

FUTURE ASPECTS AND MARKETING OF MEDICAL DEVICES AND CRITICAL ANALYSIS
OF STRENGTHS AND WEAKNESSES

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

In

Pharmaceutical Management

By

JAI BHAGWAN

Under the supervision and guidance of

Dr. Ashok Peepliwal

Associate professor

School of Pharmaceutical Management

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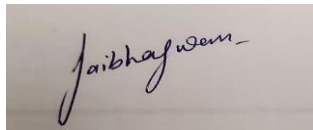
Associate professor

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2023

DECLARATION BY STUDENT

I hereby declare that this dissertation titled Medical Device Marketing and Future Aspects and Critical Analysis of Strengths and Weaknesses is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

A photograph of a handwritten signature in black ink on a light-colored surface. The signature is written in a cursive style and reads "Jai Bhagwan".

(Signature)

Jai Bhagwan

Date:

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Work Completion Certificate

To whom it may concern

This is to certify that **Jaibhagwan (MS IIMR University)** has successfully Completed Summer Internship in the Sales & Marketing Department.

The work is completed on **19.05.2023** successfully.

Thanking you and assuring you for our best services always.

Name of Work/Project: **Summer Internship**

Work Period: **20.02.2023 to 19.05.2023**



Regards,

Rahul

Rahul

Manager, Tenhard India

This is to certify that all works mentioned above have been physically completed in accordance with the specifications, provision, and conditions of the contract.

CERTIFICATE

This is to certify that the dissertation title “**Future Aspects and Marketing of medical devices and Critical Analysis of Strengths and Weaknesses**” is a record of the research work undertaken by (Jai Bhagwan) in partial fulfillment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and his approach to the research study has been sincere, scientific, and analytical.

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ABSTRACT

This paper represents a comprehensive study focused on future aspects, marketing, strengths, and weaknesses analysis of medical devices. It also focuses on introducing and classifying medical devices and how the medical device market differs from other FMCG and pharmaceutical markets. This study deals with current and near-future medical device marketing techniques. The study also discusses new inventions and techniques in detail. This study uses primary, secondary, quantitative, qualitative, and mixed approaches. This research aims to better understand medical device marketing and future aspects that can contribute to a better user experience.

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LIST OF ABBREVIATIONS: -

S No.	Abbreviations	Meaning
1.	GMP	Good manufacturing practices
2.	FMCG	Fast moving customer goods
3.	ECG	Electrocardiogram
4.	MDR	Medical Device Regulation
5.	EMA	European Medical Agencies
6.	IVD	In vitro diagnostics
7.	CBT	Cognitive behavioral therapy
8.	AI	Artificial Intelligence

CHAPTER – 1: INTRODUCTION

1.1 Introduction of medical devices

Medical devices are formally well-defined by the WHO as any Machines, devices, implants, extracorporeal reagents, software, materials, or other similar or related items used individually or by combining the manufacturer's intentions to use for humans or one or more specific medical purposes, and its primary intended effect is not achieved by immunological, pharmacological, or metabolic means, such means may assist in its intended function.

Almost any device used in medicine that is neither a drug nor a nutritional product can be called a medical device. This creates problems for users and regulators. For example, in some cases, drugs are contained within medical devices such as drug-eluting stents. This can lead to confusion, such as in products that use lidocaine gel for local anaesthesia, when inserting a urinary catheter, which is classified as part drug and part device. This article proposes a clearer definition of medical devices supported by classification and critically reviews the current regulatory process. Different regulatory definitions conflict with each other and harmonizing them would be beneficial. We focus on regulations issued by the US Food and Drug Administration (FDA) and the European Medicines Agency (EMA), but also between these jurisdictions as well as other jurisdictions (e.g., Japan). Also, note the differences. The International Forum of Medical Device Regulators, a voluntary association of device regulators, is seeking to harmonize device regulations, but differences in national laws make this difficult.

CHAPTER – 2: REVIEW OF LITERATURE

2.1 Classification of medical devices:

Medical devices can be classified into different categories depending on their intended use, level of risk and mechanism of action. The generally accepted classifications of medical devices are:

(i) Class I Medical Devices:

Definition: A Class I device is defined as a device that is not intended to support or sustain human life or poses a low risk of damage to the user. They are often simpler in design and functionality when compared to higher-class devices.

Example: Class I devices cover a wide range of medical products including but not limited to Bandages and dressings: These include plasters, gauze dressings and wound dressings. Dental Instruments: Non-invasive dental instruments such as dental mirrors, probes and simple handheld dental instruments. Surgical Instruments: Basic surgical instruments such as scalpels, forceps, and scissors. Diagnostic Equipment: Equipment for basic diagnostic purposes, such as thermometers, stethoscopes, and blood pressure monitors. Non-powered tools: Tools and instruments that do not require a power source, such as forceps, surgical gloves, and examination gloves.

- **Regulations for class I medical devices:**

Generally, Class 1 medical devices do not have to pass stringent regulations in comparison to the higher-class of medical devices including the US FDA regulations they do not require pre-market approvals but must pass through common controls of safety and efficiency.

- **Quality Control System:**

During the manufacturing process generally, manufacturers need to follow good manufacturing practices and guidelines and must ensure the quality of the product.

- **Post Marketing Surveillance:**

When the Class I device is out for the market, regulatory bodies can monitor the safety and performance of the device through post-market surveillance programs. Adverse

events, adverse effects and safety concerns regarding these devices are generally reported to regulatory authorities by healthcare professionals.

- **Labelling and Instructions:**

Class I devices must have clear and accurate labels and instructions so that they can be properly understood and used safely by healthcare professionals and patients.

- **Recalls and Corrections:**

If there is any event of a defect or safety concern, the manufacturer of a Class I device may be required to initiate a recall or take corrective action to address the issue and ensure the safety of its users.

Class I medical are generally considered low-risk profile devices so their regulatory requirements can vary by country or region.

(ii) Class 2(A) and 2(B) Medical Devices and Technologies:

Definition: Class 2(A) medical devices are falling under low risk to the moderate-risk profile of medical devices,

And 2(B) devices are considered to pose a moderate risk to higher risk of medical devices.

These devices are generally more complex in design and function in comparison to class I devices and involve special controls to confirm safety and performance.

Class 2(A) and class 2(B) medical devices include a wide range of products for example:

- **Power Wheelchair:** A power wheelchair that is used by people with limited mobility that can be by birth or due to an accident.
- **Infusion pump:** it is a device that is used to administer fluids, drugs, or nutrients intravenously in the body.
- **ECG Monitoring Machine:** It is an electrical device which is used for the measurement of the electric waves of the heart.
- **Surgical laser:** A device that produces high-intensity light for surgical procedures.

- **Glucometer:** It is a device that is used for measuring the blood glucose level of the body.
- **Pregnancy test kit:** A device used to detect pregnancy hormones in urine or blood samples by the woman herself or by a doctor.
- **Regulatory:**

Class 2(A) and 2(B) devices generally need a higher level of regulatory insights as compared to Class I devices. That may depend upon the specific regulatory framework, these may be subject to ensuring an assessment process involving conformity assessment bodies, notified bodies or regulatory authorities during the surveillance.

- **Clinical Evaluation of Devices:**

For Class 2(A) and 2(B) devices, manufacturers are always required to provide clinical data or evidence that support the safety and performance of their devices. This may include conducting clinical trials, reviewing the literature, or using existing clinical data to demonstrate compliance with regulatory requirements.

- **Quality control:**

During the manufacturing of Class 2(A) and 2(B) equipment, manufacturers have to install and maintain a quality management system. These systems confirm consistent production, quality control, and post-market monitoring of devices.

- **Post-Market Surveillance:**

Regulatory agencies frequently use post-market monitoring programmes to keep a careful eye on the performance and safety of Class 2(A) and 2(B) devices. Observing device performance in real-world settings and reporting adverse occurrences are crucial components of making sure patients are safe.

