

TineLok Business Case

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TineLok is a one product company with a “cutting edge” product with unlimited target markets, not just in the United States, but throughout the world. Yet, what appears to be a simple enough product and company has evolved into a never ending spiral of corporate structures and owners. A brief history of the development of the product and then a longer history of the company’s formation, development, changes, and current situation are provided. There are strategic management, target market, corporate structure changes and potential growth issues that form the basics of the major question, “where do we go from here?”

CASE OBJECTIVES AND USE

While the case can be used for a Principles of Marketing course, its issues of corporate structure and the variety of target markets make its use in a Strategic Marketing course - depending on the scope of the particular course - viable. The case can show the interaction of the marketing mix (4p’s) through the development of a competitive advantage using the formula Competitive Advantage = low cost + differentiation + scope to address cost behavior, special needs, and integration. The sources of the competitive advantage are based on the various patents developed for the unique vibration-proof, self-locking fastener system. Decisions now need to be made concerning the functional areas of the company, specifically in the domain of marketing. Other strategic decisions, concerning the future of the firm, also need to be considered.

INTRODUCTION AND PRODUCT HISTORY

While working at Avon Products, Bob Dee and a second co-creator became friends and would often go to lunch together. Bob was a very handy person, and would do a lot of do-it-yourself work on his house, as well as for others.

At one of these lunches, Bob indicated that he had always wanted a riding lawn mower to cut his grass, so, he finally bought a used one. The lawn mower seat was attached to the mower by a large nut and bolt that would come loose at least three or four times when he was cutting grass, mainly due to vibration. This problem plagued Bob for several years as he continued to look for a way to resolve it.

Due to his frustration, Bob decided to come up with his own fix for the vibration, nut and bolt loosening problem. Bob's fix for the problem finally worked, but then the lawn mower engine seized up, so he decided to get rid of the mower. When asked how long before the nut and bolt came off again, and he had to replace the fastener, Bob revealed that it never came apart again, and in fact, lasted until the mower seized (seven years).

In thinking about Bob's nut and bolt story, another engineer, who participated in the lunch group, thought there must be something like this in a hardware store. Therefore, the next two months were spent, without success, looking for a similar product. There was not a nut and bolt assembly that could withstand any vibration without loosening. In looking for a vibration-proof nut and bolt, one early partner asked his father, who owned an excavation business, if there were vibration problems with any of the heavy equipment and trucks? He explained that bolts were always vibrating loose and being replaced or tightened. This was the "ah ha" moment that there was a real need for a product like this one.

Another person was consulted about the possibility of patenting the idea and gadget, then just selling the idea, licensing it, or whatever. The thought was that Bob would supply the concept and others would supply the money for production. In the end, a proposal was made to Bob for the product, he accepted, and there were then three equal partners. Permanent Technologies Inc. was born. The write up for the first patent took about three months. The patent attorney kept rejecting the write-ups and wanting more detail. Bob Dee and another partner worked on this part of the process. After the written portion was accepted, drawings were required for the patent filing to be complete. When everything was completed, the attorney put the narrative into the patent application. The whole process took approximately 18 months, from first application to the patent pending status in 1994. It was three years from concept to reality. Then, from 1994 to 1996 nobody could manufacture the unique product. It could be made by hand, but the technology did not exist for mass production. That meant that the product could not be marketed, because who would buy something that could not be made in mass quantities.

It was time to change designs so that the product could be manufactured. The original inventor came up with many new designs that led to more patent applications. For each new patent, the same lengthy process was required as for the first patent. Each subsequent patent contained material from the first patent, so that each new patent in essence extended the life of the previous patent. At the same time, a machine shop was utilized to come up with a manufacturing process. This activity also brought up new ideas and new products that also went through the patent process. A marketing firm was hired to assist in licensing or selling the unique product. The problem was always in the manufacturing process. This product represented a new technology in an industry that has very few changes.

All patents stated that the nut and bolt can be made out of any material and can be any size ("Permanent Technologies," 2008). For any given application, the required size and material used for that application had to be given. The tedious process required creating the tooling to manufacture the product, and then creating a testing procedure to make sure it would work properly. There were times when a tweak or two of the dies worked, and other times new dies had to be created. Somehow, the right tooling was always found.

