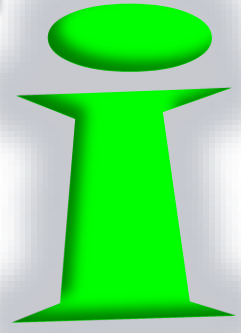


Polylights GmbH

A business plan by

Sebastian Maaß	997391
Stefan Kirschbaum	997722
David Schmitz	998123

Polylights



BUSINESS IDEA

- The company 'Polylights GmbH' produces and sells **design lamps**
- The lamp housing is formed of dyed polyethylene extrudate
- As light source we use a light emitting diode (LED)
- The free melt flow after the extrusion process forms **unique** lamp housings

Our company philosophy is to produce energy efficient and 'green' sustainable Products. Hence we use the following raw materials and components:

- As raw material we use **bio-PE** obtained a 100% from renewable primary products
- The usage of LED's in our lamps is important to prevent high temperatures but also to **save electrical energy** which underlines the "green" character of our products

DESIGN

The basic design is a compressed cylindrical lamp housing formed by a spiral mandrel distributor at the end of the extruder. The compression is caused by the gravitation at the production line before the thermoplastical melt begins to freeze

The light emitting diode and the bulb socket can be fixed at the bottom of the housing by pressing them at each other using the flexible behavior of the polyethylene

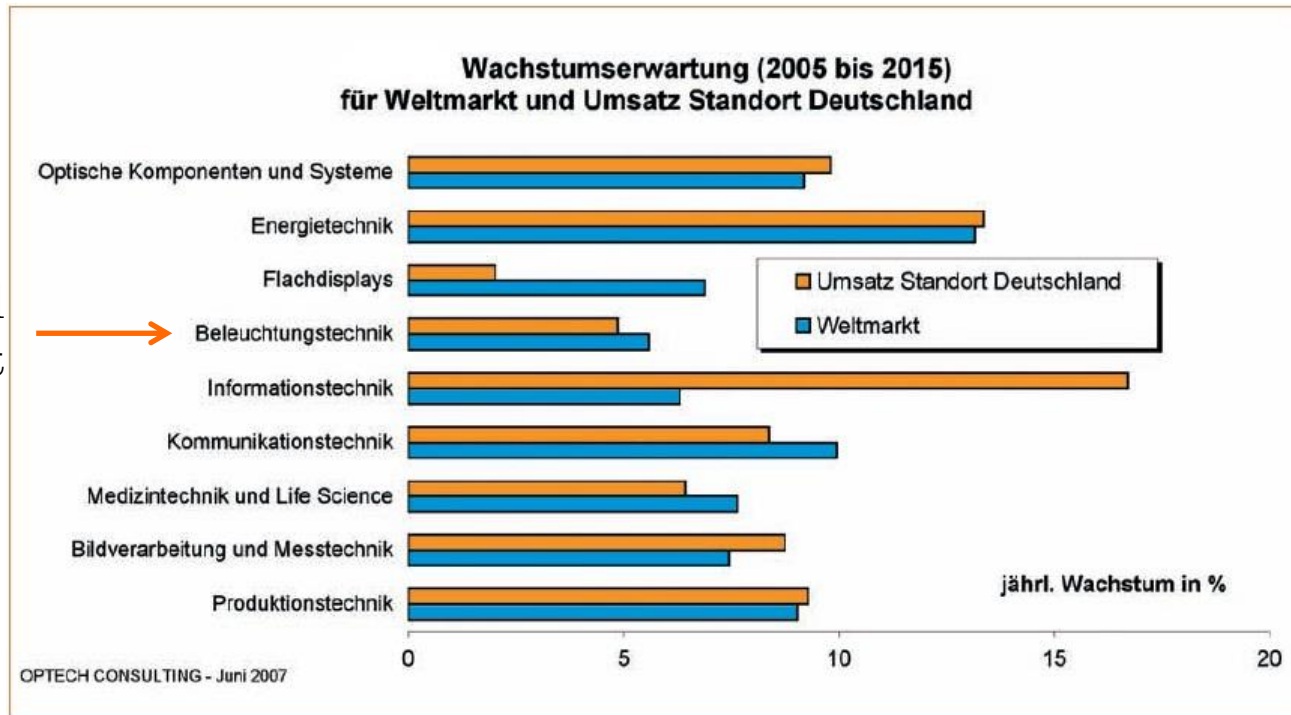
After entering the market there are multiple possibilities to enlarge and distinguish the range of products:

