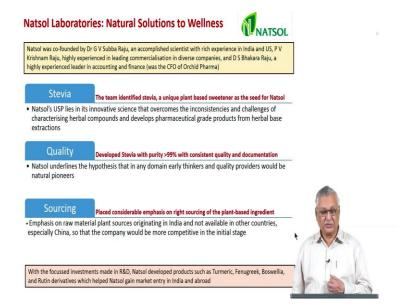
Course on Entrepreneurship, Professor. C Bhaktavtsala Rao, Ph.D. Department of Management Studies. Indian Institute of Technology, Madras. Start-up Case Studies Part 2.

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We now move on to the Natsol Laboratories which was established to find natural solutions to wellness. We understand that pharmaceuticals are synthetic molecules they are chemicals but we also understand that there are several pharmaceuticals which came out of plant and medicinal herbs and they have become successful pharmaceuticals they have become very useful therapeutic solutions to a wide range of ailments. Taxol which comes out of bark of a particular tree for oncology that is a fine example.

So are several products which are in the nutraceutical space. However the biggest challenge in developing plant based medicines is the challenge involved in characterizing the key core ingredient which contribute to the therapeutic effect and making sure that any other ingredient which has got an adverse effect is eliminated also extensive test are involved to see whether it is the only one core ingredient or the network of ingredients that exist in the plant or the herb that cause the therapeutic effect that also needs significant investigation and finalization.

So, Natsol was co-founded by Doctor GV Subba Raju, who was an accomplished scientist in plant-based research PV Krishnam Raju who was very good in leading units to commercialization and DS Bhaskara Raju who worked formerly as the CFO of Orchid Pharma,

who was an experienced leader in accounting finance with a sharp business sense. The team identified stevia which is a unique plant-based sweetener as the seed for the Natsol.

Stevia is considered more significant in terms of the calorific impact low glycemic index such or zero glycemic index at the same time because it is not manufactured through a synthetic process and it is not sugar derived it had its advantage over other products. Natsol CSP lies in its innovative science that overcomes the inconsistences and challenges of plant based medicines and develops pharmaceutical grade products from herbal based extractions.

Secondly, quality was the prime driver the team could achieve 99 percent plus purity in the ingredients that they have developed which is very important in plant based medicine and thirdly the company placed lot of emphasis on right sourcing because the plants could be the ones which could make our mark the development and the consistency of supplies both in terms of quality and the quantity is very important.

Sourcing of the plants was extremely important and also because China could always compete in traditional medicine here was taken to choose the plant variety that is available in India and therefore is not susceptible to huge competition from China. Therefore, with focused investments made in R and D Natsol developed products such as Turmeric, Fenugreek, Boswellia and Rutin derivative which helped Natsol gain market entry in India and abroad.

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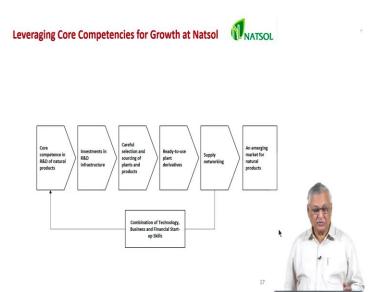


There has been good successful Natsol, company was recognized by the wellness industry and financial expertise and the technical experience of the co-founders was also well understood. However, challenges did emerge mostly from the market place. One demand generation from the wellness industry was the challenge because the wellness industry tended to have immediate access to ingredients already developed. Natsol offered a superior value proposition and it required time for that value proposition to sync in.

Secondly there was competition from established products such as sucralose as far as the sugar derivatives or sugar substitute products are concerned and thirdly there was also a need for higher investments to be a significant volume player because the ultimate delivery is in terms of micrograms and you needed ingredients in tons to be able to make a mark in terms of both turnover and profitability. So, this is a case of size-based start-up which has taken its foothold in an evolving industry wellness and nutraceutical industry to be specific.

