

Uta Milow, Rolf-Dieter Reineke, Arie Hans Verkuil

International Entrepreneurship and Innovation

Selected Case Studies from the
Swiss Innovation Challenge

Uta Milow, Rolf-Dieter Reineke, Arie Hans Verkuil (Ed.)

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Preface

The Swiss Innovation Challenge Programme has been founded in 2014 by the University of Applied Sciences and Arts Northwestern Switzerland (FHNW), School of Business, with the full support from its industry and governmental partners, BLKB and the Chamber of Commerce Basel Area. It has been the first innovation competition with a strong support component in Switzerland.

The programme aims to promote knowledge and technology transfer and to generate business cases to underline the innovative power and the entrepreneurial spirit within the University, the country (Switzerland) and beyond. The programme also facilitates the creation of spin-offs and start-ups across borders.

In 2017 it has been brought to selected countries in ASEAN (Indonesia, Malaysia, Thailand and Vietnam), in partnership with the leading tech universities in those countries. It attracted immediately more than 600 project teams. Meanwhile more than 1'500 teams participated in Asia and Switzerland.

Innovation is required from low to high tech across the ASEAN region to build capacity and gain access to regional value chains and to support Southeast Asian companies in the global markets. At the same time innovative young companies need to internationalize their business models; matchmaking between Asian and European companies helps and is part of the programme. As Switzerland is ranked highly for its innovative capacity since many years, insights on how to develop such capacity can be shared.

FHNW has already been active in the region with offshore MBA programmes and other projects for many years. An extensive network of trusted local partners and their infrastructure with Indonesia, Malaysia, Thailand and Vietnam allowed FHNW to launch the SwissInnovation Challenge ASIA as a replicate to the successful Swiss campaign in the ASEAN region. The aim is not only to foster applied research in international entrepreneurship, but also to provide cases for teaching in this subject.

Against this background selected cases from Asia and Switzerland have been compiled in this book. It is intended as a showcase of the broad variety of the innovative capacity, covering the whole range from high tech applications to social entrepreneurship.

The editors like to thank the project managers at our partner universities: Dr. Leo Aldianto and Dr. Isti Raafaldini Mirzanti at the School of Business & Management at the Institut Teknologi Bandung, Indonesia (SBM-ITB), Assoc. Prof. Dr. Rosmini Omar and Dr. Rahayu Tasnim at Universiti Teknologi Malaysia (UTM), Prof. Dr.

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Prof. Dr. Uta Milow

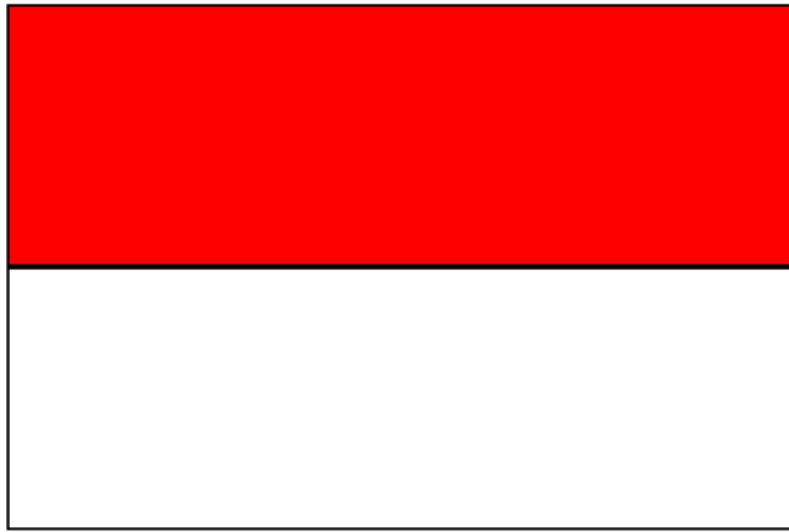
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Cases Indonesia



Bell Society

1. THE COMPANY

Bell Society started as a college project in 2017 to create a substitute for paper by using bacteria that can produce sheets of cellulose. The name of the company itself comes from the Bell curve, the curve that can be used to describe the distribution of biodiversity. We are here to preserve our earth's biodiversity by creating sustainable goods. It started as a two people project. We received small funding from the Ministry of Research, Technology, and Higher Education, and successfully created a paper substitute. However, the texture and tensile strength of the paper that we created seemed to be closer to leather. Therefore, in 2018 we tried to optimize the production of cellulose sheets and changed its function from paper substitute to leather substitute and called it Misel.

Vision

“Preserving world’s biodiversity through innovating sustainable biomaterial production.”

Mission

1. Promoting the uses of sustainable biomaterial
2. Educate people on how to process their own sustainable biomaterial
3. Creating a system where people can collaborate in developing sustainable biomaterial

We are a group of people that promote the circular economy: we recycle waste, we add life to used products, we regenerate natural systems, collaborate with local people, give them knowledge to produce their own eco-friendly biomaterial; we create partnerships with local people, giving them financial help by buying their own produced materials; and we collaborate with designers to create products that are beautiful by design and are useful.

2. THE INNOVATION

Bell Society did the research for about a year as a side project because the team members had to allocate time for their undergraduate thesis. We started to use bacteria to convert organic waste, mainly ones with high sugar content. We found that almost all kinds of fruit waste can be used to produce this leather substitute. The first kinds of fruit waste that we use are Cilembu Yams, the production of Cilembu is very high in our city that some are just being left to rot. The bacteria seemed to grow faster on this fruit, so we wanted to try more kinds of fruit waste. We started to meet with farmers and asked what kind of fruits are often being thrown away. They told us to check the fruit market, it was astonishing. Piles of fruits are being thrown away just because the shape is not right, or because it was destroyed on its way to reach the market. The research paper that we produced in 2018 was published in Thailand.



Figure 1. Our team in Thailand presenting our idea

The fashion industry is the second biggest pollutant in the world. It uses 1.5-2.5 Trillion gallons of water, mixing it with chemicals making it undrinkable for living creatures. It produces 10% of the world's carbon. And every year about 150 billion pieces of clothing end up in landfills, and to make matters worse, some of them are not biodegradable. It threatens aquatic life, is destroying our biodiversity and environment. Here at Bells Society we are trying to solve this problem.

After graduation in October 2018 we started to do this research full time. We joined ITB's business incubator and aimed to build a biomaterial company that can innovate how we produce materials, while also decreasing our waste in the process. We converted an empty room in our founder's house and turned it into a lab. We bought the materials that are needed to produce this material and to multiply our bacteria.

Bells Society comes from the Bell curve that describes the diversity of the world. We have a mission to preserve diversity by promoting circular economy.

We produce eco-friendly biomaterials that can be used as a substitute to our current materials. It was hard, we do not have money, so the founders needed to take several jobs to fund the research. But it was worth it, we received a fund from ITB's business incubator and started to grow faster. We started to produce various kinds of products and sold them. Since the production is still limited, we only accept few orders.

Misel is a bio-synthetic textile that has a leather like texture. It is produced by using the help of microbes, the microbes can turn sugar into layers of cellulose which then can be used as a textile. The sugar comes from any kind of source, right now we can produce this material by converting sweet potato waste and also sugar cane waste. Examples of the material can be seen below.

Misel – Sheets of bacterial cellulose, as strong as leather with similar texture and looks. Faster to produce and can be produced by using organic waste. The material has already been tested (tensile strength test), it can hold force as big as 61,03 N (9,76 MPa) stronger than several types of synthetic leather. This bio-synthetic leather can then be used to create products which we already tried to make. Examples of the final product can be seen on Figure 2.



Figure 2. Id Card holder

How are we changing the industry?

We believe that everyone has a chance to create his or her own masterpiece. Here at Bell's Society we have a vision to empower locals to have their own source of income. Our product, Misel, requires no machinery and uses little money to create. What they need is diligence and tidiness. We provide bacterial starter so that local manufacturers can grow the raw product at their own house. We give them the tools to grow bacterial

cellulose sheets, and after completion of growing the sheets we buy them and process them into usable goods. This is not risky for us because the only we have the knowledge to produce the bacteria, and bacterial cellulose needs several treatments before can be turned into Misel. By doing so we can increase our productivity while helping the community.

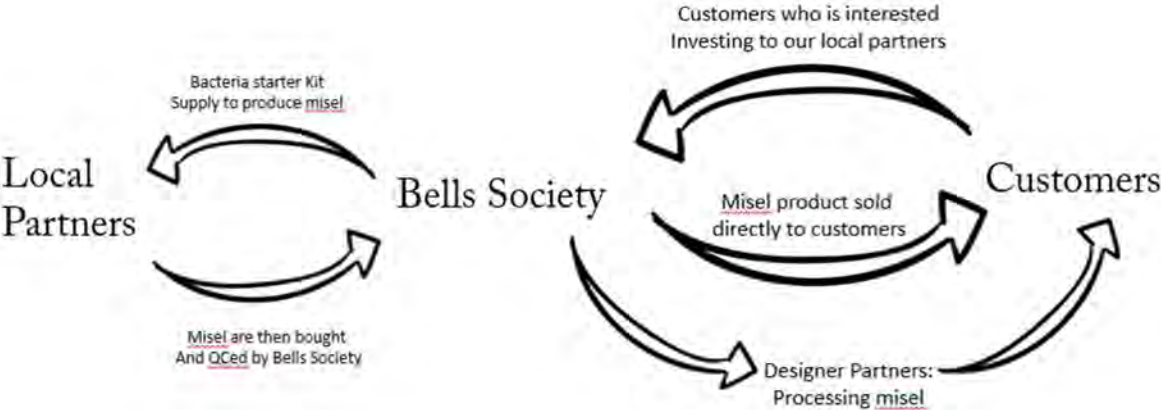


Figure 3. Misel production scheme

There are several ways for the customers to help us grow. First by buying our material, and the products that are made from it. Second by investing in our local partners to produce the material, the profit is then shared between Bells and local partners. Misel production only needs little capital, so the profit can be huge for all the people involved. Finally, people can also collaborate with us in making the product. We believe by doing this we can make Misel as popular as leather and faux leather.

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Leather industry demands grow by 7% a year, while the production of leather only grows by 3% a year. If the industry wants to increase the production, the industry has to face the problem that leather production mostly uses toxic chemicals which cause pollution. Furthermore, it is inefficient. Only 30% of leather produced by conventional methods make it into the final product. Bell’s Society believed that Misel can be the better option to fill the needs.

The fact that there are more than 45% of fruits produced being thrown away every year has emphasized the importance of their research. The founders believe that with this technology they can convert most, if not all, of this waste into highly valued goods.

The production rate started at 0,02m² per month in January 2019 which was increased to 15m² by the end of July 2019. In April 2019 the team started to create production facilities outside of their hometown of Bandung, in Cidaun. Arka often must travel to Cidaun to help his father to run his shrimp farm. There he started to teach locals to grow their own Misel, and it works nicely.

Local producers started to sell Misel that they have produced but they still depended upon Bells Society because of technicalities in bacteria usage.

Here is how we produce Misel:



The production process is quite simple, fruit waste is gathered and then sterilized by using heat. The sterilized fruit waste is then placed in a simple bioreactor and then let it ferment for 2-3 weeks. After that a layer of Misel can be harvested.

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

Bells Society has already tried to sell their product in December 2018. They sold more than 50 products in just two hours. The curiosity leads buyers to buy the product. They tried to supply the raw material to various crafters and letting them experiment with the material. They have produced several kinds of items as for now and started selling them by the end of September.

In August 2019, after the team was announced as Swiss Innovation Indonesia winner, they received offers to collaborate with various companies. Right now, they are arranging a collaboration between Bells Society and Perusahaan Daerah Bali to process their unused fruits. They are also arranging a partnership with a seed production company to process their fruit waste and a partnership with a company that produces sweets to process their sludge that has high sugar content. For creating a competition-oriented Bells Society, here is the identified raw material.

Resources

We identify resources that we need from the goals that we are trying to achieve. For example, at the start we need to focus on research, so we need to find someone with

research background that will help us to do the research. We were often facing a problem where we did not know the answer in the research sector. For that we found a lecturer in ITB that can advise us on how to improve. The easiest way to find what we need is through setting a goal that we want to achieve. If we cannot do it and it takes too long for us to do it by ourselves then we need help from someone outside our team. If we want to focus on research then we need a researcher. After that we need a brand designer, so we find one. If there is more work than one person can manage we need to find him or her a partner. If we find that they are not working efficiently then we have to substitute them and find someone who is just as passionate to contribute.

Not only are our mentors giving us advice on how to improve our business, our mentors are the first people who advise us about the branding. Right now we are in the need of a financial and tax administrator, and more designers to create more diverse products from Misel.

If we need to find someone we start by asking our peer circle about the kind of person that we need, if they have any recommendations. Because we believe that this way it is easier to build a strong team. If we cannot find it that way then we need to start recruiting, we already try to create an internship program to find researchers to help us building a standard for our product. In short what we do is first searching through recommendation, if that does not work we openly recruit.

Since Bell Society is still new, we did not always have enough cash to pay for professional employees. The other problem that we often faced is that sometimes we have to know that we need to trust the process not the people. We have to realize that if a person is not doing it right that we need to take action for that – regardless the person being a friend or not. This does not mean we have to fire them, but we need to learn to communicate better and make sure that we are on the same path when we are discussing a problem.

We are a biomaterial company. Basically, we want to focus on research, but we also realize that we need to sell things for a living which is why we are building a design team. We collaborate with designers to create products and for production we chose people that we know we can trust and can work well with. For example the people in Cidaun we chose to produce Misel with are some that our founder has known for a long time, which is why we are confident that they will get things done. We partner with people and are building connections outside of our company for pursuing our goals to produce Misel.

About a year ago the problem that we were facing was how to increase our production rate and to create a standard for our materials. But we already solved that problem. The biggest problem that we are facing right now is to find the right partner to produce our product. We often found people who did not do what we requested which can delay our process. We are also facing financial problems. If we do not move fast, a competitor can out-move us and we will lose the momentum to create a well-known brand. We need to find a bigger space to produce Misel. Since we do not have any labs, another problem is doing microbial works. We often find our product contaminated by other kind of microorganisms. To solve that, right now we are trying to find land that we can lease or buy so that we can invest in a factory to produce Misel. The demand is already coming and we cannot fulfil it, this could leave a bad reputation for Bell Society.

Strength

We are a dedicated team, our founder has been doing the research by himself for two years before forming a team to increase the pace. After six months, we have increased our production from 0.02 m² into 20m². We know what we want to create and we know how to achieve this. We are highly curious, we have tried many kinds of substrate for our bacteria to process, we have developed our production process where now Misel can be produced by using organic waste as its source. We believe that we have the right connections. We are a team from ITB, a university which focuses on research, providing us great insights through its lecturers. We have joined the ITB business incubator and we have a trustworthy mentor.

The technology which we are improving does not need high tech, which means we can do the research fast. We can produce our material faster, and the products are degradable by the end of their product life. We are collaborating with the society to create a product that is sustainable and is economically profitable.

Weakness

The team is still not complete. We still need to hire people to create products. We also need more space to improve our production capacity. We are new in the business world, so we still need more guidance to improve our business model. The material is still weaker than genuine leather. Bell Society is still freshly founded which is also a problem since the brand is still not well known, and the production size is still small.

Opportunity

The increasing demand of leather and synthetic leather is a big opportunity for us. Leather and synthetic leather are some of the popular materials to be used in the fashion and furniture industry. The other opportunity is that people have become more aware of the importance of green products which are sustainable and good for the environment.

Since Misel can be produced by using waste, Bell Society can also become a company that can solve waste problems for various companies. Take for example the seed company that only harvests the seeds while the fruit flesh is being discarded. We also can process the waste from cafés and hotels which often produce organic waste in high quantity. Our bacteria can even process waste from the palm industry which is one of the big players in Indonesia.

Potential threats and mitigation

There are some potential threats we are facing. Customers still have limited product knowledge, this can cause them to lose interest since they do not know the positive impact for the environment that the product can give, to mitigate this we need to create a brand that is focusing on sustainability. We will also provide a maintenance guide for the material so that they can use it well without harming the material.

We often face a contamination while producing Misel, therefore, it is important to make sure that we are producing Misel in a clean and suitable location. Right now we also create a bioreactor so that we can produce more efficiently.

The other problem that we are facing is that people can imitate our product if they know how to produce it. Therefore, we plan to receive a patent for our technology. By patenting it we can create a safer business environment for us.

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN/BUSINESS MODEL

Financial estimates.

To produce 1000 sheet of Misel per month we need a capital investment of IDR 81.000.000,- to increase our production capacity from 3m²/month to 30m²/month. Currently we gained funds from LPIK ITB. We plan to start producing a small number first. Right now we can produce as much as 150 cellulose sheet per month.

Projected Cashflow (in IDR)

	1	2	3
Misel production	30	360	360
Number of product produced	480	5,760	5,760
Product price	100,000	100,000	100,000
Income	48,000,000	576,000,000	576,000,000
Fixed Capital Investment	14,650,000	0	0
Variable Cost	18,400,000	220,800,000	220,800,000
Total Pengeluaran	33,050,000	220,800,000	220,800,000
Revenue	14,950,000	355,200,000	355,200,000
Total cashflow	14,950,000	370,150,000	725,350,000

6. THE ROADMAP

Bell Society is a biomaterial company, right now we are focusing our production on Misel (microbial cellulose), a sheet of cellulose produced by using the power of bacteria. We can convert organic waste and turn it into goods with a high price. Bell Society aims to become a leading company in producing microbial cellulose. We believe that this material can become a solution in many problems that we are facing.

In 2019 we aim to finish our prototyping process and produce goods that can be sold directly. We also aim to patent our method and optimize our production rate. We also aim to collaborate with many people to introduce Misel to the market. We believe that collaboration is the key in making this business sustainable. The fashion industry is the second largest polluter in the world, if we can produce a material that is save for the environment and can produce it on large scale we believe that we can help to create a better world.

In five years we aim to not only produce Misel, but also its derivatives. We know that by using the viscose rayon process we can convert microbial cellulose into textile. This is really important since microbes can produce cellulose far more efficiently than plants. We believe that Bell Society can become a known brand for its design and its sustainability.

7. ENTREPRENEURSHIP PROCESS

The first time we saw microbial cellulose was at our second year of college. We were fascinated by the texture and flexibility of it. So our founder started to create a team to further research on this material. At first the idea was to use microbial cellulose as a timber substitute in paper making, since it uses a lot of timber in the process. Usually if we want to produce paper we have to harvest wood from forests, clearing and destroying the landscape. But after seeing that microbial cellulose has stronger and more uses as a leather alternative, we shifted our focus to transforming microbial cellulose as a leather substitute. We got our first research grant from Indonesia Ministry of Research, Technology, and Higher Education (Ristekdikti) to improve the material. After we did some research, we knew that not only producing Misel is sustainable but it also benefits the environment since it can be produced without extra growing of plants.

We live in a world where resources are becoming scarcer every day, but each year we throw away 1.3 billion tons of food, which is about a third of the entire world production. There's also a fact that from all the fruit and tubers that we produce 45% gets thrown away because it rots before someone would buy, or simply because its shape is not beautiful enough for the market (Loebnitz, Schuitema, & Grunert, 2015). This has caused organic waste to pile up in our countries.

On the other hand the demand for leather and synthetic leather is growing by 7% a year, while the production rates of both are only growing by 3% a year (Mordor Intelligence, 2019). Synthetic leather production and the leather industry use many toxic chemicals which are often being released to the environment, polluting and destroying natural habitats. Based on this, an environmentally friendly alternative material is needed to reduce world waste while also reducing the effects that are caused by the leather and synthetic leather industry. Bell's Society uses the ability of microorganisms to convert carbon-containing organic waste into a cellulose sheet that can be used as an alternative synthetic leather material which is environmentally friendly. The fast production process and the lack of toxic chemicals in the production process ensure microbial cellulose sheets as one of the ingredients that have the potential to be an alternative raw material for use.

We started to execute this idea at the start of 2019, at first we used the basement of our founder's house to produce Misel, but to increase the production rate we moved our facility into a bigger one. We rented a house and changed it into a lab. After we started to produce Misel monthly we began to experiment with the texture. People

are really interested to buy our product but we need to create some standard first, which is why right now we are still in the middle of developing our production process and our final product. We started to collaborate with artisan. We chose to create fashion accessories because of an expected stable demand. Using Misel as a material to create it will add more value to the goods.

The next problem that we are facing is that our facility is not big enough. To overcome that we need to find some partners that are interested in helping us to produce Misel. Which is why we collaborate with local people from Cidaun village in Cianjur. Our founder goes to that village weekly and teaches them how to produce Misel. This can increase the Misel production significantly. Bell Society is a research-based company that promotes social empowerment, which is exactly what we want to build from the start. We hope that this company can keep growing further.

The fact that there are more than 45% of fruits produced being thrown away every year made us realize the importance of our research. We believe that with this technology we can convert all of this waste into high valued goods.

The production rate started at 0,02m² per month in January 2019 which increased to 15m² by the end of July 2019. In April 2019 we started to create production facilities outside of our city (Bandung), our founder Arka, often has to travel to Cidaun to help his father run his shrimp farm. There he started to teach locals to grow their own Misel, and it works. We started to buy Misel that they have produce, but they still depend on us since Bell Society still has to supply the bacteria for each time they have to produce Misel.

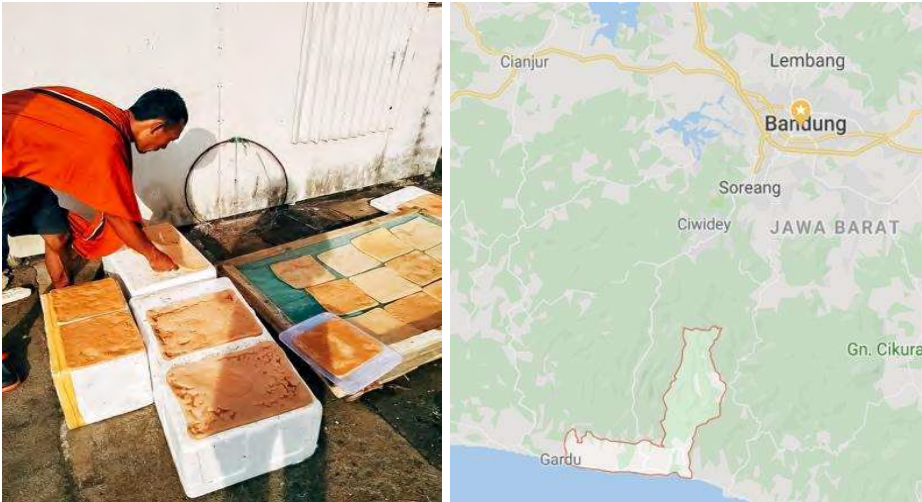


Figure 4. Our production partners in Cidaun, Cianjur

We already tried to sell our product in December 2018, we sold more than 50 items in just two hours. When we asked the clients why they bought it, they told us that that they are curious about the material. We try to supply our raw material to various crafter, letting them experiment with our material. We have produced several kinds of items, we plan to start selling by the end of September.



Figure 5. Some of our products

In August, after we are announced as Swiss Innovation Indonesia winner we started to get offers to collaborate with various companies. Right now we are arranging a collaboration between Bell Society and Perusda Bali, a regional company owned by Bali Province, to process their unused fruits. We are also arranging a partnership with a seed production company to process their fruit waste, and a partnership with a company that produce sweets to process their sludge that has high sugar content.

Bell Society aims to become a brand known for its sustainable products and production methods. We believe that our products and production methods are better for the people, since we want to teach others to process their own waste and produce their own income. Our product is better for the planet, it is 100% biodegradable and can be produced by converting waste.

Since we have started our business we have met various kinds of people, it broadens our view about how we can give a positive impact while also creating profits for other. The journey taught us that everyone deserves a chance to create a better world.

8. THE TEAM AND RESOURCES

The Bell Society team is formed with the same vision and mission, we all have the same interest in sustainability. We all met in our college, we all already worked in different projects together many times. Before forming this team we already talked about

forming a company that could help people. This is why we chose this topic since we believe that not only that this business will benefit us but also others.

Arka as the founder searched for people who wanted to collaborate in developing Misel. At first he asked Semeru Gita Lestari. They collaborated already many times in organization development. Semeru was already experienced in managing an organization and a team while Arka is experienced in planning and team building. After that we searched for someone whose expertise is in Microbiology since Misel production depends on the bacteria. At first we had Chusna as our researcher but since she has to move back to her city we invited Galih to further experiment with Misel. After we were able to produce Misel monthly we had the need for designers and marketers, which is why we invited Taufik who is experienced in making brands and has a branding house in Bandung. We believe that we are the right team to make this idea come true. Right now we are currently searching for an art designer to create products from Misel.

The competencies

1. Name: Arka Irfani
Role: Chief Executive Officer
Expertise:
 - Decision Making
 - Leadership and Team
 - Business Development
 - Relation Management
2. Name: Semeru Gita Lestari
Role: Chief Operating Officer
Expertise:
 - Time Management
 - Team Building
3. Name: Octiafani Isna Ariani
Role: Chief Marketing Officer
Expertise:
 - Branding
 - Design

4. Name: Galih Ganiyasa Susanto

Role: Chief Technology Officer

Expertise:

- Research
- Microbiology

Right now we do not have financial specialists. We will be needing this soon since we are planning to collaborate with other companies which includes tax and liability matters. We will also need a legal team as we need to register our patent and all of our intellectual properties such as production design and bioreactors. We are also in need of designers since we want to create products that are not only sustainable but also aesthetically satisfying. We will also be needing engineers, mainly bio engineers, since we are trying to improve our production method by creating a bioreactor. Well-functioning bioreactors are the prerequisite for an increase in the Misel production. We also need Quality Control. With the production increase we will be needing people who can check whether the product passes the criteria that we define or not. As for now we believe that the right solution for that is to hire skilled people. The management positions are already taken by the core team.

We are a goal based team. We do not need to meet every day as we set a timeline for each of our target every week and we try to achieve that in the time that we have already set. If there are any setbacks, we will discuss it with the team and rearrange the project. We have special days for brainstorming and decision making and others are used mainly for producing Misel.

Conflicts often occur when we are discussing on how we can create a factory or a system to continuously produce Misel. We have to discuss technical issues like changing the formula and the bioreactors, or the design of a product. Sometimes our team members doubt whether we can make it happen or not. But after a discussion usually we figure out what the problem is and move forward every day. Conflict is inevitable but we know that teamwork is the solution.

We often make a discussion day on what we want to create by using our product and what kind of materials we want to produce next. We always have our lunch together and talk about many different things. We have trips on the weekend so that none of us feels bored and awkward.

In deciding things, we list all of the goals that we want to achieve and every problem that we will face. Then for goals we create timeline based on the problem that we will be facing. We often use voting to choose which is better. We do weekly meetings and monthly meetings. In the monthly meetings we decide what we want to achieve that month and weekly we plan how we are going to accomplish that. We break down the steps and create the timeline for us to work. Sometimes we find problems that we find hard to answer. In this case we consult our mentor from LPiK ITB and also our other mentor who has a business background.



Figure 6. Our first production facility



Figure 7. Our latest production facility

We had to move our production facility several times. At first it was at the basement of Arka's house, then we moved it into Semeru's house. Right now our production facility is at an unused house of Arka's family. We had to move several times because we needed bigger space to do our experiments.

HEAR ME

1. THE COMPANY

Around 16 million residents in Indonesia are restricted in their every-day life due to deafness and hearing loss (Eriyani et al., 2017). The Deaf communicate with each other using sign language, which other people do not understand. That language factor ultimately leads to a gap between the Deaf and the Hearing. Because of the communication constraint, in many cases the Deaf do not get the same rights whether at work, in daily activities, or resolving a conflict - whereas all people have the same rights as an individual, the right to speak and the right to be heard. After we conducted research about the Deaf, we found what they really want is equality. That is why we create this application with our initial goal to help the Deaf and the Hearing to communicate more easily. Indirectly the Hearing will learn sign language as well.

Hear Me is a technology/service to bridge the communication between the Deaf and the Hearing. The application will be consisting of 4 features:

1. Indonesian Sign Language learning feature in a 3D animation display.
2. Translator features voice & text into 3D animation Indonesian sign language, and vice versa, to bridge the communication of The Deaf and The Hearing.
3. Hear News: A news feature that raises disability issues for inspiring the reader to the world of deafness.
4. Live Transcript: An automatic translation from voice to text in real-time.

The value for the customer is to provide easier communication among the Deaf and the Hearing who cannot use sign language. By using this technology, it will give the customer a practical 2-way communication that can be used by both parties. Also through this application, it is expected that people who cannot use sign language can at least understand and learn sign language as well as respect the deaf's language. So we can increase awareness of equality rights in the world in terms of a communication alignment which is our vision and mission of the company.

The opportunities of this business are that so far no competitors offering the same features and innovations as those offered by Hear Me entered the market, especially in Indonesia. And also we will enter the era of society 5.0, the role of technol-

ogy is improved to facilitate humans in various aspects. Starting from social life, economy, education, health and so on. So, Hear Me has the opportunity to provide technology that can facilitate disability by cooperating with state governments not only in Indonesia but throughout the world, and disabled and non-disabled people can live in equality. Moreover, we can raise welfare for everyone.

The company must take care of the Taxpayer Identification Number (NPWP) in the tax office, arrange a business permit, and arrange a TDP (Company Registration). The start-up must be registered in the form of a PT because it is facilitated by the government. Personal and private assets will not mix with the assets of PT. PT is also more professional and bona fide, especially when expanding the business with third parties. Only PT legal entities can be accepted as companies in the context of participating in tenders, either in the government or in the private sector. People's perceptions are that a PT is usually considered bona fide and professional, and can be used to attract investors and is more credible.

Hear Me has registered an entity of the Limited Liability Company (PT) with the name of PT. Inovasi Disabilitas Indonesia. Hear Me has also registered the trademark rights, so the business is in line with the ethical business. Whenever we have partnerships with technology partners, Deaf communities, and other parties, we always strive to make contract agreements. For the internal team, we also made a founder agreement to state our responsibility and shares in doing this business. In summary, we highly notice the partnership along with all of the stakeholders involved in creating this application.

Vision

Increase equality rights of people with hearing disabilities.

Mission

1. Make an application as a tool for communication and learn Indonesian Sign Language.
2. Increase awareness of equality rights in the global world.
3. Increase and prioritize ability, compatibility, and creativity of the Deaf in the work field.

2. THE INNOVATION

Our idea solves one of SDG challenges, which is Quality Education. As we know, not all people can speak sign language, so we want to increase the "equality" rights between the Deaf and the Hearing. Moreover, in Indonesia there are some of the Deaf who still experience discrimination, and the disability-friendly facilities are inadequate, so they have difficulties to find jobs. Also sign language as their identity is not well appreciated. By providing this technology that can bridge the communication between the Deaf and the Hearing. We hope we will indirectly have an impact on the Hearing by communicating and learning sign language while using the Hear Me app. So they will respect sign language as the communication tool of the Deaf.

The products consist of a translator application that can convert voice to sign language. The Hearing can record their voice or text a sentence that will be converted into sign language in the form of 3D animation. Also a translator application can convert from sign language to text. The Deaf can record their hand movement using a smartphone camera, then the video will be translated into text or voice. There is also a Hear News feature, it provides the latest news/articles about deafness, and a live transcript feature.

As explained above, this idea came up when one of our team wanted to go somewhere by using an online taxi. At first, she thought that she got the wrong car because there were two people sitting in the front, the driver and a girl in the passenger seat. It turned out that she was the daughter of the taxi driver. She apologized to me for going along in the car with us since she wanted to help her father to communicate with passengers. Her father (the driver) often experienced limitations in his life due to deafness. He felt guilty when he couldn't hear and respond when a passenger started a talk with him and he did not know how to show them what he was going to say so they could understand.

From this point, we as a team wanted to make something that could solve this problem. Because in our opinion, all people have the same rights, the right to speak and the right to be heard. The Deaf are a minority group and many of them are often harmed and blamed on several occasions. For us, the Deaf taxi driver should be able to express his thoughts. Thus, we wanted to create a technology that can facilitate the communication between the Deaf and the Hearing. We hope this application will give a positive impact on disabled individuals and those who are not.

Embedded Technology

- Speech to text/sign language algorithm which may or requires AI (Artificial Intelligence), machine learning, NLP (Neutral Language Processing).
- A computer vision and or motion/hand movement detection engine to convert motion/hand movement into text.
- A series of motion/hand movement assets which might be in the form of animation or demonstrated by actors.

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Value

Easy to communicate: The value for the customer is to improve the communication between the Deaf and the Hearing who cannot use sign language. By using this technology, it will give the customer a practical 2-way communication that can be used by both parties.

Increasing equality rights: Through this application, it is expected that Hearing people who cannot use sign language can at least understand and learn sign language as well as respect the Deaf's language. So, we can increase awareness of equality rights in the world in terms of communication align with our vision and mission of the company.

Resources

The division of tasks for each Hear Me member varies according to their potential and capabilities. Athalia as CEO has an obligation to lead members to achieve company goals and monitor all business activities. Nadya as a Public Relations has an obligation to bridge the relationships of the members in the company and also those related to external parties. Safirah as CMO has the obligation to carry out all marketing activities ranging from creating attractive content marketing to thinking of various marketing strategies to increase brand awareness. Octiafani as COO has an obligation to lead the company's operational activities and becomes a liaison between internal parties and PT. Hijrah Bersama Kaaba as technology partner. Kaaba holds all the application production activities ranging from making UI UX design, producing animations, database storage, application architecture, software programming, until launching to maintenance. Hear Me also has a Deaf member namely Ivan Octa Putra as Deaf consultant who is a member of Gerkatina Jawa Barat. Ivan has an obligation to collect sign language videos from various categories which will be used as references for making

sign language animations. Ivan's task is to monitor the application of Hear Me to be made according to the culture of The Deaf. At present we have collaborated with one of the largest Deaf organizations in Indonesia called *Gerakan Untuk Kesejahteraan Tunarungu* Indonesia in West Java, better known as Gerkatin Jawa Barat which is domiciled in Bandung.

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

Our opportunity is that we currently have no competitors that offer the same features and innovations like those offered by Hear Me, especially in Indonesia. Besides, in the era of society 5.0 the role of technology is more important than ever to facilitate human activities in various aspects. Starting from social life, the economy, education, health and so on. So, Hear Me provides technology that can ease disability by cooperating with state governments not only in Indonesia but throughout the world, so disabled and non-disabled people can have more equal opportunities.

Hear Me has a strategic and operative partner from social services and several Deaf communities in Indonesia, especially in Bandung. For further development, we will test the Hear Mic product with strategic and operative partners like universities, courses and schools who accept the Deaf, and also events or seminars. The aim is that the Deaf can participate and understand well.

In developing the Hear Me application, we have collaborated with one of the startups in Bandung named PT.Hijrah Bersama Kaaba with an agreement of 60% profit sharing for Hear Me and 40% for Kaaba as stated in the MoU and signed by both parties. Hear Me itself consisted of 4 people who have a role as owner and founder.

Hear Me has an executive advisor namely Dr. Leo Aldianto and advisors namely Grahadea Kusuf who is the CEO of Kuassa and Ariya Sanjaya who is the CEO of Kazee.

The potential market for Hear Me is the Deaf who use sign language and the Hearing who cannot use sign language. Based on research, there are 11 million people in Indonesia who suffer from deafness and hearing loss. For this initial startup stage, we focused on marketing applications in West Java first. We have collaborated with one of the Deaf communities in Indonesia. For the West Java region we have collaborated with the community of the Gerakan Kesejahteraan Tuna Rungu (Gerkatin) with 2,080 members. Then, to market Hear Mic products there are 11 universities in Bandung that accept Deaf people as their students. Besides, there are four annual events

routinely held by the Deaf community which are the national hearing day every March 3, the national sign language day every September 23, the commemoration of the Central Gerkatin anniversary every February 23, and the international disability day every December 3 with conducting a campaign and participation in the event. Altogether, there are 11 million Deaf people in Indonesia and 6 million members of Gerkatin Indonesia. And all the Hearing citizens in Indonesia need to communicate with the Deaf. All those people are our potential customers that will download and use our applications and products.

Strengths

Hear Me has several competitors that offer similar products whether from Indonesia or abroad which are Hand Talk, Difodeaf, Signly, JakSL, and Parakerja. The competitors are described in more detail here:

- The first competitor is Hand Talk from Brazil. According to (World Summit Award, 2012), Hand Talk is an application for mobile devices which receives data and automatically translates text and audio into Brazilian Sign Languages (Libras), the sign language of urban Brazil's Deaf communities and also American Sign Languages (ASL). In fact, the Deaf in Indonesia do not use Libras and ASL as their language of communication. Therefore, sign language used in Indonesia for the Deaf is *Bahasa Isyarat Indonesia* (BISINDO) as their daily communication.
- The second competitor is Signly from Indonesia, Signly is a glove that can change or translate sign language into text (Rudiana, 2018). Whereas the product it is not practical because people tend to carry gloves and wear them every time they want to use them.
- The third competitor is Dictionary for Deaf or also called Difodeaf from Indonesia. Difodeaf is a sign language learning dictionary which can turn Indonesian or English words into American Sign Language (ASL) in the form of a gif file. This application is designed to help users learn sign languages (Antara News, 2018).
- The fourth competitor is JakSI from Indonesia. JakSI is an application to make it easier for people to learn Indonesian Sign Language (BISINDO) for free and the teaching method consists of three levels of difficulty that refer to national standards, as well as video-based (Liputan6, 2018).

- The fifth competitor is Parakerja from Indonesia, this application is a work platform devoted to disability. This application offers features of Indonesian Sign Language (BISINDO), where application users can learn sign languages directly from The Deaf, complete with word-for-word cues, example sentences, and communication exercises. The users will get a learning module and the main information about sign language in Indonesia (Parakerja, 2020).

Almost all of the competitors explained above still use the concept of learning sign language, rather than technology for bridging the communication and translation tools for sign languages at the same time and place. Also, there is no competitor that offers a feature to change sign language to text, where the feature can capture gestures of sign language using motion recognition technology, it can facilitate communication not only for one party, but for two parties. It is expected that the benefits by using the Hear Me application is the Hearing people who cannot use sign language can indirectly understand sign language itself through the application. Indirectly, the Hearing will learn sign language as well, it is a form of respect for sign language as the Deaf's communication tool. Through this application, equality will be achieved between the Deaf and the Hearing.

Weaknesses

Hiring of skilled employees is not finished yet. Especially animators and programmers who will be our employees will be needed. Besides, we still rely on the technology partner, so the business development process requires quite a long time. The lack of financial capital is also an obstacle for us to develop the business. Until now we have not hired Deaf employees because we still do not have sufficient funds to pay them. In the long run, we aim to employ Deaf people in our company.

Opportunities

The UN 2030 Agenda for Sustainable development comprises 17 Sustainable Development Goals (SDGs), which among other things aim to increase awareness of people with disabilities, create a better world for disabilities, and build sustainable direct web resources on every SDG and disability. The point is emphasizing approaches to achieving sustainable development for all special disabilities related to many aspects including accessibility, quality education, employment, growth and inequality. Hear Me already contributes to achieving sustainable development for disabilities in 4 aspects as follows:

a) Goal 4: Quality Education

Hear Me provides a sign language translator application to bridge the communication between the Deaf and the Hearing. It also can be used as the education tool to learn sign language. The reason why Hear Me chose using application, because it is practical and can be used everywhere and anytime. Hear Me wants to ensure all people have equal access to education free including disabilities. With the Hear Me application, it is expected that people will appreciate sign language more as it is one of the Deaf culture and identity.

b) Goal 8: Decent Work and Economic Growth

During this time people with disabilities do not get the equal rights especially in the work field. Hence, Hear Me wants to create a culture to employ disabilities and prove that all people are equal. It is expected that with this action, it can change people's mindset about disabilities and influence other companies to employ people with disabilities. If this works, it can reduce the unemployment rate and increase the economy and welfare of the societies.

c) Goal 10: Reduce Inequalities

Hear Me has a vision to reduce inequalities of people with disabilities. Ensure all people have the same opportunities and eliminate discriminations. There are some Republic of Indonesia laws discussed about disabilities rights and government support on disabilities:

- Presidential Regulation No. 67 and No. 68 year 2020 concerning Indonesian society is expected to be increasingly inclusive and respect, protection and fulfillment of the rights of persons with disabilities fulfilled.
- Constitution no.19 of 2011 regarding Convention on the rights of people with disabilities. (The protection and enhancement of human rights of vulnerable groups especially people with disabilities needs to be improved and efforts to protect, respect, advance and fulfill the rights of persons with disabilities)
- Government Regulation no.70 of 2019 concerning Planning, Conducting and Evaluating the Respect, Protection and Fulfillment of the Rights of Persons with Disabilities.

- Clause 27 paragraph (3) of Constitution Number 8 of 2016 concerning Persons with Disabilities. Planning, Organization and Evaluation are carried out at the national and regional levels.
- Presidential Regulation No.75 of 2005 governing the mandate for the implementation of actions focused on people with disabilities. As well as Law No. 18 of 2016 concerning persons with disabilities.

d) Goal 11: Sustainable Cities and Communities

With Hear Me technology, Hear Me already contributed in providing disability-friendly facilities and Hear Me has a goal to give 10% of company's profit to Deaf and other disabilities communities in Indonesia in order to make sustainable cities and communities.

Potential threats and mitigation:

a) Property and computers theft

- **Problem:** Because the company is an internet-based business, we should have our own security system at the company. Problems at the security level should not occur often, only a certain number of people have access to control the system and know the password of the company's system. Therefore, the problem of property and computers theft rarely happens in our opinion.
- **Mitigation:** It can be prevented by improving the security system through the technology of the internet of things (IoT) which is smart devices (smart home), a security system that can control devices from a distance. For example, a high security system is through sensors, passwords, fingerprints, sounds, or etc. Therefore, it will be difficult for criminals to commit theft at the company, and if there is an incident of theft there will be a track record that makes it easy to track the perpetrator.

b) Employee damage

- **Problem:** Human errors in employees should rarely occur because every employee who works will do the training first. Then, from the company, of course there is an audit system for routine checks within a certain period of time and there will be sanctions if there are errors made by the employee.

