

The Company proposal and solution report (Innovation report)

Innovation Pilot 62990

Group 12

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Executive summary (brief summary)

We want to solve the transport problem in an effective way to transport the milk from the village to the factory by using motorbikes.

The Danish humanitarian organization Jengo wants to support and help Maasai women in Tanzania.

The problem is that there are limited resources there (electricity, water, and valid roads) because of the natural area Maasai women live in. They are poor and earn of living by milking cows and use the milk to produce cheese to sell.

We are trying to give Maasai women an alternative and effective way to transport the milk they produce by using the available means of transportation, which are Motorbikes.

Our solution is to connect a trailer to the motorbike. We think this solution will allow them to transport a big amount of milk in a way that ensures that the quality of the milk is preserved so that the milk quickly and safely reaches the site (the factory).

If this is achieved, it will create job opportunities for Maasai women in the village and make them financially independent and they will overcome the poverty they suffer from.

2. Introduction to the problem/ background

Jengo's mission is to empower communities to create sustainable change through technology.

Jengo is supporting the idea to create opportunities for Maasai women to be employed by striving to reopen the cheese factory.

The factory will be reopened, and we try to ensure in transferring sufficient quantities of milk to the factory at the lowest costs.

Jengo aims to support women in the Maasai community and give them the tools as a smart solution to somewhat overcome the poverty and make them financial independent and consequently have more control over their own lives.

In the long term create a better livelihood and social standing for Maasai community.

Problem Owner

Jengo is the problem owner. Jengo is a volunteer-based organization that is passionate about helping rural communities become empowered through technology and capacity building

Jengo is a 100 % volunteer-run non-profit organization based in Copenhagen, Denmark that has worked to create sustainable change in remote areas of Tanzania since 2015.

They are passionate about social innovation and building ideas and solutions together with local communities that focus on solving social and environmental needs.

Over the years they have established partnerships with organizations such as Microsoft, Lenovo, CISU and local grassroot NGO's.

In 2019 they joined the Innovation Pilot to get help on their half million kroner project in collaboration with the Foreign Ministry to help Maasai villages become "smarter" and empowered to adapt their way of living to climate change.

4. Identifying our "Hard Nut"

Our vision is to find a cheap and safe solution to transport many liters of produced milk by using the available means of transportation (motorbikes) from the source (the farms) to the destination (the factory) in an effective, safe, and quick way to help and support the Maasai community.

Our focus is:

How do we transport the milk while maintaining its quality (hygiene, validity)

5. Project Group proposal and the reasons for it

The task that we are working on is "the farmers need a solution to transport many liters of milk to the different cheese factories using motorbikes."

After a long discussion with the team and sharing the different perspectives, we concluded that we should aim to help the Maasai community transport the milk in the best way.

To find the right solution, we must do some research about the problem and define it, so the group started by desk-research about the method the Maasai use to transport the milk and analysing it from an economic and technical perspective and find out why it is not effective. we also gather some information about it from the meeting with the company and the company answered several questions received from other groups and our group

We found out that Maasai used motorbikes to transport the milk by putting the containers on the motorcycle and holding it, which is an extremely hard method to transport a large amount of milk.

After discussing with the group members and talking about the positives and the negative methods that the Maasai have used to transport milk, we planned to find a new way to transport the milk containers and move a large amount of milk. The new method should have a specific condition to match the motorbikes size and capacity.

One of the most important things is also to ensure the safety of the drivers while transporting the milk and make it easy for them to drive the motorbikes despite the amount they are carrying.

First, the trailer should have two layers of milk containers on top of each other, where each layer contains 6 milk containers to create a good balance to keep it stable for the whole ride.

The second thing is that the size and the weight of the used trailer should match the motorbike in a way that it is easy to attach and drive and not be overwhelmed by the weight under the ride.

Finally, there will be used special rope to tie the containers and make them completely attached and stable to the chosen motorbike.

All these things will ensure the optimal result to transport the milk and increase the unstable moving of milk containers during the ride.

The transported amount would not be less than 12 milk containers per ride in a functional, cheap, and of course secure way.

6. The prototype

The course of work started when we got several problems given by the Maasai people in Tanzania. We chose one problem to focus on, which is the transportation problem

We visualize our solution, so we constructed a 3D model of the trailer carrying some milk containers. The trailer would have walls made of aluminium, wood, etc.



