



Master of Science in
International Business



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Abstract

3Drone is a drone start-up that combines the use of robotics in disaster relief management with strategy development to efficiently manage natural disasters according to real-time needs. We develop an innovative software built on 3D mapping technology that provides an automatic damage severeness analysis based on drone footage, with limited human interaction needed. Our final product is a 3D map that is created by comparing a 3D map from before the natural disaster to one created after the disaster. This way, property damage can be precisely assessed and evaluated, which both speeds up the insurance claim process for insurance companies and allows governmental organizations to prioritize affected areas in their emergency relief strategy. 3Drone saves lives, time and money.

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1 Executive Summary

This document presents the business plan for 3Drone. 3Drone is a company that scans properties using drones and analyzes the data with 3D mapping technology. Our service will be used by customers that are involved in natural disaster relief management, such as insurance companies and governmental organizations. Introducing the use of 3D technology in this industry, we increase the efficiency of the total disaster relief management cycle since the current disaster relief management is based on manual data processing and damage assessment and lacks the possibility to transform the data into a ready-to-use product. We are able to provide an automatic damage severeness analysis. This not only fills the gap between the use of robotics in disaster relief management and strategy development of how to efficiently manage natural disasters, but also increases the speed and accuracy of the insurance claim process done by insurance companies because our software calculates the percentage of structural damage in real-time.

Our service works as follows: a 3Drone employee makes an initial scan of a property with a drone that will be automatically added to our database in the form of a 3D map. After a natural disaster occurs, 3Drone immediately scans the affected area again, and our software compares the two 3D maps and measures the structural damage (in %). This results in a new map that exactly shows how much a property or area is damaged. This information is then directly communicated to disaster relief management organizations and insurance companies. Consequently, the disaster relief management organizations can start developing a strategy by prioritizing the most affected areas and provide the necessary help to natural disaster victims without lengthy research. Insurance companies can directly start calculating the value of the structural damage based on our data with higher accuracy. This saves time and money in the process. As a result, the insurance companies will be able to pay their customers much faster than is the case now. Public pressure to make those payments faster is substantial, and insurance companies can distinguish themselves from competitors in terms of speed when using our service. In short, 3Drone saves lives, time and money.

Besides the ability to increase the accuracy and speed of structural damage calculation, other strengths of 3Drone are organizational flexibility, since we are able to adjust our service to the wishes of our customers; a high service level compared to our competitors, outstanding quality, fast response time after natural disasters and our strongly innovative culture, represented by the high yearly R&D budget. Moreover, we are absolute specialists in the field by having in-house software development and a full service product.

On top of that, the rapidly developing industry provides a lot of growth opportunities for 3Drone.

Regarding location, 3Drone will be set-up in Florida, the United States, because it is the current leader in the global market of Natural Disaster and Emergency Relief Services. It accounts for 39% of the global market, with \$10 billion market value. We chose Florida as a starting point after a scoring-model analysis, because of favorable economic indicators and the concentration of population in areas with high exposure to natural disasters due to climate-related conditions.

3Drone will enter the B2B market targeting two types of clients: insurance companies and governmental organizations. First of all, the total market value of insurance companies in Florida is \$56,6 billion. This is coming from a total of 2050 insurance companies of which we can assume a potential revenue of \$5,66 million (NAIC, 2016). Moreover, 28,5% of the US Natural Disaster and Emergency Relief Services industry is located in the Southeast region and accounts for \$2,85 billion revenue. Based on our assumptions, our potential revenue in the first year of operation is \$285.000 coming from the governmental organizations within the industry. Moreover, according to our financial forecasts, we expect sales growth of 100%, 80%, 78% and 91% for years 2,3,4 and 5 respectively. The growth rates are based on a yearly increasing sales force, a learning curve effect of the sales force, percentage of customers reached and an expansion to Costa Rica in operational year 4. We aim to become and stay the market leader in our specific market niche.

For promotion 3Drone will make use of offline and to a lesser extent online marketing. We want to increase brand awareness offline through attending industry-related fairs and conferences to reach our potential customers and to create online presence through social media, search engine optimization (SEO) and search engine marketing (SEM). In terms of price strategy, we aim to skim the market to maximize profits since we provide an innovative and high-end product in a new market for which the need is high. Our price is based on the amount of square meters to scan.

Lastly, this business plan involves a 10 year project and requires a total investment of \$950,000 and an initial investment of \$500,000. The IRR (internal rate of return) is calculated to be 12% with a 42% equity/debt ratio. We will break-even in terms of profit and net cash flow in operational year 4.

2 Business Description

2.1 Mission/Vision Statements

Our mission is to significantly increase the speed and accuracy of structural damage calculation after natural disasters through 3D mapping and drone technology, in order to save time and money for our customers.

Our vision is to become the worldwide leader in innovative approaches to data processing in the industry of natural disaster and emergency relief services.

2.2 Objectives

Regarding the marketing objectives, we aim to develop a leadership position in terms of market share. Since 3Drone is a start-up, the first steps of the company's development is establishing the company's brand in the industry using a pilot. Then we need to proactively increase brand awareness nationally while establishing a sustainable sales growth trend. In the long-term we aim to be the market leader in the global market for Natural Disaster and Emergency Relief Services. In terms of qualitative targets, our main objective is providing a high quality service by using 6K resolution cameras to ensure detailed 3D mapping. Every property that is examined is scanned on two different altitudes. The higher altitude is necessary to 'stitch' the overall map together and the lower altitude is necessary to collect very detailed data. Another qualitative target is security of data in our database. We need to continuously invest in R&D to ensure that our software is hack-proof. We believe that the combination of a focus on high-quality service and data security will help us in customer retention. Lastly, we need to be able to operate under time pressure, so we aim to operate as efficient as possible, which requires continuous improvement of our internal business processes, transparency and clear communication. Since we are a first mover, we will not encounter direct competition as we enter the market, but we expect competition to rise soon. Consequently, we budget 15% of our sales revenue for R&D developments in order to be innovative and stay a step ahead of competition.

3 External & Internal Analysis

3.1 Scoring model

First of all, we have determined the US to be the optimal country to start 3Drone. It dominates the global market in the Natural Disaster and Emergency Relief, accounting for 39% in 2017. (NBC, 2017). In order to select the most attractive state to startup, we have compared three states that have been severely affected by natural disaster over the last years; Florida, Texas and California. As can be seen in the exhibit 1 in the appendix, Florida appears to be the best choice (with a score of 19) for our start-up based on several criteria. Florida ranks the highest in terms of market share of the American Natural Disaster and Emergency Relief industry. On top of that, both Florida's absolute number and growth-rate of disaster declarations in the period 2014-2017 are higher than in Texas and California. Another feature of Florida is that it has received the second highest value of Federal disaster aid over the last five years. Moreover, compared to Texas or California, most of the insurance companies are located in Florida, which suggests that the insurance customer base is potentially the highest in Florida and therefore worthwhile to target at first. After taking all these criteria into account we have decided that, before we enter the global market, we want to do a pilot in Florida. After choosing Florida regarding the above mentioned indicators of our scoring model, a further analysis of the macro-environmental factors situation of the state will follow.

3.2 PESTEL

After analyzing the political, economic, social, technological, environmental and legal environment of Florida, we have concluded that Florida is the best place to start our business. The whole PESTEL analysis can be found in exhibit 2 of the appendix, and the most important dimensions for our business will be discussed below.

Regarding economics, Florida is a suitable starting point for our business. In 2017, Florida's GDP was \$967.3 billion and was ranked 4th in the US. Florida's real GDP grew 2.2 percent, which was higher than the national average. (BEA, US Department of Commerce, 2018). According to the 'Best States for Doing Business Ranking 2017', Florida is the leading state in growth forecasts and is ranked as the fifth best state in the US in terms of rules and regulations for doing business. On top of that, the state scores high in terms of cost-efficiency, especially due to low taxes, in comparison with other high-tech states such as

California. All this, combined with the fact that Florida has a big budget for Natural Disaster Relief, \$77 billion in 2016, makes the region very interesting (Walton, 2016).

In terms of environmental exposure, as exhibit 3 in the appendix shows, the area of Florida suffers from a combination of humid subtropical, monsoon and rainforest climates. This type of weather is directly related to the presence of natural disasters such as hurricanes, tornadoes, hail, strong winds, droughts and floods. The season of hurricanes is especially dangerous in the east coast of Florida as can be seen in figure 3.4, especially in cities like Jacksonville or Miami, where it has almost the same exposure to hurricanes as the islands and countries in Central America. Additionally, the region most affected by natural disasters is also the most populated area, which results in a high risk for the population. So the combination of being one of the most populated regions in US and the frequent patterns of natural disaster occurrences results in a high risk for properties in Florida, which makes it a very relevant region to start out business.

The last dimension that strongly influences our business is the specific regulation for drones in our commercial activity (see exhibit 2.6). While the part 107 of the Federal Aviation Administration about unmanned aircraft (drones) is extensive, it does not pose any obstacle on our operational activities of scanning properties if owners' consent is given. The only thing that we should take into account is the legal requirement for our drone operators to pass the aeronautical knowledge test in a official FAA station to become certified drone pilots under the part 107 (see exhibit 2.6).

3.3 SWOT Analysis

The SWOT shows clear business opportunities for 3Drone. The named strengths are a result of a company that is operating according to a clear mission and vision. One of 3Drone's biggest strengths is creating value for its customers by enhancing the accuracy of their services, as well as being a qualitatively sound product. The service level of 3Drone is higher than that of its competitors and includes a front-to-end service. A strong base is provided for a stable and reliable business that will be investing heavily in R&D. Besides, the majority of the weaknesses 3Drone encounters are related to general start-up company issues. Another weakness 3Drone faces is that insurance companies have to include a clause in their insurance policies that obliges their clients to allow us to scan their property. It is a weakness in the sense that we depend on their willingness to do so. However, since the clients directly experience the effects of natural disasters on their properties, we assume that they are willing

to give their consent because our software directly benefits them after a natural disaster strikes.