- **Labelling and Instructions:**

For Class 2(A) and 2(B) devices, it is crucial that the labelling and instructions are detailed and clear. It is crucial to give users enough information on gadget operation, potential risks, and safety measures to ensure safe and successful use.

- **Recalls and corrections:**

Manufacturers of Class 2(A) and 2(B) devices may launch recalls and issue safety warnings in the event of a safety concern or flaw. You may need to take corrective action.

Countries and regions may have different regulations and classifications for Class 2(A) and 2(B) devices. To guarantee the security and effectiveness of their products, manufacturers are required to adhere to all applicable laws and standards.

(iii) Class 3 medical devices

Class III equipment is defined as that which is intended to support or sustain human life and is vital to preventing health harm or poses a danger of disease or injury. These devices frequently have a direct impact on patient health and have sophisticated designs.

Here are some examples of class III medical devices:

- **Implantable cardioverter-defibrillators and pacemakers:** These are medical devices used to control the electrical activity of the heart and cure irregular heart rhythms. An implant used to replace a diseased or damaged heart valve is referred to as a prosthetic heart valve.
- **Advanced orthopaedic implants:** these typically include hip and knee implants as well as other devices used to replace joints.
- **An implantable neurostimulator:** It is a medical device used to treat pain or nerve injury by electrically stimulating nerves or the spinal cord.
- **Advanced Imaging Systems:** These usually include MRI, CT Scan X-ray machine etc.
- **Regulation:** Class III devices have to pass the toughest and most stringent regulatory inspection. Before their products may be sold in the market, manufacturers are often required to get regulatory clearances from organisations like the US FDA and the CE marking under the European Medical Device Regulation (MDR).
- **Clinical Data and Evidence:** To prove the effectiveness and safety of Class III medical devices, manufacturers need to offer significant clinical data. This involves carrying out clinical trials, gathering patients' clinical data, and comparing device performance to that of already available medications and technologies.
- **Quality control:** Manufacturers of Class 3 medical devices have to maintain a strict quality control system to ensure the reliability, uniformity, and consistency of their products. These systems could be global quality norms like ISO 13485.
- **Post-market Surveillance:** After a Class III gadget is out to use in the market, regulatory agencies usually do post-market surveillance programmes to closely

watch how it performs. To ensure ongoing safety and efficacy, manufacturers are always required to record adverse events and carry out post-market studies.

- **Labelling and instructions:** Class III devices need to put proper labels and use instructions to give medical professionals and patients crucial information about device operation, dangers, and safety measures.
- **Recalls and Corrections:** If there is a safety issue with a Class III medical device or any kind of flaw, the manufacturer needs to recall the product, issue a safety alert, or take other corrective action to resolve the problem and ensure patient safety.

Regulatory instructions and requirements for Class 3 medical devices are far more complex as compared to Class 2 and Class 1 medical devices which is why the instruction may vary by country or region.

(iv) In vitro diagnostic medical devices (IVDs):

In-vitro diagnostic tools are used to conduct tests on samples taken from outside the body of a person to learn more about their health or level of disease. These tools are important for illness intended for use in a laboratory or at the point of care and include detection, monitoring, and therapy. For instance:

- **Using a clinical chemistry analyser:** one can determine the concentration of various substances in bodily fluids, including electrolytes, glucose, and cholesterol.
- **An immunoassay analyser is a tool:** used to find and quantify particular antibodies or antigens in bodily fluids. or an infection test, or a pregnancy test.
- **The term "molecular diagnostic device" refers** to a tool for identifying and analysing genetic material. B. A DNA sequencer or PCR (polymerase chain reaction) device.
- **Using a blood gas analyser:** one can measure blood gases like oxygen and carbon dioxide levels to determine how well the respiratory system is working.
- **Active MedTech instruments** are those that produce and deliver energy or use electricity to operate in order to diagnose, treat, or monitor a patient's medical conditions. This category may include equipment that generates or emits

electromagnetic radiation, electrical current, or other types of energy. Here are a few illustrations:

- **Implantable Cardioverter-Defibrillators** : These devices continuously monitor the heart's rhythm and, in the event of a risky abnormal heart rhythm, also administer an electric shock to restore the heart's normal rhythm.
- **Pacemakers**: These devices produce electrical impulses to control the electrical activity of the heart and support the maintenance of a regular heartbeat. An instrument that records the electrical activity of the heart for diagnostic purposes is an electrocardiogram (ECG) monitor. **The magnetic resonance imaging (MRI) scanner** creates precise images of the internal bodily structures by utilising strong radio waves and magnetic fields.
- **Using an infusion pump**, a patient can receive fluids, medications, or nutrients directly into their bloodstream.
- **A wearable device called an external defibrillator** is used to shock a patient's heart when they are experiencing a cardiac emergency.

(v) Implantable MedTech Instruments:

Implantable medical devices are those that are inserted into the body through surgical or minimally invasive procedures. These are the tools intended to affect biological systems in a therapeutic or diagnostic way, whether they are temporary or permanent. Some instances include:

- **Prosthetic cardio valves**: For restoring proper blood flow, these implantable medical devices are used to replace diseased or damaged heart valves.
- **Cochlear Implants**: These are a class of hearing aids that are surgically implanted in the inner ear to give the severely deaf or hard of hearing a sense of hearing.
- **Neurostimulators** are medical devices that deliver electrical impulses to nerves or regions of the brain to treat conditions like Parkinson's disease, epilepsy, and chronic pain in patients.
- **Drug administration systems** Drugs are delivered directly into the body by implantable, allowing for targeted treatment of diseases like cancer, diabetes, and chronic pain.

- **Implantable Sensors:** Physiological parameters like blood sugar levels, intraocular pressure, and intracranial pressure are monitored by implantable sensors to aid in the treatment and diagnosis of disease.
- **Bone implants** are used to treat fractures and replace patients' joints. They include orthopaedic plates, screws, and hip- and knee-implants.
- **Surgery:** A trained medical professional will typically perform surgery to implant implantable medical devices. The particular device and its use determine surgical technique and placement.
- **Materials and Design:** Implantable devices are made up of biocompatible materials that are safe for long-term implantation in the body of a patient. Materials such as titanium, stainless steel, polymers, and biodegradable materials are commonly used for this kind of medical device. The design of the device is intended to ensure stability, compatibility with the surrounding tissue, and proper function.

2.2 Methods of Marketing of medical devices in India

Manufacturers of MedTech devices tend to focus on ground-level market users with particular requirements. The young generation population is ageing faster at a rapid rate, and a significant no. of American people are suffering from diseases related to chronic lifestyle and also other elements than ever before are suffering from chronic lifestyle diseases and other ailments. Healthcare requires new robotics and other medical technologies for providing much better patient care. So, interacting with ground-level audiences with innovations and engaging them with new ways is fruitful for the long-term success of the market

The demand for medical gadgets is increasing, and so is the level of competition. Standing out from the crowd is crucial in today's congested market. We are in a "new age" of marketing, and in some circumstances, conventional marketing tactics will need to be reconsidered or modified.

What does modern-day effective medical device marketing entail?

We tried to include all recent marketing methods in this analysis. It demonstrates the essential components of a successful 21st-century marketing strategy, clarifies what

matters (and why), and provides practical advice you can put into practice right away to get results. Companies utilise the following approaches collectively:

- Brand needs to be competent, credible, and trustworthy.
- Website must be showcasing branding and medical device and their technologies.
- Landing pages are created to assist in converting visitors to leads on your website.
- Blogs generate disruption build faith and provide thoughtful leadership in areas that matter to our subjects and ideas.
- Digital platform gives customers access to your brand wherever they spend their time.
- Email marketing gives you more opportunities to stay in the spotlight and add value to your audience.
- Online advertising attracts attention to showcase products.
- Offline advertising uses proven payment sources and PR.
- Events provide a chance to broaden your audience and provide more leads to your digital sales funnel.
- Distributors are effective partners for boosting sales.
- Budget planning enables you to maximise the return on your marketing expenditures.

