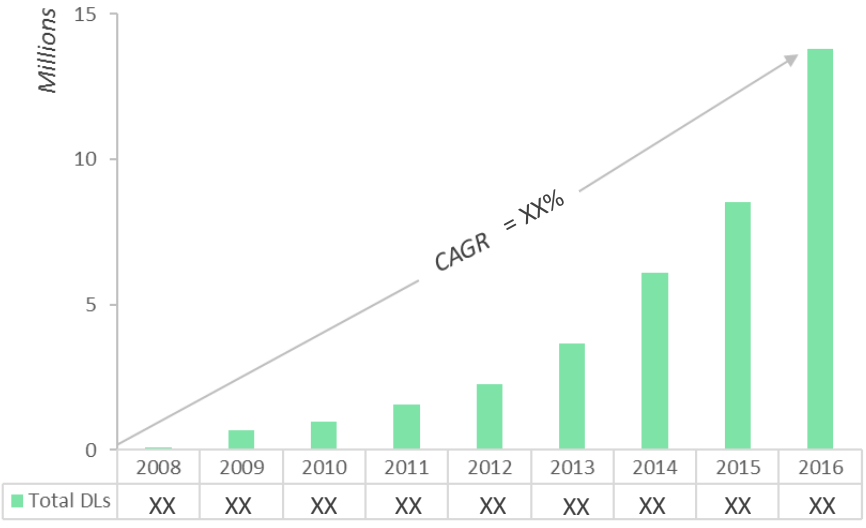
Key takeaways:

- XX diabetes apps are listed on the Apple App Store and Google Play for 2016.
- XX is the preferred platform for diabetes app publishing in terms of app numbers.
- XX publishing has become the norm.
- Only XX% of diabetes apps currently available are actively managed.
- The number of unique diabetes app publishers has increased by XX% to reach XX by the end of 2016 since the previous status analysis in 2014.
- Diabetes app download numbers have grown to XXM in 2016.
- The average price of a paid diabetes app is US$XX in 2016.

4.1 THE GROWTH OF DIABETES APP OFFERINGS AND THE IMPACT OF UPDATES ON DOWNLOADS

The number of diabetes apps is expected to rise to XX by the end of 2016. Since 2014, XX net additions have entered the market. Overall, interest is still present in the supply of the market.

Figure 1: Global number of diabetes apps (2008 – 2016)



Diabetes app downloads are based on apps that primarily focus on diabetics that were listed in the Apple App Store and Google Play of that year.
Source Data: research2guidance, Prioridata, Apple App Store, Google Play

5 DOWNLOAD PERFORMANCE OF TOP LISTED DIABETES APPS PER COUNTRY IN 2016

The country, platform and category type that a publisher chooses for their diabetes app can significantly influence the number of downloads and app store ranking in a country. Below is a breakdown of the most downloaded diabetes apps in the ten largest addressable target countries. For each country, the top three *core* diabetes apps are selected based on the highest year-to-date (YTD) downloads (Q1-Q3 2016) in each of the following platform / category combinations: Apple App Store / Health & Fitness, Apple App Store / Medical, Google Play / Health & Fitness and Google Play / Medical. For each app, downloads and app store ranking ranges for August 2016 are listed for a monthly perspective.

5.1 CHINA

Even though China has the largest number of potential app users, top listed diabetes apps do not generate significant downloads in China. Downloads of top listed diabetes apps range between XX and XX YTD, and between XX and XX per month. Older XX and XX apps such as *XX* (XX YTD downloads) and *XX* (XX YTD downloads) head the list.

Medical vs. Health & Fitness play: There are XX differences in downloads and rankings between the top listed diabetes apps in either category.

Getting visibility in ranking: Approximately XX downloads per month are needed to rank in the top 100 app store ranking in either Medical or Health & Fitness on the Apple App Store.

