Seminar on

MARKET AND MARKETING RESEARCH IN AGRIBUSINESS

Agricultural University
Ashgabat, September 15-19 2008

Dr Christian FISCHER, Associate Professor
Introduction

ALL RIGHTS RESERVED

The following presentation slides have been prepared for a five-day seminar (training workshop) organised by the OSCE (Organisation for Security and Co-operation in Europe).

For all enquiries, please contact:
Christian Fischer
Agribusiness, logistics & supply-chain management group
IFNHH, Massey University
Private Bag 102 904, North Shore Mail Centre
Auckland 0745
New Zealand
Telephone: +64-9-443-9771
Email: C.Fischer@massey.ac.nz
Introduction

GETTING TO KNOW EACH OTHER

Christian Fischer

- Married, two children.
- Education/degrees:
  - Doctorate in agricultural economics
  - Specialised Master's in agribusiness management (Lyons & Montpellier)
  - Graduate Certificate in international economics (Adelaide)
  - MSc in food economics.
- Professional activities:
  - Private sector: assistant to a managing director, project leader
  - Consulting: BCG, several independent assignments
  - Academic: IAMO, University of Bonn.

Research interests

- Supply/value chain analysis. In particular, development & management of inter-enterprise relationships and trust.
- Agribusiness economics. In particular, combination agribusiness and market:
  - market(ing) research
  - international marketing
  - strategy development.
- Also: market and sector analyses, competitiveness appraisals, etc.
TODAY'S AGENDA

Introduction into market and marketing research

1) Organisational matters
2) Definitions and purpose
3) Importance and trends
4) Fundamentals
5) Researching markets and prices, customers and consumers, competitors and suppliers
6) Summary
### Seminar's aims

- Introduction into market and marketing research in agribusiness.
- Earning a good understanding of the involved issues, concepts and methods, in order to understand and apply them.

### Topics covered

- Definition and importance of market/ing research
- Market and customer segmentation
- Market-potential appraisals
- Price analysis and forecasting
- Consumer-preference measurement
- Competitiveness & strategic positioning
Organisational matters

TUESDAY'S AGENDA

Analysing markets

1) Introduction

2) Market segmentation

3) Assessing market (sales) potentials and opportunities

4) Summary
Organisational matters

WEDNESDAY'S AGENDA

Analysing prices and company-level demand

1) Introduction
2) Price analysis
3) Introduction to forecasting
4) Demand analysis
5) Summary
Organisational matters

THURSDAY'S AGENDA

Analysing customers and consumers

1) Introduction

2) Customer segmentation

3) Consumer-preference measurement for concept development/testing

4) Summary
Analysing competitors and suppliers

1) Introduction
2) The concept of competitiveness
3) Strategic positioning
4) Benchmarking competitors
5) Analysing suppliers
6) Summary
Organisational matters

LITERATURE

Basis (text books):

Specific (scientific articles and internet resources):
- See distributed list.
TODAY'S AGENDA

Introduction into market and marketing research

1) Organisational matters

2) Definitions and purpose

3) Importance and trends

4) Fundamentals

5) Researching markets and prices, customers and consumers, competitors and suppliers

6) Summary
WHAT IS AGRIBUSINESS?

Agribusiness comprises the economic activities which are necessary for the production and distribution of agriculture-based food products. That is, it includes:

- Production and distribution of agricultural inputs
- Farming
- Food processing and manufacturing
- Catering and hospitality industries
- Food distribution (whole sale and retail).
Definitions and purpose

MARKET & MARKETING RESEARCH

"Marketing research is a function that links an organization to its market through the gathering of information. This information allows for the identification and definition of market-driven opportunities and problems. The information allows the generation, refinement and evaluation of marketing actions. It allows for the monitoring of marketing performance and improved understanding of marketing as a business process."

American Marketing Association, 2001
Definitions and purpose

MARKET VERSUS MARKETING RESEARCH

<table>
<thead>
<tr>
<th>Market research</th>
<th>Marketing research</th>
</tr>
</thead>
<tbody>
<tr>
<td>‣ Traditional and more general name.</td>
<td>‣ Newer and more specific name.</td>
</tr>
<tr>
<td>‣ Includes research of aggregate markets conducted by universities, research</td>
<td>‣ In effect, company-specific market research.</td>
</tr>
<tr>
<td>organisations etc.</td>
<td>‣ Is usually not concerned with aggregate market (sector analysis).</td>
</tr>
<tr>
<td>‣ Includes also commercial research by private market-research companies.</td>
<td>‣ May also be called &quot;sales research&quot;.</td>
</tr>
</tbody>
</table>

In the following, we will use both terms as synonyms.
MARKETING RESEARCH IS BASED ON PRAGMATISM

Interdisciplinary influence of:
- Economics
- Business/management
- Marketing
- Sociology
- Statistics
- Psychology
- Geography
- Political science

Generation of commercially valuable insights which are feasible under given budget and time constraints.
Definitions and purpose

THE MARKETING PROCESS: FROM RESEARCH TO ACTION

Market/ing research
- Definition of knowledge problem.
- Collecting & analysing data/information.
- Writing reports and/or presenting findings.

Decision making
- Based – *inter alia* – on research findings.
- Setting goals and time frames.
- By marketing management.

Implementation
- Execution of marketing programme.
- Application of marketing mix.
- Done by marketing management

Evaluation/ control
- Verification whether original goals have been achieved.
- Evaluation of problems and identification of solutions.
Definitions and purpose

FROM (MARKET-)DATA TO DECISIONS

(Raw)DATA

Analysis

INFORMATION I
(market)

INFORMATION II
(e.g., budget)

INFORMATION III
(e.g., personnel)

INFORMATION IV
(e.g., politics)

Decision maker

DECISION

Topic of this seminar
Definitions and purpose

FROM DATA TO INSIGHT

"Data can become information if we know the processes involved. Information can become knowledge if we see the system that is operating. But knowledge only becomes insight when we can see how any system must change, and can deal with this reality" *

<table>
<thead>
<tr>
<th><strong>Data</strong></th>
<th><strong>Information</strong></th>
<th><strong>Knowledge</strong></th>
<th><strong>Insight</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed and recorded facts</td>
<td>Understanding of the data-generating process</td>
<td>Understanding of the system (context), from which information arise</td>
<td>Understanding of how systems need to be designed and how these designs can be achieved</td>
</tr>
</tbody>
</table>

Cognitive inputs | Results from mental processes (thinking)

Definitions and purpose

MARKETING RESEARCH: ANYTHING FROM DATA COLLECTION TO SCIENCE

Gathering market data/information  Conducting market/ing research  Producing marketing intelligence  Creating market/ing science

"Do yourself"  Commercial service  Academic achievement

Public information  Private information  Public information

Getting access to data/information  Using appropriate methodology

September 2008  Seminar on market and marketing research in agribusiness – C. Fischer  19
Definitions and purpose

MARKET/ING RESEARCH IS MORE COMMON WHEN BEING CLOSER TO CONSUMERS

- Farmers
  - In general, do very little market/ing research.
  - Usually collective research by co-operatives, assisted by extension services.
  - Main focus is on export market opportunities.

- Food processors
  - As they grow in size market research is increasingly used.
  - Sometimes, company-internal market-research units exist.
  - Assisted by commercial market-research firms.

- Food retailers
  - Collect usually crucial data through scanner check-outs.
  - Sell data to food processors and/or analyse them themselves.
  - Assisted by commercial market-research firms.
## Definitions and purpose

### EXTERNAL MARKET/ING RESEARCH VERSUS STRATEGIC CONSULTING

<table>
<thead>
<tr>
<th>Market/ing research</th>
<th>Strategic consulting</th>
</tr>
</thead>
<tbody>
<tr>
<td>‣ Specific data collection and analysis for marketing decisions.</td>
<td>‣ Data collection and analysis for strategic business decisions.</td>
</tr>
<tr>
<td>‣ For marketing or sales departments.</td>
<td>‣ For senior management and governance bodies (corporate boards, etc.).</td>
</tr>
<tr>
<td>‣ Done by market-research companies.</td>
<td>‣ Done by consulting companies.</td>
</tr>
</tbody>
</table>
TODAY'S AGENDA

Introduction into market and marketing research

1) Organisational matters
2) Definitions and purpose
3) Importance and trends
4) Fundamentals
5) Researching markets and prices, customers and consumers, competitors and suppliers
6) Summary
Importance and trends

SIGNIFICANCE OF MARKET/ING RESEARCH

- Market/ing research helps to better understand a target market, so that a company can assess where and how to position itself in that market –> Where should we be?

- It helps to identify market opportunities and to assess market potentials, so that products can be produced according to customer needs and wants and so that these products can be distributed effectively and efficiently –> What should we do?

- Market research helps to assess competitors, so that a company can assess how competitive it is and what actions need to taken to remain competitive –> How should we do things?

- Market research helps to identify suitable suppliers, so that supply costs can be kept at a minimum –> Who should we buy from?
Importance and trends

THE COMPANY LIFE-CYCLE – THE NEED FOR MARKETING RESEARCH OVER TIME

- **Growth rate**
- **Standardisation**
  - Product/process becomes an 'industry' – i.e., rapid growth starts
- **Emergence**
  - Innovation & development
- **Growth**
  - Market/ing research: identification of market opportunities
  - Market/ing research: optimisation of products & marketing
  - Market/ing research: optimisation of marketing
  - Market/ing research: adaptation/redesign of products & marketing
- **Maturity**
- **Rejuvenation**

Time
## Importance and trends

### PROS AND CONS OF MARKET/ING RESEARCH

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>▸ Information input for business decisions.</td>
<td>▸ Costly in terms of time and money.</td>
</tr>
<tr>
<td>▸ Documentation of company-specific markets over time.</td>
<td>▸ Requires trained staff or the purchase of external services.</td>
</tr>
<tr>
<td>▸ Production of useful company-internal training materials.</td>
<td>▸ 'Paralysis by analysis' can be an issue.</td>
</tr>
</tbody>
</table>
It is better to have a second-class strategy and a first-class implementation management than the other way round.

Hank Paulson, US Treasury Secretary and former chairman and CEO of Goldman Sachs

"Society doesn't pay for what you know but for what you do with your knowledge".

Anonymous
### Importance and trends

**USE OF MANAGEMENT TOOLS (2004) BASED ON 7,283 FIRMS OVER 12 YEARS**

<table>
<thead>
<tr>
<th></th>
<th>Global</th>
<th>North America</th>
<th>Europe</th>
<th>Asia</th>
<th>Latin America</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Planning</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>CRM</td>
<td>2</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Customer Segmentation</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Mission and Vision Statements</td>
<td>6</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Core Competencies</td>
<td>8</td>
<td>11</td>
<td>6</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Strategic Alliances</td>
<td>4</td>
<td>7(t)</td>
<td>13</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Growth Strategies</td>
<td>9</td>
<td>5</td>
<td>10</td>
<td>14(t)</td>
<td>7</td>
</tr>
<tr>
<td>Business Process Reengineeled</td>
<td>10</td>
<td>11</td>
<td>9</td>
<td>9</td>
<td>15(t)</td>
</tr>
<tr>
<td>TQM</td>
<td>11</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Change Management Programs</td>
<td>12</td>
<td>-</td>
<td>7(t)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Balanced Score card</td>
<td>13</td>
<td>-</td>
<td>10</td>
<td>8(t)</td>
<td></td>
</tr>
<tr>
<td>Supply Chain Management</td>
<td>14</td>
<td>-</td>
<td>8</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Strategic and Contingency Planning</td>
<td>16</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Economic Value-Added Analysis</td>
<td>18</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8(t)</td>
</tr>
</tbody>
</table>

*Note: (t) = tied*

Source: Bain & Company (2005)
## Importance and trends

### MARKET-RESEARCH JOBS IN GERMANY

According to a study of Prognos AG and the *Deutscher Industrie- und Handelskammertags* (2004), the seven most strongly growing industries in Germany are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Most important jobs</th>
<th>Current jobs (#)</th>
<th>Growth until 2020</th>
<th>New jobs (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company services</td>
<td>Consultants</td>
<td>3.36 million</td>
<td>27%</td>
<td>980,000</td>
</tr>
<tr>
<td>Information technology</td>
<td>Computer scientists, IT specialists</td>
<td>363,200</td>
<td>25%</td>
<td>90,800</td>
</tr>
<tr>
<td>Logistics and transportation</td>
<td>Logisticians, Transport specialists</td>
<td>538,700</td>
<td>20%</td>
<td>102,300</td>
</tr>
<tr>
<td>Health</td>
<td>Doctors, Pharma researchers</td>
<td>4.05 million</td>
<td>16%</td>
<td>650,000</td>
</tr>
<tr>
<td>Tele-communication</td>
<td>Electro technicians, Electronic specialists</td>
<td>514,300</td>
<td>12%</td>
<td>61,700</td>
</tr>
<tr>
<td>Insurance</td>
<td>Mathematicians, Insurance specialists</td>
<td>244,000</td>
<td>9%</td>
<td>22,000</td>
</tr>
<tr>
<td>Aerospace</td>
<td>Engineers, Air traffic controllers</td>
<td>51,900</td>
<td>8%</td>
<td>4,100</td>
</tr>
</tbody>
</table>
# Importance and trends

## THE WORLD'S TOP-5 MARKET-RESEARCH COMPANIES IN 2005

<table>
<thead>
<tr>
<th>Rank</th>
<th>Name</th>
<th>Country</th>
<th>Website</th>
<th>Presence in foreign countries</th>
<th>No. of research-only full-time staff</th>
<th>Revenue in US$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VNU NV</td>
<td>Netherlands</td>
<td>vnu.com</td>
<td>81</td>
<td>38,000</td>
<td>3,538</td>
</tr>
<tr>
<td>2</td>
<td>Taylor Nelsons</td>
<td>UK</td>
<td>tns-global.com</td>
<td>70</td>
<td>13,580</td>
<td>1,803</td>
</tr>
<tr>
<td>3</td>
<td>IMS Health</td>
<td>US</td>
<td>imshealth.com</td>
<td>76</td>
<td>6,900</td>
<td>1,755</td>
</tr>
<tr>
<td>4</td>
<td>GfK AG</td>
<td>Germany</td>
<td>gfk.com</td>
<td>60</td>
<td>7,515</td>
<td>1,311</td>
</tr>
<tr>
<td>5</td>
<td>Kantar Group</td>
<td>UK</td>
<td>kantargroup.com</td>
<td>61</td>
<td>6,600</td>
<td>1,237</td>
</tr>
</tbody>
</table>

The top-25 market-research companies together accounted for **US$ 14.4 billion** in research revenue in 2005 and employed almost **100,000 full-time research staff**.

**Source:** Honomichel (2006): Global Top 25 – The world’s leading marketing research companies
### Importance and trends

#### SOME SPECIALISED MARKET-RESEARCH FIRMS (AGRICULTURE, FOOD & DRINK)

<table>
<thead>
<tr>
<th>Agriculture</th>
<th>Food</th>
<th>Beverages</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZMP: zmp.de</td>
<td>GIRA: girafood.com</td>
<td>Beverage Marketing: beveragemarketing.com</td>
</tr>
<tr>
<td>Kleffmann: kleffmann.com</td>
<td>Leatherhead Food Research: leatherheadfood.com</td>
<td>Canadean: canadean.com</td>
</tr>
<tr>
<td>LMC International: lmc.co.uk</td>
<td>Food for Thought: fft.com</td>
<td>Zenith International: zenithinternational.com</td>
</tr>
</tbody>
</table>
## Importance and trends


<table>
<thead>
<tr>
<th>Research Activity</th>
<th>Percentage of Companies That Perform This Activity</th>
<th>1988</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business/Economic and Corporate Research</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry/market characteristics and trends</td>
<td>83%</td>
<td>92%</td>
<td></td>
</tr>
<tr>
<td>Acquisition/diversification</td>
<td>50</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Market share analysis</td>
<td>79</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>Internal employee studies</td>
<td>54</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td><strong>Pricing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost analysis</td>
<td>60</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Profit analysis</td>
<td>51</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Price elasticity</td>
<td>48</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td><strong>Demand analysis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market potential</td>
<td>69</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Sales potential</td>
<td>67</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Sales forecasts</td>
<td>67</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td><strong>Product</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concept development and testing</td>
<td>63</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Brand name testing</td>
<td>38</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Test markets</td>
<td>45</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Existing product tests</td>
<td>47</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Packaging studies</td>
<td>31</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Competitive product studies</td>
<td>58</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td><strong>Competitive Studies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation research</td>
<td>37</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Media research</td>
<td>57</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Copy research</td>
<td>50</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Advertising effectiveness</td>
<td>65</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Competitive advertising studies</td>
<td>47</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Public image studies</td>
<td>60</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td><strong>Sales Force Research</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compensation</td>
<td>30</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Quotas</td>
<td>26</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Territory structure</td>
<td>31</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Sales promotion</td>
<td>36</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td><strong>Buyer Behavior</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand preference</td>
<td>54</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Brand attitudes</td>
<td>53</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>68</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>Purchase behavior</td>
<td>61</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Purchase intentions</td>
<td>60</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td><strong>Brand Awareness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand awareness</td>
<td>59</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td><strong>Segmentation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Segmentation</td>
<td>60</td>
<td>84</td>
<td></td>
</tr>
</tbody>
</table>

Source: Hair et al. (2001)
Importance and trends

CURRENT/RECENT RESEARCH TOPICS IN SCIENTIFIC MARKETING RESEARCH

Scientific evaluation of the leading academic marketing journals (Journal of Marketing, Journal of Marketing Research, Journal of Consumer Research, Marketing Science and Management Science), using citation and co-citation analysis, revealed that between 1999 and 2001 the most frequently topics were:

- Business-relationship management
- Product development
- Customer satisfaction
- Pricing
- Strategic marketing
- Branding

Source: Roth and Gmür (2004)
TODAY'S AGENDA

Introduction into market and marketing research

1) Organisational matters
2) Definitions and purpose
3) Importance and trends

4) Fundamentals

5) Researching markets and prices, customers and consumers, competitors and suppliers
6) Summary
Fundamentals

TYPICAL MARKET/ING RESEARCH PROCESS

1. Identification and clarification of decision problem
2. Translation of the decision problem into a research problem:
   - determination of objectives and method to be used
   - determination of budget and time frame
3. Data collection
4. Analysis & interpretation of results
5. Compilation of final report and (usually) presentation of findings
Fundamentals

CENTRAL PRINCIPALS

Market/ing research requires time, money & skills.