For getting real data we need to prepare specific marketing studies. The market for medical devices is enormous. This category includes anything from pacemakers and portable oxygen to lab equipment and tongue depressors. To achieve significant results from your medical device marketing strategy, you must communicate with the relevant prospects. Let's examine the essential components of medical device marketing in the twenty-first century that demand your attention.

(i)Brand

- A person's perception of who you are and how they feel about you.
- We frequently take the well-known brand names that stand in for our products for granted. Bandages, Kleenex, and Xerox. But give it some thought for a minute.

- These brand names are now considered to be interchangeable with similar product categories.
- That is the strength of a solid brand. An effective branding statement can advance your company. Choosing the wrong brand can result in permanent damage.
- Your brand should ooze credibility, trust, and knowledge. In the field of medicine, failure is not an option. Your brand message should be constantly supported by every marketing component or message. If not, you run the risk of confusing customers. For instance, Hill-Rom's branding is distinct and consistent. They have a strong brand voice that makes it obvious right away who they are as a business.

(ii) PRODUCT MESSAGE

Brands frequently embrace or establish their identities depending on what their stakeholders "think" or what their target audiences anticipate from them.

In many ways, neither you nor the way you think define your brand. Your brand is instead established by the impression you leave on your clients. Do you give them a sense of security? Invigorated? Safe? How do you go about that? Energetic?

Why do people choose your business over that of your rivals? What's the distinction? Once you've identified what makes you unique, test it to determine exactly how you differ (and make sure you differ from your rivals). Unfortunately, many businesses choose not to respond to these inquiries, so you should consider developing a brand persona that encapsulates the most typical problems and scenarios involving your target market. What facilitates their way of life? Why do they do it? A well-developed brand persona aids in message targeting, making it resonate, and inspire action in your potential customers. Honesty is key to defining brand messages (as companies try to "humanize" their brands and appeal to sceptical millennials who are increasingly in decision-making positions, transparency is key). are also becoming more common).

(iii) CONTENT VISUAL

Use graphic components to reflect your brand that will appeal to your audience. These photographs may show the infrastructure, warehouses, and medical equipment that huge worldwide firms produce.

Visuals that engage management, and employees, and demonstrate care and regard for clients can potentially draw customers to your brand inspiration for small medical device makers and businesses whose brands depend on their people.

Logos can be an afterthought for an organization. Development by experienced professionals can be expensive, but it's worth it. A good logo can be synonymous with your brand and last for years. Many logos are memorable and common. Logo Development Designers and strategists can help you create a brand-representative logo.

(iv)WEBSITE

A single location for all web advertising

Do you remember when most corporate websites were little more than online brochures for their goods and services in the early to mid-2000s? Thankfully, those times are behind us.

His website now serves as the focal point for all your online marketing activities and is a potent inbound lead-creation tool. Any marketing tactics you do are intended to increase website visitors. When that happens, it is the responsibility of the website to turn that traffic into leads or, in the case of e-commerce sites, into sales. In contrast to the days of "online brochures," websites today must not only include technical information about medical equipment but also useful details about their products and staff to convert website visitors. It exists.

- Log in for the information letter.
- Can call for expert advice.
- Send messages in real-time or ask additional questions via live chat.
- Try to purchase on an EC site.

The website can provide more and better leads when combined with an effective inbound marketing approach, which your sales staff can then convert into sales.

Visit the product sales page for Agilent. Take note of how the navigation menu has thoughtfully organised all the products. In general, searching for products makes it simple to find what you're looking for. The product page itself also showcases a number of his thoroughly considered CTA choices for each product range.

The truth is that modern websites only live two to three years at most, thus it's critical to keep your website current by implementing its most recent UX principles and technical innovations.

In addition to being essential for protecting your website from hackers, today's customers and decision-makers have high standards. They usually want the website to make a good impression on them. If the information they need is difficult to find, or if that information seems outdated or outdated, they will think your product is also outdated and outdated.

Your brand might be destroyed by an outdated website. A contemporary website is necessary. A well-built website is comparable to a washing machine that will last for 10 or 20 years.

That would also be a falsehood. Today's websites only endure a few years at most, so it's critical to maintain your website current by implementing the most recent UX principles and technical innovations.

In addition to being essential for protecting your website from hackers, today's customers and decision-makers have high standards. They want to be impressed by your website. They will believe your product is similarly out-of-date and out-of-date if the information they require is hard to obtain or if it appears old or outdated.

An outdated website can destroy your brand.

To convert, your website must be designed for a mobile audience.

This usually means Mobile-friendly images that load quickly. Don't abandon potential clients while your website's images are loading. For a lightning-fast website, make sure to optimise your photos for mobile devices.

Short, action-oriented copy. Scrolling through long pages can be frustrating for both mobile and desktop/laptop users. When potential customers are reviewing your business, chances are they are reviewing at least one other business as well. Do they want to read novels on your site? Keep the text on your website short and to the point, unless it provides a lot of value (like this article). please.

A powerful call to action. Tell your website, and visitors, what to do next. Do you have an e-book or other resource that can help you solve a problem you've encountered on a page on your website? Send your traffic there. action-oriented writing that is succinct.

Users of desktop/laptop computers and mobile devices could find it tiresome to navigate through lengthy pages.

One of the most effective ways to turn traffic into leads is through premium content. The value you can provide to your prospects and consumers is demonstrated through white papers, eBooks, reports, and other premium material. Consider the information you read and take in. What adds value is that. In some ways, it made your life easier. You want to arouse these feelings in your potential customers. They will value your medical equipment if you impress them with free content (often in exchange for an email address), meaning that what they are paying for is superior. without a doubt!) must likewise be good.

In many respects, a landing page is the most straightforward page on your website.

(v) BLOG

Provide added value and generate traffic at the same time.

A blog post is essentially an internet piece that is focused on a particular subject. They can cover very general topics or very narrow ones. Keep in mind this page for further information.

The fact that blogs should always add value should be one of the most crucial things to keep in mind.

It will be profitable for your blog if you add value. A well-written and maintained blog will enable you to in particular:

Promote your business as a leader in the medical device industry, together with your leaders and other staff members.

- Introduce new prospective clients to your company and your offerings.
- Ensure that former or present clients will remember your company.
- Increase organic website traffic by using material that has been SEO-optimized.

Consider your potential clients. What difficulties do they encounter? How could your expertise (or product) improve their quality of life? What specific details about your group or business would be useful? help you draw a realistic picture of your company and how you may benefit potential clients?

The most pertinent results are delivered by modern search engines based on the user's query. Online searches are growing more and more "noisy" due to the development of smart speakers and other devices like Google Home and Amazon Echo. You can obtain fantastic returns on your blog investment if your material can address the queries people are typing or posing on their desktops.

(vi) WRITING SUCCESSFUL BLOG POSTS.

Sincerely, creating a blog entry is not the same as creating the next great American novel. That style of writing is not what blogging is. To efficiently establish a blog that promotes organic traffic and converts those visitors into leads, however, requires certain abilities.

It can be challenging for many businesses to choose themes for blogs. Your surroundings, notably your sales and customer service staff, are the subjects you should write about. A medical device blog can cover a variety of subjects, including Complaints and issues users have with various medical equipment, as well as solutions.

For producers of B2C medical equipment: in-home treatments for common medical conditions (such as suggestions for better sleep, physical therapy stretches, and exercises, bedroom keys that induce slumber)

Inform potential clients about the newest technological advancements in the medical device industry. Tell us about the newest developments in your sector and how your business is leading the way.

To give an inside view of your business and humanise your brand, share news about important hires, media coverage, and other business developments.

Continue to ponder. What are the most typical objections that prospects raise to your sales team? What difficulties and grievances, do your consumers bring to the attention of your customer support team? That is where it all begins!

(vii) DEVELOP A SPECIAL STRATEGY FOR DIGITAL PLATFORMS.

