Wearable Healthcare Technology: Fibit® Inc's Smartwatch Strategy

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Abstract

The Internet has enhanced an individual's ability to take more control over their health by making pertinent health information more accessible. The breakthroughs and manufacturing cost reductions made in sensors and Micro-Electro-Mechanical Systems (MEMS), as well as the advancements in integrated hardware and software systems technologies have given rise to the area of mobile health (mHealth) monitoring. mHealth monitoring systems give more control into the hands of the person to be in charge of their own health and maintain their sense of independence, especially as the population ages. The technology can also enable researchers to study pertinent diseases using continuous kinematic data. Fitbit is a respected firm that has been bringing innovative health and fitness tracking systems to the market since 2007. Their focus has been primarily on fitness bands until 2014 when they are introduced the smart fitness watch, Fitbit Surge. In this paper, we have studied the competitive landscape for the smartwatch which is the next logical extension that Fitbit is trying to establish in terms of product offerings. Given the complex nature of this market, both product-based and resource-based views are applied in order to develop the recommended competitive strategies for Fitbit.

Contents

Introduction

According to an Accenture 2016 Consumer Survey on Patient Engagement, consumers are accessing their Electronic Health Records (EHR) in larger numbers and among the 18-44 year-olds there is also an increasing adoption of wearables and apps to manage their health (Accenture, 2016). There is preliminary evidence to suggest that wearable technology and self-monitoring will increase physical activity levels in youth, but the long-term study of such intervention tools still need to be undertaken (Ridgers, et al., 2016). In a study with 32 participants over age 50 previously diagnosed with a chronic illness (e.g. vascular disease), using a mixed-mode evaluation, results showed that wearable activity trackers were considered useful and acceptable, although newer users would need help in setting up their device (Mercer, et al., 2016). In terms of reliability and validity of the data collected by these trackers, a study found a "*high validity of steps, few studies on distance and physical activity, and lower validity for energy expenditure and sleep*" (Evenson, et al., 2015). On the other hand, healthcare costs in the US is projected to grow on average 5.8% from 2015 to 2025 and expected to surpass $10,000 per person for the first time in 2015 (Keehan, et al., 2016). Such information, put together, indicates that wearable activity/fitness/health trackers will play a significant role in healthcare technology as a preventative tool to aid the consumer in managing their health better both by self-monitoring as well as share the information with their healthcare provider and obtain healthcare advice. Wearable fitness tracking devices as consumer-grade electronics have been around since the early 2000s. We have a significant number of manufacturers (as shown in Figure 1) in the market reaching a potential saturation point that is leading the

reduction in prices and the leading players to look for innovative ways to differentiate themselves in order to gain competitive advantage.

Figure 1. Players in the wearable technology market (Hayward, et al., 2017)

Fitbit was one of the first companies to introduce high quality devices for the consumers, leveraged a first mover advantage, and has held a strong market position in Fitness trackers, but lagging in the Smartwatch. The company's 2016 market position is shown in Figure 2.

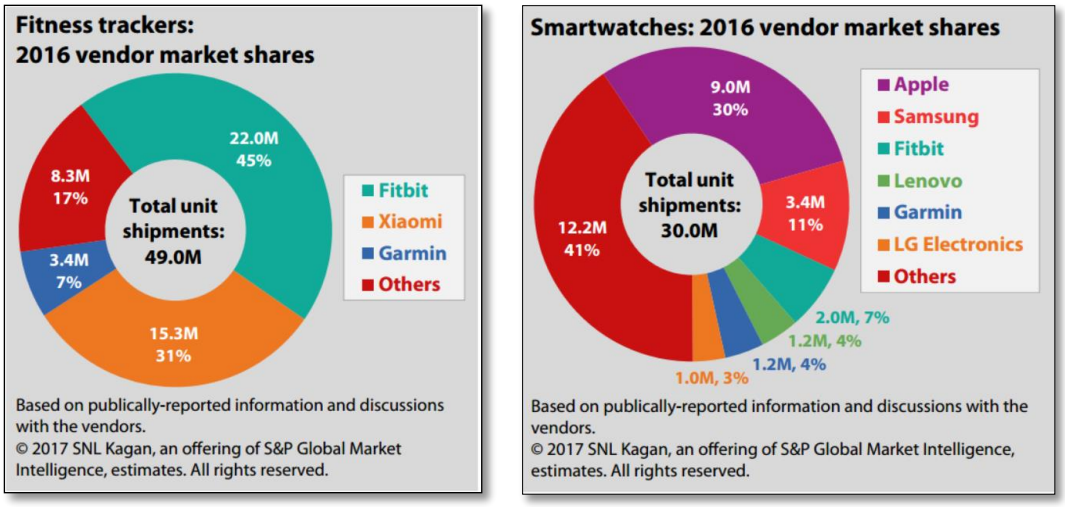

Figure 2. Fitbit market share in 2016

With the high degree of rivalry among competitors and a moderate to low barrier to market entry for new manufacturers, Fitbit is seeing a stagnation of fitness tracker shipments (as shown in Figure 3). To add to the company's woes, the stock price of the company has been falling (as shown in Figure 4) from a high of $51.64 on August 5, 2015 to a low of $5.23 on May 31, 2017. While stock market prices is not an entirely accurate indication of the company's financial health or growth potential, it is a perspective of Wall Street that provides investors with an indication of the value of the company. The downward trend of stock market price for a company is attributable to a variety of factors ranging from a perception that the company is not on a growth trajectory or that it is not innovating enough or there is a market correction occurring. Regardless of reason, given that the stock price is an indicator for an investor, it is a strong reason for Fitbit to take notice and do something to regain competitive advantage.

