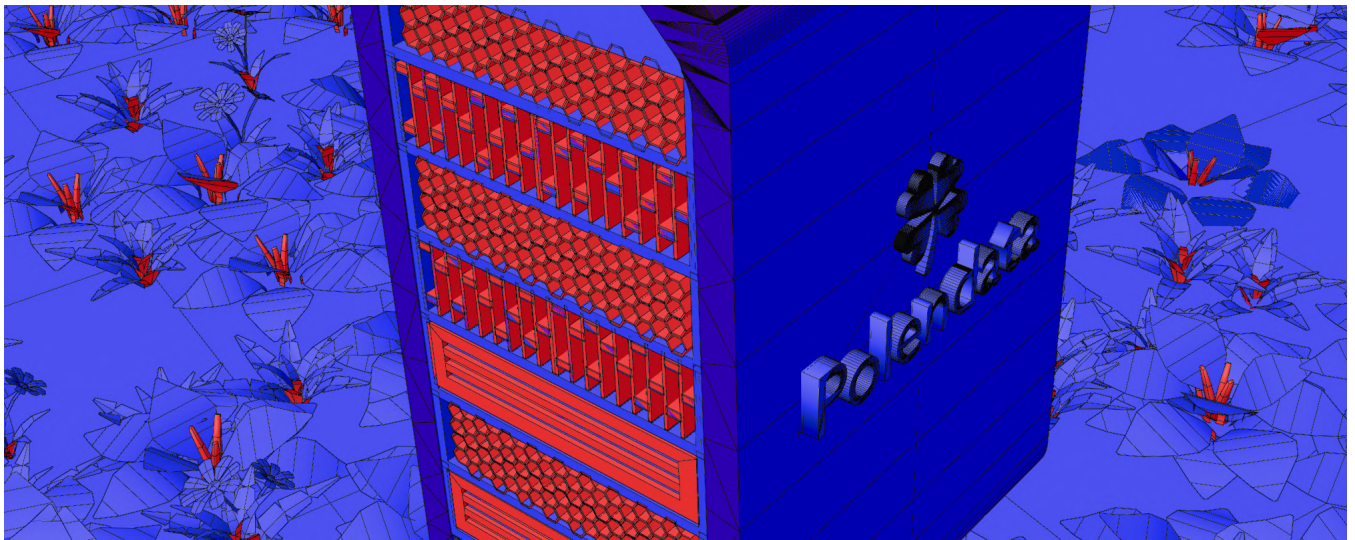


Company Report

PolenData

2022



PolenData

A new sustainable way to increase
your farms productivity

Product

We've come to the conclusion that there is a possibility to increase farms productivity without compromising the sustainability of the planet.

We, PolenData, have created a modular and intelligent "house" for pollinators, filled with sensors that will help us retrieve important information, in order to increase the levels of pollination in a farm, and all of that in pro of increasing the farm's productivity.

With our product, the farmers will not only take into account the increase of the farm's productivity but also the sustainable side of it, since all the energy sources used are renewable, and no chemicals are being used, therefore not compromising any ecosystems.



Mission

As the world advances, the pressure on earth's resources have been increasing at a faster rate than what it should be. To counter this, we had to make sure that whatever product that we would build as a company, it would always have to do with the better management of these resources, all while having sustainability in mind.

We then thought of PolenData, and decided to impact one of the most important sectors of our society, the base of all human life, agriculture. As we know, agriculture is the source of all the food we eat. That means that this sector is pretty impactful in every single aspect of human life.

Our primary objective as a company is to revert the impacts of non-sustainable agricultural production by using pollinators to increase the farm's productivity, therefore being fully sustainable.

This way we can bring a balance between sustainability and productivity that will provide the revolution in the agricultural sector that we all need.

Without us, the agricultural sector will be highly impacted by the pollution of industrial fertilizers, the overuse of the soil through intensive systems and much more. Therefore, PolenData should be the standard mechanism when it comes to increasing productivity in every farm.

The decrease in agriculture productivity

When we got this opportunity from Junior Achievement Portugal, we immediately started thinking in global, national and local problems. The truth is that after going through some ideas and brainstorms we understood that we should focus on a local problem.