- **Mitigation:** There must be an audit system for the employees within a certain period of time. From that we can know the detail of each progress of the job description and can detect the mistake or the odd that the employee did. On the other hand, we can give them a reward for their achievement. It makes employees feel more appreciated so that can prevent them from doing fraud.

c) Magnetic or electrical disturbance

- **Problem:** Damage caused by electricity disruptions (short circuit, power outages, etc.) does not have a big impact on large companies because most companies already have a supply of generators to prevent undesirable things like loss of data, etc.
- **Mitigation:** To overcome this, the company must think more about the process of storage automation in the event of a sudden power failure, and always prepare the generator set.

d) Extreme of temperature and humidity

- **Problem:** Certain components are susceptible to danger from magnets or extreme electrical or temperature disturbances and humidity, this causes damage to the equipment. This can cause damage to the company because the operational system will be disrupted and the resulting output is not optimal.
- **Mitigation:** The Company should do a quality control of certain time of their computers and equipment to maintain the important stuff well safe and secured.

e) Spreading computer virus

- **Problem:** the spread of the virus to IT companies greatly affects the data security system of the company, because it causes the loss of data and information that is the company's assets.
- **Mitigation:** Install an antivirus to protect the system.

f) Data theft by employees

- **Problem:** Data theft carried out by employees rarely happens because most companies do the periodic audits, before being accepted as employees, the employee makes an appointment and signs a contract with the company concerned. But the impact is very large, because data/information that are stolen can be important.
- **Mitigation:** To prevent this, the company should on the one hand develop a certain sense of belonging and on the other hand carry out periodic audits so that the employees feel supervised and afraid to commit data theft. Penalties will also be provided for employees who commit data theft.

g) Sabotage:

- **Problem:** Sabotage is an act of destruction planned by individuals or groups, whether intentional or not, against the equipment, personnel, and activities of a company that wants to be ruined. This kind of crime rarely happens, because it requires special expertise with complex planning. Usually, sabotage targeted large companies that have high protection, so that only experienced people and experts can do that.
- **Mitigation:** This crime can be overcome by increasing the security of the company such as preparing intelligence organizations and special agents to spy on sabotage matters so that this can be prevented before a sabotage case occurs.

h) Netspionage, Cybercrime (Theft of proprietary information):

- **Problem:** There is fierce competition between two or more companies which can lead to courtship and attempts to ruin each other and there's desire to become the dominant company in its field. Also, they want to raise the company's name. So, their company is better known to the public.
- **Mitigation:** Install security software that is up to date, uses data encryption, checks bank and credit card data regularly, changes passwords diligently, ignores e-mail attachments and URLs that are suspicious, and reports to

the authorized persons, also uses insurance to offer protection for components, property rights or intellectual property, company privacy documents, and so on.

i) Plagiarism

As advancements in technology accelerate at ever increasing speeds, new business is growing, especially in technology-based applications that provide access for more people. Therefore, we must register patents, copyrights and brand rights from the first, because the manufacturing process takes a long time. The advantage in our application is the motion detection engine that can change the gesture of sign language to text that still in the research stage and not many people use that technology.

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN / BUSINESS MODEL

Business Model	Type of Revenue	Subscription	Freemium	Advertisement	One-time sale
B2B	<ul style="list-style-type: none"> • Technology License • Slots for Advertisement 	<p>✓</p> <p>Rp7.840.000 /month</p>		<p>✓</p> <p>Rp2.000/daily active user</p>	
B2C	<ul style="list-style-type: none"> • Features Voice to Motion Motion to Voice • Merchandise • Event • Sign language course 		<p>✓</p> <p>Rp10.000/month</p>		<p>✓</p> <p>✓</p> <p>10% of the Budgeting</p> <p>✓</p>
B2G	<ul style="list-style-type: none"> • Technology License - Public Facilities 	<p>✓</p>			

The business model of Hear Me is divided into 3 approaches, business to business (B2B), business to customer (B2C), and business to government (B2G).

- For B2C, Hear Me wants to generate main revenue from our application using the freemium system, free for daily conversation and premium for complete conversation with a cost of Rp10.000 per month. Furthermore, we will be selling merchandise such as hoodie, tote bags, parachute jacket, and etc. to be our marketing strategy to increase brand awareness as well as additional revenue.

- For B2B, we will have a subscription system for the technology license for about Rp.7840/month and open slots for advertisements for about Rp2.000/daily active users in our app.
- For B2G we will also sell technology licenses according to their needs as the disability friendly public facilities.

Our target market is the Deaf who have difficulties in communicating with the Hearing and the Hearing who cannot use sign language in Indonesia. We will approach the deaf communities as well as the community that support the deaf such as Teman Tanpa Batas, Sahabat Isyarat, and so on. For B2B, we will approach events, school, courses, seminars, and so on. Our value is to make both parties become easy to communicate and increase equality of rights.

Budgeting

No	Item	Description	Unit	Qty	Month	Price (Rp)	Price (USD)	SubTotal (Rp)	SubTotal (USD)
1	Apps & Product Development								
	Mobile Application Engineer	Android & iOS, AI Implementator	person	2	12	Rp10,000,000	\$642	Rp240,000,000	\$15,376
	Web Application Engineer	Web, Dashboard & API Services, AI Implementator	person	2	12	Rp10,000,000	\$642	Rp240,000,000	\$15,376
	Database & Application Architect	Cloud Computing / Server & Data Architecture	person	1	12	Rp7,000,000	\$449	Rp84,000,000	\$5,382
	UI /UX Designer		person	1	12	Rp6,000,000	\$385	Rp72,000,000	\$4,613
	AI / Machine Learning Expertise / Engineer / Researcher (Head & Assistant)	Machine Learning Service, AI Analyst, AI Architecture	person	2	12	Rp13,000,000	\$834	Rp312,000,000	\$19,988
	Scientific Publications Research	Colloquium, Research Publication & Accomodation	Packages	1	1	Rp200,000,000	\$12,813	Rp200,000,000	\$12,813
	Total Apps Product Development				6			Rp1,148,000,000	\$73,549
2	Content Development								
	Creative Director	Maintain quality, creating pipeline for every department in content, managing team	person	1	12	Rp10,000,000	\$642	120,000,000	\$7,688
	Technical manager	Operating mocap, setup pipeline production for animation and rendering	person	1	12	Rp10,000,000	\$642	120,000,000	\$7,688
	Content writer	Creating article, news and information needs within application	person	1	12	Rp6,000,000	\$385	72,000,000	\$4,613
	Content Designer	update Design UI UX, also updating design for every directory, news etc annually	person	1	12	Rp6,000,000	\$385	72,000,000	\$4,613
	Content Illustrator	create and update illustration both for apps and marketing needs	person	1	12	Rp6,000,000	\$385	72,000,000	\$4,613
	Animator	Animate character	person	2	12	Rp7,000,000	\$449	168,000,000	\$10,763
	Modeler	Create and update new model	person	2	12	Rp7,000,000	\$449	168,000,000	\$10,763
	Post-Production Artist	Rendering, lighting	person	2	12	Rp7,000,000	\$449	168,000,000	\$10,763
	Motion Capture Demonstrator	demonstrate all the words and sentence	person	2	12	Rp6,000,000	\$385	144,000,000	\$9,226
	Total Content Development				13			Rp1,104,000,000	\$70,733
3	Marketing								
	Marketing Manager		person	1	12	Rp10,000,000	\$642	120,000,000	\$7,688
	Marketing Communication		person	1	12	Rp8,000,000	\$513	96,000,000	\$6,151
	Marketing Content Writer		person	1	12	Rp6,000,000	\$385	72,000,000	\$4,613
	Marketing Content Designer		person	1	12	Rp6,000,000	\$385	72,000,000	\$4,613
	Marketing Content Video Production	Videographer, video editor, model	person	1	12	Rp6,000,000	\$385	72,000,000	\$4,613
	Marketing Social Media Officer		person	1	12	Rp7,000,000	\$449	84,000,000	\$5,382
	Total Marketing Development				6			Rp516,000,000	\$33,062
4	Marketing Promotional Kit & Tools								
	Marketing Tools Production	Proposal, Flyer, poster, Namecard, Corporate ID Tools Kit	Packages	1	1	Rp50,000,000	\$3,204	50,000,000	\$3,204
	Marketing Digital Promotion	Google Ads, Facebooks Ads, Instagram Ads / agency	Packages	1	1	Rp240,000,000	\$15,376	240,000,000	\$15,376
	Brand Ambassador	Influencers, Community,	Packages	1	1	Rp200,000,000	\$12,813	200,000,000	\$12,813
	Webhosting and Domain	email, website	Packages	1	12	Rp100,000	\$6,98	Rp1,200,000	\$83,78
	Marketing Promotional Kit & Tools Development				4			Rp490,000,000	\$115,173
5	Infrastructure								
	Kinect (Xbox Development) for Motion		Unit	2	1	Rp3,000,000	\$193	6,000,000	\$385
	Motion Capture		Unit	1	1	Rp250,000,000	\$16,016	250,000,000	\$16,016
	PC Render for Animation		Unit	2	1	Rp25,000,000	\$1,603	50,000,000	\$3,204
	PC / Laptop for Data Science Computation		Unit	1	1	Rp25,000,000	\$1,603	25,000,000	\$1,603
	Cloud & Machine Learning Server		Services	1	12	Rp10,000,000	\$642	120,000,000	\$7,688
	Office		Unit	1	12	Rp9,000,000	\$628,37	Rp108,000,000	\$7,540
	Total Infrastructure Development				8			Rp558,000,000	\$421,051
6	Legal and Patent								
	Patent	Name, logo, concept, animation, technology		1	1	Rp35,000,000	\$2,243	Rp35,000,000	\$2,243
7	Management								
	C-Level / BoD			4	12	Rp12,000,000	\$770	Rp576,000,000	\$36,900
	Total Research and Observation Activities							Rp611,000,000	\$39,144
	Total							Rp4,428,000,000	\$752,711

6. THE INTERNATIONAL DIMENSION OF THE BUSINESS PLAN

Hear Me currently is still being developed in Indonesia because we have already visited one of the Deaf communities in Indonesia which is also a demonstrator of our application. In Indonesia, each region has different sign languages, so it takes a long time to gather input data for the application. Hence, we will be able to adapt the system to many languages in the world such as ASL, and the potential market might be even more ready abroad. So while we are developing Hear Me products in Indonesia, we will also create a new team to develop Hear Me products abroad.

In the future we see potential markets abroad such as in the United Kingdom. We see that there is an urgency and good financial conditions that support the development of our products. Therefore, for the long-term plan we will conduct market research and see the potential abroad. If that is positive and supportive then we will develop and market our products abroad.

7. THE ROADMAP

Hear Me was established in 2019 and is still developing the prototype. We have not registered the patent but we plan to register Hear Me as business entity as soon as possible. Hear Me plans to register patents rights, brand rights, and copyrights. The patent itself is to give recognition to the inventor for his findings that can be applied in the industry. Then the brand rights provide protection for trademarks and services that are owned, in this case we want to protect the logo and colour characteristics of our company. And copyrights give exclusive rights to a work, both moral and economic, for everything that has or has not been published, in this case for example the embedded code in the application.

When building a new startup, many obstacles have to be passed at first. Currently in the market research process, it is necessary to validate the customer in order to determine the appropriate target market and determine it very specifically to the personas, so it will meet the customer needs. For marketing itself, the process is not only limited to marketing this product, but because this technology has a social impact, the marketing process should also raise awareness of the importance of equality rights. As long as someone has not been socially affected by or understood the importance of equality rights, the message of the product will not be conveyed properly. After the prototype is made, market testing needs to be done to get feedback from our customers and to confirm that the products match what customers need.

Certainly, developing and producing a product requires quite a lot of funds. We must rank the priorities, so the existing funds can be allocated according to needs and be well organized. Until now we have a capital of Rp 50,000,000 obtained from the Swiss Innovation Challenge competition which will be used to develop Hear Me's MVP. Not only that, there are many stakeholders involved in making Hear Me which are vendors, advisors, communities, business partners, and others. Surely, networking in business is very important to find advisors with the best qualification and reputation and we must collaborate well with all stakeholders. Moreover, we have a business partner as our technology partner called PT. Hijrah Bersama Kaaba, therefore we must maintain good relations with partners. Cooperation must be formal and written in a clear cooperation agreement.

Making a product takes several planning processes so that the product produced is in line with consumer needs. First, we had to determine the MVP of our startup by choosing a new product with features that are presented for early adopters. The process was carried out in order to get feedback from the target market. For this step we chose a mobile application that can convert voice into sign language as our MVP. With that prototype we immediately conducted market testing with the Deaf. It turned out that the prototype was still making mistakes in the use of appropriate sign language sentences. After we discussed it with the programmer, it turned out that we need AI technology, machine learning, and NLP. Then similar sentences can appear using the same sign language. But after reviewing that the development of this mobile application requires quite a long time, we chose to change our MVP with the same features but with minimal conversation that we will apply at the restaurant. Until now we are preparing for the MVP and will launch in the next 2 to 3 weeks.

Overall, in making Hear Me as a new startup company, we learned a lot of things, starting from having to work together in teams well or knowing the Y factors of each individual in the team related to their goals in making and running this business going forward. Obstacles in the business can occur, but problem solving is done by joint decisions which is a strength in itself to overcome existing problems. The work timeline needs to be made well in order to have targets that must be achieved every week.

8. THE TEAM

Hear Me is owned by four people from SBM ITB entrepreneurial students. The 4 founders have the same interests and vision, which is to increase equality rights between the Deaf and the Hearing. From the Y factor, we want to develop Hear Me using the different skills and job descriptions that each founder has.

1. Name: Athalia Mutiara Laksmi

Role: Chief Executive Officer

Expertise:

- Decision Making
- Leadership and Team
- Financing
- Time Management
- Digital Design
- Project Management

2. Name: Nadya Sahara Putri

Role: Public Relation

Expertise:

- Social Networking
- Digital Design
- Time Management
- Leadership and team
- Management Experience

3. Name: Octiafani Isna Ariani

Role: Chief Operating Officer

Expertise:

- Time management
- Marketing
- Digital Design
- Project management
- Leadership and team

4. Name: Safirah Nur Shabrina

Role: Chief Marketing Officer

Expertise:

- Project management
- Marketing

- Digital design
- Time management

Personnel planning is important in human resources management. When this business is running, we will need a project manager, programmer, database administrator, designer, content manager, finance expert, animator, also demonstrator from The Deaf, etc. Later, we will also recruit the Deaf as an employee in our company, because according to our vision to increase and prioritize the Deaf's ability, compatibility and creativity in the field work.

After developing the voice to sign language feature, the application team, especially programmers, had to study and do research for the sign language to text feature. At this time we had not found the right technology to detect complex movements using the camera and change it in the form of text. The marketing team also needed Photoshop training in the first 2 months to provide interesting marketing content and had to attend seminars to determine a good marketing strategy. Our team also needs to attend financial seminars to learn and make a good financial strategy for Hear Me to make a profit. As a company that upholds the value of equality between the Deaf and the Hearing, we need a sign language course to learn the Deaf's language for easier communication with them while running this business.

If someday we need skills that we do not have in the Hear Me team, we will recruit human resources and give them a position as employees. For now the number of founders and co-founders is sufficient. The dynamics of work carried out by the team is cooperative, but the division of labor is to be worked on. Another function of internal cooperation is the support of inter-team work by appreciating the opinions of everyone. When everyone's work is done, we jointly check and discuss it to avoid different points of view.

A conflict that may occur is if we have different opinions that are not to be resolved directly. Sometimes as a founding team we still work together with unclear job descriptions of each member which sometimes makes the business process slow. In fact, if tasks had been divided from the beginning, the work would be finished more quickly.

One of the team building processes that we do is joint discussion and internal consulting when we want to decide on something or do something. This makes us have the same vision in the team and minimizes the occurrence of missed communication.

To decide on something, we usually hold a discussion, considering the positive and negative things that will happen. But, if we have difficulty deciding on a decision,

we usually consult with mentors or work partners. So, we get a lot of input and insight from them.

NatureCELLY

1. THE COMPANY

Indonesia is an archipelago country with the 4th most populous population in the world. Based on BPS data, it shows that the total population in Indonesia in 2015 reached 261 million, with an increase in the number of people each year. This will have an impact on the level of consumption of fossil fuels. The current energy and climate crisis is an urgent problem and must be resolved.

Fossil fuels which constitute the majority of energy sources used (around 80.9%) are limited. The world is experiencing an energy crisis because oil and gas resources are sharply reduced due to massive use by humans. Meanwhile, the volume of agricultural waste is enormous and has not been used optimally as an alternative and renewable energy source. Using this source can be a contribution to the problem of the energy crisis in the world before it occurs (Duryatmo, 2017).

One form of alternative energies that is currently becoming popular in many countries, especially in developed countries, is bioethanol. Bioethanol is projected by many countries to be the future fuel that is more environmentally friendly than fossil fuels. They might replace one of the stove fuels. Conventionally, stoves are used by the people of Indonesia for cooking, mostly LPG gas stoves with a total level of consumption of 7 tons LPG gas, which is about 70%. However, LPG gas has explosive properties. Based on Kompas data, 2017 the number of fire cases due to exploding gas stoves is 33 (Wahyuni, 2008).

The NatureCELLY company was formed on the basis of the founders' desire to produce products that are eco-friendly, given the growing issue of global warming. In addition, as a student of the University of Sumatera Utara (USU), the spirit of entrepreneurship was developed as social life does not only depend on innovative science, but also on founders that are able to market the products. Therefore, this innovation offers a new alternative energy that is safe, economical, and environmentally friendly, namely biofuel in the form of compacted bioethanol. Where bioethanol is a volatile or hygroscopic fuel, it needs to be compacted in a bioethanol gel known as biogel. Bioethanol gel has advantages including burning not smoky, causing no soot, producing no

harmful gases, being not carcinogenic and non-corrosive. Its solid or gel form makes it easy to package and distribute.

Bioethanol gel is very suitable to be used to warm food in the catering industry, when camping, and for military purposes. Biogel ethanol is obtained from the synthesis of lignocellulosic substances from plant waste, namely OPEFB waste (oil palm empty fruit bunches). Bioethanol gel raw material is abundant in the North Sumatra Province which produces fresh fruit bunches ranging from 1,241,828 tons. The raw material has a cellulose content of 50.78% which has the potential to be used as bioethanol (Nurdyastuti, 2015). It is expected that solid bioethanol and gels are also a substitution for methanol or spritus bakai materials in the people's households or industries, especially to support the catering or catering industry.

The NatureCELLY Company is a company engaged in manufacturing by utilizing natural resources that will be transformed into bioethanol and biodiesel. Our company's products contribute to environmentally friendly gel-fired stoves. Research-based environmental preservation is the reason for the establishment of the NatureCELLY company. In addition, the NatureCELLY company believes that the bioethanol and biodiesel fuel business can match the use of existing fuels and also can be a solution that reduces the problem of global warming.

Vision

Becoming an advanced and superior manufacturing industry company that produces environmentally friendly burner stoves that are able to compete globally.

Mission

1. To conduct research and improve the quality of natural resources, especially in the field of renewable energy as an alternative substitute for oil and gas.
2. Organize high-quality production processes to produce the best products.
3. Promote the use of bioethanol and biodiesel in an effort to save natural resources in the form of oil and gas.

The operating plan of CV NatureCELLY contains the technical implementation of production, production design, distribution methods, and utilization of technology in the business being managed.

2. THE INNOVATION

Some of the compounds that become our innovative products of NatureCelly are a solid fuel technology that forms a gel that combines two fuels in the form of bioethanol and biodiesel. This is eco-friendly because the organic waste used comes from bagasse and chicken feather fibers which function as an explosive and replace rare LPG (Liquified Petroleum Gas) energy. NatureCelly is designed to develop a concept that is eco-friendly (not smoky, odorless and clean). The production design of the NatureCelly stove is designed using Bernoulli's legal concept and a push system that utilizes mechanical energy that produces a regular fuel flow. The technology used in the product is one that is green flame and flow tune. The stove utilizes flow tune technology to press the gel out of the fuel tube so that it can produce fire that is green flame. NatureCelly's fuel characteristics are a high calorific value of 8,212.7 kal/gr, combustion residue 1.83%, water boiling test 31.85 minutes and specific fuel consumption 70.75 gr/L. Therefore, this innovation offers a new alternative energy that is safe, economical, and environmentally friendly, namely biofuel in the form of compacted bioethanol. Where bioethanol is a volatile or hygroscopic fuel, it needs to be compacted in a bioethanol gel known as biogel. Products manufactured are products that prioritize the concept of "going green" so what distinguishes this product from others is the production method. With fuel made from fermentation and distillation, fuel gels are produced that do not pollute the environment. In addition, the purpose of producing bioethanol and biodiesel fuel stoves is to increase public awareness to be more concerned about their environment, because by using these products, the community has contributed to reduce global warming.

NatureCelly is an organic stove technology tool equipped with biofuels and animal fuels, namely utilizing bagasse fiber waste, and modified chicken feather waste. Bioethanol gel and biodiesel function as LPG replacement stoves that often explode. Bagasse pulp is known to have a very high cellulose content of 58.7% which can be converted into bioethanol through a fermentation process and then distilled. Bioethanol has volatile or hygroscopic properties so compacted in the form of a gel with the help of CMC (Carboxymethyl Cellulose) as a matrix and the addition of biodiesel from chicken feather waste is a solution which contains high levels of keratin to increase the calorific value of the gel fuel.

2.1 Technical Implementation of Production

The technical implementation of the production of bioethanol and biodiesel stoves consists of making fuel and designing stoves.

NatureCELLY's company manages natural resources in the form of empty oil palm fruit bunches, then the material is dried and the ingredients are crushed and mixed with water which has been dissolved with yeast, then the mixture is fermented and distilled until it forms bioethanol, then diluted with thickener carboxymethyl cellulose. The fuel is made from a mixture of biodiesel and this bioethanol.

The stove is designed using iron raw materials and fuel tubes made of fiber. The Production Implementation steps are as follows:

- Oil palm empty fruit bunch waste is collected, then fermented and distilled.
- The fermentation product is then distilled with a distillation machine, then mixed with biodiesel.
- The formed gel is tested for quality, then the gel is packed into a tube package.
- Aluminium sheets shaped like a furnace are used for the stove container and as a welded buffer
- A fuel tube is formed as a container and is fixed in the stove container.
- The stove knob is mounted on the container and the knob for the tube on the fuel hose.
- Products are then packed in a packaging box.

2.2 Production Design

The fuel production is designed to use an eco-friendly concept (not smoky, odorless and clean) and is using Bernoulli's rules. Push systems utilize mechanical energy to produce a regular fuel flow.

2.3 NatureCELLY products distribution

Product distribution is done directly to customers (retailer strategy). Besides that, the company also has a distribution channel with technopreneurship centers such as the "USU Student Entrepreneurship center".

2.4 Technology Utilization in Managed Businesses

The technology used in the product is green flame and flow tune technology. The stove utilizes flow tune technology to press the gel out of the fuel tube so that it can produce fire that is green flame.

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Our business idea is based on innovative and advanced material technology and is using renewable energy in the form of jelly fuel, made of bioethanol and biodiesel which come from empty bunches of palm oil and chicken feathers waste. We have tested this in the Baristand Medan Laboratory by using KAN (*Komite Akreditasi Nasional*) standard ISO/IEC 17025:2018 and ASTM (American Standard Testing and Material) Standard.

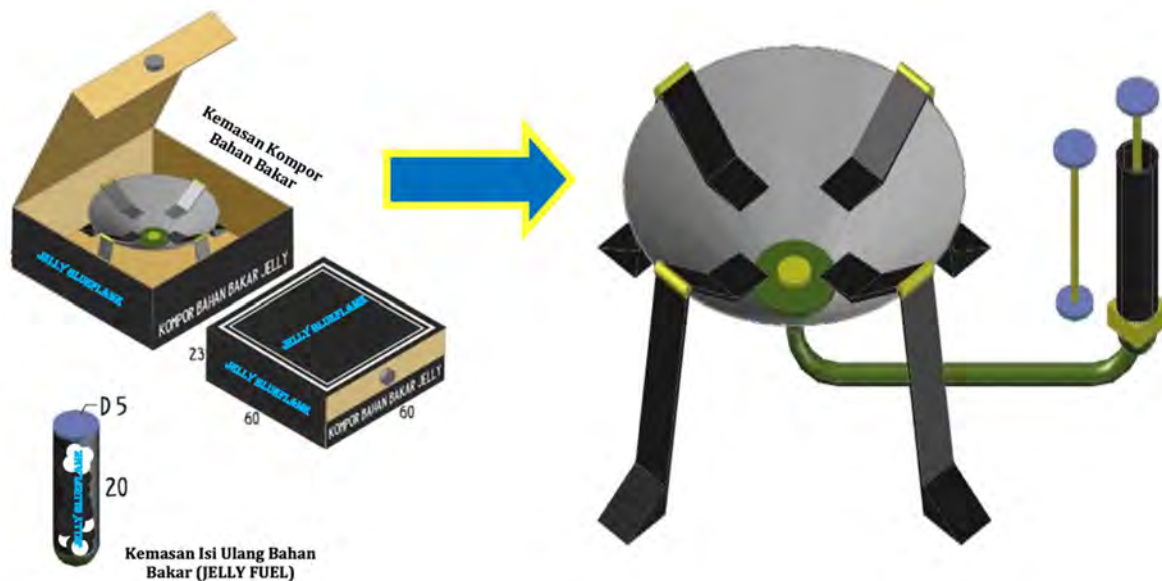


Figure 1. Illustration of Prototype of Jelly Fuel Stove Packets Based on Solid Fuel from Bioethanol and Biodiesel Gel

The advantages of the fuel stove based on bioethanol and biodiesel jelly products which include PATH for consumer advantage are:

1. Safety and comfort where this stove is not at risk of exploding because it is gel or solid and without emissions of smoke or soot
2. Plant and animal fuels based on palm oil empty bunch waste and chicken feather waste which are renewable resources suitable for Indonesia as a tropical and agrarian country that has a lot of chicken farming. This business can raise Indonesia to become a king of animal fuel and an exporting country for biofuel, and it is making Indonesia cleaner because it utilizes chicken feather waste from the leftovers of slaughterhouses and empty oil palm bunches.
3. The quality of the jelly fuel burning fire can be equivalent to LPG, which depends on the composition of the mixture of carboxymethyl cellulose (CMC), bioethanol, biodiesel and the diameter of the combustion chamber.

4. 1kg will last for 10 hours where the price of fuel is affordable with Rp. 4,500 per kg. Low-grade biofuel 70-96 is sufficient for this usage and can be mass produced in Indonesia as a tropical and agrarian country with big farms.
5. Simple and Ergonomic: This stove is without axes, without complicated installation and maintenance and without heavy storage containers or tubes even when using used plastic bottles (or reuse). The design of a modern outdoor stove will follow.

Our company prioritizes the concept of "going green" with its products. This distinguishes the products from others in general with the special type of fuel. It is made from fermentation and distillation and the gels do not pollute the environment. In addition, the purpose of producing bioethanol and biodiesel fuel stoves is to increase public awareness to be more concerned about their environment, because by using these products, the community has contributed to reduce global warming.

The NatureCELLY company has a positive impact on the community because the company promotes concern for the environment. NatureCELLY company has solid waste in the form of pieces of iron which are then resold to the waste manager. The business risks that this company might experience are the presence of competitors who use a more sophisticated technology. In the face of this business risk, NatureCELLY always makes continuous improvement, which is to use technologies with the latest concepts. For the product development the quality function deployment method is used. With this method the voice of customer can be integrated into the design process and product development. Based on our research, we find what makes our product innovation more outstanding: improvement of the quality of solid fuel based on a bioethanol and biodiesel gel, increasing utilization of livestock and agricultural waste, reducing of the prevalence of air pollution due to fossil fuels, and overcoming the energy crisis.

Therefore, the product of NatureCelly has benefits: obtaining fire from bioethanol and biodiesel mixture is hotter and durable, solid fuel based on gel is not explosive and safe, fire is ecofriendly because it is made from fermented organic matter, so it is odorless and does not cause smoke. The biggest obstacle experienced by the company so far is getting investors to participate in building and developing our innovation. We realize that the role of investors is very important to build a company because finance is needed for a company.

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

In this era, there are already many stove producers on the market. However, bioethanol-based organic solid-fuel stoves that use biodiesel from bagasse and chicken feather waste have not had direct competitors, but have very popular indirect competitors, namely:

- a. PT. Aditec Cakrawiyasa (Quantum stove) produces stoves with a capacity of 3.6 million units/year.
- b. PERTAMINA (LPG) produces 7 million tons/year of gas fuel.

The targeted markets are private households that are reached through supermarkets, wholesalers, shops, and so on. As an example, Jelly Fuel Stove is sold in Medan with a population in Medan City in 2016 of 2.2 million people. If we assume 1% are mothers, who are targeted as buyers, the number of consumers is 220,000 people. However, considering that this product is a new product, we only target 10,000 people or 0.5% of the population in Medan, or 4.5% of the number of mothers in Medan. In this case, the target groups chosen are based on the tastes of the consumers of the product, and are the age groups 19-24 years and 25 - 56 years. The first target market is selected with the specification that the target area is close to the production location:

- Binjai City
- Medan City
- Tebing Tinggi City
- Gunung Sitoli City
- Kota Tanjungbalai
- City of Padangsidempuan
- Pematangsiantar City
- Sibolga City

Strength

The NatureCELLY company has a positive impact on the community because the company promotes concern for the environment so that the community is always friendly with the environment.

Weakness

Difficult distribution is one of the weaknesses because it is feared that it will take a long time to supply and reach other regions.

Opportunity

Nobody has sold renewable energy to households in Indonesia yet. This is a very big opportunity to become the first company to market this fuel. High awareness about the environment is also a good selling point to market this environmentally friendly product.

Potential threats and mitigation:

- The business risks that this company might experience are the presence of competitors who use a more sophisticated technology.
- The process of finding human resources who can fill a certain position in the company.

First, we recruit, then select, carry out assessments, training, orientation, and determine who is the most appropriate to be chosen.

- The obstacles and challenges are choosing human resources with integrity and responsibility for their work after being accepted at a company.

In order to get a good team of employees in a company, a company leader needs to see his/her employees working first. If with existing human resources the company can meet the criteria to achieve the company's mission, the company does not need to recruit new employees, but if the existing resources are not sufficient to meet the criteria for achieving the company's mission, then open recruitment of new employees is needed.

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN / BUSINESS MODEL

- The calculation of our required funds assumes that all mothers need stoves that are safe, economically fueled and environmentally friendly, so 10,000 stoves are needed.
- Assumed cooking of 2 hours per day, so 1 kg of solid biodiesel fuel can be used for 5 days.
- Every 5 days there will be a need of 10,000 kg or 10 tons of fuel
- For 1 month there are 6 periods of purchase needed $6 \times 10 \text{ tons} = 60 \text{ tons}$ of fuel.
- Total Annual Demand: we assume 10,000 stove units and $60 \text{ tons} \times 12 \text{ months} = 720 \text{ tons}$ of fuel
- Each month increasing by $(10,000 \text{ stoves} : 12 \text{ months} = 834 \text{ units} \times 1 \text{ kg fuel} \times 6 = 5.004 \text{ kg}) = 5,004 \text{ tons}$.

- If the cost of production for 1 unit of NatureCelly consumes a capital of IDR 149,450. So for a production target of 15,600 units/year, the required capital is IDR 2.331.420.000.

Projected Demand for the Next 5 Years

Year	Demand Projection	
	Jelly Fuel Stove (unit)	Jelly Fuel (ton)
1 (Kota Medan)	12.000	800
2 (Indonesia)	35.000	2,34 million
3 (ASEAN)	100.000	9,43 million
4 (Asia)	100.000	16,45 million
5 (Dunia)	100.000	22,45 million

Table 1. Projected Demand for the Next 5 Years

Cost of Production

No.	Component	Price of Components	Number Of Component Required	Capital
1	Sheet iron	IDR 305,000/sheet	0,25 m	IDR 76,250
2	Knop the stove	IDR 10,000/unit	1 unit	IDR 10,000
3	Stove pump	IDR 25,000/unit	1 unit	IDR 25,000
4	Hose stove	IDR 20,000/unit	1 unit	IDR 20,000
5	Buffer iron	IDR 60,000/12 meters	1 m	IDR 5,000
6	Knop the pump	IDR 5,000/unit	1 unit	IDR 5,000
7	Pulp	IDR 10,000/5 kg	1 kg	IDR 2,000
8	Yeast	IDR 18,000/ 500 gr	50 gr	IDR 1,800
9	Spiritus	IDR 22,000/liter	0.2 liter	IDR 4,400
Total				IDR 149,450
Total for 15600 products/year				IDR 2,331,420,000

Table 2. Cost of Production

Fixed Cost Of Production

No.	Component	Capital
1	Cost Management Organization	IDR 10.800.00
2	Office Supplier Fee	IDR 1.900.000
3	Administration, Transportation and WiFi Fee	IDR 3.600.000
4	Laboratory Cost	IDR 9.800.000
5	Cost of Testing Material (Quality Control)	IDR 12.000.000
6	Cost of Moulding	IDR 2.000.000
Total		IDR 40.100.000

Table 3. Fixed Cost of Production

Variable Cost Of Production

No.	Component	Capital
1	Cost of Raw Materials	IDR 26.200
2	Electric Factory	IDR 4.862
Total		IDR 31.062
Total Target For 20.000 Product/year		IDR 621.240.000

Table 4. Variable Cost of Production

6. THE INTERNATIONAL DIMENSION OF THE BUSINESS PLAN

NatureCELLY's long-term plan is to expand the business by expanding the distribution network (national and international distribution) and opening branches of the store, which will need additional employees. With reaching more markets, the company NatureCELLY hopes that bioethanol and biodiesel fuel can replace the use of oil and gas on a larger scale. In addition, by opening new employment opportunities, Indonesia's economic growth can increase. For now, this jelly fuel stove product based on bioethanol and biodiesel gel is still filed to the USU patent list (has been drafted patent).

7. THE ROADMAP

NatureCELLY will develop the business by expanding distribution networks (national and international distribution) and by opening branches so that they will expand employment. With the realization of this development, the company NatureCELLY hopes that bioethanol and biodiesel fuel based on jelly fuel can replace the use of oil and gas.

8. THE TEAM

NatureCelly was owned by three scientist students from the University of Sumatera Utara. This Team has knowledge in several disciplines and can create an innovation that can be used for this County. It is expected that solid bioethanol gels are also prospective solutions as substitution for methanol or spritus bakai materials in the households or household industries, especially to support the catering or catering industry. The organizational structure used in this company is a functional one. In a functional organizational structure activities are regulated and grouped and work tasks assigned to form work units such as production, marketing, administration, etc.

1. Name: Oan Dania Pasaribu

Role: Chief Executive Officer

Expertise:

- Design and communicate company vision
- Motivate team members
- Describe the company's business strategy
- Build relationship with investors
- Prepare budget and budgeting

2. Name: Tisya

Role: Chief Financial Officer

Expertise:

- Fundraising strategy
- Make decisions related to human resources
- Formulate financial document
- Discuss the financial health of the company with CEO

3. Name: Andika Pratama

Role: Chief Technical officer

Expertise:

- Product Development
- Understand current technology
- Manage product development

Human resource management is one of the highly needed skills. We need a marketing person to be able to promote innovations and make them known to the public. We also need a communication skill so that we can communicate directly with investors to get funds which we really need to develop the company that will be founded. Then we can establish a cooperation with those who need our innovation, for example the army, etc. *We will recruit human resources as needed because it is very necessary to develop the company that has been built.* Given teamwork dynamics, it is important to understand how a potential candidate might operate in a very self-directed environment. It is not just about having a good process, but about making that process a priority, even over other company priorities.

Conflicts may occur because of misunderstandings or different opinions. Then fellow team members find it difficult to work together and this difficulty is not related to work ability. However, all these conflicts can certainly be solved by company leaders.

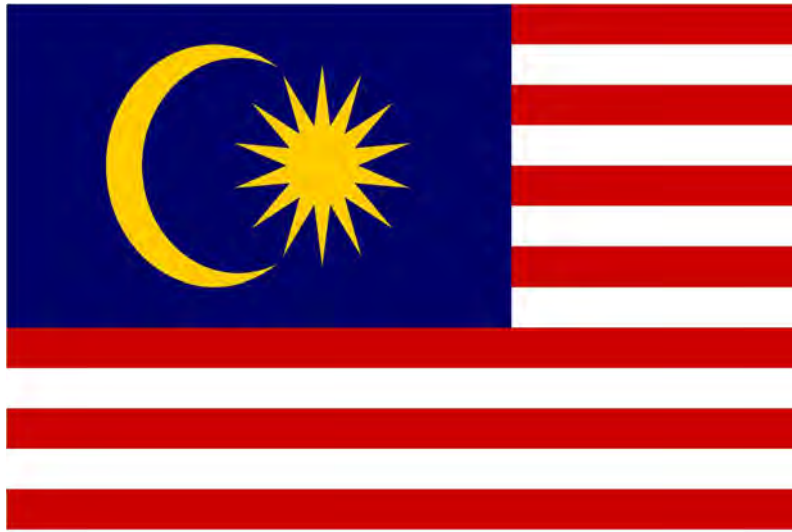
In a company, there will definitely be a process of building a team so that all team members become one team and have the same vision. In successful companies that are superior and innovative there are few misunderstandings among the team members. The usual thing to do is to conduct a discussion with all team members and make an assessment of what is happening. Then we take a decision by considering the positives and negatives that will be obtained. If the decision is very difficult to reach, external discussion and consulting is required.

Natural Resource Planning and Human Resources are potential activities. A plan will determine the allocation of direct costs and indirect costs, both material costs, as well as labor costs. NatureCELLY's company manages natural resources in the form of empty oil palm fruit bunches, then the material is dried and the ingredients are crushed and mixed with water which has been dissolved with yeast, then the mixture is fermented and distilled until it forms bioethanol, then diluted with thickener carboxymethyl cellulose. The workforce used consists of these divisions: company owner, fuel division, stove division, and distribution and marketing division.

Estimating human resource needs that contain several activities, for example:

- Determine the number of employees needed in a particular work unit.
- Determine the type of employee needed.
- Determine the number of employees to be employed in a particular work unit.
- Determine how many employees can fill a vacancy, and so on.

Cases Malaysia



Imaginary Pay

1. THE COMPANY

Business Inspiration

Pak Loong Chan studied Software Engineering and worked in Hong Kong and Shanghai Banking Corporation (HSBC) as a software engineer for more than ten years. He gained many experiences while working for HSBC. One of his responsibilities was to handle payment services with some international banks located in South Korea, Japan and Thailand. The countries that he was in charge with gave him the exposure that there were so many differences in processing transactions for these countries; for example, different vendors, different processing systems used, different time and dates, different regulations, different culture and different languages from end to end. Due to these differences, there were many difficulties that arose such as delayed payments from customers, the waiting for approval for money transfer the next working day or the following week due to time differences, interruption in receiving goods from suppliers due to incomplete documentations required by different countries, etc. Delays in receiving goods or services and unpunctual payment from customers would irritate the users and make them sought for a system that will process financial transactions promptly and deliver the goods and services on time.

Another important thing that Chan noticed was that financial institutions regularly need to upgrade their regulations due to incidences that may impact the payment services such as the September 11 attack in the USA. Many banks had regularly imposed new and stricter regulations due to such incidences, apart from the rapid growth of the information and computing technology. Therefore, the local banks need to upgrade their regulations almost every year to keep up to date with the regulations imposed by the international banks that they were dealing with. This is not an easy task and very hectic because changing regulations for one country cost the bank at least USD 15,000, and there are many international banks from various countries that the bank is dealing with. Sometimes Chan had to go to these countries to discuss the inconsistencies of banking regulations and the need to have an agreement with the bankers and prospect users. There were also times where inconsistencies of regulations could not be solved immediately. The parties needed time to see the impact on

both sides before they made decisions. Pak Loong Chan sat on a sofa and had a deep thought about how to solve this problem.

How can I make life easier for everybody to make financial transactions? The customers keep complaining about the delay in receiving goods and services that they purchased, the sellers complained of the delay in receiving payment from customers and sometimes issues arose where customers claimed that they had made the payment, but the sellers claimed that they had not received it. How to solve this issue?

With ten years of experience at HSBC and an education in Software Engineering, Chan thought of introducing a new and user friendly financial application that will breach all the differences, will ease the dealing with financial transactions anytime and anywhere and will minimize the required complex documentations that so far irritated the application users. This application will be named “Imaginary pay” because the founders wanted the application to be able to do what they have imagined in their mind and they wanted to make them a reality. The newly introduced application will make life easier for the users and can change himself better rather than put this knowledge to waste. However, the financial application that he set up needed tight security and up to date technology to make the system reliable and to attract the users. Chan did not propose the application to the banking industry because they were not interested to do this sort of application. Banks focused more on other types of business that generated greater profitability.

2. THE INNOVATION

The Business Services

The internet is one of the greatest inventions as it allows people to communicate and share endless information around the world instantly. The internet has also revolutionized the way of shopping, from conventional to online shopping, where anyone with internet access is able to buy the products that they wished to have without visiting the stores. The internet provides easy comparison of prices for the same products by different companies and easy access to online reviews to help customers make better purchasing decisions. When a purchase is made, the money transfer for the payment of goods and services is made online. Online purchases are very convenient. However, the payment security system was a concern to customers as there were many

fraudulent transactions that occurred, and the customers' accounts were being hacked, which led to financial losses. Financial crime had increasingly become a concern to governments and all financial institutions throughout the world. Financial crime is defined as any kind of criminal conduct relating to money or the financial services or markets, including offences such as fraud or dishonesty and misconduct or misuse information relating to financial markets. Financial crime had become an important issue because it was a substantial threat to the development of economies and for country stability.

The vision of Chan's company is to harmonize the world's money transfer and payment systems. Money transfer and payment for local transactions can easily be carried out. Money transfer for international transactions involve more complex documents and many intermediaries and there is a lot of paperwork to be done. The mission of this company is to develop a user-friendly payment service, in order to help everyone with money transfers or payments.

Imaginary Pay was developed to act as a platform for the customers to pay without much hassle. For example, if traders would like to buy from Alibaba by using WeChat, a mobile application, they cannot use WeChat to pay if Alibaba does not have the WeChat application. Different traders use different financial institutions that must be linked to Alibaba to pay and these financial institutions have different regulations which delay the payments. Currently, the traders use the financial institution system to pay. However, it would be more convenient for them to pay by using Imaginary Pay because of timing differences between countries. If the traders want to buy products internationally, and the financial institutions have already closed their operations, they had to wait until the next working day or on Fridays until the following week for the payments to be settled, due to timing differences between countries. This may cause a delay in receiving the products ordered.

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Business Operations

How can we run the business? We are short of cash!

Related education and working experience in HSBC provide many advantages to Chan to handle business operations. Chan wanted to avoid the current multilateral system that delayed the process of purchasing for customers and the receipt of payments for sellers. The imaginary application was constructed. To save cost, the application

system was designed to be autonomous and the transactions were being screened, identified and processed through automation means. The autonomous application gave Chan and all the co-founders the possibility to work from home and not in the office, to save cost. They did not have to recruit employees to run the business. If there were any unusual transactions or problems, the system would alert Chan and the co-founders to take actions. They would look at the matter and choose either to proceed or discontinue the transactions. The founders look at the results of business operations every month, make an analysis and decisions for improvement.

The Imaginary Pay application provides some benefits for the users. For example, the users need not inform the system if they want to use this application abroad. Some other systems require the users to inform the financial institutions before payment is made abroad, as additional security. All the transactions that go through this application would be stored securely at Amazon, Google and in clouds of which Chan had paid for reasonable fees. This company had an infinite storage of secured business data. Therefore, there is no limit of users to use this financial application.

4. THE MARKET AND THE COMPETITION

Business Competitors

Competitors were getting smarter and hit the market with new and exciting products that captured customers' interests. There were many companies that offered faster, cheaper and more transparent payments that created pressures for the banks to innovate new services. Mergers and acquisition of several financial applications would give pressures to smaller companies, especially to new companies that recently had been formed. Some of the established payment application in Malaysia are Cash, Samsung Pay, Alipay, PayPal, WeChat Pay, MOL Pay, Grab Pay and Ta Pay. Grab Pay initially allowed Grab users to enjoy cashless payment for transportation. Grab Pay had extended the service by incorporating other payment services apart from Grab rides. In the future, Grab users may purchase goods and services from this application and may also make money transfer to relatives and friends. Grab Pay is waiting for an approval by the Bank Negara Malaysia (BNM) to provide such services. MOL Pay is popular for younger generations where they neither have to purchase a credit nor a debit card, and still can make convenient cashless payments. MOL Pay users will pay cashless at various 7 eleven stores in Malaysia, the users can make the payment online by using this application.

