

Context analysis
&
Marketing plan

MEGADYNE®

Creating a market fit for the Megadyne portfolio in Johnson & Johnson's Dutch medical context

Graduation project report
Strategic product design
TU Delft



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Date: August 2018

Confidentiality clause

The full content of this thesis is strictly confidential and is disclosed to the University coaches and University reader for examination purposes only. Inspection of this work by third parties requires explicit permission from the author and Johnson & Johnson.

Abstract

This project was performed for the Dutch department of Johnson & Johnson Medical Bv. In order to complete their energy portfolio, Johnson & Johnson acquired Megadyne, a producer of electrosurgical devices. These devices are a new addition to the Johnson & Johnson portfolio, however already available on the Dutch market. The challenge was to come up with a marketing strategy to position Megadyne in the Johnson & Johnson portfolio and implement the Megadyne devices on the Dutch market. To fulfill this challenge, both Johnson & Johnson and Megadyne were analyzed, as well as the market and competitors. The insights of this analysis led to the creation of a marketing strategy. The strategy defines the objectives for Megadyne in 2023. It then elaborates on the targeting of hospitals, providing a list of potential hospitals. This is followed by plans for Megadyne promotion split into promotion for both user and buyer. Finally, the strategy offers pricing solutions and portfolio recommendations that in combination with the targeting and promotion solutions contribute to achieving the objectives.

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* These chapters have been edited from the original content. Confidential information has been moved to a separate appendix only available for Johnson & Johnson and the two TU Delft project coaches (Lianne Simonsé and Sonja Paus-Buzink) for examination purposes.

Introduction to the project

1.1 Project context

Johnson & Johnson has taken on the mission to help people worldwide live longer, healthier and happier lives. Johnson & Johnson holds a family of companies that care for these people by serving three market segments; Consumer healthcare products, pharmaceutical products and medical devices. This project is done within the Dutch medical devices department of Johnson & Johnson, called "OneMD". Figure 1.1 gives a hint of involved parties and people during this project. This department is among other responsible for the marketing and sales of three product categories regarding orthopaedics, cardiovascular disease and general surgery. These three product categories are divided over respectively three business units: Depuy Synthes, CSS and Ethicon.

Johnson & Johnson, market leader in a lot of medical markets, expands their portfolio frequently by developing and introducing

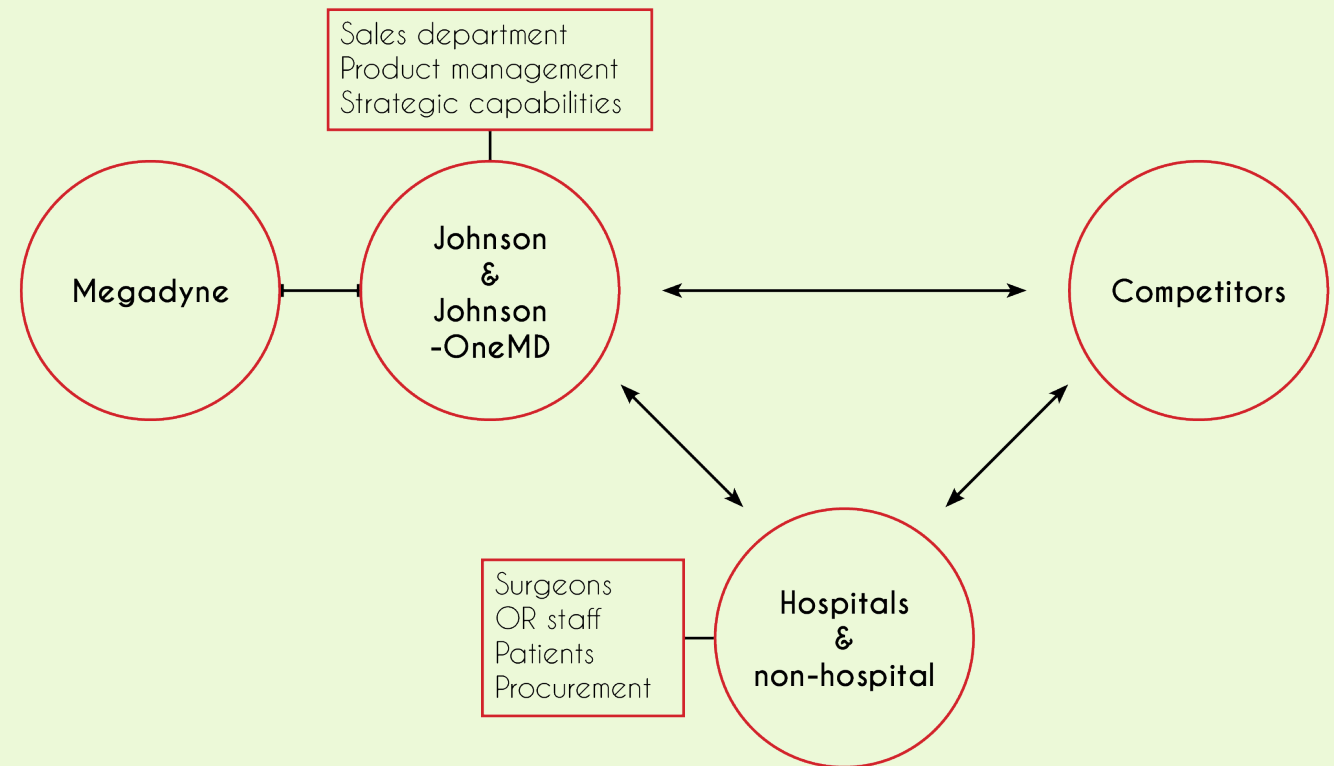


Figure 1.1 - A brief context of the assignment and involved parties during this project

new technology and products internally or by acquiring new technology and products from external or acquired companies. Johnson & Johnson's Ethicon did the latter by acquiring the electrosurgical devices of the Megadyne portfolio to complement their current portfolio in the energy market

segment. I elaborated on the Megadyne products and their differentiation in chapter 3. The Megadyne products are partly new to Johnson & Johnson and to the Dutch market. This means that there is currently no sufficient product and market knowledge to ensure the

newly acquired products will be both a clinical and an economical success.

1.2 Energy and diathermy

As generally known, energy regards to electricity and serves to power our everyday products. During this project however, the term energy will regard to the energy market. The energy market is a segment of the medical market including surgical diathermy devices divided into a standard and advanced energy market. I presented a more elaborate view on the energy market in chapter 4. Diathermy is a surgical technique where the surgeon uses electrodes to send electric current through

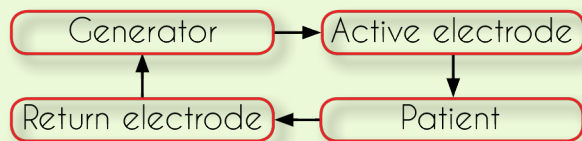


Figure 1.2 - The flow of electric current during diathermy

the body of the patient, see Figure 1.2. I elaborated on the usage and effects of diathermy in chapter 3.

1.3 Graduation assignment

It is still to be defined how Johnson & Johnson should position the Megadyne products into their portfolio and how the Dutch market should be approached. Therefore, I have been assigned to:

1. Conduct the relevant market and product analysis around Megadyne to gain insights concerning Johnson & Johnson, Megadyne, the market and the competitors;
2. Use this analysis to develop a marketing plan for the Megadyne portfolio to enter the Dutch energy market that closely fits Johnson & Johnson and is feasible considering their available resources. I will then visualize this marketing plan for Johnson & Johnson to clearly communicate it to all involved parties.

Figure 1.3 shows how the project is reported in roughly two sections. The first

section expands on the analysis required to come up with a marketing plan in the second section. The second section of this project is a marketing plan for the recently by Johnson & Johnson acquired Megadyne portfolio. This marketing plan accommodates several components that need to be covered for it to be practicable. The components integrated in this marketing plan are common components used during the MSc. course new product commercialization (E.J. Hultink, R. van der Vorst and S. Mooij, 2016). These components overlap with the prescribed marketing planning template commonly used by Johnson & Johnson (derived in December 2017). These components provide plans for: the objectives, targeting, promotion, pricing and portfolio improvements.

Prior to this project, most of these components have already been considered on a global and even regional level by Johnson & Johnson marketers. However, since Johnson & Johnson did not own any products within the standard energy market, for OneMD, this means more

product knowledge is needed in addition to market data and competitor insights.

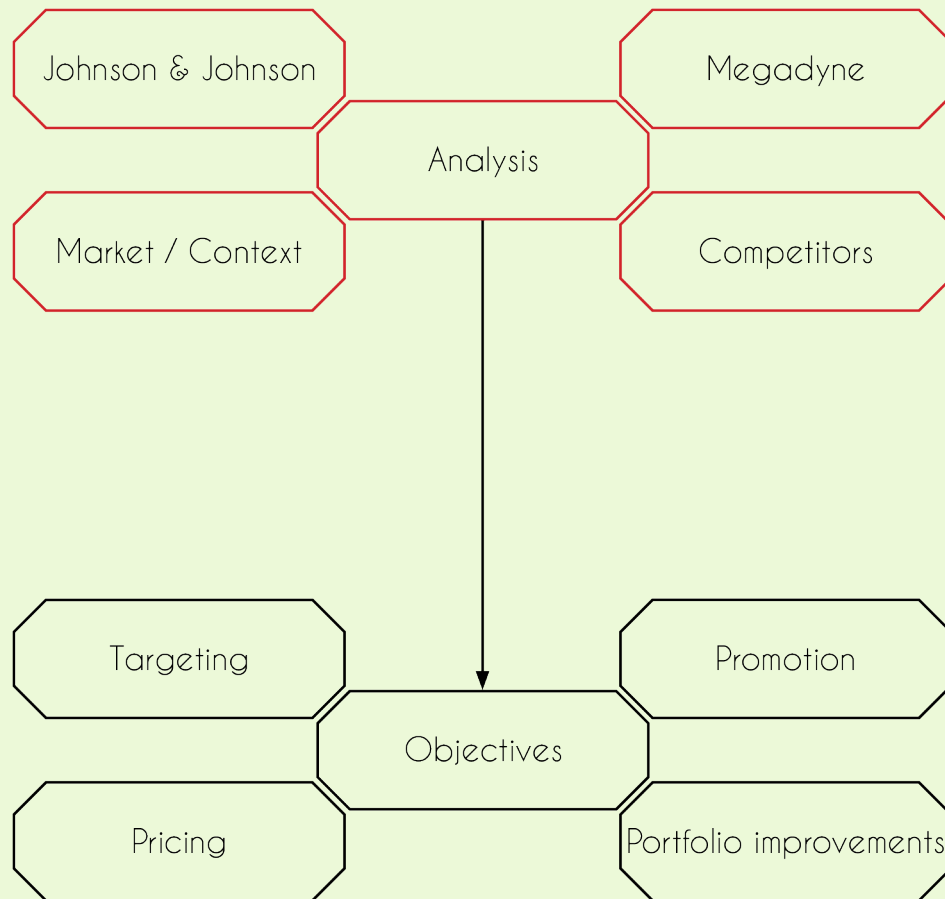


Figure 1.3 - Approaching the assignment in two phases; analysis (red) and marketing plan (black)

The following chapters expand on the analysis into four parts:

- Chapter two is a company analysis of on Johnson & Johnson;
- In chapter three, Megadyne and its portfolio are explored to gain strong knowledge on products and technology OneMD is about to implement into their portfolio;
- Chapter four provides a view on the Dutch energy market;
- The fifth chapter discusses the competitors that should be considered when entering the Dutch standard energy market;

Company analysis: Johnson & Johnson medical bv.