One of our team members' grandpa owns crops in the center of Portugal, however in the last two years the crop wasn't being as productive as it should, so we knew we had to act. From all the factors which are key to a crops' productivity and due to its big importance, we chose pollination and this was where PolenData started.

After choosing the problem, we noticed that we would be working on a project that keeps motivating us in several ways. In one way, we are building something that will help someone that is close to us and, for sure, hundreds of farmers from north to south of our country. On the other hand, we are revolutionizing agriculture by bringing a new product which not only improves productivity in crops, but also does it in a sustainable way, while using renewable energy sources and not endangering the ecosystems. Could it be better?



Competition

As the time this report was released [2022/06/15], PolenData does not face any direct competition. This signifies that we're highly likely to be a first-to-market. Nevertheless, it is important to highlight how there are some companies and products that indirectly can compete with us.

To give an illustration, BeeWise Technologies, a German company, produces a robotic Beehive. While some similarities might be found in regards of the technology, our product is targeting every type of pollinator, and with the intent of increasing agricultural production, instead of focusing on the beekeeping. Additionally, other products that are, in some ways, similar to ours are sustainable fertilizers, produced by companies like ADP Fertilizantes, Deiba and Italtollina. Even though these companies can compete with us, while looking from a long-term perspective we offer our clients a cheaper and a more convenient way of increasing productivity due to the use of new technologies, making the farmers job easier.



Summary

We built a smart home for pollinators that allows them to live safely, while providing you, the farm owner, a way to increase the pollination of your trees, which will result in an increase in production.

It is furnished with a variety of different sensors, which concedes us data to work with. Once our 2-year plan of distributing the maximum amount of houses possible in this time frame, we'll then start to train a machine learning model based on the collected data to understand the best type of pollinator to a specific orchard or plantation.

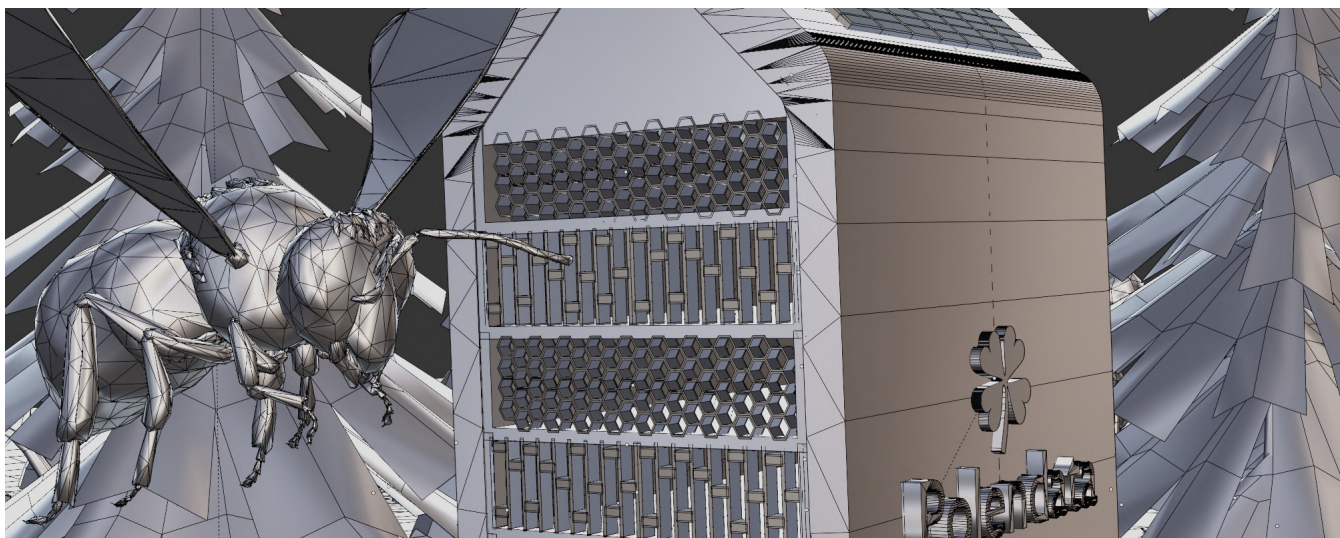
The value of this model will grow as more houses are distributed and we cover a wide range of climates, soils, plantations, etc.