Challenges Ahead

As there are many financial application services, how can we attract more customers? What do they want? What are the unique services that never have been offered by other financial payment application to users?

Currently, there are four types of customers for the application, the end-customers, merchants, financial institutions and developers. Developers are similar to merchants, but the difference is the developers use hashtags to trade their products, for example Alibaba and Rakuten. There are around 200-300 end-customers and 10 – 20 merchants.

Chan believed trust is very important and may influence the customers to use the Imaginary Pay application. A license from Bank Negara Malaysia had been requested to approve the operation as a financial technology company and to enhance the customers' trust towards the payment application that they had set up. This company had also joined the Swiss Innovation Challenge Asia (SIC) held by Azman Hashim International Business School (AHIBS) to accelerate the business progress and hopefully increase the customers in the long term.

5. THE FINANCIAL DIMENSION OF THE BUSINESS

Funding the Business

How to run the business? I am short of cash. I need at least RM 2 million to run this business. What am I going to do? Am I going to borrow from the bank? Definitely not. I have to pay at least 5 million if I borrow from the bank.

Chan discussed with his family and closest friends the best way to raise money for the business. As Chan worked in the banking industry for more than ten years, he knew that borrowing from the financial institutions would give a strong obligation to the companies to pay the interests, especially as a new start-up company. Chan may not be able to borrow as the bank also requires a mortgage that was equivalent to the amount that he wanted to borrow. Chan therefore decided to share the company's capital with his brother, Seng Loong Chan and his closest friend, Manigandan Raju, which are then appointed as the co-founders of the company. Still, the company was short of cash. They had to limit the risk of losing every asset that they owned to prevent them from being bankrupt. Therefore, they decided to open fundraising, that is getting contributions from other resources, such as donations, individual businesses, charitable

foundations and governmental agencies. They also opened the capital sharing from trustable professionals.

Since the company faced money shortages, and Chan and all the co-founders believed that the Imaginary Pay application would be a success in the future, they had taken several steps to minimize the expenses, yet, to keep the business on-going. There was no office location for the company due to the budget constraint. The founders and the employees worked from home.


6. THE ROADMAP

Business in the Future

A financial application needs to be innovative and competitive for survival in the industry. The application needs to be developed according to the users’ needs and demands. Successful innovations not only respond to the current customers’ needs, but also anticipate future trends and ideas that will meet the future demand effectively. Chan needs to update its application progressively.

7. THE TEAM

IMAGINARY PAY

Founder	Pak Loong Chan	
Nationality	Malaysian	
Age of the founder at startup	33	
Education	BSc Software Engineering	
Professional background	Software Engineer	
Family background	Education	
Business type	Financial Technology	
Work experience	10.5 years at HSBC	
Country of operation	Malaysia	
Year of startup	2015	
		<p>Pak Loong Chan, the founder of Imaginary Pay</p>

LIST OF ABBREVIATIONS

AHIBS	Azman Hashim International Business School
HSBC	Hong Kong and Shanghai Banking Corporation
SIC	Swiss Innovation Challenge
USA	United States of America
USD	United States Dollar

Speak Eazy

1. THE COMPANY

Speak Eazy

Initially starting up as a corporate social responsibility project at the company Samudera Management Consultant (SMC), SpeakEazy set an objective to reach underprivileged kids that were left out by their parents. Underprivileged children are chosen as the target market because these kids experience difficulties in attending public speaking programs due to financial constraints. Generally, there are many programs to develop public speaking skills. The pilot project for SpeakEazy was conducted in a home for under-privileged children in Sitiawan, Perak, from September to December 2016. The participants were 20 kids ranging from 5 to 16 years old. The result of this pilot project reinforced the core member's initial assumption that these children need the basic skills of public speaking.

The second batch of children in the SpeakEazy program involved 120 teenagers, ranging from 13 to 16 years old. This project was based in the Educational, Welfare and Research Foundation Malaysia (EWRF) centre in Kajang. The program was conducted for 6 months, starting from October 2017. Several activities were conducted, including a boot camp. Facilitated by 12 volunteers, the focus of the boot camp was to provide fundamental tools and techniques for public speaking. The participants had the opportunity to design, develop and deliver a three to five minutes' speech in public. Although for many of the participants this public speech was their first experience of this kind, guidance from their facilitators inspired and enabled them to speak in public with confidence. 20 participants from the boot camp were selected to attend a specialized workshop. Conducted in five sessions, with four hours per session from December 2017 to March 2018, the objective of the workshops was to equip the participants with knowledge to further enhance the participants' ability to speak confidently in public. To make it more interesting, the workshop was ended with a public speaking competition which was held on 25 March 2018. It was attended by parents who then were able to witness the 'transformation' of their child. From a shy and introvert kind of personality, the participants were able to totally transform themselves which made the facilitators and the SpeakEazy team proud of 'giving voice' to these teenagers.



Figure 1. Few of Speak Eazy participants and the facilitators

2. THE INNOVATION

The Big Heart

Uma Shangery Aruldass, a project engineers by profession, and Priyaa Tharisingy Aruldass, a digital marketing executive, are two of the core members of the SpeakEazy program. Interestingly about Uma and Priyaa, both are siblings and their ambition in joining the program is coming from their parents who actually are the friends of the founder Dr Praba. “Before I decided to join this program, I went to SpeakEazy a few times. Looking at the little brothers and sisters made my heart melt, they are loving and sweet. Knowing they do not have parents to rely on, I believe I can contribute and help them. Once they reach a certain age, they will leave the orphanage house and I suppose with proper training they can have a bright and beautiful future”, says Priyaa. Uma, who was raised in a single home with Priyaa, has a different set of story that has established her motivation to help the underprivileged kids, “Our mother is from a poor family. She had to share a single meal with 7 other siblings, living in a very small house with a roofless toilet in a tiny town. Even though her fate has changed, her stories on how difficult it was for her to live her life always aspired me to help others”.

Starting Out

Having the same aspirations as Dr Praba, his team discussed various approaches to bridge the gap in teaching. They took an initiative by conducting several meetings with few teachers who teach English as a core subject. The meetings came to the conclusion that there is a lot of potential to sharpen the students' public speaking skills. However, the teachers face challenges in further sharpen the students' skills as they are burdened with the schools' syllabus and other curricular and administrative activities. The team then took the initiative and discussed the idea with a group of experts in public speaking from Samudera Toastmasters Club, Lumut, Perak. Toastmasters is known as a non-profit educational organization dedicated to enhancing public speaking and leadership skills globally since 1924. The discussion leads the team to know Gavel Club, a club dedicated to developing public speaking skills among children below 18 years old.

"Today it is very easy and there are many ways to contribute to people, even from a distance. If you cannot give money, contribute your knowledge. Just go and search for it, you will find such a platform. What you just need to have is a pure heart".

3. THE BENEFIT AND THE IMPACT

The main objective of the SpeakEazy workshops is to equip the participants with knowledge to further enhance their ability to speak confidently in public. Underprivileged children get the opportunity to learn what they cannot achieve at their home, and due to financial constraints of their parents cannot learn in regular programs.

Catching Kid's Attention

"Managing the 5 to 12 years old kids is not easy, especially to make them listen to the teachers. That is even worse with teenagers. They are naughty, not focused and their mind is wandering. It is our responsibility that they can channel all their energy in the right way, for example on public speaking", says Priyaa. To make the program more interesting to the kids, SpeakEazy organizes different interesting games and other related fun sessions for the kids. The team even has different approaches for different kinds of kids or groups. As to attract teenagers, Dr Praba has appointed Uma to lead the team in expanding the program and attracting teenagers to join the program.



Figure 2. Priyaaa Tharisiny Aruldass facilitates the program

4. THE MARKET AND SCALABILITY

The Challenges

Continuing and expanding the program is a real challenge. Time, money and people are all limited. To ensure the program is running continuously, Dr Praba and his team has to chase companies to secure sponsorship which they use later for the benefits of the program. Finding a suitable and right time to conduct the program is another challenge faced by the team, particularly due to the fact that all of them have their own full-time work commitment. Despite several challenges, the team regularly has video and phone calls to discuss strategies and tactics to enhance the program further. As the program is expanding, bigger numbers of volunteers and teachers are needed. However, Dr. Praba realized that with limited financial resources, it is tough to find volunteers especially among the young generation.

5. THE ROADMAP

What do they plan for the future?

Dr. Praba has a big plan for the future. Wanting to reach more underprivileged kids, he plans more conducts of the program. He wants to expand SpeakEazy via a franchising method, develop own modules, have own resources, collaborate with other

non-governmental organizations and also conduct trainings for newly appointed volunteers and teachers. With one big mission, to contribute and give back to the society, Dr. Praba believes he can bring SpeakEazy to a greater height.

6. THE TEAM

About the Founder

This life is not contentment when the focus is only self-centered and on interest. Dr. Praba is not only soft hearted, full of feel to give and empower others, but he is also very passionate about teaching and learning. The way that he was brought up has made him determined in reaching underprivileged kids. As CEO of Samudera Management Consultants Sdn. Bhd. he has started the program called SpeakEazy as the CSR initiative from his own firm with the noble thought of providing voice for the underprivileged kids. Dr. Praba was born in a Padang Rengas, Perak Rubber Estate and raised in a loving environment by parents who were dedicated to provide best education despite financial difficulty. Through his difficult life, he managed to become a teacher in 1989. During his teaching years, he met many underprivileged kids that he wanted to help; however, the helping was restricted because of limited resources in his hand. Later in 1993, he joined the Malaysian Armed Forces as an Education Officer.



Figure 3. Major Dr Prebagaran Jayaraman, the founder of SpeakEazy

For the last 28 years, his core business has been helping individuals and organizations to optimize their potential. With experiences that he has, he believes that it is the time for him to contribute to the society. As he believes that individuals should make continuous contribution to the society, he has chosen underprivileged kids as his main centre of his focus in giving back to the societal development. Dr Praba developed a team which consisted of his core members; Uma Shangery Aruldass, Pavithra Maniam, Tarcayani Prebagan and Priyaaa Tharisiny Aruldass, who have the similar passion like him to establish Speak Eazy.

Speak Eazy: Public Speaking Program for Underprivileged Kids

Founder	Major Dr Prebagan Jayaraman
Nationality	Malaysian
Age of the founder at start-up	51
Education	PhD in Engineering Business Management
Professional background	Former Education Officer of Malaysian Armed Forces Corp, Head of Marine Technology Academy, Boustead Naval Shipyard in Lumut, Perak. Co-founder and CEO of SMC Trainers Malaysia.
Business type	Learning and Development
Country of operation	Malaysia
Year of startup	2016
Website	https://prebagan.com/

LIST OF ABBREVIATIONS

EWRF	Educational, Welfare and Research Foundation
SMC	Samudera Management Consultant

Too Fast and Furious

A Malaysian Maverick's Blockchain Saga

1. THE COMPANY

“In less than 2 years, we established 7 global offices in Japan, Bangkok, Singapore, Cambodia, Indonesia, Hong Kong, and soon UK and Dubai. We targeted this, but did not want to grow too fast. Wanted to move stably...in control, but obviously...we... grew too fast. Too fast. [This] made us...scared”.

Muhd Azrainuddin Zainal @ Arai Ezzra

Chairman of the Malaysian Association Financial Technology Industry (MAFTI)

December 2016 – present

Stylishly stepping out from his posh, all-black and deeply tinted wagon, Muhd Azrainuddin Zainal, or popularly known in the financial world as Arai Ezzra, was then swiftly ushered into the lobby by two masculine looking men in black shirts and sunglasses. Without a doubt, any sight of Arai would make heads turn, exclusively when accompanied by his eye-catching and charismatic wife, who once was attached to a media firm and who appreciated modelling in her younger days. While Arai was cautiously being led to the building entrance, another two younger men, clad in black and blue shirts, punctually carted a bulky high definition movie camera and a chunky microphone ahead of Arai's steps. Then out came another young lad transporting a standing pod with two brightly lit, white colored spotlights. They began videotaping his elegant entrance.

It was always about these limelight moments that make Arai (and his wife) a signature, and envy, of the spectators. Accompanied by bodyguards, movie cameras and spotlights in almost every public appearance, it would be hard for people to ignore the glitzy hype created. The sight of bodyguards encircling you wherever you go signals an instantaneous impulse, (i) that somehow, you are non-typical (ii) that somehow, you are exclusive, and (iii) that somehow, you are affluent. In short, people see you as someone different. With head held high, Arai graciously walked into the hall.

The Wild Beginning and Personal Vendettas

It was in 2014 when the birth of a small IT firm in Kuala Lumpur was chronicled. Like other small IT start-ups gearing up for a competitive advantage, this small firm too was similarly servicing on app (application) creations, web-based systems and in particular, on financial applications. With 10 employees, Arai founded this firm to cater to the worldwide demand of financial based applications. This Kuala Lumpur based stint paved ways for Arai to gain new insights into how financial technology (fintech) is game changing the world's economic landscape, pushing him to strongly believe in his capabilities of making his own mark in the aggressively competitive market. He has always believed in his talents. He believes in making changes and somehow, in solving the community's problems. As Arai has always been known, he dreams to succeed all these in stylish glamour. It was an unforgettable, painful, bumpy ride though, and the Kuala Lumpur start-up was not his first attempt on building his dreams. Indonesia gave him a wild start.

A few years earlier, Arai noticed an uptrend in online gold and silver trading in Indonesia. He was overwhelmed by the fact that he decided to move to Bandung, bringing his family along. At this point, his vision was to stay put in Indonesia, and more importantly, to build his own global financial empire. From this point onwards, there was no turning back; even to the extent of him being detained for fraud and scam, or even after knowing that his own father conspired to topple him (he lost RM30million in this personal vendetta!). With an estimated worth of RM100million in his business equity, the game began to change faster than he could have imagined. Controversies, sabotage and hate campaigns were among the battles he had to face, almost daily. The Indonesian stint did not last long though and this was when he decided to return home.

The Curious Maverick and the Game of Scams

Back in the early 2000s, Arai served as a programmer in Kuala Lumpur. His passion and intelligence drove him to create a multitude of financial systems. But a singular problem cutting across the systems he created probed him to move a step ahead from the rest of the programmers in his team. It was the hacking problem. He noticed this critical issue faced by banks and decided to look into the concept of blockchain technology. It was here that he learnt the potential of blockchain and how it is said to disrupt not only the financial sectors, but all sectors worldwide.

"And so I thought...if I don't grab this opportunity, I'd lose out!"

And he was right.

He remembered the time when he was 14 and owned his first computer, bought by his parents. And he was hooked ever since;

"Since then, I was curious. How can I create games? IRC channels? Compared to the rest....as users".

Curiosity, to him, has always been his way of life.

"I'm not saying I'm good (compared to other programmers out there), but I can say I'm able to identify problems, solve and identify opportunities. If something appears and comes, I'm always firstly sceptical. It's the curiosity [in me]".

Being not brought up in a business environment (his parents were not into business), his education background, he claimed, is somewhat modest. Albeit scoring well in the Malaysian Education Certificate (SPM), he did not opt for a matriculation post (although he was a science student), but took up a foundation certificate from a local private university. Scoring the dean's list award for the 1-year programme, and financially supported by Dana Ehsan (a state-government foundation), for a RM300 monthly allowance, he then left the formal education landscape, and performed hands-on programming. In the next few years, he learnt and practiced paid programming, while the curiosity flame inside him still burns, yearning to know more. Craving for a vision. A personal vision.

Little that he knew what was coming next.

It was in 2003 when the significant eureka episode happened. This was when his then girlfriend (and later wife) was scammed and instantly (in 5 seconds, in fact!) lost RM16,000 to a foreign forex company. This triggered him to think, again out of deep curiosity.

"What was it that we were scammed? What system was used? What app?...and this was when I decided to learn trading [emphasized]".

Things went well subsequently, albeit for a short while. With his dynamic and curious personality, he was soon after awarded the best forex broker in 2008. But then, another scam episode played a major turn off, but this time it was his mother who faced the excruciating sting, for this time it was a whooping RM500,000 in loss. To him, it was episodes like these which brought the entire family together. Perseverance was the key.

The years 2005 to 2009 then saw him breaking off from formal employment, opting for more flexible freelance programming works. He was doing fairly good, raking in no less than RM10,000 per month in programming projects. It was in this short period too that the world witnessed a breakthrough and an astounding point-of-departure from the traditional financing system: Bitcoin was stylishly introduced for the first time in history. In next to no time, his curiosity in Bitcoins tempted him to experiment with it himself. He became one of the pioneer investors of Bitcoin in Malaysia. Little did he know that this wild move would make him a prominent multi-millionaire in less than a few years. One thing he did know though: that at that point he ingeniously predicted the crash of the Malaysian Ringgit.

But it was later in 2011 that he noticed, and a turning point it became, that there was a plethora of Ponzi schemes in the market. These Ponzi schemes run comparably similar business models, often involving online gold-backed investments, boasting money-spinning returns. These “money games” promote “investors” to buy gold, only seeing them left weeping without anything left in the end. It was a devastating thought, not only for him, but for the thousands who were crying empty handed. To him, a solution must be found. Fast.

The Malaysian Landscape: A Blockchain Brouhaha?

Thankfully, the Indonesian vendettas he faced did not last long. It was money and greed which prompted the series of personal attacks in Bandung, and he eventually decided to step out of this ecosystem, returning to Kuala Lumpur and re-strategize his moves. Indeed, the lesson he learnt in Indonesia was a painful one, which soon became a mantra to him and family (at this point, he was no longer acquainted to his biological father because of the father-son “conspiracy”, but was very intimate with his mother). This mantra would soon echo throughout the rest of his entrepreneurial journey: “never trust anyone”.

2. THE INNOVATION

Returning to Kuala Lumpur in 2014 was not an easy task. Funds were short because of the millions he lost in Indonesia, so coming up with a new business plan was not as simple as he thought it would be. At this juncture, Ponzi schemes made headlines in almost all major newspapers and media. He quickly noted that in Malaysia, people love buying gold. The main pain point is: gold is difficult to sell, its spread is 20% to 30% less, with sellers bearing the cost. Hence, he observed people storing gold in their houses instead, which is truly a chancy move.

“On the other hand, if one stores gold at a pawnshop, more will be spent. So where’s the practicability in all these?”

And so, he brilliantly created the DinarCoin.



Figure 1. The dinar coin

But DinarCoin did not kick start via the easy way. Upon returning to Kuala Lumpur, he set up a new company, FXBitLab, and focused on blockchain technology. It was at this point that he was starting to understand how blockchain would revolutionize the fin-tech sector and other sectors as well. His small team started to experiment with blockchain projects, learning as much as they could from various global blockchain experts.

"It was really, really tough to find local blockchain experts! We scouted everywhere! Universities, professors ...nobody knew what blockchain is. Even [on] Bitcoin too! What more to find local experts! Many claim they know what it is, but when it comes to the technical part, algorithms I had to secure foreign programmers, mainly from India, Bangladesh, UK and Singapore, for my projects".

Never has his curiosity been at the highest apex. He did not leave home for 6 months because he was ultimately engrossed with his blockchain curiosity.

"Back then, I really knew next to nothing about blockchain! I started from zero!"

While he was eagerly learning about blockchain, the Bitcoin and cryptocurrency market began to flourish. Whether it was out of mere curiosity and experimentation, or out of courageous investment predictions, more people are jumping onto the crypto-bandwagon. In less than no time, a multitude of new cryptocurrencies were being introduced, seeing the cryptocurrency exchanges hype with activity. This is it. The world has begun to notice that the cryptocurrency market could no longer be ignored.

Arai had noticed this far earlier than the world did. Somehow, he had predicted this. And so, carefully placing the jigsaw pieces together, he risked another colossal, bold move. This time, he placed himself straight onto the cryptocurrency industry "chessboard", head-to-head with the crypto-giants himself.

A newcomer. A Malaysian. Using blockchain, of course, as the enabler.

Arai was not sure of how he would fare with DinarCoin (DNC), but he took all odds. He was running out of funds and needed a product that could win the hearts of thousands, if not, millions of people worldwide.

"To sustain a successful business, we need to create on the future products' needs, not on the current needs. What's next in 4 to 5 years? What is needed? So we created a solution which allows gold to be spent [used] in small amounts. Hence, DinarCoin. It's a one-to-one digital pack".

3. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

As soon as DNC was launched in 2016, Brunei became DNC's main supporter. This didn't come as a huge shock to Arai's team, as he knew the characteristics of Bruneians: they are very into gold-based investments, and with the introduction of DNC, Bruneians are free to trade and spend gold in miniature amounts. Soon after, news on DNC spread to other parts of Borneo, and within 2 years, to other ASEAN nations. In less than 2 years, there were already 110,000 users on DNC's platform, spanning from no less than 10 countries. In October 2016, DNC was acknowledged by the biggest China Forex Expo as the "most innovative gold fintech provider". When this was launched, the Malaysian media was there, and they soon heralded DNC as an innovation which "made Malaysia proud". One of the headlines even chanted "Malaysian now standing tall in China". In the months to come, Arai and team was busy coping up with invitations to speak (as guest speaker, etc.) in top-notch world class fintech gatherings, including in London, Dubai, Japan and Singapore. The fintech world has started to acknowledge his talents while prominent collaborative offers too began flowing in.

"Amongst the undreamed-of offers were from Western Union and a Swiss-based bank".

But the personal mantra kept on echoing inside him. Although having offered to sell his business for a multimillion-dollar price tag, the mantra remained strong in him. Never trust anyone.

"Besides, this is my dream! How could I sell my dream? This isn't because of money, or getting rich, or recognition, this is because we'd like to make changes to the ecosystem. Solve people's problems".

As of today, his team has expanded wings to establish offices in Japan, Bangkok, Singapore, Cambodia, Indonesia, Hong Kong, and soon UK and Dubai.

Having been mentioned as a heroic Malaysian overseas, back home, things are not catching up as planned. Malaysia lacks the ecosystem to make cryptocurrencies a standing industry on its own. Policy makers are playing safe by claiming blockchain and cryptocurrencies are still in "infant stages" and that businesses starting up in these platforms are less encouraged compared to other fintech methodologies.

“On a talk to 100 lecturers, I asked, no one knew about blockchain and even bitcoin. Only one or two did. So, that was where we knew in Malaysia, the awareness is near zero”.

It sounded superbly ironic to Arai that while he’s being mentioned in other regions of the world, back home however, “nobody seemed to know how to help”. People became more sceptical because they do not know the fundamentals of these technologies and products. In Malaysia, there are still no laws on cryptocurrencies, and businesses could not even register for a private limited ownership with a crypto product (FXBitLab had to be registered in Singapore). According to Arai, Malaysia would like to support the cryptocurrency industry, but does not know how to start doing so. He remembered trying to talk to the local ministries about this, but was delicately shovelled out of their offices with statements like “Malaysia will be ready for the blockchain revolution by 2025” and “Is this another Ponzi scheme?”. While Arai’s team is being welcomed overseas, especially in Singapore, Dubai, Japan and Brunei, his hometown inhabitants still could not get it.

“The Dubai government even invited us in 2017 to contribute to Dubai’s vision to ensure all documentations in blockchain format by 2020! This is it, I figured. I was born for this. I need to make my people learn about what I am doing. About what other people from other parts of the world are banking on. I pity my people. [They are] so left out”.

Arai laments that while other governments are investing in revolutionary technologies such as blockchain, Malaysia is still banking on the utilization of the multimillions of dollars invested in infrastructure (most of these infra according to him are not even fully utilised to date!). A simple example is the online banking infrastructure.

“We are still at the stage of promoting online banking, while others are leaping onto the more futuristic innovations! Like blockchain, of course! I guess that’s why MIGHT [Malaysian Industry-Government Group for High Technology] announced that Malaysia will be ready for this sort of evolutions only in 2025. And I thought...hey...they’re right!”.

But his team carried on, in his own way, speaking at local universities, organizing international gatherings and aggressively promoting the technology in the local media. Arai’s wife was once attached to the media, hence allowing for ample opportunities for

the team to be heard and watched on national TV and radio channels, social and printed media. While these awareness and educational contributions to the public became a passionate practice of Arai and team, specific focus on other administrative matters was crucially needed. With offices abroad and an increasing staff count in their Kuala Lumpur office (more than 70 staffs in KL), attention is needed on strategic planning and on their next moves.

“At times, we are lost. Things are moving so fast. People are looking for us, from all parts of the world. But we need to focus. Maybe...we’re moving too fast”.

While the internal affairs of FXBitLab became a major concern to Arai, the local financial institutions started to feel threatened by Arai’s capabilities. According to Arai, the local banks are 5 to 6 times behind when it comes to technology. To him, for banks to change to a newer system would take a long time. Yes, there are companies championing blockchain technology in Malaysia, but these are foreign companies branching out to the ASEAN markets.

“No local companies have succeeded this far. We are born global”.

It is an entirely different phenomenon altogether in Singapore, though. To Arai, Singapore is somewhat “special”. It does not regulate cryptocurrencies, neither banning it. Hence any cryptocurrency related start up is allowed to be formed and run in Singapore, resulting in a flourishing number of innovative companies on the bitcoin exchanges. This very interesting phenomenon attracted Arai and team to establish BCMY (Blockchains.my), aiming to become one of the world’s blockchain service providers. To him, Singapore offers more than just a posh corporate office setting, it offers support in many ways when it comes to innovative start-ups in fintech.

While BCMY is being set up in the heart of the Singaporean metropolis, Arai feels the heightened pressure to support potential Malaysian start-ups venturing into fintech markets. In next to no time, Blockspace and Blockcafé were launched in Kuala Lumpur to house potential fintech start-ups under one roof. Blockspace, applies the co-working space ecosystem, similar to the ones in Silicon Valley and Google Campuses. It houses more than 20 shared working spaces in a 4-storey building, along with working lounges and private meeting rooms. This creates a synergistic ecosystem

where resources, support and network are shared. Blockcafé is an exclusive, informal hangout hub situated on the ground floor of Blockspace and is open to public. Apart from a chic bar, it houses a sophisticated mini theatre which can house up to 170 persons. Both Blockspace and Blockcafe are aimed to become one stop centres for blockchain and fintech conversations, bonding local fintech start-ups and their networks in the process.



Figure 2. Blockspace and Blockcafe

The Maverick Has It ALL

Arai sees the trend upwards in fintech start-ups these days. But he is still sceptical about the support from the local fintech (including the legal, etc) ecosystem. He is confident that as time comes, Malaysia can no longer play wait-and-see, and that when the nation notices this, Arai and team will be happy to support all they can to guide Malaysia on how to stay in tandem with the fintech revolution. His personal advice to Malaysians who dream to start up in fintech is;

1. "Just do it!"
2. "Something big is happening...and this something will change our daily lives. The blockchain revolution will become even larger than the internet!"

3. "Venture capitalists no longer invest in conventional start-ups. They go for blockchain start-ups. Just look at Singapore, billions of dollars have gone into blockchain based start-ups. More than 300 blockchain start-ups have secured funds!"
4. "Financial institutions may have already created their blockchain departments or units. And they need expertise to build blockchain based applications. This is creating an explosion of apps!"
5. "So, if you were to ask me, must we stop the fintech revolution? No, we can't! It's even open-sourced!"

"If a small guy like me can do this and is being highly acknowledged in Japan, Dubai and in other parts of the world, anyone can do so too. We are not saying that we are proud of ourselves, however this clearly showed us that our technology and capability is transferable to the more developed nations! Rather than what is being done ...the other way around. Oh, and we're not scared of competition too. The more and tougher the playing field is, the better is room for improvements and innovation. Being ten years ahead in terms of technology, I believe we're moving fast...although struggling...but we're on the right track".

With the upcoming launch of a new cryptocurrency backed by gold, and with a long list of clients awaiting to gain insights from his blockchain services and solutions, Arai and team has got it all. A lengthy list of challenges awaits him too. Nevertheless, being Arai, and after all that he has gone through, nothing is impossible.

But still a mixed feeling haunts him.

Restless? Disturbed? Fulfilled? Deprived?

A maverick will need to deal with this, he thought. No matter what.

Biogas and Solar Service Provider

1. THE COMPANY

Inspiration Towards the business start-up

Having interests, education and experiences in electronic engineering, Yusniman and his friend Samsuddin patented a grid view technology for secondary schools and education and presented their prototype at an international competition held in Malaysia in 2017. The team could not manage to get the award in the competition, but this experience provoked Yusniman to start a new business in the renewable industry.

Citations in boxes by founder

Looking at the fact that about 10 thousand tons of foods are waste every day.... The landfill in Malaysia is increasing

Yusniman started looking into the aftermath effects of the food that is being wasted and air pollution that is caused by the late-night vegetable markets and food streets in many cities in Malaysia. Many food and vegetable stalls in the late-night markets mainly rely on portable gasoline electricity generators, which are noisy and annoying to all the people residing or walking around in the market area. These markets also produce a huge amount of waste which not only pollutes those public streets and makes them stink but also increases the garbage collectors' workload, whilst increasing landfills which has harmful effects to our environment.

When you throw [wet waste] at the landfill it will create an odor, bad odor, create ... methane gas. That methane gas contributes to the ... greenhouse effect.

There are many companies that recycle solid waste like plastic, metal, paper, glass etc. . But the remaining waste like leftover food, vegetables and fruits are just contributing to increasing the greenhouse effect and fetid landfills. According to Yusniman, the solid waste counts for around 60% of the total waste; the remaining 40% of the waste is the "wet waste". That waste is problematic as there are not many companies that are recycling it. Therefore, he and his friend Samsuddin came up with two products that could reduce that 40% of the waste and decrease the air pollution.

2. THE INNOVATION

The Business Products

The first product that the founder imports from China is a battery-powered electricity Genset. This Genset is rechargeable using electric supply or solar energy panels. He also imports a portable solar lightening system which includes a set of LED bulbs, a small lithium battery and connecting wires to light up a room or small house. Both these electric products are meant not only for the late-night markets in the metropolitan cities but also for the remote areas where electricity supply is not available. For instance, they collaborated with few NGOs that were aiding refugees in Bangladesh by providing portable tents and other basic resources. Yusniman offered them solar lightening system for those refugee tents. For electric Genset, target customers are also those travelers who explore adventures in countryside and need portable electricity supply system.

So this is my first activity on renewable energy with solar power which is operating, but not in a big scale.

The second product that Yusniman and his partner import from China is the anaerobic digester. Samsuddin was initially involved in the business of crunching the wet waste to produce fertilizer for farming. However, Yusniman and Samsuddin explored other multiple use of the wet waste via internet and found that there are actually three different outputs that could be possibly produced through the wet waste: fertilizer, methane gas, and electricity. All they needed was a proper system to process these outputs, and the anaerobic digester is the major equipment of this system.

The output of this equipment, of the anaerobic digester: One is the fertilizer, number two is a gas, and number three is electricity that is produced with the gas in a gas generator.

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Bringing a Business Idea into Practice

The business of importing the Genset and the solar power system is not very complex; Yusniman just orders these products from China and sells them to local individual customers and companies. However, for the business of converting waste into biogas, fertilizer and electricity several issues need to be tackled. For instance, getting required wet waste from different sources, installing the anaerobic digester at the right place,

and finding customers for the products they will produce. In addition, at the organizational level, there is a need for a partner, a companion who is reliable and equally passionate about the business.

There is always a partner, a guy, a friend that has an idea but looks for somebody to share it. So in my case, I have a friend Mr. Samsuddin.

After exploring the business ideas and discussing them with Samsuddin, Yusniman reached the national authority for renewable energy - SEDA - for their advice. SEDA appreciated his ideas and informed him that there are some funds for renewable energy projects, and that there is also a way to get a feed-in tariff from Tenaga Nasional (TN – national electricity supplier); if TN is properly convinced to buy the electricity he produces through biogas. SEDA also suggested to him to test his ideas in a remote area before implementing them in the metropolis cities. SEDA particularly suggested running a trial project in Langkawi Island – a tourist destination in which there are issues of limited landfills, and the island gradually has an increasing need for electricity.

SEDA authority advised us to set up this in one area first, which is in Langkawi Island. Because on an island waste management is critical.

Following SEDA's advice, Yusniman went to discuss this business idea with the waste management authority called E-edaman in Langkawi, and they agreed to separate and give him the wet waste they collect from a particular area.

There is one company called E-edaman. ... They collect the waste. ... So tell them that I don't want to touch the solid waste, you do your own job, you collect your bottles, plastic and everything, but the wet waste, organic waste – this is what I want.

To enhance the input of ideas and feasibility of bringing those ideas into practice, he is in contact with renewable energy centers of two public universities to get resource support. He is also in contact with few local NGOs to install anaerobic digesters in different areas in Malaysia.

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

Competitors in the Renewable Industry

Renewable industry is still at infancy stages in Malaysia and there are not many companies working on green energy projects. However, Yusniman believes that there are at least two “*players*” in Malaysia who are working in this business and he would rather learn from them. One company called SIRIM has already installed anaerobic digesters in two different places near Kuala Lumpur, and they have plans to extend their project to other parts of the city.

Instead of competing, since they are government body, we learn from them.

SIRIM and another company of similar scope are producing biogas, fertilizers and electricity using an anaerobic digester system. However, the market is open for new players and more than 75% of the market remains “*untapped*”. There are several other areas in Malaysia where there is a need to recycle the wet waste into something useful. Rather than considering these companies as competitors, Yusniman believes that he would reach them, offer them a partnership, and expand the share of the pie.

Market Strategies

The marketing strategy at startup stage for Yusniman is “*good networking*”. Since the business is small and with limited resources, they have to develop good relationships with all those who are already established and working in a bigger scale.

Being small, we need to create repo and link with all the big guys, at the same time we protect our interests.

With this objective in mind, Yusniman started making connections with SEDA, E-edaman, and Majlis Perbandaran Langkawi (town municipal of Langkawi). This strategy enabled Yusniman to develop an understanding with all the concerned authorities and to get initial support and resources needed to fuel the business to run.

Yusniman believes that this business of converting the wet waste into biogas and electricity through an anaerobic digester system requires different parties to collaborate. It is a supply-chain process in which companies like Alam-Flora (a waste collector company in Selangor) and E-edaman are required to separate the solid and the wet waste, and companies like SEDA and Indah Water (water supply management) are required

to help developing the quality of slurry needed to power the anaerobic digester to perform at its best capacity.

When they do not talk to each other, they will be in silo, and then the whole process does not work.

When these big companies are synergized, they will be able to manage the water and constant supply of the slurry (made up of the wet waste). That slurry will provide the input to the renewable energy companies and enables them to effectively produce fertilizers, methane gas and electricity.

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN

Funding the Business

Yusniman's main interest is to produce methane gas and electricity using wet waste, whereas his partner – Samsuddin is interested in fertilizer produced through the wet waste. Their first trial project in Langkawi is primarily funded using their personal savings. The project startup at this stage costs them about 10 thousand ringgit. However, for a bigger scale project like this in bigger cities they may need up to 200 thousand ringgit.

We invested only 10 thousand ringgit for preparing the platform, and also for operational costs to go to Langkawi, because we have few meetings ... we meet the authorities and then discuss.

SEDA informed Yusniman that the energy providers in the Malaysia reserve trust fund in SEDA's account and that they use that money to fund small-scale, green projects like this one. But they need to prove that the project works in real. With that in mind, Yusniman and his partner are planning to extent their project to other areas in Langkawi, with funding support from SEDA, after succeeding in running the first trial and producing electricity and fertilizers.

I am going to prepare this still in Langkawi ... in multiple places with the funds by SEDA.

Yusniman is also in touch with Selangor state government's renewable energy center to get funds for this project. The state government provides 10 thousand ringgit for renewable energy projects. So he presented his ideas and showed the results of their

on-going successful trail in Langkawi, and he succeeded in acquiring the grant. In a similar way, he is also trying to reach different NGOs that are working within and outside Malaysia to share his ideas and get financial support to extend his business scope.

Strengthen the Company

Yusniman believes that the smallness and entrepreneurial nature stand for the strengths of his business. Certainly, at this stage there are inadequate resources and a startup encounters several challenges to grow. However, the advantage of having less management issues and no bureaucratic procedures enabled Yusniman and his partner to make quick decisions and changes in the product presentation to fit a potential customer's requirements.

Being small means being dynamic... we can change the presentation overnight, very fast. We do not need to refer to a lot of management, less bureaucracy. I just discuss with my colleague. ... We can quickly make decision because it involves two of us.

Yusniman's partner – Samsuddin has been in this business of renewable energy since 2015. He was mainly interested in converting the wet waste to organic fertilizers, and he used to work on waste-cruncher machine with few partners in Penang, Malaysia. In addition, he used to import chemical microbes from Thailand and sold in Malaysia. Yusniman realized that much of the preliminary network is already established by Samsuddin. When both partnered, they explored business ideas further via internet and contacted the concerned authorities for the support needed. So throughout the process of the startup, they have had no issues with changing the management, business models and presentations.

Before the business really sells [and is a] success, you need a lot of groundwork, background, build relationships ... know your suppliers, so luckily we already did that.

Challenges Encountered

For the startup, the first and utmost issue is acquiring adequate financial backup. Yusniman was very much concerned about the fund to cover the expenses of developing the prototype, documentation and traveling costs. He has been investing his personal savings in the startup. The gradual increase of need of funds caused him to hunt for alternative activities that produce capital. So he started finding consultation opportunities on electronic design at different places. At the same time, he kept on

meeting and making new contacts with relevant authorities to explore funding opportunities; for instance SEDA.

One is the financial challenge, which we manage to overcome by taking from various sources.

The second challenge for Yusniman was to convince his family to compromise on the time he gives to his family and lessens the financial expectations until his business grows up to the profitable stage. Constant monthly income is very much expected by every family, and the pressure was felt by Yusniman. He believes that this challenge continues up to six months.

You work to have income for your family, but unfortunately the process takes some time.

Yusniman also experienced the issue of trust when dealing with the suppliers. There were few suppliers who were personally known to him, some were known through friends and others were new in his contact list. Those who were known were trustable and they considerably understood that his business is just a startup and they compromised on prices and credit terms. New contacts were reluctant to agree to payment installments and negotiated on prices. For these suppliers he had to arrange calculated cash; to avoid unforeseen challenges.

Entrepreneurial startups don't work from 8 to 5. Especially the founder needs to be creative and explores the challenges and thinks about the project sometimes even at night.

Last but not least, time management is always a concern for the entrepreneurial startup. There is no fixed work time like from 8 am to 5 pm every day. Yusniman had to reschedule meetings and commitments with family when called by potential customers. There were times when he had to work continuously up to 15 hours a day, and a presentation still could not convince the customers and the offers were rejected. He had to digest those bitter responses as lifelong experience, rather than throwing them out.

6. THE ROADMAP

Advice to Novice Entrepreneurs

The first advice for the startup entrepreneurs is to carefully understand their business eco-system. An eco-system is the interconnected network system of the business, including the entire demand-supply relationship chain. The startup business will run successfully when the eco-system is comprehensively known to the entrepreneur. In addition, those players who are also linked to this eco-system should know and understand the importance of their role in the network system.

Understanding your ecosystem will give you the understanding where the opportunity is.

In his case, the eco-system is proper waste management that includes waste collection and separation (wet waste and solid waste), and conversion of the wet waste into fertilizers, biogas and electricity. Sometimes the absence of one player in the eco-system impedes the network to complete its chain process. The renewable energy projects are already working at their edge, on the other hand, and the electricity suppliers are also working, so does the biogas and fertilizer companies. Adding one player in between connects these different players and enables the production of environment-friendly outcomes.

I do not want to make people my enemy, I want to empower them.

The second advice he gives to the new entrants is to identify those who are indignant at your startup business. Usually, business people annoy those who are a potential threat to their business sales and would take a piece of their share of the pie. When Yusniman started this business, he found that the waste collectors may not appreciate his business idea of reducing the weightage of the waste, which eventually will reduce their pie share. Therefore, he went with a proposal to the waste collectors saying that they can generate more income if they properly separate the waste and sell the wet waste to him. This way he managed to change his competitor's perception and got the input needed to power up the anaerobic digester.

7. THE TEAM

Biogas and Solar Service Provider

Founder	Yusniman Bin Lotfi
Nationality	Malaysian
Age of the founder at startup	47
Education	BSc Electronics
Professional background	Technical Manager
Family background	Teaching
Business type	Renewable Energy
Business partner	Samsuddin Bin Zainal
Country of operation	Malaysia
Year of startup	2017

LIST OF ABBREVIATIONS

LED	Light-Emitting Diode
NGO	Non-Governmental Organization
SEDA	National Renewable Energy Policy and Action Plan
TN	Tenaga Nasional

Cases Thailand



Globish Academia

1. THE COMPANY

Globish Academia is an online learning solution that focuses on practical English and 21st century soft skills. Established in July 2014 and based on a business model that was successful in Japan and Korea, Globish provides an innovative online learning platform for English Language that can deliver highly relevant and effective lessons at a fraction of the price of traditional classes. Globish now has over 6,000 students on our platform with the average of 120 active classes per day.

Our current solution focusses on situation-based conversational English through online classes which consist of a live one-on-one class, group classes and webinars with international coaches and online practices. Along with the convenient platform, 24/7 customer service is available for our students. The curriculum is developed in-house based on the CEFR standard, and specifically designed to facilitate practical conversations in classes.

The company mission statement is *“Those who pursue to speak English can speak English”*. At Globish Academia, we aim at providing a solution for practical spoken English for career improvement by overcoming traditional limitations such as high cost of foreign teachers, large classroom size, and time-related constraints through the use of technology. Globish Academia is operating in Thailand and just recently has expanded to Indonesia. Globish Academia’s impact objectives are built upon crucial problem solving; Education is relevant to labor market and human creativity. The public sector cannot scale and adopt new technologies fast enough to escape the middle-income trap economy. The threat of robotics and a sign of skill mismatch forecast worse unemployment rates and social gaps. Therefore, Globish Academia’s objectives are to develop students to acquire a skill that is meeting the market’s needs, to provide a platform to scale or help companies to achieve their goals, and to help leaders to solve their social problems.

In terms of a financial objective, Globish Academia aims to be the online English school with the largest market capitalization in South East Asia. Besides expanding

sales and the customer service team, the next step of the project is to continue developing additional products and services to be more effective and efficient. Apart from improving the current core aspects of production which are the booking system and a video conference platform, the offered courses, a developed curriculum and customer service, Globish Academia aims to offer a better variety of courses and to add more materials that will help students to speak and communicate better.

2. THE INNOVATION

Feature 1: Online Class

Globish Academia wants to shift the mindset of traditional and boring lecture-based English classroom to a fun, interactive, and practical classroom. Coach is a language partner, helping students to practice speaking according to situations and topics, provided in the lesson materials. The key is to make students feel comfortable in the class as they have fun talking and discussing topics with you. The more students talk, the more they get used to forming sentences and thinking in English. As the online class system runs on a browser without any installation, the company uses WebRTC. After a connection has been established, the two clients can communicate by sending video and audio in a peer to peer model. As for other features such as text chat, slides, and whiteboard, a publish/subscribe model will be setup for clients to exchange data.