Caring for the world, one person at a time

Through online research (<https://www.jnj.com/>) and (<https://www.ethicon.com/>) and conversations with OneMD employees (appendix A) I analyzed the commissioning company. Globally known as the world's largest medical supplier, Johnson & Johnson has over 130 years of experience in the field. Operating from the United States of America, Johnson & Johnson delivers care from over 60 countries worldwide. The company acts as a family of over 250 operating companies run by over 130.000 employees. For each of these companies the mission is to help people everywhere live longer, healthier and happier lives.

2.1 The Johnson & Johnson Credo

The company claims its credo to be the reason for their flourishing success.

The credo challenges the company to remain customer focused by taking responsibility for four groups:

- Doctors, nurses and patients who use the products and services deserve high quality products for reasonable prices;
- All Johnson & Johnson employees. They deserve respect, a good working atmosphere, equal opportunities, just and ethical management and a proper compensation for their work;
- The communities Johnson & Johnson lives in. The company encourages to be good citizens, trying to improve civic, health and education environments;
- All Johnson & Johnson stockholders. The company conducts research, develops innovative programs and keeps their equipment and facilities safe so the stockholders get a fair return.

2.2 Organizational structure of Johnson & Johnson and internal stakeholders

Johnson & Johnson delivers care for their patients through three

market segments, see figure 2.1.

1. The pharmaceutical segment offers treatment in six therapeutic areas: Cardiovascular & Metabolism, Immunology, Infectious Diseases & Vaccines, Neuroscience, Oncology and Pulmonary Hypertension.
2. The second segment concerns consumer healthcare products. This portfolio comprises baby and beauty products in addition to wound care, over-the-counter and oral care products.
3. The last segment is called medical devices. It provides products for orthopedics, general surgery, cardiovascular disease, diabetes and vision care.

Since the assignment of this project lies within the medical devices segment, the remainder of the analysis primarily focuses on OneMD. Figure 2.1 shows that within medical devices there are three business units and two 'cross functional' departments.

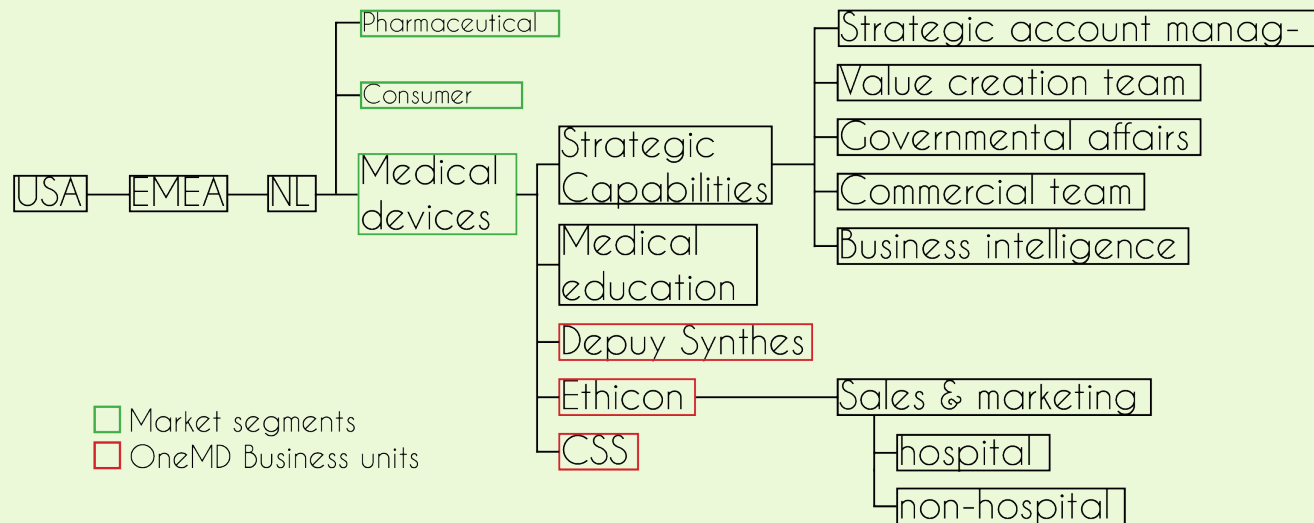


Figure 2.1 - The organizational structure with all internal involved parties

The three business units within OneMD are:

1. Depuy Synthes is responsible for products regarding orthopaedics.
2. CSS consists of ASP, Acclarent, Biosense Webster, Mentor, OneTouch and Johnson & Johnson's own Vision Care.
3. Ethicon is the main brand that takes care of general surgery solutions. Since Ethicon acquired Megadyne, I will dwell on the role of Ethicon in chapter 2.3.

The two cross functional departments within OneMD are:

1. The strategic capabilities department gives wide support across the three business units. Figure 2.1 shows the teams of the strategic capabilities department.
2. The medical education department is responsible for educating both internal as external stakeholders, both clinical and non clinical. These stakeholders receive relevant training on products, marketing and sales.

The role of the strategic capabilities teams

I briefly explained the role of the involved parties mentioned in figure 2.1 below:

- Strategic account managers; their job is to form the connection between OneMD and the non clinical part of the hospitals. Contracts are handled by strategic account management;
- Value creation team; Creating innovative solutions and long lasting partnerships to improve client performance, enhancing patient outcomes and have a negative impact on the rising costs of healthcare;
- Governmental affairs; this department ensures all activities are in line with the law;
- Commercial team; this team handles hospital tenders and comes up with pricing strategies;
- Business intelligence; just like in other companies, the job of this department is to collect all relevant business data and analyze it so it can be used to plan subsequent actions.

2.3 The role of Ethicon

In January 2017, Megadyne was acquired by Ethicon. Therefore, I first focused on Ethicon to gain deeper understanding of the structure of the business where Megadyne will be implemented in. Ethicon focuses on two focal points within general surgery; oncological and bariatric surgery. These two are in turn divided into seven focus areas, see figure 2.2. Five of these areas are related to a specific

therapeutic area. The remaining two areas are separated from any specific therapeutic area, namely woundcare and energy & endomech. These two areas include products that are applicable across all five therapeutic specific areas.

As figure 2.2 shows, Megadyne and its diathermic devices are positioned within the endomech & energy focus area of Ethicon and more specifically in the energy area.

The endomech and energy area encompasses cutting and closing devices for tissue and vessels. The difference is, endomech devices do not use electric current to generate the desired effect, like the energy devices do. Since Megadyne is positioned in the energy area, I primarily focused on this area.

2.4 Ethicon's focus area: Energy

As mentioned before, the energy focus area includes the product portfolio concerning diathermic surgery. I explained more about diathermy and all accompanied products in chapter 3. The energy market is categorized by Ethicon into advanced and standard energy products, see figure 2.3. Both offer cutting and closing solutions using electric current, however the situation in which both are used is different. I elaborated on the difference between these two in the next paragraph.