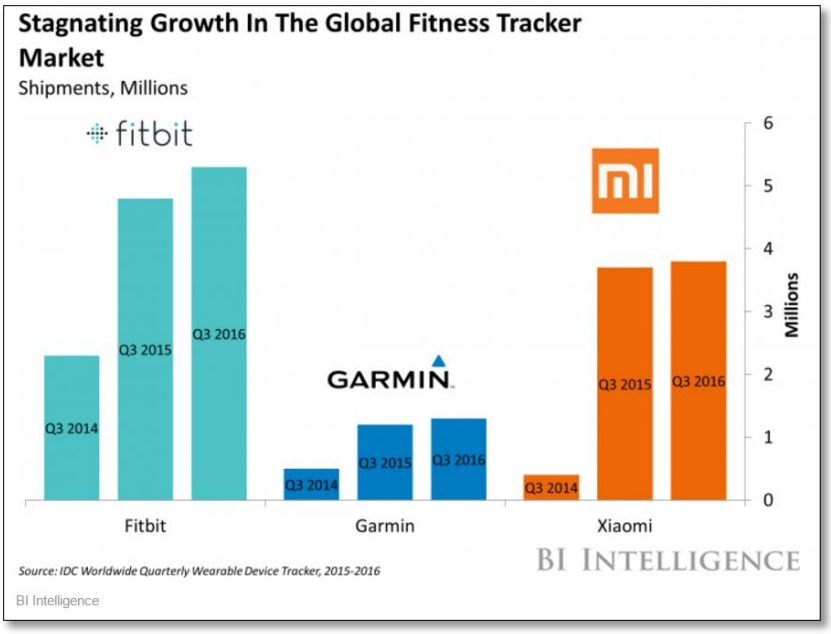

Figure 3. Fitbit shipment trend

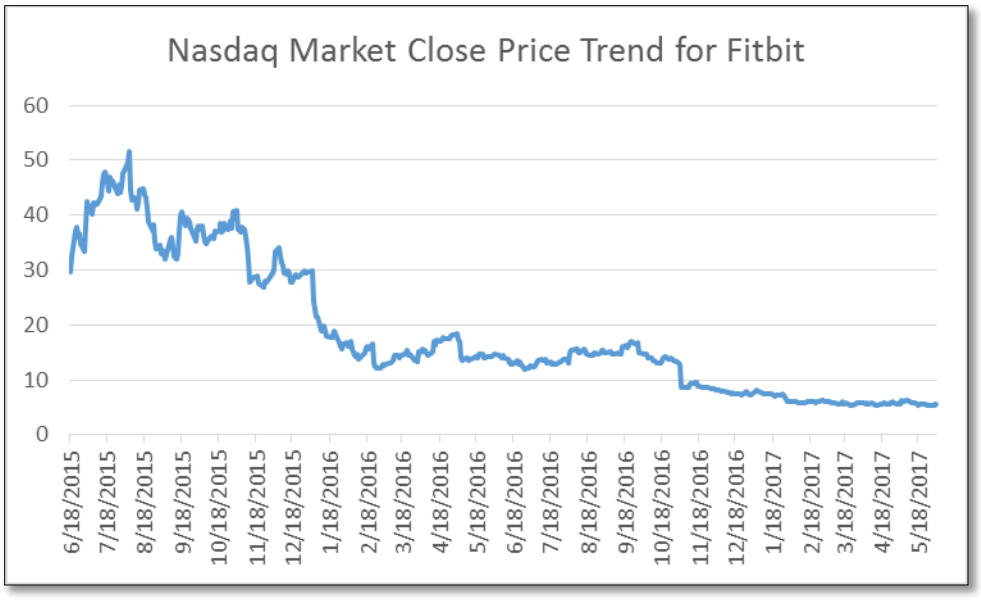

Figure 4. Fitbit Stock price trend (Nasdaq, 2017)

The market for fitness tracking is expected to continue to grow (as shown in Figure 5). Fitbit will need to look for ways to differentiate themselves with new product

offerings and/or innovative marketing strategy. This will help them to leverage their expertise and enter new markets with potential higher profits.

Fitness trackers: Worldwide unit shipment forecast by geographic region

	2015	2016	2017	2018	2019	2020	2021
	(000)						
North America	21,896	27,948	33,752	37,981	41,443	42,800	44,060
W. Europe	4,202	4,611	5,332	6,005	6,594	7,240	7,892
E. Europe	801	1,200	1,769	2,658	3,488	4,635	5,427
Asia Pacific	11,491	13,982	16,697	20,327	24,044	29,192	32,615
Latin America	502	801	1,400	2,205	2,939	3,520	4,108
MEA	200	410	879	1,562	2,056	2,640	3,217
Total	**39,092**	**48,952**	**59,829**	**70,738**	**80,564**	**90,027**	**97,319**
Annual growth (%)	-	25	22	18	14	12	8

Smartwatches: Worldwide unit shipment forecast by geographic region

	2015	2016	2017	2018	2019	2020	2021
	(000)						
North America	22,030	18,214	20,054	22,282	24,710	26,535	27,280
W. Europe	1,798	4,114	5,079	5,808	6,566	7,032	7,445
E. Europe	506	802	1,261	2,082	3,213	4,403	5,805
Asia Pacific	2,803	5,498	8,657	10,861	12,669	14,362	15,791
Latin America	400	801	1,403	2,399	3,104	3,691	4,334
MEA	299	606	1,102	1,903	2,765	3,459	4,071
Total	**27,836**	**30,035**	**37,556**	**45,335**	**53,027**	**59,482**	**64,726**
Annual growth (%)	-	8	25	21	17	12	9

Figure 5. Fitness tracker and Smartwatch shipment forecast

This class individual research paper will focus on the strategic analysis for Fitbit in the smartwatch market and the recommendations to gain competitive advantage through the analysis of the product and resource based views.