Consequence: market/ing research should only be conducted, if the value of the generated information is larger than then the costs involved to generate them.

In general: the more important the decision to make and the more costly the consequences from a possible wrong decision, the more necessary it becomes to conduct research.

If research is conducted, be aware of two important principles:
(1) focus on the central points of the problem (FOCUS)
(2) accept that limits exist of what is feasible or affordable (REALISM).
### QUANTITATIVE VERSUS QUALITATIVE – THE BEST IS USING BOTH APPROACHES

<table>
<thead>
<tr>
<th></th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core</strong></td>
<td>measurement &amp; evaluation</td>
<td>observation, description &amp; interpretation</td>
</tr>
<tr>
<td><strong>Unit of analysis</strong></td>
<td>numbers</td>
<td>words &amp; ideas</td>
</tr>
<tr>
<td><strong>Main focus</strong></td>
<td>results</td>
<td>processes</td>
</tr>
<tr>
<td><strong>Object of investigation</strong></td>
<td>relationships between variables &amp; causality</td>
<td>meaning &amp; context</td>
</tr>
<tr>
<td><strong>Aim</strong></td>
<td>generalisation &amp; prediction</td>
<td>conceptualisation &amp; interpretation</td>
</tr>
<tr>
<td><strong>Perspective of investigation</strong></td>
<td>of an outsider; objective</td>
<td>of an insider; subjective</td>
</tr>
</tbody>
</table>
IN PRACTICE, MOST MARKETING RESEARCH IS QUANTITATIVE

- Ad hoc quantitative research (32%; 12% using omnibus systems)
- Brand research (25%)
- Panel research (23%)
- Desk research (5%)
- Qualitative research (15%)

Source: GfK Austria, 2007
THE BEST APPROACH: USING BOTH QUANTITATIVE & QUALITATIVE METHODS

Desk research (literature study) --> conceive idea

Qualitative research (expert interviews, focus-group discussions) --> develop hypotheses

Quantitative research (collect data, statistical analysis) --> confirm/reject hypotheses

If necessary: more qualitative research to verify findings

Conclusions (write report / present findings)
### Fundamentals

#### DATA SYSTEMATISATION ACCORDING TO TYPE OF SOURCE

<table>
<thead>
<tr>
<th>Primary data (research)</th>
<th>Secondary data (research)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are collected for a new research purpose (i.e., have not existed before).</td>
<td>Exist already, i.e., were collected for a different research purpose.</td>
</tr>
<tr>
<td>Collection usually by survey methods.</td>
<td>Types:</td>
</tr>
<tr>
<td><strong>Advantages</strong>: highly specific, thus particularly suited for answering a given research question.</td>
<td>- company-internal</td>
</tr>
<tr>
<td><strong>Disadvantages</strong>: collection often requires significant time and incurs monetary costs.</td>
<td>- published (e.g., from statistical agencies)</td>
</tr>
<tr>
<td></td>
<td>- commercial (e.g., from market-research firms).</td>
</tr>
<tr>
<td></td>
<td><strong>Advantages</strong>: readily available and (in general) inexpensive.</td>
</tr>
<tr>
<td></td>
<td><strong>Disadvantages</strong>: not always useful, because not up-to-date, or of questionable quality.</td>
</tr>
</tbody>
</table>
## Fundamentals

### DATA SYSTEMATISATION ACCORDING TO DIMENSION OF MEASUREMENT

<table>
<thead>
<tr>
<th>Time-series data</th>
<th>Cross-section data</th>
<th>Pooled data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of measurement: daily, weekly, monthly, quarterly, semi-annual, annual, etc.</td>
<td>Measurement at one single point of time but across different groups (e.g., individuals, households, companies, countries, etc.)</td>
<td>Combination of time series and cross-section data.</td>
</tr>
<tr>
<td>Problem: do series display trends or are they stationary?</td>
<td>Problem: how homogenous/heterogenous are the individual groups?</td>
<td>Example: <em>panels</em> = repeated cross-section of the same research objects (e.g., households, supermarkets, etc.).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Particular problems: e.g., panel mortality.</td>
</tr>
</tbody>
</table>
### Fundamentals

**PROVIDER FOR SECONDARY DATA**

<table>
<thead>
<tr>
<th>Country level</th>
<th>Sector level</th>
<th>Company level</th>
</tr>
</thead>
</table>
| **A) International organisations**  
- IMF, UN, World Bank, OECD, EU Comm.  
- WTO, UNCTAD, FAO, WHO, UNIDO, UNESCO  
**B) Statistical bodies**  
- EUROSTAT  
- national bodies  
- regional bodies  
**C) Ministries**  
- economic affairs  
- agriculture, food, ...  
**D) Central banks**  | **A) Statistical bodies and ministries**  
- of own country  
- foreign ones: e.g., USDA  
**B) Associations**  
- national ones  
- European ones  
- international ones  
**C) Specialised institutions**  
- ZMP  
- chambers of commerce  | **A) Companies**  
- websites  
- annual reports  
**B) Specialised institutions**  
- SEC, Creditreform  
- media companies  
**C) Market research & consulting firms, investment banks**  
- GfK, VNU...  
- Broker reports  
- McKinsey, BCG.  |
PRIMARY-DATA COLLECTION METHODS (SELECTION)

**Surveys**
- personal ("face-to-face")
- by telephone
- written (including online)
- special types
  - omnibus surveys
  - multiple-client surveys
  - panels

**Observations/experiments**
- economic experiments
- tests
  - studio test
  - market test
  - test market
### Fundamentals

#### SURVEY TYPES FOR COLLECTING PRIMARY DATA

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Pros:</th>
<th>Cons:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Face-to-face</strong></td>
<td>‣ high participation rate  ‣ collection of additional information possible (add. questions, add. observation, spontaneous answers)</td>
<td>‣ higher costs, more time necessary  ‣ inconsiderate answers  ‣ potentially negative influence of interviewer</td>
</tr>
<tr>
<td><strong>By telephone</strong></td>
<td>‣ high speed in general lower costs.  ‣ perhaps most convenient for interviewees</td>
<td>‣ not all people are accessible by telephone or willing to provide information</td>
</tr>
<tr>
<td><strong>Written</strong></td>
<td>‣ no interviewer effect  ‣ more considerate answers  ‣ in theory, all people can be contacted by mail  ‣ relative low costs</td>
<td>‣ low participation rate  ‣ no flexibility  ‣ danger of misunderstandings</td>
</tr>
</tbody>
</table>
TYPICAL SURVEY PROCESS

Clarification of problem, generation of hypotheses

Selection of indicators, operationalisation of variables

Construction of questionnaire

Determination of survey type & sample size

(Interviewer training), pre-test, potentially revision of quest.

Conduction of survey (field stage)

Data capture in computer system & data analysis
TODAY'S AGENDA

Introduction into market and marketing research

1) Organisational matters
2) Definitions and purpose
3) Importance and trends
4) Fundamentals
5) Researching markets and prices, customers and consumers, competitors and suppliers
6) Summary
MARKETS CAN BE ANALYSED IN DIFFERENT WAYS

<table>
<thead>
<tr>
<th>Insider perspective: market players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers, competitors, customers.</td>
</tr>
<tr>
<td>Each player is primarily interested in their specific &quot;market&quot;, consisting of specific suppliers, competitors, customers.</td>
</tr>
<tr>
<td>Example: market for functional yoghurt drinks vs. market for dairy products.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outsider perspective: external observers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: consultancies, banks, academic institutions, trade/industry associations.</td>
</tr>
<tr>
<td>Interest may be in:</td>
</tr>
<tr>
<td>- market as a whole;</td>
</tr>
<tr>
<td>- changes over time;</td>
</tr>
<tr>
<td>- situation in relation to other sectors;</td>
</tr>
<tr>
<td>- competitiveness vis-à-vis other countries;</td>
</tr>
<tr>
<td>- etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flows of goods vs. flows of finance.</td>
</tr>
<tr>
<td>Supply, demand, prices.</td>
</tr>
<tr>
<td>Specific groups:</td>
</tr>
<tr>
<td>- producers,</td>
</tr>
<tr>
<td>- processors,</td>
</tr>
<tr>
<td>- distributors,</td>
</tr>
<tr>
<td>- consumers.</td>
</tr>
</tbody>
</table>
Researching markets, prices, customers, consumers, suppliers & competitors

THE MARKET: AGGREGATE VIEW
ON EXCHANGED GOODS

![Graph showing supply and demand curves intersecting at point \( Q_{\text{opt.}} \) and \( P_{\text{opt.}} \).]
THE MARKET:
STATISTICAL VIEW ON PLAYERS

Researching markets, prices, customers, consumers, suppliers & competitors

Seller
in industry 1

Seller in
industry 2

Buyer in
industry 3
THE EU FOOD MARKET: # OF ACTORS


14,937,740 282,638 529,467 382,450,748

Source: Eurostat
Researching markets, prices, customers, consumers, suppliers & competitors

TOOL (1): MARKET SEGMENTATION

Diagram showing market segmentation with different sizes and colors of dots, indicating varying market sizes or segments.
TOOL (2): CUSTOMER SEGMENTATION

Researching markets, prices, customers, consumers, suppliers & competitors
Researching markets, prices, customers, consumers, suppliers & competitors

TOOL (3): MARKET-POTENTIAL ESTIMATION

[Map showing market potential estimation with various blue dots representing different locations and a label indicating buyer locations]
Researching markets, prices, customers, consumers, suppliers & competitors

TOOL (4): SALES-POTENTIAL ESTIMATION
Researching markets, prices, customers, consumers, suppliers & competitors

TOOL (5): FIRM-LEVEL DEMAND ANALYSIS

What determines market demand?
Researching markets, prices, customers, consumers, suppliers & competitors

TOOL (6): COMPETITOR BENCHMARKING
TODAY'S AGENDA

Introduction into market and marketing research

1) Organisational matters
2) Definitions and purpose
3) Importance and trends
4) Fundamentals
5) Researching markets and prices, customers and consumers, competitors and suppliers
6) Summary
Summary

THE MOST IMPORTANT POINTS TO REMEMBER

1) Market/ing research is (primarily) the analysis of economic data in order to produce useful information for facilitating business decision-making.

2) Market/ing research helps to provide answers to the important questions of: Where should we be? What should we do? How should we do things? Who should we buy from?

3) Market/ing research comes at a price. It requires skills, time and money. It should only be conducted if the benefits of the generated information are higher than their associated costs.
Seminar on

MARKET AND MARKETING RESEARCH
IN AGRIBUSINESS

Agricultural University
Ashgabat, September 15-19 2008

Dr Christian FISCHER, Associate Professor
TODAY'S AGENDA

Analysing markets

1) Introduction

2) Market segmentation

3) Assessing market (sales) potentials and opportunities

4) Summary
MARKET/ING RESEARCH REVISITED

Introduction

Market assessment
- Market segmentation
- Market opportunity assessment
- Market potential estimation

Product assessment
- Product potential estimation
- Demand analysis

Competitor/supplier assessment
- Competitor benchmarking
- Supplier classifications

Customer/consumer assessment
- Customer segmentation
- Consumer-preference measurement

For investment decision-making
- For strategic positioning
- Marketing-mix optimisation and concept development testing
Introduction

ANALYSING MARKETS

- The focus of the analysis is on the overall (aggregate) market. That is, all (the majority of) existing buyers or sellers in a defined geographical area are considered.

- Analysis helps to understand the nature of a market relative to similar other ones (e.g., a national market versus a foreign one; or national sub-market versus another national sub-market). It can also be useful when looking at the development of a particular market over time.

- Studies are often conducted by industry/trade associations, or public academic institutions.
TODAY'S AGENDA

Analysing markets

1) Introduction

2) Market segmentation

3) Assessing market (sales) potentials and opportunities

4) Summary
DEFINITIONS OF SEGMENTATION

- The identification and analysis of sub-markets within a larger market.

- The process of partitioning markets into groups of potential customers with similar needs and/or characteristics who are likely to exhibit similar purchase behaviour.

- Division of the target market into segments based on geography, customer profile or other characteristics.

- The grouping of consumers who share common needs.

- To divide a market by a strategy directed at gaining a major portion of sales to a sub-group in a category rather than a more limited share of purchases by all category users.
Market segmentation

APPROACHES TO SEGMENTATION

Analysis of aggregate markets
Stakeholder approach
=> Gaining a better understanding of markets
Results are often published

MARKET SEGMENTATION

Optimisation of segmentation methods
Scientific approach
=> Developing/advancing statistical algorithms
Published

SEGMENTATION SCIENCE

Clustering of company customers
Managerial approach
=> Increasing marketing effectiveness
Results are rarely published

CUSTOMER SEGMENTATION
**MARKET VERSUS CUSTOMER SEGMENTATION**

<table>
<thead>
<tr>
<th>Markets</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A whole market is analysed.</td>
<td>A company's actual customers (not potential ones) are segmented.</td>
</tr>
<tr>
<td>Can be done by any interested stakeholder (e.g., companies, consultants, market analysts, academics).</td>
<td>Data come from company-internal databases.</td>
</tr>
<tr>
<td>Data mostly come from official statistics or from market surveys.</td>
<td>Objective: identification of specific buying behaviours and servicing needs.</td>
</tr>
<tr>
<td>Objective: to gain a better understanding of a market and to identify market opportunities.</td>
<td>Allows the implementation of specific marketing mixes for individual customer groups, in order to achieve:</td>
</tr>
<tr>
<td>Many different methods exist.</td>
<td>- higher sales (turnover), or - low marketing costs.</td>
</tr>
</tbody>
</table>
### Market segmentation

**TECHNICAL DISTINCTION**

<table>
<thead>
<tr>
<th>Segmentation</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Segment = homogeneous group of objects, which are similar with regard to some underlying variables.</td>
<td>- Classification = the process of describing functional dependencies, which allow to allocate objects into predetermined classes (or groups).</td>
</tr>
<tr>
<td>- Segmentation = the process of dividing a large set of objects into individual sub-sets (i.e., segments).</td>
<td>- The focus of classification is on the grouping process and its explanation.</td>
</tr>
<tr>
<td>- The focus of segmentation is on the result of the grouping process.</td>
<td>- Classification (explanatory) variables ($X_i$) and one grouping variable ($Y$) is used.</td>
</tr>
<tr>
<td>- Only segmentation variables ($X_i$) and descriptor variables ($Z_i$) are used.</td>
<td>- Common statistical method: discriminant analysis.</td>
</tr>
<tr>
<td>- Common statistical method: cluster analysis.</td>
<td></td>
</tr>
</tbody>
</table>
WHY SEGMENTATION? (1)

Non-(price) segmented market

\[ k = \text{marginal costs} \]
\[ p^* = \text{profit-optimising price} \]

(Price) segmented market

\[ k = \text{marginal costs} \]
\[ p_1^* = \text{profit-optimising price for segment 1} \]
\[ p_2^* = \text{profit-optimising price for segment 2} \]

Higher overall profit when segmentation is used. Pre-requisite: segments can effectively be separated from each other.
Market segmentation

WHY SEGMENTATION? (2)

- "Half the money spend on advertising is wasted. The trouble is, we don't know which half."
  (John Wanamaker, 1838-1922, inventor of department stores and 'father' of modern advertising).

- Advertising waste (i.e., messages sent to the wrong audiences or none at all) amounts to about US$ 112 billion in America or US$ 220 worldwide.
  (Interactive Advertising Bureau, a US trade association).

- In 2006, the worldwide advertising industry is worth about US$ 428 billion.
  (The Economist, July 8 2006).
Market segmentation

WHY SEGMENTATION? (3)

Not this way:

... but this way:

Main reason: saving resources. Or, using resources more effectively by deploying them in a more targeted way.

Pre-requisite: One needs to know the target (or target groups) and its/their specific requirements/preferences.
DOES SEGMENTATION MAKE SENSE IN ALL CASES?

Example: market for ice-cream

Homogeneous preferences

Diffused preferences

Clustered preferences

Segmentation may not be useful

Segment!
Market segmentation

EFFECTIVE SEGMENTATION

Not all segmentation is useful. Market segments must fulfil the following criteria in order to allow for effective segmentation:

- **Measurable.** The size, purchasing power, and characteristics of the segments can be measured.
- **Differentiable.** The segments are conceptually distinguishable and respond differently to different marketing-mix elements and programs.
- **Substantial.** The segments are large and profitable enough to serve. A segment should be the largest possible homogenous group worth going after with a tailored marketing programme.
- **Accessible.** The segments can be effectively reached and served.
- **Actionable.** Effective programmes can be formulated for attracting and serving segments.
For segmentation

- Needed to define clusters.
- Need to have good segmentation abilities, i.e., they should exhibit clear group structures.
- **Segmentation variables** should be independent of each other (i.e., uncorrelated). They should represent well the underlying segmentation dimensions.

For segment characterisation

- Represent additional information, which can be used to describe the identified segments more precisely.
- These variables are often not manipulable (e.g., age, gender, income, geographical location, etc.)
- **Descriptor variables** not used in the actual segmentation process.
- Collecting and using these variables is optional but often useful.