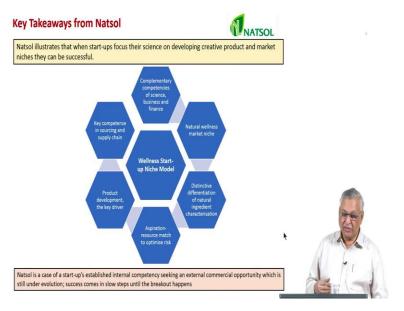
And therefore, it has to play out its game alongside the evolution of the market place, educating the market, educating the customers and also making the right kind of investments so that there is a prudential balance between scale up and sustainability. But then this also points out that this could also be another case where a science-based start-up despite its skills and capabilities need to look at certain additional and stronger partners to be able to succeed in the long hall.

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So, there are the core competencies of growth for Natsol, one core competence in R and D, investments in R and D infrastructure to start with, very careful selection and sourcing of plants and products, ready to use plant derivatives, supply networking and an emerging market for nutraceutical products. So, the combination of technology business and financial start-up skills have helped Natsol make a mark.

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So, from a business model prospective what is a niche model for wellness start-up again the market niche is very important the natural wellness market niche. We need complimentary

competencies in science business and finance because this kind of products does not sell only based on science it also requires business development capability and also financial wherewithal the core competence lies in the way the plant ingredient is isolated and built to the highest level of purity and match between aspirations and resource to optimize the risk, to look at product development as the key driver.

And finally, key competences in supply chain management and procurement. So, it is the case of start-up established internal competency seeking an external commercial opportunity which is waiting to be offered but also waiting to be educated, so that the whole development is an evolutionary phase. Success would come for this kinds of ventures in slow steps until break out happens and once the break out happens the sky could be the limit for these kinds of models.

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Now we discuss Resource Bridge, it is a start-up which is educated to human resources area and has resourcefully positioned itself as a search firm, resource bridge was stablished by K Ramdurai Ram and his wife Saroja. Ram had years of senior consulting experience heading outfits such as Monitor, IMS and Deloitte. He had his BE and MS degrees from reputed universities in India and USA and also a post-experience MBA form IIM Ahmedabad. Saroja was financial expert in her own right.

So, given the intellectual and experiential background setting up their own consulting start-up has been a natural play for Ram and Saroja and they chose human resources domain as their area

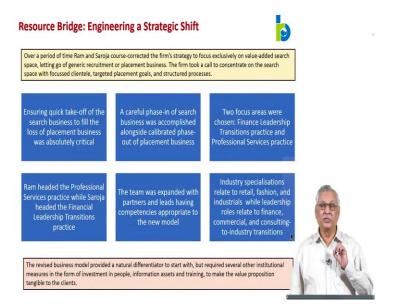
of operation. And why did they choose? In the early 2000's there was only one broad definition of recruitment agency. Recruitment was considered a one glove fits all kind of operation from the junior most requirements to the senior most requirements recruitment agencies were fulfilling and therefore there was no kind of discrimination.

However relevant role were being identified and how appropriate people were being searched for and fitted the industry multi polar at one level which is the highest level, we had executive search firms such as Egon Zehnder and they were charging high and also had very elaborate processes at the other extreme we had generic recruitment firms which were willing to do any kind of search and placement. Over a period of time certain of the recruitment firm evolved into how they crescent themselves as placement firms.

Companies the clients lack the finest distinguish between various needs and services and the compensation structure itself at that point of time was on fixed pay model, there were very little additional inputs to the recruitments space in terms of variable pay or long-term incentive plans or employee stock option etc. Therefore, the broader industry could not find the right value nuanced intersection between the right price and quick fit.

Resource bridge too started as a placement firm catering to all levels and therefore encountered few challenges and constrains in gaining an effective market entry that is again because of the intellectual nature of the founders and the generic fit for all kind of approach the industry was taking. However, because the founders were intellectually and analytically enabled, they could decide on a course correction at the appropriate time to move the firm from a generic status to a differentiated status.

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So, they concluded that they are not going to be in the mass search area or mass recruitment area they decided to focus exclusively on value added research space they let go of generic recruitment or little more evolved replacement business and the firm took a call to concentrate on research space with focused clientele, targeted placement goals and structured processes. It meant that the company had to do a very careful phase out of the existing business and phase in of the new kind of search business.