Feature 2: Online Course

At Globish, the company believes in communicating in English rather than speaking correct English and this is why Globish Academia puts the focus on developing courses aiming to facilitate as much talking as possible instead of a lecture-style classroom where students have to listen most of the time. As the company pursues to offer practical English for communication, Globish provides an integrated solution that focusses on the student's reception, production, and interaction skills. In each course, the student will learn through three major methodologies: private video call, group video call and online self-learning materials.

1. Private video call class

Globish's main lessons are conducted in private classes in which the coaches can intensively teach the lesson and give recommendation for each student. The curriculum is

designed to be practical and effective for students. Each lesson is situation based with a given setting and proceeding for Globish coaches to achieve the same standard. The lessons are composed of 5 sections: free-talk, lecture, roleplay, challenge, and review.

- Free-talking based lesson: This type of lesson is a free-talk with a specific topic such as introduce yourself, present your company, etc. It is used for a simple lesson that does not need any content or scenario context.
- Lecture-based lesson: This type of lesson contains general “why” and “how-to” content that can be applied and used in many situations.
- Roleplay-based lesson: This type of lesson contains roleplays as examples.
- Challenge-based lesson: This type of lesson contains “The Setting” section where it gives a brief setting of a scenario for that lesson, followed by challenges with varying scenario context or a set of information depending on how the lesson is designed.
- Review lesson: This type of lesson contains no informational content or examples.

2. Group video call

In group video call lessons, the coach facilitates a class of three to four students to simulate a real life group conversation.

3. Online practice material

In addition to the methodology to practice live with the coach, Globish also provides online material available for students to learn 24/7.

Online Webinar, video content and podcasts library, and interactive English games are supplementary material for the student to learn basic grammar, writing skills, and contemporary knowledge.

Feature 3: Integrated Platform

Globish integrates the aforementioned features into a self-developed online platform to produce the best learning experience for the students. The students can perform all actions through Globish’s own web application from purchasing the courses to booking a class, entering classes, and self-studying practice material. This makes learning much easier for the students.

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Globish offers a more practical approach to learning English. While most of the current solutions primarily focus on reading, listening, and writing aspects of the English language, resulting in a lack of communication skills necessary to progress in the career path, Globish offers a communicative approach focusing on enabling the students to communicate in situations that suited their needs specifically. From this, students of Globish are able to gain required skill sets to ascend toward their career effectively and efficiently. Not only the students are able to communicate effectively in their preferred situations, they become more confident and also enjoy the English language itself.

With the product primarily focusing on one-on-one learning, scalability is one of the biggest challenges Globish faces. Even though one-on-one learning is a big scalability issue, it is a vital component of the product to produce the highest learning quality for the students. To have a good scalability, Globish manages this through developing a better coach management platform to handle the large amount of coaches while maintaining good services to the coaches and to the students. The company also takes a data driven approach to manage the supply of open classes through the increasing number of students, accordingly the data, representing the learner's behavior, enables the company to incentivize coaches to respond to the demand effectively.

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

Competitor Analysis

Topica Native

Topica Native is an online English school that applied the advancement of technology as a tool for English education with the reputation of number one leader of e-learning in Southeast Asia. It was founded in Vietnam and then partnered with companies in Thailand, Philippine, Indonesia and Singapore, respectively. There are more than 200 native teachers from Europe, Australia, and USA with different accents to support students. Every day from 08.00 in the morning to midnight, Topica Native opens the group-online classes and offers several courses based on student's English skills and period that they would like to take. Booking initially starts at 30 days to the maximum of 720 days. Course fee will be charged according to the trail that students choose - the longer the period of time, the higher the course fee. The company mainly focuses on communication skills by encouraging students to speak English on a daily basis

upon the topics related to life and work. Topica Native has changed a learning method from traditional (L.I.P.E), that designed students to begin with theory lesson (Lecture), following by discussion with classmates (Interactive), then practicing with teachers (Practice) and test (Exam) to the advancement method which they called P.I.E.L.E (Practice, Interaction, Evaluation, Lecture, Exam). From the beginning, students will practice English speaking with native teachers even if they still incomprehensively understand the theory, followed by exchange and discussion with tutors in which they can help students to understand and correct mistakes.

Engoo

Engoo offers one of the most cost effective one-on-one Online English solutions in the market currently. Originating from Japan, the company offers a subscription based 25-minutes one-on-one English class online, where the student can book from one class per day to multiple classes per day depending on the package the student purchased. Engoo also offers guidelines and materials for students and coaches to follow, however they do not offer a complete course where the student can follow to ensure their development. One of the biggest limitations for Engoo's customers is the subscription model itself; the student is required to have credit card to start learning with them. Moreover, with a subscription model, if the student didn't book a class for a certain day, the student will lose that class.

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN

5.1 Customer Segment

The analysis shows that men and women aged between 25 and 30 belong to the customer segment.

5.2 Revenue Streams

Previously, Globish Academia has received the tuition fees from two main groups of customers. Five percent come from B2B while another 95 percent come from B2C.

5.3 Channels

Globish primary channel is through online. The company utilizes both online marketing through social platforms such as Facebook, Instagram, Google, and Youtube, and also

their own website and landing pages. Besides the online channel, Globish also offers a monthly offline workshop to engage with prospective leads and customers.

5.4 Customer Relationships

For the customer service, Globish Academia provides a 7 days/24 hours advisory call center service for both, technical and courses consulting.

5.5 Key Activities

Globish Academia conducts the one by one online English program where students get supported from qualified coaches. In order to attract new customers in the global market, the company would like to offer a “customized course” that allows to expand as a provider of business English. Globish Academia will act as a one-stop service for business English that provides knowledges of both English language and business contents for its customers.

5.6 Key Resources

Offering a one-by-one program, the company employs specialized coaches the directly guide the students in every class. Previously, the key resources of Globish Academia come from Philippines and eastern European nations. In addition, company uses fast and apprehensive internet network that covers almost the whole region of Thailand.

5.7 Cost Structure

Currently, Globish Academia has to carry fixed cost while operating the English courses online. Maintenance cost, staff salaries, advertising costs and other operation costs are the major fix costs of the company. Coaches' salaries and commission fees for telesales are the variable costs, depending on the contracts with customers.

5.8 Key Partners

English Learning Content Partner:

This partnership enables Globish to be able to have a better economy of scale while improving the offered product and providing better quality to the customers. Apart from

self-developed courses which focus on communicative English, the partnership provides customers with comprehensive exercises that they can practice on their own and in their own speed to increase their learning outcome.

Offline English School Partner:

One of the prospective markets is transforming offline English learning into an online one. By partnering with an offline School, creating a blended learning solution, Globish is able to capture a wider market while focusing on their key strength.

6. THE INTERNATIONAL DIMENSION OF THE BUSINESS PLAN/BUSINESS MODEL

The online English learning market in Asia is growing with a 5-year CAGR of 35% according to ambient insight research. Our international expansion plan is to expand to other high potential countries in Southeast Asia which are Indonesia and Vietnam. Globish focuses on these two countries because of their readiness in infrastructure and customer's purchasing power. Our business direction towards these two markets is to co-invest or conduct a M&A deal with a local institution that would like to digitize their business and to supply them with our technology and coaches.

7. THE ROADMAP

Globish's mission is to leave no unskilled people behind in the globalizing world. Our first solution is to arm unskilled people with knowledge and to develop their communicative English. Going beyond English skills, Globish encourages their students to develop other soft skills such as critical thinking and communication skills for 21st century as well.

Currently, apart from offering practical English courses to individual learners, Globish also provides learning solutions for corporations and institutes. Our digital and versatile solution fits well to corporate clients that have different demands. For offline institutions, Globish designs and provides an online learning platform to integrate with their content. Furthermore, Globish has been researching AI and machine learning technology to ensure coach quality and student performance in the class.

8. THE TEAM

Management team

Takarn Ananthothai, Chief Executive Officer, has a degree in business administration, in management as well as in communication. He was a country director of AIESEC in Thailand who managed over 300 staffs and 200 volunteers, and achieved a turnaround of the organization from negative to 35 percent annual growth. Troy has facilitated and represented Thailand over 50 conferences in 8 countries. Troy is in charge of defining the culture as well as strategy of Globish Academia and he is also considered as the main contact point with business partners, venture capitals, etc.

Gittitouch Apisaksirikul, Chief Operation Officer of Globish Academia, has a degree in Engineering from Chulalongkorn and Columbia University. He has diverse business experience in the manufacturing sector and marketplace in Thailand. Gittitouch and Troy are in charge of sharing the vision for Globish Academia and also coordinate different functions in Globish Academia. Further, Gittitouch has strong tech skills in coding programs and provided the solution for tech issues with Globish Academia such as debugging errors, tracking and lodging systems.

Chuencheewan Wongsaree, Chief Business Development, has a bachelor degree in International Business. She has experience in managing operations and marketing while she was management trainee at Uniqlo, the international Japanese clothing brand. With her business background, she is in charge of business development including establishing partnerships, strengthening external relations as well as earning media exposure.

Teerakorn Ananthothai, Chief Technology Officer, has a bachelor degree in engineering with a major in information and communication engineering. He has won the first Prize on Google's Android and AdMob App Challenge by the Google Developer Group in 2014. With mobile application development experience and tech skills, he has developed the web based video call, the booking system, and the mobile application on iOS.

LIST OF ABBREVIATIONS

B2B	Business-to-Business
B2C	Business-to-Consumer
CAGR	Compound Annual Growth Rate
CEFR	Common European Framework of Reference for Languages
L.I.P.E	Lecture, Interactive, Practice, Exam
P.I.E.L.E	Practice, Interaction, Evaluation, Lecture, Exam
WebRTC	Web Real-Time Communication

Roodee LMS

1. THE COMPANY

Roodee LMS is an educational technology company. We aim to simplify learning experience by providing a learning management system (LMS) platform designed for specific needs of Thai education institutions. Our focus is on simplicity and user friendly experience that will bring students, parents, teachers and administrators together.

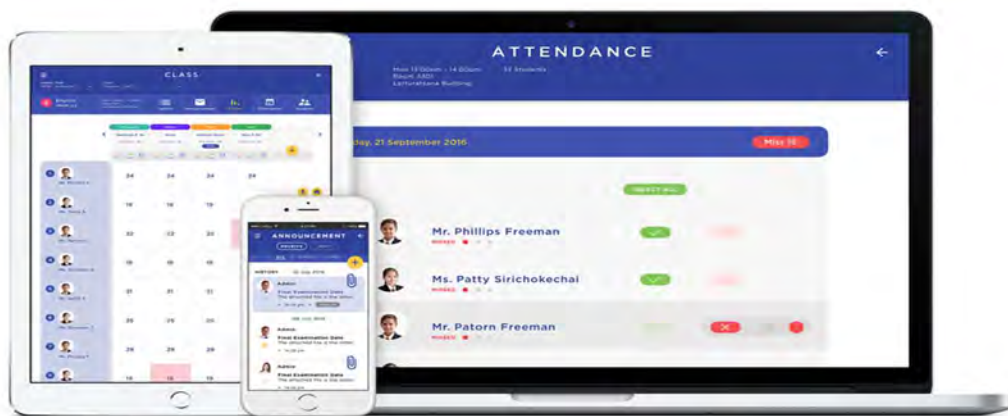


Figure 1. Platforms of Roodee Learning Management System

2. THE INNOVATION

Roodee provides a customizable learning management system (LMS) designed to help institutions to solve operational problems and to enhance students' learning experience. The Roodee LMS platform helps to connect parents, students, teachers and administrators together. It allows students, parents, and teachers to share and access information from anywhere since we believe that learning does not only happen inside a classroom. Also, parents can engage and help improve their children's learning and development. Furthermore, it reduces paper work for teachers and admins by digitizing administrative work, which helps to organize, saves time and improves efficiency.

The basic features that Roodee provides to the users are:

- Announcements and Letters: The latest announcements from school and class level and being able to access and response to school letter.

- **Classes:** Easily access classroom resources, be prepared for class and access assignments at any place from any device.
- **Grades:** Allows students, teachers, and parents to keep track of all grades with the beautiful and easy to use interface.
- **Attendance:** Designed to save teachers' time from doing paperwork by allowing teachers to submit attendance easily and quickly. It also allows students and parents to keep track of their attendance.
- **Task list:** Help students, teachers, and parents to plan and keep track of work that need to be done with a gentle reminder when deadline is approaching.

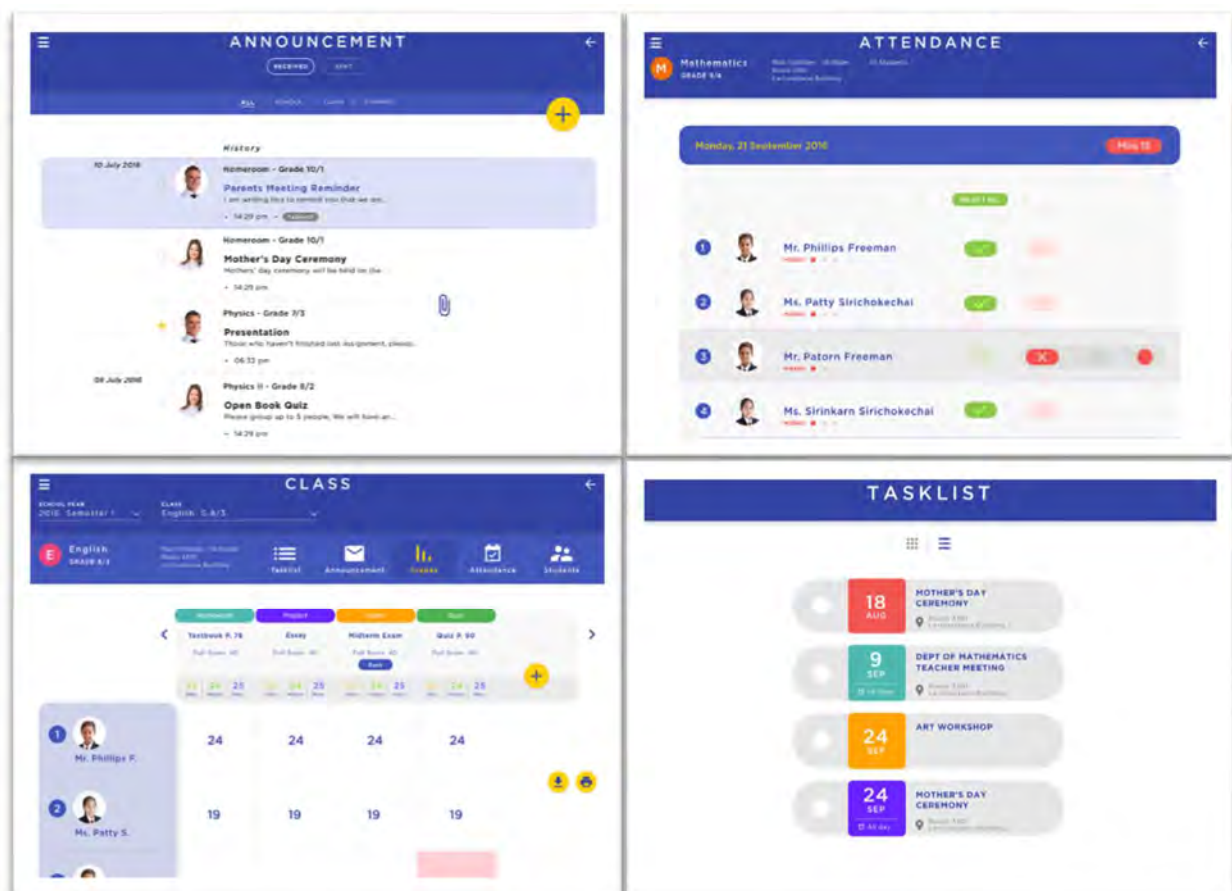


Figure 2. Basic Features of Roodee

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Roodee LMS is a solution to traditional teaching problems. It can add value to students, parents and teachers as a whole. With Roodee, teachers can easily take attendance, upload files and create announcements allowing for saving time on mundane tasks and having more time to focus on teaching, building a unique learning experience and improving students' progress.

For students, Roodee will equip them with the tools they need to succeed. Important reminders, assignment grades and class materials would be easy to access through all of their devices.

For parents, Roodee allows them to be up-to-date with latest school announcements and activities without extra work for teachers and school admins. With the student progress tracking functionality, parents will no longer be left in the dark when it comes to tracking their student's performance. Also, research shows that parent involvement leads to student's academic success.

To ensure that Roodee will be able to scale up the business domestically and internationally, the strategy for market entry and marketing mix are the keys. For market entry, we have defined our strategy into two approaches which are the direct approach and the indirect approach.

Direct

Approach

We believe that by interacting directly with our customers, we will be able to increase sales and build a tight relationship with them. First, we will search for the schools and educational institutions that might be interested in our product and fall into our target group. Then we will call each of them to make an appointment for us to give a pitch about Roodee. During the appointment of pitching session, the demo version of Roodee will also be given to allow the customers to try our product first for one semester.

After the pitching session, if the customers agree to purchase our service, we require a setup time of approximately one month and will be giving training sessions via two channels: on online platforms which are Facebook and Youtube, and with direct training session for the teachers, professors, admin, and parents. For the after sale service, we will provide a call center service that will help answering or giving advice to the users about Roodee.

Indirect Approach Besides from contacting the customers directly, going indirectly is another way that will help us reach the customers. We are planning to leverage on social media platforms to spread the news about Roodee in a wider area, in particular, on Facebook. For Facebook, we will create a page to inform about our products and news. We will promote Roodee on pages that are relating to education in order to induce the interest from the buyers.

In addition, to ensure that our plan is convincing and realistic, 4P's is used to identify our product.

Price The price of our product is very low comparing to other providers in the same market. We are charging 80,000 baht for an initial setup, which is a one-time pay; and we are charging 220 baht per student per year as a subscription fee. Therefore, we are sure that price is our competitive advantage that will induce customers.

Place As our product is software, it does not require a tangible place for displaying the products. Therefore, in order to reach our customers, we have to contact them directly or to use the social media as mentioned above.

Product Our product is not new in the market. However, we have developed our product to perform better by charging the price as low as possible and making the interface to be easy to use as much as possible.

Promotion Currently, we are allowing a free one-month trial of our LMS. We do not require the customers to sign any agreement as we believe that once they start to use our product, it is hard to stop using due to the difficulty of information transformation.

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

Currently, education technology is an untapped market especially in Thailand. According to the ministry of education, in 2014 there are more than 13 million students with 38,069 institutions. From our research, less than 10% of those institutions in Thailand have already implemented a learning management system. This type of customizable software that will help schools to manage their data is a relatively new product in Thailand. Its main competitors are from abroad which are hard to use, lack of local support and are very expensive. Lastly, with our business model, it is highly unlikely to be sensitive to an economic downturn. Competitions exist in every industry, so every business has to face the challenging environment. However, if we analyze the competitors deeply, we will be able to confront and overcome them. For learning management systems, there are few dominant players in the market in Thailand:



Figure 3. Competitors

Moodle

It is a free learning management system which is distributed under the GNU General Public license. Moodle is used in various ways such as for distance education, e-learning projects, blended learning, etc. It is also used in many places such as schools, universities, and companies.

Moodle comes with customizable features where users can set up their own site to be suitable for their usage such as gradebook function, themes, translations and etc. However, certain features are only available when you pay for it. It has been developed since 2002 in order to catch up with the trend and the need of the users. Currently, Moodle can be translated into 100 languages worldwide, accessed in many countries, or created without having to pay the license fee. With these facts, Moodle became the second largest LMS provider in the United States of America¹.

My CourseVille It is a free LMS that was developed by the professors at Chulalongkorn University in order to help the students and professors to enhance the learning and teaching method to be more effective. It also helps reducing the limitations in studying such as hand-in the homework, attendance, and etc.

It is highly customizable with many useful features that had been developed in My CourseVille such as Playlist where students are able to watch the instruction video from Youtube, Discussions where students and professors are allowed to communicate with each other, Student Groups where students are able to hand-in the assignment in group, and etc. Moreover, it is linked to the social network².

Firefly It is an educational technology company from England that provides virtual learning platforms. Firefly allows teachers, students, and parents to be able to interact with each other anywhere as long as the internet is connected.

Canvas It is developed by the Instructure, an educational technology company in the United States of America. Canvas was created in order to support the development of a new learning management system that was named Instructure.

¹ <https://en.wikipedia.org/wiki/Moodle>

² <http://technologyshu.blogspot.com/2016/07/my-courseville.html>

Canvas is a tool which is used to act as a supplement to the traditional classroom where the online platform is being used to help deliver the effectiveness of the course. Many exciting features are included in order to encourage students and teachers' engagement and enrich learning experience such as Grading where the teachers can comment directly on the assignments, Mobile and tablet friendly where it can be accessed easily, and ease of communication³.

After analyzing briefly of our main competitors, we need to compare and find the implication of how to be a successful LMS provider in the market. There are three key criteria that effect users' decision most:

User friendliness In order to attract both students and teachers to participate in using the platform, it has to be easy to use for both parties. Many LMS have been created, but the most adopted LMS are those that are good looking and that can be easily used. Therefore, we give this criterion the highest weight as it is the one that will help us accomplish the LMS market.

Affordability The price range for LMS can vary a lot, from free to a very expensive. In Thailand, most of the LMS users are international schools whose tuition fee is quite expensive, and the costly fee is paid for unnecessary features. Therefore, the price could affect the decisions heavily.

Local Support Even a good LMS would not be able to survive in the market if there is a lack of local support. Hence, it is also important to ensure that there is know-how about that market. Moreover, there are not many LMS that provide a multi-language support that includes Thai, so it might be hard for non-international education institution to adopt.

³ <http://www.capterra.com/learning-management-system-software/>
<https://wiki.geneseo.edu/display/cit/Canvas+Learning+Management+System>

After putting together, the key competitors and criteria to understand our competitors, below are the result after plugging in the score and weight.

# CRITERIA	Weight	Roodee	Moodle	MyCourseVille	Firefly	Canvas
1 User friendly	5	5	1	1	4	3
2 Affordability	4	4	5	5	3	1
3 Local Support	3	4	1	4	0	0

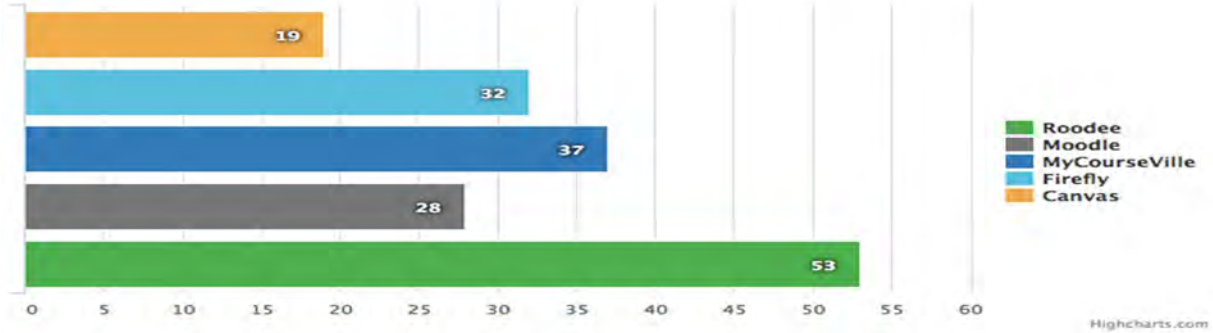


Figure 4. Key Criteria That Effect Users' Decision and Results

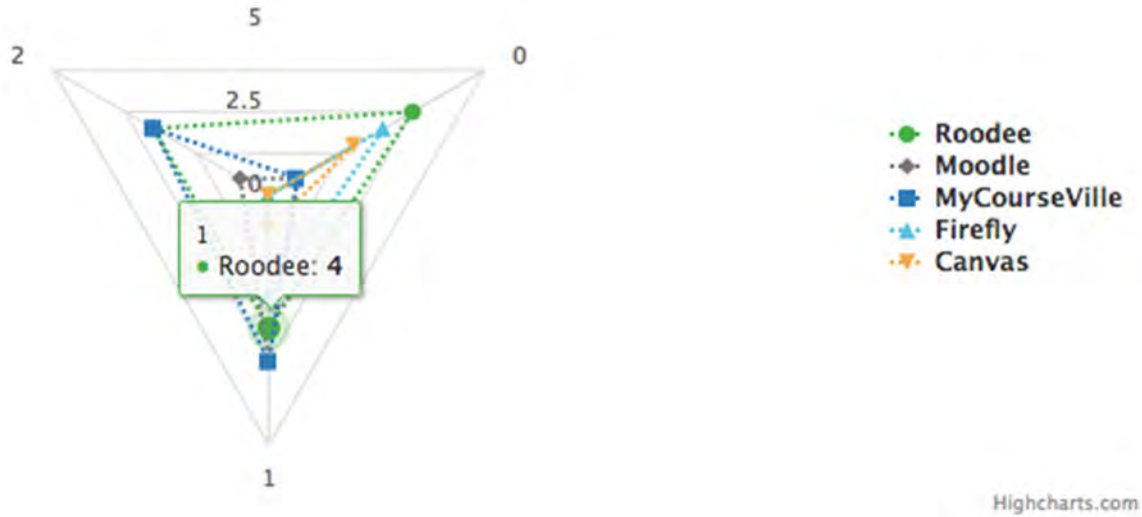


Figure 5. Roodee Result against Competitors

Based on the result, Roodee has outperformed the competitors. MyCourseVille, even though it comes at a second place due to its affordability and local support as it is developed by Chulalongkorn University, its interface is quite hard to use. Firefly is quite easy to use, and the price is not too high, however, they lack of local support in Thailand. Therefore, it might not be totally suitable for this market.

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN

Roodee has two sources of revenue which are the one-time initial setup fee depending on the school size, and a yearly or per semester subscription fee per student. We are confident that our pricing is very competitive. Schools will only have to pay 220 baht per student per annum, which is less than 1 baht per day, while they get free admin, parent and teacher accounts. The average initial setup cost is 85,000 baht which schools only have to pay once in the first year when they join Roodee community.

In Thailand, we aim to expand Roodee community to have at least 252 schools by 2026 which will result in net income of 48 million baht. Over the financial projection period, sales revenue grows at a CAGR of 59.4% with a payback period of 3.87 years.

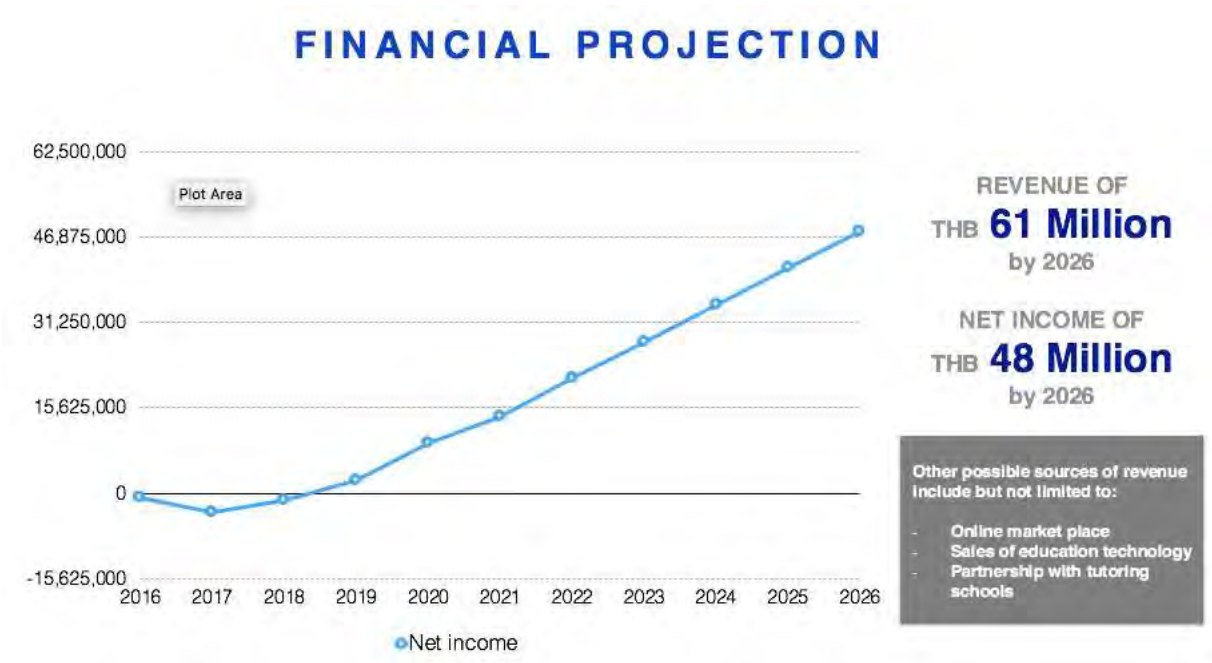


Figure 6. Financial Projection

6. THE INTERNATIONAL DIMENSION OF THE BUSINESS PLAN

An internationalization process of the Roodee Learning Management System will be done with the support of two main functions, IT and sales. We will select the targeted countries based on language, purchasing power, demand, sociocultural, competition, and regulation. After that we will select the entry mode based on the adaptation marketing mix plan and other relevant factors. Finally, we start implementing the plan and follow performance closely. We realize that internationalization is very challenging for

startup business; however, we believe in our product characteristics that shows an advantage in the international market compared to other competitors. By doing so, we will be able to leverage our business and maximize our firm value. We also believe that by internationalization we can achieve two main goals which are the creation of more revenue stream (by tapping into untapped markets) and the increase of credibility and reputation.

As the company will be setting up in Thailand, ASEAN countries are the first tier of the internationalization plan. They are geographical close and cultural friendly which facilitates control and monitor. In order to achieve our two goals, we look at four main aspects which are demand, competitive landscape, ease of entry, and ability to make creditability exposure.

Demand

- **Purchasing power:** LMS comes with cost, so the education institution in the selected countries must be able to afford the investment of our product. However, the price of our product is quite low comparing to others who offer the same type of product.

Competitive Landscape

- **Intensity of competition:** Competitors exist in every market, but we need to find the one niche that allows for our company to grow, i.e. the place where we have comparative advantage over the competitors. The company focuses on rapid expansion for the following reasons. First, an industry characteristic has high fixed costs which mostly are R&D and SG&A. Also, it has high switching cost. Second, since our first-tier target market is in the middle to high range but not in premium market, its competitive landscape is somewhat price sensitive. In this area, we already have good cost structure and ability to offer competitive price. Lastly, we believe that there are existing untapped markets which present great opportunity in terms of high market growth. After all, one aspect that can create high exposure is to partner with governments, which requires credibility and reputation.

So we offer functions that are comparable or even better than the well-known LMS but have the lower price. For that reason we will be able to sell the product to the market.

Ease of Entry

- **Language:** Countries that use English as their first or second language can easily adopt our product as it requires lesser adaption in programming.
- **Uncertain demand:** LMS requires internet and computer or mobile phone to be able to access the software. Therefore, the selected countries must already or be able to adopt the technology to ensure that the market will be able to use our product.
- **Socio-cultural distance:** Different countries may have different education system, so we need to adapt our system to fit with the countries, for example, grading system, class detail, schedule, and etc. However, our LMS is customized software whose users are able to adjust many things to fit with their preference, so we need to add more features in order to support the different education systems.
- **Laws and regulations:** Security is being concerned heavily in many countries. Therefore, we need to check intensively to ensure that our product is not against the law.

Ability to Make Creditability Exposure

- **Country credibility, education standard index:** We look at the relationship between Thai governments to other country governments. The indicator includes secondary research and index.

The table below shows some of quantitative and discrete qualitative information for each 10 countries. However, we will also incorporate other aspects as to completely categorize targeted countries. The details will be provided later.

Count- ries	Internet coverage (#per 100 inhabi- tants)	Smartphone u- sage (#per 100 inhabi- tants)	Purchasing power GDP per capita (\$)	Main langu- age/ English u- sage
Vietnam	48	147	5,957	Vietnamese
Singa- pore	82	147	85,253	Chinese/Eng- lish
Brunei	69	110	80,648	Malay/English
Myanmar	2	54	5,514	Burmese
Malaysia	68	149	25,552	Malay/English
Cam- bodia	9	133	3,340	Khmer
Indonesia	17	129	10,537	Indonesian
Philippi- nes	40	111	8,325	English/Taga- log
Laos	14	64	5,748	Lao

Table 1. Quantitative and Qualitative Information from 10 Countries

We then roughly categorize all 10 ASEAN countries into three groups.

1. Rich country but intense competition

This group comprises of Singapore, Brunei, Indonesia, and Malaysia. They all have high GDP and GDP per capita. Their education systems are in a better state than in other countries and they receive support from the governments. Generally, the countries are advanced in terms of technology and internet coverage. However, these countries already have a large number of e-learning and education-software systems. Competition is high, these countries still are an opportunity, though. Roodee should enter the markets, but the company may have to scarify margin in order to penetrate the markets. A hindrance might be the problem of high switching cost that customers face.

2. Similar environment as Thailand and moderate competition

Vietnam and the Philippines have a similar market landscape as Thailand. There are different levels of education development. People in urban area, particularly in big cities, tend to highly support children in education. This leads to problems of overloading tasks to students. Here, Roodee can step in and help to manage and communicate the learning progress among parents, students, and teachers. Technology and infrastructure are not the problem in urban areas. Competitors appear in the form of other e-learning systems, but we can position ourselves as a well developed LMS, different from simple e-learning, to support schools and universities.

3. Untapped market, but overall un-ready infrastructure

The last group includes Laos, Myanmar, and Cambodia. On a first look, these countries may seem not to be ready for LMS. However, if we step in, we will get the benefit of the first service provider. Generally, their education systems are considered to have lower standards than others, infrastructure and internet are limited in particular areas, and the countries are having a very low GDP per capita. However, there are interesting market hiding inside. Mostly, these countries have a large income distribution gap. So premium markets are existing inside these three countries but the key is finding a way to enter them.

Following the analysis, we then selected Myanmar as the first targeted country for an additional revenue stream, followed by Vietnam. But for creditability contribution, we chose Singapore as our first target. (See more on Implementation Timeline Session). This analysis and prioritization relies on our limited resources and the current business momentum. Myanmar is the first key prioritization as two of the co-founders currently have strong connections with a major local distributor. At a first look, group three is most preferable for the company as the key to business and competition is to grow. As mentioned, the only big obstacle is to find a way of market entry which right-now we achieve with such a connection. Over time, the prioritization can switch to another country in group three instead of group two if the same reason satisfied.

7. THE ROADMAP

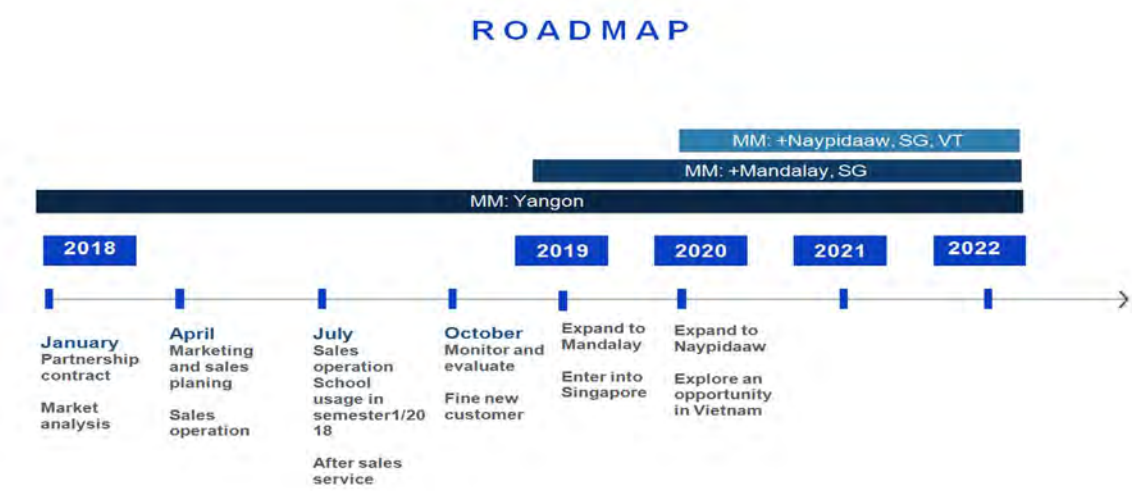


Figure 7. Roodee Roadmap

Currently, for our product the trial phase is almost finished. We have two Thai schools testing the product for a semester. In addition, we have new customers who already signed the contract for the following semester. Now it is in the process of collecting data and feedback to improve the function and also of preparing the initial setup and training for the new schools. At the same time, we are developing add-on features with the domestic creating and sales team. We believe that the domestic commercialization will fully begin by the first quarter of the next year. At the same time, the process of internationalization should be initialized.

In January 2018, we expect to have some first experience in entering a new market so we can leverage our human capital to gain in-depth analysis of the Myanmar market, particularly in Yangon. This process includes working together with Medi-Tech Biz Co.,Ltd. with an agreement on partnership in the sales and marketing plan. The contract should be finalized in the first quarter. In April we will analyze the development plan. In May to July the sales team should start approaching customers. Then the IT team will train initial setup and usage, so the program can be run in the second semester of 2018 which is in the middle of August. After that, in parallel to finding new customers the after sales service will start. The process will continue in this way and we plan to expand to the next five largest cities in Myanmar within five years.

In 2019, the second goal, that is creating credibility and reputation in Singapore, should be initiated. This time we need to find a potential partner as local expertise. The time frame should be similar to the process of entrance in Myanmar with additional

time in the process for finding a potential partner and agreeing on the contract. However, the program should be run in the first semester of 2019 but we do not expect the number of customers being as high as in Myanmar; at least one or two schools in the first year would be satisfactory. Finally, in 2020 we will evaluate the opportunity in Vietnam or other countries in group three if we have connection to proper partnership.

In addition, along the way, we may find new business partners who benefit from our platform and co-create the new product as a diversifying strategy, for example as an internal human resource management system, a data-base system, a nursery and hospital-related system, or a target market analysis and promotion-reaching system.

8. THE TEAM

Name: Chutikarn Kunsapsak
Role: Founder/Business development director
Background: Chutikarn has been providing business strategies and marketing research to many startup firms and non-profit organizations both in the U.S. and Thailand. Her focus is on information technology and digital marketing. She also specializes in forming a strategic partnership.
Key competences: People management, stakeholder identification and engagement.

Name: Nutch Suteerasarn
Role: Founder/Finance director
Background: Nutch is a business consultant with broad range of industry knowledge in manufacturing, alternative energy, and food industry. With a strong proven track record, she specializes in project management, valuation, and business modeling.

Name: Chattrin Homcheon
Role: Founder/Information system director
Background: Chattrin has been working as a developer since 1999. He specializes in Microsoft SQL Server and all other relational databases. He is also a certified .NET developer and has extensive knowledge in web development.

Name: Nick Chamnong
Role: Technical director
Background: Nick is a software engineer and a director at fuum studio which is one of the most advanced production houses in Thailand. Multi-media capability is his strongest strength. With his unit wide range capabilities, he can choose to deliver the content across multiple platforms that can be adapted to the market. Ranging from the traditional printed matters, websites, interactive, VDO & motion graphics, below-the-line, space-related to the cutting-edge digital interaction such as VR or AR.

Name: Makaporn Withayawongruchi
Role: Consultant
Background: Makaporn is a consultant specializing in risk assessment. She graduated with a BBA from Thammasat University and has been working for many insurance companies.

LIST OF ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
LMS	Learning Management System

LIST OF FIGURES

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WAWTA

One-Stop Service Platform for the Blind

KITFORWARD



1. THE COMPANY

Executive Summary

“We want to make a different experience for the blind”

“We want to share our knowledge and skills for improving the blind’s life”

“We want to create a great change in our society to be a better community for the blind”

“We want to support the blind and their families adapting to sight loss and live as independently as possible within the society”

In 2017, we have developed the first prototype, the so called WAWTA app – an interactive color identification mobile application that is aiming to assist visually impaired and blind people recognizing a color of their surrounding objects such as clothes and daily used stuff through their touch and hearing senses. Joining a nine months program has given us opportunities to try and fail on our first step, first business model, and led to our first pitch to investors. For over a year now, WAWTA has been known in the blind society in Thailand by the support of the Swiss Innovation Challenge Asia Program, the Asian Institute of Technology (AIT), and the WAWTA team.

In April 2018, WAWTA’s first iOS application has been published on App Store as requested by the blind iOS users, but we failed because of an iOS platform upgrade. 70% of our blind iOS users who were using iPhone 5 were not able to run our app.

One month later, WAWTA iOS version 2 was published, and since then we have received many feedbacks from the users. Currently, we are testing an Android version and are going to publish a beta version by the end of this year to support the remaining 30% requests from Thailand's blind users.

It took over a year of working with the Thailand Association of the Blind (TAB) as volunteers. We have shared our knowledge and skills in assisting the blind to improve their internal operations and to support the TAB members and their families through aid technologies and our skills-based volunteering service platform. With a good support from the blind president, we are now developing an online platform to integrate fundamental services provided by TAB and additional services that are provided by various associations and organizations into one single platform, so called One-Stop Service Platform for the Blind (OSPB). Currently, this platform can generate a small amount of monthly income of approximately 15,000 THB (448 USD) which can support our operation cost.

This report will present the WAWTA SE business model which generates sustainable income and social impact from trading products and services. Moreover, milestones and roadmap, project funding, and WAWTA's new organization chart are presented in this report.

2. THE INNOVATION

WAWTA Transformation: from Product to Service

Our Story

KITFORWARD has registered as limited company on 20 October 2017 (Tax ID: 013556022500) with the seed money received from the Swiss Innovation Challenge Asia Program. One of the purposes is to provide IT services to associations for the blind in Thailand and non-profit organizations for blind people or people with disabilities.

The WAWTA color identification mobile application for visually impaired and blind people is the first product provided as a utility mobile application for blind users in Thailand. WAWTA (beta version) has been published as a free application on App Store¹ but we failed because of an iOS platform upgrade. 70% of our iOS blind users who were using iPhone 5 were not able to run our app. Then one month later, WAWTA iOS version 1.0.2 was published and it has been promoted to more than 500 blind people in Thailand via many social channels such as LINE group of iOS and Android

¹ <https://itunes.apple.com/us/app/wawta/id1357878075?ls=1&mt=8>
126

for blind users, Facebook Page², Website³ and 1414 hotline services for the blind. In addition, the team visited the Chiangmai Association of the Blind and Pathumthani Association of the Blind to gather more feedbacks and to provide onsite support.



During the visit to TAB, we were invited from the president of blind people to exhibit our booth to promote and test the WAWTA application in the 9th annual general assembly of blind people in Thailand at Suphanburi province for 3 days and that was the beginning of WAWTA by KITFORWARD.



While working with TAB and Pathumthani association of the Blind for almost a year as volunteers, we have been sharing our knowledge and skills in assisting the blind to improve their internal operations and to support their members and family's member through aid technologies and our skills-based volunteering service platform.

² <https://www.facebook.com/wawtagiver/>

³ <http://wawta.kitforward.co.th/>



Currently, this platform is in the prototyping stage and now has 21 volunteers engaged. A small success that we have reached during this stage is to get a small amount of monthly incomes, generated by this platform, of approximately 15,000 THB (448 USD). This can support our operation cost.



Why do we need to transform from Product to Service?

