The nascent wearables market offers a rich opportunity for companies to become early adopters and leaders. The wearables market is expected to grow from $20 billion in 2015 to $70 billion in 2025. Furthermore, the healthcare sector is expected to remain the dominant sector in this market.1 Within Life Sciences, many companies are identifying the benefits of wearable adoption in both their direct to consumer marketing efforts as well as enhanced drug and device interactions. As evidence, brand recognition through consumer marketing has increased, pharmaceutical direct-to-consumer ad spend hit $4.53 billion in 2014, up about 18% from $3.83 billion in 2013.2

In an attempt to alleviate rising development costs (now estimated at 2.6 billion for a single drug3) companies have begun to explore how wearables can accelerate the clinical trial life cycle. Incorporating wearables into clinical trials can help companies obtain quicker objective results than traditional methods, enabling them either to stop ineffective trials earlier or to accumulate data needed for approval at a faster pace.

To help this industry need, Deloitte has developed a wearable device application accelerator, D.Wear. The accelerator includes solution component “modules” that allow for guided assembly and customization. When paired with consulting services these modules enable wearable application development within short timelines and without the constraint of multiple development cycles for each platform; all while helping to minimize potential risk.

Through these applications, life sciences companies can not only interact directly with their customers but also digest the data captured in those interactions.

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1 Wearable Technology 2015-2025: Technologies, Markets, Forecast, Dr Peter Harrop, Mr James Hayward, Raghu Das and Glyn Holland
2 Kantar Media http://kantarmedia.us/press/key-sporting-events-and-political-ads-increase-us-full-year-advertising-expenditures
3 Cost of Developing a New Drug, Tufts Center for the Study of Drug Development, 2014
Technical and business challenge
There is a rapid growth technology opportunity with limited knowledge and potentially high risk due to the sensitivity and government regulations around life sciences direct customer interactions and data. The D.Wear approach address challenges often faced by Life Sciences companies interested in wearable technology. These challenges are the following:

The D.Wear solution
In the literary world, it’s said that there are only seven plots in story-telling. Similarly, our research shows that in wearable application development, there are only seven modules which make up almost all applications. By modularizing our approach to development, we can effectively leverage our experience from wearable application development research and transform that into an accelerated lower cost and higher quality application development lifecycle.

To address the need of companies to quickly adopt these solutions, D.Wear offers an industry-leading framework that enables efficient cross-platform application design. Through configuration and minor code updates, new applications are succinctly developed and ready to be deployed across multiple wearable devices. The development team selects modules based on desired application features and also create additional code to connect modules.

To address the need for companies to develop multiple applications to allow for diverse wearable platforms while managing tight budgets, D.Wear enables wearable application with fewer developers needed due to the structure and “assembly” model of the application. Not only time, but the cost of the product is less as well.

To address the risks common to adopting a new technology, D.Wear supports extensive testing and identifies where high risk areas may be to help predict and prepare any potential issues.

The module approach
Select modules based on desired application features
For example, if a pharmaceutical company wants an application that tracks when a patient takes their medication, the development team could choose the home screen, list screen (for history), and details screen (for individual medication details) modules.

4 Market Realist What it takes to be called ‘big pharma’ By Mike Benson, Feb 20, 2015
5 The Seven Basic Plots: Why We Tell Stories, “https://en.wikipedia.org/wiki/Christopher_Booker”, Christopher Booker
Customize module screens
The development team could further customize the medication history screen by adding icon component modules to the list screen module using custom connection code in the examples below:

Example 1
**List Screen**
- Text Field 1
- Row 1 Text
- Row 2 Text
- Row 3 Text

Example 2
**Details Screen**
- Text Field 2
- Text Box

Customize screen flow
The development team could then add custom connecting code to enable screen flow between the customized screen modules. As shown in the example below, clicking a row on the medication history screen will bring the user to the dosage amount and schedule details for a specific medication.

Data icing on the cake
As the VP of Kaggle, a platform for data competition highlights, said,

Predictive models even have the potential to tackle some of the most critical decisions in drug development, such as whether a clinical trial will be successful or whether a licensing deal will eventually lead to a drug. Billions of dollars rest on these decisions, but it is rare that all available relevant data is systematically employed to predict the probability of success. Of course, no algorithm can make such predictions with perfect accuracy, and no computation can replace a clinical trial. However, for an organization deciding between multiple costly development programs, having any improvement in ability to predict results is immensely valuable.

He goes on to highlight that access to external data is a challenge but that is where wearable device applications can address a need. Through pharmaceutical owned applications, data collection is retrievable thus eliminating the prior barrier of customer-specific real response data access. The data gained from customer interactions with the application can provide as much value to life science and health care companies companies as the application does for the customers.

In the model labeled D.Wear Data Storage, application data will be streamed or batch loaded from connected smartphones to the D.Wear data storage environment. Further, select data will be loaded to the Deloitte IoT environment for generating dashboards and reports.

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6 Big Data Won't Save Pharma, But Smart Data Might, Guy Cavet vice president of life sciences at "http://www.kaggle.com/", Kaggle
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