

Business Innovation in Optics and Photonics

Course Section 5

Business Case Development Business Plan

Prof. Dr. Michael Kaschke
Carl Zeiss AG

Dr. Jochen Peter
Carl Zeiss AG



Course Section: Business Case Development and Business Plan

Market segmentation

Market research

Innovation based business strategy as a foundation of a business case

Your assignment: Develop a business idea and describe it in a business plan

Some templates for a basic financial modeling

Timetable for group work in January

A Market Segmentation is the first step to a market understanding

A **consumer market segment** is a group of people sharing characteristics that cause them to have similar product and/or service needs.

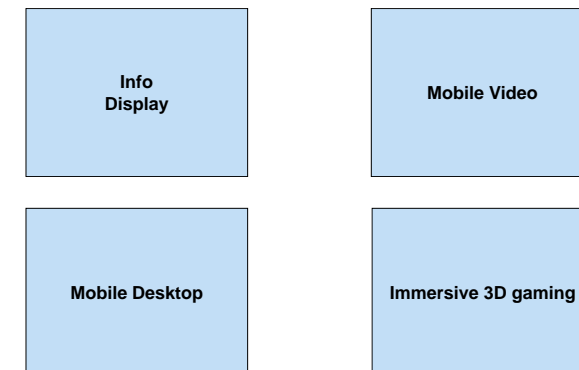
A good market segmentation meets all of the following criteria:

- Homogeneous needs within each segment
- Heterogeneous needs between segments
- Segments are measurable and substantial
- Segments are differentiable
- Segments are accessible and actionable (response to a market stimulus)

Categories of variables often used for market segmentation

- Geographic variables
- Demographic variables
- Behavioral variables
- Technological segmentation variables

Video goggle consumer market segmentation by use case

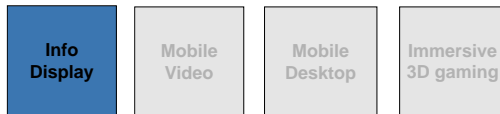


Segment: Info Display

Info Display

Imagine that the spectacles you wear every day had the additional feature to display one line of text somewhere at the corner of your field of view. This feature would be very unobtrusive and for others your glasses wouldn't look much different from glasses without this feature. The glasses would be connected to your mobile phone and you could view short messages, news ticker information, caller IDs, Email subject lines or similar messages.

Additional services would be available on request, like providing you information about where you are at the moment, where the next restaurant of a specific variety can be found, hints about events or promotions in shops next to your current position. Also navigational information could be provided.



Segment: Mobile Video

Mobile Video

Imagine watching videos via data glasses that project the video in front of your eyes as if you would sit in front of a 40" TV. They would also deliver stereo sound to your ears.

You could wear them while traveling in a train, on a plane or even at home. The video source could be your mobile phone where the content would be streamed real time from your network operator (It could be a live TV show or a video streamed on demand from a server).

Alternatively you could use your Apple iPhone or iPod or any other mobile video device as a video source.



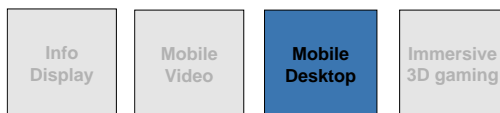
Segment: Mobile Desktop

Mobile Desktop

Imagine that you could buy special data glasses that connect to your laptop. They would project the display in a way that you would see the windows desktop as if you had a 20" monitor in front of you.

At the same time nobody else could see what you are doing, i.e. you could work on confidential documents in public spaces, on a plane or in a train.

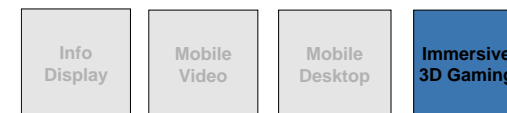
The data glasses are small enough such that you can still look around them, i.e. you can still use the keyboard and mouse of our laptop. Such glasses would also allow you to carry only a very small notebook with you without having to rely on the small built in screen



Segment: Immersive 3D Gaming

Immersive 3D Gaming

Imagine you had data-glasses that you could connect to your gaming console or to your PC that would allow you to fully immerse yourself in a first person perspective game. Through the slightly different perspective presented to each of your eyes you would have the illusion to be in a virtual 3D environment. Since the glasses would register your head movement as well, looking around in the gaming environment would be possible by simply turning your head.



