MONEY FOR NOTHING

An introduction to start-up finance

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Disclaimer

All the numbers in the examples are made up and will probably don't make sense as anything else than explaining the principles!

The presentation is based on slides from:

- Crunching the Numbers for a start-up – Marco Giorgini - Entrepreneurship Table Meetings JRC
- Financial Planning for the startup CEO - Entrepreneurship 101 (2012/2013) - http://www.slideshare.net/MaRSDD/financial-planning-for-the-startup-ceo

The most important

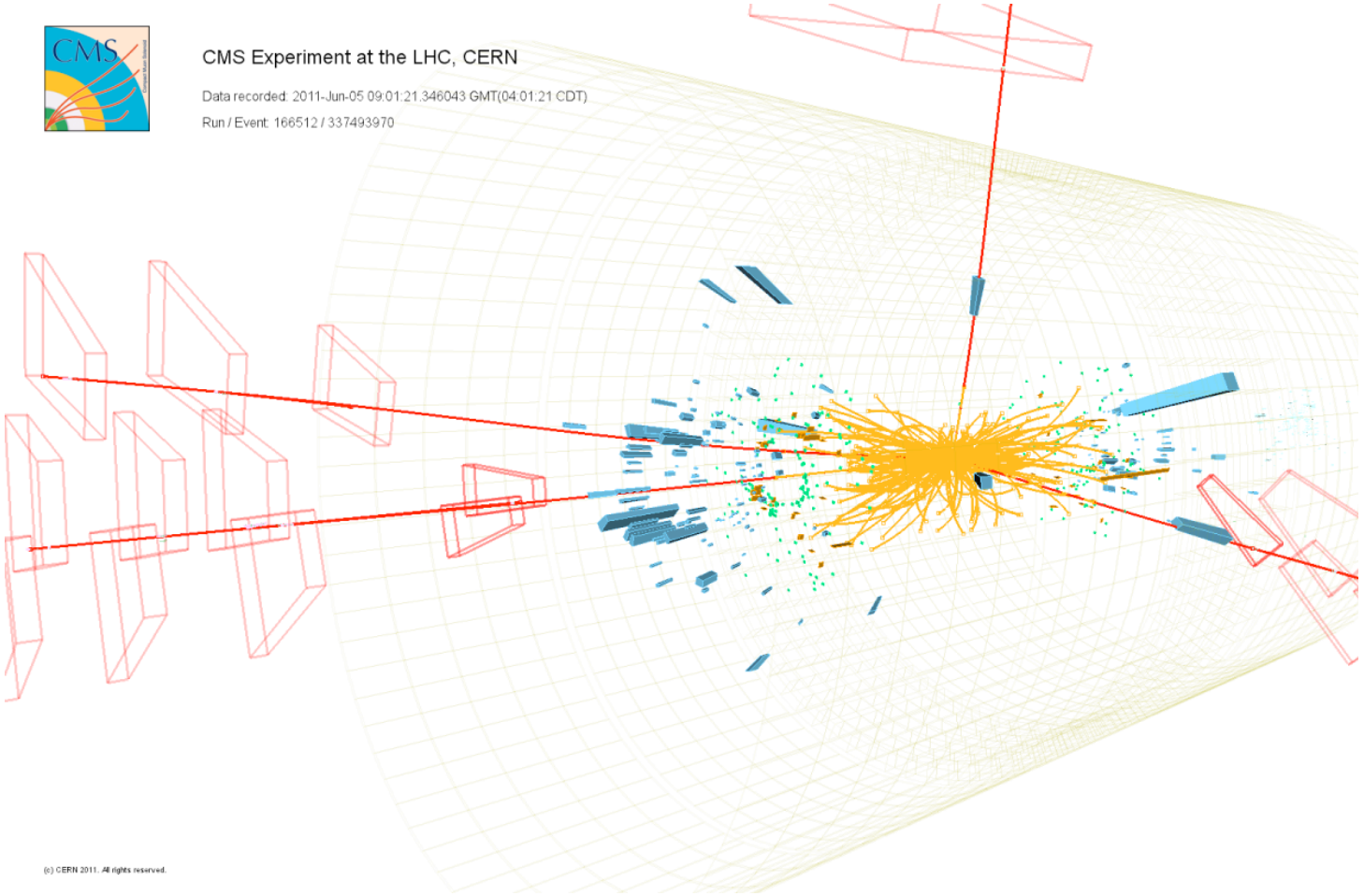
- X = amount of money you have
- Y = spending per month

- If X/Y < 6
  - You have a problem

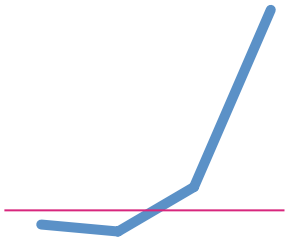
Why do we "crunch numbers?"

- To check if we can pay the bills
- To check if the business model is sustainable
- To identify potential for improvements
- To make sure starting a company makes sense at all!

Complicated?



