



WPI

Ice Hockey Coaching Device Design, Marketing, and Feasibility Analysis

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Abstract

We concluded that a hockey coaching tool could be designed for mass market use. A business selling this product would become profitable, but not at this time. The groups analysis of the market showed that coaches would adopt the product over current coaching tools. Our analysis of the feasibility, however, revealed that the necessary business infrastructure to support manufacturing and sale of this product does not exist at this time. We recommend the inventor patent the product then build a prototype. Later, through licensing with business partners that have adequate manufacturing facilities and distribution networks, our client could make money.

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Executive Summary

Acting as consultants, this group wanted to determine if a new product could be profitable.

After reading Professor Schaufeld's book *Commercializing Innovation* we determined that an analysis that examined the feasibility of individual aspects of the new product would give the most accurate representation of the product's potential economic value. We used Schaufeld's "Model for Commercialization" (Appendix G), a visual representation of this model. The analysis is a series of considerations that will give our client a way to determine the feasibility of the project, the goal being to give the client the most accurate vision of the future project, whether it is positive, or negative.

This product idea is currently in what Professor Schaufeld called the "Vision" phase. This is where work begins, establishing product goals and business goals. The next step in analyzing our client's business venture was a feasibility analysis. In this step, ten key factors of the project were analyzed for individual feasibility, and then assessed as a whole. The dimensions of feasibility considered were "technology", "economic", "legal", "operational", and "market". Professor Schaufeld explains there are three essential conclusions, you can "abandon", "commence" or "hold" a project. Our conclusion was that this business venture in fact had potential, but lacked an existing corporate infrastructure. In the "Project Plan" section, named after the fifth chapter in *Commercializing Innovation*, the group discusses the business activities that would need to accompany the product development and rollout. After considering the potential revenues and assorted risks, we believe the business venture could be a strong investment opportunity.

1 Introduction and Problem Statement

The product idea was originally created 18 years ago by Mr. Jamie Magarian a semi-professional hockey coach, which he had nicknamed “coaching paint”. As a hockey coach he noted many issues coaching players; primarily, he would explain a play or drill, and his players would not understand. There are products, such as cones or dry-erase boards that currently aid in the visualization of plays; we have analyzed their limitations. The project has been an analysis of the feasibility of Jamie Magarian’s idea, and whether or not it could realistically compete in this market. In creating a method of determining this feasibility, the group turned towards the writings of WPI’s own Professor Schaufeld. He describes the process of determining feasibility of a project and acting upon it as a series of “gates” that are completed sequentially. The product “coaching paint” has the “vision” of a potential product, meaning it has potential as a product in the competitive market. Then, this group analyzed the feasibility of this project, using an analysis of several key business considerations to answer three essential questions. “Are we ready?” “Are they ready?” and “What if neither is true?” The group found that the project was mostly feasible, but would be more feasible in the near future, so the group recommended to “hold” the project due primarily to a lack of established corporate infrastructure. The group also discusses business activities the hypothetical business venture would need in order to make a profit.

2. Methods

Our MQP team used numerous methods in researching and preparing this feasibility report.

Microsoft Excel was used to track and graph the market data collected from sites. We collected pricing data using retailer websites, these included Pure Hockey, Alibaba, Michael's, Buttendz, Fox40 and TruMark. Organizations like USA Hockey, USHighSchoolHockey.com and U.S. Hockey Report provided detailed regional data on coaches. Library resources used to form initial impressions included Statista, IBISWorld, The CRC Handbook of Chemistry and Physics, Lange's Handbook of Chemistry, and Marks' Standard Handbook for Mechanical Engineers. We used the method of "value-based pricing" discussed by Professor Schaufeld in his book, *Commercializing Innovation*. We also used the TELOS Feasibility Model to analyze the feasibility of the product, detailed in Professor Schaufeld's book.

2.1 Research

Professor Schaufeld's book *Commercializing Innovation* was an important resource in the overall strategy of how to examine an innovative product idea. The book, especially the chapters entitled "Feasibility Analysis" & "The Project Plan" became integral in the project. Most other resources were found through internet searches and the databases provided by WPI's Gordon Library. USA Hockey publishes their yearly registration numbers, we were able to get exact numbers on registered coaches, players and parents. United States High School Hockey Online (ushsho.com, 2017) and U.S. Hockey Report (ushr.com, 2017) provided data on the number of coaches involved at different levels and states; the site tracks all high school, prep school and junior hockey in the United States. There were multiple other sites that provided important customer data. Pure Hockey was a major resource for the current pricing of equipment within the hockey market. Other research was done at retail store locations, to get pricing and product categories.

2.2 Interviews

- Coaches

Seven coaches were interviewed for this project; they ranged in age from 34 to 57 in the age. We attempted to see if they did in fact have a need for a visual coaching tool. The players ranged in the age group and skill level that the interviewed coaches taught at, (Figure 2). From the interviews the group got data on the customers need for the product. Furthermore, the coaches described the specifications the final product would need to exhibit for them to consider using the product. The interviews were instrumental in realizing the structure of the team or organization that the coach volunteers or works for. It became clear that the market is broken into two sections. First, are the coaches that volunteer to coach their kids in their free time, who buy and maintain their own equipment. Second, there are also the coaches that are under salary, who have their equipment paid for and taken care of by their employer. USA Hockey's Paul Moore, the Massachusetts district Coach-in-Chief, exchanged emails with the group about what exactly being registered as a USA Hockey coach means.

- Todd Keiller

Todd Keiller is the Director of Intellectual Property and Innovation at WPI. The group interviewed Todd about the legal issues surrounding the product. He also explained the process of "Tech Transfer" at WPI. Lastly, he outlined resources that WPI offers to innovative ideas, resources like WPI's TAN program, MQP's and design classes. The resources could be used to get the idea of coaching paint to a place of profitability.

2.3 Personal Experience

Conor Crowley, one of the group members, has played hockey for 21 years, and has acted as a referee for 3. Part of the information presented in this report is based on knowledge gained from a love of the sport, a deep understanding of its institutions, players, and, more importantly for this project, its coaches. The information that comes from personal experience will be presented as such.

3 Feasibility

3.1 Technology Considerations

3.1.1 Chemical Considerations

Using Lange's Handbook of Chemistry's table of azeotropic mixtures, the group found an azeotropic mixture that satisfies our requirements. The mixture will contain 95% n-Pentene by weight, and of 5% ethanol by weight (J.G. Speight, 2017). The group calculated the cost of the pigment. In 2013, Crayola released a "make your own marker" playset. In the playset, they specify that the capacity of a refill is one fluid oz (Crayola 2013). Prices for ethanol were derived from Nebraska's average rack price for high-quality ethanol (Official Nebraska Government Website 2017), and the consumer price for n-pentene was obtained from a Chinese distribution company (Alibaba, 2009). After using these factors to calculate the cost of 1 fluid oz of the medium, we found it would cost \$0.03 per unit. This medium is more expensive than water, but will allow us access to a wider variety of pigments to use in our ink.

When considering the risks in using this medium, the group found that this medium presents only a mild risk of being present in toxic levels when not specifically abused as an inhalant. Ethanol is toxic to mild degrees, but, will only be present in negligible amounts. When researching the toxicity of n-pentane, we find that it is particularly dangerous at high air concentrations. At the rate of evaporation that will occur from the marker of room temperature to the temperature at an ice rink there is little risk of health hazards resulting from the use of the product. To minimize risk to the consumer, however, this product should not be used in small, airtight places, similar to other paints.

Mixture	n-pentane	ethanol
By Weight	95%	5%
By Volume	96%	4%
Mole Proportion	92%	8%
Properties of Azeotropic Medium		
Boiling Temperature (Standard Conditions)	34.3 Degrees Celsius	93.7 Degrees Fahrenheit
Density:	.634 grams per milliliter	
Weight (per unit)	18.8 grams	
Price (per unit)	\$0.03	

Figure 1 - Table of physical and economic properties of marker ink medium (J.G. Speight, 2017)

3.1.2 Mechanical Considerations

This section considers the variables that will affect the products final specifications. The goal of the mechanical parts of the product will be to get a mark on the ice in a way that is seamlessly integrated into the equipment already used by coaches. Currently there are products that coaches use, examples are cones, white boards and film; there are also the physical methods, pointing to areas of the ice surface or physically standing or skating in an area. This section also discusses the two major variables that the group believes will affect the popularity of the product.

Part of this analysis included the researching the state of the art equipment coaches can use. There are products in the market today like cones and white boards that attempt to fill the lack of visual aid for coaches. We will talk about these tools later on as the coaches interviewed talked about them. None of the coaches we talked to use any kind of paint or marker on the ice. The group did find one coach online who said he has used both markers and spray paint in the past, that will also be discusses later.

Coach	League	Paid	Whistle	Cones	White Board	Film	Equipment		
							Stick	Glove	Stick
A	Youth (5-10 years old)	No	Lanyard	Light	Yes	No	Yes	Yes	Yes
B	Youth (5-10 years old)	No	Glove	Light	Yes	No	Yes	Yes	Yes
C	Youth (10-14 years old)	No	Glove	Light	Yes	No	Yes	Yes	Yes
D	High School (Freshman)	Yes	Glove	Heavy	Yes	No	Yes	Yes	Yes
E	High School (Varsity)	Yes	Glove	Heavy	Yes	Yes	Yes	Yes	Yes
F	Midgets (16-18)	No	Glove	Light	Yes	No	Yes	Yes	Yes
G	College (Division 3)	Yes	Glove	Heavy	Yes	Yes	Yes	Yes	Yes

Figure 2 – Data on what equipment coaches use during practice – Green: preferred option Red: Considered less Desirable

From talking to the coaches, it appears they use a variety of techniques to help them teach hockey. Table 1 is based off information attained by interviewing seven hockey coaches, 4 are

registered USA Hockey coaches, 2 are employed by Worcester county high schools governed under MIAA, and one college coach under the NCAA. The first column lists the letter we will refer to each coach by, refer back to Figure 1 if you see “Coach A-F” mentioned in the text. For information on the products discussed in Figure 1, refer to Appendix A. The second column explains what level of play they coaching at, with a note on player age or grade. Throughout Figure 1, the green cells are those of coaches that have the superior product in the category. The superior products were established by simply asking the coach which product they would prefer, if it wasn’t the one they already used. For example, all coaches but one attach there whistle to the glove, there was a consensus amongst all the coaches that it was the better option. Another example is the cones category, while more people used the lighter cone, the coaches agreed that the heavy duty is better. The third column denotes whether the coach is paid for their services as a coach; it is important to note here that this also meant these coaches had managers. We found that whether a coach has a manager or not affected equipment choice. In the fourth column, all the coaches do in fact use a whistle; this column notes how exactly the coach stores his whistle during practice. All but one coach use the Velcro strap that goes around a hockey glove. Next, we asked if the coach used cones in running practice, and they all responded that they did in fact use cones. The column is filled with whether they preferred heavy duty or light weight cones. The seventh column is the coach’s answer to the question, “yes or no do you use film to either review your own games or plan for opponents?” The last column, “equipment” is based off what player equipment coaches would wear during practice. All coaches said they wear their skates, player gloves and stick. They don’t wear any other equipment like knee or elbow pads and they don’t wear helmets.

Transportability

From the interviews done with coaches, it became clear that the equipment used by most coaches is similar. Looking deeper into the data it became clear that the differences in equipment was based more on circumstance than on choice. All the paid coaches had managers and/or assistants who

manage their equipment. They manage the team's equipment, typically cones, white boards, cones, and pucks that coaches use during practice. This affects the choice of cones most directly. Coaches who had to carry their own cones chose to use the lightweight cones. When asked about why he chooses cones Coach C commented:

“Well, I carry 30 or so pounds of pucks, skates, etc. in my bag to and from the rink. The heavier ones [cones] will add too much weight, my bag is already almost too heavy. If my son was older, maybe he could carry more, but he can barely get his own bag of equipment.”

The paid college coach interviewed, Coach G, had a different story when asked why he chooses the heavy cones. His team has a rink where they play all their home games and practices. The team rents a locker-room from the rink, this allows them to leave all their equipment at the rink. When asked about why he chose the heavy cones he said:

“The light [cones] are useless, the wind blows those over... I just leave these [pointing at the heavy cones] here and Lauren [the team manager] will have them ready for me before each practice. They [the heavy cones] stay in place better... when I was coaching for the Sharks [youth hockey organization] I had those [light weight cones] kids would knock them over every second.”

It is clear the heavy cones are better for what a coach needs them for. The nature of the team they work for affects all the equipment choices. When it came to the cone it was clear it is an essential part of the practices. The heavy cone was considered the superior product, yet only 3 of the 7 coaches were physically able to have the better product.

The total weight that coaches can carry is limited and some of them talked about already being at their maximum capacity. The ability to have the paint system built into the stick, would mean less a

coach has to carry. Coaches without manager, those who had to transport their own equipment, carried an estimated 20 pounds. The heaviest portion of the equipment was the pucks, most coaches had 30 to 50 with them at practices, and pucks each weigh six ounces. They also carry the cones, white board and their player equipment, like skates, gloves and stick. In order for the product to be feasible it must be transportable and the major factor there is weight. The product would have to overall add no weight to the average coach's equipment. Since coaches bring a stick already, the design would not have to worry about being too bulky.

Utility

In our interviews with coaches, two main themes of teaching players were explained that of communication and visualization. Demonstrations are an effective way for a coach to teach players. A coach and his assistant can role play and walk the players through their motions and decision making. While coaches are giving visual cues, they can be explaining what is happening at the same time. The players watching are seeing proper technique that they will attempt to replicate in their own play. An effective way to use this technique, is to do it right before a drill. This way a coach is role playing exactly what the players are about to do. While it is easy to demonstrate skills, it is difficult to demonstrate team play. The coach can physically only be in one place at a time, so they need to rely on visual cues to learn.