Example: Video goggle consumer market segmentation by use case

- Mobile Video** Imagine watching videos via data glasses that project the video in front of your eyes as if you would sit in front of a 40" TV. They would also deliver stereo sound to your ears. You could wear them while traveling in a train, on a plane or even at home. The video source could be your mobile phone where the content would be streamed real time from your network operator (It could be a live TV show or a video streamed on demand from a server). Alternatively you could use your Apple iPhone or iPod or any other mobile video device as a video source.
- Info Display** Imagine that the spectacles you wear every day had the additional feature to display one line of text somewhere at the corner of your field of view. This feature would be very unobtrusive and for others your glasses wouldn't look much different from glasses without this feature. The glasses would be connected to your mobile phone and you could view short messages, news ticker information, caller IDs, Email subject lines or similar messages. Additional services would be available on request, like providing you information about where you are at the moment, where the next restaurant of a specific variety can be found, hints about events or promotions in shops next to your current position. Also navigational information could be provided.
- Mobile Desktop** Imagine that you could buy special data glasses that connect to your laptop. They would project the display in a way that you would see the windows desktop as if you had a 20" monitor in front of you. At the same time nobody else could see what you are doing, i.e. you could work on confidential documents in public spaces, on a plane or in a train. The data glasses are small enough such that you can still look around them, i.e. you can still use the keyboard and mouse of our laptop. Such glasses would also allow you to carry only a very small notebook with you without having to rely on the small built in screen.
- Immersive 3D gaming** Imagine you had data-glasses that you could connect to your gaming console or to your PC that would allow you to fully immerse yourself in a first person perspective game. Through the slightly different perspective presented to each of your eyes you would have the illusion to be in a virtual 3D environment. Since the glasses would register your head movement as well, looking around in the gaming environment would be possible by simply turning your head.

Course Section: Business Case Development and Business Plan

Market segmentation

Market research

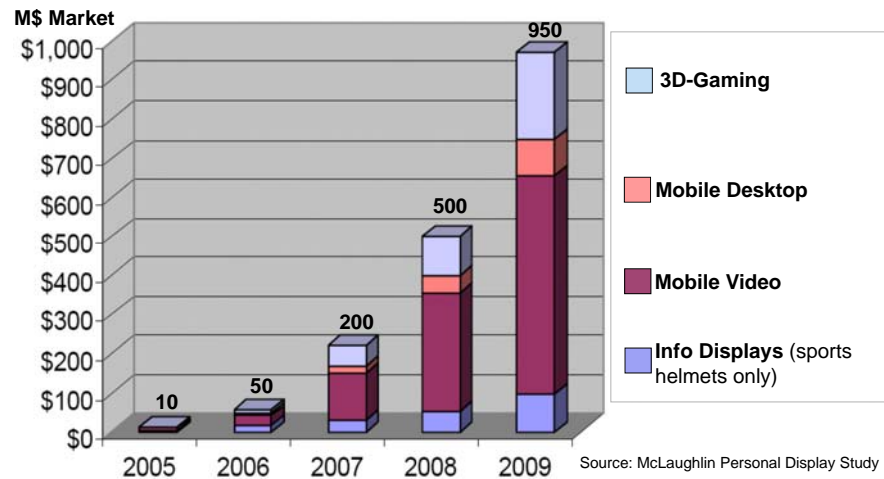
Innovation based business strategy as a foundation of a business case

Your assignment: Develop a business idea and describe it in a business plan

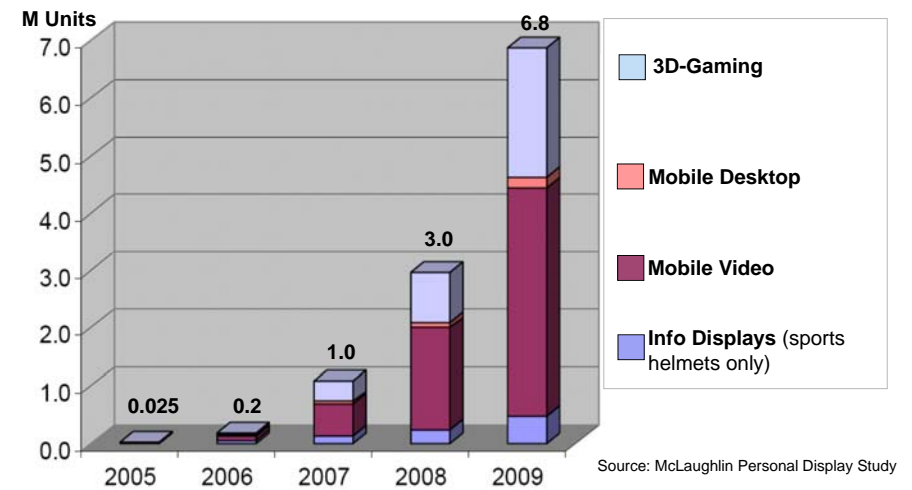
Some templates for a basic financial modeling

