

DG505

Financial Aspects of Innovation Projects

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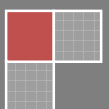


Table of Contents

Introduction	2
Concept	2
Scenario	2
Value perception	3
Value proposition	4
Feasibility	4
Risks.....	4
Production Costs	5
Overhead Costs	6
Travel costs:.....	6
Other overhead.....	6
Personnel Costs	7
Product Costs	7
Bank Balance	8
Conclusion.....	8



The Floor is Yours

PHILIPS

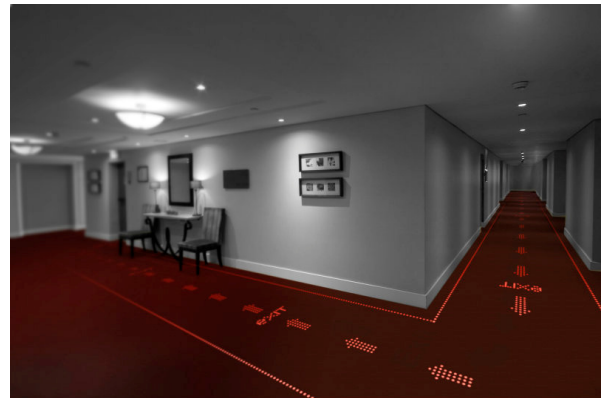
sense and simplicity

Introduction

We are three Industrial Design students that started this assignment with the purpose to learn more about the financial aspects of design or are interested in starting an own company . The three of us were interested in light and the business aspects of it and that is why we chose the light transmittive carpet from Desso and Philips. This concept gave us the possibility to explore the textile and led production cycle and the financial aspects behind it.

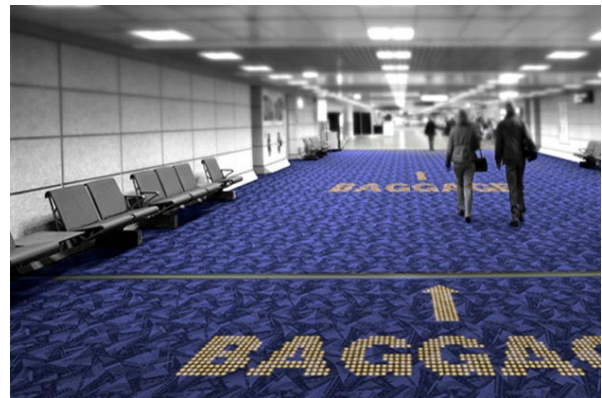
Concept

The concept we chose to use in the last assignment week was the Light transmittive carpet from Desso and Philips which is made for public spaces. This carpet gives you the possibility to guide and clarify information for visitors/customers for example in a hotel or bank, by showing emergency exits. The information that you want to show is not permanent and you could change it any time you want with the control panel. This gives many opportunities.



Scenario

An application for the light transmittive carpet would be in airports. Imagine, you come to an airport for a nice trip and instead of getting a number and being bored while waiting, the carpet welcomes you. It shows you the way was you can sit, entertains you while waiting, and shows you where you can have something to drink. It changes the whole experience you have while waiting for your trip. It makes it more personal, entertaining and exiting.



Value perception

Before our final concept, we had the idea to sell the carpet to households, for personal use. We performed a value perception assessment on this case. We asked our friends and family some questions. What we did was the following.

-Firstly, explain the concept to the audience.

-Then we asked four questions

-When do you think that it is too expensive?

