

## **TANO-Tunnel coating**



Business case Msc. Entrepreneurship – End term version

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## 1.0 Executive summary

### 1.1 The problem

Reinforced concrete is a widely used building material for example in civil engineering for several favourable reasons. Reinforced concrete is strong, easy to use into a particular type of model and relatively inexpensive. Concrete also has several disadvantages such as carbonation, porosity and corrosion of the reinforcement in the concrete. The reinforcement within the concrete is often used because it increases the strength of the structure. However, a disadvantage of steel reinforcement is the conservation which often leads to corrosion. Steel is susceptible to corrosion. Corrosion expands which has the effect that the concrete is broken down from the inside. As shown below.



Carbonation is a common problem in road engineering. Carbonation has serious consequences for the structural strength due to the breakdown of the concrete. Carbonisation of concrete is a slow and continuous process progressing from the outer surface inward, but slows down with increasing diffusion depth. Carbonisation has two effects: it increases mechanical strength of concrete, but it also decreases alkalinity, which is essential for corrosion prevention of the reinforcement steel. Below a pH of 10, the steel's thin layer of surface passivation dissolves and corrosion is promoted. For the latter reason, carbonisation is an unwanted process in concrete chemistry. Carbonation is an accelerator of the erosion of concrete. When the first cracks appear in the outer layer (the visible layer) of the structure, the internal damage is already done, and repairing this is an very expensive, technical difficult and time consuming job. The majority of the tunnels in the Netherlands are made of reinforced concrete. The Dutch government has an expensive maintenance program to extend the lifetime of the tunnels. This maintenance program serves various purposes such as cleaning the white walls for safety and delaying carbonation. In this business case we will zoom in on cleaning the tunnelwalls and applying the tunnelcoating for both safety and carbonation prevention.

## 1.2 Our solution

We offer a new product to coat tunnels: *Tano-Tunnelcoating*. This is a new Nano technology coating for concrete surfaces. The coating is made of two different organic components and is a new type of product, based on Nano technology. The product is very high resistance to UV, chemicals, environmental influences and has a very low dirt pick up. This means that the coating can prevent materials from carbonation. Another benefit of our product is that due to the low dirt pick up cleaning would be much easier and faster, chemical cleaning is not needed anymore.

*Tano-Tunnelcoating* is:

Fast and easy to apply	<ul style="list-style-type: none"> <li>• <i>The product can be applied 1 time instead of the standard 3-5 times</i></li> <li>• <i>No more tiles required underneath</i></li> </ul>
Fast and easy to clean	<ul style="list-style-type: none"> <li>• <i>The dirt can easily be wiped off</i></li> <li>• <i>It takes one step to clean</i></li> <li>• <i>Can be cleaned with water</i></li> </ul>
Little maintenance necessary	<ul style="list-style-type: none"> <li>• <i>a smooth surface will prevent dirt to stick on the surface</i></li> </ul>
Highest safety	<ul style="list-style-type: none"> <li>• <i>No chemical cleaning</i></li> <li>• <i>No solvents</i></li> <li>• <i>Organic components, low health risks on both applying and cleaning</i></li> </ul>

## 1.3 Value proposition

We distribute a unique product to owners, constructors and maintenance companies of the tunnels in The Netherlands. They will save time and money by using *Tano-Tunnelcoating* instead of their regular coating-product. Cleaning can be done in a simple way with water instead of a difficult way of chemical cleaning. Special certificates, and corresponding (expensive) specialist companies are no longer required for cleaning the tunnel. And our product will extend the lifecycle of a tunnel wall considerably compared to current products, making the maintenance not only faster and cheaper but also less frequent.

The implementation of our product will be done in two phases, first we will implement our product in tunnel maintenance and construction companies. And after conquering this market, the second phase is commercializing towards other businesses like the public domain, subway and train stations, football stadiums and also buildings in the private sector.

## 1.4 Keys to success

The different key milestones that our company identified are the following;

### Exclusive license for The Netherlands

First the exclusive license to sell this product in the Netherlands must be obtained. The product is recently discovered in Germany by independent inventor, this inventor has and wants only a license for the German market and is willing to share his licence with a business partner. We must own the exclusive product licence in the Netherlands before we can start to sell.

### Involving customers in new product appliance

The tunnel construction and maintenance companies will be introduced to our new product. It is also very important that the government is aware of our solution, being the owner of the majority of the tunnels. They hire the construction and maintenance companies and can make them enthusiastic. In other words: a two way approach. We will explain this in depth in chapter 3.

### Testing the product on other materials.

After the product is applied in all tunnels, we will expand to different markets. That is why we going to test and commercialize this product in other industries like buildings in the private market, public domain. Different industries have different requirements and we will start testing and start applications for permits immediately after acquiring the license.

## 2.0 Line of products

### 2.1 Product features

With the *Tano*-Tunnelcoating we eliminate most bad properties of concrete by coating the surface. This will increase the durability of the material (and so the entire tunnel), but it also decreases the necessary maintenance. During the development of the tunnel coating the following aspects are taken into account:

- Application costs
- Ease of application
- Minimize the risk of application failure
- Lifetime
- Maintenance costs
- Short tunnel closures
- Safety
- Graffiti
- Adhesion to concrete and other materials like tiles
- Production costs

Using this type of coating will increase tunnel safety by reducing pollution/ dirt pick up and easier, faster cleaning. This will lead to a reduction of maintenance time. The cleaning procedure is simple and chemical free because you can clean the coating with water (low-medium pressure spray) and value adding rotating brush. The coating will increase the resistance to environmental influences: temperature, moisture, chemical attack from salts, diesel soot, rubber abrasion etc. The advantage of this is that it will protect the value of the investment: robust and durable coating (one coat to last 30 years and protect the building material). The application is also easy because the application conditions are not that critical: temperature, moisture. This will eventually led to short tunnel closures.