These activities created a big financial drain on the company, so a first round of fundraising began in 2001, resulting in about \$300,000. That initial money was used for accounting fees. The second round of fundraising took place around 2004, with \$500,000 raised. The funding this time also went to pay for materials, dies, and testing of the fasteners, as well as, the patents and legal expenses.

In early 2007, the process of going public was started. By December of 2007, the company became a pink sheet stock by bringing in a big investor. This move allowed the building of a product line, as well as, getting a sales force and advertising campaign cranked up. The stock started trading in January 2008 under the symbol Pert.pk. By the spring of 2008, several investors were interested and over \$100,000 was raised. Of course, then the one thing happened that no one had ever anticipated, the whole economy collapsed.

As a result, the company was still trying to raise money. The idea and product were still in the works, but the same expenses continued. Moreover, the previously acquired funding allowed the company to achieve a point where the capability to manufacture a product in metal and plastic in different sizes for different applications was real. Companies were now interested in the fastener system for their needs.

FORMATION AND GROWTH OF PERMANENT TECHNOLOGIES

Permanent Technologies is the inventor and manufacturer of the award-winning TineLok Fastening System – a family of fasteners that are designed to hold tight in the most demanding, extreme and harshest conditions, environments and applications. The TineLok Fastening System's vibration-proof, self-locking technology is an affordable alternative to traditional fasteners when increased safety, reliability, operating life and reduced maintenance is desired or required. The Company has been granted numerous patents both in the U.S. and internationally for the TineLok technology. For more information please visit www.TineLok.com.

In November 2007, Permanent Technologies, LLC ("Permanent") of Hauppauge, New York announced that Permanent and Triden Telecom, Inc (Pink Sheets: TRTM) entered into an agreement to complete a reverse merger transaction where Permanent's business assets and operations would be combined with Triden Telecom. Loren Ball, founder and CEO of Permanent, assumed the position of President and CEO of Triden Telecom. The company renamed itself Permanent Technologies to reflect its new focus on designing and manufacturing proprietary fastening systems for high vibration environments. "We believe our Company has a lot of exciting new TineLok product offerings in the works and I am very pleased that Permanent has transitioned into a publicly traded company. We believe that having access to the public markets will create new opportunities for the Company, although we can provide no assurance it will. We anticipate 2008 being a very successful year for the company and for the TineLok product line," said Ball.

VIBRATION-PROOF, SELF-LOCKING FASTENER BREAKTHROUGH

Permanent Technologies was itself also twice-named an award winner, as "Best Product for the Year (2002) in Category" for its innovative "Tine-Lok™ Vibration-Proof, Self-Locking Nut & Bolt Fasteners," as well as, being lauded as one of ten (10) top industrial innovations for 2002 by Reed Business Information Publications. As a first place award winner for the "2002 Best Product of the Year," in category, by Design News, "Tine-Lok™" was considered the most significant fastener design to emerge in 25 years (DN Staff, 2003). In awarding the prize, the judging panel noted that "During a standard vibration resistance test (conducted by the panel), the (Permanentech) design more than doubled the number of cycles withstood by other fasteners before the test was halted because no vibration took place."

First and foremost, "TineLok™" offers a breakthrough design patented as a one-way nut and bolt combination, which locks the nut and bolt into place at preset intervals, preventing vibration. Counter rotation of the tined-nut, without additional adjustment, secures the positive lock-in action. Simple to install, the bolt has longitudinal notched channels, a narrow mouth leading to a wide throat and permits the tined nut to couple with the thread. It is tamper-proof. For product inspection purposes a special, patented, nut removal tool is available.

A radical design departure from current fasteners, this self-locking, innovative one-way nut and bolt carries seven USA patents, two Canadian patents, as well as, patents pending in the UK, EU, China and industrialized South American countries.

The multi-patented Self-Locking Vibration-Proof System is a one way nut and bolt combination that locks in the nut to the bolt at predetermined intervals, eliminating the possibility of vibration. U-shape, S-shape and J-shape hanger fastener systems that slip onto or into panels to form a locking nut subassembly are also available. Manufactured with metal or injection molded materials, in standard and custom sizes, the system provides standard and radial thread designs for a permanently locking nut and bolt combination, as well as the unlockable type with the removal tool use.

