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## ChopStop: A Strategic Plan

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## **ChopStop - A Strategic Plan**

Course Title: Strategic Management

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**Abstract**

This project is an analysis of the current strategies that ChopStop, a saw manufacturing company should take in the wake of the business environment today. The goal of the project is to identify the Mission, Vision and Values of the company and use these to steer the direction of the organization moving forward. This project will center on the principles and tools taught by the ETM 525 class, the text Strategic Management Competitiveness and Globalization and the tools explained between them. First, the team starts with framing the organization, its history and their milestones. We then introduce the AIM system and its importance to the ChopStop product. After a thorough competitive and product analysis, our team introduces three individual strategies which help achieve the overall goal of expanding sales and expanding the market share of the ChopStop product.

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## **About ChopStop**

What if you could stop a saw blade and prevent a serious injury? Today, that idea is protecting woodworkers in tens of thousands of ChopStop table saws around the globe. ChopStop is the #1 table saw in North America, and ChopStop table saws have saved thousands of fingers. ChopStop is a German owned table saw company. Each table saw is engineered in Tualatin, OR (30 minutes south of Portland, OR). Each table saw is assembled in Taiwan. The following is a general summation of the corporate milestones of ChopStop:

- 1999 Founded - A table saw braking system was invented by Dr. Steve Goose, a patent attorney and an amateur woodworker, who holds a PhD in physics.
- 1999 Business is started. The business was started by three patent attorneys out of this very barn that Goose built beside his house in Wilsonville, Oregon.
- 2000 Prototype demo. ChopStop demonstrated a prototype at the International Woodworking Machinery and Furniture Supply Fair Trade Show in Atlanta, Georgia.
- 2002 Attempt to license. Licensing negotiations were deadlocked when potential manufacturers insisted that Goose should "indemnify them against any lawsuit if a ChopStop table saw malfunctioned".
- 2004 Manufacturing begins. The barn's hayloft became ChopStop's first manufacturing facility, and ChopStop sold its first table saw the same year.
- 2005 Saw Safety Act. The Illinois General Assembly Electrical Saw Safety Act required each table saw manufacturer to retool its production line to install the ChopStop braking system on all electrical saws.
- 2006 CPSC hearings. The Consumer Product Safety Commission recommended mandatory US safety standards for table saws.
- 2006 Product liability litigation. Goose served as an expert trial witness for table saw accident plaintiffs against its competitors. The plaintiffs complained that their table saw accidents would not have happened if the ChopStop braking system had been installed in the table saws which wounded them.
- 2007 The Power Tool Institute developed plastic guards to try to shield table saw users from spinning blades, but users removed them because they were awkward and inconvenient.
- 2008 ChopStop had to overcome obstacles, legal attacks, and suspicion, and had to fight against negative characterizations in order to survive. AIM was far from welcomed with open arms. ChopStop's competitors pushed back hard against AIM, revealing AIM's shortcomings and limitations.
- 2014 The Underwriters Laboratory conducted spinning-blade table saw safety experiment
- 2015 Bosch manufactured a competing table saw finger-saving product
- 2016 Patent litigation found Bosch to be infringing on ChopStop patents
- 2017 The Patent Trial and Appeal Board left ChopStop patents in force
- 2017 The Consumer Product Safety Commission again held hearings on table saw safety. Because of intensive lobbying by the saw industry, the House Appropriations Committee tried to forbid the Consumer Product Safety Commission from passing new table saw safety rules
- 2017 ChopStop was acquired by TTS Tooltechnic Systems, a third-generation family-owned company based in Wendlingen, Germany.

### *Awards*

ChopStop is proud of the awards and recognition it has received which demonstrate its business success as it continues its organizational journey as a valuable, ethical, and transparent industry leader impacting positive change for today and the future. Here are some of its favorites:

- 2001 CPSC Commendation. ChopStop was awarded a safety commendation by the US Consumer Product Safety Commission for "developing innovative safety technology for power saws, intended to prevent finger amputations and other serious injuries."
- 2002 Popular Science. Popular Science named ChopStop's braking system one of its "100 Best New Innovations."
- 2015 Pro Tool Reviews. ProTool Reviews found that the Bosch Table Saw made four finger nicks, while the ChopStop Table Saw made just two. Both saws were shown to actually save fingers.

### *Customer Feedback*

Customer feedback is critical to ChopStop, because the company needs to hear about its product directly from its users in order to improve current products and inspire research and development for future products. Although there have mixed reviews, the majority of customer reactions have been positive. Here are some examples:

- Although there are mixed reviews, the majority of posted customer reviews are positive: "I would absolutely recommend this saw. It is sexy and makes me smile every time I walk into the garage. ... My fingers are worth a lot more than \$2,500 to me."
- "Poor quality control, machine screw holes needed to be re-tapped, extension wings warped, blade out of alignment, bought over arm dust collection but found out after the fact that you need a special blade guard (\$140.00) to use."
- "With the flesh-sensing technology the ChopStop table saw is probably the best table saw ever! ... this saw is a must-have, and even more so if you have kids learning woodworking ..."
- "I've taken classes at a well-known school for woodworkers, and one of their strongest recommendations for students is: get rid of whatever table saw you're using and buy a ChopStop." (Amazon.com, n.d.)

