Massey University

Te Kunenga ki Pūrehuroa

OSCE

Seminar on

MARKET AND MARKETING RESEARCH IN AGRIBUSINESS

Agricultural University
Ashgabat, September 15-19 2008

Dr Christian FISCHER, Associate Professor

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- 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).

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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

WHERE DO WE WANT TO GO & WHAT WE WILL COVER

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

TUESDAY'S AGENDA

Analysing markets

1) Introduction

2) Market segmentation

3) Assessing market (sales) potentials and opportunities

4) Summary

WEDNESDAY'S AGENDA

Analysing prices and company-level demand

1) Introduction

2) Price analysis

3) Introduction to forecasting

4) Demand analysis

5) Summary

THURSDAY'S AGENDA

Analysing customers and consumers

1) Introduction

2) Customer segmentation

3) Consumer-preference measurement for concept development/ testing

4) Summary

FRIDAY'S AGENDA

Analysing competitors and suppliers

1) Introduction

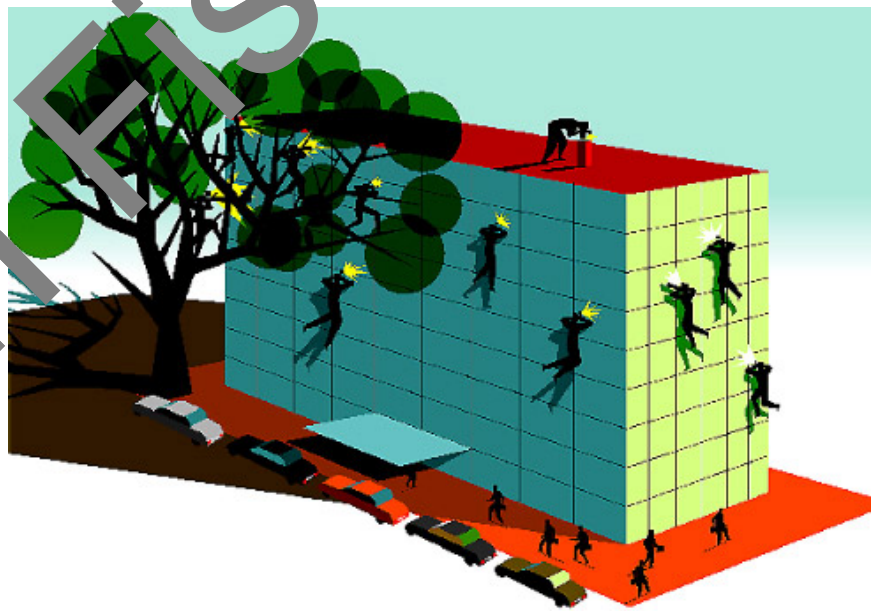
2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary



LITERATURE

Basis (text books):

- Food and Agriculture Organisation of the United Nations (FAO) (1997). *Marketing Research and Information Systems*. Marketing and Agribusiness Texts 4. Rome: FAO.
- Scott, G. (ed.) (1995). *Prices, Products, and People*. *Analysing Agricultural Markets in Developing Countries*. Boulder, London: Lynne Rienner Publishers.
- Hair J.F. et al. (2005). *Marketing Research: Within a Changing Information Environment*. 3nd edition. McGraw-Hill International Editions.
- Kotler, P. (2006). *Marketing Management.* 12th edition. Prentice-Hall. Chapter 5.
- Stevens, R., Sherwood, P., Dunn, J. & Loudon, D. (2006). *Market Opportunity Analysis. Text and Cases*. The Haworth Press, Inc.

Specific (scientific articles and internet resources):

- See distributed list.

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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 (wholesale and retail).

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

MARKET VERSUS MARKETING RESEARCH

Market research	Marketing research
Traditional and more general name.	Newer and more specific name.
Includes research of aggregate markets conducted by universities, research organisations etc.	In effect, company-specific market research.
Includes also commercial research by private market-research companies.	Is usually not concerned with aggregate market (sector analysis).
	May also be called "sales research".

In the following, we will use both terms as synonyms.

MARKET/ING RESEARCH IS BASED ON PRAGMATISM

Interdisciplinary influence of

Economics

Business/ management

Marketing

Sociology

Statistics

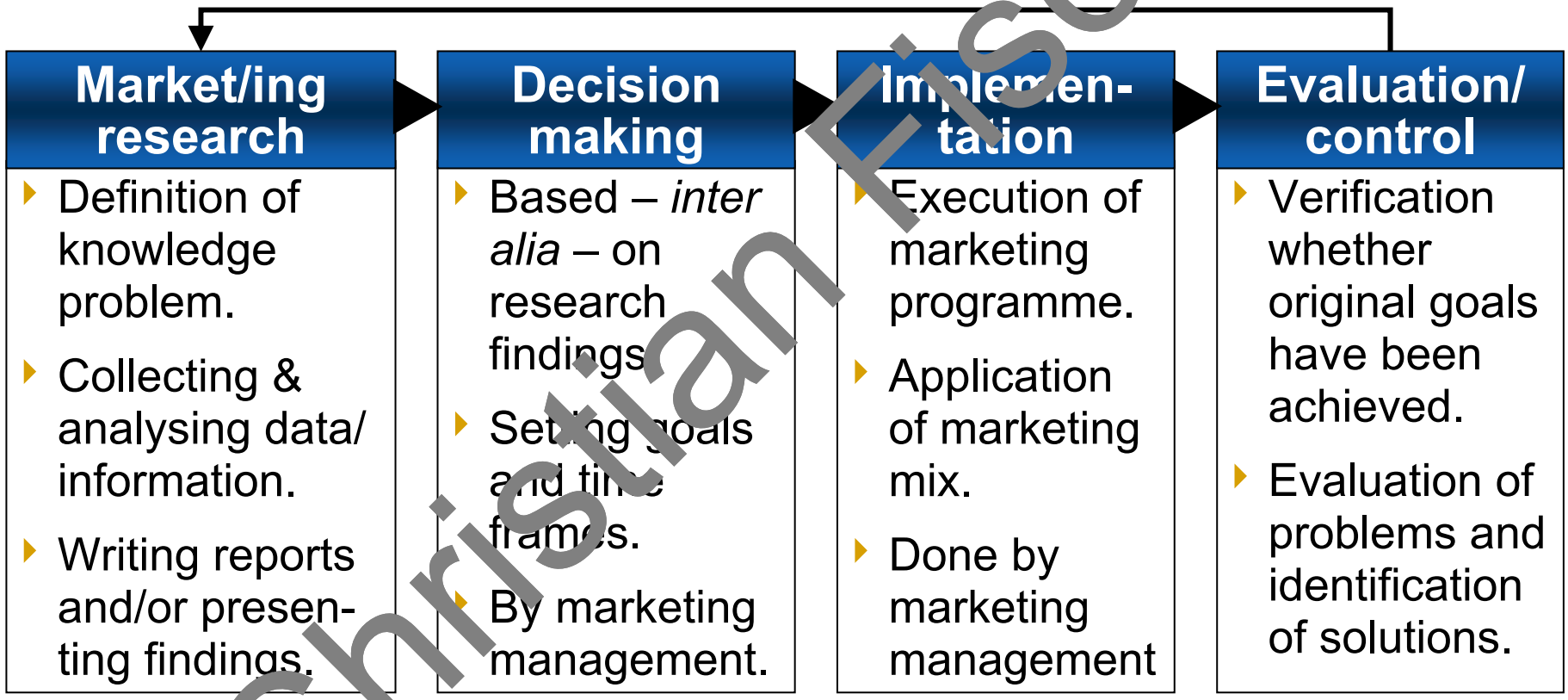
Psychology

Geography

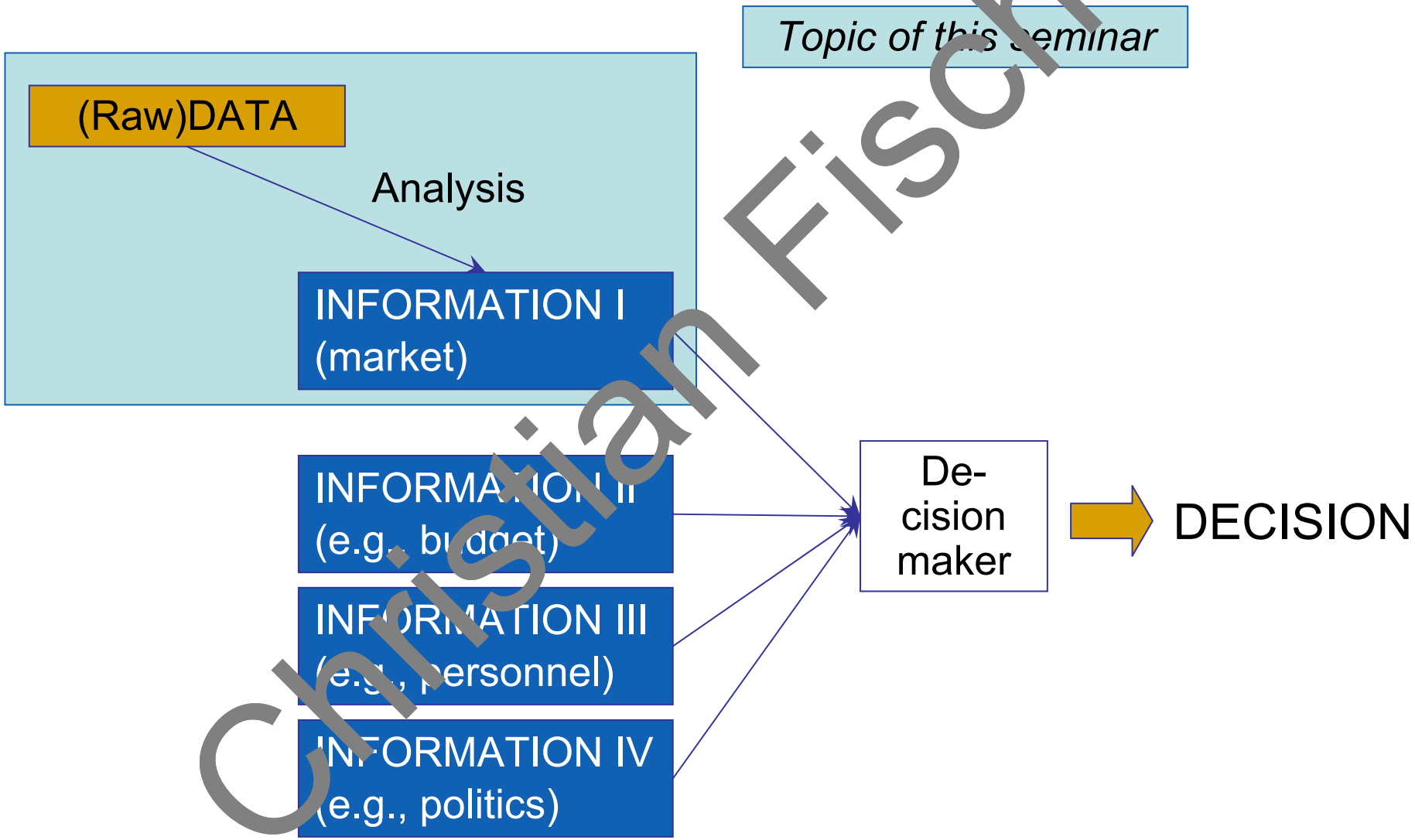
Political science

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

THE MARKETING PROCESS: FROM RESEARCH TO ACTION

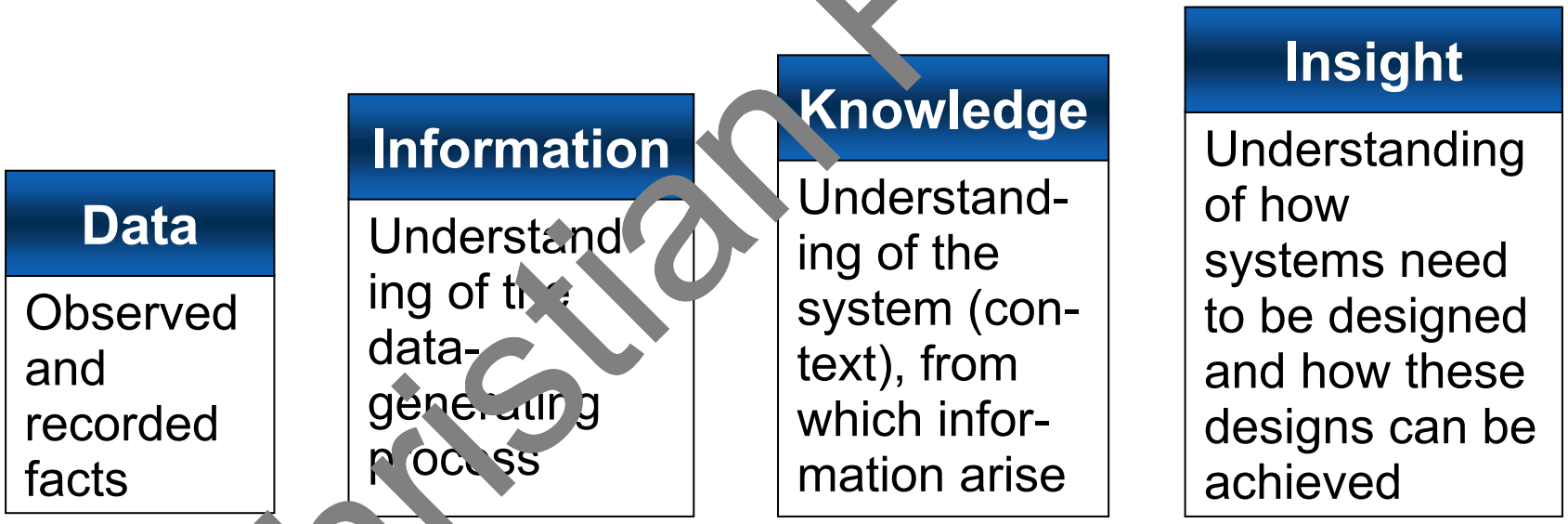


FROM (MARKET-)DATA TO DECISIONS



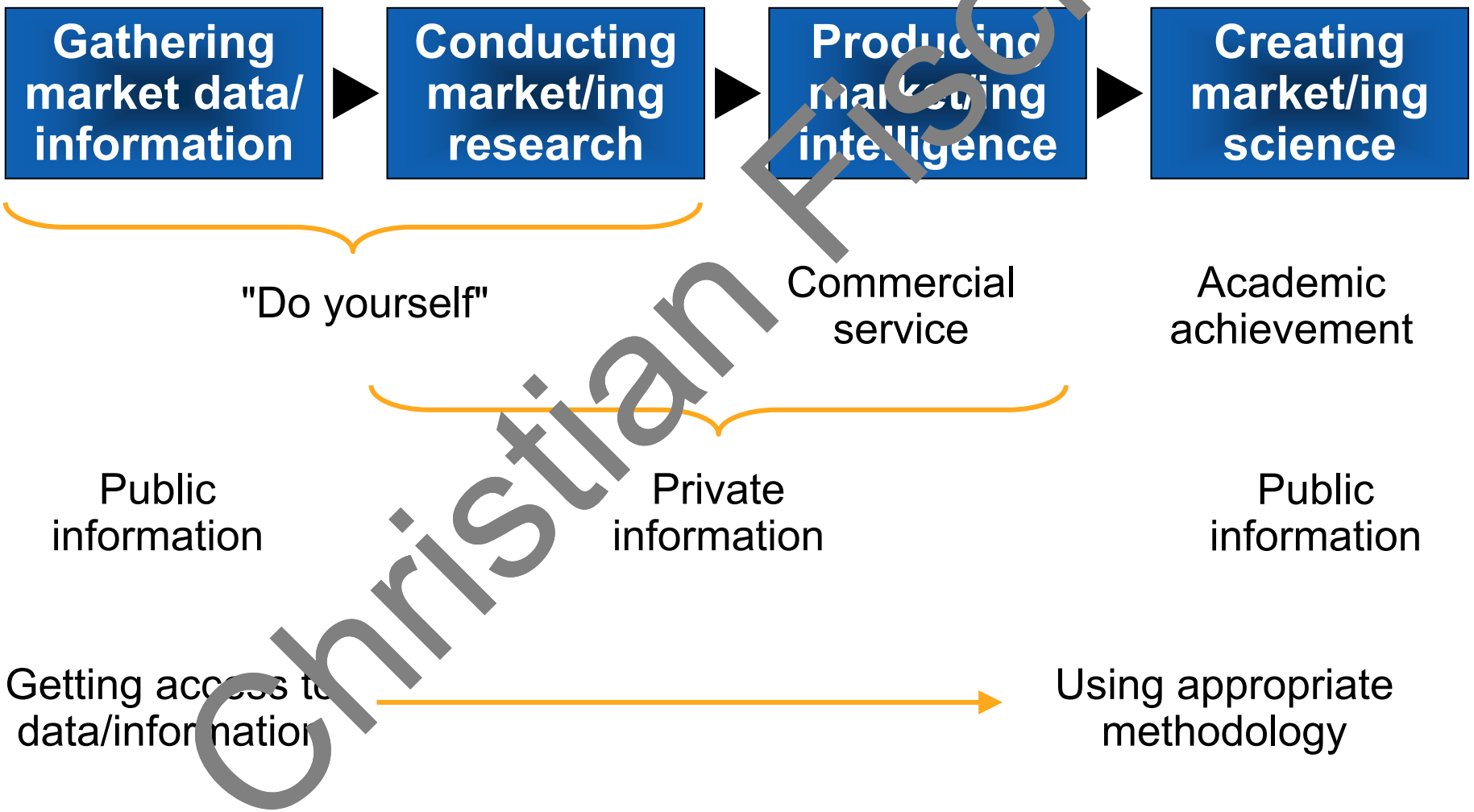
FROM DATA TO INSIGHT

*"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" **



* ALLEN, Peter (1997). Chaos and Evolution in the Social Context. *Futures*, Vol. 26, p. 597.