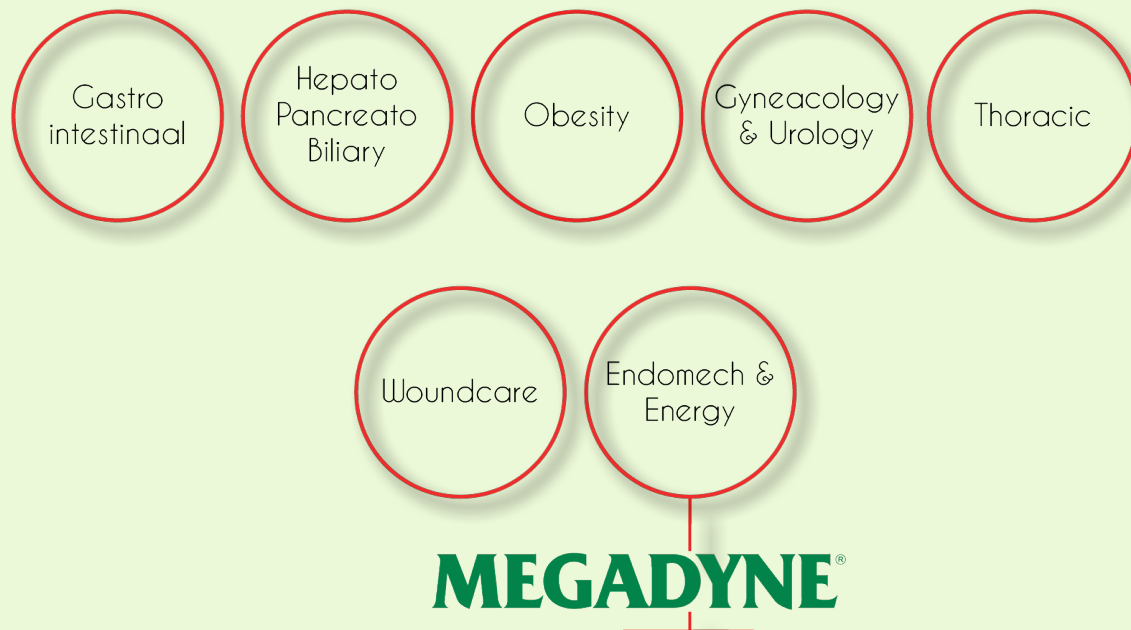


Figure 2.2 - The seven focus areas of Ethicon

Advanced Energy

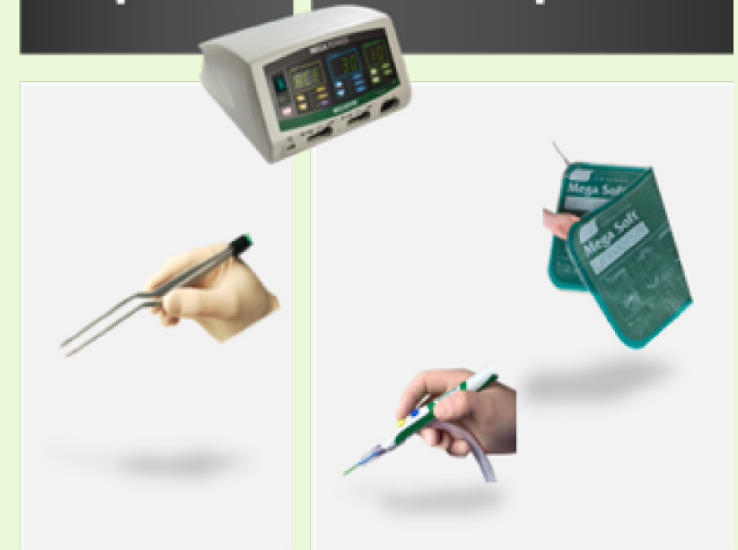
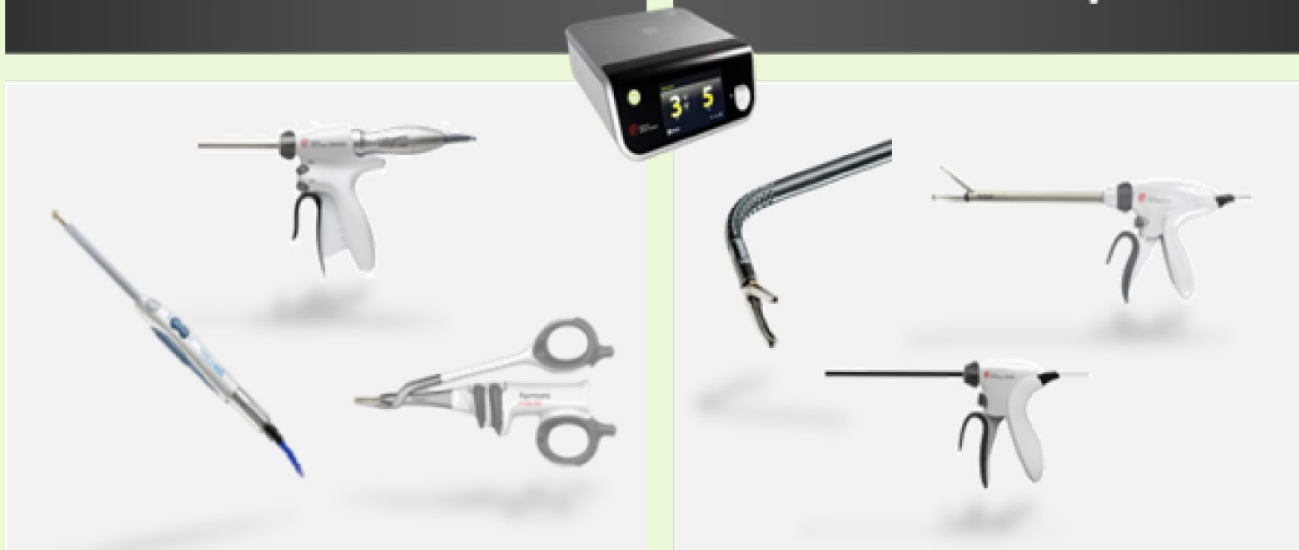
Standard Energy

Ultrasonic

Advanced Bipolar

Bipolar

Monopolar



Blades

Lap
Shears

Open
Shears

Articulating
Shears

Lap
Shears

Open
Shears

Standard
Bipolar

Active
Electrodes

Universal
Return
Electrode

Figure 2.3 - The total energy portfolio divided into current portfolio in red and acquired portfolio in green

Advanced vs. standard energy products

Up until the acquisition of Megadyne, Ethicon solely provided solutions within the advanced energy segment. Figure 2.3 shows the product groups for advanced energy on the left. Ethicon is a big player when it comes to ultrasonic and advanced bipolar products for both open and laparoscopic procedures. The advanced energy devices differ from standard devices in two ways:

1. Advanced energy devices allow for much higher compression on tissue and vessels due to the shear-like construction. This allows the surgeon to close thicker vessels than can be done with standard devices.
2. Advanced energy devices operate without current flowing through the whole body (only between the tips of the bipolar electrodes), resulting in a strongly decreased chance on unintended (lateral) burns. Note that this also applies for the standard bipolar forceps of the standard energy portfolio.

Figure 2.4 shows the two main Ethicon advanced energy products; The Harmonic (ultrasonic) and the Enseal (advanced bipolar). The main distinction between the Harmonic and the Enseal devices is the way the surgical effect is created. The Harmonic produces ultrasonic vibrations in the jaw of the product that generate the heat required to cut and close the vessel. The Harmonic is not an actual diathermic device, for it does not send current through the body of the patient. The Enseal does use electric current to create the surgical effect, however it uses bipolar technology, meaning the current only flows between the two electrodes in the jaw of the product. In chapter 3.1 I explained bipolar technology in more depth.

2.5 The acquisition of Megadyne by Ethicon

Ethicon (2017) EMEA (Europe Middle East Africa) marketing including the product manager of energy and endomech (E. Dolfmsa, 2017) have a vision for Megadyne. It is to claim market leadership in the total energy market with the most comprehensive

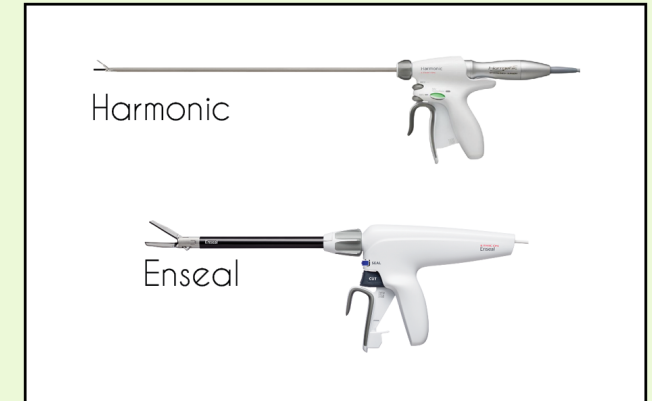
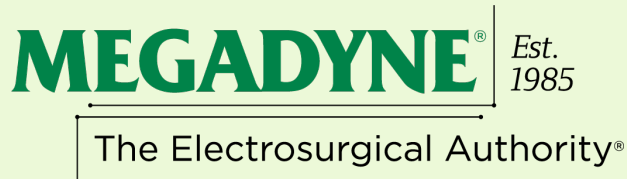


Figure 2.4 - Ultrasonic (Harmonic) and advanced bipolar (Enseal) shears

suite of intelligent energy solutions that provide significant clinical and economic outcomes to transform patient care. To work towards this vision the portfolio was complemented with the standard energy devices of Megadyne. Ethicon choose Megadyne over other suppliers most of all for their high quality standard energy devices. Few other qualitative brands were put out of scope because these brands supplied overlapping products, leading to cannibalization. I analyzed the Megadyne competition in chapter 5. In addition to adding more quality, Ethicon now strengthens the competitiveness with

a now more complete energy portfolio. This benefits the willingness to use, for surgeons and operating room (OR) staff perceive operating products from the same brand as more trustworthy (Dr. Steup, Dr. Vermaas, 2017). A complete portfolio offering will also lead to more attractive contract deals for new customers and a low threshold for current Ethicon customers.

Company analysis: Megadyne



In order to successfully implement a product or product portfolio into the market it is of great significance to have a strong understanding of its content and capabilities. In this chapter I reviewed Megadyne and their portfolio. Insights in this chapter are derived from online research (<https://www.megadyne.com> and <https://www.ethicon.com>), a product training at the Johnson & Johnson Institute

(S. Bureau, T. Dehart, P. van Werven, J. Entwistle, N. Johnson, Dr. Amaral, January 2018), interviews with users (see Appendix B) and consultation with a QRS account manager (E. Krikke, 2018) and both product manager (E. Dolfma, 2017) and GI/HPB sales consultant (K. van Nies, 2018). The market and competitors that Megadyne will have to take into account are reviewed respectively in chapter 4 and 5.

The Megadyne mission: *"To provide high quality, cost effective products that benefit surgeons, nurses and hospitals."* Megadyne is an electrosurgical device company stationed in Utah, USA. Founded in 1985, Megadyne launched their EZ-Clean line of non-stick, eschar resistant PTFE-coated (polytetrafluorethene, better known as Teflon) electrodes which today make them claim to be an authority in the field. Since then, the company added several products to their portfolio to strengthen their market position, see chapter 2.2.1. The entire portfolio falls within the standard energy market, meaning that Megadyne does not offer any advanced bipolar or

ultrasonic devices. What they do offer is an entire product portfolio of diathermic devices, as described in chapter 3.2.

3.1 The surgical technique of diathermy

What exactly is diathermy or electrosurgery? Both terms can be used and both refer to a surgical technique that uses high frequency electric current. The high frequency is to keep the patient from getting electrocuted, for there is no muscle and nerve stimulation above 100kHz (Megadyne, 2017). The current is delivered by a grounded generator which converts the electricity from the wall outlet, to about 300kHz to make sure no muscle or nerve is electrocuted.

As figure 3.1 shows, the current then flows through an active electrode, controlled by the surgeon, which allows the surgeon to deliver it to the patient's body and create the desired effect. The current is then returned to the generator through a return electrode.

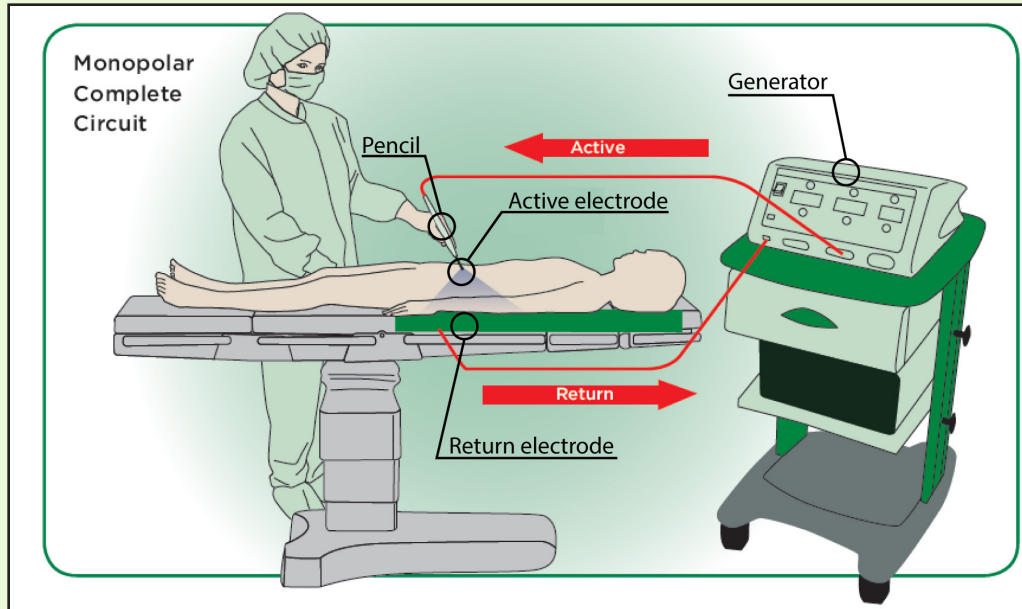


Figure 3.1 - Electric current flowing from the generator through an active electrode, through the patient and back to the generator through a return electrode

Monopolar vs. bipolar diathermy

The technique explained above is called monopolar diathermy, for the surgeon controls only one electrode and the other is placed elsewhere on the patient's body as a sticker. When the surgeon wants to create the effect using high compression, he or she may now use the bipolar mode. The bipolar mode requires a standard

bipolar electrode, meaning both the active and the return electrodes are incorporated in the hand device. The most common bipolar electrode comes in the shape of a forceps. Figure 3.2 shows the flow of the current during bipolar diathermy.