### **AIM - Active Injury Mitigation**

Table saw amputations still continue to rise, and now stand at almost 5000 per year in the United States, costing more than 2 billion dollars a year to treat victims. ChopStop is known for its table saws' ability to stop the blade on contact with skin. Active Injury Mitigation is the pioneering technology that prevents table saw operators from suffering serious wounds, by stopping the blade when it comes into contact with skin. Any skin contact with the blade launches a block into the teeth of the blade, causing it to stop within 5 milliseconds. The table saw operator suffers a small nick instead of an amputation. ChopStop's table saws apply a small amount of electrical voltage to the blade of the saw, and the current through the blade is continuously monitored. If the table saw detects a change in current, the automatic braking system is activated. AIM takes advantage of the difference in capacitance between wood and flesh.

## **Why is AIM Important to ChopStop**

For ChopStop, their most important asset is the AIM system and what it brings to the table. The system is unique and creates a barrier to entry for competitors. The main barrier is the design patent that the company currently owns and runs through 2032. This patent has successfully been defended in the past, even against companies with significantly higher resources.

If the patent wasn't enough, there are additional barriers as well: development costs, redesign costs and material costs. According to the US Consumer Product Safety Commission:

### *Development Costs*

When developing an AIM system “manufacturers currently have two options for obtaining AIM technology. They can both develop and design the system independently, or they could, in theory, license ChopStop’s patented technology (although to our knowledge, to date, ChopStop has only licensed its AIM technology to one Italian manufacturer for development of a sliding table saw).” (Commission, 2016)

Additionally, based on an interview with Dr. Goose of ChopStop, the costs to design and develop the AIM technology currently in use on the ChopStop saws took “significant time and financial commitment”. This commitment included two employees working full-time for a year and “a couple million dollars” in development funds. (Interview with the CEO of ChopStop, 2015) This was the initial investment needed to create just the first saw. According to the US CPSC, these values can be used as the upper end of the estimated cost to develop a competing product, but for most companies this is a significant barrier to entry. (Commission, 2016)

### *Redesign Costs*

To put AIM systems into existing saw models will require other manufacturers to make significant changes to their equipment. They would not only need to redesign their products, but likely their manufacturing processes and facilities. The redesign of the product is primarily driven by the size of the AIM brake and the dropdown feature that is part of the overall AIM system. This cost is also considered to be a substantial barrier to entry. (Commission, 2016)

### *Materials Costs*

In order to accommodate the AIM system the structure of the saw itself must be strengthened. This is needed to support the saw during an activation event. Additionally the AIM brake itself is substantially heavy and requires support. Both of these items result in higher material costs to assemble the saws and to transport them. (Commission, 2016)

## **Company Basics**

ChopStop is on strong financial footing with an annual revenue of just over \$50 million (US). The company also boasts a substantial margin of 50% which is considered high for its type of business. This means the company also support gross and net profits of approximately \$25 million and \$10 million respectively. This income is also backed by the umbrella company’s (described previously) balance sheet as well.



Using the simple company lifespan diagram shown below our team has determined that ChopStop is currently in the “Emerging” stage of its life. This means that the company is still growing but has hit a point of profitability. Due to the profitable nature of the business we do not consider the company to be a “Start-up”. The company has also not hits its full market potential so we do not consider the company to be “Maturing”. Seen in Figure Bret-2, we view the company as providing goods to customers in the early majority, but just past “the chasm”. This means they have substantial runway left to pursue additional products and customers before they hit peak market potential.



Figure 1: Company Life Cycle

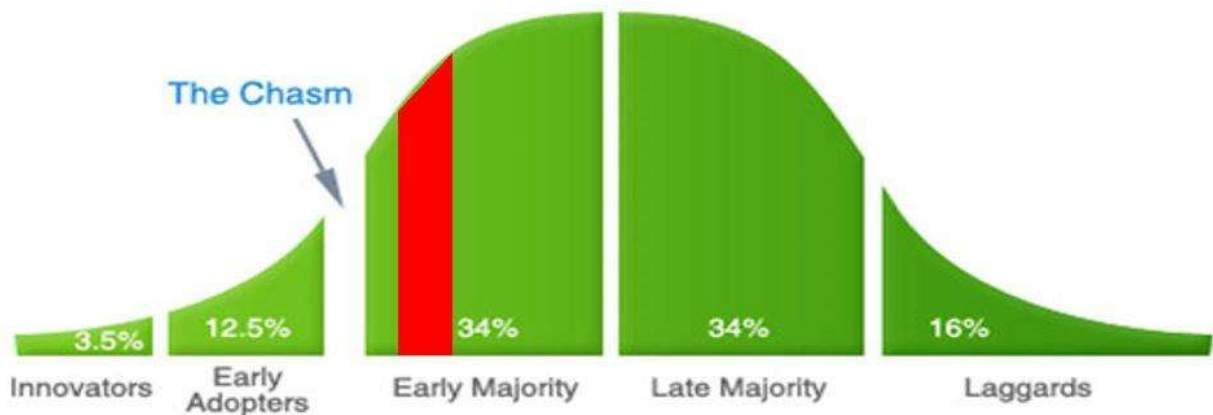


Figure 2: Product Maturity

### Table Saw Competition

The table saw market as a whole is extremely competitive. There are many competitors within that marketplace (See Table Competition (Interview with the CEO of ChopStop, 2015)) and many of them have similar or identical saws to ChopStop. Therefore, the key to ChopStop’s success has been its differentiation. The company has chosen a Differentiation Strategic Model. By choosing this model, the company hopes to “produce products that customers hopefully perceive as being different in ways that create value for them.” (Hitt, 2015) This means that the products they produce are unique to the other market entrants and these unique products meet the unique needs of its customers. This strategic model also produces a corporate culture of “development-oriented...employees [who] try to find ways to further differentiate current products and to develop new, highly differentiated products.” (Hitt, 2015)