Final Result



	2015	2016	2017	2018
Revenues		€ 942'000.00	€ 8'989'000.00	€ 23'700'000.00
New Markets		CH, FR, AT	DE, ES, UK, SE, DK, NL	US, NO, FI, RU, IT
Total Households		50 300	395 700	911 400
Operational Costs	€ 126'000.00	€ 248'000.00	€ 234'000.00	€ 4'159'000.00
Salaries	€ 636'000.00	€ 813'000.00	€ 2'058'000.00	€ 3'134'000.00
Employees	12	14	25	33
Profit	-€ 762'000.00	-€ 119'000.00	€ 4'697'000.00	€ 16'407'000.00
Cash Flow cum.	-€ 738'000.00	-€ 1'225'000.00	€ 1'719'000.00	€ 13'416'000.00
Cash Flow min.	-€ 738'000.00	-€ 1'428'000.00	-€ 1'130'000.00	€ 2'451'000.00
Seed Financing	€ 300'000.00	€ 100'000.00		
Expected Seed Investment	€ 1'000'000.00			
Saldo	€ 562'000.00	€ 175'000.00	€ 3'119'000.00	€ 14'816'000.00

The Basic Tools

- Income Statement
- Cash Flow Forecast
- Balance Sheet

Income Statement

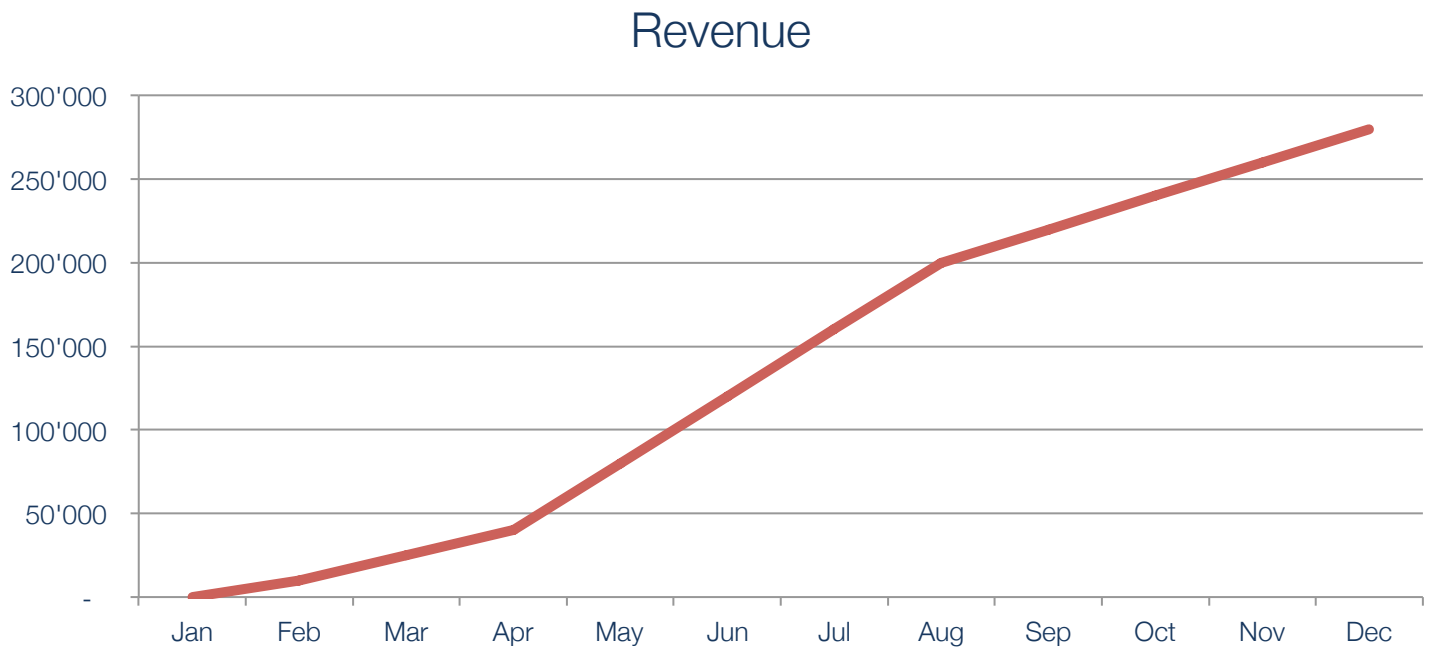
- Financial Performance over a period of time
  - Year
  - Quarter
  - Month

Income Statement (P&L)

Start-up X
Income Statement
Fiscal Year 2015

Revenue		€ 1'500'000.00
Cost of sales		€ 900'000.00
Gross margin		€ 600'000.00
Operating expenses		
R&D	€ 100'000.00	
Selling, general and admin	€ 220'000.00	
Amortization	€ 50'000.00	
Total operating expenses		€ 370'000.00
Income from operations		€ 230'000.00
Investment income		€ 20'000.00
Taxes		€ 152'000.00
Net income		**€ 98'000.00**

Cash Flow – Example



Units Sold	-	100	250	400	800	1'200	1'600	2'000	2'200	2'400	2'600	2'800
Revenue	-	10'000	25'000	40'000	80'000	120'000	160'000	200'000	220'000	240'000	260'000	280'000

Units Prize € 100

Cash Flow – Example

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Units Sold	-	100	250	400	800	1'200	1'600	2'000
Cost of Sales	-	5'000	12'500	20'000	40'000	60'000	80'000	100'000
Revenue	-	10'000	25'000	40'000	80'000	120'000	160'000	200'000
SG&A	2'000	2'000	2'000	2'000	2'000	2'000	2'000	2'000
Net Income	-2'000	8'000	23'000	38'000	78'000	118'000	158'000	198'000

