Strategic analysis of the visual cattle identification market

by

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ABSTRACT

Cattle identification, specifically ear tagging, is crucial to our nation's cattle producers and their practices aimed at ensuring the food safety and traceability throughout our meat supply. There is a disproportionately large body of research, scholarly articles and journal publications on EID/RFID tags, however, the research on visual ID is underdeveloped. The overarching purpose of this thesis is to develop a market analysis of cattle identification, which will serve as a basis and inform the process of developing a marketing strategy for Allflex visual ID tags including go-to-market strategy and implementation. The ultimate objective is to generate research insights aimed at informing the marketing strategies of Allflex brand of cattle identification products in the retail market in order to grow its presence within ag-retail sector, at both the dealer and the fleet store segments. The research involves external and internal analysis to identify key opportunities, threats, strengths and weaknesses as Merck Animal Health attempts to enter this segment as the only combined-offering company. The external analysis is the more extensive portion of the report which discusses major change forces and market drivers. Two main methods used for external analysis are the Porters Five Forces and STEEP analysis. The internal analysis focuses on resources examined by type (e.g. intangible resources, tangible resources, and human resources) and capabilities examined by functional areas (e.g. sales and marketing, supply management and demand planning, etc.). Findings are synthesized into specific actionable insights highlighting (i) resources and capabilities that are/can be sources of competitive advantage (temporary or sustainable), (ii) potential future scenarios based on the balance of strength, weaknesses, opportunities, and

threats, (iii) direction of potential strategy, and (iii) a list of key strategic issues to serve as a basis for the formulation of marketing strategy.

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ACKNOWLEDGMENTS

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CHAPTER I: INTRODUCTION

1.1 Importance and History of Cattle Identification

Cattle identification, specifically ear tagging, is crucial to our nation's cattle producers and their practices aimed at ensuring the food safety and traceability throughout our meat supply. Cattle identification is especially important within the cow-calf sector as it is the first stage in the suppy chain. Regardless of the type of identification, the ranch location, or the type of operation in which these cattle are being produced in, cattle producers rely on identification for very simple, yet crucial, practices within their operation for many purposes. Some of these uses may be: inventory management such as making sure all animals are accounted for, understanding which calves belong to which cows as many times when working cattle they can get separated from their young, with a simple number management system, or even by the color of the tag, a producer can tell how old a specific animal is, or the average age of the herd. Identification is also key for making more in-depth decisions, such as herd culling decisions, tracking specific genetics and performance of certain animals, documenting premium programs and health protocols which require detailed dates of treatments and nutritionals. Lastly, cattle producers, in the simplest form, use tags to simply identify cattle. Tags can be as simple as a pre-printed number, or can have a custom brand on them, a logo, or a contact phone number, or the producer's specific management number; similarly to a dog wearing a collar and dog tag, it acts as a proper owner statement.

While there are not necessarily substitute methods for cattle identification, there are certainly multiple methods of cattle identification. Most commonly, there are visual cattle identification, such as typical one- or two-piece polyurethane plastic tags. These are the products that we will primarily be focusing on for this project. Other forms of identification can be digital identification, such as eID/RFID tags, which share live data to an electronic source to manage the herd electronically. While not as common of a practice, there is always the typical individual branding, or brisket tags.

1.2 Objectives

The objective of this thesis is to analyze the market of cattle identification, learning and analyzing the major competitors and products, the suppliers, as well as the consumers and their needs. The intent of this will be to analyze the practices and future outlook, as well as the strengths, weaknesses, opportunities and threats that our company, as well as the other competitors in the space, may experience. The overarching purpose of this thesis is to develop a market analysis of cattle identification, which will serve as a basis and inform the process of developing a marketing strategy including go-to-market strategy and implementation. The ultimate objective is to generate research insights aimed at informing the marketing strategies of Allflex brand of cattle identification products in the retail market in order to grow its presence within the ag-retail sector, at both the dealer and the fleet store segments.

CHAPTER II: BACKGROUND

2.1 Acquisition of Allflex by Merck Animal Health

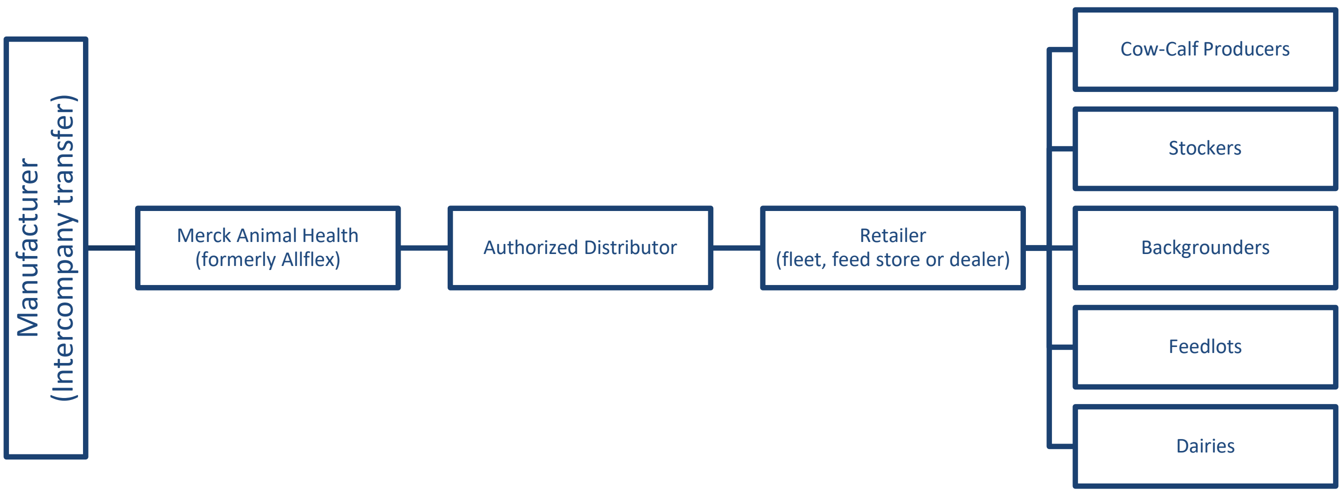
The purpose of this section is to provide an overview of the history and current direction of the company in order to set the stage for the analysis. In 2018, Merck Animal Health, an animal biopharma company, acquired Allflex, a livestock identification company. Since closing the transaction in 2019, Merck Animal Health has begun the process of integrating the two very large and successful businesses to become one combined offering. This "combination" of animal health products is specific to Merck Animal Heath, as they are paving the way of the animal biopharmaceutical industry by beginning to make their goods and services a 'one-stop shop'. The goal and intent of this acquisition was to be able to better service and support the cattle industry, by having a combined offering to utilize identification and technology, to have a better outlook on whole-herd-health, and thus creating a tailored and specific protocol for cattle producers.

Quite possibly the largest untapped opportunity and Merck Animal Health's concentration is the over-the-counter or retail sector of the business. Merck Animal Health has an entire team dedicated to marketing, servicing, and selling the retailer segment, and prides themselves on being the first of the major animal health manufactures to do so, however, Allflex, in their 50+ year history, has not had production capacity nor overly-available human resources, to expand their concentration from the feedlot and dairy sectors to the retail store-fronts.

2.2 Retail Segment of Merck Animal Health

For the purposes of this market analysis, Merck Animal Health defines "retail" as any customer whom is reselling animal health products, that does not fall in either the veterinarian, or distributor classification. The dealer and retail market can be very impactful and convenient for cattle producers to access their animal health products and cattle identification from, below is an example of a cattle identification product supply chain.

Figure 2.1: Cattle Identification Supply Chain



The retail segment and dealer-store customer has become a large concentration for almost every animal health manufacturer, as the COVID-19 pandemic has created such a large demand for goods to be purchased with ease through the retail channel and readily available. COVID-19 forced many retailers to shift their focus and ways of doing business with customers. In Figure 1.1, Cleveland Research Company reported within their "Consumer Retail Traffic Summary" for March 2023 that foot and store traffic within the "Farm & Home" segment of fleet retail is up 16% over 2020, and 15% over 2021 and -4% this year; this is compared to other segments such as grocery, which is flat compared to 2020, and up 3% vs. 2021, and has fallen 3% compared to last year (2022). When we look at other categories such as "Home Improvement & Building Products", the opposite is true, as the foot traffic within that segment is up 15% over what it was in 2020, but is down 1% to 2021, and even further 14% lower than 2022. Out of all of these different industries, it is apparent that Farm & Home has experienced the largest consistent uptick in foot traffic, and has done the second best at retaining it this year. Within these comparisons, we can assume the COVID-19 pandemic created and altered many habits when consumers are shopping, however, for many obvious reasons, we can see that every day customers would rather purchase their Farm & Home (and auto parts) in-store vs. online (Omarr 2023).

Due to CRC's assumption of foot traffic and store growth, Merck Animal Health is attempting to cater and target those customers whom are still, or have begun to frequent the Farm & Home retail sites in order to obtain their products needed for their livestock operations.

Figure 2.2: Consumer Retail Traffic Summary

CONSUMER RETAIL TRAFFIC SUMMARY

Retailer	2020 Year/Year	2021 Year/Year	2022 Year/Year	2023 YTD vs 2022 YTD	March Year/Year	2021 vs 2019	2022 vs 2019	2023 YTD vs 2019 YTD	March 2023 vs March 2019
Home Improvement & Building Products	15%	-1%	-14%	-13%	-16%	14%	-3%	-10%	-15%
Mass Retail	-7%	9%	0%	-4%	-5%	1%	1%	-2%	-3%
Farm & Home Retail	15%	16%	-4%	-4%	-3%	34%	29%	28%	26%
Auto Parts Retail	-7%	24%	-1%	0%	-3%	15%	14%	13%	10%
Grocery	0%	3%	-3%	6%	7%	3%	0%	4%	3%
Dollar Channel	4%	14%	3%	0%	0%	18%	22%	29%	26%

Source: placer.ai, Census, CRC analysis

(Omarr 2023)

2.3 Major Players within the Cattle Identification Market

Within the cattle identification market, there are three primary players, Allflex, Z-Tags, and Y-Tex. These three companies and brands make up over 80% of the total cattle visual identification market in the United States, (Markets and Markets 2022).

2.3.1 Z-Tags

Z-Tags, a brand owned by Datamars, a global company based in Switzerland, with a large US presence. Datamars is a company that focuses on multiple areas of the cattle operation. Other than tags, products that Datamars specializes in are things like fencing and electric fence needs, monitoring equipment, scales and weighing, as well as other common needs within a livestock operation. Datamars' Z-Tags are very well-known for their tag's triangle-shaped neck, their one-piece ear tags, as well as their success within the feedlot sector. Within the Z-Tag cattle line of products, one- and two-piece visual tags are offered, as well as tissue sampling tags, EID tags, custom lasered tags, and other specialty tags. Datamars (Z-tags) is a privately held company (Datamars 2023).

2.3.2 Y-Tex

Y-Tex is an privately-held company, based in the United States (Wyoming). Y-Tex specifically focuses on one- and two-piece identification tags, EID tags, insecticide tags and has some other insecticides, and some equine supplements to offer. Y-Tex has some custom options, though they are limited compared to Z-tags and Allflex. Y-Tex is speficially known for the hexagon-shaped tags that have a softer feel to them, their broad insecticide tag line, as well as their large presence within retail stores such as Tractor Supply Co., and others (Y-Tex: Excellence in Animal Health 2023).

2.3.3 Allflex

Allflex which is recently a brand acquired by Merck Animal Health. Allflex brands specialize in dairy monitoring, as well as cattle identification with their one- and two-piece blank, custom or pre-printed visual identification tags. Allflex (was) based in Dallas, Texas, but was originally started in Australia. Allflex primarily focuses in the custom business, as well as the dairy space. Prior to being acquired by Merck Animal Health, Allflex was a privately held company (Merck Animal Health 2023).