Timetable for group work in January

Market study along the use case dimension: Mobile video with highest sales volume

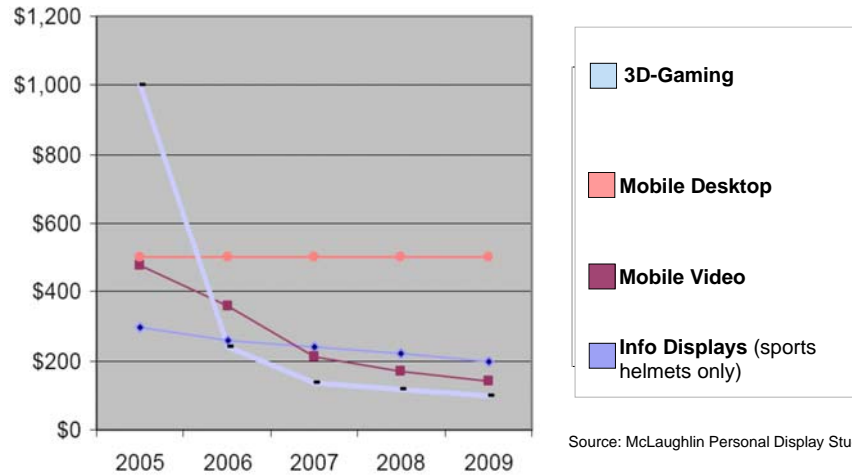


Mobile Video also with strongest demand



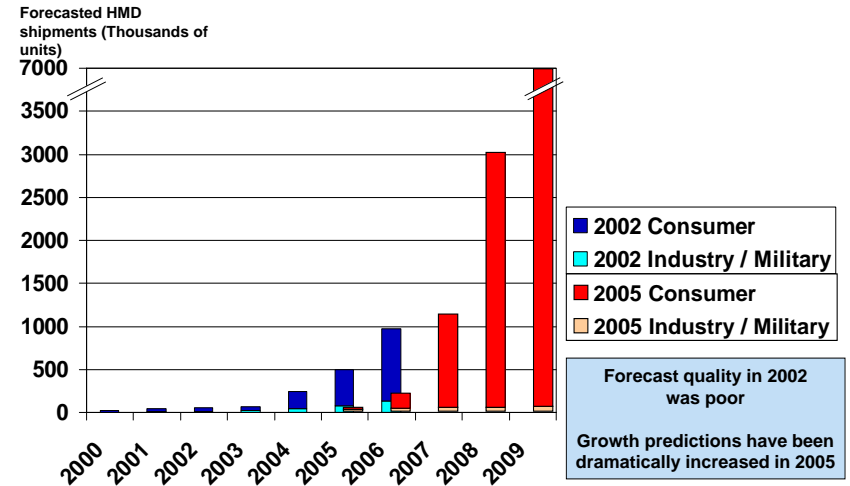
Mobile Desktop with highest long-term price point

HMD Price

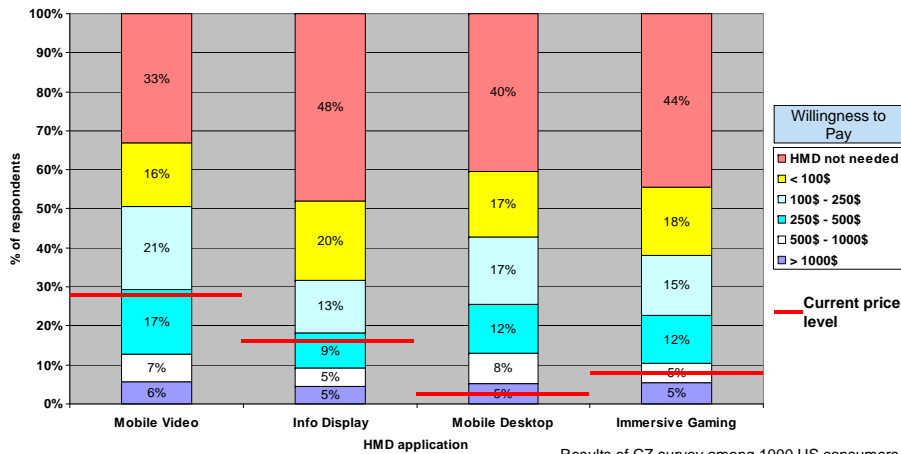


Market reports always have to be critically challenged

Comparison of 2002 and 2005 forecasts



Zeiss own survey helped to decide on target segment: 30% of US consumers would pay more than 250\$ for a video HMD