Coaches wear skates, gloves and sticks during practice so they can give these demonstrations. Coaching paint cannot interfere with a coach's ability to do demonstrations, since it is such an important part of teaching. In order to demonstrate successfully, a coach needs to be able to handle, shoot and pass a puck. The stick can't weigh much more than a normal stick which are typically 400 to 800 grams (purehockey.com, 2017). The stick will also need the correct shape, so coaches can hold the stick properly. The stick would also need to be durable. It is common for even the highest of quality stick to break, in an average NHL game there is typically a broken stick or two. In fact, it is so common for sticks

to break that nearly every player will bring two to three sticks with them to practices and games. For more explanation on the equipment currently used by coaches refer to Appendix A.

3.2 Economic Considerations

In his book *Commercializing Innovation* Professor Shaufeld describes the economic considerations as:

“Economic considerations rise to high priority in this analysis. The category reveals the underlying cost models that are based on Bills of Materials roll ups in case of tangible products and, in the case of services, Work Flow Models. They are certainly estimates but even at first order checks they help identify the feasibility of going ahead.” (Shaufeld, 2015)

This section aims to put a price on the remaining cost to get the product to market. The conclusion of this section is an estimate of the amount of money that will needed to be raised to fund this product. Startup companies typically accrue serious costs at the beginning, when their product isn’t producing any revenue (Appendix G).

Later we talk about what the operational feasibility of the product. We found there to be a need in the operation considerations. Jamie Magarian, the potential founder, has another full time job and doesn’t have a business background. The product will not move ahead without someone executing day to day strategy. Other costs include the chemical and mechanical design specifications which will need to be worked out before the product can be manufactured. This means a certain amount of investment before the product can make revenue. The work could take months and will need someone managing the progress. The group estimated this hire will cost about \$75,000. We estimated the second hire would need to happen right around the time of product launch. This person would need to be involved in customer outreach, using tools like social media to let the community know what the product is. Marketing will be an important business activity for coaching paint. A graphic artist that can design website, social media, packaging and product art will be important once the project is almost

ready to sell. They will need to start working about a month before the first products are ready to ship; this cost shouldn't exceed \$20,000. The company's social media will need to be constantly monitored, so it may want to retain the graphic artist later.

It was difficult to get a quote on how much design consulting work costs. The group contacted a number of consulting firms, none of which were willing to give a quote on a hypothetical product. Using online forums, we estimate it would cost roughly \$1,000 to get the paints' chemical properties tested (chemjobber.blogspot.com, 2017). The stick, hoses, lever and button design could cost up to \$15,000 based on rough estimates (Locascio, 2000). The group estimated the project will cost \$111,000. Accounting for some unexpected costs we estimate a startup will cost \$150,000.

Once operating, the product would have variable costs associated with the manufacturing of the product. From the chemical viability section, we see that the ink for one of our markers costs \$0.03 to produce. The average marker consists of a shell, typically made of plastic, which typically requires a machine to resin-cast, an internal ink well to hold the ink, a reservoir to hold the ink at the end of the pen, typically formed out of felt, and a cap, also made of plastic. In order to manufacture this pen, all of these materials must be manufactured and assembled. From looking at Chinese marker manufacturers retail prices, we can get an approximate price for the cost of manufacturing a marker chemically similar to the product ranges from \$0.12 a unit (for 10000 to 19999 units) to \$0.06 a unit for over 20000 units) (Madeinchina.com, 2015) Given that our pentane-ethanol solvent is roughly 100 times more expensive than a more conventional ethanol based ink medium (costing roughly \$0.03 a unit, rather than roughly \$0.0004 a unit,) it would be fair to price the production of these markers from \$0.15 a unit to \$0.09 a unit wholesale cost.

We also wanted to consider the variable costs of the stick; we made a best estimate, as no resource we checked offered legitimate data. The best estimates were that a stick costs \$10 to

manufacture. From the mechanical considerations, we can estimate the stick will most likely be made from titanium. Titanium can be purchased for \$3.46 per kilogram (Invest Mine, 2017). The weight of 1 stick is 500 grams; \$1.73 per stick in titanium. Plastic tubing costs a cent per inch (supplyhouse.com, 2017), the cost for tubing won't exceed 30 cents. The stick would also need a strong valve that could be activated by a button. Valves like this are sold online for varying prices, we estimate the valve will cost a \$1 (Alibaba, 2017). We estimated the labor to manufacture will cost as much as the materials or \$3 per stick. In total we estimate the stick will cost \$6 per stick. Later we will forecast the finances of coaching paint, in order to forecast the finances of the company the group used \$10 as a cost per stick. Per stick costs:

- \$1.73 titanium
- 30¢ tubing
- \$1 Valve
- \$3 manufacturing

3.3 Legal Considerations

There has been work done to legally protect this idea; however, it was done when patent law was different. Patent law now dictates that the first person to file a patent with the USPTO is the rightful owner of the intellectual property (USPTO, 2013). This is different than the previous system which was first to invent. When the client, Jamie Magarian, first thought of the product he got a sketch and some initial specifications notarized. This is when patent law still dictated first to invent, so at the time the idea was protected. Since the law changed, the client is no longer protected.

The interviews with Todd Keiller helped to get an understanding of the legal avenues that would affect the product. Mr. Keiller explained a full patent isn't necessary to qualify as the first to file. Instead a "provisional patent" can be acquired for an estimated \$650 (Keiller Interview). A provisional patent will remain private for a year. After the year is up three things are possible: do nothing, file another provisional patent, or file for a patent. Mr. Keiller said the typical patent costs \$15,000 to \$25,000 for a patent.

From our researching, we found two main routes that would lead to a patent. First, hire a design firm to make a prototype and once complete file for a patent. The other option is to use Worcester Polytechnic Institute's or another universities tech transfer program. The tech transfer programs focus on getting students' and faculties' ideas commercialized. Todd Keiller suggested submitting the idea to a WPI design course; after which the idea would be ready to manufacture. This route would be substantially more cost effective. WPI's Intellectual Property and Innovation department would even facilitate the introduction to patent attorneys. WPI's tech transfer program typically does this work for students for a 1% equity stake in the company. This option could save time and money for the project.

The last dimension of legal considerations is liability. The paint of the marker could be a liability. The group foresees the products toxicity, flammability, and proper storage of the product as potential legal problems. The azeotropic mixture, has harmful components at high concentrations. The boiling temperature will be below room temperature, therefore, is unlikely to cause harm via inhalation. Both components of the mixture are flammable. They will not ignite unless sparks are present. The most realistic legal liability would be a failure to store the product properly. On a particularly hot day, the temperature of the markers could rise high enough as to evaporate the medium within the marker. This would dry out the marker and render it unusable.

3.4 Operational Considerations

The operational considerations Professor Schaufeld talks about in *Commercializing Innovation* focus on managers at a company. These are the considerations managers would make who are considering whether or not to offer a new product. They will analyze their internal operations to see if the product fits within their current operations. Since there are currently no operations in coaching paint, the group couldn't do that analysis. It isn't uncommon for companies to spin off a new product into a startup company. Therefore, we considered what roles would need to exist and what operations the company should focus on.

First, there needs to be a manager to set daily strategy, oversee operations and maintain business partnerships. The client Jamie Magarian has a full time job, so he personally doesn't want to be involved in the operations. This first hire will need to be able to do all the early tasks. This hire will do all the day to day work. This hire would need to raise an investment round, build a prototype, and start relationships with customers and potential business partners. This manager will also need to find solutions to the missing operational needs like manufacturing and distribution. Both considerations cost a lot of capital to do effectively.

We believe this work will be outsourced. Far East manufacturing is cost effective. Even with the distance the products need to ship it is effective for companies to outsource. If the customers are purchasing online they are used to paying for shipping (nrf.com, 2017). Another major operational consideration the company would need to make is what sales channels to use. The group believes there are three main options for sales. The company can sell its product online and ship to customers directly from the manufacturer. The company could sell directly to schools and organizations that pay the budget on hockey teams; this could be done by the company's first hire to stimulate sales early. Lastly, the company could partner with a retailer like Pure Hockey.

The company should also focus on marketing. Market considerations will be talked about later, but we concluded strong customer relations will be important. There are a lot of products offered in the hockey equipment industry; coaching paint will need to reach customers in a crowded industry. Equipment providers focus heavily on internet engagement (Appendix C). Equipment providers pay professionals to use and advertise in the equipment they make (Appendix D). Coaching paint could use this strategy and find coaches to endorse the product. Hockey is organized into governing bodies (Appendix F) that these coaches are a part of. Essentially, the idea of the product should travel fast once a few coaches are aware of the idea. The information should travel around these organizations.

3.5 Market Considerations

This section will talk about the potential risks the product would face once on the market. In his book Professor Schaufeld (2015) says commercial and market risks are some of the following:

- Branding, packaging, design, pricing, and distribution methods
- Competitive pressures that impact the actual purchasing decision
- New breakthrough technologies, emergence of new competitors, regulatory mandate changes

We asked the question: Will there be a market for the product? What are technologies that could potential substitutes for this product?

After trying a few google queries we found a coach online that has used both markers and paint while coaching hockey. A blogger who calls himself “Coach Chic” (2009) write on April 22 2009:

A lot of years ago, I wished I could make markings on the ice. In my case, I wished I could define an area where a given drill would take place, or even trace a skating path for my guys to move through.

As luck would have it, I mentioned this to a local figure skating instructor, and she told me her and many others in her profession actually used large markers they bought at stationery stores. I found some, just as she’d said, and they were huge MagicMarker types, with the applicator portion being at least an inch across.

Now, the thing that made these special markers usable on the ice was the fact that they were water-based (not your typical kind of marker). And they worked awesomely!

This coach had a similar idea to Jamie Magarian, he wanted to mark the ice with visual aids. Later he explains that after some time he was unable to find the markers:

A few years down the road, I had difficulty finding any of those — anywhere. By this time, Todd Jacobson (our NEHI goalie coach) and I had gotten hooked on using them. So, in desperation, I started reasoning some things... What made those markers work on ice was their being water-based. I further reasoned that I might be able to find some water-based spray paints at the local hardware store. And, sure enough, Todd and I have been using latex (or water-based) spray paints ever since!

This coach clearly thinks it is worth putting paint on the ice and is willing to go out of his way to buy the product.

The Coaching Paint product could be a potential replacement for some of the equipment coaches already us. The product should give coaches more flexibility when it comes to marking the ice. The product can perform the same task as cones. “Coaching Paint” would leave a higher quality mark; the cone impedes play and can get hit out of place. The stick could also be better at teaching team play than the dry erase board. The product will be new and innovative, but it will still have competition. Coaching paint will have competition from products that currently exists (cones and whiteboards); it will also need to be ready for the future of innovative products. Refer to Appendix B for the potential technologies that could make coaching paint an inferior product. The project also wanted to consider potential technology that could fit this coaching need. These are potential technologies that could be applied to coaching hockey. These technologies are potential risks since they could substitute for coaching paint.

There is a fair amount of companies that are operating within the hockey equipment industry (Appendix C). A company operating in the hockey equipment market, XHockeyProducts, is running a disruptive business plan. The company owns a company that builds hockey specific training facilities. Players can train and practice with coaches and trainers off the ice with the equipment XHockey

Products designs. They also sell and design the equipment and facilities that they use in their training facilities. This is the type of market force that could change the way the sport is taught. As we have discussed, ice time costs \$200/hour, this is because the ice surface is expensive to manage and operate. This company helps players practice skills, without the expense of maintaining ice. This is long term trend that would not affect business day to day; it is disruptive businesses like this that could have unexpected effects on how many hockey coaches there are.

While there are a lot of companies competing to sell equipment. It appears that very few companies rely only on coaches as their customers. Sport Write is one company that does focus on coaching tools; they focus entirely on supplying dry erase boards. This company has the potential to be the Coaching Paint's biggest competitor. The two would have a product that help coaches teach by using visuals. Coaching Paint could be more valuable during practice, than the dry erase boards. The board would, however, still be important during games. Another company that could feel threatened by this company would be Fox 40, they sell whistles, cones and whiteboards. Coaching paint could replace cones. While these companies could be competition, they could also be business partners. These companies have the distribution and sales channels that coaching paint will need to find.

Another trend the group found from research was that the big retailers, example Pure Hockey, is that they stock almost every item related to hockey. Even non-hockey products like agility ladders, used in weight rooms, are sold in these retailers' stores and online. Pure Hockey's website offers thousands of products, by last count 3,389 products (purehockey.com, 2017). There should be a legitimate concern that there are too many products sold, therefore coaching paint wouldn't get visibility on such a site. The worry is that a coach who is looking to buy a coaching tool will be unable to find or purchase coaching paint since they can't find it amongst the other products.

The big retailer websites are well organized and built to help the customer find what they are looking for. Despite this, coaching tools, a category we have identified Coaching Paint would be sold under, is hard to find. Most sites required a manual search or navigation through multiple tabs to find the products described as coaching tools. Appendix F contains examples of some big retailers and their sites. In order to differentiate, coaching paint would need to have a strong marketing plan.

From the interviews we conducted with coaches, we noticed two different types of coaches. The first, the coaches that volunteer for their kids teams; these coaches don't make any money. The second group were those coaches who were paid for their position. The paid coaches we interviewed were hired by a school organization. From experience we know some coaches are hired by professional/semiprofessional organizations. These organizations have a budget that pay for the coach's salary, as well as any equipment they need. The coaches who are being paid, are at the competitive levels of play. The paid coaches rely on the team performing well to keep their job. This competitive pressure could potentially push coaches to try innovative coaching techniques. Since these coaches want a competitive edge and have the budget to spend on equipment. Coaches with a salary who coach at a competitive level may the products "innovators" (digitalmarketing.com, 2017).