2.3.4 Other players within the animal identification industry

Lastly, there are two other smaller brands which should be noted, as they make up the last bit of identification products. Ritchey Tags, a brand which specializes in customzing your own tags, as well as Temple Tags, which is also a brand recently acquired by Datamars have a good amount of following. However, for the purpose of this analysis, they were left out of much of the market research results for two main reasons: Ritchey, nor Temple Tags, seem to have much interest within the retail sector, as one sells strictly online (Ritchey), and the other who focuses primarily on feedlot customers, whom are not common retail-shoppers

Figure 2.3: Comparison of Allflex, Z-Tags, and Y-Tex two-piece ID tags

Sources: (Merck Animal Health 2023) (Y-Tex: Excellence in Animal Health 2023) (Datamars 2023)

CHAPTER III: LITERATURE REVIEW

3.1 Previous Research

The purpose of this section is to provide an overview of previous literature related to cattle identification and market analysis. Overall, for this market analysis a vast array of different types of literature were reviewed. However, it was discovered that the literature on cattle visual identification is limited. There is a disproportionately large body of research, scholarly articles and journal publications on EID/RFID tags, however, the research on visual ID is underdeveloped. Information on market share and financial results are nearly impossible to find or predict without any primary market research, as all three major competitors are (or have been) privately owned, prior to Allflex being purchased by Merck Animal Health. For this reason, much of this thesis had to be based on internal documents, decisions, financial performance, and surveys that were conducted. The hope would be that parts of this market analysis can help serve to fill the void that this industry has on knowledge and information about visual cattle identification.

3.2 Market Analysis

There are many common methods for market analysis, some are quantitative, such as surveys and financial reports. Sometimes there are abilities for third-party or industry-wide financial and sales reporting, also being able to use distributors or manufacturers to provide EDI reports can be helpful. However, especially in studies like ours, a good portion of the market analysis may have to be qualitative – such as surveys, focus groups, observations and internal conversations.

Once data has been collected, it is sorted and presented into different analytical frameworks such as STEEP Analysis, Porters Five Forces, SWOT analysis and others. In regards to market studies, we were unable to locate any that were available publically, as they were confidential internal documents. Similar to literature and publications, there were many different studies and research documents in relation to electronic ID or monitoring, however, the literature on visual identification market was scarce.

CHAPTER IV: METHODOLOGY

4.1 Introduction of Internal, External and Strategic Issues Synthesis Discussions

The purpose of this section is to provide an overview of main methods and data used in the study. Within this thesis, we focus on developing a 'market analysis' for the Allflex products within the retail segment, we will conduct an internal analysis examining our companies strengths and weaknesses through this acquisition and go-to-market strategy. Within our internal analysis we'll focus on three main areas: intangible resources, tangible resources, and human resources. We'll conduct analysis that shows which of those resources are strengths, and also which of those resources are weaknesses; while also looking at their strategic relevance.

4.2 Industry analysis

We also will conduct an external analysis, which focuses on our industry in general, and threats and opportunities as Merck Animal Health attempts to enter this segment as the only combined-offering company. This will be an extensive portion of the report which will discuss major change forces and market drivers. Two main methods used here will be analyzing the Porters Five Forces, as well as a STEEP analysis. Porters Five Forces, a method that looks at the competitive environment of a specific business, primarily deriving five crucial variables which influence that industry's environment. Invented by Michael Porter in the 1970s, the original intent of the framework was to examine the threats that suppliers, distributors and competitors may cause, prior to Adam Brandenberger and Barry Nalebuff using the same framework to find the benefit and profits that suppliers, distributors and competitors can cause. Since then, the framework helps find solutions within the microeconomics of the firm, and address the way that other elements surrounding the internal rivalry may effect it (Besanko 2013). The STEEP analysis, however, focuses on factors that are potentially uncontrollable, and that are external and will affect not only the the industry, but the larger economy as a whole.

4.3 Primary Information from the Survey of Subject Matter Experts

To better understand the internal analysis, we analyzed an extensive literature review and found that much of the research was mostly around other forms of identification, and therefore, to get more data around these products and this market we required deeper knowledge. As this industry is fairly small, and full of many veteran experts, we thought that we could survey subject matter experts within this field on their concerns, ideas and thoughts within this industry's analysis. We conducted the first survey with our manufacturing and supply leadership teams, the questions asked pertained to strengths and weaknesses within their respective areas of the business, as well as their outlook on the company as a whole and how it's capabiltites can be redeemed to the maximum. Questions pertaining to the retail segement, new customers, and the internal struggles they face was the primary contents of this survey.

4.4 Secondary Data from a of Third-party Survey

The second survey was conducted by an external third-party vendor, M/A/R/C Research, who performed the survey in 2022. Within this survey, the market research firm asked 404 cattle producers from all across the United States about their awareness, consideration, use, attribute importance, brand performance and attributes about the different types of cattle identification products. This was a blinded study and Allflex (Merck Animal Health) was not revealed as the sponsor of the research to respondents. The survey was taken by 101 Cow-Calf producers, 100 stocker backgrounders, 100 feedlot producers and 103 dairy producers. These surveys will be referred to extensively within this market analysis as it is the most recent reliable information. As a reminder, there were some data points and results which included smaller brands such as Ritchey and Temple Tags, however, they were omitted as the sample size was extremely small to be compared.

4.5 Analysis of Resource & Capabilities

Finally, the last portion of methodology and knowledge comes from the author's internal knowledge and familiararity with both Merck Animal Health, as well as Allflex, post acquisition. The knowledge that comes with being involved with this as a day-to-day job, and having expectations from leadership and stakeholders to successfully merge and sell these businesses has been, at times, a forced learning experience. I have over six years within this industry, as well as growing up within the livestock and cattle industry, I have formed my own thoughts and experiences with my personal work outside of Merck Animal Health.

CHAPTER V: EXTERNAL FORCES AND MARKET DRIVERS

5.1 STEEP Analysis

The purpose of this analysis is to identify opportunities and threats arising from the general environment. The analysis conducted using STEEP framework. STEEP is an acronym for sociocultural, technological, economic, ecological and political-legal forces. The STEEP analysis' purpose is to find different forces and changes that will effect not only the cattle identification industry, but every industry in the United States. Through each one of these elaborations, we dig deeper into the impact and the probability of these events happening, and most importantly what the implications could be not only to the economy and world in general, but also how it could effect our specific cattle identification industry.

5.1.1 Sociocultral Forces

As the population is expected to continue growing drastically, it means that more production and more food will be required to feed our population demand. Today the world population is 8 billion people, it's expected to increase by 2 billion people by year 2030 and to be at 10.7B by 2080 (Ruiz 2019). This affects every single industry, but from an agricultural and cattle-producer standpoint, we think of it as a crucial opportunity to create even more beef protein and dairy products, but doing it in a responsible, healthy and sustainable way. This would impact not only the cattle industry, which in correlation affects the identification industry – but would affect the retail stores they're sold in, the supply needed, the number of employees that are in the job-seeking market that could work for these companies, and more. As this is written to primarily focus on the cattle industry, it's important to remember that in many countries and areas, beef is not the largest protein source like it is here in the Midwest, and thus, non-cattle identification will grow just as, if not more rapidly, such as identification for goats, hogs, and others.

5.1.2 Technological Forces

As social media, information and communication technology, and traceability through technology become more prevalent, the entire environment connected to the cattle industry will be forced to adjust their diligent practices. Use of social media has accustomed beef consumers to want to understand even deeper where their food, specifically beef, has come from. Beef consumers care about sustainable practices, humanely cared for beef, and most of all healthy and quality beef that they can feed to their families. Through good practices, proper identification processes, beef producers can help our consumers trace their food from the point of a calf's birth, all the way to their plate. This elaboration also really gives our company the best chance to continue their practices and products and convert this specific customer to a different type of tag, such as and eID or RFID tag, which communicates even more with a data facet and gives us even more information and history of that animal. This overall trend of wanting to understand how humane, healthy and when our meat was treated is quickly becoming a reality; companies such as Blockapps and others are quickly learning how to take the information from cattle identification such as Allflex or Z-Tag tags, and incorporate it for longer periods of time, following that calf from birth or weaning, all the way until it's processes (Vogt 2021). These companies and practices are taking out the human error, as well as the manual efforts of having to process so many animals at once. These specific products drive producers to use other tags, such as the RFID/EID tags, and those specific products are usually are more profitable for respective companies, and thus in return, more profitable for the beef producer as well – as a premium is to be paid.

5.1.3 Economic Forces

Inflation has been a very relevant buzz word the last few months and years, and thus is the perfect scenario and example for this elaboration. As the price of everything has risen, though some industries have gone up more than others, it greatly affects the buyers, as well as the suppliers, as any product is passed through it's supply chain. Cattle producers and agriculture professionals are no exception, as the price of our products as well as our supplies have gone up, which then results in a higher-priced finished product. This creates a much more competitive marketplace down the supply line, as consumers and beef producers are even more cognizant of how they spend their money, as every industry has seen price increases, supply struggles and in some cases, less demand for their products (animal health products, land/lease, cattle prices, feed prices, transportation, labor). The perfect example of this element within the marketplace is the price of eggs within our recent economic times, as the price of eggs has skyrocketed over 250% retail price since the same time prior year (U.S Bureau of Labor Statistics 2023) (A1). This hefty price hike can be attributed to two things, as reported by Gregory Archer, Texas A&M Poultry Science associate professor, inflation and avian flu health issues. Inflation and price increases within other industries are directly impacting the price of this industry. "Increasing (the) costs of feedstuffs (corn and soybean) used in feed, and fuel (gas, diesel, electricity, natural gas) needed to transport eggs and run farms," (Muntean 2023) and thus, when producers have to pay more to contribute the same protein to the consumer, the price has to go up as well. As prices seem to settle back in on fuel, leases, and the price of other equipment related to poultry, the price will settle as well. Again, this is a direct correlation, as would be the price of any aspect of the cattle identification process, either up or down the supply chain.

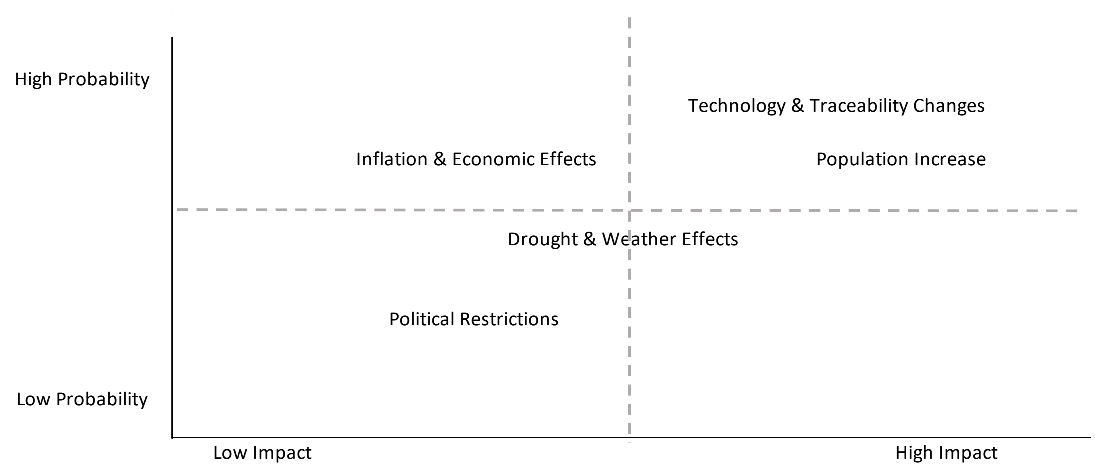
5.1.4 Ecological Forces

Climate change has been our focus around the ecological elaboration. Again, another buzzword of our times, as the conversation of sustainable practices, gas emissions and responsible consumers lingers, we understand that the agriculture industry, and cattle producers in general, can do many things to be creating more sustainable and heathier practices for our cattle, which, in return are healthier for our land and environment. Weather is largely the biggest impact within our cattle industry and thus is difficult to predict, as our dry weather, difficult winters, and drought become more prevalent, the supply of cattle seems to dwindle, as less producers are less likely to remain profitable. As weather impacts our climate and our land conditions, this will cause cattle producers to make changes to their herd management practices, which then works its way down the supply chain to affect all other industries that rely on selling products or services by animal, including that of the packers and consumers who are now expected to pay more. Using the same example of the price of eggs from the situation currently occurring in the economic example, avian flu, would be a very similar outcome to an exterior impact such as an ecological element's affect on other industries connected. Thus, weather, diseases and mortality being caused, directly or not, can play a large role on the cattle industry which in reverse would have a reverse impact on the cattle identification industry. Using the example of drought once again, the less water in the environment leads to less feed created, less feed means that more cattle are sent to market and removed from producers – thus leading to less demand for cattle identification products.

