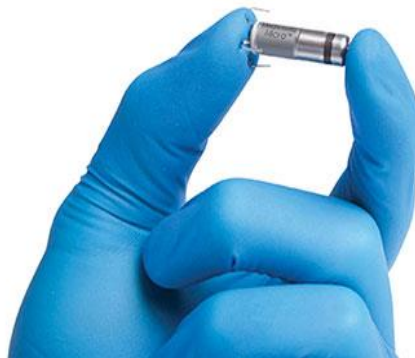




# Micra Transcatheter Pacing System(TPS)

## Tech Marketing Team Report



Course Title: Marketing Strategy

Course Number: ETM 555/655

Term: Winter .Year: 2017

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## 1. Executive Summary

This report consists of a marketing plan for the world's smallest pacemaker, Micra, which is produced by Irish-American med-tech company, Medtronic. This pacemaker is one of its kind due to its technological, cost effective, and state of art advantages over the conventional pacemakers. This product would be beneficial to patients, surgeons, hospitals, insurance companies, and government. The surgery process involving micra is invasive and minimal which is advantageous to patients and surgeons while being cost effective due to the cut in hospital stay and surgery costs. This report has been written in an endeavor to shatter the myth that conventional pacemakers are cheaper and Micra is only suited for premium customers. This report aims at raising awareness for the technological and financial benefits of using Micra targeted at health professional, insurance companies, and patients likewise. The company and product are explained thoroughly before an implementation of market and competition analysis which clarify the state and trends of pacemaker market and the deciding players in it.

Furthermore, as Medtronic aim to: "To contribute to human welfare by application of biomedical engineering in the research, design, manufacture, and sale of instruments or appliances that alleviate pain, restore health, and extend life.", this marketing plan suggests ways for this company to bolster its image in order to gain more trust from the people whom it affects with its products, especially Micra. The Healthcare industry and insurance companies which are inseparable parts of this plan are carefully considered and taken into account that reflect the unique ecosystem which is the healthcare industry (Especially in United States).

The total available market and total serviceable market are calculated and a three year geographical plan for selling Micra has been outlined. Moreover, different personas which are the people whom are affected by Micra are demonstrated and in general, the strengths, weaknesses, opportunities and threats which Micra is facing are explained. Following these analyses, marketing objective, positioning, strategy, growth plan, pricing strategy, distribution, brand management, and promotion are outlined. In the end, the implementation and control plans which are needed to be done are suggested before the complete business plan is presented.

## **1.1. Company Objective**

Medtronic is the world's largest medical technology company. The company was founded in 1949 as a medical equipment repair shop by Earl Bakken and his brother-in-law, Palmer Hermundslie. Over the years, Medtronic developed additional core technologies, including implantable mechanical devices, drug and biologic delivery devices, and powered and advanced energy surgical instruments. Today, our technologies are used to treat nearly 40 medical conditions. We are working with new partners, in new ways to improve global healthcare. With the integration of Covidien as our Minimally Invasive Therapies Group, we can address the healthcare needs of more people around the world than ever. As a part of the company mission that states, "To contribute to human welfare by application of biomedical engineering in the research, design, manufacture, and sale of instruments or appliances that alleviate pain, restore health, and extend life [1]." by committing to improving lives through our medical technologies and solutions, combining the capabilities with the expertise to change the way we work together to achieve the best outcomes, and committing to think differently in solving problems to deliver better health.

## **1.2. Marketing Objective**

We are a global healthcare solutions company committed to improving the lives of people through our medical technologies, services, and solutions. In fact, our R&D expenditure has hovered around 9% of sales since 2008 while revenue has grown steadily, underscoring the focus on innovation. We will create economic value by influence the synergies from the seamless integration of Covidien, once the transaction is closed. Also, the company is implementing "value-based payment models" like bundled payment initiatives that will further boost its economic value [2]. Thus, we are taking significant and concrete steps in putting our three-pronged growth strategy to work. These steps can be directly linked to specific aspects of growth in the company's business that will show our growth strategy in the near future. Indeed, the widespread adoption of Medtronic's Wireless Pacemaker will be a huge driver for the company growth in near future.

Medtronic's Micra is the world's smallest pacemaker and is 30% smaller in size compared to its competitor St. Jude's Nanostim which can give the company a competitive edge. We received the CE mark for our wireless pacemaker earlier this year and rolled-off the device's

sale in Europe. By being an early entrant into the leadless pacemaker market, we are expected to capture a large share of the nascent leadless pacemaker market, which according to some reports is expected to reach \$700 million in 2016 of the \$3.5 billion pacemaker market [2].

### **1.3. Business Definition**

Since 1982, our company has regularly appeared on Fortune's Most Admired Companies list. The "Most Admired" list is compiled with input from leading financial analysts, top executives, and board members from major corporations around the world. In fact, this year we are ranked third within the Medical Products and Equipment category, up from ninth in 2015 and marking the second year in a row in which we have been in the top five. More importantly, our company biggest achievement in Medicine for 2016 is Micra that is known as the world's smallest pacemaker [3]. As more demand appears in redefining the patient experience and reducing complications associated with traditional pacing technology is the fact that patients have more specific needs for the performance of pacemakers. Micra the leadless pacemaker satisfies these needs/wants and offers solutions to solve problems which patients may have with another traditional pacemaker. The miniaturized Micra™ transcatheter pacing system (TPS) is the world's smallest pacemaker, not only satisfies this need for customization but also provides the benefit of leadless pacemaker that is self-contained within the heart. The advantage of no visible lump or scar, shoulder mobility is maintained, and high expectation for patients to experience a better quality of life, it continues to build upon itself to further connect patients.

### **1.4. Competencies**

When our company became the leading MedTech Company after its amalgamation with Covidien [4], it has become a strong competitor for other companies that offer similar product lines and core competencies. Among Intuitive MedTech competitive advantages are the number of complications, 48% fewer major complications than traditional pacemakers in the trial's historical control [5]. Pricing, cost-effectiveness, and procedural time could become significantly important factors for the expensive devices. Our product Micra was estimated to cost around \$10,000—whereas traditional pacemakers average \$2,500—on the assumption that savings in surgical costs would make it cost-effective. Indeed, sheath narrowness, the process of removing the device, and battery life can also be a big part of

Micra competencies areas. Micra also has superior technology that provides better outcomes for its patients and can help to reduce the length of hospital stay for patients. An example of a primary competitor is St. Jude and their offerings Nanostim, whose stated mission is "Developing innovative medical technologies is one way we fulfill our commitment to transforming the treatment of some of the world's most expensive epidemic diseases [6]." Nanostim pacing system is similar to Micra pacing system, they are both small in size, stimulates your heart when needed, requires no leads, no chest incision, no scar and no permanent lump under the skin where the pacemaker sites. Micra™ transcatheter pacing system (TPS), has been the dominant player in the field of pacemakers industry. Furthermore, we continues to dominate the cardiology market; sales forecast to reach \$14.1bn in 2022 [4]. Micra has the ability to be cheaper in the hindsight compared to conventional pacemakers. The, surgery cost for conventional pacemakers is about \$14,000 added to average of \$2,500 to \$4000 device cost and about \$15,000 to \$20,000 hospital cost stay for 2 days (total of about \$38,000). Although Micra is more expensive as a device (\$10,000), patients and affected parties can avoid the hospital stay cost and cheaper surgery costs of about \$4000 (Total of about \$14,000)[7] .

## 2. Company Analysis

### 2.1. Background

Medtronic is headquartered in Dublin, Ireland and was founded in 1949 by Earl Bakken and his brother-in-law, Palmer Hermundslie. At that time, our company was a medical equipment repair shop. We have a deep moral purpose and an inner drive to use our scientific knowledge and entrepreneurial skills to help others. Nowadays, almost 40 medical conditions can be treated by using our technologies. Basically, there are four areas in where our company provides technologies, services, and solutions: cardiac and vascular, restorative therapies, minimally invasive therapies, and diabetes. A report in 2016 respectively shows revenue in each area: \$10.2 B, \$7.2 B, \$9.6 B, and \$1.8 B. Our company operates with more than 260 locations worldwide in more than 115 countries. We have about 88,000 employees from various backgrounds. The company has clear vision in culture of collaboration and innovation. We believes that diversity and inclusion are the key to innovation and having employees with unique backgrounds and experiences formed in diverse teams of innovators will drive healthcare forward and remain global leader in medical technology and solution.

Moreover, we collaborates with others across the industry to expand our role in healthcare. Consequently, we were listed as one of the “World’s 25 Best Multinational Workplaces” by that’s Why the Great Place to Work Institute® and published by Fortune magazine. Also, we was placed on DiversityInc’s Top 50 Companies for Diversity, and the Human Rights Commission’s Best Places to Work for LGBT Equality [1].

## **2.2. Pacemakers**

A pacemaker is a small device that's placed in the chest or abdomen to help control abnormal heart rhythms. This device uses low-energy electrical pulses to prompt the heart to beat at a normal rate. In other words, Pacemakers are used to treat arrhythmias which are problems with the rate or rhythm of the heartbeat [8]. Our company provides full line of pacing systems and services, including state-of-the-art devices, leads, programmers, and remote patient management systems. There are many devices including Micra, leadless pacemaker, a product we are working on the marketing plan. The details for some devices are shown in the table 1 in Appendix A. The company also provides a full line of pacing leads designed to meet patient preferences and their needs.

## **2.3. Leadless vs. Lead Pacemakers**

Both lead and leadless pacemakers require approval by the Food and Drug Administration (FDA) and sometimes there are additional restrictions upon availability for an individual patient [9]. However, unlike lead pacemakers or conventional pacemakers which are surgically implanted medical devices, a leadless pacemaker is a self-contained device implanted directly in the right ventricle chamber of the heart and it does not require the use of wired leads to provide an electrical connection between the pulse-generating device and the heart. The report from clinical trial shows that leadless pacemakers involve less complications than conventional pacemakers. The complication rates between leadless and conventional pacemakers are shown in the table below.



Table 2: complication rates between leadless and conventional pacemakers [10]

Complications	Leadless pacemakers	Lead pacemakers
1. Lead dislodgement	0.97%	1.26%
2. Vascular complications	1.11%	0.46%
3. Cardiac perforation or pericardial effusion	1.53%*	0.32%
4. Thoracic trauma	0.00%	3.90%
5. Lead complications	0.00%	10.12%
6. Infection	0.00%	2.18%
7. Pocket complications	0.00%	1.35%

\*perforation rate could be reduced to below 1% as experience grows

Table 3: Midterm outcomes from 1 month to 1.5 years [10]

Complications	Leadless pacemakers	Lead pacemakers
1.Lead dislodgement	0.00%	0.23%
2.Lead complications	0.00%	1.75%
3.Infection	0.00%	2.34%
4.Pocket complications	0.00%	0.93%

According to the table 3, while the infection rate for the leadless pacemaker remained 0%, the infection rate for the conventional pacemaker increased when passing a month after implantation. However, even though leadless pacemakers show satisfied result in complication rates, there are some concerns about perforation rate and a doubt in the quality of device at 5, 7 years, et cetera. Also, today, leadless pacemakers are still limited to single-chambered implant only.

## 2.4 Micra

Micra is only one leadless pacemaker available in pacing system line in Medtronic. It was officially unveiled to the market in 2016 after it was approved by FDA. Even though a leadless pacemaker from St. Jude called Nanostim was introduced to the market in 2013, it was not successful as it involved with death events and now neither St. Jude or Nanostim exist in the market. This made Micra become the only one leadless pacemaker in the global

market right now. Recently, Micra known as the world's smallest pacemaker earned recognition from US news and world report as one of the biggest achievement in medicine.



Figure 1: Micra and conventional pacemaker in comparison

#### **2.4.1 Product Value**

Micra is the world's smallest leadless pacemaker and only one in the market right now. It is 93% smaller than conventional pacemakers and offers high technologies, Ultra low-power circuit design delivering an estimated average 12-year battery longevity, and MRI SureScan™ allowing the patient to be safely scanned using either a 1.5T or 3T full body MRI [1]. Unlike conventional pacemaker Micra doesn't need the lead as it is delivered percutaneously via a minimally invasive approach, directly into the right ventricle. This means it is implanted endoscopically and thus, it eliminates traditional surgery which causes visible lump or scar. Also, this could reduce cost involved in implantation through surgical procedure which is averagely \$14,920 [11]. It shows 99.2% implant success rate, 0 dislodgements, 0 systemic infections in 725-patient global trial. This would also require shorter time for implantation procedure as fast as 20-45 minutes and also shorter time for recovery [12]. Moreover, patient's shoulder mobility is maintained. This would give patients experience of better quality of life. Essentially, without the lead, Micra could eliminate related-lead complications. Thus, it shows 48% fewer major complications than traditional pacemakers [1]. Furthermore, it can be turned off at the end of service and additional device can be added.

### **2.4.2 Advantages**

There are some competitive advantages. First, size and scale, our company is the largest medical supply technology company based on total sales. This enables us to have variety of products. Therefore, we could gain benefits from various streams and not depend solely on one product. Also, this allow us to grow via acquisition which help us move into faster growing niche markets [13]. Second, global footprint, we play oversea by using the expertise gained in the US and developed Europe to increase our exposure to emerging market countries, especially China and Asia countries. Currently, our growth rates in emerging market are above that of the corporate average in the industry. Third, strong cash flows, our company generates strong cash flows and operates with margins around 75-76%. Again, according to this, we could grow via acquisition. Finally, focusing on the product, the competitive advantage for Micra can be seen as its values previously discussed in the product value section. Moreover, here is more clarification about Micra in terms of the cost advantage.

Since the estimated cost for Micra is about \$10,000 and there is no need for surgical procedure or the hospital stay, the final cost of implantation with Micra would approximately be in between \$15,000 - \$20,000. On the other hand, the average cost for the conventional pacemaker device is range from \$2,500-\$10,000 [14][15]. However, it needs additional payment as it involves surgical procedure and typically needs hospital stay. So, the average final cost for the conventional pacemaker would be in between \$19,000 – \$96,000 depending on the types and locations they are going to get [16]. For example, in Columbus Ohio, the total cost for a pacemaker implant that includes the surgery and anesthesia and a hospital stay for five days is \$19,651. In the western states, like Wisconsin, the average cost of pacemaker is \$28,348. Therefore, Micra appears to be cost-effective and provides better outcome as less complications.

### **2.4.3 Insurance (The Elephant in the Room)**

In the U.S., Leadless pacemakers are covered by Centers for Medicare and Medicaid services as of November 14, 2016 [17]. According to Medtronic's Hospital Outpatient procedure report, transcatheter insert or replace leadless pacemaker falls into J1 category which means

the primary service will be packaged by the Medicare payment [18]. Moreover, most of the countries that Micra is sold in have universal healthcare. This includes Norway, New Zealand, Germany, Belgium, Kuwait, Sweden, Canada, Netherlands, Austria, UAE, Finland, South Korea, Greece, Israel, Japan, etc [19]. For China, since its government has widened drug insurance coverage, a trade-off between price and volume has been created due to China's price negotiations for multinational companies such as Medtronic [20]. In terms of private insurance companies, Micra appears to be in optimistic position as a study published in the New England Journal of Medicine in 2016 found that 96 percent of 725 Micra patients in a nonrandomized clinical trial had no major complications six months after the implant compared favorably to a historical control population, in which more than 7 percent of 2,667 patients had major complications six months after implants of conventional devices [21]. Also, Micra seems to be more advantage in terms of cost-effective compare to the conventional pacemakers.

In this section, several points regarding insurance and their influence on Micra has been explained.

1. Leadless pacemakers are covered by Centers for Medicare and Medicaid services as of November 14, 2016 [17].
2. Based on Medtronic's Hospital Outpatient procedure report, Transcatheter insert or replace leadless pacemaker falls into J1 category which means "The Medicare payment for the primary service and all adjunctive services provided to support the delivery of the primary service will be packaged. [18]"
3. Since A study published in the New England Journal of Medicine in 2016 found that 96 percent of 725 Micra patients in a nonrandomized clinical trial had no major complications six months after the implant. That compared favorably to a historical control population, in which more than 7 percent of 2,667 patients had major complications six months after implants of traditional devices, private insurance companies are looking at Micra more optimistically [21].
4. Most of the countries that Micra is sold in have universal healthcare (Norway, New Zealand, Germany, Belgium, Kuwait, Sweden, Canada, Netherlands, Austria, UAE,

Finland, South Korea, Greece, Israel, Japan, etc. [19])

5. In case of emergencies for patients who do not have insurance coverage, no significant marketing is needed (Other than brand recognition and ease of surgery) since the patients is obligated to use the product
6. Medtronic should convince more insurance companies in long-term cost effectiveness of Micra compared to the conventional (even generic) pacemakers
7. For China, since its government has widened drug insurance coverage, a trade-off between price and volume has been created due to China's price negotiations for multinational companies such as Medtronic [20].