That two electrodes are incorporated in the controlling device, means that the surgical

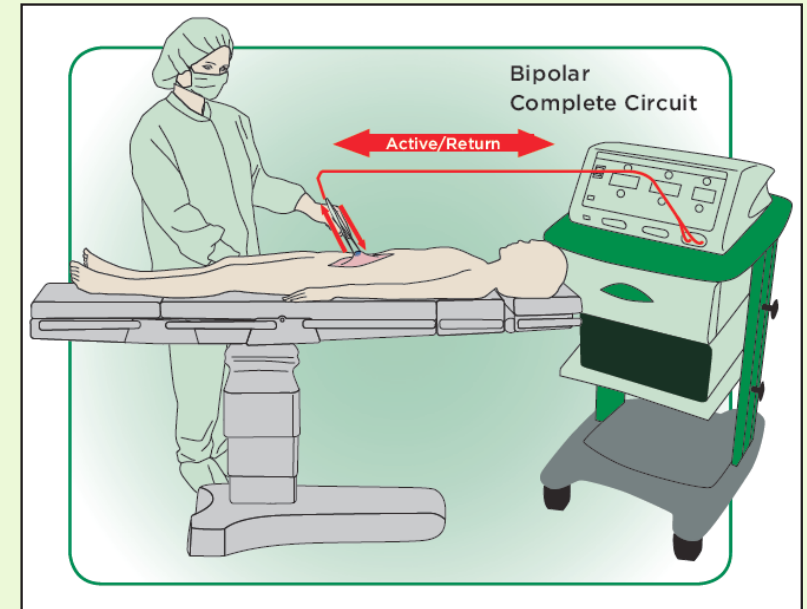


Figure 3.2 - Current flow during bipolar diathermy

effect will occur on both electrodes. The areas where the electrodes touch the tissue are small and therefore, high current density occurs on these areas, resulting in the surgical effect. Another result of this, is that there will only flow current between the two tips of the bipolar electrode. This takes away the risk of unintended burns. Note that there is no need for a return electrode

pad on the patient, removing the risk of pad burns and allergic reactions of the skin due to the adhesive on the sticky pads.

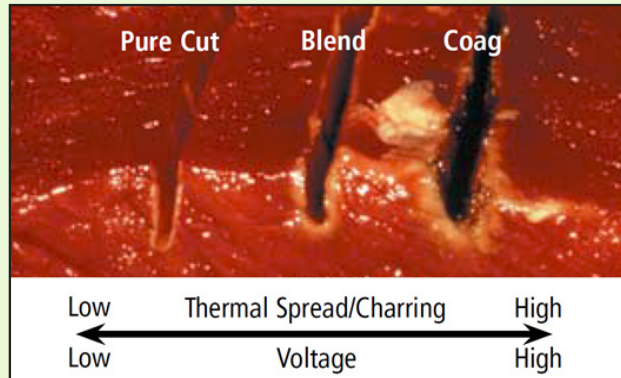


Figure 3.3 - Cutting, blend and coagulation effects on tissue

The surgical effects – cutting and coagulation

Surgical diathermy uses electric current to apply two main effects, see figure 3.3.

Cutting

The first effect is cutting. With this modality, a surgeon can create cuts similar to a scalpel. In addition, it is faster, because there is less drag that needs to be compensated

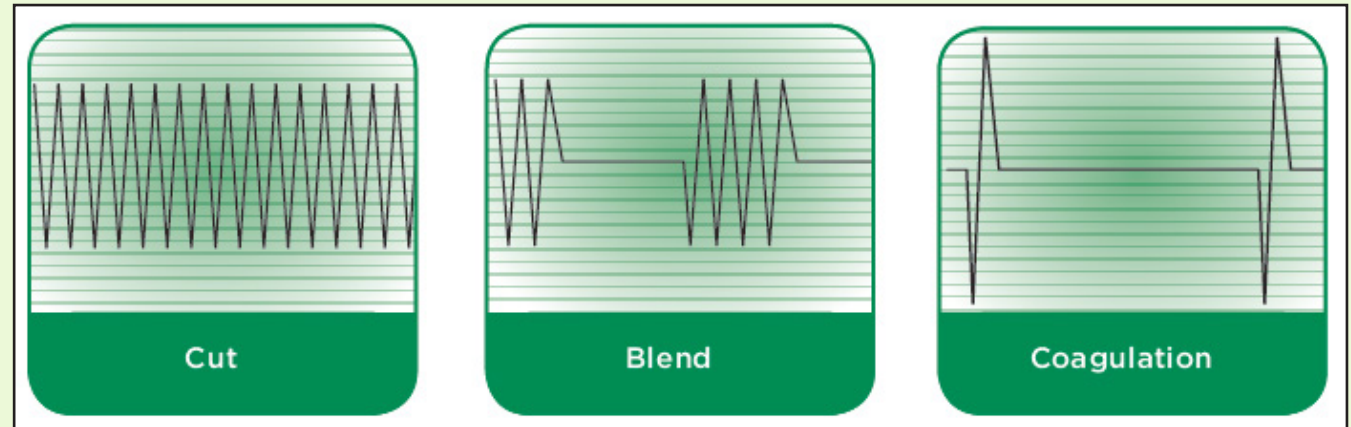


Figure 3.4 - The waveforms used for cutting, blend and coagulation

by the surgeons' hand. This also reduces the risk of a scalpel accidentally cutting elsewhere. The effect is created by a continuous low voltage waveform (figure 3.4) that softly burns through tissue with minimal lateral burn damage, as seen on the left in figure 3.3. Small vessels are simultaneously closed by the second effect, which is called coagulation.

Coagulation

The coagulation effect is caused by a higher voltage waveform which is on for only 6% of the time. The "off"-time allows the tissue to cool and create hemostasis

(clot blood). This effect allows the surgeon to rapidly close capillaries and therefore reduce the bleeding. To close off vessels up to seven millimeters advanced energy devices such as the Harmonic are used. Even larger vessels or tissue requires surgical staplers such as Ethicon's Echelon. As figure 3.3 and 3.4 show, there also are blended effects that use a combination of the waveforms for cutting and coagulation.

Hazards of electrosurgery

However beneficial diathermy is, there are some hazardous elements that are accompanied. These elements

can be categorized into two:

1. Burns. These are the result of excess electric current passing through tissue and can possibly occur on three places:
 - When the surgeon by accident activates the electrode when the electrode touches the patient outside the surgical area or when the surgeon touches anyone else including himself, this point of contact will get slightly burned.
 - When the surgeon activates the electrode for too long or with a too high wattage at the targeted surgical area. An excessive amount of current will flow through the tissue, resulting in lateral burn damage.
 - At the side where the return electrode is positioned, the pad site. When properly placed, this return electrode will disperse the current so no high accumulation of current will occur. However, when the electrode is not properly placed, -for example, it came loose- high amounts of current will accumulate and result in burns. I will explain more on the positioning

of return electrodes in chapter 3.2.

2. Surgical smoke. When cutting or coagulating with diathermic devices, tissue burns and as a result, smoke is released. The effect of surgical smoke released by burning one gram of tissue can be compared to smoking six unfiltered cigarettes (Megadyne, 2017). This is most hazardous for the surgeon; however, parts are inhaled by the patient and OR staff as well. In addition, the smoke decreases the vision of the surgeon during surgery, increasing the risk of unintentionally touching and burning more tissue.

3.2 The Megadyne portfolio

Figure 3.5 gives an overview of the Megadyne portfolio and its five product categories. I elaborated on these five product categories in the next paragraphs to gain a better understanding of what products are going to be added to the Ethicon energy portfolio.

— The **MEGADYNE** portfolio


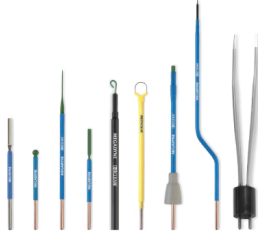



Megasoft return electrode	Active electrodes	Electrosurgical controller	Electrosurgical generator	Smoke evacuation
				
Universal & Pediatric Single & dual cord 24 months warranty Differentiated	57 PTFE coated types (including ACE blade) 15 Stainless steel types Disposable Differentiated	Pencil with rocker or button layout Optional footpedal Disposable & reusable Undifferentiated	Mega power Cut, coag & bipolar 5 years warranty Undifferentiated	Mini Vac & Mega Vac Open & Laparoscopic 5 years warranty Undifferentiated

Figure 3.5 - The five product categories of the Megadyne portfolio

Megasoft return electrode

The Megasoft, see figure 3.6 (left), is the most differentiated product of Megadyne. It offers a different solution to lead the current back into the generator when compared to the sticky return electrode pads (right on figure 3.6). Figure 3.7 shows the composition of both products (T. Dehart, 2018). There are several benefits of the Megasoft in comparison to the disposable sticky pad return electrodes which I discussed in the paragraphs below. The most important one, mainly regarding safety, is that the Megasoft is a reusable capacitive return electrode using induction. This is also the main reason that the Megasoft is recommended by AORN, the Association of periOperative Registered Nurses.

A: Urethane sheets filled with light green medical grade Akton Polymer;

B: Metallic conductive sheet made from polyester Taffeta (Ni/Cu)

1: Gel

2: Tin foil

3: Adhesive



Figure 3.6 - Left: The Megasoft universal patient return electrode (91cm x 51cm x 0,3cm). Right: A sticky pad return electrode (107cm²).

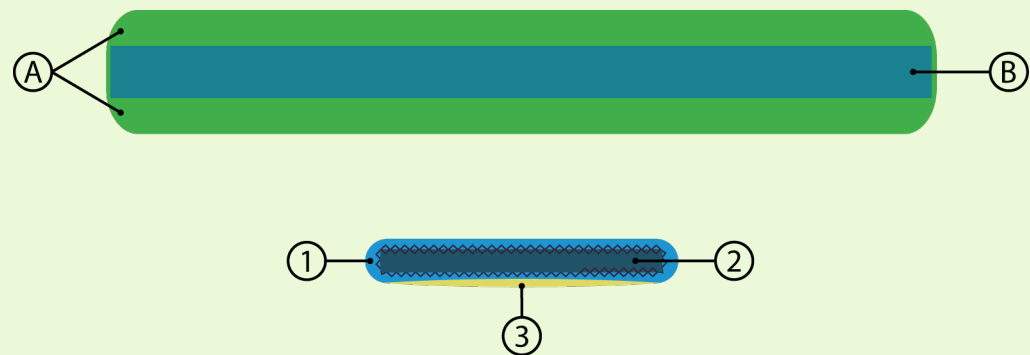


Figure 3.7 - The composition of the Megasoft (above) and sticky pad (below)

Improved safety

The now common sticky pad is a conductive return electrode where electric current flows through the pad site. As I explained this comes with the risk of burns. The Megasoft operates as a capacitive return electrode, which induces electric current from the patient to the conductive mesh, whereas the gel functions as insulator. The result is that no current flows through the pad site, meaning no risk of patient burns. In addition, the gel functions to reduce the pressure of the patient on the OR-table, reducing the risk of decubitus. Another benefit regarding safety is the reduced risk of allergic reactions caused by the adhesive which is applied on sticky pads. The gel used in the Megasoft does not result into allergic reactions (T. Dehart, 2018).

