EARLY-PHASE INNOVATION AND PRODUCT DEVELOPMENT

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Example of technology-based business development – Icomera

The starting point
Strategy formulation based on resources

Choose a strategy based on how resources and capabilities match external opportunities

Evaluate the potential of the capabilities based on competitive advantage and appropriability

Identify capabilities

Identify resources

Identify resource gaps and improve the resource base

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Strategy based on industry competition

Potential new entrants

Threat from new entrants

Suppliers
Suppliers’ bargaining power

Competitors
Direct competition

Customers
Customers’ bargaining power

Threat from substitutes

Substitutes
Two main approaches to strategy

Positioning school

Resource-based view

Choose a strategy based on how resources and capabilities match external opportunities

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Identify capabilities

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Strategy

Competitive advantage

Capabilities

Resources

Suppliers' bargaining power

Threat of new entrants

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Suppliers’ bargaining power

(Porter, 1980)

(Source: Grant, 1991)
Matching resources and market needs - at the core of strategic management and innovation

"...the match an organization makes between its internal resources and skills...and the opportunities and risks created by its external environment."

(Source: Hofer and Schendel, 1978)

Opportunities for innovation:
1. Find a market for un- or underutilized resources and capabilities.
2. Find/develop resources and capabilities that can fulfill a customer need in the marketplace.
Techno-Economic Analysis
- a way of connecting technologies and customer needs
Techno-Economic Analysis - Analog mobile telephony

Technologies

- Analog radio tech.
- Analog filter tech.
- Analog signal processing tech.
- Micro-processor application tech.
- Surface mounting tech.
- Analog VLSI design

Performance

- Interruption frequency
- Signal to noise ratio
- Operating time
- Size
- Weight
- Cost

Customer utilities

- Voice quality
- Accessibility
- Portability
- Reliability
- Price

Internal competencies

- Extended resource base

- Battery tech.
- Display tech.
- VLSI production tech.
From a linear to a segmented view of technology-based innovation

(Source: Jolly, 1997)
Key issues in matching resources and market needs

Focus
• One business idea at a time!
• Identify lead customers and focus activities on them.
• Solving 95% of a customer’s needs is not good enough – understand the customer and the purchasing behaviour.
• Make sure that you get as much and as good feedback as possible – be actively involved in sales!

Flexibility
• Adapt the business model and your resource base to fit with your increasing understanding of the potential market and the customers.
• Be prepared to revise ideas and modify the search space.

Falsification
• Challenge your assumptions – kill your darlings!
• Generate hypotheses and test them as quickly and efficiently as possible – perform concept testing.
Is there a business?

• **What** do you offer (product, service)?
• **To whom** (market segment)?
• **What value** is created at the customer’s?
• **How** do you **provide** it (funding, development, production, sales, supply, distribution)?
• **How** do you **appropriate** a fair share of the value created (revenue model)?
Segmenting and positioning

Segmenting:
Which parts of the market shall we target with our offering?

Positioning:
What is the perceived value of our offering, compared to our competitors’ offerings?
Who is the customer?

How to segment the market?

- Demography
- Occasion/situation
- User level
- Life style
- One or several factors?

Key questions

- Is the segment suitable for our positioning?
- How can we reach the segment?
- How fast can we reach the segment?
- How big is the segment?
- How is the segment changing?
- What competition is there in the segment?
The Customer Well Curve

- Technology
- Customer insight

**Population**

Degree of need

**Good enough at low cost**

**Higher cost and added value**

- Emotion
- Handling
- Origin
- Design
- Durability
- Functionality
- Environment

Combine?
Creating customer value through differentiation

Plumber

Electrician

Painter
Differentiation and customer value
Differentiation and customer value

Electrician
Differentiation and customer value
What do we offer, to whom?

- Competitive advantage
  - Unique advantages for the customer
  - Low cost position

- All customers
  - Differentiation
  - Total cost advantage

- Strategic target group
  - Focus

- Particular segment
What needs should be focused upon?

Order winning objectives
- Achieved performance (eg.) Cost
- Competitive benefit vs. Low High
- + neutral -

Qualifying objectives
- Achieved performance (eg.) Quality
- Competitive benefit vs. Low High
- + neutral qualifying level -

Less important objectives
- Achieved performance (eg.) Range
- Competitive benefit vs. Low High
- + neutral -
Customer Needs
-Three types revealed in different ways

Source: Kano (1984)
Would you pay:

75EUR /night?
50EUR/night?
25EUR/night?

When does it become a delight?
Industry competition

Potential new entrants

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Complements

Power of complementary products, services and resources
Network externalities

The value of a good to a user increases with the number of other users of the same or similar good

Installed base
- Telephones
- Video game consols
- "Wintel"

Complementary goods
- Videotapes for VCRs
- Film for cameras
- Apps
Value of a product or service

Value

- Complementary goods availability
- Installed base
- Technological utility

Technological utility

Complementary goods availability

- Installed base
- Technological utility

Marginal value of new technology

Existing technology

New technology competing only on the value of stand-alone utility

New technology compatible with existing installed base and complementary goods
Redefining the box - ERIC

Reduce:
What factors could be reduced well below the industry standard?