### **3. Market Definition, Potential, and Demand**

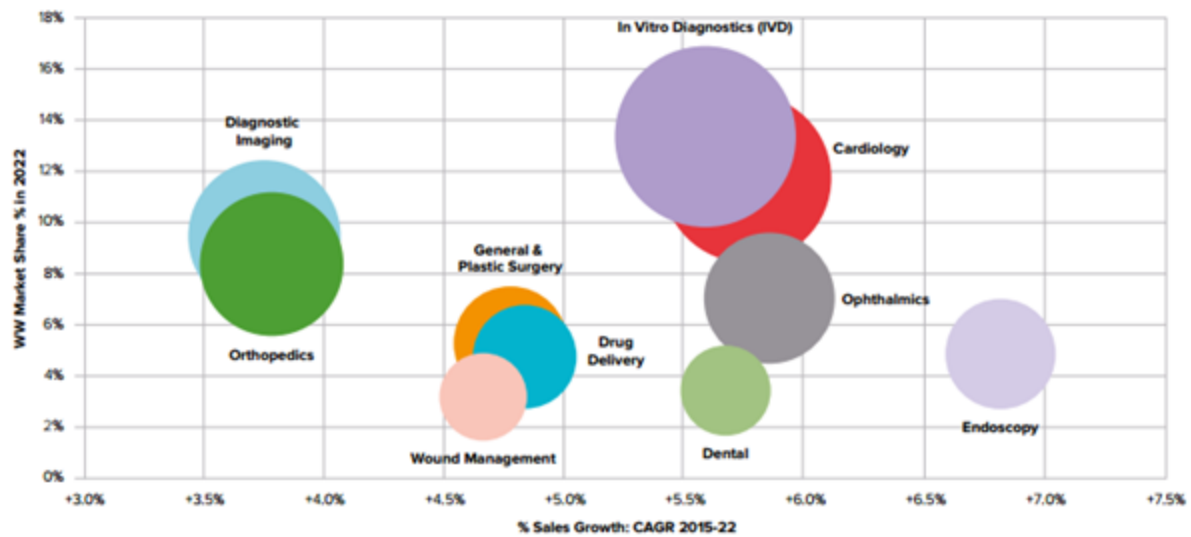
In this sections, Market analysis. behavior, trends, Size, geographical status. and value propositions are reviewed respectively.

#### **3.1. Market Analysis (Overview and Behavior and Trend)**

In general, the cardiology market is in a good position based on projected worldwide sales and sales growth which is only second to in vitro diagnostics in terms of sales and second to endoscopy in terms of sales growth [22].

### Analysis on Top 10 Device Areas in 2022, Market Share & Sales Growth (2015-22)

Source: EvaluateMedTech\* September 2016



Note: Size of Bubble = WW Sales in 2022

Also, in terms of strongest cardiology companies in the market, Medtronic is the first based on worldwide sales and compound annual growth rate. Boston scientific used to be the second on this list before the acquisition of St. Jude medical by Abbott Laboratories in 2017 at about \$25 billion [23]. Our company itself acquired Covidien in January 2015 at about \$49.9 Billion [24]. With these changes, Abbott labs now has leapfrogged Boston Scientific into the second place with \$9.9 Billion in projected worldwide sales in 2022 and a total of 15.9% of market share in the mentioned year. our company, with 10.2 billion dollar in sales in 2015 and the projected sales of 14.1 billion in 2020 has 24.3% and 22.6% market share in 2015 and 2022 respectively which shows that there is a threat of new entrants in the market which leads to shrinkage (although slight) of our market share.

## WW Cardiology Sales: Top 10 Companies & Total Market (2015/22)

Source: EvaluateMedTech\* September 2016

Rank	Company	WW Sales (\$m)		CAGR 2015-22	WW Market Share		Rank Change 2015-22
		2015	2022		2015	2022	
1.	Medtronic	10,218	14,107	+4.7%	24.3%	22.6%	-
2.	Boston Scientific	4,977	7,068	+5.1%	11.8%	11.3%	+1
3.	St. Jude Medical	5,066	6,869	+4.4%	12.0%	11.0%	-1
4.	Edwards Lifesciences	2,494	4,599	+9.1%	5.9%	7.4%	+1
5.	Terumo	1,936	3,189	+7.4%	4.6%	5.1%	+2
6.	Abbott Laboratories	2,688	3,065	+1.9%	6.4%	4.9%	-2
7.	Johnson & Johnson	2,036	2,500	+3.0%	4.8%	4.0%	-1
8.	W. L. Gore & Associates	1,725	2,121	+3.0%	4.1%	3.4%	-
9.	Asahi Kasei	1,171	1,984	+7.8%	2.8%	3.2%	+2
10.	Getinge	1,373	1,724	+3.3%	3.3%	2.8%	-1
Top 10		33,683	47,228	+4.9%	80.0%	75.8%	
Other		8,442	15,069	+8.6%	20.0%	24.2%	
Total Industry		42,125	62,297	+5.7%	100.0%	100.0%	

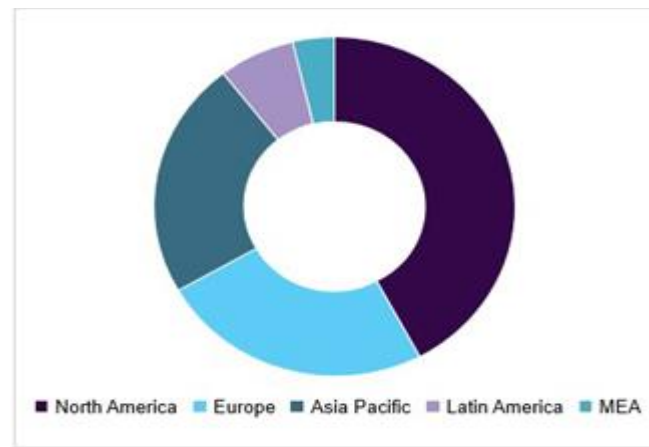
Note: General Electric & Philips do not disclose cardiology sales.

In general, new product development, geographical expansion, collaboration, mergers, and acquisition, and pricing strategies are of significant importance for the players in this market. As an example, before the merger of St. Jude medical, this company received the FDA approval for SynAV (a cathode ray tube software) which was already approved in Europe.

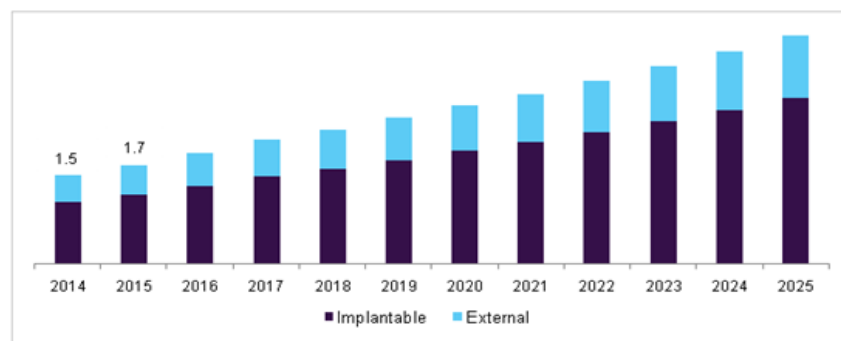
From the geographical scattering of the market, North America Regional Market to Register an Increasing CAGR of 9.2% between 2015 and 2025 (Currently Valued at \$6.05 bn) reaching \$12.85 Billion by the end of the 2025. The increasing prevalence of Cardiovascular Diseases (CVDs), supportive reimbursement, and technological advancements are the key driving factors governing the growth of the market globally. Also, developed healthcare infrastructure, presence of planned reimbursement structure, greater per capita healthcare spending, and higher awareness among the population about advanced technologies supported the significant growth of this regional segment. Europe is the second-largest market for pacemaker. Asia pacific region is expected to be growing in pacemaker market [25] [26]. North America held more than 40.0% share of the global pacemaker market in 2015. On the other hand, Asia Pacific is anticipated to exhibit sturdy growth over the next eight years. Several economic government initiatives are anticipated to create a free and open economy. For instance, implementation of Goods and Services Tax (GST) in India to avoid the tax cascading effect is anticipated to bring down the tax rate, thus improving the ease of doing business in the country. Also, recently introduced economic reforms in China, promoting a well-balanced and open economy, has had a significant impact in shaping the



global economy in 2016, thus presenting more investment opportunities for multinational players in this region.



Global Pacemaker Market Share, by region 2015



U.S. Pacemaker Market, by Product, 2014-2025 (USD Billion)

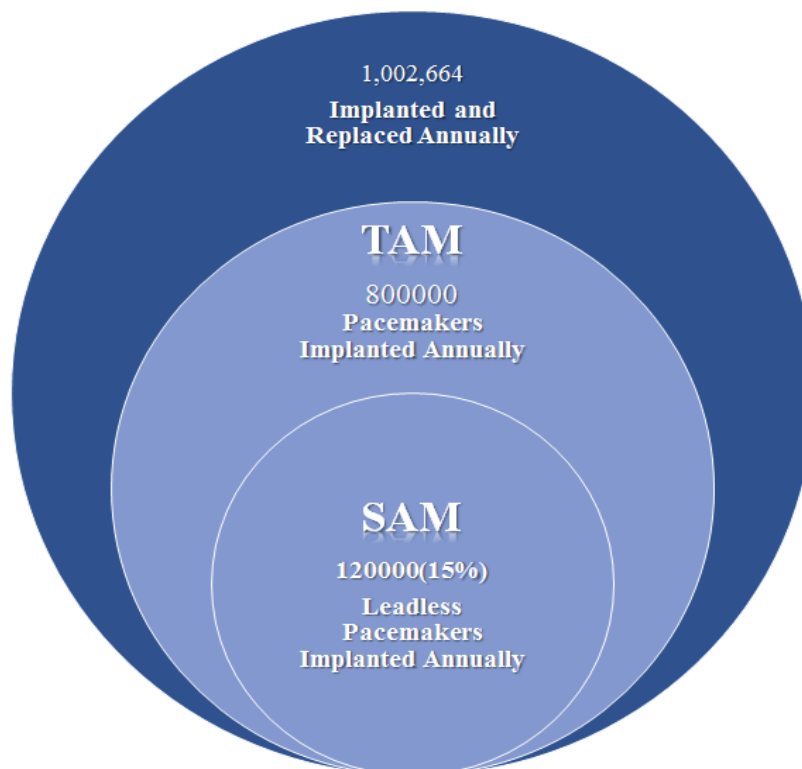
### 3.2. Market Size

Based on the 11th world survey of cardiac pacing and implantable cardioverter-defibrillator, annually, 1,002,664 implants and replacements are implemented around the world. Of this number, only 800,000 pacemakers are implanted for non-replacement reasons. Furthermore, only about 120,000 leadless pacemakers are implanted annually. As of now, leadless pacemakers can only be used in Single-chamber heart implants and not in dual-chamber heart implants. This is the reason behind the fact that only 15% percent of implantations belong to the leadless pacemakers. As of now, since Micra is covered by the Affordable Care Act [27] and thus, covered in terms of medicaid and medicare, the insurance problem is not a big issue for it. However, due to higher price of Micra, it can be the victim of insurance companies

selecting the generic, cheaper, and conventional pacemakers. This can however change with the education and raising awareness that Micra would be the cost effective choice when taking surgery and hospital stay and recovery time into account. As of now, USA and Germany have the highest pacemaker demand with 225,567 and 927 implants annually, respectively. Virtually all countries showed increases in implant numbers over the 4 years between surveys (2008-2011)[28]. Based on these numbers, the Total Available Market (TAM) for Micra is 800,000 units per year as the Total Serviceable Market is at about 120,000 devices annually. Taking into account the average price for Micra (\$10,000), the potential sale would be at \$1.2 Billion.

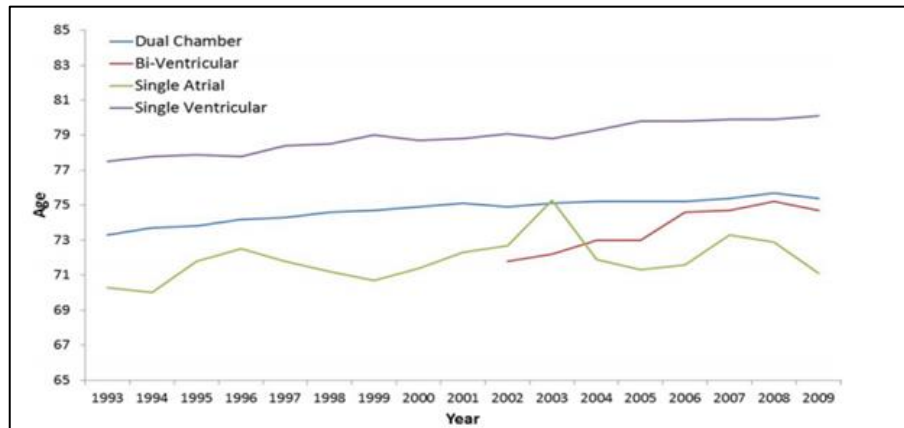
Annual Pacemaker Implants (TAM)	800000
Single Chamber Implants (SAM)	120000
Average Purchase Price	\$10,000.00
Potential Sale	\$1,200,000,000.00

Potential Sale for Micra



TAM and SAM for Micra

From the demographic point of view, Average age of pacemaker patients at implantation over time has slowly increased. Also, the rate of dual chamber pacemaker implantation (number of implants/100,000 persons) has increased over time until 2001 when utilization reached a plateau. Biventricular pacemakers, introduced in 2002, have leveled off after their initial introduction while the utilization of single chamber atrial pacemakers remains low [29][30].



Age trends for the use of pacemakers 1993-2009

Moreover, countries like Japan, Italy, Greece, Germany, and Portugal all have “over 65” population of over 20%. Although our company has already branches in about 160 countries, it would be good to take these informations into account for any potential addition of countries. The countries that we currently have branches in them are shown in the map below[31].



### The Points Medtronic Currently Sells in

The following countries possess the biggest negative net exports for cardiac pacemakers during 2015. Investopedia defines net exports as “the value of a country’s total exports minus the value of its total imports”. Therefore, the numbers below demonstrate the deficit between the value of each country’s imported heart pacemaker purchases and its exports[32].

1. United States: -US\$385 billion (net export deficit up 92.1% since 2011)

2. Japan: -\$317.9 million (down -9.6%)

3. France: -\$262.7 million (down -21.4%)

4. United Kingdom: -\$234.6 million (up 34.4%)

5. Netherlands: -\$230.6 million (down -233.6%)

6. Italy: -\$208.8 million (up 30.9%)

7. Australia: -\$174.6 million (up 20.6%)

8. China: -\$159.3 million (up 70.9%)

9. Spain: -\$113.4 million (down -52.9%)

10. Canada: -\$99.8 million (down -15.8%)

11. Poland: -\$48.4 million (up 3.4%)

12. Slovakia: -\$36 million (up 73.1%)

13. Venezuela: -\$34.5 million (up 161.5%)

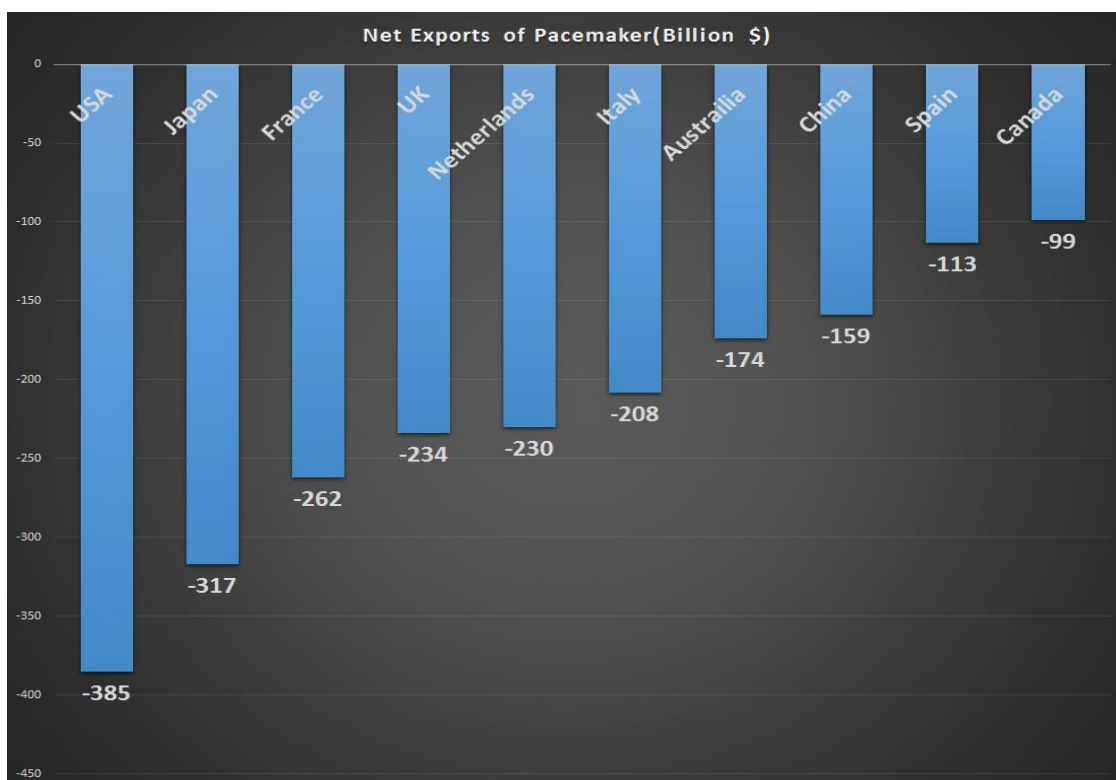
14. Czech Republic: -\$33.6 million (down -63.4%)