- further designs
- lamps with other size
- battery powered lamps
- new colors and color effects

RESULTS OF MARKET STUDY

Based on a report of the German ‚Ministry of Education and Research‘ we think that there is niche market for ‚green‘ design lamps manufactured in Germany.

This report predicts a worldwide growing turnover in the lamp industry as well as in Germany:



Optische Technologien; Bundesministerium für Bildung und Forschung; 2007

RESULTS OF MARKET STUDY

The following table shows the global growing turnover for lamps (finished product) and for LED's which we are going to use as light source in our products.

Beleuchtungstechnik – Produkte und Weltmarkt		
Produkte	Weltmarkt 2005 in Mrd. EUR	Weltmarkt 2015 in Mrd. EUR
Lampen	13,0	16,7
LEDs und OLEDs	5,5	14,2
Summe	18,5	31,9

Optische Technologien; Bundesministerium für Bildung und Forschung; 2007

We believe that we can create and fulfill the demand for unique design lamps produced of renewable raw materials and using the sustainable LED technology as lighting source.

Our aim is to sell 10.000 lamps per year in the fourth year after entering the market. Based on our calculations (see following slides) we will have XXX percentage in of the global turnover in 2015 which seems a realistic goal .

LABOUR INTENSIVE VS. CAPITAL INTENSIVE

<u>Labour intensive</u>	<u>Capital intensive</u>
Production 24h/d	Production 8h/d
five shifts	one shift
Production 365d/a	Production 220d/a
<u>The capacity of machinery to be installed</u>	
28,4 lamps per day	46 lamps per day
1,2 lamps per hou	6 lamps per hour
	one lamp every 10 minutes

We decided to produce capital intensive, because even the smallest extruder are big enough to produce capital intensive, so there is not more capital needed to produce capital intensive but on the other hand labor cost are expensive in Germany.

CALCULATION OF THE INVESTMENT AND DEPRECIATION COSTS 1/2

Description	Investment expenditures	Deprpreciation rate per year	Depreciation costs
<i>Machinery</i>			
Extruder	39.000 €	10	3.900 €
Extruder tool	12.000 €	10	1.200 €
<i>Warehouse and workshop</i>			
shelves	125 €	10	13 €
Hand lift	210 €	10	21 €
Barrow	60 €	10	6 €
Fitting tools	1.000 €	10	100 €
Workbench	500 €	10	50 €
<i>Informatics</i>			
Onlineshop	150 €	4	37 €
PC's, Phones, printers etc.	5.000 €	4	1.2501 €

CALCULATION OF THE INVESTMENT AND DEPRECIATION COSTS 2/2

Description	Investment expenditures	Deprpreciation rate per year	Depreciation costs
<i>Security Installments</i>			
Extinguishers	400 €	2	200 €
Fire blankets	20 €	10	2 €
First aid kits	50 €	2	25 €
Personal protective equipment	750 €	2	375 €
Additional expenses (permissions, etc.)	4.000 €	-	-
Unexpected	8.000 €	-	-
Circulating capital	100.000 €	-	-
Total investment:	171.265 €	total depreciation:	7.179 €

All costs are calculated without VAT

The circulating capital is estimated by yearly consumption costs (huge order volume) and two month other costs.