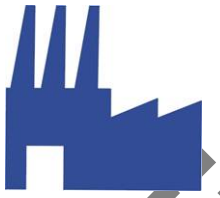
MARKET/ING RESEARCH: ANYTHING FROM DATA COLLECTION TO SCIENCE



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 pro-cessors and/or ana-lyse them themselves.
- Assisted by commercial market-research firms.

EXTERNAL MARKET/ING RESEARCH VERSUS STRATEGIC CONSULTING

Market/ing research	Strategic consulting
Specific data collection and analysis for marketing decisions.	Data collection and analysis for strategic business decisions.
For marketing or sales departments.	For senior management and governance bodies (corporate boards, etc.).
Done by market-research companies.	Done by consulting companies.

TODAY'S AGENDA

Introduction into market and marketing research

1) Organisational matters

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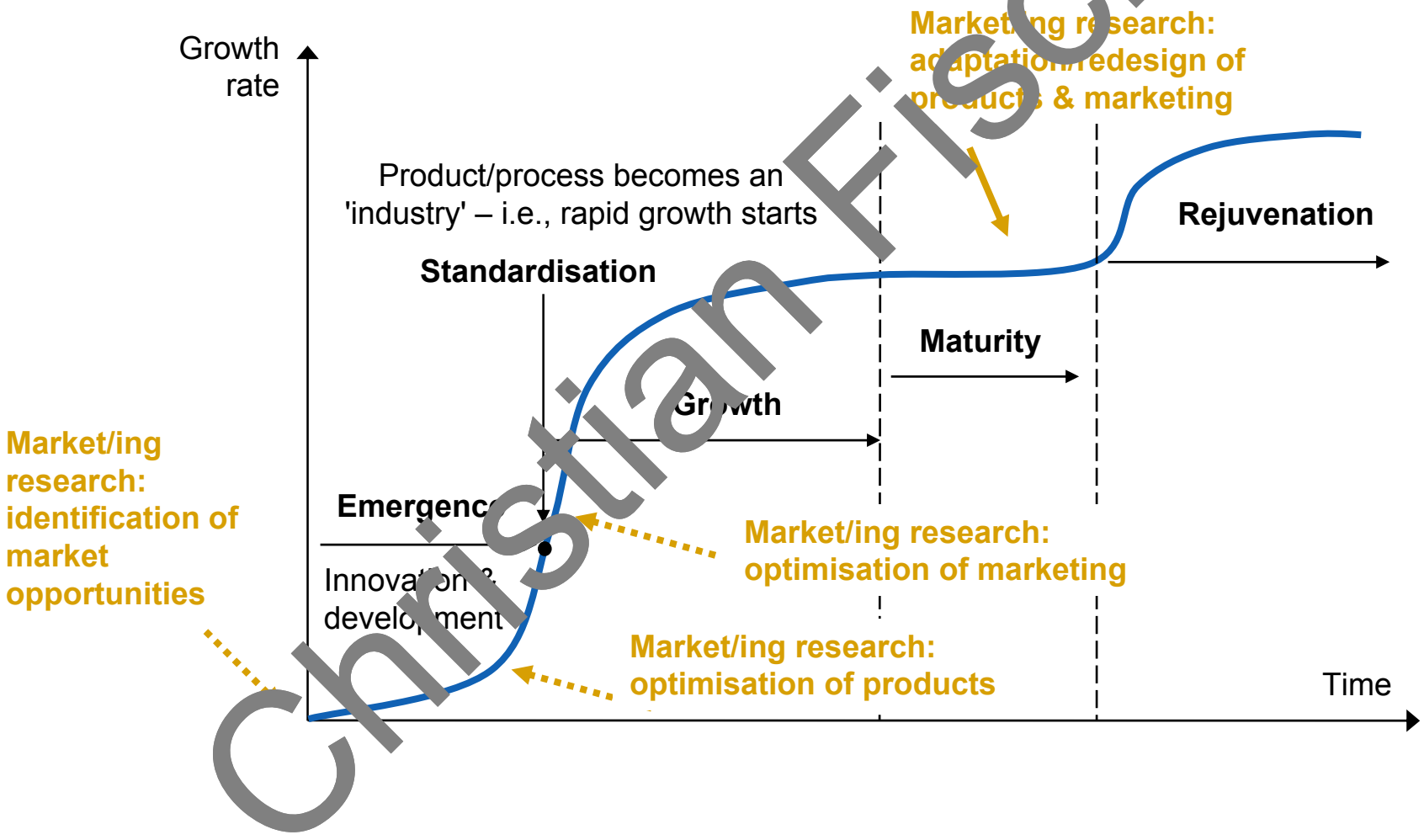
SIGNIFICANCE OF MARKET/ING RESEARCH

- 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?

THE COMPANY LIFE-CYCLE – THE NEED FOR MARKET/ING RESEARCH OVER TIME



PROS AND CONS OF MARKET/ING RESEARCH

Advantages	Disadvantages
Information input for business decisions.	Costly in terms of time and money.
Documentation of company-specific markets over time.	Requires trained staff or the purchase of external services.
Production of useful company-internal training materials.	'Paralysis by analysis' can be an issue.

KNOWING VERSUS DOING

"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

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

	Global	North America	Europe	Asia	Latin America
Strategic Planning	1	1	1	5	1
CRM	2	9	3	1	5
Benchmarking	3	2	2	12	2
Outsourcing	4	6	4	4	4
Customer Segmentation	5	7	5	3	6
Mission and Vision Statements	6	3	6	7	3
Core Competencies	7	8	11	6	10
Strategic Alliances	8	4	7(t)	13	12
Growth Strategies	9	5	10	14(t)	7
Business Process Reengineering	10	11	9	9	15(t)
TQM	11	-	-	2	-
Change Management Programs	12	-	7(t)	-	-
Balanced Scorecard	13	-	-	10	8(t)
Supply Chain Management	14	-	-	8	-
Scenario and Contingency Planning	16	10	-	-	-
Economic Value-Added Analysis	18	-	-	-	8(t)

Note: (t) = tied

Source: Bain & Company (2005)

MARKET-RESEARCH JOBS IN GERMANY

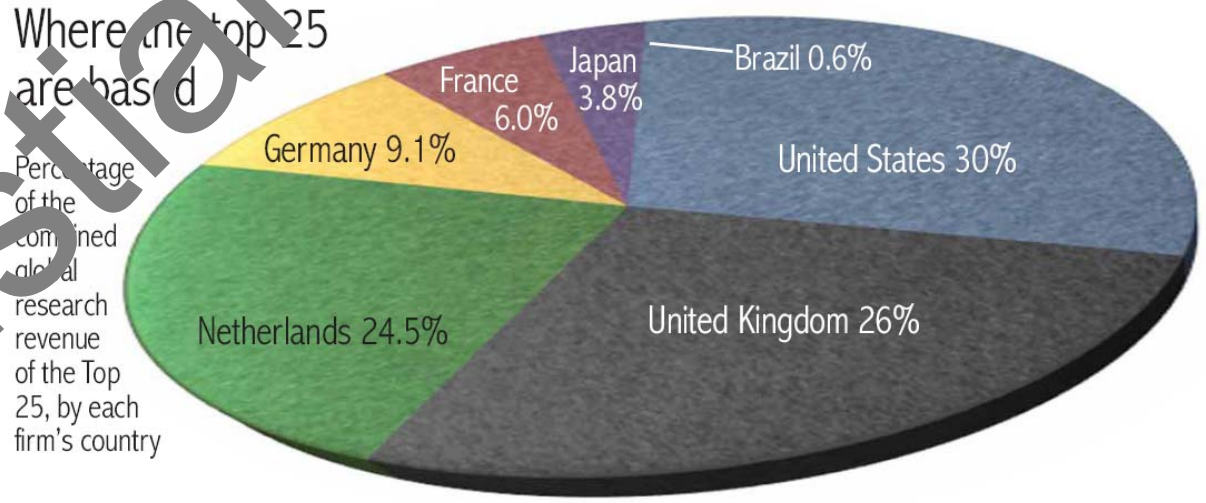
According to a study of Prognos AG and the *Deutscher Industrie- und Handels-kammertags* (2004), the seven most strongly growing industries in Germany are:

	Industry	Most important jobs	Current jobs (#)	Growth until 2020	New jobs (#)
1)	Company services	Consultants **Market & opinion researchers**	3.36 million	27%	980,000
2)	Information technology	Computer scientists IT specialists	363,200	25%	90,800
3)	Logistics and transportation	Logisticians Transport specialists	538,700	20%	102,300
4)	Health	Doctors Pharma researchers	4.05 million	16%	650,000
5)	Tele-communication	Electro technicians Electronic specialists	514,300	12%	61,700
6)	Insurance	Mathematicians Insurance specialists	244,000	9%	22,000
7)	Aerospace	Engineers Air traffic controllers	51,900	8%	4,100

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

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

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

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

Agriculture

- ZMP: zmp.de
- Kleffmann: kleffmann.com
- LMC International: lmc.co.uk
- MarketResearch: marketresearch.com

- US foreign agricultural service: fas.usda.gov

Food

- GIRA: girafood.com
- Leatherhead Food Research: leatherheadfood.com
- Food for Thought: fft.com
- Euromonitor: euromonitor.com
- GIRACT: giract.com

Beverages

- Beverage Marketing: beverage marketing.com
- Canadean: canadean.com
- Zenith International: zenith international.com
- Global Drinks: globaldrinks.com
- Wine Intelligence: wineintelligence.com

Importance and trends

RESEARCH ACTIVITIES OF 435 US MARKET-RESEARCH FIRMS 1988 &1997

Research Activity	Percentage of Companies That Perform This Activity 1988	1997
Business/Economic and Corporate Research		
Industry/market characteristics and trends	83%	92%
Acquisition/diversification	50	50
Market share analysis	79	85
Internal employee studies	54	72
Pricing		
Cost analysis	60	57
Profit analysis		55
Price elasticity		56
Demand analysis		
Market potential		78
Sales potential	69	75
Sales forecas	67	71
Product		
Concept development and testing	63	78
Brand name testing	38	55
Test markets	45	55
Existing product tests	47	63
Packaging studies	31	48
Competitive product studies	58	54

Research Activity	Percentage of Companies That Perform This Activity 1988	1997
Distribution		
Location studies	23	25
Perf man dies	29	—
Coverag studies	26	—
International studies	19	—
Promotion		
Motivation research	37	56
Media research	57	70
Copy research	50	68
Advertising effectiveness	65	67
Competitive advertising studies	47	43
Public image studies	60	65
Sales Force Research		
Compensation	30	34
Quotas	26	28
Territory structure	31	32
Sales promotion	36	47
Buyer Behavior		
Brand preference	54	78
Brand attitudes	53	76
Satisfaction	68	87
Purchase behavior	61	80
Purchase intentions	60	79
Brand awareness	59	80
Segmentation	60	84

Source: Hair et al. (2001)

CURRENT/RECENT RESEARCH TOPICS IN SCIENTIFIC MARKET/ING 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:

Source: Roth and Gmür (2004)

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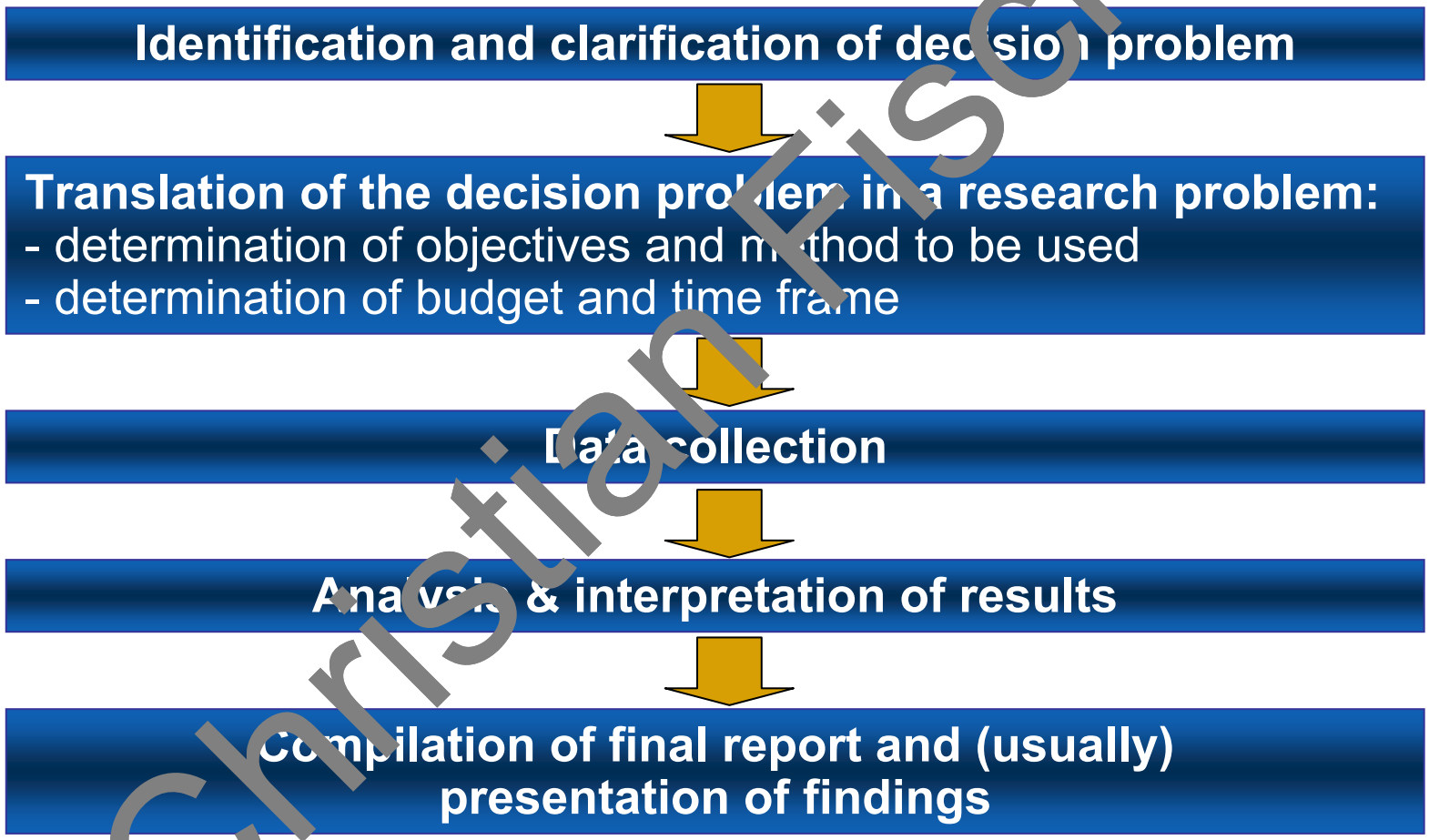
TYPICAL MARKET/ING RESEARCH PROCESS



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.