Starting Cash	50'000	43'000	28'500	16'500	-500	-22'500	-24'500	-6'500
Plus: Revenue (1 month delayed)	-	-	10'000	25'000	40'000	80'000	120'000	160'000
Minus: Costs of sales (1 month ahead)	5'000	12'500	20'000	40'000	60'000	80'000	100'000	110'000
Minus: SG&A	2'000	2'000	2'000	2'000	2'000	2'000	2'000	2'000
Cash gain/(loss)	-7'000	-14'500	-12'000	-17'000	-22'000	-2'000	18'000	48'000
Ending Cash	43'000	28'500	16'500	-500	-22'500	-24'500	-6'500	41'500

Balance Sheet

Assets = Liabilities + Equity

Balance Sheet

Monthly Income Statement
August

Revenue	200'000
Cost of Sales	100'000
Gross Margin	100'000
SG&A	2'000
Net Income	198'000
Starting Cash	-6'500
Plus: Revenue (1 month delayed)	160'000
Minus: Costs of Sales (1 month ahead)	110'000
Minus: SG&A	2'000
Cash gain/(loss)	48'000
Ending Cash	41'500

Balance Sheet
August 31 2015

Assets	
Cash	41'500
Accounts Receivable	200'000
Inventory (prepaid)	150'000
Building and Equipment	200'000
Land	100'000
Total Assets	691'500
Liabilities	
Accounts Payable	-
Loan	400'000
Total Liabilities	400'000
Owner's Equity	291'500
Total Liabilities and Owners Equity	691'500

Balance Sheet Example

View: Annual Data | **Quarterly Data**

All numbers in thousands

Period Ending	Jun 27, 2015	Mar 28, 2015	Dec 27, 2014	Sep 27, 2014
Assets				
Current Assets				
Cash And Cash Equivalents	15,319,000	14,489,000	19,478,000	13,844,000
Short Term Investments	19,384,000	18,607,000	12,985,000	11,233,000
Net Receivables	24,917,000	23,305,000	35,022,000	31,537,000
Inventory	2,042,000	2,396,000	2,283,000	2,111,000
Other Current Assets	9,291,000	9,094,000	13,635,000	9,806,000
Total Current Assets	**70,953,000**	**67,891,000**	**83,403,000**	**68,531,000**
Long Term Investments	168,145,000	160,443,000	145,492,000	130,162,000
Property Plant and Equipment	21,149,000	20,151,000	20,392,000	20,624,000
Goodwill	5,044,000	4,711,000	4,629,000	4,616,000
Intangible Assets	3,779,000	4,061,000	4,370,000	4,142,000
Accumulated Amortization	-	-	-	-
Other Assets	4,081,000	3,937,000	3,608,000	3,764,000
Deferred Long Term Asset Charges	-	-	-	-
Total Assets	**273,151,000**	**261,194,000**	**261,894,000**	**231,839,000**
Liabilities				
Current Liabilities				
Accounts Payable	49,198,000	45,986,000	60,725,000	48,649,000
Short/Current Long Term Debt	6,999,000	3,799,000	3,899,000	6,308,000
Other Current Liabilities	9,088,000	8,944,000	8,987,000	8,491,000
Total Current Liabilities	**65,285,000**	**58,729,000**	**73,611,000**	**63,448,000**
Long Term Debt	47,419,000	40,072,000	32,504,000	28,987,000
Other Liabilities	31,296,000	29,816,000	28,971,000	24,826,000
Deferred Long Term Liability Charges	3,474,000	3,571,000	3,480,000	3,031,000
Minority Interest	-	-	-	-
Negative Goodwill	-	-	-	-
Total Liabilities	**147,474,000**	**132,188,000**	**138,566,000**	**120,292,000**
Stockholders' Equity				
Misc Stocks Options Warrants	-	-	-	-
Redeemable Preferred Stock	-	-	-	-
Preferred Stock	-	-	-	-
Common Stock	26,327,000	25,376,000	24,187,000	23,313,000
Retained Earnings	98,252,000	100,920,000	97,178,000	87,152,000
Treasury Stock	-	-	-	-
Capital Surplus	-	-	-	-
Other Stockholder Equity	1,098,000	2,710,000	1,963,000	1,082,000
Total Stockholder Equity	**125,677,000**	**129,006,000**	**123,328,000**	**111,547,000**
Net Tangible Assets	**116,854,000**	**120,234,000**	**114,329,000**	**102,789,000**

…and now it is time for something completely different

Technology | Tue Aug 25, 2015 12:45pm EDT

Related: TECH, GERMANY, REGULATORY NEWS, BREAKINGVIEWS

Top German court rejects Apple touchscreen patent appeal

FRANKFURT

Customers enter the Apple store on 5th Avenue beneath an Apple logo in the Manhattan borough of New York City, July 21, 2015.
REUTERS/MIKE SEGAR -

Apple Inc patents covering the "slide to unlock" feature on smartphones are invalid, Germany's highest appeals court ruled on Tuesday, reaffirming a 2013 decision rejecting the U.S. company's claims by a lower court.

The ruling by the Federal Court of Appeals in Karlsruhe covers one of the Apple iPhone's most popular defining features, of which makers of rival Android-based phones have

Building convincing financials

How can you do this when you have very limited data to base your assumptions on?

1. Estimate Revenues

- How many customers?
- How many items sold
- How much are they willing to pay?

