# LEARN SAFE
# Final Seminar at VTT

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Challenges in maintaining 60 years of operation

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# Olkiluoto Nuclear Power Plants

# GENERAL APPROACH

- Commercial point of view (Porter)
- Organizational point of view (de Geus)
- Conclusions

# Michael E. Porter:

## COMPETITIVE STRATEGY

Techniques for Analyzing
Industries and Competitors

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# CONTENTS OF THE BOOK

- The concept of structural analysis as a framework for understanding the five fundamental forces of competition in an industry
- The three generic competitive strategies
- The other key part of the formulation of competitive strategy: competitor analysis
- The concept of structural analysis for developing strategies toward buyers and suppliers
- The nature of competition within an industry
- Ways of predicting the process of industry evolution and some of the implications of that evolution for competitive strategy

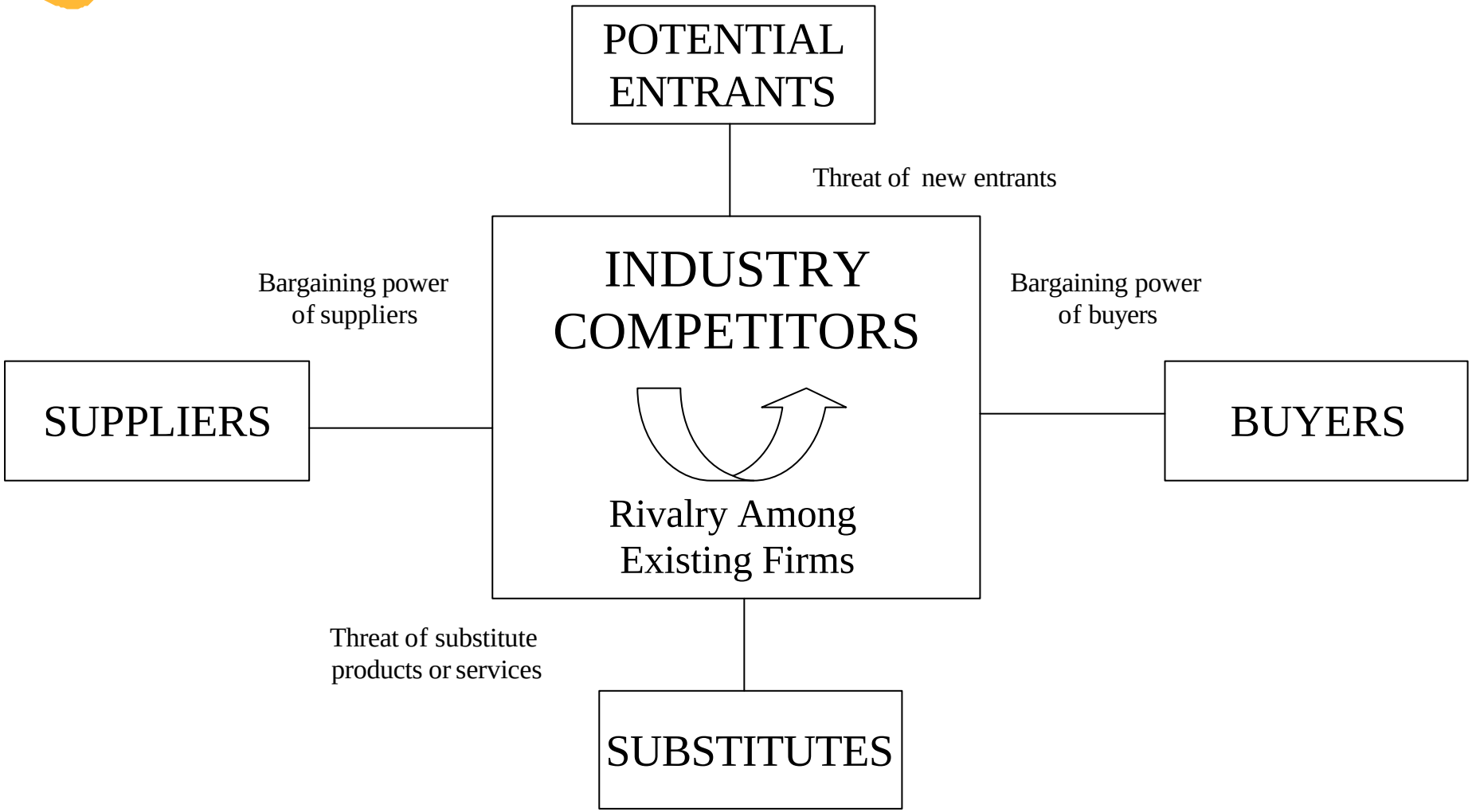


**Figure 1. Forces Driving Industry Competition**

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# THREAT OF ENTRY

Barriers to Entry

- Economies of scale
- Capital requirements
- Access to distribution channels
- Cost disadvantages independent of scale
  - Proprietary product technology
  - Favorable access to raw materials
  - Favorable location
  - Government subsidies
  - Learning or experience curve
- Government policy
  - Licensing requirements
  - Limits on access to raw materials

  etc.

