

# *Taking Innovations to Market*

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# The Conceptual Idea

- At Issue:
  - Radical innovations encounter additional challenges in being brought to market



- **The Context:**
  - Norwegian petroleum industry - a natural laboratory for studying radical innovations
  - Existing oil resources are becoming depleted
  - Better technology gives better exploration of the oil resources.
- **This industry is characterised by**
  - high governmental/regulatory demands concerning safety and environment combined with complex tasks/production processes.
  - Technology development is often associated with high capital investment.



# Our Research Questions:

- *How do entrepreneurs develop the dynamic capabilities needed to commercialize discontinuous innovations?*



# Focus of Our Research

- *Introducing a **process model** of commercialisation*
- ***New and emergent** organisations*
- *Focus is on **Dynamic Capabilities (DC)** specific to the commercialisation process*

# Research Approach

## “In-depth Exploratory Study”

- Completes the “gaps” in previous research with contextualizing resources, challenges and DC
- Comparative case study design
  - Enabling additional theory building
- Interpretive paradigm
  - Creating relevant-practical knowledge
- In-depth individual, semi structured interviews
  - Establishing new grounded knowledge



# Scope of Our Interviews

Case	Company	Partner
A	3: CEO	Advisor Oil company
B	3: CEO, CTO	Oil company Board member
C	3: CEO, CTO, Business manager	Oil company

- Period: October - March 2008 - 2009.
- 12 interviews, one meeting with VC
- Multiple company informants interviewed
- Other data: Newspaper articles, web pages, business registry

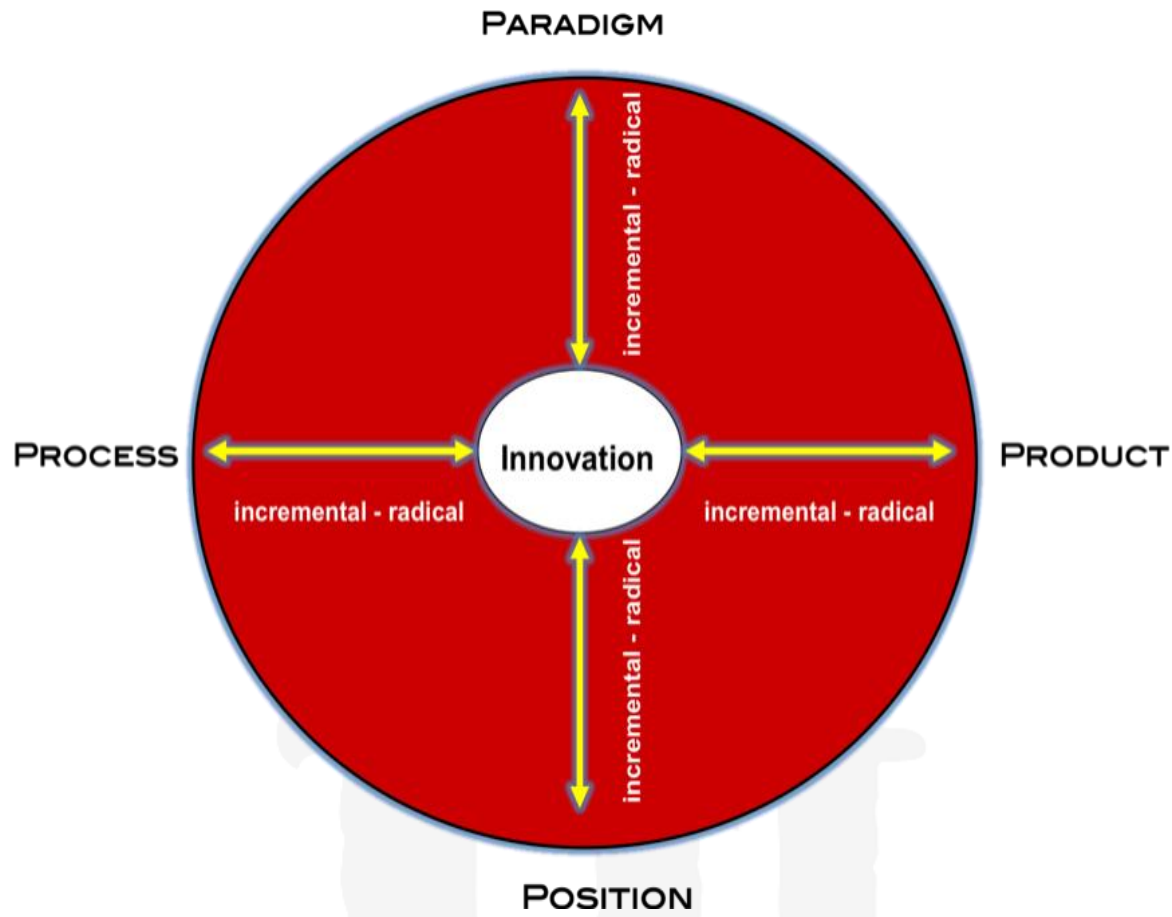
# Dynamic Capabilities (DC) - Established