LABOUR COSTS

All three founders of the company are equal and earn the same salary, additional employees are not needed

<u>Salary per person</u>		
per year		50.000,00 € brut
per month		4.166,67 € brut
<u>Costs for the Company per person and year</u>		
salary		50.000,00 €
retirement pay (19,5%/2)		4.875,00 €
Unemployment insurance (5,0% / 2)		347,22 €
Health insurance (14% / 2)		3.500,00 €
Statutory accident insurance (1,6%)		800,00 €
		59.522,22 €
<u>Costs for 3 persons per year</u>		
		178.566,67 €

CALCULATION OF CONSUMPTION OF PE AND MASTERBATCH

Wall thickness	0,3 cm
Diameter	8 cm
Height	21,5 cm
Volume	162,1 cm ³
Density	0,925 g/cm ³
Weight of lampshade	0,150 kg
loss of material	0,150 kg
complete PE consumption	0,300 kg
Amount of Bio-PE (90%)	0,270 kg
Amount of Masterbatch(10%)	0,030 cm

CONSUMPTION COSTS

Description	Costs	Unit	Costs for one lamp	comments
<i>Raw materials</i>				
Bio-PE	1,50 €	1 kg	0,41 €	0,270kg/lamp
Masterbatch	30,75 €	100 kg	0,01 €	0,030kg/lamp
LED	2,80 €	1 piece	2,80 €	
Bulb fitting	0,10 €	1 piece	0,10 €	
Cable	0,60 €	1 piece	0,60 €	
<i>Packaging and despatch</i>				
Carton	1,50 €	1 piece	1,50 €	
Bubble wrap	16,92 €	100 m	0,17 €	1m/lamp
Ducktape	10,48 €	66 m	0,13 €	0,8m/lamp
despatching cost (DHL)	3,32 €	1 package	3,32 €	
<i>Energy</i>				
Electrical energy (extruder)	1.460,00 €	10000 lamps	0,15 €	
			total	9,18 €

Polylights GmbH

FIXED COSTS

We rent a building for 500 € per month plus running costs of 150 € per month.

We will spend 2.500 € per month for marketing, e.g. posters, internet commercials, Google ads, ...

Description	cost per year
rent of building complex	6.000,00 €
running costs for building (water, regular energy)	1.800,00 €
Internet + phone	250,00 €
GEZ	69,12 €
URL	11,76 €
Marketing	30.000,00 €
total	38.130,88 €

TOTAL OF INVESTMENT AND FINANCING

The three founders invest 25.000€ each.

Total investment	171.265 €	
Own Capital	75.000 €	44%
Outside financing (bank loan)	96.265 €	56%

We checked a constant bank loan over a period of 5 years by 7,95% interest rate (Santander Bank, 22.12.11)

CALCULATION OF FINANCING COSTS: INTERESTS PAID ON DEBT

year	balance of debt	Interest rate	interest costs paid/ year	repayment/year
1	96.265 €	7,95%	7.653 €	19.253 €
2	88.612 €	7,95%	7.045 €	19.253 €
3	81.567 €	7,95%	6.485 €	19.253 €
4	75.083 €	7,95%	5.969 €	19.253 €
5	69.114 €	7,95%	5.495 €	19.253 €
total interest paid			32.646 €	
total repayment				96.265 €

SELF COSTS PER LAMP

year	Year 1 per lamp	1	2	3	4	5	6	7	8	9	10
Utilization of capacity (%)	60%	60%	75%	85%	100%	100%	100%	100%	100%	100%	100%
quantity produces in lamps	6000	6000	7500	8500	10000	10000	10000	10000	10000	10000	10000