However, distinction between these two types of variables is often not made, in particular in aggregate market segmentation.
Market segmentation

IDENTIFYING GROUPS OF SIMILAR ACTORS

Buyer
### Basics

- A whole market is analysed.
- Results are often of a purely descriptive nature because segmentation variables are frequently not manipulable.
- Objects of analysis are often consumers. However, companies (competitors), households, geographic areas (countries, regions, etc.), commodities (products) can all be used for segmentation purposes.

### Segmentation variables (bases)

Often very general and can be categorised into:

- **demographic variables**: age, gender, income, education, profession, family status, etc.
- **geographic variables**: urban, rural, population density, climate, etc.
- **psychographic variables**: attitudes, life styles, hobbies, preferred magazines, etc.
- **behavioural variables**: brand loyalty, consumption frequency, reaction to marketing efforts, etc.
TWO-VARIABLE EXAMPLE: RESTAURANTS
TWO-VARIABLE EXAMPLE: SHAMPOO

Source: GfK
Market segmentation

TWO-VARIABLE EXAMPLE: CONSUMER SEGMENTS BY STATUS AND VALUES

Source: Sinus Sociovision
2-VARIABLE EXAMPLE: EU BEER MARKET

Market segmentation

bubble size = per capita beer consumption.

All data from 2001.
THREE-VARIABLE EXAMPLE: FERRY USERS

Source: Cambridge Systematics
Market segmentation

MULTI-VARIABLE EXAMPLE: FIVE US CLUSTERS BASED ON SIMILAR FOOD-CONSUMPTION PATTERNS

Market segmentation

SUMMARY

- More art than science. No 'recipe' (i.e., standard method) exists.

- Approach depends on data availability. If more than three segmentation variables are to be used, statistical methods (e.g., cluster analysis) may need to be applied.

- Keep it simple. Two to three segmentation variables are usually enough. Segmentation can then be done graphically.

- The end result should help to better understand the market and in particular to identify market opportunities. For this, the segmentation variables need to be selected wisely.
TODAY'S AGENDA

Analysing markets

1) Introduction

2) Market segmentation

3) Assessing market (sales) potentials and opportunities

4) Summary
## Market-potential appraisals

### MARKET-SIZE ASSESSMENT

<table>
<thead>
<tr>
<th>Market opportunity</th>
<th>Market/sales potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Areas where a company believes there are favourable demand trends, needs, and/or wants that are not being satisfied, and where it can compete effectively.</td>
<td>The maximum achievable combined sales volume for all sellers of a specific product during a specific time period, in a specific market.</td>
</tr>
<tr>
<td>=&gt; Identification of a market gap (often by means of market segmentation).</td>
<td>=&gt; Quantification of an existing market opportunity.</td>
</tr>
</tbody>
</table>
To back up investment decisions:

- when introducing new products or services into a market.
- when opening new distribution outlets (supermarkets, specialised retail shops, but also cinemas, restaurants, street markets, etc.)
Market-potential appraisals

HOW BIG IS THE AGGREGATE MARKET?
Market-potential appraisals

WHAT SALES CAN A COMPANY EXPECT, GIVEN COMPETITORS?

☐ Seller
☐ Buyer
# MARKET-POTENTIAL APPRAISALS

## MARKET-SIZE ESTIMATION VERSUS INFLUENCE-FACTOR ANALYSIS

<table>
<thead>
<tr>
<th>Market-potential appraisal</th>
<th>Demand analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Estimation of sales volumes (quantity or value) of new products, services or distribution outlets.</td>
<td>- Investigation of determinants of sales volume or value (demand).</td>
</tr>
<tr>
<td>- No recorded market data available about the new product, service, area.</td>
<td>- Data on sales and influencing factors are available.</td>
</tr>
<tr>
<td>- Ex ante (anticipatory/forward-looking) evaluation, i.e., before sales start.</td>
<td>- Ex post (backwards-looking) analysis, i.e., after sales have taken place.</td>
</tr>
<tr>
<td>- <em>Moment</em>-in-time analysis.</td>
<td>- Time <em>period</em> analysis (often).</td>
</tr>
</tbody>
</table>
MARKET POTENTIAL, ETC. DEFINED

- **Market potential**: theoretically maximum demand of a market
- **Market volume**: current actual market demand
- **Company sales potential**: theoretically maximum sales of a single company
- **Market share**: current actual sales of a single company (divided by market volume)

**Saturation rate** = \( \frac{\text{Market volume}}{\text{Market potential}} \)
MARKET/SALES POTENTIAL: TEMPORAL VIEW

Market-potential appraisals

Actual sales / potential sales

Time

Introduction Growth Maturity Decline

Product life-cycle

Estimate of maximum sales potential before product launch assuming it is constant over time.
DETERMINANTS OF MARKET/SALES POTENTIAL

Market/sales potential = Consumer reaction + Competitor reaction + Initiatives taken by the innovator + General trends in the environment

Source: FAO
Market-potential appraisals

WHAT IS A MARKET?

"A market is merely people with money and a motivation to buy".*

=> In a desert, you can't sell anything, not even Rolex watches for $1.

=> In a busy city centre you find all sort of specialised shops (e.g., single-brand retailers) – whenever there are people with money, there will be demand.

Market-potential appraisals

CONSUMER REACTION: FORCES THAT LIMIT MARKET DEMAND

- **Awareness**: potential customers would buy the product/service if they knew it exists.
- **Availability**: potential customers would buy it if they could buy it in their location.
- **Ability to use**: customers lack the knowledge and/or other resources to use it.
- **Benefit deficiency**: key benefits of product/service are unattractive.
- **Affordability**: the price of product/service is simply too high for some customers.
## COMPETITOR ACTION AND INNOVATOR REACTION

<table>
<thead>
<tr>
<th>Competitor</th>
<th>Innovator</th>
<th>(Distributor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces prices for similar product/service.</td>
<td>Optimisation of product with regard to quality, packaging, price, etc., based on first sales experiences and competitor action.</td>
<td>Does distributor promote new product/service sufficiently?</td>
</tr>
<tr>
<td>Comes up with a similar product/service, potentially offering more/better features or is sold at a low price.</td>
<td>Intensification of marketing efforts.</td>
<td>Would other or more distribution channels be more effective?</td>
</tr>
<tr>
<td>Intensifies marketing campaigns.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GENERAL TRENDS IN THE ENVIRONMENT

Economic situation

- Market potential (prosperity)
- Market potential (recession)

Cumulated sales vs. Time

Others

- Regulative environment (e.g., tighter product standards).
- Structural population changes (composition, number).
- Changes in tastes and preferences (in particular for fashion articles).
- Weather conditions, climate change, etc.

Valid for overall market as well as for a particular company’s sales potential.
Market potential and company-specific sales potentials are no fixed parameters

So, can they nevertheless be estimated?

Market analysts and marketing managers usually have a strong interest in knowing total market potential, area market potential, company sales potential and market shares.
Market potentials for new products/services

JUSTIFICATION

- Market-potential appraisals take place before the market introduction of new products/services in order to check whether there is sufficient demand for them.

- 80% of all innovations fail (in modern food-product markets even more), because there is no real need for them in the market.

- Market-potential appraisals help to reduce the flop rate.
The numbers for the three variables need to be identified. For doing so, two main methods exist:

- calculation from existing data;
- primary data collection, i.e., performing statistical estimation, usually on the basis of samples.

**Basic formula:**

Market potential (over a certain period) = number of (potential) buyers x average quantity purchased per buyer x price per unit of product/service.

- This formula includes replacement purchases in 2nd component (average quantity bought within a period).
- Needs a definition of a geographic area (i.e., either overall market or sub-area).
## Market potentials for new products/services

### DETERMINATION OF NO. OF BUYERS

<table>
<thead>
<tr>
<th>Bottom-up technique</th>
<th>Top-down technique</th>
<th>Via complementary or substitution goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>The potential no. of buyers is extrapolated on the basis of single observations. Example: the no. of buyer of a product is determined and then multiplied by the no. of supermarkets.</td>
<td>The no. is broken down from aggregate data. Example: the total no. of buyers of a new lipstick is the no. of total population, minus no. of males, minus no. of children, minus no. of elderly women, minus no. of low income women, minus a certain estimated percentage of women not interested.</td>
<td>The purchase of a new good is coupled to an existing good. Examples: - the number of buyers of coffee whitener is determined by the number of coffee drinkers; - the number of buyers of USB-memory sticks is determined by the number of PC users.</td>
</tr>
</tbody>
</table>
### Market potentials for new products/services

#### DETERMINATION OF AVERAGE EXPENDITURE

<table>
<thead>
<tr>
<th>Direct deduction</th>
<th>Indirect deduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monetary expenditure is directly determined (useful for replacement products)</td>
<td>Average quantity purchased is determined and multiplied by a price:</td>
</tr>
<tr>
<td>Examples:</td>
<td>for food products there are physiologically determined upper limits. Thus, the average consumed quantity over a period may be derived within a certain interval (between 1 and upper limit).</td>
</tr>
<tr>
<td>‣ expenditure on digital cameras will at least equal the one on conventional cameras.</td>
<td>‣ for many durable goods, only one unit will be needed (e.g., washing machine, refrigerator). That is, only a realistic price needs to be found to calculate average expenditure over a certain period.</td>
</tr>
<tr>
<td>‣ expenditure on MP3 music files will at least equal the one on CDs.</td>
<td></td>
</tr>
</tbody>
</table>
Market potentials for new products/services

EXAMPLE: USING EXISTING DATA

<table>
<thead>
<tr>
<th>Chain-ratio method</th>
<th>Calculation for Germany (2004)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involves multiplying a base number by several adjusting percentages.</td>
<td>Official data:</td>
</tr>
<tr>
<td>Example:</td>
<td>Population: 82.5 million</td>
</tr>
<tr>
<td>Market demand for light beer = population x personal discretionary income per capita x average % of discr. income spent on food x avg. % of amount spent on food spent on beverages x avg. % of amount spent on beverages spent on alcoholic beverages x avg. % of amount spent on alc. beverages spent on beer x expected % of amount spent on beer that will be spent on light beer.</td>
<td>Private per capita consumption: €15,451</td>
</tr>
<tr>
<td></td>
<td>Share of food, drink &amp; tobacco expenditure in private consumption: 14.5%</td>
</tr>
<tr>
<td></td>
<td>Estimation &amp; calculation:</td>
</tr>
<tr>
<td></td>
<td>82.5m x €15,451 x 0.145 (food) x 0.1 (bev) x 0.5 (alc) x 0.8 (beer) x 0.05 (light beer)</td>
</tr>
<tr>
<td></td>
<td>= €369 million.</td>
</tr>
<tr>
<td></td>
<td>Comparison: actual beer industry sales: €8.4 billion</td>
</tr>
</tbody>
</table>
### Estimation of proportions

- Asking potential buyers: "Would you buy this (or such a) product to these conditions, yes or no?". Or via observation: does someone buy a test product at a test location, yes or no?

- If data is collected on the basis of a random sample (or at least in a representative way), precision and accuracy of the estimate can by calculated by using well-known statistical formulae.

### Pros & cons

**Advantages:**
- Collected data is specific for the new product/service.
- If collected correctly, reliable estimate can be obtained.

**Disadvantage:**
- Data collection can be time and cost intensive, in particular if highly reliable estimates are needed, since these demand comparatively large sample sizes.

---

**STATISTICAL ESTIMATION OF NO. OF BUYERS**

**Market potentials for new products/services**

---
Combined estimation of no. of buyers and average quantity bought

- Sample data can be collected separately or in a combined survey of potential buyers.
- Combined survey:
  Question 1: "Would you buy?" If yes -> Question 2: "How much would you buy in a certain period?"
- Advantage: estimation of no. of buyers ($P$) becomes more precise, since the minimum sample size for a reliable estimation of the quantity bought results in a larger sample size for $P$.
- **Market potential** = confidence interval.

Problem

- International studies show that the share of people who actually buy after they said they would do so is:
  - Japan: 95%
  - USA: 75%
  - West Europe: 70-80%
  - South Europe: 20-30%.
- $=>$ Statistical estimation is also not always reliable in practice!
LARGE-COMPANY APPROACHES TO MARKET/SALES POTENTIAL APPRAISALS

- Market potentials for new products/services
- OK

NATIONAL MARKET LAUNCH

Product development -> OK
Market testing -> OK
Test markets -> OK

Laboratory
Consumer surveys
Selected stores
Managed by large market-research firms
TEST MARKETS

Definition

- A local or regional area, which can serve as a test market.
- Needs to be representative for the overall market in terms of population, distribution structure, competitors, infrastructure and consumer behaviour.
- In addition to the actual test market there is often a control market, which closely resembles the test market, however, in which the product is not introduced.

Procedure

- Field experiment, a last overall test before a national market launch.
- Tested products must be fully developed at this stage.
- Depending on the product and budget, the new products stay a few weeks to up to several months in the test market.
Market potentials for new products/services

SCANNER CHECKOUTS AND CONSUMER PANELS

- Data from scanner checkouts allow for the accurate measurement of buyer numbers per period (share of buyers of a certain product in all buyers). If the collected data is representative, the share in the total population can be precisely estimated.

- The average expenditure per customer can be collected from consumer panels and loyalty-card databases, together with informative socio-economic consumer characteristics.

- In consumer panels additionally the effectiveness of marketing measures (promotions, advertising etc.) can be measured.
Market potentials for new products/services

PROBLEMS OF TEST MARKETS

- Test markets are comparatively expensive (a full-scale test can cost over €1 million). It is therefore not feasible for all new products.

- Product flop-rates are still relatively large after the test-market stage (for US consumer-packaged goods: 40-60%).
Market potentials for new distribution outlets

NEW DISTRIBUTION OUTLETS: GENERAL COMMENTS

**Justification**

- Before the construction (or taking over) of distribution outlets, a thorough appraisal needs to be made whether the location (i.e., geographic area) is economically viable.
- Market potential appraisals help to find out whether sufficient turnover for the new outlet can be expected.

**Basics**

- Market potentials cannot be determined precisely in this case either – only "guestimates" are possible.
- Here, the definition of a geographically precisely defined area is necessary.
- In fact, the appraisal is most-ly a geographic analysis.
### GEOGRAPHICAL APPRAISAL

<table>
<thead>
<tr>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Determination of a relevant trading area for a new distribution outlet -&gt; no. of potential customers.</td>
</tr>
<tr>
<td>2) Determination of the purchasing power in the trading area and the expected average expenditure per buyer.</td>
</tr>
<tr>
<td>3) Analysis of the competition situation. That is, assessment of how the total purchasing power in the trading area may be allocated among existing distribution outlets.</td>
</tr>
</tbody>
</table>
Often the assumption of a fixed "economic pie" does not hold. When distribution outlets are attractive they also attract customers from outside the defined trading area (i.e., the pie grows).

Online sellers are becoming increasingly important for some goods (e.g., books, PCs, etc.) and need to be considered in the appraisal.
Market potentials for new distribution outlets

EXAMPLE: OPENING A NEW FLOWER SHOP

Existing market data from published sources

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>California</th>
<th>San Francisco suburb</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of existing shops</td>
<td>26,200</td>
<td>407</td>
<td>21</td>
</tr>
<tr>
<td>Total sales (millions)</td>
<td>$6,555.1</td>
<td>$87.3</td>
<td>–</td>
</tr>
<tr>
<td>Population</td>
<td>281,421,906</td>
<td>4,468,976</td>
<td>147,250</td>
</tr>
<tr>
<td>Average sales per shop</td>
<td>$250,194</td>
<td>$214,536</td>
<td>–</td>
</tr>
<tr>
<td>Sales per capita</td>
<td>$23</td>
<td>$20</td>
<td>–</td>
</tr>
<tr>
<td>Population per shop</td>
<td>10,741</td>
<td>10,980</td>
<td>7,012</td>
</tr>
</tbody>
</table>

Calculated using California data

<table>
<thead>
<tr>
<th>Basis</th>
<th>San Francisco suburb</th>
<th>New shop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shop sales</td>
<td>21 * $214,536 = $4,505,256</td>
<td>/ 21 = $214,536</td>
</tr>
<tr>
<td>Per capita</td>
<td>147,250 * $20 = $2,945,000</td>
<td>/ 21 = $140,238</td>
</tr>
</tbody>
</table>

But population per store is much lower in SF suburb — cause for concern.
TODAY'S AGENDA

Analysing markets

1) Introduction

2) Market segmentation

3) Assessing market (sales) potentials and opportunities

4) Summary
Summary

THE MOST IMPORTANT POINTS TO REMEMBER (1)

1) **Market segmentation** serves to better understand markets while **customer segmentation** enables companies to manage customers more effectively.

2) A variety of **variables** can be used for segmentation purposes. However, it is useful to distinguish between segmentation variables and those used to describe/characterise the obtained segments.

3) **Successful segmentation** is highly context-specific. It may be an art more than a science. While a general methodological framework does exist, creative solutions have to be found for each individual segmentation project.
Summary

THE MOST IMPORTANT POINTS TO REMEMBER (2)

1) **Market potential** (over a certain period) =
   number of (potential) buyers \( \times \)
   average quantity purchased per buyer \( \times \)
   price per unit of product/service \( \}
   \}
   average customer expenditure

2) **Ex ante investigation**, an imprecise appraisal in order to
   back up important investment decisions.

3) **Sales potentials for new products/services** can be
   estimated on the basis of existing data, customer surveys
   or in test markets.

4) **Market potentials for new distribution outlets** are
   usually based on a geographic analysis of the trading area
   of the planned outlet.
Seminar on

MARKET AND MARKETING RESEARCH IN AGRIBUSINESS

Agricultural University
Ashgabat, September 15-19 2008

Dr Christian FISCHER, Associate Professor
TODAY'S AGENDA

Analysing prices and company-level demand

1) Introduction
2) Price analysis
3) Introduction to forecasting
4) Demand analysis
5) Summary
Introduction

PRICES AND COMPANY-LEVEL DEMAND – THE NEED FOR FORECASTING

- The focus is on the analysis existing data, very often of time-series character.