Modularity

In order to save costs and to grant better logistics, we decided to build a single skeleton for the house. This allows us to “move fast and break things”. Our approach to this problem has always been in regard to testing. We believe that, in the future, the most profound answers in the agriculture sector will be solved with data.

With the intent to test as many variables as possible, our houses will all have different types of drawers, according to the prior tests that were made in a certain farm.

Furthermore, if we ever discover a new insect species that increases a certain production, we'll only have to manufacture that specific drawer, and it will be available to every house that we ever shipped.



Dashboard

In the light of the recent technologies, there is no doubt that the best approach to take would be to create an online dashboard for our clients. This will serve as the bridge of all the communications between our company and our customers.

This platform will show the relevant information that we've captured from the sensors, such as the amount of movements of pollinators in a certain house, which might indicate an increase in production in the following harvest.

Other informations might include the need for changing drawers in light of recent events or if you would like to introduce a new type of orchard, it would advise on the best combination of pollinators, regarding your specific needs.

Summary

It is widely accepted that fossil fuels are colossally accelerating global warming as a whole. Given today's standards, this is becoming exponentially atrocious for the environment.

To prevent this acceleration and to make our house 100% independent from connected energy sources, we decided to equip our smart house for polinators with solar panels. Not only do we increase biodiversity in every corner of your farm, but we also make it in a way that decreases maintenance, all while using clean energy.

As we've said, the house is furnished with a wide variety of sensors and boards that will extract relevant information to fill our database.

Components

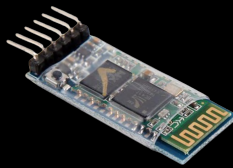
Arduino

House's processing unit.
Powers the display
Manages battery's levels.



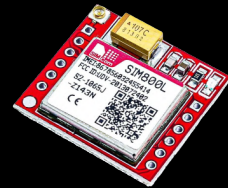
Bluetooth

Responsible for sending
each houses' data back
to the main house.



GSM

Oversees the transfer of
all the houses' data back
to the main database.



Infra Red

Totals pollinators
movements to determine
areas where there is an
increase in pollination



Display

Displays configuration
preferences, temperature,
humidity, battery levels,
errors & time.



Battery

Powers houses' sensors.
Stores energy for
cloudy climates



Temperature & Humidity Sensor

Collects weather
information to predict
strategies to next
harvests



Solar Panel

Supplies house energy
Sustainable and low
maintenance



Cost of production and retail price

250€

Production price

450€

Sale Price

Revenue, Profits & Expenses

Income Statement	Year 1	Year 2	Year 3
Revenue	452,500	5,377,500	9,958,500
Costs of goods sold	362,500	2,987,500	5,532,500
Gross Profit	90,000	2,390,000	4,426,000

During the first year, the first 250,000 euros of sales will not produce any profit as the product will be sold at production cost. Our profit margins are estimated to be 44.5%, giving us sufficient cash to develop and research new products.

Expenses			
Salaries and Benefits	155,000	210,000	530,000
Equipment	55,000	190,000	50,000
Rent and overhead	62,000	62,000	134,000
Depreciation and Amortization	12,000	22,000	42,000
Interest	10,200	10,200	18,400
Marketing	31,000	209,000	217,000
Total Expenses	689,150	3,702,650	6,546,030

Our salary expenses are mainly distributed between an R&D team, a programmer and factory workers. During the third year we're expecting in giving cash & stock options bonuses to keep the talent in our company.

Investment

For this project to begin, we will need to secure investment.

Firstly, we will look for an angel investor. This will allow us to make the first prototype and even produce a few hundred houses.

After we achieve this goal, we'll then look out for a Series A investment of about 600 thousand euros, so as to hire our first employees.

In the future, we will start to look for international investment in a Series B, with the intent of expanding to the european market.

600k Series A

Burn Rate*

MVP (Minimum viable product)

Throughout the first 3 quarters, our costs will mainly come from COGS, salaries and equipment to achieve a minimum viable product.