Costs	costs per lamp	cost per year										
Depreciation costs	1,20 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €
Financing costs	1,28 €	7.653 €	7.045 €	6.485 €	5.969 €	5.495 €	- €	- €	- €	- €	- €	- €
Labour costs	29,76 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €
Consumption costs	9,18 €	55.059 €	68.823 €	78.000 €	91.765 €	91.765 €	91.765 €	91.765 €	91.765 €	91.765 €	91.765 €	91.765 €
Marketing costs	6,36 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €
sum of costs		286.588 €	299.745 €	308.361 €	321.610 €	321.136 €	315.641 €	315.641 €	315.641 €	315.641 €	315.641 €	315.641 €
cost per lamp	47,76 €	47,76 €	39,97 €	36,28 €	32,16 €	32,11 €	31,56 €	31,56 €	31,56 €	31,56 €	31,56 €	31,56 €

DEFINITION OF A PRICE

- The self costs of a lamp define the minimum ex factory price (net of VAT):
 - 47,76€ in the first year
 - 31,56€ in the last years
- But the market Study seemed to allow a brut price of 70-150€ in comparison with the competitors
- We define our price by 75,62€ ex factory (89,99€ brut)

CALCULATION OF TURNOVER/REVENUE

year	output (lamps)	price per lamp	turnover/revenue
1	6000	75,82	454.920,00 €
2	7500	75,82	568.650,00 €
3	8500	75,82	644.470,00 €
4	10000	75,82	758.200,00 €
5	10000	75,82	758.200,00 €
6	10000	75,82	758.200,00 €
7	10000	75,82	758.200,00 €
8	10000	75,82	758.200,00 €
9	10000	75,82	758.200,00 €
10	10000	75,82	758.200,00 €

CASH FLOW CALCULATION FOR 10 YEARS

	1. Year	2. Year	3. Year	4. Year	5. Year	6. Year	7. Year	8. Year	9. Year	10. Year
Turnover	454.920 €	568.650 €	644.470 €	758.200 €	758.200 €	758.200 €	758.200 €	758.200 €	758.200 €	758.200 €
Depreciation costs	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €	7.179 €
Labour costs	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €	178.567 €
Consumption costs	55.059 €	68.823 €	78.000 €	91.765 €	91.765 €	91.765 €	91.765 €	91.765 €	91.765 €	91.765 €
Financing costs	7.653 €	7.045 €	6.485 €	5.969 €	5.495 €	- €	- €	- €	- €	- €
Yearly fixed costs	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €	38.131 €
Loss carried forward										
Profit before taxes	168.332 €	268.905 €	336.109 €	436.590 €	437.064 €	442.559 €	442.559 €	442.559 €	442.559 €	442.559 €
Taxes (40%)	67.333 €	107.562 €	134.444 €	174.646 €	174.826 €	177.024 €	177.024 €	177.024 €	177.024 €	177.024 €
Profit after taxes	100.999 €	161.343 €	201.665 €	261.954 €	262.239 €	265.535 €	265.535 €	265.535 €	265.535 €	265.535 €
Cash flow	108.178 €	168.522 €	208.844 €	269.133 €	269,418 €	272.714 €	272.714 €	272.714 €	272.714 €	272.714 €
Repayment credit	19.253 €	19.253 €	19.253 €	19.253 €	19.253 €	- €	- €	- €	- €	- €
Dividend	88.925 €	149.269 €	189.591 €	249.880 €	250.165 €	272.714 €	272.714 €	272.714 €	272.714 €	272.714 €

TOTAL DIVIDEND

Total dividend cumulated over 10 years:

2.291.402 €

EQUITY PROFITABILITY

Equity	year	profit after tax	Dividend	Interest made on equity
75.000 €	1	100.999 €	88.925 €	135%
75.000 €	2	161.343 €	149.269 €	215%
75.000 €	3	201.665 €	189.591 €	269%
75.000 €	4	261.954 €	249.880 €	349%
75.000 €	5	262.239 €	250.165 €	350%
75.000 €	6	265.535 €	272.714 €	354%
75.000 €	7	265.535 €	272.714 €	354%
75.000 €	8	265.535 €	272.714 €	354%
75.000 €	9	265.535 €	272.714 €	354%
75.000 €	10	265.535 €	272.714 €	354%