More user friendly

Next to patient safety, the Megasoft is more user friendly for both the surgeon and the patient. When compared to the sticky pad, no time has to be spent on pad positioning. To properly function a sticky pad requires careful placement. This means three things:

1. Finding a muscular and vein-rich area, to ensure proper conduction. This area should not cause current to flow through the heart to avoid cardiac arrhythmia;
 2. Shaving that area, to ensure proper adhesion to the skin;
 3. Positioning the return electrode on that area. The pad should fully connect to the skin with the long side of the pad facing to the surgical area to ensure proper dispersion of current.
- In addition to these three, the surgeon should consider placing multiple pads when using diathermy for a long time to prevent high current accumulation. During surgery, the pad needs to be monitored to avoid burns.

With the Megasoft, however, the OR staff simply places it in any desired position on the OR table and it is ready for use. Because the product does not have a bottom or top side, chances of possible misplacement are eliminated. A mattress or cloth can be placed on top of the electrode and it can even be placed in a water bath. It is advised however, to always position the patient as close to

the Megasoft as possible for an optimal surgical effect. *Note that the more distance between the patient and the Megasoft, the lower the surgical effect. This can then be compensated by increasing the power of the generator, however this also increases chances on lateral tissue damage*. The Megasoft is universal and provides care for pediatric and adult patients of any weight above 350 grams and all lengths. The Megasoft comes with a dual cord option, to connect two generators which allows two surgeons to operate at once.

An economic and environmentally friendly solution

Lastly, because the Megasoft is a reusable return electrode with a warranty period of 24 months -there are cases where the Megasoft was effectively used more than double this amount of time- it reduces environmental waste of disposing numerous sticky pads and their packaging. Moreover, using a reusable return electrode can be more economical when compared to a sticky pad. Figure 3.8 shows how this potential is calculated, which needs to be done for

every hospital. This calculation excludes inventory space saved by using the Megasoft and the costs of waste disposal.

Active electrodes

Megadyne offers a wide range of active monopolar electrodes. These can be divided into two sub categories: Stainless steel electrode and EZ-clean coated electrodes. Within these categories, the electrodes differentiate in shape and length to support all desired surgeon actions. Next to monopolar electrodes, Megadyne offers some bipolar electrodes in the shape of forceps. Figure 3.9 shows some of the most commonly used electrodes.

Stainless steel electrodes come in several lengths and shapes. These types of electrodes have the lowest costs and are mostly used for procedures where only a few incisions are made with electrosurgery.

The EZ-clean electrodes, are electrodes fully coated in high quality PTFE and come in several lengths and shapes. The PTFE coated blades are also available

$$\text{Potential cost savings by using Megasoft} = \frac{\text{annual costs of sticky pads}}{\text{amount of sticky pads} * \text{costs of sticky pad}} - \frac{\text{annual costs of Megasofts}}{\text{amount of Megasofts} * \text{annual costs of Megasoft}}$$

Figure 3.8 - Calculating potential saved costs by using Megasoft instead of sticky pads

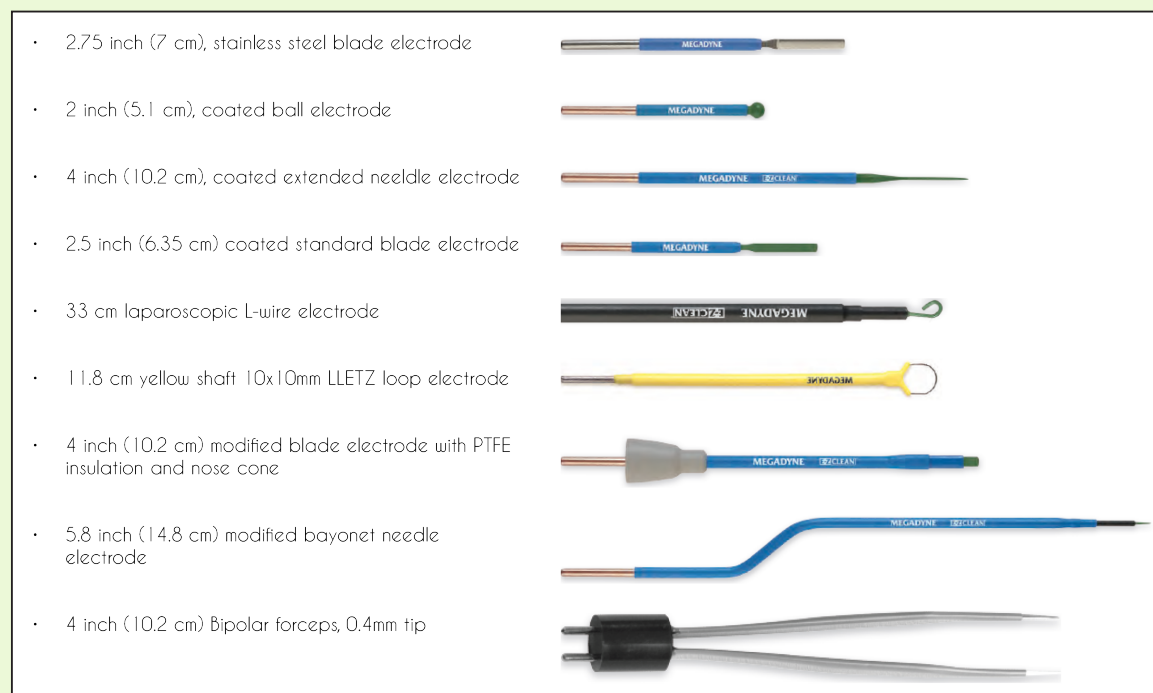


Figure 3.9 - A selection of Megadyne electrodes

in laparoscopic versions. PTFE coating reduces surgical smoke and eschar build-up which leads to cleaner cuts, easier tip cleaning and requires a lower power setting

(Megadyne, 2017). EZ-clean blades also better withstand high temperatures such as during electrosurgery. Within this category falls the ACE blade. . It reinforces the ACE

mode on the Mega power generator. It has an improved geometry to minimize contact with the tissue to ensure even more precise cutting and less lateral burns.

Electrosurgical controller

Figure 3.10 shows the pencil that holds the active electrode and enables the surgeon to safely and steadily operate the active electrode. The pencil has a universal plug to connect to the generator. The surgeon holds it like a pencil, hence the name, and pushes the buttons with the index finger. The two buttons on the device are yellow and blue, respectively for the cutting and coagulation effects. Only one mode can be active at the same time. The pencil is available with two types of button layouts; regular buttons and a rocker switch. There is no functional difference between the two types, they exist for surgeon preferences only. The pencil comes as a disposable product, however in addition Megadyne is designing a reusable version that can be used twelve times. All active electrodes can be placed in the pencil and twisted in the desired angle. During surgery, the

electrodes can be swapped if necessary.

A second option to operate the power in the active electrode is a foot pedal. This controller comes with a similar yellow and blue pedal and is plugged into the back of the generator. Both the pencil and the foot pedal can be plugged in at the same time, however, they cannot be used simultaneously. There is no functional difference between the pencil or the foot pedal, they exist for surgeon preferences only.



Figure 3.10 - The Megadyne pencil with rocker buttons

Electrosurgical generator

The generator is called Mega power, see figure 3.11. The generator converts the current from the wall outlet frequency, 50Hz, to a safe 300 kHz and sends it to the active electrode. After operating the active electrode, the electric circuit is closed through the return electrode and the current flows back to the generator.

There are four slots on the front of the generator. The left one is to plug in the return electrode and the one on the right is for the bipolar electrode. Two active electrodes fit in the slots in the middle. The active and bipolar electrodes can be plugged in at the same time, however, only one can be activated simultaneously. The power supply cable is plugged into the back, as is the optional foot pedal.



Figure 3.11 - Mega Power generator

The generator has three main modes: CUT, COAG and BIPOLAR that are activated and set by buttons. Cutting and coagulation modes only work when a return electrode has been plugged into the generator. Only one mode can

be active at the same time. The display will indicate which mode is active by lighting up and giving audible feedback.

The CUT mode

The cut mode on the generator has three sub modes with different settings. *Pure*: The user sets a power ranging from 1 W to 300 W. The generator then produces a pure cut, meaning a continuous waveform on a low voltage. *Blend*: The user sets a power; however, the generator now produces a waveform with a 50% “off”-time to allow for more hemostasis. *ACE*: The Advanced Cutting Effect mode provides the main value of the Mega power generator. On this mode, the generator automatically adjusts the power by increasing or decreasing the voltage according to the resistant of the tissue to maintain a constant and clean cutting effect.

The COAG mode

The coagulation mode also has three sub modes with different settings. For all sub modes, the user first sets a power level between 1 W and 120 W.

COAG 1: A desiccation mode that provides hemostasis and desiccation to tissue that is in contact with the active electrode. COAG 1 is designed to allow the active electrode to efficiently move through tissue for coagulation with dissection. *COAG 2*: Delivers a more gradual onset of energy and may be preferred by surgeons desiring a more mild delivery of coagulation with desiccation. *Spray*: Spray coagulation provides hemostasis in a more broad area with less depth of tissue damage when compared to desiccation. Spray mode provides diminished cutting effect when compared to cut modes.

The BIPOLAR mode

The bipolar mode can logically only be used when a standard bipolar electrode is plugged in and no return electrode is required. As for the other modes, the user sets a desired power level. Bipolar has a micro and macro setting, respectively leading to low and high voltages. Operating with bipolar devices offers a more controlled coagulation, because the

surgeon is now able to put a much higher compression on the vessel. Another benefit of bipolar is that there only flows current between the tips of the bipolar electrode. This means two things: the surgical effect occurs on both tips of the electrode and is therefore much higher. The second effect is that there is no current flowing through other parts of the body, which could potentially lead to unintended burns.

Smoke evacuation

The last product category of the Megadyne portfolio offers products that reduce surgical smoke. As I explained earlier, the smoke is toxic and reduced visibility during surgery and therefore smoke evacuation is recommended. Figure 3.12 displays the two main products involved during smoke evacuation. The first one is a generator that delivers suction power and filtering of the smoke. The second product is a pencil with integrated smoke evacuation tubing that provides suction next to the electrode.



Figure 3.12 - The Mega Vac generator and the Zip Pen smoke evacuation pencil

Smoke evacuation generator

There are two types of generators, the Mega Vac and the Mini Vac. The main difference between these is that the Mega Vac can be used during laparoscopic surgery. The generator has two filters; the Ulpa filter filters out toxic gasses and prevents liquid and debris from entering the generator. A charcoal filter serves to reduce the odor of the surgical smoke and simultaneously dampens the noise made by the generator. The Ulpa filter lasts about ten procedures and the charcoal filter needs replacement every 10-12 weeks, depending on the smell.

The generator activates when the surgeon

presses one of the buttons on the pencil and activates for as long as was set on the generator. The suction power, determining the strength of the flow, can also be regulated on the generator. In addition to this automatic mode, the user can add suction by pressing the manual button.