Market Types

- Existing Market:
  - Size and customers are known
- Clone Market
  - Size and customers are somehow known
- Re-segmented Market
  - Size is known, customers are unknown
- New Market
  - Size and customers are unknown

Example

“I have invented a new vacuum pump”

Vacuum pump market

MEA Vacuum Pumps Market Expected to Reach US$ 642.0 Mn by 2025 Globally

Posted On Jun 18, 2015

According to a new market report published by Transparency Market Research "**Vacuum Pumps Market - MEA Industry Analysis, Size, Share, Growth, Trends and Forecast 2015 - 2025**" the mea vacuum pumps market, in terms of revenue, was valued at US$ 199.5 Mn in 2014 and is forecast to grow at a CAGR of 11.1% during the period 2015 to 2025. Energy demand growth and Resurgence of large project activity after economic slowdown are key factors driving the growth of vacuum pumps market. In addition, growth of more process industries in the region across verticals is further expected to drive the growth of this market over the forecast period.

The MEA Vacuum Pumps market was dominated by the low vacuum pressure range with a market share of around 47% in 2014. Packaging and conveying industries in MEA are driving the low vacuum pressure range pumps. Medium pressure vacuum pumps market share is forecast to grow at a significant rate during the forecast period 2015 to 2025. Process industries inclusive of petrochemical, chemical, pharmaceutical, plastics, food & beverages, textile and power industries are expected to drive the demand for medium low vacuum pressure range pumps in the MEA region.

Entrapment pumps and Gas Transfer pumps are two different types of vacuum pump. The MEA Vacuum Pumps market was dominated by the gas transfer pumps with a market share of around 61% in 2014. In gas transfer vacuum pumps momentum is created with a piston or propeller kind of device in the pumps which pushes the gas around the inner parts of the pump. The piston in the pump accelerates the gas and air molecules, creating an area of low pressure. The segment is projected to remain dominant in the region throughout the forecast period due to usage in the oil & gas industry.

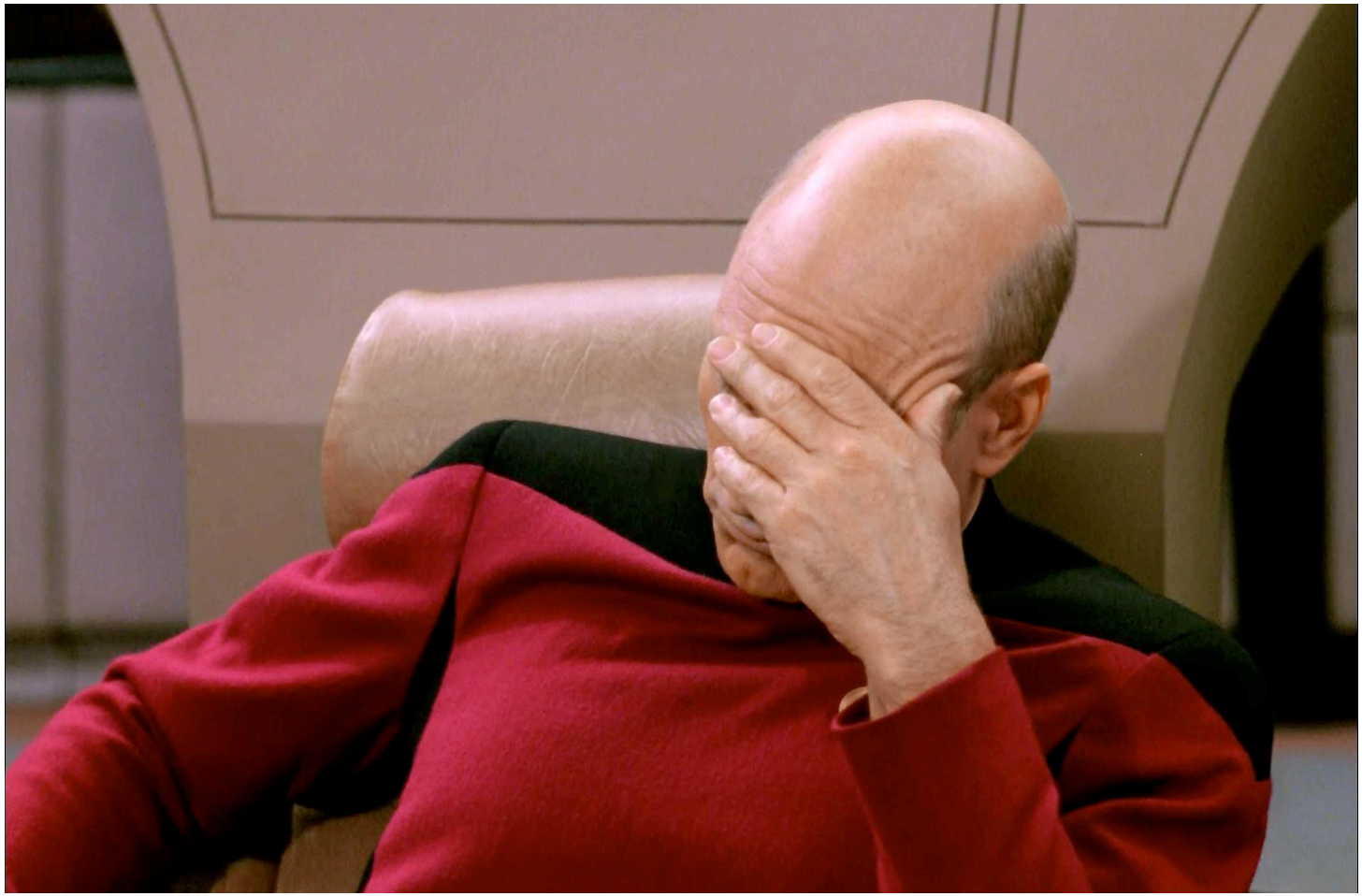
By end-use application sector, oil & gas sector with over 36% held the largest market share in the overall MEA vacuum pumps market in terms of revenue. Small scale industries into manufacturing sector, power and process industries are increasingly deploying vacuum technologies comprising of different types of vacuum pumps for various processes.