Competition is segment specific: Competitor landscape at the start of the cinemizer project in 2006

Mobile Video: Two relevant players already in the market

- MicroOptical with prescription lens clip-on HMD (French mobile operator Orange as strong distribution partner in France / Switzerland, Samsung branded version of the product was shown on CeBit 2006)
- Icuiti has circumvented "prescription problem" by adjustable eye-focus

Info Display: No dominant design yet, established competitor only in sports market

- Olympus and Mitusbishi have each demonstrated a prototype
- MicroOptical / Essilor with promising specs but much too high cost
- Motion Research with good solution for sports helmet market

Mobile Desktop: No dominant solution yet and no strong player active

- Reasons unclear, might be target cost or distribution problem

3D-Immersive Gaming: Nobody has broken compromise between cost and FOV yet

- OLED-producer Emagin with Z800 (promising specs, but high price)
- Olympus has withdrawn its eye-track product (was marketed as Playstation accessory)

Course Section: Business Case Development and Business Plan

Market segmentation

Market research

Innovation based business strategy as a foundation of a business case

Your assignment: Develop a business idea and describe it in a business plan

Some templates for a basic financial modeling

Timetable for group work in January

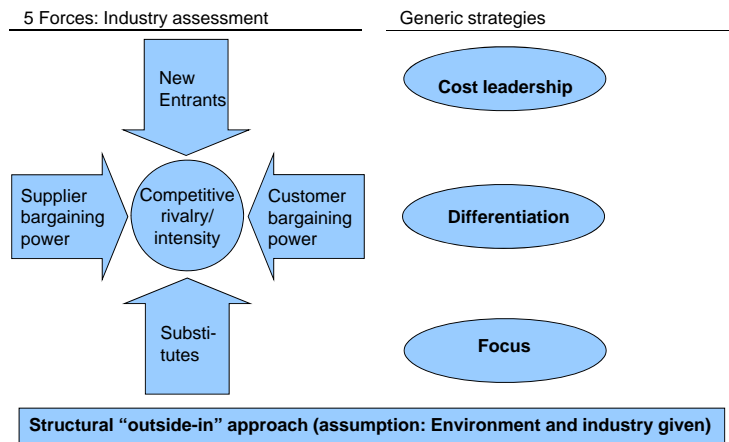
Business strategy – the search for competitive advantage

“Unless a business has a unique advantage over its rivals, it has no reason to exist.”

“All competitors who persist over time must maintain a unique advantage by differentiation over all others. Managing that differentiation is the essence of long-term business strategy.”

Bruce D. Henderson, founder The Boston Consulting Group

Example: Five forces and generic strategies (Michael Porter)



Example: Core competences

Strategy	<ul style="list-style-type: none"> Build at lower cost and more speedily than competitors the core competences needed for innovative products (any combination of specific, inherent, integrated and applied knowledge, skills and attitudes)
Role of core competences	<ul style="list-style-type: none"> Make significant contributions to perceived customer benefits of end product Provide potential access to a wide variety of markets Make it difficult for competitors to imitate
Implementation	<ul style="list-style-type: none"> Process of continuous improvement and enhancement

What is Innovation?



Joseph A. Schumpeter
1883-1950

Innovation is:

- 1 The breakthrough of a technological or organizational novelty not just its invention.
- 2 A process of a creative destruction.

Or simply:

The better is the enemy of the good.

