



180Degrees  
CONSULTING  
**JMI**

# MARKETING RESEARCH

## SPACE ERA



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# EXECUTIVE SUMMARY

We conducted market research and analysis to explore relevant product options for our client, SPACE ERA. After much deliberation, we decided to explore 4 products which could be made using repurposed shipping containers or corrugated metal sheets incorporating our client's original design. The products were low income housing, post disaster relief shelters, mobile labs and army & defence related structures.

## P1- Low income housing

We found that there is a shortage of Housing, not only in the poorer states but also in Urban and metropolitan cities. The competitors were mainly in southern india. The best way for SpaceEra to establish a presence in the market will be through partnerships with Social Impact Organisations, given the client's limited experience and funding routes.

## P2- Post disaster relief shelters

India faces many natural calamities such as earthquakes, floods, etc So, there is a need to provide relief-shelters. Keeping in view the investment requirement and growth potential of the company, it is quite difficult to enter the Disaster-relief shelter market at this stage. But the entry into the market isn't easy. There are not many private firms working in disaster relief shelters. It shows that there is not much scope for private players.

## P3- Mobile Labs

Despite improvements in the literacy rates in India, it has several other challenges that have gone unnoticed. The biggest challenge that India faces right now is the quality of education. Instead of creating more

schools, 180 Degrees Consulting Jamia Millia Islamia has decided to suggest Space Era to take up the initiative of creating more STEM based learning opportunities to further enhance the quality of education in our country.

## P4- Army & Defense Applications

Shipping containers could be modified for various usage in defense such as training structures, camps and army living units. However, the mode of entry is difficult as there is no demand from the govt.'s side. So, our client should look to onboard organizations which are interested in manufacturing defense related equipment. All the products that we analyzed had potential to be aligned with SPACE ERA's vision. However, mobile labs was the most feasible option to start with as our client could effectively leverage the company's social presence and brand to tap into the education sector and gain partnerships or grants to start with the venture. Later on, the client could expand into other products as well. The client also asked us to suggest how to use AWS credits that he has been awarded with. The applications of AWS are immense unfortunately they can't be utilized most effectively at this stage. We have also attached a pitch for the client to approach Venture Capital firms.

# CONTEXT & OBJECTIVES

## THE CLIENT MISSION

SPACE ERA is a company by Kaif Ali, who is an Architecture student from Jamia Millia Islamia. The company was focused on achieving proper precautions for covid-19 through architectural innovation using corrugated metal sheet structures by making quarantine units and makeshift hospitals. SPACE ERA reached out to 180DC in order to come up with a clear strategy to enter the market with a scalable product.

## CURRENT CHALLENGES

The biggest challenge was to deal with the fact that the client's product was dependent on the pandemic situation and as soon as this crisis would end SPACE ERA would become irrelevant. The challenge was multifold as we had to come up with a brand new product category for creating social impact while incorporating the client's original design i.e by using shipping containers or corrugated metal sheets. Moreover, we had to analyze the market and research about the different product's efficacy and find the best possible way to crack entry into the market.

# Product 1: Low Income Housing

## The current state of housing Unaffordability

- Housing affordability in India has worsened over the past four years with **Mumbai retaining the top slot as the least affordable city** for home buyers, according to the Reserve Bank of India (RBI).
- **Bhubaneswar was the most affordable city for home buying with a price-to-income ratio of 54.3** in the March quarter compared to 47.2 in March 2015.
- The country is facing a **huge urban housing shortage in the EWS and LIG , falling total short of almost 18.8 million DU out of which 96% shortage is in these segments.**
- A McKinsey Global Institute's report suggests that this **shortage will boom up to 38 million units by 2030**. The same shortage **was 24.7 million at the beginning** of the 11th five-year plan in 2007.
- The RBI's quarterly Residential Asset Price Monitoring Survey showed the **house price-to-income ratio in India increased in the last four years** from 56.1 in the 2015 March quarter to 61.5 in the corresponding period of 2019.

# Product 1: Low Income Housing

Demand and Supplying of houses( 2016-2020 )

City	Cumulative demand (2016-2020) in 000s	Cumulative supply (2016-2020) in 000s
Ahmedabad	245	50
Bengaluru	686	220
Chennai	444	97
Delhi NCR	1000	253
Hyderabad	518	75
Kolkata	361	91
Mumbai	711	128
Pune	190	108
Total for top 8 cities	4156	1023

City Wise Demand-Supply (2016-2020)

It is observable that while there is a huge demand for houses in the mentioned cities, there is obviously a shortage in supply.

- 14% demands being met in Hyderabad
- 18% being met in Mumbai
- 20.4% being met in Ahmedabad,
- 21% being met in Chennai
- 25% being met in Kolkata,
- 25.3% being met in Delhi-NCR,
- 32% being met in Bangalore,
- 56.8% being met in Pune

# Product 1: Low Income Housing

According to a report, the housing demands of lower Income groups(LIG) are being least met and have the highest demands.

	Cumulative demand (2016-2020) in 000s	Cumulative supply (2016-2020) in 000s
LIG	1982	25
MIG	1457	647
HIG	717	351
TOTAL	4156	1023

- LIG (below Rs 15 lakh) is the most underserviced segment. While it is likely to generate a demand of about 1.98 million units by 2020, the supply by private developers is barely 25,000 units.
- Similarly, though the MIG (Rs 15-70 lakh) accounts for 63% of the total housing supply across eight cities between 2016 and 2020 at 647,000 units, the demand is estimated to be a much higher number of 1,457,000 units.
- Over 40% of the Indian population is expected to live in urban areas as against the current figure of 34% and this is likely to create a demand for 25 million additional affordable units, estimated a RICS - Knight Frank report.