GCC countries led the MEA vacuum pumps market in 2014. GCC countries held the largest share of about 30% in 2014 of the overall MEA vacuum pumps market due to strong industrial and manufacturing activities in the region. Export of non-oil products has increased during the last two decades leading to diversification of exports from primary products basically oil and petrochemical products. The market in Iran is expected to overtake the GCC

Cool!

Even if I only manage to land 1 % of that market I'll make 6.4 million sales”

Wrong!



Technology ≠ Market

Vacuum pump is a technology, it is not a problem or a need, neither a client with a wallet

Go after the problem

Before doing the market research you need to do define the problem or need you are solving

Questions to ask

- Where does the problem occur?
  - [Market, Potential Customers, Customers]
- Who is concerned by the problem
  - [Customers]
- How is the problem addressed today
  - [Competitors, Competitor's Price]
- How much does the customer pay today
  - [Competitor's Price]
- How many "current solutions" are sold today
  - [Market, Competitors]
- How are the "current solutions" procured
  - [Channels, Potential Customers]

Revenues are estimated by

- Knowing the *answers* to these questions
- Testing these *answers* with potential customers
- Creating a *credible* and *coherent* story resulting in
  - #1.1 Number of customers
  - #1.2 Number of Items sold
  - #1.3 Selling price

Testing sustainability

How many products/services do I have to sell to create a sustainable business?

2. Estimating COGS

Cost of Goods Sold

COGS are costs incurred every time I produce and sell a product or service

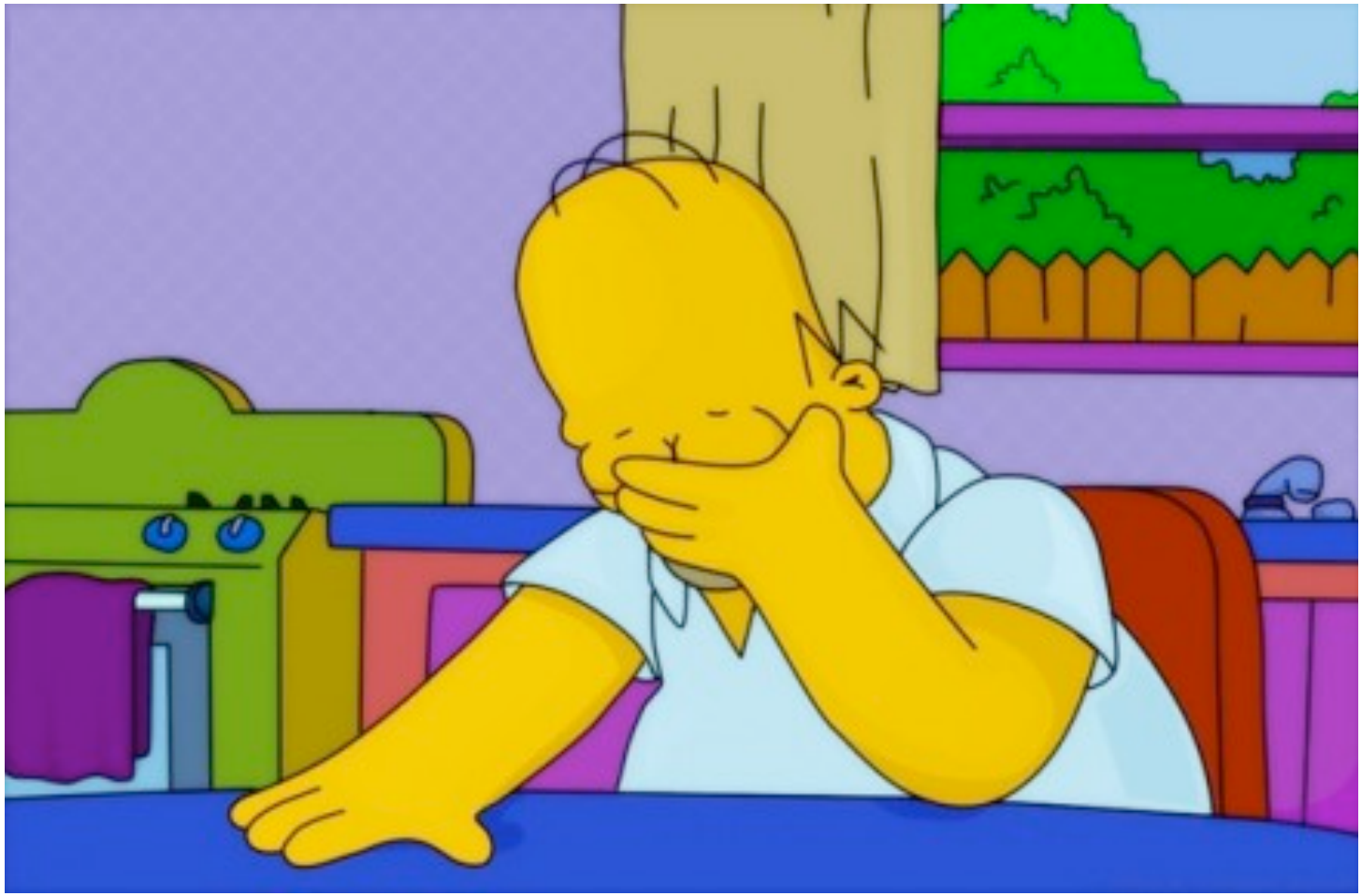
Easy…

I developed the process in lab.