Not only does the coaching paint need to find its customers, it needs to find its marketing strategy. From the interviews with coaches there seems to be two major ways they get influenced in how they coach. The two are organizations and the other individual coaches they know and trust. USA Hockey and American Hockey Coaches Association are examples of organizing bodies that give coaches a lot of information. USA Hockey requires their volunteer coaches to attend seminars, Paul Moore, Massachusetts District Coach-in-Chief said, "the average coach has to go to three coaching education classes in the first three years. After that they do an online course every two years for four years." According to USA Hockey, the coaches learn proper teaching techniques and safety measures at these

seminars. The other group that influences coaches are each other. Every coach we interviewed said they use at least one technique they learned from another coach. Coaches look to each other, especially the high level coaches, for new techniques. Coach G summarized this sentiment:

“The USA Hockey seminars were good. Some of it was a waste of time. I did get to meet... [D1 coach] though, he talked about some of the drills he runs his kids through to protect against concussions... I even got to talk to him at the end and he gave me that flow drill” (a drill he uses often)

These high level coaches are the influencers the product needs. There has been a shift in the marketing strategy to include “influencer marketing” (adweek.com, 2015). The Adweek article had this to say about influencer marketing:

“As the world has shifted to social media, consumers look at fellow consumers to inform their purchasing decisions. Instead of looking at companies, as they did in the past, they now look at each other and at their favorite personalities, who are consolidating massive followings on YouTube, Instagram, Snapchat, Pinterest, and other platforms.”

The high level coaches appear to be trusted sources of information. According to influencer marketing logic, getting these high level coaches, influencers, to use the product, will influence other coaches to adopt the product.

Another market factor to consider, is how much ice time costs. During practices a coach is teaching or practicing skills and team play. According to the coaches interviewed, practices are typically only 50 minutes and cost between \$200 to \$300. The coaches said every practice is different, but they tend to have three to ten different drills per practice. This seemed to depend on their planning, the player’s skill level, and the coach’s ability to effectively communicate to his players. Since ice time is so

expensive any time spent explaining, setting up or re-explaining literally costs money. Before one of the interviews conducted, the group witnessed a coach explain the same drill three times when players didn't understand the drill. The explaining took the coach 5 minutes and cost \$20 (50 minutes at \$200 is \$4 a minute).

4 Business Plan

4.1 Sales

This section will analyze the potential sales channels in the potential startup coaching paint. The tried and true method of owning storefront is where equipment sales are typically still made. The online space is a fast growing market, but still a small portion of overall revenue of equipment sales (statista, 2016). From experience as a customer, the ability to touch and try the equipment before a purchase is important. Consequently, companies are still investing heavily in retail space. Long time equipment designer and manufacturer Bauer, owned by parent company Performance Sports Group Ltd., has now opened two retail spaces and plans on opening another in the summer of 2017 (Bauer.com, 2017). The market has also seen some consolidation in the past couple of years; Pure Hockey has been acquiring other major retail brands (sbgssports.com, 2017).

There are a lot of retailers who specialize in hockey equipment (Appendix E). The equipment producers like Bauer don't sell equipment on their online site. They are the exception, however; as they have millions of dollars of revenue and costs but rely entirely on retail venders. The "nearest store" to the WPI campus is a small store called Kleen n' Hard (Bauer.com). Two companies we have identified as being similar to Coach Paint are Fox 40 and Buttendz. Both of these companies are independently owned and have their own IP. Fox 40 International Inc. started with the idea for a better whistle. Ron Foxcroft the founder got a design consultant to make a working prototype. This company has grown from that point for 25 years, and continue to sell online (fox40world.com). Buttendz is a stick attachment product that was started to help players get a better grip on their stick. From initial concept to sellable product it took 5 years (founder was also playing junior hockey) (Miner, 2016). The founders would attend tournaments to sell their products and gain exposure when the product was first completed (Miner, 2016). Since then they have distributed through retailers and their online site.

The landscape of the hockey equipment market has become dominated by the company Pure Hockey. Pure Hockey's parent company TSG Enterprises LLC., owns 22 Pure Hockey locations in the northeast and the website purehockey.com. The company started in 1994 with one small shop in Worcester, Massachusetts. The company has quickly grown and is now one of the largest hockey equipment retailer in the country, ranked number 97 in revenue (sbgsports.com, 2017). In 2015 TSG Enterprises LLC. acquired SportsGiant LLC., another major player in the hockey equipment retail business. SportsGiants LLC. owns the Hockey Giant chain, which "operates nine hockey stores in seven states (California, Wisconsin, Texas, Pennsylvania, Virginia, New York and New Jersey). It also runs hockeygiant.com, one of the original online sellers of hockey gear and related product and still among the largest online retailers." (Ryan, 2015) TSG also acquired Total Hockey, Inc. in 2016. "With the acquisition, TSG will now operate 54 retail locations across the U.S., as well as seven e-commerce websites focused on hockey, lacrosse and goalie equipment." (Ryan, 2016)

Pure Hockey first opened in 1994 (purehockey.com), the same year Nike bought Bauer (Austen, 2008). The consistency of popular brands like Bauer and CCM made it possible to stock these retail spaces. Brands like CCM, SherWood, and Bauer were popular amongst professional athletes and specialized shops allowed customers to buy what the pros wear. Hockey Giant, now owned by Pure Hockey, started in 1999 (hockeygiant.com, 2017). This company gained initial traction in the online market. They also opened storefronts and a distribution center in New Jersey. The two companies started with different approaches, one brick-and-mortar and one online, but they both ended up with the same business model. They both rely on their distribution capabilities to move as many top brand products they can, using both storefronts and online channels.

The storefronts are important for these retail companies. The in person purchase experience can provide important sales advice to customers. The physical store also allows certain service

opportunities, like skate sharpening and molding skates. Skate sharpening is an important business activity that big retailers take advantage of; the activity adds an interesting aspect to the retail space. While buying equipment online can become more popular, skate sharpening has remained a service that can't migrate to the online space. While the market trend is towards consolidation and online distribution, the service of skate sharpening has allowed small hockey shops to retain most of their revenue. From personal experience we know that in Central Massachusetts 75% of the rinks have some amount of retail space, for equipment sales and skate sharpening. These are typically referred to as "Pro Shops". The pro shops offer skate sharpening. They also typically sell a small assortment of related equipment. The shop stocks equipment and supplies that players, coaches, referees and parents may need in an emergency or quick equipment fix. This equipment includes tape, apparel, sticks, whistles and mouth guards. This is equipment that is often lost, broken, forgotten and reused, so periodic replacements are always needed. It looks like the pro shops don't do much business. The labor at the shops appear to be part time. We researched the pro shop hours, and shops averaged five hours on weekdays. On the weekends, the shops were open ten hours. It appears the shops are owned and managed by the rink, so they add additional revenue for the rink.

A retailer in the Worcester area who has a small single shop, but isn't located in a rink, is a business called "Kleen n' Hard". They have retail space in Worcester, and are located 10 minutes from a rink. The shop's main focus is on cleaning sports equipment. The store is mostly hockey facing, since the sport has so much equipment. Cleaning costs \$50 to \$70 dollars for a full equipment clean, \$30 to \$50 for a sport like Lacrosse or Football (Appendix E). As well as the cleaning business, Kleen n' Hard buys and sells used equipment, as well as a small assortment of new equipment. They also sell tape and other accessories, as well as offering skate sharpening. This shop does offer a few top of the line player sticks and skates. Depending on their stock they sometimes sell the best used top of the line skates for over \$300. Online sites like Ebay are full with used and pre-owned equipment. Sports based

trading/purchasing sites like “sidelineswap.com” offer inexpensive equipment in an open market type online platform (Appendix E).

4.2 Financial Forecast

This section forecasts the potential revenue that could be made from coaching paint, and the number of potential customers the product will need in order to be profitable. Additionally, the retail and wholesale prices of these markers need to be determined. Once these numbers were formulated, we applied conservative sales growth numbers. This gave a forecast of potential revenues.

First to we needed to find the number of hockey coaches in the United States. The group used multiple resources to calculate this data. USA Hockey publishes an exact list of how many coaches register, how many register by state and region, 55,515 in the U.S. Other leagues didn't provide this data, so we used an independent ranking websites called High School Hockey Online (ushsho.com) and U.S. Hockey Report (ushr.com). These sites publish the number of teams there are. Based on the coaches interviewed and personal experience we estimated that each team has 3 coaches. This gave an estimate of the number of paid coaches in the US, 7,491 coaches. We estimate there are 63,000 total hockey coaches in the United States.

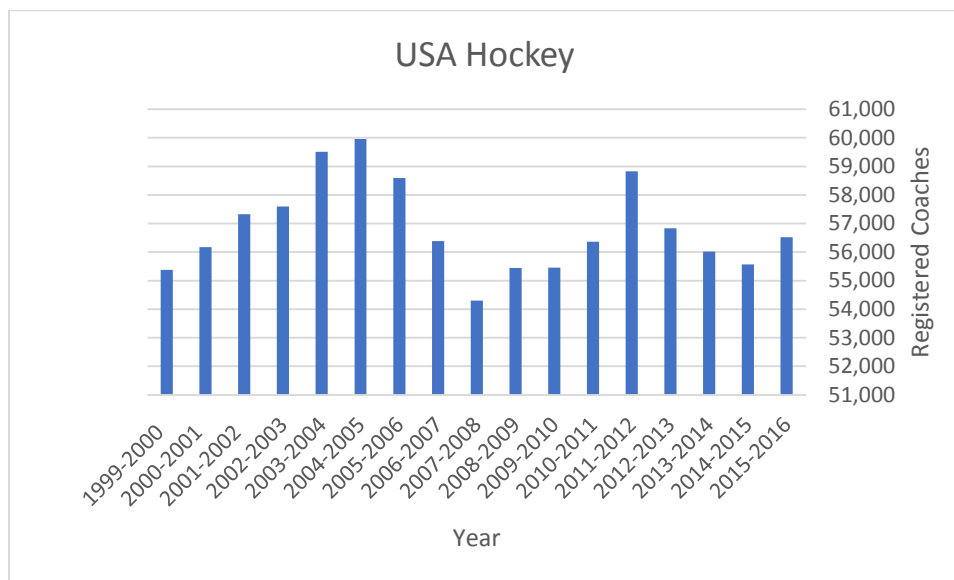


Figure 3 - USA Hockey Registered Coaches by Year

Figure 1 shows the number of coaches in USA Hockey by year. The number of coaches fluctuates yearly, but has consistently been above 54,000.

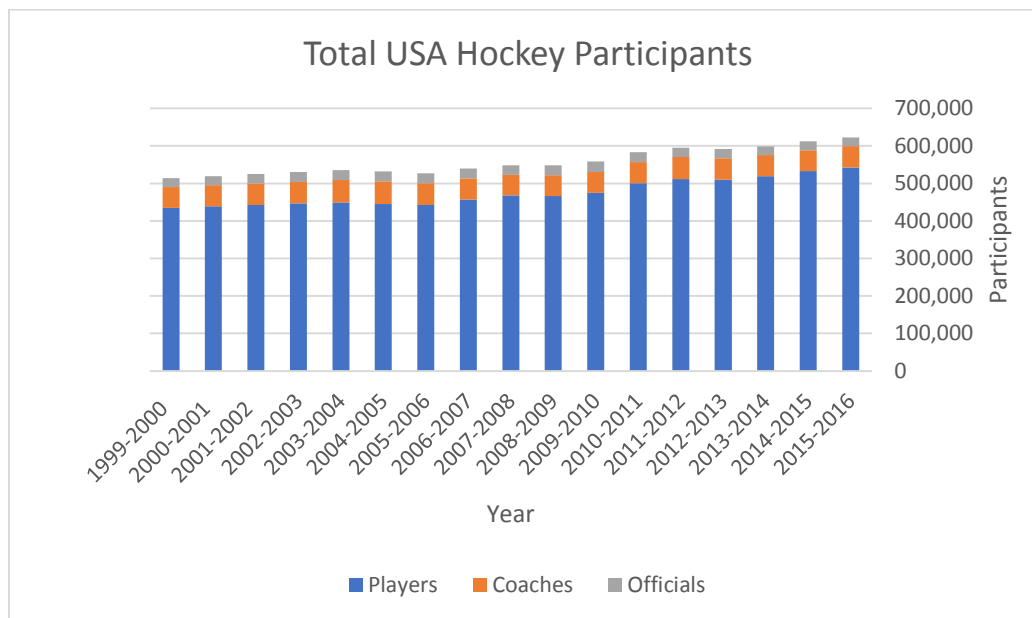


Figure 4- Participants registered in USA Hockey

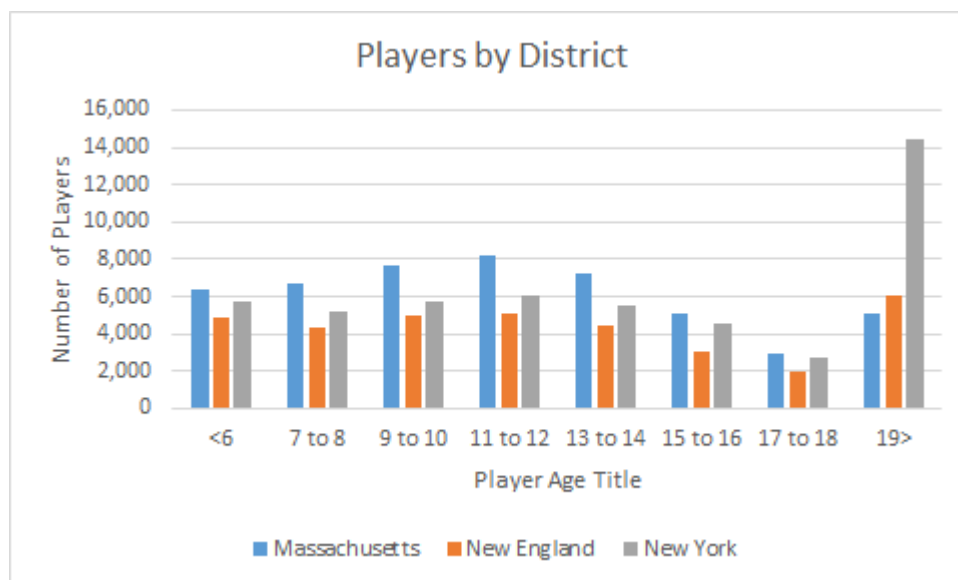


Figure 5 - Age of participants USA Hockey

This graph looks at how old players are when they are in USA Hockey. The graphs shows the players who are in USA hockey, you will notice the significant drop in participants around the high school

age. USA Hockey doesn't govern High School sports, instead state run organizations like the Massachusetts Interscholastic Athletic Association (MIAA) does. In Massachusetts there are 204 men's high school ice hockey teams. The 2000-3000 players still in USA hockey during their high school years are playing in either 2 types of leagues. One is the midget age group, which is similar to other youth hockey where the teams plays and practices only a couple times per week. There is also junior hockey, where teams play 60 or so games a year, practice every day, and players pay thousands of dollars to be a part of. There are 21 of these teams registered in Massachusetts. Most players in juniors are over 16. This league is popular for players looking to get scouted to play at colleges or at the professional level. Other players not counted in the Figure 5 are college and professional players.