According to Loren Ball, "these unique devices were researched, designed and developed over a ten-year period, and are easily installed and maintained. The nut may be removed, for inspection purposes, with a special patented removal tool permitting reuse of the bolt." He pointed out that the technology can "prevent joint failure in hard-to-service locations, eliminate the need for less effective, corrosive adhesives, discourage tampering with warranty parts and assure more accurate clamp loads." Ball also stated that "these vibration-proof fasteners accomplish what was never before deemed possible."

Available in standard and custom sizes, the nut-and-bolt system is considered a breakthrough advance for a variety of applications including: automotive, marine, aerospace and avionics, off-road equipment, industrial machinery, military and defense, road, bridge, tunnel, and highway construction, heavy duty steel construction, railroads, medical instruments, electronics, and anything affected by vibration (TineLok, n.d.b). The marketing plan calls for price and delivery subject to material and size requirements, with bulk quantity discounts available.

Subjected to more than 7,000 "Junker Shaker" test cycles, "Tine-Lok" did not loosen or vibrate while others failed at 3,800 cycles. Additionally, Tine-Lok exhibited 400% greater reverse torque characteristics than all others tested (TineLok, n.d.a). It is non-clamp-load dependent, corrosion-free and not labor warranty intensive. Performance proven by enduring the vibration test cycles without vibrating or affecting the positive, self-locking capabilities, this advanced fastener system functions regardless of seat torque and is not clamp-load dependent. Thus, the product is designed to help make other products safer, lower the warranty costs of products, and prolong equipment life.

The multi-patented, one-way nut and bolt combination, locks the nut and bolt into place at preset intervals. Positive locking action occurs by counter rotating the nut. "The introduction of our self-locking vibration-proof nut and bolt fasteners presents an interesting challenge to industrial engineers", according to Ball. "The multi-patented Permanentech™ system features a unique nut which locks-in at predetermined intervals along the notched bolt, removing the chance for vibration to loosen the bolt and affect overall product warranty claims. This could present a dilemma to engineers whose specifications are not traditionally subject to change."

"Some companies," Ball explained, "find it too costly to alter component specifications on short notice. Even where new approaches are promptly pursued, others admit that barriers do exist which may impede new product acceptance no matter how valid the product. On the one hand, there's the 'not invented here' thinking. Then, there are the pragmatics of changing component specifications because of distribution patterns. Add to this, the reticence factor of 'new may be too risky'." "The answer," Ball added, "rests with design, engineering and purchasing activity prepared to adopt new departures over traditional components. This, in turn, can result in lower costs, save time and promote customer satisfaction over the long haul."

With a wide range of uses projected over the industrial spectrum, Permanent Technologies, Inc. instituted a comprehensive licensing program for qualified producers.

TINELOK PASSES CRITICAL U.S. NAVY PERFORMANCE AND RELIABILITY TESTS WITH FLYING COLORS

In July of 2008, Permanent Technologies, Inc.'s TineLok Vibration-Proof Fastening System satisfied a major milestone by successfully passing a nineteen-month long field-test on the United States Navy's newest Hovercraft, the Landing Craft, Air Cushion (LCAC). The LCAC is a high-speed, over-the-beach fully amphibious landing craft, used to transport heavy, 75 ton payloads of equipment, cargo and personnel from ship to shore for the Marine Air-Ground task Force. TineLok fasteners were installed on

the Hovercraft's new skirts design which are main components needed to generate the enormous thrust and power required to lift and maneuver the craft. This is also an area that takes considerable operational damage and requires ongoing routine maintenance to keep the LCAC running properly (“(OTC:PERT),” 2008; UPI, 2008; “U.S. Navy Places,” 2008; “U. S. Navy Requires,” 2008).