Moreover, the external analysis shows that the threats are mainly based on the expected quick rise of competition and the recent changes in business environments due to US politics. Lastly, the opportunities stated show fast industry and technological developments. 3Drone is the missing link in the disaster relief management cycle and thereby we fill a gap in the market. On top of that, the use of robotics in the disaster relief management industry is growing rapidly and 3Drone has the opportunity to get caught in the stream of investments and technological development. Furthermore, the increasing public pressure on insurance companies to speed up their investigation and payment processes after natural disasters, provides an opportunity for our service. 3Drone can help the insurance companies to optimize their service and relief the public pressure. Fourth, due to climate change the likelihood of natural disasters is increasing and this provides a business opportunity for 3Drone.

<i>Strengths</i>	<i>Weaknesses</i>
<ul style="list-style-type: none"> ● Increased accuracy of structural damage calculation for insurance companies ● Organizational flexibility → ability to meet specific customer's wishes ● High service level compared to competition ● Price / quality balance ● Quick response time ● Strong innovative culture → high yearly budget R&D investments ● In-house software development → Specialists 	<ul style="list-style-type: none"> ● New in business, with limited experience ● No strong relationships with customers/suppliers yet ● No established brand name ● Challenging to find investors for a start-up in a new industry ● Insurance companies need to include a clause obliging clients to allow us to scan their properties
<i>Opportunities</i>	<i>Threats</i>
<ul style="list-style-type: none"> ● New and rapidly evolving industry → possibility to get caught in the stream of investments / technological innovation ● No link yet between potential customers and existing technology → 3Drone is the missing link for both sides of the market ● Opportunity to create a win-win-win situation → Sales opportunity for suppliers, time saving opportunity for customers, business opportunity for 3Drone. ● High monetary value of disaster relief management industry ● Higher likelihood of natural disasters due to climate change ● High public pressure to increase speed of insurance payment process 	<ul style="list-style-type: none"> ● Very attractive market → Competition will most likely follow soon ● Not a long time span to test and evaluate the product before competition will arise ● Possible entry of tech giants like Google with significant budgets ● Regulations for flying with drones ● Non-predictable business environment due to the Trump administration.

4 Market Analysis

4.1 Market Definition & Size

3Drone is a start-up company that is operating in the Natural Disaster and Emergency Relief Services Industry, which can be defined as state-owned or private companies that “provide food, shelter, clothing, medical relief, resettlement and counseling to victims, disaster relief and emergency services and disaster relief training”. In terms of market size, the global Natural Disaster and Emergency Relief industry accounted for \$25,6 billion in 2017 of which 39% came from the US with a total market value of \$10 billion (NBC-2, 2018). Besides, the US market has experienced an annual growth rate from 1,5% from 2012 onwards (IBISWorld, 2018) and is currently dominated both by non-profit and profit companies that respond to natural (or unnatural) crises, such as hurricanes, floods, earthquakes, fires, tornadoes, wars, hazardous material spills or terrorism.

According to IBISWorld (2018), the US industry covers most of the Southeast and West and companies are distributed in line with the population distribution. However, the revenue is disproportionately represented since 28,5% of the companies are located in the Southeast region, while it accommodates only 25,4% of the population. This overrepresentation of revenue is due to the greater frequency of natural disasters, especially hurricanes, in the Southeast of the United States. On the other hand, only 16,1% of the industry is located in the West, whereas it accounts for 17,1% of the US population. Therefore, we estimate the total market in the Southeast region to be 28,5% of \$10 billion, which accounts for \$2,85 billion. These revenues come from the whole industry, which includes many different types of services. For the purpose of our business model, we assume that only 1% of this market could be our potential client, which accounts for \$28,5 million revenue. We do not expect all potential clients to do business with us, therefore, to be conservative we assume that only 1% would be interested in our service, which would give us \$285.000 revenue in the first year of operations.

Regarding future industry growth, it is expected that the occurrence of natural disasters will rise in the long-term, which follows the climate change trend. As a result, demand for Natural Disaster and Emergency Relief services is expected to increase over time (PRWeb, 2018). This expected increase in demand is also supported by data. According to the daily updated FEMA Disaster Declaration Data Set (2018), there has been an overall increase in disaster declarations in the US states and counties of 124% from 2013 to 2017 as can be seen in exhibit 4, figure 4.1 and 4.2. When looking within Florida specifically, there

has been an increase in disaster declarations of 3400% from 2013 to 2017. Lastly, it has been forecasted that the market will also grow on a global scale with a compound annual growth rate of 3.44% for the period 2018-2022 (NBC-2, 2018).

4.2 Market Problem and Solution

The current market problem stems from inefficiencies in the disaster relief management cycle, which is mostly caused by the inability to manage and systematically organize data. Even though it is not standard practice yet, drones can be used to gather footage of affected areas (D. Merrick, personal communication, March 9, 2018). In practice, gathering the data is not difficult; the problem lies in creating a final and relevant product, which is customized to specific needs of the several organizations involved. Currently, the only analysis that is done requires viewing all the footage manually and identifying whether imagery involves damage (D. Merrick, personal communication, March 9, 2018). Moreover, this damage is assessed without any comparison to prior-disaster situations and therefore it is not possible to guarantee that damage is caused by the disaster. On top of this, one of the main problems in the insurance industry in general stems from high operational costs as a study done by McKinsey (2014) indicates that insurance companies fail to optimize their operational model. A direct effect of this inefficiency is the inability to generate economies of scale, which in turn is very costly. More precisely, McKinsey (2014) calculated that on average 61% of an insurer's cost base comes from operations of which 22.2% is IT based and the main cost driver with 24.4% is poor claim management. Moreover, when McKinsey (2014) compared top performers of the insurance industry with low performers, they found that the main difference was cost based and cost differences ranged from 50% to 80%. Lastly, it has been estimated by PwC that drone-powered solutions like drone mapping could save the insurance industry \$6.8 billion per year (PwC, 2016).

Consequently, the market is in need of a service that enhances the efficiency of the current disaster relief management cycle both for public and private firms by categorizing, processing and managing data generated by drones. Hence, we are developing a software that will provide an automatized way to analyze drone footage and, using 3D mapping technology, provide a functional 3D map of the affected area with limited human interaction.

The software will be able to categorize drone footage according to criteria and identify whether structures are impacted, severely damaged or totally destroyed. This is done by comparing two 3D maps. Also, its able to recall data on demand. By doing so we are able to prioritize affected areas according to real-time needs. Besides, the software will have the

following features: view 3D maps with the ability to check details, e.g. zoom in to specific parts of the map to check dimensions like height and width of a building or property. Also, there is a feature to adjust for mistakes. It might occur that there are small errors in the initial 3D map and the software will identify these errors based on algorithms. For instance, if the height of one corner of a house is 10 centimeters lower than the other corners, the software will label this as an error, and by a manual check we can adjust this. Furthermore, there is an option to delete certain parts of the map, for example when a small building on the property is removed the 3D map can be altered manually without the need to scan the entire property again. Then, there is a function that controls whether the data generated matches the actual property it is compared with by evaluating some benchmarks, such as length, height, width and position. Even if the property is destroyed, the software can still identify the property based on dimensions of its foundation. If more than 50% of these dimensions are not right, the map will be labeled as error, and we can manually check if the right maps are being compared.

When it comes to location, we start working on the east coast of Florida, which is the most populated region of the state and the most exposed to natural disasters. In this area, we will focus specifically on the surrounding areas of two big cities along the coastline; Miami in the south and Jacksonville in the north. Our final selection will be based on our target customer as is specified in our segmentation plan.

4.3 Segmentation and Target customer

We target two types of clients: insurance companies and governmental organizations within the industry. We purposely do not target the federal government level, because according to our sources, the individual states are the main decision making actors regarding disaster relief management within each state (D. Merrick, personal communication, March 9, 2018). Individual counties have some influence in whether to implement specific procedures regarding disaster relief management, but they will most likely follow state-level decision.

The first segmentation variable we consider is convenience-based. Since we start-up in Florida, we are going to focus on attracting our first customers based on geographics. Then after we have made the first sale, other firmographics will be evaluated such as company or organization size. Then we can classify customers based on strategic factors, such as potential value for the business. Consequently, there will be key customers, for instance the state-level emergency divisions, such as the Florida Division of Emergency Management, and private

insurance companies. Additionally, there will be customers that are smaller, such as individual counties.

Besides, as can be seen in figure 4.3 in the appendix, Florida is the state with the highest insured property losses due to hurricanes and tropical storms as it exceeds \$70 billion. According to C3 Group, an expert in insurance claims, the difficulty of the insurance claim process is strongly influenced by how large the payout is. They found that on average, 41% of homeowners whose claims exceeded \$30,000 has experienced at least one of the following problems: disagreements over damages, disputes about coverage, delays in payment and a slow payout (C3 Group, 2017). On the other hand, “only” 19% of the homeowners whose claims cost less than \$30,000 experienced at least one of the mentioned problems (C3 Group, 2017). Moreover, the National Association of Insurance Commissioners (NAIC) has identified that the most frequent complaint regarding the insurance claim process is based on claim payment delays (NAIC, 2018). Building on these findings, our service allows insurance companies to precisely assess disaster-related, structural damage of their clients’ property, which will make their insurance claim process faster, more accurate and therefore more efficient. For instance, our software substitutes the part of the insurance claim process in which insurance companies have to physically evaluate properties. Besides, our service minimizes the time needed to evaluate property and assess the monetary compensation more precisely. We believe that we provide an opportunity for insurance companies to distinguish themselves in terms of speed and accuracy compared to their competitors.