- **Capacity of an organisation to purposely create, extend or modify its resource base.**
  - **Adaptive**
    - Firm's ability to identify and capitalize on emerging market opportunities
  - **Absorptive**
    - Ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends
  - **Innovative**
    - Developing new products and services, developing new methods of production, identifying new markets, seeking unusual and novel solutions

# Microfoundation of Dynamic Capabilities

- Easterby-Smith and Peteraf (2009) argues that the problem to identify dynamic capabilities lies in their association with tacit organizational elements and intangibles (routines, processes, managerial cognition and knowledge).
- Teece (2007) call the tacit processes micro foundations of dynamic capabilities;
  - They are distinct skills, procedures, organizational structures, decision rules, and disciplines.
- According to Teece (2007) these micro foundations are the basis for developing DC and are difficult to develop and deploy.
  - Seeing a market opportunity, sense customer needs

# Innovation paradigm (Francis and Bessant, 2005)



# Propositions

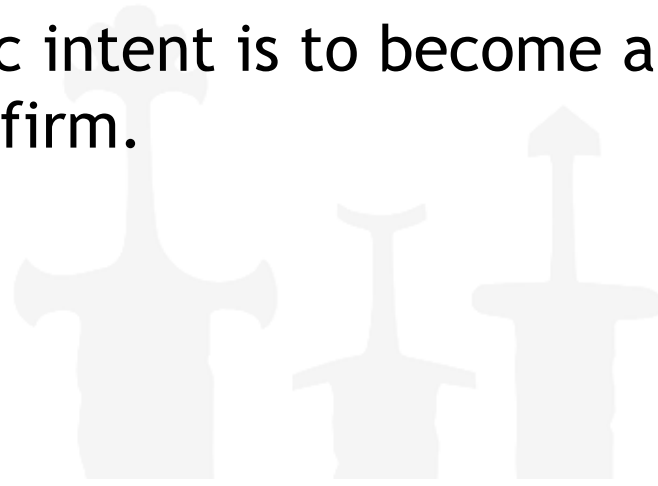
- Proposition 1: The product role will be a key microfoundation underlying dynamic capabilities
- Proposition 2: The process role will be a key microfoundation underlying dynamic capabilities.
- Proposition 3: The position role will be a key microfoundation underlying dynamic capabilities.
- *Paradigm role*
- Proposition 4: The paradigm role will be a key microfoundation underlying dynamic capabilities.