Background Information

Fitness Tracker Evolution

A timeline representation of the technological evolution (Axworthy, 2016) that has enabled the advancement of the wearable fitness tracker as consumer-grade electronics is shown in Figure 6. The chronological sequence starts in 1921 with the introduction of sensors that can measure galvanic skin response (electro-dermal activity measured through variation in sweat secretion due to emotional stress), pulse rate and blood pressure. In 1965, Dr. Yoshiro Hatano, a professor from the Kyushu University of Health and Welfare introduced the 10,000 (man), steps (po) and measure (kei) pedometer, to combat obesity. Ford Motor Co. first applied airbags to commercial use in 1971 after the airbag patent expired thereby bringing in the accelerometer technology. The concept of earning badges using points was introduced first in the fantasy game “Dungeons and Dragons”, which is applied to motivate people to strive towards higher level of activities in wearable fitness devices. The Polar Sports Tester PE2000, in 1982, was the first to introduce the ability to display biometric information live on a watch face and this essential concept is in use still today on all wearable fitness trackers to make the information readable and immediately available as feedback to the consumer. The concept of combining entertainment with exercise to distract the consumer from the rigors of exercise was introduced in 1994 by Nintendo in the bike/screen hybrid Life Cycle.

The Global Positioning System (GPS) that allows the user to track and share their exercise runs or route was enabled through the opening up, for civilian use, of the 29-satellite constellation of the US government by President Bill Clinton in 1996. The self-tracking health app MyFitnessPal was one of the first, in 2005, which ushered in the concept of being able to track and compete on physical activities without being face-to-face. The accelerometer scaled up to the 3D-level (pitch, yaw, roll), in 2006, with the motion-sensing technology introduced with the Nokia 5500 Sport. This technology increased the level of accuracy in wearable fitness trackers.

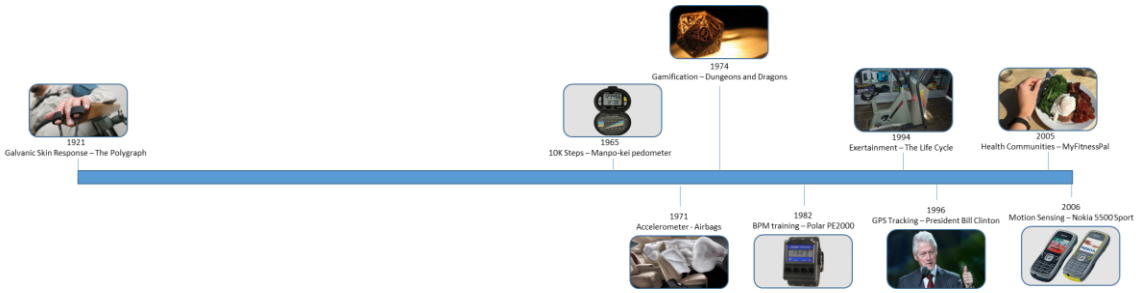

Figure 6. The Origins of the fitness tracker (Axworthy, 2016)

Furthermore the technological advancement in the miniaturization of sensors and the improvements in production resulting in a lower production cost of micro-electro-mechanical systems (MEMS) have enabled a variety of sensors to be embedded into smaller circuit boards that can fit on a human wrist.

Fitbit Company Evolution

Fitbit was founded in 2007 by James Park and Eric Friedman and is headquartered in San Francisco, CA, USA. Fitbit's consumer pitch is to take control of and improve their health and well-being by using Fitbit's products that will be (a) fashionable enough to wear on a daily basis, (b) give the user control of the data that the product generates, and (c) enable the buyer to be motivated by

participating in social health-conscious communities. At the TechCrunch 50 conference on September 9, 2008, the company announced their initial product offering and started with 2,000 pre-orders. Since the 2008 announcement, they brought up production lines to manufacture the product in Asia and eventually shipped their first product, a clip-on Fitbit Tracker, at the end of 2009, shown in Figure 7 (Marshall, 2016).

Figure 7. The Fitbit Tracker (Marshall, 2016)

Fitbit has held steadfast to their commitment to bring products to market that will help the consumer to lead a healthier life. They have also continuously invested in new models with new features, introducing a new product almost on a yearly cadence. In 2012, they forayed into the ancillary device market introducing the Fitbit Aria scale. In 2014, they entered partially the smart-watch market bringing into it their technological strength in activity tracking with the Fitbit Surge smart fitness watch. Their current product offerings can be broadly classified into 3 main categories: (1) wristbands (e.g. Fitbit Charge), (2) smart fitness-watches (e.g. Fitbit Surge), and (3) ancillary devices (e.g. Fitbit Aria). Their current products are shown in Figure 8 (Fitbit, 2017).

