Profile of start-up venture: ecoZen solutions

A report submitted to

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and

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In partial fulfilment of the requirements of the course

Understanding Creativity, Innovation, Knowledge Networks and Entrepreneurship

By

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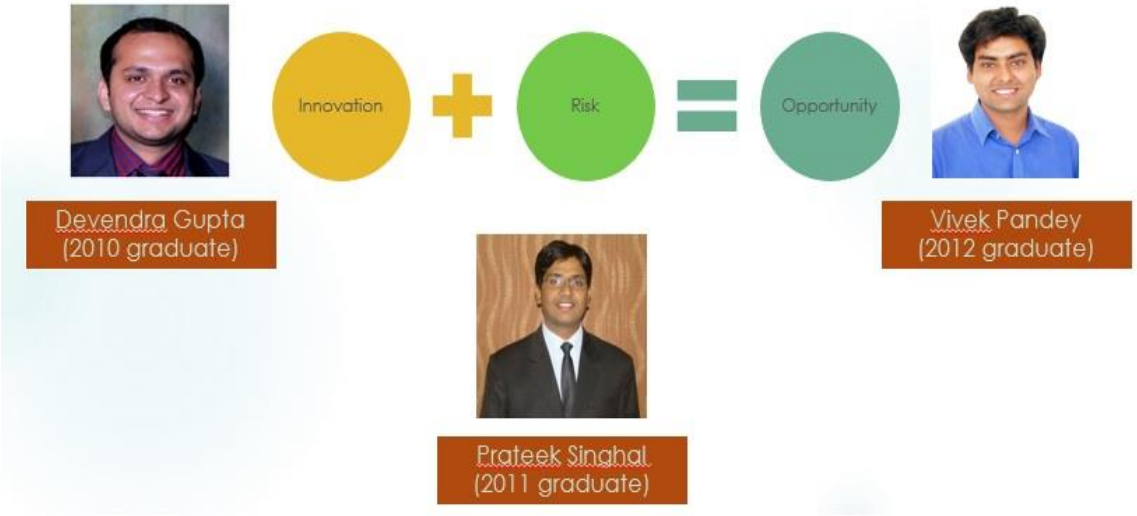
ecoZen solutions

Prelude

Three friends from the mechanical engineering department of IIT Kharagpur decided to do something more challenging than what the corporate world had to offer them, based on their 2009 summer internship experiences. What started as a long shot during their final year in 2010, kept garnering more and more traction as they continued to elaborate on their idea to work in the space of renewable energy. They planned to make it available to the common man, to design products which would make it more frugal than its current form back then. With a team of diversely skilled students, friends and/or juniors, these three students of the Mechanical engineering department of IIT Kharagpur set out on a journey quite different from their peers who were seeking job security through placements.



A little over 4 years since its inception in 2010, today *ecoZen solutions* has a valuation of more than a million dollars and is set to soar off higher with VC partners joining hands.

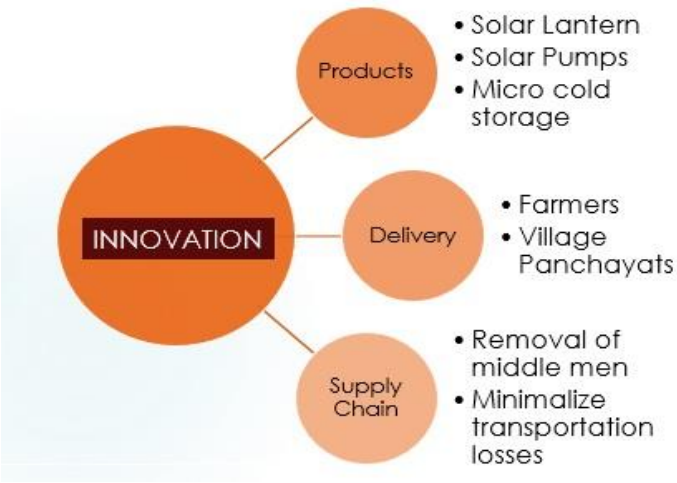
Portfolio

The company started with their research on designing products which would make use of solar energy and better the lives of people on a day-to-day usage basis. Hence, they started looking at possibilities in various product domains where energy was required/consumed using an expensive combustible fuel. A couple of things that struck them were lanterns (which use kerosene) and water hand-pumps (which run using 3-phase electricity burning diesel). While they wanted to pursue these, they needed some investment upfront for both a lab as well as material resources for the R&D. This was probably the first challenging roadblock.

They came up with innovative solutions for both. IIT Kharagpur had a recently constructed research office called STEP (Science and Technology Entrepreneur's Park) which they lent out to alumni who were pursuing credible research projects. To build this credibility, they came up with an idea. They approached the administration with the offer to perform an official energy audit for the campus given that if their recommendations were good, they be given a percentage of the energy savings as remuneration. They were allowed and ended in coming up with some brilliant recommendations highlighting some loopholes in the design system which if plugged would lead to massive savings for the institute. In return, they requested that they be allowed to pursue their research at STEP under the condition of demonstrating progress over time. That was how they got their R&D centre.