Your time and effort on each platform can be maximised, with the aid of a social media plan. Do you recall the persona we discussed earlier? Which social media outlets are primarily used by these personas? Where are they most likely to connect with and interact with? Pay attention to the platforms that connect with your clients and potential clients and are most likely to have a significant impact. LinkedIn is arguably the best location,

for B2B businesses to advertise, while some of his B2C businesses have also had terrific success there. This platform is probably Facebook or Instagram, for B2C businesses. Particularly when resources are scarce, it pays to put time and effort into platforms; that is most likely to produce ROI.

Using the editorial schedule to make sure you're producing interesting content that resonates with your persona and calls to action once we've decided which platform to concentrate on. Don't put too much emphasis on receiving likes. It's crucial to keep track of all social media data but give website traffic from social media platforms more consideration than likes and comments. This indicator gives more information about how well the social media approach is working to generate leads.

(viii) ONLINE ADVERTISING

successful targeted campaigns

Creating an online presence and an inbound marketing plan that makes use of the strategies mentioned above is a very effective way to boost sales for your company. To improve your outcomes, include online advertising.

Online advertising not only keeps website users interested (see "Retargeting ads" below), but it also communicates the strongest message to potential new customers who might not have otherwise heard it. And you can tell. Online advertising is one of the most effective methods for generating leads, along with landing pages that are intended to convert.

The most popular types of online advertising are listed below. advertisement on search engines. additionally referred to as pay-per-click (PPC) advertising. On Google, Bing, and other search engines, PPC ads are those that show up at the top of search results. To determine the keyword combinations that your ideal prospective clients are most likely to search for, keyword research is used to purchase these adverts. These advertisements are particularly powerful since they target viewers who are prepared to act and search for solutions.

advertising that is displayed. These adverts are referred to as "banner advertisements" and have been used in this way for many years. These are banner ads that appear at the top of websites and include very little text in addition to images and graphics. It might be rectangular and positioned at the top of the page, within the site's scroll or feed, or in the

sidebar. The way display advertising operates is a little bit obtrusive. Their objective is to interfere with your online experience by presenting offers that are enticing enough to drive users to act. They are impossible to ignore.

(ix) EVENT

Reach a wider audience and fill your digital funnel.

Trade fairs are a crucial component of your marketing and sales activities and have likely been around for a while. They support numerous other industries, including those that make medical devices.

But have you ever thought about incorporating trade exhibitions and other events into your digital marketing strategies? Trade shows, on the other hand, can be a great source of fresh leads.

Gathering email addresses and other forms of contact information from prospective clients is essential for maximising return on investment in trade exhibitions. Here are some original methods for achieving this.

(x) SOCIAL MEDIA ADVERTISING.

Ever questioned how social media platforms can continue to exist with hundreds of millions of users using them for free? It has to do with advertising sales! Websites like Facebook (the most well-known and controversial) entice advertisers by marketing their goods to customers by using demographic and behavioural data about users. Simply said, social media advertising "enhances" your company page's content so that more of your followers will see it (research indicates that Facebook postings organically reach just about 2-5% of followers). The effectiveness of Google PPC and display ads can be imitated or even surpassed by more complex advertisements. One of the most inventive and fruitful types of Facebook advertising is the use of videos, slideshows, and other types of media.

Mobile Marketing: It's hardly surprising that advertisers develop methods to target these individuals given how much time people spend on their phones. Because mobile advertising is created specifically for small screens, there is a higher chance that they will work better.

Retargeting: What happens if a visitor exits the website without registering or buying anything? In general, nothing. Unless you use retargeting advertisements. Websites with

these adverts installed will have code that will "track" users who have been there for a while. These users will see advertisements for your company and be impelled to visit your website again, submit an offer, or buy something. These can serve to reinforce your message, keep you top-of-mind, and turn site visitors into leads.

Native Advertising: Have you seen the tags for Sponsored Stories on well-known websites? These tales are commercials. The classic "ads" that you still see in today's magazines and newspapers have an internet equivalent. He may also use sponsored infographics and content on his other websites in addition to paid "guest posts" as native advertising to advance his brand.

(xi) BUDGET PLANNING

Make the most of your money.

It's widely known. Online marketing and advertising are pricey, much like traditional advertising. After all, you must spend money to earn it. However, that doesn't imply you should pour endless resources into every tactic and hope against the hope that it will generate a tonne of business.

A wise budget will enable you to maximise your investment and achieve the greatest outcomes. Your marketing expenditure should be viewed as an investment rather than a "cost." Over time, the content you provide for your blog may help you generate more leads. Investing in this content's creation and promotion has the potential to produce business leads and sales for the foreseeable future.

Considering this, wise budget allocation helps you avoid spending more money than necessary to attain the best results.

2.3 FUTURE ASPECTS OF MEDICAL DEVICES IN INDIA

Over the past ten years, India's healthcare and medical device industries have experienced substantial growth. From consumables to implantable medical devices, India produces a vast variety of medical equipment. Catheters, irrigation sets, extension lines, cannulas, feeding tubes, needles, and syringes, as well as cardiac stents, drug-eluting stents, intraocular lenses, and orthopaedic implants, make up the majority of the medical devices produced in India. Implant. The market for medical devices necessitates significant capital expenditures as well as continual training to keep up with emerging innovations.

India imports between 70 and 80 per cent of medical devices yet is still unable to meet demand. Many medical device manufacturers, both local and international, are currently looking to India's notable lack of medical device penetration as a big growth opportunity.

The government of India has developed several programmes and policies to support the medical device industry. As part of the Make in India initiative, the government identified it as a priority area in 2014.

MONETARY SIZE

The Indian medical device industry is made up of both huge multinationals and SMEs.

The Indian medical device industry is anticipated to reach a value of \$12 billion in 2020 and grow at a CAGR of 15%, or 2.5 times the world growth rate. India ranks in the top 20 markets worldwide for medical devices and is the fourth-largest market in Asia after Japan, China, and South Korea. The diagnostic imaging market is anticipated to expand at a CAGR of 13.5% between 2020 and 2025.

The value of India's medical device exports was US\$2.9 billion in FY2022 and is expected to reach US\$10 billion by 2025. The Central Drug Standards and Control Organisation (CDSCO) and the Ministry of Health and Family Welfare (MOHFW) are putting the following plans into action to enhance medical device exports to the nation:

Review and application of the export marking system described in Annex MIII (Draught Guide to Good Manufacturing Practises and Facility Requirements) Clinical assessment and explanation of unfavourable reporting. Extended State Permits Validity of Free Sale Certificate: 2 to 5 Years to Enable Exports. To enable contact with regulatory organisations worldwide, compile a list of producers who possess export licences.

The path is in front of us.

A plan of action should be created by Indian officials to lessen their dependency on imported medical equipment and technology. A strategy plan for medical device development is reportedly being developed by NITI Aayog. India's medical equipment market may reach \$50 billion in the next years.

A significant Medical Technology Board member made the forecast that India would become self-sufficient in domestic medical device production by 2025–2026 at BioAsia 2021. The committee took notice of the government's supportive actions, including the promotion of domestic high-tech medical device manufacturing, production-linked incentive schemes (PLIs) for medical devices, and the development of new medical device parks. Encourage the expansion of India's whole medical device market.

Through collaboration through the Make in India and Innovate in India programmes, medical device companies are establishing India as a manufacturing hub for domestic and international markets. They are also providing low- to medium-tech solutions to meet requirements. I have to create a product. An untapped domestic market.

2.4 New technologies and innovations in medicals devices

Medical personnel now have more options for treating a wide range of illnesses and disorders thanks to modern technologies. With the aid of these technologies, we will be able to identify illnesses early, keep track of our health more closely, and take proactive steps to stay healthy and heal wounds more quickly.

What does medical technology mean?