Competition		
Company	Brand	Models
Baileigh Industrial	Baileigh	12
DMT Holdings	General, General International	5
Felder Group USA	Hammer	5
Grizzly Industrial Inc	Grizzly, Shop Fox	26
Harbor Freight	Central Machinery, Chacago Electric	1
Laguna Tools	Laguna	10
Makita USA	Makita	2
Oliver Machinery	Oliver	3
Rexon Industrial Corp	Tradesman, Task Force	2
Richpower Industries	Genesis	1
Rikon Power Tools	Rikon	1
Robert Bosch Tool Corp	Bosch, Skil	5
<b>ChopStop LLC</b>	<b>ChopStop</b>	<b>9</b>
Sears Holding Corp	Craftsman	6
Shopsmith Inc	Shopsmith	1
Stanley Black and Decker	Dewalt, Delta, Power-cable, Rockwell	17
Steel City Tool Works	Steel City, Orion	6
Techtronic Industries	Ryobi, Milwaukee, Rigid	3
Terratek	Terratek	3
True Value Company	Master Mechanic	1
Walter Meier Ltd	Jet, Powermatic	32
Woodworker's Supply	Woodtek	5

Table 1: Competition Table

For ChopStop, their key drivers for differentiation have been to focus on the high-end customer with higher quality materials and assembly processes. By producing a higher quality product, the company has been able to demand a higher price point and still meet the needs of the customer. These

higher quality materials also help to better support the saw during its operation. The drive to this higher quality standard has meant lower volume production processes.

## **5 Forces Review - Explanation of the Five forces analysis**

### *Threat of new entrants*

ChopStop, with reliance on the AIM system is shielded from direct competition for their safety unit by patent protection until 2032. While there is immense competition in the market for manufacturers of different saw equipment, none have been able to effectively compete with the AIM system without infringing on the patent in place today. While the market does expect the competitive landscape to continue to improve the safety features of their equipment, none are effectively competitive to the AIM mechanism.

### *Bargaining power of suppliers*

ChopStop has the opportunity to differentiate further using the bargaining power of suppliers to improve their quality position. ChopStop can use multiple suppliers in Asia to potentially built their saw systems. However the current position of the saw is a high quality build so it is unlikely that improvement in market position would come from improvement in the saw quality.

### *Bargaining power of buyers*

The bargaining power of the buyers is strong with the ChopStop products. The products is positioned as a high priced tool and consumers both home users and professional have a lot of options to choose from. The consumer could easily switch to another professional saw which could very adequately do the job however the move would be sacrificing the tools that effectively make the ChopStop product unique - protecting their fingers.

### *Threat of substitute products*

This again is an area that is unique for the ChopStop product. While there are a myriad of substitute products out there, none of the built in injury mitigation systems. The end user could easily substitute the saw for a new product but would be immediately sacrificing the injury mitigation system that makes the AIM system unique.

### *Rivalry among competing firms*

In the tool industry the table saw market is highly commoditized. That said, the rivals in the industry do not have the opportunity to effectively compete with ChopStop due to their patent protected injury mitigation system. Rivals have tried to replicate or even beat the AIM system however the threats were litigated and found to infringe on the ChopStop patent. As a result, while each of the firms are still probably trying to improve their safety designs there is still no real threat to the AIM products presence.

## **Mission, Vision, Values and Core Competency**

### **Vision**

*Putting electronic, tabletop cutting equipment with AIM into every professional, educational, and personal woodworking shop.*

### **Mission**

*Provide our clients with premium manufacturing and construction equipment containing safe and robust injury prevention systems.*

### **Value Proposition**

*Highest level of cutting system injury mitigation on the market with superior quality and reliability.*

Through the current and further development of the AIM system and ChopStop products our goal is to increase the sales, quality and safety of the tools available to our potential customers and make the construction environment safer for those who need our tools.

### **Core Competency**

*The design, integration and production of quality, complementary safety technologies.*

## **Who Wants Safety & Why?**

Simply put, everyone!

In the contractor workspace and with anyone who does woodworking everyone wants a safer working environment. Woodworking has several risks that put the user's fingers at risk. This could include losing their livelihood in the case of a Dr. or the ability to play music or other hobbies as indicated here.

Our team conducted a survey and found the following information:

- Professionals ask for safety and worker protection lowering risk of lawsuit and increasing efficiency
- Potentially appealing to insurers protecting woodworkers and contractors reimbursing premiums
- Users interested in direct protection from accidents or loss of limb/appendage.

## **Customers**

ChopStop has two customer bases. ChopStop's primary customers are schools, vocational learning centers, and professional woodworkers. ChopStop's secondary customers are hobbyists and high-end woodworking enthusiasts. We will define both of these further in the following sections.

### *Working Educator*

ChopStop's typical working educator is a male high school shop teacher, age 44. He is a former industrial professional who possesses teaching credentials and is talented in dealing with teens and parents. A high school shop teacher is someone who provides instruction in the industrial arts, including woodworking, metalworking, and automotive repair. Shop is an elective class, so shop teachers work primarily with students who are specifically interested in acquiring shop skills. The woodworking teacher provides instruction to students in working with wood. This includes everything from teaching students about different kinds of wood to providing safety instruction so that students can use shop equipment like sanders, lathes, and saws. (Wisegeek, n.d.)