According to the Navy's Engineer in Charge, the TineLok fasteners worked flawlessly in every test and is a major component of the new design. "All along we were confident that TineLok would meet and exceed the U.S. Navy's requirements and expectations for this test," stated Loren Ball. He also noted, "TineLok was completely successful in resisting loosening in the most vibration intensive environment one could possibly imagine. We are excited about the potential for this truly groundbreaking product."

CURRENT SITUATION

With what appears to be a viable, and simple-enough product, the company has evolved into a never ending change of corporate structures and ownerships. A review of the company's history (formation, development, changes), and the development of the product lead to questions concerning the current and future strategic management, specific target market (and other marketing) issues, corporate structure changes and potential growth. The company is at that typical crossroads that many such organizations face: the major issue of “where do we go from here?”

The issues of corporate structure and the variety of target markets will require consideration and critical decisions in the immediate future. The company has one primary product, and will have to decide how to grow. Many options are available, including product development, market development, and/or diversification away from the one-product situation.

TINELOK BUSINESS CASE INSTRUCTOR'S MANUAL

Overview

For years, numerous fasteners have been developed to attempt to solve one of manufacturing's oldest problems; how to prevent fasteners from losing clamp load in applications where vibration is present. Until now, most designs relied on creating friction between an internal and external thread by use of mechanical or chemical means. Other fasteners used a special tool to install by tension, but the tooling is costly and heavy and for the most part these fasteners are not reusable. There is, however, now a fastener that provides positive vibration resistance and requires no special tools for installation. It is the Tinelok Fastening System.

Competitive advantage: the patents, the uses, the technology, products based on multiple patents.

Case Questions and Answers

What Are the Strengths, Weaknesses, Opportunities, and Threats for the Company, and the Products?

Strengths

Proprietary patented TineLok vibration-proof fastening system for commercial and industrial use. In addition, Permanent Technologies, Inc., creators of the "Tine-Lok™ Vibration-Proof, Self-Locking Fastener System" sponsored a technology award and was twice-named as an award winner, first, as "Best Product for the Year (2002) in Category" for its innovative "Tine-Lok™ Vibration-Proof, Self-Locking Nut & Bolt Fasteners," and second, selected as one of ten (10) top industrial innovations for 2002 by Reed Business Information Publications. The recognition for quality and the visibility of the technology are both a sound basis for public relations and marketing efforts to leverage awareness and image. These should be emphasized.

The patented nut incorporates exclusive lock-in tines which eliminate vibration, help make products safer, lowers warranty costs and guards against vehicular rattles.

In addition, a unique, task-specific, removal tool, designed to disengage Permanentech™ Vibration-Proof, Self-Locking Nut-Bolt fasteners in order to enable product inspection or repair, was developed and is available from Permanent Technologies, Inc. The new tool lifts the tine nut off the bolt, without marring or disturbing bolt thread structure. This development represents a considerable competitive advantage, along with the tamper-proof version of the bolt.

The unique bolt, designed with longitudinal channels, may be reused after inspection with a new nut installed. Fabricated from high tensile steel and incorporating a circular head with a notched extension, the removal device fits into the tine nut structure, lifts the flexible characteristics of the tine and permits easy nut removal from the bolt by counter rotation.

The technology is the basis for the product designated as "Best Product of 2002" in the fastening, joining and assembly category, by an independent panel of judges for an annual competition sponsored by a leading design engineering journal. In July of 2008, Permanent Technologies, Inc.'s TineLok Vibration-Proof Fastening System satisfied a major milestone by successfully passing a nineteen-month long field-test on the United States Navy's newest Hovercraft, the Landing Craft, Air Cushion (LCAC). The LCAC is a high-speed, over-the-beach fully amphibious landing craft, used to transport heavy, 75 ton payloads of equipment, cargo and personnel from ship to shore for the Marine Air-Ground task Force.

Product Strengths Features/Benefits:

- Locking feature is not clamp load dependent
- Vibration proof which lowers warranty costs
- Prevents failures in hard to service areas
- Visual inspection verifies tines are engaged
- Eliminates Castle Nuts and Cotter Pins improving throughput
- Can be manufactured in a variety of materials
- Can be installed with conventional tools

Weaknesses

Lack of breadth in product offerings; capital funding; product sales/revenue (cash flow). Also, little or no capital (money); no brand name or identification (B2B); one specific product (no diversification) – although different markets.