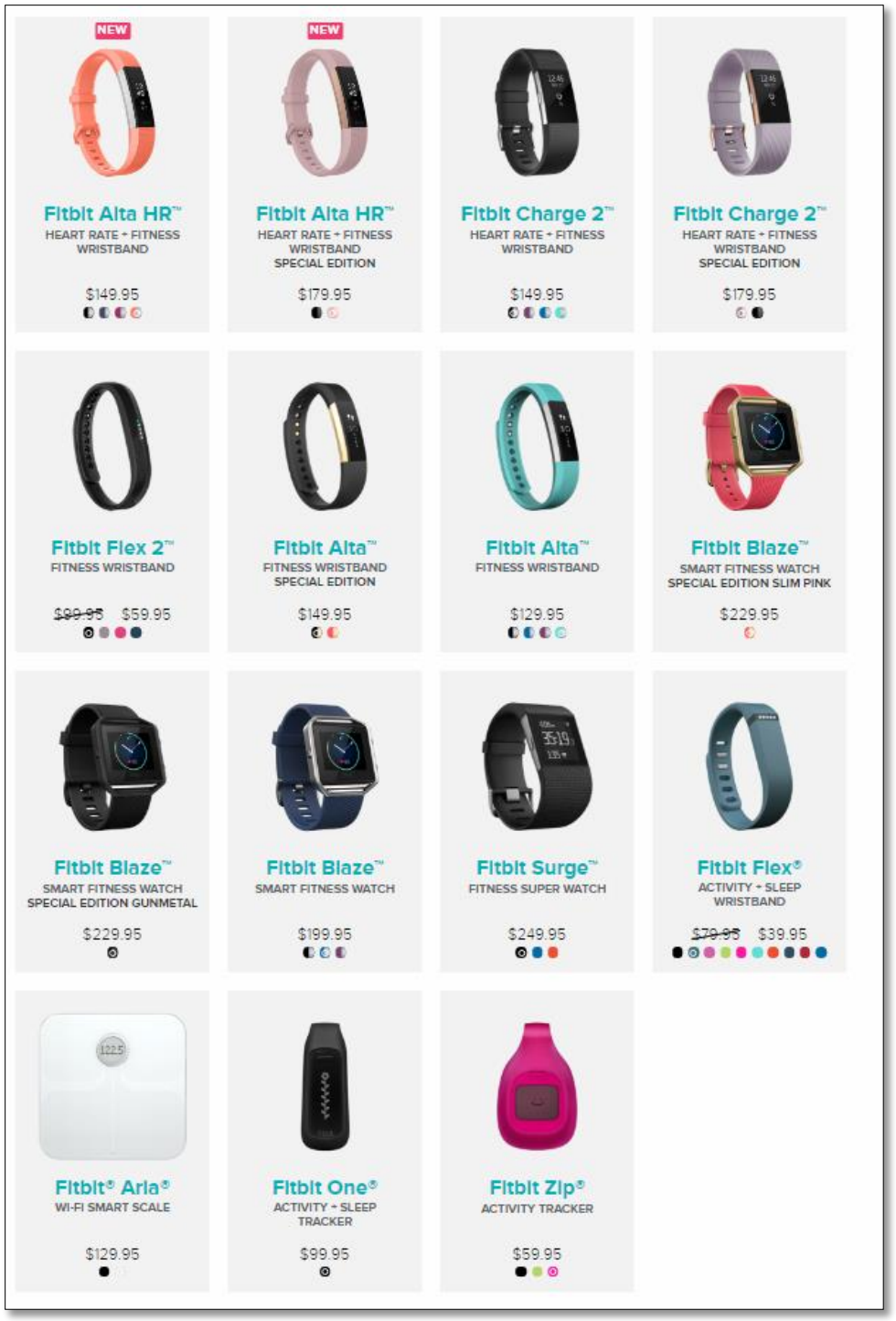

Figure 8. Fitbit Product Offerings (Fitbit, 2017)

Current Situation

According to a 2014 study (PriceWaterhouseCoopers LLP, 2014) by PricewaterhouseCoopers Health Research Institutue and Consumer Intelligence series 56% of those surveyed believe that life-expectancy will increase by 10 years because of wearable-enabled monitoring of vital signs, although only 20% of the US consumers own a wearable technology product. This indicates that health wearables are in the early market days of the Technology Adoption Life Cycle, Figure 9.