5.1.5 Political-Legal Forces

Market regulations of the beef and meat industry are ever evolving, and can very easily become a high impact scenario, as we've seen very recently with GFI 191 (reimplantation laws) and GFI 263 (livestock OTC) rulings, both of which have greatly impacted the specific point in the supply chain where these tag manufacturers lie, and therefore, ripple effects are felt throughout the chain. We see this with reimplantation laws, with antibiotic use and resale, with eID/RFID tags being required by certain states and logistics companies. It's important to understand how these decisions will affect anyone, especially consumers, down the line and at the end-use. Government regulation can affect cattle prices, inventory and outlook without even having change in some instances we've seen in history. For example: while constructing the 1996 Farm Bill, there was much conversation around the insurance-substitute programs that could help producers make up for losses accrued once a disaster or unprofitable season took place. As that conversation took place and producers were able to better understand that without that program, the price of feed would be very instable, and thus created a bit of unsettled decision making by cattle producers when they were bringing cattle in (Frederick 1995).

Figure 5.1: Relationship of Probability vs. Impact within External Analysis factors (STEEP Analysis)



5.2 Analysis of Porters Five Forces

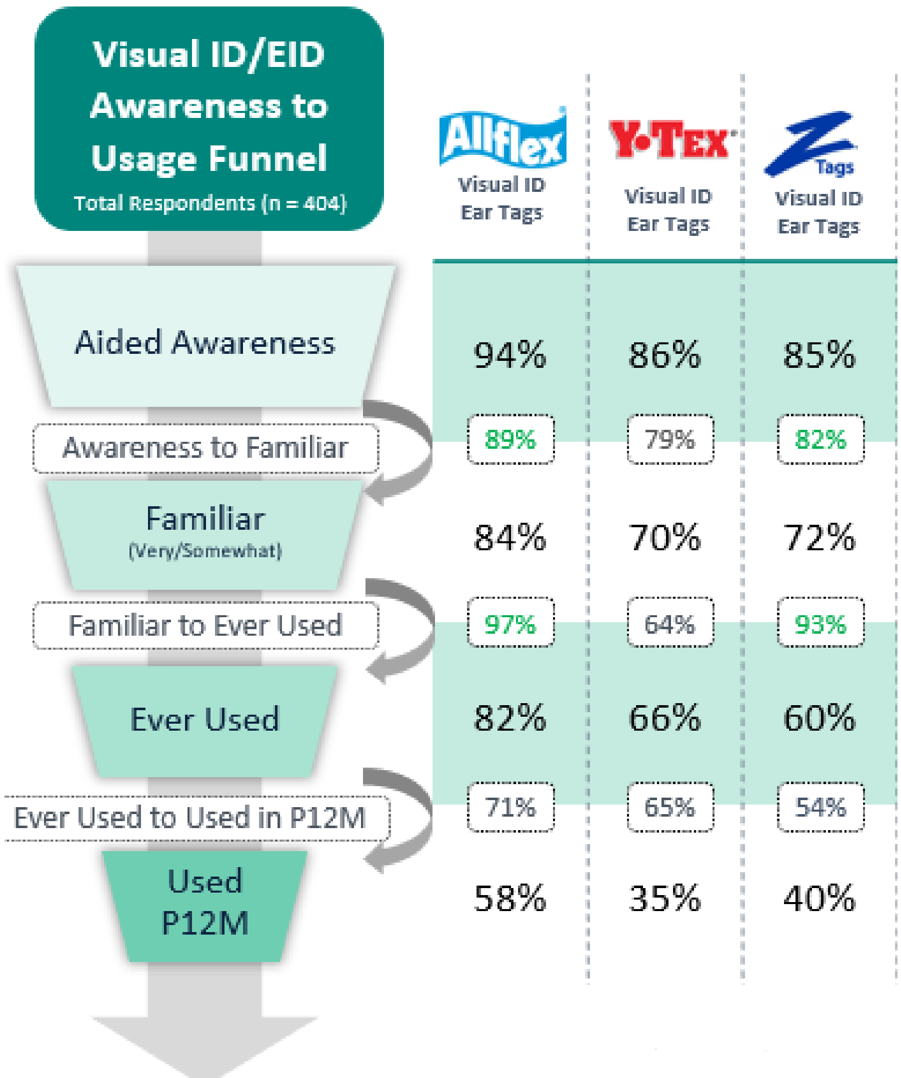
The purpose of this analysis is to identify opportunities and threats arising from the task environment. Focusing on the cattle identification-specific market, we analyzed the intensity of Porters Five Competitive Forces and resulting opportunities and threats for firms competing in cattle idenitification industry. Porters Five Forces looks at the intensity of five specific elements that may affect the industry, and to help determine the threats and opportunities faced by the industry.

Porters Five Forces focus on the following elements: Threat of new entrants, bargaining power of the suppliers, bargaining power of the buyers, threat of substitute products, and rivalry among competing firms. With each of these elements, we look into the specific industry's outlook when it comes to that, as well as the threat (or opportunity) that it poses on the industry.

5.2.1 Threat of new entrants

This element is specifically looking at the likelihood of another new competitor coming into this industry to compete with these, in this case, three other companies. The main indicators that help us measure the amount of threat here are things like: current competitors being less-established, low loyalty customers, low financial resources needed to buy equipment and logistics needed for product production and others. It was determined that this industry has a pretty large barrier to entry and therefore that this element is a low threat. The industry is made up of three very large competitors, all of which have been around for a very long time and bring a very loyal following of respective segments to the table. Merck Animal Health recently conducted an 'Attitudes and Usage Brand Health' study, which was made up of over 400 cattle producers from the cow-calf, stocker, dairy and feedlot segments respectively. We see in Figure 5.2 that brand awareness and brand experience are very strong suits of all three of these companies in their specialty markets, as the lowest competitor of the three was recognized by 85% of the producers who were surveyed. Also taking into account the large financial investment that would be required to consume the raw goods, machinery for manufacturing, as well as the human capital investment, just to attempt to cut into the loyal consumer bases that are currently already solidified. That being said, it must be kept in mind through this portion of the analysis is that two of the three largest competitors within this space are tied to very large parent accounts, and therefore have a large majority of the capital and business that would be required to join this industry. When they changed the question to pose who was familiar with each brand's products, the lowest score fell a mere 3 points to 82% (M/A/R/C Research 2022). Due to the survey results pointing towards brand awareness, the overall high conversion rates, paired with the relatively small industry (in terms of number of competitors), as well as products that aren't hugely differentiated from the product itself, we believe that the threat of new entrants to this market is a low threat to our industry.

Figure 5.2: Comparison of Y-Tex, Allflex and Z-Tags two-piece ID tags



(M/A/R/C Research 2022)

5.2.2 Bargaining Power of Suppliers

The element of bargaining power of suppliers is looking specifically at the pressure or negotiations that a supplier can put on a company by increasing price to obtain, or even reducing availability or quality offered. Within this element, Y-Tex, Z-Tags and Allflex products would be the buyers, and companies who are selling the raw goods or pre-assembled materials would be the supplier. The easy way for us to examine how large (or small) of a threat this is, would be by examining whether or not there are fewer suppliers than buyers, or fewer buyers than suppliers. When one of these two outnumbers the other, it creates bargaining power by the other. Within this cattle identification industry, though it's a very small and competitive market, we are quick to understand that even more of a competitive market is that of the suppliers of raw goods that are required to make these identification tools. This, at a certain point in the last few years, created a very big backlog and supply issues for multiple manufacturers. The suppliers had a lot of bargaining power at this point, as they were controlling their price that they were selling these materials for. However, since then, these competitors have began to expand their capabilities, as they learned that they never wanted to be at the mercy of another supplier. With that, many of these cattle identification companies, have grown their internal capabilities, erasing the need for as many suppliers as possible and doing it in-house. While this doesn't completely eradicate the threat of suppliers bargaining power, it certainly does lower it; therefore, we would classify this element as a moderate threat to the industry.

5.2.3 Bargaining Power of Buyers

This section is looking at the same comparison and analysis as the suppliers, but from a buyer's perspective -- for this specific portion of analysis we will be looking through the lens of the cattle producer buying the tags, not the identification companies buying from the supplier. Bargaining power of the buyer is looking at the amount of pressure that a person buying the product can put on a business to get them to provide more quality or services, for less price. Tipalti, a business specialty company, states that "bargaining power of buyers from Porter's 5 forces industry analysis is most likely low where very few suppliers exist for a product or service, the products are differentiated, high switching costs exist, and product demand is high compared to supply, in industries with price sensitivity" (Cook n.d.). The cattle identification industry is considered to have low bargaining power for the buyers, and mostly because of one major element, supply. While very few suppliers do exist, the products can be somewhat differentiated, switching costs can usually be kept to a minimum by only buying a few new pieces of equipment – the major indicator of low bargaining power for the buyer is that demand is much higher than supply. Over the last few years, the supply chain has consolidated and become more strained for the same raw materials and due to labor issues. In times of supply chain disruptions, the bargaining power of buyers decreases drastically, in which we are still seeing today across all manufacturers.

5.2.4 Threat of Substitute Products

Cattle identification is a very crucial industry, in that there really isn't many operations in the United States that go without some sort of identification. Identification is so crucial to an operation's success that producers don't consider not using it. Cattle producers don't see identification as an area of their herd's routine that they can substitute for something else. Because cattle identification is how producers are able to know the age of their herd, specific breeding techniques, animal health records, matching calves to cows, premium programs, and simply just identifying and maintaining their cattle's records. The only identification substitute that is really considered to be a comparison would be brisket tags or a different type of ear tag. Brisket tags are very outdated practices, considered very dangerous to producers who are administering, and quite frankly very hard to find in the marketplace. Branding used to be considered the normal, and in rare conditions is considered a good substitute for cattle identification tags, but as the industry has evolved, most cattle brands are all the same brand per cattle producer or per herd, they usually are not uniquely identifying each brand with a number. While it's not really considered a visual identification substitute, it is another avenue, and that is an EID/RFID tag, which is just a more advanced version of an ear tag that actively tracks and monitors the ruminant's health, temperature, eating habits, movement and more (Markets and Markets 2022). With that all being said, we would consider the threat of substitute products to be very small and almost non-existent as producers are too accustomed and reliant on ear tags. Producers also don't see ear tags as a hassle as they used to, as they have evolved to have the longevity to last until the next time the cattle are put into the chute. Most producers just re-tag their cattle at working for vaccines, parasiticide treatment, or adding a fly tag.

When analyzing substitute products, many experts also analyze complements within the same framework. While substitutes will erode away profits and sales, a complement will draw customers in, or even convert a customer from another competitor (Besanko 2013). As we examine and analyze the market more, we will call out any complenents that may be prevalent.

5.2.5 Rivalry Among Competitive Firms

As said in the above analysis, we consider this to be a very strong threat, because there are so few competitors, and because the nature of the competitors niche markets. For instance, Allflex is the market leader in the dairy space, Z-Tags leads the feedlot space, and Y-Tex leads the big box store and retail market. Another indicator of highly competitive firms is the price point, and while each manufacturer has different product arrays and even some different customer bases, they're within a few cents of each other when it comes to a per head cost. While each of these brands have their own advantages and due to no threat of substitute products, each of these three players can provide a product that could work for the producer, though it may not be their first choice. Thus, creating a very competitive market for three main players, and a few other companies to compete for. As certain competitors begin to explore new areas of the animal health industry via new products within the pipeline, or due to aquistion, we believe this rivalry will only get more competitive, for example, Merck Animal Health expanding into the identification market with Allflex to compete with both, into the fencing market with virtual fencing options to compete with Datamars, or continue to compete with Y-Tex and the other ear tag needs, insecticide tags. In conclusion, though we believe that the industry is competitive and the rivalry is a strong threat, it will only continue to get more and more competitive within the future years to come.

CHAPTER VI: KEY STRENGTHS AND CAPABILITIES

The purpose of this section is to identify resources and capabilities of the Allflex Cattle Identification and to determine whether they are sources of strengths or weaknesses. We conducted our internal analysis by looking at three portions of our business internally, examining three different type of resources that are specific to Allflex Cattle Identification: tangible resources, intangible resources, and human resources.

6.1 Intangible Resource Analysis

Intangible resources are simply things that cannot be held, seen or physical items. However, they are items or pieces of your business that can drastically affect your business' success or future. Internally, Merck Animal Health's Allflex products bring very strong strengths when it comes to brand recognition, brand reputation, brand relevance, and more.

