

Université de Lausanne  
Ecole des Hautes Etudes Commerciales (HEC)

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• *on-the-fly* evaluation

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• Prediction market

Minema> winter school > Anzere > February 14, 2007

## Mobile computing & business modeling

Scenario planning, business model and disruptive technology

EXTRACT



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EFMD EQUIS ACCREDITED

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- CONCLUSION
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shockfish /

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## Design approach > application

GOAL TASK analysis

Requirement Analysis

Validation Design

Action  
Information  
Interaction

TECHNIQUES:  
Scenario-based design  
Pattern-based  
Conceptual modeling

USABILITY  
PROTOTYPE

source: [Rosson and carroll, 2002]  
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## Design approach > application > requirement analysis

- Goal-based requirement engineering

- Task analysis

source: [Rolland, 2003] [Yu, 1994] [Paternò, 2002]  
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## Design approach > application > IT solution design

- **Action design**
  - Focus on functionality
- **Information design**
  - Information provided to the users by the systems
- **Interaction design**
  - Details of user action and feedback

### Scenario

<http://guir.berkeley.edu/projects/denim>

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### use case

### hand sketch ...

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## Design approach > application > usability evaluation

- **Usability testing with user PROTOTYPING**

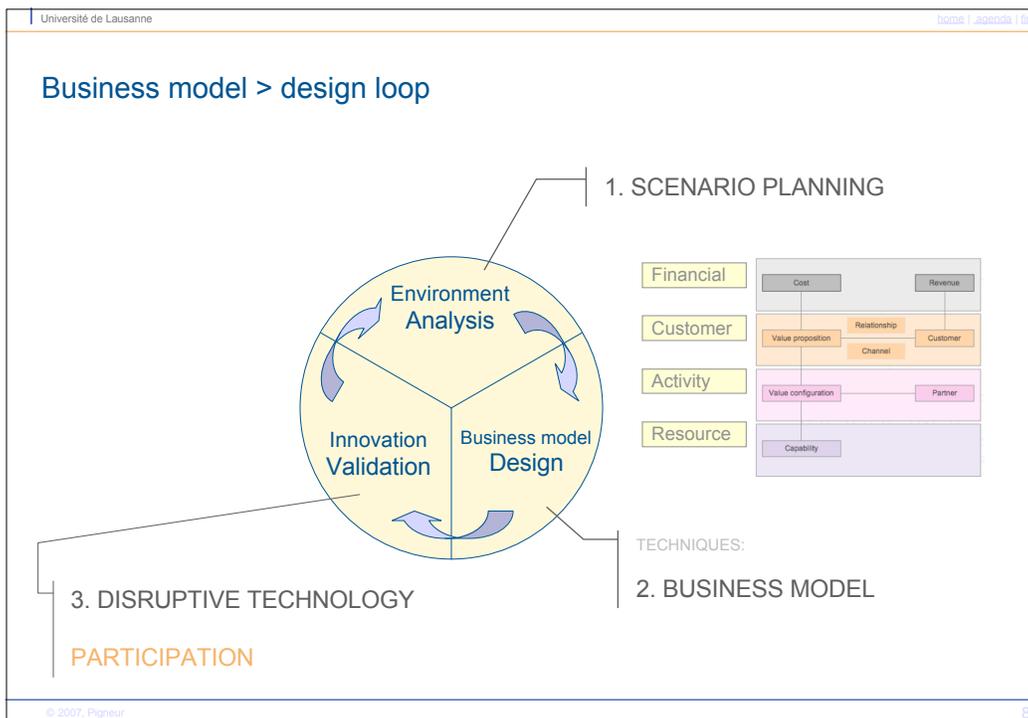
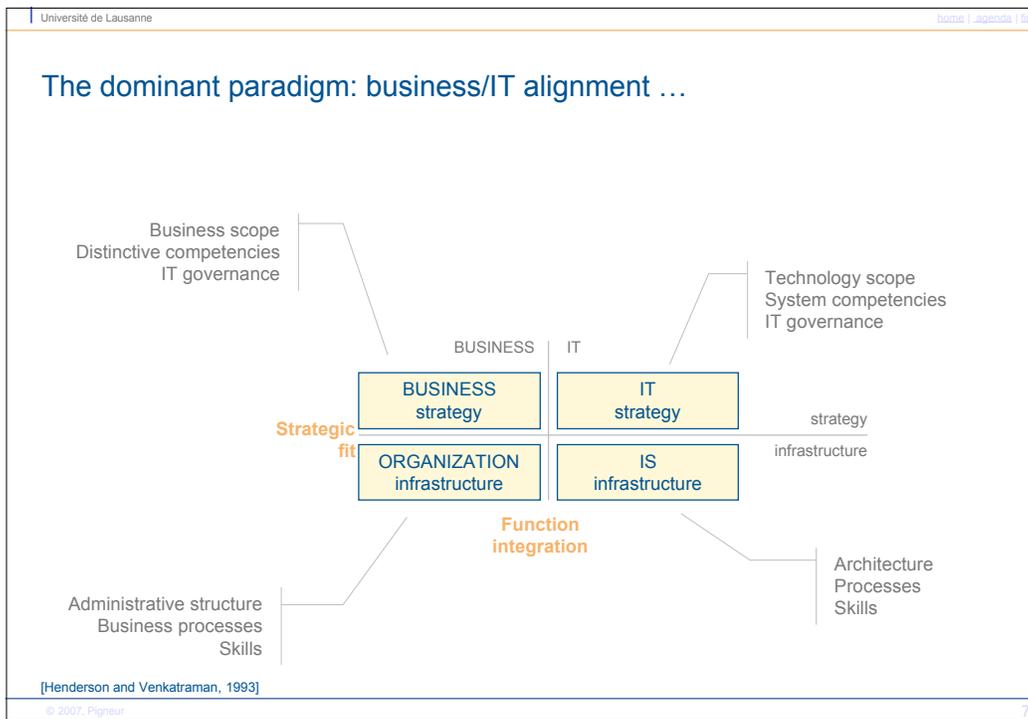
source: [Rosson and carroll, 2002]