Table 1: China´s top listed diabetes apps

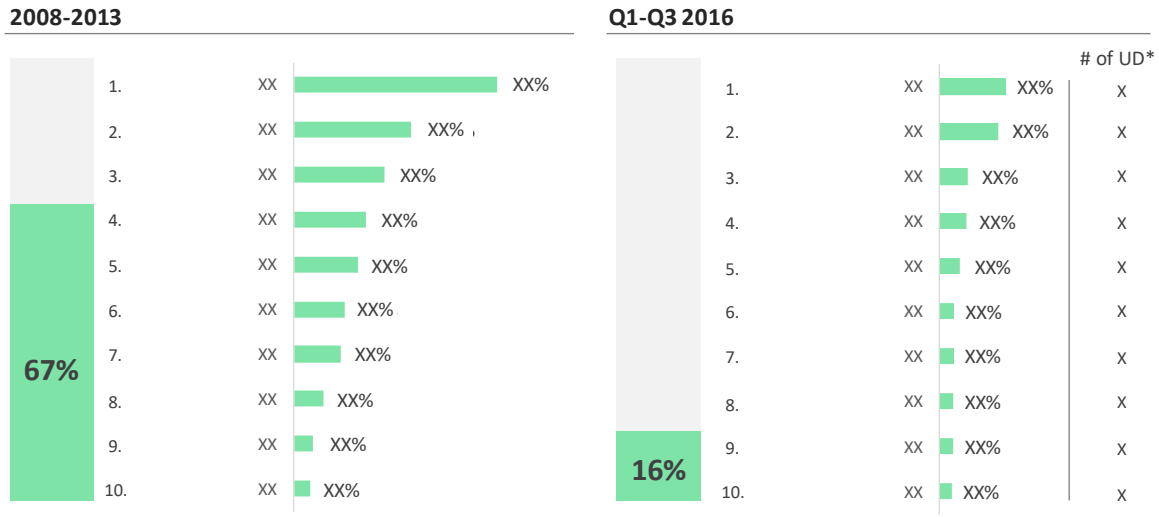
Country	Category	Platform	Most Downloaded Diabetes App*	Publisher	Downloads		Ranking**
					Q3 2016 YTD	Aug-16	
China	Health & Fitness	iOS	XX	XX	XX	XX	XX
	Health & Fitness	iOS	XX	XX	XX	XX	-
	Health & Fitness	iOS	XX	XX	XX	XX	-
	Medical	iOS	XX	XX	XX	XX	XX
	Medical	iOS	XX	XX	XX	XX	XX
	Medical	iOS	XX	XX	XX	XX	XX

7 COMPETITIVE LANDSCAPE OF DIABETES APP PUBLISHERS

The competitive landscape of the diabetes app market has undergone significant changes since the previous status report in 2014. Overall, competition has increased, and top downloading apps have become less dominant in terms of market share.

7.1 THE TOP 10 MARKET SHARE CHANGES

Figure 2: Top 10 most downloaded publisher market share changes



* Number of their flagship app updates for both iOS and Android versions in Q1-Q3 2016

Source: research2guidance, Prioridata, Apple App Store, Google Play Store

For the period 2008-2013, the top ten diabetes app publishers were able to generate XX% of total cumulative downloads. The diabetes app market was young during these years, and there was limited selection of apps for people with diabetes to choose from. Early entrants were unable to gain a lot of publicity for their apps, turning to the app stores in attempt to generate visibility.

During the market´s younger years, early entrants began to capture a larger market share by adopting diabetes care tools commonly used in the day-to-day management of diabetes, and creating mobile-app versions of them (*diary tools and logbooks, low glycemic index recipe books, insulin calculators, illustrated instructions* and *educational material*). As the market matured, these tools quickly became popular amongst people with diabetes, driving market growth, and allowing early entrants to establish a stronger market position. For existing diabetes care providers, apps were mostly intended to serve as marketing tools.

Nearly all of these apps are still available on the app stores, but remain non-managed (See Chapter 4.1). Despite being out-of-date solutions, these legacy apps continue to rank highly on the app stores due to their initial success and high accumulation of downloads. These legacy apps have created a download inertia effect which continues to be driven by random search clicks by new users. Meanwhile, their app store ranking and other performance indicators continue to drop.

For Q1-3 2016 period, the share of downloads that the top ten diabetes app publishers were able to generate fell to XX%. Since 2013, the diabetes app market has become flooded with new

market entrants. Many of these new apps are local initiatives (XX, *XX, XX*), pilot projects by hospitals or insurance companies (*XX*), marketing tools (*XX, XX*) or add-ons for existing diabetes care products and services (*XX*). App service offerings have diversified in terms of additional services, features and functionality, and the market is now entering an era of device connectivity driven mostly by 2014-16 market entrants.