Depending on the level of the class, students may be given relatively simple projects or may progress into the finer points of woodworking. The goal is to provide students with basic information and skills. Students may end up applying these skills to professional development by pursuing additional training after they graduate so that they can work as woodworkers. The shop teacher provides a grounding in safety and the myriad skills needed to work comfortably in the shop environment.

### *Education Market*

The Education Market can be detailed as follows:

- 8,600 schools in the U.S.
- 31,000 schools are High Schools
- 6,200 schools (20%) have shop classes
- 2,400 schools are Vocational Education Facilities

Much of the education available in North America falls into one of two classifications. It can be from a formal academic institution, such as an accredited two-year college where the focus is on underscoring industry-wide standards, methods and practices. The other option is classes that are held in the relatively informal workshops or studios of celebrated or accomplished furniture designers in which case the emphasis is usually on joinery, aesthetics (such as grain and color matching), and perhaps custom or period-specific design such as Shaker, Arts & Crafts, or contemporary furniture. Formal education is further divided into traditional classes (such as wood movement, materials, veneer patterns, adhesives and finishes), and technical classes that address CAD and CAM.

A better educational choice might be a commercial machine or software supplier, rather than a local college. Commercial seminars are far more likely to address the specific needs of a shop than general college courses can. College instructors must plan to teach everything, while commercial instructors can focus on a single machine or program.

### *Working Professional*

ChopStop's typical working professional woodworker is imagined as a male, age 32, who works for a small woodworking company. He took shop in high school, is proficient with mathematics and machinery, and is talented in customer service. Most woodworkers receive on-the-job training under the supervision of other more experienced workers. However, because of the ongoing development and modernizing of woodworking machinery, many employers are requiring applicants to have at least a high school diploma, plus additional training in math and computer applications. On any given job, they will calculate sizes, dimensions, distances, and quantities of materials. Computer skills and knowledge

of relevant software also benefits woodworkers with job-estimating, project management, and basic spreadsheet or word processing. (Truity.com, n.d.)

Woodworkers should be detail-oriented, have good people skills, have steady hands, and physical strength, especially when lifting 100-pound sheets of plywood. Many woodworkers receive training by enrolling in a community or technical college. Some attend a university that offers coursework in furniture manufacturing or wood engineering. Becoming a skilled woodworker can often take years, and requires knowledge of blueprints and work sequences. Although some entry-level jobs can be learned in less than 1 year, becoming fully proficient generally takes at least 3 years of on-the-job training. The ability to use computer-controlled machinery is becoming increasingly important. Because of the growing sophistication of machinery, many employers are seeking applicants who have a high school diploma or the equivalent. People seeking woodworking jobs can enhance their employment prospects by completing high school and getting training in computer applications and math. (Truity.com, n.d.)

Some woodworkers obtain their skills by taking courses at technical schools or community colleges. Others attend universities that offer training in wood technology, furniture manufacturing, wood engineering, and production management. These programs prepare students for jobs in production, supervision, engineering, and management, and are becoming increasingly important as woodworking technology advances. Education is helpful, but woodworkers are trained primarily on the job, where they learn skills from experienced workers. Beginning workers are given basic tasks, such as placing a piece of wood through a machine and grabbing the finished product at the end of the process. As they gain experience, new woodworkers perform more complex tasks with less supervision. In about 1 year, they learn basic machine operations and job tasks. Becoming a skilled woodworker often takes 3 or more years. Skilled workers can read blueprints, set up machines, and plan work sequences. (Truity.com, n.d.)

Licenses, certifications, and registrations are not required, but becoming certified can demonstrate competence and professionalism. It also may help a candidate advance in the profession. The Architectural Woodwork Institute (AWI) offers a national certificate program, which adds a level of credibility to the work of woodworkers. The Woodwork Career Alliance of North America also offers five progressive credentials. Additionally, woodworkers possess the following specific qualities:

- Detail oriented. Woodworkers must pay attention to details in order to meet specifications and to keep themselves safe.
- Dexterity. Woodworkers must make precise cuts with a variety of hand tools and power tools, so they need a steady hand and good hand-eye coordination.
- Math skills. Knowledge of basic math and computer skills are important, particularly for those who work in manufacturing, in which technology continues to advance. Woodworkers need to understand basic geometry to visualize how the wood pieces will fit together to fabricate a three-dimensional object, such as a cabinet or piece of furniture.
- Mechanical skills. Modern technology systems require woodworkers to be able to use robots, computers, and other programmable devices.
- Physical stamina. The ability to endure long periods of standing and repetitious movements is crucial for woodworkers, who often stand all day performing many of the same functions. Physical strength. Woodworkers must be strong enough to lift bulky and heavy pieces of wood, such as plywood.

- Technical skills. Woodworkers must be able to understand and interpret design drawings and technical manuals for a range of products and machines.