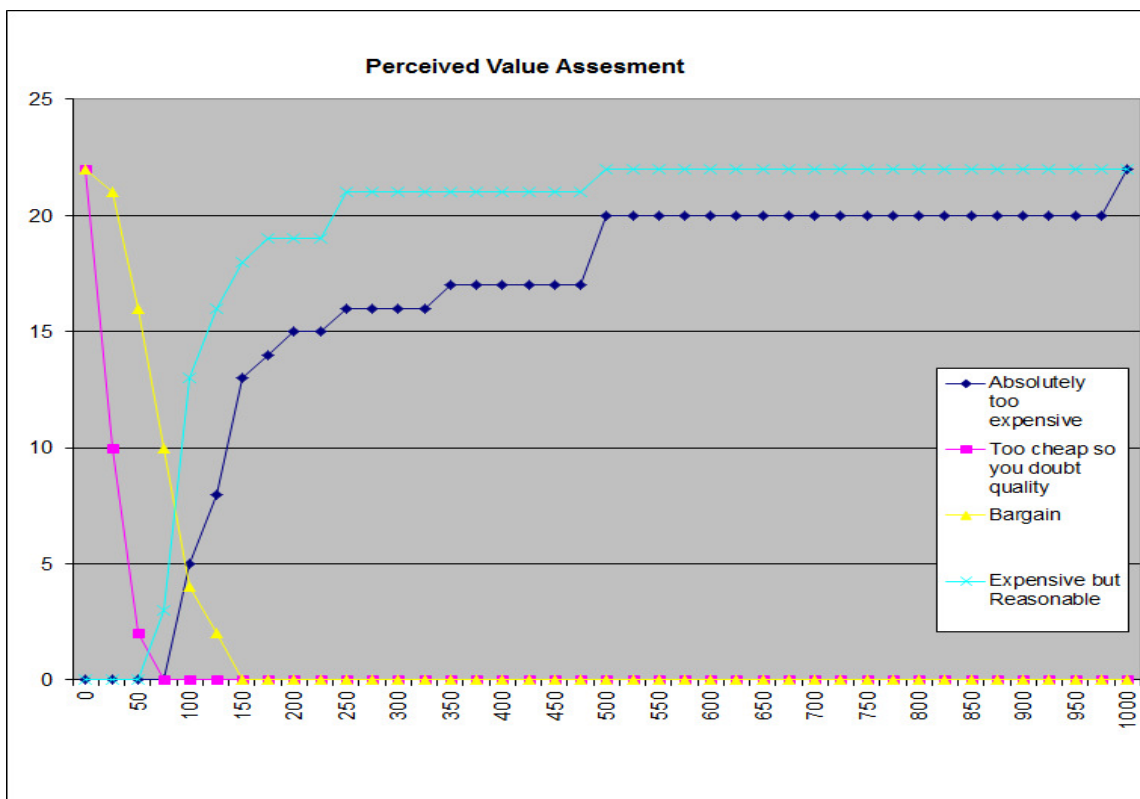
-When do you think that it is too cheap so that you doubt the quality?

-When do you think that it is a bargain?

-When do you think that it is expensive but reasonable?

These numbers can be plotted into a graph, and the range of what your product price should be, is indicated in the graph, in our case this is between 60 and 100 euros per m². (See below)

Now, we are not able to produce the carpet for this price, so we decided to throw our business plan overboard, and start selling to bigger companies instead, which is willing and able, to pay more for our product.



Value proposition

This is our proposal to DESSO, if we would ask them for an investment to start up our business. This investment will be paid back, and after the refunding, DESSO will get a market share.

We ask for an investment of **€4.440.150,-**
This will be refunded after **27 months**.
You will receive a market share of 25% which will
result in **€1.000.000** per year profit after breakeven point

Feasibility

The clients for the light transmittive carpet could be big public places, for example airports, banks, hotels and waiting rooms. We will be focusing on airports in the Netherlands since we already have 5 big one. This is a big target group for which we could provide our first couple of years. However, there are many other interested clients for who this product could be made and be sold.



Risks

- R&D is more time/money than expected.
- The product does not sell as well as we expected.
- The production costs could be higher than expected.
- The installation of the carpets could need more time than expected. Through that our amount of installed carpets could become less.

Production Costs

The costs of the carpet were an estimation based on the costs of other DESSO carpets. We thought that in 1 square meter, we needed 65x65 LED's, which results in 4225 LED's. Based on own experience with resistor costs we estimated the cost of mass purchase of electronic parts. The transport costs were calculated using a website that charged us €80, - for 1 cubic meter of goods. We estimated that 4 rolls of 10x1 meter carpet would fit into one cubic meter ($€80/40$ square meters = €2, - per square meter)

Element	Cost
4225 LED's (€0.03 each)	€ 127
Resistors and wires	€ 3
Assembly	€ 5
Transport	€ 2
Total	€ 167

We estimated to sell 80.000 m² in one year.

Our total sales value would be $80.000 * 167 = \mathbf{13.600.600}$ euro per year.

Overhead Costs

The first year we only have R&D costs. The overhead costs start in the beginning of the second year. As you can see, the R&D costs are €0 in the year since we simply do not do research and development our product further.

Travel costs:

We estimated that we need 3 vans which will cost around 20.000 euro for 10 years. So that is around 6.000 euros each year. Per month will that be 500 euros.

We estimated that we travel 350 kilometers a day. On average we have 1 in 15 liters diesel, so per day we need 20 liter diesel for 3 busses. The amount of liter diesel times the cost of diesel per liter: $20 * 1.50 = 30$ euro a day, which is 500 euro per month for diesel. We estimated we have an insurance of 1000 euro per month for these vans. So in the end we have $500+500+1000 = 2.000$ euros per month of costs. In a whole year, this results in 24.000 euro.