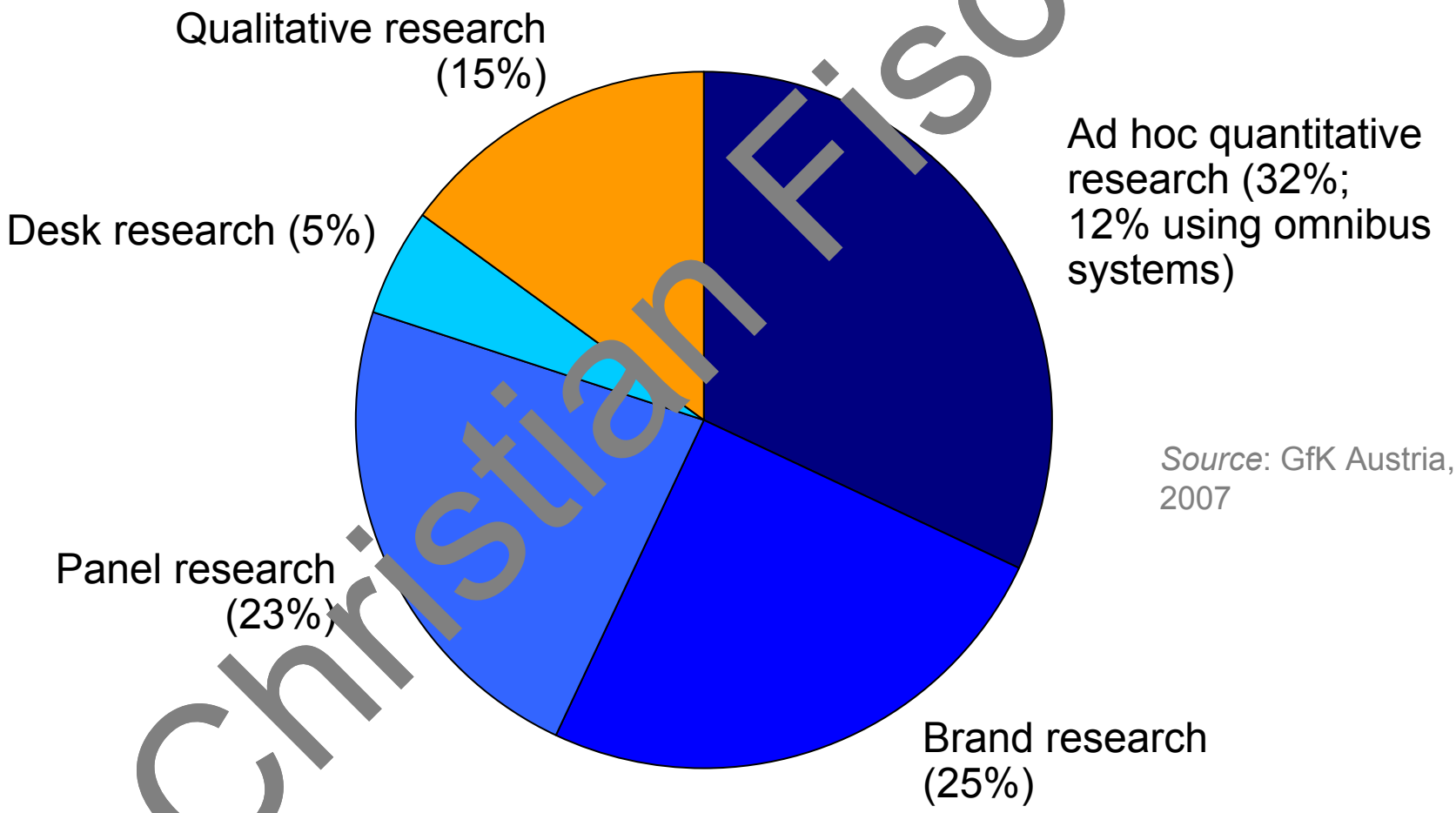
In general: the more important the decision to make and the more costly the consequences from a possible wrong decision, the more necessary it becomes to conduct research.

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

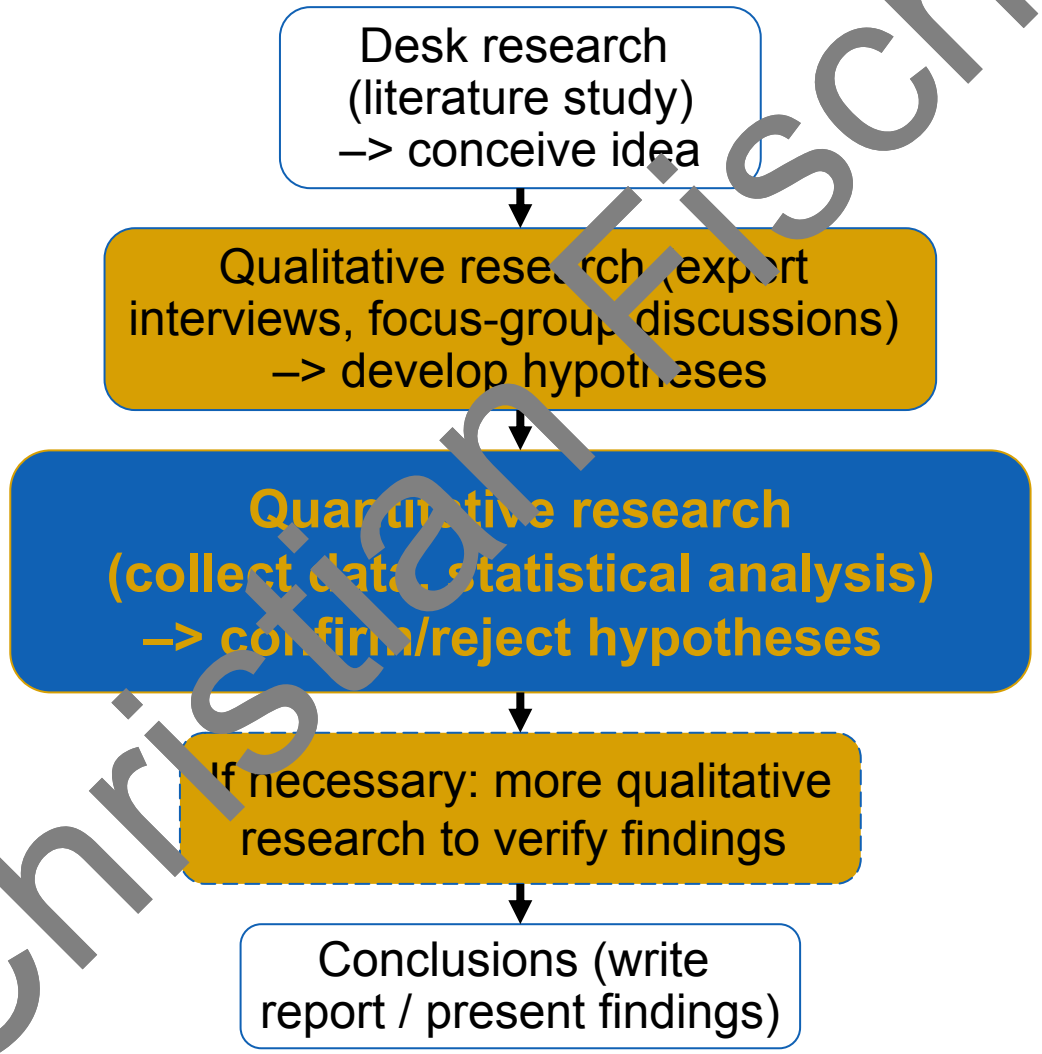
	Quantitative	Qualitative
Core	measurement & evaluation	observation, description & interpretation
Unit of analysis	numbers	words & ideas
Main focus	results	processes
Object of investigation	relationships between variables & causality	meaning & context
Aim	generalisation & prediction	conceptualisation & interpretation
Perspective of investigation	of an outsider; objective	of an insider; subjective

IN PRACTICE, MOST MARKETING RESEARCH IS QUANTITATIVE



Source: GfK Austria, 2007

THE BEST APPROACH: USING BOTH QUANTITATIVE & QUALITATIVE METHODS



DATA SYSTEMATISATION ACCORDING TO TYPE OF SOURCE

Primary data (research)

- Are collected for a new research purpose (i.e., have not existed before).
- Collection usually by survey methods.
- **Advantages**: highly specific, thus particularly suited for answering a given research question.
- **Disadvantages**: collection often requires significant time and incurs monetary costs.

Secondary data (research)

- Exist already, i.e., were collected for a different research purpose.
- Types:
  - company-internal
  - published (e.g., from statistical agencies)
  - commercial (e.g., from market-research firms).
- **Advantages**: readily available and (in general) inexpensive.
- **Disadvantages**: not always useful, because not up-to-date, or of questionable quality.

DATA SYSTEMATISATION ACCORDING TO DIMENSION OF MEASUREMENT

Time-series data

- Frequency of measurement: daily, weekly, monthly, quarterly, semi-annual, annual, etc.
- Problem: do series display trends or are they stationary?

Cross-section data

- Measurement at one single point of time but across different groups (e.g., individuals, house-holds, companies, countries, etc.)
- Problem: how homogenous/hetero-genous are the individual groups?

Pooled data

- Combination of time series and cross-section data.
- Example: *panels* = repeated cross-section of the same research objects (e.g., households, supermarkets, etc.).
- Particular problems: e.g., panel mortality.

PROVIDER FOR SECONDARY DATA

Country level

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

Sector level

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

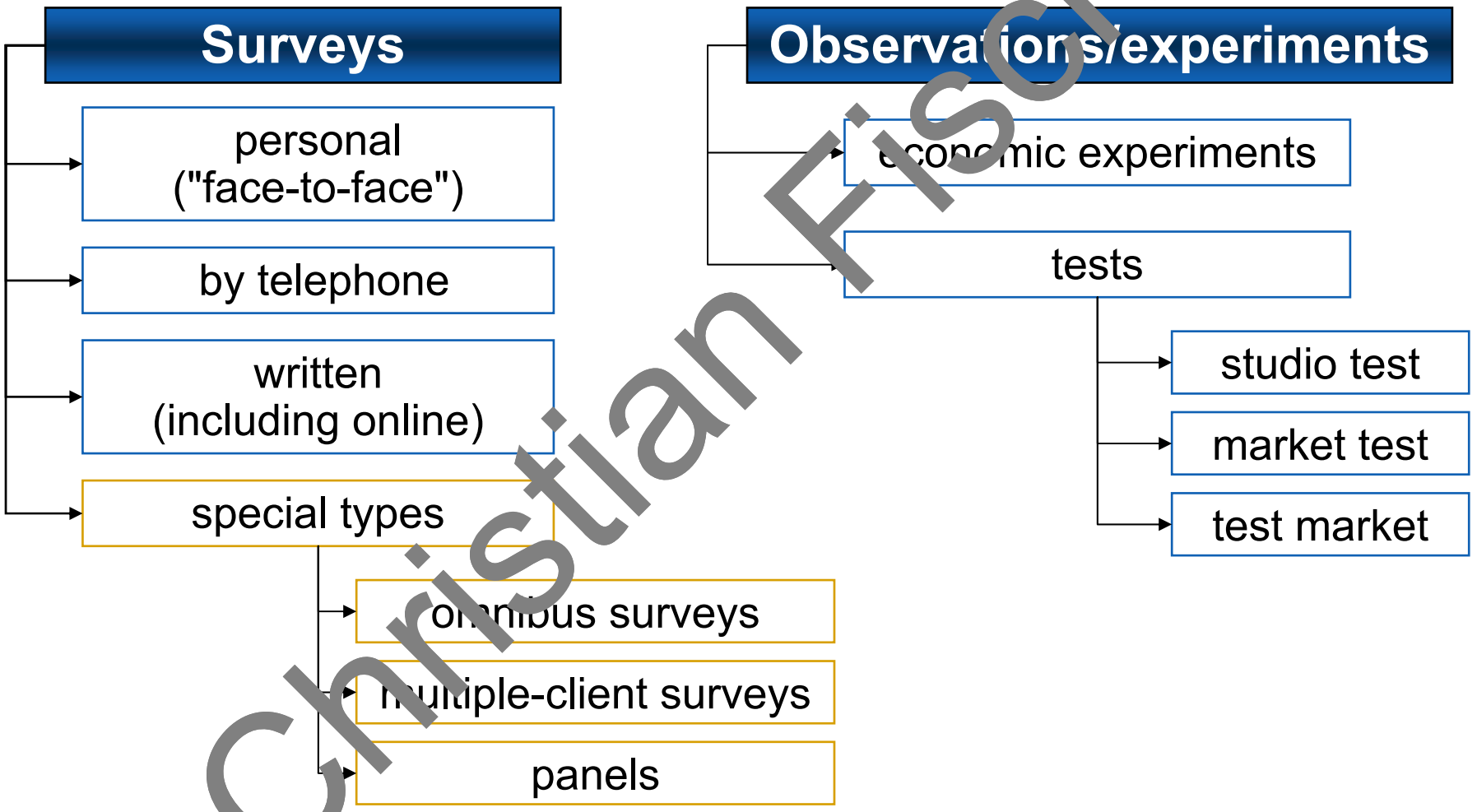
Company level

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)



SURVEY TYPES FOR COLLECTING PRIMARY DATA

Face-to-face

Pros:

- high participation rate
- collection of additional information possible (add. questions, add. observation, spontaneous answers)

Cons:

- higher costs, more time necessary
- inconsiderate answers
- potentially negative influence of interviewer

By telephone

Pros:

- high speed in general lower costs.
- perhaps most convenient for interviewees

Cons:

- not all people are accessible by telephone or willing to provide information

Written

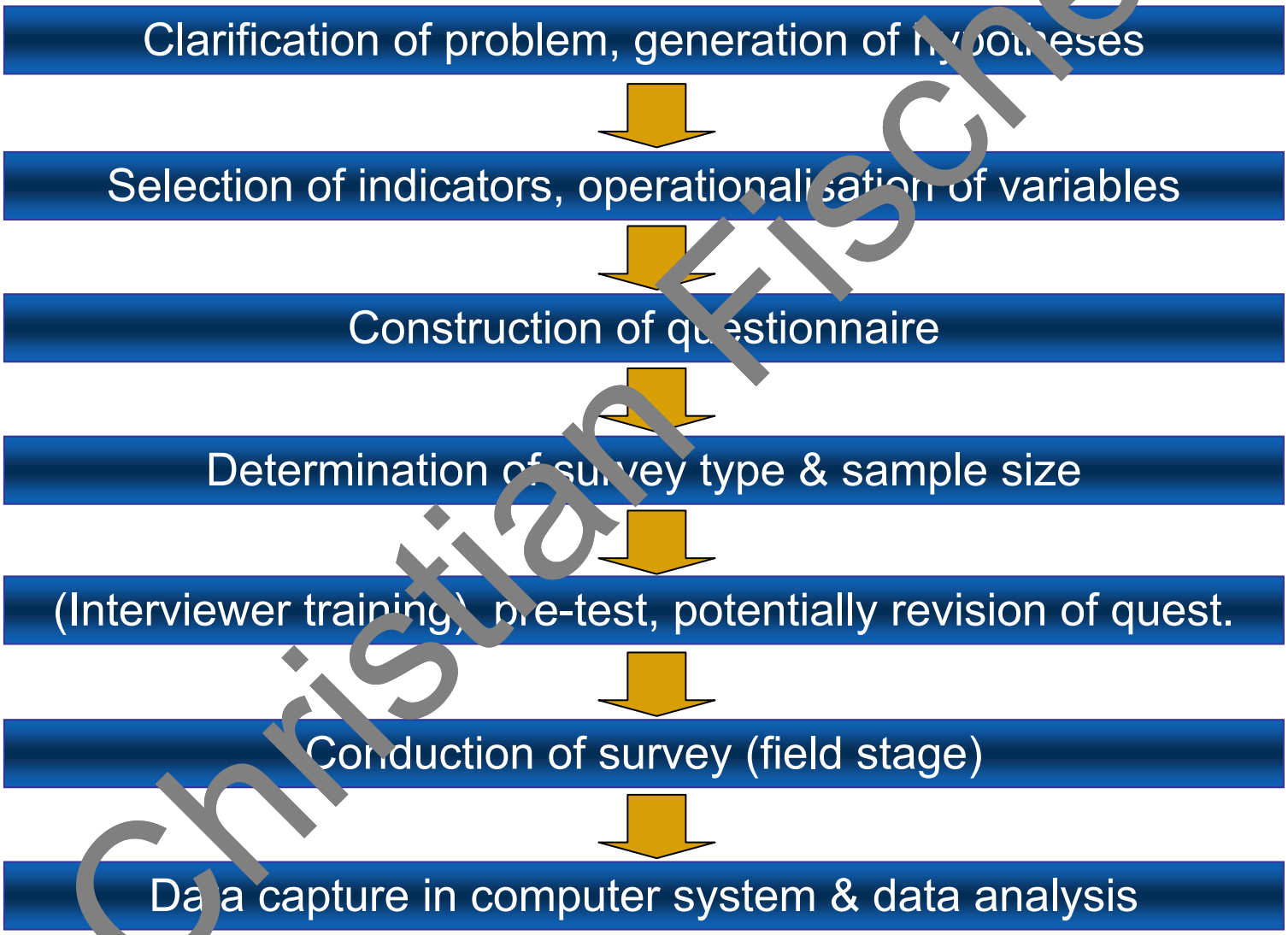
Pros:

- no interviewer effect
- more considerate answers
- in theory, all people can be contacted by mail
- relative low costs

Cons:

- low participation rate
- no flexibility
- danger of misunderstandings

TYPICAL SURVEY PROCESS



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MARKETS CAN BE ANALYSED IN DIFFERENT WAYS

Insider perspective: market players

- Suppliers, competitors, customers.
- Each player is primarily interested in their specific "market", consisting of specific suppliers, competitors, customers.
- Example: market for functional yoghurt drinks vs. market for dairy products.