Moreover, if we assume we only manage to reach the insurance companies within Florida, this will give us a potential market of \$56,6 billion coming from a total of 2050 insurance companies in Florida (NAIC, 2016). Since insurance companies cover many types of insurance, we assume that only 1% of this revenue is coming from insurances related to our industry, which accounts for \$566 million. Again, to be conservative we assume we only reach 1% of these businesses in the first year of operations, which gives us potential revenue of \$5,66 million. Besides, our customer distribution follows the Pareto Principle in that 20% of our customers make up 80% of our revenue meaning that if we target 1% of the current insurance companies, we will be targeting the 20 (i.e. 1% of 2050) biggest ones in terms of revenue within Florida. All in all, these numbers show that this market has huge potential, especially when the income stream coming from the existing industry is combined with the revenues coming from the insurance industry.

4.4 Stakeholder Analysis

As shown in exhibit 5, we determined a list of key stakeholders using the stakeholder-mapping tool. After analyzing their objectives, we mapped the stakeholders according to their willingness to engage and expertise in the field. We prioritized the stakeholders by comparing them on how much they can contribute to our business. We aim to engage with suppliers and universities and R&D centers to continuously innovate and improve our service. Also, we value our employees highly since they possess all the expertise of our service and since we base our hiring criteria on social awareness, we expect our employees to be highly willing to engage. Other stakeholders that we aim to communicate with are political parties, since they could legislate in our favor by influencing insurance companies into working with us; shareholders and investors since they provide us with funding and lastly with the NGOs, since they offer complementary services in our industry. Lastly, we aim to inform the families of employees, victims of natural disasters, Florida citizens and the Federal government since they are indirectly affected by (and indirectly affect) our business.

4.5 Competitors Analysis

Even though we are a first-mover in this market niche, we do have some competitors as is shown in exhibit 6. First of all, there are companies that already use drones to gather data on demand in several industries. A specific example of such a competitor in the Natural Disaster and Emergency Relief industry is the Center for Robot-Assisted Search and Rescue (CRASAR) and specifically its division of Roboticists Without Borders. This non-profit organization aims to create a pool of national and international professionals in ground, aerial or marine robots who are trained in disaster response and donate their equipment and time to fly drones at no cost in the case of a natural disaster (Pittman, 2015). However, CRASAR is not a direct competitor because they are specialized in gathering drone footage, but they are not able to manage and/or organize the data they gather and they certainly can not process the data into a relevant product for the chain of command (CRASAR, 2018; D. Merrick, personal communication, March 9, 2018). Besides, since the volunteers from CRASAR donate their own equipment, the supply of sufficient drones at site is uncertain. Therefore, we believe that we provide the full package that will enhance the efficiency in disaster relief management, which gives us a competitive advantage over organizations like CRASAR.

Moreover, 3Drone faces another indirect competitor named Drone Deploy, which is an organization that provides a platform to gather drone footage and provides 3D mapping technology through a mobile application (Dronedeploy.com, 2018). However, Drone Deploy

does not operate in the same industry. Besides, their platform lacks the ability to categorize footage according to criteria and recall it on demand. As a result, they do not provide the possibility to analyze the actual footage. Even though they provide the 3D mapping technology, they do not deliver a 3D map because their model is do-it-yourself based. Consequently, in order to use Drone Deploy's technology one needs to possess a drone. Another indirect competitor that also requires possession of drones is 3DR, one of the earliest players that used to be a drone provider until they crashed in 2016 (Kolodny, 2017). Now 3DR has been rebuilt into a drone data platform that provides software solutions for the industry of engineering, earthworks and construction. Whereas the above mentioned companies offer just the software, we offer the full package that includes the drones.

Lastly, Zipline is another drone-service company oriented to emergency relief service but focused in a different industry; sending urgent medicines such as blood and vaccines to those in need. Even though none of these companies are direct competitors, 3Drone is aware of their existence and will continuously keep track on their market operations to make sure they do not end up becoming direct competitors. In terms of substitutes, the only current potential substitutes of our product are the conventional ways disaster relief is managed, which as previously explained, is very ineffective and demands improvements.

5 Marketing mix

5.1 Product

Our product is going to focus on a high-end, niche market. It will be a high quality service that is going to target two different parts of disaster relief management. The service will be used by organizations in the immediate disaster relief management and by insurance companies. Since our product is a service, the quantity is going to depend on demand. In first instance we want to purchase 2 drones per drone operator for 3D mapping purposes. By categorizing data on demand, our software provides an automatized way to quickly assess structural damage caused by natural disasters by comparing 3D maps based on prior data with 3D maps based on post-disaster data. Packaging is not applicable in our case since we are selling a service.

Besides, innovations are crucial to our business success and we are budgeting 15% of sales revenue for R&D expenditures to maintain our competitive position in this rapidly evolving market. We assume a 15% of revenue, because this is common in software companies in the US as exhibit 9 in the appendix shows. At this stage, the market is very

unsaturated since there are no companies with a dominant market share in this industry (IBISworld, 2018). Lastly, we need a strong and talented sales team that is actively attracting (and retaining) customers.

5.2 Price

We have developed the price of our service based on a fixed price per m² of scanned property. The larger the property, the higher the costs for scanning and mapping. We have identified a starting price of 5 dollars per m² meaning that an average house in Florida of 200 m² will cost 1000 dollars to map. In year 3,4 and 5 a price reduction will be necessary because we expect competition to rise and we want to remain competitive. We believe a start-up price of 5 euros is justified, because we will use the “new product price” strategy. Since we provide an innovative product in a new market, we aim to skim the market to maximize profit. There are some reasons to justify this strategy: the need for our product is high; there are sufficient potential buyers and there is a sufficient barrier to enter the market due to high initial investments in the software.

Moreover, the unit costs that we make come from the costs per 3D map and include the scanning and processing of one property. The unit costs start high due to high initial investments that accompany the development of our software. However, over the years the unit cost will go down significantly as can be seen in the table below. This gives us a margin of 17% per scan in 2023.

Years	2019	2020	2021	2022	2023	Average
Cost per scan	\$1.962,99	\$1.580,72	\$1.076,35	\$750,41	\$597,04	\$805,99

5.3 Promotion

The message that we have to send to our target customers has to be focused on how much our service could improve their operational efficiency. To provide a visual representation of how service and software works to potential clients, we are going to create a promo video. In this video we will show a damage simulation of a property that is going to be demolished. 3Drone will scan the property and create a 3D map prior to the deconstruction. After the property is partly deconstructed we will scan the property again to assess the damage. We will explain our way of working in this video. In this way we can prove the practical applicability of software with a real life example and use the video for marketing

purposes. We will show this video to potential customers, on conferences and fairs and we will use it for online marketing.

Moreover, instead of having mass market campaigns we focus our attention on the places where the results of our marketing will be the highest. In this way, we believe that the resources utilized for marketing purposes will have the highest return. In our marketing strategy, offline communication is key. We will attend at all important conferences and fairs regarding disaster relief management, for instance the 2018 Hurricane Conference, the Natural Disaster Conference and the National Disaster Resilience Conference to meet US companies that are active in our industry. Additionally, we want to be present at the International Disaster Conference and Expo in New Orleans, where all international professionals involved in disaster relief will be present. See Exhibit 7 for a short description of the conference. At these events, all our potential customers gather and important decisions are taken concerning our industry. We budgeted a substantial \$25.000 per year per sales person for travel costs. This amount is based on the assumption of spending \$1000 a week and a salesperson traveling for 25 weeks a year. This travel cost includes potential fees to attend the fairs/events. We will hire the first salesperson in year 1 because we need year 0 to develop the actual software. We plan to hire 1 additional sales person each year.

In terms of online communication we want to build a strong presence on the platforms where our potential customers are active as well, such as by advertising on disaster relief websites/fora. Additionally, there are good online networking tools available like LinkedIn to get in contact with the people in charge of decision-making within our industry to attract new customers. Lastly, we have a yearly budget of \$2500 for online advertising that we want to spend on search engine optimization (SEO) and search engine marketing (SEM) improvements and developing a web-page. We believe online presence should be established, but should not be the basis of our marketing plan.

5.4 Place

One of the main advantages of our company type is that we do not have a physical distribution channel. Our products, being 3D maps, are distributed digitally. Consequently, we need to make sure that our platform through which we distribute our product is highly secured and invulnerable to cyber-attacks and hack attempts. Our own IT specialists have the task to ensure security of the platform. However, we do not need any logistic distribution network such as trucks or warehouses.

5.5 Company branding

Since we are first movers in this niche market, we are going to be the leading brand in this industry as soon as we enter it. We want to establish a strong brand name by being present at all industry related fairs and events. See the ‘Promotion’ part where the events that we will attend are stated. Consequently, networking is key for our success. We aim to be the leading company in this industry and to be widely known by organizations involved in our market. Branding in sense of name and logo recognition is going to be important for us, but not on a mass-market scale so we will not adopt any TV commercials or similar advertising campaigns. We will prevent counterfeiting by patenting our product.