### 2.3 Price points

The following Table 1 is how *Tano*-Tunnelcoating will affect our customers, the appliance of *Tano*-



#### Technical data of *Tano*-Tunnelcoating

- Poly siloxane-epoxy resin.
- >96% solids (very low VOC → Solvent free)
- Coating thickness (DFT) 120 – 200 micron. 3.5 – 4.5 m<sup>2</sup>/kg at 200 micron (DFT)
- Consumption depends on surface roughness.
- Finish : satin or matt
- Thermal resistance : -20 Deg C–150 Deg C
- Two component coating (Component A 1.59 kg/L, Component B 0.99 kg/L.
- Combined : 1.5 kg/L.
- Colours : Off palette (other than black)
- At least 12 month shelf life in original sealed containers.
- Can be applied at low temperatures (3 Deg C – 30 Deg C)
- Can be applied at high RH (95%).
- Can be applied to damp surfaces (good in tunnels and fast application times).
- Bond strength >3,5 N/mm<sup>2</sup> (tensile strength concrete 1,8 N/mm<sup>2</sup>)
- UV resistant
- High chemical and solvent resistance
- All chemicals used in the coating have REACH approval. European Community Regulation on chemicals and their safe use. The Registration, Evaluation, Authorization and Restriction of Chemical substances.



Tunnelcoating will allow them a considerable cost reduction.

Feature	<i>Tano</i> -Tunnelcoating	Competitor
No. of Coats	1	3 to 5
Difficulty to prepare	One step	Multiple steps
Risk of defective application	Low	Medium
Easy to clean	*****	*
Pollution removal	*****	*
Chemical resistance	*****	*
Anti-Graffiti property	*****	*
Bond strength with substrate	*****	*
Colour stability	*****	*
<b>Costs for applier of coating:</b>	€ 162,50	€ 90,00
Cost price per m <sup>2</sup> coating		
Cost price per m <sup>2</sup> coating incl. cost of personnel	€ 462,50	€ 990,00 – € 1590,00

**Table 1: price points *Tano*-tunnelcoating customers**

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The following Table 2 is the business model how *Tano*-Tunnelcoating will generate profit for our company in the next 5 years.

Profitability in next 5 years	amount	quantity
Total m <sup>2</sup> of tunnelwall	427.189	m <sup>2</sup>
Market penetration of 45%	192.235	m <sup>2</sup>
Profit per m <sup>2</sup>	€ 25,89	€
Total profit per 5 years	€ 4.977.515	€
Total profit per year (average)	€ 995.503,00	€

**Table 2: business model *Tano*-tunnelcoating**

### 3.0 Market and industry analysis

85% of the tunnels in The Netherlands are property of Rijkswaterstaat, a governmental organization. This organization, is the owner, but outsources the constructions work and renovation of these tunnels to companies specialised to do so. Normally the contract goes to the company with the best bid, in most cases the price and total time of tunnel closure are important aspects of the contract.

In this chapter we will discuss the target market of our product. First we will describe the Large tunnel market. Our second market consist of the new building & large renovation of tunnels. At last we discuss the small tunnel market. We keep these market separate, because different contractors operate these markets.

#### 3.1 Target market

##### 3.1.1 Large tunnels

In Holland there are 46 tunnels that are longer than 250 meter, whereby only 33 tunnels are used at this moment. 28 are owned by the government (15.010 meter), 10 are owned by the municipality (4.000 m), 3 are owned by the provincial (675 meter)and 5 are owned private (1200 m). This tunnels consist of 250.620 m<sup>2</sup> on which our unique tunnel coating can be applied on. The companies which obtained the maintenance contract for the tunnel are our target group. By the application of *Tano-Tunnelcoating* the cost of the maintenance of the tunnel will be lower.

### 3.1.2 Builder and large renovation market

*Tano*-Tunnelcoating is a unique product that should be used by the companies (contractors) that apply coating to new build tunnels in The Netherlands, when in construction or during large renovations.

In the next 5 years 7 tunnels will be build and 2 of the existing tunnels will have a large renovation. In total this is 46.969 m<sup>2</sup> of tunnel surface, on which *Tano*-Tunnelcoating can be applied.

After a careful inventory of the current construction-market of tunnels, the companies as mentioned in figure 2 are applying some sort of tunnelcoating in The Netherlands. We used several sources to make this a complete list of relevant companies, the sources can be found in the reference list at the end of the business case. This market consists of only a small group of contractors which make a bid for this large tunnel construction and renovation market.