Smoke evacuation pencil

The smoke evacuation pencil has the same cutting and coagulation functionality as a common diathermic pencil, only now smoke evacuation is integrated in the design. Megadyne offers three types of pencils, however, focuses mainly on the Zip Pen. When compared to the other

two pencils, the Zip Pen houses higher ergonomic potential, for it offers three options for the user to hold it. All three designs incorporate the suction tubing as close to the active electrode as possible to ensure as much smoke is captured as possible. When captured, the tubing serves to guide the smoke into the filter.

3.3 Consumers of Megadyne standard energy

In my analysis I found that the consumers of Megadyne can be divided into buyers and users. The procurement department is responsible for hospital purchases. In general there are multiple members of procurement who handle purchases according to the importance and prices of products. A junior member for example might be responsible for disposables while a senior member will be responsible for bigger and costly products. These senior members discuss purchases with several purchasing committees, including staff and users of the multiple specialties. When purchases exceed certain prices, the approval of an investment committee

is needed for the purchase to be fulfilled.

When analyzing the Megadyne users I considered the surgeons, the surgeon assistants and the OR assistants. These will be the people to set and operate the devices. First the Megasoft will be properly placed by the OR assistant. The generator will be operated by the OR assistant guided by either the surgeon or surgeon assistant. This is similar for the smoke evacuation generator. The surgeon and surgeon assistant will operate the pencil holding the active electrode. Replacement of active electrodes is done by the OR assistant. After surgery, the Megasoft is cleaned by an OR assistant.

Market analysis: Standard energy market

To get a better understanding of the market which Megadyne was implemented in, I analyzed the market, the trends and developments, the attractiveness of the market and opportunities and threats in the market. Insights in this chapter are

gained from business intelligence (A. Levels, 2017), Ethicon EMEA marketing (2017), the product manager (E. Dolfma, 2017), interviews with users (Appendix B) and the sales force (Appendix C.)

4.1 Market definition

The market as Ethicon approaches it, is called the total energy market and comprises two sub markets; the advanced energy and the standard energy market. There are no specific therapeutic areas and no specific users connected to these products. The distinction between standard and advanced is defined and the two even complement each other. As such, Megadyne fits within the standard energy market, which concerns all products regarding monopolar diathermy.

I therefore defined the market for my project by the product category: Standard energy devices. Within this market are all suppliers, buyers and users of the products of both hospitals and non-hospital accounts.

4.2 Standard energy devices market size

Today, there is insufficient data available on the size of the standard energy devices market in the Netherlands. To gain overview of the size of the Dutch standard energy devices market I reviewed the customers divided into hospital and non-hospital customers to estimate the total number of standard energy devices on the market and the turnover they generate.

Customers of the standard energy market

KompasZorg (<https://www.kompasinzorg.nl/>) states that there are 88 hospitals in the Netherlands with a total of 120 locations owning 1173 operating rooms. Within these hospitals there are 1.172.063 procedures done every year, whereas according to previous Ethicon research, during 75% of these procedures, standard energy is used (Kantar Health, 2017). This results into 879.047 potential procedures that use standard energy devices.

The non-hospital segment of the market includes about 100 private clinics and 1200 veterinary clinics. To get an accurate image on the potential, data will have yet to be collected on how many procedures are performed within the 100 private clinics. According to Ethicon sales and marketing (Ethicon, 2017) there are significantly less procedures done in private clinics when compared to hospitals. It can however be assumed that at least 75% uses standard energy devices for these clinics perform mainly orthopedic, plastic and breast surgery.

Data on how many procedures and what type of procedures are performed in the veterinary operating rooms is unavailable. Therefore more research is required to find the amount of procedures that could potentially benefit from Megadyne products. As for the private clinics, the amount of procedures is expected to be relatively low (De Gouw, 2017). In the current state, both veterinary and private clinics will be dealt with by QRS, see chapter 6.3.

My advice for Johnson and Johnson is to give the non-hospital customers a low priority for now. This is due to the relatively low numbers of procedures and due to the fact that veterinary clinics use a lot of second-hand equipment (De Gouw, Visser, 2017).

Market value of standard energy devices

According to previous research (Ethicon, 2017), the standard energy market for EMEA (Europe, Middle-east & Africa) is worth about €387 million. According to the same research, the Dutch market accounts for €35 million, surpassed only by UK & Ireland with €40M and Germany with €158 million. However, when I reviewed

this number, I found that the Dutch market for standard energy only is about €11,5 million, see table 4.1. The result is that the Netherlands is no longer the number three contributing country when it comes to market value, but number seven, resulting possibly in a lower priority level for EMEA.

Table 4.1 shows the Dutch market size of standard energy devices in euros. The amount of electrodes used is based on the amount of procedures times the average use of 1,5 electrode (see appendix B). For the generator and smoke evacuation I assumed one per OR for a period of five years. The prices are based on the annual purchases times the

Product	Used amount	Market value
Pencils	879.032	€ 3.955.644
Active electrodes	1.318.548	€ 3.296.370
Return electrodes	879.032	€ 1.758.064
Generators	1.173	€ 1.449.828
Smoke evacuation	1.173	€ 1.055.700
Total		€ 11.515.606

Table 4.1 - Market value of the Dutch standard energy market in 2017

average market prices. Possibly, the market size (in euros) will be slightly higher due to margins on generators and Megasoftware.

In conclusion there is a market of about €11.5M for standard energy devices with 88 purchasing hospitals. Note that some numbers are estimates. In addition, note that I worked with averages for there is currently not yet hospital specific information available for all hospitals in the Netherlands. I recommend the sales consultants and product manager regarding energy devices to cooperate with business intelligence and work to actively update this data. More accurate data can influence targeting potential of hospitals and therefore influence how resources are focused.

4.3 Opportunities and threats

During the analysis, I interviewed users (Appendix B) and consulted the product manager (E. Dolfma, 2017) and account managers (Appendix A) and encountered multiple developments relevant to the Dutch standard energy market. I listed

and elaborated on two main topics below that bring threats for Megadyne:

□ The fact that the Megadyne products are known to the users and seen as commodity resulted in a notable response. Users are already used to their current equipment and do not see a clear benefit or differentiation when viewing the Megadyne portfolio.

□ Another stakeholder that needs to be convinced is the buyer. Prices currently seem much higher than current monopolar devices bought from competitors. When speaking to users I found that most of them have a say in the purchasing decision through a committee, however it is still procurement that has the final say. Therefore, when convincing buyers, focus should be mainly on the economic value of the Megadyne portfolio, reinforced by clinical proof.

During the project I also discovered some opportunities for Megadyne in the Dutch market. They derived from interviews

with surgeons (Appendix B) and consults with sales consultants (Appendix C). I listed the most relevant ones below:

□ According to surgeons (Appendix B) the usage of monopolar devices is becoming more common and in many cases, it replaces the scalpel completely. The products are well established and available in almost any hospital or clinic. Take away here is that users will not need much education before switching to Megadyne.

□ Research increasingly points out the dangers of surgical smoke (Megadyne, 2017). Multiple countries, such as the Nordics, already regulate smoke evacuation. It is very likely that regulations will be soon introduced in the Dutch market as well. According to the product manager, smoke evacuation installation will be mandatory before 2019. When mandatory, this will result in a high demand for smoke evacuation, offering Ethicon the opportunity to grow in the market. This opportunity is strengthened by the fact that there is no big player in the field yet.

□ Purchases of surgery equipment are usually done specialty wide. If with Megadyne, OneMD can reach 75% of overall procedures, it means they can strengthen their position by combining Megadyne with other devices in deals. With the current pricing system, buyers would also benefit, because their discount level could go up substantially.

□ Finally, the one I think is the most relevant for OneMD while marketing Megadyne. From interviews with experts (Appendix B, Megadyne 2017) I found that there are certain specific procedures that would be very interesting for Megadyne. The reason is that the surgeon uses the devices more intensively than just the initial incision. Therefore, when more extensively used and deeper inside the body, higher quality is desired. These procedures are: Trans-anal total mesorectal excision (rectal cancer removal), cholecystectomy (gallbladder removal), hepatectomy (liver resection), knee & hip replacement surgery, mastectomy (breast amputations),

and plastic surgery. I therefore created a table in chapter 6.3 of the marketing plan for OneMD with these specific procedures listed per hospital to create an overview of real Megadyne potential.

Competitor analysis: Competing on standard energy

Diathermy is a known technique for over almost 100 years and ever since there are brands on the market developing diathermic devices. Megadyne has been on the market for almost 35 years now and obviously is not the first and sole provider of diathermic devices. Megadyne has not yet been implemented on the Dutch market and to create a strategic implementation plan, competitors needed to be considered. In this chapter I discussed the competitors that needed to be considered when creating a marketing plan for the Dutch market. The findings in this chapter are derived from online research (Appendix D), Ethicon EMEA marketing (2017) and consultation with both product manager

and sales (E. Dolfma, 2017 & Appendix C).

The goal here is to gain insight on what we are competing with in terms of products and prices. Admittedly, it would be interesting to also gain insight in topics like competitor resources, running competitor contracts and competitor targeting strategies for example. Unfortunately, the duration of my project does not allow this and in addition this information is likely not easily obtained. I do strongly recommend this as a next step.

5.1 Who are we dealing with?

Figure 5.1 shows a list of potential Megadyne competitors. The brands I found can be categorized as product form or product category competitors (E.J. Hultink, R. van der Vorst and S. Mooij, 2016). This is due to Megadyne products being very specific products, whereas generic competition and competition on budget leads to a very broad range of quite unrelated products that users will not find matching with their needs. Most of the brands are competition on the product form, for they offer similar

features and the price to quality ration is comparable. It is only when concerning the Megasoft that these competing brands can be labeled a product category competitor, for Megadyne is the sole provider of this type of solution.

It is noticeable that all brands sell active electrodes which means that it will be hard to differentiate on active electrodes unless Megadyne designs are innovative. I also found that there is indeed no other

brand that delivers a product like the Megasoft. Medline and Xodus have a gel mat included in their portfolio, however this does not function as a return electrode. This means that Megadyne clearly has a differentiated product at least for as long











										
Return electrodes	X	X	X	X	-	X	X	X	-	X
Active electrodes	X	X	X	X	X	X	X	X	X	X
Electro-surgical controller	X	X	X	X	-	X	X	X	X	X
Electro-surgical generator	X	X	-	X	-	X	X	X	-	-
Smoke evacuation	X	X	X	X	-	X	X	X	-	X
Additional	-	-	-	-	Robot	-	Gel mat	-	-	Gel mat

Figure 5.1 - Brands that compete on product form

as the patent lasts . In addition, it can be noted that only five brands offer a complete standard energy portfolio. A major reason for Ethicon to acquire Megadyne was to be able to offer a complete energy portfolio. Therefore, these five competitors compete with the EMEA strategy the most. When looking at the Dutch market by interviewing users and sales consultants, I found that both hospital and non-hospital users, are aware of and only use Medtronic and Erbe products. Unsurprisingly, these two also have the highest market share and therefore are the main competitors to be targeted to gain market leadership. In the next paragraph I briefly elaborated on the these two main competitors.