They still needed money to sustain the research. They made a formal business plan of their venture and started participating in various B-plan competitions. Not only did they win almost all of them (including the ones at IIT Kharagpur, IIT Mumbai and even at the Stanford University), but also ended up garnering a lot of prize money as the initial fuel to their R&G engine.

They went on to design the solar lantern, solar water hand-pumps, solar street lights, solar micro-cold storage and many more fascinating innovations which has fueled their growth over the years and put them in a position to press the gas from here on.



Excerpts from interview with the entrepreneurs:-

I)Motivation to start the enterprise

- Wanted freedom to pursue the ideas
- Work done at Undergraduate level gave confidence that we could deliver value in the real world
- Didn't want to be bound by the shackles of available opportunities

Was this the only idea? What were the others? Who's idea was this? How was this one chosen over others?

- We knew we did not have experience, we needed to identify gaps in the industry
- Hence we started on the consulting model to identify gaps and then develop innovative products to cater to them
- We started with energy efficiency solutions, helping organizations benchmark their consumption and helping them reduce it
- It was more of a common interest than an idea at that stage
- There were 3 more co founders at that stage

How did each of the promoters go about choosing the start-up idea over job offers and MS/PhD options?

- We had a realization that degree does not lead to value creation

- It is the application of education that creates value
- One could learn things from life, internet, senior entrepreneurs, friends, mentors. That would be enough to do the task at hand
- IIT was helpful enough with networks, so even that point also did not matter and wasn't a bottleneck

II)Team formation:

How was the team formed? What were the considerations made and choices pursued?

- It was the same team which worked on many technical projects together in the past and had achieved success
- Hence, we had a good bonding and trust amongst us plus mutual respect for each other's skills and dedication which was quite important

What were the initial hiccups? Did the families support or resist or were indifferent?

- Our families were spooked a little but did not oppose
- They said to do what we were passionate about

Any other anecdote which describes the bonding process of team- clashes or differences in views? Or resistance from potential clients or others?

- There are differences in views on a daily basis of what to do and what not to but we have learnt to handle that and use it to our benefit instead
- No such resistance from potential clients
- Two of our founding partners left, that was an absolute low for the company, the team which still chose to endure became very strong and closely bonded

How did the team evolve over time? In short, also describe the organizational formalization process, if it has happened.

We started with all people micro managing things, but now it has moved on from everyday work distribution to roles and functions aligned with interest and strengths of the individuals. We have an organization structure though there are still some overlaps which we are trying to evolve further.

III)Mentoring process:

Was there a mentor which guided you at all stages, initially or later (professors or industry/business experts or family members)? Were there more than one mentors?

Mentors have been a North Star and have played a very prominent role in the success of our organization. We had different mentors at different points who guided us rightly for that situation which includes friends, family, seniors, professors and alike.

What about the support from the original department/college or third party workshop/fabricators?

Our own college supported us tremendously, we got money and space to work from them. But more than this it was their constant encouragement and belief. We also benefitted from incubation and accelerator agencies. To name a few -IIT Kharagpur, CIIE, Villgro

IV)IPR and Financing:

Patent filed or not, if so any issues faced?

Yes parents filed, good law attorneys are easy to work with. Their insights are useful too.

What were the difficulties faced in fund raising? How did you overcome these? What role did the Government play, if any?

No difficulty as such, since the product was innovative there was ample investor interest. Government has also given us many cash awards~ to the tune of 60 lacs (INR). Also collateral free loans are available under government schemes.

Did Policy at the State level or National level play a crucial role? If yes, any changes that helped or made it more difficult to these Policy(ies) over time? How did you cope/bring about necessary changes?

This was a pain, the policy uncertainty has led to a lot of duress. We lost orders, faced difficulty in receiving payments. Post this we have taken a call to be in segments which are independent of government policies.

V)Innovation:

Any innovation tried in the ideas, supply chain, positioning, and/or delivery?

The product *micro cold storage* was an innovation in itself which is in progress of changing the entire landscape of the supply chain for certain agri-products (e.g. strawberries). In addition, we developed an internal ERP and accounting system to ease out the accounting and reporting process. Innovative customer financing mechanisms were also employed.

Any contribution by tester or first few clients to the final design of product/service?

Not so much yet, but is expected in the future.

Anybody else who made a significant contribution?

An employee delivered superbly in product development, he helped build the platform for control system in the company. He delivered beyond expectations.

What were the major bottlenecks in prototype development?

Lack of experience meant that small glitches took a lot of time for resolution.

VI)Current and future:

What are the current focus areas?

Sale and or EPC of Solar micro cold storage and Solar pumps

What/where are the main challenges being faced?

Validation of product market fit for micro cold storage

Where will the next breakthrough in this domain be most likely?

Storage technology, power density of solar power, smarter electronics

Is there a dilemma that needs to be resolved? What is this entrepreneurial dilemma?

We are still grappling with the issues of the customer segment, pricing and the business strategy.

Any societal, or environmental or gender or policy dimension which needs highlighting?

Nothing in particular.

Any specific metaphor, inspirational quote, book or moment which helped rejuvenate the spirit when the entrepreneurs felt low?

It's not about whether it can happen or not, it's about how can we make it happen.