### *Professional Market*

The Professional Woodworker Market (Average Income \$48K) can be detailed as follows (bls.gov, n.d.):

- 86,200 Cabinetmakers, bench carpenters
- 61,500 Woodworking machinists
- 40,200 Saw machinists
- 14,800 Furniture finishers

Although the term “woodworker” may evoke the image of a craftsman who uses hand tools to build ornate furniture, the modern woodworking trade is highly technical and relies on advanced equipment and highly skilled operators. Workers use automated machinery, such as computerized numerical control (CNC) machines, to do much of the work with great accuracy. Even specialized artisans generally use CNC machines and a variety of power tools in their work. Much of the work is done in a high-production assembly line facility, but there is also some work that is customized and does not lend itself to being made on an assembly line.

Woodworkers set up, operate, and tend all types of woodworking machines, such as saws, milling machines, drill presses, lathes, shapers, routers, sanders, planers, and wood-fastening machines.

Operators set up the equipment, cut and shape wooden parts, and verify dimensions, using a template, caliper, and rule. After the parts are machined, woodworkers add fasteners and adhesives and connect the parts to form an assembled unit. They also install hardware, such as pulls and drawer slides, and fit specialty products for glass, metal trims, electrical components, and stone. Finally, workers then sand, stain, and, if necessary, coat the wood product with a sealer or topcoats, such as a lacquer or varnish.

Cabinetmakers and bench carpenters cut, shape, assemble, and make parts for wood products. They often design and create sets of cabinets that are customized for particular spaces. In some cases, their duties begin with designing a set of cabinets to specifications and end with installing the cabinets. Furniture finishers shape, finish, and refinish damaged and worn furniture. They may work with antiques and must judge how to preserve and repair them. They also do the staining, sealing, and top coating at the end of the process of making wooden products. Wood sawing machine setters, operators, and tenders specialize in operating specific pieces of woodworking machinery. They often operate CNC machines.

Woodworking machine setters, operators, and tenders, except sawing, operate woodworking machines, such as drill presses, lathes, routers, sanders, and planers. Although many smaller shops employ a few workers, production factories can have as many as 2,000 employees. Woodworkers make wood products from lumber and synthetic wood materials. Many of these products, including most furniture, kitchen cabinets, and musical instruments, are mass produced. Other products are custom made from architectural designs and drawings.

## **Primary Objective**

Our overall goal is to increase unit sales by an additional 14,250 units over the next 6 years. This corresponds with annual gross profit of approximately \$1.78M according to our calculations under the assumptions.

## **Product Mix Strategy**

The next section will cover our first strategic suggestion. This strategy focuses on the release of a new product to an existing customer. The details of which will be described in the follow section.

### *Why do we need something new?*

As previously discussed in the Competition section of this report, ChopStop has chosen a strategy hinged upon differentiation. This strategy means that the company and its culture is designed to generate new ideas and promote new versions of existing products. This development-oriented culture is critical to the company's success and is the main driver of this recommendation. Based on data from the US Consumer Product Safety Commission, the table saw market is relatively fixed and is closely tied to the size of the economic expansion happening at that point in time. (Commission, 2016) Due to this fact, trying to crow within the existing market will be challenging. To counter that challenge, we recommend looking at markets that are already entered by ChopStop or markets that are directly adjacent to markets that they work within. By looking at these new opportunities, the company can expand while keeping resource expenditure to a minimum. This will be additionally effective if existing customers can be targeted for this strategy.

### *The Idea*

Before selecting a new product, our team reviewed the current product mix and the current market participants and set forth a list of items that the new product should meet. The list is as follows:

- Should expand an existing product line
- Must leverage the existing technology platform
- Must leverage existing core competency
- Should sell to existing customers if possible
- Must maintain or expand the current pricing margin
- Should increase sales of existing products

### *The Product Suggestion*

After reviewing the current ChopStop products and the list of requirements from the previous section, it was decided to release a new AIM enabled router with a full router table. This new AIM enabled router will leverage the existing router tables which the company produces and introduce a new router capable of accepting the AIM system. The new router will require significant redesign compared to existing routers as they do not possess the ability to have a braking system added to them.

To do so will require the addition of either a longer spin shaft and/or an integration into the motor housing. The drop-down feature will also need to be reviewed to find a way to incorporate the



feature into the existing table. Unlike the table saw, the router design spins on a horizontal axis so the momentum will have to be redirected into the proper direction or the feature will have to be designed to act based on a different mechanism. The router tables will also need to be updated to accept the specialty routers. One of the main requirements of the new router is that it must maintain the high-quality standards set forth by the company. It must meet all the structural, physical and performance standards that the company prides itself on with its other products.

### *Target Customer*

Based on the product selected and the requirements previously outlined, it was determined that the best customer to focus on first for the new AIM enabled router is the education market. This market meets the requirements for marketing to an existing market place and also has a significant need for safety products. ChopStop currently sports an impressive +40% market share in the education table saw market. This gives them a substantial foothold in this market. At +40% market share in the table saw market, ChopStop has reached realistic market saturation within that market. That doesn't mean that they can't sell anymore saws to this market, but it does mean that it is significantly more challenging.

The reason these customers are the focus of this new item is that these customers have a minimal acquisition cost. Since these customers already use the table saw product, they already know how the product works and what value it brings. This makes selling a new product to this customer base much easier. With a total addressable market of approximately 8600 educational facilities, we have set a goal of 35% market penetration within 4 years of being in production. This means that the company must sell approximately 3000 units over its first 4 years in production to the educational market. With a more than 40% table saw market share, it was deemed reasonable that a similar share could be achieved with the router. With that being said, we felt it was unrealistic that we would hit equivalent market share in just 4 years and deemed it necessary to leave some room for additional growth.

