

LEARNING FROM FAILURE: HARD LESSONS ON LAUNCHING NEW TECHNOLOGIES FOR OLD MARKETS.

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ABSTRACT

The case study tracks the trials and tribulations of a new venture launched to provide leading edge, vertical market software in an established industry. The experiences of the protagonists in the case validate long held theories, concepts and models that inform the study of entrepreneurship, most important of which is the need to research and assess the environment (both macro and micro) before launching a new venture.

The learning from the case of Entrada Technologies provides a compelling example of the need for entrepreneurs to clearly understand the environment into which they are planning to launch any new venture, particularly one targeted at an industry dominated by complex information technology supply chain. This start up software company learns some very hard lessons when the owners assume that they can be successful with a product that provides elaborate functionality to a market that demands the basics. Technical integration with disparate, customized backend systems, reliance on hardware that changes faster than Moore's Law estimates, and a supply chain with little tolerance for low margins are just some of the barriers exacerbating this new venture's problems.

Background

Entrada Technologies began operations with the launch of an order management software application for vertical markets, which was designed to run on mobile computing hardware known as "pen tablets." With the pen tablet hardware, a field sales rep could navigate the computer screen using a stylus rather than a mouse, and use advanced software applications to enter data while in retail outlets. At the time of the company's launch, the pen tablet hardware was the first generation of devices that enabled field sales reps to enjoy full screen Windows functionality while away from their desktop PC back at the office. Mobile access to Windows' advanced feature set through the pen tablet hardware represented a significant productivity improvement opportunity for organizations that relied on a mobile sales force to create orders and manage their product inventories in retail outlets.

Entrada's initial software offering that ran on the pen tablet hardware was trademarked the Virtual Cooler, because it enabled sales reps in the beer industry to view a graphic representation of their products, in addition to a standard text view. With the Virtual Cooler software, beer industry sales reps simply used the stylus for their pen tablet hardware to "tap" the graphic image of their products on the hardware screen, and then enter their order quantities. The Virtual

Cooler application also allowed sales reps to collect other information while visiting retail customers, such as product inventories and competitive pricing data.

The Launch

The Virtual Cooler was originally created by a programmer named Larry Brown, who had developed the software for internal use within the beer distributorship that he had inherited from his father. The programmer's concept of using the graphic images of a product to build orders and collect data was innovative enough for Mr. Brown to apply for a patent on the process. After months of revisions and resubmissions, Mr. Brown was awarded the patent, which ultimately led to his decision to "go to market" with his invention.

From the outset, Mr. Brown recognized that his expertise was primarily technical. In an effort to ramp up his new venture quickly, he decided to sign an exclusive software distribution contract with Intermec, a leading mobile computing hardware company. Under the contract, Intermec was given the exclusive right to market and sell the Virtual Cooler software either directly to potential end users, or through their nationwide network of hardware/software resellers known in the industry as Independent Software Vendors (ISV's). In exchange for the exclusive distribution rights, Intermec paid Entrada \$500 per licensed user of the Virtual Cooler software, and agreed to provide all necessary technical support and end user/ISV training.

After establishing the Intermec distribution arrangement, Mr. Brown was challenged with the laborious task of insuring technical integration between his Virtual Cooler software and the various enterprise systems used by the distributors within the beer industry. The accuracy of the data transmitted by the field sales reps, as well as the timeliness of those transmissions was critical to the efficient operations of Entrada's potential customers. When the substantial challenges associated with securing seamless technical integration began to require more and more of Mr. Brown's time, he realized he needed someone to focus on increasing the company's sales and managing Entrada's internal operations. To attack those issues, Mr. Brown recruited a long time friend from the beer industry, Tim Kane, to fill the role of President for the new company. Mr. Kane's short-term focus was to assist Intermec in the marketing and sales of the Virtual Cooler software. Part of Mr. Kane's compensation package included a share of ownership in the company.

Mr. Brown employed a third individual from his beer distribution business, Tom Hogle, to manage the product quality and provide technical support to Intermec. Mr. Hogle had contributed some of the programming code to the Virtual Cooler, so he was the logical choice to fill the role of product support. Mr. Hogle was also given a share of ownership in the company. The three partners agreed that Mr. Brown would be responsible for providing financial support during Entrada's start up phase. The actual funding came from Mr. Brown's beer distributorship. The required monthly cash infusions were transferred from a beer company expense account into Entrada's general ledger as part of a "monthly technical support contract." It was understood that Entrada would provide technical development and support for the beer company in return for funds to cover Entrada's monthly expenses until they reached profitability.