15. Brazil: -\$33.5 million (down -21.9%)

Medtronic has the following policy in terms of dealing with Negative Cash Flows:



The data shown above are demonstrated in the chart below:

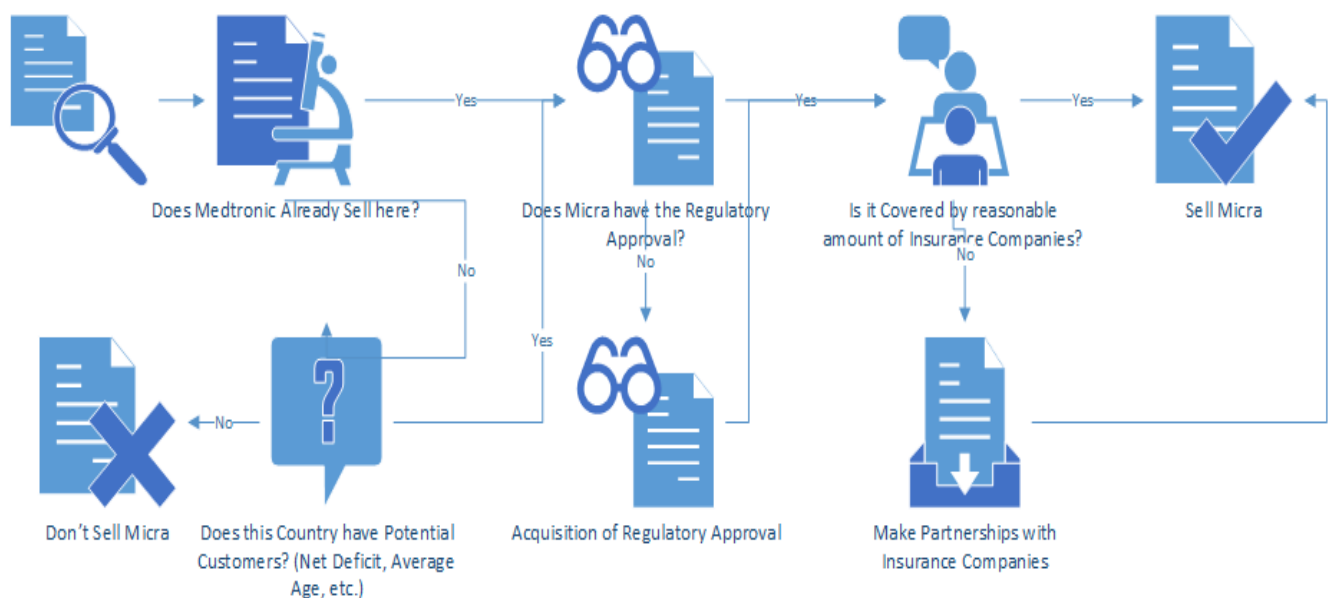


Net Exports sales by Country [33]

United States possesses the biggest deficit in the international trade of cardiac pacemakers. On the other hand, this negative cash flow emphasizes America's strong competitive disadvantage for cardiac pacemakers but also stresses opportunities for cardiac pacemaker-producing countries that help satisfy the significant demand from American users. As it can be seen from the map, Medtronic and Micra are not currently sold in Brazil, Venezuela, and Poland. Moreover, U.S. and its states are not completely covered in terms of Micra sales

coverage. A better coverage in Pacific Northwest (also Vancouver), and a better coverage in South America can bolster company's sales and revenues. In February 2017, Micra received to Japanese regulatory approval to sell in Japan, which is the second country with biggest net deficits and possess an old average in terms of age and thus, a great move from the company. All in all, the company should continue Micra is countries which our company already sells in if we have the approval and are covered by insurance reasonably. Also we should try penetrating countries which they are not still in but have potential of customers as mentioned before. The diagram below demonstrates Medtronic's strategy in terms of pondering entrance to different countries in terms of market. The different levels of evaluation consists of 3 questions:

- 1- Does Medtronic already sell in the targeted country?
- 2- Does Micra have the regulatory approval to sell in the respective country?
- 3- Are the costs of Micra fully, or partially covered by public and/or private insurance companies in the respective country?



Flowchart for Selecting Countries to Sell Micra

### 3.3. Healthcare: A unique Market Environment

The US health care market can be a tempting target to companies, entrepreneurs and investors outside of health care. There's a lot of opportunity in health care, yet the tracking record is quite poor. While healthcare has more regulation than many other industries, regulations are only the most obvious tip of the iceberg, with more substantive and subtle structural challenges of entering and succeeding in health care. The structural described below are important to products targeting the industry. In addition to regulations, there are three additional ways that the health care market can stymie innovation.

Health care is a cottage industry with many independent entities contributing to an episode of care. These "cottages" are *trading partners* amongst themselves and health care *providers* to patients. No health care market is completely vertically integrated except for some nationalized health care systems. Categories of trading partners can be very different in how they deliver care, how they're paid and who pays them. Coordinating care across trading partners has traditionally been done using phone calls and fax machines. It's not easy to come to solution in meeting the needs collecting the entire trading partners.

Healthcare is Organized and Delivered as a Community. There's only patients who will travel to receive health care, and most people are not willing to drive very far. This means that healthcare trading partners are organized within the travel distance of a group of patients that is smaller in urban areas and larger in rural ones. Trading partners are only interested in the patients and other peer trading partners within their community. Payors, health care insurance companies, are the big exception to this as they sell the same products across multiple communities on a statewide basis. The community nature of health care has a significant impact on adoption strategies due to the need to quickly achieve a minimum level of adoption among target users – patients and/or trading partners – to be able to produce value for customers.

Another different area for healthcare is market dislocation. Health care is a B2C market; meaning the person who selects and buys a product/service is the same person who uses and pays for the product – not in most health care markets. Health care also has multiple personas, rather than a single consumer, that can control one or more of the process steps

(select, buy, use and pay) required to make a basic health care transaction. These personas are the patient, health care provider and payor.

### **3.4. Value Proposition**

A value proposition is a promise of value to be delivered, communicated, and acknowledged. It is also a belief from the customer about how gain (benefit) will be provided, experienced and acquired [34]. Businesses can take advantage of the value proposition to not only target customers, but partners, employees and suppliers. The creative statement should be able to convince other businesses to generate an alliance, which will be beneficial in hindsight. Joining forces with another business can be a very robust strategy. At times when businesses merge, their strengths seem to stand out, and their weaknesses become less appearing. This helps their products and services come on top to customers. Generating an alliance with other organizations can bolster business brand awareness; create a larger customer base, new insights on products and achieve new technologies to improve how the business runs. This strategy creates a competitive advantage over other competitors [35]. In this section, the value proposition has been explained through Gains, Pains, and Customer Jobs. Moreover, Gain generators, Pain relievers, and Products and Services have been suggested based on Medtronic and Micra's context.

#### **3.4.1 Gains**

In order to address value propositions that Micra possesses, Gains, Pains, and Customer jobs are taken into account based on the value proposition canvas. In terms of Gains, having fewer complications and getting rid of the fear caused by the migration of the pacemaker and tissue trauma are somethings that every customer would cherish as they are doing this surgery to get rid of their health problems and not adding to them. Furthermore, smaller pacemaker are both easier to insert and look better in terms of avoiding revealing pockets which can discourage some customers from getting the surgery. From the perspective views, getting through security checks at airports and getting MRI can become a big pain since they have to undergo additional steps (Especially for MRI). Lower and more stable chronic threshold, and addability and modifiable pacemakers are also highly desired by customers. Maybe one of the biggest gains considered by customers is the reduction in their surgery and hospital stay costs which can significantly overshadow the higher cost of Micra. For conventional pacemaker



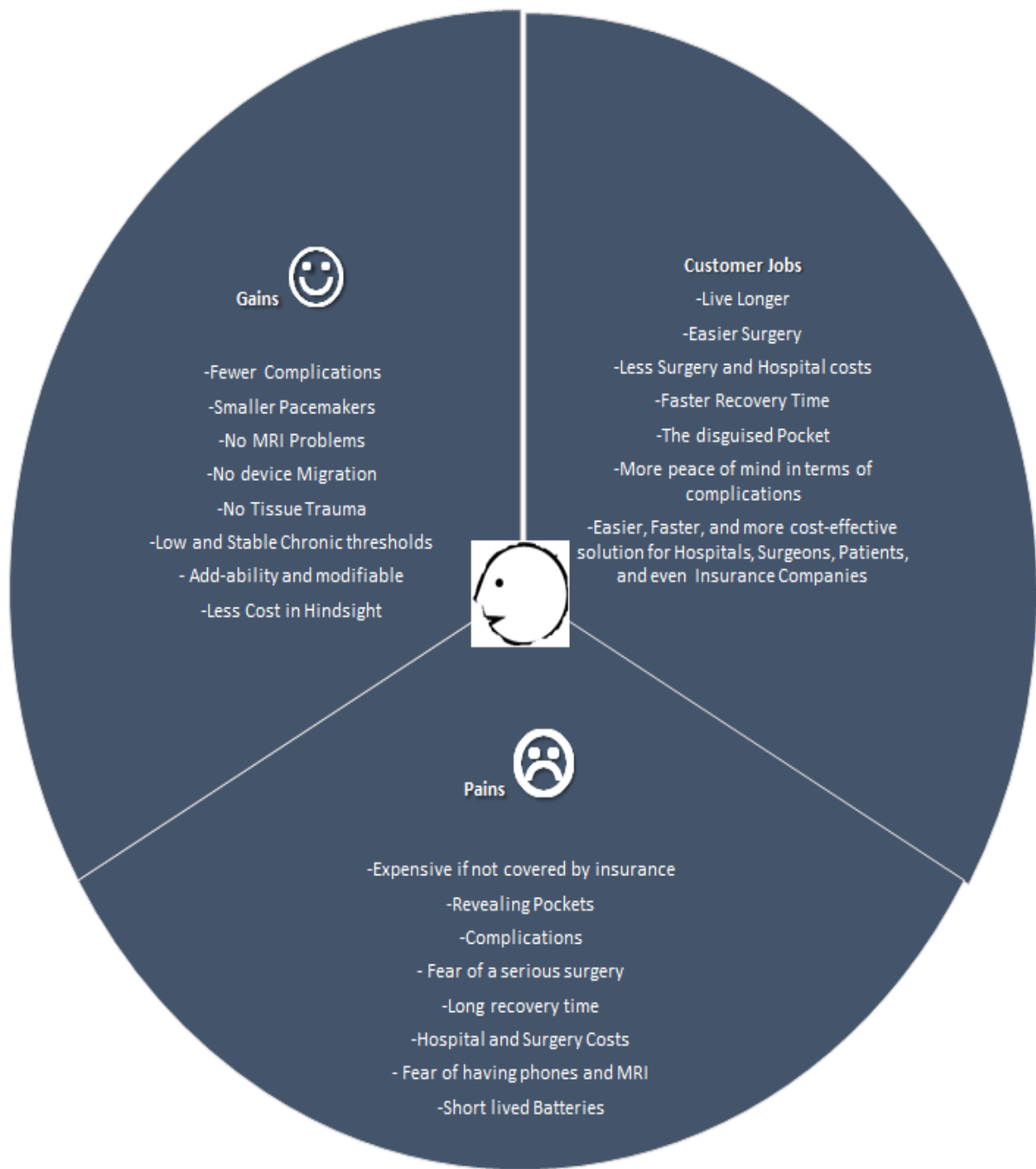
surgeries, patients should stay in the hospital for couple of days which would add up the cost of their pacemaker implantation significantly. Micra is placed in the heart via a vein in the leg, thus no chest incision, scar, or bump that results from conventional pacemakers. This would dramatically decrease the cost of surgery. Micra would cause 80% less major complications than traditional pacemakers and is 93% smaller than conventional pacemakers, patients are safely scanned using either a 1.5T or 3T full body MRI and would cause no device migration. Micra would also minimizes tissue trauma during deployment, repositioning and retrieval and has optimal electrode tissue interface allows for low and stable chronic thresholds. Micra can also be turned off at the end of service and transcatheter or transvenous can be added to it.

### **3.4.2 Pains**

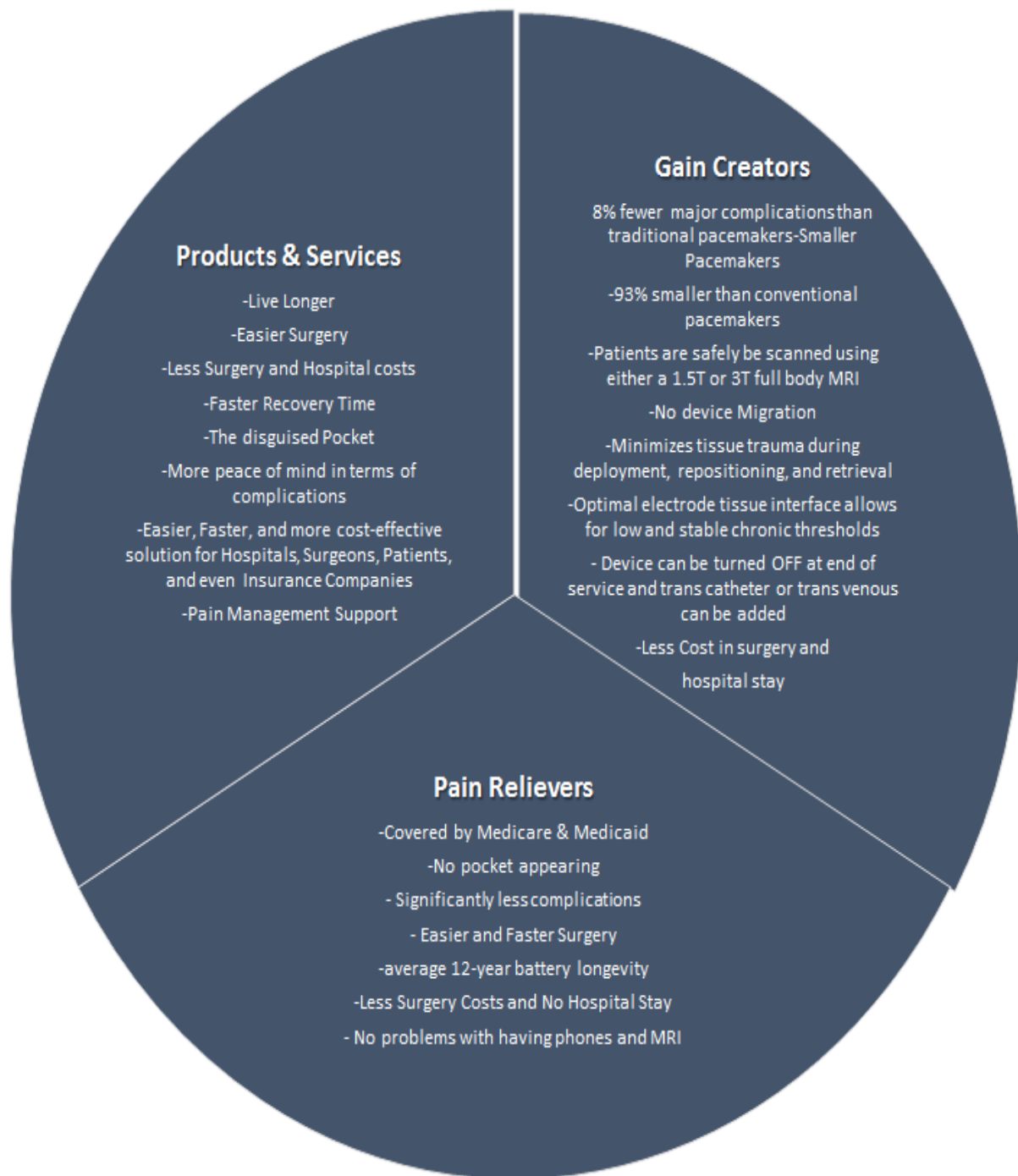
As for the pains, things that are concerning for customers, expensive costs if not covered by insurance, revealing pockets, complications, fear of a serious and painful surgery, long recovery time, hospital and surgery costs, fear of having phones and MRI and short lived batteries can be considered. In terms of Pain Relievers, coverage by medicare & medicaid (In general, more acceptance from insurance companies), pockets that are not showing, significantly less complications, easier and faster surgery, average 12-year battery longevity, less surgery costs and not hospital stay costs, and no problems with having phones and MRI can be considered.