	USA Hockey	High School	Prep	College D1	College D3	College Club	Juniors	Professional	Total
# of Coaches	55515	4899	192	288	255	1212	645	180	62994

Figure 6 - Number of coaches in League

Next, we estimated what price coaching paint would sell for. To do this we pulled the pricing data from purehockey.com. As we mentioned, this site sells over 3,000 items, so first we found the products that would be most similar to the stick. The sale would involve the original purchase of the stick. The customer would also need to continue purchasing paint. Realistically the group needed to price two items, the paint refills and the stick. First let's look at the prices of products similar to the paint refills.

There are products that Pure Hockey classifies as a "spray". This category includes products such as: odor sprays, de-fog, equipment protector spray, stain removal, disinfectant and detergent.

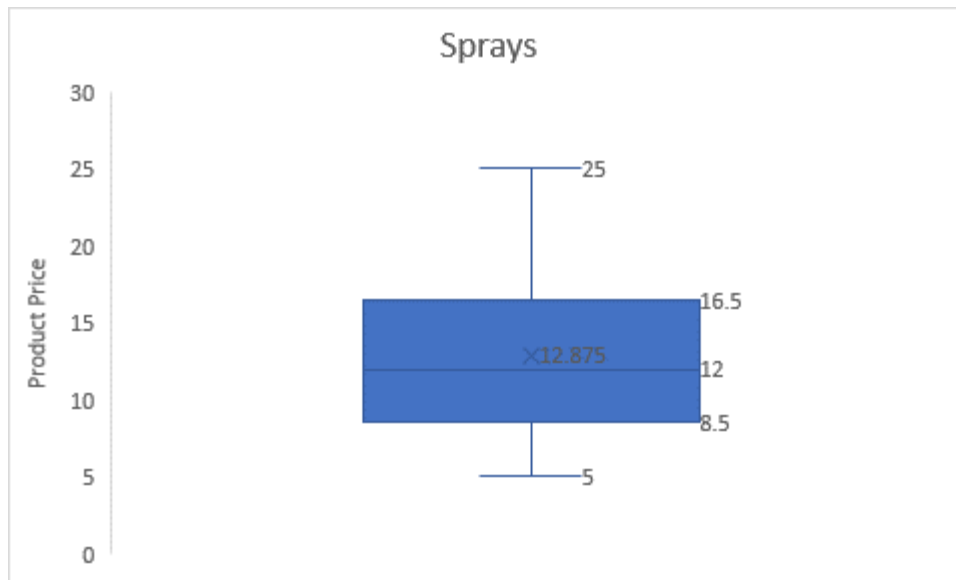


Figure 7 - Spray pricing at Pure Hockey

Figure 5 shows a box and whisker plot of the 16 “spray” related items sold at Pure Hockey. While a product like the paint would most likely be sold in this category; it has a much different purpose and chemical make-up. For this reason, a consumer may consider other factors in forecasting the price of this product.

Other paints or markers in the sports market are typically for marking the game surface. The paints that goes on fields are lines marking in and out of bounds lines. Aerosol paints are sold with the purpose of marking fields and playing surfaces. This product could be considered similar to coaching paint, especially with products like Tacki-Macs “marking stick” (Appendix C). These lightweight products hold a paint canister and can spray paint at the pull of a lever; the device allows users to paint while standing up. This marking stick is similar to the accessory stick attachment and all in one stick.

There are multiple types of field paint, some of these factors affect the price. Painting grass is a lot cheaper than turf. The canisters range in size from 18 to 22 ounces, they are almost exclusively sold by the dozen. A 12 pack of grass paint is marked at around \$55 to \$70. White is always the cheapest color but only by a few dollars, compared to “standard colors”. Most also offered “special colors”, any

color not in the standard 5-8, which costs \$8 more on average than the standard colors. This is an average of around \$5 per can. The synthetic turf paint was a lot more expensive. The paint can be permanent or temporary, these canisters were also sold in 12 packs. These prices had a bigger range, with the cheapest canister being \$90 and the most expensive being \$180. That calculates to \$7.5 per can and \$15 per can respectively. For some reference of how much product a consumer is getting (trumark.blogspot.com, 2017):

“A typical 18-20 ounce aerosol can of spray paint is going to produce a 2” to 4” wide line that is between 200 to 300 linear feet depending on how fast you walk and whether you make a second pass. For example 100 square feet of paint coverage translates into 300 linear feet for a 4 inch line.”

The site continues on to say that a typical soccer field should take 5 cans to complete with the above numbers. The average spray got around \$13 with it only having around 10 ounces. Field paint on the other hand averaged 20 ounces and got priced at under \$7 per can.

Based on all this data. The price would likely be priced between \$8 and \$20. For the purpose of forecasting, we assumed they could get a price of \$12. With the estimated cost of a can of paint being 15 cents, this product could be profitable.

Next, the group estimated what the stick might be priced at. Pure Hockey was the major source of data for this pricing data. The one other product we considered when pricing this tool, were “marking sticks”. These marking sticks have varying prices, the Home Depot sold a marking stick for \$35, but Tacki-Mac sold their product for \$295. With these varying prices, it seemed hockey equipment would give a better idea of what a coach would be willing to pay.

The group decided there were four product categories that the coaching paint stick could potentially be sold under. These categories were chosen because they appeared most frequently on the hockey retailer equipment sites that we searched (Appendix E). The categories were: sticks, stick accessories, training supplies and coaching equipment. The pricing distribution is represented in the graphs below.

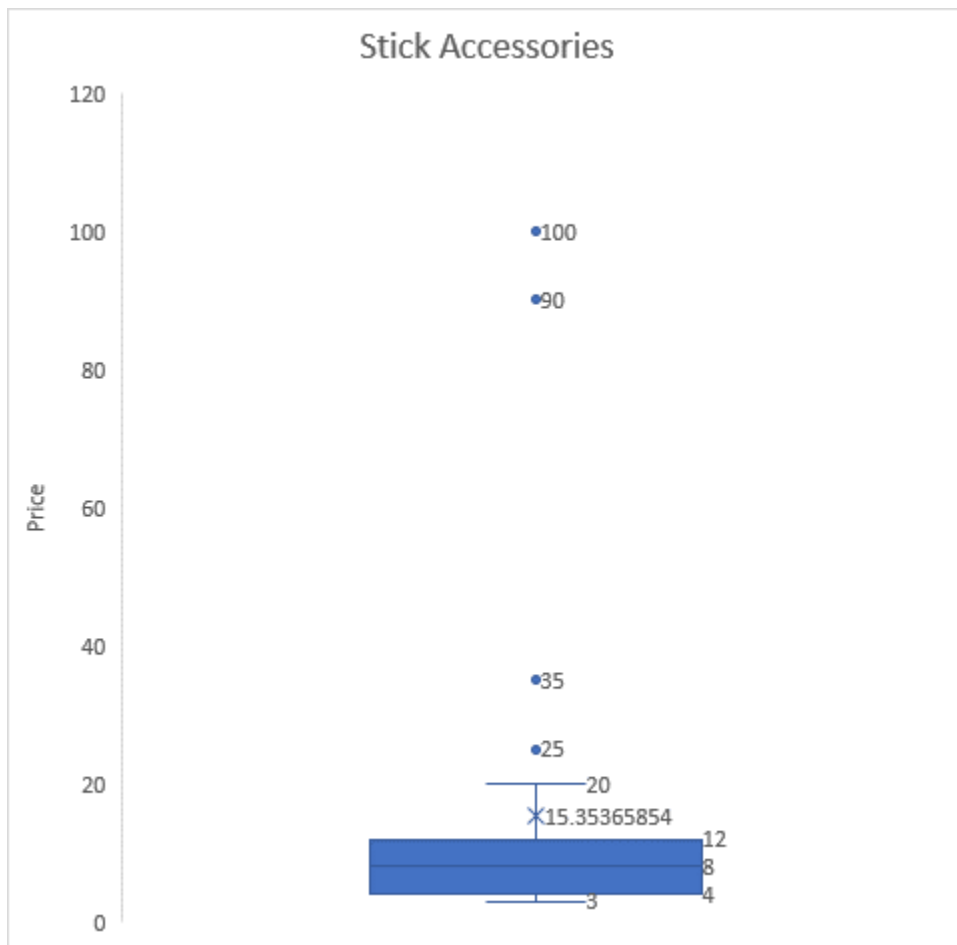


Figure 8 - Stick accessory pricing at Pure Hockey



Figure 9- Training supply pricing Pure Hockey

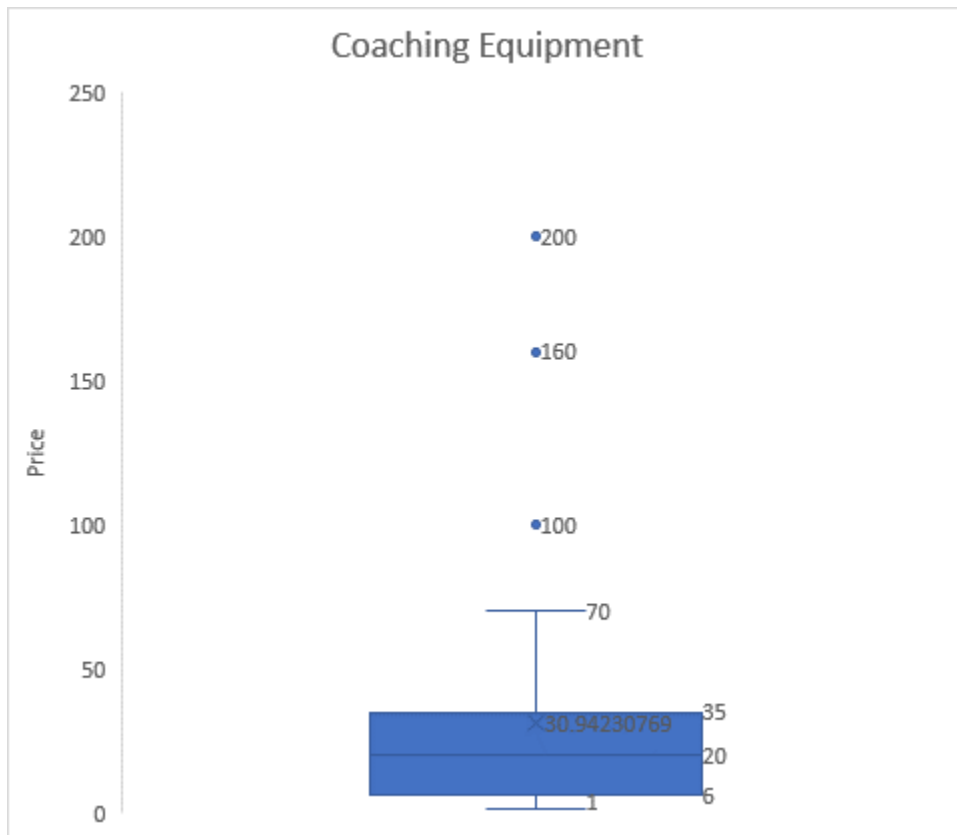


Figure 10 - Coaching equipment prices at Pure Hockey



Figure 11 - Current & original prices on stick at Pure Hockey

Figure 9 illustrates both how expensive the sticks are sold for, but also the graph shows how much the price decreases over the year.

The group considered all categories when determining a price, but stick pricing is definitely the most important variable. Since the stick will not be light enough it can't be considered a top stick, \$300, it does, however, have the ability to spray. We believe the stick will sell for between \$50 and \$175. We wanted to be conservative in the revenue estimates so we chose a price of \$70. The technique used to get these prices is what Professor Schaufeld called "value-based pricing" which he says, "uses data based on the customer perception of value. A simple metric of cost-benefit analysis is used by many consumers (Schaufeld, 2015)." Jerry Schaufeld continues on to say, "the highest impact on new or complex products (is) where market or consumer procurement trends have not been identified." This description fits our product pretty well. Since a product like coaching paint doesn't exist, the group used the data of what current products are priced at. We will see what price consumers are already willing to spend on similar prices. This will determine a price range of what to expect the customer to pay.