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### model-based > service quality

#### Conceptual Model for Understanding and Improving E-Service Quality (e-SQ)

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## ASSESSING THE ENVIRONMENT

- Environment assessment
- Scenario planning
- Case studies:
  - *MobiCom* scenarios and
  - *Ambient intelligence* scenarios

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## Business model > environmental pressures

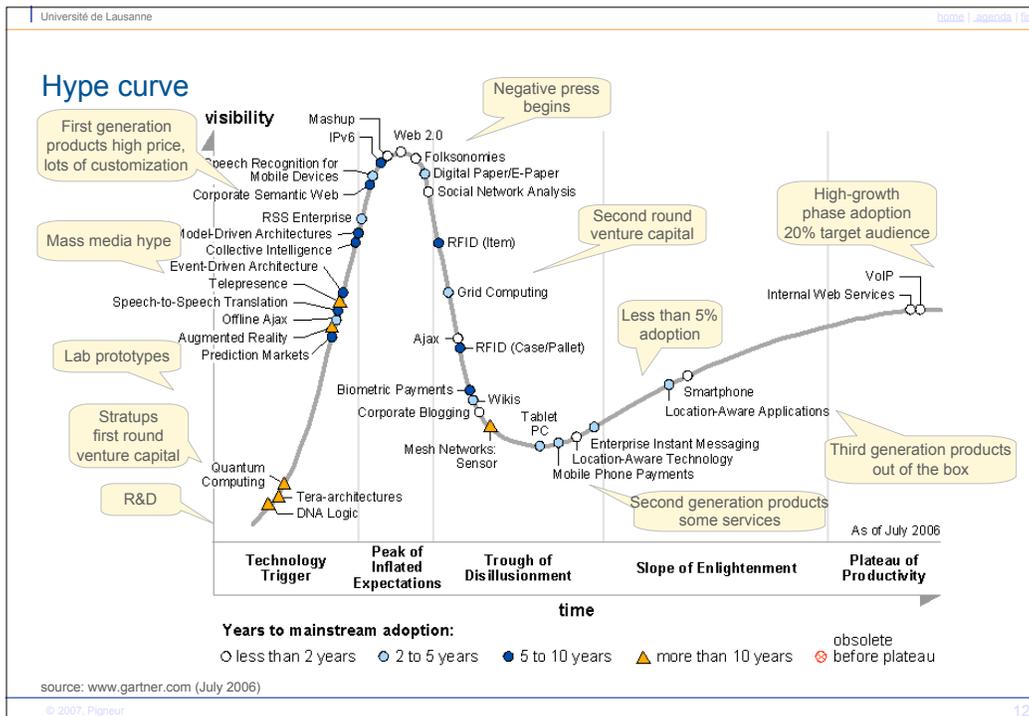
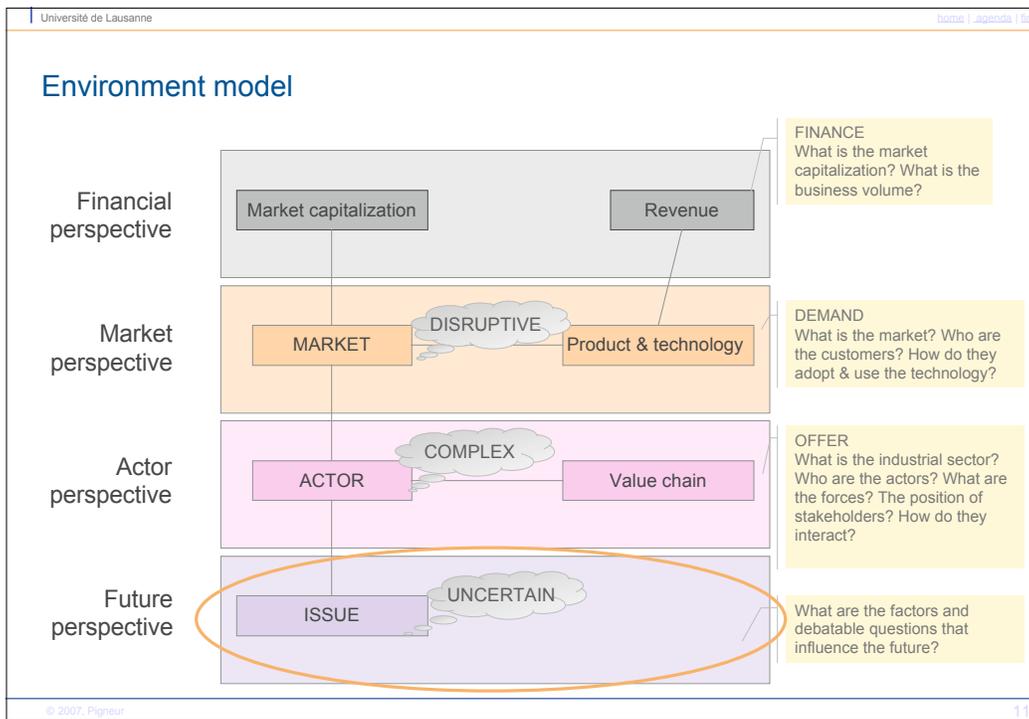
The diagram illustrates the relationship between a business model and its environment. At the center is a business model canvas with the following components:

- Cost** and **Revenue** (top)
- Value proposition** (left), **Relationship** (middle), **Channel** (middle), **Customer** (right)
- Value configuration** (left), **Partner** (right)
- Capability** (bottom)

Surrounding this central model are five environmental pressure areas, each represented by a cloud:

- COMPETITIVE FORCES**: disruption, market share, new products
- TECHNOLOGICAL CHANGE**: disruption, enablement, efficiency
- CUSTOMER DEMAND**: needs, new markets
- SOCIAL ENVIRONMENT**: stakeholders, environmental values
- LEGAL ENVIRONMENT**: intellectual property, WTO, antitrust

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## No prediction ...