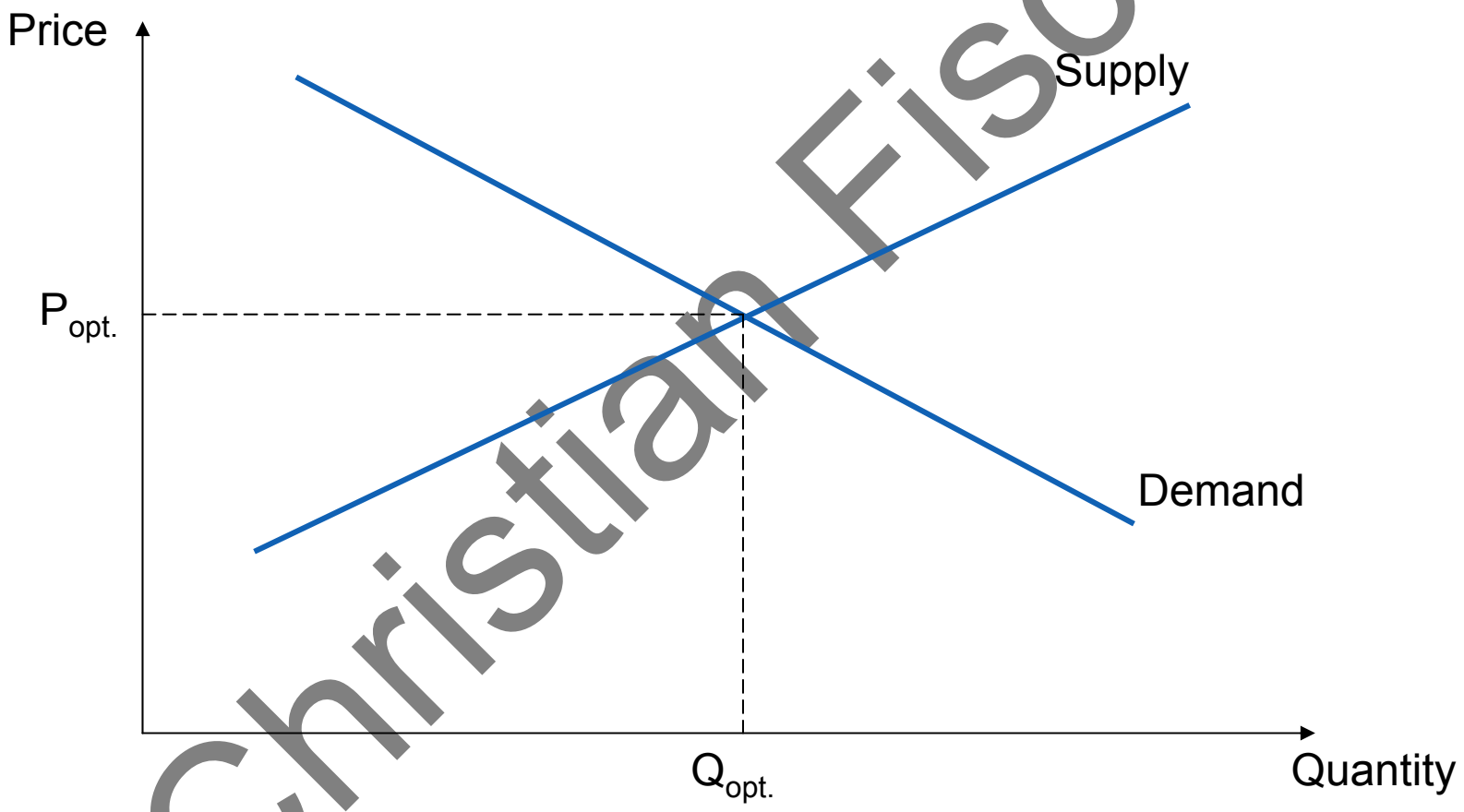
Outsider perspective: external observers

- Example: consultancies, banks, academic institutions, trade/industry associations.
- Interest may be in
  - market as a whole;
  - changes over time;
  - situation in relation to other sectors;
  - competitiveness vis-à-vis other countries;
  - etc.

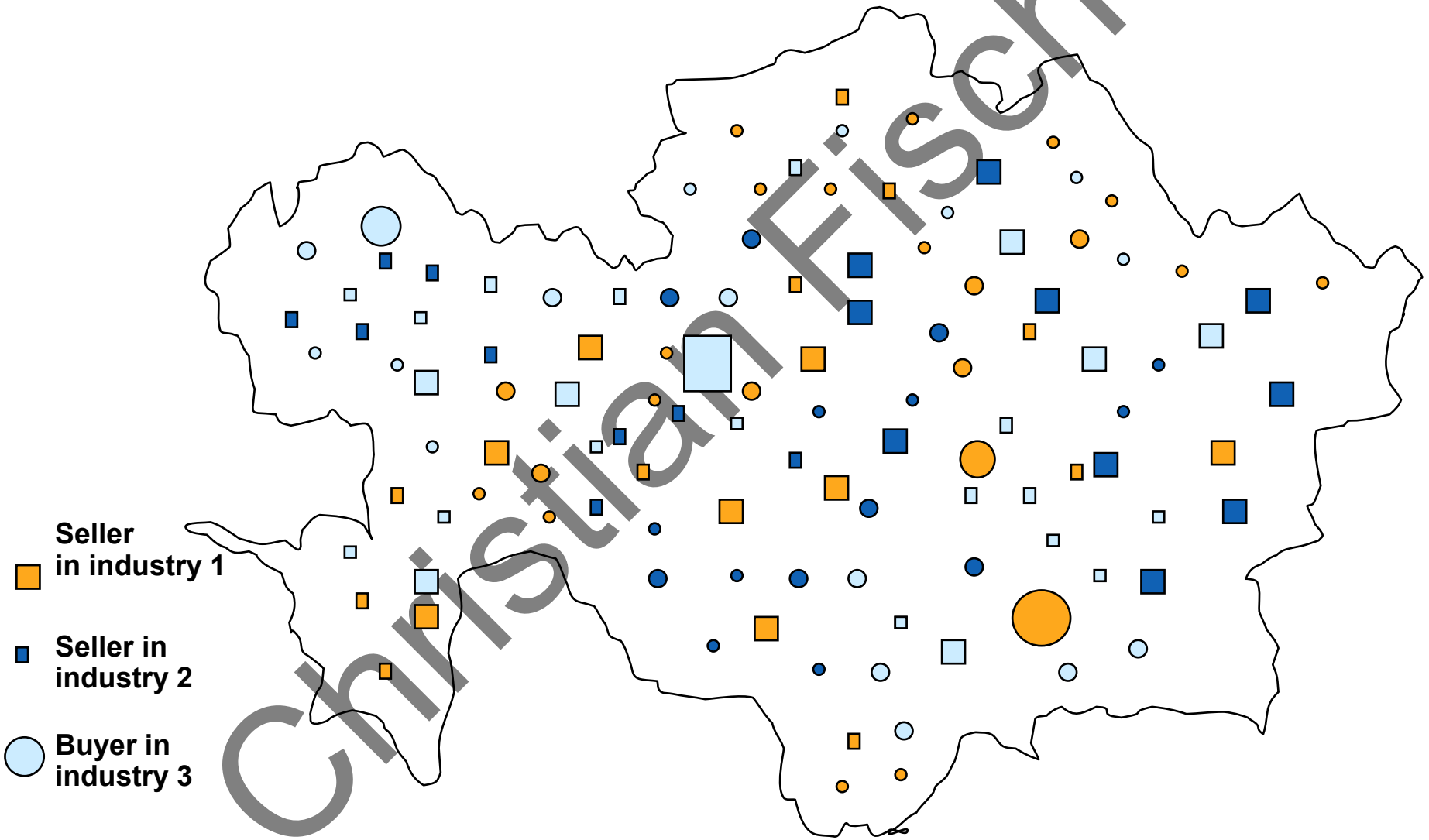
Other approaches

- Flows of goods vs. flows of finance.
- Supply, demand, prices.
- *Specific groups*:
  - producers,
  - processors,
  - distributors,
  - consumers.
- *Relationships/ transactions* between actors: chains & networks.

THE MARKET: AGGREGATE VIEW ON EXCHANGED GOODS

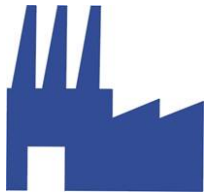


THE MARKET: STATISTICAL VIEW ON PLAYERS



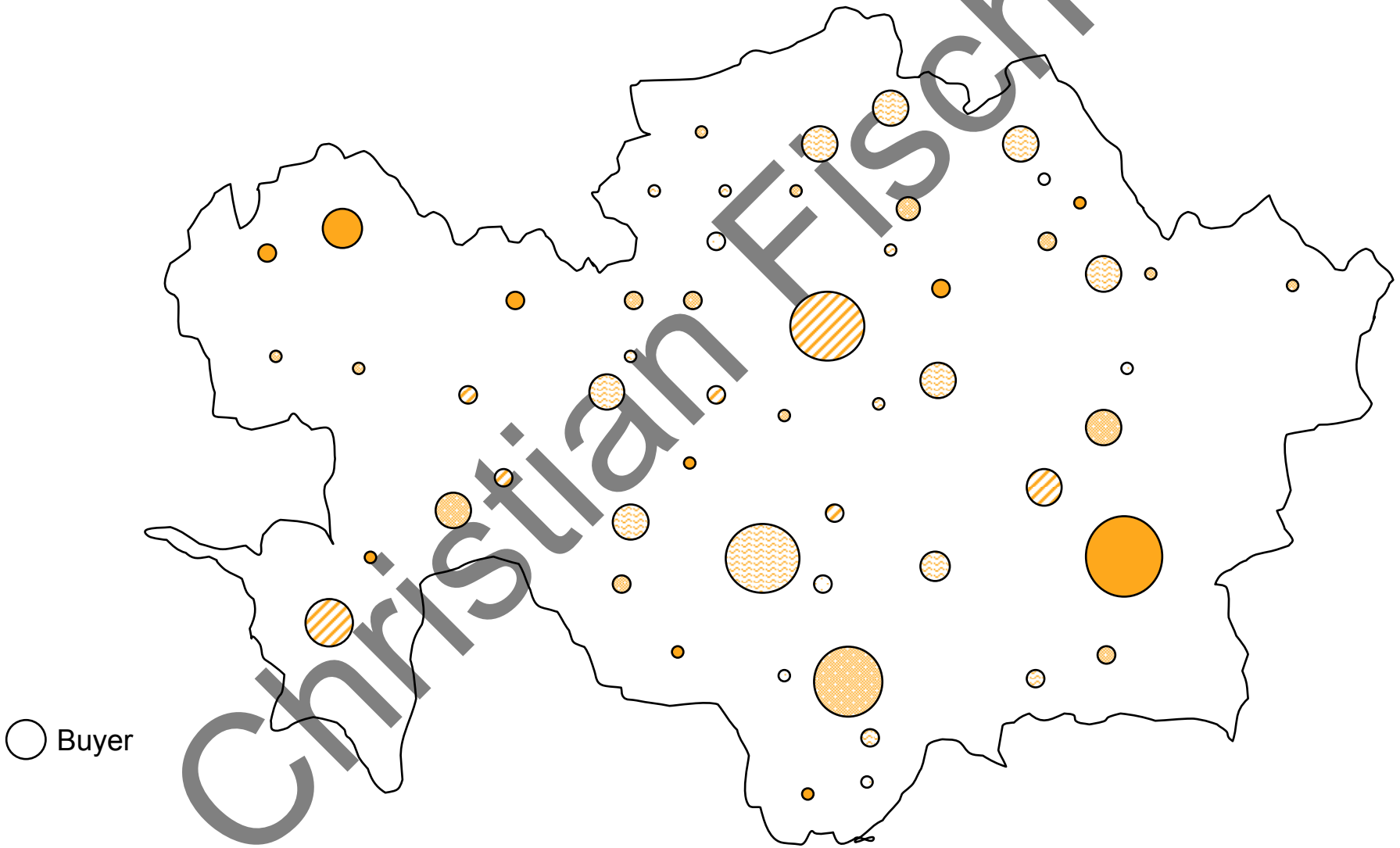
THE EU FOOD MARKET: # OF ACTORS

Source: Eurostat



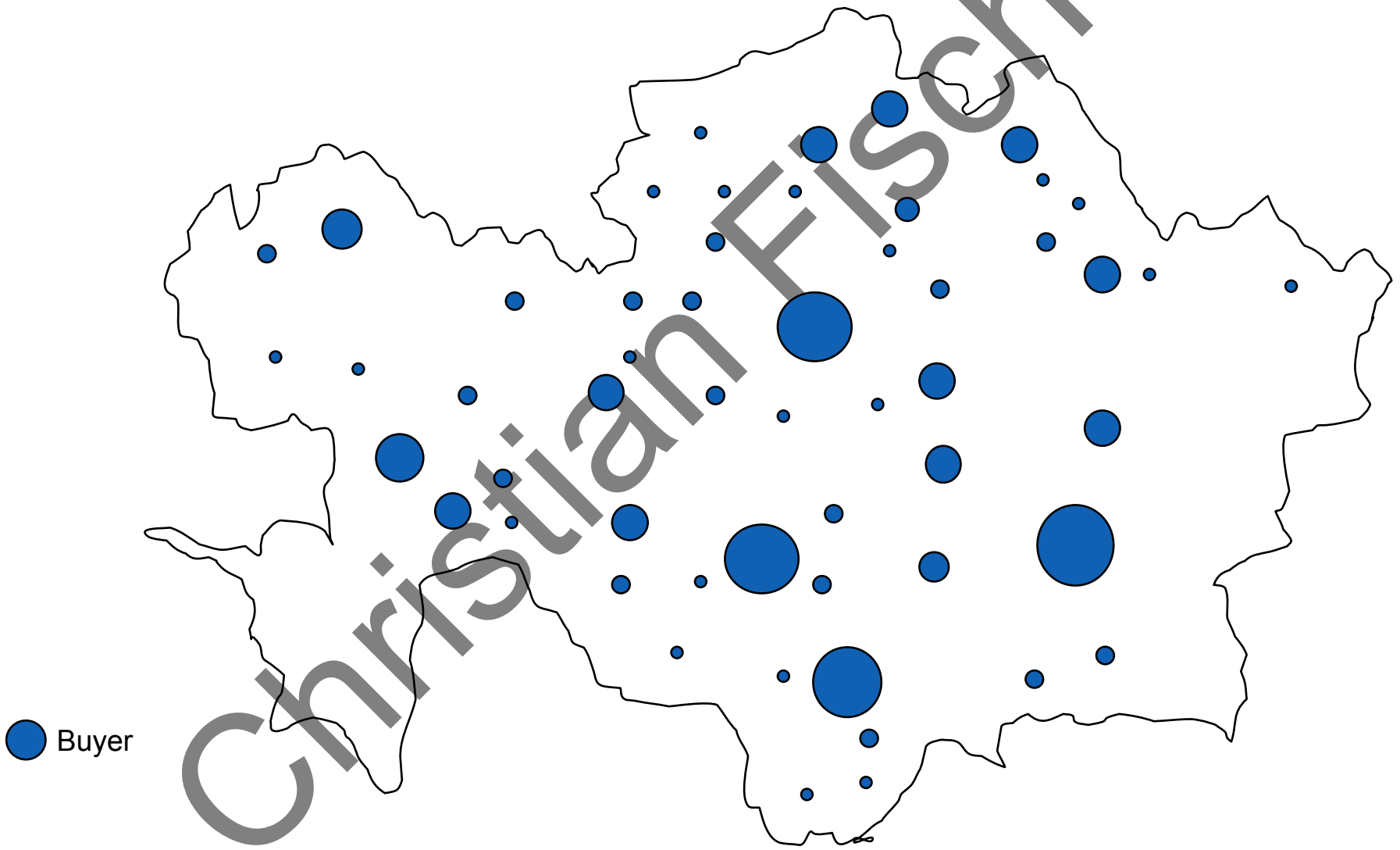
Farmers (EU-27, 2003)	**Food processors** (EU-25, 2003)	**Food retailers** (EU-25, 2003)	**Consumers** (>14 years, EU-25, 2003)
14,937,740	282,638	529,467	382,450,748