We expect to have it ready by the 4Q of 2023, to then start our expansion plan. This will consist in spreading a vast number of houses to start collecting information as soon as possible. The more data we hold, the more valuable our house will become.

Quarters	23 Q1	23 Q2	23 Q3
Salaries & Benefits	38,750	38,750	38,750
Units Sold	-	380	620
COGS	-	95,000	155,000
Equipment	32,500	17,500	2,500
Rent	15,500	15,500	15,500
Depreciation	3,000	3,000	3,000
Interest	2,550	2,550	2,550
Marketing	1,000	1,000	1,000
Total Costs	93,300	173,680	218,920

Quarters	23 Q4	24 Q1	24 Q2
Salaries & Benefits	38,750	52,500	52,500
Units Sold	450	1,450	2,100
COGS	112,500	362,500	525,000
Equipment	2,500		
Rent	15,500	15,500	15,500
Depreciation	3,000	5,500	5,500
Interest	2,550	2,550	2,550
Marketing	28,000	35,000	58,000
Total Costs	203,250	475,000	661,150

Awareness

The following 3 quarters will be prioritized to propagate our great innovation.

While salaries only show an increase after the first year, marketing expenses will see a rapid increase straight after the 3Q.

The main marketing expenses will be in agriculture fairs, Facebook Ads & Google Adsense.

Factory Expansions

Our predictions indicate us that we'll be ready to expand to a new factory throughout the 3Q of 2024, with the vision of conquering Azores, Madeira and Spain. After this expansion is complete, we're expected to break even during our 3rd year in business.

Quarters	24 Q3	24 Q4	25 Q1
Salaries & Benefits	52,500	52,500	132,500
Units Sold	3,450	4,950	8,980
COGS	862,500	1,237,500	2,245,000
Equipment	120,000	70,000	35,000
Rent	15,500	15,500	33,500
Depreciation	5,500	5,500	10,500
Interest	2,550	2,550	4,600
Marketing	48,000	68,000	54,250
Total Costs	1,110,000	1,456,500	2,524,330

*All values presented in tables are in thousands

Target clients

Our business target is agriculture cooperatives, companies in the agriculture space and small farmers.

It is common knowledge that there is still a big percentage of elderly farmers. This obstacle meant that we would need to break our marketing strategies in two. One, oriented to this elderly consumer market, with more traditional forms of communication such as agriculture fairs. The second, a more younger version of this, through online ads such as Facebook Ads or Google Adsense.

Fairs

The aim of this strategy is to connect and capture the elderly market. The biggest concentration of farmers usually happens once or twice a year per district here in Portugal. These places allow companies in the agriculture space to promote and showcase their products in a more formal manner.

For this reason, the best approach to this would be to create a stand that exhibits our creation. It also means that farmers are able to explain their concerns and have them clarified in a matter of seconds.

Facebook and Google Adsense

While fairs can bring some benefits, these may be outweighed by the drawbacks such as not being a constant source of advertisement.

To counter this, we are planning in launching campaigns through Facebook and Google. These platforms allow us, to target specific consumer demographics, which is marvellous since farmers are not the majority of our population, meaning that TV or Radio ads would be ineffective.

Our Team



Daniel Pereira

President & Head of Finances

President & Team leader of PolenData. Chair of the finance department as it ensures the financial stability of this company.



Miguel Roque Martins

Head of Sales and Communication

Miguel conducts the sales & communication department. Simultaneously, he keeps our sales channels with consise and persuasive pitches.



Tomás Meneses

Head of Public Relations & Operations

Responsible for the Public Relations division of the company. Moreover, he also manages PolenData's supply chain, ensuring good relationships with suppliers.



Bernardo Ascensão

Head of Engineering

Administer of PolenData's engineering. Oversees the sensor's functionality and maintenance. Furthermore, he explores new product ideas.