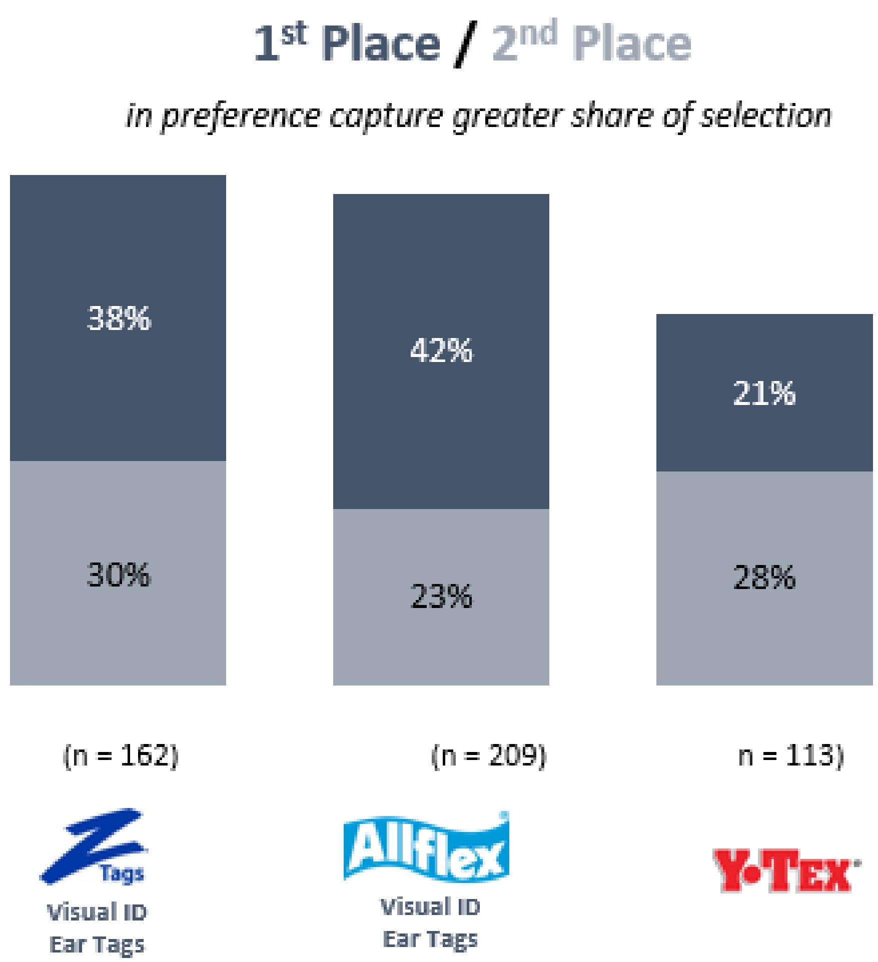
6.1.1 Brand Recognition

Allflex brand recognition is the industry standard. It's products are simply unmatched when it comes to recognizing the brand, in our recent survey (M/A/R/C Research 2022), 94% stated that they were aware of the Allflex brand, compared to 86% and 85% of our competitors respectively in Figure 5.2 above. Brand recognition is specifically important to our efforts here for two reasons, as a company like Merck Animal Health, who is a large leader in the animal health space, we want our products to be easily identifiable, whether they're with the biopharma name or not, so that we can grow our market share across all producers, another very important portion of brand recognition for our efforts here is specific to the retail market. As we're creating a go-to-market strategy with these Allflex products, we want to ensure that our logo, name, and product look are easily recognizable by cattle producers who may need to purchase tags for a new load of cattle they have coming in, or as calving season is approaching. The specific importance to brand recognition within the retail space is that our products will likely be hanging on the shelf right next to Y-Tex and Z-Tag retail products as well. This is where part of our strategy creation from a marketing strategy would come into play, as we'll create items that continue to push our brand to be seen and recognized within the store, as well as competitive tangible items to be complementing those.

6.1.2 Brand Reputation

Brand Reputation is just as strong as a strength for Allflex, as it once again really leads the way against it's competitors. In the survey, seen in Figure 6.1, a question was asked to producers: "You will see some brands of cattle ID tag and tagging systems, two at a time. Taking into consideration anything you know about the brands, please divide 11 points between each pair based on how much you prefer one brand versus the other brand", through these results we received an overwhelmingly support of first place votes by the producers, 42% ranked Allflex as the number one brand reputation, compared to 38% (statistically different) and 21% respectively of Z-Tags and Y-Tex. From a performance perspective, Allflex, once again, is the standard of the industry. Producers were asked in the survey to rank the top three competitors in a variety of key drivers. Referring to the figure below, 6.2, when producers were asked which tags were guaranteed for the life of the animal, Allflex beat Y-Tex by 1% and Z-tags by 16%. The producers were also asked which brands had high visibility and were resistant to fade, Allflex returned with a whopping 81%, while Z-tags and Y-tex had 46% and 68%, respectively. The survey asked producers about which tags were easiest to apply, Allflex got 83% of producers to agree, while Z-tags returned with 58% and Y-Tex with 72%. Allflex also led the way when producers were asked which tags stay in place, as well as which tags are durable and resistant to breaking, the results were as follows: Allflex 78%, Z-Tags 58% and Y-Tex 56%, a significant win for the Allflex brand reputation. Lastly, producers were asked about the wide selection of colors and sizes, and once again Allflex won the producer preference 86%, compared to 63% and 72% for Z-Tags and Y-Tex (M/A/R/C Research 2022). All of these questions and responses that producers of all different operations types were consistently showing that Allflex product has not only the brand recognition head-to-head, but just as importantly, the brand relevance and reputation.

Figure 6.1: Performance of Key Drivers for Internal Analysis



(M/A/R/C Research 2022)

Figure 6.2: Performance of Key Drivers for Internal Analysis

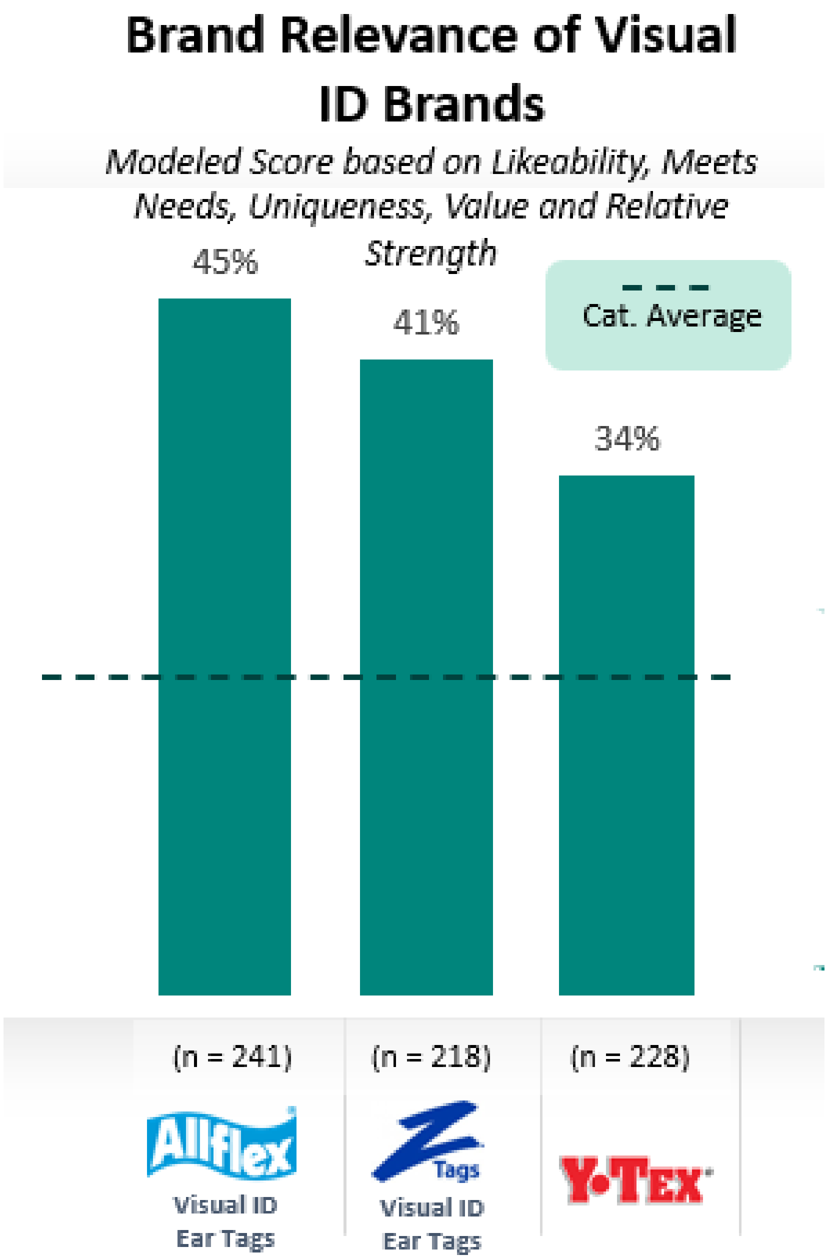
Visual ID/EID Brand Performance on Key Drivers (*Agree completely/somewhat*)	Allflex Visual ID Ear Tags (n = 227)	Z Tags Visual ID Ear Tags (n = 24*)	Y-TEX (n = 25*)
Guaranteed for the life of the animal	37%	21%	36%
High visibility/resistant to fade/easy to read	**81%**	46%	68%
Tags are easy to apply	**83%**	58%	72%
Tags stay in place	**78%**	58%	56%
Tags are durable/resistant to breaking	**78%**	58%	64%
Can be used with/fits tag applicators operation already has	**74%**	46%	60%
Wide selection of colors/tag sizes	**86%**	63%	72%

(M/A/R/C Research 2022)

6.1.3 Brand Relevance

that same realm, the producers were lastly asked about the brand relevance of all of the visual identification products. Allflex, once again, scored the highest of the three competitors, as seen in Figure 6.3. The questions leading to these answers, of Allflex at 45% relevance, and Z-Tags and Y-Tex behind at 41% and 34% were asking about the value for the money, which brands the producer thinks he or she would like, how unique they perceived the product to be, and lastly how likely that brand was to meet their needs. The results spoke for themselves, and once again proved to be a major strength for Allflex' brand.

Figure 6.3: Brand Relevance of Visual Identification Brands



(M/A/R/C Research 2022)

6.1.4 Brands and Copyrights

The last large strength of intangible assets that Allflex has is the brands and copyrights in which they have acquired via acquisitions and by purchasing other competitors of theirs. This intangible asset is a great representation of why we believe that Allflex performed so well in the previous two pieces of brand analysis. By purchasing and acquiring other comptitors, Allflex has kept the key drivers and strengths of each brand, while re-branding those other company's loyal customers to then become loyal Allflex customers. Overall, we would consider the intangible assets of Allflex Cattle Identification to be extremely strong, and one of the top strengths of this company. As we continue to examine these other areas of our internal analysis, we want to be sure to create our marketing strategy to continue to strengthen and to voice these strengths of our brand's success within its reputation and relevance.

6.2 Tangible Resource Analysis

Tangible Assets are the assets that can be seen, felt, counted, and examined with your eyes. The tangible assets that we examined within Allflex Cattle Identification would be: our facilities, our supply, our equipment, and our financial status.

6.2.1 Facilities and Manufacturing Sites

When examining the facility assets that Allflex owns, I believe that we would consider this to be a significant strength for Allflex. Over the previous two years, Allflex has acquired and gained many new facilities, most to the credit of Merck Animal Health acquiring the company. The first, and main facility of Allfex would be the Dallas, TX facility. This is the original facility of Allflex, and their commercial operations, accounting, and customer services is housed here, as well as their entire warehouse, customization operations, and operating lines. Until recently, this was Allflex' only location and facility within the United States. In 2022 Merck Animal Health, who owns a manufacturing facility in Baton Rouge, LA that primarily made insecticides and other external parasite preventatives, decided to discontinue much of that line, moving the insecticide products that remained to another manuafacting site, which allowed to repurpose Baton Rouge into an Allflex site (Merck Animal Health 2023). The Louisiana site will now serve as the main hub for all non-cattle identification, specifically swine, goat and sheep tags. Lastly, just within the first few months of 2023, Merck Animal Health has opened a site in India, which will inter-company transfer blank tags and pre numbered tags, up to number 200, to the Dallas facility, to hopefully relieve them of manufacturing those products, so that the Dallas, TX facility can concentrate completely on custom tags. The India facility, alone, has changed this tangible asset to be considered a "strength" instead of a weakness. Prior to the India facility being open, the Dallas, TX facility, even with other global manufacturing sites, was unable to keep up with demand. With the way that our suppliers operate, the Dallas site would have to unpackage the raw goods, sort them, then package them, just to manually repackage them and ship out. If it was a custom order, they would have to line them all up by hand within the laser machine, and then print them, and then place them in the packaging before processing the order. This was a huge time burden on our facility in Dallas, as it didn't allow orders to be processed easily, and required a very large amount of manual human labor. Luckily, our India facility is providing many streamlined processes, including cheaper finished-product, quicker turn around times, pre-packaged product, and larger shipment quantities.