### *Estimated Costs*

To determine the proper cost profile for the new product, we looked at the current products first. We were given a baseline margin of 50% to use as a general rule for the existing router table and a selling cost of \$700. We were also given an annual sales volume of approximately 500 units per year. This means that the company makes an estimated \$350 gross per router table. For the development of the new router we were given an estimate of \$2 million dollars and a 3-year timeline. This cost and timing seem reasonable and achievable within the overall goal time limit of 6 years.

We also conducted some baseline product research to determine what our potential selling price could be. Based on the research we determined that similar products sell for approximately \$1200-1500. Based on our premium product model we determined that a realistic selling price for the AIM enabled router with table would price at \$1500. For the purposes of all future calculations, we assumed a 50% margin of a gross profit of \$750 per router/table combo. However, also based on general research it was determined that the 50% margin is likely too low at the \$1500 price point. This is based on the fact that standard routers cost approximately \$250 and we estimate the new AIM system costs approximately \$100. This means that the costs associated with the combo are \$350 for the table, \$100 for the AIM system and \$250 for the router for a total of \$700 and leaving a gross of \$800 or a margin of 53%. While we realize this might seem like a small variance, that extra 3% equates to an additional \$150,000 over the 3000-unit goal.

*Estimated Payback*

Based on a 3000-unit goal and a \$2 million investment it is calculated that breakeven will be achieved in 2665 units. That means that the estimated payback will take approximately 3.5 years. This assumes that the adoption curve and the volume curve are aligned. This curve can be seen in Figure Bret-3. This payback assumes no other sales from other markets other than those into the education market. This is an overly conservative stance but proves the effectiveness of the strategy. Assuming the 35% education market penetration is achieved at the end of the 4 years, the company can plan to make an additional \$250,000 gross profit after all project expenses are paid. This would also require an additional router table run rate of approximately 20%. Based on these numbers the strategy looks to be achievable and fiscally responsible.

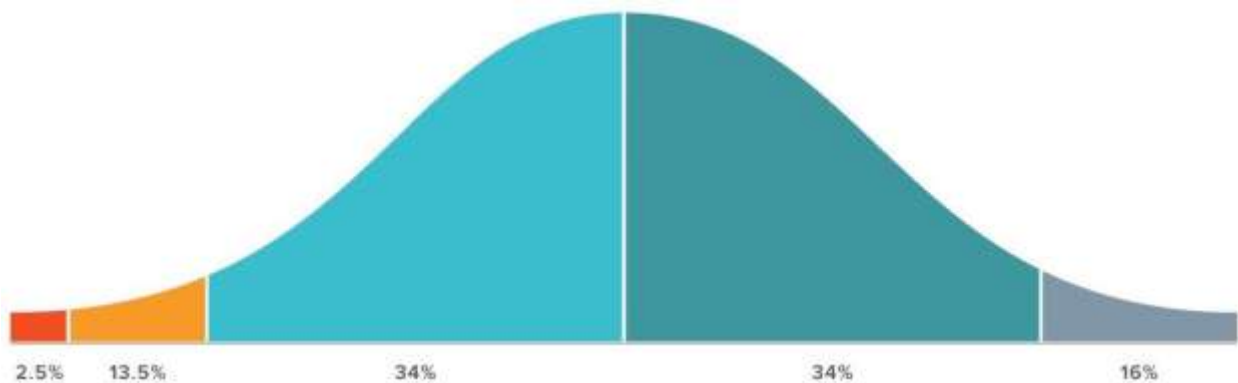


Figure 3 (Hitt, 2015): Adoption/volume curve

*Additional Possible Benefits*

In addition to the already discussed additional 3000 units sold to the education market, there are other benefits. One of these benefits is the potential for additional patent applications. This would increase the IP owned by the company and potentially increase the patent protection lifespan for the company's products. Alongside the education market, it is assumed that there would be some subset of the professional market that would want to try this new offering with little to marketing pushing them to do so. To be conservative we assumed that we could achieve 50% of the "innovators" group, or 1.25% of the TAM in the professional market. This would result in an additional approximately 2,530 units sold over the first 4 years of production. These additional units result in an additional \$1,900,000 in gross profit and a shortening of the payback period by almost a full year.

*Unit Impacts of the New Product*

To summarize the impacts of the new product offering, we have compiled the following table. As shown in the table, if both of the potential markets meet their conservative goals, then the company should realize an additional 5530 units and an additional \$4,147,500 in gross revenue.

	UNITS		PROFIT	
YEAR	EDUCATION	PROFESSIONAL	GROSS	NET
2022	450	360	\$607,500	\$182,250
2023	650	540	\$892,500	\$267,750
2024	850	740	\$1,192,500	\$357,750
2025	1050	890	\$1,455,000	\$436,500
<b>Totals</b>	<b>3000</b>	<b>2530</b>	<b>\$4,147,500</b>	<b>\$1,244,250</b>

Table 2 (Commission, 2016): Unit Sales Vs Profit for AIM Enabled Router/Table Combo

### *Other Possible Cutting Equipment*

During our review of acceptable products that ChopStop could expand into, the following list of products were also considered. All have a high impact to the user and/or require the user to have their hands close to the blade during operation. All also require a skilled, trained operator to use effectively and are used within the setting that our target audience participates in.