Figur 1 prototype

For isolation we have used insulation blanket to cover the trailer and protect the milk from the sun and temperature.



Figur 2 isolation blanket

The surface of the insulation blanket is protected by sun protection coating, which can reflect back the light source, thus achieving the sun protection effect.

The insulation blanket is strong, light, soft and flexible. It can be used as a stretcher.

The purpose of this prototype is to have a tangible trailer with actual properties developed during the design process. It takes our solutions from theory to practice. First, we are testing the hypothesis that our product can be manufactured, and second, it could be scalable for future improvements. Eventually, we can learn from it, see how it works, and refine it until we get to the definitive version.

7. Business and Economic perspective



Figur 3 Business Model Canvas

Because of the bad economic situation that the Maasai people live in, we must put the economic perspective into our priorities, we want to keep our project within a limited economic framework so that the Maasai people can bear its costs with the help of investors who do not aspire to reap huge profits from this investment.

Our first problem is the limited purchasing power available for Masai people, It would be difficult to provide an affordable, cheap, durable, functional, reliable solution, and the second problem, it may be difficult for the Maasai people to use our product and to abandon the way they are accustomed to transporting milk and to convince them of a new way that may be alien to them and the third problem is how officials can be persuaded to start our project to be delivered.

Let us imagine that if we can make a small contribution, we can improve the lives of the Maasai people. We can define problems and outline viable solutions for each: the first one involves

economics, and we aim to solve this problem by using recyclable materials and the cheapest components that Maasai people can afford, and more materials can be Obtained in Tanzania.

We got an idea to transport more milk, then pitched our solution to Jengo, and chose to move forward with our solution. We are now in the design and testing phase. We hope that the idea will be good so that we can reach the manufacturing phase and then the delivery phase.

According to ROI as it is an NGO project, we are not aiming to make a big profit but rather to help in the form of better milk transportation.

We also need a short shipping route for the transportation of the parts. The entire chain from design to production to delivery should be as short as possible.

Cost Structure Analysis: a must-read guide to sorting our business costs & how they impact on our bottom line. A cost structure is an aggregation of all costs incurred by our project, sorted by type, interrelationship, and impact on our bottom line.

A fixed cost is the most basic expense of their business, it happens regularly and does not change no matter how many products we sell or how many new customers we acquire.

Fixed costs typically include:

- Rent
- Utilities
- Salaries
- Taxes
- Insurance
- Amortization & Depreciation

Variable Costs

Variable costs are the more temperamental siblings of fixed costs. They are more diverse and computationally more complex. The transportation cost, raw material cost, labor cost, price difference, and the number of items we can produce will affect the part prices of the materials. Investors want to know how much improvement is for the money invested even if the project is an NGO.

Sales returns may be as low as 4 to 8 percent at worst. Something that will not be quickly replicated or purchased. We do not think it is possible since there is a low purchasing power accessible among the messianic individuals. Consequently, there is no motivation for different firms to enter the market on the off chance that it is a non or extremely low-benefit market.

Economical Reflection:

The size of the market relies on the number of ranchers that will utilize our trailer, and we intend to have a benefit of around 8% pr unit. It is far-fetched that they would be able or will contribute around 2889 KR. In our trailer so our task depends on help. Assessed cost pr unit: 2889 KR. if casing can be kept modest. We want explicit numbers on work. If effective, we ought to have the option to purchase bigger amounts with will acquire parts less expensive.

Economic benefits:

An NGO project can profit from not creating similar financial benefit as speculations typically require. In this way, a piece of the "reward" will be in type of generosity towards destitute individuals. It is hard to gauge without numbers yet the financial backers can offset how much worth their cash will contribute contrasted with other helpful endeavors.

We will estimate the amount it cost to get the project rolling, so we would have to purchase parts for 30 trailers to begin with and then, we will estimate how much capital it would cost to begin.

It will cost around 86670kr for 30 trailers to run, barring extra expenses (devices, additional parts and so on.)