6.2.2 Financial Resources

Another tangible asset that we examined by Allflex and Merck Animal Health was the financial state. We considered this to be a moderate, to strength for Allflex. While

Allflex is the only one of the top three main competitors to be publicly traded, and simply only because of their now parent company, Merck Animal Health, we would consider that to be a large advantage as they now have the safety net of a large Fortune 500 company's backing. From a financial performance standpoint, Allfex, in one of the toughest years in recent history, still grew revenues 2.9% in 2022, this was a large accomplishment when combining the smaller cow calf crop and cow market, with many unprecedented system and supply errors and shortfalls. Allflex also has not taken any sort of price increase on cattle identification products since 2019, and will be taking it's first in four years this year. After a successful year in such headwinds, we have set very lofty goals for this year, including the price increase, new business, and supply to return to normal, and have goals of 25% growth over prior year.

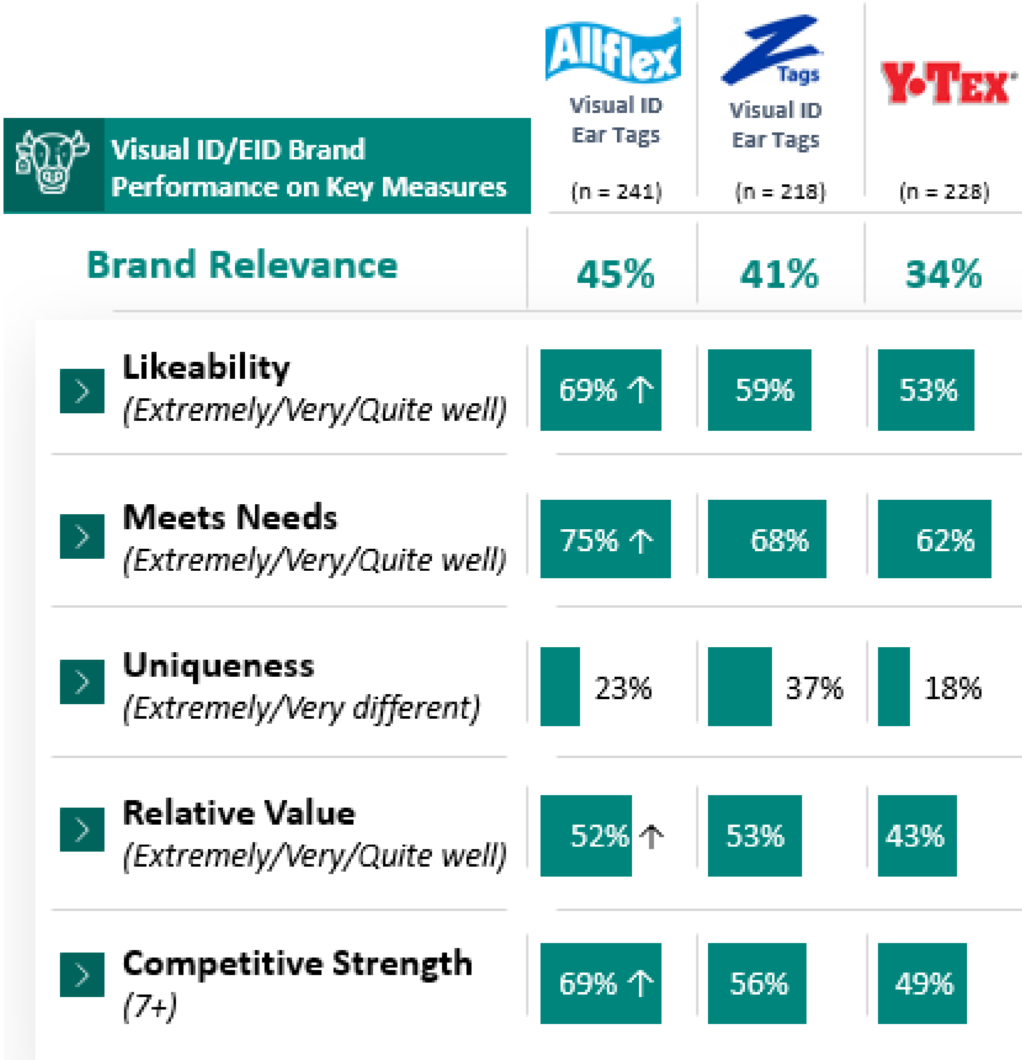
6.2.3 Equipment and Machinery

A very critical asset to our tangible assets that we analyzed was the equipment and the machinery within the facilities. This, again, had it been examined a year ago, would have been considered a major weakness, as it was once again a very outdated and old piece of Allflex' business. However, as Merck Animal Health has opened up new facilities and repurposed other facilities, new equipment has come with that. The India facility, as well as the Baton Rouge facility have all new equipment, which has resulted in a quick opening of the facilities, however, the goal would be to continue growing those out and brining in even more new, and advanced, machinery. The concentration up to this point on equipment has been in the two new locations, as they are now up and running, and the non-cattle products, as well as blank and prenumbered tags are no longer being manufactured in that facility, they are able to re-arrange the Dallas, Texas facility and fortunately bringing in advanced and new equipment to update the existing equipment. Therefore, this tangible asset is likely neither a strength nor a weakness, but the goal would be that it will very soon be a strength of our company. The colleagues that were surveyed about manufacturing and supply capabilities routinely talked about the change of manufacruing that we are under, and how it will only continue to evolve more and more. As the resources are available, both from a financial and a facilities location, Merck Animal Health will continue to upgrade and invest in more automation and higher-technology solutions for manufacturing and custom printing.

6.2.4 Materials for Finished Product

Lastly, the product itself would be considered a tangible asset, as it is manufactured from raw plastic molds internally through our international Merck Animal Health manufacturing sites. Once again, through our blinded market research survey, we saw that Allflex products were superior when it came to a head-to-head comparison to its competitors. For starters, the Allflex tag is just simply a higher quality polyurethane plastic than it's competitors. Even some distributors, such as CattleTags.com, have done away with every other brand and will only sell Allflex tags, due to their "rugged, dependable, high quality and designed to last" qualities (CattleTags.com 2023). Another very important and clear strength of the Allflex tag is it's swivel technology, which other competitor's haven't had as much success with. Allflex may source the same polyurethane material that it's competitors such as Y-Tex and Z-Tags do, however, the mold is thicker, both from the body standpoint and from the neck, this is so that the tag resists from tearing, and the corners don't curl either, the thicker neck prevents the head and male piece from tearing off of where the management number and body of the tag is. The Allflex tag's unique swivel technology allows tags to rotate within the neck on the cap to prevent ripping or breaking, or injury to the calf, if snagged or caught. From a custom tag standpoint, Allflex is once again the leader in the space, as the custom design or number is printed over twice. At Allflex, when a custom or pre-numbered tag is created, the tag design is lasered in, leaving an engraved indent into the tag. This is where the competitors to Allflex end their manufacturing process, Allflex takes it one step further and then fills that indent with an added layer of long-lasting ink to ensure that the tag and management number are guaranteed for the life of the animal, once again, since the Allflex tag is thicker than it's competitors, you're able to customize the front and back, whereas it's competitors are limited to one side on most tags, as the thickness cannot allow for two sided engraving. Lastly, the Allflex line of equipment and applicators is simply just higher-quality than that of it's competitors, it's metal, compared to Y-Tex' plastic applicators, and has a wider opening for the two-pieces, while smaller width for hands to have to squeeze. Within the marking pen, the Allflex marking pen comes with multiple tips to be able to mark on any size of tag, while also available in black and white ink, compared to just black in the two competitors. All of these areas of quality products create the loyal purchasing of cattle producers, who, ranked Allflex' ID tags 13 points higher than Z-Tags, and 20 points higher than the third-place Y-Tex when asked about competitive strength (see Figure 6.4 below).

Figure 6.4: Key Measures of Brand Relevance for Allflex, Z-Tags and Y-Tex:



(M/A/R/C Research 2022)

6.3 Human Resource Analysis

The final internal piece of internal analysis will be our Human Resources here at Merck Animal Health supporting our Allflex brands. Human resources are examining those that work for and with the company to best analyze the forefront and the face of the company, as well as the workers you have behind the brand.

6.3.1 Combined Sales and Marketing Personnel

Merck Animal Health brings an exciting amount of employees to the table when it comes to the cattle and livestock sales teams. When Merck Animal Health purchased Allflex, there was one marketer and nine sales reps for Allflex identification brands. As we work to combine both Merck Animal Health and Allflex brands, and become a combined-offering of biopharma as well as cattle identification, there will soon be over 110 sales reps, over 25 technical service veterinarians, as well as a marketing team of 10+ supporting these combined efforts of one-combined-offering company. This is a very large advantage that Allflex cattle identification will now have over it's competitors. Y-Tex, the leader in the retail market, simply has 62 total employees, and while Z-Tags is tied to a parent account (Datamars) as well, their brand has under 100 employees dedicated to their cattle identification efforts. Merck Animal Health also has staffed a full customer service department to combine with Allflex' already veteran-ran team, as well as pharmacovigilance department, which the Allflex products will now be able to fall under and be better supported (Datamars 2023, Y-Tex: Excellence in Animal Health 2023).

6.3.2 Warehouse and Logistics Labor

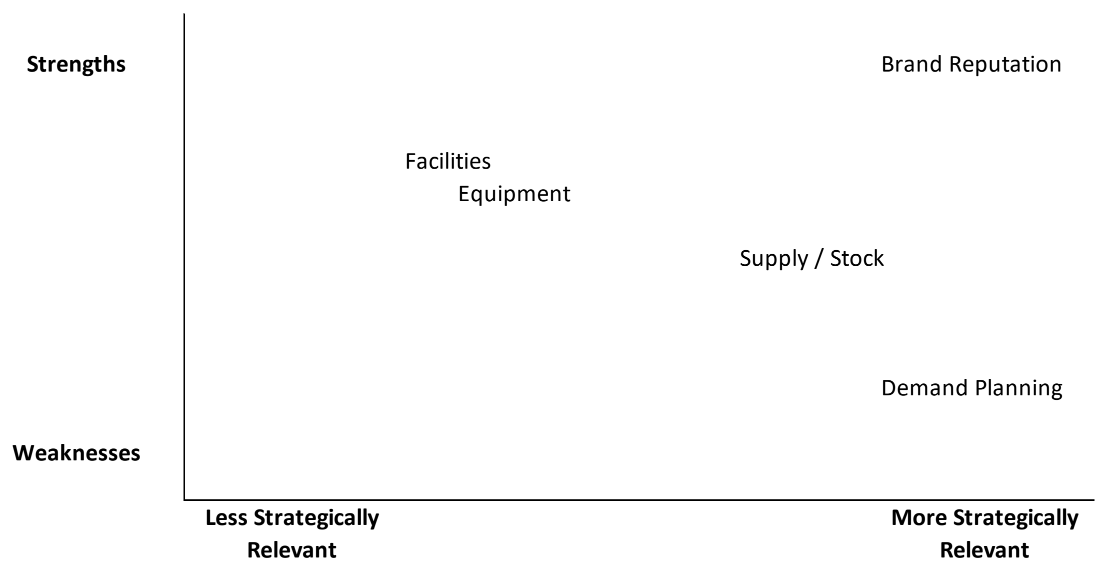
Another large part of our human resource is the manufacturing and warehouse workers, which Merck Animal Health have had a significant difficulty hiring, much like every other industry, in and out of COVID-19. Within the manufacturing and warehouse line of work, as well as the amount of pay offered, plus, in a location with much job availability, Merck Animal Health found itself competing with the Amazon, Walmart and other large warehouses in the Dallas area, however, after renegotiating some working hours, offering full benefits and higher pay, we are proud to have a 100% fully staffed location in both the Dallas, TX and Baton Rouge, LA locations.