# Description of the companies

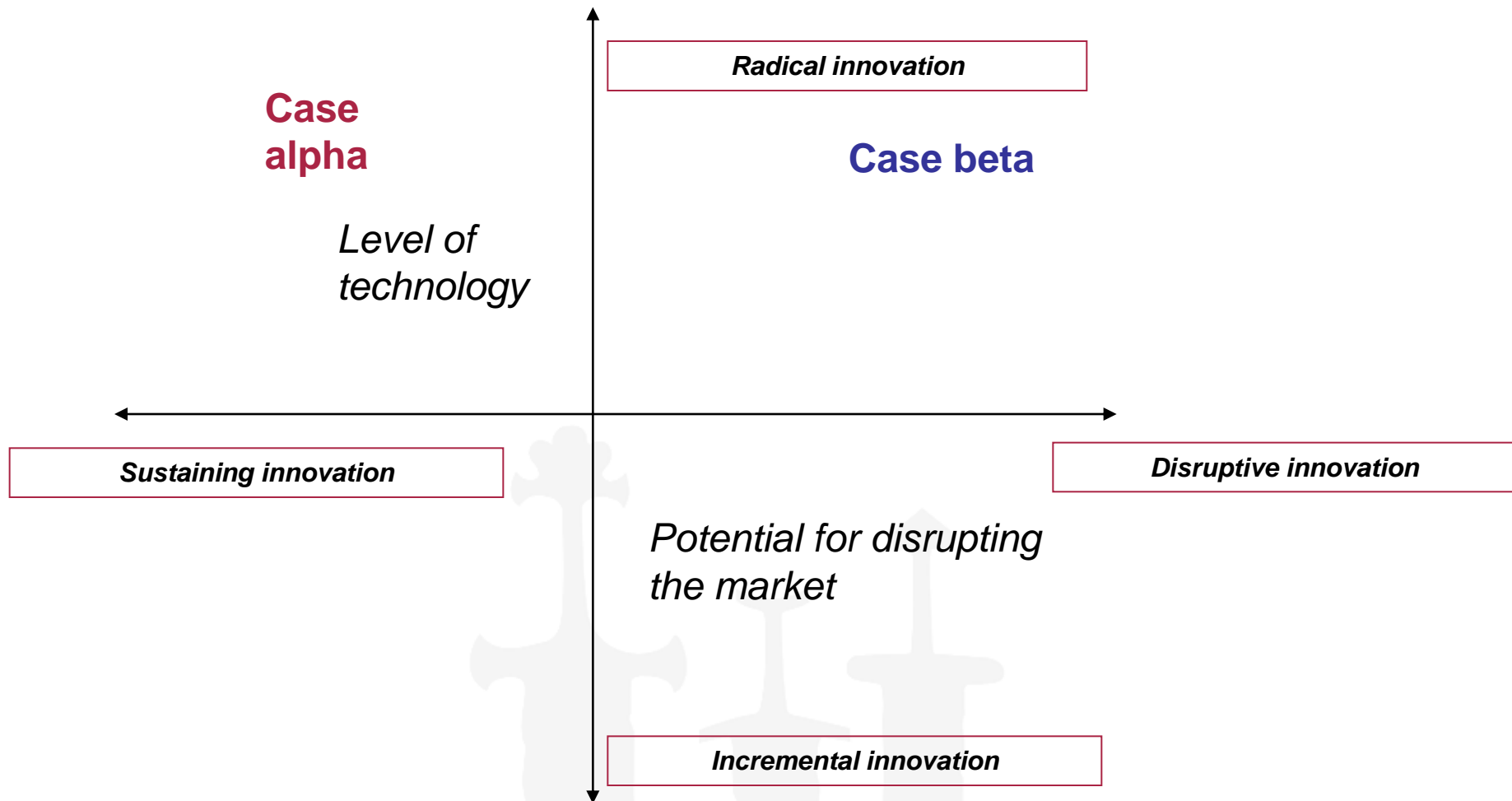
- *Alpha* was founded 2005 a
  - was established by a team of four founders based on a technology foresight process where several ideas were assessed.
  - The idea was chosen based on an explicit market need, an enhanced technology to face the increasingly challenged environments in the arctic and deep sea. The market position Alpha is targeting is currently in a developing stage.
  - The company's strategic intent is to develop innovative technology, commercialise it, and eventually exit.

# Description of the companies

- *Beta* was founded in 2003, but the idea was “born” and patented in 1999 by a researcher having worked in this specific field. The idea is described as a radical new solution that will position itself as a “game -changer” in the market.
- The company has developed in structured phases
- Betas strategic intent is to become a leading, multinational firm.



# Categorisation of Innovation



# Preliminary findings

<b>Product focus</b>	<b>Alpha</b>	<b>Beta</b>
Focused technological development	Established around the product idea	Established around the product idea

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”when we are at work, we work with just one thing and very goal oriented, and I see at least for my part and for the people involved in the work that effectiveness is much higher. And I don’t think it would been possible to develop...that component we used one year from we started drawing until the prototype This would not have been possible in an ordinary manufacturing firm. I’m certain of it. (CTO; Alpha)

”the strength in our organisational model is that it is a technology course. It is a focused technology course, which implies that our project team have one goal and that is technology development!” (CEO, Beta)

## Process

Searching for technology and selecting suppliers

Integrating innovative products with dominant technology

## Alpha

Suppliers are essential in developing technology

Uses their connections with a petroleum company to gain access to practical drilling expertise.