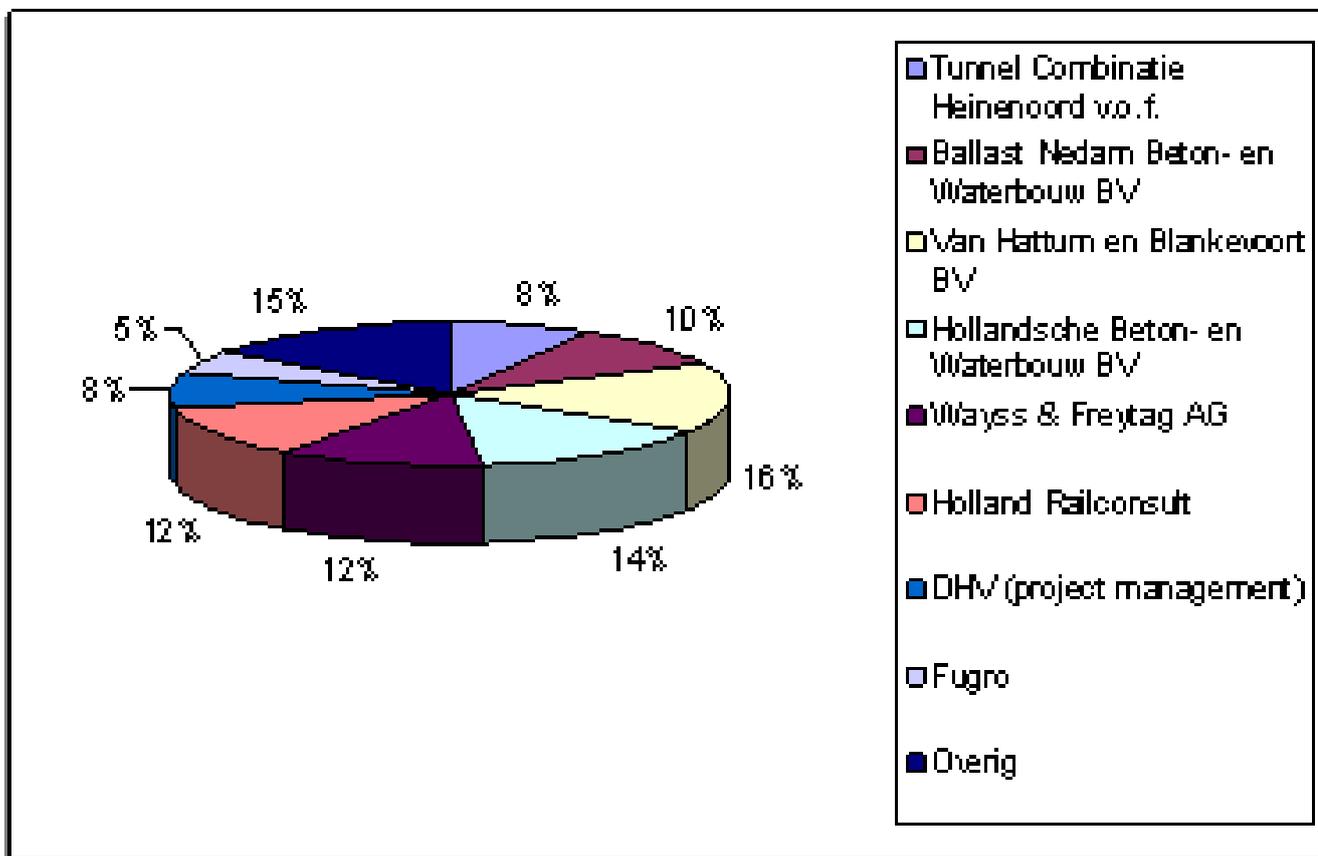


Figure 1: Market share of current tunnel constructors in The Netherlands

### 3.1.2 Small tunnel market

Another market that we are interested in is the segment of tunnels which are no longer than 250 meters. In this segment 180 tunnels can be found with a total tunnel surface of 129.600 m<sup>2</sup>. This market is served by the first mentioned 8 constructors but also by 182 smaller companies. Much more constructors are active in this segment, compared to the bigger tunnels, because the construction and the project management are less complex compared to the bigger projects.

## 3.2 Industry Analysis

Currently our company is the only company in the Netherlands who will be distributing this revolutionary product *Tano-Tunnelcoating*. In this paragraph we will make an analysis of the industry, by doing a 5 forces analysis.



Figure 2: Porter Five Forces

### 3.2.1 Suppliers

The bargaining power of the suppliers is also described as the market of input. Suppliers to the firm can be a source of power over the firm, when there are few substitutes. In the tunnel-coating-business the single most important supplier is the inventor of the two component Nano-tunnel-coating. This company is the only supplier of our product, being the only supplier in the world, this is a risk for our company's survival. But by securing a long-term licence we will have a good foundation of prosperous collaborating

Our supplier will deliver a complete product for usage. So no other suppliers are necessary toward the coating.

### 3.2.2 Substitutes

The existence of products outside of the realm of the common product boundaries increases the propensity of customers to switch to alternatives is minimal. As noted in chapter 2.2 our product is a unique product and in the coating industry only inferior other coatings are available at the moment. The two biggest tunnel coating brands in The Netherlands (see also chapter 3.2.5 Rivalry) are those might be a little cheaper than ours, but has also a much shorter lifespan, making our product almost not substitutable.

### 3.2.3 New entrants

The competitive force of *Tano-Tunnelcoating* will make it a suitable candidate for other companies to try to duplicate our product, or enter the market with a product that has comparable properties.

However entering the market will take a long time, first a testing period of several years precedes bringing a product to the market, due to many safety regulations and quality controls. It took over 5 years before *Tano-Tunnelcoating* received the appropriate authorizations. From invention to where we are right now. So a quick new entry is not a realistic threat. And by having the exclusive licence on this particular product, another company cannot bring the same product on the Dutch market. Nevertheless, in this competitive market, most players are investing heavily on innovation, so there will always be a threat.