### **3.4.3 Customer Jobs**

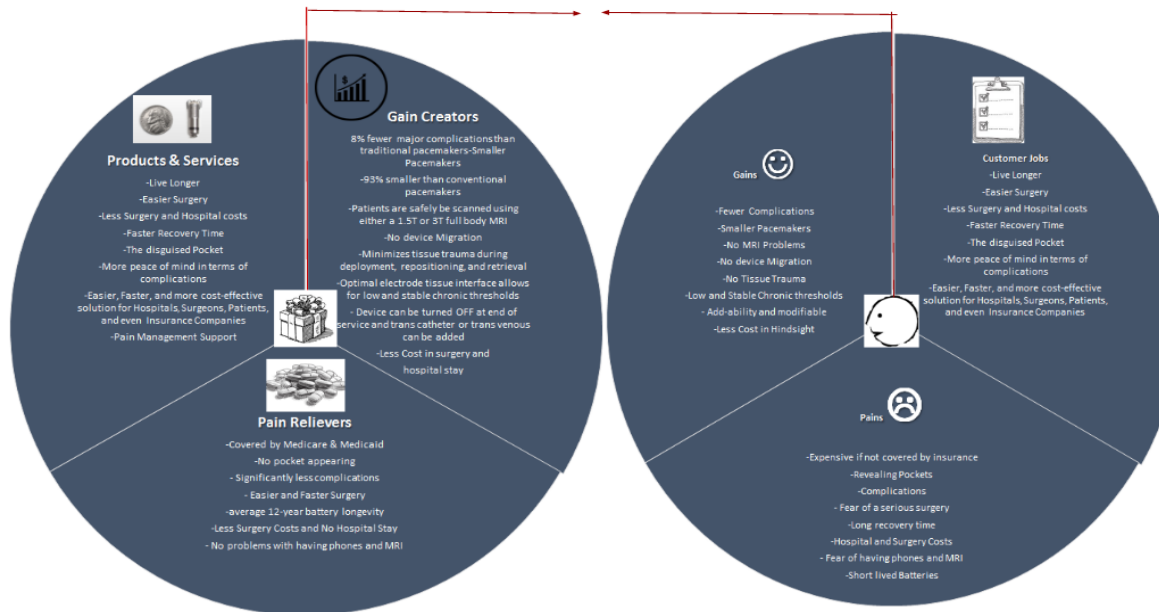
Customers, in general, have expectations such as living longer, having easier surgery, having less hospital stay and surgery costs, faster recovery time, more peace of mind in terms of complications. Also, easier, faster, and more cost effective solution for hospitals, surgeons, patients, and even insurance companies. In terms of products and services, Micra would provide longer life, easier surgery, less cost, faster recovery time, disguised pocket, more peace of mind in terms of complications. Also, easier, faster, and more cost effective solution for hospitals. surgeons, patients, and even insurance companies. Also, through pain management support, Micra and Medtronic can bolster their customers' trust and values.



The Expectations Side of Values



The Answers to Expectations



Value Proposition Canvas

### 3.5 Market Segment Analysis

Market segmentation is the process of identifying customer or potential customer subgroups that respond or are expected to respond differently to marketing variables including product, price, place (distribution) and promotion. Hospitals/Surgery Centers and Health Insurance will be our focused for this segment.

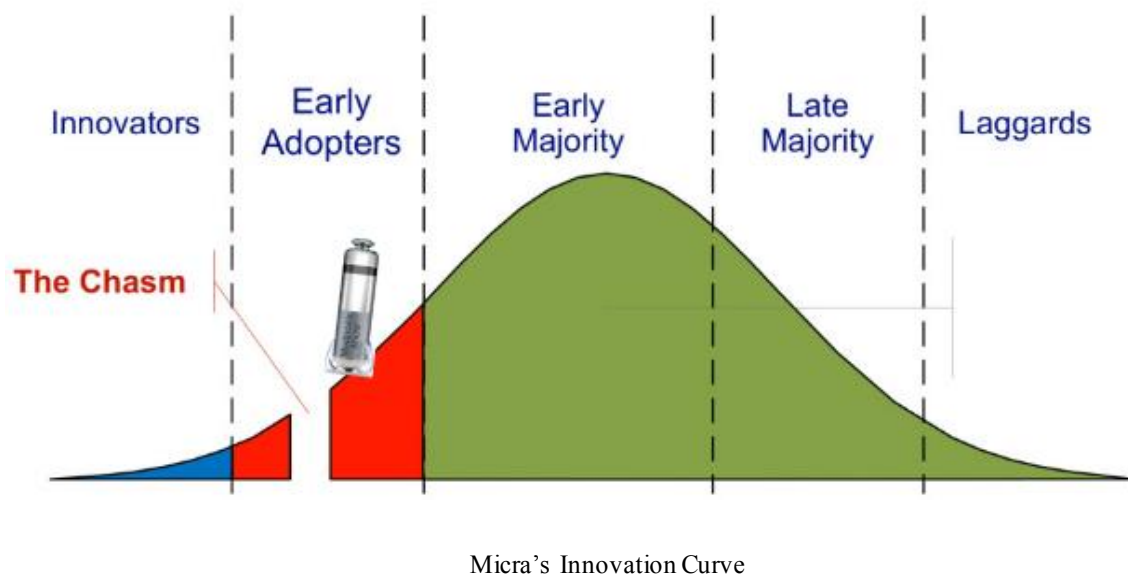
Medtronic will partner with healthcare providers to implement models to improve workflow and find operational efficiencies for catheterization labs. In addition to operational efficiencies, partnership can also help better manage rising healthcare costs, improve clinical-support operations such as lab management, scheduling and room turnover, help to ensure cardiologists can identify and diagnose patients' cardiovascular conditions. Medtronic also offers variety of services to hospitals, such as infrastructure design and equipment management. By having a good relationship with healthcare providers Medtronic will bolster the promotion of Micra and its chance of being accepted as the new norm in pacemakers. As more and more hospital adopt Micra and leadless pacemakers in general and the cost-reducing outcomes of them in the long run, both Insurance companies and patients would gain more trust and confidence in covering and using Micra and leadless pacemakers respectively.

### 3.6 Technology Adoption Cycle

The early majority customers, or pragmatists, are more risk averse. They want to be early into the market, but only after the technology has been proven by others. They need to see a clear ROI, and will look to their industry peers, who have experience with the technology for validation. They are more demanding that all components be completed and fully integrated, so as to minimize their own resource investment in implementing the new technology.

As for Medtronic, the company is even passed the early Majority with their wide spectrum of products in different health related fields.

However, for Micra, since it is the only leadless pacemaker, it is still in the early adopters phase. Although numbers and studies show the advantages of leadless over lead pacemakers, there is still time needed for potential users of this device to gain trust and go for it. The place of Micra in the Rogers innovation curve[36] has been demonstrated in the figure below.



### 4. Competitor Analysis

As mentioned in the market analysis sections, Medtronic is the market leader with 10.2 Billion dollars in sales worldwide and having 26% of the market in 2017 (24% in 2015 and project 22% in 2020). Before the merger of Abbott and St. Jude Medical, Boston Scientific used to be Medtronic's arch competitor. Although Boston Scientific does not have a leadless

pacemaker at the moment, it is in the process of developing one and aims at increasing its market share which is 12% at the moment. Abbott labs, after the acquisition of St. Jude medical sits second in the table as the strongest competitor to Medtronic. Abbott Labs itself was not in the pacemaker business but has a strong background in therapeutic and nutrition market and is using St. Jude's cardiovascular assets as of 2017. Before the merger, St.Jude medical had a leadless pacemaker product by the name of "Nanostim". Nanostim was better than Micra in certain ways.

While Medtronic's Micra might hold the title of the "smallest" leadless pacemaker, St. Jude Medical's claims at "longest-lasting leadless pacemaker with the industry's least invasive and smallest delivery system" do seem to hold water. Both devices have shown promising outcomes—the decision might rest entirely on cost. Micra is shorter but wider than Nanostim, with sheaths measuring 27-F or 8.333mm in diameter, which could be a negative despite being smaller than Nanostim overall—0.8cm compared to 1 cm. According to the data set, Micra patients had 54% fewer hospitalizations ( $p=0.011$ ) and 87% fewer system revisions ( $p<0.001$ ) than the historical comparator group of traditional pacemaker patients [37][14]. Pricing, cost-effectiveness, Sheath narrowness, The process of removing the device, Battery Life, and procedural time could become significantly important factors for the expensive devices. Medtronic's Micra was estimated to cost around \$10,000—whereas traditional pacemakers average \$2,500—on the assumption that savings in surgical costs would make it cost-effective[11]. St. Jude Medical however, had to halt pacemaker implant due to data and battery issues which hit their reputation and customer trust pretty hard to Medtronic's advantage despite the fact that from 1423 implanted Nanostim, 1397 still work normally. By talking to some of the "Experts" in the field, 6 fields were selected as key industry success factors as follows:

1-**Extensive Distribution:** Refers to the extent which a company is global and selling in different countries and continents.

2- **Quality:** Refers to Products' quality in terms of FDA (or any regulatory approval), leadless or lead, size, and performance

3- **Brand Recognition:** Company and products' brand strength in terms of achieving customer trust.

4-**Customer Focus**: Company's strength in terms of customer focus and post-sales services.

5- **Economies of Scale**: Company's strength in terms of producing more and being able to be price competitive.

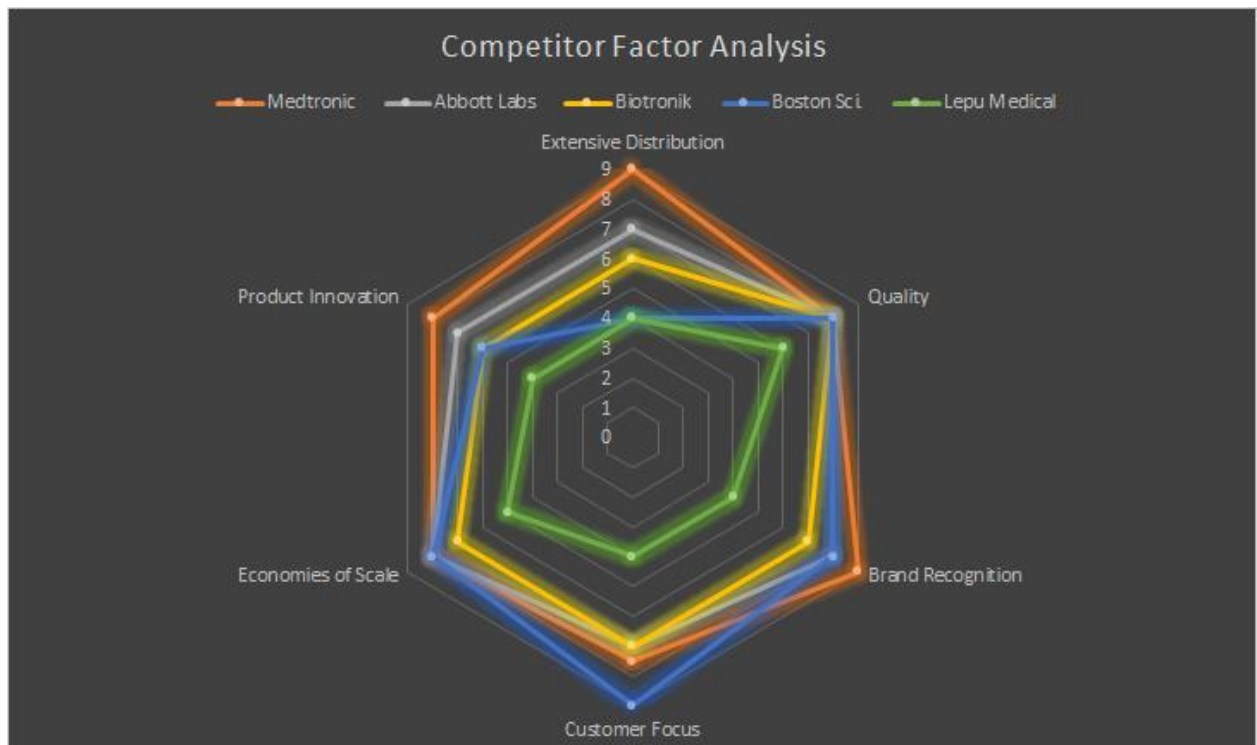
6- **Product Innovation**: The degree to which a product is innovative and offers new features.

The information influencing the decision making in this part are based on each company's websites and the data provided there. The experts in this part were the group members as doing the competitor factor analysis has given them good deal of information about each of these companies. A company like Lepu Medical is harder to rank since a lot of information on their website is not available or lost in translation. The top 5 companies in the field of pacemakers were rated according to the criteria mentioned above. Medtronic is in the top of the list followed closely by Abbott and Boston Sci. This is due to fact that there is still room for improvement for Medtronic in terms of customer support. St. Jude medical was in the process of producing Leadless pacemakers for dual-chamber implantations which can pose a great threat to Medtronic's leadership. Medtronic should invest greatly in R&D and link it carefully with marketing in order to leverage their linkage.

Key Industry Success Factors	Weighting	Medtronic	Abbott Labs	Biotronik	Boston Sci.	Lepu Medical
Extensive Distribution	0.15	9	7	6	4	4
Quality	0.225	8	8	8	8	6
Brand Recognition	0.2	9	8	7	8	4
Customer Focus	0.175	7.5	7	7	9	4
Economies of Scale	0.15	8	8	7	8	5
Product Innovation	0.1	8	7	6	6	4
Totals	1	<b>8.2625</b>	<i>7.575</i>	<i>6.975</i>	<i>7.375</i>	<i>4.6</i>

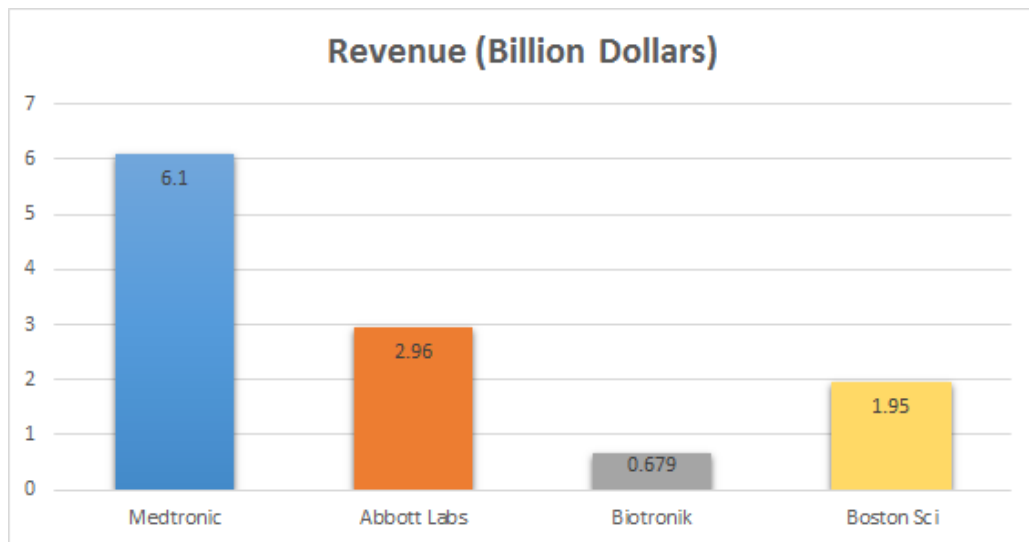
**Key Industry Factors**



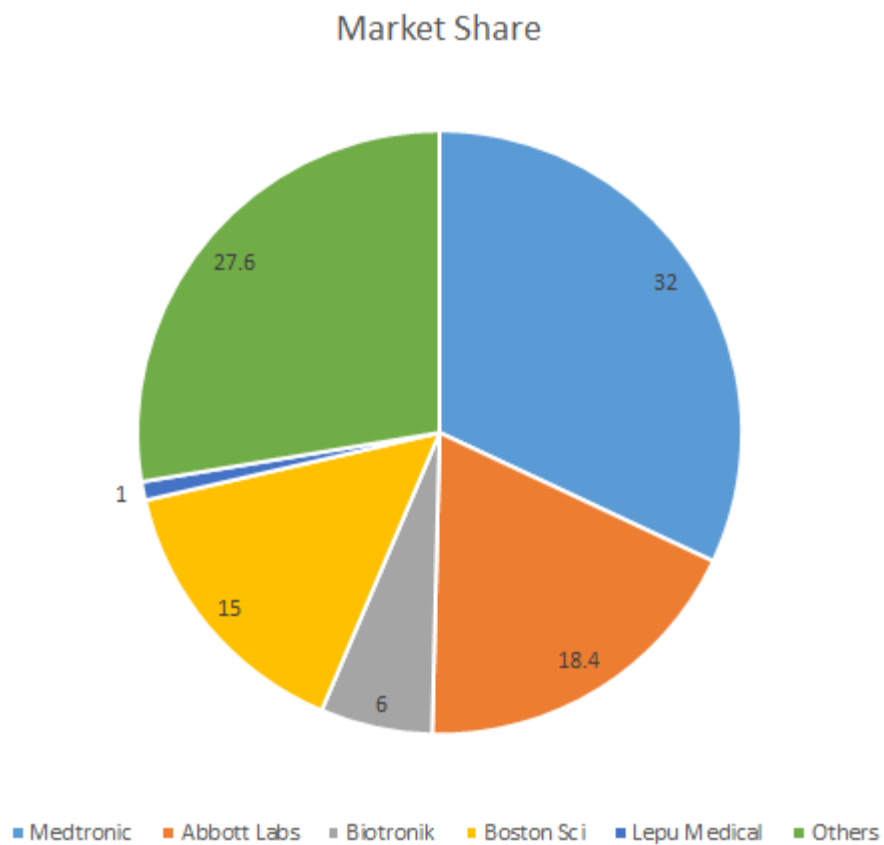


Competitor Factor Analysis

More details about each of these 5 competitors is provided in the next tables and charts. It is important to mention that the Patent for Leadless Pacemakers belongs to Biotronik, a private company with 3% market share and 679 Million revenue. It may be a good idea to try and acquire Biotronik for the sake of its patents which could worth significantly and help Medtronic maintain and increase its lead with its competitors. Companies are emerging from China and India at the same time. EvaluateMedTech is predicting that the Chinese medical device company's sales will be nearly five times larger in 2020 than they were in 2014. Founded in 1999, Lepu makes products including interventional cardiology, occlusion devices, prosthetic heart valves, pacemaker, cardiac in vitro diagnosis products, angiographic equipment, and anesthetic products [38].