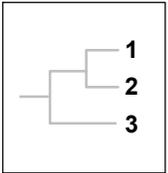
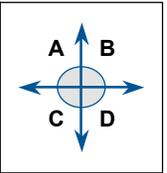
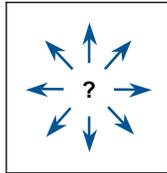
- “This ‘telephone’ has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us.”*  
 [West Union internal memo, 1876]
- “I think there is a world market for maybe five computers.”*  
 [Thomas Watson, chairman of IBM, 1943]
- “I have travelled the length and breadth of this country and walked with the best people, and I can assure you that data processing is a fad that won’t last out the year.”*  
 [The editor of management books at Prentice-Hall, 1957]
- “There is no reason anyone would want a computer in their home.”*  
 [Ken Olsen, President and founder of Digital Equipment Corp., 1977]
- “640K ought to be enough for anybody.”*  
 [Bill Gates, 1981]

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## ... but scenarios

Levels of uncertainty:

			
<p><b>Clear-enough future</b></p> <p>forecast</p> <p>Traditional toolkit</p>	<p><b>Alternate futures</b></p> <p>Discrete options</p> <p>Game theory Decision analysis</p>	<p><b>Range of futures</b></p> <p>No natural option</p> <p><b>Scenario planning</b></p>	<p><b>True ambiguity</b></p> <p>No basis for forecast</p> <p>Analogies Pattern recognition</p>



[Courtney, 1997] 14

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## Scenario planning

- *“Scenarios are a way of developing alternative futures based on different combinations of assumptions, facts and trends, [...] Building scenarios will force asking relevant questions and identify a range of possible choices or events”*

1. Identify general, broad, driving forces,
  - which are applicable to essentially all scenarios
2. Identify a variety of **PLAUSIBLE** trends within each driving force topic
  - trends that vary depending on your assumptions so you get positive and negative perspectives
3. Combine the trends so you get a series of scenarios
  - for example, mostly positive trends from all driving force topics would give a positive scenario

[Caldwell, 2002]

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## Case study > Scenarios for ambient intelligence in 2010

<b>MARIA:</b> Road warrior Personal communicator	<b>EFFICIENT</b>	<b>CARMEN:</b> Traffic optimization Sustainability and commerce
<b>INDIVIDUAL</b>	<b>COMMUNITY</b>	
<b>DIMITRIOS:</b> Digital me Expressing identities	<b>SOCIABLE</b>	<b>ANNETTE &amp; SOLOMON:</b> Social learning Connecting people Creating a community memory

source: [Ducatel, 2001]

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## DESIGNING THE BUSINESS MODEL

- Business model
- Components
  - Financial perspective
  - Customer perspective
  - Activity perspective
  - Resource perspective
- Case study: *Shockfish*