6.3.3 Human Resource Evolution within Technology Changes

Overall, the human resource for Allflex is not yet realized, but will soon be a very heavy strength for the products. The key will be taking two large companies and putting their minds and work together in order to achieve a culture in able to perform what no other competitor has, and at that point, human resources will be so significant that combined with the other strengths of Allflex, will be unmatched. As noted within the tangible asset analysis portion, the internal stakeholder survey that was performed to our supply and manufacturing colleagues brought up the question regarding their largest desire or biggest need for the company. As stated above, the largest desire and need for our Allflex products is the need of automation. While this is true, and automation is desired and desperately needed within multiple spaces of our organization, this also creates a different type of need for human resources. This doesn't simply mean that jobs will be taken by robots and less people will be required to work, it simply means that the human capital needed to run sustainable and profitable practices that meet the company goals and expectations, will have to potentially see a different type of human capital. For instance, as the Baton Rouge facility is receiving all new machines and the machines are able to automatically load themselves and remove the need for manual labor of packaging the actual product, the need of human capital may evolve from someone being on that line working 24 hours a day, to a mechanic that can help maintain and fix the machinery when something goes wrong. The automation of demand planning platform would mean that the amount of orders coming in is more accurate, as well as likely significantly more in quantity, which would increase the need for logistics and accounts payable resources, potentially even more sales reps. Finally, the increased amount of automation within our company will drive towards more success in the future of Allflex products, thus bringing more new products to market, growing our

R&D and quality teams needed. Within that same survey to our supply and manufacturing stakeholders, I asked the team what they thought our commercial team could be doing as we merged our companies, to help them from their manufacturing standpoint. The operations director verbatim stated for himself that the largest strength he sees within this entire acquisition is the amount of “boots on the ground” that our brands now have, which goes both ways. He’s excited about the amount of knowledge and credibility that Merck Animal Health employees had with their industry and their customers, and it will only continue to grow as we’ve now combined our portfolio with Allflex employees who, are too, well known for their credibility and knowledge of the cattle industry.

Figure 6.5: Relationship of Strenths vs. Weaknesses within Internal Analysis



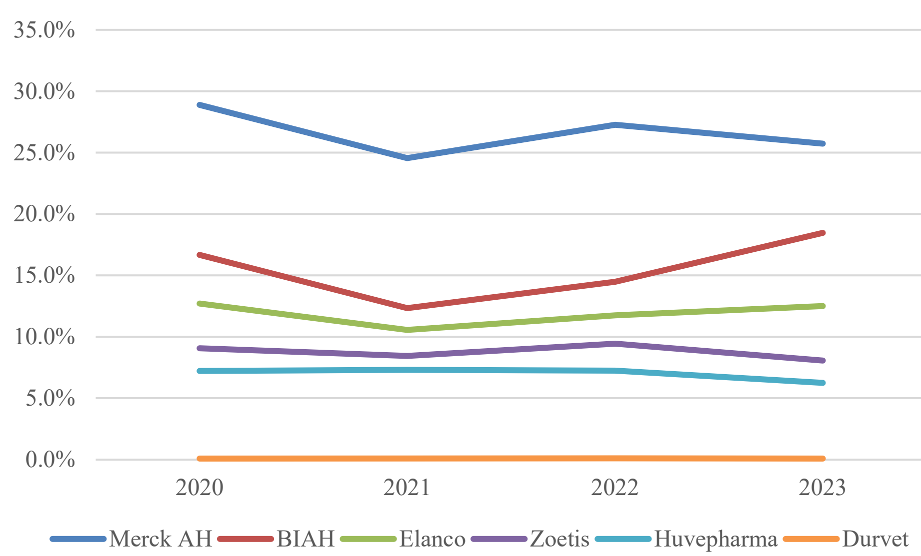
6.4 Capabilities

Finally, the last portion of the internal analysis we need to examine is the capabilities. The difference between a capability and a resource would be that a resource is something you have, while a capability is something you or your organization can or already do. Many times, a capability is something that has formed over time, whereas a resource many times can be purchased.

6.4.1 Sales and Marketing

Merck Animal Health is unique compared to its competitors in that it created the first-of-its-kind retail team long before this aquisition. No other animal health company has created a dedicated team to the retail and e-comm space. In the early 2000s, Merck Animal Health built out a team that was dedicated to "resellers", those that were buying product from a distributor and reselling it, but did not hold a DVM or pharmacy license. This has become a huge advantage of Merck Animal Health over its competitors. The advantage that it provides is it allowing the cattle and equine and companion animal reps to focus on producers and vets, while allows the retail reps to specialize in the dealer market, but most importantly focus on the fleet stores. This has severely paid off, as most of the time fleet stores have a centralized buyer and corporate office, and rather than multiple geography reps calling on a store franchise, a Merck Animal Health retail rep is assigned and can create a deep relationship with the buyer and leadership. This has proved successful as Merck Animal Health is now the marketshare leader (dollars) as it competes vs. the other major animal health companies, in most major markets, as seen in Figure 6.6 below. As referred to in the human resource analysis, the sales and marketing forces for Allflex products will be a superior strength versus their competitors. The Merck Animal Health marketing team will have a dedicated marketing resource for just Allflex identification products, as well as a retail-specific marketing specialist, and an e-commerce marketing specialist. In regards to sales, Merck Animal Health plans to deploy it's entire ruminant salesforce of 125+ (including sales, national account managers, and technical service). All of these professionals come from, and belong in the cattle industry, and are considered experts within their respective fields, and will be fully trained on all Allflex products and specialty items. Merck Animal Health also plans on deploying it's retail-specific team, which is a resource that many of it's competitors do not have, as these reps are strictly responsible for fleet-based retail, and can work with buyers and marketing professionals from some of the largest store-count retailers in the US. A very large capability of these sales and marketing professionals is their tenured experience, within this industry, and the cattle industry as a whole. The average Merck Animal Health tenure for our cattle sales team is over 10 years, with multiple sales regions averaging over 20 years.

Figure 6.6: Marketshare by manufacturer within Fleets (2020-2023)



Source: (Animalytix 2023)

6.4.2 Distributor Relations

A crucial portion of our success to service our customers, both retail stores and cattle producers is ensuring that product is delivered accurately, on time, and at an appropriate cost. We must ensure that these three things are held to high standards, otherwise we run the risk of Y-Tex, Z-tags or another smaller brand treating our customers to a higher standard and winning their business, even while having a lesser-quality product. Distributor partners can be a definite advantage to help, but can hurt you even more than they can benefit, as their sales teams are so large, and a lot of times, are the actual order takers and sales reps that smaller customers see on a regular basis. Our relationship with distribution partners though our biopharma business is strong, and will continue to be strong as we continue to offer these quality products at a great margin for them and their sales reps, so that they can bring these products into their warehouses and then sell them to meet their goals and territory needs. Pairing the capability of great distributor relations with the resource of great brand relevance, will continue to be a great trend for Merck Animal Health's Allflex line as it continues to expand within new markets.

6.4.3 Supply and Manufacturing Leadership

Quite frankly one of the most crucial parts to running a business is not only having supply, but also being able to manage it. When it comes to supply chain management, Merck Animal Health has recently stepped up the initative to incorporate this capability into creating a strength out of it, as it's severely important. Within the recent twelve months, Merck Animal Health has re-organized the business to direct expertise and experienced leadership to many crutial roles, including supply chain management and manufacturing capabilities. Staffing of our new India facility, as well as our new Baton Rouge facility was strategically hired in order to ensure we had plenty of "support" roles, such as supply management and procurement within house. In Dallas, our largest and most diverse facility, we brought in our most experienced business-unit head to manage the site, including an entire newly built supply management department, which is made up of professionals with many years, and multiple industries worth of experience, most, if not all, of these supply chain professionals speak multiple languages in order to communicate with our manufacturing sites outside of the United States.

6.4.4 Supply Management and Demand Planning

Supply and demand planning are another tangible asset that are crucial to Allfex success. While we look at certain skus and products, Allflex is in a great spot, however, there are many top products that the demand far exceeds the supply. Though much progress has been made to the backorder situation, and many measures have been taken to get Allflex product supply back on track, there are still many constraints. Much of the shortfalls for Allflex supply come from two causes: lack of demand planning and outdated systems. What makes supply and demand planning a major weakness for Allflex is primarily the outdated and obsolete way of working that Allflex is very familiar with. This is a large reason why Allflex never ventured into the retail space to expand, as they didn't have the capacity to really expand to a ton of new customers nor new volume. This is especially true, as we know that the retail shopper persona is primarily a cow-calf, or small stocker producer, and thus likely shopping for blank tags or pre-numbered tags under 200. This is the primary supply concern that Allflex has and is putting a much-needed emphasis on fixing, prior to chasing new business. Our new India facility will help alleviate the supply shortage, while also building up a stock supply in order to have plenty in-warehouse for any sized order. However, the majorly large weakness of this tangible asset, which cannot allow Allflex to proceed very far without fixing, is the outdated systems and demand planning processes.

Within an internal survey to our manufacturing and supply chain leadership, the question was posed what they saw as the largest weakness to their department. All of the answers of the five colleagues had to do with the demand planning software. Three employees stated that the company's ability to perform tasks quickly or with flexibility was nearly impossible, thus creating a much larger lead time and with many more time constraints. The other two colleagues stated that minimum order quantity was a large weakness of the company, which again tied in with the ability for demand planning, or lack thereof.

Allflex has run very much like a small business for years, much of their orders were handled on a one-off basis and they would just take a submitted order, put it in manually, and ship it out with nothing more than a paper trail, which then at some point just turned into an excel document. Allflex underwent the transition to ATLAS, Merck Animal Health's order SAP system, and have experienced many issues since. Many of the systems are not yet talking to eachother, and there's still a manual component to the process, whether ATLAS is involved or not, however, we're still learning how to navigate these systems with custom (printed or specialized numbers), as the system doesn't pick them up as finished goods and therefore doesn't allow us to streamline the process once it comes in. Thus, for Allflex and Merck Animal Health to launch this go-to-market strategy and for us to have it successfully implemented, we really need to have our demand planning systems up and running, and we need our EDI sales reporting systems to be functioning fully. Within our survey presented to supply and manufacturing colleagues, I asked what resources were most needed and if they could add anything – the answer among all of them was: automation. The automation of manufacturing, the automation of our ordering systems, and most importantly the automation of our demand planning systems. Thus resulting in our platforms and systems as our entirely greatest weakness as a company.

CHAPTER VII: STRATEGIC ISSUES SYNTHASIS

7.1 Core Competencies and Competitive Advantages

Within the core competencies and competitive advantages we want to examine and understand from our above analysis, which resources and capabilities are strengths to us as Merck Animal Health, and what we are doing exceedingly well. Once identified, we'll apply the VRIO framework to determine which resources and capabilities can be a source o of competitive advantage by being valuable, rare, iminitable, and if the company is organized to capitalize on the potential competitive advantage.

The core competencies and competitive advantages that are analyzed are: the superior product that Allflex has to offer it's customer compared to competitors, the synergies and combined-offering that can be offered as Allflex is now a brand under the Merck Animal Health portfolio, the brand reputation that Allflex holds within the cattle identification market and lastly, the retail team structure, expertise and relationships held by Merck Animal Health.

7.1.1 VRIO Framework

The VRIO framework or model is a tool that helps organizations analyze their resources and capabilities to identify potential sources of competitive advantage. VRIO looks at competencies through the lens of four characteristics:

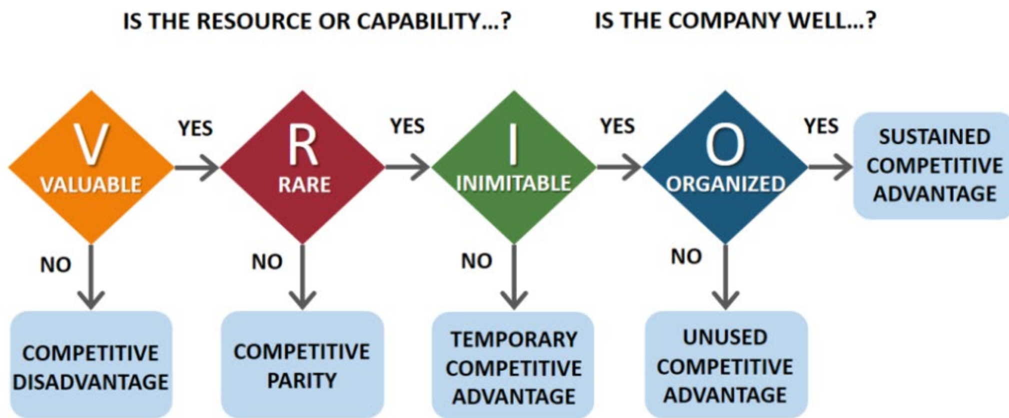
Valuable: Is the resource/capability valuable, is it earning the company money and would the organization perceive that resource/capability to be profitable and crtitical to its success. If a resource is not considered valuable, then possession of that resource would be considered to be a competitive disadvantage.