The Virtual Cooler Product Strategy

Mr. Brown's original strategy was to use the resources of his strategic partner Intermec to market the Virtual Cooler software. His belief was that by partnering with a leader in mobile computing hardware to vertical markets, Entrada would reap the benefits of an established supply chain through Intermec's extensive Independent Software Vendor network. In addition, Mr. Brown saw potential operating efficiencies for Entrada by relying on Intermec's vast training and support resources to deploy the Virtual Cooler software to potential end users in the beer industry. Mr. Brown assumed that the advanced functionality of the Virtual Cooler software would create an immediate surge in demand for the product once they had completed the technical integration with the Intermec pen tablet hardware and the disparate enterprise systems used by the various beer distributors across the country.

Intermec's product strategy for the Virtual Cooler software was to market it as a "bundled" solution to their resellers and end users. The approach allowed Intermec to sell an integrated mobile computing solution that included Entrada's Virtual Cooler software, Intermec's pen tablet hardware, and all the peripherals needed to take orders and collect data from retail outlets. Intermec priced the Virtual Cooler bundle as a high-end niche product for sales reps that needed to do more than simply take an order. The entire bundle would cost the end user \$5,000 per route. Intermec established the Virtual Cooler bundle margin for their Independent Software Vendors at around 20%. The margin was significantly less than the ISV's made selling Intermec's primary mobile computing order management system, which was a keypad type hardware device that ran a DOS based application. The average selling price for the keypad bundle was around \$4,500 per route. Intermec's ISV's typically made a 40% margin on the keypad bundle.

Trouble in Product Paradise

Technical integration with the existing information supply chain in the beer industry was proving to be a bigger challenge than originally anticipated by Mr. Brown and his limited support staff. As the Entrada technical staff was just beginning to understand the issues associated with transmitting data from the Virtual Cooler user in the field to the various enterprise systems used by their initial customers, they were also experiencing problems running the Virtual Cooler software on Intermec's pen tablet hardware. In early installations, sales reps were experiencing "lock-ups" where the software would stop working in the field, forcing the sales reps to restart their units while in their retail accounts. The technical issues usually resulted in orders and data being lost, which required the sales reps to rebuild their orders and re-transmit the data a second time while in the field.

The ongoing technical integration issues meant that Intermec and Entrada had to spend an inordinate amount of time trying to enable the initial users of the Virtual Cooler bundle to execute their basic order taking processes without failure. As a result, Intermec was not able to focus any resources on training their internal technical support staff on the Virtual Cooler software. Since Intermec's own technical staff never received training, there was no one

available to train their network of ISV's. Most of the onus for resolving the technical issues and getting the ISV's trained then fell back on Entrada's limited resources.

Within six months, Intermec's ISV network had concluded that the Virtual Cooler software bundle was not providing their customers with enough value to warrant its premium pricing. The ISV's were not willing to spend extra time and money to "test" the Virtual Cooler bundle, so they began replacing any Virtual Cooler bundles that they had sold to that point with the less functional, but highly reliable, keypad solution. The fact that the keypad bundle also provided the ISV's with higher profit margins than the Virtual Cooler bundle only expedited their decision to stop selling the Virtual Cooler bundle.

With their staff working long hours on resolving the technical issues, and support from their supply chain waning, Entrada was facing the prospect of going out of business practically before they had even begun. In the face of disaster, the partners regrouped to discuss their options. Mr. Kane took the lead in outlining an alternative business model for the company that required several critical changes to the original approach designed by Mr. Brown.

The New Business Model

The first major change Mr. Kane suggested was a redesigned product strategy to allow Entrada to enter potential markets beyond the beer industry. The company would need to develop a full line of software products designed to meet the needs of any consumer packaged good company, from the basic end user to the most advanced. Critical to the new product strategy would be the development of a low cost, Pocket PC based order management software, designed to replace the less functional, but very expensive keypad hardware running the DOS based application. The goal was to use the Pocket PC product to build their customer base, then trade those customers up to Entrada's more functional, and more profitable, products as the customers' needs evolved. The positioning of the company's product portfolio was key, both from a functionality and a pricing perspective.

The next change Mr. Kane proposed was to eliminate the exclusive software distribution contract with Intermec, and become hardware resellers for all the major manufacturers of mobile computing hardware in the vertical market space. The goal was to focus potential customers on the range of functionality available across Entrada's software product portfolio, then present hardware options that allowed end users to choose whatever hardware they wanted.