We recommend that you have a capital saved to give spare parts as it would be required when the trailer brake down or should be fixed. We expect that the tires and safety insulating heat will be expensive yet additionally different parts, for example, the coupling that will require the substitution eventually. Ranchers might require a repairman sporadically for fixes. We estimate that the cost to keep a trailer running for a considerable length of time "4 years" could be around 500kr. It depends on how they use the trailer, maintain it and do regular repairs from time to time.

Our list of materials used to build our solution "the trailer" is included in the price and the number of pieces.

Inventory List

Dit firmanavn gruppe 12
Adresse Lautrupvang 15
By, postnummer 2750 Ballerup
Telefon 7138132
Mail s180424@dtu.dk

Dato 06-07-2022

Faktureres til: Jengo
Gadeadresse Kompagnistræde 34, 4-5 floor,
By, postnummer 1208 Copenhagen K
Telefon +45 40220514
Mail info@slgworld.org

Discription	Number of pieces	Price (DKK)
Axle kit	1	kr. 250,00
Survival Safety Insulating Heat	1	kr. 250,00
Frame 8 m, of pipe aluminium total for the base	8 m	kr. 1.300,00
Paint	1/2 L	kr. 40,00
Tires	2	kr. 350,00
Hand Screwed bolts	16	kr. 80,00
tie ropes	2	kr. 75,00
Door hinges	4	kr. 150,00
Rim tape	2	kr. 30,00
Aluminum Welding	1	kr. 160,00
screws	1	kr. 75,00
Trailer hitch	1	kr. 120,00
	I alt	kr. 2.880,00

Tabel 1 Price list

8. Further perspectives

Vehicles must be met in terms of safety conditions and all the technical conditions necessary to ensure that it is safe.

if it is possible to apply the idea of these trailers, it can lead to a complete change in the concept of transporting goods in this country and other countries where these trailers can be used to transport several types of goods, for example, such as foodstuffs and industrial materials, these trailers can be used to transport goods in areas where the roads are narrow and not well paved, but first, all requirements for the work of these vehicles must be met in terms of safety conditions and all the technical conditions necessary to ensure that it is a safe and effective method.

In addition, the use of this trailer is an economical means of transportation because it allowed the user to transport a large amount of milk and thus reduces transportation costs.

On the other hand, the use of these trailers reduces the pollution caused by transportation. If we compare the emissions generated by transport cars

Also, in the future, it is possible to work on developing the idea of these trailers by Adding an isolation layer for the trailer, so it helps to protect content from weather conditions such as temperature.

9. Conclusion

The solution that we offer in this report could be a perfect solution to the problem, but we must consider that it is an Initial solution we should build upon it to achieve the desired results, but it will take a little bit of time, and a lot of work to develop the idea.

We can conclude that the financial cost of building the trailer is the main obstacle to implementing the solution in real life.

There are also some technical challenges in terms of safety specifications when the trailer is connected to the motorcycle and the motorcycle's ability to pull the trailer

In the end, we can say that the solution that has been developed can provide a lower-cost method of transporting milk from the village to the factory.

Therefore, the solution can help the people of the village and provide them with low-cost equipment to improve their productivity and provide an excellent job opportunity for the women of the villages and increase production in turn, increasing profits.

10. Appendix

Contribution table

Student	Executive summary	Introduction to the problem	ProblemOwner	Hard Nut	Project Group proposal	prototype	Economic perspective	Further perspectives	Conclusion
Bashar	20	20	10	20	15	15	10	10	16
Malaz	20	10	20	10	20	20	10	15	17
Ahmad	10	20	20	10	15	10	20	15	17
Zakaria	20	10	20	20	15	10	20	20	16
Mohammad	10	20	20	10	20	20	20	20	17
Jossef	20	20	10	30	15	25	20	20	17
Total	100	100	100	100	100	100	100	100	100

11. Bibliography

Jengo Organization

<https://www.jengodk.com/>

Emergency Blanket Thermal Survival Safety Insulating Mylar Heat

<https://www.amazon.com/Emergency-Blanket-Thermal-Survival-Insulating/dp/B07GMVM95S>

prototyping tool for web and mobile apps

<https://www.justinmind.com/>

How to Build Trailers

<https://www.wikihow.com/Build-Trailers>

Cost structures

<https://moneymasters.app/blog/cost-structure>

Prototype production

<https://www.imaginationeering.com/5-simple-steps-for-creating-a-new-product-prototype/>