Innovations are often difficult to spot in the early stage



Natural competition

Charles Darwin
(1809 - 1882)



"The Origin" (1859)

Limited resources leading to fight for survival:

“ In a world of stable populations where each individual must struggle to survive, those with the “best” characteristics will be more likely to survive, and those desirable traits will be passed to their offspring; and that these advantageous characteristics are inherited by following generations, becoming dominant among the populations through time. This is natural selection”

Today > 1 million species

- Each is unique
- Each must have unique advantages fighting for food and survival
- Each occupies a unique niche

Source: Wikipedia

Example: Value innovation and Blue Oceans (Kim)

Red Ocean strategies

Compete in existing market space

Beat the competition

Exploit existing demand

Make the value/cost trade off

Align companies activities with its strategic choice of differentiation or low cost

Blue Ocean strategies / value innovation

➡ Create uncontested market space

➡ Make the competition irrelevant

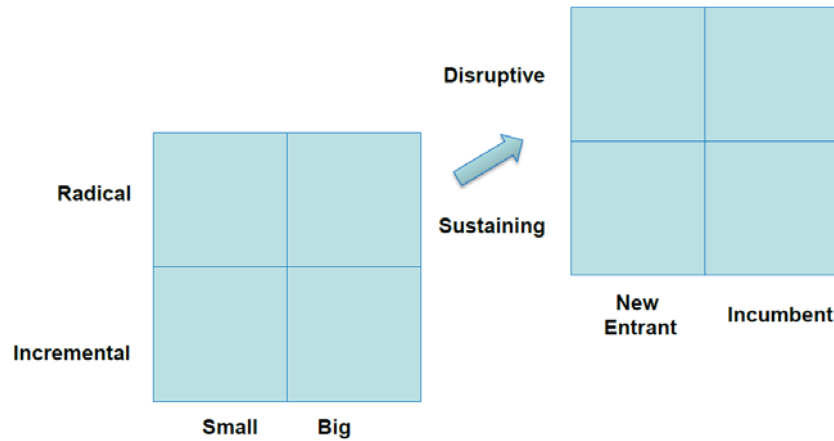
➡ Create and capture new demand

➡ Break the value/cost trade-off

➡ Align companies activities in pursuit of differentiation and low cost

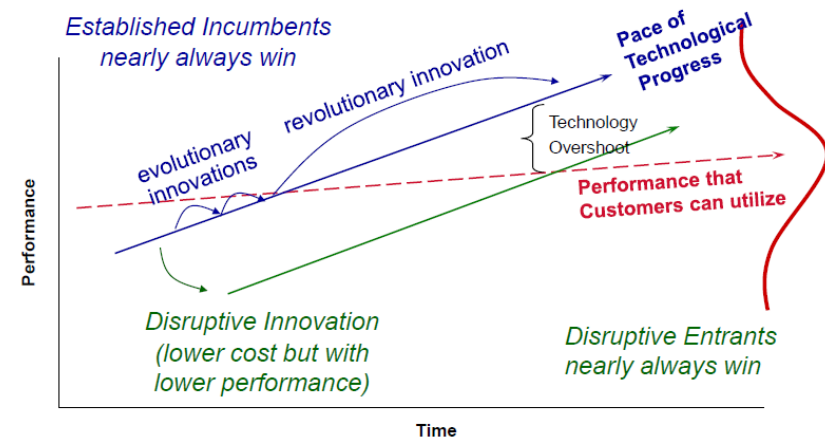
There are no “per se” good or bad markets. Demand can be created anywhere.

Different categories of innovation



Source: Harvard Business School, C. Christensen, W. Shih

Concept of disruptive innovation



Source: Harvard Business School, C. Christensen, W. Shih

Some guiding questions

<p>Can the idea become a new-market disruption?</p> <p>Is there a large population of people who historically have not had the money, equipment, or skill to do this thing for themselves, and as a result have gone without it altogether or have needed to pay someone with more expertise to do it for them?</p> <p>To use the product or service, do consumers need to go to an inconvenient, centralized location?</p>	<p>Can the idea become a low-end disruption?</p> <p>Are there consumers at the low end of a market who would be happy to purchase a product with less (but good enough) performance if they could get it at a lower price?</p> <p>Can we create a business model that enables us to earn attractive profits at the discount prices required to win the business of these over-served customers at the low-end?</p>	<p>A Litmus Test</p> <p>Is the innovation disruptive to <i>all</i> of the incumbent firms in the industry? If it appears to be sustaining to one or more firms in the industry, then the odds will be stacked in that firm's favor, and the new entrant is unlikely to win</p>
--	---	---

Source: Harvard Business School, C. Christensen, W. Shih

Things to remember

- ... unless a business has a unique advantage over its rivals, it has no reason to exist.
- ... there are no good or bad markets. Demand can be created (nearly) everywhere.
- ... courageous ideas are needed to renew competitive advantage, surprise competitors and change the rules.
- ... a good strategy is only the starting point – solid execution and willingness to act are key to make it happen.