Rare: Is the resource/capability rare, meaning that how many others have it, is our organization special because we have access to it, and others are unable to. If the resource is valuable to the organization, but is not rare, then it would be considered a competitive parity, meaning that it can still be successful for the organization, but is likely not considered a competitive advantage.

Iminitable: Although much success can still be had for an organization that has a valuable and rare resource, this concept would demand long-term competitive advantages. This element is examining how hard this resource would be to imitate this resource. If a resource is valuable to the organization, is condered rare to the point where only they or few firms can obtain it, and is not difficult to imitate, then the resource would be considered a temporary competitive advantage. If a resource/capability is valuabe, rare, and difficult to imitate then it can be considered a source of long-term competitive advantage.

Organization of the firm or company: the resource, no matter its value, rareness or inability to be imitated, isn't considered a comptetitive advantage unless the organization is in a state where they can execute correctly and accurately promote and relay this resource to customers. If a resource has met the value, rare and uniminitable measures, but does not meet the organization-wide support criteria, it would be considered an unused competitive advantage. If it meets the criteria of all four elements, it would be considered a sustainable competitive advantage.

Figure 7.1: VRIO Framework Explained



Source: (Bruin 2016)

7.1.2 Competitive Advantages Explained

Of the four competencies examined, we determined two of the four to be sustained strategic advantages, one to be an unused strategic advantage and one to be a temporary competitive advantage.

When it comes to having the superior product offering compared to competitors, Merck Animal Health's Allflex line has a temporary competitive advantage over it's competition as it is very valuable, as well as rare, however, the product is superior due to it's molding and it's contents. As we talked about in the internal analysis and discovered throughout the market research, the primary reasons that Allflex is considered to be more quality of a product is because of its thickness and its laser marking compared to Z-Tags and Y-Tex. Both the thickness of the tag, neck, as well as the way that it's lasered and filled with ink are things that are not specifically protected by Allflex products. If Y-Tex or Z-Tags wanted to change the thickness of their tags, or ink their laser markings, they certainly could, thus, Merck Animal Health's competitive advantage is considered temporary when it comes to superior product quality.

However, the synergies between Merck Animal Health and Allflex to merge their business' to have one large combined-offering of identification and biopharma was determined to be an "unused strategic advantage," due to the fact that our organization is still lagging the platforms that merge the two company's data. Once this has been completed, this competency would be considered a sustained strategic advantage, as an offering with a biopharmasutical company would be something that neither of the other competiors would be able to imitate, would certainly be rare, and provides much value to the organization that is running this effort as they can tie their novel and well-known products to a very well-known and respected brand such as Allflex for a successful combination.

A very sustained strategic advantage of the Allflex product line is it's "Brand Reputation within the cattle identification market." Allflex products are known as the most reliable, most durable, have the widest selection for producers' needs, and are simply the #1 preferred brand when it comes to cattle identification. Our VRIO analysis checks out with exactly what our external survery showed us, summed up in Figure 6.1 and Figure 6.2. Figure 6.1 shows that when producers were asked of the three identification brands (Z-Tags, Allflex or Y-Tex) which would be their first choice and which would be their second choice. As we can see, Allflex was picked "first" 42% of the time, 4 points higher than the competitor who followed. In figure 6.2, even more apparent is the data showing that producers prefer Allflex over the other two brands, by an average of 14 points before the second-place brand. This figure shows that Merck Animal Health's Allflex line is the premier brand that producers desire. Within our VRIO analysis, we already can tell that brand reputation is valuable to our company, as we see in Figure 6.2 we know it's rare, it's important to realize that this data is summarizing years worth of experience of cattle producers, so it's not easily iminitable, and our organization takes this data very seriously when catering to the producers that we know are well-versed and very trusted. It's imperative that we use this sustained strategic advantage to its full potential as part of the marketing strategy going forward. We should be reminding our producers that our brand is the most-trusted and highest retained and largest selection of its industry, whenever the opportunity arises.

Lastly, as you see below in Figure 7.2, our last advantage that was analyzed was the Merck Animal Health structure and experience within the Retail Segment. We determined, via VRIO, that this is a sustained strategic advantage, and will continue to be one of the most crucial portions of our plan going forward. This strength and strategic advantage is the way that Merck Animal Health has its human resources aligned in order to best service its customers. At Merck Animal Health, a completely separate division was created in the early 2000s, as part of the "strategtic business channels" division. This team was created to specifically service the customer base that is Ag Retailers, made up of corporate fleet stores, large or local feed mills, mom-and-pop dealer stores, and any other non-DVM reseller of animal health products. This was a novel concept within this industry, and still to a point continues to be. Merck Animal Health has provided the support and the resources to this "experiment" and it has continued to pay-off. This is certainly a valuable portion to Merck Animal Health, as they have seen double digit growth through, and prior to 2020. This is a rare resource, as no other competitor in the animal heath space has a retail-created space. Due to the risk that Merck Animal Health took in the early 2000s when assigning a large team of individuals, as well as financial resources, we believe that this team is now considered to not be imitated, as the years worth of experience, and the top talent within this industry, and the deep 17+ year relationships have all been implemented. There are also no other animal heath companies that Merck Animal Health competes with, that have an identification line, therefore this “combined-offering” is unable to be mimicked. This strategic advantage will be the “bread and butter” of the marketing strategy going forward. As each competitor seems to have their own markets and nitches, Z-Tags being feedlot, Allflex being daries, and Y-Tex succeeding within the non-confined and retail segment. With the ultimate goal and objective of this product-line addition being retail expansion, we will certainly be creating this marketing strategy to be built around our retail team, leveraging the relationships, expertise, and of course the rest of our biopharma product line, to hopefully service our customers with the most knowledgeable, the highest profits, and the simplest way to do business.

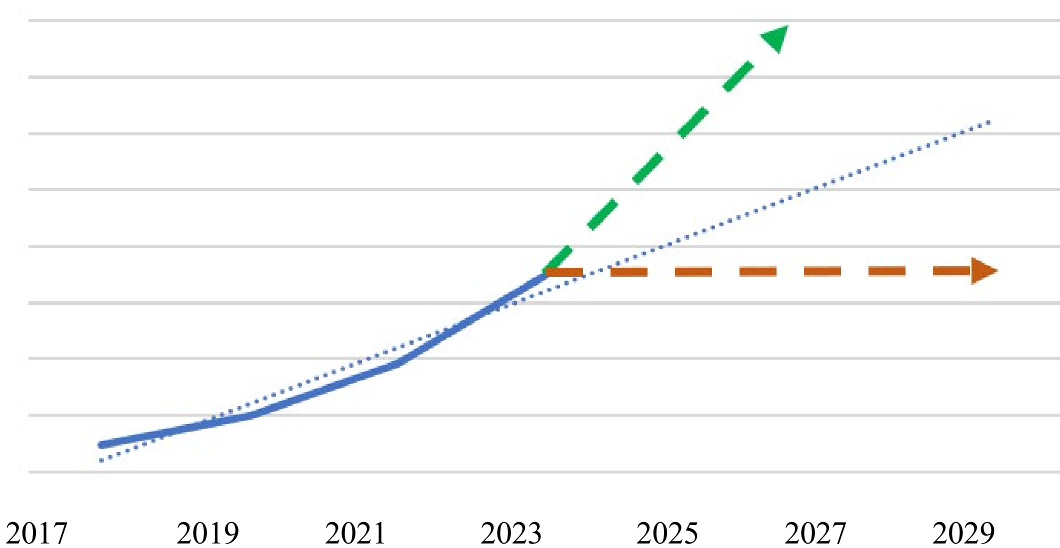
Figure 7.2: VRIO Analysis of Merck Animal Health’s Strengths

Resource / Capability	V	R	I	O	Outcome
Superior product in regards to quality	X	X			Temp. Competitive Advantage
Synergies with Allflex & Merck Animal Health being one combined-offering	X	X	X		Unused Strategic Advantage
Brand Reputation within the cattle ID market	X	X	X	X	Sustained Strategic Advantage
Merck Animal Health retail team structure, relationsihps and expertise	X	X	X	X	Sustained Strategic Advantage

7.2 Future Scenarios

As a baseline for fundamential growth, and future scenarios of revenue, we looked at historical revenue for the Allflex brand, and utilized a trend line to understand what a good non-interrupted forecast would be. However, the two extreme scenarios, both positive and negative, would represent the best case scenario, which we consider to be the leap frog, and the worse case scenario, decline. These are visualized in Figure 7.3, as we can see the assumption of leap frog growth with the green arrow, and the decline in orange. With the large increase of population and substantial need for cattle identification we analyzed in our STEEP analysis, we would consider anything flat to negative to be worst case scenario. Anything in between the leap frog scenario and the decline scenario would be considered progress, but should be adjusted for goal setting and forecast expectations.

Figure 7.3: Revenue History and Forecast (+/- 5 years from 2023)



7.2.1 Leap-Frog Scenario

When looking into the possibilities of a leap-frog scenario we have to understand that for this success to happen, we have to deeply understand our strengths and utilize those strengths to best of our ability to take advantage of as many opportunities as possible. With this combination of the two successes, we can assume that our revenue forecasts, sales numbers, and marketshare will all be experiencing the leap-frog looking assumptions.

A good example of utilizing our strengths and achieving our opportunities would be to utilize our retail-specific team at Merck Animal Health to tap into Ag Retail fleets and dealer stores, who do not carry Allflex currently. This would be possible, as a large opportunity in this industry, as we refer back to our external analysis in the STEEP diagram, was the amount of growth and expansion that the beef industry is expected to see in the upcoming years, and with no substitute products, the demand for cattle identification will continue to rise. By utilizing our retail-specific team, which is rare and unique to Merck Animal Health from a biopharma perspective, we can leverage our already-deepend relationships with customers, and also leverage our company resources financially to pair or bundle these identification products with their already-stocked dewormers, vaccines, implants, and other animal health products they're used to.

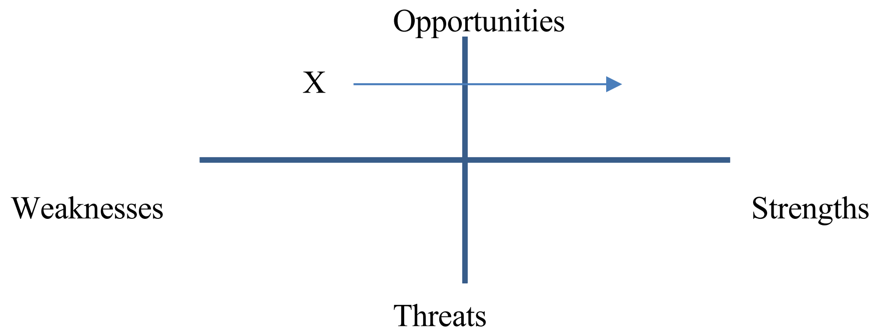
7.2.2 Decline Scenario

On the flip side, when the perfect storm goes the wrong way, and weaknesses are shaken by threats within the industry, we may see the decline scenario play out. This would be when a major weakness of Merck Animal Health's such as the supply and demand planning of the business is unable to make the necessary changes needed to have adequate supply. With inadequate supply, retail stores will be unwilling to bring in Allflex product, as they are unsure how steady their supply will be, and don't want to be giving their loyal customers whiplash when it comes to switching brands often, and also want to be a reliable partner for them to obtain their animal health products. This weakness, combined with a threat such as the deep rivalry among competitive firms (from our Porters Five analysis) would mean that retail stores would either stick with their current ear tag provider, or would switch back to a competitor if we were unable to provide adequate supply. This is crucial, as many customers have already experienced this from Allflex products, and therefore, if convinced to bring the product back in-store, they likely will not give a third chance if they remove it again.