MedTech Instruments used in medical settings for the diagnosis of patients, therapy, and health improvement are included in the large field of medical technology. used to link medical technology and patient care. From bandages to MRI scanners, dental floss to CT scanners, and wheelchairs to catheters, MedTech has it all. Pharmaceutical and in vitro diagnostic (IVD) laboratories, as well as diagnostics at the pharmaceutical/biotech level, all produce medical devices. Medical technology benefits

Shortly Healthcare professionals can profit greatly from the MedTech industry, and advancements have raised the standard of patient care. These tools deliver precise results that aid medical professionals in creating better treatment strategies. Early outcomes, such as test and scan findings, are error-free and assist patients in receiving better outcomes more quickly. Additionally, leveraging MedTech tools and processes helps speed up doctor and patient interactions. These days, interventions can be carried out using simple technology. Additionally, better and more latest, and controlled therapeutic choices are provided through MedTech. Medical practitioners find it to be a less complex field because of its accuracy, fast features and straightforwardness. Here is a list of some of

the most cutting-edge medical innovations that are anticipated to revolutionise the medical industry by 2022.

(a)portable health monitoring device:

Tracking your behaviours, level of fitness, and general health is now simpler than ever thanks to wearable health monitors. It uses a variety of sensors to monitor different health indicators, including heart rate, blood oxygen levels, stress levels, and skin conductivity. The most popular wearable health monitoring gadgets are smartwatches, fitness trackers, blood pressure monitors, and sleep trackers. Due to their numerous benefits for tracking and monitoring one's health, wearable health monitors have become more and more popular in recent years. The fact that these gadgets are so inexpensive is one of their main benefits. It is simple to use and does not need a prescription or a trip to the doctor. Simply by wearing them frequently, you may track and keep an eye on several health measures.

(b) DNA sequencing and genomic studies

Our understanding of hereditary illnesses and other medical issues has advanced thanks to DNA sequencing and genomic research, which has produced numerous medical breakthroughs. Although DNA sequencing technology has been known for a while, it has only lately gotten more efficient and less expensive. Whole-genome sequencing is now significantly less expensive and takes less time to complete. Her DNA may be sequenced in a variety of other organisms with this technology, in addition to humans. Medical research has benefited from genome research, which has also made it simpler for scientists to develop novel plant and animal species. Researchers can identify an organism's genes and foretell the qualities that the organism will pass on to its progeny using DNA sequencing. Numerous fields of research are advanced thanks to DNA sequencing. Finding therapies and developing new ones for infections and viruses is very beneficial for researchers. DNA sequencing aids in determining the genetic origin of several illnesses and ailments. This aids in tracking the genetic development of certain populations, spotting mutations in various populations, and forecasting population evolution.

(c) Robotics in medicine

The use of robotics in medicine to automate and streamline numerous medical operations has made the technology increasingly well-liked in recent years. Robotics are mostly employed in operating rooms in medicine, but they are also used in other fields

including rehabilitation and assisted living. It has been established that robotic operating rooms are just as safe as or even safer than non-robotic operating rooms. Robots used in operating rooms often fall into one of two categories. image-guided robots and surgical robots. Smaller incisions and less tissue are removed during minimally invasive surgery with surgical robots. Image-guided robotics is used to automate some image processing and computer-assisted surgical procedures. Robotics in medicine helps to improve accuracy, decrease human error, and is particularly useful in operating rooms. Additionally, robotics can boost productivity and cut costs in the healthcare sector.

(d)Electronic health and patient records

Electronic medical records are computerised databases that organise and store patient information. Evidence that they can help improve healthcare quality, reduce medical errors, and increase the productivity of healthcare providers has led to their increasing popularity in recent years. It still isn't used frequently in medical facilities because of its high cost. Medical data is stored and managed using a computer programme referred to as the "Electronic Health Record," or EHR. For healthcare professionals who use electronic health records (EHRs), having a single, central database of patient data can be helpful. Because of this, accessing and exchanging patient information is made simple for medical professionals.

EHRs improve provider communication and help to prevent medical errors. The efficiency of healthcare professionals is also improved. The use of robotics in medicine to automate and streamline a variety of medical procedures has increased the popularity of the technology in recent years. Robotics are frequently used in operating rooms in the medical industry, but they are also used in other industries like rehabilitation and assisted living. It has been proven that operating rooms with robots are just as safe as or even safer than those without them. There are typically two types of robots used in operating rooms. surgical robots and image-guided robots. When using surgical robots for minimally invasive surgery, smaller incisions and less tissue are removed. Image-guided robotics is used to automate some image processing and computer-assisted surgical procedures.

An electronic medical record is a computerised system used to organise and store medical data. Due to evidence showing they can help improve healthcare quality, reduce medical errors, and increase healthcare providers' productivity, they have gained popularity in recent years. It is still not widely used in medical facilities due to its high cost. To store and manage medical data, a computer programme called HER. This makes accessing and

exchanging patient information for medical professionals simple. EHRs improve provider communication and help to prevent medical errors. Additionally, it makes patient-professional communication easier.

(e) Telemedicine and remote patient control

The use of technology allows medical professionals to communicate with patients remotely via phone, video, or other digital channels. This has been occurring more frequently recently as technology has advanced and the internet has become faster and simpler to use. Telepatient care, a subset of telemedicine, allows doctors to communicate with patients who are not physically present with them. This technology can help people who live far from hospitals and medical professionals, such as those who are patients. Telemedicine also helps patients who are unable to get to a doctor because they are housebound or immobile. Patients who must wait a long time to visit a doctor will also benefit from this. It's also crucial to understand that telemedicine, which is generally defined to refer to various kinds of medical services delivered across vast distances, is not the same thing as remote patient care.

(f) mRNA technology

New coronavirus infectious disease vaccines and other mRNA-based vaccines have lately gained popularity. Because they are more efficient, quicker to create, and less expensive to produce than traditional vaccines, mRNA vaccines offer a viable option. A single-stranded RNA molecule called messenger ribonucleic acid, or mRNA transports genetic information received from DNA. Giving the cell the genetic code causes an immune response to be initiated when the viral proteins are generated. The creation of alternative Vaccines made with mRNA technologies against everything from cancer to the Zika virus has been substantially aided by the success of the COVID-19 mRNA vaccine. According to some studies, mRNA can be employed to make different therapeutic medicines by instructing the body to produce therapeutically active molecules. With the use of this technology, it might be able to produce proteins that the body can use to treat a variety of illnesses. Additionally, alternative vaccinations might be produced using the same process. Antibodies made by the body, for example, are protein-based frequently incredibly efficient, but also rather pricey, drugs. The use of mRNA technology allows the human body to produce proteins more quickly and cheaply.

(g)Technologies for mental health:

The demand for novel treatments is greater than ever as depression is anticipated to overtake heart disease as the top cause of illness burden globally by 2030. In the past year, a lot of new technological advancements have been made that could benefit people who are still struggling with mental health issues. AI-powered mental health apps frequently assist patients in completing intake forms and receiving their first diagnosis. Apps like Ellipsis can identify emotional discomfort in patients based on their voice and speech patterns, while chatbots like Woebot assist patients in using smartphone apps to implement cognitive-behavioural therapy (CBT) procedures. To maximise effectiveness, digital symptom tracking is crucial in the delivery of future mental health care. Patients are urged to share their data online, and healthcare professionals are alerted in real time if there are any concerns after the data is analysed by AI algorithms. The sole and first video game treatment approved by the FDA in 2020 is EndeavorRx. In the field of mental health care, video games are now applied in novel ways. Her 8–12-year-old ADHD child will benefit from playing this game, which requires a prescription. Participants in the clinical study who indicated an improvement in their ability to pay attention were 73%. Video games will gain in acceptance, accessibility, and affordability as a treatment for a range of medical issues as a result of this triumph. A brand-new publisher and producer of video games, DeepWell Digital Therapeutics, recently declared that it would create amusing games that would boost, speed up, and intensify treatment for various mental health conditions.

(h)Precision Medicine

With advances in medical technology, precision medicine is becoming more and more individualized. Precision medicine takes each patient's genetic makeup, environment, and way of life into account. For instance, based on each patient's particular genetic profile, precision medicine might design cancer therapy for them.