I've already manufactured the prototype, and I know the cost of the components and the time it will take

I decided to outsource the production in India and got a fixed price / unit.

Not necessarily



Meet your customers…

You will also need

- After-sale customer service
- Cost of Warranties: % of the Sales
- Cost of storage
- Transportation

Calculating COGS

#1 Be analytical and decompose the product sold and the process of sale

#2 List the components / activities for each unit sold

#3 Measure / define the quantity of components and activities per unit sold

Calculating COGS

#4 Get commercial offers, third parties data, industry salaries, own measures about components and activities

#5 Treat Manpower as indivisible and consider company Cost

Manpower Company Cost

Gross salary:	Net salary + Income Taxes + Social Security Contributions + Pension Scheme
Other costs:	Insurance, Taxes, Pension Scheme
Benefits:	Health Insurance and Others

Manpower Company Cost ≅ 2-2,5 X Net Salary

Example

- Production of 1 unit product = 1 day Manpower
- 1 day Manpower Company Cost = 300 Euro
- 140 Units produced per year

Total Manpower Company Cost = 42.000 Euro

Well…

Manpower is indivisible

140 units produced per year (140 days) covers only 65% of the time available of the employee (approx. 220 days per year)

Total manpower company cost

= 1 FTE Employee

2.5 Gross Profit

Revenues – COGS = Gross Profit

3 Estimating SG&A

Selling, General & Administration

SG&A are the costs that don't change (or very little) when varying the volume of production, sales, customers or users

SG&A define the capacity in terms of volume of production (or development of new projects)

SG&A include marketing, distribution, accounting, legal, etc.

Estimate SG&A

Decide the capacity of the company (#units, #customers)

Define which resources are needed to build the capacity (offices, labs, equipment, staff)

Define the costs related to these resources

3.5 EBITDA

Gross Profit – SG&A = EBITDA

EBITDA – Earning Before Interests, Taxes, Depreciation and Amortization

PP&Es

Property, Plant and Equipment (PP&Es) are assets of the company

Assets have multi period utility

The cost of assets cannot be allocated to the P&L of a sole year

Intangible

An intangible asset is an asset that lacks physical substance and usually is very hard to evaluate. Examples are:

- Patents
- Copyrights
- Franchises
- Goodwill
- Trademarks
- Trade names

D&A

D&A or Depreciation & Amortization

D&A is the quota of the cost of Assets consumed in the period

D&A represents the obsolescence of the assets in the period considered

D&A = (costs of Assets) / # Years

4. EBIT

EBITDA – D&A = EBIT

Earning Before Interests and Taxes

Interests

Interests are the cost for borrowing money

Because the high risk of a startup company, interests on debts are higher than interest paid on loans secured by a property

Corporation Taxes

Taxes are often very complex to calculate

Taxes are different based on the country

Taxes don't really matter, startup company don't make profit at the beginning

- 27% in Italy
- 24% in the UK

Taxes = % of (EBIT – Interest)

Net Profit

EBIT – Interest and Taxes = Net Profit

Net profit is *“nice to have”*, but it is not the most important result

Cash-flow is more important than net profit

Cash-Flow

Cash-flow is the actual flow of money spent and cashed by the company

Cash-flow differs from net profit because the net profit consider D&A instead of the actual money spent in assets in the period

Cash-Flow = Net Profit + D&A – CAPEX*

*CAPital Expenditure

** This is a simplified formula

CAPEX

CAPEX is the amount spent in assets (tangibles: property plant and equipment + intangibles: patent, know-how, software) in the period

The value of the company

- NPV – Net Present Value
- EV/EBITDA
- IRR – Internal Rate of Return

Net Present Value (NPV)

NPV is *“today’s value”* of the future Cash-Flows

NPV is calculated by discounting the Cash-Flows of the company with an appropriate discount rate "r"

Higher Risk produces an higher discount rate (for a Startup 20% - 50%)

$$NPV = \sum_{t=1}^{T} \frac{(\text{Cash-Flows})_t}{(1+r)^t}$$

IRR Internal Rate of Return

IRR is the rate that make the NPV = 0

It represents the return of an investment as percentage

It allows to compare similar investments (similar risk and duration)

The ration EV/EBITDA

EV: Enterprise Value

EBITDA: Earning Before Interest Taxes Depreciation and Amortization

The Ratio (between 6 – 20) is used to evaluate companies with established profit history (or nearly)