8 TOP 10 DIABETES APP SOLUTIONS TO WATCH OUT FOR IN THE FUTURE

This section profiles ten of the leading diabetes app companies. Special attention is paid to their diabetes app ecosystem, their app portfolio performance, their perceived market strategy, and the predicted impact they will have on the diabetes app market in the next two to three years.

8.1 ABBOTT WITH FREESTYLE LIBRE & LIBRELINK – CUTTING EDGE WEARABLE SENSOR

Abbott is an American based, global healthcare company. It is made up of 74,000 employees and operates in more than 150 countries. The company headquarters is in Lake Bluff, Illinois. Their diabetes care business revolves around the manufacturing and marketing of their home brand devices, including blood-glucose monitoring (BGM) systems and insulin pumps.

Abbott entered the diabetes app market rather late - November 2015. Their apps are designed to functionalize and enhance their diabetes devices. Currently, they have two Android-based diabetes apps in their portfolio: an underperforming app named *Freestyle Diabetes Companion* which provides instructions for their FreeStyle brand BGMs, and an outstanding app named *LibreLink* which connects to and displays LibreLink sensor data. Abbott is rather slow at releasing new apps – the *LibreLink* app was announced more than one year after the *FreeStyle* Libre system was made available, and took six months to become publicly available. During this waiting period, there were several hacker attempts to pull data from the sensors via an app.

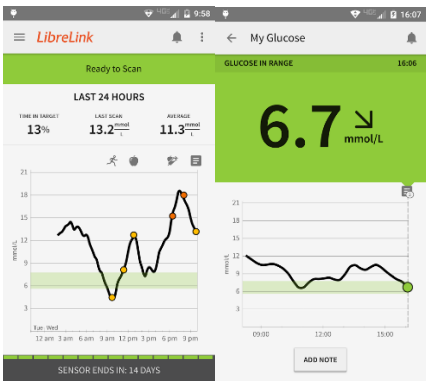
Their main aim is to form industry partnerships with app developers, in order to increase the number of partner apps that can seamlessly import data generated by Abbott devices. Recently, Abbott announced mySugr and Diasend as a partner to increase data interoperability capabilities.

8.1.1 App ecosystem overview

The *LibreLink* app is the leading diabetes app of the Abbott app portfolio. It connects to the *FreeStyle Libre* sensor, and replaces the *Sensor Reader*.

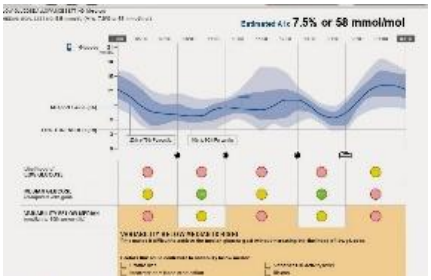
Table 2: Abbott app ecosystem overview

	*Connected Sensor: FreeStyle Libre* ▪ Attachable to upper arm. ▪ Measures BG every minutes and tracks 15min averages. ▪ Wearable up to 14-days.
	*Connected Device: Sensor Reader** ▪ Attachable to upper arm. ▪ Measures BG every minutes and tracks 15min averages. ▪ Stores up to 8-hours of readings.



*Connected app: LibreLink**

- Uses Near Field Communication (NFC).
- Reads sensor data.
- Only on Android phones with NFC.
- Needs to be touched to the sensor to get the readings – automatic hypo-alerts are not available.
- Provided and managed by *Airstrip*.



Report display software: LibreView

- Displays ambulatory glucose profile.
- Logbook.
- Daily Graphs.
- Summary statistics.
- Standard day chart with insights, but no suggestions.