Personalised medicine targets tumours depending on a patient's DNA, creating genetic alterations and aiding in the removal of anticancer medications, making other therapies more ineffective. The future of medicine could be completely transformed by precision medicine. The most cutting-edge oncology treatments right now are precision pharmaceuticals, but they also hold great promise for treating uncommon genetic and viral disorders. The incorporation of precision medicine into healthcare can be made more difficult by problems with infrastructure, disparities, and expertise.

(i) Neuroscience

Numerous facets of life could be improved by neurotechnology. It is presently utilised in healthcare and medicine, but in the future, it will have a significant impact on national security, sports, workplace management, and even education. One of the numerous fields covered by neurotechnology is brain function and visualisation. Computers, electrodes, and other tools that can stop electrical impulses from passing through the body are some of these components. Utilising the revolutionary brain gadget, imaging the brain, recording the magnetic fields produced by the electrical activity of the brain, stimulating the brain and nervous system, and neuroscience can be used to monitor or control brain function. Neuralink is just one example of how these technologies are used in medicine. The device is built-in. Neuro devices have great potential for treating neurological illnesses, although still being at the development stage. Neuralink is one of them. Elon Musk's company is creating a Neuralink-implanted device that wirelessly transmits brain activity to a computer. It might be possible to treat neurological disorders like Parkinson's and Alzheimer's if it's successful. Nevertheless, Neuralink has only been tested on animals thus far.

(j) Virtual Reality

For a while now, many mental health concerns and problems have been treated using virtual reality. To treat and manage several mental health issues, including stress, anxiety, dementia, and autism, it is now more frequently employed. Virtual reality therapy is used to address mental health issues, but it can also change how a patient perceives reality and suffering. The ability to move inside the human body allows for more effective training of medical practitioners. Viewing the body holistically can help you better grasp your disease and other conditions while diagnosing a patient.

(k) Artificial Intelligence

we find one of the most intriguing applications of AI in healthcare to be the early detection, accurate diagnosis, and treatment of disease. we could do mammograms with 99% accuracy and 30 times faster with the use of AI in breast cancer treatment, which would eliminate the necessity for pointless biopsies. Additionally, early cardiac disease detection with AI enables medical professionals to identify life-threatening issues at an earlier, more treatable stage

CHAPTER-3: METHODOLOGY

3.1 Objective

The objective of using this methodology for the study of **Future** aspects and marketing of medical devices and Critical Analysis of Strengths and Weaknesses was to get the correct data from the relevant sources which can provide the right kind of information on the entitled topic of this research. Also, to discuss and analyse the strength and weaknesses of medical devices in the present scenario.

3.2 Literature Review

- Conducted a comprehensive review of relevant literature on medical devices, future trends, and marketing strategies.
- Identified key concepts, theories, and frameworks related to medical device technology, marketing, and strengths and weaknesses analysis.
- Gathered information by searching academic journals, industry reports, conference proceedings, and other reliable sources.
- visited some websites with government-released data about the market size and future aspects of medical devices.

3.3 Study design

- Determined the appropriate study design for the study Quantitative, Qualitative and Mixed Approaches.
- Justified the chosen study design based on research goals and available resources.
- Described the data collection and analysis methods used.

3.4 Data collection

- Identified sources of primary and secondary data for research.
- Primary data collection methods include phone calls, e-mails interviews and observations
- Secondary data sources include databases, industry reports, government publications, and case studies.

- Provided a detailed explanation of how data is collected to ensure its reliability and validity.

3.5 Analysis of Future Aspects

- Analysed the medical device landscape and identify new technologies, trends, and advances.
- Evaluated the potential impact of these future aspects on the development, performance, and marketability of medical devices.
- Considered factors such as artificial intelligence, robotics, the Internet of Things, personalized medicine, and regulatory changes.

3.6 Marketing Analysis

- Examined existing marketing strategies of medical device companies.
- Evaluated the effectiveness of various marketing channels, campaigns, and approaches to promote medical devices.
- Assessed the impact of branding, positioning, pricing, distribution and digital marketing on medical device adoption and sales.

3.7 Ethical Considerations:

Considering ethical aspects when conducting research is as important as choosing appropriate research approaches and methods. Since informed consent has been taken from the professionals before asking for the collection of data for the study of medical devices and its future aspects also all the secondary data is collected from open sources which do not claim any privacy about the data. Also, the data and study would be used for the academic purpose only.

CHAPTER-4: RESULTS

After reviewing the literature from many open sources available on the internet and research papers a brief study has been done on the classification and its types which help to give separate and actual knowledge about the medical devices and their segmentation

The study also allowed us to understand how Medical Devices marketing is different from the other FMCG markets and therapeutic pharmaceutical markets.

Increase and decrease in the use of medical devices during different phases of covid.

The Indian medical device market, which is made up of many different categories and components, has continuously had double-digit growth rates in recent years, averaging 15.8% from 2009 to 2016. The market is currently projected to be worth US\$11 billion, making it Asia's fourth largest. Due to the dominance of numerous multinational corporations in the industry and the rapid expansion of small and medium-sized businesses (SMEs), the market is anticipated to reach \$50 billion by 2025. As the sunrise segment of the healthcare sector under the 'Make In India' brand, the government has implemented certain aggressive initiatives to support the sector. To enhance domestic production, efforts are also being made to streamline regulatory procedures and reform the conventional reverse tariff structure.

The industry, however, is still caught in the "low balance trap"[1]. While some towns in the nation draw a lot of medical tourists, others lack the most fundamental medical services. The demand for low-cost consumables is greater than the demand for expensive and high-tech goods. Demand restrictions in this industry not only restrict opportunities for future growth but also fail to draw manufacturers and investors. His 100% foreign direct investment in this industry is automatically accepted to entice foreign investors. The medical device industry in the nation is very dispersed geographically and in terms of scale. There are now five medical device clusters in India.*Haryana (Consumables and dental equipment)*

- *Surat, Gujrat (Stent making)*
- *Delhi (MedTech devices innovators)*
- *Karnataka (Insulin pens, MedTech IT, Cardio stents and implants, PCR instruments)*
- *Tamil Nadu (Diagnostics, emergency support system, Ophthalmology)*

Additionally, four MedTech parks will be built around these clusters to facilitate infrastructure development and a suitable ecosystem for suppliers, manufacturers, developers, and medical device companies. The Indian industry is divided into five major segments.

- *Consumables & Disposables*
- *Equipment and instruments*
- *Patient aid*
- *Implants*
- *Stents*

The concept of the lower-level equilibrium trap was introduced by R.R. Nelson in the context of low per capita income. From a demand perspective, this means that lower demand levels are because of less expenditure, which limits market growth and leaves the industry 'stuck' in a low-equilibrium situation. increase.

Indian Medical Device Market

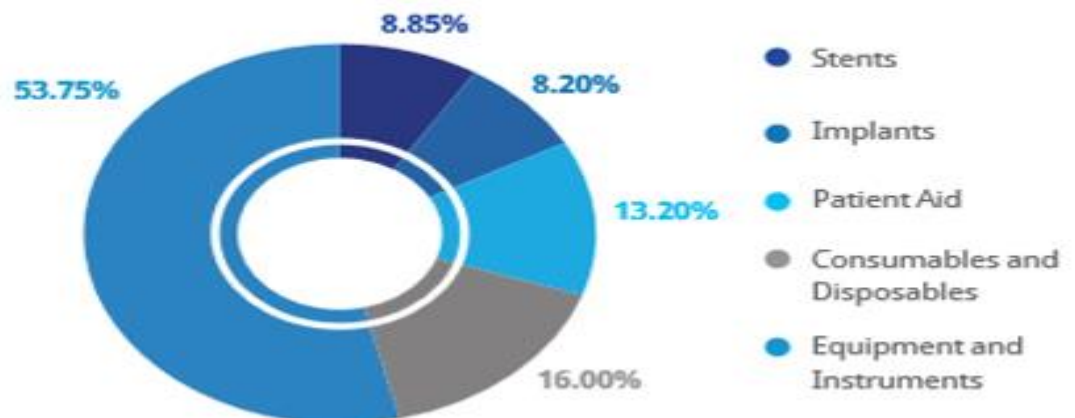


Figure1.1

The fastest-growing segment's share of industrial sales is declining, leaving few promising growth areas.