Competitor's Revenues









Competitors' Market Share

### Detailed Competitor Information

Criteria	Medtronic	Abbott Labs (+ Acquired St. Jude)	Biotronik	Boston	Lepu Medical
Sales (2015)	10.2 bn	7.7 bn	Unknown	4.9 bn	270 m
Quality	FDA High	FDA High	FDA High	FDA High	FDA
Customer Service	Patient and Caregiver Service	Standard	Standard	Patient and Caregiver Support (PMs, Pain Management)	Unknown
# Of Employees	98000	74000	5600	25000 (2011)	1600
Pacemaker Brands	Advisa MRI, Adapta, Micra	Nanostim, Endurity Pacemaker	Eluna, Evia, Entovis, Estella, Ecuro, Effecta	ACCOLADE™ and ,ESSENTIO™ Pacemakers,	2312M SSI
Public/Private	Public	Public	Private	Public	Private
Product Area	Brain, Diabetes, Cardiovascular, Orthopedic, Urinary	Therapeutic, Nutrition, Cardiovascular (St.Jude)	Cardiovascular, Services /Solutions	Cardiovascular & CRM, Endoscopy, Endo-surgery	CRM, IVD, Anesthetic Products, Structural Heart Disease
Market Share	27%	18.40%	3%	12%	Unkown

<b>Criteria</b>	<b>Medtronic</b>	<b>Abbott Labs (+ Acquired St. Jude)</b>	<b>Biotronik</b>	<b>Boston</b>	<b>Lepu Medical</b>
<b>Revenue (CRM)</b>	6.1 bn	2.96 bn	679 m	1.95 bn	Unkown
<b>Geographical</b>	NA, Europe, SA, Japan, China, ME, South Asia	US, Int. Developed Geo, International Emerging Geo(Most)	US, Europe, Brazil, India, South Korea, China	US, Europe (non-CE Countries)	Over 24 Countries (Sale hubs In Turkey, Netherlands, and India , China)
<b>Partners</b>	HBR, EU Roundtable Summary, The King's Fund Integrated Care Summit	Customs-Trade Partnership Against Terrorism, National Minority Supplier Development Council	EHRA Training Fellowship for Physicians, European Heart Rhythm Association	Medaxiom (Consulting), Together MD (Analytics)	Unknown

Product Name	Company Name	FDA?	Picture
Nanostim	St. Jude	Yes	
ESSENTIO Model L101	Boston Scientific	Yes	
Eluna 8 DR-T	Biotronik	Yes	
T-60 DR	Viatron	Yes	
VENTRALITE 940 +/- TIRANGA	Pacetroneix(India)		
2312	Lepu Medical Technology(China)	Yes	

Details of Some Similar Products (\*Nanostim is not currently in the market)

#### 4.1 Porter's Five Forces

Originally developed by Harvard Business School's Michael E. Porter in 1979, the five forces model looks at five specific factors that help determine whether or not a business can be profitable, based on other businesses in the industry [39]. Here's a look at these five forces from Micra's point of view:

**1-Threat of New Entrants:** This part focuses on the difficulty of new competitors to join the scene. This market is an expensive one to enter and needs economies of scale which not every small new company can handle. However, there is a big threat of emerging producers of double chambered leadless pacemakers (The possibility of Nanostim rising from the ashes). Also, producers of pacemakers with narrower sheath widths, less procedural times, less cost, stronger insurance partnerships and patents can emerge which looms and Medtronic should be wary of this threats. Micra is currently only dealing with Bradycardia devices which are used for when the heartbeat is not fast enough. Biotronik currently has devices for both Bradycardia and Tachycardia which poses a threat to Medtronic's market share as it does not currently offer anything for Tachycardia (when the heartbeat is too fast). Now

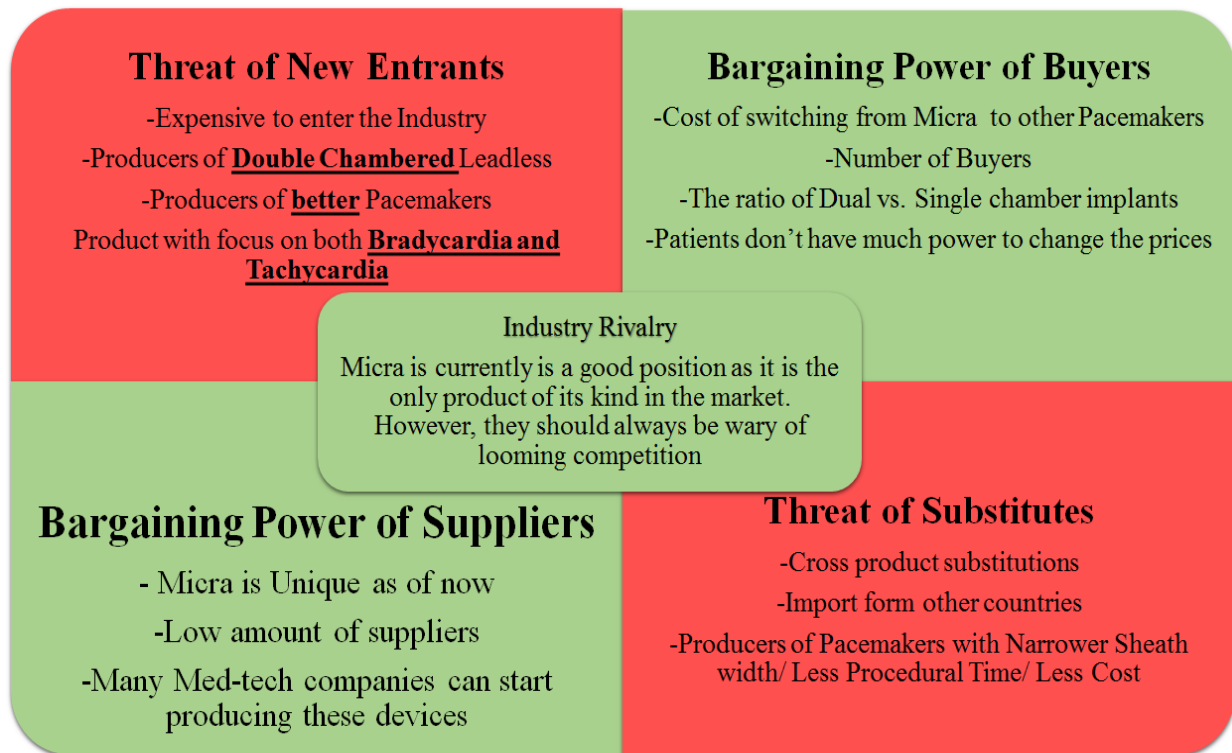
bigger and stronger Abbott Labs can help Nanostim resurrection which can be Micra's worst nightmare. (High Risk)

**2-Bargaining Power of Buyers:** This force focuses on the consumer to influence pricing and quality. When there are a lot of sellers and not that many customers, the power is at customer's' hands. But when the demand is high and the number of suppliers low, the price is in producer's' hands. In the case of Micra, as the only producer of leadless pacemaker, Medtronic has the upper hand but should not forget the existence of conventional pacemakers which, as mentioned before, can be the device of choice for insurance companies. Things such as cost of switching from Micra to other pacemaker, number of buyers and the ration of dual to single chamber implants are effective in this force. (Low Risk)

**3-Bargaining Power of Suppliers:** The third force assesses the extent of power which business's supplier has and to what extent they have the strength to raise prices. The fewer suppliers mean bigger problem for companies in terms of dependability on suppliers. Micra is being produced by Medtronic at the moment and due to the fact that it is unique at the moment, it is in a good position. However, due to the uniqueness of the product and low amount of suppliers, there a little bit risk in terms of power of suppliers. Many Med-tech companies which are providing as suppliers for Medtronic can start producing the devices themselves. (Moderate Risk)

**4-Threat of Substitutes:** This force evaluates how easy it is for customers to switch from Micra to other devices, Things such as insurance coverages can easily cause this switch. Cross product substitution is another threat. With the fast improvement in tech in different countries, imported devices from those countries is a threat to Micra and as mentioned in the 1st force, there is the threat of better devices, especially, leadless pacemakers for dual chamber implants which would increase the target patients from 120000 to 800000. (High Risk)

**5-Industry Rivalry:** This force indicates the intensity of the vying market. Things such as number of competitors and their capabilities affect this force. Micra is currently in a good position as it is the only leadless pacemaker in the market with global regulatory approvals. However, Medtronic should be wary of the looming competition.



Porter's Five Forces

## 5. Customer Analysis

In this section, the different groups that are affected by Micra are analyzed. The total available market (TAM) and total serviceable market (SAM) are already covered in the previous sections.

### 5.1. Core Need, Value Drivers, Demographic, and Psychographic

While these three, targeted segments have a variety of reasons to consider the da Vinci

Surgical System there are also likely customer concerns of which Intuitive Surgical needs to be aware. Each affected party will have questions that will need to be addressed by the Micra such as:

Hospital Managers: Will Micra help their hospital become more cost efficient and save more bed time vacancy?

Patients: Will Micra provide easier and safer surgery with less recovery time needed and less complications while being covered by insurance?

Insurance Companies: Will Micra be cheaper in the long-run considering the hospital stay costs and surgery costs?

Surgeons: Will Micra be less susceptible to being sued due to complications and does it guarantee a more effective, safer and easier procedure?

Furthermore, in the next section, The following descriptions put a face on the key purchasers for potential customers of Micra, taking into account different people that are affected by this innovative device.

The following table lists the three primary segments selected and describes their key

Characteristics in terms of the most important values and positions for each:

<b><u>Key Segment</u></b> <b><u>Characteristics</u></b>	<b>Private and Public Hospital/Surgery Centers</b>
<b>Core Needs</b>	<b>Micra would decrease costs, attract patients, Save time and beds, Decrease sue amounts and complications</b>
<b>Demographics</b>	<b>Single Chamber Implants in the selected countries</b>
<b>Psychographics</b>	<b>Patient quality focus, easier for surgeons,</b>
<b>Value Drivers</b>	<b>Maintain market dominance, respond to customer demand, improve clinical outcomes and reduce complications and lawsuits</b>



As detailed above, each customer segment is motivated by variations in the customer

Value driver set. These value drivers are also informed by position and influence of the

Key participant in the decision whether or not to purchase Micra. The table below describes the characteristics of those key participants and the relative influence they have at each stage of the buying process:

Buying Participants	Initiator	Users	Influencers	Deciders	Buyers	Approvers	Gatekeepers
Customer Segment	Surgeons, patient Advisory board	Patients Surgeons	Hospital Administrator, compliance/regulatory officer,	Hospital Administrators/Managers, Regulatory Officer, Insurance Companies and laws	Hospital Administrators/Managers	Hospital Administrator, Insurance	Administrative managers, Contracts department, Fiscal Services, Insurance and Regs

## 5.2 Customer Persona



Leonard is a Manager hospital in a suburb of a major metropolitan area. He supervises all areas of a hospital, including physicians, health information, surgeon and medical records. He works with administrators to plan and coordinate the health services. His aim is to increase the revenue and the amount of available hospital beds and to decrease surgery, lawsuit and hospital stay costs and eventually patient outcomes and prestige. He is wondering if using Micra would assist his site to set the bar for hospital excellence in the region.



Helen is a cardiologist. Helen's most concerns are about her patient's safety, healthcare insurance covers, and health care reforms and thrives for reducing costs, complications, accidents, lawsuits. She is also an active participant in healthcare conferences and very active in academic sense. She has recently heard in conference that although Micra is more expensive as a device, conventional pacemakers are actually more expensive in terms of total cost so she is curious to know more!



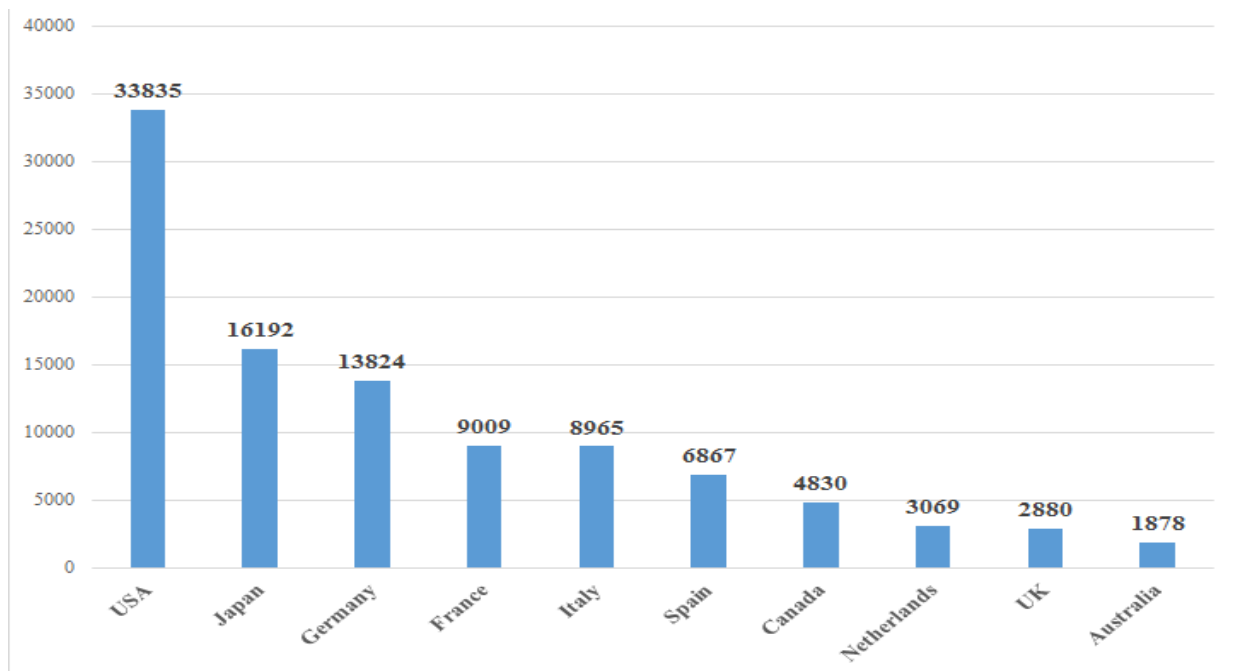
Michael is a cardiothoracic surgeon. Michael's most concerns are about attracting clients to his surgery center as well as providing the best experience to his clients. He has also had a couple of bad experiences dealing with lawsuits and patients suing his center due to the use of Nanostim couple of years ago. While being pretty confident about the financial benefits of Micra, he is still pretty cynical to leadless pacemakers. Recently, he has learned about the results of Micra in a scientific journal and may be ready to take the leap of faith and trusting leadless pacemakers again!



Charlie, a restaurant chef, will need to use pacemakers soon. However he has phobia of surgeries and because of some other medicine that he uses, anesthesia is highly risky for him. He also needs to get scanned with MRI often due to his other health issue. His wife, Cheryl is worried about the physical look of pockets in conventional pacemakers and they fear losing significant amount of sales due to him being away if undergoing a heart surgery and need significant amount of recovery time. Charlie and Cheryl are wondering if Micra would help them getting out of this debacle.