6 Business Development

6.1 Six-Months Action Plan

The Six-Months Action Plan includes all the initial steps 3Drone is going to take in the start-up phase. We start counting from January 2019 onwards and we will use the period prior to this month to find all the necessary funding either through bank loans, crowd-funding, private investors or a combination of these. From January 2019 onwards, we have divided the different tasks into five categories: the start-up phase, recruitment, developing the customer base, creating alliances and product development. The duration and sequence of the tasks are described in the table below:

3Drone ACTION PLAN	Task	2019					
		Before Action Plan	January	February	March	April	May
	Getting funding	Blue					
	Registration of the company		Green				
	Registration of the patent		Green				
	Finding an office		Green				
	Getting office supplies		Green				
	Implement marketing plan		Green				
	Establish online presence		Green				
	Contacting headhunters	Red	Red				
	Recruiting software developers	Red	Red	Red			
	Establishing client contacts		Cyan	Cyan	Cyan	Cyan	Cyan
	Establishing supplier contacts		Yellow	Yellow	Yellow	Yellow	Yellow
	Visit industry events & fairs		Yellow	Yellow	Yellow	Yellow	Yellow
	Contact potential business partner		Yellow	Yellow	Yellow	Yellow	Yellow
	Software design				Orange	Orange	Orange
	Test & Adjustment				Orange	Orange	Orange
	Financing	Blue					
	Start-up phase	Green					
	Recruitment	Red					
	Developing customer base	Cyan					
	Creating alliances	Yellow					
	Product development	Orange					

6.2 Internationalization plan

Our internationalization plan is to expand internationally in the 4th year of operation, because at this point in time we will generate a positive cash flow from our operations. We plan to expand first to Central America, because it is relatively close to current operations so the initial start-up costs will be limited. Besides, the regions in Central America are also highly exposed to natural disasters. We target San Jose, the capital of Costa Rica, as a first expansion point after we researched Costa Rica through an analysis that can be found in exhibit 8 in the appendix. We have adjusted our price model for the Costa Rican market, because the country is economically weaker than our home market. However, due to the low investment cost of expanding to Costa Rica and the relatively low salaries, we will already be making profit in year 2. Besides, we will use the expansion to Costa Rica to increase our CSR image as we are going to charge lower rates and aim to help the population of Costa Rica with our product in case of a natural disaster.

Once our business is established in Costa Rica, we will target other Central American countries. Afterwards, we plan to enter the Asian continent rather than Africa, because Asian countries, especially in the South region, are more exposed to natural disaster risk (Goering, 2016.). Other criteria that we will look at in deciding which country to target first involve having sufficient financial resources (e.g. governmental budgets regarding natural disaster relief), the level of government involvement, amount of insurance companies that deal with property insurance, rules and regulation regarding drones and technological base level. In the long-term, our objective is to create a global presence.

7 **Logistics**

7.1 Drone Supplier Analysis

As our drone supplier we chose DJI. DJI is a company based in Shenzhen, Guangdong (China). They have worldwide service networks available and worldwide delivery. It is a reliable company that is highly innovative and matches our quality standards. The majority of our competitors use DJI drones and it is highly recommended by drone specialists (3D Insider, 2018).

Of all DJI's products, the one that matches our needs of professional usability the best is the DJI Inspire 2. This drone has the best camera (6K), which is the most important variable for us. The price is lower than that of similar drones with cameras of less quality. The flight time is similar to that of other professional drones. Since the drone market is

developing rapidly, we expect to change the type of drone we use frequently, to keep up with the industry standards and improve the quality of our service.

DRONES	DJI Phantom 4	DJI Inspire 1 pro	YUNEEC H520	DJI Inspire 2
Flying Time	28 Minutes	25 Minutes	28 Minutes	27 Minutes
Camera Quality	4K	4K	4K	6K
Price	\$1799,-	\$4395,-	\$ 1399,-	\$2999,-
After Sales Service	Very good	Very good	Only UK	Very Good

Source: PCMag.com (<https://www.pcmag.com/roundup/337251/the-best-drones>)

8 Human resources

In the first years 3Drone will not have an actual HR department. Initially HR is going to be a joint responsibility of the executive board, existing of Marcel, Chloé and Jelmer. After a threshold of 20 employees is reached a part-time HR generalist will be hired and after reaching 40 employees there will be a full-time HR function. A more detailed HR plan is shown in the tables of exhibit 10 of the appendix, which specifies when, where and how many new employees we will hire and our salary scheme per job type over the next five years.

8.1 Recruitment and Selection

Recruitment and selection will be done by the managers in charge of the department that someone will be hired for. E.g. sales people will be hired by Jelmer, since he will be in charge of the sales department. After the threshold of 40 employees is reached, we will appoint a full-time HR manager that will take over the hiring process.

8.2 Training and development

The first years no training will be provided for our employees since we will be working with proven specialists and training will not be necessary. After the 3rd year we will have a significant number of employees and we will start with training junior employees to

develop our human capital, and keep talent on board.

8.3 Performance Management

In order to keep track of our employee development and performance we will implement a performance management program. This will consist of several parts: an individual performance evaluation every 6 months to keep a strong relationship with the employees and a succession planning to ensure employee retention and motivation. This helps us to have a clear view on individual performance to make fair decisions on salaries, promotions and firing. We are going to use the attribute approach, peer review and individual performance conversations within departments for this.

8.4 Compensation

Since it is especially important to attract excellent talent in the first few years of our business to get a head start, we want to make sure to maintain external equity, which means to offer competitive salaries either equal or higher than industry average. To prevent internal struggles, we initially want to maintain internal equity as well. This means to offer the same initial salary per job title. Over the years this can change if someone proves to contribute significantly more to the company's performance. This fits our performance management strategy of keeping close track of employee performance.

9 Financials

9.1 Funding

This business plan represents a 10 year project and requires a total investment of \$950,000 and an initial investment of \$500,000. The IRR (internal rate of return) is calculated to be 12% with a 42% equity/debt ratio. The IRR is calculated based on the expected profits generated from our own operations (i.e. net cash flow from operations plus net cash flow from investing activities) for the first five years and for the other five years we assume a steady \$250.000 profits generated from our own operations.

Moreover, the funding of this industry has always been limited because it depends partly on the public sector and due to the recent financial crisis, budgets have been cut. However, even though public funding might remain limited in the nearby future, it is expected that over the next five years an improving US Economy will positively affect

donations coming from the private sector and by that increasing the market value (PRWeb, 2018).

9.2 Sales forecasts

Generally speaking, the market is volatile due to the unpredictability of natural disasters, which will impact the seasonality of our sales. However, as we have seen, natural disasters do occur in a certain pattern or according to a certain season and since our service is valuable to disaster relief of every type of natural disaster, this decreases the seasonality of our sales. Moreover, we believe that by the time we sell the service on a global scale, we will be able to minimize the seasonality in sales as we sell the service year round.

Besides, we do not operate in the first year since we need a full year to set up the business and develop the software for our data platform. Therefore, sales will be made from year 2 onwards and we sell our service per property that we scan. We expect a rapid growth in the first years, but we realize that this requires selling and performing the first service successfully. Therefore, our sales team will be on the road for most of the year, which is why we account for high travel costs. This needs to be compensated by the number of deals closed. We want to have a proactive sales force that is going to visit potential customers and promotes our product on international disaster relief management fairs. Regarding sales forecasts, there were 8 million households in Florida in 2016 (Bureau of Economic and Business Research, 2016). Therefore, we believe that after the first sale is made, we can target to scan 249 more (so in total 250) houses in Florida that year. We have calculated that one drone operator is able to scan 1500 houses a year and to be conservative we only expect each drone operator to work at 15% of full capacity in the first year due to the lack of experience and to create a more conservative perspective. Consequently, our 5 years sales targets are 250, 500, 1000, 2000 and 4000. We expect high sales growth targets of 100%, 80%, 78% and 90% respectively because we will hire an additional drone operator and sales person each year (from year 1 of operation onwards), we expect both the drone operators and sales team to learn through experience and therefore become more productive the longer they work for us. Additionally, we purchase two new drones each year, one for each new drone operator and one in case a drone breaks down during the year that is not repairable. We also budget for smaller drone maintenance and repairs. Lastly, as described in the price section of the marketing mix, we set a profit margin of 17% in 2023.

9.3 Results

As can be seen in the income statement and cash flow shown in exhibit 11, our break-even point in terms of profits happens in year 4 of operations, as the income from continuing operations will be almost \$100,000 that year. Additionally, year 4 of operations will also be the first year we will be generating positive cash flow from our own operations as can be seen in. During the 5 years of operations, we increase our market share in the Natural Disaster and Emergency Relief Services market that is located in the Southeast region of the US, from 1% to 11%.

10 Viability analysis & Conclusion

3Drone brings a solution to two major problems in the Natural Disaster and Emergency Relief Service industry. First of all, our software addresses the inefficiencies in the natural disaster management cycle coming from governmental organizations within the industry since drone footage is gathered but hardly analyzed and any current analysis is done manually. Besides, they lack the ability to process the drone data into ready-to-use products that enhance the decision making process in the case of an emergency. Secondly, our software influences the insurance companies working in this industry because they have substantial operational costs, of which the biggest cost driver is poor claim management. Our software provides insurance companies precise and up-to-date information of natural disaster related property damage in the form of a 3D map, which will save time and costs in the claim management process.

Moreover, from a financial point of view, 3Drone is a 10 year project that requires an initial investment of \$500,000 and a total investment of \$950,000 with a 42% equity/debt ratio. The expected internal rate of return is 12% and we will break-even both in terms of profits and generation of positive cash flow based in year 4 of operations. Therefore we conclude that our business plan has strong economic viability.

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12 Appendix

Exhibit 1: Scoring Model

Potential States	Florida	Texas	California
Market Share of Total Industry (in terms of industry establishments)	3	2	1
Number of Inhabitants (mil)	1	2	3
Ease of Doing Business	2	3	1
State Tax Policies	2	3	1
Number of Disaster Declarations (2014-2017)	3	1	2
Growth of Disaster Declarations (2014-2017)	3	1	2
Amount of Federal Disaster Aid (received over last 5 years)	2	3	1
Number of Insurance Companies	3	2	1
Total Score	19	17	11

Sources: BRIC Group, 2016; FEMA, 2018; Gobankingrates, 2017; Miller, 2017; NAIC, 2016; Worldpopulationreview, 2017.

Exhibit 2: PESTEL

Exhibit 2.1 Political analysis

Florida is a peninsular southern state of the federal republic of the United States, surrounded by the Gulf of Mexico, the Atlantic Ocean and the states of Alabama and Georgia. The state is divided in 67 counties and 379 cities, and the state capital is Tallahassee. Politically speaking, the state is divided between the liberal south-eastern side and the conservative northern region. At the last elections (in 2016), the Democratic Party overtook the Republicans by a tiny margin (38% vs 36%). However, it has historically been a Republican territory.