TOOL (1): MARKET SEGMENTATION

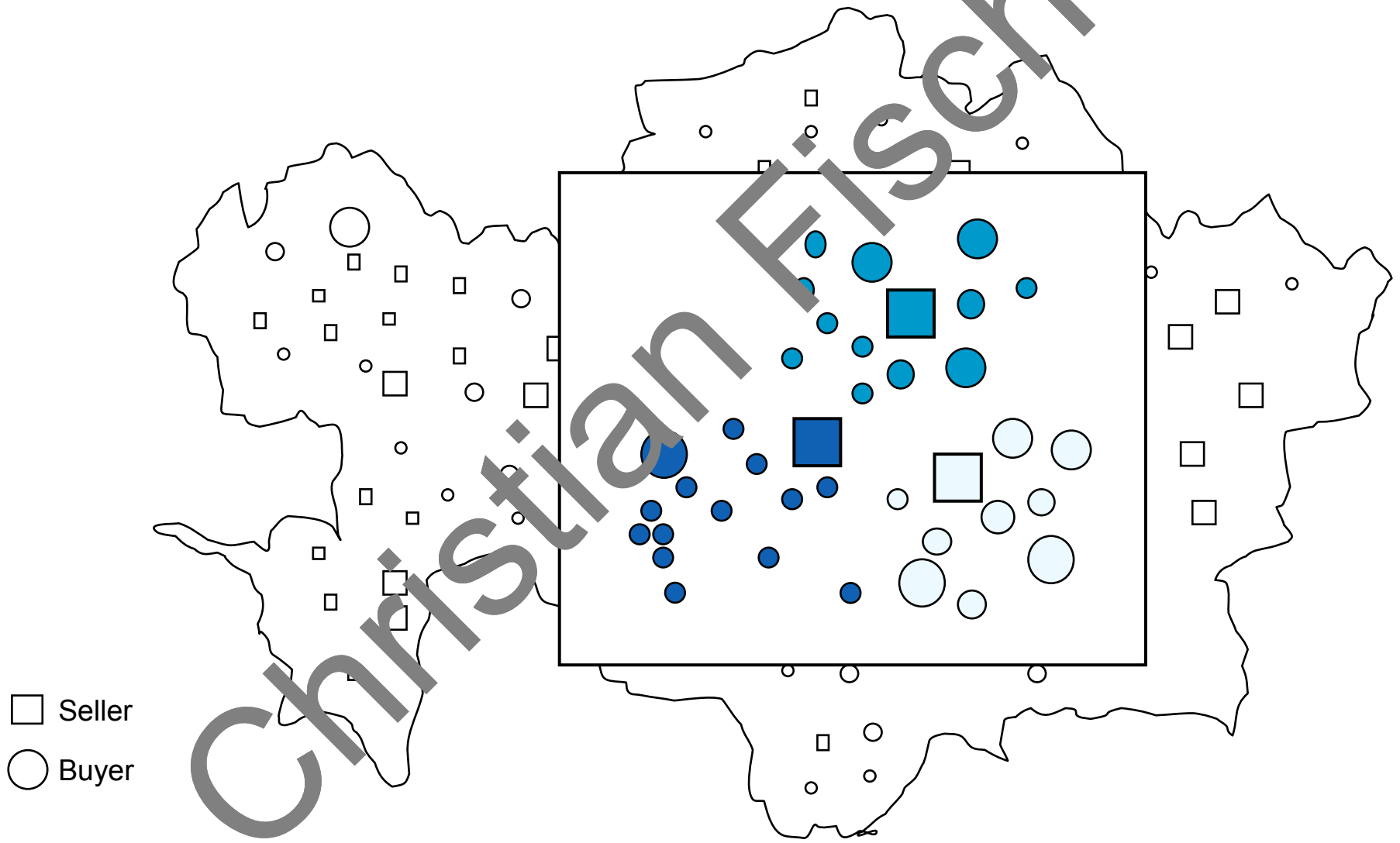


TOOL (2): CUSTOMER SEGMENTATION

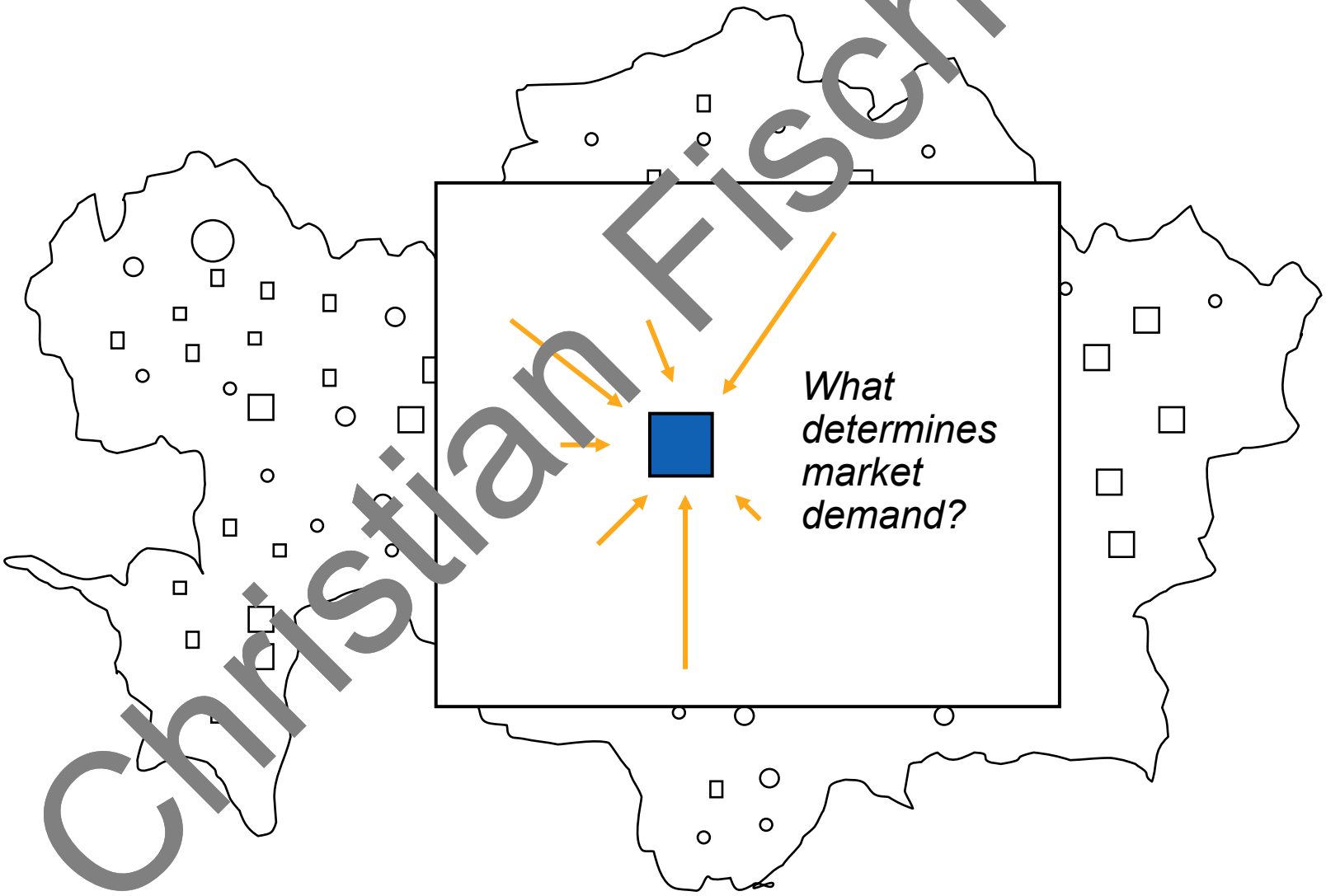
TOOL (3): MARKET-POTENTIAL ESTIMATION



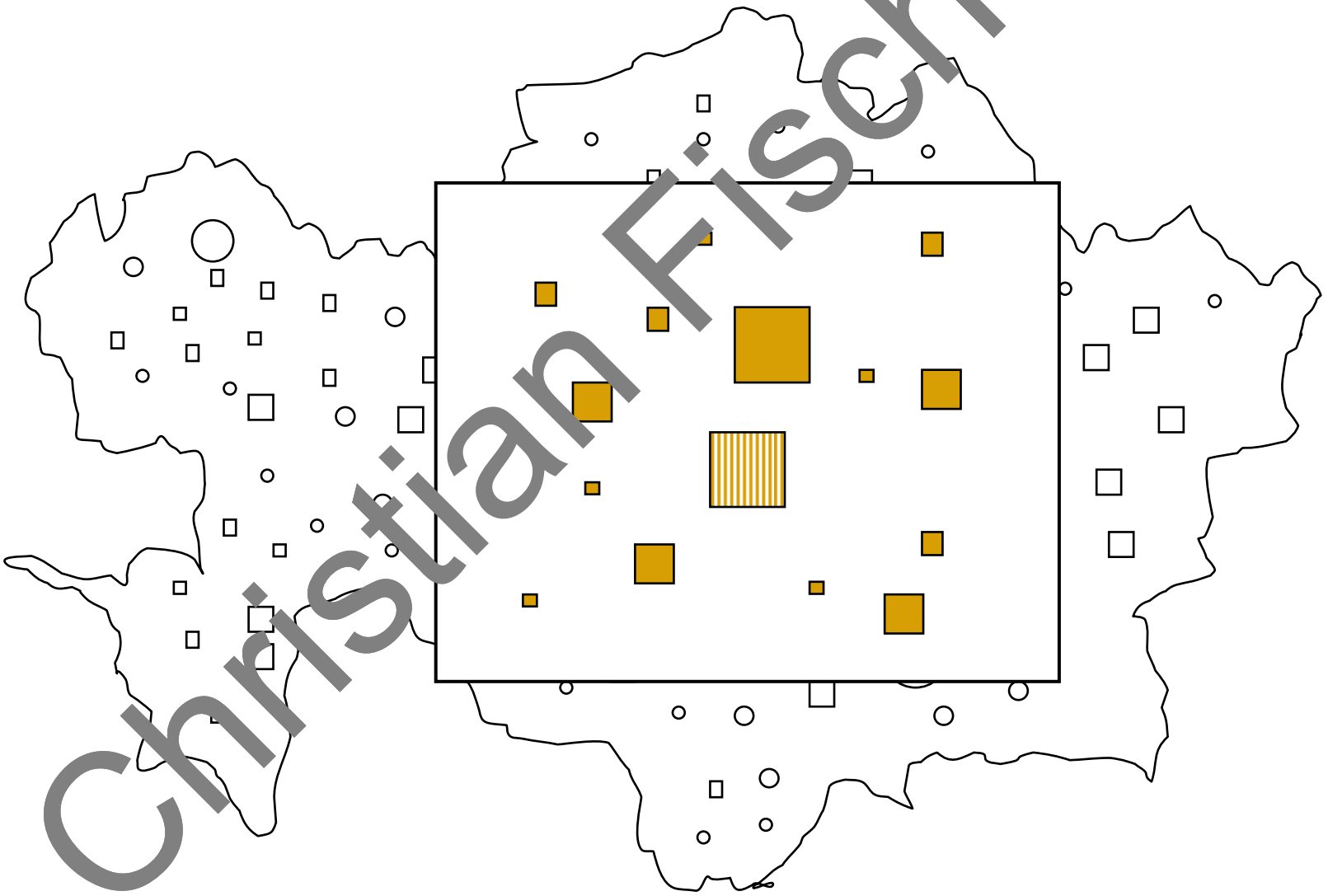
TOOL (4): SALES-POTENTIAL ESTIMATION



TOOL (5): FIRM-LEVEL DEMAND ANALYSIS



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

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.

Massey University

Te Kunenga ki Pūrehuroa

OSCE

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

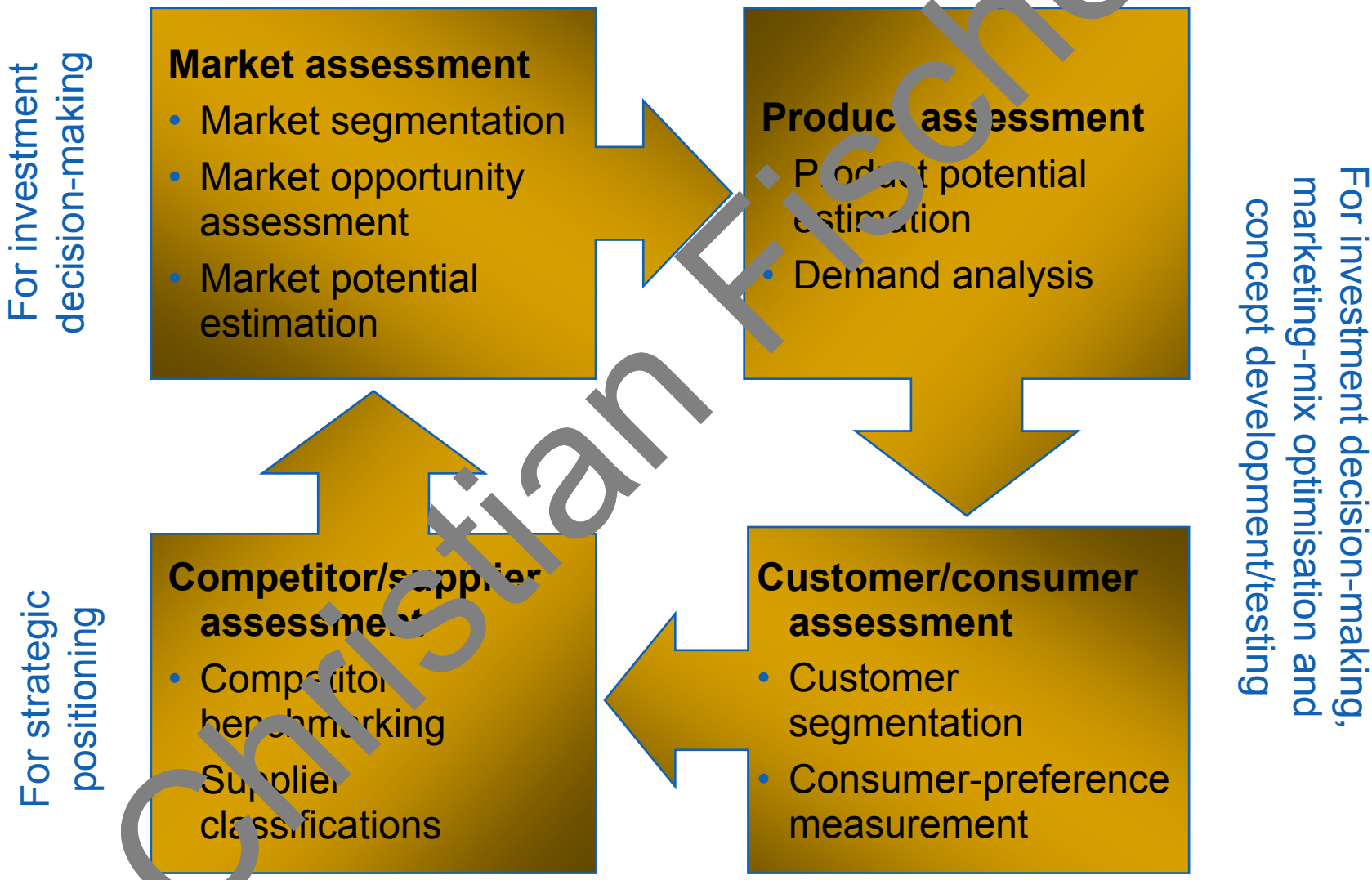
1) Introduction

2) Market segmentation

3) Assessing market (sales) potentials and opportunities

4) Summary

MARKET/ING RESEARCH REVISITED



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

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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.

APPROACHES TO SEGMENTATION

Analysis of aggregate markets

Stakeholder approach

=> Gaining a better under-standing 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

Markets

- A whole market is analysed.
- Can be done by any interested stakeholder (e.g., companies, consultants, market analysts, academics).
- Data mostly come from offical statistics or from market surveys.
- Objective: to gain a better understanding of a market and to identify market opportunities.
- Many different methods exist.

Customers

- A company's actual customers (not potential ones) are segmented.
- Data come from company-internal databases.
- Objective: identification of specific buying behaviours and servicing needs.
- Allows the implementation of specific marketing mixes for individual customer groups, in order to achieve:
  - higher sales (turnover), or
  - low marketing costs.

TECHNICAL DISTINCTION

Segmentation

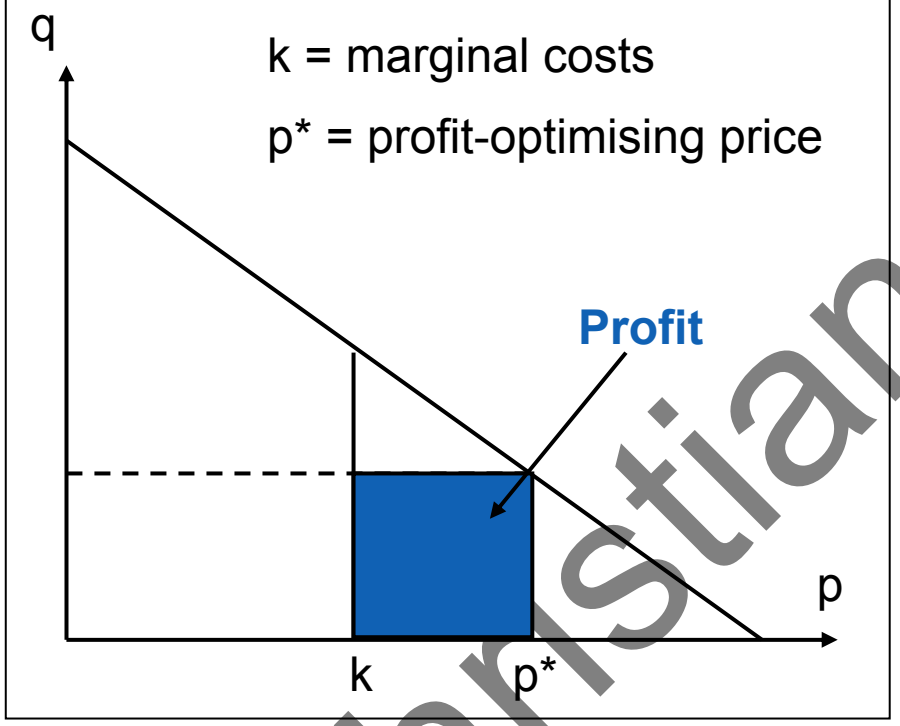
- Segment = homogeneous group of objects, which are similar with regard to some underlying variables.
- Segmentation = the process of dividing a large set of objects into individual sub-sets (i.e., segments).
- The focus of segmentation is on the result of the grouping process.
- Only segmentation variables (X_i) and descriptor variables (Z_i) are used.
- Common statistical method: cluster analysis.