# Product 1: Low Income Housing

## Hyderabad

- After a slowdown in April, the residential market of Hyderabad saw a modest improvement in the ensuing months of Q1 2020-21.
- Localities, such as Narsingi, Kokapet etc. bordering the IT corridors accounted for about 70 per cent of the property enquiries and transactions.
- Hyderabad has also recorded lowest Unsold Stock, and also a significant price growth in rates.
- Bigger residential formats including 3 BHK units priced within Rs 50-70 lakh budget are the focus segments.
- 7,000 houses of the poor in districts destroyed in rains and floods while even more damaged.
- Most houses that were damaged are not pukka constructions and compensations are therefore not made.

# Product 1: Low Income Housing

## Mumbai

- Over 37 percent Marathas live below poverty line, 93 percent earn less than Rs 1 lakh a year.
- Over 41% of Mumbai's 12.44 million habitants live in slums. 11
- With an estimated 6.5 million people residing in these conditions, Mumbai has the largest slum population of any city in the world
- There are also many NGOs working to improve health and education for the LIG in Mumbai alone,
- Shipping containers/Corrugated metal sheets can help in this cause by building sustainable and economical structures for the same.

# Product 1: Low Income Housing

## Ahmedabad

- Megacities like Ahmedabad attract high migration of workers and students in the city, increasing in the urban housing demand.
- Under Pradhan Mantri Awas Yojana (PMAY), under National Democratic Alliance led by BJP, an exercise was taken up which produced housing shortage numbers of 2,88,000 units in 2017.
- The wall which hid the visible poverty (slums and other unhygienic dwellings) from Trump during his visit in February.

# Product 1: Low Income Housing

## Bihar

- Total Urban housing shortage is 11.90 lakh as per Technical Group (TG-12) (2012- 2017) in Bihar. Out of which more than 85% is in the EWS/LIG category i.e around 10 Lakh.
- It is anticipated that 5 Lakh houses out of the total demand will be covered under Affordable Housing in Partnership & In-Situ slum Redevelopment
- There are a number of Prominent NGOs and social Impact organisations working in each major city and town in Bihar who are open for collaborations eg:- Social Reconstruction Foundation (Araria), Association of Limetech Social Development(Siwan) etc.

# Product 1: Low Income Housing

## Jharkhand

- Jharkhand urban housing shortage is estimated at nearly 0.63 million households in 2012. Around 96 % of the shortage constitute the EWS AND LIG Groups.
- Poverty reduction in Jharkhand is the slowest among Low Income States.
- NGOs and such organisations working on such urban and rural development projects include Ayod Vikas Society, Ashray etc.

# Product 1: Low Income Housing

## COMPETITOR ANALYSIS

SWOT analysis of each competitor

### STRENGTH

- Set up in Hyderabad. So it gives a great advantage to explore the southern market
- Well established in the architecture field since many years SO it has already established a brand value in this field.
- Trusted Customer base. Customers have seen their work in the architecture field not exactly in this product but in a wide variety of other products which helps in establishing trust with the customers.

### OPPORTUNITIES

- Can expand their customer base easily in the southern region and might as well expand to other parts of the country.

**Fameco**

### WEAKNESS

- Do not have a well differentiated USP
- Pricing is similar to that of other competitors

### THREATS

- There are major competitors in this field well established in close proximity to them.
- This can create a situation where they are targeting the same customer base.

# Product 1: Low Income Housing

## COMPETITOR ANALYSIS

SWOT analysis of each competitor

### STRENGTH

- Set up in Bangalore in The Silicon Valley of India so it provides them with a huge customer base of targeted middle class working professionals in the crowded city of Bangalore.
- Well established in the architecture field since many years SO it has already established a brand value in this field.
- Trusted Customer base. Customers have seen their work in the architecture field not exactly in this product but in a wide variety of other products which helps in establishing trust with the customers.

### WEAKNESS

- Do not have a well differentiated USP
- Pricing is similar to that of other competitors

### OPPORTUNITIES

- Can expand their customer base easily in the southern region and might as well expand to other parts of the country.

## Square Plums

### THREATS

- There are major competitors in this field well established in close proximity to them.
- This can create a situation where their customer base might overlap. major competitors in this field well established in close proximity to them.
- This can create a situation where they are targeting the same customer base.

# Product 1: Low Income Housing

## COMPETITOR ANALYSIS

SWOT analysis of each competitor

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- Set up in Hyderabad. So it gives a great advantage to explore the southern market
- Well established in the architecture field since many years SO it has already established a brand value in this field.
- Trusted Customer base. Customers have seen their work in the architecture field not exactly in this product but in a wide variety of other products which helps in establishing trust with the customers.
- Major clients such as TATA, Hallmark constructions etc. Which further helps them to establish a strong brand name for themselves.

### OPPORTUNITIES

- Can expand their customer base easily in the southern region and might as well expand to other parts of the country.

**Cubosense**

### WEAKNESS

- Do not have a well differentiated USP
- Pricing is similar to that of other competitors

### THREATS

- There are major competitors in this field well established in close proximity to them.
- This can create a situation where their customer base might overlap.

# Product 1: Low Income Housing

## COMPETITOR ANALYSIS

SWOT analysis of each competitor

Name of Key Players	Base of Operations	Pricing/unit ( Lacs )	Target customer base	Other Products.
Squareplums	Bangalore	5.25	Working Professionals who are able to afford	No other products can be seen
Fameco	Hyderabad	5	Working class people, people able to afford	Catering to other similar products like portable toilets, labour house, parking, garages etc.
Cubosense	Hyderabad	5+	Working class , people able to afford	The containers designs are ranges from small studio size apartments to restaurant styles for 30 people

## Recommendation

1. Concept of low income housing from shipping containers is relatively new in India. Hence the market is not that saturated.