### 3.2.4 Buyers

The customers of our product are the constructors and renovators of tunnels. As noted in the chapter 3.1, the amount of different companies that are capable of the specialist job of applying tunnel coating is not that large. This makes it relatively easy to contact all relevant players in this market, maximizing our potential sales by and obtain a 45% market-penetration quite probable. Initial probing in the market segment of our customers learned us that the companies involved are quite easily approachable and always looking to innovate their business, mainly because of the high degree of competition within the constructing and renovating business.

A downfall of the tunnel building and renovating market is that the companies mostly work for one large customer, Rijkswaterstaat. Rijkswaterstaat will not be a direct customer of us, but we will contact the relevant people within this government organization and let them know our new tunnel coating is now available, and that they can expect their contractors to use our product in the future, saving Rijkswaterstaat a lot of costs.

### 3.2.5 Rivalry

For most industries, the intensity of competitive rivalry is the major determinant of the competitiveness of the industry. There are different other companies that supply tunnel coating to the contractors and renovators on the moment. The two biggest players at the industrial coating market in The Netherlands are Sigma

coating, with an annual revenue of 1,7 billion euro in total, over 10.000 employees and is active in over 40 countries, the company is divided in six different segments and the industrial segment has in The Netherlands has about 70 employees. The revenue of this specific segment is not made public, 75% of the total revenue is from consumer paints which is the biggest one of the six segments. The other big player in the industrial coating market is Akzo Nobel. The paint giant

had a total revenue of 15,7 billion in 2011. Of which a third is from the coating business. Akzo Nobel is world leader in coatings and has several different sub companies which are dominating the coating business. But most of their business is in car coating and decorative coating.

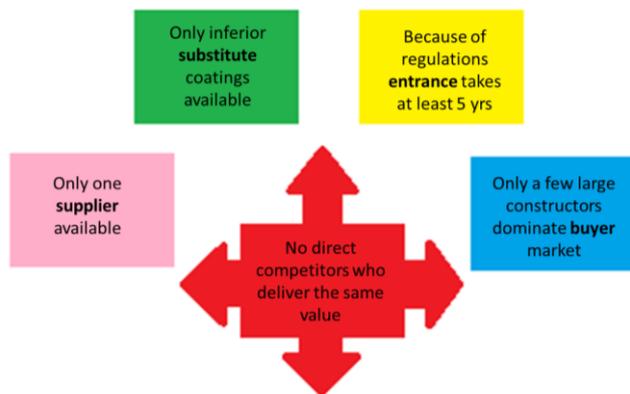


Figure 3: Highlights five forces

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However all other competitors have an inferior product compared to *Tano*-Tunnelcoating, as shown in the comparison chart in chapter 2.2. As mentioned before, the initial probing in the market segment of our customers learned us that the companies involved are always looking to innovate their business and not loyal to their suppliers that much. Having the best product on the market, will ensure us that the competition by other suppliers of tunnel coating will not be an issue at all. Also the exclusive licence with our supplier to sell in The Netherlands, will counter any other company to be in the Dutch market, making us almost invincible for competition, until a better alternative is invented.

### 3.2.6 Conclusion 5 forces

In the figure 5 the highlight of each of the forces is given. Conclusion of the analyse the five forces is that because of de uniqueness of de product and the lack of a qualitative substitute, Tunnelcoating has a high probability of success. From the analyse of the forces we can conclude two important risks that has to be managed. The biggest risks is that there is only one supplier for this specific tunnel coating. We will have to manage the relationship with the supplier by really invest in a good relationship. The second risk is that there are only a few buyer in the market and this group is difficult to intervene. In conclusion we can state that we have a high attractive market with two important risks. If we succeed in managing the risks we estimate a market penetration of 45% for this product in the next 5 years.

### 3.3 Concluding statement

Given our basic target market and the industry analysis, we perceive a market of € 995.503 per year in profit, from sale of our Tunnel Coating . Financial data is found in table 2.

Profitability in next 5 years	amount	quantity
Total m <sup>2</sup> of tunnelwall	427.189	m <sup>2</sup>
Market penetration of 45%	192.235	m <sup>2</sup>
Profit per m <sup>2</sup>	€ 25,89	€
Total profit per 5 years	€ 4.977.515	€
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**Table 2: business model *Tano*-tunnelcoating**

## 4.0 Our strategy

Customers should not be trusted to come up with solutions: they aren't the expert or informed enough for that part of the innovation process according to Anthony W. Ulwick in his article: "Turn customer input into innovation" (2002). This means that when you ask the customer what they want you will never reach the ultimate goal of competitive advantage through product innovation. The reason for this is that your product will not be innovative due to the lack of knowledge and experience. Beside this, most of the customers have a limited frame of reference. So focus on the outcomes of the input of customers and not on the solutions. This means for that we have asked our customers what kind of problem they are facing during the maintenance of tunnels. Beside this we have used the knowledge gained by the article "Discover your hidden potential" of Ian C. MacMillan and Rita Gunther McGrath the investigate which attributes create energy.

### 4.1 Product design conditions

People can use our product in several ways according to the technical specifications in chapter 2. The coating is made to protect concrete from temperature, moisture, chemical attack from salts, diesel soot, rubber abrasion etc. In other words: our coating can be applied on every concrete structure which is subjected to one of the thing described above.

We have made the choice to launch our product as *Tano*-Tunnelcoating. The reason for this is branding. We want to create in the shortest amount of time as possible a strong brandname which will give us more opportunities in other businesses. Another decision that we had to make was about the price. Our product has few substitutes (chapter 3). With this knowledge we knew that we only have to compete with the current "protection systems" (tiles etc.). This is why we can use a price premium. In chapter 2.3 you can read how we determined our sales price.