Classification

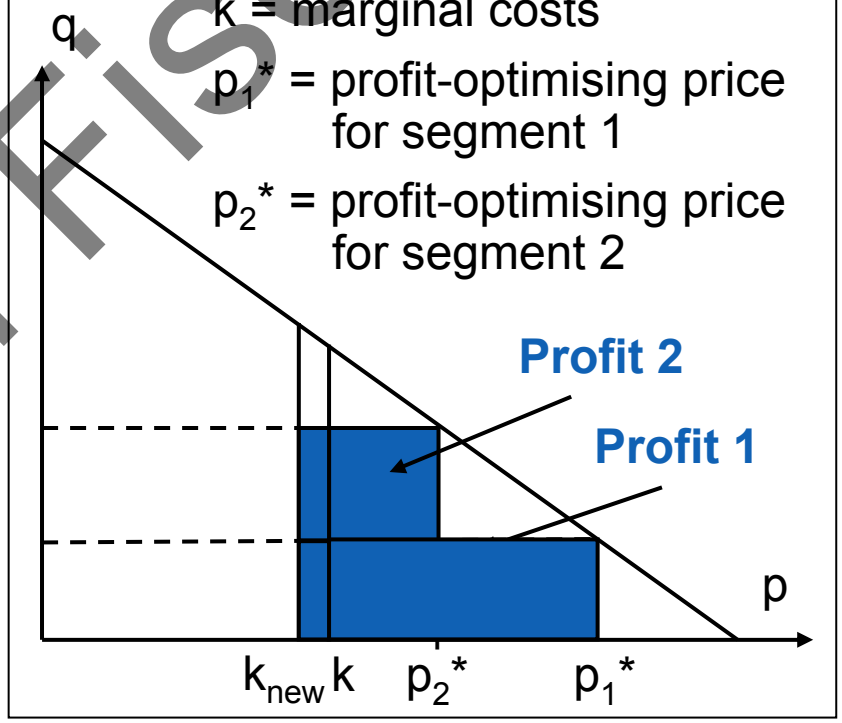
- Classification = the process of describing functional dependencies, which allow to allocate objects into predetermined classes (or groups).
- The focus of classification is on the grouping process and its explanation.
- Classification (explanatory) variables (X_i) and one grouping variable (Y) is used.
- Common statistical method: discriminant analysis.

WHY SEGMENTATION? (1)

Non-(price) segmented market



(Price) segmented market



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

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).

WHY SEGMENTATION? (3)

Not this way:

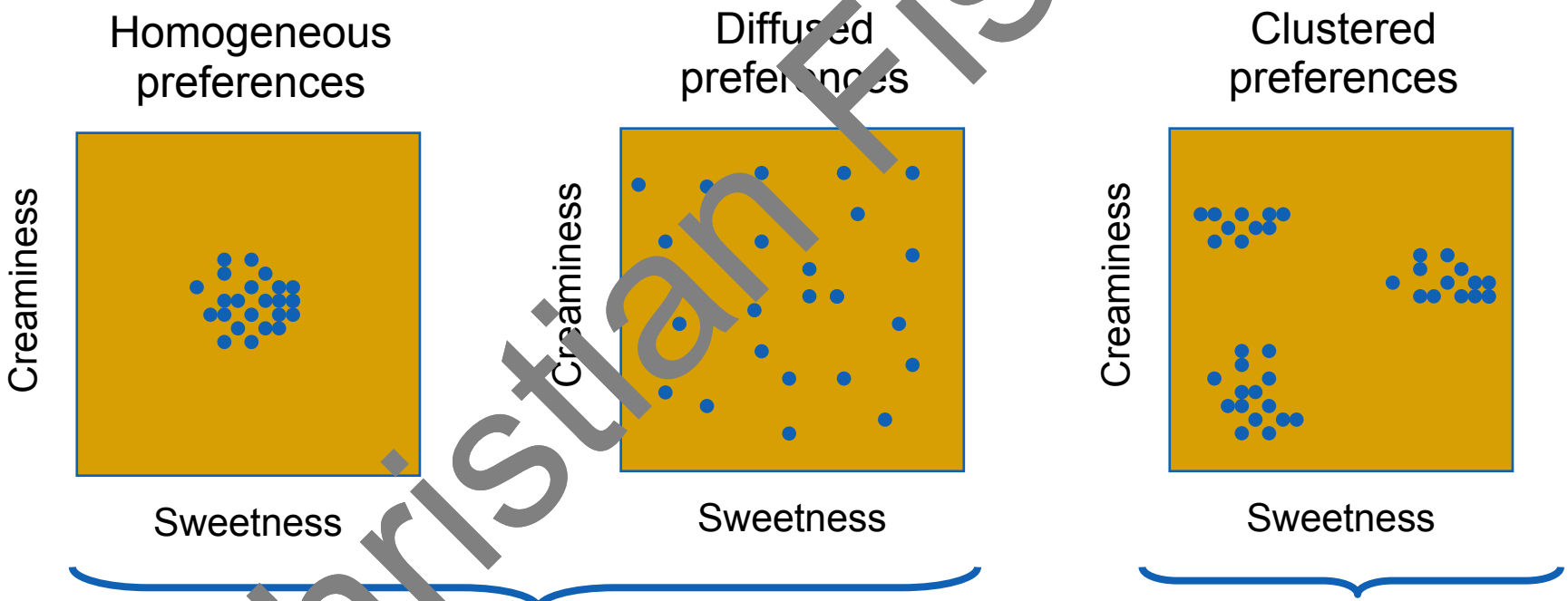
… but this way:

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



Segmentation may not be useful

Segment!

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.

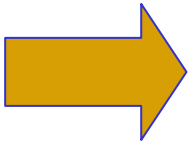
VARIABLES USED IN SEGMENTATION

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.

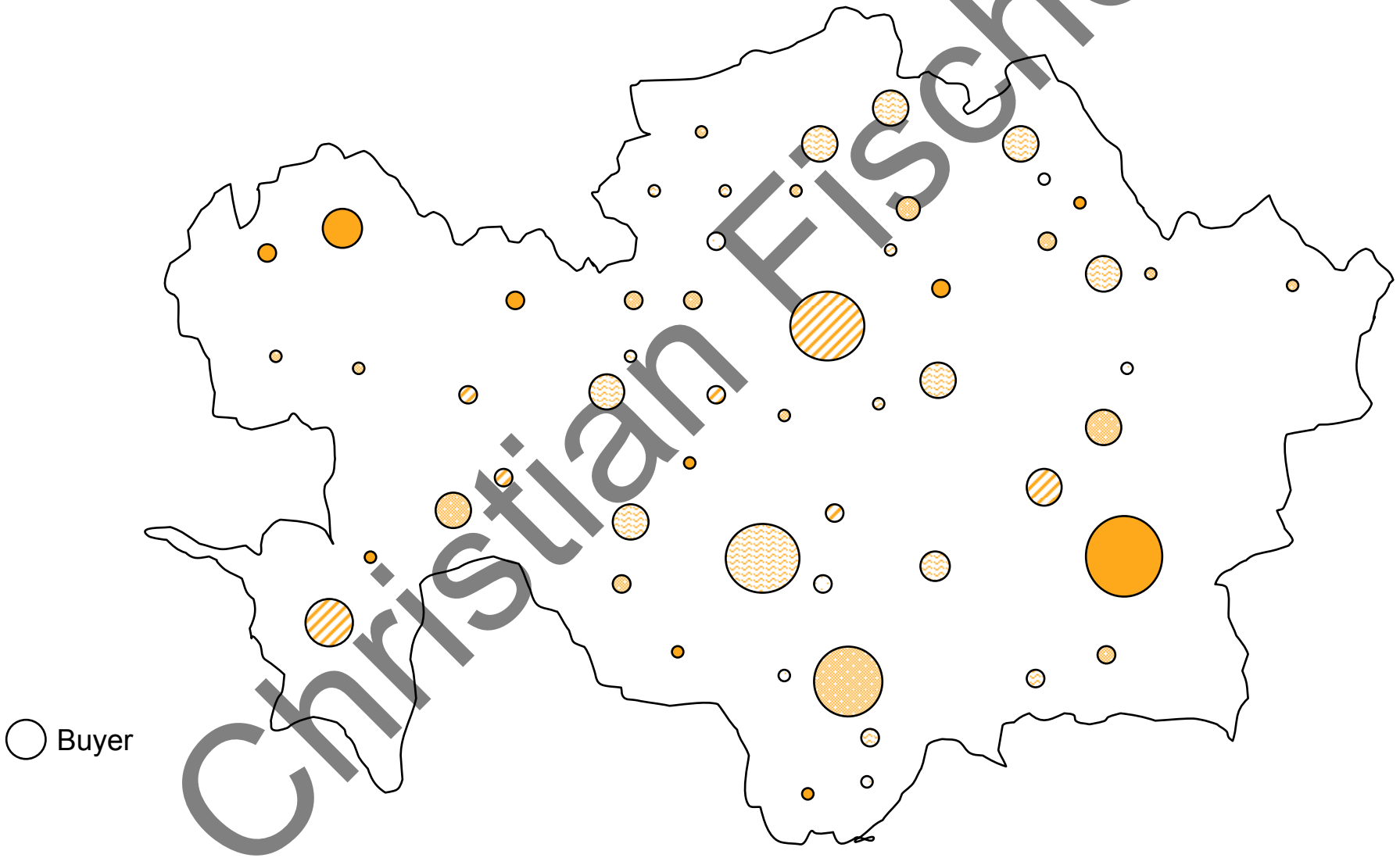
For segment characterisation

- 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.

IDENTIFYING GROUPS OF SIMILAR ACTORS



OVERVIEW

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.

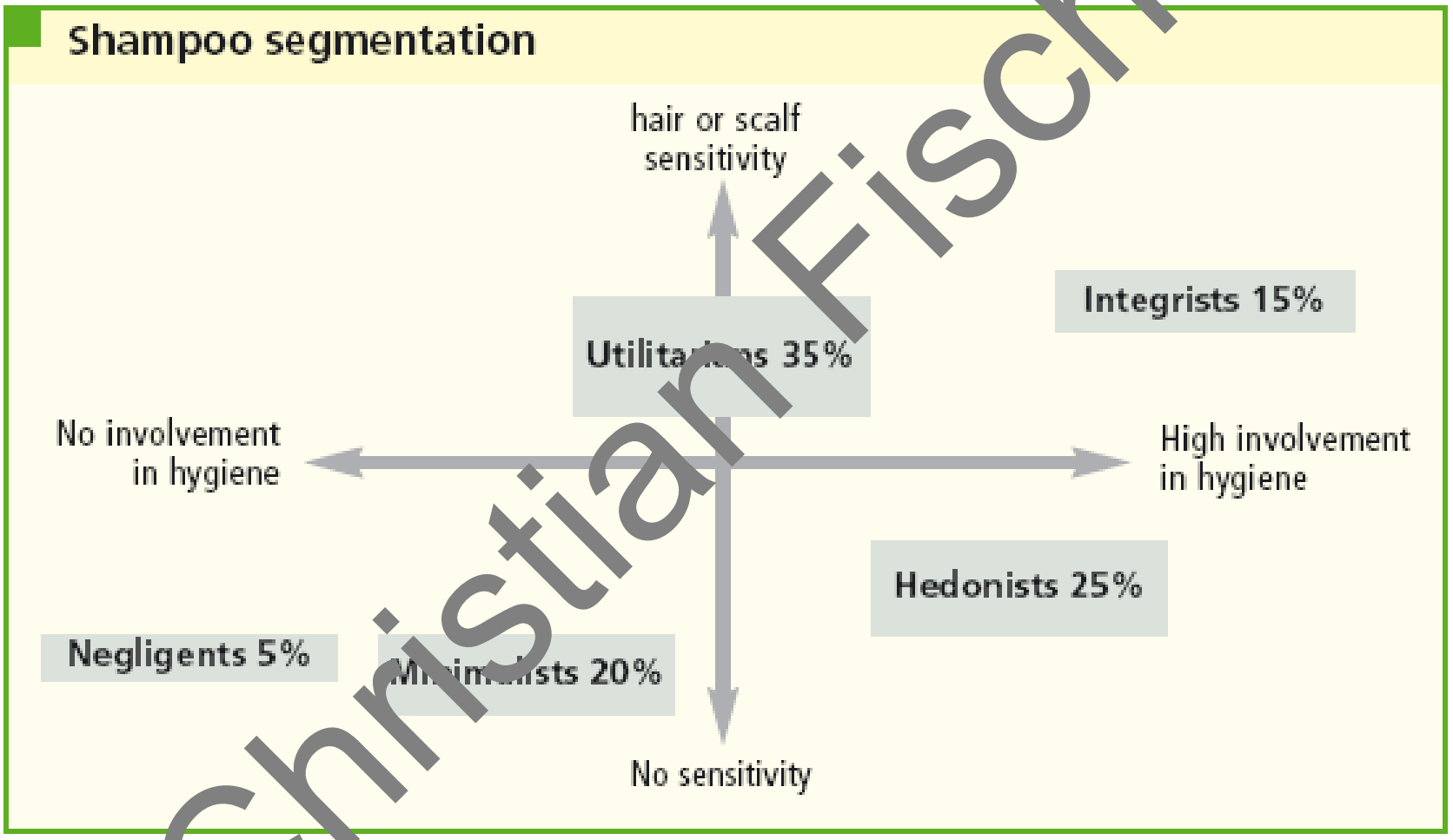
TWO-VARIABLE EXAMPLE: RESTAURANTS

Type of restaurant	Hamburger	Fish	French	Italian	Chinese	Indian
Up-market waiter service		Seafood restaurants	French restaurants	Italian restaurants	Chinese gourmet restaurants	
Medium-priced waiter service	American-style cafés and diners		French bistro-style cafés	Pasta restaurants	Chinese restaurants	Indian restaurants
Fast food and take-away	McDonald's, Burger King etc	Fish and chip shops		Pizza parlours	Chinese take-away	Indian take-away