2. Major competitors are established in the southern part of the country. If the client focuses on areas such as Bihar, Jharkhand, UP etc then there are high chances that client can enter the market with low risk from the competitors.
3. Collaborating with major corporates and banks could help us bring a large chunk of clients together but pitching them could be a difficult task.
4. Getting the houses financed is another issue which working professionals face. If we could solve that by getting them easy EMIs .This might bring business to the firm.
5. Providing an option for rent would also be a great step as only one other firm is doing that right now.

# Product 1: Low Income Housing

## COMPETITOR ANALYSIS

SWOT analysis of each competitor

### Conclusions

1. As per the analysis of given statements, it can be concluded that there is a shortage of Housing, not only in the poorer states but also Urban and metropolitan cities.
2. A significant portion of these numbers are in the EWS and LIG groups
3. The best way for SpaceEra to establish a presence in the market will be through partnerships with Social Impact Organizations, given the client's limited experience and funding routes.

# Product 2: Post- disaster relief shelter

## The current state

- As per the report by NDMA, India is vulnerable, to varying degrees, to a large number of natural as well as manmade disasters. **58.6% of the landmass is susceptible to earthquakes of moderate to a very high intensity, over 40 million hectares** (12% of landmass) is susceptible to floods and river erosions.
- **Out of the 7,516 km long coastline, close to 5,700 km is prone to cyclones and tsunamis; 68 per cent of the cultivable area is vulnerable to drought** and hilly areas are in danger from landslides and avalanches.
- Vulnerability to disasters/emergencies such as Chemicals, Biological, Radiological and Nuclear (CBRN) origin also exists.



# Product 2: Post- disaster relief shelter

## Use of shipping containers in disaster relief

- Shipping containers are a popular choice in disaster relief. Militaries, governments and nonprofits enjoy the security and flexibility provided to their relief teams.
- “Containers have many characteristics that make them convenient for use in architecture. They are prefabricated, mass-produced, cheap and mobile. Because they are compatible with practically every transport system, they are easily accessible all around the world. They are strong and resistant, while also being durable and stackable. They are modular, recyclable, and reusable.” - Container Architecture. 19
- Many relief organizations are realizing the indispensable uses of shipping containers, and are already using them in disaster areas.



# Product 2: Post- disaster relief shelter

## How to use shipping containers

Shipping containers are easy to transport making them the ideal solution for natural disasters, including fires, floods, earthquakes and cyclones, which often strike unexpectedly and require an immediate response. **THEY ARE MULTIFUNCTIONAL**

### **There are many applications for shipping containers in natural disasters including:**

#### **1. Temporary housing and shelters**

Shipping containers have been used as temporary shelters in many parts of the world. The extensive application of containers as buildings provides not only temporary shelter for victims and refugees but also enables container recycling.

#### **2. Portable Toilets**

In flood and post flood conditions, the burden on health facilities is exceptionally heavy due to the high number of patients affected by water-borne and vector-borne diseases. Flood also brings a lot of debris and waste in the water, especially animal bodies, as well as animal and human waste near human habitation. Portable toilets are necessary to reduce the spread of diseases.

#### **3. Storage for equipment and goods**

As we have seen in previous calamities that the warehouses become unsuitable for storing necessary goods, it creates a problem of safe storage. Shipping containers are made for shipping goods safely. So, these containers can also be used to store goods safely in case of Natural Disasters and make them available to people in disaster prone areas.

#### **4. Refrigerated containers for cold storage or storage for humid climates**

One of the problems faced is transportation and storage of some medicines and other necessary items which needs a certain temperature for storage. Temperature regulated shipping containers can solve this problem.

# Product 2: Post- disaster relief shelter

## 5. Makeshift hospitals

In the post disaster period, various diseases start spreading. This increases the immediate need of healthcare to a large number of people. Shipping containers can be used to make makeshift hospitals and provide medical services to the needy people.

## 6. Offices or planning rooms

When a natural disaster hits a region, many organizations start the relief work. There comes a need to make offices in the affected region. Shipping containers can be used to make site offices and planning rooms.

## 7. Kitchen and cooking facilities

As soon as the relief work starts, many organizations work to provide cooked food to the affected people. These organizations need kitchens in the affected region so as to reduce the cost of transportation of food. Shipping containers can be used to make kitchens in the affected region and provide cooking facilities.

## Product Details

Price	Rs. 4.6 lakh
Capacity	20-30 ton
Container Type	Retired Reefer Container
Material	Galvanized Steel
Container Length	20 feet

# Product 2: Post- disaster relief shelter

## COMPETITOR ANALYSIS

Many relief organizations are realizing the uses of shipping containers around the globe, and are already using them in disaster areas. Following are some of the examples where shipping containers have been used in natural disaster situations.

### Christchurch, New Zealand

A very high magnitude earthquake occurred in Christchurch on 22 February 2011. It registered 6.3 on the Richter scale. The earthquake affected the Canterbury Region in the South Island of New Zealand.

To provide post-earthquake relief, shipping containers were used as shelters to construct barriers around the houses that had been damaged and to protect vehicles and pedestrians from falling rocks and debris originating from damaged buildings and houses. They also continued this effort with the Re:Start mall, constructed from containers to help rebuild the city.



# Product 2: Post- disaster relief shelter

## COMPETITOR ANALYSIS

Many relief organizations are realizing the uses of shipping containers around the globe, and are already using them in disaster areas. Following are some of the examples where shipping containers have been used in natural disaster situations.

There are many companies which are working on disaster relief shelters across the globe, but there's not any such company in India.