### 5.3 Which Countries? How much?

Based on reports of countries with high net export in terms of pacemakers, and the fact that only 15% of pacemaker implants are in the single-chamber area, the countries with highest demand for single chamber pacemaker were selected and then evaluated in terms of health regulatory approval and then the insurance coverages. After the decision making process by our ‘Experts’, 10 countries were selected in order to market Micra there. Each of the numbers of demands in the selected countries has been demonstrated below. The potential sale and potential revenue for Micra are 101349 and 1.013 Billion Dollars respectively.



Demand for Single-Chamber Pacemaker in the Selected Countries

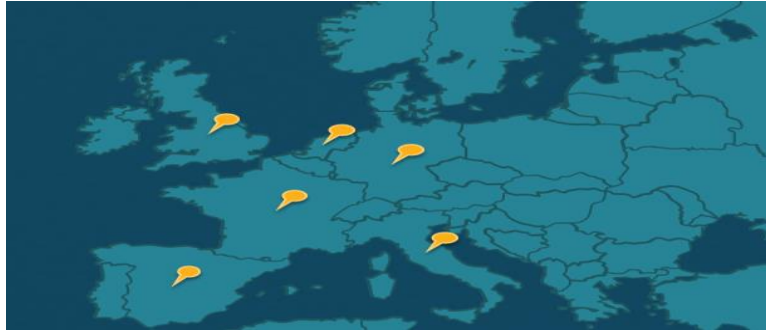
Potential Sale	101349
Potential Revenue	\$1,013,490,000.00

Sales Summary for Micra

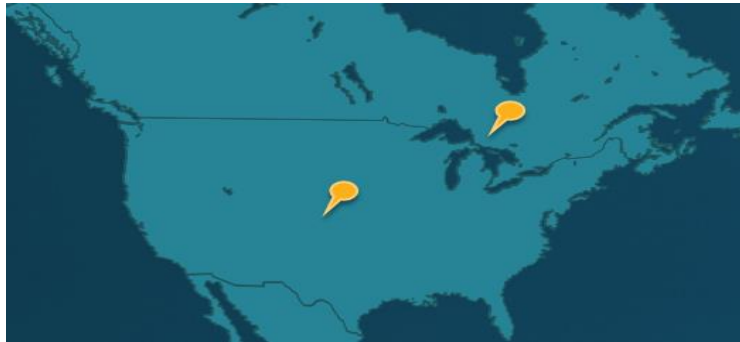
However, doing all this marketing in all 10 countries at the same time would be very hard and costly due to infrastructure, training, and sales personnel costs. The company would market the sales of Micra in USA, Germany, and Japan in the First year with total of 65,851 pacemakers and \$638 million in revenue. For the second year, Micra would be marketed in France, Italy, and Spain for the total of 24841 pacemakers and \$248 dollars added to the previous amount the Canada, Netherlands, UK, and Australia as the countries for the third year with the cumulative amount of 101349 pacemakers and \$1.013 billion in sales. This would allow company to use the revenue from each year to fund the marketing in new countries and this trend can continue with new potential countries based on the mentioned model in the 4th year.



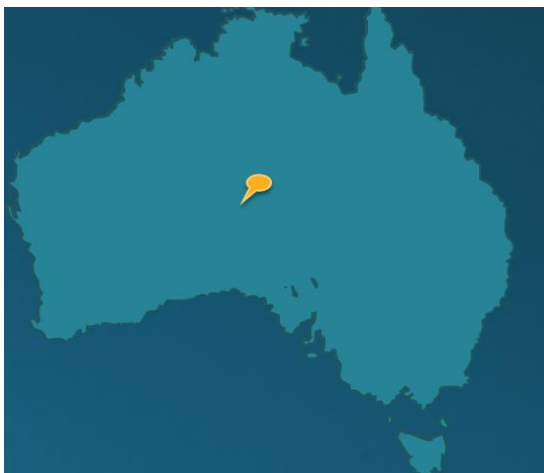
Geographical Expansion Plan for Micra



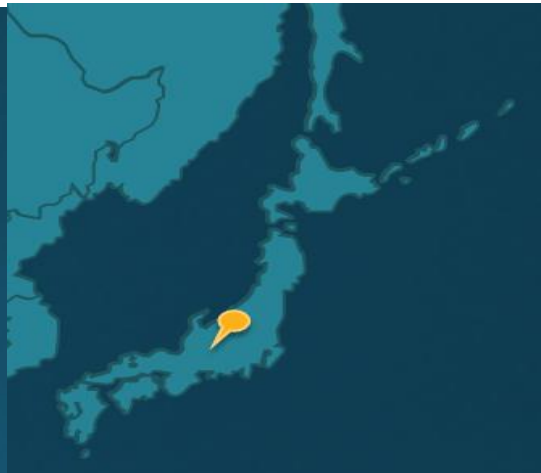
**Germany, France, Italy, Spain, Netherlands, UK**



**United States, Canada**



**Australia**



**Japan**

## **6. SWOT Analysis**

We are using SWOT analysis model to analyze Medtronic's strengths, weaknesses, opportunities and threats to create the foundation for our marketing strategy. The information

from the analysis combine into two components: internal issues (strengths and weakness) and external issues (opportunities and threats). The primary goal for this analysis is to help us identify and assign all significant factors that could positively and/or negatively impact success to one of the components.

### **6.1. Strengths**

Medtronic has a strong management team which can help reach their potential by utilizing strengths and eliminating weaknesses in the international medical device industry. The company knows how to leverage their assets. This allows them to use their best operational assets to expand their business and improve their market share. With a strong supply chain also helps Medtronic obtain the right resources from suppliers and delivery the right product to customers in a timely manner. Compare to other competitors, Medtronic's customer service offers both patient and caregiver services. Another strength the company has is its big size. The larger Medtronic gets, the more resources they have to pursue new markets and defend themselves against rivals. Being a large company bring the cost advantages to Medtronic. Lower costs lead to higher profits for the company. Medtronic has the superior technology to better meet the needs of our customers in ways that competitors cannot imitate. Medtronic has a high reputation in the medical device industry. With a strong brand name established, Medtronic has the ability to change higher prices for their products because consumers place additional value in the brand.

### **6.2. Weaknesses**

One of the weaknesses Medtronic has as a company is the competition in drug-coated stent race. Stents are used to help keep open arteries that have clogged over time. Medtronic has its product in Europe and waiting for FDA approval to enter the US market as well. With high profit return, the competition comes as no surprise thus given the potential revenues at stake [40]. 56% company revenue are from the U.S. revenue. This strong reliance on one market can be damaged if there is an increase in competition or decrease in market share [41]. With its' headquarter not being located in the US, the company was being investigated and fine for violation of the Trade Agreements Act of 1979 when selling cardiac and spinal surgery devices to the military without disclosing that the devices were manufactured in China and Malaysia, countries that don't participate in the TAA [42].

### **6.3 Opportunities**

Opportunities are external attracts factors that represent reasons that company is likely to prosper. Medtronic should focus on sustaining their current opportunities with access to care, being the champion access to healthcare globally across various systems and budgets. Focus on Product Quality by ensuring products and services are comply with the highest standards of safety and reliability. Also holding the leader position in the industry as trusted partners who always act with integrity. Being responsible sourcing by collaborate with their supply chain to develop long-term relationships that enhance product quality, worker rights, and environmental protection. Minimize the life cycle footprint of products and packaging through design innovation through product stewardship. Since the acquisition of Covidien back in 2015 has giving Medtronic more opportunities to focus on develop new services, new technology/product, and being more innovative. In addition, there are other material opportunities that could be of importance to Medtronic: trial data, stakeholder engagement, device security, philanthropy, post-market surveillance, corporate governance, talent, and financial strength by expanding international market.

### **6.4. Threats**

Company threats are external factors beyond the company's control that could place company's strategy, and/or business at risk. The company has no control over these, but may benefit by having contingency plans to address them if they should occur. Medtronic is known for its innovation, if this get disruptive it will impact the brand. With more and more companies entering the market, an intensive competition creates a threat that the company should not ignore. Niche products are another area that the company need to pay attention to. Due to the U.S. FDA's requirements regarding manufacturing of its products, Medtronic may not be able to quickly establish additional or replacement sources for certain components or materials. If there is an unexpected interruption in supply and Medtronic doesn't have the ability to develop alternative solution this could adversely affect operations. Medical devices and business activities are subject to regulation by the governments. By law, Medtronic is required to disclose payments and other transfers of value to health care providers licensed by certain states, teaching hospitals at the federal level. Not comply with these legal and regulatory requirements could impact Medtronic's business. Additional regulation may

increase compliance and legal costs, exposure to litigation and other adverse effects to Medtronic's operations.

## 7. Marketing Objectives and Goals

The marketing objectives for Micra can be divided into six sub-objectives leading to one main objective. In this section each of these objectives are clarified briefly. It should be mentioned that all these sub-objectives are inter-related:

**1-Increase Revenue:** Medtronic should guarantee selling Micra by gaining trust of physicians which are channels of selling to end-users which are customer. Successful gain of trust would lead to better sales of Micra and eventually higher revenues for Micra. Micra is way more expensive than conventional pacemakers but due to the more cost-effective nature of it it may be more attractive to hospital and physicians to promote to their patients.

**2-Market Penetration:** Although Medtronic already sells in many countries, as mentioned before, there is still need for more market penetration in US as well as countries such as Brazil, Japan, and Venezuela. Since one of the industry success factors is geographical extensiveness, an advantage in this area would benefit Medtronic's market dominance.

**3- Increase Market Share:** One of Medtronic's goals is to increase its market share via raising its quality in each of the criteria in industry success factors such as CRM, Market penetration, R&D, and Quality.

**4-Growth by Acquisition:** As mentioned before, the patent for leadless pacemakers belongs to Biotronik. Also, Medtronic's dominance can be protected by acquiring these kind of patents while acquiring emerging companies that may pose a competitive threat to Micra and Medtronic in general. Defending patents and IPs is also a big part of this objective.

**5- Growth by Partnerships and Alliances:** Partnerships with academic medical centers, trade shows and conferences will be central area for Medtronic to promote Micra while making it more known and trustable among the cardiovascular community. Alliance with research centers can also bolter Medtronic's R&D improvement being the catalyst for the development of Dual-Chamber leadless pacemaker. A big part of alliance strategy should go through partnerships and alliances with Insurance companies. This plan cannot stress the importance of Insurance enough.



6- **Innovation through R&D:** Medtronic should continue to invest heavily in R&D in order to stay ahead of its competitors. The emergence of dual-chamber leadless pacemaker is looming ever closer and Medtronic should make sure that their product is the **First to Market**. At the same time, the increase of Micra quality wise should be taken into account significantly.

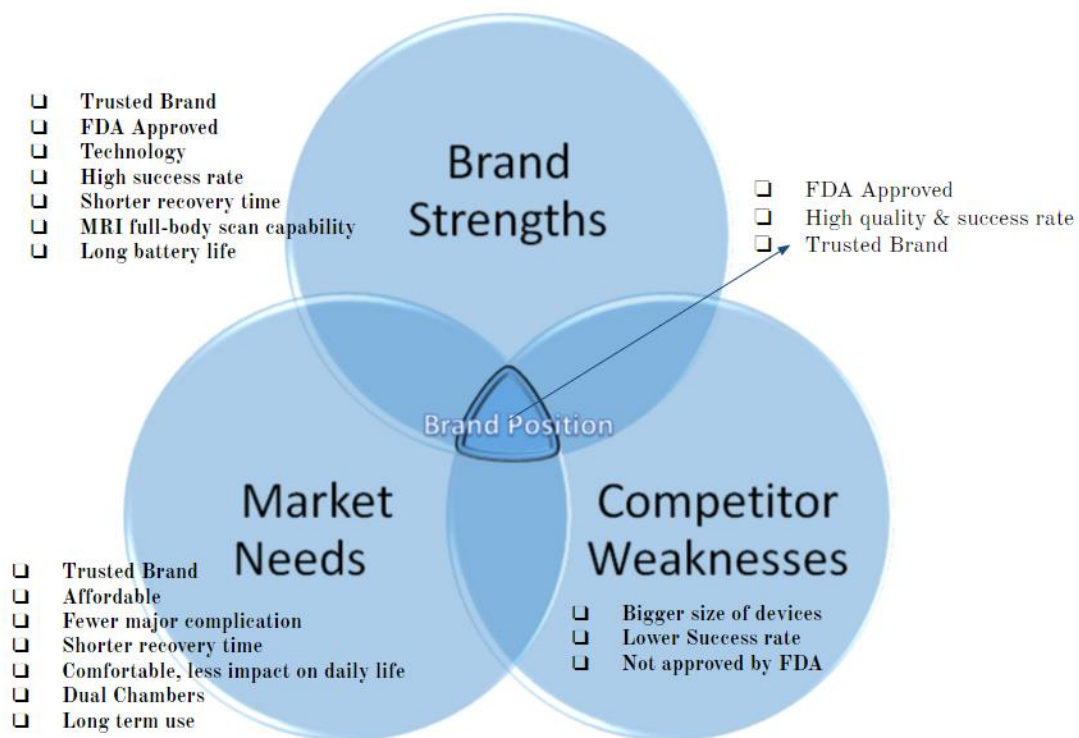
**Maintain Market Dominance While Increasing the Lead:** By taking all this subgoals into account, Medtronic can stay as the market leader while increasing the difference at the top of the table. The Figure below shows the subgoals which their inter-relationship would lead to the main goal of Medtronic which is staying the top leader in the pacemaker business.



## 8. Brand/Product Positioning

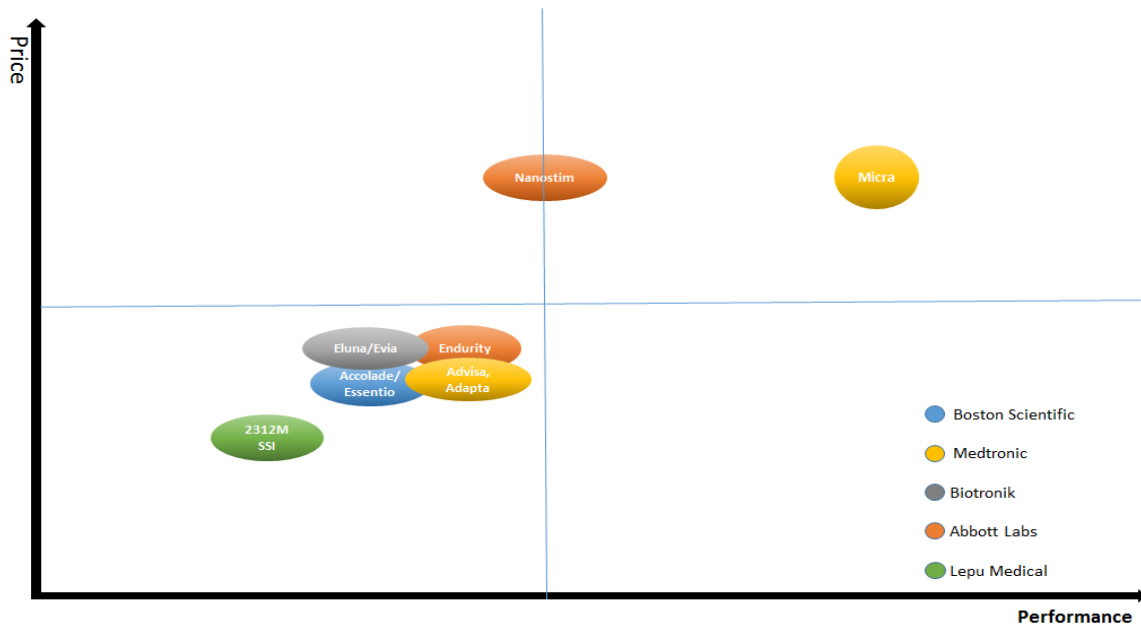
Product positioning is an important element of a marketing plan. We will use this process to determine how to best communicate Medtronic's products' attributes to their target customers based on customer needs, competitors weaknesses, and company's strength and carefully crafted key messages. The brand/product positioning is defined as what the company can fulfill customers' need that competitors cannot. The analysis concluded that Micra is a trusted

brand, that has been approved by the FDA that provided the highest quality and success rate are lied within the sweet spot in positioning.



Brand Positioning

As for the product positioning map, again, the decision on the position of each product was a group decision made by “experts” who have been studying these products for months. The price factor in the figure is based on the prices of devices. As it can be seen the Lepu Medical device is cheaper since Chinese laws and regulation would force them to sell cheaper in order to grant them the health regulatory approval. Micra is in the High Price and High Performance section but desires to go down the Y axis to the high performance and low price section in the future with the use of economies of scale and Linkage of Research and Development to Marketing.