Type of cuisine

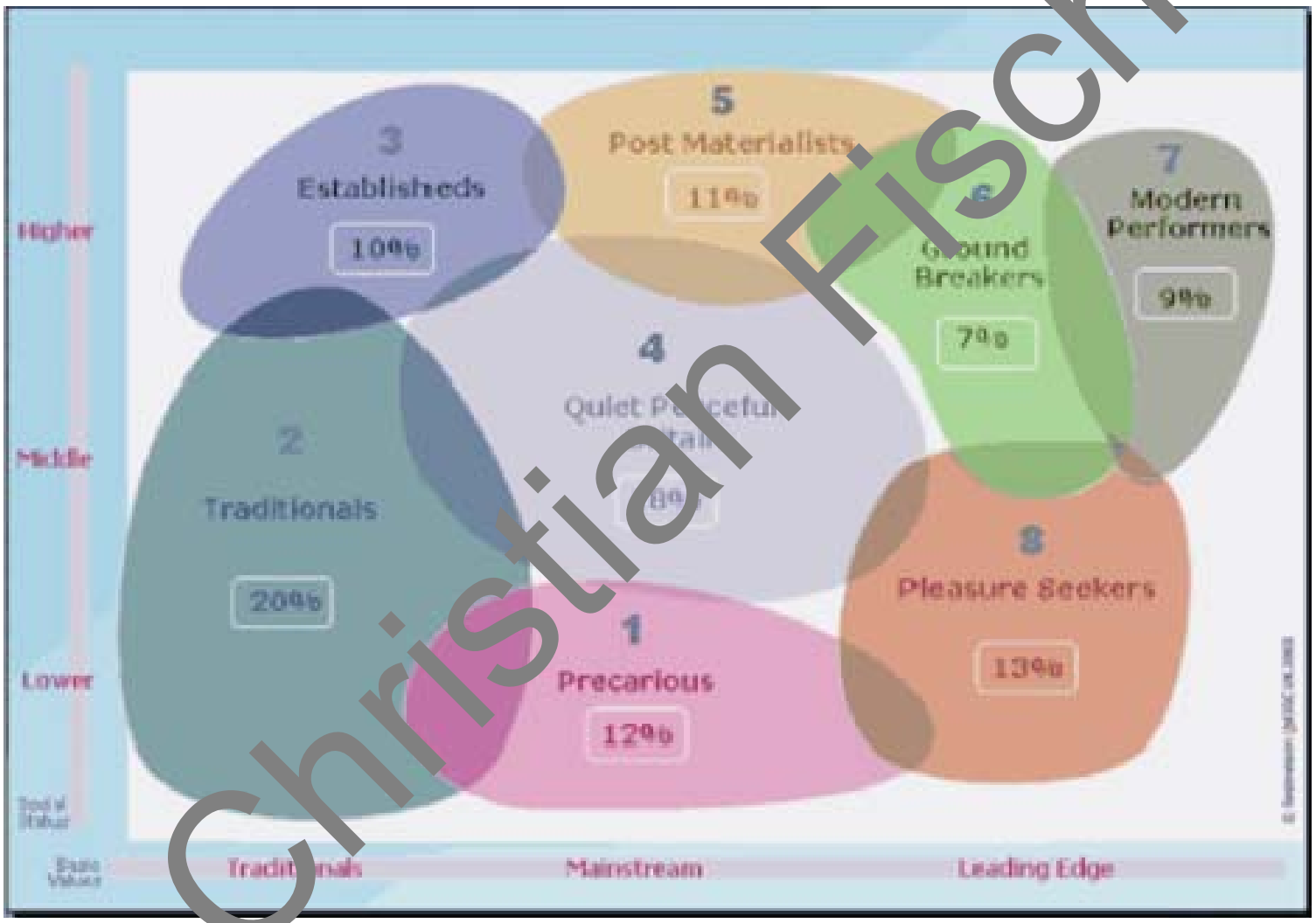
empty segment

TWO-VARIABLE EXAMPLE: SHAMPOO



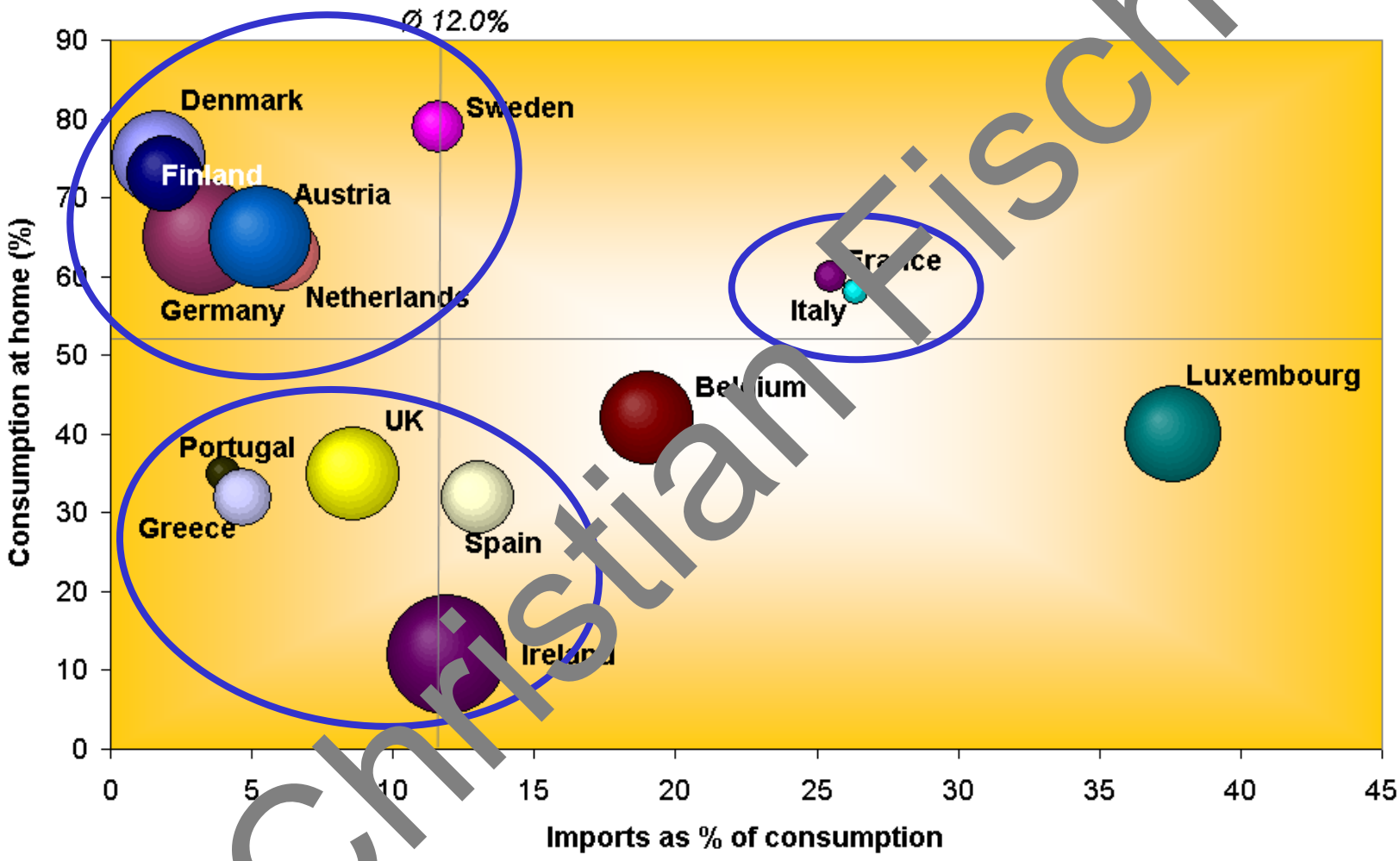
Source: GfK

TWO-VARIABLE EXAMPLE: CONSUMER SEGMENTS BY STATUS AND VALUES



Source: Sinus Socio-vision

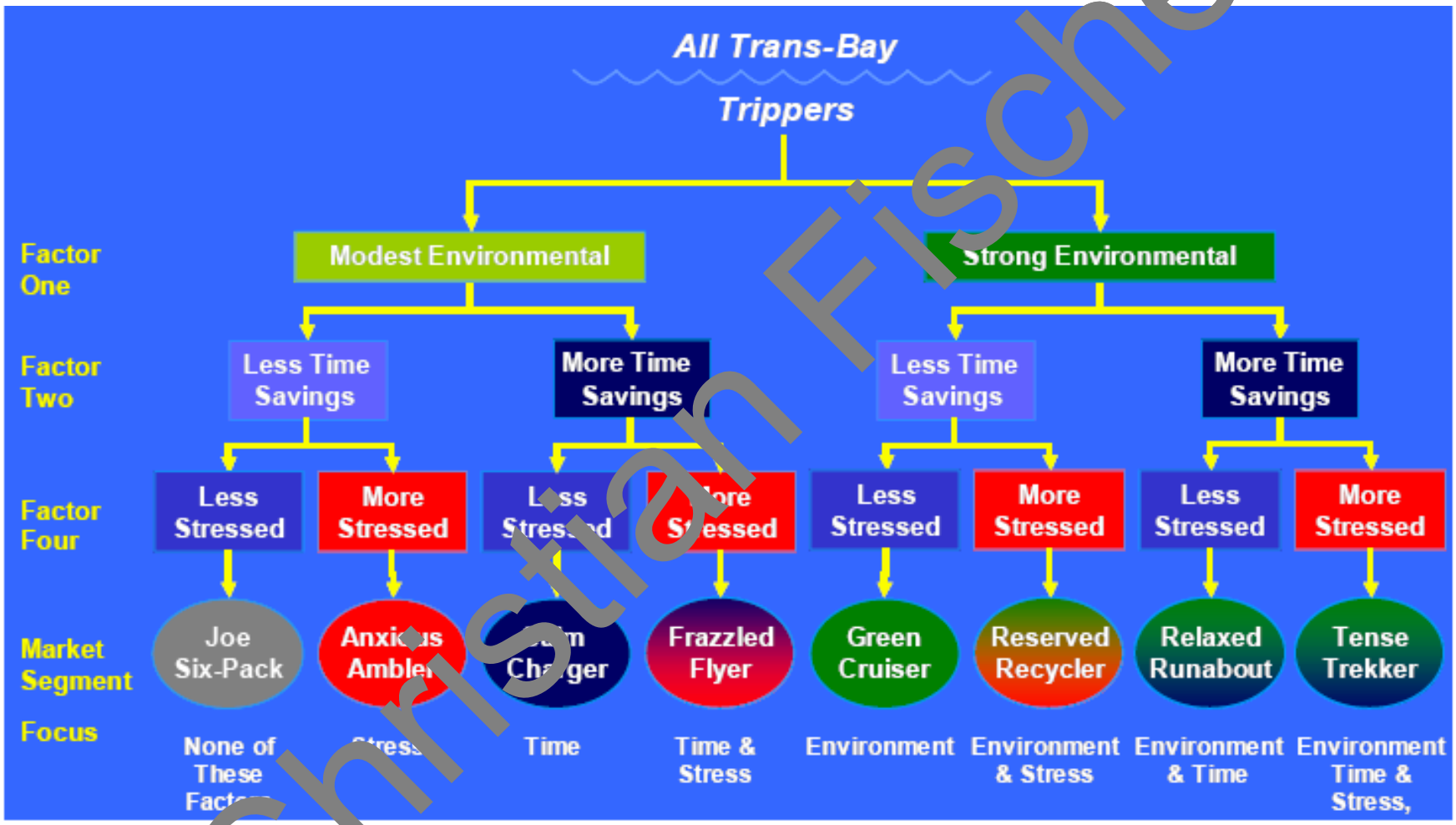
2-VARIABLE+ EXAMPLE: EU BEER MARKET



○ bubble size = per capita beer consump-tion.

All data from 2001.

THREE-VARIABLE EXAMPLE: FERRY USERS



Source: Cambridge Systematics

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

Source: Larson (2004)

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

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MARKET-SIZE ASSESSMENT

Market opportunity

- 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.

=> Identification of a market gap (often by means of market segmentation).

Market/sales potential

- The maximum achievable combined sales volume for all sellers of a specific product during a specific time period, in a specific market.

=> Quantification of an existing market opportunity.

ESTIMATING MARKET/SALES POTENTIALS

Levels of analysis

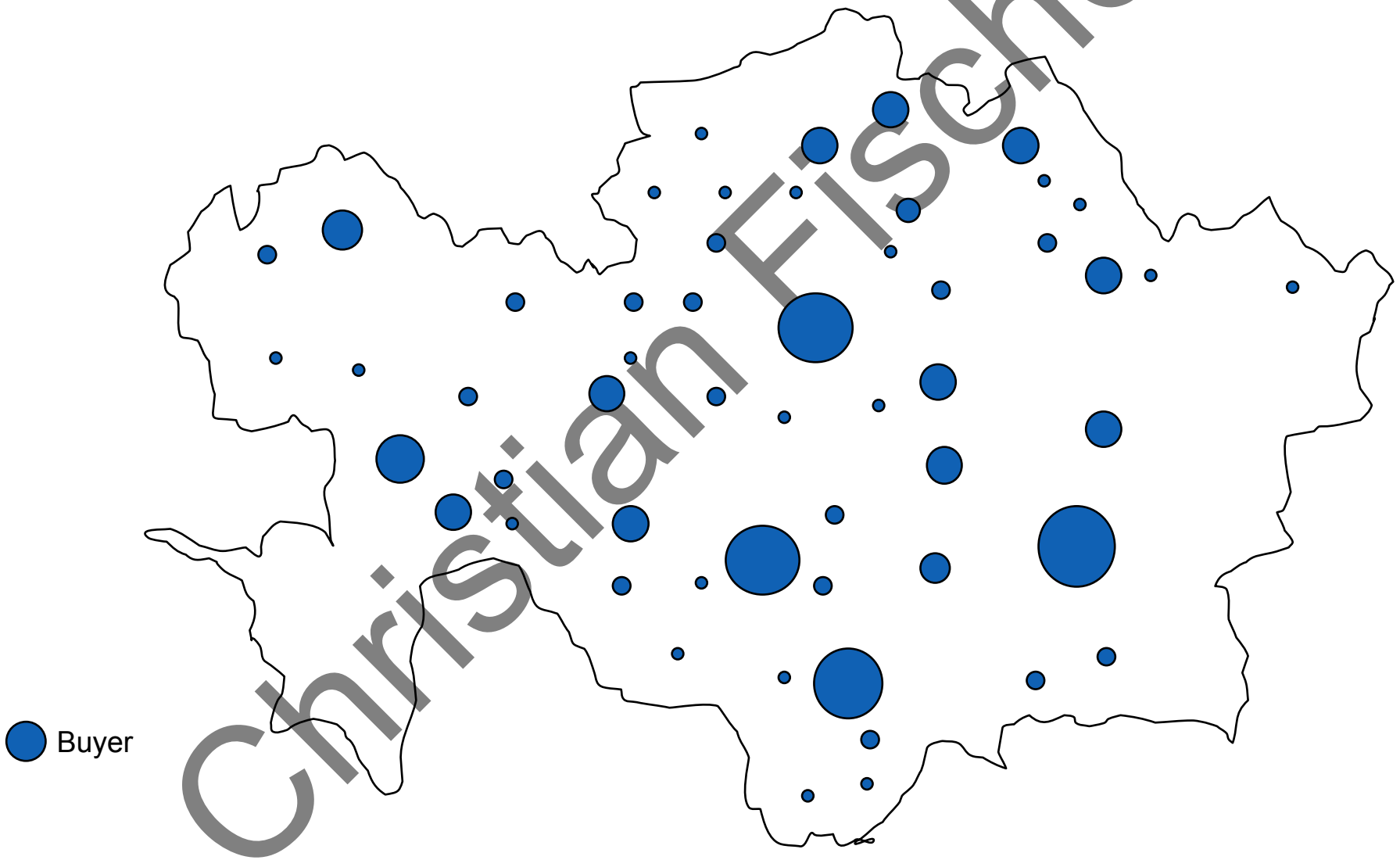
1) **aggregate (overall market):** how large is the overall demand in a (geographically defined) market?
2) **disaggregate (company level):** how large is the sales potential of a new product or service offered by a single company.

Areas of application

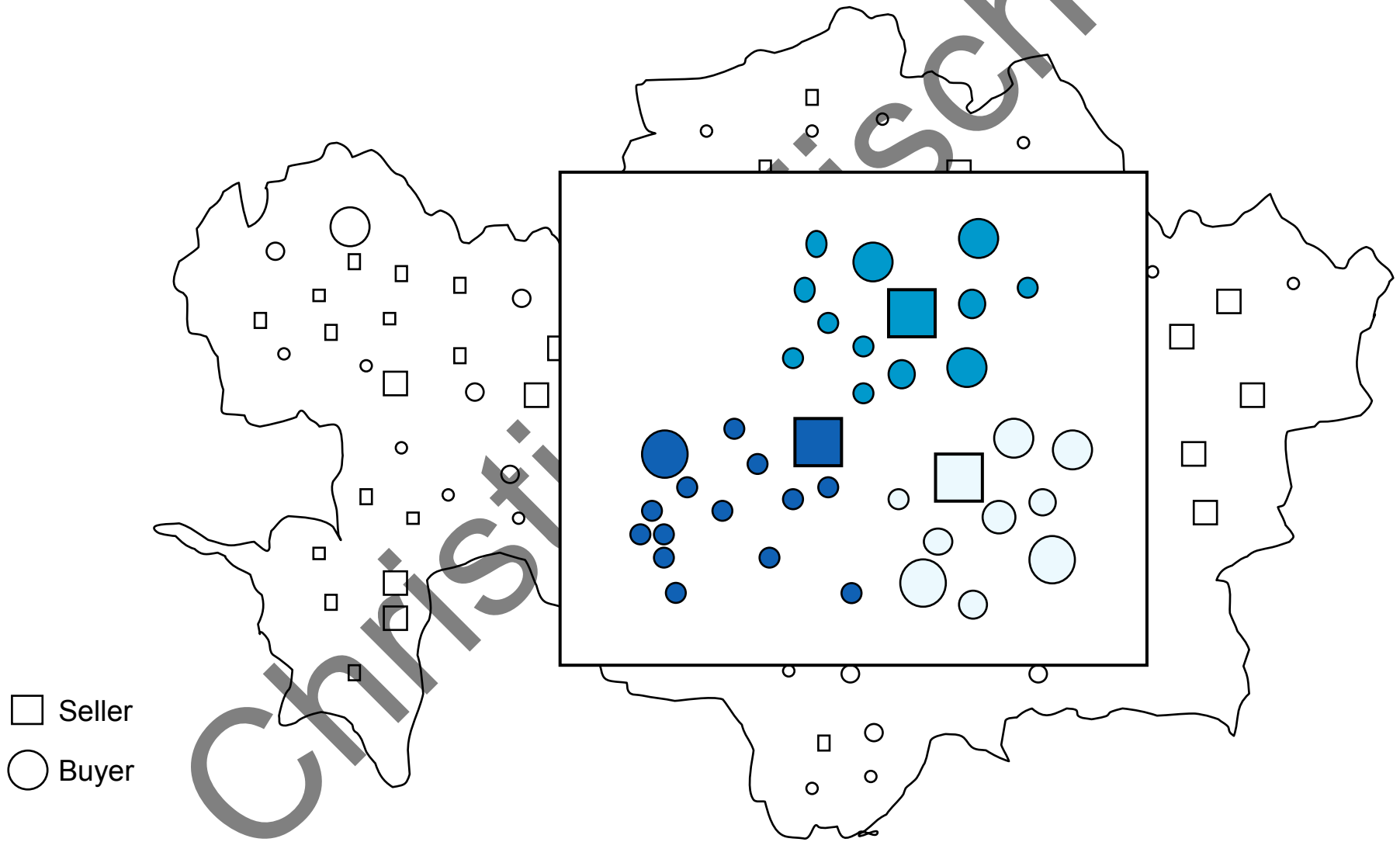
To back up investment decisions:

- 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.)