Currently, technology plays an important role in our daily life, especially to blind people. 80% of blind people in Thailand use smartphones to accomplish their daily tasks such as reading books, listening to the radio, surfing the internet, chatting with friends, etc., while 20% start to learn and adopt it into their life. Additionally, more than 10 million baht per year have been invested in purchasing assistive devices (such as white cane, smart watch, screen reader software, etc.) and training courses which could support only a small group of blind people. Meanwhile, there are a number of blind born children and new blind people who need assistance from the blind association to guide them how to live in society. But there are no services or platforms focusing on those needs.

With a good collaboration with TAB, we are now developing a first version of an online platform to combine fundamental services provided by TAB with an additional service which will be provided for the associations and organizations through the platform.

Our Aims

WAWTA by KITFORWARD aims to provide One-Stop IT Service for the Blind in Thailand through a skill-based volunteering service platform to serve the needs of blind people at all ages. Therefore, we have segmented our customers into four categories:

- Blind Individuals and Family
- Blind Officers/Workers
- Schools and Associations for the Blind
- Organizations for the Blind

Details of the service offered in the platform will be presented in the next section.

3. THE BENEFIT AND THE IMPACT; SCALABILITY

New initiative: One-Stop Service Platform for the Blind

The One-Stop Service Platform for the Blind is a Software-as-a-Service (SaaS) based assistive service, serving the needs of all categories of the blind in Thailand. With the utilization of cloud-based computing to run the service, the associations can reduce the cost of investing in a new hardware and users can access the software through a web browser from multiple devices anywhere anytime within one click. OSPB contains 8 modules as presented in Figure below.



Figure 1. One-Stop Service Platform Model for the Blind

Service	Description
Life Advice	Provide online and over the phone advice service for the blind and their families regarding living with blindness and self-improvement after becoming blind
Health & Lifestyle Activities	Organize the activities related to healthiness and lifestyle hobbies
Assistive Tools & Products	Research and develop blind-friendly assistive tools and products as requested to help assist blind people in navigation, reading, writing, and accomplishing daily activities easier
Volunteers	Provide skill-based volunteer service for the blind, families and for organizations who need to do activities with blind people
Professional Training	Facilitate and organize tailor made professional training depending on specific requirements from the blind, associations, and schools
Employment	Provide advice and workshops for those who are looking for a new job or need to start their own business. The team will search and match a suitable job, based on specific needs for both employer and employee
Retirement	Provide advice for self-preparation before retirement. Also provide personal activities for retired blind people and the elderly
Blind Repository	Provide access to cloud-based repository to store and maintain the blind information. This repository can support decision making and predict trends of the blind people in the future year. This service is mainly serving TAB requirements and organizations who need to use the information for social purposes

Table 1. Descriptions for One-Stop Service Platform Model for the Blind

Social Benefits

Social benefits include:

Personal benefits:

- 50% lower cost of investing in a new hardware and human resource
- More time spent to benefit the society rather than wasting free time
- Meet new friends, build confidence and experience (for volunteers)

External benefits:

- Lower unemployment problem
- Better quality of life for the blind
- Increase engagement between society and government
- More opportunity to access to government funding for the blind association in Thailand

Social Impacts

We aim to provide a single platform in which the three levels private persons, the society in general and the government communicate and cooperate. Through this platform, customers can get a good service from us but also can help support the blind association to gain more benefits in serving their members and families. In addition, we believe that this platform will through the volunteering program also have an impact on social changes which will ignite the youth that is passionate about making society better than before.

4. THE MARKET AND THE COMPETITION

Challenges

- **Accessing Finance (high demand but low supply)**

Based on our survey and interviews with social entrepreneurs in Thailand, the main challenges social businesses are facing is the lack of funds. Many founders have invested in their company themselves while others used a crowdfunding platform, engaged in a competition or were pitching their business idea to an investor.

- **Collaboration and Partnership**

In a rapidly changing world, social business is now getting known. At the same time, a desire for collaboration with big companies is growing. A number of small

companies such as local businesses were taken over, causing a cultural change for the companies and a shift of business equity.

- **Retaining Trust and Brand Loyalty**

Social business does not only deliver commercial values but also social values to the society. Therefore, the lack of trust and brand loyalty from the customers and beneficiaries is a big challenge that can affect the sustainable strategy.

- **Human Resource Management**

The main driving force of every business is a capability to perform tasks of human resources. Good human resource management includes assigning the right job to the right person according to his or her capabilities. This can improve the company performance what results in getting more customers as well as gaining more funding opportunities.

- **Increasing Competition**

Social business is now growing in Thailand. Meanwhile, many companies have changed their business model from selling goods to providing a service. However, there is only a small number of social enterprises in Thailand which have played a role in the blind society. And the demand in this market is growing.

Service Pricing

Four subscription-based service plans are provided through this platform:

- Plan A: Me and Family (salary less than 10,000 baht/month)
- Plan B: My Career
- Plan C: My Blind School/Association
- Plan D: My Business/Organization

Service	Plan A Me and Family	Plan B My Career	Plan C My Blind School/ Association	Plan D My Business/ Organization
Life Advice	✓	✓	✓	x
Health & Lifestyle Activities	✓	✓	✓ (charge per project)	x
Assistive Tools & Products	✓ (Blind Kit)	✓ (Blind Kit)	R&D (charge per project)	R&D (charge per project)
Volunteer		✓		

Service	Plan A Me and Family	Plan B My Career	Plan C My Blind School/ Association	Plan D My Business/ Organization
(included on-call service)	✓		✓ (charge per request)	✓ (charge per request)
Professional Training	✓	✓	✓ (charge per course)	✗
Employment	✓	✓	✓	✓
Retirement	✗	✓ (charge per request)	✓ (charge per request)	✗
Blind Repository (included Technical Support)	✗	✗	✓	✓ (charge per module)
Account Subscription Fee (Tentative)	Free	Free	Free	15\$/ account (monthly) 5\$(donate to TAB) + 10\$(service fee)

Table 2. Subscription-Based Service Plans

External Environment and Competition

Social business is now growing in Thailand. The comparative view of companies and organizations who are working for the blind people in Thailand are presented as follows:

Services	Klong Dinsor	Nectec	WAWTA
Life Advice	✓	✗	✓
Health & Lifestyle Activities	✓	✗	✓
Assistive Tools & Products	✗	✓	✓
Volunteer	✓	✗	✓

Services	Klong Dinsor	Nectec	WAWTA
Profession Training	✓	×	✓
Employment	✓	✓	✓
Retirement	×	×	✓
Blind Repository (included Technical Support)	×	×	✓

Table 3. Comparative Overview of Thailand's Organizations for Blind People

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN

Financial Projections

Source of funding	Portion	Existing financing (\$ amount)	Projected financing (\$ amount per year)
Corporate investment	40%	\$ 7500	\$ 10000
Government funding	30%	-	\$ 7500
Sales	20%	-	\$ 6000
Seed Fund (Investor)	10%	\$ 7500	\$ 3000
Total funds	100%	\$ 15000	\$ 26500

Table 4. Sources of Funding

Use of Funds	Portion	\$ Amount per year
Recruiting costs and salaries of new hires	50%	\$ 9000
Resource acquiring (including Hardware and Software)	20%	\$ 3000 (one-time cost)
Operation & Maintenance	30%	\$ 6000
Total	100%	\$ 15000 (approx.)

Table 5. Use of Funds

6. THE ROADMAP

Current Status and Milestones

Where were we in 2017-2018?

WAWTA #3 Exhibit in 9th Annual General Assembly of The blind



Promote 3D printed map for blind people (CR: Mater Dei Institute)



Apr 2018



V.1.0.1 on App Store

Assistive Tools & Products

May 2018

WAWTA #4 Start volunteer in Profession Training for the blind



Profession Training

WAWTA #1 Prototype



WAWTA (Unreleased)
WAWTA Education

- This app is in development. It may be unstable.
- This app is compatible with all of your devices.

Oct 2017

Feb 2018

WAWTA #2 Pitch to TAB



What is One-Stop Service Platform?

WAWTA #5 volunteer in preparation for retirement event for the elderly blind and people with disabilities



June
2018

WAWTA #6 Facilitate in the blind's women empowerment meeting



July
2018

WAWTA #7 Volunteer in O&M Training for the blind



Volunteer

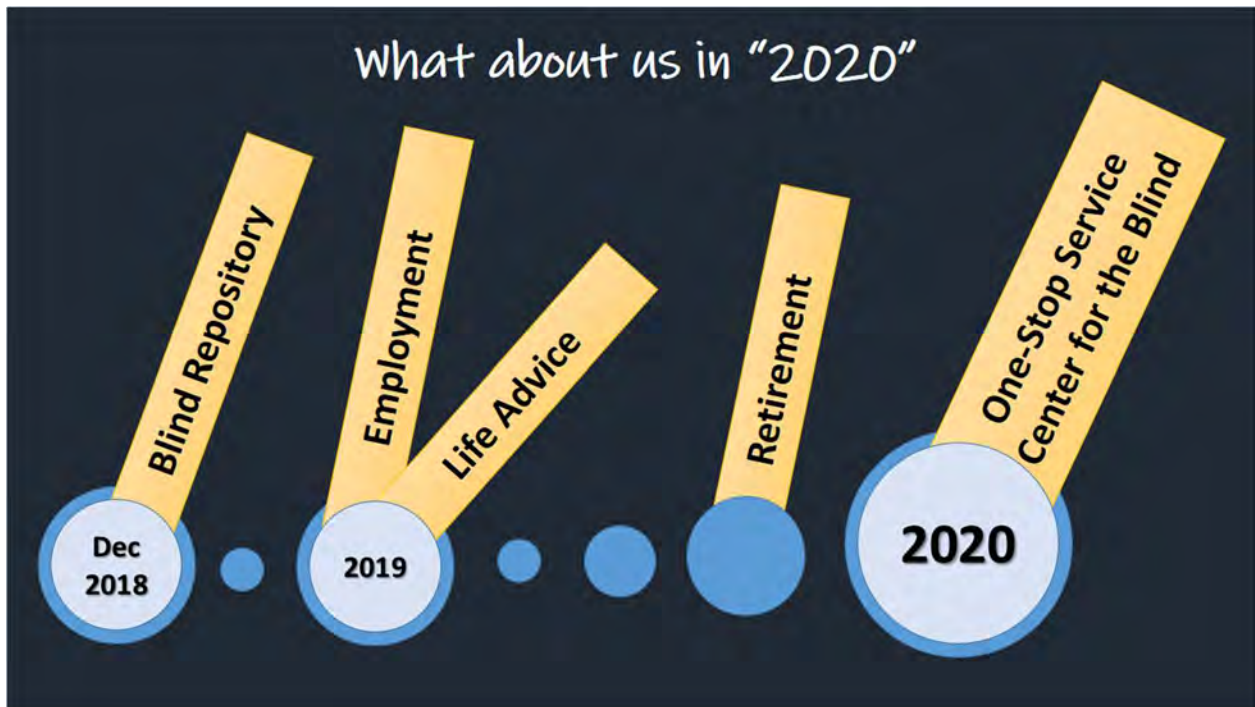
Lifestyle Activity

WAWTA #8, #9, #N
Where will we go?

Keep us post on WAWTA Page

<https://www.facebook.com/wawtagiver/>

Where are we going?



7. THE TEAM

Our Team

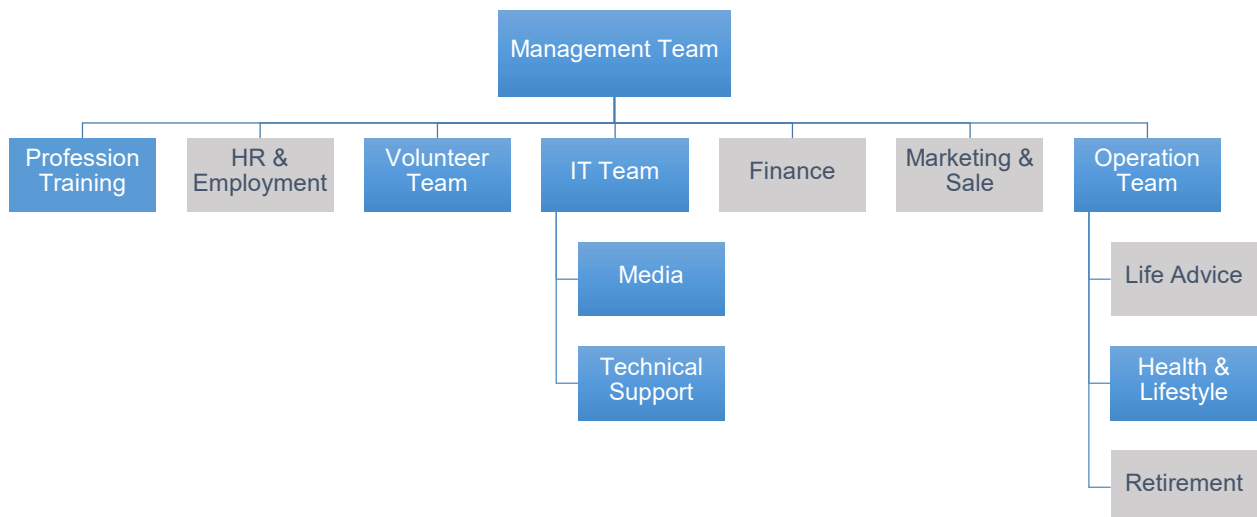


Figure 2. Company Structure

Note: Function in blue is activated while function in gray will be open soon

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YouTube Channel

<https://www.youtube.com/channel/UCLgN4PlsRaFLHNo6ZextfHA>

LIST OF ABBREVIATIONS

AIT	Asian Institute of Technology
iOS	iPhone Operating System
OSPB	One-Stop Service Platform for the Blind
TAB	Thailand Association of the Blind
THB	Thai Baht
USD	US Dollar

LIST OF FIGURES

Figure 1	One-Stop Service Platform Model for the Blind
Figure 2	Company Structure

LIST OF TABLES

Table 1	Descriptions for One-Stop Service Platform Model for the Blind
Table 2	Subscription-Based Service Plans
Table 3	Comparative Overview of Thailand's Organizations for Blind People
Table 4	Sources of Funding
Table 5	Use of Proceeds

Cases Vietnam



Ami



1. THE COMPANY - About Ami

Digitizing information, transforming cities.

From smart citizens. For a smart nation.

Ami

Aiming to use technology in order to connecting and digitalizing resident information, BMG Ami has developed advanced software and hardware products based on latest technologies such as blockchain, IoT, AI... It provides a digital platform that offers services and products to residents. The solution generates practical values; and at the same time, providing a foundation with forming digital infrastructures helps Ami's partners, landlord's and owners, to bring the best services to their clients, the tenants.

Residents as customers

Ami understand its residents. No matter where they live, no matter what major they study or what their jobs are; Ami knows that each of them wants to be served by the best services.

Residents with a good reputation and creditworthiness will be granted special offers or new services, proposed from proper suppliers. The connections between residents and suppliers are broad and unlimited among Ami's ecosystem such as universities, building management boards, landlords and even recruitment agents.

Partnering companies

Ami has built up a digital management platform that provides services and products which are valued in the digital economy. The platform enhances the advantages of Ami's clients, customers and investors. The best service will be brought accurately to its purchasers. More satisfactions from service providers would make residents happier.

Awards/Achievements

- The first prize of TechFest 2017 - A Startups Contest hosted by the Ministry of Science and Technology, granted a field-trip to Silicon Valley as the award.
- One among 54 Start-ups selected around the world to receive Global Accelerator Program (GAP) Scholarships for 4 months training at the MaGIC Startup Nurture Center in Kuala Lumpur, Malaysia.
- The one and only Vietnamese representative attending Digital Technology Big Bang Thailand 2017. Products displayed invited in Big Bang Thailand 2018.
- One among 10 Start-ups in final round of South East Asia Region Contest, a part of Global Start-ups Contest hosted by MIT, American.
- The Best Idea selected by UTCC University in Thailand.
- Top 30 of Slush Singapore Contest.
- Vietnamese Representative Products displayed in RISE - biggest technology exhibition in Hong Kong.
- Honored on Forbes Magazine
- Attendance and Guest Speaker in seminars and technology forums hosted domestically and internationally.
- One among 80 startups from all around the world, selected from 1700 startups, participate K-Startup Grand Challenge 2018 in Korea.
- 2018 Rice Bowl Awards of South East Asia for the Best Automation Tools and the Best IoTs Devices.

BMG Ami Technologies JSC is one of the first start-ups wave of Vietnam who confidently bring their own technological products to compete with others in different regions and to all over the world.

2. THE INNOVATION

Ami's vision does not end with the management platform, with technological innovations. The team would exploit data's power from digital platforms to bring more values to the community. 11 products are planned:

1. Ami Authentication
2. Ami Building
3. Ami Citizen
4. Ami Electricity
5. Ami Fingerprint
6. Ami Landlord
7. Ami Manager
8. Ami Pay
9. Ami Hero
10. Ami Rooms
11. Ami University



Figure 1. Ami-CEO Lê Hoàng Nhật

I. PRODUCTS (Ami Landlord/ Ami Manager / Ami Building/ Ami Citizen/ Ami Pay/ Ami Hero/ Ami Rooms)

1. Customer Segment:

a. Landlords / Investors

These include landlords or investors who are willing to rent out their places. They make some money out of an unoccupied space. They own or manages at least 50 rooms for rent with rental price ranging from 200 USD/month to 700 USD/month.

b. House/ Property Manager

They do all jobs for landlords: List rooms, show rooms, registration, electricity measured, send bills, collect payments, report issues, business report...

c. Real Estate Investors / Shareholders

These include companies who provide apartments, design and create communities with modern lifestyle and facilities, which is defined by 3 categories: Less than 1000 apartments, From 1000 – 3000 apartments, and Above 3000 apartments

d. Tenants

Person who has the right to use and occupy rental property in accordance with a rental agreement or lease.

2. Problems:

a. Landlord/ Investors and House/Property Manager all have some problems of operation such as:

- Building relationships with tenants to check their actions and evaluate solvency
- Many jobs have to be done: Different duties lead to inefficient operations. It is difficult to scale up their business as information about the tasks and data channels are distributed.

b. Real-estate companies have some problems:

These companies do not have any technology platform to support property managers in their management. The platform would help them to leverage residential data and workflow. This means this precious information would be vain and could not bring value back to these investors.

c. Tenants often have difficulty in:

- Finding a high-quality accommodation.
- Right to have tenant benefits such as communicate to property-managers, report issues and do payment, rating and review every month.

Solution – Value Proposition:

Ami Landlord and Ami Manager Solution bring helpful management system to save time, financial transparency, fast repairs and cost reduction. Interacting with landlords through a third party like Ami help build trust and bring benefit to tenants.

- **Ami Landlord** – Smart Platform (website landlord.aminion.com)
- **Ami Manager** – Smart Application (download app Ami Manager on Google Store and App store)
- **Ami Building** – solution for Real-estate companies. We provide the software that helps condominium managers to optimize the management process, improve service quality, and increase interactivity with the entire population. The building staff application is specifically designed for apartment management staff, to record and resolve incidents from residents or for the maintenance of the buildings.
- Ami is providing a channel namely **Ami Rooms**. This channel provides flexible and cost-effective accommodation for both short-term and long-term guests, such as expats, students, employees, young families, business travelers with middle income in big cities. Guests get to choose their favorite match in a wide range of costs in variety of places in Ho Chi Minh City.
- Ami is also providing **Ami Hero** - Property Repairman: Home improvement professionals arrive at home to repair broken fixtures and household items. We develop an app to help people save time and cost with fully accurate information and professional and efficient management.
- **Ami Citizen** - A super utility app for all residents of condominiums, rooms for rent, offices and universities with whom Ami is coordinating the service management via Ami Building, Ami Landlord, Ami University, Ami Office, etc. Ultimately operated as each citizen's digital profile, recording everyday activity such as personal information, school, workplace, place of residency, services used, etc.
- For tenants the community health is improved. This application aims to bring convenient, comfort service and enhance life. Moreover, this is a powerful assistant to help you control your expenses and improve worrying issues.
- **Ami Pay** – payment gateway for house/room rent via Ami Citizen app for every single tenant who has internet/mobile banking service.

II. PRODUCTS Ami Electricity / Ami Fingerprint

1. Customer Segment

a. Ami E - Companies and Individual

Potential group customers are real estate investors/ landlords/ business companies or individuals who are keen on controlling their daily electricity consumption, having a plan for power savings and solving electrical problems.

b. Ami F- Companies and Individual

Potential group of customers are real estate investors/ landlords/ business companies who are keen on monitoring and controlling in/out access, and individuals who are keen on checking in-checking out remotely.

2. Solution:

Ami Electricity - Combination of IOT device with AI, the real-time warning and energy savings solution, energy consumption forecast.

- Measure and display up to date electricity consumption
- Apply AI to analyze, compare power consumption of each device in the room.
- Monitor energy consumption efficiently.

Ami Fingerprint

- Remotely open doors automatically lock doors.
- Remotely enroll/delete fingerprints access.
- View “check-in/check-out” history.

III. PRODUCT Ami University

1. Solution

This is a student data management platform, including academic data and accommodation-based data. Management is facilitated for grading student behavior, training, subject quality and faculty lecturers. There is also a communication portal between the school and students. New experience of getting customized notifications for each individual is possible. Information is constantly updated to connect students with businesses.

IV. PRODUCT Ami Authentication

1. Solution

Blockchain application for supply chain. This is a solution for businesses and users to limit the status of counterfeit goods and claims regarding product authentication, to enhance brand awareness for the business and to build trust with the users.

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Ami is looking to “digitize all connections between citizens and managers or service providers using software and hardware all within a single platform.” In other words, Ami wants to connect the Vietnamese population (and if all goes as planned, eventually additional Southeast Asian populations) with their residences and institutions - from houses, to buildings, to universities, to companies, to hospitals and beyond - to create a real digitized community. Now we start building an ecosystem of products and applications tied to this cloud-based platform. Ami’s product development strategy is broad and diverse, and the first phase focuses on the booming real estate sector in Vietnam. (It is impossible to walk the streets of Ho Chi Minh City or Hanoi without marveling at the amount and scale of construction in progress). Products: **Ami Landlord/ Ami Manager / Ami Building/ Ami Citizen/ Ami Pay/ Ami Hero/ Ami Rooms.**

Looking ahead, Ami plans to expand its reach into spaces such as education and energy management, with 3 products in the pipeline. Each product is rooted in local user research, with phased launch strategies to test adoption.

Ami E - Energy saving is now transforming from a trend to mainstream in construction of green buildings (Cocchia, 2014; Calzada & Cobo, 2015). According to the Vietnamese Technology and Energy Forum 2017, only 70% of energy has been saved so far. Also 82% of buildings and industrial plants are not using energy efficiently. However, the market share of management and care of professional buildings of domestic enterprises is quite modest and mainly operated by foreign investors. In Vietnam, the market share of effective management and care of buildings is mainly dominated by foreign providers. Until now, there are few of all Vietnamese start-ups, including AMI, participating in this market. AMI enables landlords to better forecast the consumption of electricity, wat reduce headcount, and cost. Besides, landlords are able to connect tenants and property managers via AMI software.

Ami U - is in discussions with Vietnam’s university networks to offer data management solutions to facilitate better communication between universities and students when it comes to course registration and performance monitoring, and has a pilot with 30,000 students slated for this month, June 2018. The eventual goal is for the Ami Citizen app to operate as a hub through which users can access and interact with all of these products, connecting to service providers from universities to building managers to companies. The more that citizens make use of the app (and increase their

'citizen rank,' analogous to a page rank within a search engine), the more access they will have to new services rolled out on the platform.

Ami's development is still in its nascent stages, but given its aggressive product roadmap and timeline, and how quickly fortunes turn in Vietnam, time will soon tell whether the company is able to achieve its goal of digitizing day-to-day life for Vietnam's young and growing population. In a rapidly developing country like Vietnam, a 'big-bang' all-at-once product development approach might just work, and other companies interested in entering or expanding within similar emerging markets should take note. The prospect of such a bold project to succeed certainly makes Ami a company to watch in 2018.

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

Market Valuation

In Ho Chi Minh city only, there are approximately 2 million rooms for rent with the monthly rent ranging from \$200 - \$500. The average management fee is at 6% per month. Our ambition is to acquire only 5% of the market, consequently, our market in Ho Chi Minh city is valued at \$1.2million - \$3million per month or \$36million a year. Looking further beyond Ho Chi Minh city or even Vietnam, our solution can be applied in a regional scale especially to the Asia Pacific region where most countries are heavily affected by the downside effect of urbanization caused overpopulation in its central cities.

With an own core technology and a strong team, AMI aims to expand its market to the South East Asia region in the next five years. To achieve that goal, AMI is looking for both strategic investors and partners. AMI turns its gaze at experienced partners in the field of hardware manufacturers, B2B market development partners to fill the gap in AMI's capabilities, as well as partners in the same ecosystem in order to develop market-fit solution and educate the emerging market of energy savings.

Competition

If looking from a product point of view, we have different competitors for different products, but we have always been the first mover in each sector.

On the other hand, we see ourselves as a data company aiming to digitizing and connecting Vietnam's almost 100 million people through a system of digital software and hardware products. And no company has ever built such an ecosystem.

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN / BUSINESS MODEL

Our business model has three dimensions:

- Monthly subscription: we take monthly subscription from B2B partners on Ami Landlords (rooms rental management platform) and Ami Building (building management platform)
- Commission of each transaction made on Ami Hero (maintenance management platform)
- Product retail: Ami E (energy meter) and Ami F (fingerprint security lock)

I. Key Resources

- Patent for product (for 2 years)
- Human resource: 50 in total.

II. Key Partners

- Payment gateway: AMI is cooperating with 11 large banks In Vietnam
- Internet provider: AMI is partnering with Microsoft.
- Electricity meter: AMI is working with FreeLux

III. Cost Structure

- Salary of engineers, business development & marketing.
- Research and development
- Improvement of the software and hardware products in the future

IV. Revenue Streams

- Monthly recurring revenues charged to landlords and tenants
- Hardware and device

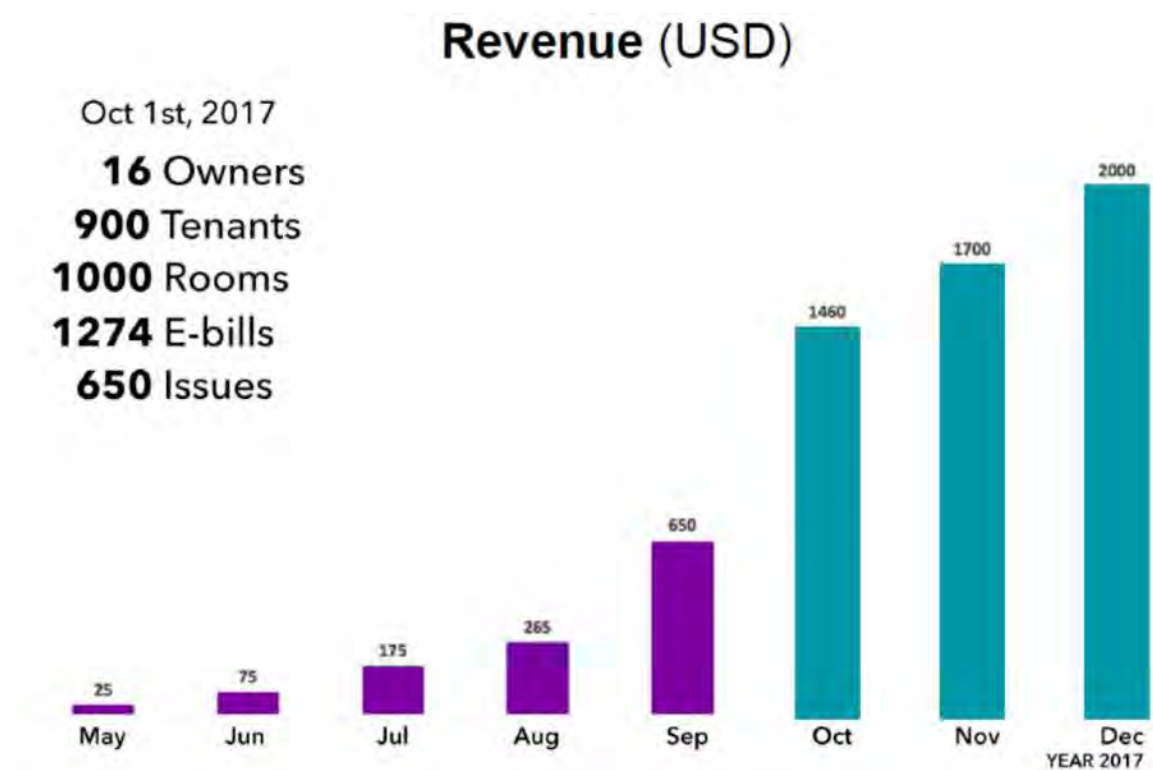


Figure 2. Revenue in U.S. Dollar

6. THE INTERNATIONAL DIMENSION OF THE BUSINESS PLAN

As mentioned above, we vision ourselves as a data company developing different platforms to build up a foundation of smart cities, our package solutions can be internationally applicable especially in countries whose strategy is to develop a smart city movement such as Singapore, Korea, Japan, etc.

7. THE ROADMAP

We started Ami in May 2017 with the room's rental management platform. By the end of 2018, we have reached up to 3,500 rooms. And though the Ami Building platform has just been released recently, there is approximately 3000 apartments being managed by Ami B. Our goal in 2019 is to reach out to 100,000 rooms on Ami Landlord platform, 200000 apartments on Ami Building, and 1 million rooms by the end of 2022.

8. THE TEAM

- A good team of both software and hardware experts and international advisors.
- A business team for growth hacking.

Facts

1. *Company name*
2. *Start from*
3. *Website*
4. *Email*
5. *Tel.*
6. *CEO/Founder*

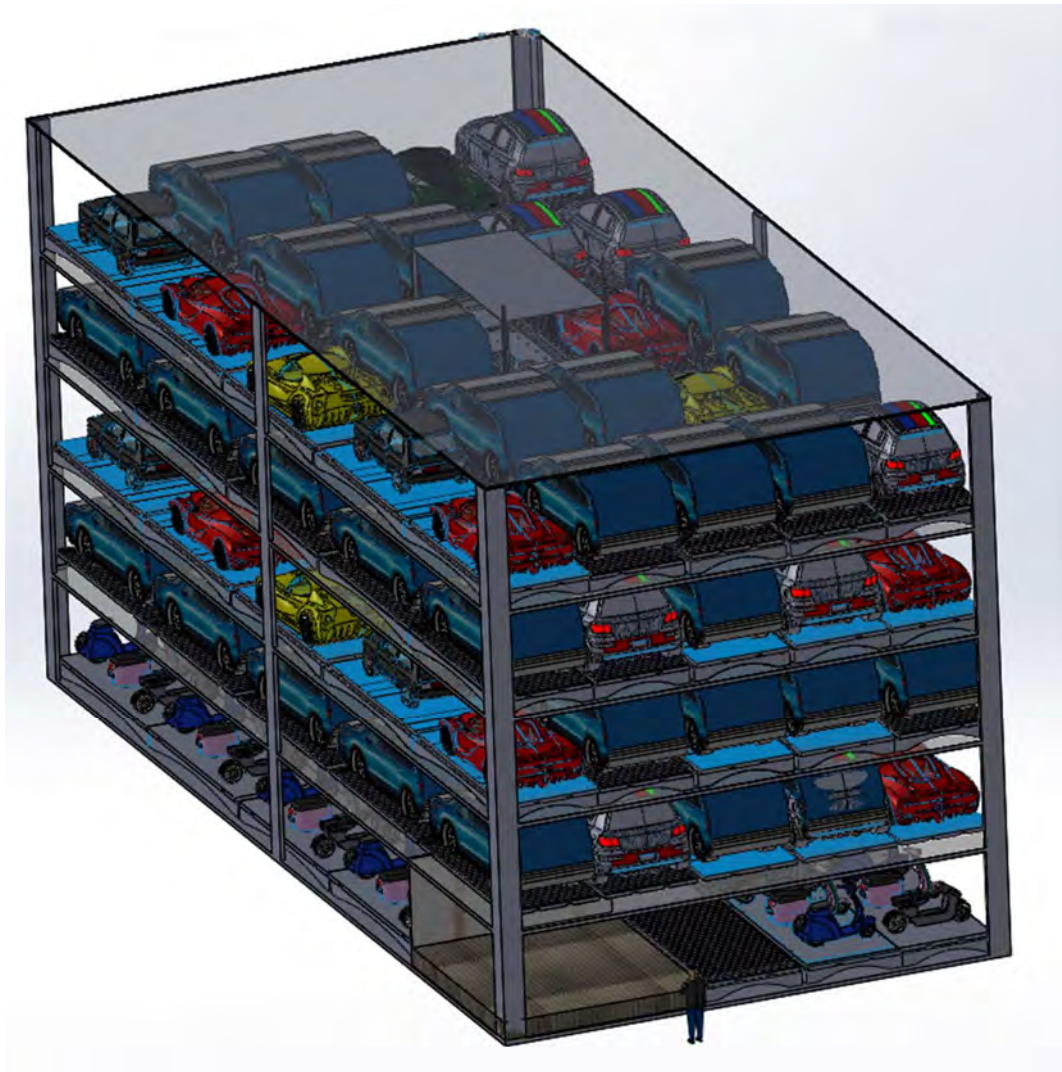
Figures

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Lê Hoàng Nhật

LIST OF ABBREVIATIONS

AI	Artificial Intelligence
IoT	Internet of Things
GAP	Global Accelerator Program
UTCC	University of the Thai Chamber of Commerce

Smart Modular Parking Lot



1. THE COMPANY

Project Summary

This is a start-up project of a young and enthusiastic team of two members with strong technical background. As a service organization, our mission is to serve our customer best at an affordable rate by applying new technology developments.

The Smart Modular Parking Lot (SMPL) builds a smart parking system out of mini modules where each module fits a car or motorbike. It can be placed in any area and stores cars in multiple layers. The system can optimize and transfer any manual basement car park to a fully automatic system and increases parking slots by 50%-75%, which are very convenient, fast and secure, by using Internet of Things (IoT) technology to connect the owners and the parking system. This is also a great solution to support the government in reducing the overloaded traffic congestion. The system requires a lower initial investment than other Smart Parking Lots and is potentially giving a higher probability of making a profit. Another advantage is the combination of this solution with traditional lots with an upgrading of the parking lots at an affordable cost.

Parking lots are the potential market with very few strong competitors. The market share is increasing rapidly, corresponding with the population growth and improving living standards.

To achieve that goal, we need much support in training, relationship building and money. Our plan is to go international one year after we are able to build a first parking lot in Vietnam, so the main focus is on the first stage of the project in Vietnam.

2. THE INNOVATION

Product

The Smart Modular Parking Lot is built from many mini modules which can be placed in any area and stores cars in multiple layers. The system can optimize and transfer any manual basement lot to a fully automatic system and increases convenient and secure parking slots by 50%-75%. The parking lot applies the Pay as you Go system and connects with the vehicle owner by our SMPL app using IoT technology. The user can easily access the app to track the nearest available parking lot, set the parking schedule, make a payment or request technical support.

Our evolutionary innovation is the smart parking vehicle module which moves a car in 4 different directions to eliminate unnecessary space at the exit and entrance. Also, an exceptional advantage is the uncomplicated assembly of the small modules

for easy installation and maintenance. With a special design based on the design of an aircraft cargo loading system and our innovation we prevent the violation of intellectual property, and we reduce both the cost and the power used on each step of moving the vehicle.

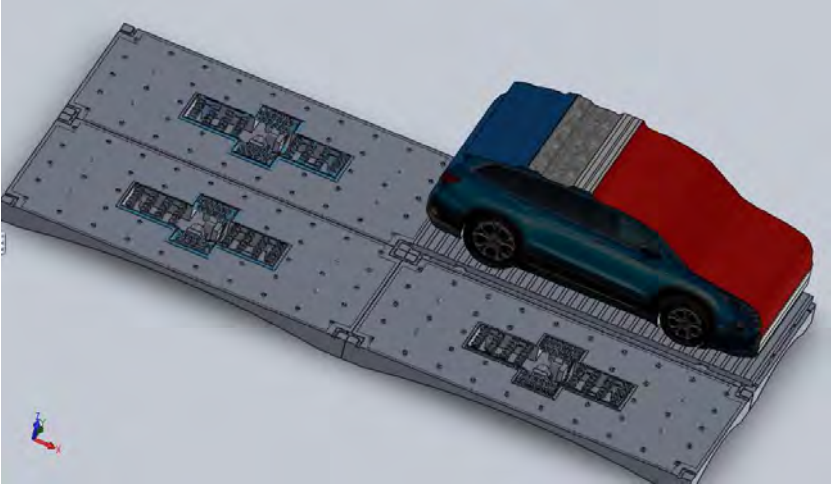


Figure 1. Parking Lot with Car

Smart Parking Vehicle Module

The principle of moving a vehicle in the parking system is simulated to the sliding puzzle

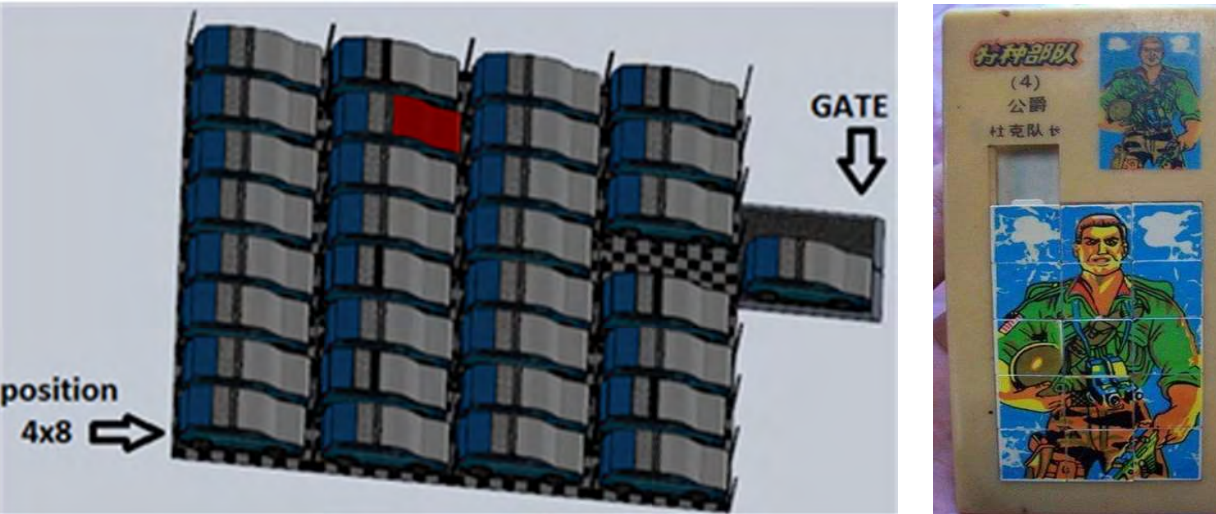


Figure 2. Parking matrix 4x8 and sliding puzzle game

zle game to slide pieces along certain routes to get the target vehicle at the exit. A car/motorbike can move to any position in the parking lot and an algorithm is used to calculate the shortest road until it is at the exit door.

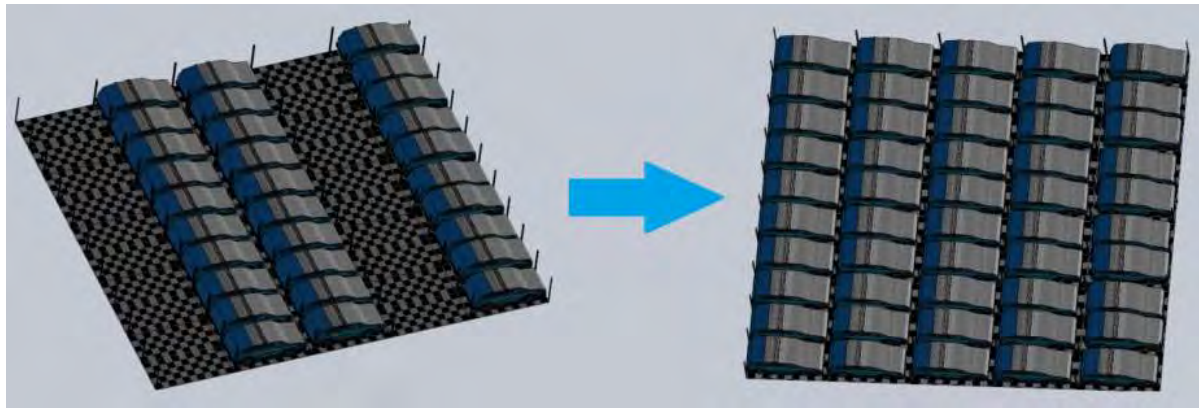


Figure 3. A 5x10 Parking Slot

Another advantage of this flexible module is the ability to construct the parking lot in multiple layers easily.

A model was built to show that our system design works perfectly.

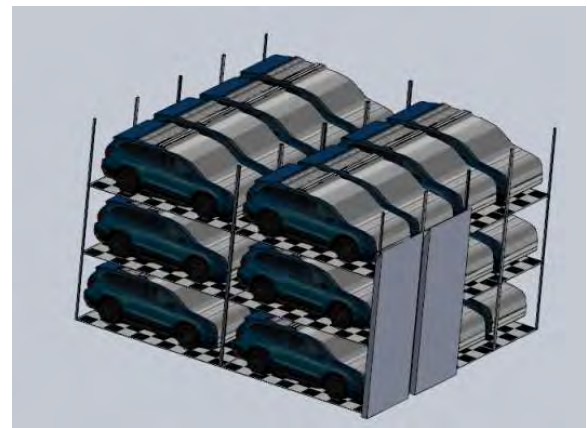


Figure 4. Parking Lot in Multiple Layers

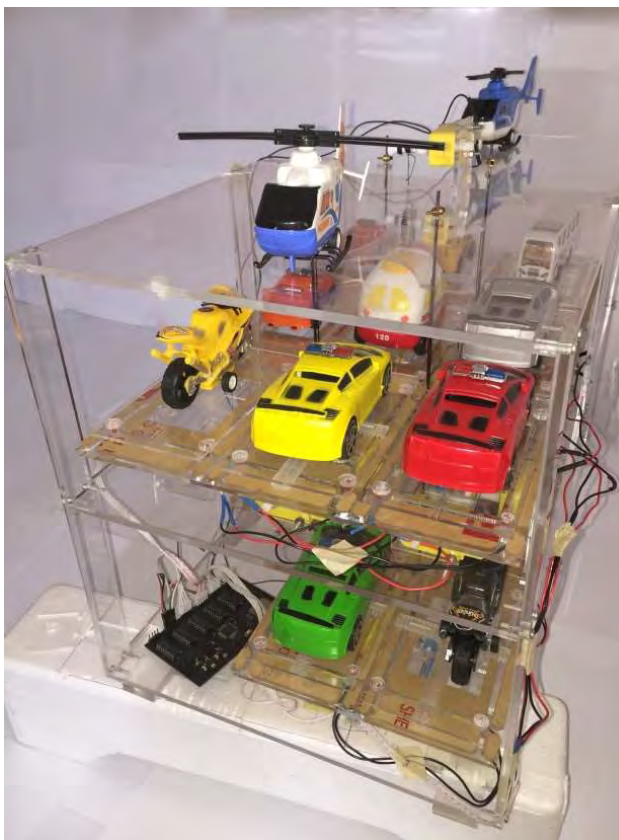


Figure 5. Smart Modular Vehicle Parking Lot Model

3. THE BENEFIT AND THE IMPACT; SCALABILITY

Our technology optimizes and transfers any manual basement car park to a fully automatic system and increases 50%-75% parking slots. A smart parking system from mini modules where each module fits a car can be placed in any area and stores cars in multiple layers by using Internet of Things (IoT) technology to connect the owners and the parking system. This is also a great solution to support the Government reducing the overloaded traffic congestion. The system requires less initial investment than other Smart Parking Lots but gives a higher probability of making a profit.