- Both price series and company-level demand series usually fluctuate over time. Analysis helps to understand the price/demand movement.

- On the basis of this understanding, future expected movements may be anticipated.

- In marketing it is often necessary to make (sales or expenditure) plans for the next quarter/financial year. It is therefore very useful, if some formal method of forecasting can be applied.
TODAY'S AGENDA

Analysing prices and company-level demand

1) Introduction

2) Price analysis

3) Introduction to forecasting

4) Demand analysis

5) Summary
Price analysis

BASICS

- Prices are important in most agriculture and food markets. Food prices account for a major component of the cost of living for many consumers and directly affect the income situation of many farmers and agribusinesses.
- In theory, prices are scarcity indicators: they go up if a product is in short supply and they go down if there is abundant supply.
- In agriculture/food markets there is in general a lot of price volatility (i.e., price fluctuations over time). This volatility is often systematic (i.e., a result of seasonality). But it can also be caused by random shocks such as bad weather or human herd behaviour.
- Given their importance, price data are usually collected and documented by governments. In addition, a lot of public research has been conducted on price behaviour.
- Yet, (small) agribusinesses are usually considered to be 'price takers' which means they cannot influence prices.
- One of the most important problem is to forecast future prices.
TODAY'S AGENDA

Analysing prices and company-level demand

1) Introduction
2) Price analysis
3) Introduction to forecasting
4) Demand analysis
5) Summary
Introduction to forecasting

PREDICTION IS VERY DIFFICULT, ESPECIALLY ABOUT THE FUTURE*

- Forecasting = the process of analysing current and historical data to determine future trends. Also called extrapolation – i.e., the estimation of unknown values by extending or projecting from known values.

- Quantitative (objective) forecasting methods: employ one or more mathematical models that rely on historical data and/or causal/indicator variables to forecast demand
  - time series methods: $Y_{t+1} = f(Y_t, Y_{t-1}, \ldots)$
  - causal models: $Y_{t+1} = f(X_{1t}, X_{2t}, \ldots)$.

- Qualitative (subjective) methods: collection of (expert) opinions.

- The best approach is considered to be a multi-method one, backing up quantitative forecasts with qualitative judgements.

=> Forecasting is not an exact science but instead consists of a set of statistical tools that are supported by human judgement and intuition.

*Niels Bohr, Danish physicist, 1885-1962
DIFFERENCES BETWEEN MACROECONOMIC AND COMPANY FORECASTING

- Very large numbers of series need to be forecast regularly in companies.

- Macro forecasters are usually statistically trained, company forecasters are not.

- Unlike macroeconomic forecasting there are usually no company forecasts that compete to forecast the same variable.

- Macro forecast variables are at a higher level of aggregation, but lower frequency.

- Macro forecasters employ explanatory models, company forecasters tend to use univariate methods.
Introduction to forecasting

HOW COMPANIES MAKE FORECASTS

(1) Statistical package embodying simple robust time series methods is used (e.g., simple exponential smoothing, time series decomposition).

(2) Statistical forecast can then be judgementally adjusted, usually at a meeting. In particular, this is done for special events such as promotion campaigns.
Introduction to forecasting

**EVIDENCE ON FREQUENCY OF JUDGEMENTAL ADJUSTMENTS FROM 4 COMPANIES**

A significant % of forecasts are judgementally adjusted

<table>
<thead>
<tr>
<th>Companies</th>
<th>Data</th>
<th>N</th>
<th>Adjusted</th>
<th>% adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Monthly</td>
<td>3,264</td>
<td>2,034</td>
<td>62%</td>
</tr>
<tr>
<td>B</td>
<td>Monthly</td>
<td>873</td>
<td>744</td>
<td>85%</td>
</tr>
<tr>
<td>C</td>
<td>Monthly</td>
<td>1,416</td>
<td>942</td>
<td>67%</td>
</tr>
<tr>
<td>D1</td>
<td>Weekly</td>
<td>12,789</td>
<td>1,851</td>
<td>14%</td>
</tr>
<tr>
<td>D2</td>
<td>Weekly</td>
<td>44,899</td>
<td>4,392</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>63,241</td>
<td>9,963</td>
<td>16%</td>
</tr>
</tbody>
</table>

*Source: Robert Fildes Lancaster University Centre for Forecasting*
Introduction to forecasting

FORECASTING DECISION FLOWCHART

Historic data available?

- Yes
  - Do data show some systematic behaviour?
    - Yes
      - Do the data display seasonality patterns?
        - Yes
          - Use time-series decomposition method
          - Validate results with
        - No
          - Use other appropriate quantitative method
          - Validate results with
    - No
      - Qualitative predication, using expert opinions

- No
  - No
TIME-SERIES ANALYSIS

Definition: time series are data which display a fixed, natural order.

Problems of time series are that often trends and seasonal patterns are present in the data.

The objectives of time-series analysis are:
- the mathematical description of the behaviour of a time series, and
- building on this, the production of forecasts (prediction of the future behaviour of a series.)
Introduction to forecasting

COMPONENTS OF AN ECONOMIC TIME SERIES

- **Trend**, long-run tendency, and **cycle** (economic situation), medium-run tendency, are often summarised into a "smooth component" ($T$). In general, the trend is linear while the cycle represents recurring symmetrical fluctuations. The cycle seems to be ever less present in economic time series, so that today it is often completely left away. As a result, the seasonal component remains as the only periodical movement in a series.

- **Season** ($S$), less than annual, recurrent (i.e., periodical) symmetrical fluctuation.

- **Residual** ($R$), all the rest, such as extraordinary events and random fluctuations.
Introduction to forecasting

## RELATIONSHIP BETWEEN COMPONENTS

<table>
<thead>
<tr>
<th>Additive model</th>
<th>Multiplicative model</th>
</tr>
</thead>
<tbody>
<tr>
<td>‣ General relationship: ( Y = Y(T, S, R) ).</td>
<td>‣ A series is the product of its components: ( Y = T \times S \times R ).</td>
</tr>
<tr>
<td>‣ A series is the sum of its components: ( Y = T + S + R ).</td>
<td>‣ Is used in cases where, over time, the magnitude of individual components remains constant in relative terms. Example: the January seasonal influence is always 1.05 of the trend component.</td>
</tr>
<tr>
<td>‣ Is used in all cases where the absolute magnitude of individual components remains more or less constant over time.</td>
<td>‣ Using logarithms, a multiplicative model can always be transformed into an additive one: ( \log (T \times S \times R) = \log (T) + \log (S) + \log (R) ). That is, the log (additive components) = multiplicative components.</td>
</tr>
<tr>
<td>‣ Example: the seasonal influence of January is always 50,000 €.</td>
<td></td>
</tr>
</tbody>
</table>
Introduction to forecasting

EXAMPLE 1: MONTHLY SALES OF A FOOD RETAILER IN MUNICH

Seasonal component

Trend

Residual component (not directly visible)
Introduction to forecasting

EXAMPLE 2: CONSUMER-PRICE INDEX OF THE GERMAN FEDERAL BANK

Original time series

Estimated trend component

Estimated seasonal component

Estimated residual component
Introduction to forecasting

ANALYSIS OBJECTIVES OF TIME-SERIES DECOMPOSITION

Production of forecast with best possible prediction quality, by:

1. Decomposition of a time series into its components.

2. Extrapolation of the trend component.

3. Re-composition of the individual components in order to generate the predicted time series.
Forecasting: extraction of the trend component

METHOD OF LEAST SQUARES

<table>
<thead>
<tr>
<th>Application issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used if <em>no</em> identifiable cyclical or seasonal components are present in the data.</td>
</tr>
<tr>
<td>Principle: minimisation of the sum-of-squares of the deviations of the observations from a straight line (or a curve), running through the data points.</td>
</tr>
<tr>
<td>Calculation method is also used in regression analysis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pros and cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantages:</td>
</tr>
<tr>
<td>The parameter of a (linear) function are estimated, which can be used directly for extrapolation purposes.</td>
</tr>
<tr>
<td>Global approach – the information contained in <em>all</em> data are used for the estimation of the trend line.</td>
</tr>
<tr>
<td>Disadvantage: computational more intensive.</td>
</tr>
</tbody>
</table>
METHOD OF MOVING AVERAGES

Application issues
- Used if clearly identifiable cyclical or seasonal components are present in the data.
- Principle: positive and negative fluctuations in one period compensate each other when a period’s average is calculated.
- Two methods: simple or centred moving averages.

Pros and cons
Disadvantages:
- The length of a period must be chosen so that exactly one periodical fluctuation is covered.
- Local approach – only a sub-set of all data points ("time window") is used for the estimation of the trend line.

Advantage: computational less intensive.
Forecasting: extraction of the trend component

ILLUSTRATION OF SIMPLE MOVING AVERAGES

- Period average (mean)
- Simple moving average
### Principle
- A moving average is the arithmetic mean of a data series of a chosen length $n^*$, with $n^* \ll n$, where $n$ is the length of the entire series.
- This mean is calculated repeatedly, where the underlying data subset ("time window") is shifted by one observation.

### Method
1) Determine length of period, $n^*$.
2) Calculate the arithmetic mean for the values $y_t$ of the first period ($t = 1$ to $t = n^*$):

\[
T_{t=n^*} = \frac{1}{n^*} \sum_{t=1}^{t=n^*} y_t
\]

3) Repeat for $t = n^*+1$, $t = n^*+2$, ...

\[
T_{t=n^*+1} = \frac{1}{n^*} \sum_{t=2}^{t=n^*+1} y_t
\]

\[
T_{t=n^*+2} = \frac{1}{n^*} \sum_{t=3}^{t=n^*+2} y_t
\]
ILLUSTRATION OF CENTRED MOVING AVERAGES

- Period average
- Centred moving averaged

 Forecasting: extraction of the trend component
Forecasting: extraction of the trend component

CENTRED MOVING AVERAGES

1) Determine length of period, \( n^* \) (e.g., 12 for monthly data, 4 for quarterly data, 5 for weekly data, etc.)

2) Determine centre of period, \( k \):
   \[ k = \frac{n^*}{2} + 1 \text{ for even, } k = \frac{n^*+1}{2} \text{ for odd } n^*. \]

3) For odd periods, calculate the arithmetic mean of the values \( y_t \) of the first period:

   \[ T_{t=k}^c = \frac{1}{n^*} \sum_{t=k-(n^*/2)-0.5}^{t=k+(n^*/2)0.5} y_t \]

   For even \( n^* \), use \( n^*+1 \) \( y_t \), where the first and last \( y_t \) are only considered with weight 0.5 in the calculation of the mean.

   Example for quarterly data:

   \[ T_{t=3}^c = \frac{0.5 \cdot y_1 + y_2 + y_3 + y_4 + 0.5 \cdot y_5}{4} \]

4) Repeat for \( k+1, k+2, \ldots \)
Forecasting: extraction of the trend component

SIMPLE VERSUS CENTRED MOVING AVERAGES (1)

<table>
<thead>
<tr>
<th>Even $n^*$ (here = 4)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Time ($t$)</td>
<td>$Y_t$</td>
<td>Simple moving average</td>
<td>Centred moving average</td>
</tr>
<tr>
<td>1</td>
<td>115</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>3</td>
<td>98</td>
<td>–</td>
<td>102.6</td>
</tr>
<tr>
<td>4</td>
<td>95</td>
<td>102.0</td>
<td>103.9</td>
</tr>
<tr>
<td>5</td>
<td>120</td>
<td>103.3</td>
<td>104.6</td>
</tr>
<tr>
<td>6</td>
<td>105</td>
<td>104.5</td>
<td>105.0</td>
</tr>
<tr>
<td>7</td>
<td>99</td>
<td>104.8</td>
<td>105.5</td>
</tr>
<tr>
<td>8</td>
<td>97</td>
<td>105.3</td>
<td>105.9</td>
</tr>
<tr>
<td>9</td>
<td>122</td>
<td>105.8</td>
<td>106.1</td>
</tr>
<tr>
<td>10</td>
<td>106</td>
<td>106.0</td>
<td>106.5</td>
</tr>
<tr>
<td>11</td>
<td>100</td>
<td>106.3</td>
<td>107.1</td>
</tr>
<tr>
<td>12</td>
<td>99</td>
<td>106.8</td>
<td>107.6</td>
</tr>
<tr>
<td>13</td>
<td>125</td>
<td>107.5</td>
<td>107.9</td>
</tr>
<tr>
<td>14</td>
<td>107</td>
<td>107.8</td>
<td>108.1</td>
</tr>
<tr>
<td>15</td>
<td>101</td>
<td>108.0</td>
<td>–</td>
</tr>
<tr>
<td>16</td>
<td>100</td>
<td>108.3</td>
<td>–</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odd $n^*$ (here = 5)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Time ($t$)</td>
<td>$Y_t$</td>
<td>Simple moving average</td>
<td>Centred moving average</td>
</tr>
<tr>
<td>1</td>
<td>115</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>3</td>
<td>98</td>
<td>–</td>
<td>101.0</td>
</tr>
<tr>
<td>4</td>
<td>95</td>
<td>–</td>
<td>102.0</td>
</tr>
<tr>
<td>5</td>
<td>97</td>
<td>101.0</td>
<td>103.0</td>
</tr>
<tr>
<td>6</td>
<td>120</td>
<td>102.0</td>
<td>103.2</td>
</tr>
<tr>
<td>7</td>
<td>105</td>
<td>103.0</td>
<td>103.6</td>
</tr>
<tr>
<td>8</td>
<td>99</td>
<td>103.2</td>
<td>103.8</td>
</tr>
<tr>
<td>9</td>
<td>97</td>
<td>103.6</td>
<td>104.2</td>
</tr>
<tr>
<td>10</td>
<td>98</td>
<td>103.8</td>
<td>104.4</td>
</tr>
<tr>
<td>11</td>
<td>122</td>
<td>104.2</td>
<td>104.6</td>
</tr>
<tr>
<td>12</td>
<td>106</td>
<td>104.4</td>
<td>105.0</td>
</tr>
<tr>
<td>13</td>
<td>100</td>
<td>104.6</td>
<td>105.4</td>
</tr>
<tr>
<td>14</td>
<td>99</td>
<td>105.0</td>
<td>106.0</td>
</tr>
<tr>
<td>15</td>
<td>100</td>
<td>105.4</td>
<td>106.2</td>
</tr>
<tr>
<td>16</td>
<td>125</td>
<td>106.0</td>
<td>106.4</td>
</tr>
<tr>
<td>17</td>
<td>107</td>
<td>106.2</td>
<td>106.6</td>
</tr>
<tr>
<td>18</td>
<td>101</td>
<td>106.4</td>
<td>106.8</td>
</tr>
<tr>
<td>19</td>
<td>100</td>
<td>106.6</td>
<td>–</td>
</tr>
<tr>
<td>20</td>
<td>101</td>
<td>106.8</td>
<td>–</td>
</tr>
</tbody>
</table>
For odd periods, the calculated means are equal for both methods. In addition, both methods yield the same number of averages.

For even periods, there may be differences in the calculated means. Furthermore, the method of centred moving averages yields one value less.

=> From a scientific point of view, the centred approach is more accurate because the mean is exactly in the middle of the covered time window.

=> For practical purposes, however, the simple moving averages are often preferred for two reasons. First, one more value is available. Second, and most importantly, the trend values are available for the most recent time points which are generally the most interesting/important ones.
SEASONAL COMPONENT: INTRODUCTION

**General points**

- Whenever time series data with less than annual frequency is analysed, seasonal effects may be present.

- If seasonal effects do exist, a so-called season index can be calculated. This index shows how large are the seasonal deviations of individual data point from the trend.

**Methods**

- In multiplicative models of trend, seasonal and residual component (i.e., \( Y = T \times S \times R \)): ratio-to-moving-average method.

- In additive models (i.e., \( Y = T + S + R \)): difference-to-moving-average method.
RATIO-TO-MOVING-AVERAGE METHOD

**Principle**
- The trend component is extracted using the method of moving averages. Then, the relative deviations of the data points (i.e., the $y_t$) from the trend component are calculated.
- Next, these relative deviations, which include the seasonal as well as the residual component, are transformed into an index which only contains the seasonal effects.

**Procedure**
1) Extraction of the trend component.
2) Calculation of the ratio: original value divided by the trend component.
3) Calculation of the arithmetic mean of all related period relations (= index formation).
4) Normalisation of this index if it is derived from uneven period numbers.
Forecasting: extraction of the seasonal component

### ILLUSTRATION

#### Month Sales in '000 € Centr. mov. avg. (12 months) Sales devide by mov. avg.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>0.823</td>
<td>0.812</td>
<td>0.738</td>
<td>0.862</td>
<td>0.809</td>
<td>0.807</td>
<td></td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>0.761</td>
<td>0.722</td>
<td>0.884</td>
<td>0.892</td>
<td>0.815</td>
<td>0.813</td>
<td></td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>1.042</td>
<td>1.026</td>
<td>0.930</td>
<td>0.969</td>
<td>0.992</td>
<td>0.990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>0.843</td>
<td>0.954</td>
<td>0.856</td>
<td>0.906</td>
<td>0.987</td>
<td>0.909</td>
<td>0.908</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>0.957</td>
<td>0.894</td>
<td>1.023</td>
<td>0.978</td>
<td>0.818</td>
<td>0.934</td>
<td>0.932</td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>0.896</td>
<td>0.939</td>
<td>0.820</td>
<td>0.899</td>
<td>1.035</td>
<td>0.878</td>
<td>0.876</td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>1.043</td>
<td>1.092</td>
<td>0.973</td>
<td>1.087</td>
<td>–</td>
<td>1.026</td>
<td>1.025</td>
<td></td>
</tr>
<tr>
<td>August</td>
<td>0.711</td>
<td>0.828</td>
<td>0.935</td>
<td>0.866</td>
<td>–</td>
<td>0.835</td>
<td>0.834</td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>0.742</td>
<td>0.884</td>
<td>0.930</td>
<td>0.822</td>
<td>–</td>
<td>0.845</td>
<td>0.843</td>
<td></td>
</tr>
<tr>
<td>October</td>
<td>1.021</td>
<td>0.954</td>
<td>0.891</td>
<td>0.898</td>
<td>–</td>
<td>0.841</td>
<td>0.940</td>
<td></td>
</tr>
<tr>
<td>November</td>
<td>1.063</td>
<td>1.040</td>
<td>0.960</td>
<td>1.137</td>
<td>–</td>
<td>1.050</td>
<td>1.048</td>
<td></td>
</tr>
<tr>
<td>December</td>
<td>2.187</td>
<td>1.936</td>
<td>1.994</td>
<td>1.828</td>
<td>–</td>
<td>1.986</td>
<td>1.983</td>
<td></td>
</tr>
</tbody>
</table>

Total: 12.019 12.000
**DIFFERENCE-TO-MOVING-AVERAGE METHOD**

### Principle

- The trend component is extracted, using the method of moving averages. Then, the absolute deviations of the data points (i.e., the $y_t$) from the trend component are calculated.