Part of the elimination of their Intermec contract required Entrada to establish a direct relationship with a network of ISV's, many of which were existing resellers for most of the major hardware manufacturers anyway. Entrada would attempt to sign reseller contracts with the largest ISV's in the nation primarily through offering higher margins for selling the company's software. The goal was to provide an incentive to the ISV's with a 40% margin, thus enabling the ISV's to make the type of margins they had come to expect when reselling other mobile computing solutions. The final piece of the revised business model Mr. Kane developed was to raise the awareness and credibility of the company and its products through aggressive target marketing and high profile strategic alliances.

The other partners agreed to Mr. Kane's plan for the redesigned business model. The responsibility for executing the plan was Mr. Kane's, who was given the title of Chief Executive Officer to go along with his additional responsibilities. Mr. Hogle would oversee the new product development and support, which would be the critical foundation for the successful implementation of the new business model. Mr. Hogle and his development staff estimated that the new products would take approximately six months to complete. Mr. Brown agreed to continue providing the funding for the company through the existing arrangement with his beer distributorship for the new product development period.

Over the ensuing six months the company made tremendous strides toward creating a high demand for the soon to be released products. The company's targeted print campaign was raising awareness and demand in the beverage industry. Anticipation of the company's new products also provided Entrada with credibility when negotiating reseller contracts with the various Independent Software Vendors across the country. The company had even connected with software giant Microsoft, who had been looking for any vertical market opportunities to seed their rewritten Pocket PC operating system. Since Entrada's forthcoming Pocket Routebook was being designed to run on the Pocket PC platform, Microsoft signed Entrada to a Joint Developer contract to help them to expedite the development of the new software. Entrada reaped numerous benefits from the new partnership, including a case study on Microsoft's website and opportunities to present their new product suite to major consumer packaged goods companies like PepsiCo.

Paradise Lost

The new business model appeared to be working with all aspects of the plan successfully implemented ahead of schedule, except for the completion of the new products. The company added six new employees to focus on expediting the development of the new software. While the additional employees relieved some of the burden on the existing development staff, the company was still having trouble meeting product delivery timelines. In spite of those issues, Entrada was able to maintain the perception in the marketplace that they were still a leading supplier of mobile computing software, primarily due to the strong relationships the company had built with their strategic partners like Microsoft.

Early test releases of the Entrada's new products proved unsuccessful in spite of the development staff working overtime for weeks on end. It was clear to Mr. Brown and Mr. Kane that the company needed additional resources and competencies to complete and deploy the new products. Mr. Brown was reluctant to continue providing funding through his beer distributorships, as he felt the additional resources would create too large of a financial drain on his personal assets. Mr. Kane and Mr. Brown agreed that the only solution was to seek outside funding for the company. Mr. Brown did agree to fund Entrada's monthly expenses out of his own personal accounts until outside investors were found.

Mr. Kane spent the next few weeks writing the business plan to present to investors. In the development of the business plan, the question of how to represent Mr. Brown's ongoing financial support to potential investors became an issue. Mr. Brown wanted to continue accounting for the cash infusions to the company as income to Entrada in return for their ongoing

technical support of his beer distributorships. Mr. Brown believed that showing his financial support as long-term debt in the financials of the business plan would make Entrada look less inviting to outside investors. However, Mr. Brown made it clear that he did want to be compensated by any outside investors for the money he had put into the company up until that point. Mr. Kane disagreed with Mr. Brown's approach because he believed it would be a confusing story to try and explain to potential investors. A compromise was reached, and it was agreed that the details of Mr. Brown's investment would be provided to each potential investor when their respective due diligence process began.

Within three months, Mr. Kane had engaged several serious investors for potential funding. The effort was timely, as Mr. Brown had grown increasingly frustrated by the financial commitment required to cover Entrada's overhead during the protracted product development cycle. However, when negotiations with the potential investors reached the point of discussing ownership shares in exchange for investment dollars, Mr. Brown felt very strongly that he should not have to give up more than 10 – 15% of the company. Unfortunately, most investors that were interested in Entrada were asking for a minimum of 25% of the company for the amount of dollars required to reach profitability. When Mr. Brown refused to compromise on the question of ownership, the search for outside investors stalled. Mr. Brown continued to cover the significant monthly expenses for the company in the hope that the new products would soon be completed and begin to provide increased revenue.

A Light at the End of the Tunnel

Just when it appeared there were no further options, Entrada was invited to participate in a trade show at the national convention of the brewer for which Mr. Kane had worked for twenty years. Only five other software companies were invited to participate in the trade show. During the opening meetings of the convention, all of the brewer's seven hundred beer distributors from across the nation were assembled to hear presentations from key management. During the speeches on the first morning of the convention, the Vice President of Sales made a surprise announcement that all distributors would be required to move to "a common mobile computing software and hardware platform for all their sales reps within two years." The audience of beer distributors was surprised to see Entrada's software as the visual on the forty-foot screen behind the VP of Sales.