Global Medical Devices Market Segment by Growth Tiers. Estimated market share based on 5-year compound annual growth rate (CAGR), % of total sales.

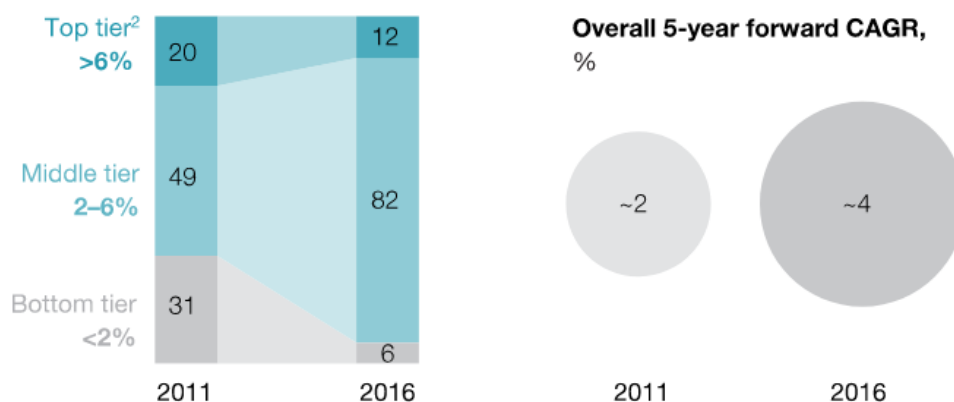


Figure 1.2

Based on the estimated Evaluated MedTech and HRI 2011-16 CAGR and 2016-21 Projected CAGRs subsegment analysis encompasses more than 90% of the 2016 global market.

Few high-growth, high-innovation segment remains, although some exist, particularly in cardiovascular.

4.1 Indian medical device market size

India ranks fourth in Asia and among the top 20 in the world in terms of the medical device market. The size of the entire medical device industry in India is estimated at INR 780 billion in 2020 and is expected to reach INR 3.55 trillion by 2025 with a CAGR of 35.4%.

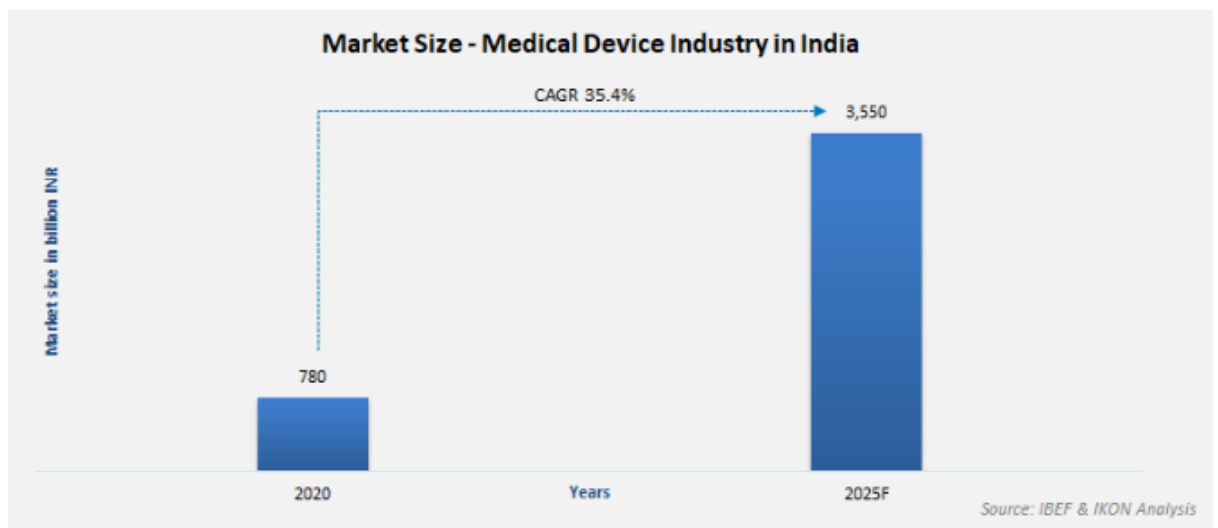


Figure 1.3

In 2020, diagnostic imaging equipment accounted for the largest market share, accounting for nearly 30%. Consumables and IV diagnostic equipment accounted for 16% and 10%, respectively. Medical devices such as patient aids, orthopedics and prosthetics, and dental products account for less than 10% of his total market.

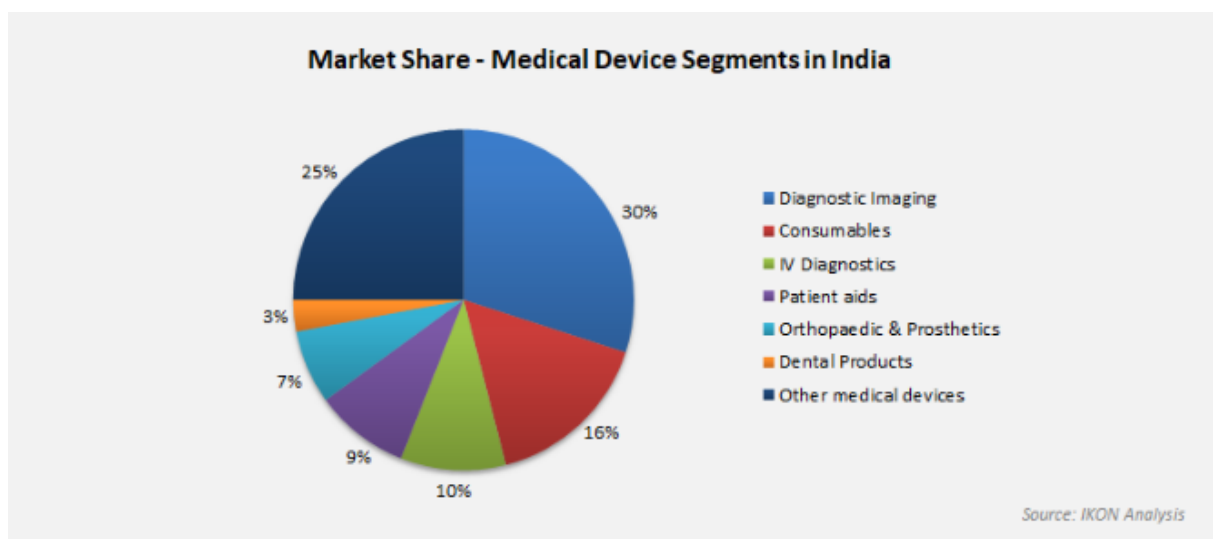


Figure1.4

Phases of the pandemic cycle impact the demand for equipment.