Eliminate:
What factors should be eliminated that the industry has taken for granted?

New Value Curve

Create:
What factors should be created that the industry has never offered?

Increase:
What factors could be raised well above the industry standard?
Redefining the business value curve

Key elements of product, service and delivery value
Examples of disruptive innovations

Ryanair and Southwest Airlines
Metro newspaper
Procter & Gamble low-cost diapers
Eucalyptus pulp and paper
Zara "cheap fashion"
Mini-mills in the U.S.
Discount retailing
Tampons
Digital cameras
IP telephony
Open Source Software
Model 914 - an interesting business?

Price: 2000$
Makes copies on regular paper
Price for earlier machines: 300$
Customers’ normal number of copies:
  15-20 copies/day
  90% fewer than 100 copies/day.
Main source of profit: selling supplies and consumables.
Haloid tried to sell it to Kodak, General Electric and IBM.
”Although it may be admirably suited for a few specialized copying applications, the Model 914 has no future in the office-copying-equipment market.”

(Arthur D. Little, Inc., 1959)
A new business model – Xerox 914

Leasing at fixed price: 95$/month.
Lease can be cancelled on 15 days notice.
Flexible pricing: 4c/copy over 2000 per month
Users averaged 2000 copies/day
Growth rate: 41% per year for 12 years.
Turnover: From $30M to $2.5B.
Business model canvas

Source: Osterwalder and Pigneur
Octopus - background

- Water treatment had been a key area for Alfa Laval for many years and it was the market leader (40%) in sludge treatment technology.
- Encountered aggressive competition, increasingly commoditized products, resulting in difficulties to achieve high margins and pressure to maintain a three-year cycle of product innovation.
- Customers were not able to operate the equipment optimally.
- Alfa Laval saw an opportunity to grow and extract more profit from the installed customer base and at the same time differentiate the product.
- Alfa Laval aimed to add value by eliminating under-utilisation of assets, by optimizing the customer process.
Octopus – the problem to solve

Flocculant

Sludge dewatering
Octopus – the product

**Normal**
- Centrate back to water treatment
- Dewatering sludge to transport and disposal

**Optimised (Octopus)**
- Centrate back to water treatment
- Dewatering sludge to transport and disposal
How would you design this business?

Octopus – an automated system for the continuous optimisation of sludge dewatering.

- Dewatered sludge to transport and disposal
- Centrate back to water treatment
- Polymer
- Sludge from plant
- Dewatered sludge to transport and disposal

Time
Chosen business model

Initial investment for hardware (~€60k)
  • owned by the customer

Yearly license fee for use of Octopus, delivered pre-installed in a panel
  • owned by Alfa Laval
  • Alfa Laval owns and controls the data
Customer value

- Up to 20% reduction in transport & disposal cost
- Up to 30% reduced polymer cost
- Lower recycle load

-> Savings could be from €2k - €500k per year per decanter

Operators are released for other tasks
Fewer unexpected stops
Revenue models

Product sales
- Product line with differentiated prices
- Options and add-ons
- Unavoidable accessories (customer lock-in)
- Packages

Service sales
Licensing/royalties
After-market/service
Revenue sharing
Part of savings
Subscription
Upgrading

...
Concept testing

On whom should the concept be tested?
- Decision makers and persons who influence decisions
- Find out what the purchasing process looks like

What type of information is needed from the respondents?
- Try to get an order!
- Intention to buy - watch out for "nice" answers!
- Try one or several concepts

Which ways of collecting data are the most suitable ones?
- As similar as possible to the real purchasing situation
- Interviews, telephone, questionnaires, Internet

What should the concept description contain?
- Describe the product in as realistic a way as possible
- Describe where the product would be available
- State advantages in a clear manner, not in terms of performance but in terms of customer value

How should the questions be asked?
- Pair-wise comparison if there is a clear alternative
- One concept if there are no good alternatives
- Avoid creating a negotiation situation
Deciding the price level

As part of the concept testing

• Include pricing as a part of the test and expose different respondents to different price levels
• Compare with existing products
• Remember that it is the perceived value that is compared

In-market testing

• Try different price levels for different customers if it is difficult for them to compare
• Use the Internet
Exercise
– business modeling and concept testing

• A new European law demands that electricity consumption should be measured on a daily basis, requiring that all electricity meters can communicate with the utilities companies providing electricity to customers.

• One utilities company has invested in a new Zigbee network that connects the electricity meters of all households in an entire city, creating a network that covers almost all areas of the city. The bandwidth of the network is low, but energy consumption is low.

• The company is considering offering fire alarms to households by utilizing the network.

• What business models can the company use and how would you go about to find out which one to go for?