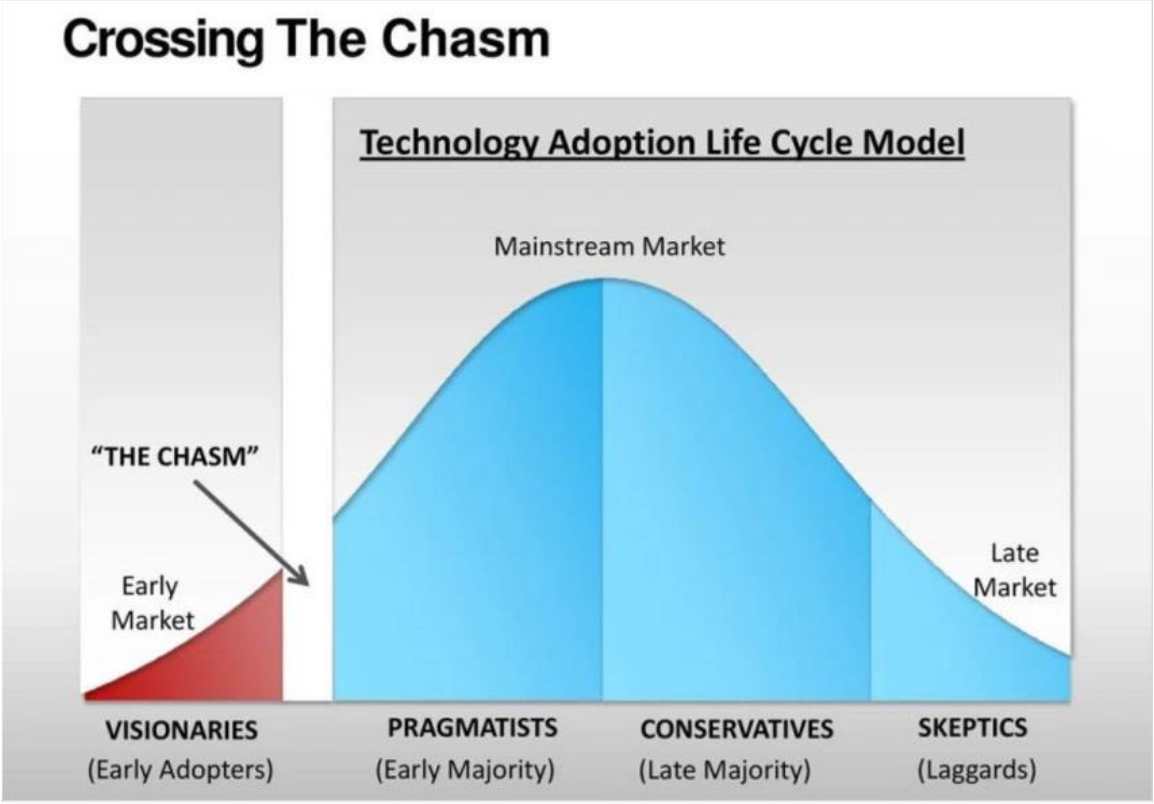

Figure 9. Technology Adoption Life-Cycle (Podoly, 2015)

The high degree of interest and continues increasing market forecast indicates that there is a high degree of probability of crossing the chasm. In the same study, 68%

of the survey takers indicated that they would opt-in, if their employers provided them with wearables (for free) and would give insurance premium discounts for sending in anonymous data. This makes a strong case for Fitbit to look for new ways to revitalize the company with new product offerings and strategies. With smart fitness watches in the market now, a logical extension would be into the smart watch category. Smart watches are still relatively new to the market with a solid projected growth as shown in Figure 5. Buyers of smart watches would relatively affluent and discerning as they look to combine a fashion accessory with a fitness tracker. This set of consumers would give Fitbit a better profit margin if it is successful in gaining market share.

To this effect, in this research paper, due to the complex interconnectedness of the wearable technologies and the large number of players, the external product-based view is a useful to study the competitive landscape when coming up with new strategies. The product-based view does not give the firm a perspective of how to best leverage its resources to implement the strategies suggested by the product-based view, especially if the firm is lacking in-house expertise in specific sub-components. A resource-based view is a useful complementary tool to see how internal expertise needs to be re-arranged or if external expertise needs to be acquired to augment the knowledge required for new product offerings. Hence both the market-based and resource-based views are applied to Fitbit's foray into the smartwatch market. Due to the richness of learning that can be garnered from applying both the approaches noted above, I have chosen to not explicitly apply the

Delta model or other integrative frameworks such as SWOT analysis to this situation.

Competitive Landscape Analysis: Product-based view

The widely accepted methodology to study the company in relation to its market environment is the Porter's five-force model driving industry competition (Porter, 1983), which will be applied to Fitbit. The model examines the firm with respect to 5 forces that define the competitive rules of the industry in which the firm competes in. The five forces are (1 & 2): threat of new entrants and substitutes, (3 & 4): bargaining power of buyers and suppliers, and (5): internal rivalry among existing firms. Fitbit is in a strong position as the leader of the pack with respect to fitness tracker, so we will focus this analysis on the smartwatch environment.

Threat of new entrants: Medium

Looking at Figure 2, we can see that the market leaders in the Smartwatch are Apple and Samsung. Both of these companies have the advantage of a pre-existing strong manufacturing and technology advantage of smartphones that would apply to smartwatches as well as deep marketing pockets. However, Fitbit would be competitive with these players due to the advantage of having a strong pre-existing presence among consumers with their fitness trackers and the backend app. They also have a strong partnership with several players in the health and wellness space leading to some limited switching costs. On the other hand, manufacturing costs of smartwatches seem to range between $80-$160 (Mobile Forward LLC Media, 2015) and would become low enough for other new entrants to enter the market as

wearable trackers with smarter functions gains more consumer acceptance. The threat would increase over time also if there is more standardization of the interfacing of this data into EHR systems, making it easier for consumers to switch.

Threat of substitutes: High

Fitbit's primary value proposition is on fitness tracking, users can always opt to use the cheaper fitness bands instead of smartwatches. This may not be a major problem for Fitbit, because they already hold a strong market presence in fitness bands. The other substitute that comes close to smartwatches is smartphones, although they do not have the same accuracy of biometric measurement for fitness tracking as the smartwatches which can sit close to the wrist. There are other technical challenges reported by the consumer in using smart-watches such as the need to download and maintain apps in order to make the watch smart. Additionally the small current battery life of smartwatches could influence the users away to substitutes. The core features of fitness trackers remain the same, so the switching costs for the consumer is relatively low.

Bargaining power of buyers: High

As shown in Figure 1, there are many players in the wearables market making for a tough competitive environment, some with deep pockets and an established market presence with buyers. The prices range from $250-$369 (Shanklin, 2017), indicating that competitors are trying to price smartwatch prices at the low end in order to get buyers. This tough price environment also leads to a variety of features that will continually be added or modified in order to gain market share. This gives better bargaining power to the buyers.

Bargaining power of suppliers: Low

The majority of production of smartwatches are in low-cost geos such as China with many alternative suppliers (Global Sources, 2017). The biometric data analysis algorithms and the application backend would be proprietary information of Fitbit and from there we move directly available to the customer, so forward integration would be difficult for the Original Equipment Manufacturer.