- Next, these absolute deviations, which contain the seasonal as well as the residual effects, are transformed into an average value, which only contains the isolated seasonal effects.

### Procedure

1) Extraction of the trend component.
2) Calculation of the difference: actual value – trend component.
3) Calculation of the arithmetic mean value of all related differences (= absolute seasonal influence).
Forecasting: extraction of the seasonal component

**CALCULATION OF DETRENDED/DESEASONALISED AND EXTRAPOLATED TIME SERIES**

### Multiplicative model

- \( Y_t^{\text{detrended}} = \frac{Y_t}{T_t} \)
- \( Y_t^{\text{deseasonalised}} = \frac{Y_t}{S_t} \)
- \( Y_t^{\text{forecasted}} = \frac{T_t^{\text{forec.}}}{S_t} \)

### Additive model

- \( Y_t^{\text{detrended}} = Y_t - T_t \)
- \( Y_t^{\text{deseasonalised}} = Y_t - S_t \)
- \( Y_t^{\text{forecasted}} = T_t^{\text{forec.}} + S_t \)

Alternatively, it is also possible to estimate the trend component using the least-squares method on the basis of the deseasonalised data points. This trend is then extrapolated. Finally, using the seasonal component (season index), the forecasted time series is reconstructed.
In order to determine the residual component, one needs to have the original data points and the trend values as well as the ones of the seasonal component for each \( t \). This means that \( R \) can only be calculated at the very last.

Depending on the underlying assumptions (model), the \( R_t \) are calculated as follows:

\[
R_t = \frac{Y_t}{(T_t \cdot S_t)}
\]

\[
R_t = Y_t - T_t - S_t
\]

However, these residual values have no real practical importance.
TODAY'S AGENDA

Analysing prices and company-level demand

1) Introduction
2) Price analysis
3) Introduction to forecasting
4) Demand analysis
5) Summary
Demand analysis: introduction

WHAT DETERMINES AGRIBUSINESS DEMAND?
Demand analysis: introduction

SALES ANALYSES

<table>
<thead>
<tr>
<th>Market-potential appraisal</th>
</tr>
</thead>
<tbody>
<tr>
<td>‣ Estimation of sales volumes (quantity or value) of new products, services or distribution outlets.</td>
</tr>
<tr>
<td>‣ No recorded market data available about the new product, service, area.</td>
</tr>
<tr>
<td>‣ Ex ante (anticipatory) evaluation, i.e., before sales start.</td>
</tr>
<tr>
<td>‣ Moment-in-time analysis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demand analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>‣ Investigation of determinants of sales volume or value (demand).</td>
</tr>
<tr>
<td>‣ Data on sales and influencing factors are available.</td>
</tr>
<tr>
<td>‣ Ex post (back-looking) analysis, i.e., after sales have taken place.</td>
</tr>
<tr>
<td>‣ Time period analysis (often).</td>
</tr>
</tbody>
</table>
Demand analysis: introduction

FACTORs INFLUENCING DEMAND

Controllable
- Price
- Product
- Promotion
- Place

Uncontrollable
- Income
- Tastes
- Competitive factors
- Government policy
- Demography
- Climate
- Seasonal factors
- Macroeconomic factors
- Institutional factors
- Technological factors
- Competitor prices
- Expectations of changes

Use of elasticities
- Pricing.
- Managing cash flows.
- Impact of changes in competitors' prices.
- Impact of economic booms and recessions.
- Impact of advertising campaigns.
- Others.
Demand analysis: introduction

MARKET DEMAND

Definition

- Quantities of a good or service that people are ready (willing and able) to buy at various prices within some given time period, other factors besides price held constant.

\[ Q_D = Q_D(P) \]
### ELASTICITIES

#### Definition

- The sensitivity of one variable to another, or, more precisely, the percentage change in one variable relative to a percentage change in another.

| Coefficient of elasticity | \(
\frac{\text{percent change in A}}{\text{percent change in B}}
\) |

#### Types

- **Point elasticity**: elasticity measured at a given point of a demand curve.

\[
\varepsilon_p = \frac{dQ}{dP} \cdot \frac{P_1}{Q_1}
\]

- **Arc elasticity**: elasticity which is measured over a discrete interval of a demand curve.

\[
\varepsilon_p = \frac{Q_2 - Q_1}{(Q_1 + Q_2)/2} \div \frac{P_2 - P_1}{(P_1 + P_2)/2}
\]
Demand analysis: introduction

PRICE ELASTICITY OF DEMAND

Definition & Interpretation

- The percentage change in quantity demanded caused by a one percent change in price.
  \[ \varepsilon_p = \frac{\Delta Q}{Q} \times \frac{\Delta P}{P} \]

- Because of the negative relationship between P and Q, \( \varepsilon_p \) is negative.

- If \( |\varepsilon_p| > 1 \), demand is price elastic, if \( |\varepsilon_p| < 1 \), demand is price inelastic.

Illustration

![Diagram showing the relationship between price and quantity demanded with different values of price elasticity.](image-url)
MANAGERIAL USE OF PRICE ELASTICITIES

Pricing and cash flows

- A company’s own price elasticity of demand for a product is \(-8.6\).
- The company needs to boost revenues in order to meet it’s marketing goals.
- To accomplish this goal, should the company raise or lower it’s price?
- If the company lowered price by 3%, what would happen to company sales?

Answer

- Lower price!
- Since demand is elastic, a reduction in price will increase quantity demanded by a larger percentage than the price decline, resulting in more revenues.
- Demand would increase by 26%.

\[
\varepsilon_p = \frac{dQ (\%)}{dP (\%)} - 8.6 = \frac{dQ (\%)}{-3 (\%)}
\]
Demand analysis: introduction

COMPETITORS' PRICES

**Definition**
- The percentage change in quantity consumed of one product as a result of a one percent change in the price of a related product.

\[ \varepsilon_{pc} = \frac{\Delta Q/Q}{\Delta P_c/P_c} = \frac{P_c}{Q} \cdot \frac{\Delta Q}{\Delta P_c} \]

**Cross-price elasticity**
- The sign of the cross-price elasticity for substitutes is positive. That is, the demand of a company's products increases when a competitor increases prices.
- The sign of the cross-price elasticity for complements is negative.
MANAGERIAL USE OF CROSS-PRICE ELASTICITIES

Demand analysis: introduction

According to a market-research report, a company's cross-price elasticity of demand for a product is 9.1.

If the company's competitors reduced their prices by four percent, what would happen to the demand for its product?

$$\varepsilon_{pc} = \frac{dQ (\%)}{dP_c (\%)}$$

$$9.1 = \frac{dQ (\%)}{-4 (\%)}$$

All other things being equal, the company's demand would be reduced by 36%.
Demand analysis: introduction

CUSTOMER INCOME

Definition

- The percentage change in quantity demanded caused by a one percent change in customer income.

\[ \varepsilon_I = \frac{\Delta Q/Q}{\Delta I/I} = \frac{\Delta Q}{Q} \cdot \frac{I}{\Delta I} \]

- Superior goods: \( \varepsilon_I > 1 \)
- Normal goods: \( 0 < \varepsilon_I < 1 \)
- Inferior goods: \( \varepsilon_I < 0 \)

Illustration
Demand analysis: quantifying influence factors

ARC ELASTICITIES

Calculation
- Not many data are needed.
- It is a rough way to get some elasticity estimate.
- It can also be used for calculating average elasticities, which can be used for cross-product comparisons.

\[
\varepsilon_X^Y = \frac{(Y_2 - Y_1)}{(Y_2 + Y_1)} \times \frac{(X_2 - X_1)}{(X_2 + X_1)}
\]

Example
- A company sells 125,000 units of a product at a price of 10 money units, and 100,000 units at a price of 15 money units. What is the average price elasticity of demand?
- Using the formula from across, the price elasticity estimate is \(-0.6\). That is, the demand reaction is only 60% of the price change (--> price inelastic demand).
Demand analysis: quantifying influence factors

ESTIMATING (POINT) ELASTICITIES IN REGRESSION MODELS

Statistical analysis

- If sufficient observations are available, demand elasticities can be estimated by statistical methods.
- The standard method to estimate the parameters (coefficients), which express the strength of influence of a determinant, is regression analysis.
- In some cases, these coefficients can be directly interpreted as elasticities.

Data structures

- **Cross-section data.** Example: demand across different sales districts. Problem: a lot of (un-observed) heterogeneity.
- **Time-series data.** Example: monthly demand for a product over a longer period of time. Advantage: best way to predict future demand.
- **Pooled data** (i.e., combined cross-section & time series data). Very rich, but not easy to handle.
Demand analysis: quantifying influence factors

**ESTIMATING ELASTICITIES IN REGRESSION MODELS**

### (Point) elasticities

\[
\varepsilon_X^Y = \frac{\% \text{ change in } Y}{\% \text{ change in } X} \\
= \frac{(\Delta Y / Y) \cdot 100}{(\Delta X / X) \cdot 100} = \frac{\Delta Y}{\Delta X} \cdot \frac{X}{Y} \\
= (\text{slope})(X/Y)
\]

- That is, \( \varepsilon_X^Y \) changes depending on \((X_i; Y_i)\).
- If \( \Delta X \to 0 \), \( \Delta \) can be replaced by \( \partial \) (i.e., very small changes).
- Thus, the situation in single point is measured, hence "point elasticity".

### In double-log reg models

\[
\beta = \frac{\Delta \ln Y}{\Delta \ln X} = \frac{\Delta Y}{\Delta X} \frac{X}{Y} = \varepsilon_X^Y ?
\]

\[
\begin{align*}
\Delta \ln Y & = \frac{\Delta Y}{Y} \frac{1}{X} \\
\Delta \ln X & = \frac{\Delta Y}{Y} \frac{1}{X} \\
\Delta X & = \frac{\Delta Y}{Y} \frac{1}{X}
\end{align*}
\]

With \( f = \ln X \) follows \( \frac{\partial f}{\partial X} = f'(X) = 1/X \).

\( \Rightarrow \beta_i \) are constant point elasticities.
Constant elasticity of non-linear demand

\[ Q = \beta_0 X^{\beta_1} \]

Transformation

\[ \ln Q = \ln \beta_0 - \beta_1 \ln X \]

Determinant; Ln determ.

For non-linear demand functions, the (constant) elasticity can be estimated directly in double-log (log-log) models.

Variable elasticity of linear demand

\[ Y = \beta_0 - \beta_1 X \]

Determinant

For linear demand functions, only the slopes (\( \Delta Q / \Delta X \)) can be estimated directly.
TODAY'S AGENDA

Analysing prices and company-level demand

1) Introduction

2) Price analysis

3) Introduction to forecasting

4) Demand analysis

5) Summary
Summary

THE MOST IMPORTANT POINTS TO REMEMBER

1) Time-series decomposition can be used to systematically describe (i.e., model) a time series when it displays seasonal behaviour. In this way, forecasting of economic phenomena is possible.

2) The following individual components can be distinguished:
   - smooth component (trend + medium-run cycle)
   - seasonal component
   - residual component.

3) In order to determine the trend component, the method of moving averages is commonly used. For the extraction of the seasonal component, assuming a multiplicative model, usually the ratio-to-moving-average method is used.

4) For the quantification of major influence factors on company-level demand, elasticities can be used. These may be estimated by means of regression analysis.
Seminar on

MARKET AND MARKETING RESEARCH IN AGRIBUSINESS

Agricultural University
Ashgabat, September 15-19 2008

Dr Christian FISCHER, Associate Professor
TODAY'S AGENDA

Analysing customers and consumers

1) Introduction

2) Customer segmentation

3) Consumer-preference measurement for concept development/testing

4) Summary
Introduction

CUSTOMERS AND CONSUMERS

- A customer is a someone who buys from a company while a consumer is a more general term, including customers and non-customers. Every consumer is a potential customer.

- In general, companies have specific data about customers. They know, or can find out, what a customer is worth to them. These data can be used to manage customers more effectively and profitably.

- On the other hand, consumer data is more sparse. It must usually be collected specifically. It is useful for companies to explore ways to win more customers.
TODAY'S AGENDA

Analysing customers and consumers

1) Introduction

2) Customer segmentation

3) Consumer-preference measurement for concept development/testing

4) Summary
Customer segmentation

WHO ARE MY CUSTOMERS AND HOW CAN I SERVE THEM BETTER?
MARKETING STRATEGIES

In general, there are three possible strategies:

- **Undifferentiated marketing**: the same marketing mix is applied to all customers.

- **Concentrated marketing**: a marketing mix will only be applied to one (or a few) customer segments.

- **Differentiated marketing**: a different marketing mix will be applied to individual customer segments.

Example: market for ice-cream

Customer segmentation
COST/BENEFIT ASSESSMENT OF DIFFERENTIATED MARKETING (1)

### Additional benefits

Relative to undifferentiated marketing there are:

- potentially higher sales (revenues) due to more targeted communication to customers.
- potentially lower marketing costs due to not serving non-interested customer groups.

### Additional costs

Relative to undifferentiated marketing there are higher costs for:

- building of an information infrastructure (IT system) and data collection.
- identification and updating of customer segments (need for skilled staff).
- implementation of differentiated marketing: production of segment-specific brochures or advertising spots, training of sales force, etc.

Customer segmentation
In practice, the optimal number of segments is difficult to determine ex ante. However, in general, empirical studies have shown that $n$ is rather small.
In the long run, the benefits of segmentation are likely to outweigh initial implementation costs.
SEGMENTATION BY CUSTOMER VALUE AND ARRISING KEY QUESTIONS

- Who are these customers, what do they look like?
- Can we find more of these customers?
- Can we service this segment with a lower cost channel?
- What can we do to make this segment more profitable?
# Customer Segmentation

**CUSTOMER PROFILES WHICH CAN BE GENERATED FROM COMPANY DATABASES**

<table>
<thead>
<tr>
<th>Identity</th>
<th>Behaviour</th>
<th>Other characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who is the customer?</td>
<td>How does the customer behave?</td>
<td>What attributes does the customer have?</td>
</tr>
<tr>
<td>‣ Name</td>
<td>‣ Product preferences (type, specification, packaging, etc.)</td>
<td>‣ Deductible from behaviour: profitable; regular or sporadic buyer; growing, constant or declining buyer; reaction to marketing actions; adopts early new products/services; brings in new customers; etc.</td>
</tr>
<tr>
<td>‣ Address</td>
<td>‣ Purchasing frequency and quantity</td>
<td>‣ From external information sources: income, age, household size, good reputation, etc.</td>
</tr>
<tr>
<td>‣ Contact details</td>
<td>‣ Payment preferences (cash, card, credit etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‣ Others</td>
<td></td>
</tr>
</tbody>
</table>
## ASSESSING CUSTOMER-SEGMENT VALUE

### Simple approach
- Aggregate customer profitability over a specified period (month, quarter, year, etc.)
- This number is usually easily available in modern business-management software.
- However, the measure is static and does not include other relevant characteristics of customer value.

### Complex approach
- Includes several independent value measures, such as:
  - average transaction value
  - average transaction profit margin
  - transaction frequency
  - transaction growth
  - other value: customer has good reputation or brings in new customers through recommendations.
- Given these multiple value criteria, different value types may be identified (e.g., by index calculation or cluster analysis).
CUSTOMER-VALUE SEGMENTS

- Positive growth customer value last year
- Above average customer value last year
- Positive growth customer value last five years
- High-value customers
- Dormant customers
- Temporary customers
- Negative growth customer value last five years
- Below average customer value last year
SEGMENT PROFILING

Customer value (using 3 variables)

- Avg ACV per year
- % buying at least once per month
- ACV growth last 5 years

Customer behaviour/characteristics

- % using loyalty cards
- % reading Financial Times
- % reacting positively on mailings
- % buying mostly special offers
- % member of fitness studios
- % female, single, high income
- % reading Financial Times

- High-value customers (18%)
- Dormant customers (55%)
- Temporary customers (27%)
## SEGMENT PROFILING WITH SAMPLE DATA

<table>
<thead>
<tr>
<th>Problem</th>
<th>Classification methods</th>
</tr>
</thead>
</table>
| ‣ If customer samples are used rather than all customers, statistical methods need to be applied as to whether value segments really differ with regard to customer characteristics.  

This procedure is also useful for population data if characteristics variables display a high variance within the value segments.  

- **Discriminant analysis (DA).** A statistical technique that examines the set of variables or predictors associated with a given subject and uses similarities and differences to assign the subject to a group or class.  

- **Logistic regression (LR).** A variant of standard regression that predicts the probability of a categorical dependent variable using, typically, a combination of continuous and categorical independent variables.  