Before the group was able to estimate the potential revenue we had to estimate two things. First, the amount of paint refills coaches would buy during a year. Second, typical sales growth numbers for a start-up. The group realized that the amount of paint used, depended on how much time the coach spends on the ice. From experience we knew that coaches practice different amounts depending on the level of team they coach. Teams post their schedules online, so we were able to estimate the amount of hours a coach will be practicing accurately. We had to take an educated guess on how much paint would actually be needed. Using the field paint estimates, we assumed that a canister will last coaches 10 practices.

Number of Hours Practiced	Hours/Season	Cans/Season
Youth	25	1387875
High School	45	220455
Prep School	60	11520
D1	80	23040
D3	55	14025
Club	20	24240
Juniors	80	51600
Pro	n/a	n/a
Total	365	1732755

Figure 12 - Canisters per year - (Youth - USA Hockey players) (High School and Prep School – MIAA & other state wide organizations) (D1 & D3 - Division 1 & 3 Men's and Women's NCAA) (Club – College ACHA) (Juniors – USA Hockey)

Figure 10 shows how many canisters would be needed if every coach was using the stick and buying the estimated amount of refills. The first column is the league type. The second column is the number of coaches per league type multiplied by the hours spent a year. The third column is the number of canisters (1 every 10 practices) that would be needed to fulfill the maximum estimated demand.

Finally, we needed to estimate how many new customers a healthy startup gets every year.

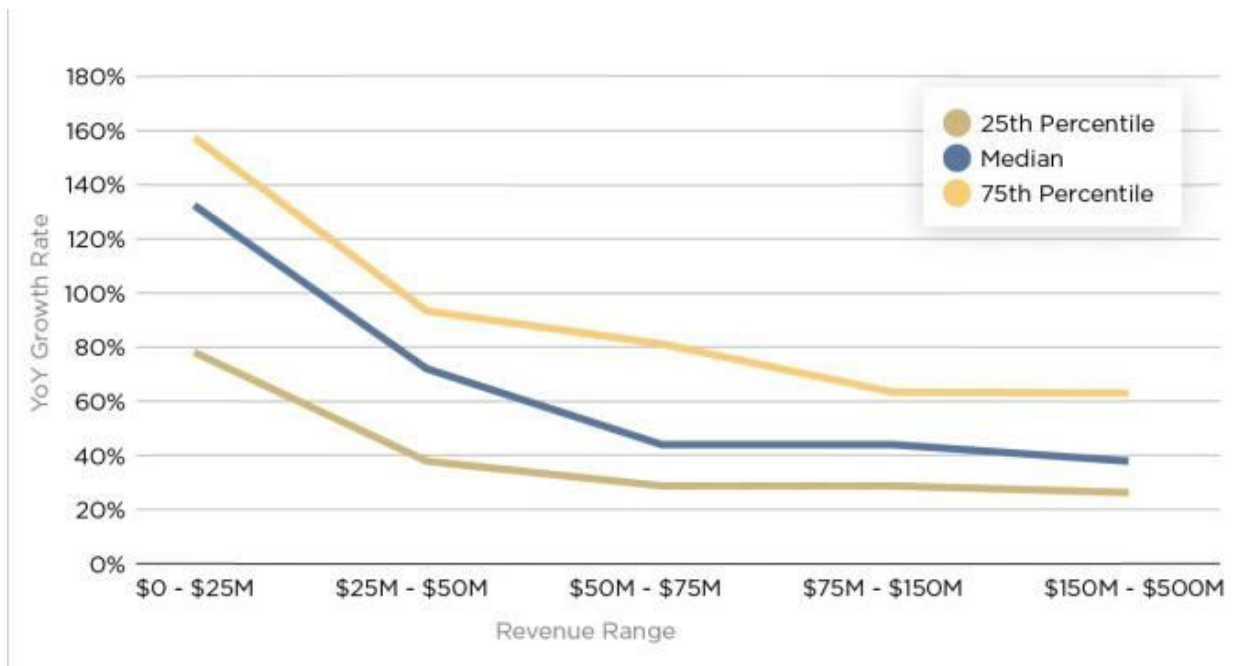


Figure 13 - Startup's average year over year growth - Photo Credit: techcrunch.com

Figure 11 shows the year over year growth of startup companies. The company will have under \$25 million in revenue so we considered coaching paint to be in the far left column. The team thought conservative estimates would be better at showing just how much revenue potential the product has. We made the conservative estimate that the first year would have 100% sales growth (under the average of 130%) and after that about 80% year over year growth rate.

	# Coaches	Yr 2	3	4	5	6
1%	630	1260	2268	4082	7348	13226
2%	1260	2520	4536	8164	14695	26451
3%	1890	3780	6803	12246	22043	39677

Figure 14 - Customers per year

Revenue							
1%		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
	Stick	\$44,096	\$88,192	\$158,745	\$285,741	\$514,333	\$925,800
	Paint	\$10,630	\$42,521	\$95,672	\$196,447	\$389,322	\$736,497
	Total	\$54,726	\$130,713	\$254,417	\$482,188	\$903,655	\$1,662,297
Revenue							
2%		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
	Stick	\$88,192	\$176,383	\$317,490	\$571,482	\$1,028,667	\$1,851,600
	Paint	\$21,260	\$85,042	\$204,101	\$418,406	\$804,156	\$1,498,506
	Total	\$109,452	\$261,425	\$521,590	\$989,888	\$1,832,823	\$3,350,107
Revenue							
3%		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
	Stick	\$132,287	\$264,575	\$476,235	\$857,222	\$1,543,000	\$2,777,400
	Paint	\$31,891	\$127,563	\$306,151	\$627,609	\$1,206,234	\$2,247,759
	Total	\$164,178	\$392,138	\$782,385	\$1,484,832	\$2,749,235	\$5,025,160

Figure 15 - Revenue Forecast

At this point, we calculated how much revenue was possible with these estimated numbers. To get an accurate forecast we ran a few hypotheticals. All based on the original amount of customers. Three potential situations are run through. The forecasts are done using the assumption the company is able to get 630, 1260 and 1890 customers in the first year, these represent 1%, 2% and 3% of coaches in the United States respectively. In order to get the paint revenue more accurate, the group made a few manipulations. First, we said that only 75% of the customers who buy a stick will continue using it enough to buy refills. The next assumption was that since the stick purchase may happen at the end of the year, not all refills will be needed in the first year, we estimated that half of the estimated paint refills will be purchased in the first year.

Variable Cost						
1%	Year 1	2	3	4	5	6
Stick	\$6,299	\$12,599	\$22,678	\$40,820	\$73,476	\$132,257
Paint	\$142	\$567	\$1,276	\$2,619	\$5,191	\$9,820
Total	\$6,441	\$13,166	\$23,953	\$43,439	\$78,667	\$142,077
Variable Cost						
2%	1	2	3	4	5	6
Stick	\$12,599	\$25,198	\$45,356	\$81,640	\$146,952	\$264,514
Paint	\$283	\$1,134	\$2,721	\$5,579	\$10,722	\$19,980
Total	\$12,882	\$26,331	\$48,077	\$87,219	\$157,674	\$284,494
Variable Cost						
3%	1	2	3	4	5	6
Stick	\$18,898	\$37,796	\$68,034	\$122,460	\$220,429	\$396,771
Paint	\$425	\$1,701	\$4,082	\$8,368	\$16,083	\$29,970
Total	\$19,323	\$39,497	\$72,116	\$130,828	\$236,512	\$426,742

Figure 16 - Variable Costs

The variable costs are low enough that the company should be able to make money for investors. These costs are based on the assumption that each paint canister will cost 20 cents and each stick \$10.

This revenue covers the initial estimated startup costs we conservatively estimated at \$150,000. The biggest costs that we have yet to estimate is the operational costs of maintaining the company. We will estimate that the company will need to hire more employees a year and a half into operating, right as the first products are shipped. With increased customer demand, operations and marketing will need more attention. We expect these hires to cost \$150,000 annually to the company. Also included in the profit forecast is the cost per product. Those costs were 20 cents for the paint refills and \$10 for the stick. We estimated another employee would be needed in year 3. While these estimates may not be accurate in when the hiring happens, the company will need to hire more employees. We wanted to reflect this potential cost in the forecast.

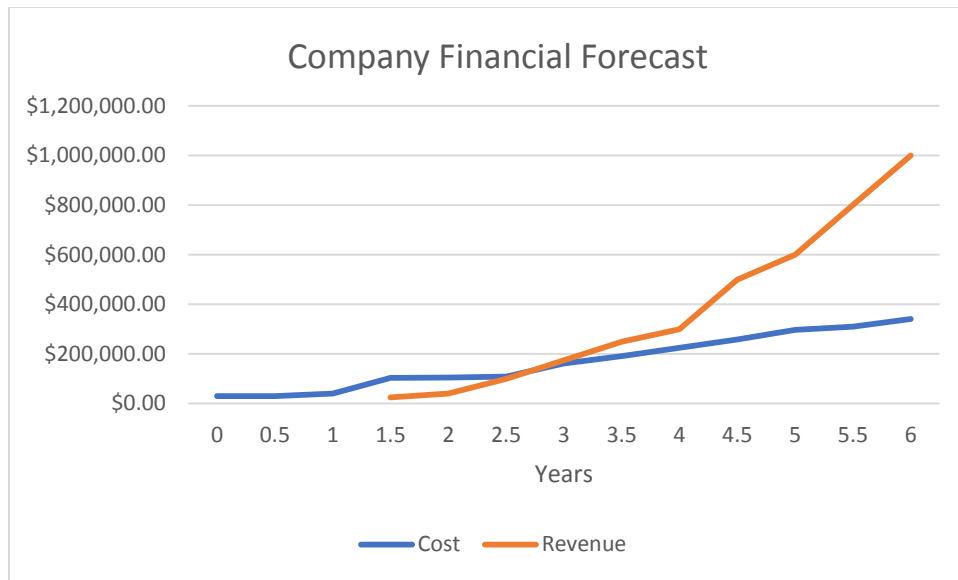


Figure 17 - Profit Model for Coaching Paint

Figure 15 illustrates both the forecasted revenue and costs. The costs include variable and fixed costs. Both revenue and costs were calculated using the average of the “1%” and “2%” estimates.

4.3 Manufacturing

Creating a low cost business partnership with a manufacturer is crucial to the products profitability. When researching the cost estimates made in feasibility, it appears likely the cost of outsourcing manufacturing would be low enough to make a product

When researching where markers are cheap to manufacture, one cannot avoid finding an investigation launched by U.S. International Trade Commission (USITC), titled “In the Matter of Certain Ink Markers and Packaging Thereof”. The investigation was launched after the Sanford L.P. company, the owners of Sharpie, lodged a formal complaint with USITC (D. Pearson, 2007). The investigation found that corporations in China had been manufacturing markers similar to Sharpie’s. The manufacturing was being done for substantially less than Sharpie, who primarily used American manufacturers. This case indicates that, in the case of marker manufacturing, it would be cheaper to manufacture those goods in the Eastern Hemisphere.

The conclusion from reading that investigation was clear, if our client wishes to manufacture markers, it would be wise to begin looking into eastern manufacturing options. The group looked into the prices that Chinese manufacturers sell their markers for (Madeinchina.com, 2015). We have found a clear trend. These markers are extremely competitively priced. Costs for markers similar to the product tend to range from \$0.05-\$0.015 per unit. Although the product would be high within that price range, end customers would be willing to pay more for a specialized marker.

5 Conclusion

Abandon, Commence or Hold

According to professor Shaufeld, there are three possible outcomes in viability analysis. If a project seems undoable the manager should abandon the project. Alternatives are to hold or to commence with the project. The following is the conclusion of each consideration:

Technical – The product can feasibly be made. Both chemical and mechanical aspects of the pen were considered and found to be theoretically sound. Additionally, through research on Chinese wholesaling websites, we've found that there is a thriving manufacturing business that creates markers that have similar chemical properties and physical properties to our own product; leading us to the conclusion that large scale manufacturing of the product is not only possible, but profitable.

Economic – The project is feasible. The amount of money that is needed to start the product is achievable. We estimate that at most the product will cost \$150,000 to get to the market. While this cost is significant, the potential upside justifies the investment.

Legal – Legally, the client must undergo steps to ensure the safety of his intellectual property, namely a provisional patent for short term protection, and a proper patent for long term protection. Additionally, in order to sell the product, the client will need legal representation to ensure all aspects of the business, present and future, are legally sound, as well as ensuring protection against unforeseen liability.

Operational – In order to function, this business will need employees and executives to maintain daily business operations. At this time there is no CEO, there are no marketers, no distribution managers, no oversight for manufacturing, or even any business partners. This business will need to find suitable people and organizations to fill these roles in order to create and sell the product.

Market – Based on our analysis of our interviews with current coaches, we have concluded that these coaches would readily replace their current, heavy, and expensive equipment, with a tool that is lighter and less expensive. This means that the product will be able to enter the market as a substitution to current goods on the market, and our analysis of the rate of adoption necessary to make profit concluded that the rate of adoption is reasonable, given current market conditions.

Our recommendation is to hold the project until the operational aspects of the project can be fulfilled. Once these roles are filled, however, we believe the project should commence. From the financial analysis the group did it appears the project could be quite profitable. The forecast makes it clear it would take around 3 years before the product becomes profitable. After the fourth year, the product pays for the startup cost, estimated at \$150,000. In the fourth year, we estimated the profits would be over \$300,000, nearly doubling the original investment.

