**Sprint Ray: Kick-Starting Growth**

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**Overview**

Sprint Ray was founded by Amir Mansouri and his co-founding partner, Jing Zhang in 2014. At the point where this case study was written, the company was in operations was over 5 years and had been relatively successful. It endured and overcame many challenges on its journey as any start-up does and the diverse backgrounds of the two co-founders lead them to leading the company successfully.

Amir Mansouri hailed from Iran and came to the US to pursue his masters from the University of Southern California in the field of Manufacturing Engineering where he continued to develop his entrepreneurial skills by selling over $100,000 in Mobile repair kits. Zhang received a PHD from USC and worked at a mutual fund in China prior to the start of the company.

Amir and Jing met at the USC prototyping lab in 2014 and they discussed their common interest in the field of 3D printing. Jing had already worked on a 3D printing company in China and developed prototype product along with a friend which in 2014 was the first prototype for Sprint Ray. From the first meeting Amir and Jing felt a connection and felt that they complemented each other’s skills very well and started working on the idea.

They wanted to test the market viability for the product and see how people would receive it. So, they decided to launch a Kickstarter campaign for this purpose. Sprint Ray got 270 backers and raised $422,830 through the campaign.

Jing took the lead on manufacturing the product by setting up a facility in China and Amir took the time to do a course from USC to develop his business skills. Mansouri reached out to his college professor Erick Kreidler to be a mentor and guide him on making better business decisions. Erick was one of the first board members of the company and helped them greatly throughout their journey.

Even though manufacturing was set up before the end of the Kickstarter campaign, Sprint Ray took a long time fulfilling the orders and even the production that took place happened in small batches.

After the end of the Kickstarter campaign, Sprint ray started facing difficulties and the company hit some financial distress. They started taking huge amounts of money from Jing’s family to keep running and had a team so big it had outgrown their needs and instead of firing some of them, had to use them on non-sprint ray projects.

So, by 2016, Jing and Amir agreed that they needed to improve their organizational structure and develop a better system of doing things. They switched their business objective to fulfilling the business requirements that already existed first, focusing only on growth.

One of the customers told them about the benefits and scope of 3D printing in the Dental industry and it was an idea that Jing and Amir took very seriously. This idea was validated when another firm (Glidewell Dental Labs) in the dental industry reached out to them for their products. They worked closely with Glidewell to refine their product for the dental market. They put in a lot of resources on this project as they wanted to “Grab the bull by its horns.” So much so infact, that they were losing money doing so. Glidewell made another big order to them and in 2016 form labs joined the dental market as one of their competitors after seeing their success. Formlabs entry was another indication to the founders that they were going in the right direction.

By the end of 2016, they fulfilled not only the Kickstarter campaign, but also generates $200,000 in revenue organically. Despite this, they continued to have cash flow and financial problems. So, in order to solve their problem, the two founders had to take on External funding.

In order to create a legal entity when the Kickstarter was created, they registered an LLC (Limited Liability Corporation) with 100% ownership allocated to Zhang’s wife. So before they could start raising funds, they restructured the ownership and established a board so that shares could be divided between founders, advisers and also for the investors. They approached angel investors for $5 Million at a $40 Million valuation, but were turned down as the valuation seemed high. Ultimately Kreidler and some of his friends invested in the company to the tune of $850,00.

Upon receiving the money, SprintRay’s management started investing in developing a sales force. They also started differentiating products based on functionality. Despite interest their sales were poor and by end of Q2 of 2017, there were selling seven to eight units monthly to the dental market. They changed strategy and started focusing on only the dental market in order to maximize sales. They also hired John Fernandez, who was the head of Sales for a dental company in Atlanta. They used his connections as best as they could to grow the company.

By January 2018, SprintRay had a salesforce of six regional representatives and a workforce of over twenty people in the USA. They had a high attrition rate between 20% and 25%. They also had to navigate between two different work cultures in China and USA.

SprintRay had grown to six times its 2016 revenue by end of 2017. Their revenue grew from $1.8 Million to $6 Million. This meant that their financial needs increased again and they had to raise money again. The required a $5 to $7 million investment. They garenered a lot of interest but no one agreed to be the lead investor and eventually no one agreed to invest.They were left at a cross roads and needed to explore what was the best path moving ahead.

**The company’s early path included a number of challenges. What were the miscalculations and challenges they encountered and what were the key learnings along the way?**

Sprint Ray had several challenges and miscalculations especially earlier in their path. The following summarizes the three challenges and outlines the key learnings Mansouri and Zhang for each challenge.