- DA is more powerful than LR but also has higher requirements on the used data (normal and metric $X_i$, equal group variances). |
## ILLUSTRATION: LOGISTIC REGRESSION ON THREE SEGMENTS

### Full model (i.e., using all available characteristics variables)

<table>
<thead>
<tr>
<th>Effect</th>
<th>-2 Log Likelihood of Reduced Model</th>
<th>Chi-Square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>78.511a</td>
<td>0.000</td>
<td>0</td>
<td>.</td>
</tr>
<tr>
<td>Age</td>
<td>79.615</td>
<td>1.104</td>
<td>2</td>
<td>.53</td>
</tr>
<tr>
<td>Gender</td>
<td>85.921</td>
<td>7.410</td>
<td>2</td>
<td>.025</td>
</tr>
<tr>
<td>Annual_income</td>
<td>92.195</td>
<td>13.684</td>
<td>4</td>
<td>.002</td>
</tr>
<tr>
<td>No_of_children</td>
<td>86.347</td>
<td>7.836</td>
<td>6</td>
<td>.250</td>
</tr>
<tr>
<td>Member_of_fitness_studio</td>
<td>78.985</td>
<td>0.474</td>
<td>2</td>
<td>.81</td>
</tr>
<tr>
<td>Financial_Times_reader</td>
<td>81.625</td>
<td>3.114</td>
<td>2</td>
<td>.211</td>
</tr>
<tr>
<td>Pay_TV_subscriber</td>
<td>79.460</td>
<td>0.94</td>
<td>2</td>
<td>.622</td>
</tr>
<tr>
<td>Buys_on_eBay</td>
<td>78.562</td>
<td>0.05</td>
<td>2</td>
<td>.975</td>
</tr>
<tr>
<td>Buys_our_special_offers</td>
<td>82.302</td>
<td>3.592</td>
<td>2</td>
<td>.150</td>
</tr>
<tr>
<td>Reacts_positively_to_mailings</td>
<td>80.765</td>
<td>2.254</td>
<td>2</td>
<td>.324</td>
</tr>
<tr>
<td>Uses_loyalty_card</td>
<td>93.195</td>
<td>6.580</td>
<td>2</td>
<td>.014</td>
</tr>
<tr>
<td>Buys_at_least_once_a_month</td>
<td>87.19</td>
<td>8.588</td>
<td>2</td>
<td>.014</td>
</tr>
<tr>
<td>Called_about_new_products</td>
<td>79.564</td>
<td>0.643</td>
<td>2</td>
<td>.725</td>
</tr>
</tbody>
</table>

### Reduced model (i.e., using only significant characteristics variables)

<table>
<thead>
<tr>
<th>Effect</th>
<th>-2 Log Likelihood of Reduced Model</th>
<th>Chi-Square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>53.920a</td>
<td>0.000</td>
<td>0</td>
<td>.</td>
</tr>
<tr>
<td>Gender</td>
<td>80.796</td>
<td>26.876</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Annual_income</td>
<td>92.112</td>
<td>38.192</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Uses_loyalty_card</td>
<td>62.771</td>
<td>8.851</td>
<td>2</td>
<td>.012</td>
</tr>
<tr>
<td>Buys_at_least_once_a_month</td>
<td>85.114</td>
<td>31.195</td>
<td>2</td>
<td>.000</td>
</tr>
</tbody>
</table>

### Segment classification

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>High value</td>
<td>16</td>
<td>76.2%</td>
</tr>
<tr>
<td>Temporary</td>
<td>0</td>
<td>40.0%</td>
</tr>
<tr>
<td>Others (dormant)</td>
<td>10</td>
<td>84.8%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>22.6%</td>
<td>77.4%</td>
</tr>
</tbody>
</table>

---

*September 2008 Seminar on market and marketing research in agribusiness – C. Fischer*
The variables used to define customer value and those to characterise the identified segments depend on data availability and the results from the statistical analysis.

In particular for the descriptor variables, only those should eventually be considered for marketing action which are plausible and useful from a practical point of view which, in addition, show sufficient discriminatory power between the value segments.

Once the value segments have been characterised, an appropriate, effective and efficient marketing strategy needs to be devised and implemented for each segment.
TODAY'S AGENDA

Analysing customers and consumers

1) Introduction

2) Customer segmentation

3) Consumer-preference measurement for concept development/testing

4) Summary
### CORPORATE PARADIGMS OVER TIME

<table>
<thead>
<tr>
<th><strong>Production orientation</strong></th>
<th><strong>Sales orientation</strong></th>
<th><strong>Market/ing orientation</strong></th>
<th><strong>Environment orientation?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology focused. Developing &quot;world-class&quot; products.</td>
<td>Trying to get the customer to want what the company has.</td>
<td>Understanding and producing what consumers want and need.</td>
<td>Producing and distributing goods and services with the lowest possible environmental impact.</td>
</tr>
</tbody>
</table>

- **1950s-60s**
- **1970s**
- **1980s-today**
- **Future**

Consumer-preference measurement for concept development/testing
MARKET/ING ORIENTATION

- **Market orientation** normally refers to the process of decision-making within an organisation and means that the business will focus on the needs of the consumer (customer) before making decisions regarding the product, pricing strategy and promotion.

- **Marketing orientation** is an organisational orientation that believes success is most effectively achieved by satisfying consumer demands.
Consumer-preference measurement for concept development/testing

"NEWNESS" OF PRODUCTS

- "Me too" products
- Breakthroughs – real innovations
- Line extensions
- Repositioning

New to market

New to company

New

Not new

New

Not new
TYPES OF NEW-PRODUCT INTRODUCTIONS

- "Me too" products (20%)
- Improvements to existing product lines (26%)
- Additions to existing product lines (26%)
- Cost reductions in existing lines (11%)
- Breakthroughs (10%)
- Repositionings (7%)

THE CONCEPT (= NEW PRODUCT/SERVICE) STATEMENT

The customer-value proposition:

- For whom (the ideal consumer)
- Who look for what (have the following problem)
- My product is exactly what (kind of product)
- Offers what advantage (key differentiating benefit)
- Unlike other products (of the major competitor)

Consumer-preference measurement for concept development/testing
Consumer-preference measurement for concept development/testing

FROM IDEA TO MARKET

Opportunity identification
- Market analysis (segmentation)
- Idea generation
- Market-potential assessment

Concept development
- Internal testing
- Laboratory tests

Concept testing
- Consumer surveys -> concept modification and optimisation

Go

Life-cycle management
- Demand (market-response) analysis
- Customer segmentation (fine-tuning of marketing mix)
- Competitor monitoring & defense

Reposition

"Harvest"

Go

Market introduction
- Launch planning
- Tracking the launch

Test-market stage

Go

No
ASSUMPTIONS ABOUT CONSUMERS

1) **Consumer preferences are consistent** (e.g., if they prefer yellow over blue and blue over green, then they would also prefer yellow over green).

2) **Consumer preferences are stable over time** (e.g., if they prefer yellow over all other colours today, then this would also hold tomorrow and the day after tomorrow, etc.).

3) **Consumers do what they say they would do** (e.g., if they say that prefer yellow over all other colours, then they would also buy yellow products which are otherwise fully identical).

4) **Consumers know what they want and are able to express what they want.**
WHAT IS A PRODUCT?

A product (or service) is a bundle of attribute levels or features that have utilities to customer (price is considered as attribute as well).

Example: A yogurt
- Attribute 1: flavour
  Levels: strawberry, blueberry, peach, etc.
- Attribute 2: packaging size
  Levels: 100g, 125g, 150g, etc.
- Attribute 3: packaging material
  Levels: plastic, glass, fortified paper, etc.
- Attribute 4: price
  Levels: 25c, 29c, 33c, etc.
- Attribute 5: …
Consumer-preference measurement for concept development/testing

CONCEPT DESIGN

1) The meaning of "designing a concept":
Deciding and setting the levels of the attributes.

2) The utility value of an offering (i.e., a concept) is some function of the utilities of the concept's attribute levels.

Concept utility =
importance of attribute-1 level +
importance of attribute-2 level + ...

\[ U = u(a_1) + u(a_2) + ... = \sum \text{part utilities} \]

3) Consumers prefer the offering with the highest overall utility value.
Consumer-preference measurement for concept development/testing

EXAMPLE CALCULATION OF UTILITY
(PART UTILITY = PARTWORTH)

Table:

<table>
<thead>
<tr>
<th>Packaging material</th>
<th>Partworth (part utility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-fill</td>
<td>0</td>
</tr>
<tr>
<td>Paper</td>
<td>1</td>
</tr>
<tr>
<td>Plastic</td>
<td>5</td>
</tr>
<tr>
<td>Glass</td>
<td>6</td>
</tr>
</tbody>
</table>

Graphs:

- Graph 1: Packaging material vs. Partworth
- Graph 2: Size (grams) vs. Partworth

Total utility = sum of the partworths:
- Plastic, 100g: \( (5 + 1) = 6 \)
- Paper, 150g: \( (1 + 4) = 5 \)
DECIDING ON TEST CONCEPTS
(PROFILES/STIMULI)

- Which attributes? Are they actionable? Are they important to individuals?

- How many attributes? 6-7 is common. But depends to some extent on presentation method to be used.

- Number of levels for each attribute. Burden to respondents. They determines the number of questions, so have few. Because it is less burden and results in better quality data. Often the same number for each attribute are used since respondents often infer that attributes with more levels are more important.

- Intelligent choice of profiles/stimuli. This is a statistical procedure know as creating a orthogonal design.
Consumer-preference measurement for concept development/testing

EXAMPLE: PROFILE DESIGN FOR YOGURT

- Not all theoretical combinations of attributes and levels are technological feasible or make economic sense to offer → realistic set of combinations << theoretical set.
  But in practice there may still be too many to test on consumers.
- For example, feasible/desirable: 15 decisions on 2 profiles.
- 5 attributes:
  - flavour: 3 levels (strawberry, blueberry, peach)
  - packaging size: 3 levels (100g, 125g, 150g)
  - packaging material: 3 levels (plastic, glass, fortified paper)
  - fat contents: 3 levels (0.1%, 1.5%, 3.5%)
  - price: 3 levels (25c, 29c, 33c)
- $3 \times 3 \times 3 \times 3 \times 3 = 243$ possible profiles.
- 29,403 possible answer sets of 2 profiles ($(243 \times 242) / 2$).
- Which 15 answer sets of 2 profiles should be used?
CONJOINT ANALYSIS = QUANTITATIVE PREFERENCE MEASUREMENT

- A class of quantitative methods aimed at decomposing an overall measure of consumer preference (e.g., likelihood of purchase, product utility or attractiveness, buy/no buy) into the unique contribution provided by each attribute characterising the product or service.

- There are different conjoint methods which have been developed and improved over time.

- It has been called the "largest contribution of marketing science to marketing practice".
### Consumer-preference measurement for concept development/testing

#### SOME APPLICATIONS OF CONJOINT ANALYSIS

<table>
<thead>
<tr>
<th>Commercial</th>
<th>Policy making</th>
<th>Medical</th>
</tr>
</thead>
</table>
| Development & optimisation of products and services in all kind of industries:  
  - Pasta, frozen pizzas, ready-to-serve meals, dairy products.  
  - Bar soaps, shampoos, carpet cleaners.  
  - Coping machines, printers.  
  - Cars, car tyres.  
  - Bank branch services, car insurance, hotels.  
  - Airline offers, car rental services. | Optimal design and pricing of public regulations:  
  - Fishing permits.  
  - National-park usage.  
  - Public transportation options. | Integrating patients' preferences in treatments based on the trade-offs between various outcomes and side effects:  
  - Prostate cancer. |
TRADITIONAL CONJOINT ANALYSIS (TRADE-OFF APPROACH)

Repeated pair-wise comparisons of two attributes only.

There are a number of problems with this approach:

- Each decision is a partial assessment without considering the other relevant attributes at the same time.
- Unrealistic setting (consumers buy complete products/service not isolated attributes).
- Number of attributes which can be included is small as the number of pair-wise combinations increases rapidly.

Which yogurt would you prefer...

<table>
<thead>
<tr>
<th>Paper packaging</th>
<th>Glass packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>150g</td>
<td>100g</td>
</tr>
</tbody>
</table>
Consumer-preference measurement for concept development/testing

FULL-PROFILE CONJOINT (1) (CARD-SORT METHOD)

- All attributes are considered at once.
- Respondents are asked to express their purchasing likelihood.
- Alternatively, they are asked to sort (rank) all profiles in increasing or decreasing order of preference.
- If many attributes need to be considered, the method becomes unfeasible.

Using a 100-pt scale where 0 means definitely would NOT and 100 means definitely WOULD...

How likely are you to purchase this yogurt…

Strawberry flavour
Glass packaging
Pot size: 150g
Milk-fat contents: 3.5%
Contains artificial colouring
35 cents per pot

Your answer:___________
Consumer-preference measurement for concept development/testing

FULL-PROFILE CONJOINT (2)

Please try out these hiking boots and rate them on a 10-point scale

<table>
<thead>
<tr>
<th>Price</th>
<th>Material Features</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>159€</td>
<td>One piece leather</td>
<td>GORE-TEX® membrane</td>
</tr>
<tr>
<td>149€</td>
<td>Leather pieces and nylon</td>
<td>No GORE-TEX® membrane</td>
</tr>
<tr>
<td>139€</td>
<td>Leather pieces</td>
<td>GORE-TEX® membrane</td>
</tr>
</tbody>
</table>
ADAPTIVE CONJOINT ANALYSIS (1)

- It is also called ACA.

- It is a "hybrid approach". That is, partial profiles are constructed for each respondent in accordance to self-reported attribute importance.

- This method is best in situations where the number of attributes is quite large and the information burden on respondents is felt to be too large when using the full-profile method.

- However, there are some methodological problems related to this approach (i.e., missing variable bias).

- In addition, the overall test setting is still not very realistic since in most real market decisions consumers do not rank or rate products. Instead they choose or do not choose products from among a competitive set of product alternatives.
Consumer-preference measurement for concept development/testing

ADAPTIVE CONJOINT ANALYSIS (2)

Please rate the following colors in terms of how desirable they are:

<table>
<thead>
<tr>
<th></th>
<th>Not At All Desirable</th>
<th>Somewhat Desirable</th>
<th>Very Desirable</th>
<th>Extremely Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Consumer-preference measurement for concept development/testing

ADAPTIVE CONJOINT ANALYSIS (3)

How likely would you be to buy this automobile if it were available now?

Red
Two-Door Sedan
Made in USA
Rear Wheel Drive
$16,000

(Type a number between 0 and 100, where 0 means definitely would NOT, and 100 means definitely WOULD.)
Consumer-preference measurement for concept development/testing

**CHOICE-BASED CONJOINT ANALYSIS (1)**

- Also called *discrete choice modelling*.
- Respondents have to *choose which profile (test product) they would buy*.
- They also have *the option of not buying a product at all*.
- Profiles can be attribute descriptions and/or photos, or profiles can be real product prototypes.
- Because the outcome of these product tests is of nominal character (buy/not buy), the *underlying statistical analysis models are different from the other conjoint methods* (binomial/multinomial logit/prodit models versus multiple regression models).
- Larger sample sizes are required than for the other types of conjoint analysis.
CHOICE-BASED CONJOINT ANALYSIS (2)

Which PC Would You Purchase?

- **Compaq**
  - 500 MHz
  - 64 Meg RAM
  - 21-inch monitor
  - $1,500

- **IBM**
  - 800 MHz
  - 128 Meg RAM
  - 15-inch monitor
  - $1,250

- **Dell**
  - 1 GHz
  - 256 Meg RAM
  - 17-inch monitor
  - $1,000

- **NONE**: I wouldn't purchase any of these.
### Consumer-preference measurement for concept development/testing

#### CHOICE-BASED CONJOINT ANALYSIS (3)

Which of the two hiking boots would you prefer if the options are described by the attributes shown?

<table>
<thead>
<tr>
<th>One piece leather</th>
<th>Leather pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>No GORE-TEX® membrane</td>
<td>GORE-TEX® membrane</td>
</tr>
<tr>
<td>Air-cushioned mid-sole</td>
<td>No air-cushioned mid-sole</td>
</tr>
<tr>
<td>Midweight</td>
<td>Heavy</td>
</tr>
<tr>
<td>Price of 159€</td>
<td>Price of 149€</td>
</tr>
</tbody>
</table>
Consumer-preference measurement for concept development/testing

**EXAMPLE RESULTS FROM CONJOINT ANALYSIS (1)**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>No.</th>
<th>Description</th>
<th>Utility</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging material</td>
<td>3</td>
<td>Plastic</td>
<td>0.778</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Paper</td>
<td>−0.556</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Glass</td>
<td>−0.222</td>
<td>0.286</td>
</tr>
<tr>
<td>Flavour</td>
<td>3</td>
<td>Strawberry</td>
<td>0.445</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Blueberry</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Peach</td>
<td>−0.556</td>
<td>0.214</td>
</tr>
<tr>
<td>Price</td>
<td>3</td>
<td>25c</td>
<td>1.111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>29c</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>33c</td>
<td>−1.222</td>
<td>0.500</td>
</tr>
</tbody>
</table>
Consumer-preference measurement for concept development/testing

EXAMPLE RESULTS FROM CONJOINT ANALYSIS (2)

Conjoint analysis output—salsa data

(a) Graphs

Thickness

Spiciness

Color

Utility

Regular

Thick

Ex-Thick

Mild

Medium-Hot

Ex-Hot

Red

Green

(b) Importance of Attributes

Spiciness

Thickness

Color

0

40

60

80

100%

59.8%

34.6%

5.6%
MARKET SHARES, WILLINGNESS TO PAY AND CONSUMER SEGMENTATION

- Depending on the used conjoint method there is the possibility to calculate expected market shares for the tested concepts. In the simplest case,

\[ MS(P_i) = \frac{\text{No. of test persons who have chosen } P_i}{\text{Total no. of test persons in the study}} \]

- It is also possible to calculate the willingness to pay (WTP) for certain concept attributes. However, the actual way of doing this depends on the chosen conjoint method.