### 4.2 Financial agreements

When entrepreneurs start a firm they often have to investigate how they can finance their company. This was also a discussion within our company. We had two options:

1. Borrow the total amount against x amount of interest with maturity of 5 years.
2. Attract investors against 33% percentage of company share.

We choose for option 2 because this is the most suitable and logical solution for an entrepreneur and has the less risk for the entrepreneurs themselves. Please see chapter 6 (financial plan) for a detailed explanation.

## 4.2 Supplier agreements

Supplier agreements are very important for our business due to the fact that we are not a factory. Our core supply would come from one factory in Germany. We had to make agreements about; coating costs per liter, transportation, market and patent.

When we look at this supplier of the coating we see one guy with a lot of knowledge and a relatively small factory. This is why we had to make a separation between the product license (4.2.1) and the actual production of this coating (4.2.2).

### 4.2.1 Product Licence

We have agreed with the following aspects with the patent owner and inventor of this product:

- *Coating costs per liter coating.* The costs per liter are €80,00 excluding transportation costs. For more detailed description see chapter 6 (financial plan).
- *Monopoly on the Netherlands.* Our company is the only one in the Netherlands who is able to buy this coating. This is arranged in a legitimate document for the next 10 years.
- *Chemistry code of the coating.* Our company will get the coatings chemistry code when the producer fails to deliver. We will need this code if we want to reproduce the coating in another factory. We have to give him a small 25% for every liter of coating that is produced in another factory at that moment.
- *The inventor will assist during the first application on a tunnel.* We cannot accept that the first application will fail due to unforeseen circumstances. The inventor of this coating is a product expert what will reduce the risk of application fails. Beside this we avoid any legal liability if the application fails with this agreement. This is a second back-up because of the already existing certificates from inspection bodies which will ensure no legal liability.
- *Patent ownership if the company goes bankrupt.* This patent will be transferred to our company when the owner goes bankrupt.
- *Transportation agreements.* Our requirement would be DAP on a certain location according to the incoterms of 2010. We don't need a "transportation department" within our company when we can make a agreement about this subject like outsourcing. This would also lower the financial risks which transport entail. Please see chapter 6.2 of the financial plan.

### 4.2.2 Production companies

Like described above we have in the initial phase one supplier which is also the owner of the product patents. But we need to have a backup plan when an uncertainty occurs like for example the factory

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in Germany cannot keep up with our demand. The strategy that will ensure our business goals during these kinds of uncertainties are detailed described in the contingency plan, chapter 7.

With other factories we have to make the following agreements:

- *Production of x amount of liters per week.* The production capacity must be reliable.
- *Fixed price for the production.* We want to have fixed prices which are not dependent on raw material costs.
- *Transportation agreements.* Our requirement would be DAP on a certain location according to the incoterms of 2010. We don't need a "transportation department" within our company when we can make a agreement about this subject. This would also lower the financial risks which transport entail.

### 4.3 Marketing and sales strategy

Our goal with the marketing strategy is creating brand awareness and recognition and boost sales. It is a new product and should therefor target in the correct market properly. As described above, we have chosen for a clear target market. For our marketing-communication strategy we have to choose our approach to the market. We interviewed some important decision makers within this industry to decide what the best strategy should be. We would use the 4 marketing P's to point out the various topics.

- *Product: What will satisfy our customer needs or wants?*

When we look at our target market, we think that subcontractors and the tunnel owners are our target group. Our market is a business to business market. This means in our case that our product has to be better. We must translate "better" to scientific evidence. (Our product VS used products)

- *Price: What is the value for the customer?*

We can show our customers that our product will save money in maintaining the tunnel. Our product will also improve the total cost of ownership of the tunnel due to the anti-carbonation protection. So, the value for the customer is not that difficult to quantify. The value of our product per square meter has to be more than competitors products. Added value of tunnelcoating in formula = (€ Tunnelcoating + maintenance costs < € competitor products + maintenance). Chapter 2.3

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- *Place: How are we going to reach customers with our product?*

See chapter 4.4

- *Promotion: Which ways of communication will we use?*

We will:

- salesmen
- visit our potential customers
- advertise in market oriented magazines.
- use e-marketing
- our webshop
- subcontractors

One strategy that the 4 marketing P's don't cover is the "salary strategy". We chose to re-invest all profit in our company to attract investors. Please see chapter 5.2.

### 4.4 Distribution strategy

For the distribution strategy we used the strategy of the Boston consultancy group. They describe three different distribution examples:

- Direct to end users
- Sell through a dealer network
- Sell through a value added reseller

We chose for the following strategy:

In the first 1-5 years we would focus on direct sales. We can ensure that the brandname *Tano-Tunnelcoating* is positioned well due to this strategy. We would expand our first distribution strategy when *Tano-Tunnelcoating* is accepted and well-known in the total "tunnelmarket". The market knows where the product stands for and knows what to expect. Subcontractors can have the rights to resell our product in this second phase. At the time the product becomes a "commodity" due to development we will decrease our sales price to enter with our product the local dealer market. The product would be a cash cow, see Boston consultancy group matrix, at the time of phase 3. For a more detailed description see chapter 8 expansion plan.

## 4.5 Service strategy

Because of the nature of our business and the type of customers we aim for. Service is perceived not that important in the tunnel coating business. Therefore we focus on a product strategy as given in this chapter.