7.3 Strategic Direction

As said in objectives section, we want this industry analysis to help fuel the next two steps to our go-to-market strategy. This section is a visual and explanation of the direction in which we should be focusing our marketing strategy and efforts. As you can see below, after weighing out all of our strategic strengths, weaknesses, threats and opportunities, it's apparent that while our strengths outweigh our weaknesses quantity-wise, the weaknesses have a very large weight when it comes to future success. Thus, it should be stated that our go-to-market strategy and launch should keep the progress of the supply and demand planning situation in mind. If the state of supply planning and demand forecasting has not improved by the time of roll-out, the go-to-market strategy likely needs to be strategically targeted to specific areas of the country, to specific classes of trade within the retail segment, or held off until more improvement is made, unfortunately.

Figure 7.4: Marketing Efforts Directional Plan



7.4 Strategic Issues

7.4.1 Leveraging Brand Reputation for Brand Recognition

As stated in the above strategic advantages analysis section, 7.1, we intend on completely leveraging our success with our brand reputation within our marketing strategy as we expand into the retail segment. However, we realize that this is not a market in which Allflex has historically competed in, or at least put much resources or efforts behind, thus, we may have some segments that are unaware of Allflex' brand strength and reputation, and potentially brand recognition at all, as they are likely familiar with Y-Tex, as it is the prevalent retail and feed store brand. As part of our go-to-market plan and strategy, we will intently be creating educational pieces, both for store associates, as well as retail shoppers to help them understand the differences in the two products, and why they should be going after Allflex, which would be considered the premium brand vs. Y-Tex. The data and findings that we found in our external survey, combined with the industry knowledge will give us the content needed for these educational pieces. Firstly, we'll use the data from our external survey, (M/A/R/C Research 2022), to showcase how 81% of producers think that Allflex is the higher visible, easier to fade brand over Y-Tex (68%), and that 78% say that Allflex stays in place, (16 points higher than Y-Tex), and also that the Allflex tag is considered to be much more durable and resistant to break (78 vs. 64) than Y-Tex. Pairing all of these quantititative responses with the industry knowledge of how crucial it is that identification be accurate and reliable on the animal, and the shear frustration that producers have when identification doesn't last or retain – we believe that a store associate and also a cattle producer could be shown the premium and trusted choice. Considering that Allflex is usually within the same price range, or within $0.10/tag on average, we believe that we can show producers that the additional $2.50 per bag ($0.10 x 25 tags) can save them from having to re-tag those cattle. The form of these educational pieces will be within point of purchase materials for the customer, being merchandising at the planogram, as well as social media and ecomm resources for customers who may shop or browse on their electronic devices. When at the store, we intend on creating resources that will be at shelf alongside the competitor product, calling out our product strengths, such as swivel technology and thickness compared to competitors, to help them see the differences in our products, once again using those temporary and sustained competitive advantages for the Allflex product brand.

7.4.2 Utilizing Experience, Relationships and Porfolio to Increase Sales

Helping our retail customers understand our unique offering is certainly crucial in our combined-offering success. As stated in the above VRIO analysis, we have a strong competitive advantage when it comes to the way that our retail team is structured, and it's something that our competitors have attempted to create, however, we continue to build our over the counter portfolio, and Allflex cattle identification products are no exception. The overall objective of Merck Animal Health acquiring Allflex in 2019 was to grow the portfolio and focus on being a one-stop-shop for cattle producers. Within the retail segment, we believe that this is the perfect example of this. As our BOVILIS® cattle vaccines, our RALGRO® calf implants, and our SAFE-GUARD® cattle dewormers are considered staples within the ag-retail market, it's exciting that ear tags and other cattle identification can become part of that trusted portfolio of great products. This would be explained and communicated to these customers by way of our extremely experienced and trusted retail team, which has helped Merck Animal Health to become the market leader within cattle products in the fleet space, via Animalytix. We believe that our efforts with this team have created the trust and retationships that will allow us to bring the Allflex products to the table next time they're interested in learning about our new products. By training and educating our sales force, we're able to act as an all-in-one expert on cattle health for that animal health aisle, as we continue to expand our product line from vaccines, dewormers, external parasite control, antimicrobials, implants, insecticide tags, and now cattle identification. Not to mention that Allflex line also comes to Merck Animal Health with syringes, non-cattle identification tags, EID and monitoring as well as tissue sampling equipment, relating back to the substitute and complement analysis in Porters Five Forces, all acting as strong complements to the Merck Animal Health vaccine and dewormer portfolio. It should be noted that Merck Animal Health should keep an eye on brands such as Ritchey and Temple Tags, as they are currently not invested within the retail segment nationally, as things progress the marketing team should be aware that they may have new competitors within this class of trade in the next few years. All in all, once our sales force is educated, and compensated, on Allflex' identification line, they will be seen as even more of a credible source within those buyers and store manager's eyes, followed by increased sales and shelf space.

CHAPTER VIII: CONCLUSIONS

8.1 Conclusions

The main objective of this thesis was to analyze the market of cattle identification, to learning and deeper analyze the major competitors and products, the suppliers, as well as the consumers and their needs. Through this research, we were able to analyze the practices and future outlook, as well as the strengths, weaknesses, opportunities and threats that our company, as well as the other competitors in the space, may experience. The purpose of this thesis was to develop a market analysis of cattle identification, which will now serve as a basis and inform the process of developing our marketing strategy including go-to-market strategy and implementation. This thesis also helped generate research insights aimed at informing the marketing strategies of Allflex brand of cattle identification products in the retail market in order to grow its presence within the ag-retail sector.

There were multiple methods used within this analysis to analyze the internal factors, external factors, and create a strategic issues synthasis. For the internal portion of our analysis, we utilized our current resources and capabilities, using knowledge of internal documents, we also provided a survey to internal subject matter experts. For external, a STEEP analysis was created, as well as a Porters Five Forces model, and another survey to third-party stakeholders.

The limitations that we experienced were mostly related to lack of data and research. Through many findings, it was extremely difficult to find other research or articles that had been performed on the visual identification market. Much of the research performed and articles written had been focused on the electronic identification market and the transitision from visual ID to EID. We also noticed that our internal documents were the only way to find company performance of any of the main three competitors analyzed, as all three companies, prior to the aqusition, are not publically traded. We even experienced some delays and limitations with internal data needed to draw conclusions, as two companies were merging and many systems didn't merge or read consistently. This took some manual work, as well as some patience for the EDI feeds to merge.

The key findings of this thesis showed us how extremely reliable and ahead-of-its-competitors the Allflex brand is. Through this research, we determined that cattle producers believe Allflex is a superior brand to its competitors, and are willing to pay more for its durability and its reputation. Combined with the clear competitive advantage of now being owned by a large player in the animal health industry, Merck Animal Health, who also brings its own team of retail-specific experts, the Allflex brand is part of a very bright future, pending that Merck Animal Health repairs its major weakness, supply and demand planning.

The next steps, after having a clear understanding of the cattle visual identification market, would be for Merck Animal Health to take these insights and findings from this study, and implement a marketing plan to launch this brand into a large nation-wide campaign to take retail marketshare. Through the findings from this research, our marketing efforts will entail strong pushes on our superior product, the extreme competitive advantage of reputation, and the synergies with our other products which are also trusted to help promote successful herd management. By utilizing our retail experts, and our already-trusted product lines, Merck Animal Health can better support the retail segment, as well as the cattle producers within the US by making cattle health and ranching needs a one-stop-shop.

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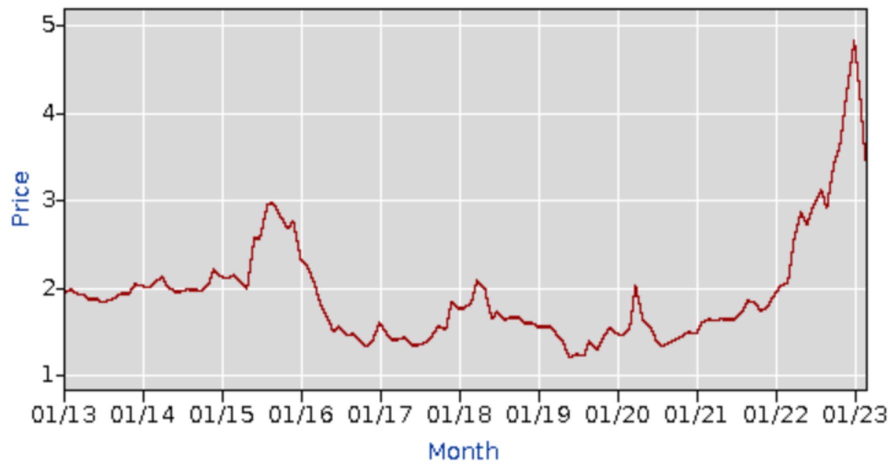
APPENDIX A:

A1:

Data extracted on: May 1, 2023 (7:32:47 PM)

CPI Average Price Data, U.S. city average (AP)

Series Id:	APU0000708111
Series Title:	Eggs, grade A, large, per doz. in U.S. city average, average price, not seasonally adjusted
Area:	U.S. city average
Item:	Eggs, grade A, large, per doz.



APPENDIX B:

The following questions were asked as part of our external third-party market research survey performed by M/A/R/C:

1. Which of the following describe your operation?
2. Excluding heifers, how many head of brood cows do you have in your operation? (Cow/Calf)
3. How many stockers/backgrounders in total will you graze this year? (Stocker/Backgrounder)
4. What is the one-time capacity (number of head) of your feedlot operation? In other words, how many head of cattle can your operation accommodate at one time, even if your feedlot does not have that number of head currently. (Feedlot)
5. Excluding heifers, how many milk cows do you have on your operation? (Dairy)
6. How familiar are you with each of the following brands of cattle identification tags and/or tagging/monitoring systems?
7. To begin, please indicate your experience with each of the following cattle identification tags and tagging/monitoring systems?
8. How much do you **like/think you would like** each of the following brands of cattle ID tags and/or tagging systems?
9. How well do you think each of the following brands of cattle ID tags and/or tagging systems **meet/would meet your needs**?
10. How **unique** do you feel each of the following brands of cattle ID tags and/or tagging systems are?

11. Overall, how would you describe the **value for the money** each of the following brands of cattle ID tags and/or tagging systems provide?
12. How much do you **prefer** each of these compared to your most preferred **brand** of cattle ID tags and/or tagging systems?
13. How familiar are you with each of the following brands of cattle identification tags and/or tagging/monitoring systems?
14. How much do you **like/think you would like** each of the following brands of cattle ID tags and/or tagging systems?
15. How well do you think each of the following brands of cattle ID tags and/or tagging systems **meet/would meet your needs**?
16. How **unique** do you feel each of the following brands of cattle ID tags and/or tagging systems are?
17. Overall, how would you describe the **value for the money** each of the following brands of cattle ID tags and/or tagging systems provide?
18. How much do you **prefer** each of these compared to your most preferred **brand** of cattle ID tags and/or tagging systems?
19. How much do you agree or disagree that the statement below describes [brand]?
20. You will see some brands of cattle ID tag and tagging/monitoring systems, two at a time. Taking into consideration anything you know about the brands, please divide 11 points between each pair based on how much you prefer one brand versus the other brand.

> You can divide the points any way you like; just keep in mind that the two numbers you assign to the brands in each pair must add to 11. Always give the brands you prefer, for whatever reason, the larger of the two numbers.

(Just keep in mind that the two numbers you assign to the brands in each pair must add to 11. Always give the brands you prefer, for whatever reason, the larger of the two numbers.)

The [first/next] pair of brands is [__________] and [__________].

How many points would you give to [__________]?

And, how many points would you give to [__________]?

APPENDIX C:

The following questions were asked as part of our internal survey performed to Site Leads, Manufacturing Leads, Supply Chain Directors, procurement professionals, and operations:

1. What trends are you seeing in supplier and procurement relationships?
2. What do you think is Allflex' largest weakness when it comes to suppliers / "raw goods"
3. What is the outlook / biggest need in investments (equipment, financial, human, etc.)
4. What can Merck retail / cattle team do to best assist the operations and supply team in Dallas and other sites as they create a retail strategy?
5. What are some other major opportunities and threats faced by Allflex from the manufacturing and supply chain management perspective in your opinion?