## Beta

Protect confidentiality of technology. Do not involve outside partners.  
Outsources technology searches

Created a technical steering committee with three potential customers who monitor their technology development

# • Searching for technology

- ”We make specification for how it will function and then we approach three vendors. Then we ask ”how would you have made it and what will it cost us? What are the pros and cons? And then we sit down and compare. Then we learn from all of them and we can pick the one doing the best job” (CTO, Alpha)
- ”So it’s the whole...to hunt, be curious, make use of other industries. Space, military technology, which has solutions that we are using ...” (CEO, Beta)



## Position focus

## Alpha

## Beta

Involving potential customers in the development of the product

Carefully works with involving innovative – oriented partners

Involve potential customers to oversee the development, but do not directly use expertise of customers

Challenges in size: Collaborating with large organizations.

Expresses concerns that petroleum companies have the upper hand in negotiations.

Expresses the importance of using the same “codes” as their customer, speak the same language

Gaining legitimacy; the art of being visible

Mindful of the importance of acceptance of technology and procedures from the market.

Aware of the importance of having trust from investors and stakeholders

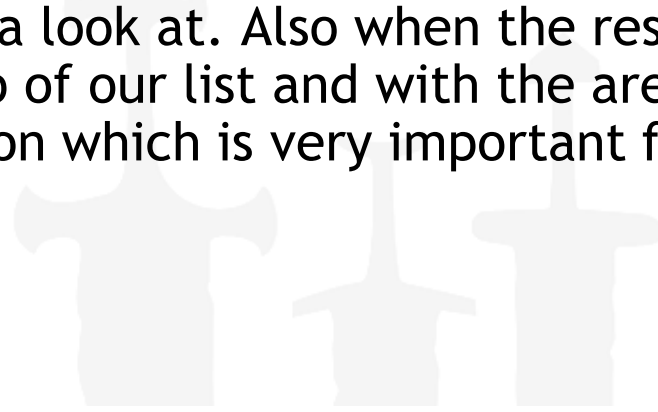
Organizational transformation for commercializing

Aware of the importance of sales personnel

Development of organization to meet customers needs

- Gaining legitimacy; the art of being visible

- It's extremely important if you want to sell something, that the customer have heard the company name before. If not you are not likely to buy it. If you've heard about it once before, then you are likely to have a total different attitude...Always being visible is an important part of our strategy" (CEO, Alpha)
- "The innovation prize says "ok, maybe you've got something here". The patent says "this is innovative". When Norwegian Oil Company commits research money, then it's definitely worth having a look at. Also when the research council says "this is on top of our list and with the area we support" Then it's a validation which is very important for us" (CEO, Alpha)



## Paradigm

## Alpha

## Beta

Strategic Intent

Exit strategy.  
Organizational development to meet technological development and needs

“World domination” building for the future.  
Currently restructuring to be more technology focused

Strategies for human capital

Search for key employees, use consultants, all innovative-oriented

Very conscious of employing people with an innovative mindset

Structuring for innovation

Technical staff is allowed to work without exposure to market pressures.

Separates the technical staff from the market

- Structuring for innovation

- "we are in a business world, since we are a joint stock company. Then we have to technology world. To us it's very important to shield the technology world, so that they can focus on their stuff...There is a mutual respect between those two worlds. The technology group in our company understands that it's the company management and the commercial world that decides at the end of the day. And as long as we have progress, according to a plan, they run their course and we do what we can to shield them (CFO, Beta)
- "No matter how you twist and turn it, the largest obstacle in all development projects is to be allowed to focus on the project and be able to control the resources. When I started in Alpha, the pace that we developed the product in was new to me. I have never seen it happen before. But it's because we just work on one thing here. This is development! We have no customers, nothing like that! We are allowed to have focus. IT's a different agenda.

# Further development

- Has branched into 3 papers
  - Dynamic capability
    - New insight in DC literature
  - Innovation
    - Christensen framework of disruptive innovations/  
Schumpeters concept of radical innovations
  - Legitimacy
    - Scott
    - Aldrich
- Would like to follow up with longitudinal study.