5.2 Competing company:

Medtronic

Started in 1949, Medtronic now has a global workforce of 84.000 employees spread over approximately 160 countries (<http://www.medtronic.com/covidien/en-us/index.html>). As the current standard energy market leader Medtronic owns a market share of 38,4% in EMEA (2017). According to sales consultants and account managers, this percentage most likely holds within the Dutch market (Appendix C). The mission statement and vision of Medtronic are very similar to the mission and vision of Johnson & Johnson; take the best possible care for all patients, clinicians and employees in our world.

The Medtronic portfolio

Figure 5.2 shows the standard energy portfolio of Medtronic. The products from Medtronic are compatible with the Megadyne products, however, some need an adapter. Apart from the generators, this portfolio is almost similar to the portfolio of Megadyne. Its designs are more modern in terms of esthetics and capabilities. Most notable is the 'save settings' function which

allows the user to save power settings in the different modes like Cut, Coag and Bipolar. According to several users (Appendix B) this functionality is found very useful by users of the generator. In addition Medtronic owns a generator which is capable to power advanced energy devices like the LigaSure. Megadyne should focus on overtaking these two points if they want to deliver competitive generators in the future.

The Medtronic portfolio






Return electrodes	Active electrodes	Electrosurgical controller	Electrosurgical generator	Smoke evacuation
				
Adult & infant types Regular & with REM Disposable Undifferentiated	25 EDGE coated types 37 uncoated types Disposable Undifferentiated	Pencil with rocker or button layout Optional footpedal Disposable & reusable Undifferentiated	Multiple versions Cut, coag & bipolar Advanced bipolar Differentiated	Rapid Vac Open & Laparoscopic Undifferentiated

Figure 5.2 - An overview of the Medtronic portfolio

5.3 Competing company: Erbe

Started in 1851, Erbe now has 867 employees (<https://us.erbe-med.com/us-en/>) and a current standard energy market share of 32,4% in EMEA (2017). According to sales consultants and account managers, this percentage, just like Medtronic's, most likely holds within the Dutch market. The mission statement and vision of Erbe are very similar to the mission and vision of Johnson & Johnson and Medtronic. Unlike Medtronic, Erbe only produces standard energy devices, meaning Erbe can be seen as a smaller competitor when concerning the total energy portfolio.

The Erbe portfolio

Figure 5.3 shows the standard energy portfolio of Erbe. The products from Erbe are also compatible with the Megadyne products, however, some need an adapter. Just like Medtronic, Erbe has a differentiated generator when compared to the Megadyne Mega power generator. Its interface has a touch screen and allows the user to save settings. In addition, Erbe offers large and small surgical sets

including a range of respectively fifteen and five active electrodes. The electrodes in the sets are made of uncoated stainless steel and are not intended for specific procedures. The remainder of the Erbe portfolio is comparable to the portfolio of Megadyne, minus the Megasoft.

5.4 Competition for Megadyne

The analysis of Medtronic and Erbe portfolio made two things clear. The most obvious part are the similarities between the disposables in the portfolios. Assuming the quality of these products is similar, Megadyne must differentiate on capabilities. This makes the production of the Megasoft seem like a legitimate decision, for it differentiates on many aspects. In addition, the heavy focus on EZ clean coated electrodes will support the differentiation more, because when compared with Megadyne, both Medtronic and Erbe only cover this section for a small percentage. To finalize and be competitive with all standard energy disposables, the electrosurgical pencil should be developed more, see chapter 6.7.

The second insight resulting from the analysis, is that the Megadyne generator with its current design needs to be innovated to be able to compete and especially with the Medtronic generator, see chapter 6.7. The differentiated generator, advanced energy products and the size of the company make Medtronic the number one competitor.

The **erbe** portfolio —






Return electrodes	Active electrodes	Electrosurgical controller	Electrosurgical generator	Smoke evacuation
				
Single & dual plate Regular & with REM Disposable & reusable Undifferentiated	12 coated types 88 uncoated types Disposable Undifferentiated	Pencil with rocker or button layout Optional footpedal Disposable & reusable Undifferentiated	Multiple versions Cut, coag & bipolar Argonplasma coag Differentiated	IES 300 Open & Laparoscopic Undifferentiated

Figure 5.3 - An overview of the Erbe portfolio

5.5 Market attractiveness

After I analyzed the standard energy market and the competition, I used Porter's five forces model to analyze the attractiveness of the Dutch standard energy market for Megadyne. Figure

5.4 shows these forces and how they influence the attractiveness for Megadyne.

1. *Competitive rivalry*: There are two main competitors in standard energy, Medtronic and Erbe. The

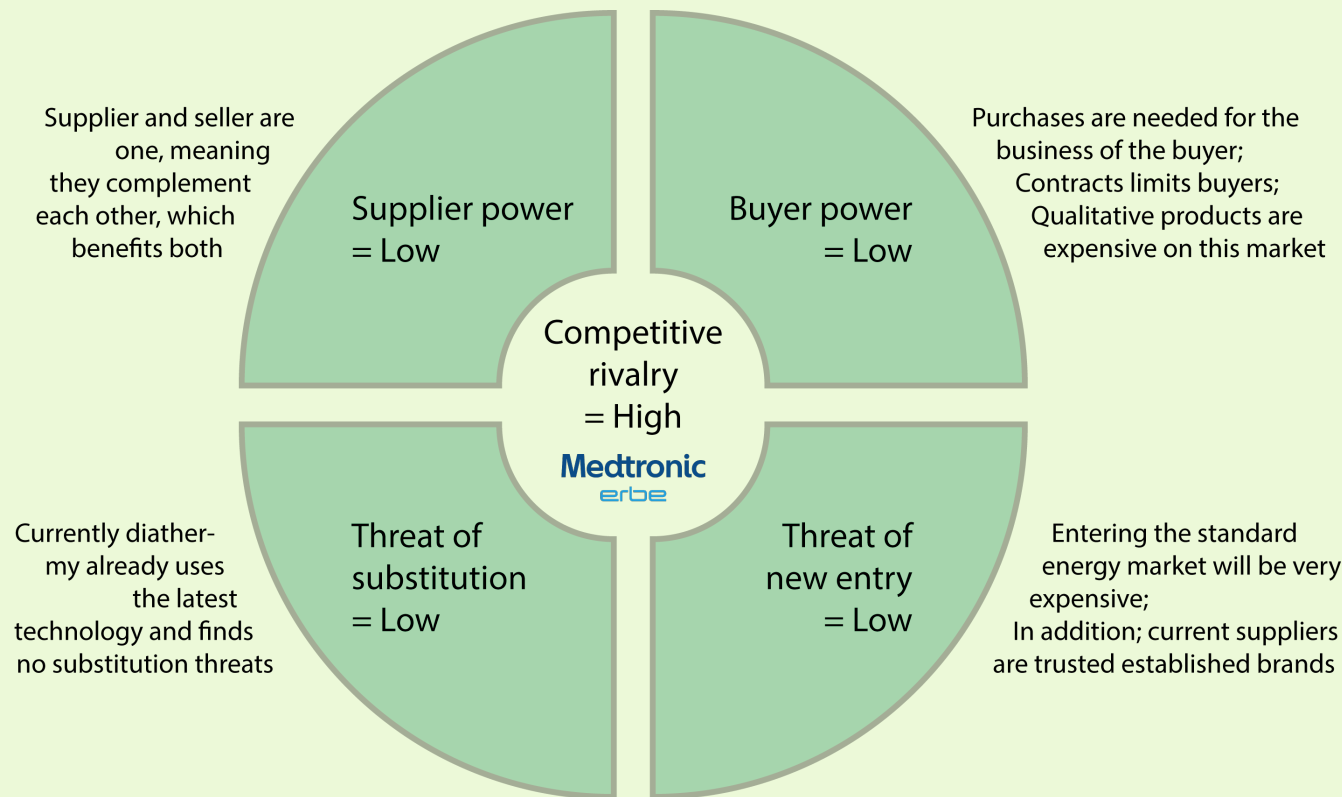


Figure 5.4 - The influence of the Porter five forces

previous chapter elaborated on their qualitative strong portfolios of standard energy devices and how these two are established in the Dutch market. This makes them considerable competitors and especially Medtronic for they have advanced energy products included in their portfolio. It will require differentiated standard energy products in combination with the established Ethicon advanced energy products to compete with these two and overcome this force.

2. *Supplier power*: Megadyne was acquired by Johnson & Johnson recently, so supplier and seller are the same here. Switching to another qualitative supplier would be expensive and in addition lead to cannibalization. For Megadyne, being part of the Johnson & Johnson family means more available resources and more customers resulting in a higher turnover. I expect this power to be a low one, for both parties really only complement each other and therefore benefit. When concerning

resources, Megadyne must grow in order to keep up with Johnson & Johnson.

3. *Buyer power:* There are many buyers on the standard energy market for almost all surgical procedures require standard energy devices. Order sizes are related to the amount of procedures done, which is a predictable amount yet it is not controllable. This means that in order for their own business to succeed, standard energy devices need to be purchased. Naturally, there are bigger and smaller customers, however for none of these buyers are responsible for a significant market share, it does not increase buyer power. Deals are closed by contract; switching during a contract would be expensive; switching after a contract expired would probably cost them relatively nothing, meaning that would be the moment Ethicon has to be present at contract negotiations. Lastly, Megadyne offers differentiated products, so if the hospitals wants the best, they do not have that much power to negotiate. In

addition, prices are mostly determined by competitor prices. Buyers do receive discounts if they purchase more. In conclusion, this power is low.

4. *Threat of substitution:* Monopolar diathermic devices already are a substitution of scalpels and staplers. Currently there is no other known substitution for monopolar diathermy (S. Bureau, 2018). However, for surgery in the unknown far future there might no longer be a need to cut, so the energy devices will no longer be needed. For the next years, this power will not be present, however when technology eventually allows this kind of innovation, Johnson & Johnson should be the first to implement it.
5. *Threat of new entry:* The costs of starting a standard energy devices company are expected to be very high due to among other R&D costs and many licenses. In addition, this company would have to be very differentiating to stand a chance.

Current suppliers own qualitative portfolios and have gained trust of users. Current buyers will therefore think twice before switching which will also cost them. The only threat would be a bigger firm like Johnson & Johnson acquiring a smaller firm like Megadyne and grow it to be competitive. Currently, no such acquisition is imminent and therefore this power is seen as low.

Marketing plan

[Confidential]

The contents of this chapter have been moved to a seperate confidential appendix.

Discussion

Looking back on this project I think I stayed close to my chosen outline for the project. Completely new to the branch I analyzed the companies, products and stakeholders of the standard energy market. I found that this market was very complex and had a lot of stakeholders and other components to take into account when building up a picture of this market. To me, this complexity was as interesting as it was complex. This made me lose track of my priorities ones in a while, taking more time. However it also led to a deeper understanding of things which in turn resulted into stronger details.

The transition from the analysis to the actual marketing plan again was a complex process. There are just so many components brought into consideration. I found that in order to oversee and connect it all, I had to let go off my structured way of approaching work. In the end it worked out, and with the help of multiple stakeholders I came up with an ambitious yet feasible marketing plan.