Pedro Pacheco

Head of Technology and Marketing

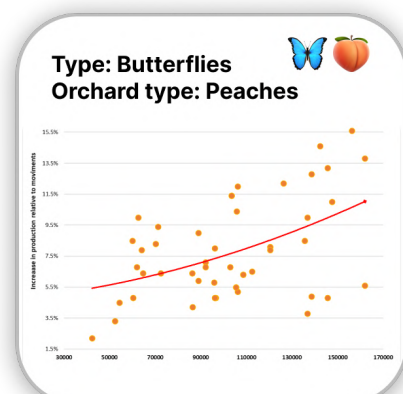
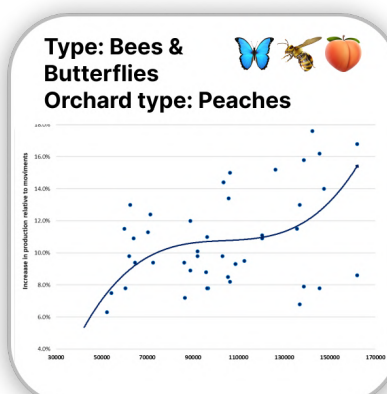
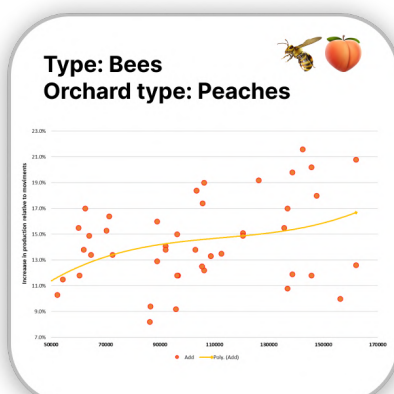
Administer for the dashboard, the transfer of data & the design of the house. In addition, he supervises the marketing department.

Data - The Future

To better understand our vision and product, we first need to clarify how we will process the data. During the first few years, we want to provide as much information as possible to our ML Model. This will have two main entrypoints. The first one, the characteristics of the surroundings of each house, such as the plantation type, soil & weather. The second, the prior production numbers of that area, namely the amount of fruits produced.

PolenData will then recollect this information each year, and with time, we'll have a better estimate of what type of pollinators work best with certain plantations.

In the future, this data will guide us through the strategies that we need to make for each individual client, making our service and product unique and adaptable for each type of consumer.



A global Product

Our product allows us, to collect massive amounts of data from different climates, farms and trees. We're committed to explore the unknown patterns about farms, so that whoever uses our product, gets a better insight into their farm.

Considering the fact that we combine pollinators with software, the latter gives a new dynamic to this project. It is widely known that tech companies scale fast and globally. While we do not fully meet the criteria to be called a tech company, we do have an invaluable piece of software, which is the algorithm that will predict based on past data, the adequate strategies to take, regarding to pollinators, to increase a farm's productivity.

Due to the fact that we incorporate machine learning, it will study and learn with each farm in order to provide an accurate response to the best approach.

Expansion

Knowing how to expand a business is a crucial point to its growth. Our team is eager to grow and make an impact in the whole planet earth in a sustainable way.

To illustrate this, we planned 3 stages of growth:

The Go-To-Market

During the first 2 years after the MVP is available, we pretend to conquer the national market at an accelerated rate. To make this possible, the first 1000 houses will be shipped at the production cost of 250€.

If this were to be introduced in the market at our projected sale price, we believe that we would have a hard time selling, owing to the fact that our product would be incomplete, since our algorithm would not be ready.

We need to make sure that we have enough houses set up to feed our machine learning model.

Once we have some data to work with, we can then bump the price since we have some leverage over any other type of competition.

Thenceforth, we will shift our company's focus to market awareness. As a result marketing will be a top priority at the company.

Europe

Soon after we start to present results to farmers, we believe that we're then able to start dominating the european market. So as to revolutionize the way we produce fruits and vegetables, we are open to any partnerships with governments and the European Union to help us distribute this product to a vast amount of single farmers, companies & agriculture cooperatives.

Global

The last stage of our growth would be to expand globally. US markets demonstrate a vast majority of potential clients, so that would be our first international goal after the EU.

This would also mean that our algorithm would receive whole new sets of data to work with, in light of the fact that new climates, orchards and soils would be analyzed.

Visit our website on

<https://Polendata.vercel.app>

To explore our 3D house model



Check out our advertisment on Vimeo

<https://vimeo.com/692674660>



from
450€
available in the spring of 2024