The two major companies operating globally are:

- 1.Containerhomes.net
- 2.Container Homes USA

# Product 2: Post- disaster relief shelter

CONTAINERHOMES.NET

## EMERGENCY CONTAINER HOME SHELTERS

Container Emergency Shelter Home LMTD, is located in San Ramon Costa Rica. This is where the company modified the majority of our shipping container homes and offices, as well as small orders of Emergency Shelter Homes. The larger orders, 20-150 or 250-1000 units, are manufactured in Shanghai China. The company has an established relationship as a supplier for shelter homes.

## DESIGN

The design is completely customizable according to the needs of the client. A pre designed model is given below:



# **Product 2: Post- disaster relief shelter**

- 1. At Containerhomes.net, the company focuses intently on building a home that is both functional and comfortable to be in. The company creates shelters that meet the demands for the space and client's needs.**
- 2. These homes can be used in the beginning as emergency shelters and then converted into homes, schools, hospitals and or offices in the future.**
- 3. The shelter homes get shipped all over the world. The company is able to produce between 200-350 units per 30 days.**
- 4. Including the transportation, average time 35 days, these products can be at its final destination in less than 3 months.**

# Product 2: Post- disaster relief shelter

## CONTAINER HOMES USA

Container Homes USA is designed to build a better, affordable and trendy green alternative to traditional sustainable housing by using ISO shipping containers.

LOCATION: 9007 Miles Park Ave, Cleveland, OH 44105

The Working Model of Container Homes USA is very simple. They produce shelter homes made by shipping containers and sell them to earn profits.

Designs are customizable according to the needs of customers. Here is one of the pre-designed models:



# Product 2: Post- disaster relief shelter

## SUCCESS FACTORS OF THE COMPETITORS

- 1.The most important factor of the success of competitors is that they aren't dependent on Disaster relief Shelters. Their main area of focus is low-income housing.
- 2.Both the companies are operating globally, i.e. the shipping container shelters can be transported to any part of the world.
- 3.Container Homes USA and ContainerHomes.net are not dependent on only one model. Along with many pre-designed models, the design is completely customizable according to the need of customers.
- 4.Both the companies have a large production capacity, they can produce as many as 250-300 units per month.
- 5.The companies send trained staff with the container shelters for the installation process.
- 6.One of the most important factors of success is the financial position of these companies. These companies have a very strong financial background.
- 7.Similar to other reports we have done, both the company focus on design and construction only leaving other tasks for partner organisations or the buyer.

# Product 2: Post- disaster relief shelter

## **MODE OF ENTRY**

Now, the question arises how should the client enter the target market. We need to look into different options and select which one is more suitable keeping in mind the investment requirement and business experience of the client:

### **1. Short-term plan**

**In the short run, the client can present his model to the existing firms working in the field of post disaster relief shelters. If the firms like the model, then the client can work on the project with the partner firm. This method is preferable to avoid the problem of finance and prior business experience. But there isn't any firm in India which is working on disaster relief shelters using shipping containers. So, it might not be possible to find a suitable company for the project.**

### **2. Long-term plan**

**If the client plans to go for the long-term plan, he can either go for Venture Capital funding or government schemes.**

# Product 2: Post- disaster relief shelter

## 1. Venture Capital funding:

- Venture capital is a form of private equity and a type of financing that investors provide to start-up companies and small businesses that are believed to have long-term growth potential. Venture Capital firms can provide finance and proper guidance for completion of projects.
- In India, Venture Capital firms have never funded a company working in disaster relief shelters. The reason behind this is that VC firms invest in companies having high growth potential and they expect a high amount of return which is not possible in Disaster-relief shelters.
- Venture Capital firms invest in companies which are in a growth stage and need funding for expansion. VC firms do a proper research about the company's fundamentals, financial statements, profit earning, growth potential before investing.
- So, this is not possible for an individual to get funding without already working in the field. The client can go for VC funding after 4-5 years when SpaceEra starts performing well.

## 2. Government Authorities:

- Government has formed many authorities such as the National Disaster Management Authority (NDMA) to work for Post-Disaster relief shelters.
- One option could be to approach these authorities and take their help in implementation of the project. If the authorities like the model, they may adopt the model for their work or provide funding for successful implementation of the project.
- One such scheme run by the government is the Venture Capital Scheme. Venture Capital Assistance is financial support in the form of an interest free loan provided by SFAC to qualifying projects to meet shortfall in the capital requirement for implementation of the project.

There are around 100 funds used for VC funding. One of the funds is discussed below:

# Product 2: Post- disaster relief shelter

## The Samridhi Fund

Small Industries Development Bank of India (SIDBI) The Samridhi Fund is an approx. ₹430 crore social venture capital fund. SIDBI has envisaged the creation of the Samridhi Fund to provide capital to social enterprises which can deliver both financial and social returns, in Bihar, Uttar Pradesh, Madhya Pradesh, Odisha, Chhattisgarh, Jharkhand, Rajasthan and West Bengal.

### Scheme Benefits & Highlights

- **Investments will typically be in growth stage companies undertaking expansions which already have a sound business model or innovative business model or products and technologies which have the potential of achieving considerable scale.**
- **Samridhi can provide growth capital to enterprises through a variety of funding instruments, viz., Equity and Convertible Instruments.**

### Eligibility

**The conditions necessary for getting funded are as follow:**

- **Be economically viable**
- **Provide access to markets for the poor**
- **Be socially relevant and impact the poor as customers, producers or employees**
- **Increase the flow of capital to the above-mentioned states**
- **Focus on Environment, Social and Governance matters.**

The enterprises must have plans to expand operations in any or all of the following states - Bihar, Chhattisgarh, Odisha, Uttar Pradesh, West Bengal, Madhya Pradesh, Jharkhand and Rajasthan.