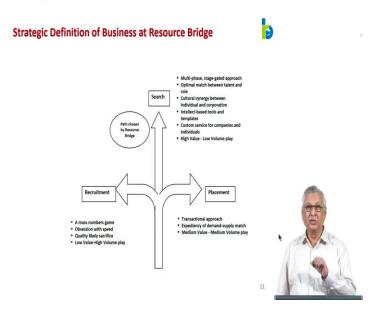
It also meant that the company had to do a few things but do them well, which meant that the company chose two particular areas to operate one was professional services and second is leadership transitions; leadership transitions was focused on finance area where Saroja was very strong. Professional services practice was more defused given the larger competencies which Ram had.

The team was expanded with appropriate partners and team leads in different centers in India and also a few industrial specializations were selected, not to spread too thin but also to ensure that there was larger basket that could be offered to the clients. So, retail, fashion and industrial were considered and leadership roles were typically related to finance and commercial and consulting to industry transitions essentially at the CXO level.

So, the revised business model provided a natural differentiator for the company but it also require several other institutional measures in terms of a strategic data base investment in people

information assets and training, the ability to communicate effectively with the client who are looking for senior appointments which meant that you needed to interact with the CEOs and CXOs and the very senior CHROs of the company and also very accomplished candidates on the other side from the talents side. So, a value of proposition had to be effectively structured and communicated to both sides which only an intellectual based organization can deliver.

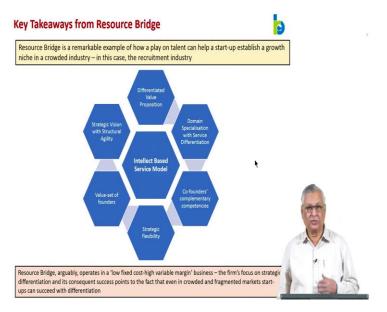
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So, this graphic presents how kinds of options available for Resource Bridge it started with recruitment which is a mass numbers game there was an obsession with speed, quality was likely to be sacrificed in the game and it was a volume, little improved was the placement option where it was still a transactional approach but at least it looked at a better match of demand and supply situation and it provided a medium value, medium volume play. However, the company choose to go on the search path which was a kind of multi face stage gated approach, it would seek an optimum definition of their role fundamentally and then seek an optimum match between talent and role.

It also looks at various other aspects like cultural synergy between the individual and the corporation, appropriate professional chemistry between the incumbents and the existing peer level leaders and the top bosses. It also required use of intellect based tools and techniques and more than anything else it required a custom service for each company more time consuming more painstaking but likely to be more effective in terms of a high value, low volume play.

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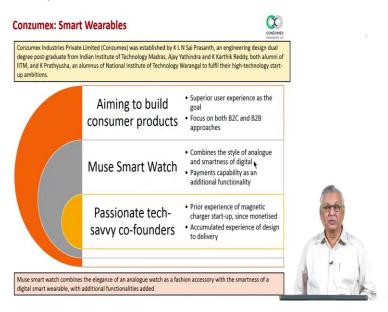
So, that was a path chosen by Resource Bridge and it worked. So, in contrast to the other three models which we discussed, Resource Bridge reflected an intellect-based service model, the ingredients of the intellect-based service model were six. One differentiation, the company could offer a differentiated value proposition in a crowded market; second it chose its areas of operation very clearly and with focus. It focused on domain specialization it also looked at service differentiation as the key aspect of growth.

Thirdly it brought to forth the co-founders' complementarities so that the bandwidth could be very successfully leveraged for optimal impact with the clients, they were strategic flexibility changing the course from a broad recruitment to a very specialized set at the appropriate time. Value set of founders which was dedicated to intellectual excellence that was the key driver. Adoption of the right processes and the right tools.

And finally, strategic vision with structural agility, adding to the people having the right kinds of strategic mind set joining the company at various levels that has helped the company to grow. So, arguably Resource Bridge operates in an area which is characterized by low fixed cost but high variable margins, if the industry grows the service start-up would grow, if the industry is on a down trend the service tends to be on a margin compression mode.