Exhibit 2.2 Economical analysis

Florida boasted the country's fourth largest economy in 2016, only behind California, Texas and New York, with a total gross domestic product of \$838,9 billion and \$77 billion in budget (Walton, 2016). The economic growth of Florida – which outpaced the nation by half a point that year at a 2.7% - is mainly boosted by tourism, agriculture, aerospace and aviation, life sciences and financial services.

In terms of competitive cost of doing business, the state offers a very interesting cost-efficient alternative to any other high-tech states. Capital, land and labor are more affordable in Florida compared to other regions such as California or New York. However, one of the challenges that we could face is related to the fact that Florida is not a tech-hub itself. Because this area is not traditionally associated with high-tech development, when comparing it to other regions like Silicon Valley, it can be difficult to attract talent from the region of Florida itself.

As one of our main streams of revenue will be governmental agencies, it is important for us to know the ability of these organizations to pay for our service. In contrast to other countries with very limited public resources the United States and Florida specifically have a big budget for Natural Disaster Relief. The total of last year's disaster costs in the country is nearly the same as Denmark's gross domestic product, which the World Bank tallied at \$306.9 billion in 2016 (USA Today, 2018). On the same basis, Florida has one of the biggest budgets within the states of the country (77 billion).

Exhibit 2.3 Technology analysis

Compared to other countries around the world affected by natural disasters, Florida is a high-advanced region when it comes to technology. The state is known for the presence of more than 5,000 IT companies in the region employing more than 43.000 people, which is something important to consider for the development of our 3D mapping system. On the same hand, the Florida Institute of Technology is as well an important stakeholder to find future employees and possible partnership collaboration. Another stakeholder to bear in mind is the Florida's High Tech Corridor which connects three research universities with local and regional economic development organizations, community and state colleges and regional workforce boards and industry groups (Florida High Tech, 2018). Apart from that, Florida enjoys a robust transportation network that makes both traveling for business and importing and exporting goods an easy task. Even though Florida is a technologically advanced region, we might find problems recruiting skilled labor in comparison to other regions such as California because it lacks tech-hubs such as Silicon Valley.

Exhibit 2.4 Social analysis

Florida is known for its large Cuban expatriate community and high population growth as it is even the 3rd most populous state with its 20.984.400 inhabitants. In 2017, Florida's population growth was the 2nd of the country, only after Texas. Besides, the majority of the population is concentrated in the east and west coast, which implies that a bigger population could suffer from natural disasters.

When it comes to other socio-economic indicators, there has been an interesting improvement since the financial crisis. Florida's per capita income increased since the crisis to \$45.953 (FRED, 2016). Similarly, the unemployment rate decreased from 11.1% in 2011 to the current 3,7% in 2017 (Ychart, 2017).

Exhibit 2.5 Environmental analysis

Many different climate types in the United States cause different natural disasters. There are patterns of natural disaster occurrence during certain seasons as can be seen in Table 3.5. At a more regional level, the area of Florida suffers from a combination of Humid subtropical, Monsoon and Rainforest climates, as we can see in Figure 3.2. This type of weather is directly related to the presence of natural disasters such as hurricanes, tornadoes, hail, strong winds, droughts and floods (Figure 3.3). The season of hurricanes is especially dangerous in the east coast of Florida as can be seen in figure 3.4, especially in cities like

Jacksonville or Miami, where it has almost the same exposure to hurricanes as the islands and countries in Central America. As we have mentioned before, the most affected region by natural disasters is also the most populated area, increasing hugely the risk for the population.

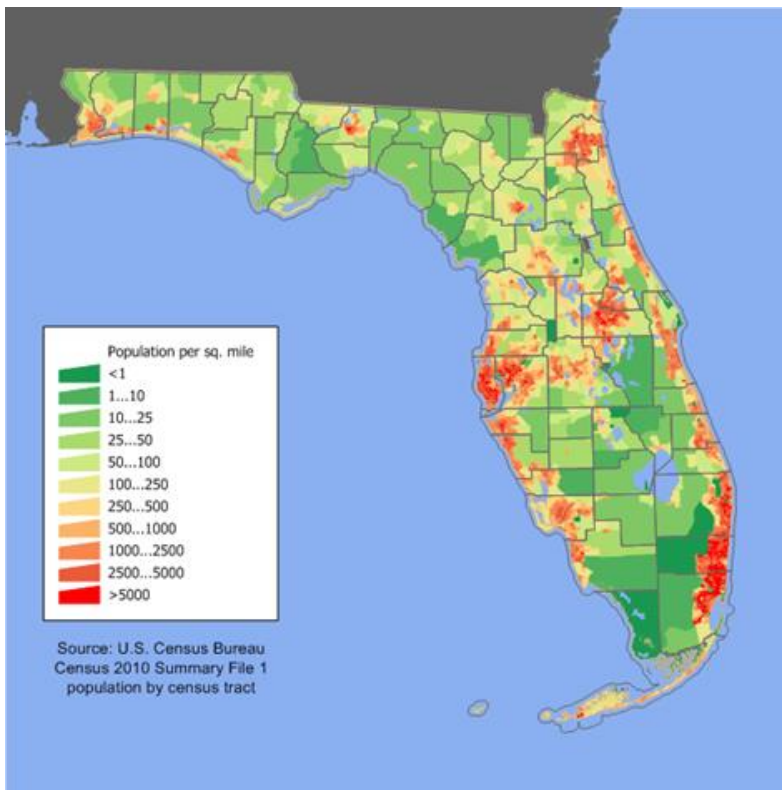
Exhibit 2.6 Legal framework

Florida has had one of the lowest tax burdens in US, providing a favorable and stable tax environment enabling companies to strongly compete in several sectors. The progressive legislation of the state ensures also that it remains as a worldwide hub for new expanding businesses. Florida's general state sales tax rate is 6% with the following exceptions: 4% on amusement machine receipts, 5.8% on the lease or license of commercial real property, and 6.95% on electricity (Florida Revenue, 2018). There is not intangible tax for goods such as investments (Florida, 2015). If we take a deeper look at specific legislation, we can find that there are tax exemptions on '*Aircraft parts, modification, maintenance and repair, sale or lease of qualified aircraft*', which might be interesting for our business. In the same line, Florida has no corporate franchise tax on capital stock, no corporate income tax on limited partnerships or no state-level property tax assessed (EFI, 2018). Another point that should be mentioned is that Florida is one of the nine states in the United States that do not impose a personal income tax although that might not have a direct effect on our business.

The regulation of small UAS (unmanned aircraft) in all the states of the nation is supervised by the Federal Aviation System. The specific section is the Part 107 of the Chapter 14 of the Code of Federal Regulations that came into effect on August 29th, 2016. This law regulates the commercial operations of small UAS which have to weight a maximum of 55 lbs., must be registered with the FFA and should always operate in a careless or reckless manner keeping the drone within sight. The drone can fly during daylight or in twilight with the appropriate anti-collision lighting to a maximum speed of 100mph, with a maximum allowable altitude of 400 feet above the ground, -and higher if your drone remains within 400 feet of a structure-. (Fact Sheet, Part 107 UAS, FAA, 2016). Apart from that, in order to fly a drone, you need a certificated pilot. To get it, you must be 16 at least and pass a initial aeronautical knowledge test in a FFA test center station. Lastly, the drones should not operate in covered structures and not over people not directly participating in the operation. While the regulation is extensive, we did not identify any controversial points that directly collide with our operational activities of scanning properties under consent of the owner.