# Product 2: Post- disaster relief shelter

## COMPETITOR ANALYSIS

### Conclusions

1. India has faced many disasters such as earthquakes, floods, etc over the years. There is a need to provide relief-shelters to the affected people post disaster. But the entry into the market isn't easy. Keeping in view the investment requirement and growth potential of the company, it is quite difficult to enter the Disaster-relief shelter market at this stage.
2. There are not many private firms working in disaster relief shelters. It shows that there is not much scope for private players.
3. It is not possible to get Venture Capital funding before the incorporation of the company. The client should focus on other areas to start with and he can explore Disaster-relief shelters once the company is well established.

# Product 3: MOBILE LABS

## The current state

- Over the years, the government has taken various initiatives to make educational institutions accessible to the society at large in a bid to ensure education for all. **Although government schools are the largest provider of elementary education in our country with over 80% of all recognised schools being run or supported by the government, still the demand for private schools is on the rise.**

We need more and more good quality competent schools to spread the social cause of education and to encourage STEM based learning to equip more and more children with skills that are in demand in the market right now

- Investing your money in an educational enterprise is a promising proposal as it is a prospering sector with an extending demand for schools. With 99% of the children not being enrolled in an organised preschool, there is a huge untapped potential in the education sector.
- However, a bigger concern that no one seems to be working on is the condition of the schools that are being set up.

# Product 3: MOBILE LABS

Two major issues:

1. Many schools are struggling to find classroom space to use for assisting students with additional needs.
2. Urban Schools may not have the adequate infrastructure for computer aided learning

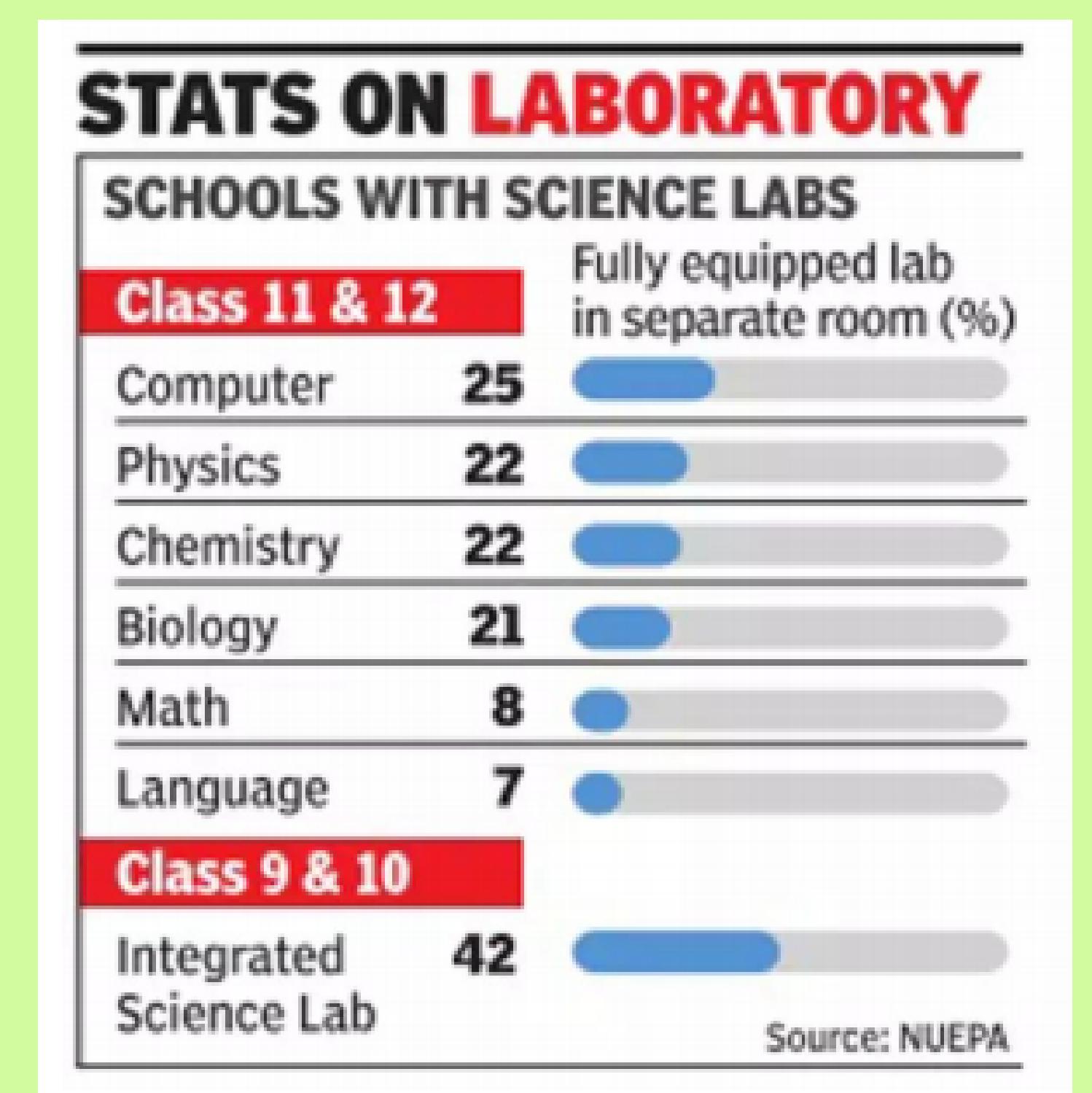
Size of Opportunity

- India holds an important place in the global education industry. India has one of the largest networks of higher education institutions in the world. However, there is still a lot of potential for further development in the education system.
- According to Union Budget 2020-21, the Government allocated Rs 59,845 crore (US\$ 8.56 billion) for Department of School Education and Literacy.
- Since SpaceEra is more concerned about creating a social impact and most of its funds will be coming from organisations that are socially conscious it is crucial that we target a market with highest demand instead of a market that gives us the highest revenue
- The Indian EdTech market was pegged at over USD70 billion by 2017 with an estimated 40 per cent K-12 share.