Course Section: Business Case Development and Business Plan

Market segmentation

Market research

Innovation based business strategy as a of foundation of a business case

Your assignment: Develop a business idea and describe it in a business plan

Some templates for a basic financial modeling

Timetable for group work in January

Your assignment: Develop a business idea What we do expect from you for the next few weeks

Business Idea	Business Plan
1-page executive summary	1-page executive summary
Clear Business Vision <ul style="list-style-type: none"> Value Proposition Customer, Markets, Competitors Business Model Economics and Risks Make-or-Break Actions Your competitive position 	Detailing of the business vision
Team Set-Up <ul style="list-style-type: none"> Competences, Roles, Responsibilities 	Financials <ul style="list-style-type: none"> P&L, Cash flow, Investment plan
	Market assessment
	Value-added strategy
	Market entry strategy
	Differentiation strategy

Phase 1

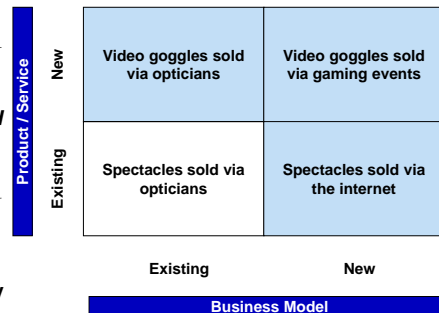
Phase 2

How to recognize a potentially good business idea 6 Key questions to describe business vision

Some innovation necessary

Start by clearly stating your vision: *"Why does the world need this and who will sell how much of it to whom?"*

If you are able to formulate a compelling vision, your business idea has passed its first feasibility test



Your Vision = General description of idea:

Why does the world need this? (value proposition)
Who will buy how much of it? (customer, markets, competitors)
How can CZ make a business related to the value proposition? (business model)

Can CZ make money out of it? (business economics and risks)
What to do next? (make-or-break actions)
Where do we stand? (CZ's starting position)

Why does the world need this? Value Proposition

Innovation	<ul style="list-style-type: none"> What is new or different? Why is this innovative?
Potential fields of application	<ul style="list-style-type: none"> How do possible application scenarios look like? What is the most attractive application („killer app“)?
Key customer and user advantages	<ul style="list-style-type: none"> Who will buy why? What are key benefits of the proposed idea as compared to major buying factors of the identified customers?
Comparison with currently existing and likely future alternatives to the proposed idea	<ul style="list-style-type: none"> What will be substituted by the idea? What could substitute the idea in the future? How do the current and future substitutes compare to the idea in terms of key buying factors of the relevant customers?

Who will buy how much of it? Customers, Markets, and Competitors

General market characteristics

- How do the major customer groups look like?
- How are existing and potential competitors positioned in the market?
- What are key success factors in the relevant markets?
- How might competitors react to the idea?

Potential market segments

- How are customers and markets segmented?
- Which segments are addressable by the idea?

Quantification of the addressable market

- How big are the addressable market segments?
- Can the idea be leveraged to adjacent segments?

Can you make money out of it? Business Economics and Risks Involved

Financial estimates

- How much revenue can be generated in which time frame?
- What are realistic margins in the targeted markets?

Resource requirements

- How much do you have to invest before the business is up and running?
- How many resources are needed?

Risks

- In which areas do we expect the greatest challenges
 - Technology
 - Market size
 - Market access
 - Approval requirements
 - Legal
 - ...

What to do next? Make-or-Break Actions

Timing of the realization

- Are the major milestones for a realization defined?
 - Validated business, product and value-added concept
 - Working Prototype
 - Value chain defined
 - Series product developed
 - Pre-series production running
 - Marketing & sales organized
 - First products sold
 - Revenue and margin targets achieved

Critical milestones

- What are the most critical milestones that will determine success or failure?

Your assignment: Develop a business idea What we do expect from you for the next few weeks

Business Idea	Business Plan
1-page executive summary	1-page executive summary
Clear Business Vision <ul style="list-style-type: none"> • Value Proposition • Customer, Markets, Competitors • Business Model • Economics and Risks • Make-or-Break Actions • Your competitive position 	Detailing of the business vision
Team Set-Up <ul style="list-style-type: none"> • Competences, Roles, Responsibilities 	Financials <ul style="list-style-type: none"> • P&L, Cash flow, Investment plan
	Market assessment
	Value-added strategy
	Market entry strategy
	Differentiation strategy

Week 1+2

Week 3