Changes in US sales across the pandemic curve for medtech products¹

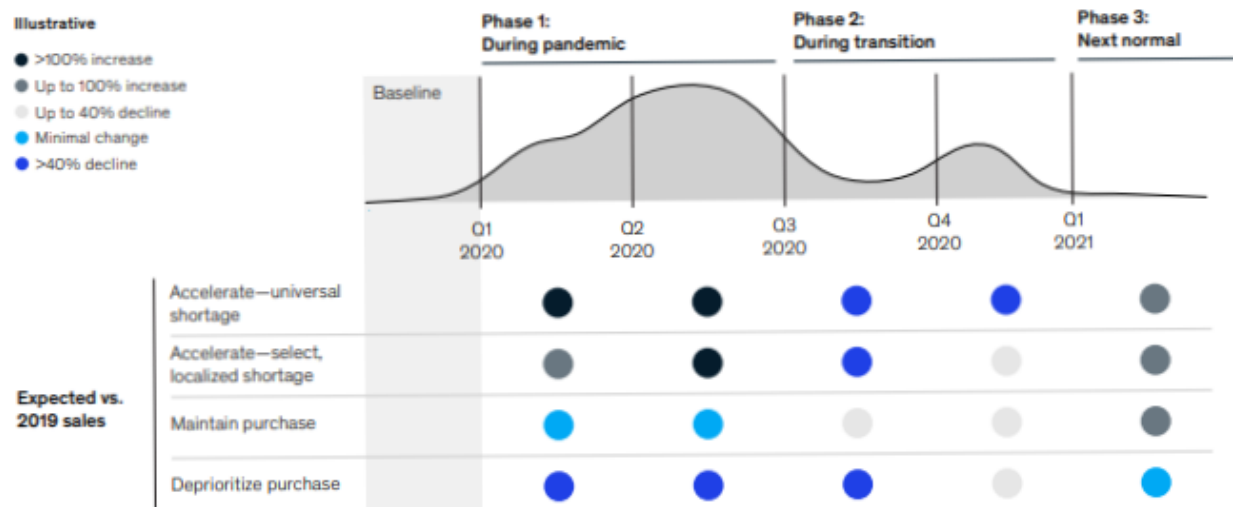


Figure 1.5

Scenarios suggest significant declines in US procedures and recovery starting in Q4 2020.

Change in expected quarterly procedure volume (pre-pandemic), %¹

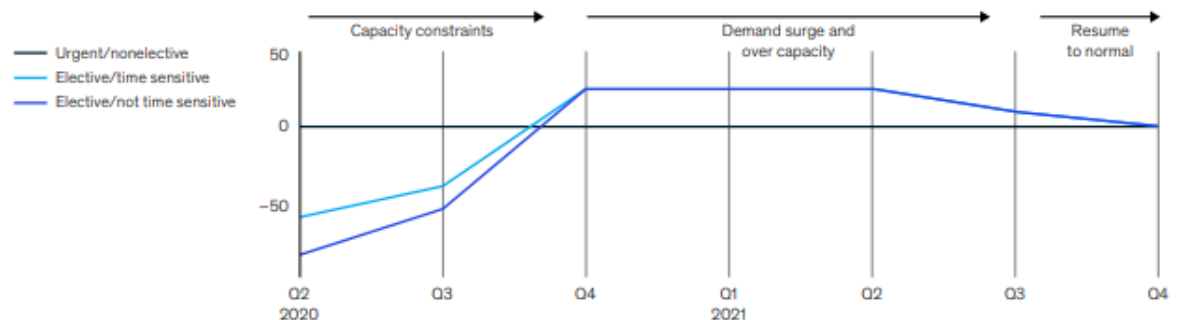


Figure 1.6

CHAPTER-5: DISCUSSION

5.1 Limitations and advantages of medical devices

I'd want to start by going through each medical technology's benefits in detail.

- Hospitals with electronic health records

Health records for patients are increasingly kept on computers. The majority of the time, a hospital or speciality computer houses a patient's entire medical record. In a database or cloud server, patient health records are kept. It takes less time to keep records electronically than on paper. Compared to paper documents, it takes less time.

- Health hospital communication system:

A variety of tools are available to keep patients in touch with nurses and doctors. These digital devices are created for patients' rooms and hospital wards. Patients can press buttons on these gadgets in an emergency. Inform the medical team and nursing personnel as soon as the patient is ready to be picked up. One of the key advantages of this technology for patients and physicians is this. With such a tool, doctors can quickly contact patients and save lives. 3.

- Reduction of health-related errors.

Medical technology advancements have made it easier to precisely diagnose a patient's ailment or condition, which has helped to reduce medical errors. However, improvements in medical technology have decreased the incidence of mistakes in diagnoses and treatments.

- **Wearable technology:**

Wearable medical technology has just made its way onto the market. These items are a class of wearable electronic sensors that people can use to monitor their physical status. The current status of the patient's body can be seen on a variety of medical equipment, including blood pressure monitors, smartwatches, and others. These gadgets have a variety of sensors that can be used to identify physical problems and show information to the patient on a screen. Patients can diagnose themselves quickly and safeguard their health in this way. the following are some drawbacks to medical technology:

5.2 The disadvantages of medical technology for humans are:

- Automatic mechanical processing:

It is a specific type of machine that is implanted within the patient. Analyze the patient's body and administer medications by the results. Even if the programming has defects or errors, these machines are nonetheless produced by it. As a result, the patient may receive an incorrect diagnosis, which can be highly damaging. As a result, the patient develops a serious illness and passes away.

- Shows incorrect results for patient status.

One of the drawbacks of medical technology is that machines and technical equipment can give erroneous results. In some cases, doctors were not shown accurate results for their patients. Engineers and programmers construct technical devices. Mistakes and glitches do occur occasionally. It ceased to function correctly after that. The patient's life is in danger if the results are inaccurate, and the doctor makes a false diagnosis. One of the most hazardous flaws in medical technology for patients is this.

- Increasing patient care costs:

Medical technology drawbacks could include rising treatment expenses. B. Robotic surgery and other technical machine-based procedures are exceedingly expensive, as are almost all treatments and surgeries utilising technology. Additionally, the majority of the patients are rural and underprivileged. Patients with low incomes are unable to afford surgery. Healthcare has benefited from technology, but expenditures have gone up as well. The patient is unable to afford it.

- Lack of patient information:

A flaw in medical technology is also a lack of knowledge. One of the hospital laws to safeguard patient privacy is security and privacy. However, the law might be a breakthrough technology. Databases at hospitals that store patient data may be compromised. Sensitive patient care data can be stolen and manipulated by hacking computer systems. when a patient's complete medical history is altered. As a result, it can be dangerous for the patient's subsequent medical care.

- Technology-enabled patient care online:

Doctors are now conducting online consultations. Patients will contact you online and suggest a diagnosis. Patients do not need to go to a doctor's office. You can easily get

treatment at home. A doctor makes a diagnosis without testing or analysing the patient. It is wrong and can be dangerous to the patient's health.

- Damage to the patient's cells and organs:

Laser surgery is now quite common. What are the body's numerous harmful effects? Body cells can be harmed by lasers. It is extremely dangerous and can harm other internal organs in our bodies.

- Recovery of medical machinery and equipment takes time:

The technological equipment and tools used in hospitals to treat and examine patients are made by engineers and programmers. If there are any issues or mistakes. Therefore, no one can resolve the issue because they lack the skills necessary to repair the machine. It was important for some people to know. the engineers that created it. He can make it right. As a result, repairing and restoring the machine requires a lot of time.

CHAPTER- 6: CONCLUSION

The study examined the upcoming marketing aspects and analysed the strengths and weaknesses of medical devices. In conclusion, we can say that the future of MedTech devices has great opportunities. and other technologies for example AI and digital things would also play a big and important role for healthcare and professionals.

The betterments that health technologies can provide to a patient are quality and ease of life. These instruments would also help professionals to detect disease in a proper manner, specific disease management and post-treatment benefits. additionally, MedTech instruments can enhance productivity, lower expenditure, and increase the quality of life.

Also, it is important to know about the disadvantages of medical devices. One of the important points is the effectiveness of adverse effects and their results by using the instruments. Reduction in risk demands strict attention to GMPs and safety operations. Sometimes high development purchase demand and higher expenditure for instruments slow down the availability.

Ethical considerations, such as correctly and honestly communicating the capabilities, limitations, and potential risks of the technology, are essential when marketing medical devices. According to manufacturers and distributors, patients and healthcare professionals should be informed about the benefits and hazards of medical equipment. Striking a balance between marketing initiatives and moral advertising strategies is therefore necessary.

In conclusion, the marketing of medical devices will have a bright future thanks to technological developments and a focus on patient outcomes. Although there are many benefits to using medical devices, such as improved diagnosis and treatment, it is vital to weigh the hazards and ethical quandaries. A comprehensive regulatory framework, continual oversight, and stakeholder engagement are essential to maximising the benefits of medical devices and minimising any downsides.

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