Product Positioning Map

## 9. Marketing Strategy

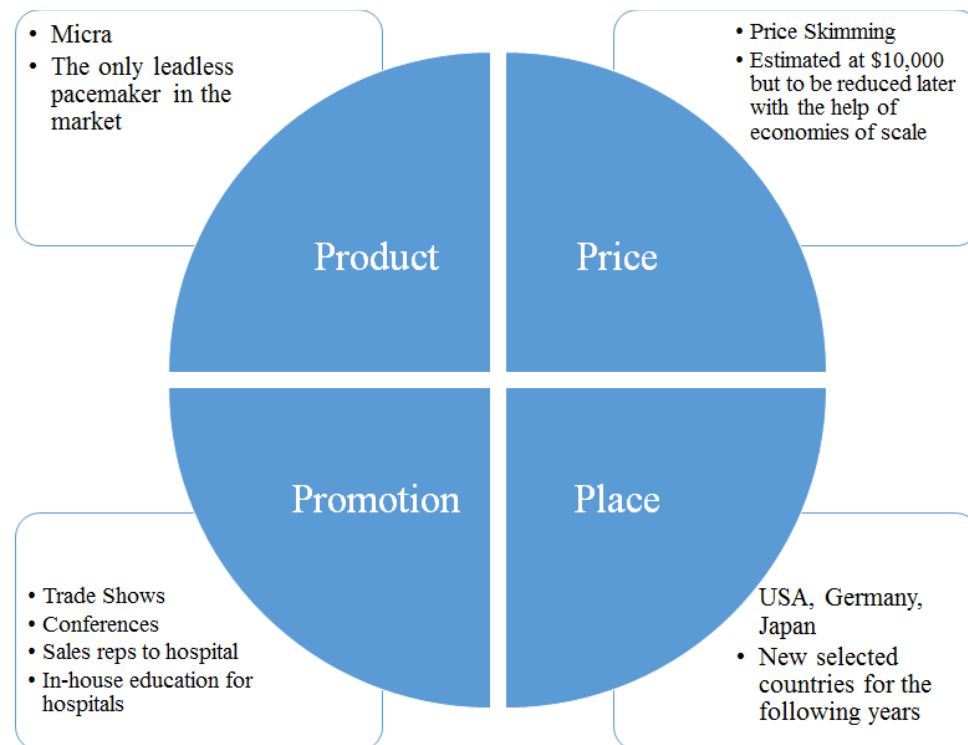
Marketing strategy is a process allowing us to focus limited resources on the best opportunities to increase sales and thereby achieve a sustainable competitive advantage. In this section we will use the Ansoff matrix tool to help us see the possible growth strategies for Micra/Medtronic. The Ansoff matrix (sometimes referred to as Ansoff growth matrix) was founded by Ignor Ansoff who proposed that product marketing strategy is a joint work of four growth areas: market penetration, market development, product development, and diversification [43]. We will assess these 4 areas for best opportunities. The first quadrant in the Ansoff matrix is Market Penetration. It is often adopted as a strategy when the organization has an existing product with a known market and needs a growth strategy within that market[43]. Under this matrix, we want to increase of market share by making alliances with insurance companies in Medtronic's already selling countries.

Market development is the second market growth strategy in the Ansoff matrix. This strategy is used when the firm targets a new market with existing product. For this matrix we want to focus on development of dual-chamber leadless pacemakers which accounts for about 75% of pacemaker implants.

Product development in the Ansoff matrix refers to company which have a good market share in an existing market and therefore might need to introduce new products for expansion [43]. In this matrix we decided to start direct selling in USA, Japan and Germany for the 1st year. 2nd year we'll be additionally focus on France, Italy and Spain. 3rd year our additional market should be Canada, Netherlands, UK and Australia. The diversification strategy in the Ansoff matrix applies when the product is completely new and is being introduced into a new market [43]. Under this matrix, we will bolstering customer support in order to construct synergy between market share growth and potential introduction of new products the table below is a visual display of Micra/Medtronic market opportunities through Ansoff Matrix.

Ansoff Chart	Existing Products	New Products
Current Market	Market Penetration: Increase of market share by making alliances with insurance companies in Medtronic's already selling countries	Product Development: Development of dual-chamber leadless pacemakers which accounts for about 75% of pacemaker implants
New Market	Market Development: Start direct selling in USA, Japan and USA for the 1st year. 2nd year we'll be additionally focus on France, Italy and Spain. 3rd year our additional market should be Canada, Netherlands, UK and Australia	Diversification: Bolstering customer support in order to construct synergy between market share growth and potential introduction of new products

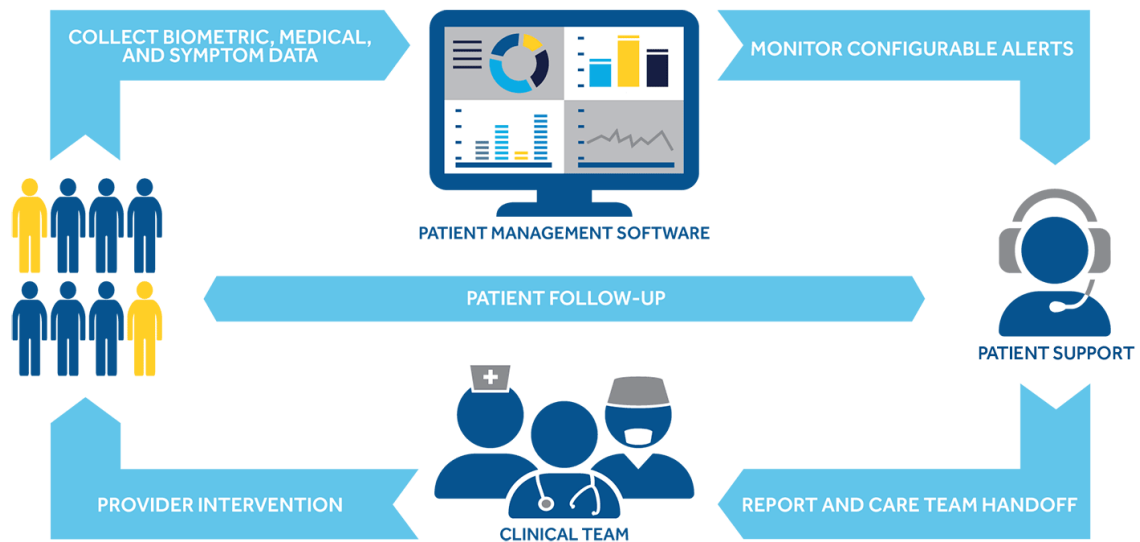
The marketing mix is a crucial tool to help understand what the product or service can offer and how to plan for a successful product offering. The marketing mix is most commonly executed through the 4 P's of marketing: Price, Product, Promotion, and Place[44]. It is made up of Customer needs and wants (the equivalent of product), Cost (price), Convenience (place) and Communication (promotion). In this article, we focus on the 4Ps model as it is the most well-recognized, and contains the core elements of a good marketing mix[45]. The figure below shows the marketing mix for our marketing plan.



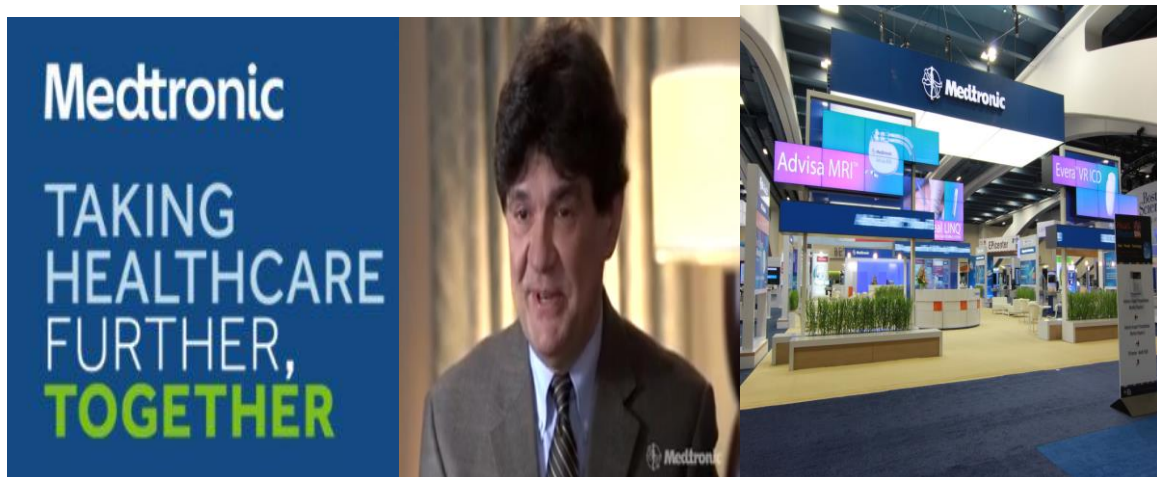
## 10. Product and Brand Management

Many companies are very conscious in building strong relationships with their customers. So they will do every possible step to make their customers happy and satisfied with the product or service they offer. Indeed, making customers happy will build a strong long-term relationship with the company. It also will make the company name strong and recognized in every customer mind. In marketing, brand management is the analysis and planning on how that brand is perceived in the market. Developing a good relationship with the target market is essential for brand management. Tangible elements of brand management include the

product itself; look, price, the packaging, etc. The intangible elements are the experience that the consumer has had with the brand [46]. In Medtronic, looking at the patient comfort and convenience is the demand. So the company has provided care management services we're helping clinicians deliver the right care, to the right patients, at the right time, Medtronic Care Management Services (MCMS) is committed to enabling value-based care at home. As a matter of fact, since 1998, Medtronic Care Management Services (MCMS) has recorded over 4 million telehealth patient months, and currently services over 95,000 patients with its innovative remote monitoring solutions. From the point of view, that very patient is unique, and MCMS offers a full suite of patient-facing platforms to help ensure patients are engaged in their own monitoring in a way that fits their needs best. From tabletop to a tablet, MCMS' platforms and peripherals are easy to setup and use, enabling straightforward interaction with a variety of patient monitoring programs [47]. Moreover, other tools that Medtronic have done to maintain strong product and branding Management is showing powerful present in global trade shows around the world, they also provide videos about how the company products have changed people's lives positively and effectively. Lastly, having a powerful logo of a business is a magnificent way to keep the company recognized in the customer's mind. Indeed, Medtronic logo states "Taking Healthcare Further, Together." "Further", because the company will continue to drive progress in innovation and devise powerful solutions with proven clinical and economic value as the basis of its offerings and value proposition. And "Together," because the company will forge new, different, and stronger partnerships to help their customers achieve their goal of delivering more seamless, integrated care across the healthcare continuum [48].



Medtronic's Customer Relationship Management



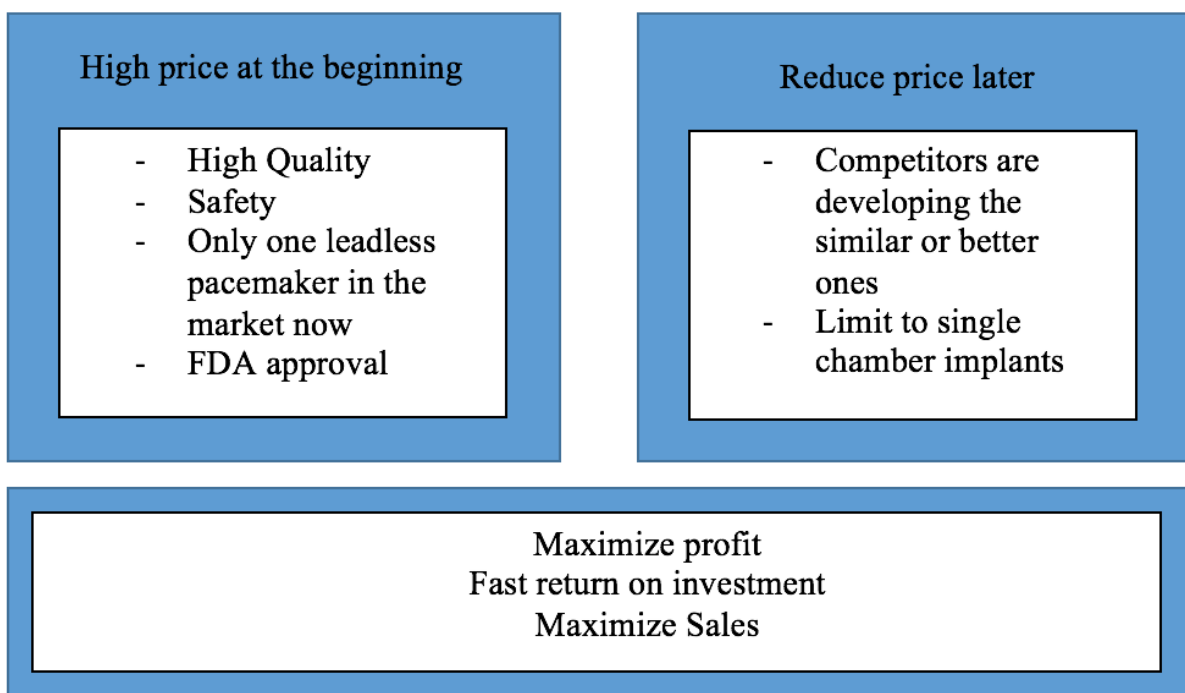
Some of ways that Medtronic can improve its image (Left to Right: Mottos, Video Testimonials, Trade Shows)

## 11. Pricing Management

Price skimming designed to help businesses maximize sales on new products and services, price skimming involves setting rates high during the introductory phase. The company then lowers prices gradually as competitor goods appear on the market [49]. In our plan, we decide to set high price for Micra at the beginning as we considered our product values based on market situation. Today, Micra is one of the biggest achievement in medicine. It is the world's smallest leadless pacemaker and the only one available in the market with FDA

approve. Also, it offers safety and high quality based on its result showing much less complications compared to other pacemakers in the market. Moreover, the number of SAM for Micra is limited as it is limited to be used with only single chambered implantation. So we decide to set high price at the beginning in order to maximize profit and gain fast return on investment. However, we know that St. Jude Company who now belongs to Abbott Laboratories is working on dual-chambered leadless pacemakers. Therefore, our price for Micra would be reduced after duo-chambered leadless pacemakers are available in the market. This would let us maximize our sales.

Reducing the price of Micra would also be a big setback to its competitors that may be developing leadless pacemakers. They would have to reduce the price of something they have not still produced which could put off their plans and make them reconsider their implementations.

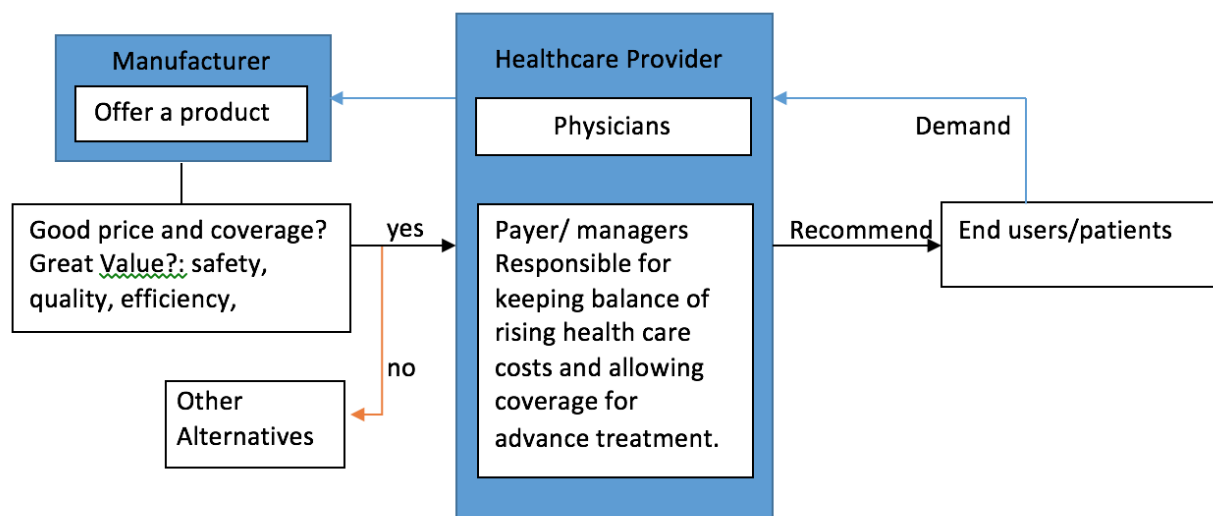


Price skimming based on company situation

However, the relationship among the players in the healthcare business also significantly impacts on pricing as it requires reasonable price for the whole picture, total cost for the device and service, which should not go far beyond than other alternatives in the market



unless it could provide the best in all aspects. The reason for this is, unlike other business models, in the healthcare business, the end users or patients don't directly purchase the product by themselves. Also, neither the physicians nor managers purchase the product from manufacturers. Physicians merely recommend the product. The managers just basically pay for it. So, neither party is profiting from the purchase or sale of a product. However, what motivates each player is the health of the patient that involved in the transaction. The exception to this is in the so-called "buy and bill" model where the product is purchased by a treating healthcare provider and administered in an office setting. The ultimate goal for the physicians is to improve the health and welfare of their patients while the payers or managers balance the equation of containing rising health care costs and allowing coverage for advances in treatment [50]. The government and insurance companies are typically looking for the best alternative which is effective in long term with basically low cost in order to provide coverage. Due to this condition, the estimated price for Micra could be about \$10,000 which appears much higher than other alternatives but the price is reasonable because it doesn't involve surgical procedure and hospital stay costs as other alternatives do. Also, it could offer the better outcomes in long term as it shows more safety and less complications.