Rivalry among existing firms: High

The key competitors for smartwatch are Apple, Samsung, Lenovo and LG as shown in Figure 2 and in available product comparisons that are publicly available (Shanklin, 2017). The companies mix and match a variety of features to distinguish themselves from the competitors instead of duplicating features. This reduces the risk of price-cutting. The smartwatch industry is still in an infancy state with firms still trying to optimize between various features such as battery life, variety of apps, display quality, fashion-sense, tethering to a smartphone or with LTE, etc. This gives Fitbit a chance to innovate as its current smart fitness watch has limited capabilities such as text notification and on-board minimal Fitbit fitness apps. Fitbit has the challenge of selecting the right set of apps and building out an app store in order to deliver additional apps onto a smartwatch that some of the other competitors (e.g. Apple and Samsung) already have an advantage on. In addition the technology for new features will be relatively easy to imitate amongst the competitors once development. The smartwatch market is also likely to saturate with competitors after a period of time which will require Fitbit to move into more adjacent or related product markets.

Summary

The 5-forces Porter's model driving industry competition in the smartwatch industry is summarized in Figure 10.

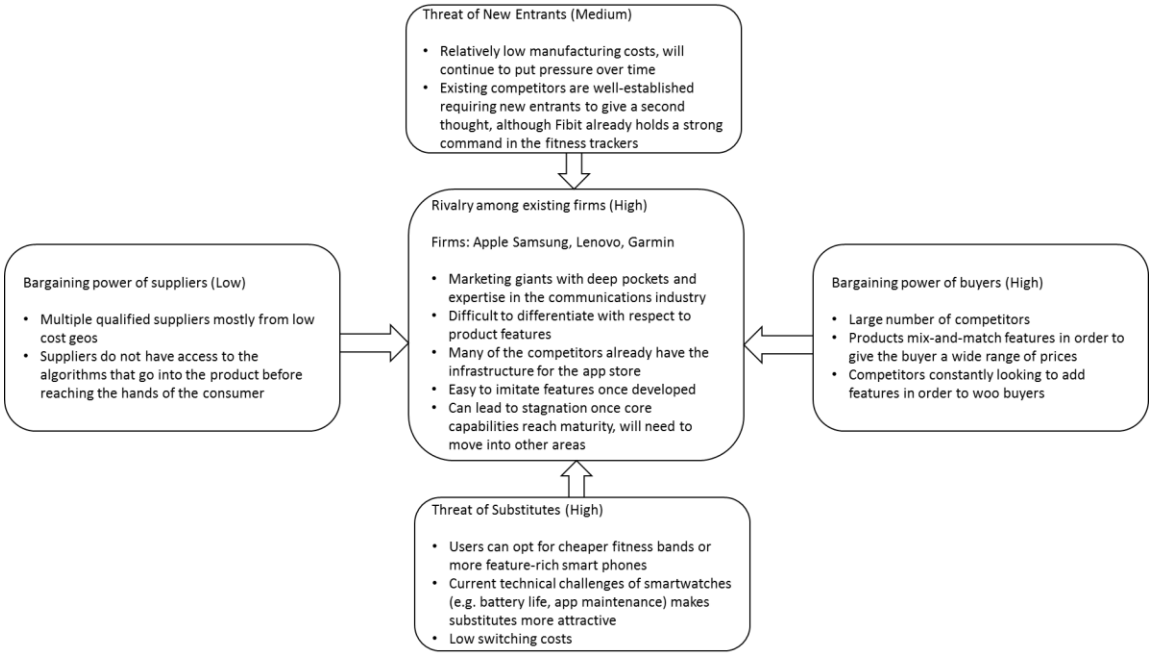

Figure 10. Smartwatch competitive landscape: Market-based view

In order to continue to drive forward innovation, it makes sense for Fitbit to diversify out from the fitness tracker industry to a close parallel, i.e. into the smartwatch industry. With their Smart fitness watch they already have a step in the technology needed for smartwatches with Bluetooth interface for incoming texts and Fitness apps that can interface with either iOS or Android devices. The smartwatch product strategy will allow Fitbit to leverage their core competency in fitness tracking and add on the "true" smartwatch competencies and yet enable them to increase their market presence in the health and fitness industry, which is their stated mission. Given that the smartwatch market is in its early stages of the Technology Adoption Life Cycle, Fitbit will have a chance to gain early movers

advantage if it can get the strategy right. However, as seen in the 5-forces analysis, internal rivalry is high as is the bargaining power of buyers and threat of substitutes, Fitbit will face a significant uphill battle to gain competitive advantage. Fitbit will need to look for ways to expand and acquire the technical knowledge quickly in order to be successful in this environment.

Competitive Landscape Analysis: Resource-based view

For the purpose of this research paper, the two resource-based view methodologies presented during the course will be leveraged. Resources comprise of all assets, capabilities, organizational processes and firm attributes that are in control of the firm on a semi-permanent basis (Daft, 1983). One method to develop strategies using a resource-based view is by studying the firm's resource position barrier and resource-product matrix (Wernerfelt, 1984). Another way to get to sustained competitive advantage is to study the firm's resources with respect to four empirical indicators – value, rareness, imitability and substitutability (Barney, 1991). For the purpose of this study, the following resources will be used:

1. Technological expertise: This comprises the set of hardware and software that is not only available on the product, but also enables seamless integration into a platform or ecosystem.
2. Production capacity: This comprises the set of resources that enable the firm to scale up and generate output with high yield returns.
3. Brand value: This is an attribute of the position of the firm in the consumer's view that affects the resource position barrier.

4. Healthcare regulatory experience: This refers to the expertise that the firm has built in dealing with healthcare regulations as the data is collected relates to healthcare.
5. International contacts: This refers to the valuation of the channels that will enable selling the product outside of the USA.