**A sensor only works with the device it has been paired with – either reader or mobile device and the data cannot be pooled from multiple readers via the LibreLink mobile app.*

The *LibreLink* app has been developed as a part of the *Flash Glucose Monitoring System* (FGMS), which makes use of the connected sensor. The app was developed in response to a growing user demand insisting that they make use of that data generated by the Freestyle Libre sensor. The FGM system offers *continuous glucose monitoring* like features at a lower price. It is available in selected European countries, and awaits USA approval. It consists of two devices:

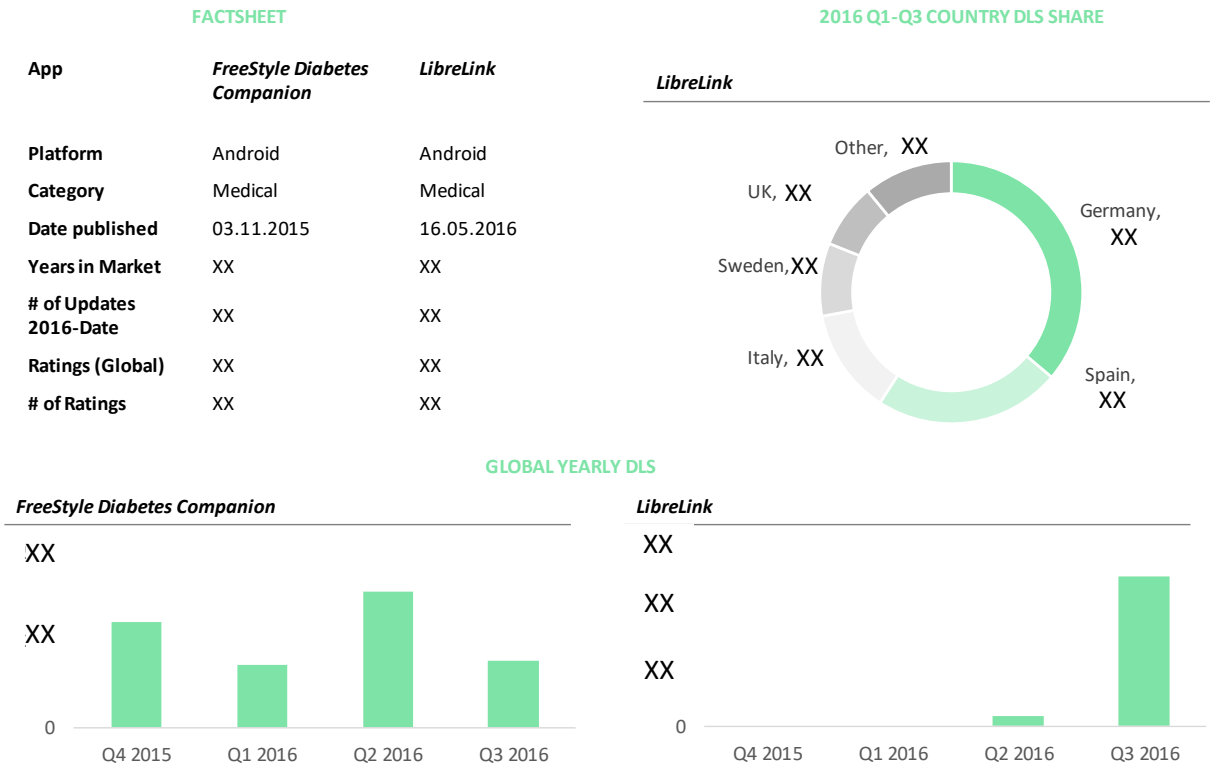
- *Sensor:* Wearable up to 14-days. It is worn by the patient on the upper arm and continuously measures glucose levels in the interstitial fluid.
- *Sensor Reader*: An NFC enabled reader device which is 'flashed' close to the sensor. It then imports, displays and stores sensor data. The mobile app completely replaces the sensor reader device and cannot be used in combination.

Data from the sensor reader device can then be uploaded via cable into a computer software database which generates a device data report. The *LibreLink* app mimics the sensor reader device – it activates the sensor, displays and stores sensor readings and syncs it with the same database. It is currently only available on Android devices with built-in NFC technology.

8.1.2 App portfolio performance

Download performance following the launch of the *LibreLink* app in Q2 2016 has been impressive. The app generated more than XX downloads in XX months. It seems that many *FreeStyle Libre* users have long awaited the launch of the app. While users appear to be happy to have their readings displayed on a larger phone screen instead of a sensor reader device, there are reports of the beeping being too loud, and users are expecting extended functionality to be built into the app (*data export, bolus calculator*). Some users are suggesting that uncertified hacker attempts (*Glimp, Liapp*) are more useful than the *LibreLink* app itself. The reason for the impressive downloads is partly due to the success of the FGM sensor in *France, Germany, United Kingdom, Italy, Sweden, Spain, Netherlands*. *Germany* and *Spain* are the biggest markets.