The market share is increasing rapidly corresponding with the population growth and living standards improve. This opportunity makes it possible for the company to gain the access to the market. Also, in those countries that are either facing the difficulties in reducing traffic jams, lacking of parking lots or seeking a sustainable solution for parking system, our solution will probably be supported by the Government and become a solution for congested cities.

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

Market Overview

Currently, in Ho Chi Minh City, the market share for parking lots accounts for only 0.1% of 10% of the requirement urban area. It is presented in 2 segments: On-street parking and off-street parking. Most of the on-street parking is free but space is very limited and there is a high risk that the vehicle can be damaged or stolen. An effective solution to adapt to the numerical increase of vehicles is only possible with off-street parking where a monthly or hourly fee is charged for parking.

Vietnam observes a steady increase of car registrations over years. There are roughly 900 new vehicles registered per day in Vietnam in general and about 150 of them are from Ho Chi Minh in particular. According to the Department of Transportation in 2016, Ho Chi Minh City has 8.5 million motorbikes. This is an increase by 2 million compared to 2011 and the highest in the country. In contrast to the rise of motorbikes and cars, the public transportation system and urban structures have a very slow development. As the result, Ho Chi Minh is overburdening the city's traffic system.

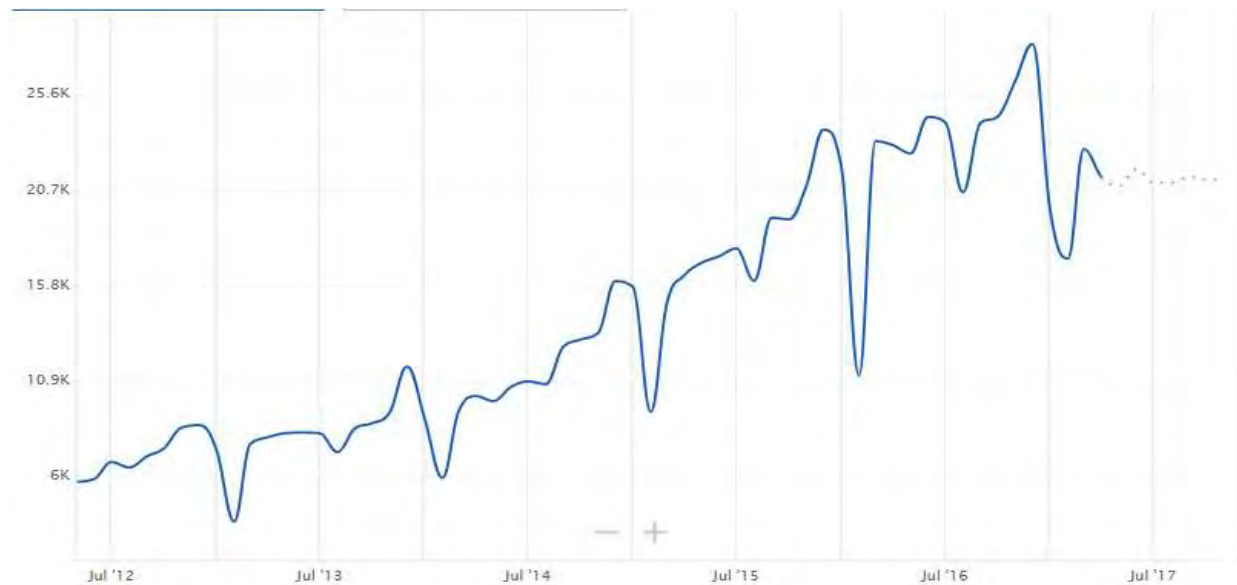


Figure 6. Car Registration Trend in Vietnam¹

Direct Competitors

In Ho Chi Minh City, Smart Car Park and Building Parking Garage are our direct competitors. These businesses are not new all over the world, especially for developed countries, but they have just started up in Vietnam in 2016. They have strong support from the Government in terms of location, investment and country policies. There will be 6 multi-story parking lots in six “high-traffic” locations to cover the whole city. Today, this is considered to be the best solution to reduce traffic congestions due to parking in the streets. These parking lots are technology transfers from developed countries: USA, Germany and Japan.

In contrast, these two businesses require an extremely high investment, but still have some gaps in terms of optimizing the use of space. Besides Smart Car Park which owns a small segment of the market, Building Parking Garages is more popular in Ho Chi Minh City. Building Parking Garages, just like Smart Car Park, needs a high initial capital investment, high operating and maintenance cost and extremely large space. The biggest downside is the reduced availability only for downtown employees and condo residents.

Competitive Advantages

Both systems are confirmed working and have a long development history in other countries which can easily gain trust from the investor.

¹ ieconomics.com
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5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN

Revenue Model

Revenue of the project comes from different sources depending on the stage of the development process. In the early stage, the main revenue comes from the parking owner who is collaborating with us. When the business is expanded, selling franchises and building our own SMPL will become the primary revenue source.



Figure 7. Revenue Model

Financial Highlights

The initial investment for the project can be adjusted to the size of a parking lot. This advantage in our technology allows the team to start up with a low-risk statement. Modeling a simple financial requirement for one parking lot with a capacity of 116 cars (5 levels) is included below.

Investment and Module Calculation

Total cost for hardware = Manufacturing cost + Installation cost

Manufacturing Cost			
Parts	Quantity	Price/unit	Price
Omnitrack High Capacity Ball unit	4	2,645,000	10,580,000
Motor 4KW	2	4,600,000	9,200,000
Manufacturing price	1	16,100,000	16,100,000
Sensor	4	23,000	92,000
Other devices	1	4,600,000	4,600,000
Total			40,572,000

Table 1. Manufacturing Cost

A parking lot with capacity of 116 cars (5 levels) will cost 1.5 billion VND in average. So, installation cost for 1 module is about 13 million VND. Cost of goods sold = COGS = 53,504,000 VND. Total cost to build a full SMPL is 6,140,000,000VND

Revenue

Our revenue is from two main channels: Collaborating with traditional parking lots and building our own SMPL.

Channel 1: Collaborating with traditional parking lots: C_SMPL

A parking owner will pay the total installation costs which are at 6,140,000,000 VND. A SMPL is expected to fill up 75% of the total capacity, and for 12 hours daytime 15,000 VND/hour will be charged, and 2,000,000 for the nighttime monthly ticket. In the first year of the project, we partner with one Basement parking owner and receive 20% revenue.

	Price/area	Units
Parking spots	116	Car
Ticket prices/hour	15,000	VND
Hours/day	12	Hour
Monthly price (12hours)	2,000,000	VND
Ratio	0.75	
Daytime Revenue	626,400,000	VND
Night time Revenue	232,000,000	VND
Revenue/month	643,800,000	VND
Revenue/year	7,725,600,000	VND

Table 2. C_SMPL Calculations

In one year, a C_SMPL makes a revenue of 7,725,600,000 VND and we receive 20%, so our revenue in each SMPL is 1,545,120,000 VND, while the parking owner will receive the yearly revenue at 6,180,480,000 VND.

Channel 2: Building our own SMPL

Using the same model, the revenue that we receive each year is the total revenue of a SMPL at 7,725,600,000 VND. In the 1st year of the project, we focus on collaborating with a Basement Parking to build the first SMPL. In the following second year, we continue the same collaboration model of then 12 C_SMPL in total and start 5 SMPL of our own. The progress is:

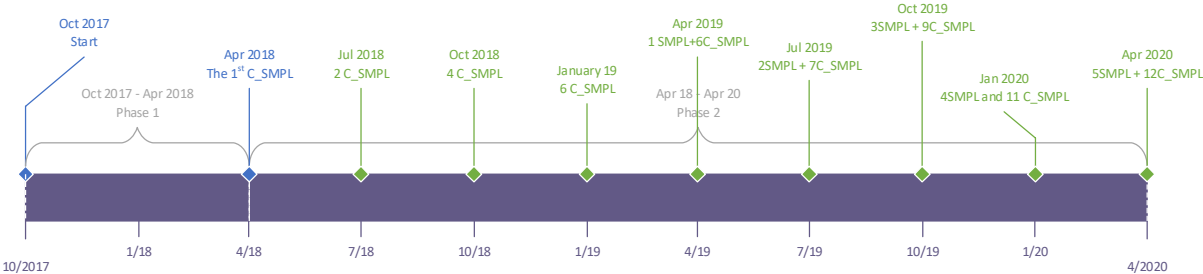


Figure 8. Progress of SMPL

Following the timeline of the project and the revenue for each channel, the revenue flow is shown as below:

1st year		2nd years		3rd year	
Date	Revenue	Date	Revenue	Date	Revenue
Oct-17	0	Oct-18	6,180,480,000	Oct-19	35,582,880,000
Nov-17	0	Nov-18	6,180,480,000	Nov-19	35,582,880,000
Dec-17	0	Dec-18	6,180,480,000	Dec-19	35,582,880,000
Jan-18	0	Jan-19	9,270,720,000	Jan-20	45,898,720,000
Feb-18	0	Feb-19	9,270,720,000	Feb-20	45,898,720,000
Mar-18	0	Mar-19	9,270,720,000	Mar-20	45,898,720,000
Apr-18	1,545,120,000	Apr-19	16,496,320,000	Apr-20	54,669,440,000
May-18	1,545,120,000	May-19	16,496,320,000		

1st year		2nd years		3rd year	
Date	Revenue	Date	Date	Revenue	Date
Jun-18	1,545,120,000	Jun-19	16,496,320,000		
Jul-18	3,090,240,000	Jul-19	25,267,040,000		
Aug-18	3,090,240,000	Aug-19	25,267,040,000		
Sep-18	3,090,240,000	Sep-19	25,267,040,000		

Table 3. Owned SMPL

Operating Cost

A car will fit in a module of 11m² (2.2x5.2m) and a SMPL with the capacity of 116 spots, 5 levels, will be a matrix 5x5. The basement's capacity is 20 cars and each next level is 24 cars. We reserve 10% of the ground space as a buffer for fire protection installation. The total area required is shown in the table below.

In District 1, the cost of renting space of 315m² is about 100,000,000 VND.

Active parking spots	116	car
Parking matrix_X	5	module
Parking matrix_Y	5	module
Levels	5	level
Module Area	11	m2
Active Area	286	m2
Auxiliary floor area	28.6	m2
Total area	314.6	m2

Table 4. Total Area Required

	Costs/month (VND)	Costs/year(VND)
Maintenance Cost	10,000,000	120,000,000
Office and small assets	15,000,000	180,000,000
Electricity	20,000,000	240,000,000
Employee	55,000,000	660,000,000
Place renting cost	100,000,000	1,200,000,000
Others	10,000,000	120,000,000
Total cost	210,000,000	2,520,000,000

Table 5. Costs of Renting Space

Until the first SMPL is built, the project only needs to pay for the employee salaries (3 persons) and office renting, the total cost is 70,000,000VND. As the result, the EBITDA (Earnings before interest, tax, depreciation and amortization) is:

	Revenue	Costs	Total COGS	EBITDA
Oct-17	0	70,000,000	0	-70,000,000
Nov-17	0	70,000,000	0	-70,000,000
Dec-17	0	70,000,000	0	-70,000,000
Jan-18	0	70,000,000	0	-70,000,000
Feb-18	0	70,000,000	0	-70,000,000
Mar-18	0	70,000,000	0	-70,000,000
Apr-18	1,545,120,000	70,000,000	0	1,475,120,000
May-18	1,545,120,000	70,000,000	0	1,475,120,000
Jun-18	1,545,120,000	70,000,000	0	1,475,120,000
Jul-18	3,090,240,000	70,000,000	0	3,020,240,000
Aug-18	3,090,240,000	70,000,000	0	3,020,240,000
Sep-18	3,090,240,000	70,000,000	0	3,020,240,000

Table 6. Costs of the 1st Year

The second year:

	Revenue	Costs	Total COGS	EBITDA
Oct-18	6,180,480,000	70,000,000	0	6,110,480,000
Nov-18	6,180,480,000	70,000,000	0	6,110,480,000
Dec-18	6,180,480,000	70,000,000	0	6,110,480,000
Jan-19	9,270,720,000	70,000,000	6,140,000,000	3,060,720,000
Feb-19	9,270,720,000	70,000,000	0	9,200,720,000

Mar-19	9,270,720,000	70,000,000	0	9,200,720,000
Apr-19	16,496,320,000	210,000,000	6,140,000,000	10,146,320,000
May-19	16,496,320,000	210,000,000	0	16,286,320,000
Jun-19	16,496,320,000	210,000,000	0	16,286,320,000
Jul-19	25,267,040,000	420,000,000	6,140,000,000	18,707,040,000
Aug-19	25,267,040,000	420,000,000	0	24,847,040,000
Sep-19	25,267,040,000	420,000,000	0	24,847,040,000

Table 7. Costs of the 2nd Year

The third year:

	Revenue	Costs	Total COGS	EBITDA
Oct-19	35,582,880,000	630,000,000	6,140,000,000	28,812,880,000
Nov-19	35,582,880,000	630,000,000	0	34,952,880,000
Dec-19	35,582,880,000	630,000,000	0	34,952,880,000
Jan-20	45,898,720,000	840,000,000	6,140,000,000	38,918,720,000
Feb-20	45,898,720,000	840,000,000	0	45,058,720,000
Mar-20	45,898,720,000	840,000,000	0	45,058,720,000
Apr-20	54,669,440,000	1,050,000,000	0	53,619,440,000

Table 8. Costs of the 3rd Year

Profit and Payback Period

The calculation is used from the Basement Parking owner to track the profit and the payback period of his investment when partnering with us.

Revenue Ratio	0.80
Capacity Ratio	0.75
Daytime income	626,400,000 VND
Night income	232,000,000 VND
Total income	515,040,000 VND

Table 9. Monthly Revenue: After paying the project owner 20%

The operating costs:

	Costs/year	Costs/month
Depreciation for 10 years/year	470,635,200	39,219,600
Maintenance Cost	120,000,000	10,000,000
Office and assets	120,000,000	10,000,000
Electricity	180,000,000	15,000,000
Employee	60,000,000	5,000,000
Place renting cost	1,200,000,000	100,000,000
Tax	618,048,000	51,504,000
Total cost	2,768,683,200	230,723,600

Table 10. Monthly Operating Costs, including depreciation of 10 year for the modules and 10% tax

The monthly profit and the payback period

Profit	284,316,400 VND
Payback Period	22 months

Table 11. Monthly Profit and Payback period

After 22 months, an investment of 6,140,000,000 VND (Modules price and installation) will be returned to the Parking Owner and the system will start making a net profit.

6. THE INTERNATIONAL DIMENSION OF THE BUSINESS PLAN/BUSINESS MODEL

Entry mode strategies

Licensing

This will be the optimal entry strategy of SMPL to international markets. We allow our partners the right to use our technology in particular countries within 10 years including copyright, patents, trademarks, designs, formulae and brand name. By using our process technology, the licensee needs to pay the licensee's fee together with sales-related royalties and take the responsibility for marketing in the assigned territory. Choosing a good partner for the licensing strategy is the key point of the international plan. In one hand, this strategy reduces the risk of being copied smartly but on the other hand, it increases the chance of a technology leak.

The licensing strategy is running in parallel with our strategy to develop the company in Vietnam as well as helping us on financing international expansion. This is a very important step for our branding strategy and gaining trust to our investors. This strategy will be deployed in Europe where the Intellectual Property is strictly protected and this is also a great market for smart parking lots.

Collaboration

This entry mode strategy is somehow similar to the Franchising strategy but we are giving our partner, the basement parking owner in host countries, a flexible selection in the size of the parking lot, depending on their investment, and we also become their supplier to provide the modules as well as technical support. They will become a part of our chain and share the profit at about 20%. Successfully transferring this type of parking system will help us to lead the market since this group has a long history of development and a good reputation from the society, that is definitely rewarding the market segment.

Branches

Five years after giving our partner in Europe using our process technology, we start opening our branches in other Asian countries. At this time, the brand has its reputation and becomes more popular, the company cash flow is increased and stable.

Selected Countries

Europe-Spain

Our first country in the internationalization plan is Spain, but we will move also to other European countries since those countries are very similar in term of licensing agreements for the transfer of technology, which will be our licensing strategy with customers. The plan will start in mid-2019, one year after we start the first parking lot in Ho Chi Minh City.

Spain, like many other countries in Europe, is seeking for a sustainable transport and parking strategy. They want an innovative technology for better parking management which will decrease street parking volume and facilitate procedures. This country also has the smallest parking space in Europe and people are always getting in trouble for parking their cars.

Politics

Entry to Europe will follow the EU competition rules on intellectual property.

Economics

According to ICCT, there are about 287 million cars in Europe in 2015. The number of road motor vehicles per 1,000 inhabitants in Spain is 593 and Spanish parking place is the smallest in Europe. The public car parking in some big cities like Madrid and Barcelona are tighter than anywhere else in Europe and the vehicle owners seem unable to exit their vehicles². This is because of lacking parking space in the cities. The average parking fee in Europe is 3 euros an hour³ and in Madrid and Barcelona it is 4.89 and 3.7 euros respectively, an expensive fee.

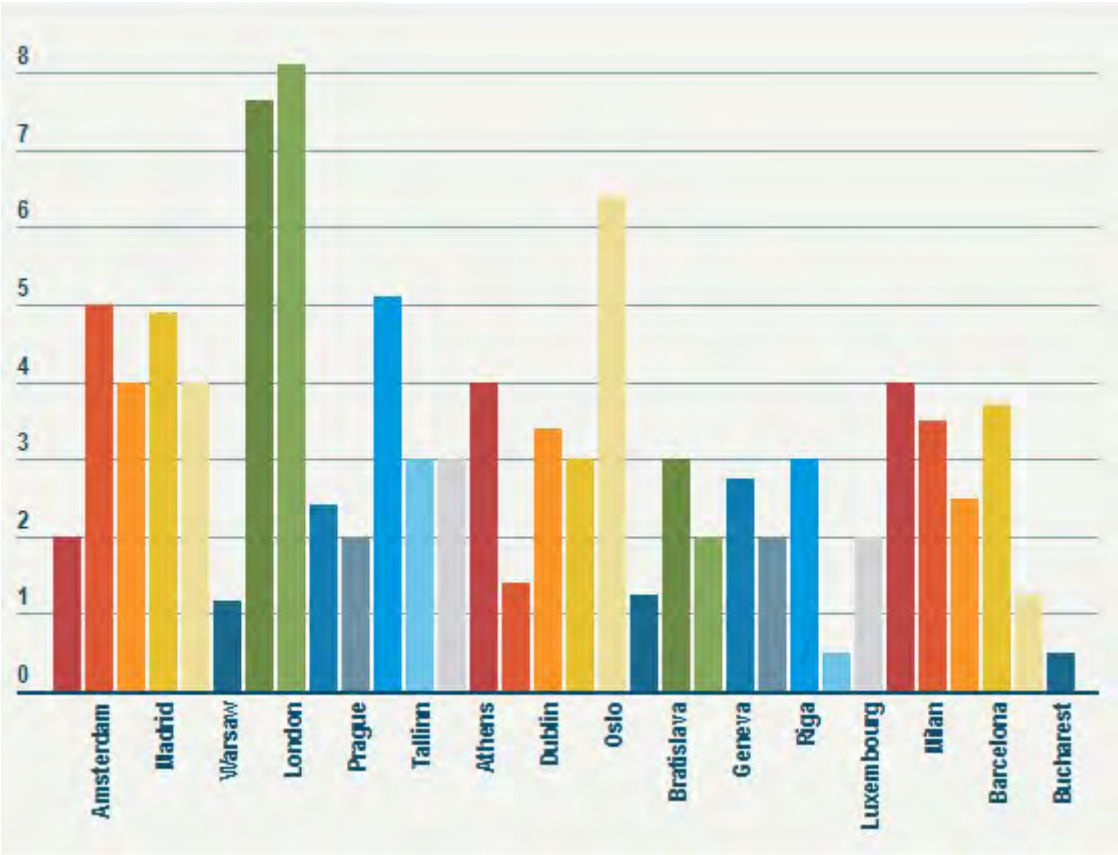


Figure 9. Average Parking Fee⁴

Thailand

As mentioned in our entry mode strategy, SMPL will expand the business in Asia and focus on some top countries which are suffering from lacking parking lots and traffic

² Thelocal.es
³ Euronews, Average Cost, April 2016
⁴ Euronews, Average Cost, April 2016

jams like Thailand, Malaysia, Philippines, and China. Among all, Thailand will be in the list of our 5-year development plan and Malaysia and Philippines will be in the 10-year plan.

Politics

According to the World Bank, Thailand is in the top 4 countries regarding the ease of doing business among Asia. Thailand is also the best destination for an expat experience since the Government of Thailand is giving foreign companies many good benefits in terms of tax incentives deduction and promoting the manufacturing and services sector (no foreign equity restrictions and no local content requirement).

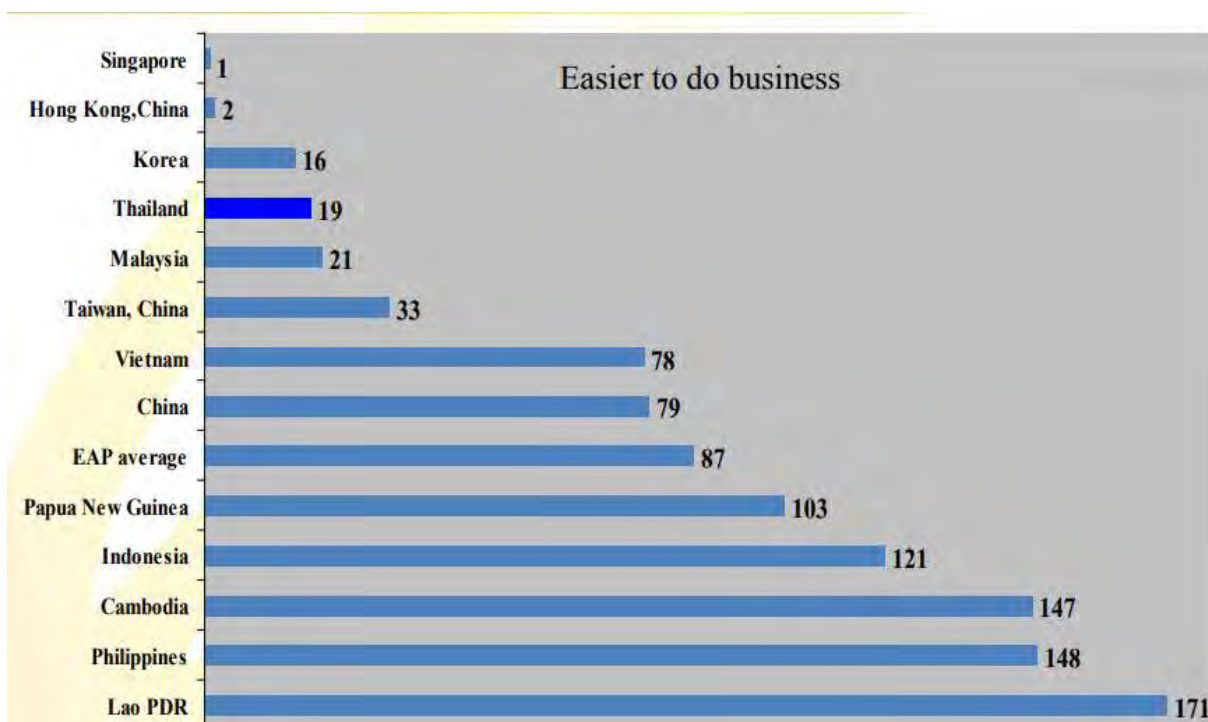


Figure 10. Ease of Doing Business in Asia⁵

Economics

Thailand has more than 37 million registered cars which are almost half of their population and continuously increase by 2.5 million per year. Most used vehicles in Thailand are located in Bangkok and other big cities and cause a lot of traffic jam. Thailand is very similar to Ho Chi Minh city, regarding living standard and parking price. Also, Thailand is the largest auto producer in Southeast Asia and the 12th largest global

⁵ Doing Business 2011, World Bank, as of Nov 25, 2010
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manufacturer which will give us more options to select the best manufacturer for the modules for an acceptable cost.

Rate 4 wheel car	
First 8 minutes	Free
9 - 30 minutes	10 bath
31 minutes – 1 Hour 30 minutes	20 bath
1 Hour 31 minutes - 2 Hour 30 minutes	30 bath
2 Hour 31 minutes - 3 Hour 30 minutes	40 bath
3 Hour 31 minutes - 12 Hour	100 bath
13 Hour 1 minutes - 14 Hour	200 bath
24 Hour	250 bath

Figure 11. Parking fee in Thailand⁶

One of the most important reasons we decided Thailand being the first country for opening our branch is the good protection of Intellectual property in Thailand. They have a long history of developing and improving the Intellectual Property as well as the high consciousness of the Thai. We respect their cognitive-behavior modification, and self-control training programs, and believe in the success of our decision.

⁶ chiangmaiairportthai.com

7. ROADMAP

We divide our plan to 3 periods: 6 months, 2 year and 5 years. This will list the key milestones we hope to achieve in the future and the target dates for achieving them.

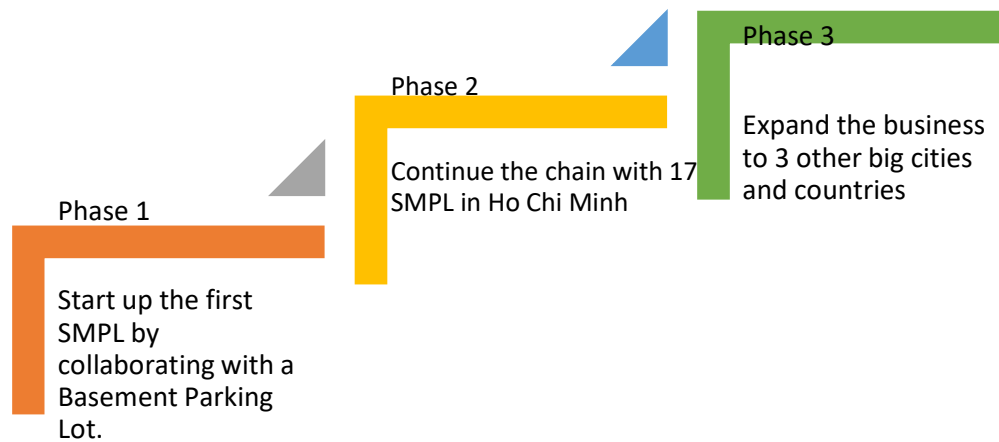


Figure 12. Roadmap

Phase 1: Short-term

- Start the first SMPL by collaborating with a Basement Parking Lot.
- Find key suppliers for module base and construction.
- Calling for investment from potential investors.
- Register the business to protect the Intellectual property.
- Get familiar with the license permit process.
- Focus on improving and validating the system.

Phase 2: Mid-term

- Increase the size of the business by setting up a chain of 17 SMPLs to cover the Ho Chi Minh City urban area. More focus on big districts and high-density population.
- Start 5 SMPL using our own money.
- Re-assess overall the parking supply and demand.
- Adjust the parking price corresponding to the market assessment, try to keep the price as reasonable as possible and taking the advantage of technical improvements to provide a better service and reduce the cost for customers.
- Depending on the progress of the business, define the next market strategy outside Ho Chi Minh City.
- Continue calling for high rate investors.

Phase 3: Long-term

- Continue to re-evaluate the market share and market trends to adapt to changes in the city development, technology improvement, and competitors' strategies.
- Expand the business to other locations based on the assessment from Phase 2.

8. THE TEAM

Management Team Members

Han Phan, Founder, Project Manager.

Han has three years' experience as an aeronautical engineer. He has an undergraduate degree in mechatronics from the Ho Chi Minh University of Technology. Han attended two technical conferences at the university and won the prize for the best paper at both. With his sound technical training, he is now ready to take on new challenges.



Figure 13. Team Members

Anh Ha, Co-Founder, Planning Manager.

Anh Ha has a Mechanical Engineer Degree from Portland State University since 2014 and has been working as a Process and Equipment Engineer for about 2 years. She also has 1.5 years' experience as a Data Science Analyst. She has in-depth knowledge of process management and quality improvement, and owns a Green Belt Lean Six Sigma certification.

Management Team Gaps

The team starts with two members and its experience is mainly related to technical issues. The fact that there is no entrepreneurial experience is defined as a weakness in the own analysis. Therefore, the founding team is also looking for additional members who are well versed in business strategy and marketing. A good network of contacts with the authorities would also make many things easier.

LIST OF ABBREVIATIONS

C_SMPL	Collaborate Smart Modular Parking Lot
EBITDA	Earnings before Interest, Tax, Depreciation and Amortization
EEC	European Economic Community
EU	European Union
ICCT	International Council on Clean Transportation
IoT	Internet of Things
SMPL	Smart Modular Parking Lot
SWOT	Strengths, Weaknesses, Opportunities, and Threats
USA	United States of America
VND	Vietnamese Dong

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Vietnamese Bird's Nest Exhibition Center (VBEC)

1. THE COMPANY

“VBEC, VIETNAM MUST VISIT PLACE” TO DISCOVER VIETNAMESE BIRD'S NEST INDUSTRY SECRETS



The Vietnamese Bird's Nest Exhibition Center (VBEC) business idea was found in the Swiss Innovation Challenge 2015 by two EMBA MCI Students (intake 6): Ms. Do Tu Quan and Ms. Hoang Kim Ngan. After the team won a prize in the Challenge, VBEC was built with recommendations of Swiss Innovation Coaches, the Ho Chi Minh City Department of Tourism, and the Vietnamese Bird's House Association. As a result, VBEC was established as a Shareholding Company on 11 April 2017. The Vietnamese Bird's Nest Exhibition Center got 2018 a Top Five Startup Prize of Ho Chi Minh City Tourism. Now, VBEC is one of Ho Chi Minh City daily tour must-visit-destinations.

Mission: Become one of Vietnam must visit places to promote Vietnamese bird's nests, help Vietnamese swiftlet farmers to sell bird's nests at the higher price, and provide quality Vietnamese bird's nests to the end user.

Vision: Must visit place to discover Vietnamese Bird's Nest Industry Secrets.

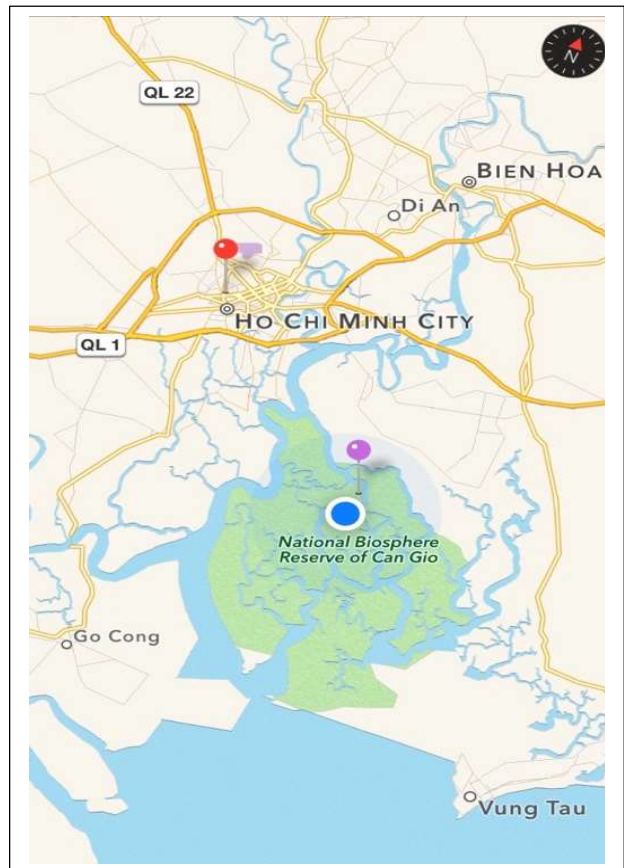
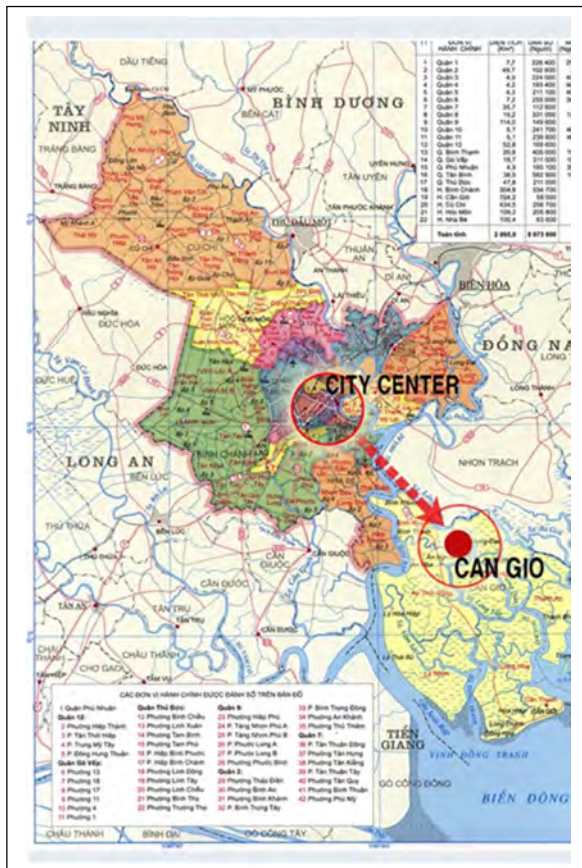
Goals:

- 1. Sell at least 2,455 kg of Vietnamese processed nests every year by serving at least 36,000 visitors each year.
- 2. Build brand awareness of Yen Quan Vietnamese Bird’s Nest as the best Vietnamese bird’s nest brand name.

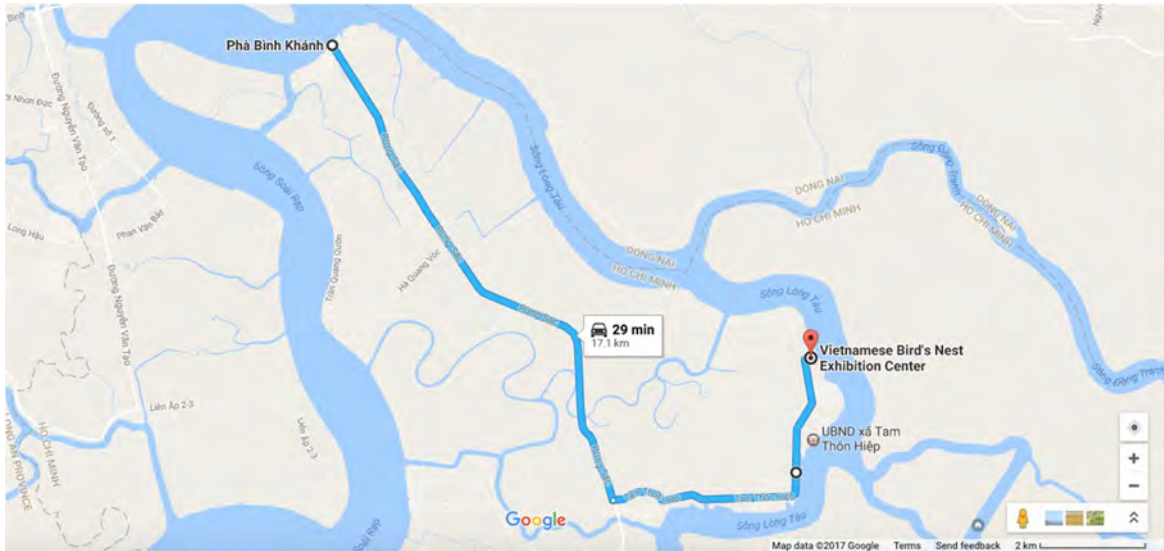
Segmentation: Tourists visiting Ho Chi Minh City

Positioning: Vietnam must visit place to try real Vietnamese bird’s nest soup.

Location: VBEC located at 654 Tam Thon Hiep Street, Tam Thon Hiep Village, Can Gio District, Ho Chi Minh City, next to the biggest bird’s house in Can Gio. The location is surrounded by Saigon River and Can Gio mangrove forest, which is listed in UNESCO Biosphere Reserve with a high degree of biodiversity.



It takes about 30 minutes by speedboats, an hour and a half by car to VBEC from Ho Chi Minh City Center. Visitors also can use a public bus to visit VBEC.



By car (60 mins): start at Huỳnh Tấn Phát street, go to Phà Bình Khánh, continue with Rừng Sác street, turn on Tam Thôn Hiệp street



By Bus (90 mins): Start with Bus No.20 from 23 / 9 Park to Bình Khánh Ferry, then Bus No. 90 from Bình Khánh Ferry to Tam Thôn Hiệp street, finally Bus No.127 from Tam Thôn Hiệp street to VBEC.



By Speedboats (30 mins): follow Sài Gòn River to Lòng Tàu River from Tân Cảng harbor to VBEC

2. THE INNOVATION

2.1 Bird's nest

Bird's nest, "caviar of the east", is among the most expensive foods on the planet. A particular species of Swiftlet produces edible bird's nest, and they are only available in the Southeast Asia region.

Bird's nests are one of the most popular tonics in Traditional Chinese Medicine (TCM). TCM believes bird's nests are neither warm nor cool; eating bird's nest influences lung, stomach, and kidney meridians, and improves appetite and complexion. Chinese commonly use bird's nest to aid recuperation from debilitating illnesses. Bird's nests also are used for convalescence, post-natal and post-surgical. With their high glycoprotein content, and their neutral energetic property, bird's nest can be consumed for a long time and by people of all ages. Modern studies have shown that bird's nest



is rich in Epidermal Growth Factor (EGF), which is responsible for skin and tissue

repair. In particular, bird's nest helps to relieve respiratory ailments such as asthma or chronic coughs.

Bird's nests are built for raising young birds. When the hatchlings are ready to fly off, the abandoned nests are harvested and the birds are not harmed. A new nest will be built for the next breeding season. Today, birds' houses which mimic natural cave environments with optimum humidity, light and noise levels are carefully maintained and monitored and have been built to avoid predators and over-harvest.

2.2 The innovation value

Bird's nests are selling in wet markets, retail shops, restaurants and online shops. Bird's nests not only bring health and beauty to humans, but also bring wealth to many people. However, there is an issue: swiftlet farm owners almost do their business in secret, then sell raw nests to wholesalers who pay for the long, tedious and labor-intensive bird's nest cleaning processes before selling dry bird's nests to retailers. As a result, retailers may not be sure about where the bird's nest actually comes from and how it was processed. It is probably not easy for end users to find and buy real bird's nests. As a result, after the Chinese fake blood bird's nest scandal in 2011, selling real

bird's nests becomes a challenge for small swiftlet farmers. Furthermore, the Chinese market is close with unidentified bird's nests, and other Asia markets such as Hong Kong, Taiwan, Vietnam are dominated by cheap fake bird's nests.

The Vietnam National Administration of Tourism statistics showed that the number of international visitors to Vietnam is increasing each year, from 6,014,032 in 2011 to more than 10,000,000 in 2016. More than 50% of them come from bird's nest consume countries (China, Hong Kong, Taiwan, Korea, Japan). Vietnamese Bird's Nest Exhibition Center (VBEC) was opened to become a place where the whole bird nest value chain is shown. It is the destination where tourists can visit for a daily educational guided tour of Vietnamese Bird's Nest, learn about bird's nest, observe the whole process including where and when the nest has been harvested, how it has been processed. Visitors understand the health benefits of bird's nests and can taste Vietnamese bird's nest soup.

3. THE BENEFIT AND THE IMPACT

If Vietnamese Bird's Nest Exhibition Center was launched successful, there would be a unique discovery farm tour to satisfy both, lovers of Vietnamese food and culture. Those who have a passion for traveling discover Asia's mystery, while Vietnamese bird's nests would be sold at a reasonable price. At least 36,000 visitors would know about Vietnamese Bird's nest after visiting the Vietnamese Bird's Nest Exhibition Centre every year while 2,455 kilograms Vietnamese Bird's Nest would be sold directly to end-users. The tourist program can be extended with adding a Discovery Can Gio Island tour.

VBEC is an innovative idea that not only helps Vietnamese swiftlet farmers to sell bird's nests, it helps end users to find real Vietnamese bird's nests and to enjoy a discovery Vietnam tour, and finally this is also a good channel to invest money for investors.



Figure 1. VBEC Value Chain

4. THE MARKET AND THE COMPETITION

4.1 Bird's nest market

China, the world's second largest state by land area, has over 600 cities with 4 municipalities (Beijing, Shanghai, Tianjin, Chongqing), 105 cities with over 1 million people in the metropolitan areas, over 688 million Internet users with 91% having a social media account¹. This is the world's largest consumer nation of bird's nests. After China's ban on the import of bird's nests in 2011, Malaysia's bird's nests had at the peak price levels of around RM4,500 (USD1,250) per kg raw nest and over RM7,000 (USD1,950) per kg processed nests. Then the price had rapidly dropped to RM1,300 per kg (USD360).

¹ Simcott, 2014
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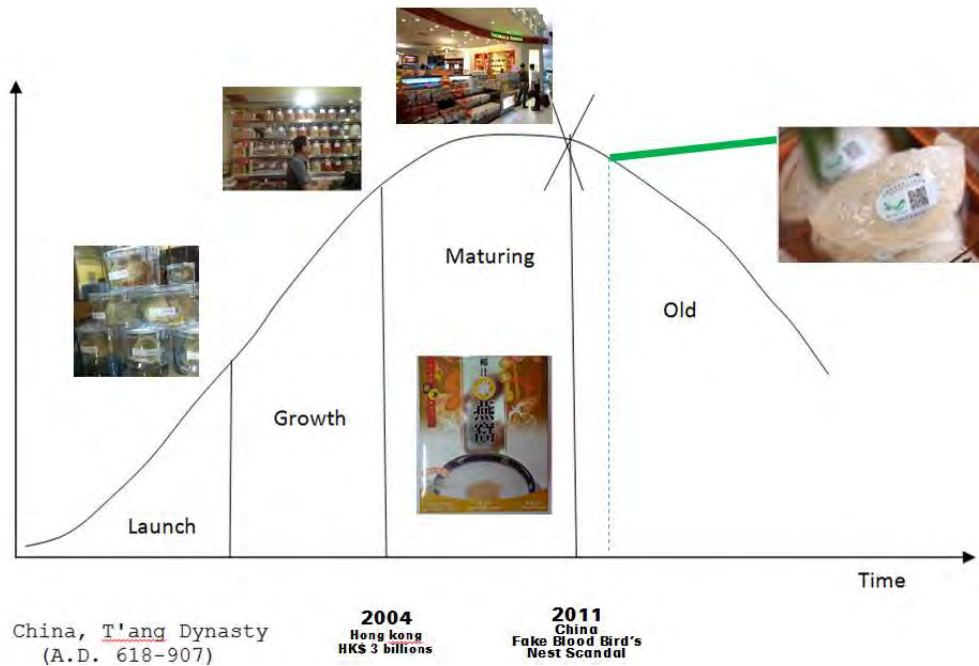


Figure 2. Stages of Bird's Nest

After paying 20% import duty and 17% value-added tax, importing bird's nest into China, which are classified under food and drinks with HS commodity code 2106.90.9090, today is possible. Consumers can keep track of the origin with the Chinese Academy of Inspection and Quarantine (CAIQ) management platform which helps consumers to scan the QR (Quick Response) code on each product to obtain detailed information on the platform.