However, the firms focus on strategic differentiation and its consequent success points to the fact but even in crowded and fragmented markets start-ups can succeed with differentiation. If high level recruitments are required people would look for differentiated firms, intellect driven forms and by positioning itself in that niche Resource Bridge could ensure that come what may the high and lows of business, the business of the start-up of itself could go on and even heal and eventually grow from time to time.

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We now come to Conzumex, which is a very unique case of tech driven startup. This is what India needs, this is what would drive India go to into industry 4.0 in a very determined and very impactful fashion. Conzumex industry private limited was established by KLN Sai Prasanth, an engineering design dual degree post graduate from Indian Institute of Technology Madras, ably supported by Ajay Yathindra and K Karthik Reddy both alumni of IIT Madras and K Prathyusha, who was an alumnus of National Institute of Technology Warangal. And their mission was to develop high technology start-up products for consumption markets the aim of the company is to build consumer products at global quality levels.

They had superior user experiences as the goal and they decided to focus on B2C and B2B approaches. One of the products they brought out was a magnetic charger in the past and with that prior experience which helped them understand the entire global supply chain and also end to end delivery characteristics in a consumption's product. They came up with new smart watch as their product under Conzumex umbrella, new smart watch combines the style of analog and

smartness of digital, it also had got additional functionalities including wellness coaching and payments capability.

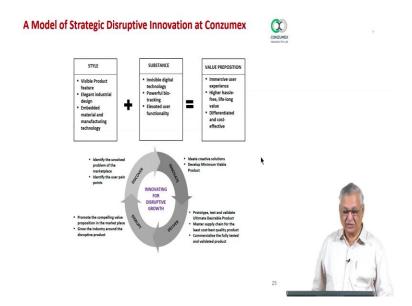
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We understood of course that the higher in technology the company is the greater would be the competition the company would face and Conzumex smart variable product has a technological USP which was different it reflected the ultimate elegance of analog smart watch but it also provided additional features the first additional was the winner which is a one year long battery life. The second was Bluetooth connectivity, ability to change the times, ability to connect to phones in every region, and the third was the ability to collect and propose wellness data and analytics. And the fourth was to have the ability to conduct payments from out of the watch or its strap.

All these features when harmonized in one package clearly set the product out as one which reflects the leading-edge technology. Starting operations in 2016 Conzumex also sold its first batch of watches through the crowd funding platform Kickstarter and the company received good feedback. So, it also illustrates that technological efficiency is vital particularly in techdriven start-up operations because the company was technological driven many high net worth individual could participate in the capital structure of the company and provide the initial funding to embark on this challenging technological journey.

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The model could be described through this graphic, we had style we had substance. And in one of the modules earlier, I suggested that style and substance are highly correlated and in fact they reflect two sides of the same technological innovation coin and when style and substance are combined, they would emerge a good value preposition. In this case, the style was expressed through the visible product features, very elegant industrial design.

And also, the embedded material and manufacturing technology which I am sure that micro motors and various other mother boards were very effectively packaged in a water resistant and dust resistant overall casing capability and the substance was the invisible design technology related to the digitalization, powerful bio tracking and elevated user functionality. Then style and substance combined there was a very effectively value preposition which provided immersive user experience, long life of the battery, and therefore no need to incur with battery replacement and also a differentiated service position.

So, when a company in the start-up space wants to innovate for disruptive growth there are four aspects which are involved. First discovery of the latent user need and providing a solution and innovating creative solutions and developing a minimum viable product, a concept which we discussed earlier that is the second leg of this journey. The third one is to deliver that concept in the real market place proto type testing, validating of the ultimate desirable product not merely minimum viable product that is the important aspect.

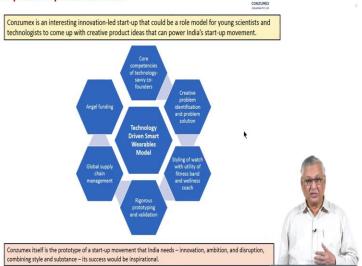
So, when the company could sell through kickstarter platform, the fully made commercially appropriate watches it has crossed this barrier and to be able to do that the company had to master the supply chain covering countries such as Switzerland, China, India, Korea and provide the components at the highest level of quality and at the most appropriate level of cost.