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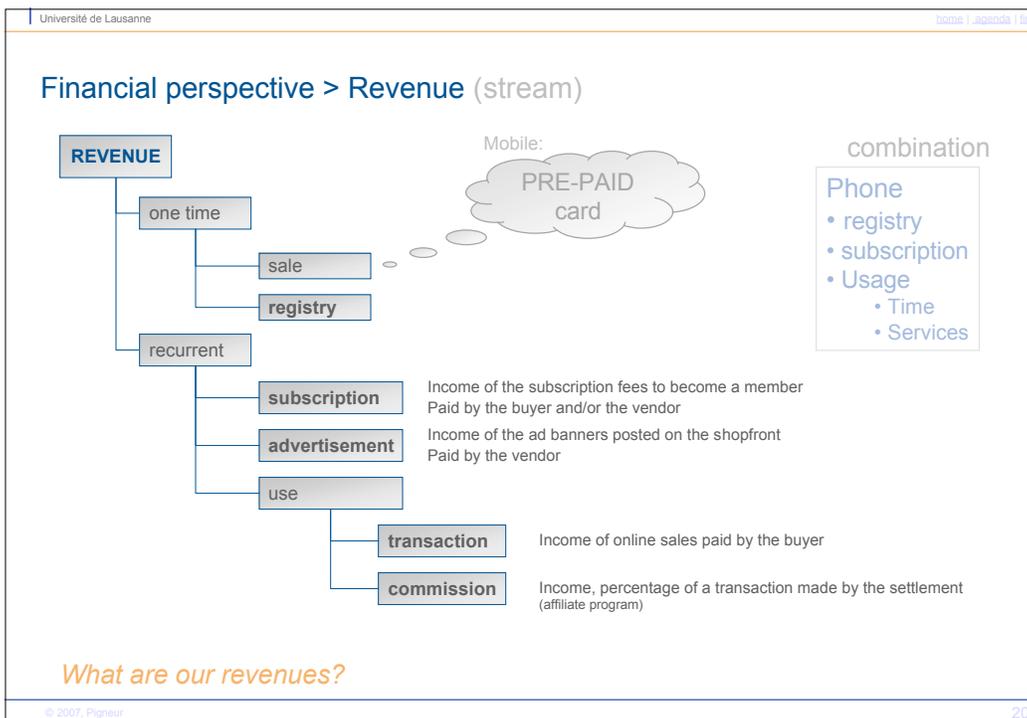
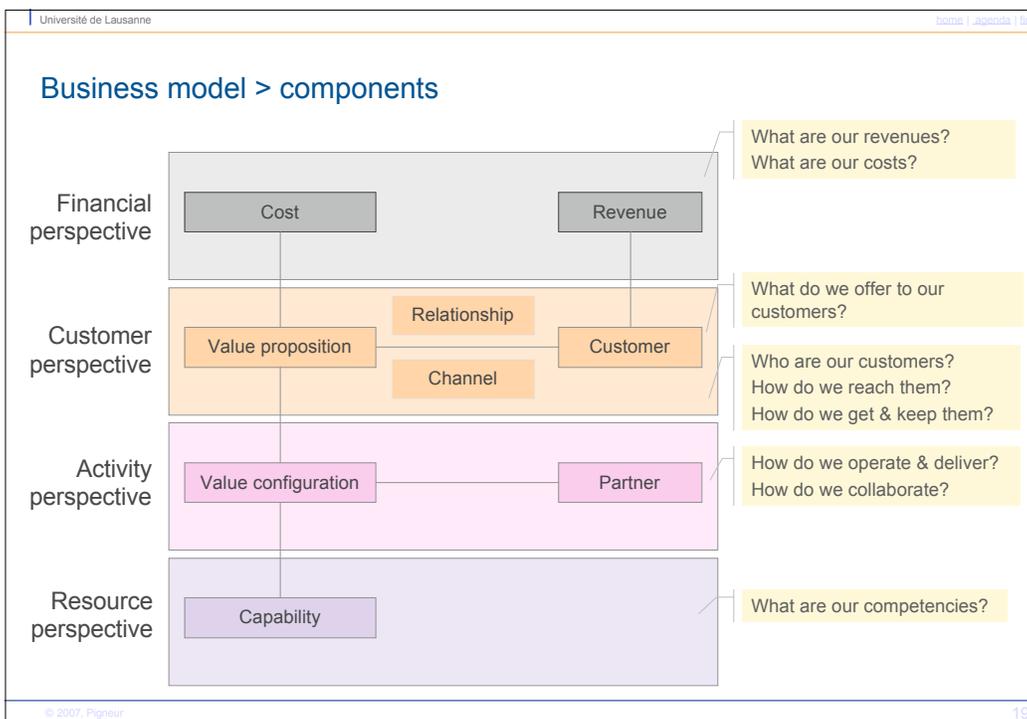
## Business model

*"...a Business model is a description of how your company intends to create value in the marketplace. It includes that unique combination of products, services, image, and distribution that your company carries forward. It also includes the underlying organization of people, and the operational infrastructure that they use to accomplish their work."*

Date	Nasdaq	Business Models	S&P
02-janv-96	1000	500	1000
02-janv-97	1500	1000	1000
02-janv-98	2000	1500	1000
02-janv-99	2500	2000	1000
04-janv-99	3000	2500	1000
03-janv-00	4500	3500	1000
02-janv-01	3000	3000	1000
02-janv-02	2500	2500	1000
02-janv-03	2000	2000	1000

source: [Chesbrough, 2002] [Osterwalder, 2004]

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## Financial perspective > Cost (structure)

<b>Revenues</b>
Total net revenue
<b>Cost of goods sold</b>
Total Costs of goods sold
<b>Gross margin</b>
Total Costs of goods sold
<b>Operating expenses</b>
research and development
sales and marketing
general and administration
Total operating expenses
<b>Operating income (loss)</b>
Income (loss) before tax
<b>Net income (loss)</b>