Analysis using the Wernerfelt approach

Resource position barriers: While Apple and Samsung might have a slightly higher advantage from a smartwatch perspective, Fitbit's resources and presence in fitness bands have made them almost synonymous with fitness. As we can see in Figure 2, Apple and Samsung have no presence in the fitness tracking industry while Fitbit holds a commanding 45% market share. The Apple Health App and Watch features do not have the resource expertise developed as Fitbit has. This enhanced resource position will give Fitbit an advantage when providing smartwatches which will also give them the added benefits of managing the health and fitness of a smartwatch buyer.

On the other hand, Apple and Samsung have a comfortable lead and resource expertise with the app store infrastructure for smartwatches. To fill this gap quickly, Fitbit has acquired assets from Pebble, Vector Watch and Coin, the latter pointing to a possible app that will enable payments.

Resource product matrix: Three markets have been chosen in this study to evaluate resource positioning. Direct to consumer, either domestically or internationally and selling via Healthcare agencies provided by Employers. A resource product matrix is shown in Figure 11.

Resource / Market	Technical exp.	Production cap.	Brand value	Regulations	International contacts
Domestic	X	X	X		
International	X	X	X		X
Health insurance agencies				X	

Figure 11. Resource product matrix applied to Fitbit smartwatch market

As shown in Figure 11, technical expertise, production capacity and customer loyalty are all important for direct to consumer selling. For channeling to consumers through the health insurance providers which could lead to some discounts for the insurance buyers, understanding and working under healthcare regulations become more critical. With this information, we can now assess Fitbit's resource positioning.

One item to note that is that the technical expertise (e.g. LTE, Ideal display) on smartwatches is relatively low compared to Apple and Samsung in the Smartwatch space. They need to research and identify those apps that are the most desired by the consumer on a smartwatch and Fitbit will need to acquire and integrate those resource expertise quickly.

Production capacity, while critical is easy to come by as there already exists a large number of manufacturers for the smartwatch devices (Global Sources, 2017).

Brand value has already been established for Fitbit in the US market, with the huge market presence in the fitness tracking space. International market presence for fitness tracking is yet to be captured, but as shown in Figure 5, the APAC region is

expected to grow even larger than the US market, i.e. 3-fold in the next 4-5 years. Fitbit will be served well to understand what the international market values and position its resources and establish contacts to capture the international market for smartwatches quickly.

Fitbit data has already been used in court cases and fitbit is working with government agencies on improvements of its data security. This is critical in the healthcare industry with strict Health Insurance Portability and Accountability Act (HIPAA) regulations (US Department of Health and Human Services, 2013). International contacts are most critical when selling outside of the US.

Analysis using the Barney approach

Using the same 5 resources from the last section, we can assess it using Barney's framework and the result is shown in Figure 12.

Indicators / Resource	Value	Rareness	Imitabiliy	Substitutability
Technical exp.	Yes	No	Yes	Yes
Production cap.	Yes	No	Yes	Yes
Brand value	Yes	Yes	Yes	Yes
Regulations	Yes	Yes	Yes	Yes
International contacts	Yes	No	Yes	Yes

Figure 12. Barney's framework applied to Fitbit resource model

Technical expertise: Fitbit has built substantial expertise in the area of fitness tracking methods and applications build on it (Fitbit, 2017). They do need to augment their skills on the other components and applications for the smartwatch. One key hardware challenge is the display, e.g. Apple used the catchy LED while Fitbit has traditionally used simple LCD to conserve battery life. Fitbit introduced the PurePulse® for continuous chest strap-free heart rate monitoring, the SmartTrack™, a set of algorithms that can decipher the activity into an exercise type using the 3-D accelerometer and the Sleeptracker, a set of algorithms that can map the amount of movement into sleep and awake patterns. In addition to having its own fitness tracking app, the continuous data collected on movement, heartbeat can be accessed by multiple other apps through well-established application program interfaces that can use the data for more interpretation. This has led to about 38 partners for Fitbit (Fitit, 2017), which is relatively uncommon in the industry to have such a strong platform. Leveraging the core continuously collected data, independent parties can develop apps to use the data and there are alternatives to the core competencies as well, hence this is not rare. The technical resource is easily imitable by other firms and substitutable with alternatives that can build off of a core 3-D accelerometer and heart rate monitor.

Production capacity: As seen in the product-based view section of suppliers there is a plethora of manufacturers for the device and downloading the software through the internet is very easy. This makes this resource while valuable, abundantly available, imitable and substitutable.

Brand value: Fitbit has been a recognized leader in the fitness-tracking among consumers for a few years now, especially positively valued due to its history of innovation. Its network of partners also gives Fitbit a formidable brand value. This makes this resource both rare and hard to imitate. However, with Apple and Samsung in the fray, the brand value could be substituted as those companies have a well-reputed brand name value as well.

Regulations: Some of the experience received with the usage of Fitbit data in court cases has given Fitbit an opportunity to be introduced to the tight regulations in the healthcare industry with HIPAA. Fitbit has revised their privacy methods based upon those learnings and already reached out to the Government (Sen. Chuck Schumer) officials to rectify these situations. This gives Fitbit a rare advantage of this skillset, but it is easily also acquirable by competitors.

International contacts: Fitbit's major competitors have an advantage on international market presence, making this capability not rare, imitable and substitutable.

Summary

From a resource based view, Fitbit can leverage its technical resources in the smartfitness watch (Fitbit Surge) space and augment it with additional apps and components required to enter the smartwatch market. Some of the recent acquisitions (Pebble, Vector Watch and Coin) indicate that this is the strategy that Fitbit is adopting. Production capacity is not a challenge with multiple qualifies suppliers in this business. Fitbit's resource strengths with Brand value and Regulations will help in this transition from fitness trackers. One key open in their

strategy is the international contacts and how Fitbit will penetrate that market to combat the presence of the likes of Apple and Samsung.