Project Plan

Sales - The group believes the best sales strategy for the client's business venture would be to make sales in person. This technique worked for Buttendz as they started by going to tournaments and setting up a booth to sell from. At its inception the company will not have advertising power.

Customers will not know about the product so the company should bring it to them. Paid coaches are the customer segment we have identified as most likely to purchase this type of product. Their job security depends on their team's success, so they are under competitive pressure to innovate. In addition to this, the organizations that hire these coaches will pay for a coach's equipment. The coaches don't have the personal risk of spending money. We believe this early strategy is the best way to get early sales. Once word of the product enters the market, we suggest having a website that allows online sales. After the company starts selling regularly, it may want to partner with a retailer once distribution becomes widespread.

Finances - this product is likely to make money. Under conservative estimates the company has more revenue than costs in year 3. We used the growth rate of startups in the lower 25th percentile. This forecast was done to see if the revenues would justify the initial investment. This graph shows just how much could be made. The estimates show that in its fourth year the company's revenues should be \$1,000,000 (Figure 17).

Manufacturing – The most feasible avenue of manufacturing available is simply outsourcing manufacturing. There are manufacturers in the eastern hemisphere who can create the volume of markers needed and at competitive prices. Because of this, it would not be wise to waste investment money to purchase and operate a manufacturing facility.

Appendix A



Figure 18 – Most popular whistle in the group of interviewed coaches – photo credit: FOX 40

<http://www.fox40world.com/>

Whistle - Coaches need a whistle to communicate when a drill is starting or stopping. Without it, coaches would need to yell over the noise of players and the sounds of the game. Most lose their voice before the end of practice. Very few coaches have a booming enough voice to be clearly audible with that level of noise in a rink. Whistles used by hockey coaches and referees have slightly changed over the years. In the 1980's Ron Foxcroft was a hockey referee who found the whistle he used would typically not work when the bean inside the mechanism would freeze. This would leave the whistle useless and in turn make his job a lot more difficult. He thought there must be a superior solution, so with help from others he developed the "pealess" whistle. This was a large improvement on previous whistles, as the whistle would no longer malfunction due to the cold conditions of the rink. The new whistle that Fox40 (the company Ron Foxcroft started) distributes has gone back to a pea, except it has a "moisture resistant sound ball" (fox40world.com) that they guarantee will not freeze.

Once whistles were no longer freezing, the problem for hockey coaches became the inability to easily use a whistle. Coaches have gloves on and stick in hand, so they can't keep their whistle in their pocket

and pull it out, without taking too long. Lanyards have similar issues, hockey gloves are bulky and don't let you move the fingers all that much. The solution was to have a strap that coaches simply tighten on the exterior of their glove. So instead of holding or grabbing the whistle they simply turn their hand and the whistle is ready for use. The technology is incredibly simple, but very effective. It uses a Velcro strap that can easily be removed or adjusted and can fit on any size glove. All but one coach that was polled for this report said they use this technique. When (Coach B, 2017) was asked why he chose his whistle he replied, "[The Velco strap] is a no brainer, for fifteen bucks it was totally worth it". This system is an example of a product that fit perfectly into what a coach needs at a price they could easily afford.



Figure 19 - Heavy Cone - Photo Credit: <http://www.therepublic.com>



Figure 20 - Light Cone - Photo Credit: <http://www.alumigogo.com/>

Cone - This technology is one that all our respondents said they use. These hockey cones are small, typically orange, plastic cone, like a street cone, but about a quarter of the size. The cones are extremely helpful for a coach, and are used in most practices. The cones act as markers on the ice. The cones are used for precision skating drills, making sharp turns around the cones with or without a puck. They also can mark the edge of a playing area. If a coach wants to have multiple drills being practiced simultaneously, they line the cones up and have players not cross the line. The cones are most effective in teaching drills, if a player is trying to bring the puck around the cone and they hit it they will lose control of the puck. This teaches players how to stick handle and skate properly. The cone is only good as a marker to avoid though. Coaches won't use them when they are teaching drills because they would be obstructive to skaters. Drills are taught through repetition, that way during a game the players don't have to think as much. The repetition of doing the motions in practice creates a feeling of confidence performing these plays during the game. Teams that are well prepared have practiced all the situations they may face. Since you want practice to be so similar to a game, coaches don't want an object that will block play on the ice. The cones easily stop a puck or change its direction. A player could also step on a cone, making them fall, which could end practice by potentially hurting the player.

The cones come in different sizes and weights, depending on a coach's situation. Some teams practice at different rinks or take busses to practices so a coach needs to carry all this equipment with them. We found that the coaches who had "team managers" were more likely to have the heavy weight cones. Coach A, B, and F said that they personally carry all the equipment they need for practice. That means their skates, gloves and stick, as well as 10 to 20 pounds of pucks. They said, for this reason, they use light weight cones. They all bring just under 10 cones each and they still weigh almost nothing. The problem with these light cones is they get pushed out of place when skaters go by them, so they require constant readjusting. The heavier cones are obviously better at not moving off mark when they are touched, they still move frequently though. The heavy cones are better at staying in place because they weigh close five pounds, so if you want to bring ten of them, you are carrying 50 pounds in addition to your already heavy bag. Coach E and G both said they have managers who carry the cones to practice. These coaches enjoy the benefits of heavy cones without having to worry about the weight of their equipment. However, cones are easily replaceable, if a coach forgets them they can throw their glove or a shoe on the ice to mark an area. Coaches often use the rink itself as a marking system, using the lines or dots on the ice as places to stop at or places to practice turning around.



Figure 21 - Most popular dry erase board among interviewed coaches - Photo credit: Sport Write

<http://sportwrite.com/pro-ice-hockey/>

White Board - A tool a hockey coach has with them at all times is a simple white board. Even at games, when they don't bring their equipment, cones, and whistle, they still bring their white board. It is the ultimate tool in getting players to visualize the ice. Coaches simply have less ability to communicate key information to players without the white board. They come out at the teaching moments and the high pressure play calling situations. The current alternatives to using a white board are talking aloud or pointing at where a player should be. The white boards are a 2D representation of the ice from above. These boards come complete with the ride line, blue lines and face off dots. They have a handle for easy carrying and luxury white boards have a way compartment to store a dry erase marker. When a coach first wants to teach his players a new play, he uses the board to point out the location he wants a player to start and the direction he wants a player to go. Later, if a player is out of position, the coach can bring the board out and help the player visualize what is happening. For this same reason, this is an important tool for coaches during games. They can figure out the other team's system and then show their players on the board. When asked what he uses his white board for, Coach D responded, "I use it all the time, during practice, games and in film. During our last game I called a timeout with 15 seconds left when we were down by one. I huddled my guys up and drew up the next faceoff on the board". Without the board coaches can't adequately explain a person's location on the ice, nor where all ten players are and should be going. With it a coach can give a decent visualization to a player on where they are and what they should be doing. The board is also effective at explaining drills to be performed in practice. All of the coaches we talked to agreed they use a white board, and the sentiment was that they use them almost every single practice. Coach E said, "I use it before every drill. I have found it impossible to tell the guys what I want them to do, and have them do it right the first time. Someone

ends up going the wrong direction. Now I always bring out the white board when going over the next drill.”

Customer Need

Coaches have difficulty painting a picture of what they want each player doing in reaction to what is happening around them. The ice is just a very large surface; coaches can't explain what it is they want players doing without using visual or physical objects on the ice. Cones are helpful because they can mark an exact point on the ice as significant. The cone represents something, usually something to avoid. It can mark a location on the ice, but it is in the way when used in that capacity. That is why cones are useful in teaching skills and not good when used in team play drills. If a coach wants the player to be in a certain area during systems practice, they won't use a cone because it will be in the way. Pucks will hit the cone and players could step on the cone and fall, both aren't acceptable because that doesn't simulate a game situation. Film and white boards have greatly improved the communication ability of a coach. Using the visual aids are great for the systems coaches teach, now a coach can show a player the correct positioning. The problem is when you leave the film room and the whiteboard and players start skating full speed. The reality of talking to a coach and being on the ice is very different. A player's focus on the system they are being taught becomes secondary when you have someone trying to check you and disrupt you. The puck and players move around the ice fast; a player can quickly lose perception at full game speed. There is nothing to keep them on course and in position. The second the whistle blows and bodies start moving, even the professionals at the highest level get out of position. Practice is the best time to improve on this and coaches are limited by their ability communicate.

Appendix B

Potential Technology Identification

This section is completely based in speculation. It is based on first-hand experience and theories resulting from that experience.

Seminars - The market for self-teach seminars is already established. These are typically consumed on DVD's and more recently online on platforms like YouTube. The videos are made by coaches, for players or coaches. They teach players individual skills or team play, or they teach coaches drills they can teach their players. The videos are informative and give players and coaches a different perspective from the people that have informed them during their careers. The future of seminars will always look for new technology.

Simulation - This is not necessarily a tool yet used by coaches to teach their players. The group believes some hockey simulations are in the form of a game of video game. EA sports, the video game company, has been producing a hockey simulation game since 1991. The game has had a new installation released every year since the original release date. According to the National Hockey League (NHL) and the National Hockey League Players' Association (NHLPA) the game is developed under their licenses to use league teams, their players and their likeness. The game allows users to control players, and simulate playing as the most talented hockey players. The franchise's 25th edition, NHL 16, sold 650,000 copies (vgchartz.com, 2017). Coaches could potentially use this simulator to emulate the results of future games, and use these simulations to inform their coaching strategies.

The technology can fail players because the information is consumed outside of the rink, where players aren't practicing. The information becomes less effective when a player can't practice the skills they are learning immediately.

Wearable Technology - The future of wearable technology is a potential place that the technologies of seminars and simulations could be better applied. The technology is showing amazing potential for the education, physical training and gaming. This technology is not at the level it needs to be, to effectively help players learn hockey. The original product for such a product may simply project targets for a player to shoot at. A simple version like this could be used in a driveway where a player could practice shooting against a garage door. While this type of technology could drastically affect coaches, it will not be viable at any point in the foreseeable future.

Projector - Projection technology is a high quality way to view film or slides. The technology has already been applied to some hockey rinks, for entertainment purposes. Professional teams, projects videos and special effects on the ice in between game play. It is quite a spectacle to see the special effect flames engulf the 200-foot length of a rink. Coaches could easily use this technology to their advantage. They could project anything they want onto the ice surface. Coaches could be given access to a full suite of ice visual effects. The visuals could be as minimal as dots and arrows projected on the ice surface, or as complicated as fully visualized players and objects. The arrows and dots would guide players through drills. This would make practices more efficient and of higher quality. The time spent by coaches explaining the drills, would instead be spent on players doing the drills and coaches enforcing teaching points.

The technology could also be helpful in creating strategy for an opposing team. Film from opponent's games could be projected onto the ice, in real time. This could create a level of familiarity with the opponent's systems and would give the team a way to prepare for the team on the ice and not just in the film room.

Robots - Essentially moving punching bags, they have already started to make appearances in the sports world. Football teams have begun to experiment with them. This allows players to practice hitting and

being hit, without the rigors of hitting another person. The same could be applied to hockey. Players need to learn and continue practicing body checks, which are a dangerous part of the sport. Besides practicing physical skills, the robots could be used as cones to practice skills and since they can move they can play defense against an attacking player. A very intriguing possibility for these robots is to have them be programmable. Then they could simulate the play of your opponent, and a team could get a real sense of the systems of the other team. It would be like playing them and being able to adjust strategy based on what you see, that way when you play the real team, you know what to expect. The current technology is new and expensive, but has much potential in the future.

Appendix C

Equipment Providers



“Preferred supplier to the NHL”

Provide all ice making needs: purchasing and training

Have products and services for the ice making industry: hockey, curling, figure skating, speed skating, bobsled and luge

Biggest seller: Ice paints – actual design of rink (blue and red lines, white, blue crease, logo, etc.)

Offer ice making packages and/or labor to do it, packages include:

- Mixing tank, spray paint applicator, hose, pump
- Other various ways to pump available (pictured here)

Other points of sale: ice/water treatment (removal of minerals from flood water)

Seminars and teaching on rink making. One day on site seminar to teach rink creation.



“Paint stick” used in rink making. The bottom layer of paint and white ice has already been applied. The lines and face-off dots are applied with the “paint stick”.



- Competition to JetIce
- Trying to undercut prices and be the alternative:
 - American
 - Modern
 - Best paint
 - Helping ice painting community by charging 1/3 price



For the top of your stick, used instead of tape.

\$15-25 per butt end – compare to \$5 for a roll of hockey tape that lasts 2 or so months

Do sell wholesale

Hockey and Lacrosse

\$25 “the fusion” model gets 5 stars on amazon (4 reviews); \$20 “the flux” gets 4 ½ stars reviews (8 reviews)

To apply... spray with special solution and slide on buttendz





Specialize in grips for golf, mini golf, hockey and pencils (engraving and/or printing on outside)

Sell "SpraySmart" marking paint system and striping machines

Hockey:

Sell two main products "attack pad" and "command strips"; cost \$7.14 and \$5.25 respectively.

Set up grip by applying double sided tape... pour on hot water and rub the tape with index finger... slide on "command strip"

Sell other products, including a paint system, exactly like coaching paint stick, but for different surface. Proof technology is capable of meeting marking specifications.



Rust-Oleum SpraySmart Marking Paint System



Golf course markings have never been easier! The SpraySmart system is a patent-pending, propellant free spray system for spraying marking paint. The reusable device operates on compression technology to spray paint using SpraySmart disposable paint pouches. You get the same great coverage, color and durability you would expect from Rust-Oleum product but with less waste.