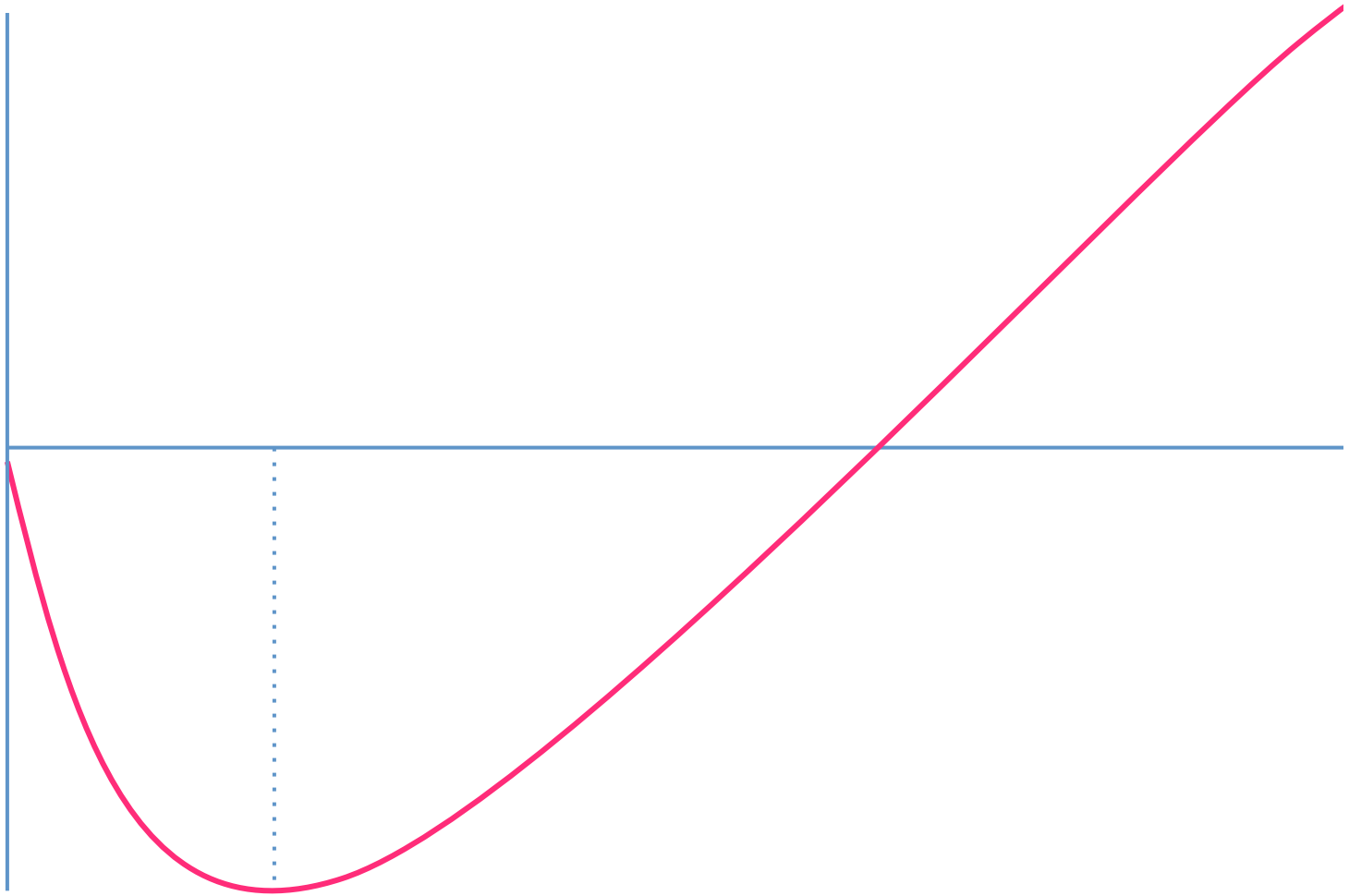
EV = EBIDTA X [Ratio]