By applying these resources carefully, Fitbit will be able to add some product differentiation with the makers of other fitness bands and smartwatches to provide consumers with a unique value proposition thereby gaining some markup for premium design.

Discussion and Recommendations

The product-based view shows that the smartwatch market that Fitbit is entering is highly competitive with some stalwarts such as Apple and Samsung already in the space. The resource-based view shows that Fitbit has some strong resources in terms of technology differentiation in terms of fitness tracking, brand value and an introduction into the healthcare regulations in order to be successful in this market. However, the majority of resources are easily imitable and substitutable and there will be more entrants and substitutes that will drive down prices. Based upon both the perspectives, we can conclude that for sustained competitive advantage, while Fitbit is currently looking beyond fitness trackers and into smartwatches, in some foreseeable future, they will need to look other offerings to continually drive up competitive advantage of the firm. Examples would be integration with or moving into adjacent healthcare products are the Head Injury Management Systems for managing concussions in high-impact sports such as football and orthopedic applications such as shoes and other joints. Another approach would be to partner with health insurance agencies to capitalize on the

consumer desire to receive insurance discounts upon using fitness tracking products as shown in the Accenture study (Accenture, 2016).

Fitbit could deploy strategies to build out a fully integrated health platform that will combine data from multiple health tracking devices (e.g. blood glucose levels, activity/movement levels, heart rate/blood pressure) and healthcare advice (e.g. monitoring, alerts). They already have an excellent product in hand with a well-defined interface to their application with many partnerships already built. While the Delta Model (Hax & Wilde, 1999) has not been applied to Fibit in this study, even if Fitbit arguably can come out with the best product and a fully integrated platform, due to the high degrees of imitability and substitutability, it would be very difficult to achieve a system lock-in.

One of the technical challenges faced in the smartwatch space is to balance the battery life with the apps, display technology and LTE capabilities. Fitbit should carefully study the consumer needs in such a form factor to achieve the right balance in order to be successful. It is safe to assume that the consumer will still essentially carry a cell phone, so will require the smartwatch only for limited set of functions. Keeping the apps limited to a critical few will conserve battery life.

Having an eye-catching form factor will be critical as the intent is to appeal to those discerning customers who have a need to manage time closely, want more than just fitness bands and willing to pay a premium for that experience.

Integrating smartwatch expertise from Pebble, Vector Watch and Coin with Fitbit's core competency in fitness tracking will require the understanding and

employment of dynamic capabilities strategies (Teece, 2009) in order to integrate and reconfigure the resources to achieve competitive advantage.

From a competitive strategy perspective, given that while penetrating the smartwatch market is the right next step for Fitbit beyond fitness bands, there are three strategic thrusts for enabling a sustained competitive advantage path for the firm as described below.

Get the smartwatch right

Apple introduced their Smartwatch in April 2015, however fitness bands have continued to see a stronger, although close shipments in terms of volume as seen in Figure 5. There is significant price difference between a fitness band and the smartwatch and if Fitbit develops the right technology it can make its presence in the smartwatch while increasing both profits and their hold on the health and fitness tracking market.

Expand internationally

Fitbit was founded in 2007, compared to Apple (1976) and Samsung (1938) who have been around much longer. However, Apple and Samsung both have a wide range of products and services to cover, while Fitbit can focus. Fitbit should take advantage of its technical strengths in fitness tracking bringing the unique value proposition to the consumer to take advantage of the Asian market (see forecast in Figure 5) where prestige is displayed through fashion accessories such as smartwatches. While doing this, Fitbit will need to navigate the regulations and trade expectations of the host countries as well as comply with the export regulations of the USA.

Build stronger connections with the healthcare organizations

Fitbit's core competency and mission is in the health and fitness products. They are continuously looking for ways to apply the data being collected in very scientific perspectives (Fitbit, 2017). They can look into expand their application in many ways. For example, they can work with physical rehabilitation centers to integrate their products into the rehabilitation process. As healthcare organizations increasingly accept the usability of it for treatment, they can also be studied for preventative purposes to treat obesity and other ailments related to inactivity. These partnerships will also give Fitbit a chance to look and integrate new features into their products. They also have a strong partnership they have built along many vectors related to health and wellness businesses that will aid them in this strategic thrust.

Conclusion

Fitbit is uniquely positioned in the fitness tracking industry with a significant first mover advantage. As the fitness tracking industry starts getting crowded with imitators and substitutes, Fitbit has selected an excellent alternate product that will offer a higher premium opportunity.

As shown in the Product-based and Resource-based views, the smartwatch market is also likely to attract competitors quickly due to the low production costs and imitability once the "chasm" of the TALC is crossed. Fitbit can leverage its brand value and learning on healthcare privacy regulations, but they will also need to quickly build their resource base to bring in and integrate the technical expertise in order to bring a product to market quickly in order to gain first mover advantage.

Their acquisition of Pebble, Vector Watch Talent and IP as well as Coin seems to point to the right actions that they have taken along these lines.

It is important to note that Apple and Samsung are not likely to sit back. They will take notice of Fitbit and bring their might in marketing and production to compete with Fitbit. Fitbit will need to stay focused to both deliver a product that will have a clear differentiating factor along with a strong marketing effort. Expanding into the international market is also likely to consume resources and focus. Due to the tough competition, Fitbit will need to continually assess their strategy with respect to the market and ensure they don't have a single strategy in place. For example, if they continue to invest in working with healthcare organizations, that might prove a viable alternative growth path to smartwatches.

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