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# INTENSITY OF RIVALRY AMONG EXISTING COMPETITORS

- Numerous or equally balanced competitors
- Slow industry growth
- High fixed or storage costs
- Lack of differentiation or switching costs
- Capacity must be added in large increments
- Diverse competitors
- High strategic stakes
- High exit barriers
- Shifting rivalry

# PRESSURE FROM SUBSTITUTE PRODUCTS

# BARGAINING POWER OF BUYERS

A buyer group is powerful if

- It is concentrated or purchases large volumes relative to seller sales
- The products it purchases from the industry represent a significant fraction of the buyer's costs or purchases
- The products it purchases from the industry are standard or undifferentiated
- It faces few switching costs
- It earns low profits
- The industry's product is unimportant to the quality of the buyers' products or services
- The buyer has full information

# BARGAINING POWER OF SUPPLIERS

A supplier group is powerful if

- It is dominated by a few companies and is more concentrated than the industry it sells to
- It is not obliged to contend with other substitute products for sale to the industry
- The industry is not an important customer of the supplier group
- The suppliers' product is an important input to the buyer's business
- The supplier group's products are differentiated or it has built up switching costs

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# INDUSTRY EVOLUTION
## A Framework for Forecasting Evolution

Evolutionary Processes

- Long-run changes in growth
- Changes in buyer segments served
- Buyers' learning
- Reduction of uncertainty
- Diffusion of proprietary knowledge
- Accumulation of experience
- Expansion (or contraction) in scale
- Changes in input and currency costs
- Product innovation
- Marketing innovation
- Process innovation
- Structural change in adjacent industries
- Government policy change
- Entries and exits

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# Arie de Geus

## THE LIVING COMPANY

Habits for survival in a turbulent business environment

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## The Lifespan of a Company

In the world of institutions, commercial corporations are newcomers. Their history comprises only 500 years of activity in the Western world, a tiny fraction of the time span of human civilization. In that time, as producers of material wealth, they have had immense success. They have been major vehicle for sustaining the exploding world population with goods and services that make civilized life possible.

Yet, if you look at them in the light of their potential, most commercial corporations are dramatic failures – or, at best, underachievers. They exist at a primitive stage of evolution; they develop and exploit only a fraction of their potential. For proof, you need only consider their high mortality rate.

The average life expectancy of a multinational corporation – Fortune 500 or its equivalent – is between 40 and 50 years. This figure is based on most surveys of corporate births and deaths. A full one-third of the companies listed in the 1970 Fortune 500, for instance, had vanished by 1983 – acquired, merged or broken to pieces.

Even the big, solid companies, the pillars of the society we live in, seem to hold out for not much longer than an average of 40 years. And that 40-year figure, short though it seems, represents the life expectancy of companies of a considerable size. These companies have already survived their first 10 years, a period of high corporate ”infant mortality”. In some countries, 40 percent of all newly created companies last less than 10 years.

A recent study by Ellen de Rooij of the Stratix Group in Amsterdam indicates that the average life expectancy of all firms, regardless of size, measured in Japan and much of Europe, is only 12,5 years.

Why, then, do so many companies die prematurely? There are many speculations about the reason, and this area undoubtedly needs much more research. However, there is accumulating evidence that corporations fail because the prevailing thinking and language of management are to narrowly based on the prevailing thinking and language of economics. To put it another way: companies die because their managers focus on the economic activity of producing goods and services, and they forget that their organizations' true nature is that of a community of humans. The legal establishment, business educators, and the financial community all join them in this mistake.

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## Some Companies Last Hundreds of Years

In the early 1980's Lo van Wachem, then chairman of the Committee of Managing Directors (the most senior board of Royal Dutch/Shell managers) would be interested, if the planners could show him some examples of large companies that were older than Shell and relatively as important in their industry. Most importantly, he wanted to know about companies that, during their history, had successfully weathered some fundamental change in the world around them – such that they still existed today with their corporate identity intact.

We commissioned the study, written by two Shell planners and two outside business school professors, to examine the question of corpocate longevity. From the very first moment, we were startled by the small number of companies that met van Wachem's criteria of being large and older than Shell. In the end, we found only 40 corporations, of which we studied 27 in detail, relying on published case histories and academic reports. We wanted to find out whether these companies had something in common that could explain why they were such successful survivors.

After all of our detective work, we found four key factors in common:

- Long-lived companies were sensitive to their environment. Whether they had built their fortunes on knowledge or on natural resources, they remained in harmony with the world around them.

- Long-lived companies were cohesive, with a strong sense of identity. No matter how widely diversified they were, their employees (and even their suppliers, at times) felt they were all part of one entity.

3. Long-lived companies were tolerant. Long-lived companies generally avoided exercising any centralized control over attempts to diversify the company.

4. Long-lived companies were conservative in financing.

It did not take us long to notice the factors that did not appear on the list. The ability to return investment to shareholders seemed to have nothing to do with longevity. The profitability of a company was a symptom of corporate health, but not a predictor or determinant of corporate health.

Nor did longevity seem to have anything to do with a company's material assets, its particular industry or product line, or its country of origin. Indeed, the 40- to 50-year life expectancy seems to be equally valid in countries as wide apart as the United States, Europe, and Japan, and in industries ranging from manufacturing to retailing to financial services to agriculture to energy.

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# Optimizing the NPP operations over 60 years lifetime sets high requirements for the organization

The company should be always clearly above average level

Over sixty year lifetime, means consumption of

4 – 5 generations of managing directors or general directors
3 – 4 generations of middle management
2 – 3 generations of company personnel

- How to maintain operations within certain basic principles and guidelines?
- How should these principles be defined?

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Further requirements:

- No accidents
- Long term ownership with sufficient understanding of nuclear industry (no capital investor companies)
- Proactive organization
- Economical and cautious operation of the plant
- Continuous development of the plant technology
- Competence development of the personnel
- Development of core compentencies in the company's own organization
- Knowledge management and creation of knowledge according to Nonaka's theories
- Development of new support systems for decision making
- Development of new IT systems