*What are our costs?*

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## Value proposition

- To characterize product innovation, the value proposition defines the actual product or service, and the value or benefits perceived by customers of the products and services offered by the firm
  - Facilitate research and reduced transaction costs
  - Speed up distribution
    - particularly for digital goods (written, music, image, software)
  - Improve the quality of service
    - by personalization, for example
  - Improve facility and experience of buying
    - capitalizing on ludic aspects
  - Improve the transparency of information by opening up the information system
  - Develop a sense of community, and improve the diffusion of knowledge,
  - Bind complementary products

*What do we offer?*

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## Customer perspective > (target) Customer

- **Customer segment**
  - Categorizations of the population into social class or psychologically defined groups
  - Area where a firm can specialize and gain competitive advantage
  - By having lower costs or customer-satisfying differentiation
    - Clear distinction
    - Limited set of competitors
    - Distinctive supply
    - Different purchase criteria
    - Barriers to deter new entrants

The diagram shows a horizontal sequence of five boxes representing market segments, all enclosed within a larger dashed-line box labeled 'Market'. From left to right, the boxes are: 'Large organization' (blue border), 'Medium Business' (green border), 'Small Business' (green border), 'SOHO' (blue border), and 'Home User' (red border).

*Who are our customers?*

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## Customer perspective > distribution channel

- A channel can be defined as a set of links or a network via which a firm “goes to market” and delivers its value proposition.
  - Owned channels - direct (i.e. Web, phone, fax...)
  - Owned channels - indirect (i.e. brand shops)
  - Partner channels (intermediation i.e. retail, shops, ...)
- It defines how a firm is “in touch” with its customers for a variety of tasks
  - Customer Buying Cycle (CBC)

*The purpose is to make the right quantities of the right products or services available at the right place, at the right time*

*How do we reach them? Feel and serve them?*

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## Value configuration

- **Set of interdependent activities**
  - that add value
  - for the customers
  - to the company products or services
- **Value**
  - measured by the amount the customer is ready to pay for
- **Profit**
  - Exists if value is greater than costs
- **Competitive advantage**
  - Cost reduction
  - Product differentiation

*How do we operate and deliver?*

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## Activity perspective > Partnership

- **Supply chain management (SCM)**
  - Suppliers, manufacturers, distributors ...
- **Competitors**
  - Market place actors
- **Alliances and strategic networks**
  - Co-opetitors

*How do we collaborate?*

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## Resource perspective > (core) Capability

- **Resource** OWN
  - ASSETS
  - available & useful
  - in detecting and responding to
  - market opportunities or threats
  
- **Capability** DO
  - KNOW-HOW
  - Repeatable patterns of action in the use of assets
  - Aptitude to exploit and coordinate resources
  - to create, produce, and/or offer products and services to a market

*What are our key competencies?*

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## SWOT analysis

<p><b>STRENGTHS</b> </p> <p>Capabilities for competitive advantage</p> <p><i>Patents</i>  <i>Brand name</i>  <i>Good reputation among customers</i>  <i>Cost advantage from proprietary know how</i>  <i>Access to high grade natural resources</i></p>	<p><b>WEAKNESSES</b> </p> <p>Absence (flip side) of strengths</p> <p><i>Lack of patent protection</i>  <i>A weak brand name</i>  <i>Poor reputation among customer</i>  <i>High cost structure</i>  <i>Lack of access to the best natural resources</i></p>	Internal
<p><b>OPPORTUNITIES</b> </p> <p>For growth and profit</p> <p><i>An unfulfilled customer need</i>  <i>Arrival of new technologies</i>  <i>Loosening of regulations</i>  <i>Removal of international trade barriers</i></p>	<p><b>THREATS</b> </p> <p>Pressures</p> <p><i>Shifts in consumer tastes</i>  <i>Emergence of substitutions</i>  <i>New regulations</i>  <i>Increase trade barriers</i></p>	External

<http://www.quickmba.com/strategy/swot/>

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## EVALUATING THE INNOVATION

- SWOT analysis
- Disruptive technology
- Case study: *shockfish Vs bluetooth & NFC ...*
  - Gaming ...