Figure 3. CAIQ Logo²

² ebn.caiq.org.cn, <http://ebn.caiq.org.cn/jsp/bullet.jsp>

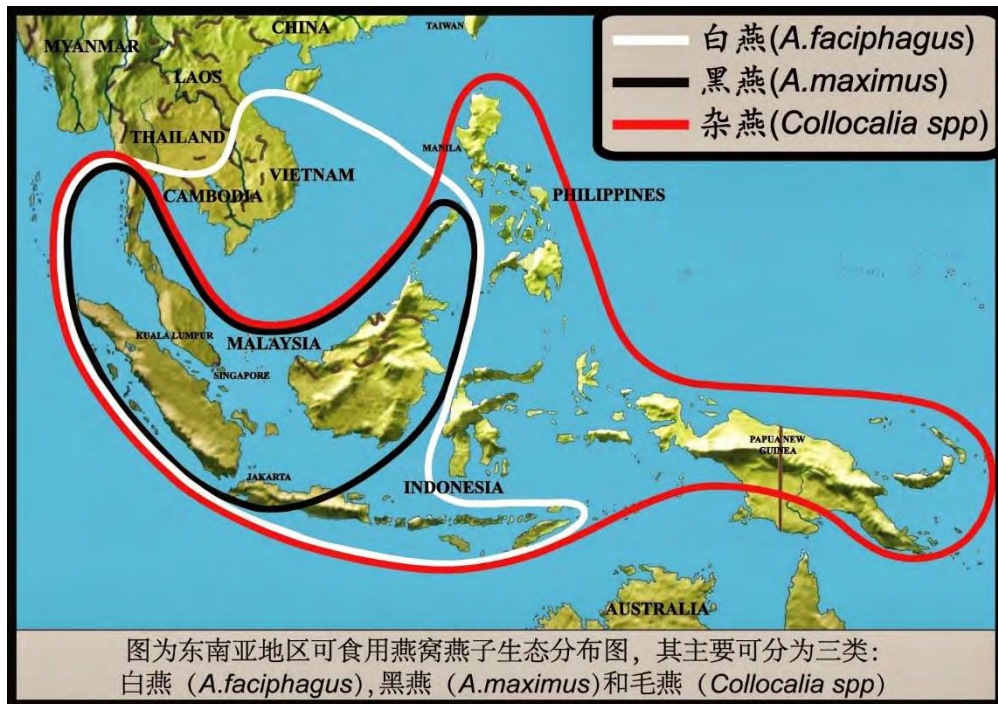
There are more than tens of thousands of bird's nest online shops in China that are ready to serve Chinese customers who tend to prefer low price to high quality. There are Top brands of Indonesian, Malaysian bird's nests who have more than hundreds of bird's nest stores in China. All of them are familiar with Chinese.

Brand	Home Country	Est.	Bird's nest Source	Price RMP per 1gram
Kinge	China	2006	Indonesia	32-65
Lo Hang Ka	Hong Kong	1998	Indonesia	45
Longqing	Indonesia	2004	Indonesia	67-90
Pingange	China	2006	Malaysia	38-68
Indowalet	China	-	Indonesia	30-70
Yan-Master	China	2006	Malaysia	45-76
Tongrentan	China	-	Malaysia	58-78
Yananju	China	2004	Indonesia	23-76
Yangege	China	2009	Indonesia	25-59
YanPalace	China	1997	Malaysia	58-88
Zhanji	Hong Kong	1995	Indonesia	35-50

Table 1. Comparison of Bird's Nest Brands

4.2 THE COMPETITION

Aerodramus Fuciphagus is a particular species of Swiftlet that produces edible bird's nest, only available in the Southeast Asia region. According to Kuan, H. & Lee, J, (2005), Indonesia is the largest producer of edible birds' nests in the world (60% of gross supply value), followed by Thailand (20%) and Malaysia (7%), the rest are Vietnam, Cambodia, Philippines, Myanmar.



Source: P.A.D.Co Holdings Sdn Bhd, www.padcogroup.com/eco-park.html

- **Indonesia** is the world's largest bird nest producer, has potential to produce 400,000 tons of bird's nests annually, and has over 150,000 bird's houses in 2016.
- **Thailand** is the second - largest producer of bird's nest, famous with cheap bird's nest soup. Bangkok's Chinatown is one of the famous places to sample bird's nest soup (Wiens 2013).
- **Malaysia** had 900 bird's houses in 1998, over 36,000 bird's houses in 2006, over 60,000 bird's houses in 2016.
- **Vietnam** had over 2,614 bird's houses in 2014, over 5,000 bird's houses in 2016.

5. THE FINANCIAL DIMENSION OF THE BUSINESS MODEL

Total capital investment of VBEC is around USD 2,000,000. Annual sale revenue of VBEC is around 8,000,000 USD with profit after tax at 1,500,000 USD per annum. Vietnamese Swiftlet farm owners invested start-up costs and one good month cost of goods sold.

Total capital investment		2,142,750
1	Legal/ professional fees (starting business)	100,000
2	Build Exhibition and Sales centre	1,000,000
3	Recruitment Fee (43 employees, USD\$50/person)	2,150
4	Corporate Software purchases	3,000
5	Website	2,000
	Establishment Costs	1,107,150
6	Office Furniture	3,000
7	Bird's nest processing Centre Furniture	5,000
8	Exhibition and Sales Centre Furniture	50,000
9	Restaurant Furniture, Fit out & Fittings	50,000
	Equipments	108,000
	Start-up Cost	1,215,150
10	01 year salary	296,400
11	01 good month cost of good sold	631,200
	Total cash in hand	927,600

Figure 4. Total Capital Investments

Funding

FUNDING (VND)		41.000.000.000	100%
A	Founding Share Holders	20.000.000.000	49%
1	Đỗ Tú Quân –Yến Quân Farm Owner	14.000.000.000	34%
2	Đỗ Tú Linh –Bird's House Owner	6.000.000.000	15%
B	Common Share Holders	21.000.000.000	51%
3	Vietnamese bird's house owners	9.000.000.000	22%
4	Vietnamese bird's nest whole sellers	3.600.000.000	9%
5	Other Investors	8.400.000.000	20%

Table 2. Funding

- International visitors to Vietnam in 2010 are estimated at 5,024,480 arrivals. By purpose of visit, 62% is tourism. Target tourists present 43% of the total, potential customers are 1,334,404 arrivals. If only 10% of these tourists visit Ho Chi Minh City, there are 133,440 tourists. Assume that only 10% of the tourists who visit Ho

Chi Minh City is willing to take a city tour, Vietnamese Bird's Nest Exhibition and Sales Centre will have more than 12,000 customers per year. According to contracts with travel agents, target customers will be introduced to the Bird's Nest Exhibition and Sales Centre and have a break at the restaurant to experiment bird's nest soup and do sightseeing.

- Members of the Vietnamese Bird's House Association sell their bird's nest to VBEC at a farm price of US\$1,500 per kilogram. Bird's nest cleaning fee is around USD300 per kg. After processing, 1 kg raw bird's nest result in 500 grams bird's nest in the nest shape and 200grams bird's nest in the cake shape. The cost of Vietnamese processed bird's nest is USD 2,500/kg. VBEC needs around 3,600kg Vietnamese raw nest to produce 2,455kg of a quality Vietnamese processed nest to serve its customers. The marketing budget is set at 10% of the revenue while utilities are 5% of the revenue.

Profit/Loss projection						
	Good year		Normal year		Break - Even Year	
	% sales	USD\$	% sales	USD\$	% sales	USD\$
Total Net Sales (Revenues)	100%	16,344,000	100%	8,172,000	100%	1,884,100
Cost of good sold	46%	7,574,400	46%	3,787,200	46%	873,160
Net Income	54%	8,769,600	54%	4,384,800	54%	1,010,940
Marketing Budget	20%	3,268,800	20%	1,634,400	20%	376,820
Salary		296,400		296,400		296,400
Depreciation		243,030		243,030		243,030
Utilities	5%	817,200	5%	408,600	5%	94,205
Net Profit Before Taxes	25%	4,144,170	22%	1,802,370	0%	485
Corperation income tax (20% taxable profit)	5%	828,834	4%	360,474		
Net Profit After Taxes	20%	3,315,336	18%	1,441,896	0%	485

Figure 5. Profit/Loss Projections

6. THE INTERNATIONAL DIMENSION OD THE BUSINESS MODEL

After the 2011 Chinese fake blood bird's nest scandal, importing Vietnamese bird's nest to China is a challenge. Attracting Chinese tourists to consume bird's nest soup in Vietnam is becoming the almost only strategy Vietnamese can follow. Vietnam needs a 'Protocol of entry of bird's nest into China', and also needs to introduce Vietnamese Bird's Nest to the global and Chinese consumers.

On the other hand, China, the world's largest state by population and second largest state by land area, has over 600 cities with 4 municipalities, 105 cities with over 1 million people in the metropolitan areas, over 688 million Internet user with 91% of users have a social media account (Simcott 2014). It is the world's largest consumer of bird's nests. However, worldwide social media sites (such as Facebook, Twitter, and Youtube) are blocked in China, Chinese are using Chinese social media such as Wechat, Qzone, Sina Weibo, and YouKu, and Chinese consumers rely upon recommendations of other social media users to make purchase-decisions instead of listening to traditional media (Moonlight 2016). With more than 160,000 companies having Weibo official accounts, and more than 80% of micro blog users in China following company micro blog users, there are great opportunities to use Chinese Social Media as a marketing tool for building brands in China (Gao, 2016).

Thus, the Vietnamese Bird's Nest Exhibition Center presented its voice by word of mouth of tourists to Vietnam, and viral marketing using social media to increase Vietnamese bird's nest brand awareness attracts Chinese tourists to VBEC and helps Yen Quan Vietnamese bird's nest brand successfully enter the Chinese market.

7. THE ROADMAP



Target	Duty	Business Timeline												
1	Find Investors	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
2	Registrar of building Exhibition and Sales centre			Q3	Q4									
3	Registrar of Companies			Q3	Q4									
4	Build Exhibition and Sales centre			Q3	Q4									
5	Set up Bird's nest processing Centre			Q3	Q4									
6	Set up Exhibition and sales centre			Q3	Q4									
7	Set up Restaurant			Q3	Q4									
8	Set up website			Q3	Q4									
9	Marketing Activities			Q3	Q4									
10	Grand opening			Q3	Q4									
11	Build relationship with Tour Agencies	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Starting business Set up Exhibition and Sales Centre	<div style="text-align: center;"> <p>Main duties</p>  <p>Forecast</p>  </div>	1	2	3	4	1	2	3	4	1	2	3	4	
		Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter
		2017				2018				2019				
		Vietnamese Exhibition and Sales Centre opened at 2017 Budget USD 2 millions and generate around 20%ROI												

Figure 6. Roadmap

8. THE TEAM

- Ms. Do Tu Quan, owner of one of top ten Vietnamese pilot legalized swiftlet farms “Yen Quan Swiftlet Farm”, founder of Yen Quan Vietnamese Bird’ Nest Company, EMBA MCI Alumni, President of Vietnamese Bird’s House Association, Vietnamese Chinese origin businesswoman, is founder and CEO of Vietnamese Bird’s Nest Exhibition Centre.
- Director of Bird’s nest Processing Department: Specialist
- Bird’s nest processing staff: Age 18 – 25, Vietnamese girls
- Chef: specialists in Vietnamese foods



Figure 7. The Team



Figure 8. Operation Partners

LIST OF ABBREVIATIONS

CAIQ	Chinese Academy of Inspection and Quarantine
EGF	Epidermal Growth Factor
QR	Quick Response
RM	Malaysian Ringgit
TCM	Traditional Chinese Medicine
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States Dollar
VBEC	Vietnamese Bird's Nest Exhibition Center

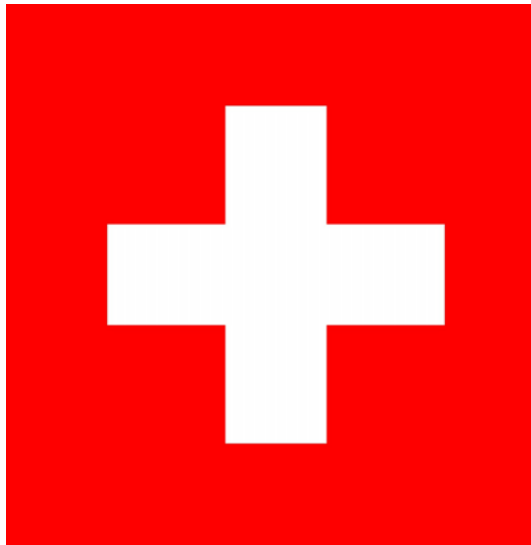
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Cases Switzerland



Jinn-Bot Robotics & Design GmbH

1. THE COMPANY

Jinn-Bot Robotics and Design was founded in 2014 in Gebenstorf (Switzerland), and since then has developed and perfected its different robots, from pet bots to humanoid robots. Its first humanoid robot, Jinn, was the first two-legged robot in Switzerland and the first one of its size in Europe. Jinn-Bot won the third prize at the Swiss Startup Challenge competition from FHNW. In addition, it won the third prize at the Swiss Innovation Challenge competition, in the category of internationalization. Jinn-Bot's main purpose is to democratize the use of assistant humanoid robots for businesses (both SMEs and large companies). More recently, it has been tailor-made for the use in the health sector (hospitals and elderly care).

Based on cutting-edge technologies, a disruptive business model (via renting, leasing or purchase), and a decentralized production process through 3D-printing partners (micro-factories) in local markets, Jinn offers the following key advantages to their customers:

- 1) Affordable price to companies of all sizes (from big companies, health organizations to SMEs),
- 2) No fixed assets needed (rental instead of ownership),
- 3) Customization and personalization,
- 4) Advanced detection and tracking capabilities,
- 5) Quick, efficient and personalized customer support.

YEAR	MILESTONE
2012	Jinn robot was created. Jinn was the first two-legged robot in Switzerland and the first model in its size worldwide.
2013	Jinn-Bot built Kitty, a four-legged mini robot, and Jinn v2.0 (first totally 3D-printed version).
2014	Jinn-Bot is founded by Roger Seeberger and Michael Roggli in Gebenstorf (Switzerland). Jinn won the 3 rd prize at the <i>Swiss StartUp Challenge</i> competition from FHNW -one of Switzerland's leading universities of applied sciences and arts - in the field of technology.
2015	Jinn-Bot created a technical collaboration with Nexus-Computing GmbH (Switzerland) to develop customized Android apps.

2016	Jinn was successfully introduced in several events: "Hightech Zentrum Aargau" -Swiss Innovation Forum 2016-, ETH Lausanne's Fair of Technology and Innovation, Maker Fair in Munich, Technology Event "Kshitij" in India.
2017	Looking for improving the stability of Jinn as well as reducing its energy consumption, an initial version of Joey, based on wheels instead of legs, was developed. The first idea was to use it in education, as a teaching assistant robot, but after several tests the team realized that the market was still not ready for this. Through a new analysis of the market, Jinn-Bot identified a clear business opportunity to revolutionize customer experience in physical customer-facing businesses.
2018	Joey was successfully tested at the École Polytechnique Fédérale de Lausanne (EPFL) and at the Zurich Economic Forum. Joey won the 3 rd prize at the <i>Swiss Innovation Challenge</i> competition.
2019	Jinn-Bot created a commercial collaboration with Würth Leasing AG (Switzerland), offers industrial leasing.
2019	Successful presentation of our robot at CES Shanghai 2019 and Innovation Competition Hangzhou / China 2019 (award for one of the best projects).
2020	Jinn-Bot won the price as "most innovative in robotics" by the LifeWire Magazine.

2. THE INNOVATION

In order to provide a unique customer experience, Joey is able to:

- **Recognize humans and their emotions** through facial recognition so that providing an emphatic and personalized customer service in any situation. By gathering visitor or client's reactions, Joey is collecting useful data - product quality, satisfaction, etc.- the internal teams.
- **Conduct conversations with people and answer questions.** Joey improves the customer experience by receiving guests and customers, providing pick-up and drop-off services, providing information (about products, the brand, the surrounding or just the weather), answering questions or simply being entertaining.
- **Remember returning customers, brands and symbols** as well as the customer's interests. This provides a continuous experience over time (e.g. personalized treatment in the following visits to a store, an event, an airport, etc.).
- **Move autonomously**, perceiving the surrounding environment thanks to its unique sensor technology (based on both internal and external cameras), and eluding obstacles. Based on trained convolutional neural networks (CNNs), Joey is able to be oriented by itself in a completely new space in a short time (existing humanoid robots barely move from their initial position due to their difficulty to know the surrounding space).

- **Pick up and transport light objects** as bags or glasses, thanks to its precise motor skills.

Jinn-Bot's innovation is based on **two disruptive concepts**:

- A **decentralized 3D-printing production process** that allows Jinn-Bot to be:
 - **Faster**: Local partners (micro-factories) in the target markets make possible to quickly satisfy the demand and react to any possible issue (by replacing the robot for a new one if needed, not affecting the client activity).
 - **Closer**: This decentralized configuration allows to better adapt to local needs and to better personalize both the product and the service.
 - **Affordable**: The 3D-printing production process and the removal of additional costs (transportation, customs, etc.) directly benefit the customers through affordable prices.
- **Access instead of ownership**: Customers could access Joey through three different models: renting, leasing and purchase. Thus, customers can quickly understand Joey's impact in their business operations by using him a short period of time (renting). This initial validation will lead to medium- and long-term acquisitions (leasing, purchase).

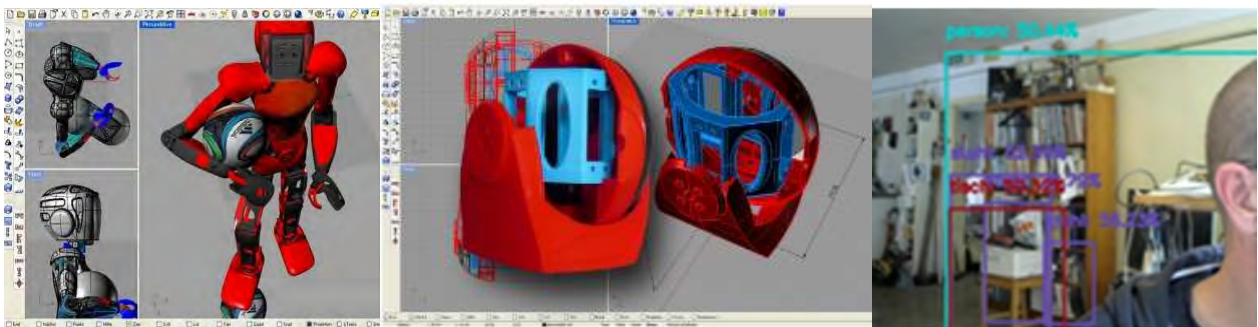


Figure 1. Through 3D printing Joey is tailored to clients' needs.

Joey is the perfect solution to provide a superior customer experience in businesses that include customer-facing activities like welcoming customers, providing basic information or just entertaining: hospitals, stores, hotels, shopping centers, airports and railway stations, trade fairs and company events. Moreover, Joey is able to continue this experience over time by remembering returning customers and their previous interactions in following visits, providing at the same time key customer insights to improve business performance.

Table 1 shows the main technical KPI's:

	Joey prototype	Joey Final product
Electric gines	Maximum temperature: 60° C Current: regular amp-hours and Watts	Maximum temperature: 45° C Current: extended amp-hours and Watts
Gripper performance	No camera in the gripper Max. transportable weight: 200 gr.	Camera in the gripper to detect and grab objects. Max. transportable weight: 500 gr.
Autonomy	4 hours	9 hours
Controlling system	Samsung smartphone (dependency on third-party, cloud-based data)	Raspberry Pi3 (open source software, lower cost, protected local data); completed
Self-awareness	Basic external supervision required to train the neural networks. 5 to 6-hour process	Automatic neural network training 20 to 30-minute process
Movements	Basic animation moves	Advanced animation moves (dancing, humanoid behavior); has a character
AI functionalities	Basic AI Speech/Face/Emotion recognition Orientation ability in new spaces Time delay of the movements: 20 ms.	Advanced AI + orientation optimization, + improved emotion recognition, + incorporation of gender and age detection Time delay of the movements: 2 ms.
Plug-ins	English, German basic adaptation	English, German, French advanced adaption
Languages	English, German	English, German, Swiss-German, French
Certification	None	CE marking

Table 1. Technical KPIs for the project

3. THE BENEFIT AND THE IMPACT

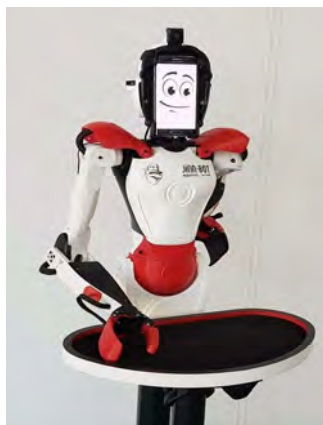


Figure 2. Joey

During last decades, there has been an increasing use of robots for customer-facing activities in physical spaces (hospitals, stores, events, hotels, etc.) to automate most basic tasks in customer service. Initially, the value of these robots used to lie in labour savings, efficiency and uptime. However, the advent of new technology (Artificial Intelligence, Machine Learning, etc.) has brought new and disruptive ways of interacting with customers: from running basic customer service tasks to offer a complete personalized customer experience.

Joey will have a positive impact on 1) the performance of those organisations that have an intensive customer-face activity, increasing their competitiveness in the market, and 2) the customer satisfaction. In addition, humanoid robots have a high potential of

applicability in many other sectors in the future: health care, caregiving, restoration, etc., which will also help to mitigate the shortage of human labor in these sectors.

Japan is the world leader in humanoid robot use and social acceptance due to

- 1) labour demands -reduction of the working-age population and productivity-,
- 2) increase of the elder (dependent) population,
- 3) economic conditions, and
- 4) culture.

Europe is starting to share the first three conditions¹, so it is the right time to analyse the Japanese case in order to create new solutions for the upcoming social and economic challenges. Joey has a great potential to contribute in the improvement of the quality of life of the elder and/or lonely population in the future. In addition, the decentralized production model proposed by Jinn-Bot will contribute to improve the local economies and to decentralize the economic growth, becoming part of a fairer and more social growth.

Table 2 compares the most common problems associated to the basic activities of a regular employee in physical customer-facing positions versus Joey’s performance:

	Motivation	Associated Costs	Customer Experience	Physical & Emotional Status
Employees	Variable (usually low)	High	Variable	Variable
Joey	High	Low	High	Constant

Table 2. Comparison of performance among employees and Joey

As shown, Joey is able to provide a superior and constant customer experience at a low cost in basic activities like welcoming, providing basic information or accompanying consumers to a specific department, product or person. Thus, Joey is the perfect solution to provide an outstanding first impression of the business. In addition, Table 3 shows a benchmarking of Joey versus existing alternative robots in customer-facing roles,

- (1): depending on the brand;
- (2): only Event Bots allows leasing, for a minimum period of 36 months;
- (3): Minimum period of 12 months

¹ https://ec.europa.eu/info/news/economy-finance/policy-implications-ageing-examined-new-report-2018-may-25_en

	Customer Experience	Customization	Price	Renting	Leasing	Production costs	Customer support
Customer service robots	*(1)	***(1)	\$	Yes ⁽¹⁾	No	\$	*
Humanoid robots with "uncanny valley" issues	**	*	\$\$\$\$	No	No	\$\$\$\$	*
Humanoid robots with human-like attributes	***	*	\$\$\$	No	Yes ⁽²⁾	\$\$\$	*
Joey	***	***	\$\$	Yes	Yes ⁽³⁾	\$\$	***

Table 3. Benchmarking of Joey vs existing alternative robots in customer-facing roles

Joey's value proposition lies on its disruptive approach to the market based on the renting and leasing models (access instead of ownership) combined with a low-cost 3D printing decentralized production, offering state-of-the-art features. It allows to democratize humanoid assistant robots to automate customer service, drastically improve customer experience, and ultimately increase productivity and sales.

Joey's unique selling points are as follows:

- **Decentralized manufacturing:** By developing an international network of micro-factories, Jinn-Bot is close to its customers. This model minimizes the transportation costs and its environmental impact, the customs fees and the time delays to provide a superior customer support.
- **3D-Printing technology** that enables fast production and modification of Joey according to the customer requirements as well as high availability of spare part and components on demand.
- **High accessibility through affordable prices and temporary use:** The renting and leasing models enable all companies to use and test Joey for a chosen period of time at a low price and to quickly perceive its business impact.
- **High customization:** A tailor-made Joey depending on the customer needs (e.g. colours, logos/ brands, size, language or services).

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL

Internet has dramatically changed the retail landscape in the last decade. E-commerce allows customers to buy what they want, when they want, just with one click. By simplifying the transactional role, e-commerce is constantly increasing its market share against physical stores in the retail industry (Figure 2). Therefore, traditional brick and mortar businesses require new strategies to attract customers and increase sales.

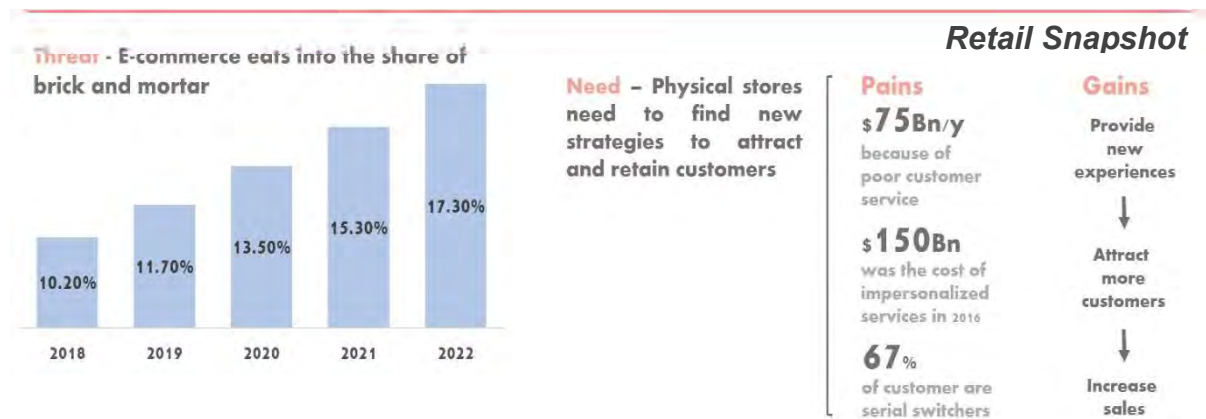


Figure 3. Digital’s Commerce Share of Global B2C Sales 2018-2022

Consumers are no longer engaged by products or services - since they are easily accessible through internet -, but rather by new experiences: 49% of buyers would be willing to pay up to 20% more for products or services if they had a highly personalized in-store experience². By failing to provide shoppers with personalized service, retailers missed out on \$150 billion in 2016 revenue (which means a 5% jump in retail revenue for providing better service).

Despite the rise of online shopping, physical stores still have a key advantage: they are a direct point of contact with the brand. They can provide customers with unique live experiences that internet can’t offer. In fact, online giants as Amazon (US), eBay (US) or Zalando (GE) have realized about it and are already opening their own physical stores in order to increase the customer engagement.

To keep competitive in the current scenario, physical stores can no longer be thought of as places for storage and sale but rather as a genuine marketing tool. Introducing cutting edge technologies will allow brick and mortar retailers to create more efficient and profitable hybrid businesses and to engage satisfied customers through a complete omnichannel experience.

² The State of Retail 2017, TimeTrade (https://www.timetrade.com/wp-content/uploads/2017/02/TimeTrade_State_of_Retail_2017_Report.pdf).

The importance of customer service and customer insights

Poor customer service costs B2C businesses more than \$75 billion a year³. As a result, 67% of customers have become “serial switchers”, customers who are willing to switch brands because of a poor customer experience. Principal reasons behind include:

- Customers do not feel appreciated.
- Customers are not able to speak to a person who can provide them the answers they are looking for (90% of shoppers cannot always find the right person to help¹).
- The customer experience depends on the employees’ mood.
- Customers need to talk to multiple people from the staff to get an answer.
- Customers have to wait unreasonable lengths of time to be attended.

Therefore, providing customers with tools that allow them to solve their questions in a pleasant, efficient and personalized way is key to attract and engage them, increasing the business profitability. Moreover, customer service shouldn’t be only reactive but proactive: companies need a better understanding of the customer’s behavior and motivations to continuously adapt and improve a highly-personalized offer. In fact, insight-driven companies - companies harnessing customer behavior/motivations knowledge to create competitive advantage through software - are growing at an average of more than 30% annually⁴.

Powering the business with customer insights is a key priority for those companies in which the customer/visitor experience is the basis of the business success: retail, banks and hospitality-related companies - hotels, events, airports, train stations, museums, etc. - are the best examples.

The use of humanoid robots to provide a superior customer experience

Humanoid robots provide a wow factor to physical stores: they can greet customers, respond to their inquiries, provide specific information needed, make recommendations based on their interactions with them, guide them through a store, or communicate in different languages. As an example of its applicability, many Japanese stores, banks, and transportation hubs will use multilingual robots to cater to worldwide games visitors during the Olympics 2021 in Tokyo⁵. Based on cutting edge

³ Serial Switchers 2018 - Swayed by Sentiment: How bad emotive customer experiences are costing brands billions, NewVoiceMedia.

⁴ Insights-Driven Businesses Set the Pace for Global Growth, Forrester, October 2018.

⁵ <https://www.telegraph.co.uk/news/worldnews/asia/japan/10913610/Japans-PM-plans-2020-Robot-Olympics.html>

technologies, facial recognition, speech recognition, emotion recognition, and other appreciable machine learning and AI capabilities, these robots have the potential to effectively gather useful information, deliver promotions, and offer a more customized experience to customers. They also attract shopper's curiosity, raising shops traffic and increasing sales⁴.

The application of humanoid robots has further benefits for both the businesses and their employees: they can perform routine customer service tasks 24/7 better than humans (since they have no physical or emotional needs), freeing up employees from tedious repetitive tasks and enabling them to focus on more challenging and skilled work.

The business opportunity

The humanoid robot industry recorded a global shipment of 90,000 units in the year 2016⁶. The proliferating demand for better customer engagement model and the shifting focus of the brands toward experience-based marketing are two of the leading factors driving the growth of this market. In addition, the humanoid robot market is expected to grow at a CAGR of 52.1% from 2017 to 2023 to reach a total value of \$3.9 billion.

The humanoid robot market

The humanoid robot market is expected to grow from \$320.3 million in 2017 to \$3.9 billion by 2023, at a CAGR of 52.1% between the forecast period⁷. The demand for customer service robots is driven by the need for interactive marketing and re-branding strategies, the cost of human staff, customer service digitization and competition, robotics as a tool for customer behavioral analytics, the shifting roles of human staff and initiatives to promote robots in the service industry.

By 2023, it is expected an increasing use of humanoid robots for retail stores, travel and hospitality businesses, as well as for education purposes, to better personalize customer support. By regions, Asia Pacific (APAC) will clearly dominate the adoption of humanoids for almost all the major applications during the forecast period. As the elderly population in APAC countries such as China and Japan is on the rise, the region is expected to also employ humanoids for the personal assistance and caregiving application. These foresights provide a double business opportunity to Jinn-Bot:

- 1) Becoming a first mover and a leader in humanoid robots in Europe, and
- 2) Developing new applications of Joey directly for end-consumers.

⁶ <https://www.gminsights.com/industry-analysis/humanoid-robot-market>

⁷ <https://www.marketsandmarkets.com/PressReleases/humanoid-robot.asp>

European market: retail, hospitality, transport hubs and event management

1. Retail

The retail market in Western Europe is expected to reach a total value of €2.8 trillion in 2020 from around €2.6 trillion in 2018⁸. Despite of the disruption of online sales, 90% of worldwide retail sales are still done in physical stores⁹.

The EU Member States concentrate 5,732 retailers (chains) with a minimum of 5 stores or a minimum turnover of €3 million¹⁰. Moreover, 24 out of the 30-top retailers in Europe (based on the European turnover in 2017) have their headquarters in Germany, France, UK, Switzerland, Netherlands or Sweden¹¹.

2. Hospitality

In 2017, there were 627,841 accommodation establishments in EU-28¹² (including hotels, resorts and similar accommodations). In the case of hotels, a large portion of European hotels belong to a chain. Moreover, the overall share of chain hotels versus domestic ones is increasing, even in markets that can be considered very mature¹³.

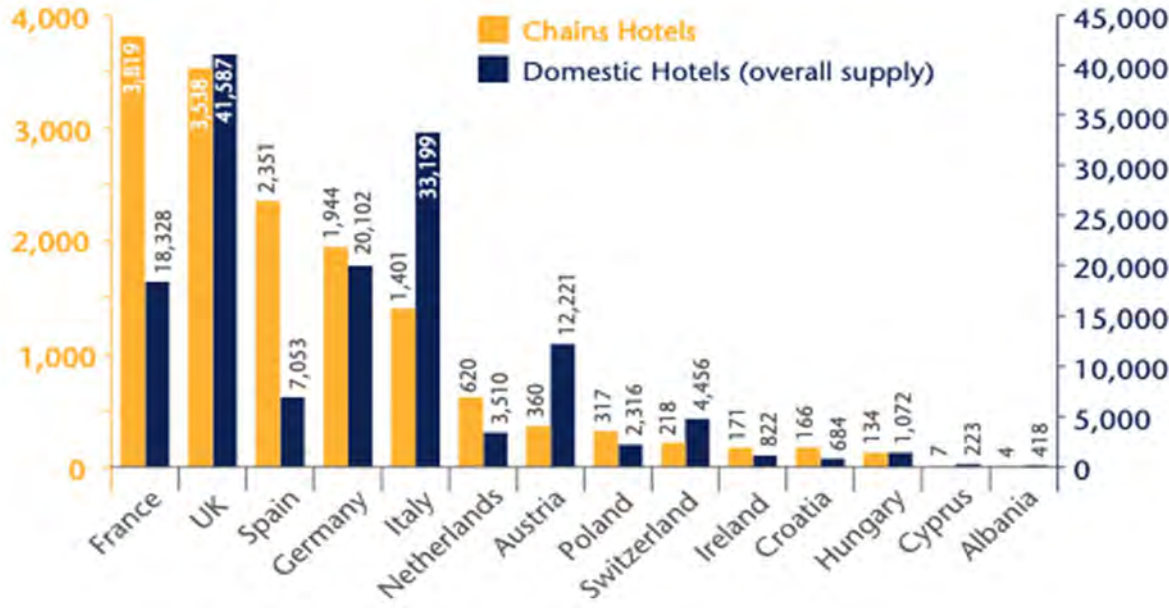


Figure 4. Chain hotels vs. domestic hotels in European countries 2017

⁸ <https://www.statista.com/statistics/491543/retail-market-value-western-europe/>
⁹ <https://www2.deloitte.com/content/dam/Deloitte/at/Documents/about-deloitte/global-powers-of-retailing-2018.pdf>
¹⁰ <https://www.retail-index.com/HOMESearch/CalculateNumberofRetailerspercountrysector.aspx>
¹¹ <https://www.retail-index.com/Countries.aspx>
¹² Eurostat
¹³ European Chains & Hotels Report 2018, Horwath HTL

3. Transport hubs (airports/train stations)

In 2017, 1,043 million people in the EU travelled by air, an increase of 7.3% compared with 2016. In total, there are 498 international airports in Europe. The targeted countries for the first five years of commercialization of Joey (Switzerland, Germany, Austria, UK, France, Belgium, Netherlands, Denmark, Sweden, Norway and Finland) concentrate 135 of these airports.

In addition, according to Eurostat, 7 out of the top-10 airports in the EU-28 in terms of total passengers carried in 2017 are located in Germany, France, the UK, or the Netherlands. Estimated at 465 billion passenger-kilometers¹⁴ in 2017, rail passenger transport performance at EU-28 level increased by 3 % compared with 2016¹⁷. A steady growth was observed between 2013 and 2017, with a growth in each quarter of these five years compared with the same quarter of the previous year. Moreover, 17 out of the top-20 busiest railway stations in Europe are located in France, Germany, UK, Switzerland, Austria or the Netherlands¹⁵.

4. Event management

Among the 60 biggest trade show venues in the world, there are 33 venues for fairs in Europe¹⁶. Regarding the number of venues, Europe also is home to the biggest number of venues (496), followed by North America (394) and Asia - Pacific (203) respectively. Germany dominates the global trade-show business: 4 out of the 8 biggest trade show venues in the world are located in Germany.



Figure 5. Joey interacting with kids in an event

¹⁴ unit of measurement representing the transport of one passenger by rail over one kilometre.

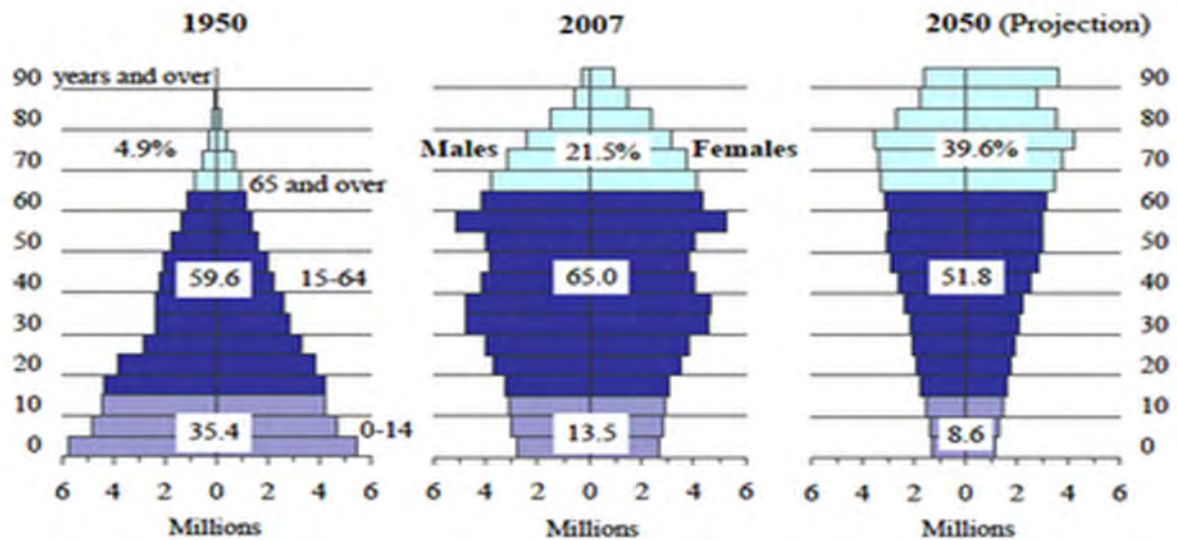
¹⁵ <https://www.worldatlas.com/articles/the-busiest-railway-stations-in-europe.html>

¹⁶ World Map of Exhibition Venues, 2017 Edition, UFI – The Global Association of the Exhibition Industry

5. Healthcare

In view of the actual situation Jinn-Bot intends to focus on the health-care sector first, and there are two good reasons:

- First: The society gets older and older
- Second: A lack of healthcare staff



Source: Statistics Bureau, MIC; Ministry of Health, Labour and Welfare.

Figure 6. Demographic development in Japan

Joey's existing skills to help elderly

- Joey can orient itself visually and move in the space. Recognizes humans, as well as various objects and barriers and knows the area.
- Joey can talk to people and answer questions (e.g. give information about the surrounding, about the weather, lunch and dinner). Joey improves the customer experience by receiving guests and customers, providing pick-up and drop-off services, or is simply being entertaining.
- Joey recognizes humans and their emotions through facial recognition so that providing an emphatic and personalized customer service in any situation. By gathering visitor or client's reactions, Joey feeds the internal teams with useful data - product quality, satisfaction, etc.
- Joey can do certain assistant tasks e.g. transportation of light objects as bags or glasses on his tray, welcome guests or visitors.

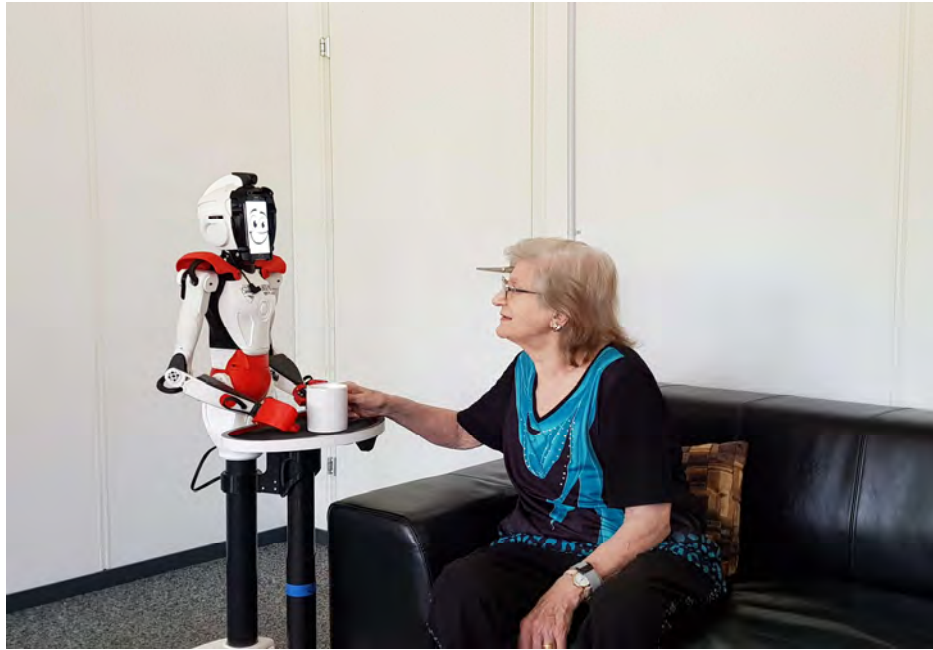


Figure 7. Joey serving tea

- Joey is empathic and able to perceive the mood of people so that he can respond to customers individually; motivates to exercises. This allow to provide a continuous experience over time (e.g. personalized treatment).
- Joey reminds people to drink enough or going to therapy.
- Joey can do tasks like disinfection, going where people cannot move (e.g. due to quarantine).
- Joey can pick up objects.
- Joey can read text and speak it out (e.g. helping to read the newspaper).
- Joey moves autonomously, perceiving the surrounding environment thanks to its unique sensor technology (based on both internal and external cameras), and eluding obstacles. Based on trained convolutional neural networks (CNNs), Joey is able to be oriented by itself in a completely new space in just 20-30 minutes (existing humanoid robots barely move from their initial position due to their difficulty to know the surrounding space).