If no history revenue…

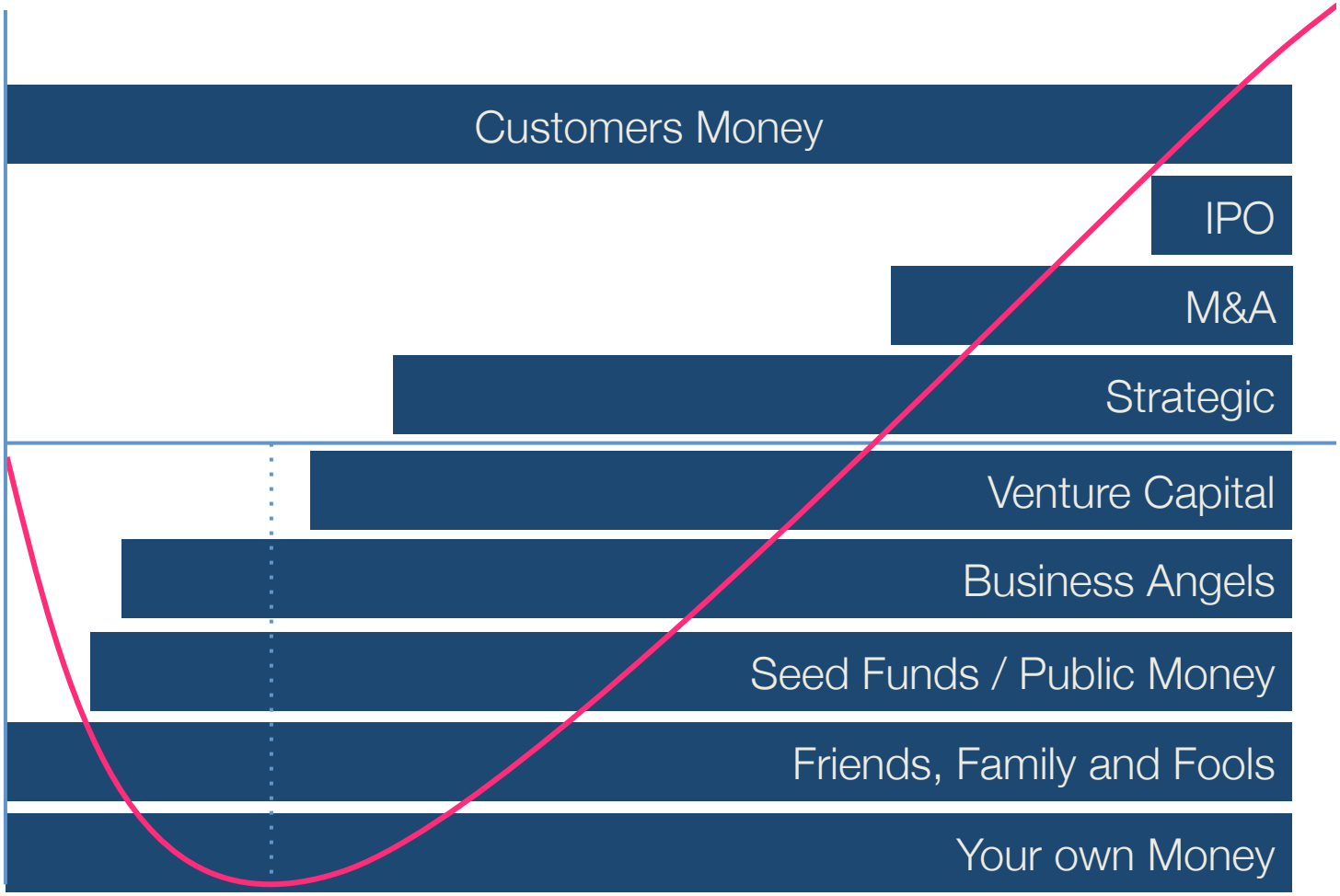
What about investors

- It depends
- Start-up capital is a supply and demand issue
- Trends and bubbles
- Control of the company

Hockey Stick



Hockey Stick



KICKSTARTER Discover Start Search projects

Pebble: E-Paper Watch for iPhone and Android

by Pebble Technology

Home Updates 53 Backers 68,929 Comments 15,609 Palo Alto, CA Product Design

Funded! This project was successfully funded on May 19, 2012.

Share 310 Tweet Embed

Pebble is a customizable watch. Download new watchfaces, use sports and fitness apps, get notifications from your phone.

68,929
backers

$10,266,845
pledged of $100,000 goal

0
seconds to go

Project by
Pebble Technology
Palo Alto, CA

First created · **55 backed**
Eric Migicovsky 856 friends
getpebble.com

See full bio | Contact me

Pledge $1 or more
2615 backers

KICKSTARTER Discover Start Search projects

Potato Salad

by Zack Danger Brown

Home Updates 12 Backers 3,136 Comments 306 Columbus, OH Food

Share 193,490 Tweet Embed Remind me

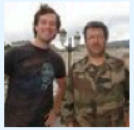
I'm making potato salad.

Basically I'm just making potato salad. I haven't decided what kind yet.

25
days to go

Back This Project
$1 minimum pledge

This project will be funded on Sat, Aug 2 2014 3:47 PM CEST.



Project by
Zack Danger Brown
Columbus, OH

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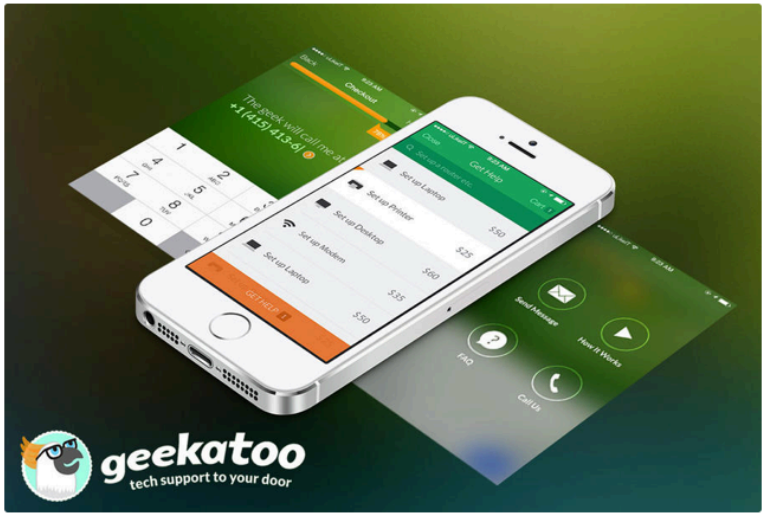

Geekatoo

Uber meets Geek Squad

Geekatoo is a nationwide in-person tech support platform. They are taking on Geek Squad by finding knowledgeable, trustworthy geeks in your neighborhood and sending them directly to you.

- $100k+/mo revenue (3x since Feb)
- Eric Ries, Dave McClure are investors
- Nationwide with 5,000 geeks

$1,291,500 RAISED

VIEW STARTUP

An exclusive Black Card with special perks & VIP access for millennials
by Magnises

$100,000+ revenue in May. 300 new members and $75,000 in revenue in the past 7 days

$922,500 INVESTED

An activity and summer camp marketplace for kids
by Camperoo

265% monthly growth. $1.8 Billion market ($15B Camps industry)

$825,200 INVESTED

What does investors look for

Sources and Inspiration

Crunching the Numbers for a start-up – Marco Giorgini - Entrepreneurship Table Meetings JRC

Financial Planning for the startup CEO - Entrepreneurship 101 (2012/2013) - http://www.slideshare.net/MaRSDD/financial-planning-for-the-startup-ceo

8 rules of finance for entrepreneurs - http://www.slideshare.net/selenasol/8-rules-of-finance-for-entrepreneurs

Questions

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