Relationship among players in healthcare business

## 12. Promotion and Distribution Management

In general, developing the distribution plan, which involves creating a strategy for how the products reach your consumer. Some distribution options include from a warehouse,

storefront or a retailer. For successful distribution, the product must be readily available in locations the target market uses or visits. Indeed, Medtronic primary channels include hospitals, clinics, third party healthcare providers, distributors, other institutes including government healthcare programs and group purchasing organizations. Distribution channels for Medtronic can be either through Direct Sales Forces in the U.S. which includes sales reps and educators for the product, or Direct Sales Reps and Independent Sale Distributions outside of U.S. markets. Moreover, Insurance companies are playing the role of the big elephant for Medtronic, the more insurance companies offering Micra for their patients, the more successful the company will be. Insurance companies have to understand that Micra has the best quality and powerful performance compared to other pacemakers in the market. It is also very fair in the price that is offering for being the number one innovative and smallest pacemaker device ever in the world. Thus, getting the approval from insurance companies to take Micra in their program is all what is matter for Medtronic to widely distribute the product.

All in all, Medtronic should use these channels for distribution of Micra:

- ☐ Direct Sale Forces in the US.
- ☐ Direct Sale Reps and Independent Sale Distributions outside of US markets.
- ☐ Primary customers include hospitals, clinics, third party healthcare providers, distributors, other institutes including government healthcare programs and group purchasing organizations.
- ☐ Insurance Companies as a way of being offered to patients

As for the promotion these items should be taken into account:

- ☐ Participate in Health Care Tradeshows and Conference events:

These kinds of events would expose Micra to health professionals better as this kind of device is not appropriate for tv ads or direct mail or many other kinds of promotion and communication. Conferences would also raise awareness and help Medtronic strike alliances and deals and grants with government agencies or research centers.

- ☐ Provide In-house training for Health care Universities, hospitals, clinics

In order for health professionals to be able to convince patients in choosing Micra, they should be greatly educated about this device, its cost benefits, and its technological benefits.

### **13. Implementation and Control**

In order to implement the marketing plan, Medtronic has some works to do in these areas:

- ☐ Go for US, Japan, and Germany the first year and the other 7 the 2nd year. (Due to cost control, total of 63,851 pacemakers, 638m for the first year )

As mentioned before, the cost of marketing Micra in all top 10 countries at the same time would not be reasonable and a 3 year plan to cover all those high potential 10 countries should be undertaken.

- ☐ Creation of Marketing calendar for the conferences , trade shows, and events

This would help raising awareness on both medical and financial advantages of Micra and leadless pacemakers over the conventional ones. This actions would help replacing leadless pacemakers as the norm in the market as more government and insurance attention is grabbed towards it.

- ☐ Website and marketing content development

The current website of Medtronic is pretty informing and useful. However, more customer focus and customer relationship management content can be added.

- ☐ Document social media strategy (Mostly on LinkedIn for professionals)

By the help of LinkedIn, more Micra related content can be shared among health professionals and, pre awareness is raised regarding the benefits of Micra and word of mouth is a great contributor to the adoption of technologies.

- ☐ Develop promotional videos of the people who received this implant

Promotional and educational videos towards professionals, can be effective in terms of putting Micra as the new status quo in the market of pacemakers. Directing the promos

towards patients may not be as useful. We never see pacemaker ads on tv or billboards as it is not appealing to people.

☐ Sales and marketing team training for targeting hospitals and health professionals

Our sales representatives are our key to enter hospitals and health centers and eventually sell Micra. Our reps should be highly trained and articulate in informing health professionals about our product. The cost of training these reps would be significant but an inseparable part of our marketing plan. We can't sell Micra directly to patients but we can sell it to them by convincing both health professionals and health insurance companies that it is the best and most cost effective pacemaker out there.

☐ Prepare patient testimonials and follow ups to the implants in order to gain public trust

Patient testimonials would be very important in terms of gaining customer trust to the point the when patients are easily choosing Micra when their physicians are putting their pacemaker options in front of them.

☐ Prepare geographical expansions

The geographical expansion plan has been extensively explained in this report.

☐ Continuation of R&D and its right linkage to Marketing

An important factor is that the connection in market driven high tech is enabled by R&D's constant presence in the market planning and goal determining processes (not losing sight of research is of great importance). This means that marketing and R&D should compromise on customer segment, priorities, expectations and timing. There is a great need for two groups to have a clear understanding of plans in every step of the way and be on the same page in terms of goal understanding. They should work on both front and tail ends of the company while working separately from project initiation to testing and performance gauging (also re-evaluation of the situations). Triggering previously untapped marketing applications and constructive competition would allow companies to reap the fruits of cross-pollination of ideas among different sub-divisions. Micra version 2.0 can be developed as being the first Leadless pacemaker which can be compatible with dual-chamber implants. On the sides,

R&D can help mitigate the complications of surgeries and pacemakers further.

☐ Donations to health causes

Donations are always a good idea to show company's goodwill and philanthropic side.







☐ Keep up government regulations

Especially in US, regulation regarding health are fluctuating at best and should be closely monitored and companies should be very flexible in dealing with these changes. They also have to be ready to dodge any harm that would come their way due to the unexpected changes in laws and regulations due to elections and the dominant party.

In the next Section which is the conclusion part, the business plan summarizes most of the things that were included in the marketing plan.

## **14. The Business Plan (Conclusion)**

In this closing chapter, all the parts and parcels of this marketing plan are summarized in the business plan canvas. All in all, Medtronic should be extremely careful not to be complacent in its competitors positions and although they are the only product in the market of its kind (and the most dominant med-tech company), it should be always wary of new threats and strive for improving and developing its products and opportunities by R&D and its right linkage to marketing. There should be no bad blood between different departments in the company. This is more critical for R&D and Marketing department as there is a need for cross-pollination between departments as their motto suggests "Taking Healthcare further, Together". As mentioned before, placing Micra as the new status quo for pacemakers and keeping Medtronic as the dominant player (Increase Revenue, Market Penetration, Growth by Acquisition and Partnerships, Innovation, and Increase in Market Share) in this field would be the primary objectives. The following page includes the final business plan for Micra, the world's smallest pacemaker.

<b>Key Partners</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> Government Agencies</li> <li><input type="checkbox"/> Insurance Companies</li> <li><input type="checkbox"/> Academic Research Centers</li> <li><input type="checkbox"/> Conferences</li> <li><input type="checkbox"/> Trade-Shows</li> <li><input type="checkbox"/> Biotronik (Possible Acquisition)</li> <li><input type="checkbox"/> Possible Partnerships with Competitors for the sake of creating Standards</li> </ul>	<b>Key Activities</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> Keeping Track of Conferences and Trade-Shows</li> <li><input type="checkbox"/> Developing CRM</li> <li><input type="checkbox"/> Marketing and R&amp;D Linkage</li> <li><input type="checkbox"/> Geographical Expansion</li> <li><input type="checkbox"/> Donations</li> </ul>	<b>Value Propositions</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> Fewer Complications</li> <li><input type="checkbox"/> Smaller Pacemaker</li> <li><input type="checkbox"/> No MRI Obstacles</li> <li><input type="checkbox"/> No Device Migration</li> <li><input type="checkbox"/> No Tissue Trauma</li> <li><input type="checkbox"/> Low and Stable Chronic Threshold</li> <li><input type="checkbox"/> Add-ability and Modifiability</li> <li><input type="checkbox"/> Less Eventual Cost</li> <li><input type="checkbox"/> Less Recovery Time</li> <li><input type="checkbox"/> Long Battery Lives</li> <li><input type="checkbox"/> Less Surgery Cost</li> <li><input type="checkbox"/> No Hospital Stay Cost</li> <li><input type="checkbox"/> Less Lawsuits</li> </ul>	<b>Customer Relationships</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> Improvement of CRM</li> <li><input type="checkbox"/> Initiation of Pain Management</li> <li><input type="checkbox"/> Heart Disease Conferences</li> <li><input type="checkbox"/> Testimonial Videos and Follow-ups</li> </ul>	<b>Customer Segments</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> Hospitals <ul style="list-style-type: none"> <li><input type="checkbox"/> Public Hospitals <ul style="list-style-type: none"> <li><input type="checkbox"/> Managers</li> <li><input type="checkbox"/> Surgeons</li> <li><input type="checkbox"/> Physicians</li> </ul> </li> <li><input type="checkbox"/> Private Hospitals <ul style="list-style-type: none"> <li><input type="checkbox"/> Managers</li> <li><input type="checkbox"/> Surgeons</li> <li><input type="checkbox"/> Physicians</li> </ul> </li> </ul> </li> <li><input type="checkbox"/> Surgery Centers <ul style="list-style-type: none"> <li><input type="checkbox"/> Managers</li> <li><input type="checkbox"/> Surgeons</li> </ul> </li> <li><input type="checkbox"/> Cardiology Surgical Centers <ul style="list-style-type: none"> <li><input type="checkbox"/> Managers</li> <li><input type="checkbox"/> Surgeons</li> </ul> </li> </ul>
<b>Cost Structure</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> R&amp;D</li> <li><input type="checkbox"/> Promotion</li> <li><input type="checkbox"/> New Sales Branches</li> <li><input type="checkbox"/> Pharma Sales Reps</li> <li><input type="checkbox"/> Education</li> <li><input type="checkbox"/> Production</li> </ul>	<b>Revenue Streams</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> Donations</li> <li><input type="checkbox"/> Training</li> <li><input type="checkbox"/> Samples</li> <li><input type="checkbox"/> Promotional Prices</li> <li><input type="checkbox"/> Conferences</li> <li><input type="checkbox"/> Sponsorships</li> <li><input type="checkbox"/> Lobbying</li> <li><input type="checkbox"/> Lawsuits</li> <li><input type="checkbox"/> Insurance</li> <li><input type="checkbox"/> Compromise</li> <li><input type="checkbox"/> The China Case</li> <li><input type="checkbox"/> Direct Sales</li> <li><input type="checkbox"/> Government Grants</li> <li><input type="checkbox"/> Patents</li> <li><input type="checkbox"/> Lawsuits</li> <li><input type="checkbox"/> Possible Services (Pain Management)</li> </ul>			

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## Appendix A

Table 1: Latest pacemaker models in Medtronic.

Pacing Systems	Quick Facts
 <p><b>Advisa MRI™ SureScan™ Pacemakers</b></p>	<p>Advisa MRI SureScan pacing systems are FDA approved for 1.5T and 3T full body MRI scans. Advisa DR is clinically proven to reduce the progression to permanent AF. Additionally, the Advisa SR is the latest addition to the SureScan family. <a href="#">Indications, Safety, and Warnings</a></p>
 <p><b>Adapta™ Pacemaker</b></p>	<p>The Adapta pacemaker offers managed ventricular pacing, atrial therapy, ventricular capture, and remote cardiac telemetry. <a href="#">Indications, Safety, and Warnings</a></p>
 <p><b>Micra™ Transcatheter Pacing System</b></p>	<p>Micra Transcatheter Pacing System (TPS) is the world's smallest pacemaker, delivered percutaneously via a minimally invasive approach, directly into the right ventricle without the use of leads.</p> <p><a href="#">Indications, Safety, and Warnings</a></p>
 <p><b>Temporary External Pacemakers</b></p>	<p>Models 5392 and 53401 external temporary pacemakers are intended for use with a pacemaker lead system for temporary single or dual chamber pacing in a clinical environment.</p> <p><a href="#">Indications, Safety, and Warnings</a></p>

## Appendix B- Research Log

During this project, we learned to apply the materials that we had learned in class in a hypothetical marketing plan. In doing this, we learned that the healthcare environment is a very complex and complicated one and it is very different than other products such as Amazon echo where it is obvious who gives the money and who gets the money. We had to study a lot about the different aspects of healthcare and we did not have access to hard numbers in terms of analysis.

However, we learned to use things such customer analysis, and competition analysis and valuable tools such as value proposition and porter's five forces. By studying about many countries' insurance and health policies we came up with a list of 10 countries for a 3 year plan and again, by literature review, and finding the pacemaker implants per million, we determined the needed demand for each of those countries and the potential revenue by selling Micra .Furthermore, we determined the objectives and their components and indicated the pricing, branding, distribution, and promotion strategies. We also came up with ideas about how to implement these plans and the next steps for Medtronic regarding Mirca.

**D**uring this project, we learned to apply the materials that we had learned in class in a hypothetical marketing plan. In doing this, we learned that the healthcare environment is a very complex and complicated one and it is very different than other products such as Amazon echo where it is obvious who gives the money and who gets the money. We had to study a lot about the different aspects of healthcare and we did not have access to hard numbers in terms of analysis. However, we learned to use things such customer analysis, and competition analysis and valuable tools such as value proposition and porter's five forces. By studying about many countries' insurance and health policies we came up with a list of 10 countries for a 3 year plan and again, by literature review, and finding the pacemaker implants per million, we determined the needed demand for each of those countries and the potential revenue by selling Micra .Furthermore, we determined the objectives and their components and indicated the pricing, branding, distribution, and promotion strategies. We also came up with ideas about how to implement these plans and the next steps for Medtronic regarding Mirca. By doing this project, we learned that we should be transparent with each other and make sure that we are always on the same page as being cohesive in this plan was

crucial to us. We learned to overcome the obstacles that we have (Not having two group members due to personal problems) and how to bounce back from a not so strong midterm presentation. We tried to focus on our weaknesses and mitigate them by figuring out what was actually wrong with them.

We needed to have more hard numbers as Dr. Balkan suggested but due to the nature of our product and project finding that many numbers in the time-frame that we had was nearly impossible. Because of this we have suggested in our implementation section that it is very important to determine these numbers (such as CPM or cost per thousand) for the future steps of this marketing plan.

All in all, this marketing class and project taught us invaluable lessons about marketing fundamentals and teamwork that we will be able to always use in our next academic steps.

Although the table below represents our meetings' log, we were currently in touch in order to make sure we have a clear understanding of what we were doing. Due to personal emergencies our group was mostly consisted of 3-4 members so we had to do extra work and go the extra mile in order to meet the demands. Since were doing the project in google docs, we could always talk about the project via chat as we were writing the report. This would help us avoid any kind of misunderstanding and would also let us give our suggestions to the person responsible for a certain part of the report skeleton. Although Google docs has many shortcomings in terms of application and ease of use, the concurrent editing side of it was very important for us.



A summary of our meetings in terms of time, action item and participants is given in the table below:

Schedule		Date	Action Item	Participants
Begin	End			
9:00 am	9:30 am	1/28	Talked about the project topic/ Brainstorming of project ideas	All the team members
1:00 pm	2:00 pm	2/3	Literature Review update/ What we know so far?/ What are the things that we are going to need according to the rubric	All the team members
1:00 pm	2:00 pm	2/4	Presentation preparation for the initial idea and progress until that point	All the team members
2:00 pm	3:00 pm	2/9	Presentation preparation/ Making sure that everyone is on the same page	All the team members
12:00	3:00 pm	2/15	We talked about how we can recover from our presentation and how we can apply Dr. Balkan's feedbacks into our final presentation	All the team members

Schedule		Date	Action Item	Participants
Begin	End			
7:00 pm	8:00 pm	2/16	Update on Ideas	All the team members
12:00	3:00 pm	2/22	Allocating workloads and seeing where we are and where we need to be	All the team members
7:00 pm	8:00 pm	3/1	Dress rehearsal preparation	All the team members
4:30 pm	5:30 pm	3/7	Presentation practice	All the team members
7:00 pm	8:00 pm	3/9	Assigned tasked on the report	All the team members
7:00 pm	8:00 pm	3/10	Review of report and slides	All the team members
1:00 pm	4:00 pm	3/12	Final presentation practice	Jessie, Amir, Bhawinee

In the text below some of the sources for our information have been determined:

The product we pursuit after for our marketing plan strategy is Micra a leadless pacemaker, and none of our team members have knowledge on the product nor the company that made it. As a team, our first step were to learn about the company, and the product by visiting the company's website. After we learned about the company and the product, we started to gather information and brainstorming for next steps. We used the market plan framework and market plan rubric from class to start framing for our product market plan strategy.

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**In order to define our value proposition we were required to do intensive researching to be able to evaluate and assess the company as well as the product against our competitors. All members required to document and cited their research results with sources.**

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We finished our value proposition section with the satisfactory of the information we collected. Next step is to move marketing strategy. In this section we decided to use the 4P's model, define our market position, market target, market segments, and channel distribution.

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After accomplished market strategy, we moved on to market objectives with pricing strategy, promotion and communication plan, product and branding management, and implementation and control.

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