# Product 3: MOBILE LABS

## The Challenge:

- In India 44 percent of children aged 7 to 12 could not read a basic paragraph and 50 percent could not do simple subtraction in 2005, although most were enrolled in school. Even in urban India, the learning levels are very low. This was a phenomenon which was observed even in urban states.
- According to a survey conducted by Unified District Information System and data analysed by Delhi based NUEPA, the report said that around 75% of schools lack decent science labs in India
- More than three quarters of the schools in India are not fully equipped with science labs. A survey was conducted for 2.4 lakh senior secondary schools in which it was found that over 58% schools do not have a decent lab facility for classes 9th and 10th



# Product 3: MOBILE LABS

## Target States

Using NITI Ayog data, we find that: Major States:

- Tamil Nadu ranked the highest with 66% of its school having a decent computer lab facility or learning aided with computers.
- Andhra Pradesh being the state with only 0.4% of its school having a decent computer lab facility.
- Other states like Uttar Pradesh, Jharkhand and Bihar also only had around 23%, 19% and 23% of respective share in schools with a decent computer lab.
- These are the states that we can target. -> Uttar Pradesh has around 256,670 schools. Hence there are more than 150,000 schools that SpaceEra can look to target.
- In Delhi, 44% of the schools have their curriculum aided with computer learning whereas 72% of it's schools have computer labs.

However, due to the NEP 2020 the curriculum is supposed to increase its reliance on computer aided teaching and that's a market that the client can look to targeting. Add to that, Delhi Govt under AAP has taken a special interest in improving the quality of education being offered in the govt schools of Delhi.

# Product 3: MOBILE LABS

Based on our research, we would like to propose two products that Space Era can work on:

## 1) STEM Mobile Labs:

- These are mobile, portable labs made using shipping containers or corrugated metal sheets that can be used to encourage STEM learning in a region or simply act as normal school labs. This would however, require a proper curriculum and volunteers which can be gathered by partnering with universities or NGOs focussed on providing education to children.
- This can be used to teach Internet of Things, Artificial Intelligence, Blockchain, 3D and Robotics among school students

### Market Size:

STEM Mobile Labs can be used in several ways. They can be used as normal labs that aid students in their practical learning in schools with poor infrastructure.

**They can also be used as labs to promote STEM learning in rural backgrounds.**

## 2) Portable Computer Labs

- These are labs that are portable but are only going to focus on providing knowledge in the computer/programming domain.
- To reduce costs, we can use solar panels in case we're using actual computer

### Market Size:

It's requirement will increase due to NEP 2020 by Govt of India since they practically want to start teaching school kids various programming languages. This would require many computer labs at the primary level (6th grade onwards) (No acc data yet)

**Excitement over CAL is particularly strong in India, where the high-tech sector is successful, but schools have little guidance about if or how they should use computer based educational assistance**

# Product 3: MOBILE LABS

## COMPETITOR ANALYSIS

### Direct: Learning Undefeated

**Product Summary:** Learning Undefeated is a non-profit organization that brings life-changing STEM education and career opportunities to underserved communities. Through innovative and experiential education programs for grades K-12, they are sparking interest in STEM careers, building the workforce that will drive the innovation economy. They have several products which include drop anywhere disaster labs, all activities are focused on problem-based learning with real-world applications that align with Next Generation Science Standards (NGSS) Their focus is on providing STEM education to children in low income districts.

**Finances (Funding):** They received over 250,000\$ from AT&T for their distance learning program. They largely rely on CSR funds from corporates. Nothing substantial was available online on their pricing strategy. Also, more than \$2.45 million was contributed by AstraZeneca, the State of Maryland, Rebuild Texas Fund, the Qatar Harvey Fund, the State of Texas, and Learning Undefeated's newest partner, Toyota USA Foundation.

**Target Audience:** Students at low income districts, schools with inadequate facilities, students from disaster impacted communities Since its inception, Learning Undefeated's mobile labs have served nearly 200,000 K-12 students during more than 600 school visits. More than \$7 million has been raised from corporate supporters, foundations, individuals, and state and local government to support Learning Undefeated's STEM education programming.

# Product 3: MOBILE LABS

## COMPETITOR ANALYSIS

### Direct: Agastya:

Product Summary: Through innovative core programs Agastya ignites that initial spark of curiosity in a child. This occurs in our labs, where teachers trained in our hands-on method excite students about science, art, and mathematics. They have several programmes. The closest in terms of what we're offering are: Lab in a Box and Lab in Bike. Essentially, they're both the same thing except they require a different mode of transport. They do not use shipment containers but they do reach out to students to encourage STEM learning.

Finances (Funding): They have a variety of partners ranging from corporate partners, universities and NGOs. They include Honeywell, L&T Public Charitable Trust, Cipla Foundation, Infosys, HT Parekh Foundation, Adobe, JP Morgan, Broadcom, Synopsys, EdelGive, Cognizant, ABB, Titan, Texas Instruments, Lenovo, SBI Mutual Funds, Sony, ANZ, Wells Fargo, Sonata Software, Western Digital, Nomura, Siemens, Bank of America, Franklin Templeton, RIST USA, Aequus Foundation, Deshpande Foundation.

Target Audience: Poor and rural communities of Karnataka.

# Product 3: MOBILE LABS

## COMPETITOR ANALYSIS

This tool will allow us to understand our company's competitive advantage. We will be doing this by comparing Space Era against a list of success factors.