- Cutoff Saw
- Miter Saw
- Band saw
- Planer
- Sander
- Scroll Saw
- Shaper

### **Strategic Partnerships**

The second strategy we would deploy would be to align with strategic partnerships that would make the cost of acquisition and potentially the cost of doing business lower for users over time. Our goal would be to have the strategies in place beginning in 2020.

### *Partnerships - Assisting with Financing*

The vendor financing market is available for companies that want to offer financing but do not want to take on the credit risks or processes involved in direct lending. It can be particularly helpful when people are trying to extend repayment terms from immediately or the shorter terms to 12-36 month terms. Listed are a few of the financial partners available however there are many others. The information obtainable from these companies show the majority of clients see a 10-15% increase in affected sales when reasonable financing offers are available. We have estimated our adhesion at half that and are factoring about 5% growth for the service offering. For the educator side we would look to work with and assist educators with the acquisition of grants or scholarship funds. (Capital, 2018)

Next we would reach out to insurers and labor and industries departments and start sharing our story with them. Touting both the reduction in injury and the lessening of the severity of the injury our goal would be to lower the insurance premiums due from those who are using our products commercially. Utilizing a credit or reduction in premiums model, we would work to get a reduction of premium in the \$250-\$500 range. We expect that once the credit model takes hold, that information will spread state to state offering additional awareness and purchasing opportunities for the ChopStop products.

The majority of the costs would be internal employee salary and overhead expenses. At the high end of \$100,000 annually, this would enable us to immediately begin to communicate with each type of company and work toward relationships and offerings both for credit lines and inroads to the labor and industries insurers. While most of the examples show sales increases at 10% or more we estimated that current sales would increase at least 5% with the deployment of these strategies. This would produce additional sales of \$2.5M annually on an investment of \$100,000 increasing net income \$500,000. This would produce a minimum ROI of 400% on a 5% increase in sales.

### Marketing Allocation

Our marketing strategy will apply to both personas. As it is known, there are a lot of marketing strategies. To identify the best strategies for our company, the surveys of our team became the most important illustrator. The major aspects of allocating marketing are listed below.

#### *Allocated Marketing: Strategy Assessment*

Before identification, assessment of needs is critical. Here is the approach for it. The table shows the narrative steps for marketing strategy needs and the steps that have been taken by the team.

Narrative Steps	Reaction
Define the target population	We identified 2 persona: Educators, Professionals
Test your people	We asked these people (Survey): People want to touch and try!
Consider marketing strategies	What should be in the strategy? Visual and on-site information can cover the gap/fill the needs.
Evaluate those strategies	Which strategy fills the gap/needs? Viral Video Marketing and Mobile-Tour Experiential Marketing

Table 3: Marketing steps

According to narrative steps, the major marketing strategies are identified as viral video and experiential marketing.

### *Viral Video Marketing Strategy*

A viral video is a video that has traveled all around the internet and has been posted on YouTube, Myspace, Google Video or Facebook etc. with millions of views. (Greenberg, 2007)

#### **Major Tactic**

For this strategy *Saving Stories* which are real world stories about people's experience with the AIM system is the major implementation. Tool of The Tactic is a short movie competition between schools. This is the connection of marketing strategy to educators' persona directly.

#### **Metrics**

For this strategy, we aim to finalize competition in 1 year. According to results we plan to initiate 3 winners in tech insider.

### *Experiential Marketing Strategy*

In traditional marketing, consumers as rational decision-makers who care about functional features and benefits. However, experiential marketing views customers as rational and also emotional humans who are concerned with achieving pleasurable experiences. (Schmitt, 1999) Thus, people may be more likely to buy the products if they can see, touch and try it at the same time together.

#### **Major Tactic**

The major tactic for this strategy is taking the ChopStop technology to the customers. A vehicle will be used to allow both persona educators and carpenters to experience the tools first hand both for see, touch and try as the surveys indicated.

#### **Tool of Tactic**

The major tool for the strategy is Mobile Tour – ChopStop Truck. This truck will be used in traditional trade shows to meet with potential customers in both persona. On the other hand, out time of fairs; this truck will be used for some visits in identified states for carpenters.

#### **Metrics**

We plan to cover 6 states in in 24 months. In this trip, the potential customers as in persona, schools; will be tried to cover in the ratio of 50%. Furthermore we will keep the attempts to Join Trade Shows at least 10 in 2 years.

### *Trade Shows*

For the Trade Show Presence, here are the some examples listed: LC Live - Residential Construction Show, The Woodworking Shows, Safety Services, Manitoba SAFE Work Conference, Midwest Tool Expo & Auction, Mid-Oregon Construction Safety Summit, ASSP - American Society of Safety Professionals, Super Con - Super Conventions/Super Festivals, Alberta Health & Safety Conference and Trade Fair, Oregon GOSH - Oregon Governor's, Occupational Safety & Health Conference, Cabinets & Closets (Wood Pro Expo), AWFS - Association of Woodworking.

### *Marketing Roadmap*

After clarification on the strategies for marketing, the next step is to connect them with the potential market. For this purpose we focused on professionals-carpenters statistics. All the statistics were covered from Bureau of Labor Statistics (BLS) internet site. According to BLS average income for

carpenters is \$ 44K. The separation of percentile wage estimates for this occupation above median is below.

Percentile	50% (Median)	75%	90%
Hourly Wage \$	21,71	28,93	38,63
Annual Wage \$	45,170	60,180	80,350

Table 4: Wages of contractors in varied regions

According to this data, since our product price is high, we discussed to focus people who have in the range which is over 44K annual wage. Here is the map of BLS for annual wage distribution by states in USA.