So, that the overall product reflected a good quality cost equation and commercialization had to be done on first few thousands of watches before the large entry to the market place that could structured that is the delivery portion. And finally, the disruption portion when dealing watch manufactures take note that yes, this kind of company has plotting the superior level of watch into the market place the market is ready for disruption.

How the deception would occur obviously would depend upon the level of funding that is further received by the company and also the scale of operations the company would look at and also the tie ups that could emerged between the established watch manufacturers as well as the start-up Conzumex. So, the promotion of the compelling value proposition to an increased scale and also creating a new niche of the industry around this new product is the vital part of the disruption phase of the model.

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Key Takeaways from Conzumex



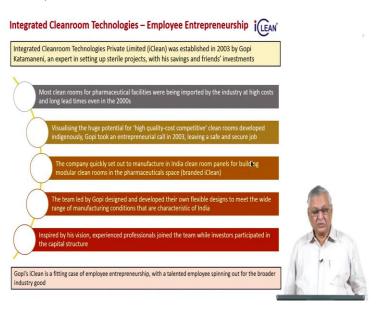
In terms of the key takeaways, the tech driven wearables model has got the six important components. First, fundamentally, core competencies are absolutely vital because this is a technology game. And it cannot be outsourced or external ideas cannot be easily implanted in the

company. So, core competencies of the founders is extremely important. Second, creative problem identification and problem solution not following the herd but coming up with something which is very unique to the requirements of the users of smart watches.

Third, styling of watch with utility of fitness band and wellness coach combining multiple functionalities in the same product without any compromise, actually with enhancement to the styling that become one of the important aspects so the model. Rigorous prototyping and validation. The watches were tested by the employees for several months before the product was put on the marketing platform. And again, as I said global supply chain management covering Switzerland to China was extremely vital in this whole journey including choice of the right contract manufacturing organization to be supportive.

And the sixth component is angel funding which provided funding for the high level of R and D investment that is required for a smart wearable. So, Conzumex is the prototype of a start-up movement that India needs, innovation, ambition and disruption that combine style and substance and the success of Conzumex would surely be inspiration for the start-up movement in India because these were the technology should lead India in the start-up movement.

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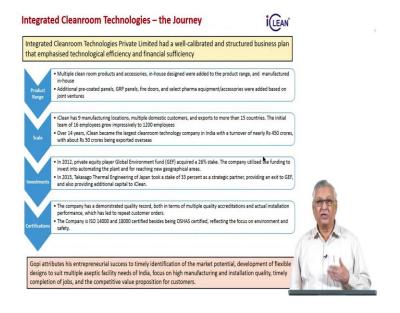
Another technology intensive product is clean rooms for pharmaceutical industry majorly and also for semiconductor industry. Because the atmospheric conditions in a pharmaceutical industry need to be preserved and even more so in sterile manufacturing, clean rooms and clean

room panels are extremely important. The founder of Integrated Cleanroom Technologies Private Limited iClean for short was Mr. Gopi Katamaneni. He was a project manager in Orchid Pharma and he was versatile project technologist who could design and commission projects through establishment of cleanrooms for pharmaceutical operations.

He established company in 2003, when he establish the company most of the cleanrooms and the cleanroom panels have been imported by the pharmaceutical clients from developed nations and they also had long lead times. The panels were available for overseas plant requirements and Indian plant requirements were quite varied. So, he visualized great potential for a high-quality low cost or cost competitive cleanroom technology and he felt that he had the necessary capability. Again, as he was an employee, he could think of this kind of proposition which would served not merely the company where he was employed but much larger industrial population.

So, he set out to establish his company and he branded the company as iClean. The team lead by Gopi designed very innovative and flexible clean room panels to meet the wide range of requirements that Indian pharmaceutical industry had and inspired by his vision several experienced professionals joined the team while investors are also participated in the capital structure. This is again another fitting case of employee entrepreneurship just as Ricon Pharma was. The talented employee spinning out for the broader industry good.