1. *Mansouri and Zhang took a pure engineering approach instead of properly understanding how to sell a product.*
   1. Though their concept was to provide a better looking and better functioning product was commendable, it simply backfired.
   2. The key to learning the two entrepreneurs gathered was a product is only as good if you can sell it.
   3. As a result, they found an industrial engineer, Hossein Bassir, who was able to turn the prototype into an appealing and sellable product.
2. *Mansouri and Zhang did not perform a proper analysis on production costs and the competition.*
   1. Mansouri and Zhang’s main advertisement strategy was to present in trade shows.
   2. Though they had plenty of success as they were able to collect 1,000 email contacts, they did not thoroughly analyze the product cost and pricing for their product.
   3. This lack of analysis left Sprint Ray in an unfavorable pricing position compared to their competition (priced between high-resolution, expensive products and low resolution, in-expensive products).
   4. The $2,500 per machine for Kickstarter supporters and $3,100 for late comers was below manufacturing costs thus leading to financial losses.
   5. The key learning the two entrepreneurs learned was to conduct an extensive analysis on their product costs and the competitive market before advertising pricing.
3. *Mansouri and Zhang shipped in small batches and performed testing during*
   1. Mansouri and Zhang’s manufacturing strategy resulted in delays up to four months to deliver the first batch of Kickstart products.
   2. Though the concept of improving the products after each small batch is logical, it created an inefficient manufacturing process.
   3. The key learning for the two entrepreneurs was to find a mentor who could guide them through the manufacturing process.

**In your opinion, what are the key challenges SprintRay experienced in operations? What would you have done differently?**

Along the growth path, the organization faced various difficulties and challenges that nearly made the founders give up, however through their splendid thoughts and insight, their strategies helped the company to sustain. The key challenges they faced are

1. *Financial/Budgetary constraints*
2. The founders of the company, the two entrepreneurs, initially had limited resources and funding. As a result, the company jumped to Kickstarter.
3. Monetary requirements were one of the limitations the company has confronted
4. In the beginning, due to these restricted monetary assets, they needed to choose a Kickstarter.
5. During this stage, the primary goal was to test the market and to build it, raise capital.
6. *Lack of sufficient knowledge/awareness about the market*
7. The reason for this was the company’s idea followed the founders Engineering imaginations and the idea did not come from market research or statistical surveying
8. They aimed to make good looking and remarkable product that would sell by itself.
9. *Inadequate pricing*
10. When they started selling their product, the cost was set underneath the assembled cost where their benefits were troubled (Sid Mohasseb, 2019)
11. The cost was set to extremely high due to this with the decrease in quantity of purchasers. As they did not adopt a sensible and reliable valuing system which became a sign of a dissatisfactory market and the customers.

*To make a difference from what they have done, the solution would be:*

1. *Make a proper spending plan to address the company’s monetary difficulties*
2. A spending plan is for managing monetary issues. I would go through such a plan that guides through the goal of the issue and solves the limitations of issues for the organization.
3. Defeating the monetary issues and challenges would be difficult. By building up reasonable needs and distinguishing ways of accomplishing the goals and objectives, you can conquer the difficulties that are additionally stopping monetary issues and pressure.
4. *Further having a clear and developed market knowledge and information*
5. A detailed understanding of what is needed for an organization, what the clients and customers need would be viewed as the information base, if joined with representatives' information.
6. After utilizing the existing information effectively, the company will run everything productively by bringing down the business chances and openings for any arguments. This was an additional advantage for the information.
7. *Including the statistical survey*
8. The survey will help the organization in several ways. It helps to evaluate the key patterns and a better analysis in prediction and expectation of market changes.
9. It is the key factor in differentiating different sectors or new markets, fostering different added items, decisions regarding our objective market.
10. As the market evaluation was a typical test, the statistical surveying helps the organization in arranging the Sprint Ray's technique.

**In your opinion, why did the company experience challenge with funding? What should have been done to increase their chances of success?**

*Reasons: -* Investors rejected the funding proposal due to low margins, lack of a clear growth plan, proper structure, planning & information. Below are some more points to illustrate the challenge.

1. Their planning for the campaign was inadequate; they had no clear value proposition, business structure, delivery channels, predictable revenue stream, streamlined operations, or customer support.
2. Mansouri and Zhangspent all the money raised from Kickstarter on manufacturing the products.
3. Their budget allocation strategy was inferior. They did not have precise planning & awareness of Finances & orders.
4. HC planning for the R&D team in China was not correct; they hired 40 engineers & even at one point, Zhang felt that the R&D team had more members than required.