Opportunities

Multiple uses/opportunities for the technology – since the unique system has many key uses including: automotive, marine, aerospace and avionics, off-road equipment, industrial machinery, defense/military, road, bridge and highway construction, steel construction, railway, medical instruments and electronics, consumer products, and anything else that vibrates. Price and delivery are subject to material and size requirements, with bulk quantity discounts available.

Possible New Markets

Automotive: Door window assemblies, dashboard nuts and bolts and wire hanger attachments, wheel lug nuts, motor mounts, exhaust systems, shock absorber mounting, steering rods, etc. In addition, off-road vehicles, motorcycles, trucks, ambulances, trail bikes and related devices require vibration-proof fastening for long term use.

Aerospace: Engine frame vibration mounts, landing gear motor mounts and wheel landing components, wire harness hangers within the fuselages, gearing mechanisms for vertical rudder and horizontal stabilizers and landing flaps, helicopters, and high vibration air transports are ideal candidates for vibration-proof fastening.

Marine/Military: Large and small sea craft have major vibration problems from pounding seas, inboard and outboard engine mounts, control and steering mechanisms, drive shaft, propellers, deck mounts, sail furling systems, etc., all demand vibration-proof fasteners off-road vehicles at the S.C.O.R.E. Baja 1000 race in 2007. Not only does this help from a vibration standpoint in that inboard and outboard

engine mounts, control and steering mechanisms, driveshaft, propellers, deck mounts, sail furling systems, etc., all demand vibration-proof fasteners.

Defense: All areas as described for heavy duty automotive use. Tank anti-rocket side panels, tracks, steering systems, firing action control systems plus major engine and steering requirements, as well as, bulldozers and front loaders need vibration-proof fasteners.

Agriculture: Tractor steering mechanisms, towing hitches, all crop gathering mechanisms, pump mountings (fuel and water), backhoes, diggers (standard and large) and more make vibration-proof fastening a must. The TineLok product has been thoroughly tested in junked shaker tests, which is employed to determine the amount of vibration resistance a threaded fastener can deliver. Where most threaded devices tend to fail at 3,800 cycles, the TineLok fastener system exceeded 7,000 cycles, the limit of the test machine, in fact, it had to be shut down and the product still did not come loose. The product has also been tested by the U.S. Navy application, but for security reasons as well considering the valuable lighting and other components these vehicles have on them.

Plumbing: A plastic version can solve costly plumbing problems for faucet manufacturers (“Finding New,” 2011).

Threats: Competing Technology, Competition

The uniqueness of the product/technology could present a dilemma to engineers who may be unfamiliar with the advantages of the Tine-Lock specifications, and who are not typically open to innovation on short notice; some companies may consider it too costly to alter component specifications in a short time frame. Even when innovations are implemented, other barriers may impede new product acceptance among product adopters, no matter how valid the product. Some engineers and other decision makers may view the innovation as “too risky” or “not invented here” and be resistant.

From A Strategic Perspective, What Would Be the Next Step for Permanent Technologies In The Current Economic Environment?

The company should explore new product development, since at the present time, it is more or less a company focused on one product (with slight variations). Having access to the public (capital) markets should create new opportunities for the organization. A very successful year for the company and the product line is anticipated for the proprietary and patented TineLok vibration-proof fastening system as the line is expanded. A focus on newer versions and modified versions rather than total new products would keep R&D costs lower, and help in marketing using a shirt tailing strategy.

What Would Be A Viable Path for Permanent Technologies Moving Forward To Generate Working Capital And Funding For Future Growth?

Permanent Technologies has already been to the market to merge with/acquire another company in a “reverse merger,” so the trajectory of that action should be considered. What will the resulting funds be used for? Has a business plan for the organization been developed? If not, it is time to analyze the product markets, the desirable segments, and expected revenues.

What Would Be A Good Mission Statement or Focus for This Company?

Stated focus on designing and manufacturing proprietary fastening systems for high vibration environments with emphasis on primary and secondary target markets. Given the current military issues facing the US and the world, a focus on more military applications might be best.

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