Focus on shooting and passing boards (they sell the products they make as well as others -> “shooting pads”)

Other sites sell these products

No mention of coaching equipment

TOOLS TO STEP UP YOUR GAME

BEST SELLERS

SHOOTING

PASSING

STICKHANDLING

SKATING

DRYLAND TRAINING



HS ROLL-UP SHOOTING PAD -
4'X8.5' AND 4.5' X 10'
\$109.95



HS PASSING KIT PRO
\$179.95



HS DRYLAND FLOORING TILES
ALLSTAR ★ EDITION
\$12.95



HS PASSING KIT JUNIOR
\$134.95

Search results included:

- Action Sports Camera by UHWK \$200
- Dry erase clip board \$30
- Whistle \$5
- HS Extreme dangle/dangle mini \$30/\$65
- HS Extreme hockey radar \$110
- Target practice by Chris Dyson \$40
- HS Passer Pro \$160
- HS Slide Pro (dryland workout tool) \$200
- HS Extreme Shooter Tutor \$130
- Attack triangle pro \$45
- Portable skate sharpening \$35



3 Main Areas of focus:

- Consulting
 - Build training facilities from the ground up
- Interaction
 - Have their own training facility
 - Training – pro's practice / workout there
 - Interacting with the fans – run events
- Products
 - Design and sell the products that are in the facilities

Started by two professional athletes:

- Bryce Salvador Fan-tastic Sports™ LLC | xHockeyProducts™ Chairman
- Peter Ing INGcorporated™ Inc. | xHockeyProducts™ President

The company xHockeyProducts is a combination of the work of the two previously mentioned players.



Is the space where the training facility is.



Focus on the consulting, marketing, event services

Company is main distributor of xHockeyProducts and Fan-tastic Sports event, facility and training products. Also operates xHockeyProducts.ca providing Canada with training aids.







INGcorporated is Peter Ing's company; Peter also will do consulting for sports, casinos and speaking engagements

Focus on training equipment:



Sell other, more typical products, like skates and sticks; clearly focus mostly on their own equipment.
The products seem to focus on quality, are expensive.



 <p>xDeviator™ 1.0 Hockey Stickhandling Trainer</p> <p>\$45.95</p> <p>EARN 45 XHP POINTS</p>	<p>NEW YEARS</p>  <p>★★★★★</p> <p>xDeviator™ Mini Stickhandling Trainer</p> <p>\$79.95</p> <p>\$69.95</p> <p>EARN 69 XHP POINTS</p>	<p>NEW YEARS</p>  <p>xDeviator™ 4.0 Hockey Stickhandling Trainer</p> <p>\$135.95</p> <p>\$119.95</p> <p>EARN 119 XHP POINTS</p>
<p>NEW YEARS</p>  <p>★★★★★</p> <p>xHockey Skills Package 1</p> <p>\$297.28</p> <p>EARN 297 XHP POINTS</p> <p>FREE SHIPPING</p>	 <p>xPasser Give-N-Go Hockey Passing Aid Combo (Best Value!)</p> <p>\$570.90</p>	<p>NEW</p>  <p>xDangler Pro Stickhandling System</p> <p>\$2,495.00</p>

All products come in different packages and deals



GS-8 xSynthetic Ice™

\$175.00



GH-15 xSynthetic Ice™

\$212.00



GL-18 xSynthetic Ice™

\$195.00

Also focus heavily on synthetic ice

Product categories include:

- Synthetic Ice
- xTiles
- xPasser
- xDeviator (stick handling obstacles)
- xSlideBoard
- xGoals, xTargets, & xTarps
- xBalls & pucks



Focus on “performance training”

Multi-sport company, make a lot of crossfit type products:

- Resistance bands
- Elevator ladder
- Reaction ball



- Leader in hockey equipment design and manufacturing
- 3 Different lines of sticks, skates



SUPREME

AMPLIFIED MID FLEX POINT

- Stiffer lower shaft with softer upper shaft
- For players who unload powerful slap shots and one-timers

SEE THE FULL LINE OF SUPREME STICKS >>

SUPREME TOTALONE NXG STICK

NEXUS

TRU-MID FLEX POINT

- Stiffer middle shaft with softer handle and lower shaft
- For players who want a quick release with natural feel

SEE THE FULL LINE OF NEXUS STICKS >>

NEXUS 1000 STICK

VAPOR

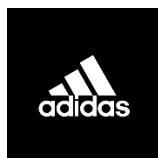
DUAL FLEX POINTS

- Two flex points based on placement of lower hand
- For players who want quick release for wrist and snap shots and power for slap shots

SEE THE FULL LINE OF VAPOR STICKS >>

VAPOR APX STICK

<p>VAPOR LOW PROFILE</p>		<p>SUPREME MID PROFILE</p>		<p>NEXUS HIGH PROFILE</p>	
1X	\$900	Supreme 1S	\$950	1N	\$950
X900	\$730	Supreme S190	\$730	N9000	\$600
X800	\$550	Supreme S180	\$500	N8000	\$400
X700	\$400	Supreme S170	\$300	N7000	\$200
X600	\$300	Supreme S160	\$200	N6000	\$100
X500	\$200	Supreme S150	\$150		
X400	\$160	Supreme S140	\$65		
X300	\$100				
X200	\$80				



Adidas owns Reebok and CCM, both are brands that sell hockey equipment. They are the major competitive with Bauer.

SHER-WOOD

Maker of hockey equipment. Used to be leader in industry until sticks became carbon fiber and they lost their identity of being the best wood stick.



Maker of hockey equipment. Known for high quality skates.



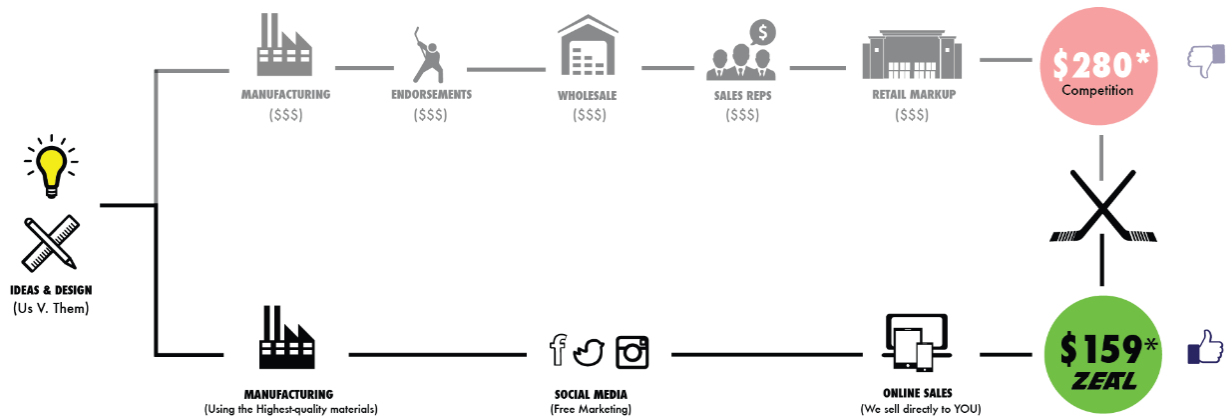
New company on the block, focus on gloves and sticks, came into the market as the cool sexy alternate to other brands. Also a lacrosse brand, so athletes who play both sports trusted the brand when it first entered the market.



Another new brand in the market; focus on sticks. Brand started with field hockey; ice hockey sticks are different shape (home plate shape) than tradition square shaft.



They make custom sticks, visors and apparel



Sell some “floorball” sticks

Brands they name on their site: Blade Hockey Co., Buttendz, Elite Hockey, green biscuit, hockey wraparound, JDH, Massive Blade, Mylec, Renfrew, Sex Wax, Shock Doctor, Smart Hockey, Tacki-mac, Twig Tape



Sell:

- Whistles
- Lanyards + attachments
- Mouthguards
- “Fox40 Gear”
 - First Aid Kits
 - Ball Pumps
 - Whistle and Ball Pump Kits
- SmartCoach Boards (all sports)
- Outdoor and Marine
 - Paddles
 - Rescue Ropes
 - Boating kits
 - Anchor kits
 - Water Safety kits
 - Outdoor essential kits
- Imprinted Products
 - Whistles
 - Coaching Boards
 - Mouthguards
 - Lanyards
 - Floating Key Chain
 - Banners

Distribute to a lot of different activities.

Saw them in Pure Hockey and most online retailers so they have their distribution methods down. It appears they don’t advertise much. They get their name out through partnerships:

Fox 40 Partners

Sports

- Arena Football League - www.arenafootball.com
- Big Ten Conference - bigten.cstv.com
- CFL - www.cfl.ca
- Canadian Professional Football Officials Association (CPFOA) www.cflofficials.ca
- Canadian Soccer Association (Canada Soccer) www.canadasoccer.com
- CNN Sports Illustrated - sportsillustrated.cnn.com
- Coaching Association of Canada - www.coach.ca
- Don Koharski's Officiating & Development Camps - www.dkrefcamps.com
- ESPN - espn.go.com

- Euroleague Basketball Referees
- FIBA (International Basketball Federation) - www.fiba.com
- FIFA (Fédération Internationale de Football Association) - www.fifa.com
- FINA (International Swimming Federation) - www.fina.org
- FIRS (Fédération Internationale de Roller Sports) - www.rollersports.org
- Hamilton Wentworth Minor Football League - www.hamiltonpantherfootball.com
- Honig's Whistle Stop - (Canada) www.honigs-canada.com (US) www.honigs.com
- International Association of Approved Basketball Officials (IAABO) - www.iaabo.org
- MAAC (Metro Atlantic Athletic Conference) - www.maacsports.com
- NASO (National Association of Sports Officials) - www.naso.org
- NBA (National Basketball Association) - www.nba.com
- NCAA (National Collegiate Athletic Association) - www.ncaa.org
- NCHSAA - www.nchsaa.org
- NFL (National Football League) - www.nfl.com
- NHL (National Hockey League) - www.nhl.com
- NSCAA (National Soccer Coaches Association of America) - www.nscaa.com
- NLL (National Lacrosse League) - www.nll.com
- OHA (Ontario Hockey Association) - www.ohahockey.org
- OMHA (Ontario Minor Hockey Association) - www.omha.net
- OSA (Ontario Soccer Association) - www.ontariosoccer.net
- Referee Magazine - www.referee.com
- Sports Officials Canada - www.sportsofficials.ca
- SST (Sports Specific Training) - www.sstcanada.com
- USA Hockey - www.usahockey.com
- USA Water Polo Association - www.usawaterpolo.org
- USFTL (U.S. Flag and Touch Football League) - www.usftl.com
- US Lacrosse - www.uslacrosse.org
- Volleyball Canada - www.volleyball.ca

Outdoor + Marine, Safety and Search & Rescue

- American Red Cross - www.redcross.org
- Canadian Coast Guard - www.ccg-gcc.gc.ca
- Canadian Red Cross – www.redcross.ca
- Canadian Sport Fishing Championship - www.canadian-sportfishing.com
- Costa Rica Rainforest Outward Bound School - www.crrobs.org
- Doug Ritter - www.dougritter.com
- Gerber Gear/Bear Grylls Survival - www.gerbergear.com
- Les Stroud - www.lesstroud.ca
- National Marine Manufacturers Association Canada (NMMA Canada) - www.cmma.ca
- Ontario Federation of Anglers and Hunters (OFAH) - www.ofah.org
- Ontario Federation of Snowmobile Clubs - www.ofsc.on.ca
- Royal Life Saving Society of Canada - www.lifesaving.ca
- Scouts Canada - www.scouts.ca
- U.S. Coast Guard - www.uscg.mil

Corporate

- Fox 40 (UK) Ltd. - www.fox40whistles.co.uk
- PHT Services, Ltd. - www.phts.com

Police & Military Organizations

- FBI - www.fbi.gov
- NATO Forces - www.nato.int
- OPP - www.opp.ca
- RCMP - www.rcmp-grc.gc.ca
- Modern Combative Systems - www.moderncombativesystems.com

Other

- APPA (American Pet Products Association) - www.americanpetproducts.org

Majority of these are not helpful for coaching paint. This list does show the importance these partnerships are for the business plan of the organization.



- Sports
 - Basketball
 - Ice Hockey
 - Men's & Women's Lacrosse
 - Baseball
 - Football
 - Soccer
 - Field Hockey
 - Volleyball





Tape



Tacki Mac



Butt Ends



Stick Wax



Stick Decals



Glue Sticks



Lizard Skins®



Sharpening



Laces



Accessories for
your skates



Skate Guards



Socks



Ever Bamboo

Fix My Gear

3 product(s) found

Display: 2



NHL® SX PRO 50" INNERNET
PVC GOAL
\$59.99



NHL® SX PRO 54" INNERNET
PVC GOAL
\$59.99



NHL® SX COMP 46" PVC
GOAL
\$29.99



NHL® HX PRO 72"
PROFESSIONAL SHOOTING
TARGET
\$49.99











NHL® GLOW-IN-THE-DARK
PLAYER STICK AND BALL SET
\$19.99



NHL® MINI HOCKEY LIGHT-
UP GOAL SET
\$29.99



<p>GET TAPE NOW</p> 	<p>BUILD A BOX</p> 
<p>QUALITY ENSURED</p> 	<p>GET NEW LACES</p> 
<p>YOUR LOGO HERE</p> 	<p>HOWIES APPAREL</p> 
<p>ATHLETIC TAPE</p> 	<p>HOCKEY ACCESSORIES</p> 



The company sells hockey tape. The list below are there American retail partners.

UNITED STATES



Arrow Hockey & Sport, Inc.

[VISIT WEBSITE](#)



Dick's Sporting Goods

[VISIT WEBSITE](#)



Behind The Mask

[VISIT WEBSITE](#)



Hockey Giant

[VISIT WEBSITE](#)



Big 5 Corp.