*Actions*: - Fundraising could have been a success if the investors had full visibility & a strong business plan. Below are some points that could have been supportive.

1. Mansouri and Zang should have penned down the Organizational structure, well-defined market, and robust sales model. This could have helped them initially allocate their funds properly to operations, sales & distribution.
2. Mansouri and Zang should have focused on planning for the growth, which would have given them the visibility of future requirements for resources, Opex & Capex & hence they could have raised funds promptly.
3. Mansouri and Zhang should have had a good manufacturing strategy & pricing strategy. They had delays in delivering their first batch of Kickstart products resulting in bad Inventory Turnover & poor ROI for the period.
4. Change the distribution strategy; rather than selling through resellers, which eats their 30- 40% profit margins, they should move to direct selling & partnership channels.

**Was the company’s choice of target market, correct? Was their process to determine the correct market appropriate? Product pricing?**

While they have been facing the loss and budgetary crisis in 2016 in sprint ray As Mansouri and Jing were looking for the market focus and conducting the research about 3D printers they had a deep digging and discovered that 3d printing in the dental market was in a huge boom with more than $4 billion (about $12 per person in the US) in prosthetic orthodontic and dental parts manufacturing.

While they were working on its 3D printing, they had a large scope to target the audience because they only had a dental industry in their mind they could have researched about options in automobile, jewelry, and some other industries.

*Was their process to determine the correct market appropriate?*

It is especially important to make sure the company gathers all the data together by means of research so that they can choose the right market accurately. The company should have done the analysis so that they could easily be able to discover people who are more interested in their product

They could also interview customers online doing a survey by online polls or phone calls messages email and via social media they can find out more about their target market and the company can simply ask the customers about themselves

The firm can determine its target market by doing an industry study of the industry in which they operate and identifying clients within that sector. The firm could only uncover a group of people who would be interested in its 3D products after doing an industry study. Because of the industrial study, a key market segment will be identified.

*Product Pricing:*

They should have done simple math calculating the cost of production and selling cost, they should have done research into the competitors' pricing and made sure customers could handle the price which was fixed by them

**Faced with an expanding market and rapidly growing sales coupled with severe challenges in funding growth, what are the paths available to the company? What is your recommendation to the founders and the Board of Directors?**

With Sprint Ray facing an expanding market (within the dentistry industry) and, thus, potential for sales, funding becomes ever more important. Based on this case, the company has three funding paths which the company can take.

1. Raise funds through a Venture Capitalist (VC)
   1. Positives:
      1. This path will allow them to shoot for higher funds so they can forecast a more aggressive sales and market capture strategy.
   2. Negatives:
      1. This path will require more as it will require the company to renew their pitch and ensure they have detailed data to back up their pitch.
2. Consider acquisition by a strategic investor or merger with a larger dental industry player
   1. Positives:
      1. This path would decrease the company’s risk regarding intense competition, unexpected government laws, and economic downturn.
      2. This path may position them for growth (merger) or exit (acquisition) thus position them for a potential future initial public offering (IPO) in US or China.
   2. Negatives:
      1. This path could potentially compromise the founder’s payoff.
      2. This path will require intense effort from the founders to find the right merger or acquisition partner.
3. Slow capital raise from angel investors
   1. Positives:
      1. This path would require the least amount of effort for its founders.
      2. This path would result in the least amount of equity dilution for founders and investors.
      3. This path would position the company for a larger valuation for VCs (Venture Capitalist).
   2. Negatives:
      1. This path would require the team to switch priorities from day-to-day execution to fundraising.
      2. This path could result in a slower pace of growth and market penetration due to a smaller amount of financing.

**Conclusion/Recommendations**

In conclusion, while Sprint Ray likely has the ability to be a successful product, missteps by the founders have made their journey more difficult than it needs to be. When it comes to the engineering of the product, the founders offer a lot of technical skills that have resulted in a quality product. However, the founders appear to lack general business sense, which has stunted the company’s growth. Decisions have been made without long-term strategic planning, and basic entrepreneurial steps such as conducting thorough market research seems to have not occurred. To have success in the future, the founders need to figure out their weaknesses in business knowledge and make collective decisions on how to fix them. For example, the founders would do well to bring in business and financial advisors to help them with market research, financial projections, and an overall long-term strategy. They may need to seek investors with this knowledge and incentivize them to come on board by offering a larger stake in the company than the founders would normally seek. But, this could pay off in the end, as having business guidance from the outside may be the deciding factor between a successful company and Sprint Ray going bankrupt.