- Finally, the test persons can be segmented according to their concept preferences. If additional socio-economic data is collected about the test persons, it can be analysed which consumer types like which kinds of products.
### Why they fail

- Market too small, forecast too large.
- Not really new/different, no real benefit.
- Poor positioning.
- Needs/use not well understood.
- Lack of channel support.
- Poor prediction of competitors' reactions.
- Changes in consumer taste.
- No sustainable commitment and resources.

### Characteristics of successful innovators

- A corporate obsession with product quality.
- A long-term vision about how the market will look in the future.
- Extensive use of teamwork to institutionalise co-operation across functional and national boundaries.
- "Listening" to customers.
- Strong leadership and rigorous management skills.
Consumer-preference measurement for concept development
TODAY'S AGENDA

Analysing customers and consumers

1) Introduction

2) Customer segmentation

3) Consumer-preference measurement for concept development/ testing

4) Summary
Summary

THE MOST IMPORTANT POINTS TO REMEMBER

1) Market segmentation serves to better understand markets while customer segmentation enables companies to manage customers more effectively.

2) Companies must duly assess whether a differentiated marketing strategy is worthwhile. While initial implementation costs can be high, in the long run, identifying and serving specific market segments may pay off.

3) Market orientation requires that consumers/customers are involved in the product/service development process.

4) Conjoint analysis is class of methods for quantitative customer-preference measurement. It is build on the assumption that concepts (i.e., new products/services) are bundles of attributes which spend utility. A customer would buy a product with the highest overall utility.
Seminar on
MARKET AND MARKETING RESEARCH
IN AGRIBUSINESS

Agricultural University
Ashgabat, September 15-19 2008

Dr Christian FISCHER, Associate Professor
TODAY'S AGENDA

Analysing competitors and suppliers

1) Introduction

2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary
Introduction

COMPETITIVE INTELLIGENCE (CI)

- A systematic programme for gathering and analysing any combination of data, information and knowledge concerning the business environment in which a company operates that, when acted upon, will confer a significant competitive advantage or enable sound decisions to be made.

- It is an ethical and legal business practice. (It is not the same as industrial espionage which is both unethical and illegal).

- Often viewed as synonymous with competitor analysis but CI is more than analysing competitors: it is about making the organisation more competitive, considering competitors, customers/consumers and suppliers.

- It is strategy research rather than the more focused market/ing research.

- It is the early identification of risks and opportunities in the business environment before they become obvious.

- If the data/information gathered are not usable (or actionable) then it is not intelligence.
TODAY'S AGENDA

Analysing competitors and suppliers

1) Introduction

2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary
The concept of competitiveness

COMPETITIVENESS IN CONTEXT

<table>
<thead>
<tr>
<th>OECD definition</th>
<th>Lall, 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;The ability of companies, industries, regions, nations, and supranational</td>
<td>&quot;Competitiveness in industrial activities means developing relative</td>
</tr>
<tr>
<td>regions to generate, while being and remaining exposed to international</td>
<td>efficiency along with sustainable</td>
</tr>
<tr>
<td>competition, relatively high factor income and factor employment levels on a</td>
<td>growth.&quot;</td>
</tr>
<tr>
<td>sustainable basis.&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Construct (i.e., composite concept) competitiveness = multidimensional economic performance
The concept of competitiveness

DEFINING THE LEVEL OF COMPETITIVENESS

Economic entity

Country (C) or territory (T)

Industrial sector (S)

Sub-industry (I)

Enterprise (E) or corporate division (D)

Activities

Industrial sectors (S)

Sub-industries (I)

Enterprises (E) or corporate divisions (D)

Products (P)

(which define the entity's performance)
The concept of competitiveness

**DISTINGUISHING BETWEEN COMPETITIVENESS DETERMINANTS AND INDICATORS**

- **Determinants**
  - **Structure of environment**
    - **Meta**
      - Regional economic framework
      - Regional policies
      - Socio-cultural factors
    - **Macro**
      - National economic framework
      - National policies
      - Skills
      - Technology
      - Infrastructure
    - **Meso**
      - Industry structure
      - Sectoral policies and lobby activities
      - Supporting industries
      - Demand conditions
  - **Conduct of companies**
    - **Micro**
      - Specialisation
      - Investments, incl. in R&D
      - Internationalisation (FDI, exports)
  - **Performance**

- **Indicator(s)**
  - **Measures**
    - Profitability
    - Productivity
    - Growth
The concept of competitiveness

A LIKELIHOOD LARGER THAN ZERO TO STILL BE AROUND TOMORROW

- Economic competitiveness is different to sport performance: it is not about winning a medal (i.e., to be among the top three or five, etc.). It is about survival. That is, it is about doing business in a way that assures that a company will still be in business in the future. In fact, a company can be top in one or another performance measure but still be out of business the next day (e.g., Enron, Bear Stearns, etc.).

- Economic performance in the end means to be sufficiently profitable, solvent and financially liquid to pay all bills (including taxes, interests to banks and shareholder dividends).

- From a society point of view, a competitive economy is one which generates the most possible jobs and the highest incomes, which are fairly distributed, while avoiding or minimising the negative impacts of economic activity on the environment and the physical and mental health of its people.
TODAY'S AGENDA

Analysing competitors and suppliers

1) Introduction

2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary
In the most general definition, a strategy is a plan for action. More specifically in the business context, a strategy is a "plan to compete effectively in a marketplace".

The core of a good strategy is to lay out options for being active where it is attractive to be, and to reduce or stop activities where it is unattractive.

To be useful, a strategy requires direction (a vision, or mission, and concrete goals), a timeframe and specifies how necessary resources are mobilized and allocated.
Strategic positioning

COMMON WISDOMS ABOUT STRATEGY

- To be successful, a business strategy needs to fit the profile of the marketplace, otherwise undesirable responses will follow. This means a strategy is unique and cannot simply be copied and applied somewhere else.

- A strategy needs to be implemented using reasonable resources and in a reasonable time frame.

- It is better to have a second-class idea and a first-class implementation rather than the other way round. Therefore, 'paralysis from analysis' needs to be avoided and getting started is often better in practice than waiting for the perfect solution.

- Continuous incremental change ('evolution') is also often better than abrupt upheaval ('revolution').
Strategic positioning

COMPETITIVE ADVANTAGE

- The nature of competitive advantage changes over time.
- Competitive advantage can be generated by bridging either
  - opportunity gaps ('doing the right things'), or
  - performance gaps ('doing the things right').
- However, in practice it very often means being both effective and efficient at the same time.
- A company must constantly work to identify, to build and to defend its competitive advantage. Standing still, in effect, means falling back.
## CRITERIA FOR EVALUATING A BUSINESS STRATEGY

<table>
<thead>
<tr>
<th>Consistency</th>
<th>A strategy should not present mutually inconsistent goals and policies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consonance (external fit)</td>
<td>A strategy should represent an adaptive response to the external environment and to the critical changes occurring within it.</td>
</tr>
<tr>
<td>Advantage</td>
<td>A strategy should provide for the creation and/or maintenance of competitive advantage in a selected area.</td>
</tr>
<tr>
<td>Feasibility</td>
<td>A strategy must neither overtax available resources nor create unsolvable sub-problems.</td>
</tr>
</tbody>
</table>
# Strategic positioning

## MARKETING STRATEGY, ETC.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Tactical steps</th>
<th>Operational actions</th>
</tr>
</thead>
</table>
| A plan which clearly outlines how a business is hoping to achieve its sales targets.  
  - Which markets should we serve?  
  - Which type of advertising should we use?  
  - Which new customer groups? | Medium-term measures serving to implement the strategy:  
  - Which radio channel to use?  
  - When should a new marketing campaign be started? | Short-term decisions needed to keep the day-to-day marketing business going.  
  - Which picture of a product should be included into a newspaper ad?  
  - In which supermarket(s) should consumers be asked about their preferences? |
Strategic positioning

THE RECIPE FOR SUCCESS: DISTINGUISHING CHARACTERISTICS OF A WORLD-CLASS ORGANISATION

- Strategic positioning
- Distinguishing characteristics of a world-class organisation
- Creative human-resource management
- Customer focus
- Flexibility/responsiveness
- World-class organisation
- Orchestration of technology
- Continuous improvement

September 2008
Seminar on market and marketing research in agribusiness – C. Fischer
TODAY'S AGENDA

Analysing competitors and suppliers

1) Introduction

2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary
## COMPETITOR ANALYSIS

### Importance

Competitor analysis has several important roles in strategic planning:
- To generate understanding of competitors’ past, present (and most importantly) future performance.
- To help management understand their competitive advantages/disadvantages relative to competitors.
- To provide an informed basis to develop strategies to achieve competitive advantage in the future.

=> Often done by consulting companies.

### Data sources

- **Recorded data**: e.g., competitor annual reports and product brochures.
- **Observable data**: has to be actively sought and often assembled from several sources (e.g., pricing).
- **Opportunistic data**: Much of it is "anecdotal", coming from discussions with suppliers, customers and, perhaps, previous management of competitors.
### Competitor Analysis for Competition Assessment

#### Competitors as Threat

- Competitors are assessed to understand current and future threats:
  - Competitors' products, prices, marketing, logistics, R&D, etc.
  - Possibility and likelihood of new entrants (firms).
  - Availability or emergence of substitutes (products).

#### Example Price Analysis

<table>
<thead>
<tr>
<th></th>
<th>Product 1</th>
<th>Product 2</th>
<th>Product 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitor 1</td>
<td>$7.35</td>
<td>$13.15</td>
<td>$3.50</td>
</tr>
<tr>
<td>Competitor 2</td>
<td>$7.99</td>
<td>$10.20</td>
<td>$4.20</td>
</tr>
<tr>
<td>Competitor 3</td>
<td>$8.10</td>
<td>$12.35</td>
<td>$2.90</td>
</tr>
<tr>
<td>Own company</td>
<td>$7.30</td>
<td>$11.70</td>
<td>$3.70</td>
</tr>
</tbody>
</table>
Benchmarking competitors

DEFINITIONS OF BENCHMARKING

There are many similar definitions:

- "... an improvement process in which an organisation measures its performance against that of best in class organisations, determines how those organisations achieved their performance levels and uses the information to improve its own performance." (Internet glossary)

- "... the practice of identifying qualitative and quantitative metrics against which the success of an organization can be measured, often in comparison to competitors and industry standards." (University of California at Berkeley).

- "... the systematic use of comparisons." (United Nations Industrial Development Organisation).
TRYING TO CLOSE PERFORMANCE GAPS

- Knowing where you stand relative to competitors, in order to be able to learn from them.
- A form of performance assessment, where an organisation compares its activities against those of other organisations.
- The point is the comparison (or evaluation) of performance rather than the measurement.
- It is a systematic, structured approach to searching for best practice.
BEST PRACTICE

Definition

- Is about 'doing things in the best possible way'.
- A company will pursue best practice as a philosophy with one overall view: to become a world-class organisation.
Figure 3: Strategic planning is #1 in usage, with CRM right behind it

<table>
<thead>
<tr>
<th>Topic</th>
<th>Usage Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Planning</td>
<td>75%</td>
</tr>
<tr>
<td>CRM</td>
<td>75%</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>72%</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>73%</td>
</tr>
<tr>
<td>Customer Segmentation</td>
<td>72%</td>
</tr>
<tr>
<td>Mission and Vision Statements</td>
<td>72%</td>
</tr>
<tr>
<td>Core Competencies</td>
<td>65%</td>
</tr>
<tr>
<td>Strategic Alliances</td>
<td>63%</td>
</tr>
<tr>
<td>Growth Strategies</td>
<td>62%</td>
</tr>
<tr>
<td>Business Process Reengineering</td>
<td>61%</td>
</tr>
<tr>
<td>TQM</td>
<td>61%</td>
</tr>
<tr>
<td>Change Management Programs</td>
<td>59%</td>
</tr>
<tr>
<td>Balanced Scorecard</td>
<td>57%</td>
</tr>
<tr>
<td>Supply Chain Management</td>
<td>56%</td>
</tr>
<tr>
<td>Knowledge Management</td>
<td>54%</td>
</tr>
<tr>
<td>Scenario and Contingency Planning</td>
<td>54%</td>
</tr>
<tr>
<td>Activity-Based Management</td>
<td>52%</td>
</tr>
<tr>
<td>Economic Value-Added Analysis</td>
<td>44%</td>
</tr>
<tr>
<td>Loyalty Management</td>
<td>40%</td>
</tr>
<tr>
<td>Price Optimization Models</td>
<td>36%</td>
</tr>
<tr>
<td>Six Sigma</td>
<td>34%</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>33%</td>
</tr>
<tr>
<td>Open-Market Innovation</td>
<td>26%</td>
</tr>
<tr>
<td>Mass Customization</td>
<td>24%</td>
</tr>
<tr>
<td>RFID</td>
<td>13%</td>
</tr>
</tbody>
</table>

Mean = 54%
Figure 2: Satisfaction with most tools is relatively high (scale of 1 to 5)
Best practice and benchmarking

DIFFERENT TYPES OF BENCHMARKING
(UNITS OF ANALYSIS)

- Territories (countries, etc.)
- Products
- Processes
- Organisations
- Organisational departments
- Industrial sectors
Best practice and benchmarking

THE ROLE OF CRITICAL SUCCESS FACTORS (CSFs)

<table>
<thead>
<tr>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSFs are those characteristics, conditions or variables which, when properly sustained, maintained or managed, can have a significant impact on the success of a company competing in a particular industry.</td>
</tr>
<tr>
<td>They can be specific to a company, to an industry or to a business environment.</td>
</tr>
<tr>
<td>They should primarily be considered in the benchmarking procedure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive industry;</td>
</tr>
<tr>
<td>- styling</td>
</tr>
<tr>
<td>- strong dealer network</td>
</tr>
<tr>
<td>- manufacturing cost control.</td>
</tr>
<tr>
<td>Semi-conductor industry:</td>
</tr>
<tr>
<td>- manufacturing process</td>
</tr>
<tr>
<td>- capital availability</td>
</tr>
<tr>
<td>- technological competence.</td>
</tr>
<tr>
<td>Food processing industry:</td>
</tr>
<tr>
<td>- new-product development</td>
</tr>
<tr>
<td>- good distribution</td>
</tr>
<tr>
<td>- effective advertising.</td>
</tr>
</tbody>
</table>
Benchmarking competitors

STEPS IN THE BENCHMARKING PROCEDURE

1) Identify the object(s)/unit(s) to benchmark.
2) Identify the best-in-class object(s).
3) Identify the key-performance variables (critical success factors) to measure, and collect data.
4) Analyse and compare data to determine differences in performance.
5) Project future performance levels of the benchmarked objects.
6) Establish functional goals.
7) Communicate benchmarking findings.
8) Develop action plans.
9) Implement specific actions and monitor progress.
10) Recalibrate benchmarks.
Benchmarking competitors

BENCHMARKING PARTNERS

- Benchmarking can be done internally or with external partners.

- Internal benchmarking is easier since data are more readily available. However, it may not be useful.

- External benchmarking is often difficult because competitors are not willing to participate or to provide sensitive data.

- However, all participating benchmarking partner usually benefit from the comparison exercise which is a good argument to convince organisations to participate.

- Nevertheless, often third-party consulting companies are involved in benchmarking exercises.
BENCHMARKING COMPETITORS

THE TWO MAIN METHODS

**Ratings & profiling**

- **Rating** = evaluation: an appraisal of the value of something.
- Systematic comparison to main competitor is done on the basis of pre-defined performance criteria.
- The appraisal is done using pre-defined evaluation scales.
- The evaluation can be done by individuals or teams.
- **Profil** = graphical representation of a rating.

**Portfolio matrices**

- Larger companies usually have different strategic business units (SBUs), thus operating in different markets simultaneously with different specific competitors.
- For these activity portfolios, matrices are commonly used as analysis instrument.
**Benchmarking competitors**

**RATINGS**

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Rating:</th>
<th>Poor</th>
<th>Average</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Our market opportunities are (sector attractiveness)</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2) Our competitive position is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) The perceived utility of our products and services is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Our capacity to solve the problems of individual target groups is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Our processes and delivery quality are</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Our innovation climate is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Our innovations are</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) The analysis of the needs of our target groups is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) The geographical location of our production plants is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10) The capacity utilisation-rate of our production plants is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11) The technical and social competence of our staff is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12) …</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The choice and the number of evaluation criteria is context-specific.

- Here the company as a whole and not individual strategic business units (SBUs) is evaluated.
Benchmarking competitors

**PROFILING**

The graphical representation increases the comprehensibility.

Benchmarking in the proper sense is always done relative to the industry leader.

---

**Competitor analysis**

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Rating:</th>
<th>Poor</th>
<th>Average</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Our market opportunities are (sector attractiveness)</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2) Our competitive position is</td>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3) The perceived utility of our products and services is</td>
<td></td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>4) Our capacity to solve the problems of individual target groups is</td>
<td></td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>5) Our processes and delivery quality are</td>
<td></td>
<td>10</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>6) Our innovation climate is</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Our innovations are</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) The analysis of the needs of our target groups is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) The geographical location of our production plants is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10) The capacity utilisation-rate of our production plants is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11) The technical and social competence of our staff is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12) ...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Benchmarking competitors

**RATINGS & PROFILES: EXTENSIONS**

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>All others (n=53)</th>
<th>Top 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff education / qualification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign language skills of employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of foreign business partners' mentality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade fair activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Similar consumption patterns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive image of geographic origin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptation of product in recipe, packaging, price</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small distance to foreign markets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of the special logistics characteristics of food products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of special transport logistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sufficient stock capacities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble-free customs clearance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of foreign food legislation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of trade administrative procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of INCOTERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of international standardised payment terms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate protection against exchange rate risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to relevant foreign market information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of public financial assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support through commodity marketing boards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ ○ indicate statistically significant differences of the group means at the 95% confidence level (exact Mann-Whitney U test results)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Profiling of sample data

- Often, groups of companies are contrasted instead of individual ones (e.g., when consulting companies benchmark many companies at the same time).