Overhead Costs (second year)	Cost
R&D	€ 0
Travel	€ 24.000
Advertisement	€ 100.000
Warehouse	€ 12.000
Office Supplies	€ 1.200
Internet & Telephone	€ 600
Office	€ 4.800
Insurance	€ 6.000
Total	€ 148.600

Other overhead

The rest of the numbers are mostly estimated. The internet and telephone is around 50 euro a month, so that results in $12 * 50 = 600$ euro. An office we hire is about 400 euros per month. This results in $12 * 400 = 4800$ euro. The costs of warehouse, office supplies and insurance are found on the internet.

We based our estimations for the number of the cost of advertisement (100.000) and insurance (6000) for a year on the PowerPoints we were given from the lectures. We estimated that a warehouse would cost around 1000 euro per month, so that will be $1000 * 12 = 12.000$. We also estimated the costs for the office supplies. This will be around 100 euro per month, so for a year that will be 1.200 euro.

For internet and telephone we pay 50 euro per month, so that is $12 * 50 = 600$ euros per year. On internet, we found a suitable office for around 400 euros per month including gas/water/electra. So for a whole year that would be 4800 euro.

Personnel Costs

We think 1 handyman who works 200 days a year can lay down 40 m² per day. So we need 10 handymen to lay down 80.000 m² carpet per year. Furthermore, we need 1 person for the marketing who has contact with the companies. Then, we need a team leader who leads the handyman and we need an accountant who will do the administration. The salary of all these people was found on the internet.

	Headcount	Rate (per month per head)	Rate (per year)
Handyman	10	€ 1.500	€ 180.000
Marketing	1	€ 2.000	€ 24.000
Accountant	1	€ 2.000	€ 24.000
Team leader	1	€ 2.000	€ 24.000
Total	13		€ 252.000

Product Costs

We calculated the price per m² as follows:

$$\text{Sales Value} + \text{Personnel} + \text{Overhead Costs} / \text{Sales} = (13.360.000 + 148.600 + 252.000) / 80.000 = \mathbf{€172,00}$$

However, we need to sell it for a higher price to refund the investment. For this we need to add 50 euros to refund the investment. After having refunded our investment, 25% of these 50 euros will become the market share for DESSO. Adding VAT makes a total of **€268, 63** per m².

	Price per m ²
Direct + Indirect	€172.00
Refunding investment	€50.00
Subtotal	€222.00
With VAT (21%)	€268.33

Bank Balance

TIME	IN/OUT	BALANCE
Start	4.440.150	
yr1		-1.000.000
yr2 q1	-3.440.150	
		0
q2	4.440.150	
	-3.440.150	
q3		1.000.000
	4.440.150	
	-3.440.150	
		2.000.000
q4	4.440.150	
	-3.440.150	
		3.000.000
yr3 q1	4.440.150	
	-3.440.150	
		4.000.000
q2	4.440.150	
	-3.440.150	
	-3.440.150	
		559.850
q3	4.440.150	
	-3.440.150	
		1.559.850
q4	4.440.150	
	-3.440.150	
		2.559.850

+ 4.440.150 Investment
 - 1.000.000 R&D
 - 3.440.150 Production + Overhead
 + 4.440.150 Turn Over each quartile
 Per quartile: TO- (P+O) =
 4.440.150 - 3.440.150 = **€1.000.000**

← Breakeven point
 After 27 months when 120.000 m² is sold.

Conclusion

To make it all possible we ask for an investment of 4.440.150 euro. After 3 years and 2 quartiles we will be able to pay it back. To make this possible we calculated a price of 268.63 euro per m² (including VAT). After 1 year of breakeven point Desso will get 25% market share which is 1.000.000 euro.

Appendix

Production Cost

Product	Sales# (m2)	Price (m2)	Sales Value	Per quartile PO+Production
	80000	167	13360000	3440150

Personnel

	(Head count)	rate (per month per head)	rate (per year total)
Handyman	10	1500	180000
Marketing	1	2000	24000
Teamleader	1	2000	24000
Accountant	1	2000	24000
Sub total	13	7500	252000

(second year)

Overhead out of pocket cost

R&D	0
Advertisement	100000
Travel	24000
Warehouse	12000
Office Supplies	1200
Internet and Telephone	600
Office	4800
Insurance	6000
Subtotal	148600

Personel + Overhead

Overhead subtotal	148600	
Personel subtotal	252000	(Per quartile)
Total	400600	100150,0

Price	Turnover	(Personel + Overhead)/Sales# (R&D funding) per 3 months
	172,01	
	50	
New Price	222,01	4440150
With VAT	21 %	268,63