- **Success Factors:** In terms of product quality, the client is flexible to use any material. However, the client insists on using a corrugated metal sheet compared to a shipment container. (Question) The core material used will be cheaper than any options that exist in the market so far. This will open SpaceEra to approaching more partners in the future.
- **Social Impact:** There's a high scope of social impact as mentioned above in the report. Our competitors either don't offer the same thing as we do or their target market is completely different from ours. Secondly, the social impact that we're offering is a lot more sustainable and lasting when compared to any of our competitors.
- **Funds:** There are various modes to gather funds. These will be discussed in the market entry strategy (CSR, NGOs, Social Organisations, Govt Schemes and University Initiatives)
- **Pricing:** The pricing depends entirely on the client: our competitors do not charge anything for their services. Their source of income comes directly from their corporate partners and the support that they get from various organisations.
- **Volunteer Support:** No information yet
- **Government Support:** There is a massive scope for government support. (Support Schemes yet to be included) **Media Recognition:** Kaif Ali studio already has enjoyed a decent media coverage during the pandemic. The only challenge that the client would face is re-gaining that attention since his concept has entirely changed its focus.

# Product 3: MOBILE LABS

## Market Entry Strategy

Using the market entry strategy, we will evaluate the modes of entry that SpaceEra can take into consideration and compare them. This is after taking into consideration what will minimize our investment, maximise our impact and our growth possibilities. Based on the research done above, it is better for SpaceEra to start in Delhi itself since it is the place that not only needs the offering but also the SpaceEra is most familiar with the market. Our plan will depend on our sources of funding and who would be willing to partner up with SpaceEra. challenge that the client would face is re-gaining that attention since his concept has entirely changed its focus.

# Product 3: MOBILE LABS

## Market Entry Strategy

**Government Schemes:** Identify various government schemes that exist in order to provide funding to new-age start-ups that are run by college going students.

1) Atal Vihari Tinkering Labs : Atal Tinkering Labs, a part of the Atal Innovation Mission, is a unique initiative where workspaces are established in government schools with support from NITI Aayog to introduce a culture of innovation and entrepreneurship amongst school students

**University Initiatives:** We can ask Jamia Millia Islamia to take this initiative up to use shipping containers to reach out to children living in slums in and around Okhla and teach them new-age skills/programming language/basic STEM knowledge

**CSR Funds:** Many companies provide funds to social impact organisations in order to help create a bigger social impact. Several companies have helped our competitors in the past for the same mission - to provide quality education to children from all the sections of the society.

These **include but are not limited to** Reliance, WIPRO, NassCom, Bansuri Foundation and Code.org Space Era can also look to seek CSR funds from EdTech companies like Byjus, WhiteHatJr, Vedantu and Unacademy.

**Venture Capitalist Funds:** In the long term, SpaceEra can look forward to approaching venture capitalist firms to increase it's funds and create more labs independently. We will be presenting the reports separately

# Product 4: Army & Defence Applications

## The current state

Shipping containers can be modified for the following purposes:

- Army Camps
- Training structures eg shooting ranges
- Living units
- Remote weapons stations

# Product 4: Army & Defence Applications

## SWOT analysis of - Modified Shipping containers

### Strength

- **Customizability:** Modified shipping containers offer flexibility and convenience needed to replicate realistic brick and mortar structures in lesser time and add different functionalities for different purposes.
- **Durability:** Corrugated metal sheet camps would be much more durable. The same containers can be used over the years. Shipping container living units are durable enough to be shipped to remote locations.
- **Adaptable in extreme weather:** These containers can be used in extreme weather conditions whether it's snowfall or hailstorm.
- **Saves cost** when compared to traditional brick-and-mortar structures which are time-consuming to build, and rooted to their foundations. Shipping container structures are easy to transport.
- **Regular corrugated sheets** are generally available in the price range of Rs 250/square meter to Rs 500/square meter.
- **Structural Integrity:** Because of its special corrugated shape, it can undergo decades of weather beating.
- **Low maintenance:** Corrugated sheets have to be maintained as per the pollution levels prevailing where they are installed, maintained every 5-10 years. Galvanised steel sheets form the base material for different types of corrugated sheets, such as the ones coated with polyester paint or protected by PVC plastisol coat.

# Product 4: Army & Defence Applications

SWOT analysis of - Modified Shipping containers

## Weakness

- **Transportation:** Transportation of corrugated metal containers isn't easy in mountains and forests when compared to Synthetic fibre tents which can be easily folded and transported through forests and mountains.
- **Higher Cost than Synthetic Army tents:** Cost of 1 corrugated metal container is very high as compared to synthetic fibre tents.

## Opportunity

- **The government encourages the production of Army equipments** and ammunition In India. Currently, many companies in India sell base camp material, vehicles and ammunition to Army and police.
- **The MoD is committed to facilitating active participation of the Indian defence private industry to rapidly take forward Government of India initiative of “Make in India” programme** in the defence sector.
- Space-Era could propose the use of modified shipping containers for making barrier shields and training structures either to private firms who are working in this domain or to the government.

# Product 4: Army & Defence Applications

SWOT analysis of - Modified Shipping containers

## Opportunity

- This year, Indian Army has established upgraded living facilities (Smart camps) for troops deployed in Eastern Ladakh, a sector that receives up to 40 feet of snow after November every year and where temperatures fall up to negative 30-40 degrees. Eastern Ladakh has also been in news for the past few months in connection with the ongoing military face-off with Chinese troops along the Line of Actual Control (LoAC).
- The Indian defence private industry would require facilities to trial evaluate and test equipment developed by them. Presently, minimal test facilities are available outside of the Government owned infrastructure and it may not be financially viable for companies to create a huge testing infrastructure. Testing and proving facilities are only held with the various MoD agencies i.e. Armed Forces, DRDO and DGQA. These include firing ranges, laboratories and trained personnel of these agencies.
- Shipping container camps/structures could be proved useful in extreme weather border locations such as Indo-Pak border (Rajasthan), Siachen, Kargil District, Indo-Chinese border in Arunachal Pradesh, Indo-Chinese Border in Sikkim, J&k and Uttarakhand.
- Corrugated metal containers can be used to set ICU units. To make the transportation easy, the container should be fitted on a vehicle. Further, guidelines from Ministry of Defence has to be followed.