Figure 3: Abbott app portfolio performance



Source: research2guidance, Prioridata, App Annie, Apple App Store, Google Play Store. Data retrieved on 04.10.2016

8.1.3 Perceived market strategy

Abbott is worth keeping an eye on. Their sensors have received positive feedback from European users, and are expected to be FDA approved in the USA by the end of 2016. Their *Librelink* app has proven to be successful in generating impressive downloads.

Currently, Abbott is strongly focused on growing their device sales. User support tools (*apps*) are perceived as valuable add-ons to their devices. Abbott is expected to offer more apps as their device technology advances. While apps are in the production pipeline, they are in pursuit of developing reimbursement plans with insurers. The 14-day sensor costs nearly £60, which users currently paying *out-of-pocket*. Recently, Abbott conducted a clinical study to prove the efficacy of their solution, which will be used to assist in negotiating these reimbursement plans. The proof of efficacy with clinical study results is one component of their market strategy.

Abbott are not expected to go beyond developing simple apps that act as device dashboards and data transmitting tools. Their focus is expected to be placed on further outsourcing diabetes app development, while relying on external experts to make their diabetes devices and sensors user-friendly, as well as the data interoperable on mobile diabetes management platforms. Abbott are therefore expected to increase the number of partnerships with leading patient support mobile app developers and data aggregators.

Currently, Abbott does not show any signs of wanting to build a user-data generated database. However, experts anticipate that they will opening up their connected device to selected third party app developers in order to store and use their sensor data, and to ultimately sell more devices.

9 OUTLOOK: THE NEXT FIVE YEARS TO 2021

Since the previous edition of this report in 2014, the forecasted growth path is still valid.

For most of the XX app publishers in today's diabetes app market, they are yet to enter the *pay back phase*. However, there have been significant improvements to the quality of diabetes apps over the last three years, resulting in an increase of *active* diabetes app users within the global addressable target group from XX% (2014) to XX% in 2016 (*diagnosed diabetics with a capable device*).

A handful of first payer companies have aligned with diabetes app companies to allow their members to access diabetes app features and services, even though most of these partnerships are still in a trial phase lack significant scope in terms of reaching member bases. These 1:1 deals will most likely be the most common way to bring diabetes apps into the traditional healthcare system over the next five years. In some countries, healthcare regulatory bodies may begin to allow diabetes apps to qualify for *payment codes* by placing their app services on their *health service reimbursement list*, but this processes is expected to remain slow, at least for the foreseeable future.

Other forecasts made in the previuous report have also materialized. These other forecasts include; the increase of app connectivity, the adoption of the in-app-purchase (IAP) business model for digital content, and the changing preference of iOS to Android.

There has been a slower increase than expected on the supply side. The number of diabetes app publishers and apps grew slower then expected, and the anticipated download numbers where slightly higher than actual.

This year´s market forecast model has been adjusted based on actual market data. It also includes a broader range of connected devices as in the previous report. Insulin pens, adaptors and accessories are now commonly being sold in bundles alongside a diabetes app, and have been added to the forecast model.

Diabetes app services have also been included into the forecast model. These services refer to one-time and ongoing (subscription) coaching services delivered via a chat or telecoaching (*voice*, *video*) feature of the app.

11.1 About research2guidance

research2guidance is a strategy advisor and market research company. We concentrate on the mobile app eco-system. Our service offerings include:

App Strategy: We help our clients inside and outside of the mobile industry to develop their app market strategy. Our consulting advisory projects are based on a set of predefined project approaches including: App strategy development, App Evaluation, App Market Segment Sizing, App Governance and App Marketing Spend Effectiveness.

App Market Reports: Our app market reports explore the major trends and developments affecting the app markets. Separate research papers provide both general and specific coverage of the market. The reports contain key insights for companies looking to enter or deepen their engagement with the mobile applications market, providing data and analysis on all relevant aspects of the market to ease investment decision-making.

App Market Surveys: We leverage our 70.000 app eco-system database to conduct surveys and reports for our clients.

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11.4 List of figures

11.4.1 List of figures and tables

11.4.2 List of tables