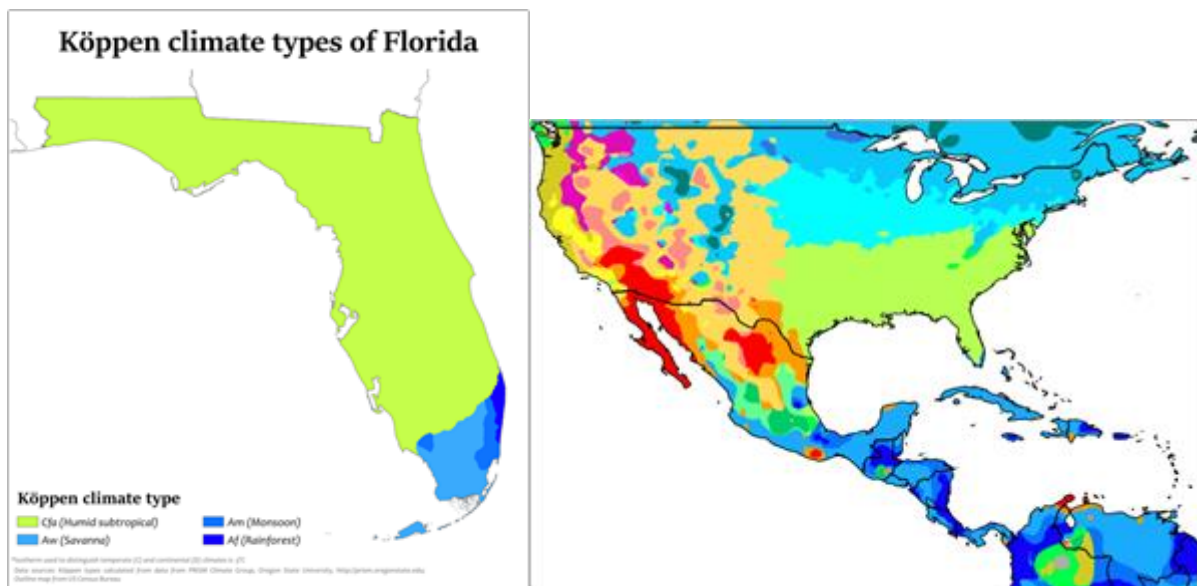
Exhibit 3: Natural Disasters in Florida

Figure 3.1: Florida's Population density



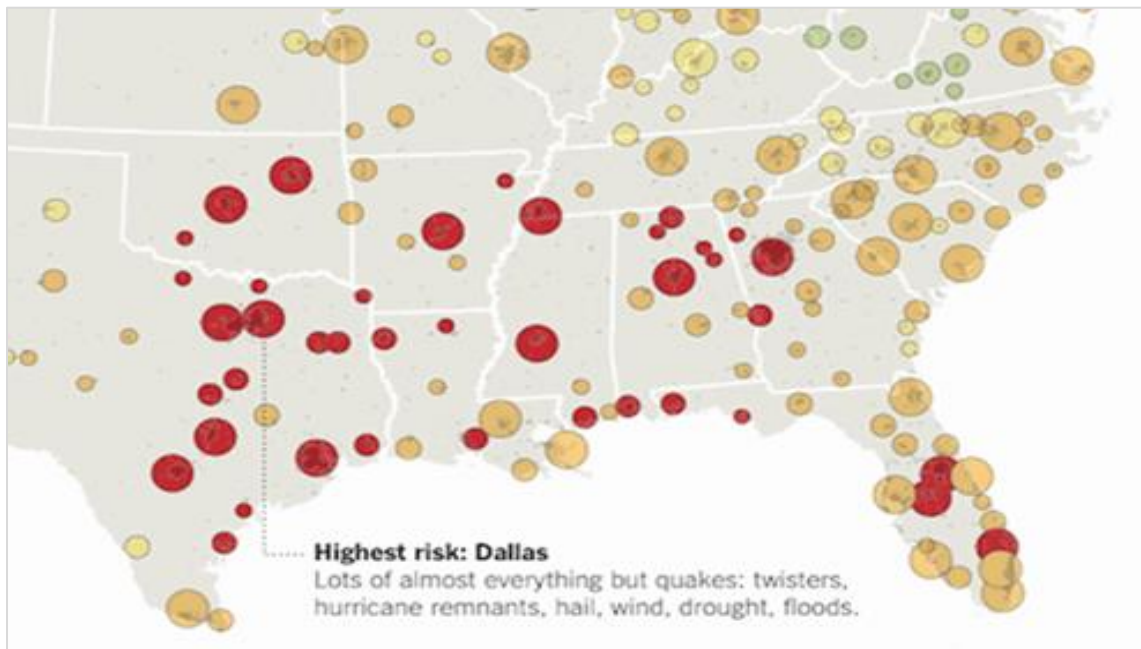
Source: JimIrwin, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=3922305>

Figure 3.2: Climate types of Florida and the United States



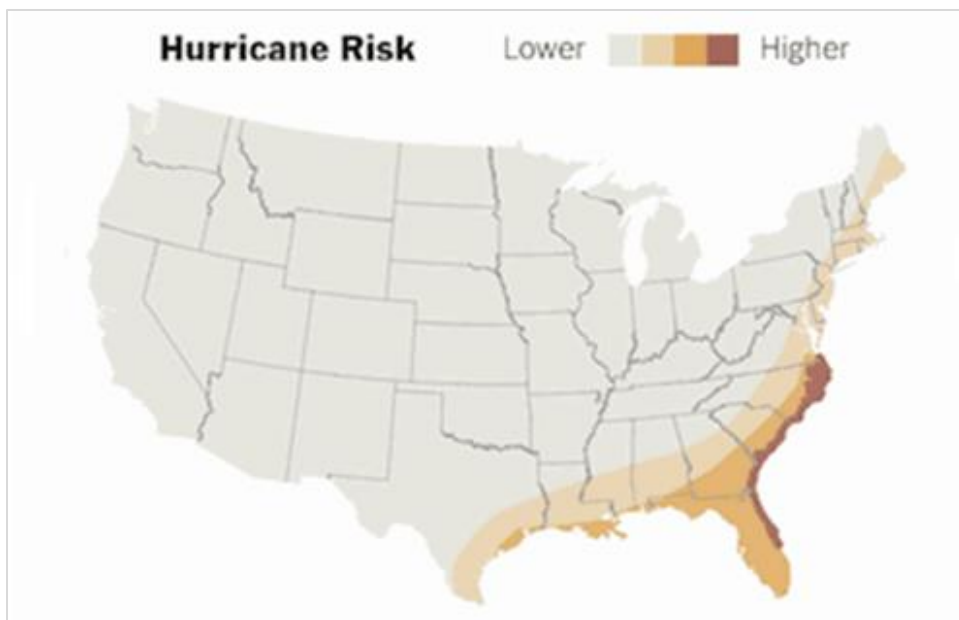
Source: Adam Peterson, CC BY-SA 4.0, https://commons.wikimedia.org/wiki/File:Florida_K%C3%B6ppen.svg

Figure 3.3: Risk of natural disasters in the south-eastern region



Source: https://archive.nytimes.com/www.nytimes.com/interactive/2011/05/01/weekinreview/01safe.html?_r=4

Figure 3.4: Risk of Hurricanes in US



Source: https://archive.nytimes.com/www.nytimes.com/interactive/2011/05/01/weekinreview/01safe.html?_r=4

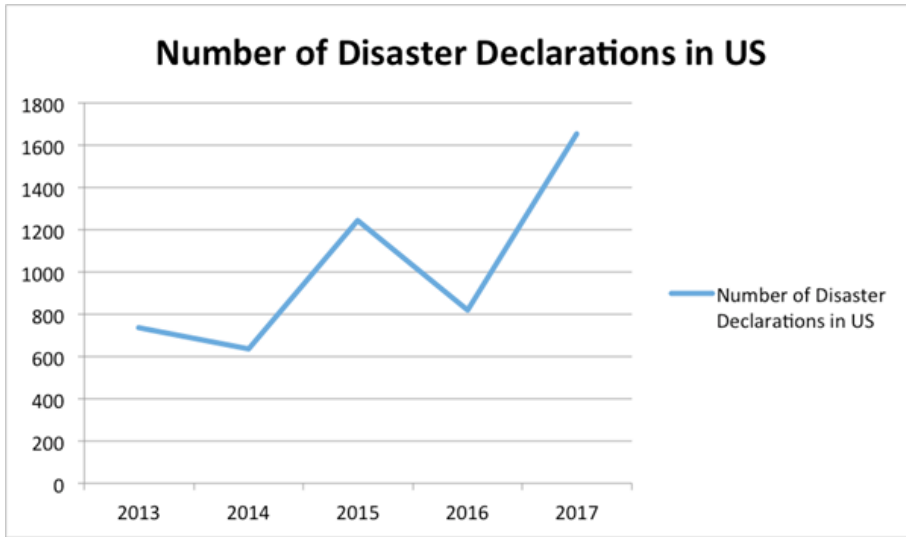
Table 3.5: Seasonality of Natural Disasters

Natural Disaster	Season	Region most at risk
Earthquakes	January to December	East
Tornados	March to May	South
Tornados	June to July	West
Hurricane	June to November	East and South
Floods	April to June	Central and North-West
Fire	October to January	California

Source: <https://beprepared.com/blog/21148/natural-disaster-seasons-scheduled-year-round/>

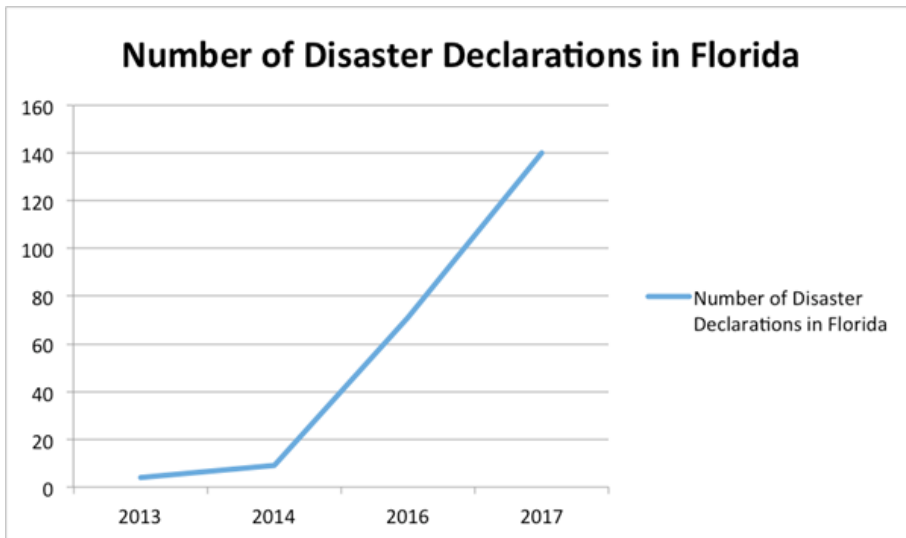
Exhibit 4: Market Research

Figure 4.1: Number of Disaster Declarations in the country



Source: FEMA, n.d

Figure 4.2: Number of Disaster Declarations in the state



Source: FEMA, n.d.