After the speech, the beer distributors descended upon Entrada's booth at the trade show to discuss purchasing the company's software. While Entrada was not necessarily the only software option distributors would have for their sales reps, the fact that it was shown on the screen during the speech created a huge impression on the audience. Mr. Brown seized the opportunity and began soliciting some of the other software vendors at the trade show to buy Entrada.

Within two weeks of the trade show, Mr. Brown had secured a preliminary purchase offer from a competitive software company located in Canada. The Canadian company was pursuing a "roll up" strategy in the marketplace through attempting to purchase its competitors for shares of stock in their company. Their stated goal was to acquire a large customer base from competitors, then

execute an initial public offering. Their original offer made to Mr. Brown for Entrada and all its assets was 1,000,000 shares of stock that the privately held company valued at \$2.50 per share.

Mr. Brown offered a portion of the shares of stock from the Canadian company to the other partners. Mr. Hugel went along with the sale, however, Mr. Kane had several concerns about the details of the sale. First, he had evidence that the Canadian company had engaged in questionable business practices in the past with regard to the treatment of their customers. Second, the deal did not include any assurances of future employment to Entrada's twenty employees. Finally, since the Canadian company was privately held, Mr. Kane asked to see a detailed shareholder's agreement that defined the valuation formula for their stock, the restrictions on the future sale of the stock, and other related information. No documentation was ever provided.

As a limited partner, Mr. Kane refused to agree to the sale of the company. The Canadian company's offer did include a time limit, so Mr. Brown ultimately agreed to buy Mr. Kane's share of Entrada so he could dispose of the company with no potential legal barriers.

EPILOGUE

The Canadian company began their due diligence process on Entrada shortly after Mr. Brown had secured all ownership shares of Entrada. Once the process was complete, the Canadian company reduced the amount of their initial offer significantly. Mr. Brown still agreed to sell Entrada in spite of the lower offer. By June of 2004, the Canadian company had reduced the Entrada staff to three individuals and closed the company's offices in West Palm Beach. All Entrada customers were forced to sign revised annual maintenance contracts that included increased fees for customer support. In a stunning announcement, the beer company that had implied its endorsement of the Entrada software a year earlier informed all its distributors that they were going to be forced to purchase a customized mobile computing software application that the brewer itself had developed internally.

“SO WHAT?”

This case study provides several practical lessons, particularly for entrepreneurs attempting to launch technology-based ventures in vertical markets. Each lesson is a validation of past learning in the field of entrepreneurial studies.

Lesson 1: Engaging in effective environmental assessment prior to launching a new venture is essential (Wheelen and Hunger, 2004). Conducting research and analysis of the industry in which the new enterprise will compete can clarify the competitive environment and help the entrepreneur understand the potential barriers to entry (Porter, 1985). In the case study, the protagonist, Mr. Brown had the means and opportunity to understand the potential supply chain barriers to successful launch of his software product. Instead, in an effort to move quickly, he signed an exclusive distribution contract with Intermec, the leading provider of the keypad hardware, to take his product to market.

Lesson 2: An objective reflection of the internal strengths and weaknesses in terms of structure, resources, culture, competencies and responsibilities will illuminate “gaps” when attempting to conduct effective scenario planning (Day and Shoemaker 2000). While the initial software product developed for internal use in Mr. Brown’s beer operation had promise, the skills required to accomplish complex data integration with disparate enterprise architectures were low. Additionally, Mr. Brown could have better understood his financial risk through effectively building scenarios that accounted for the competency gaps.

Lesson 3: Defining and evaluating dependencies that create uncertainty when attempting to take an idea from research and development to market is a critical planning objective for technology entrepreneurship. Selecting the optimal alliances that provide access to contingent technology and mitigate potential technology barriers can improve the chances for success (Balakrishnan and Wernerfelt, 1986). In the case study, partnering with Intermec was one alternative that proved ineffective. The redesigned business model required multiple strategic alliances in an attempt to reduce dependencies on one hardware partner and one reseller network. However, the timing was poor since the window of opportunity for funding was closing faster than the new products could be developed.

Lesson 4: Prior to seeking outside funding, develop realistic expectations based on objective assessment of an organization’s relative position in the market. Additionally, insure complete “transparency” when presenting the venture to potential investors (DeCeglie, 2000). Entrada’s partners had not agreed on the specifics of an acceptable deal with potential investors, nor had they been completely honest about the financials. The end result was that Mr. Brown did not get his initial investment back, and he ended selling the entire enterprise just to get out of the business.

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