Competitor Analysis

Joey's main competitors are humanoid robots with human-like attributes that are able to solve the "uncanny valley" effect (when human-like robots closely resemble humans in many respects but are not quite convincingly realistic, generating rejection by humans). These robots are as follows:

- **Pepper** by Softbank Robotics (Japan): Pepper can greet customers, get their feedback, and make recommendations based on customer's identification. Pepper uses IBM Cloud services for speech and visual recognition. The robot is supposed to recognize customers' emotions, but public demonstrations show Pepper is still failing at this¹⁷. Moreover, Jinn-Bot team has had the opportunity to test the robot live: Pepper is easy to animate and work with IBM's Watson AI services, but it has no abilities to orientate so far.

Softbank mass-produces its robots by injection moulding, and therefore cannot offer Pepper's customization to their customers (e.g. brand colour) nor personalised customer support.

Pepper can only be purchased, with the ownership burdens it entails, maintenance and/or repair costs, increasing obsolescence risk (due to the high-speed technological advances). Its high price also makes Pepper prohibitive for the majority of businesses: Pepper costs €20K, without including software, repairs or maintenance: an additional €20K is required to buy the software, totaling € 40K. Up to now, Softbank Robotics has sold 12,000 Pepper units worldwide, mainly for pilot projects¹⁸. Due to its successful market introduction and the size of the company (500 employees and presence in France, Japan, the United States and China), Pepper is considered the current market leader and Joey's main competitor.



Figure 8. Pepper

¹⁷ <https://www.youtube.com/watch?v=Nm5KQrn9gxs> (Live demonstration of Pepper - 2017)

¹⁸ <https://www.forbes.com/sites/parmyolson/2018/05/30/softbank-robotics-business-pepper-boston-dynamics/#711f1f424b7f>

- **Sanbot Max** by Sanbot Innovation (China):
Sanbot Max is a business service humanoid robot that serves as a customer reception service solution, making tasks like interpretation/guidance and document delivery much easier for business professionals. This robot has similar functionalities and limitations to those described for Pepper. It is produced by injection moulding, thus resulting in high price (only available through purchase: €32K, excluded maintenance and repair), low customization and poor customer support. In addition, the robot is not available in Europe (at the moment, only available in China). As Pepper, Sanbot Max is powered by IBM Watson AI services.



Figure 9. Sanbot Max

- **LAIA** by Event Bots (France): LAIA works as a service assistant focused on the reception process, both in the company's office and at the point of sale. Unlike the rest of competitors, LAIA doesn't simulate a human face (eyes, smile, transmission of human emotions), which creates a less human perception (actually, Event Bots defines LAIA as a semi-humanoid robot). In addition, LAIA is also produced by injection moulding in their French factory, which limits its customization and customer support capabilities. LAIA is available for purchase or lease (minimum period of 36 months is required) and prices start at €20K (excluding maintenance and repair). The company is focused on the French market and it is preparing its internationalization phase.



Figure 10. LAIA

- **Walker** by UBTECH (China): UBTECH is developing a new humanoid robot designed to be a customer's smart home companion (unlike the rest of competitors, that are business-oriented). Walker is the only current competitor which is bipedal: the disadvantages of bipedal robots over the wheeled ones have been demonstrated during the last years (energy efficiency, stability, etc.) and many companies have evolved their robot's mobility from two legs to wheels (e.g. Jinn-Bot –from Jinn to Joey-, Softbank Robotics –from NAO to Pepper-, Honda –Asimo's retirement-, etc.). Moreover, Walker is still not in the market: UBTECH has not disclosed a price or release date for the robot yet.



Figure 11. Walker

Humanoid robots oriented to industrial applications (Atlas –Boston Dynamics, USA-, T-HR3 –Toyota, Japan-, TALOS –PAL Robotics, Spain-, etc.) are not considered competitors since they are not focused on customer experience (in fact, they do not have a friendly physical appearance) but in physical/technical activities. Figure 12 shows a benchmarking with the main competitors in the market:

	Pepper	Sanbot Max	LAIA	Walker	Joey (SW)
Production	Injection moulding	Injection moulding	Injection moulding	Injection moulding	3D-printing
Brand customization	Only logo	Only logo	Only logo	Only logo	Yes
Customer support	Centralized (slow and distant)	Centralized (slow and distant)	Centralized (slow and distant)	Centralized (slow and distant)	Decentralized (micro-factories: fast and close)
Autonomy	12 hours	18 hours	8-12 hours	2 hours	9 hours
Detecting, grabbing and carrying objects	No	No*	No	Yes	Yes
Degrees of freedom	20	28	9	36	18
Price	€40,000	€32,000	From €20,000	N/A	From €500/day
Renting	No	No	No	No	Yes
Leasing	No	No	Yes**	No	Yes***
Maintenance	Not included	Not included	Not included	Not included	Included****
Market presence	Worldwide	China	France	Under development	Under development

Figure 12. Benchmarking Joey vs. competitors (*: it needs attaching extensions to carry objects, not being able to detect and grab them by itself; minimum period: ** 3 years, ***: 1 year; ****: included in leasing and purchase)

Exiting service humanoid robots in the market require a high investment, not being affordable for SMEs. In addition, they cannot be rented or leased for a short period of time, thus the real value they provide can't be previously evaluated. Their production process based on injection moulding does not allow a high customization of the robot, limiting its functionality as a brand marketing tool. Their traditional approach to the market makes the customer support inefficient and slow.

Figure 13 includes a competitive matrix of Joey versus competitors according to their price and their level of brand customization (please note that Walker has not been included since it does not have a defined price yet).

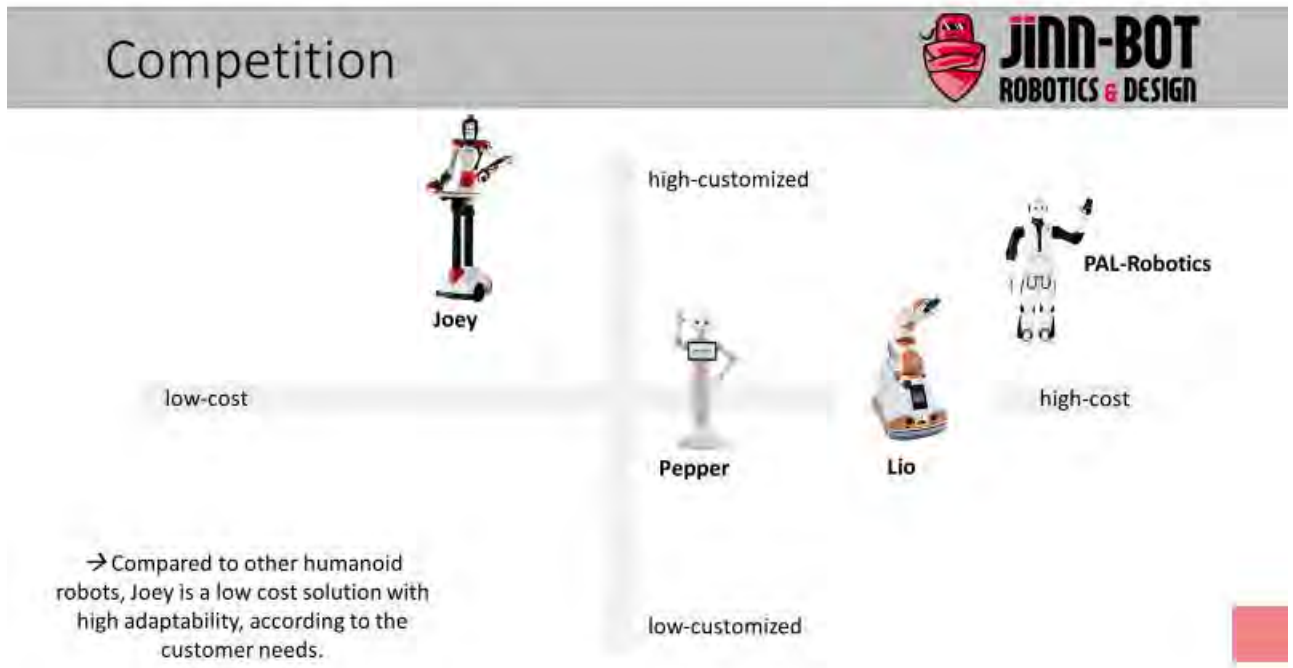


Figure 13. Competitive matrix of Joey versus competitors

Recently Lio entered the market. Lio is also a Swiss product, but comes at a high price (about 65,000 CHF, offering less features than Joey).

Joey will revolutionize the way service humanoid robots are perceived by businesses in order to improve the customer experience and to increase sales. These robots are currently seen as a luxury asset. Joey democratizes the use of service humanoid robots by offering 1) affordable prices through an innovative decentralized 3D-printed production process and short-time access (renting/leasing), and 2) high customization and a superior customer support based on a local service provided by its international network of micro-factories.

IP-Strategy

Jinn-Bot's Intellectual Property (IP) strategy is based on two pillars:

- **Copyright:** Jinn-Bot is the legal owner of the software. After analysing the possibility of patenting the proprietary AI algorithms and due to the fact that 1) patent applications require publishing the innovation and 2) the effective patent-protection of software is very challenging in Europe, Jinn-Bot has decided to keep the confidentiality by protecting its software developments in every target market through copyright, as software companies usually do. To enjoy copyright protection, no publication is required hence the industrial secret is kept.

- **Trade secret protection:** non-disclosure, confidentiality agreements and clauses will be included in Jinn-Bot's employees, subcontractors, partners, and client's contracts to protect valuable information.

Regarding the hardware, Jinn-Bot is constantly evolving the joints and other parts that generate the movements of the robot (being one of the big advantages of creating the robot through a 3D model). For this reason, and due to the high cost of patents and to the fact that the technology has to be published in order to be patented, losing the industrial secret, Jinn-Bot has decided not to patent its hardware at the moment.

Freedom-To-Operate (FTO) Analysis

Regarding IP rights, an in-depth analysis of the current public patents has been carried out. The methodology of the analysis consists of two different approaches to patents:

1. Search of patents from competitors: Since Jinn-Bot is competing mainly with big Asian companies, and due to the high obsession of Asian companies to patent (especially in China), a search of keywords has been made to filter these patent applications. After the filtering them, only five patents needed to be studied in detail.
2. A wider search has been fulfilled using keywords related to Joey's innovation in order to find additional patents that could conflict with it.

Conclusion of FTO analysis: Joey goes beyond the existing technology: its highly flexible and quick production process through 3D-printing decentralized partners along with its advanced proprietary AI algorithms create a new paradigm in the robotics field. This approach is new with respect to any other existing solution, so the company does not infringe the patents or pending patent applications of others. In addition, no European applicants have been found during the analysis.

5. THE FINANCIAL DIMENSION OF THE BUSINESS PLAN

Through the use of Joey in highly customer-oriented businesses, Jinn-Bot will gain recognition in the robotics field, while businesses will be able to provide a new customer experience and increase their sales. This is a key step for Jinn-Bot in order to democratize the use of assistant humanoid robots for businesses as well as to expand its use in the future to new sectors with a high potential of applicability: health care, caregiving, restoration, etc. Joey’s market introduction will be scalable thanks to

- 1) the incorporation of micro factories based on a decentralized 3D-printing strategy,
- 2) a fast on-demand manufacturing process,
- 3) an affordable pricing through renting/leasing model, and
- 4) a superior customer support through local agents.

Joey’s market introduction will open a new market niche by making humanoid assistant robots accessible to SMEs. The company is expected to break even in 2022. The company will create at least 9 new jobs until 2025.

	Price	Minimum Pe- riod	Customization	Maintenance
Renting	€500/day	1 day	Not included	Included
Leasing	€15,000/year	1 year	Included	Included
Pur- chase	€20,000	-	Not included (extra cost)	Not included (only releases)

Table 4. Revenue stream for Joey’s commercialization

Joey will be offered through three different models: renting (€500/day), leasing (€15,000/year) and purchase (€20,000, including software releases but not maintenance). In the next years, Jinn-Bon will be able to progressively reduce these costs due to 1) the reduction of the price of the components (based on the quantity of acquired units and the cheapening of the technology), and 2) a more efficient assembly process based on automation and an experienced team (from the current 16 hours per robot to 4 hours per robot in 2025).

Taking into account the required investment for the project the break-even point of the project will be reached within the 2nd year of commercialisation (2023, as shown in Figure 6).

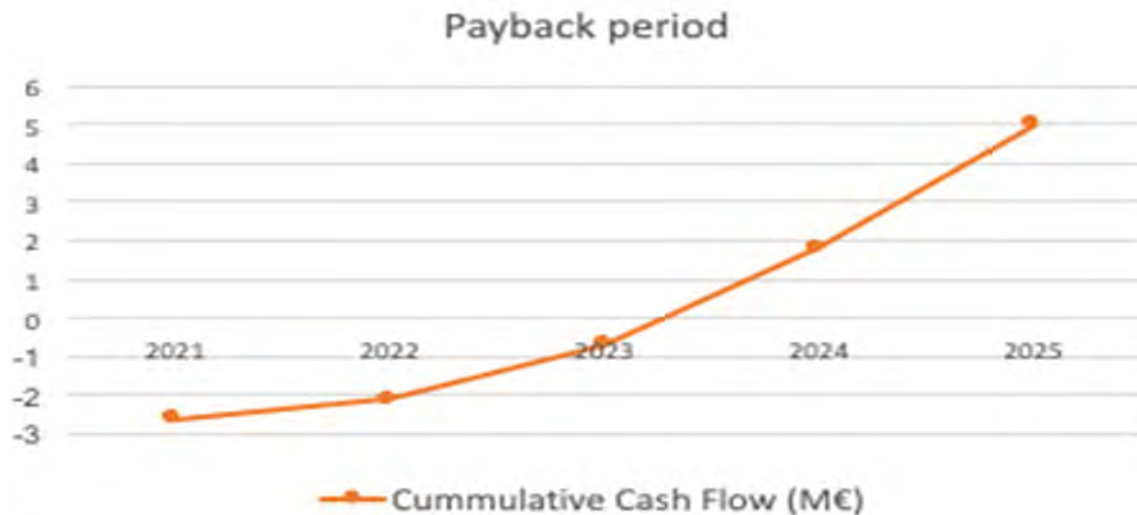


Figure 14. Break-even point of Joey project

6. THE INTERNATIONAL DIMENSION OF THE BUSINESS MODEL

Jinn-Bot will initially focus on the European market due to 1) the clear business opportunity - lack of accessibility to humanoid robots in Europe, especially for SMEs - 2) the location of the company in the heart of Europe, and 3) the need to create a well-recognized brand in the local markets first. Jinn-Bot has designed the commercialization strategy taking into consideration:

- 1) nearby countries,
- 2) European countries with more technology advanced and more open to robotics and AI, and
- 3) countries in which citizens speak German, English (languages that Joey speaks already) and/or French (which will be added shortly).

Jinn-Bot will hire a network of representatives in the target markets. These representatives will cover both the business development (sales managers) and the technical support (technical managers). They will be trained by Jinn-Bot's team to have a deep understanding of the technology and the business model in order to attract the best customers in their markets and to provide a superior customer support.

Jinn-Bot is built on the efforts of a multidisciplinary team led by its two founders. In order to complete all the planned tasks of the project and to prepare the commercialization phase, Jinn-Bot will hire 9 highly qualified professionals. One of the goals is to reinforce the commercial area, which is considered the main weakness of the company at this stage (to do so, Jinn-Bot will create its own international sales force and will partner with specialized resellers).

7. THE TEAM

Core Team Members	Position/Department - Function/Key competences
 <p>Roger Seeberger (co-founder)</p>	<p>Position: CEO and Head of Software Engineering Department: Software Engineering</p> <p>After his vocational training as an industrial electronics engineer, Roger studied at the art school FSG in Olten (Switzerland). Together with Michael Roggli, he founded the Jinn-Bot Robotics & Design GmbH in 2014. Since then he has worked as the managing director of the company and is responsible for the day-to-day business and the further development of robot software.</p> <p><i>“Since the early 90s, I have worked in computer science in the industrial sector. In 2003, some friends and I started an automation system. We then added voice-controlled capabilities and the first robots were made in 2006”.</i></p>
 <p>Michael Roggli (co-founder)</p>	<p>Position: Head of Hardware & Production Department: Hardware & Production Technical Leader of the MPA project</p> <p>Michael completed his vocational training as a model maker in 1992. Since then he worked in the cultural sector until 2014, when he co-founded Jinn-Bot. He is responsible for the production of the robots and enriches the company with his excellent knowledge in the fields of CAD, mechanical and robotics design, and 3D-Printing.</p> <p><i>“For 20 years, I have worked in the field of modelling. This experience with the processing of carbon, silicon, laminar resin and plastics of any kind has helped me in Jinn-Bot. New technologies like 3D-printing inspire me and allow a small company to achieve great things”</i></p>
 <p>Joshua Seeberger</p>	<p>Position: Head of Finance & Marketing Department: Finance & Marketing</p> <p>In 2018, Joshua finished his vocational training in the field of Business and Commerce. Since then he has been studying at the ZHAW Winterthur (Switzerland) in the Bachelor General Management and supports Jinn-Bot in matters of financing, online appearances and marketing campaigns.</p>
 <p>Joey</p>	<p>Jinn-Bot’s Ambassador</p> <p>Joey is the best Jinn-Bot’s ambassador. He is able to demonstrate its tremendous business impact on potential customers’ performance in just a few days. In addition, based on his interaction with customers and consumers, Joey provides useful insights to constantly improve its functionalities based on the market needs. Therefore, Joey is part of the Product Team, the Sales & Marketing Team and the Customer Service Team!</p>

Brextor

BRC Engineering AG

1. THE COMPANY

BRC was founded in 2001 by Alois Portmann. The company is based in Rain in the Canton of Lucerne (Switzerland) and its current workforce consists of 30 employees. Since the company's foundation BRC has become experts in the field of construction machinery technologies, having participated in numerous construction and civil engineering projects. The main activity is the delivery of construction machinery and products to customers, such as excavators, hydraulic hammers, mills and many others. In addition, BRC also acts as representative of a number of international and renown construction and other industries machinery companies in Switzerland as Robi in Finland, Geel in Austria and Bomag and Sembdner in Germany. The innovation driven approach in the construction industry was recognised on October 2017, when BRC received the 7th Zinno Award (Central Swiss Innovation Award) from ITZ Innovations Transfer Central Switzerland for the *Brextor* technology. In November 2018, BRC also was the winner in the category internationalisation at Swiss Innovation 2018 and came in 6th in the main competition.

BRC became experts in construction equipment and machinery technologies, having delivered >20'000 projects in Switzerland and in the overall DACH region. Moreover, a ~10% growth rate has been achieved in recent years. Thus, it is essential to develop new products and achieve an international expansion. As such, *Brextor* is the natural next step of the R&D activities, aiming to provide a game changer solution in the construction industry. The vision is to make *Brextor* the standardized pile head processing technology at a global level. In this sense, *Brextor* is of high priority as an enabler of this target and thus, a core pillar of the future business activities providing BRC a strategic opportunity to expand to new markets, boost the turnover and create new job opportunities.

2. THE INNOVATION

The connection between the concrete pile's and the pile cap's reinforcement bars is key for the stability of the foundation of every construction project, where reinforced foundation is required. To achieve this connection, the concrete from the pile's head needs to be removed to expose the reinforcement bars. However, all today's solutions (e.g. hand-held breakers, drum cutters, pile breakers) apply vertical forces to the concrete pile, resulting in cracks, damaging the concrete structure. Moreover, they are either performed manually, or they have low quality results, with high energy loss during operation and high OPEX.

BRCs response to these needs is *Brextor*, the first foundation pile milling head, easily mounted to any hydraulic excavator, that applies horizontal forces to remove pile's head concrete, ensuring the optimum reinforcement connection for safer constructions. Inner and outer milling heads work simultaneously, to achieve the highest accuracy level during the cutting process and hence, zero damage to reinforcement elements, no fissures and minimum corrosion risk. This can guarantee that the static strength of the pile remains unaffected. Besides, this innovation has zero energy loss (due to the horizontal cutting, all produced energy is maintained in the pillar) during operation and minimum human risk factor.

The *Brextor* is a game changer solution (better, faster and safer). Having identified these gaps when it comes to foundation pile head breaking solutions, BRC developed and patented *Brextor*, the first foundation pile milling head that applies fully controllable horizontal forces, ensuring that the result is a reinforced concrete pile with undamaged and clean reinforcements' connection for further construction process (and therefore avoids reinforced steel bars bending and concrete cracking). *Brextor* is a hydraulic attachment suitable for the standardized construction machinery excavators. It's capable of performing a pile milling head process in less than 30 minutes.



Figure 1. BREXTOR in operation

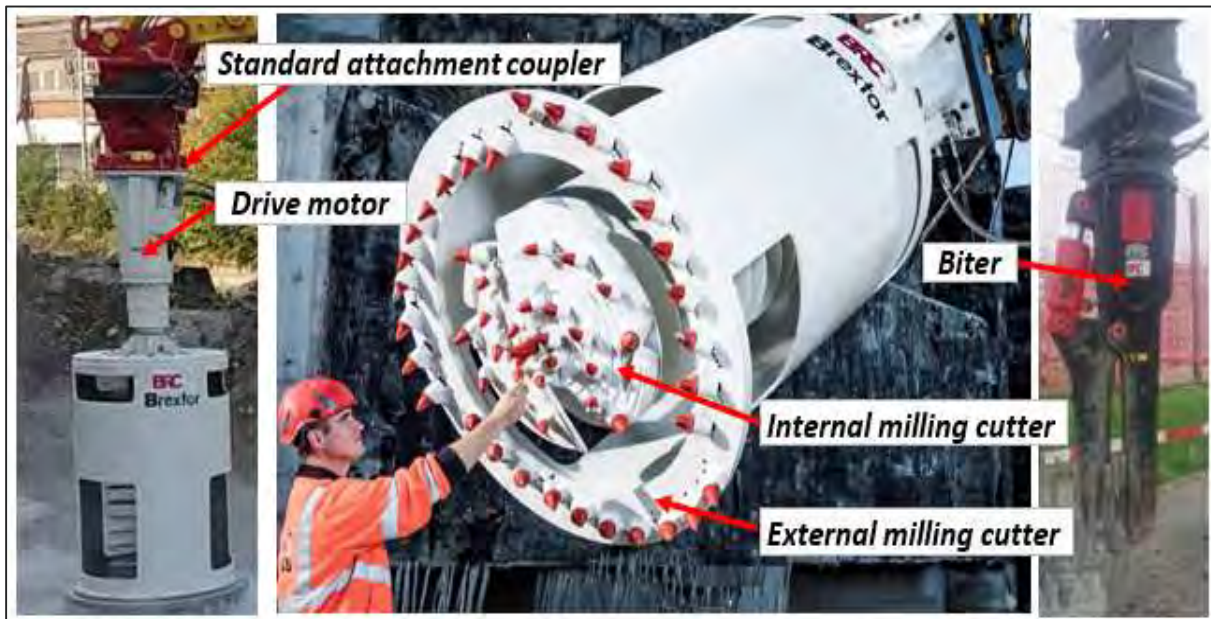


Figure 2. BREXTOR's main components

Components. *Brextor's* solution can be broken down according to its functionality as follows:

- Standard attachment coupler that ensures its compatibility with the majority of the construction machinery excavator units.
- Drive motor (30,000 max hydraulic motor earth drill) provides the torque force to overcome concrete friction during rotation.
- Milling head consisting of a carrier equipped with inside and outside milling teeth.
- Biter to remove the remaining concrete in the pile after the milling activity.

How it works? The milling head first breaks the core tension inside and the surface tension outside of the pile without damaging the pile and the steel reinforcements. The inner milling head mills the concrete inside the reinforcement ring, while the outer milling head mills the outside of the ring. After the milling process, the concrete ring with steel reinforcement bars remains intact. The concrete can now be broken from in between the reinforcement bars with a concrete shear. Figure 3 presents all the steps of smoothly removing the concrete of a foundation pile head with *Brextor* in only 30mins up to a cutting of 1.8 m. Solutions for bigger piles are currently developed.

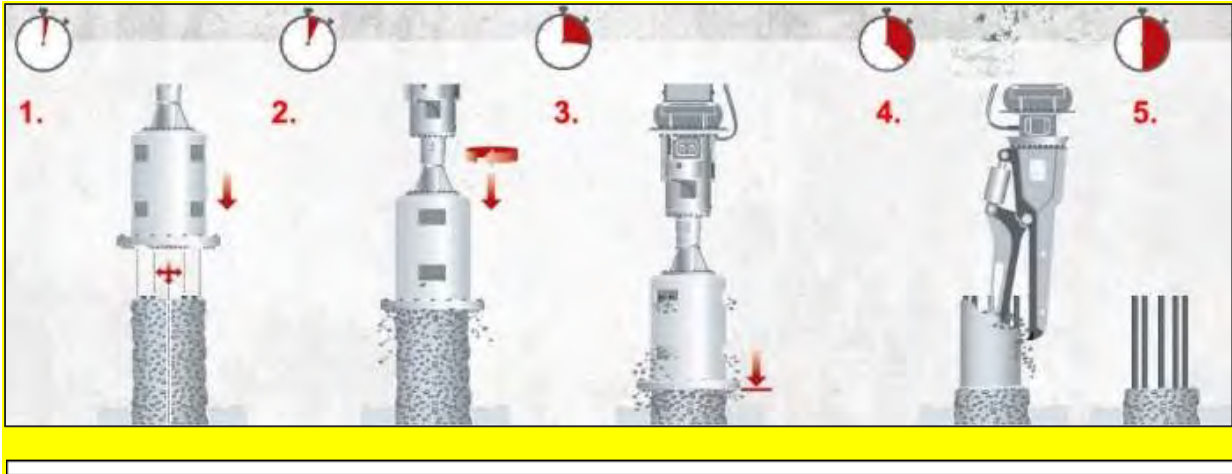


Figure 3. How *Brextor* works

Applications. *Brextor* has large range of applications as it can be used on piles from 40cm to 2m diameter. Besides, it is capable of working on narrow and deep wells or even under water as all the work is done from above. It can also be used on non-circular piles (e.g. octagonal ones), with a typical external cutter addition. Besides, it can be easily applied to existing badly constructed foundation concrete piles. Consequently, its application is not limited to a specific construction structure. It can be used for construction buildings but also for infrastructures as in both of them the concrete pillars with reinforced steel bars are extended practices to provide strength to the structure.

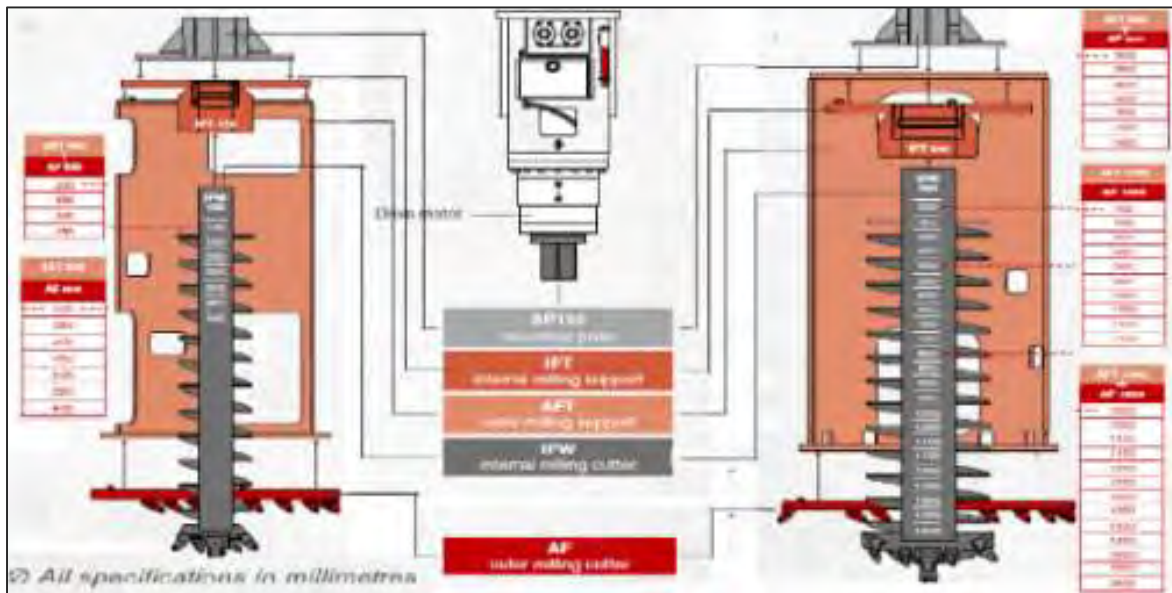


Figure 4. BREXTOR's modular design approach

Modularity. From a functional perspective, *Brextor* has been designed to enable a modularity approach that prevents customers from having to buy the whole solution for each type and diameter of the pillars to be milled. This approach enables multiple pillars to be applied under the usage of a single system, eases repair task as the broken component is extracted and replaced. 100 different configurations alternatives are adapted to different pillar diameters, height etc. Estimated results are shown below:

		AFT					IFT			
Type		500	600	800	1200	1600	2000	120	150	200
Possible combinations		5	7	7	10	13	15	7	7	23

Table 1. Estimated results of multiple pillars to be applied under the usage of a single system

3. THE BENEFIT AND THE IMPACT; SCALABILITY

The construction sector moves trillions of € on a daily basis at a global scale and the current technique of reinforced steel bars embedded into the concrete pillars supporting and distributing thousands of tons of weight has been used for decades and it is likely to continue and therefore so is the demand for our solution, as a result huge scale up potential is justified from the demand perspective without the need to search for additional or novel applications of *Brextor*.

This demand will be met as per the commercial strategy by maintaining the manufacturing (assembly and testing) process in BRCs premises and except for the Swiss market, establishing a network of strategic partners (distributors), accredited to reach final customer’s in their scope of influence but also perform regulatory requirements assessment and post-selling activities such as usage training and services practice (spare parts replacement and preventive and corrective maintenance).

- They have access to markets for which it could take us years to enter in countries that we have not developed any previous construction activity in the past.
- They will play an active role to ensure that *Brextor* complies with regulatory requirements of the market country, and support the procedures and manual translation to the market language if required.
- From the logistic perspective it is not suitable for BRC to perform *Brextor*’s usage training, maintenance and repair at a global scale.

To reach this modality BRC will prepare, train and constantly update with the latest features of *Brextor* through in-house and online training sessions plus a set of manuals that will be developed for such purpose. These knowledge tools will be reinforced by an effective communication among BRC and the distributor in case queries arise. On the other hand, BRC will receive a valuable feedback regarding failures, issues, or potential improvements based on the final customer’s feedback that they will receive,

This modality will enable sufficient operational potential that would be unaffordable from resources perspective otherwise without releasing the manufacturing prestige (Swiss made), which will be maintained also for marketing purposes. However, to do so BRC will re-adapt our premises as follows:

Extending in-house manufacturing capacity: BRC’s activity is related to construction machinery repair, maintenance and sales, However, as per the *Brextor* market launch plan, BRCs goal is to reinforce this second area and convert it into the main revenue source of the company, In the current premises at Rain (Switzerland), BRC aims to integrate, test and stock *Brextor* units. This requires a significant amount of space since BRC does not plan on outsourcing these activities to ensure that our reputation and the “Made in Switzerland” slogan is maintained (at least in the initial phase of expansion). As sufficient space is available, no significant financial effort to adapt the premises.

Supplier’s volume demand: *Brextor*’s components suppliers are mostly identified as BRC already established commercial relationships with them to manufacture the basic design. These suppliers are mostly in EU territory and have a proven capability to comply with the requirements that have been requested in the past:

4. THE MARKET AND THE COMPETITION – NATIONAL AND INTERNATIONAL
Market description and customers

It is a very specific market within the construction industry. Therefore, for identification and quantification purposes the following approach has been applied (see figure below).



Figure 5. Logic diagram of our targeted market

Construction industry: In EU-28 the construction industry accounts with 1,545.460 Billion € turnover, 53.280 Companies and 12.730.700 Employees¹. Five out of the 28 EU countries accounts with 63% of the total turnover (UK, France, Germany, Italy and Spain in descending order). These figures have been utilised to brake down proportionally the potential market for *Brextor*, this is, the pile head removal’s activity within the construction industry.

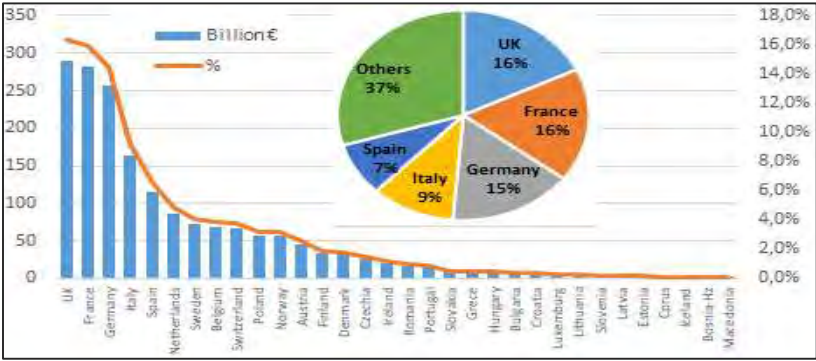


Figure 6. EU28 construction industry figures per country

Respect to the companies structure of the industry, 3.2 million construction companies operate in EU-28 with only 2.1K with more than a thousand employees. It is therefore that is an industry with a widespread presence of SME industries specialised in the wide range that construction activity has to offer. This fragmentation can be visualised based in the fact that only in Italy there are more than half a million construction companies registered.



Figure 7. EU construction industry figures per company

Construction machinery equipment market. This market was estimated as **€69.6 billion** in 2017, and it is expected to expand in the following years (CAGR 4.8% from

¹ <https://buildingradar.com/construction-blog/construction-industry-europe/>

2018-2025).² By machinery type it is classified into earth moving, material handling, concrete machinery and road machinery. In particular, concrete construction machinery, in which Brexto operates, is expected to grow at a high pace (CAGR 7.0% from 2018-2025). In terms of geographical importance, this market is dominated by USA with €27.9billion in 2017 mainly dedicated to infrastructure, while Europe machinery (€14 billion³) is more focussed on vertical construction building. Regarding the key players, the market is dominated (around 80%) by a little group of multinationals such as CARTERPILLAR, KOMATSU, HITACHI LIEBHERR and AB VOLVO.

In general, the machinery industry in EU region foresees a demand growth in the coming years. These positive projections are not pure speculation but they are materialised in the fact that the investment in equipment in the previous years have been recurrently growing, above their GDP growth rates, even more, considering that the minimum period to amortize the investment revolves around 10 years. Figures in the table below show this trend for the main construction economies in EU region.⁴

Count- ries	2016 growth (%)		2017 growth (%)		2018 growth (%)		2019 growth (%)	
	GDP	Equip. inv.	GDP	Equip. inv.	GDP	Equip. inv.	GDP	Equip. inv.
Germany	+1.9%	+2.2%	+2.2%	+2.6%	+2.1	+3.7%	+2.0%	+3.0
France	+1.2%	+6.2%	+1.6%	+1.1%	+1.7%	+3.3%	+1.6%	+2.6%
UK	+1.8%	+1.7%	+1.5%	-0.4%	+1.3%	+1.3%	+1.1%	+1.0%
Spain	+3.3%	+5.0%	+3.1%	+5.1%	+2.5%	+4.5%	+2.1%	+4.1%
Italy	+0.9%	+7.1%	+1.5%	+4.5%	+1.3%	+5.3%	+1.0%	+2.8%
EU28	+1.9%	+3.9%	+2.1%	+3.5%	+2-1%	+4.3%	+1.9%	+3.5

Table 2. GDP and investment growth forecast for European countries

Hydraulic attachments machinery equipment market. Brexto belongs to this sub-sector which usually works with excavators, agriculture equipment and other construction tasks. This sub-market was accounted €3.88 billion in 2018 and projections show €5.99 billion by 2025 (CAGR of 5.6%). According to the machinery type they are classified as Breaker, Grapple, Auger, Harvester head, others, while based on the application purposes, they are divided into demolition, recycling, forestry, excavation, others.

² <https://www.grandviewresearch.com/industry-analysis/construction-equipment-market-analysis>
³ https://issuu.com/cece_europe/docs/cece_annual_economic_report_2018?e=23876652/59258930
⁴ European Commission, European Economic Forecast, Autumn 2017

The piling head machinery equipment market (Brextor’s niche within the hydraulic attachment market). Brextor performs a very specific task in the construction activity, and therefore a set of assumptions to quantify the niche (TAM) have to be applied:

- Market growth rates similar to the concrete machinery equipment projected (CAGR 7% 2018-2025).
- Within the hydraulic attachments’ machinery equipment, Brextor is in the sub group “others”.
- The niche for the Brextor (SOM) in the EU region is estimated as 20% of the overall market share, globally at least 5 %.
- Within the piling machinery equipment, which can be divided into⁵, impact hammer (30%), vibratory drives (22%), piling rigs (37%) and others (11%), Brextor is in the “others” sub-group. The piling machine market was value €4.4 billion in 2018 and expected to grow (CAGR 4.8%) until 2025.

It is under these premises that the following estimation is made:

- About 11% of the global hydraulic machinery equipment is the market where Brextor will compete in the following years globally accounting for €435 million’s market in 2018 and €661 million by 2025.
- In EU region the estimated value of this market accounts for 20% of the global market share and therefore the following figures are projected: €87 million in 2018 and € 132 million by 2025.



Figure 8. Summary of Construction Market Globally and in the EU

⁵ <https://www.grandviewresearch.com/industry-analysis/piling-machines-market>

As per *Brextor*'s characteristics, being unique in its application and being a game changer, a realistic goal is to reach 20% of market share by 2025 of this very specific market niche (piling head removal activity) in the EU and 5 % globally.

Customers and/or users. Previous paragraphs show the estimated potential and achievable demand of *Brextor* solution. Regarding customer's and users, based on the experience in the Swiss market, construction companies and public/private building contractors/subcontractors as considered as the main potential customers (today there are over 55,000 construction companies in EU only⁶). Being aware of the importance of the foundation in a construction project, especially when executed to sensitive soil conditions (e.g. water, sand, gravel), they would welcome the advanced technological solution at a competitive price to replace manual pile breaking, hydraulic hammers and conventional pile breaking machinery.

As per its nature (hydraulic attachment), the direct customers will be the construction machinery equipment manufacturers. Its standard coupler enables its usage regardless of the excavator manufacturer. However, the users and beneficiaries of *Brextor*'s unique characteristics go beyond this stage of the value chain. Its capability to perform more rapidly, accurately and cheaper while ensuring structural safety of the structure (short and long-term) through avoidance of pillar and steel bars damages, enables this solution to benefit not only construction companies but also project planners and architects, who besides saving budgeted costs, prevent highly expensive corrective maintenance activities or catastrophic consequences in extreme cases (e.g. building collapse due to poor foundations caused the death of 11 people in India and 48 in the Highland Towers accident in Malaysia), plus a huge collateral financial impact). It is therefore that the commercial strategy will revolve in many cases on approaching project planners to trigger the demand of *Brextor* by the machinery equipment companies.

Differentiation from competitors and unique selling point (USP)

Brextor provides multiple benefits compared to the state of the art such as a reduction of pillar damage risk associated to its horizontal forces application or avoidance of construction worker health issues associated to vibrational machinery usage in the long term. These are features important enough to consider our product acquisition. However, the main selling point is that these improvements come with a more efficient

⁶ Construction Industry in Europe, Building Radar market research report, February 2016.

process performance (at least 4 times faster pile breaking: 15mins up to 1.8m depth) and lower OPEX (up to 3.5 times lower than competing solutions).

Description

Brextor's **commercialisation strategy** is divided into national and international approach.

- **The Swiss market** (BRC's national origin) is the one in which *Brextor* have performed in pilot projects and provided the proof of concept. In addition, there is already a consolidated network of local potential customers in place, based not only in previous tests but also on the already existing local customers of the current main business line. In addition, it is part of the commercial strategy to maintain service and repair activities as a secondary revenue source.
- **International market.** *Brextor* will be featured outside Switzerland borders through a very specific strategy, based on distribution agreements with machinery entities who are already operating and well positioned in the construction machinery industry in their respective regions. First commercial agreements have been signed with distributors that cover the EU and parts of Asia. The aim is to replicate and escalate this modality into other regions. A "hub and spoke"-system will be applied. Designed service providers ("hubs") are responsible for the identification of suitable distributors and other relevant stakeholders in a region. They coordinate the business development in that geographical area. Strategic partners, like big excavator companies, have also the potential to scale up the international expansion.

5. REVENUE MODEL AND IPR STRATEGY

Revenue model

Brextor will be exploited under the double one-off revenue model, for which each activity will generate a cash entry every time that a Brextor sale is generated and whenever consumables or replaceable parts are requested.

In the national (Swiss) market BRC will sell directly the units to our final customers, including the repair or exchangeable parts while also post-sale activities such as upgrades, preventive or corrective maintenance activities are contracted directly with BRC. On the other hand, outside Swiss borders the revenue sources will come exclusively from distributors, who will buy units and spare parts from BRC. They will







be in charge of post-sale activities such as repair, training and other services. In this case, the selling prices will be negotiated individually with each distributor and linked to volume requests.

IPR Strategy

BRC holds a patent both for Brextor overall technology and the operation process, inner/outer miller (both summarized in one patent with the title: Milling Head and Method for Machining Pilling Heads). Under the patent modality Brextor in the relevant markets on a global scale.

However, in order to implement an IPR strategy a constant patent survey will be executed to ensure that our uniqueness is maintained in terms of property rights.

6. THE TEAM

Team Member	Posit.	Dept,	Function/ key competences
Mr. Alois Portmann 	CEO	BRC	CEO, project and commercial Manager: He holds a long 40-year professional career, having participated in numerous constructions and civil engineering projects, Apart from his technical expertise in the field, he possesses deep knowledge of sales and marketing regarding construction machinery, having worked as a sales consultant for over a decade. Being the key person behind the original <i>Brextor</i> idea makes him the ideal candidate to lead the coordination and successful implementation. Besides, he is working on defining market entry strategies.
Mr. Andreas Häfliger 	Head	Production	Technical Manager: He possesses large technical experience in developing construction machinery and he has led <i>Brextor's</i> up-to-date technical development, As such, he is in charge of leading the technical developing.
Mr. Marcel Reber 	CFO	Finance & Admin	Financial Manager: He joined BRC in 2010, as a financial manager and head of administration, With an MBA in finance and long experience in financial and production industry with managerial positions he continuously updates the business plan for <i>Brextor</i> , ensuring its economic feasibility,
Ms. Christa I-ten 	Assis.	Finance & Admin	Coordination Support: Christa is responsible for administration and a marketing assistant, She has helped during the current development of <i>Brextor</i> project, having executed all the necessary administration tasks,
Mr. Nicolae Todica 	Assist.	Production	Technical Support: Nicolae is production assistant, spending most of his day in the workshop, He was involved from the beginning in the technical development and testing of <i>Brextor</i> technology.
Ms. Rita Eicher 	Product Manager	Marketing	Rita has a strong background in marketing and sales. She is supporting the team by dealing with all issues regarding these functions, focusing only on the <i>Brextor</i> .

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This volume shows the wide range of start-ups that participated in the business plan competition Swiss Innovation Challenge Asia of the School of Business FHNW. Three to four cases each from Indonesia, Malaysia, Thailand and Vietnam are presented, supplemented by two cases from the competition in Switzerland. The case collection is also suitable for use in entrepreneurship courses.

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