[VISIT WEBSITE](#)



Midwest Skate Company

[VISIT WEBSITE](#)



Modell's Sporting Goods

[VISIT WEBSITE](#)



New England Sports Sales

[VISIT WEBSITE](#)



MonkeySports, Inc.

MONKEY SPORTS INC.

[VISIT WEBSITE](#)



Play it Again Sports

[VISIT WEBSITE](#)



Montreal Hockey Co.

[VISIT WEBSITE](#)



Pure Hockey

[VISIT WEBSITE](#)



Second Wind Sports

[VISIT WEBSITE](#)



Sports Etc Llc

[VISIT WEBSITE](#)



Source for Sports Dealers

[VISIT WEBSITE](#)



Sports Excellence Dealers

[VISIT WEBSITE](#)



South Windsor Arena Complex

[VISIT WEBSITE](#)



Total Hockey Inc

[VISIT WEBSITE](#)



Torpedo Blade Tape

REACH THE NEXT LEVEL OF PASSING, SHOOTING & SCORING

- Improves puck control & shot accuracy
- Universal shape fits most blades
- Waterproof and durable



Your Complete Accessory And Custom Team Headquarters



Arena Coaches' Board
24"x31"



Hockey Coaches' Big Board
w/ Suction Cups



Hockey Coaches' Board



Goalie Coaches' Board



Hockey Coaches' Dripboard



Mini Coaches' Board
3.25"x3.75"



ADME Thunder
Fingertip Whistle



ADME Thunder Whistle



ADME Coaches' Blow
Drip Whistle w/ Strap



Metal Whistle



Plastic Whistle



Metal Whistle
w/ Lanyard



Whistle Lanyards



6" Weighted Cone



12" Weighted Cone



Speed TracX



Speed TracX Adapter



Hockey Score Book



Sweet-Stick



Cold Pack



First Aid Kit



Ear Sling – (New Color)



Extra Waxed Hockey
Lace



Extra Wide Laces



Figure BladeGards™
(New Colors)



Figure Skater Accessory
Kit Purple



Floor Hockey Puck



Fox40 Caul Whistle



Glow In The Dark Floor
Hockey Puck



Glow In The Dark
Hockey Ball



Glow-In-The-Dark Mini
Hockey Ball





Evolution
Performance
Sports, LLC ✓



Appendix D



The company works closely with these athletes to design new equipment and test out new projects. Bauer says it works closely with all their athletes to get them the best equipment for their type of game. Alexander Ovechkin, their highest paid player, has a booming slap shot, which falls into their “Supreme” line of sticks. Patrick Laine, last years second pick is known for his quick release wrist and snap shot, so he uses Bauers “Vapor” stick. Every profession also has there own curve to the blade. As a consumer of hockey equipment, a buyer will want to choose the type of curve that fits their game best. Consumers can look to the pros to see what type of plays they make with their stick. Are they a passer, a stick handler or a shooter. This is the major tehcnical reason to sponsor pro athletes.



Manufactures and Markets sports equipment and related apparel under brands, Bauer, Mission, Maverick, Cascade, Inaria, Combat and Easton.

Products are available in over 45 countries through a network of more than 7,000 retail locations and over 60 distributors.

Appendix E

Retailers:



Huge New England presence, both online and store locations

Don't have a coaching specific tab when searching on website

"accessories" section – most likely location of "Hockey Paint":

- Mini hockey sets
- Microfiber "Shammy"
- Toy Zamboni
- Puck bag
- Socks (not hockey socks)
- Bean bag chair
- Mouth guards
- Skate guards

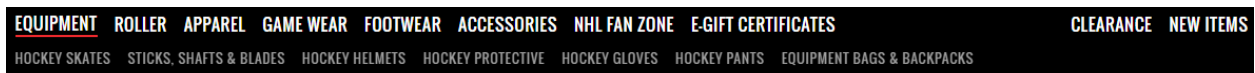
Within accessories -> coaching equipment:

- Hockey water bottles \$5
- Stick handling ball \$5
- Dry erase coaches board \$30
- SKLZ speed chute -> parachute that adds resistance while running/skating \$30
- SKLZ agility ladder (dryland) \$32
- Water bottle holder \$20
- SDS Pylon Training System \$100
 - Bag-> comes with 8 Pylons, 8 Adaptor, Extended Hurdles, Sample Drill Book
- Hockeyshot extreme hockey dangle \$65
- Hockeyshot extreme passer pre 37inches \$160
- Athletic scrimmage vests \$5
- Plastic shooting board \$70
- Corner shooting targets \$35
- Whistle w/ lanyard or glove strap \$10/\$20
- CCM Puck bag \$23



Huge names in hockey equipment purchasing

Like pure hockey on their focus of equipment, and difficulty in finding coaching equipment. Pictured below is the typical dashboard for finding the products you want. “Coaching Tools” not in the search bar.



Must search “coach”. This is to say you can’t easily find a whistle in the drop down menus.

IN search “coach”, similar products and prices as pure hockey.



Have a tab “ref/coaching” which is not seen on any other site (pictured below):



HOME > REF / COACHING



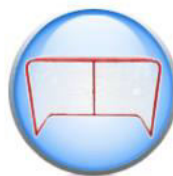
Accessories



Elbow Guards



Girdles



Goals & Nets



Jerseys



Pants



Shin Guards



Training &
Development

Items under training & development

- Pucks \$3
- Biosteel high performance drink mix \$60
- EZPUCK onetimer pass and shoot rebounder \$ 70
- EZPUCK rebounder w/ board \$160
- EZPUCK stick handling board \$200
- Stickhandling balls \$10
- Fast hands training tool \$80
- 360 athletic evasion belt \$16
- SKLZ weighted vest \$90
- Pocket radar \$200
- A&R 16oz hockey stick weights \$15



Similar to hockey money, hockey giant in the online space

Focus on equipment in general; do have a coaches/ref tab under “accessories” tab, however, this section has the least item selection of all other sites, and is mostly referee focused. Sell:

- Coach board \$50/\$30
- Whistle \$15
- Ref pants/shirts/armband \$80-\$120/\$40-\$180/\$20
- Whistle w/ lanyard \$8

Have better service for refs (not main focus, more than others though). They do deals with local ref organizations, to offer specialized bags and equipment.



All equipment available

Have a “coaches corner”, includes only 6 types of items:

- Glove whistle \$20
- Coaches hockey play board \$45
- Mueller first aid kit \$35
- Another dry erase
- Preseason coach pack (dry erase board, whistle bottles, first aid, puck) \$135



has the most innovative hockey training products available on the market

Hockey training products, apparel and hockey equipment

Offered on other site like Hockey Monkey

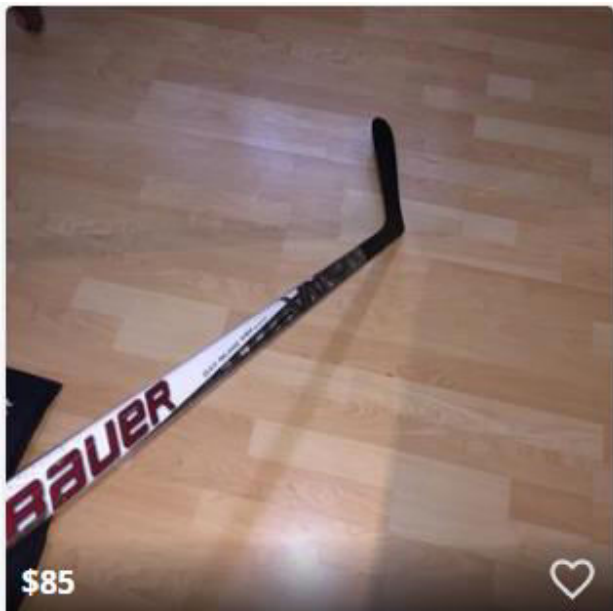
Products are:

- Board with obstacles \$199
- OneTimer by EZPuck (Puck passer) \$70
- Stick Handling Video \$30
- Multiple variations of “combo board” \$70-\$180
- OneTimer replacement band \$16
- Stick weight \$45
- Training ball \$5

SIDELINESWAP™



Bauer pro gloves



Ferris State Bauer 1X 82 Flex P91



CCM Rapide Skate Jr. size 1& Cooper DG4 Shin guard youth hockey equipment lot

\$0.99

0 bids

12h left (Tuesday, 11AM)



Hockey - (Version 1) Large - Dry Erase Coaching Board

\$44.06

Buy It Now

From Canada



SPORTS EQUIPMENT HOCKEY DRYING RACK TREE AIR POWERED

\$49.99

Trending at \$54.99 ?

Buy It Now

241 sold

[See more like this](#)



Cleaning Prices	
Hockey	
Full Player Set (helmet, shoulder pads, elbow pads, gloves, pants, jock, shin pads, skates, bag)	\$59.95
Standard Cleaning +1 (helmet, shoulder pads, elbow pads, gloves, pants, jock, shin pads, skates or bag)	\$54.95
Standard Cleaning (helmet, shoulder pads, elbow pads, gloves, pants, jock, shin pads)	\$49.95
Goalie Gear	
Full Set (does not include leg pads) (helmet, glove, blocker, arm & body, pants, jock, skates, bag)	\$69.95
Youth / Jr Leg Pads (up to 31.5")	\$29.95
Senior Leg Pads (32"+)	\$39.95
Football	
Standard Set (helmet, shoulder pads)	\$26.95
Full Set (helmet, shoulder pads, arm pads, gloves, pant pads, cleats)	\$39.95
Lacrosse	
Full Player or Goalie Set (helmet, shoulder pads, elbow/arm pads, gloves, jock, cleats & bag)	\$44.95
Standard Player or Goalie Set (helmet, shoulder pads, elbow/arm pads, gloves, jock)	\$39.95
Baseball/Softball	
Catchers Set (helmet, chest protector, glove, jock, shin guards, cleats, bag)	\$44.95
Batting Helmet w/out Facemask	\$11.95
Batting Helmet With Facemask	\$12.95
Sliding Shorts	\$5.95
Cleats	\$11.95

Figure 22- Kleen N' Hard equipment cleaning - Photo Credit: kleenhardsports.com

Appendix F

Organizing Bodies



Membership Statistics				
Year	Players	Coaches	Officials	Total
2015-2016	542,583	56,515	23,735	622,833
2014-2015	533,172	55,568	23,186	611,926
2013-2014	519,417	56,011	23,413	598,841
2012-2013	510,279	56,836	24,303	591,418
2011-2012	511,178	58,825	24,956	594,959
2010-2011	500,579	56,358	26,325	583,262
2009-2010	474,592	55,460	28,424	558,476
2008-2009	465,975	55,448	26,866	548,289
2007-2008	468,202	54,302	26,047	548,551
2006-2007	457,038	56,383	25,978	539,399
2005-2006	442,077	58,593	26,599	527,269
2004-2005	445,245	59,957	26,648	531,850
2003-2004	449,610	59,508	26,321	535,439
2002-2003	446,328	57,595	26,445	530,368



Appendix G

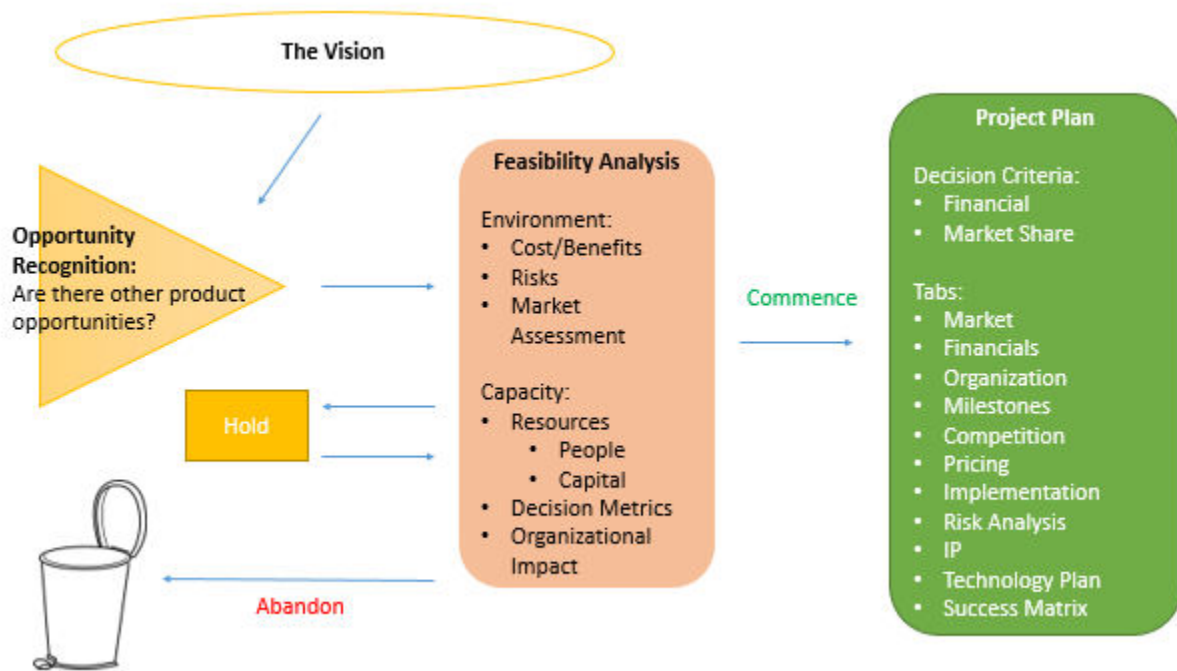


Figure 23 - Model for Commercialization - Photo Credit "Commercializing Innovation" Jerry Shaufeld

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