## 4.6 Source of competitive advantage

Porter described different strategies to achieve and maintain competitive advantage. One of them is the differentiation strategy. This strategy is appropriate where the target customer segment is not price-sensitive, the market is competitive or saturated, customers have very specific needs which are possibly under-served, and the firm has unique resources and capabilities which enable it to satisfy these needs in ways that are difficult to copy. These could include patents or other intellectual property, unique technical expertise, talented personnel, or innovative processes. This strategy has a good fit with our business strategy. Our market is not directly price sensitive. This means that our product can be sold for good money, because of the financial benefits on the long run. Besides this we have our customer's specific needs which are under served. One example is that the tunnels are not easy to clean, but our product is. For more details see chapter 1,2 and 3.

## 5.0 Organizational summary

This organizational summary will tell what our team looks like. First the organizational structure is explained (5.1). Furthermore this chapter contains the compensation scheme (5.2), Coordination and Decision-making Rules & Policies (5.3) and the Statement regarding Company ownership (5.4).

### 5.1 Organizational structure

The *Tano-Tunnelcoating* team exist of five persons. (figure 5.1). Our team consist of a Chief Executive Officer, Head of Finance, Head of Marketing, Head of Sales and a Secretary. The first four will work part-time on the *Tano-Tunnelcoating* venture. The secretary will work fulltime and is responsible for the daily business. The CEO, Head of Finance, Head of Marketing and Head of Sales will visit the customers together.

The Chief Executive Officer (CEO) coordinates all activities and deals with the overall strategy of the company. The CEO manages the secretary and knows about the daily business of the company, is together with the secretary in charge for the customer service, is the contact person for the license and the distributor and is the primary contact-point for the group.

Underneath the CEO are the Head of Sales, Head of Marketing and Head of Finance, see Figure 4. The Head of Sales's main task is to maintain the relationship with the customers and is responsible for acquiring new customers. The Head of Marketing's main task is to make sure that the marketing and promotion process reaches its goals and targets and is also responsible for Research and Development in new markets. The Head of Finance oversees the budget, the costs and makes calculations for future steps/risks. He is responsible for payments and financial registration. He is the contact person for banks and investors.

The secretary's main task is to maintain the customer service. He/ she answers the telephone, is checking and sending e-mails or post. She takes orders from the customers and forward these to the factory in Germany. She is responsible for the whole ordering process.

The following figure represents the structure of our company.

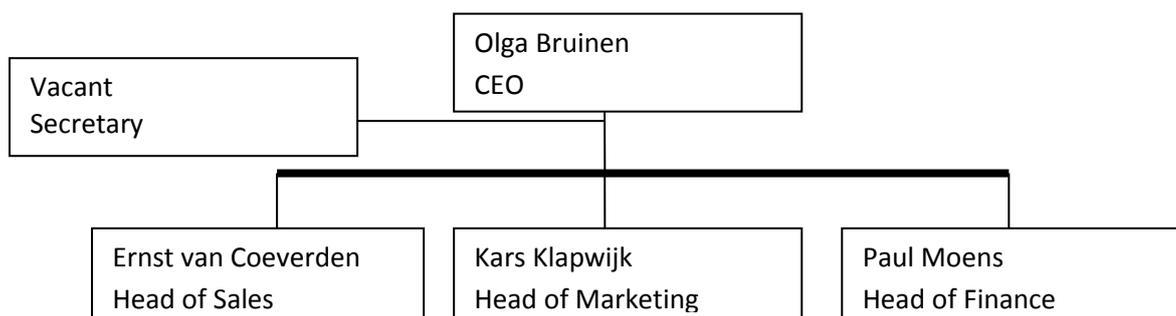


Figure 4 the organizational structure

### 5.2 Compensation scheme

Except the secretary, who will get a salary of € 3.500 per month, the CEO, Head of Finance, Head of Marketing and Head of Sales don not earn a management fee. If the company makes profit,

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necessary investments will be made. This will help the company to grow and become a stable business in the long term. The money that is left will be equally divided between the three managers and the CEO till a maximum of € 100.000,-. This because of the unreliability of newness and smallness. We want to prove the investor that we are a serious partner and are fully committed to the business. After accomplishing constant revenue, payments will be made through fixed salaries. Salaries are determined by the amount of revenues, working hours and the function within the company.

### **5.3 Coordination and decision-making rules & policies**

All roles have their own specific tasks and responsibilities and are in the lead in the daily business. Decisions that are in conflict or have a major influence on other disciplines will be decided with a vote. If the results are equal, the CEO has the Veto vote.

### **5.4 Statement regarding company ownership**

The investor has a share of 33% as mentioned in chapter 4.2. Each manager and the CEO is owner of the company has a 16,75% share.

## 6.0 Financial plan

In this chapter the financial plan is outlined. The projected cash flows and income statements are presented.

### 6.1 Start-up funding

To start *Tano-Tunnelcoating* an initial investment of € 357.000 is needed as shown in Table 3. Because of this start-up costs *Tano-Tunnelcoating* will operate as a private company (B.V.). The initial investment will be raised through investors. The investors will get a share of 33 % of the company. Shareholders will get a dividend % of 25 % of the invested money and 60 % of all profit will be divided among shareholders.

The start-up costs for our venture will consist of arranging the license and the legal expenses for arranging the license. Other costs are setting up the private company at the Chamber of Commerce (Kamer van Koophandel) and various other small expenses which are needed for setting up this company. For example the costs of traveling and meetings.