# Product 4: Army & Defence Applications

SWOT analysis of - Modified Shipping containers

## Threat

The Indian army currently uses Synthetic fibres such as Nylon or Canvas to make Camps. Various companies provide tents for this purpose. It has the following benefits:

1. Easy Transportation: Synthetic fibre tents can be easily packed and transported through tough routes such as mountains and forests.
2. Lightweight: These fabrics are so lightweight that even soldiers can carry these tents on their back while climbing the mountain.
3. Cost effective: Synthetic fibre tents are very cost effective and mass production is possible in case of an emergency. Recently, government has placed an emergency order for synthetic fibre tents amid tensions with China on LAC.
4. Life span: 20-35 years depending on the specific type of tent.

There is no demand for such structures by the Ministry of Defence. Govt. Funding is more focused on innovation in weaponry, vehicles and surveillance tech.

# Product 4: Army & Defence Applications

## Primary Research

- We contacted a DRDO executive regarding COVID hospitals and they said, "We have built the hospital in june and are running a 1000 bed facility. We are not looking for any proposals in the near future." Hence, approaching DRDO with quarantine Units proposal would be futile.
- We weren't able to establish a contact with other departments regarding army camps.

# **Product 4: Army & Defence Applications**

## **COMPETITOR ANALYSIS**

**There are already established companies who are working into providing army camps and tents. They have the necessary infrastructure, resources, market presence and years of experience behind them, which makes them eligible to secure tenders.**

**Examples of usage of modified shipping containers for various purposes from all over the world,**

# Product 4: Army & Defence Applications

## COMPETITOR ANALYSIS

### **Fort Bragg building:**

The 4,322 square foot, two storey Army Corps of Engineers building was built in just 110 days. The cost came in at around US\$150 per square foot, well within the price tolerances of the US Army



# Product 4: Army & Defence Applications

## COMPETITOR ANALYSIS

### **Pop-Up Weapons system**

Recently, the US army has converted a number of twenty foot long shipping containers into remote weapons stations. An installed lift can support power weapon systems including the M2 .50 caliber machine gun, Mk.19 grenade launcher etc., even support the Javelin anti -tank missile. The system is designed to be mobile and quickly deployed, easily installed and used at any point on the battlefield.

### **Sturdy Barriers for Training Operations**

Containers can withstand a significant amount of damage while maintaining structural integrity. For this reason, shipping containers make excellent barriers during training operations. They mimic the kind of obstacles that troops might encounter in real military situations, and mimic appropriate cover under fire during training operations as well.

# Product 4: Army & Defence Applications

## COMPETITOR ANALYSIS

### MOUTS

These training areas are referred to as MOUTS (Military Operation on Urban Terrain) and are becoming more commonly used. In order to make these shipping container sets appear as realistic as possible the Strategic Operations (STOPs) engineers design and construct them to look like actual buildings. Once these shipping containers are made to look like common structures, the soldiers can gain a better feel for what it will be like moving up and down stairs and from room - to -room in different scenarios. Another advantage of modular shipping container training units is the ease of transport and reassembly.



# Product 4: Army & Defence Applications

## Mode of Entry

- In order to provide camp material to the Army, the client needs to contact the Ministry of Defence with the proposal with the whole infrastructure in place.
- There is no feasible mode of entry for our client as they are not properly established, and currently in the ideation stage.
- It is relatively difficult to enter this domain until and unless our client partners up with an existing organisation with funding and experience.

# Product 4: Army & Defence Applications

## Conclusion & Recommendation

- Corrugated metal sheets/containers for base camps doesn't provide any additional facility or benefit but increases the cost of purchase and transportation when compared to the existing synthetic material tents. There is no demand for corrugated metal army camps or any replacement for the existing structures.
- Space-era could develop a proposal for various military structures with lower cost of fabrication and additional functionalities to differentiate its product by targeting extreme weather border locations such as Indo-Pak border (Rajasthan), Siachen, Kargil District, Indo-Chinese border in Arunachal Pradesh, Indo-Chinese Border in Sikkim, J&k and Uttarakhand etc. for army camps and living units. This plan could be used to onboard investors and to partner up with other organizations.
- It is recommended that the client partners up with an existing organisation or company which is either interested in or currently involved in defense related manufacturing.

# AWS Credits

- AWS comprise products and services including computing, storage, networking, database, analytics, application services, deployment, management, mobile, developer tools, and tools for the Internet of Things.
- The services provided by the AWS lies in the web services and hence the credits from the AWS can be redeemed effectively only if we can utilise them in the above-mentioned domains.

Type of Credit	Balance as of 19 <sup>th</sup> Sep 2020	Expiry
AWS service Credits	\$ 25,000.00	1 <sup>st</sup> Oct 2022
Business Support Credits	\$ 5,000.00	1 <sup>st</sup> Oct 2021

Going by the current requirements of the client, the AWS credits have limited application and hopefully can be utilised in more ways in due course of the development of the project.

Few ways in which the AWS credits can be used by the client-

1. Launch a website on AWS servers to increase the reach of the client's product.
2. Create an online portal for enquiry of the product by interested customers.
3. An opportunity to learn about other tools provided by AWS which might prove useful in future careers.

However, the applications of AWS are immense and unfortunately they can't be utilised most effectively at this stage. We highly recommend the client to get in touch with the AWS Business Support Team for an in-depth guidance who also can provide the client with access to third-party software support, documentation and forums, AWS Trusted Advisor, AWS Personal Health Dashboard, AWS Support API, and launch and event planning.

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