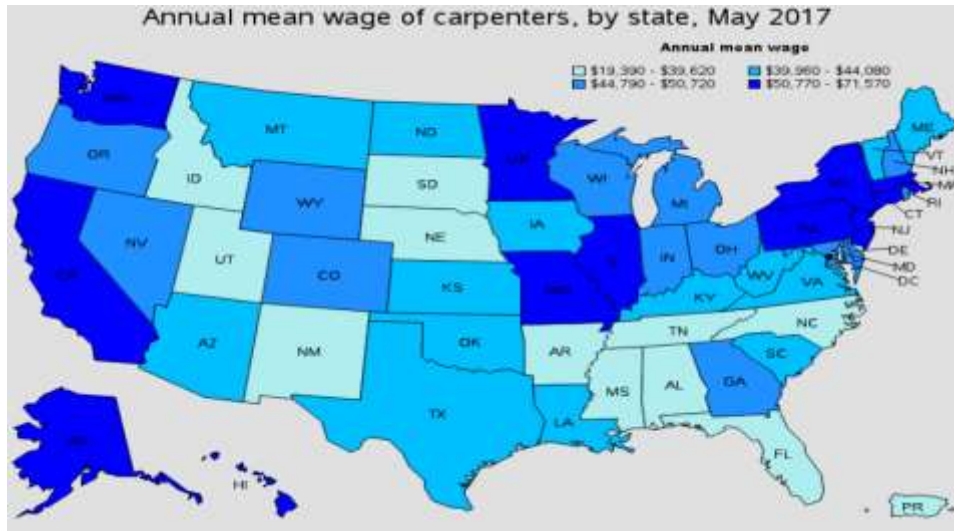


Figure 4: Carpenter wages

Annual wage shows a map but it is not enough be sure for identification. This information should be supported by the most employment states information and location quotient (The location quotient is the ratio of the area concentration of occupational employment to the national average concentration. A location quotient greater than one indicates the occupation has a higher share of employment than average, and a location quotient less than one indicates the occupation is less prevalent in the area than average) of carpenters by state. According to mentioned information in BLS, the results are CA, WA, IL, MO, NY and NJ. For these states, there are approximately 200,000 carpenters. (Porter, 2008) (BLS, Occupational employment and wages , 2018)

*Assumptions for Impact*

As we mentioned above, sample of the space is 200.000 and potential audience/visitors to experimental marketing is 2000 in this sample as 1% all.

**Cost**

In the cost case, a tour track cost is \$ 200,000 for 2 years. We plan to go 6 states in 6 different during the 2 years. In this period fairs costs are \$ 180,000 for 6 year. We accepted that \$ 30,000 as a risk cost. Furthermore, \$ 10,000 is for the competition prize for Viral Video between schools. At last, the total amount for marketing is \$ 420,000.

**Sales and Impact on Overall Aim**

Here are the expected sales both in units and dollars:

YEAR	UNITS	\$ GROSS	\$ NET
2020	100	75,000	22,500
2021	200	150,000	45,000
2022	300	225,000	67,500
2023	400	300,000	90,000
2024	300	225,000	67,500
2025	350	262,500	78,750
TOTALS	1650	1,237,500	371,250

Table 5: Sales and impact on AIM

**Summary of our work**

Here is the summary of our study below.

*Inception*

First we try to know the firm/product and industry with tools of the course. Thus we identified vision, mission, value proposition and core competency properly. Then according to these, we created an eligible aim in market share.

*Research*

For the best, we started to try to know our potential customers better and identified 2 persona. On the other hand, Identification is different from understanding anything so we made some surveys to know customers more detailed. Then we collected the data together, and start to think “why people need to buy our products and how can we make much more sales to those people?”

*Needs & Strategy*

The most important question is, to achieve the market share aim, how can we make core competency into a competitive advantage, according to our value proposition, vision, mission of our firm and the survey? Here is the table how the needs meet with strategy in terms of aim of the study.

<b>Need</b>	<b>Category</b>	<b>Strategy</b>	<b>5 Year Unit Impact (Estimated)</b>
People need to know our products and core competency better by seeing, touching and trying.	Allocated Marketing Strategy	Viral Video: Saving Stories Competition between schools for the prize Mobile Tour – ChopStop Truck	1,650
We need to offer better payment plans and create new partnerships in the value chain to cover price level.	Strategic Partnerships Strategy	Joint action with a strategic banking Negotiate discount with state workers compensation divisions	9,600 (conservative)
We should offer new products with our major capability to sustain the core competency.	Product Mix Strategy	Develop a new product which utilizes the same mechanism used today. Leverage known product similarities	3,000 (+2330 from pro)
<i>According to this allocation, additional 14,250 units; Gross Profit of \$10,687,500; Investment of \$2,795,000; Baseline ROI of 382%</i>			

Table 6: Overview of strategies

**Conclusion**

In conclusion, our team has analyzed the strategic position and forward direction of the ChopStop product. Starting with the market analysis we determined the market is very competitive, stagnant in growth and dependent on the construction industry. We continued with the examination of the Mission, Vision and Values and the focus on the company core competencies. Using the tools from the lecture and class, we analyzed both the current and future state and made several recommendations for improving and enhancing the market share and sales of the ChopStop organization.



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