The biggest cost will be the invest for stockpiling, An initial investment of 2000 liters is needed to comply to the first en fast demand of the contractors. In table XX a summary of the total start-up cost is given.

Start-up costs		
Arrange licence and legal expences	€	20.000,00
Establlish BV	€	10.000,00
Building stocks	€	325.000,00
Various start-up costs (travel expenses, etc)	€	2.000,00
		€ 357.000,00-

**Table 3. required initial investment *Tano-Tunnelcoating***

### 6.2 Break-even analysis

The break-even analysis in table XX shows that the break-even point is reached after selling 12.500 liters. In this analysis, a number of assumptions were made.

The first assumption was about logistics. Because we want to deliver within an acceptable time for to our customers, we must keep a stockpile. Between the time of order, producing and the delivery to the end customer is 2 to 3 months. Research shows that in 40 % of the cases this would take too long for the end customer and that he would buy a substitute product. We will build an average stock of 2000 liters, which should be sufficient to meet the demand.

The second assumption is about the Marketing. For *Tano-Tunnelcoating*, marketing will be the main priority. As you read the chapter 4.3 Marketing. The € 150.000 of marketing costs is an estimate made on the activities that we want to develop.

The third assumption is about labor costs. The four founders will get invest their time alongside their regular job in founding, managing and marketing the company. The time they invest in the company should be as efficient as possible. Because of this the choice is made for the hire of a handsome

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secretary to the more standard work and administration. The four managers each will receive a yearly bonus when profitable a maximum of € 100.000 before taxes.

All shareholders will receive a dividend rate of 25% as mentioned in chapter 5.2. The calculation of the break-even analysis is given in Table 4.

<b>Start-up costs</b>		
Arrange licence and legal expences	€	20.000,00
Establish BV	€	10.000,00
Building stocks	€	325.000,00
Various start-up costs (travel expenses, etc)	€	2.000,00
		€ 357.000,00-
<b>Break-even analysis</b>		
<b>Sales</b>		
Sales price liter (liter)	€	162,50
Sales volume (liter)		35.000
Total sales		€ 5.687.500,00
<b>Variable Costs</b>		
Costs per liter	€	80,00
Logistics	€	10,00
	€	90,00
		€ 3.150.000,00-
<b>Fixed Costs</b>		
Labour	€	480.000,00
Marketing, infra and communication	€	150.000,00
Logistics	€	120.000,00
Maintaning stock	€	50.000,00
Legal costs	€	25.000,00
Dividend	€	81.250,00
		€ 906.250,00-
		€ 1.631.250,00
<b>Breakeven point (liters)</b>		12.500,00

**Table 4. Break even analyses**

### 6.3 Projected cash flow

The cash flow statement is partitioned into three segments, namely: 1) cash flow resulting from operating activities; These are for TAN-Coating the income, logistics, labour, legal costs and costs of maintain stock. 2) cash flow resulting from investing activities; taxes and increasing stock. And 3) cash flow resulting from financing activities; Dividend paid, cash flows to owners.

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The money coming into the business is called cash inflow, and money going out from the business is called cash outflow. As seen in table 5.

Period ending	31-12-2013	31-12-2014	31-12-2015	31-12-2016	31-12-2017
Sold litres	20000	30000	40000	50000	52235
Income	€ 3.250.000,00	€ 4.875.000,00	€ 6.500.000,00	€ 8.125.000,00	€ 8.488.187,50
Cost of product	-€ 1.600.000,00	-€ 2.400.000,00	-€ 3.200.000,00	-€ 4.000.000,00	-€ 4.178.800,00
Logistics	-€ 220.000,00	-€ 270.000,00	-€ 320.000,00	-€ 370.000,00	-€ 381.175,00
Labour	-€ 480.000,00	-€ 480.000,00	-€ 480.000,00	-€ 480.000,00	-€ 480.000,00
Costs of maintaining stocks	-€ 50.000,00	-€ 50.000,00	-€ 50.000,00	-€ 50.000,00	-€ 50.000,00
Legal costs	-€ 45.000,00	-€ 25.000,00	-€ 25.000,00	-€ 25.000,00	-€ 25.000,00
Startup costs	-€ 12.000,00				
<b>Net income</b>	<b>€ 843.000,00</b>	<b>€ 1.650.000,00</b>	<b>€ 2.425.000,00</b>	<b>€ 3.200.000,00</b>	<b>€ 3.373.212,50</b>
<b>Operating activities, cash flows provided by or used in:</b>					
Depreciation and amortization	--	--	--	--	--
Adjustments to net income	--	--	--	--	--
Accounts receivable	--	--	--	--	--
Decrease in liabilities (A/P, taxes payable)	-€ 278.190,00	-€ 544.500,00	-€ 800.250,00	-€ 1.056.000,00	-€ 1.113.160,13
Change inventories	--	--	--	--	--
Decrease in other operating activities	-€ 160.000,00	-€ 80.000,00	-€ 80.000,00	-€ 80.000,00	-€ 17.880,00
<b>Net cash flow from operating activities</b>	<b>-€ 438.190,00</b>	<b>-€ 624.500,00</b>	<b>-€ 880.250,00</b>	<b>-€ 1.136.000,00</b>	<b>-€ 1.131.040,13</b>
<b>Investing activities, cash flows provided by or used in:</b>					
Capital expenditures	--	--	--	--	--
Investments	€ 357.000,00	--	--	--	--
Other cash flows from investing activities	--	--	--	--	--
<b>Net cash flows from investing activities</b>	<b>€ 357.000,00</b>	<b>€ 0,00</b>	<b>€ 0,00</b>	<b>€ 0,00</b>	<b>€ 0,00</b>
<b>Financing activities, cash flows provided by or used in:</b>					
Dividend paid investors	-€ 81.250,00	-€ 81.250,00	-€ 81.250,00	-€ 81.250,00	-€ 81.250,00
Sale of stock	-€ 325.000,00	--	--	--	--
Change in debt	--	--	--	--	--
Other cash flows from financing activities (owners)	-€ 213.336,00	-€ 566.550,00	-€ 878.100,00	-€ 1.189.650,00	-€ 1.296.553,43
<b>Net cash flows from financing activities</b>	<b>-€ 619.586,00</b>	<b>-€ 647.800,00</b>	<b>-€ 959.350,00</b>	<b>-€ 1.270.900,00</b>	<b>-€ 1.377.803,43</b>
Effect of exchange rate changes	--	--	--	--	--
<b>Net increase in cash and cash equivalents</b>	<b>€ 142.224,00</b>	<b>€ 377.700,00</b>	<b>€ 585.400,00</b>	<b>€ 793.100,00</b>	<b>€ 864.368,95</b>