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It had a well-structured and calibrated business plan; it emphasize technology and finance. Technological efficiency and financial sufficiency which we considered in one of the modules is well-illustrated in terms of practice here. First product range, multiple clean room panels and accessories were in house designed and added to the product range. Later on, pre-coated panels, GRP panels, fire doors, and other accessories were added based on joint ventures.

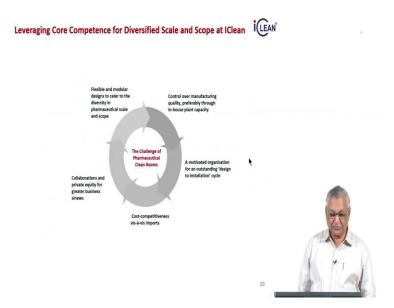
So, that enabled Gopi and iClean to take care of a huge number of pharmaceutical requirements. Secondly very quickly there was a ramp up of the manufacturing capability, it got into 9 manufacturing locations could service multiple domestic customers because pharmaceutical industry was spread over India with the Hyderabad, Chennai, Bengaluru, Pune, Mumbai Ahmedabad, Himachal Pradesh Baddi, even Kolkata being home to several kinds of manufacturing companies.

Therefore, it was important for the company to be manufacturing was diversified and with the ability to serve multiple customers and the team grew to 1,200 employees. Over fourteen years the company became the largest cleanroom technology company in India, It is a credit for any start-up with the turn over nearly 450 crores out of which 400 crores was in India and 50 crores was being exported abroad.

In 2012, private equity player global environment fund acquired a 26 percent stake but funding was very useful for the company to automate the plant and to reach the near geographical areas. In 2015, TTE of Japan took a stake of 33 percent which provided an exit to the first investor also provided additional funding for more major expansion for the company. The company has a very demonstrated quality record both in terms multiple quality accreditation and also actual installation performance, this has led to repeat customer orders.

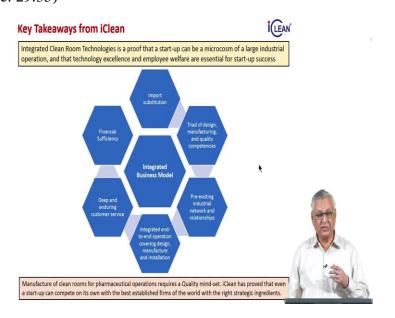
The company has got ISO 14,000 and 18,000 certifications beside OSHAS certifications reflecting the focus on environment and safety. Gopi attributes the entrepreneurial success to timely identification of the market potential, development of flexible design to suit multiple aseptic facility needs of India, focus on high manufacturing and instillation quality, timely completion of jobs and the competitive value preposition for customers. As you would see in one of the later slides, it is a kind of design to installation cycle that was focused on by iClean to make a differentiated value preposition.

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So, what are the challenges of pharmaceutical cleanrooms? First, we should have flexible and modular design to add to the diversity. You cannot build a facility to suit the panels which are available rather the panel should meet the designs approach of the civil engineering of the facility. Second, there should be control over manufacturing quality preferably through inhouse plant capacity third there must be a motivated organization for an aggressive and effective design to installation cycle. Cost competitiveness obviously has to be assured over imports and collaborations are required for private equity which will ensure greater business strengths.

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The key takeaway form iClean model is one of integrated business planning and execution. Imports substitution was the key driver because that provided the basis to enter the market which was used to imported panels. However, that required the triad of design manufacturing and quality competences to demonstrate that the products which have to meet aseptic standards are being manufactured in an aseptic manufacturing area which would meet those kinds of standards. Therefore, it required that the design manufacturing quality moved in tandem in the execution of this plan.

The preexisting industrial network and relationships is the founder had obviously ensured that they had a favorable view of the quality competences of the founder and his enterprise. Integrated end to end operation from design, manufacturing and installation being one part of the whole design to installation cycle. Deep and enduring customer service and financial sufficiency. Therefore, an industrial operation of a start-up which was akin to the industrial operation of a large firm could be established with a quality mind sets. Even a start-up can compete on its own with the best established firms of the world with the right strategic ingredients that is the key lesson which comes to us from iClean example.