Exhibit 5: Stakeholder Map

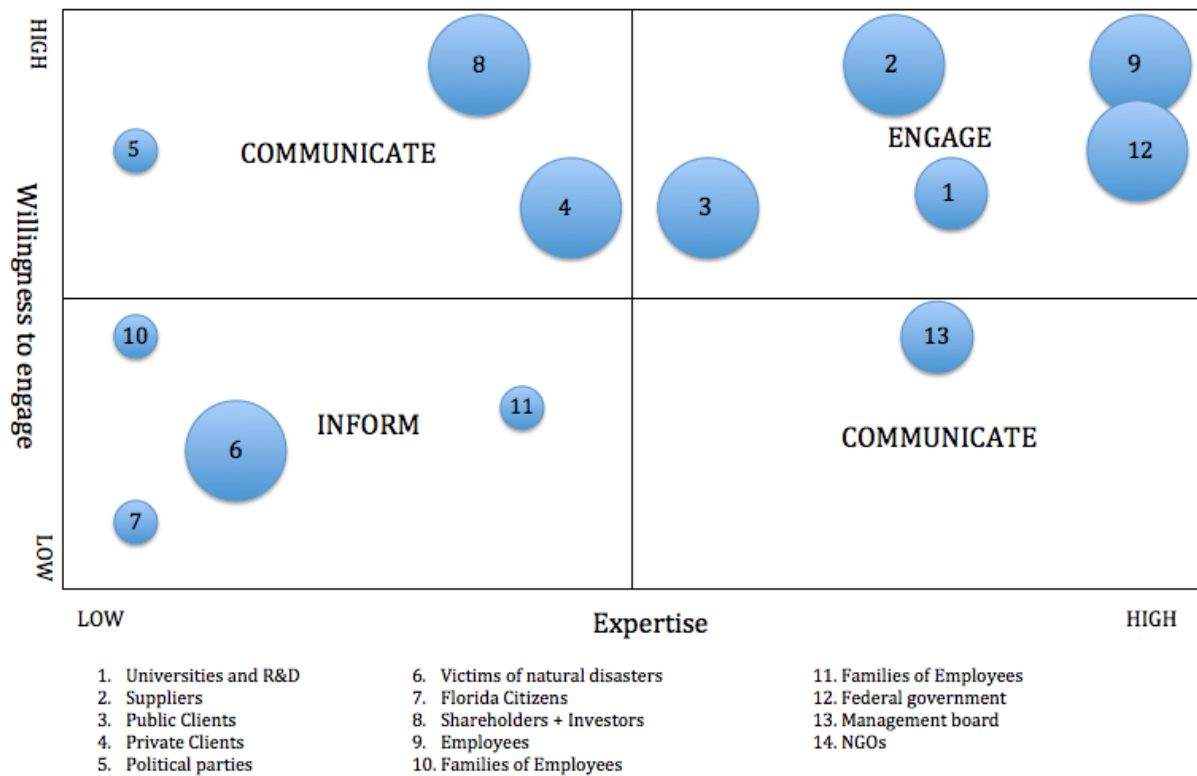


Exhibit 6: Competitors Analysis Table

KPI's	<i>Roboticists without Borders</i>	<i>Drone Deploy</i>	<i>3DR</i>	<i>Zipline</i>	<i>3Drone</i>
Target Customer	B2B	B2C	B2B	B2B	B2B
Industry	Natural disaster and emergency relief services	Construction, Agriculture, Roofing, Inspection and Mining	Construction, Insurance, Surveying & Mapping, Utilities & Telecom	Emergency relief services	Natural disaster and emergency relief services
Non-profit/Profit	Non-profit	Profit	Profit	Profit	Profit
Pricing model	Free (donation based)	Monthly fee	Monthly fee	Project based	Project based
Core competence	Drone usage	Software	Drone usage	Drone usage	Software
Location	Global	Global	Global	Global	Florida / Global
3D technology	No	Yes	Yes	No	Yes
Supply of Drones	Yes	No	No	Yes	Yes
Financial Back-up	Donations	Crowd funding	Investors	US government	Bank loan

Exhibit 7 - International Disaster Conference and Expo

"An event designed to unite the most internationally recognized and distinguished professionals from around the world."

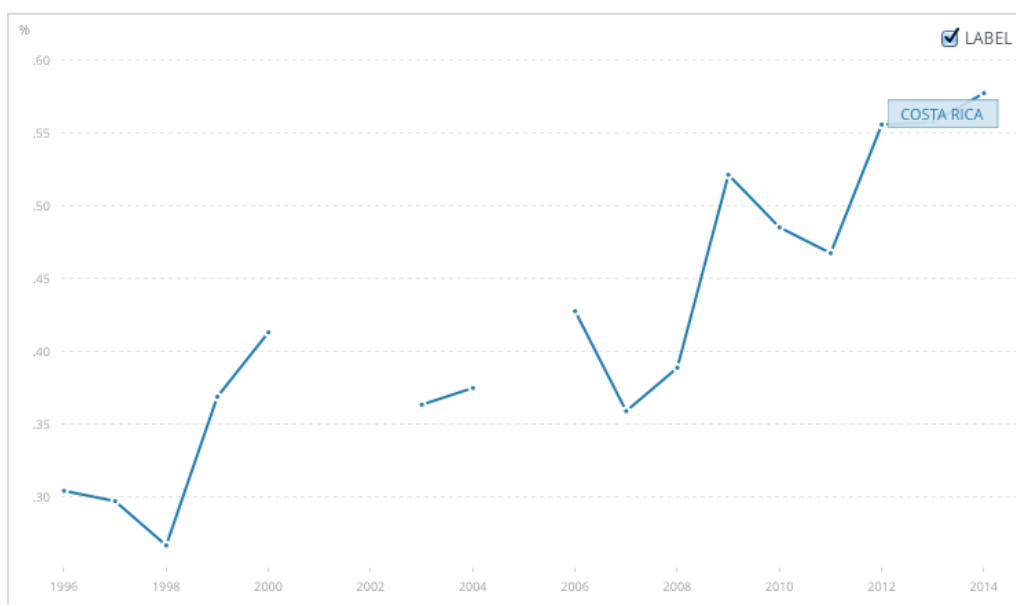
The International Disaster Conference And Expo display products like security services and essentials, emergency management services, emergency response companies and services, disaster recovery services, disaster-related services, global security services and other related services.

Source: <https://10times.com/international-disaster-expo>

Exhibit 8: Costa Rica Analysis

First of all, we believe that Costa Rica provides the best business opportunity of all Central- and South-American countries. In the World Risk Index Costa Rica is placed 164 out of 173 in terms of exposure to natural disasters. Only Guatemala scores higher. Secondly, Costa Rica is relatively politically stable being ranked 64th out of 173. The next Central American country in this list shows up at spot 100, which is Nicaragua. The ease of doing business in Costa Rica scores high. Out of 32 countries Costa Rica is on the 4th spot. Lastly, the expenditure on R&D is almost 4 times higher in Costa Rica than in other Central American countries and is sharply increasing since the last few years as can be seen in figure 8.1 below:

Figure 8.1: Expenditure on R&D (in % of GDP) over the period 1995 – 2014



Source: The World Bank

Exhibit 9 Industry spending on R&D

Figure 9.1: Industry spending on R&D

2017 Rank	Company Name	Country	Industry group	R&D Expenditures (\$US Billions)		Revenue (\$US Billions)		R&D Intensity	
				2016	2017	2016	2017	2016	2017
2	Alphabet Inc.	United States	Software and Services	12.3	13.9	75.0	90.3	16.4%	15.5%
6	Microsoft Corporation	United States	Software and Services	12.0	12.0	93.6	85.3	12.9%	14.1%
17	Oracle Corporation	United States	Software and Services	5.8	6.8	37.0	37.7	15.6%	18.1%
20	Facebook, Inc.	United States	Software and Services	4.8	5.9	17.9	27.6	26.9%	21.4%
22	International Business Machi...	United States	Software and Services	5.2	5.8	81.7	79.9	6.4%	7.2%
46	SAP SE	Germany	Software and Services	3.0	3.2	21.9	23.3	13.7%	13.8%
56	Alibaba Group Holding Limited	China	Software and Services	2.0	2.5	14.7	23.0	13.6%	10.8%
81	Tencent Holdings Limited	China	Software and Services	1.3	1.7	14.8	21.9	8.8%	7.8%
92	Fujitsu Limited	Japan	Software and Services	1.6	1.6	42.5	40.4	3.8%	3.9%
97	VMware, Inc.	United States	Software and Services	NA	1.5	6.6	7.1	NA	21.2%
99	Baidu, Inc.	China	Software and Services	1.5	1.5	9.6	10.2	15.3%	14.4%
106	Salesforce.com, inc.	United States	Software and Services	1.0	1.4	6.7	8.4	14.9%	16.7%
120	Electronic Arts Inc.	United States	Software and Services	1.1	1.2	4.4	4.8	25.2%	24.9%
125	eBay Inc.	United States	Software and Services	0.9	1.1	8.6	9.0	10.7%	12.4%
130	Altaba Inc.	United States	Software and Services	1.2	1.1	5.0	5.2	23.7%	20.4%

Source: <https://www.strategyand.pwc.com/innovation1000>

Figure 9.2: Industry spending on R&D

134	PayPal Holdings, Inc.	United States	Software and Services	0.9	1.0	9.2	10.8	10.2%	9.6%
147	Adobe Systems Incorporated	United States	Software and Services	0.9	1.0	4.8	5.9	18.0%	16.7%
149	Activision Blizzard, Inc.	United States	Software and Services	0.6	1.0	4.7	6.6	13.9%	14.5%
163	Intuit Inc.	United States	Software and Services	0.8	0.9	4.2	4.7	19.0%	18.8%
168	Synopsys, Inc.	United States	Software and Services	0.8	0.9	2.2	2.4	34.6%	35.4%
175	Symantec Corporation	United States	Software and Services	0.7	0.8	3.6	4.0	20.8%	20.5%
184	Twitter, Inc.	United States	Software and Services	0.8	0.8	2.2	2.5	38.1%	31.2%
188	Autodesk, Inc.	United States	Software and Services	0.8	0.8	2.5	2.0	31.5%	37.7%
197	Cadence Design Systems, Inc.	United States	Software and Services	0.6	0.7	1.7	1.8	37.5%	40.5%
204	Workday, Inc.	United States	Software and Services	0.5	0.7	1.2	1.6	40.4%	43.4%

Source: Source: <https://www.strategyand.pwc.com/innovation1000>

Exhibit 10: HR plan

Year 0:

Job type	Software developer	Marketing (Marcel)	Finance (Chloe)	Sales (Jelmer)
# of employees	2	1	1	1
Annual wage (\$)	65,000	25,000	25,000	25,000
Total wage cost (\$)	130,000	25,000	25,000	25,000
Acc. wage cost (\$)	205,000			

Year 1:

Job type	Software developer	Marketing (Marcel)	Finance (Chloe)	Sales (Jelmer)	Salesman	Drone Operator
# of employees	2	1	1	1	1	1
Annual wage (\$)	65,000	25,000	25,000	25,000	50,000	40,000
Total wage cost (\$)	130,000	25,000	25,000	25,000	50,000	40,000
Acc. wage cost (\$)	295,000					

Year 2:

Job type	Software developer	Marketing (Marcel)	Finance (Chloe)	Sales (Jelmer)	Salesman	Drone Operator
# of employees	2	1	1	1	2	2
Annual wage (\$)	65,000	75,000	75,000	75,000	50,000	40,000
Total wage cost (\$)	130,000	75,000	75,000	75,000	100,000	80,000
Acc. wage cost (\$)	535,000					

Year 3:

Job type	Software developer	Marketing (Marcel)	Finance (Chloe)	Sales (Jelmer)	Salesman	Drone Operator
# of employees	2	1	1	1	3	3
Annual wage (\$)	65,000	75,000	75,000	75,000	50,000	40,000
Total wage cost (\$)	130,000	75,000	75,000	75,000	150,000	120,000
Acc. wage cost (\$)	625,000					

Year 4:

Job type	Software developer	Marketing Marcel	Finance Chloe	Sales Jelmer	Sales man	Drone Operator	CR Salesman	CR Drone operator
# of employees	2	1	1	1	4	4	1	1
Annual wage (\$)	65,000	75,000	75,000	75,000	50,000	40,000	25,000	20,000
Total wage cost (\$)	130,000	75,000	75,000	75,000	200,000	160,000	25,000	20,000
Acc. wage cost (\$)	FL: 715,000						CR:45,000	

Year 5:

Job type	Software developer	Marketing Marcel	Finance Chloe	Sales Jelmer	Sales man	Drone Operator	CR Salesman	CR Drone operator
# of employees	2	1	1	1	5	5	2	2
Annual wage (\$)	65,000	75,000	75,000	75,000	50,000	40,000	25,000	20,000
Total wage cost (\$)	130,000	75,000	75,000	75,000	250,000	200,000	25,000	20,000
Acc. wage cost (\$)	FL: 805,000						CR:90,000	

Exhibit 11: Financials

Table 10.1 Income Statement

3Drone

Income Statement

Revenue	Year 0	2019	2020	2021	2022	2022 Costa Rica	2023	2023 Costa Rica
Total (m2)	0	50000	100000	200000	400000	46250	800000	92500
# units sold	0	250	500	1000	2000	250	4000	500
Selling price (per m2)	\$0,00	\$5,00	\$5,00	\$4,50	\$4,00	\$2,50	\$3,50	\$2,50
Sales revenue	\$0,00	\$250.000,00	\$500.000,00	\$900.000,00	\$1.600.000,00	\$115.625,00	\$2.800.000,00	\$231.250,00
Total Revenues	\$0,00	\$250.000,00	\$500.000,00	\$900.000,00	\$1.600.000,00	\$115.625,00	\$3.031.250,00	\$231.250,00
Growth			100,00%	80,00%	77,78%		89,45%	100,00%
Expenses								
Marketing		\$2.500,00	\$5.000,00	\$9.000,00	\$16.000,00	\$1.156,25	\$28.000,00	\$2.312,50
Transportation		\$6.250,00	\$25.000,00	\$100.000,00	\$250.000,00	\$6.250,00	\$700.000,00	\$25.000,00
Prepaid expenses		\$67.300,00	\$67.300,00	\$67.300,00	\$67.300,00	\$0,00	\$67.300,00	\$0,00
Depreciation		\$57.375,00	\$83.000,00	\$123.625,00	\$159.500,00	\$5.625,00	\$245.750,00	\$9.500,00
Insurance	\$50.000,00	\$50.000,00	\$50.000,00	\$50.000,00	\$50.000,00	\$35.000,00	\$50.000,00	\$35.000,00
Maintenance and repairs	\$3.000,00	\$6.000,00	\$9.000,00	\$10.000,00	\$10.000,00	\$10.000,00	\$10.000,00	\$10.000,00
Office supplies	\$2.500,00	\$2.500,00	\$2.500,00	\$2.500,00	\$2.500,00	\$1.500,00	\$2.500,00	\$1.500,00
Rent & utilities	\$18.000,00	\$18.000,00	\$18.000,00	\$18.000,00	\$18.000,00	\$10.200,00	\$18.000,00	\$10.200,00
Salaries and wages	\$205.000,00	\$295.000,00	\$535.000,00	\$625.000,00	\$715.000,00	\$45.000,00	\$805.000,00	\$90.000,00
Travel	\$50.000,00	\$75.000,00	\$100.000,00	\$125.000,00	\$150.000,00	\$15.000,00	\$175.000,00	\$30.000,00
Other	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00
Interest expense	\$3.000,00	\$9.000,00	\$15.000,00	\$16.500,00	\$15.000,00	\$0,00	\$6.000,00	\$0,00
Total Expenses	\$336.500,00	\$593.925,00	\$914.800,00	\$1.151.925,00	\$1.458.300,00	\$134.731,25	\$2.112.550,00	\$218.512,50
Net Income Before Taxes		-\$343.925,00	-\$414.800,00	-\$251.925,00	\$141.700,00	-\$19.106,25	\$918.700,00	\$12.737,50
Income tax expense		-\$103.177,50	-\$124.440,00	-\$75.577,50	\$42.510,00	-\$5.731,88	\$275.610,00	\$3.821,25
Income from Continuing Operations		-\$240.747,50	-\$290.360,00	-\$176.347,50	\$99.190,00	-\$13.374,38	\$643.090,00	\$8.916,25
Total cost incl tax expense		\$490.747,50	\$790.360,00	\$1.076.347,50	\$1.500.810,00	\$128.999,38	\$2.388.160,00	\$222.333,75

Table 10.2 Investments and Depreciation

Furniture and equipment	\$15.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$8.000,00	\$10.000,00	\$5.000,00	\$3.000,00
Research and development	\$75.000,00	\$75.000,00	\$75.000,00	\$135.000,00	\$240.000,00	\$0,00	\$420.000,00	\$0,00
Software of Company (CRM etc)	\$15.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00	\$5.000,00
Copyrights and Intellectual Property	\$10.000,00	\$10.000,00	\$10.000,00	\$10.000,00	\$10.000,00	\$0,00	\$10.000,00	\$0,00
Purchase drones	\$6.000,00	\$6.000,00	\$6.000,00	\$6.000,00	\$6.000,00	\$6.000,00	\$6.000,00	\$6.000,00
Web hosting and domains	\$6.000,00	\$1.500,00	\$1.500,00	\$1.500,00	\$1.500,00	\$1.500,00	\$1.500,00	\$1.500,00
TOTAL INVESTMENTS	\$127.000,00	\$102.500,00	\$102.500,00	\$162.500,00	\$270.500,00	\$22.500,00	\$447.500,00	\$15.500,00
CALCULATE DEPRECIATION	\$31.750,00	\$31.750,00	\$31.750,00	\$31.750,00		\$5.625,00		\$5.625,00
		\$25.625,00	\$25.625,00	\$25.625,00	\$25.625,00		\$25.625,00	\$3.875,00
			\$25.625,00	\$25.625,00	\$25.625,00		\$25.625,00	
				\$40.625,00	\$40.625,00		\$40.625,00	
					\$67.625,00		\$67.625,00	
							\$111.875,00	
Depreciation	\$31.750,00	\$57.375,00	\$83.000,00	\$123.625,00	\$159.500,00	\$5.625,00	\$245.750,00	\$9.500,00

Table 10.3 Cash Flow

3Drone		5-Year Cash Flow					
	For the Year Ending	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023
	Cash at Beginning of Year	0	163.500	144.928	102.368	4.445	9.935
	Cash at End of Year	163.500	144.928	102.368	4.445	9.935	218.575
Operations		Year 0	2019	2020	2021	2022	2023
	Net profit		-\$240.747,50	-\$290.360,00	-\$176.347,50	\$99.190,00	\$643.090,00
	Depreciation		\$57.375,00	\$83.000,00	\$123.625,00	\$159.500,00	\$245.750,00
	Prepaid		\$67.300,00	\$67.300,00	\$67.300,00	\$67.300,00	\$67.300,00
	Net Cash Flow from Operations	\$0,00	-\$116.072,50	-\$140.060,00	\$14.577,50	\$325.990,00	\$956.140,00
	Net Cash Flow - Prepaid exp		-\$183.372,50	-\$207.360,00	-\$52.722,50	\$258.690,00	\$888.840,00
Investing Activities							
	Cash receipts from						
	Initial invest	-\$336.500,00					
	Purchases	\$0,00	-\$102.500,00	-\$102.500,00	-\$162.500,00	-\$270.500,00	-\$447.500,00
	Net Cash Flow from Investing Activities	-\$336.500,00	-\$102.500,00	-\$102.500,00	-\$162.500,00	-\$270.500,00	-\$447.500,00
Financing Activities							
	Cash receipts from						
	Issuance of stock	\$400.000,00					
	Borrowing	\$100.000,00	\$200.000,00	\$200.000,00	\$150.000,00		
	Cash paid for						
	Repurchase of stock (treasury stock)						
	Repayment of loans				-\$100.000,00	-\$50.000,00	-\$300.000,00
	Dividends						
	Net Cash Flow from Financing Activities	\$500.000,00	\$200.000,00	\$200.000,00	\$50.000,00	-\$50.000,00	-\$300.000,00
Net Cash Flow		\$163.500,00	-\$18.572,50	-\$42.560,00	-\$97.922,50	\$5.490,00	\$208.640,00
	Acc net cash flow	\$163.500,00	\$144.927,50	\$102.367,50	\$4.445,00	\$9.935,00	\$218.575,00
	Acc borrowing	\$100.000,00	\$300.000,00	\$500.000,00	\$550.000,00	\$500.000,00	\$200.000,00