**Table 5. Projected cash flow**

## 7.0 Contingency plan

This section includes two sub-sections. First we start off with the Macro analysis (chapter 7.1) we will discuss possible future changes in the external environment that could have a negative impact on our venture, second we describe uncertainty factors (chapter 7.2) that can have a negative impact on our venture

### 7.1 Macro Analysis

Changes in the environment are characterized by the PESTEL method which is an acronym for Political, Economic, Sociocultural, Technological, Environmental and Political context in which a firm operates. This PESTEL method provides a list of potential influences of the environment on the organization. The most important changes in the next five years that can have a negative impact on our venture are:

#### Economic changes

*Tano-Tunnelcoating* is, as every venture, depended of the economic environment. Due to the economic climate it could be possible that there will be less investments in construction of new tunnels. However, consisting tunnels will always need maintenance, so *Tano-Tunnelcoating* can spread the risk by being not to depended of only on new tunnels, but also to renovation.

#### Technological changes

New technological techniques on coating will be developed.

*Tano-Tunnelcoating* must actively seek and be aware of new technologies. If a better alternative is invented, *Tano-Tunnelcoating* have the knowledge to implement this technique.

#### Enviromental changes

The issues about waste and pollution needs to be addressed. Tunnelcoating is an environmental friendly product, but rules and standards will change in time.

TANO Tunnelcoating must actively seek and be aware of new rules and standards. If new rules come up, Tano Tunnelcoating can confirm to the new standards.

#### Policitcal changes

Regulation of the automotive industry changes and cars become cleaner.

This is a serious issue for the future of Tunnelcoating. That is why we made phase 2 to expand the Tunnelcoating concept in other branches.

Issues in the Macro environment cannot be solved. It is important to stay focused on the issues that are addressed here and act on these.

### 7.2 Uncertainty

We try to deal with the different types of uncertainty that can happen in the next five years.

Uncertainty that happened in the environment is called "State Uncertainty". The effect that this State Uncertainty has on the organization is called "Effect Uncertainty"

State Uncertainty's that happen in the Tunnelcoating environment are listed in table 6 below:

Uncertainty	Possible action
The attitude of the inventor. We are very depended of one specific person.	We could deal with this uncertainty with the following agreements: The inventor is owner of the company and has as a share of 33%. If he harms us, he will harm himself too and we have to give the inventor a small 5% for every liter of coating that is produced in another factory.
The price of raw materials can increase.	We can deal with this uncertainty by making the prices of our product a little bit higher.
Less cars on the road as a result of the higher gas prices and the cleaner automotive technology	This trend cannot be avoid. That is why we developed phase 2: developing our product towards other appliances. When the Tunnelcoating market is saturated, we will start with our product in other branches.
The factory in Germany cannot keep up with our demand, the factory in Germany goes bankrupt or the factory in Germany brakes down.	<p>We can deal with this uncertainty with the following agreements:</p> <ul style="list-style-type: none"> <li>• Our company will get the coatings chemistry code. We will need this code if we want to reproduce the coating in another factory. We have to give the inventor a small 5% for every liter of coating that is produced in another factory. We can spread the risk by using multiple factories. Our company is the only one in the Netherlands who is able to buy this coating. This is arranged in a legitimate document for the next 10 years.</li> <li>• The patent of the owner will be transferred to our company when the owner goes bankrupt.</li> </ul>
The transport costs of the Tunnelcoating will increase.	We make an agreement with a Transportation company and will set fixed prices for the next year.

**Table 6. TANA-Coating Uncertainty Table**

## **8.0 Expansion plan**

What steps should be considered or taken in order to replicate the Business Model outside of our current target (i.e. geographic) market?

### **Development of other products**

After is the first phase of our product launch. We will expand to the second phase as mentioned in chapter 1.3. We will commercialize this product in other industries like buildings in the private market and the public domain.

For testing the product and redesigning the current tunnelcoating (formula) we should make arrangements with the inventor and owner of the licenses for developing other business products. Most important is that we try to secure our product license. At this moment we are very vulnerable because of the single supplier perhaps a joint venture with the inventor could be an suitable option because of lower risk for us and a higher profit for the inventor, making it a mutual profitable solution.

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