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## Evaluating a business model in its environment

Cost	Revenue
Value proposition	Relationship Customer
Value configuration	Channel Partner
Capability	

Market capitalization	Revenue
MARKET	Product & technology
ACTOR	Value chain
ISSUE	

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## Disruptive technology

performance

rupture

market

Market for old technology

Market for new technology

New replaces old technology

time

MARKET USAGE	Market capitalization	Revenue
MARKET	Product & technology	
	ACTOR	Value chain
	ISSUE	

Disruptive Technology

MCDM (criterion, rating, weight)

source: [Christensen, 1997] [Danneels, 2004]

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## Disruptive technology

*A disruptive technology is a technology or innovation*

*"that results in worse product performance, at least in the near-term..."*

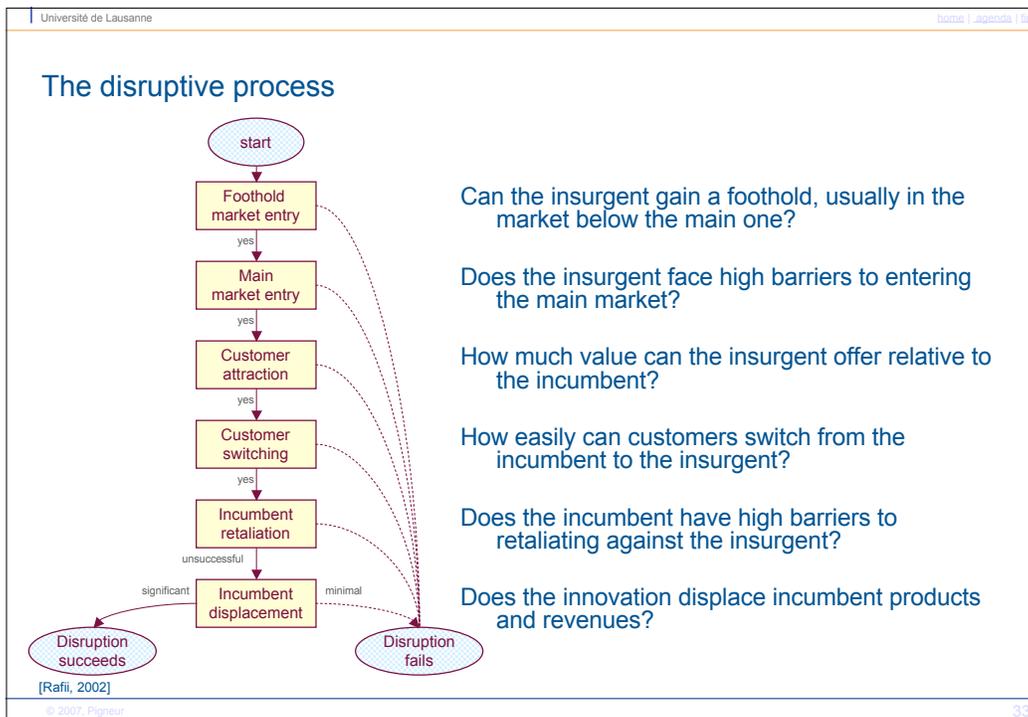
*[It] brings to the market a very different value proposition than had been available previously...*

*Products that are based on disruptive technologies are typically cheaper, simpler, smaller, and, frequently, more convenient to use.*

*[But, they generally] under perform established products in mainstream markets."*

source: [Christensen, 1997] [Danneels, 2004]

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## Rating and weighting the disruption illustration

Disruption detection  
[Rafii, 2002]

Foothold market entry					
Forces disabling disruption		Forces enabling disruption			
Factors	rating [-3..3]	Factors	rating [-3..3]	weight [1..3]	weighted score
A suitable foothold market does not exist, or it exists and is poorly suited to provide the insurgent an entrée into the main	1.5	A suitable foothold market exists, and is well suited to provide the insurgent an entrée into the main market	1.5	2	2.9
Insurgent has no existing presence in the foothold market	1.3	Insurgent has established a strong presence in the foothold market	1.3	2	2.5
		Average	1.4	2.0	2.7
		Weighted stage score			1.4
Main market entry					
Forces disabling disruption		Forces enabling disruption			
Factors	rating [-3..3]	Factors	rating [-3..3]	weight [1..3]	weighted score

[Rafii, 2002]

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