Reflecting back on the analysis and its multiple components, as I mentioned above, it was time consuming. I think I spoke with many people inside Johnson & Johnson who were happy to help me to get to know the business. With my bachelor in Industrial design it would have been interesting to play a bigger part in the development of the Megadyne products. However the project assignment fitted my Msc. Program more for these products already existed and the acquisition had already taken place. I believe my challenge here was to bridge the pragmatic ways of Johnson & Johnson and the theoretical and methodical way of working I learned at university.

Getting to know Megadyne and its products was the most interesting part of the project to me. I really enjoyed gaining knowledge and experience in this branch. Interviewing Megadyne staff and users of standard energy led to wonderful insights. Reaching these people was probably only possible due to help of Johnson & Johnson, for they are occupied with their work. There is so much to learn from these people and

the products they use, yet many details have no direct implications for marketing solutions. In future projects I will first figure out what data or information is needed from a marketing perspective and then approach the right source for this data.

The analysis of the market probably is the most interesting for Johnson & Johnson. These insights were not yet present and/or documented. I found that it was difficult to obtain market and competitor data. This made me realize I had to be flexible and use the available sources to come up with plausible assumptions. I tried to triangulate data to increase the accuracy, however some data might still be outdated. Meeting the right people also asked for some flexibility and caused me to transform my planning from day to day. Creating an image of the competitors did not cause any complications. Logically, finding out data on pricing did. All in all, the market as I approached it in reality is only a smaller section of the total market, making it way more complicated. When looking back I think I made well-grounded

assumptions to establish my marketing plan.

For the marketing plan the challenge was to find a solution for something which was not just new for me, yet for Johnson and Johnson as well. This meant a lot of information lacked and there was nothing to really compare it to. Whether the objective is met and how it is approached is depending on how much priority will be given to this project. Logically, the priority is based on the potential Megadyne turnover and whether other products or projects would yield a higher turnover. I think the objective can be met using my solutions for targeting hospitals. It will result into a good match between Johnson & Johnson, Megadyne and the hospital with its users. My suggested solutions for the promotion of Megadyne are quite conventional. The kits however will be an addition to show the hospitals that Johnson & Johnson cares about their customers by supplying their specific needs and smoothening the purchasing process. Finally, the pricing guidelines I suggested will play an important role in

reaching the objective. There are multiple unique selling points that justify premium prices for the Megasoft and EZ clean electrodes. Whether these are seen by the users has yet to be determined. When Johnson & Johnson decides to push the objective, they might also decide to set prices to match competitor prices to ensure sufficient sales. I believe that when the sales force is properly trained the objective can be met, even with premium prices for both Megasoft and EZ clean.

I am proud of the results of this project and I learned a lot. I would like to thank my Johnson & Johnson intern coach Alan Munzer for his continuing support during the project. Alan offered pleasant support with the process and the content and together with the strategic capabilities team familiarized me with the business. A big thanks to my chair and mentor, Lianne Simonse and Sonja Paus-Buzink from the TU Delft. Both provided me with great guidance and feedback during this sophisticated project. I am thankful for the motivating conversations filled with input and feedback.



**Trying out Megadyne during the
Train the trainer event**

A group picture of all involved EMEA marketeers during the Train the trainer event in the Johnson & Johnson Institute, Hamburg.



Reference list*

Appendix A - One MD employees **[Confidential]**

Appendix B - User interviews

Appendix C - Sales force / sales consultants **[Confidential]**

Appendix D - Online analysis of competitors

Appendix E - Data sources for finding potential hospitals

Appendix F - List of potential hospitals **[Confidential]**

Appendix G - Calculations for cost savings **[Confidential]**

Appendix H - Calculations for potential turnover **[Confidential]**

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Appendix*

Appendix A - One MD employees

[Confidential]

The contents of this chapter have been moved to a seperate confidential appendix.

Appendix B - User interviews

Dr. Hoelen, orthopedic surgeon, personal communication, December 2017

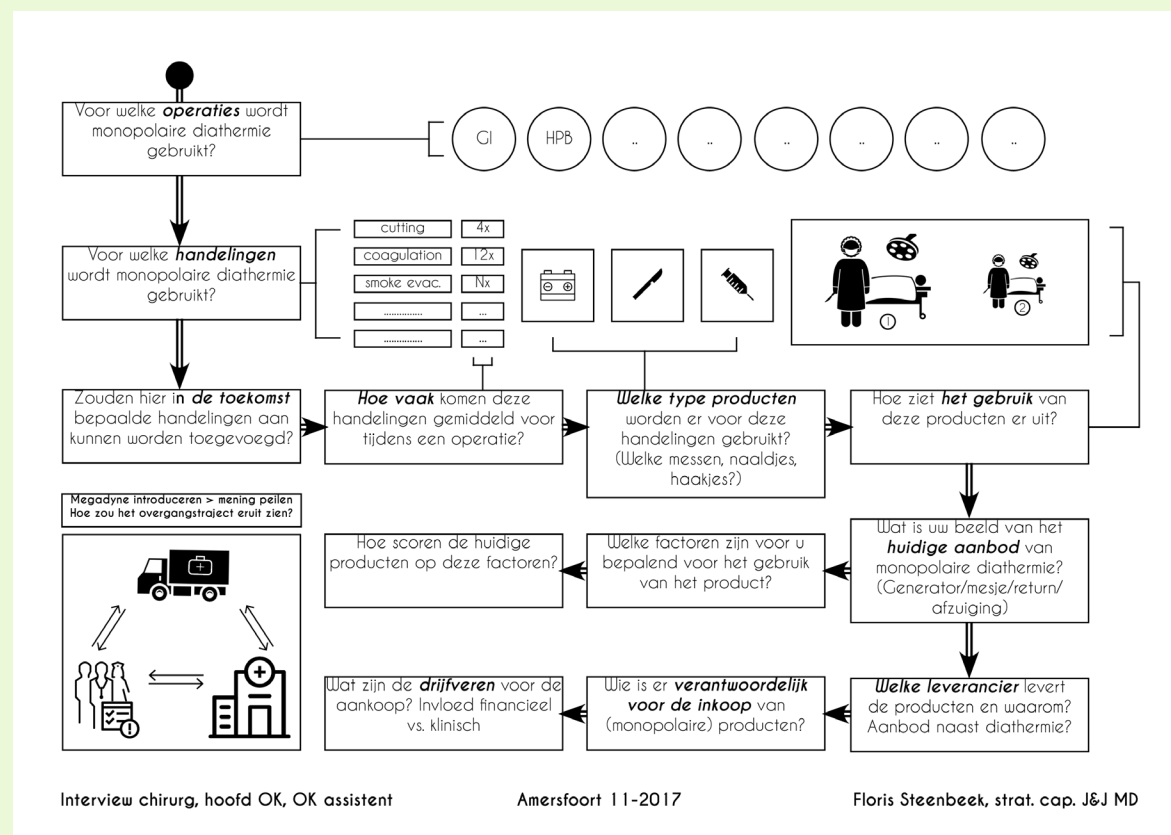
Dr. Steup, GI surgeon, personal communication, December 2017

Dr. Vermaas, oncological surgeon, personal communication, December 2017

Dr. de Graaf, GI / trauma surgeon, personal communication, December 2017

Dr. Zuiderwijk, plastic surgery surgeon, personal communication, February 2018

W. Reeders, OR assistant, personal communication, January 2018



Appendix C - Sales force / sales consultants

[Confidential]

The contents of this chapter have been moved to a separate confidential appendix.

Appendix D - Online analysis of competitors

<https://us.erbe-med.com/us-en/>

<http://www.medtronic.com/covidien/en-us/index.html>

<http://www.boviemedical.com/>

<http://www.conmed.com/>

<http://www.deroyal.com/>

<https://www.intuitive.com/>

<https://www.klsmartin.com/de/>

<https://www.medline.eu/>

<https://www.olympus-oste.eu/en/index.html>

<https://www.xodusmedical.com/>

Appendix E - Data sources for finding potential hospitals

Amount of operating rooms:

Presentatie 'Tactisch plannen' ZGT, 3 November 2017

<https://www.rijnstate.nl/over-rijnstate/cijfers-en-verslagen/>

<https://www.skipr.nl/actueel/id7180-chirurgen-wisselen-van-werkplek.html>

Directie verslag Albert Schweitzer 2016

<https://www.etz.nl/Specialisme/Anesthesiologie/De-operatiekamer>

Amount of procedures:

Johnson en Johnson volumevragen kwaliteit per aandoening 23-04-2017.pdf

Marketing_Matrix_2016.exc - By A.Snels

<https://www.nvz-kwaliteitsvenster.nl/>

Appendix F - List of potential hospitals

[Confidential]

The contents of this chapter have been moved to a separate confidential appendix.

Appendix G - Calculations for cost savings

[Confidential data in separate appendix]

	Costs per unit*	Product lifespan	Total annual costs of product	
Sticky pad	€ X1	1 procedure	€ Y1	
Megasoft	€ X2	24 months	€ Y2	
* European floor prices; minimum price products can be sold for as determined by Ethicon EMEA.				
	Weight per product **(kg)	Weight of total waste (kg)	Total waste disposal costs	ZH1
Sticky pad	W1		U1	€ Z1
Megasoft	W2		U2	€ Z2
** Based on the average weight of Megadyne's disposable return electrodes and Megasoft.				
	Total annual costs of product	Total waste disposal costs	Total annual cost savings	
Sticky pad	€ Y1	€ U1		
Megasoft	€ Y2	€ U2		
			€ C1	

	Costs per unit*	Product lifespan	Total annual costs of product	
Sticky pad	€ X1	1 procedure	€ Y3	
Megasoft	€ X2	24 months	€ Y4	
* European floor price				
	Weight per product **(kg)	Weight of total waste (kg)	Total waste disposal costs	ZH2
Sticky pad	W1	U3	€ Z3	
Megasoft	W2	U4	€ Z4	
** Based on the average weight of Megadyne's disposable return electrodes and Megasoft.				
	Total annual costs of product	Total waste disposal costs	Total annual cost savings	
Sticky pad		€ Y3	€ Z3	
Megasoft		€ Y4	€ Z4	
			€ C2	

Appendix H - Calculations for potential turnover

[Confidential data in separate appendix]

	Purchased amount	Price per product	Annual turnover (x 1000) $X*Y=Z$
Mega power generator	X	€ Y	€ Z
Mini Vac generator	X	€ Y	€ Z
Electrosurgical pencil	X	€ Y	€ Z
EZ clean electrodes	X	€ Y	€ Z
Megasoft universal	X	€ Y	€ Z
			€ Z

ZH1

	Purchased amount	Price per product	Annual turnover (x 1000) $X*Y=Z$
Mega power generator	X	€ Y	€ Z
Mini Vac generator	X	€ Y	€ Z
Electrosurgical pencil	X	€ Y	€ Z
EZ clean electrodes	X	€ Y	€ Z
Megasoft universal	X	€ Y	€ Z
			€ Z

ZH2