- In this case, and provided the samples are representative for the underlying target population, statistical tests of the significance of the differences can (should) be performed:
  - two-sample $t$-test if the samples are large;
  - non-parametric two-group tests (e.g., Mann-Whitney $U$ test) if they are small.
benchmarking competitors

**PORTFOLIO MATRICES (1)**

- **Market attractiveness**
  - **bad**
  - **middle**
  - **good**

- **Market standing**
  - **high**
  - **middle**
  - **low**

- **Activity (SBU) volume**
  - expand activity
  - stop activity
  - modify activity

- Besides market standing (relative to the industry leader), the attractiveness of activities is considered.

- How to measure market attractiveness and market standing?
The numerical definition of the individual measures is context-specific.

Applying benchmarking, evaluation is relative to the industry leader.
Benchmarking competitors

CALCULATION FORMULAE

**Compound(ed) annual growth rate**

- CAGR gives the average annual growth rate, which does not take year-to-year growth fluctuations into account:

\[
CAGR = \left( \frac{\text{final value}}{\text{initial value}} \right)^{\frac{1}{n-1}} - 1
\]

- \( n \) = number of years covered (e.g., 1997-2007 \( \Rightarrow \) 11 years).
- In Excel: "RATE" or "XIRR" function. However, in practice, it is often easier to do without these functions.

**0-1 scaling**

- All metric data measured on different scales can be standardised to lie between zero and one:

\[
X_i = \frac{x_i - x_{\text{min}}}{x_{\text{max}} - x_{\text{min}}}
\]

- Scale can be manipulated to lie between 0 and \( k \), by multiplying the result from the above calculation by \( k \).
Benchmarking competitors

**EXAMPLE**

### 1) Basis data

<table>
<thead>
<tr>
<th>Activity (SBU)</th>
<th>Absolute market size (€ million)</th>
<th>Avg. market growth last 5 years (CAGR in %)</th>
<th>Market share industry leader (in %)</th>
<th>Own market share (in %)</th>
<th>Avg. growth of own market share, last 5 years (CAGR in %)</th>
<th>Turnover of activity (€ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>53</td>
<td>8.1</td>
<td>33</td>
<td>33</td>
<td>5.2</td>
<td>17.5</td>
</tr>
<tr>
<td>A2</td>
<td>17</td>
<td>3.1</td>
<td>12</td>
<td>8</td>
<td>2.1</td>
<td>1.4</td>
</tr>
<tr>
<td>A3</td>
<td>2</td>
<td>24.0</td>
<td>24</td>
<td>15</td>
<td>1.4</td>
<td>0.3</td>
</tr>
<tr>
<td>A4</td>
<td>105</td>
<td>1.7</td>
<td>8</td>
<td>2</td>
<td>3.3</td>
<td>2.1</td>
</tr>
<tr>
<td>A5</td>
<td>14</td>
<td>5.8</td>
<td>14</td>
<td>3</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>A6</td>
<td>17</td>
<td>3.2</td>
<td>50</td>
<td>17</td>
<td>7.2</td>
<td>2.9</td>
</tr>
</tbody>
</table>

### 2) Evaluation

#### Market attractiveness

<table>
<thead>
<tr>
<th>Activity</th>
<th>Market size</th>
<th>Market growth</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>A2</td>
<td>1.2</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>A3</td>
<td>0.2</td>
<td>2.9</td>
<td>1.6</td>
</tr>
<tr>
<td>A4</td>
<td>2.7</td>
<td>0.5</td>
<td>1.6</td>
</tr>
<tr>
<td>A5</td>
<td>1.1</td>
<td>1.9</td>
<td>1.5</td>
</tr>
<tr>
<td>A6</td>
<td>1.2</td>
<td>0.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>

#### Market standing

<table>
<thead>
<tr>
<th>Activity</th>
<th>Market share</th>
<th>Market-share growth</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>3</td>
<td>2.2</td>
<td>2.6</td>
</tr>
<tr>
<td>A2</td>
<td>2.5</td>
<td>1.9</td>
<td>2.2</td>
</tr>
<tr>
<td>A3</td>
<td>2.3</td>
<td>0.6</td>
<td>1.5</td>
</tr>
<tr>
<td>A4</td>
<td>1.5</td>
<td>1.8</td>
<td>1.7</td>
</tr>
<tr>
<td>A5</td>
<td>1.1</td>
<td>0.2</td>
<td>0.7</td>
</tr>
<tr>
<td>A6</td>
<td>1.8</td>
<td>2.8</td>
<td>2.3</td>
</tr>
</tbody>
</table>

(0-1 = low/small; 1-2 = middle; 2-3 = high/large)

### 3) Bubble chart
BENCHMARKING COMPETITORS

ASSESSMENT OF BENCHMARKING

- It is a **process**. This means that it should not be just a one-off activity, but rather an ongoing transformation routine involving continuous measurement and improvement.

- Finding suitable and willing **benchmarking partners** is the hardest part. Nevertheless, benchmarking partners usually also have something to gain from participating in the procedure.

- The exercise should be conducted by **multi-disciplinary teams** rather than by individuals. The more people contribute to a final assessment the better the outcome.

- **Action** must follow analysis.
TODAY'S AGENDA

Analysing competitors and suppliers

1) Introduction

2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary
Analysing suppliers

INTRODUCTION

- Competitor analysis is about competition. Supplier analysis is about collaboration.

- Supplier analysis can also be about performance and risk management. This is in particular true for companies with very many suppliers, such as large retailer groups or large manufacturers.

- Cost of material supplies and external services are frequently the most important cost items and can exceed 50% of total costs (e.g., in retailing). Effective supplier selection can therefore be crucial.

- Sometimes the analysis is also about supplier (bargaining) power.

- All standard market/ing research techniques can be applied to suppliers, such as segmentation.
Analysing suppliers

NEW BUSINESS PARADIGM: COMPETING AS A COLLABORATIVE SUPPLY CHAIN
Analysing suppliers

RELATIONAL RENTS

For supply-chain members

- **Cost savings** resulting from economies of scale and scope, thus increasing production and distribution efficiency (e.g., reduction of product losses in transportation and storage).
- **Higher operational effectiveness** due to synergies (e.g., securing large-scale orders; dissemination of technology, capital and knowledge, resulting in a larger potential for process innovation).
- **Risk reduction** due to the sharing of hazards (looses) and investments.

For society at large

- **Consumer-driven production and distribution.**
- **Higher supply transparency through tracking & tracing.**
- **Better control of product safety and quality** – i.e., less risk.
- **More sustainable economic structures.**

A supply-chain partnership is not a panacea (a cure-all) for success. It is a framework for improved communication and co-ordination in business transactions.*

Business alliances do not develop themselves. They require a lot of efforts and competencies of those involved.**

=> A business partnership is an organisational structure like others. If it is not managed well, it can result in bureaucracy, inflexibility and free-rider problems.

Sources:

Analysing suppliers

VIEW #1: HORIZONTAL ALLIANCES VS VERTICAL PARTNERSHIPS

Distribution (e.g., grocery retailing)

Manufacturing (e.g., food processing)

Production (e.g., farming)

(Horizontal) ALLIANCE

(Vertical) PARTNERSHIP
Analysing suppliers

VIEW #2: TYPES OF PARTNERSHIPS

Network
- Informal, information sharing, mutual support.
- Loose relations.

Coalition
- Formal joint working for a single issue.
- More intense and structured relations.

Alliance
- Sustained long-term partnerships, trust and shared understanding.
- Tight and co-ordinated relations.
Analysing suppliers

**TYPOLOGY OF BUYER-SUPPLIER RELATIONS**

<table>
<thead>
<tr>
<th>Buyer's interest in supplier</th>
<th>Supplier development (i.e., network)</th>
<th>Supply-chain management (i.e., alliance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactive</td>
<td>Supplier selection (i.e., market)</td>
<td>Supply-chain sourcing (i.e., coalition)</td>
</tr>
<tr>
<td>Arm's length</td>
<td>Collaborative</td>
<td></td>
</tr>
</tbody>
</table>

THE BUYER-SUPPLIER POWER MATRIX: EVERYTHING IS POSSIBLE

Analysing suppliers

Analysing suppliers

HOW MANY SUPPLIERS ARE REALLY NEEDED?

- Producing commodity or specialty product
- Importance of suppliers brand name
- Importance of time constraints
- Technical competency of supplier
- Production volume requirements
- Need for collaboration

Few suppliers

Many suppliers
MANAGING SUPPLIERS

**Business challenges**
- Do you know who your top suppliers are?
- Do you have a formal approach to measure suppliers?
- Is the approach consistent across the organisation's divisions?
- Can you recognise which suppliers are improving and are more responsive to your corporate needs?
- Do your suppliers know how they are measured and how well they perform?

**Procedure**

**Select**
- Select the best suppliers for new business
- Consolidate supply base

**Execute**
- Benchmark and improve supplier performance
- Improve supplier relationships
- Improve contract negotiations

**Control**
- Monitor changes in supplier performance
- Reduce supply variability and disruption.
TODAY'S REALITY – SOME STATISTICS

- 70% of enterprises consider rating supplier performance as 'very important' or 'critical' to their business.
- 56% have formal measurement procedures.
- These programs, on average, target less than 1/3 of the supply base:
  - 72% based on total proportion of spend
  - 65% based on type/nature of product
  - 52% based on nature of supplier relationship
- 60% of enterprises are less than satisfied with their ability to measure supplier performance.
- Enterprises applying consistent performance measurement procedures were able to improve supplier performance more than 26% on average by improving on quality, on-time delivery, price, total cost, lead times, etc.

Analysing suppliers

SUPPLIER ASSESSMENT FACTORS (SELECTION)

- Replenishment lead time
- On-time performance
- Supply flexibility
- Delivery frequency / minimum lot size
- Supply quality
- Inbound transportation cost
- Pricing terms
- Information coordination capability
- Design collaboration capability
- Exchange rates, taxes, duties
- Supplier viability
Analysing suppliers

**SCORING SUPPLIER PERFORMANCE**

- Formulate evaluation criteria (assessment factors) for suppliers.
- Determine the importance (weight) of the criteria.
- Rank your suppliers, and make appropriate selection that will accommodate customer needs.

<table>
<thead>
<tr>
<th>FACTORS/ATTRIBUTES</th>
<th>Importance Weights</th>
<th>Poor (1)</th>
<th>Fair (2)</th>
<th>Good (3)</th>
<th>Excellent (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier reputation</td>
<td>.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product reliability</td>
<td>.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service reliability</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier flexibility</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Total score: \(0.30 \times 4 + 0.20 \times 3 + 0.30 \times 4 + 0.10 \times 2 + 0.10 \times 3 = 3.5\)*
## Analysing suppliers

### PC-BASED SUPPLIER RATING SYSTEM – EXAMPLE PEOPLESOFT

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Supplier Performance</th>
<th>Shipping Performance</th>
<th>Quality Performance</th>
<th>PO Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midtown Computer Supplies</td>
<td>91.12% ★★★★★</td>
<td>93.47% ★★★★★</td>
<td>77.78% ★★★★</td>
<td>95.65% ★★★★★</td>
</tr>
<tr>
<td>Office Concepts</td>
<td>90.84% ★★★★★</td>
<td>97.51% ★★★★★</td>
<td>92.67% ★★★★</td>
<td>97.45% ★★★★★</td>
</tr>
<tr>
<td>C and J Office Equipment</td>
<td>90.52% ★★★★★</td>
<td>92.21% ★★★★</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Charles Goodman and Sons</td>
<td>87.75% ★★★★</td>
<td>84.64% ★★★★</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

**Graph:**

- **Supplier Performance**
- **% of Target**
- **Supplier**
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
Analysing suppliers

SUPPLIER-ASSESSMENT MATRICES (1)

Source: Wendy's restaurants
Analysing suppliers

SUPPLIER-ASSESSMENT MATRICES (2)

Source: Colgate-Palmolive
CLASSIFYING PRODUCTS RATHER THAN SUPPLIERS

Product's criticality

Low

High

Product's value/cost

Critical items

Strategic items

General items

Bulk purchase items

Analysing suppliers
Supply-chain risk management is a systematic process of managing unwanted events or unwanted change in the supply chain.

Risk has two critical elements, severity (magnitude) and likelihood (probability).
### Analysing suppliers

#### RISK ASSESSMENT

**Likelihood of Occurrence**

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Probability</th>
<th>Rank</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Probable</td>
<td>&gt;75%</td>
<td>High</td>
<td>5</td>
</tr>
<tr>
<td>Probable</td>
<td>&gt;50%&lt;75%</td>
<td>Medium High</td>
<td></td>
</tr>
<tr>
<td>Occasional</td>
<td>&gt;25%&lt;50%</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Remote</td>
<td>&gt;10%&lt;25%</td>
<td>Medium Low</td>
<td>2</td>
</tr>
<tr>
<td>Improbable</td>
<td>&lt;10%</td>
<td>Low</td>
<td>1</td>
</tr>
</tbody>
</table>

**Severity of Impact**

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Rank</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catastrophic</td>
<td>High</td>
<td>5</td>
</tr>
<tr>
<td>Critical</td>
<td>Medium High</td>
<td>4</td>
</tr>
<tr>
<td>Serious</td>
<td>Medium</td>
<td>3</td>
</tr>
<tr>
<td>Marginal</td>
<td>Medium Low</td>
<td>2</td>
</tr>
<tr>
<td>Negligible</td>
<td>Low</td>
<td>1</td>
</tr>
</tbody>
</table>

*Source: Smith, S. (2005)*
Analysing suppliers

**QUANTIFICATION OF RISK**

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Negligible</th>
<th>Marginal</th>
<th>Serious</th>
<th>Critical</th>
<th>Catastrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Probable</td>
<td>1x5=5</td>
<td>2x5=10</td>
<td>3x5=15</td>
<td>4x5=20</td>
<td>5x5=25</td>
</tr>
<tr>
<td>Probable</td>
<td>1x4=4</td>
<td>2x4=8</td>
<td>3x4=12</td>
<td>4x4=16</td>
<td>5x4=20</td>
</tr>
<tr>
<td>Occasional</td>
<td>1x3=3</td>
<td>2x3=7</td>
<td>3x3=9</td>
<td>4x3=12</td>
<td>5x3=15</td>
</tr>
<tr>
<td>Remote</td>
<td>1x2=2</td>
<td>2x2=4</td>
<td>3x2=6</td>
<td>4x2=8</td>
<td>5x2=10</td>
</tr>
<tr>
<td>Improbable</td>
<td>1x1=1</td>
<td>2x1=2</td>
<td>3x1=3</td>
<td>4x1=4</td>
<td>5x1=5</td>
</tr>
</tbody>
</table>

Severity of Impact
### Analysing Suppliers

#### Example

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Negligible</th>
<th>Marginal</th>
<th>Serious</th>
<th>Critical</th>
<th>Catastrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Highly Probable</strong></td>
<td></td>
<td></td>
<td>Pending legislation adds 2 days to on-dock time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probable</td>
<td></td>
<td></td>
<td>Non-ISO verified vendors</td>
<td>Non-ISO certified vendors</td>
<td>Sole source vendor in tornado alley</td>
</tr>
<tr>
<td>Occasional</td>
<td>Nationalization of MRO supplies</td>
<td>Key component delivery late 26%</td>
<td>Critical component lost shipments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improbable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Smith, S. (2005)
# MANAGING RISK

## Analysing suppliers

<table>
<thead>
<tr>
<th>RP</th>
<th>Risk</th>
<th>Actions</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>R3 - Pending legislation adds 2 days to on-dock time for key components</td>
<td>A1 – Require vendor/shipper to meet earlier shipping schedule</td>
<td>C1 – Monitor delivery times and on-dock wait</td>
</tr>
<tr>
<td>12</td>
<td>R4 - Critical component lost shipments</td>
<td>A1 - Increase insurance to offset lost revenue. A2 – Work with vendor/shipper processes to improve tracking</td>
<td>C1 – Monitor insurance payout vs lost revenue. C2 – Implement vendor controls to monitor processes and data</td>
</tr>
</tbody>
</table>
Analysing suppliers

SUPPLY-NETWORK RISK ASSESSMENT – UNITS OF ANALYSIS

Supplier attributes
- Human resources
- Supply disruption risk
- Financial health

Supplier environment
- Geographic
- Market
- Transportation

Interactions and relationship
- Performance
- Reputation

Supply-network organiser
Analysing suppliers

NETWORK RISK-ASSESSMENT EXAMPLES

'Result wheel' for individual supplier

Revenue impact/risk probability matrix
TODAY'S AGENDA

Analysing competitors and suppliers

1) Introduction

2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary
Summary

THE MOST IMPORTANT POINTS TO REMEMBER

1) **Competitiveness** means to do the right things and to do them well. A strategy needs to specify what this means in practice.

2) **Benchmarking** is the systematic comparison of competitors with the aim to learn from these in order to improve one's own performance.

3) In practice, there are different quantitative tools for doing competitor benchmarking. Two of the most important ones are:
   - ratings and profiling
   - portfolio matrices

4) **Supplier analysis** is similar to competitor analysis but the evaluation criteria usually differ.
Seminar on
MARKET AND MARKETING RESEARCH IN AGRIBUSINESS

Agricultural University
Ashgabat, September 15-19 2008

That's it! ☺