HOW BIG IS THE AGGREGATE MARKET?



WHAT SALES CAN A COMPANY EXPECT, GIVEN COMPETITORS?



MARKET-SIZE ESTIMATION VERSUS INFLUENCE-FACTOR ANALYSIS

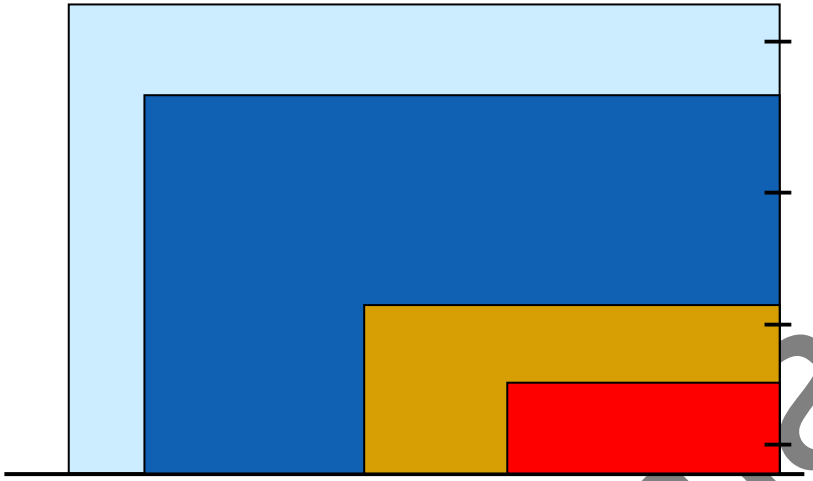
Market-potential appraisal

- Estimation of sales volumes (quantity or value) of new products, services or distribution outlets.
- No recorded market data available about the new product, service, area.
- Ex ante (anticipatory/forward-looking) evaluation, i.e., before sales start.
- *Moment*-in-time analysis.

Demand analysis

- Investigation of determinants of sales volume or value (demand).
- Data on sales and influencing factors are available.
- Ex post (backwards-looking) analysis, i.e., after sales have taken place.
- Time *period* analysis (often).

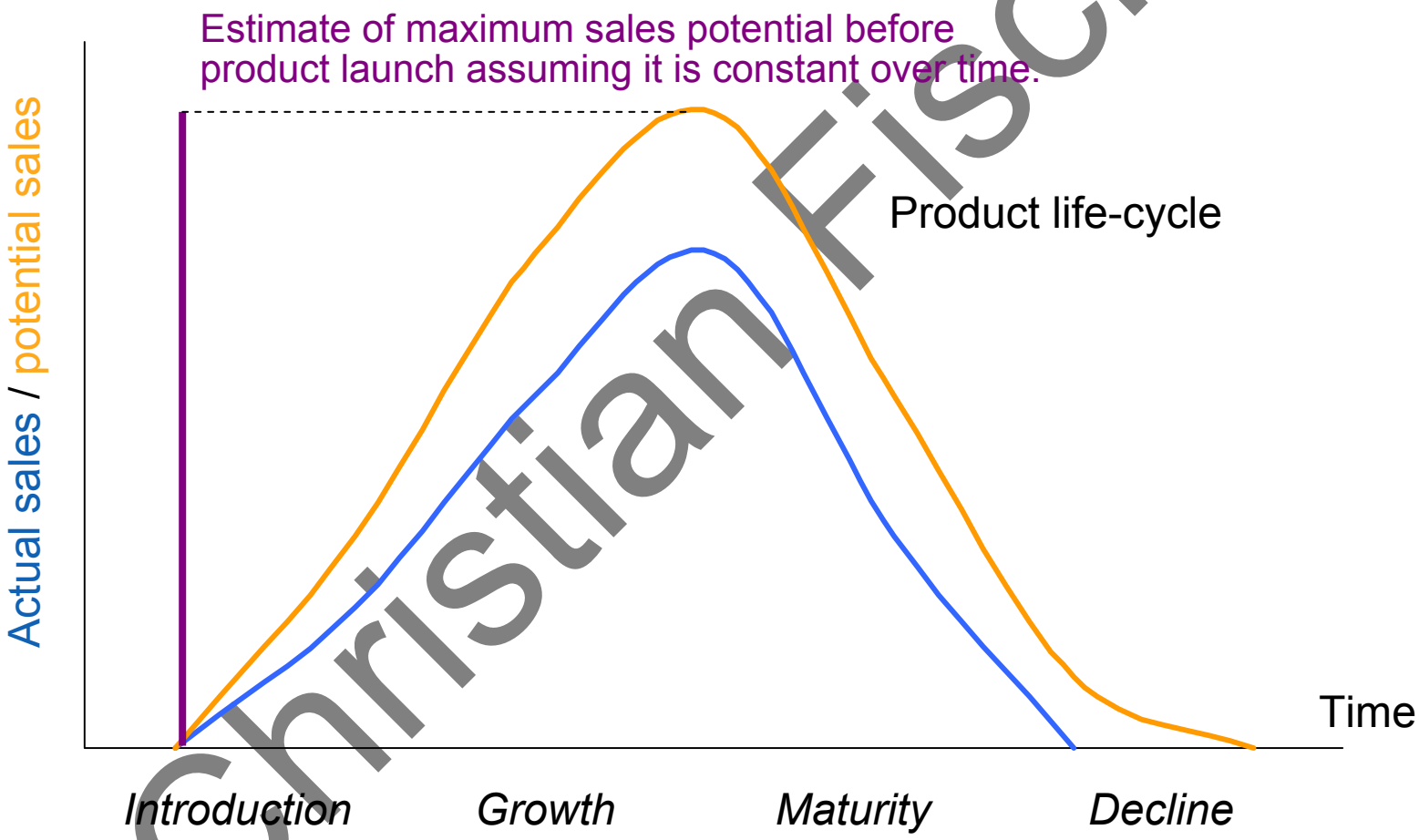
MARKET POTENTIAL, ETC. DEFINED



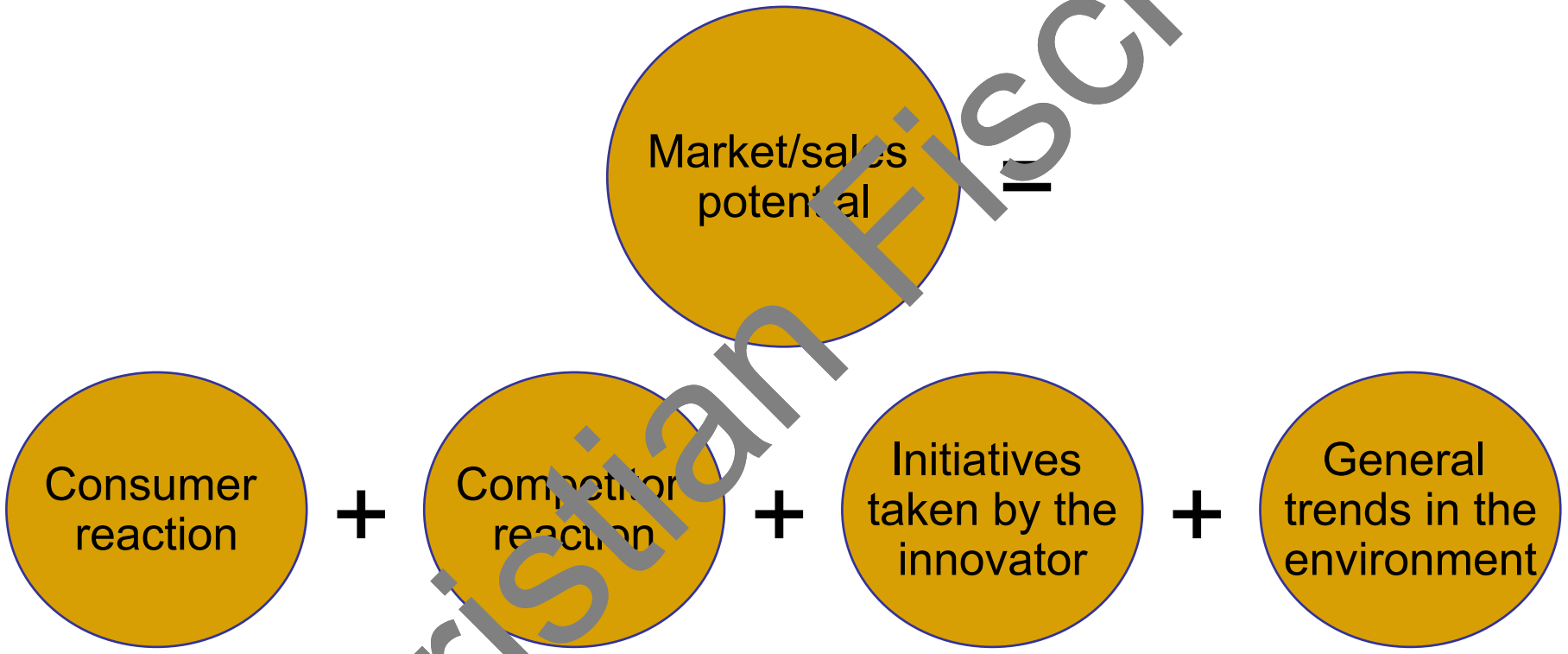
- **Market potential**: theoretically maximum demand of a market
- **Market volume**: current actual market demand
- **Company sales potential**: theoretically maximum sales of a single company
- **Market share**: current actual sales of a single company (devided by market volume)

$$\text{Saturation rate} = \frac{\text{Market volume}}{\text{Market potential}}$$

MARKET/SALES POTENTIAL: TEMPORAL VIEW



DETERMINANTS OF MARKET/SALES POTENTIAL



Source: FAO

WHAT IS A MARKET?

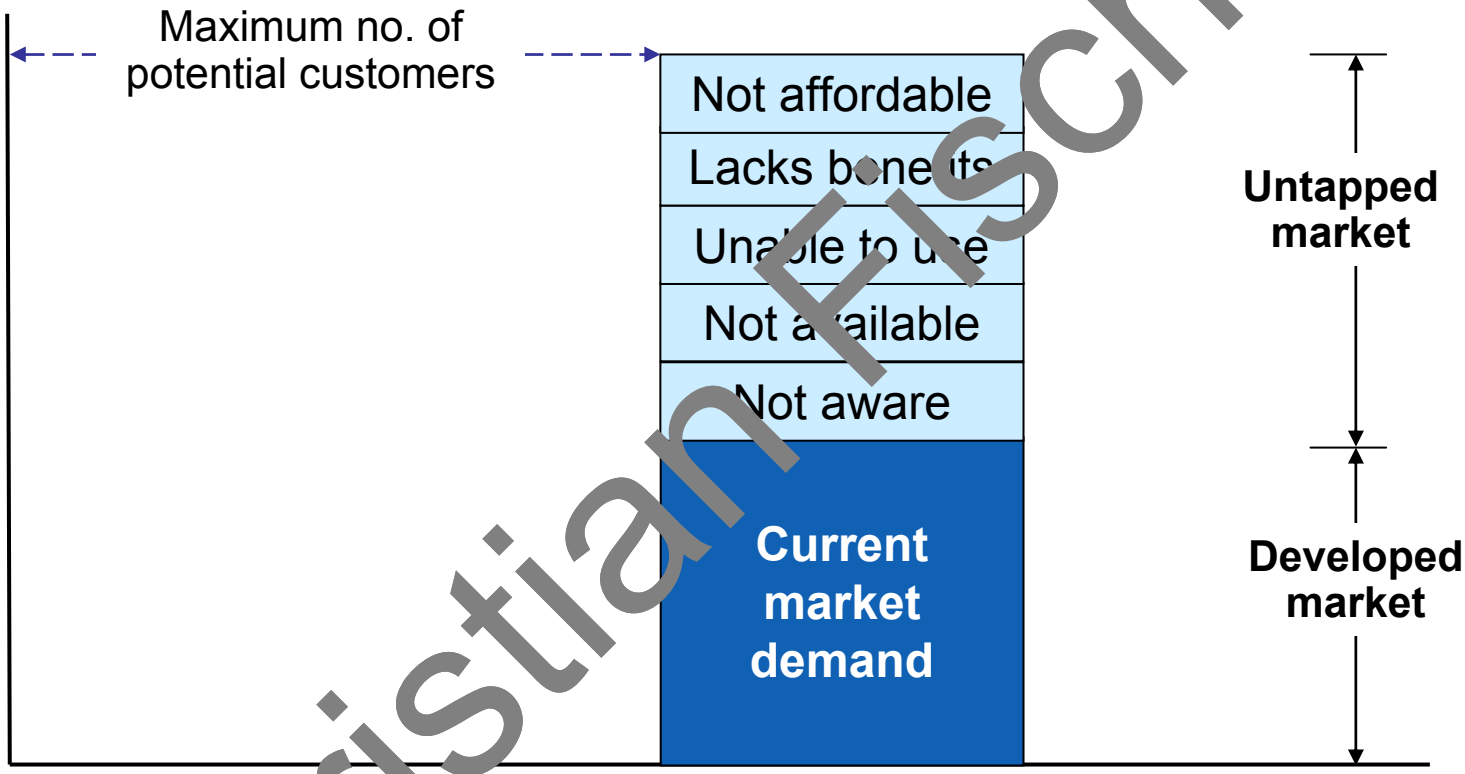
"A market is merely people with money and a motivation to buy" *

=> 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.

* Stevens, R., Sherwood, P., Dunn, J. & Loudon, D. (2006). *Market Opportunity Analysis. Text and Cases*. The Haworth Press, Inc. P. 40.

CONSUMER REACTION: FORCES THAT LIMIT MARKET DEMAND



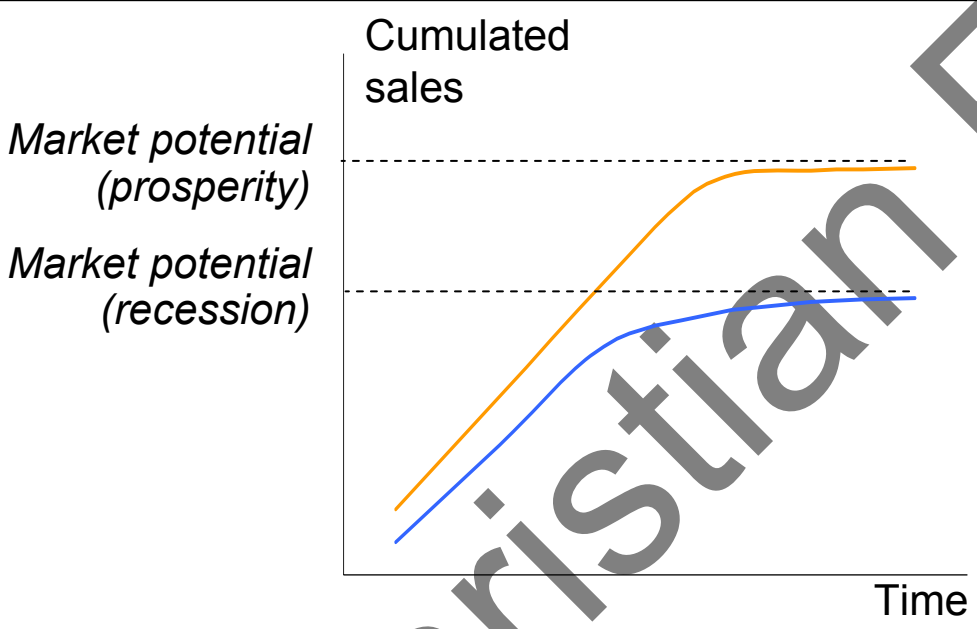
- **Awareness**: potential customers would buy the product/service if they knew it exits.
- **Availability**: potential customers would buy it if they could buy it in their location.
- **Ability to use**: customers lack the knowledge and/or other resources to use it.
- **Benefit deficiency**: key benefits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

COMPETITOR ACTION AND INNOVATOR REACTION

Competitor	Innovator	(Distributor)
▸ Reduces prices for similar product/service. ▸ Comes up with a similar product/service, potentially offering more/better features or is sold a low price. ▸ Intensifies marketing campaigns.	▸ Optimisation of product with regard to quality, packaging, price, etc., based on first sales experiences and competitor action. ▸ Intensification of marketing efforts.	▸ Does distri-butor promote new product/ service sufficiently? ▸ Would other or more distribution channels be more effective?

GENERAL TRENDS IN THE ENVIRONMENT

Economic situation



- Valid for overall market as well as for a particular company's sales potential.

Others

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

IMPLICATIONS

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.

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.

APPRAISAL PRINCIPLE

Model

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).

General approach

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.

DETERMINATION OF NO. OF BUYERS

Bottom-up technique

- 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.

Top-down technique

- 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.

Via complementary or substitution goods

- 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.

DETERMINATION OF AVERAGE EXPENDITURE

Direct deduction

Monetary expenditure is directly determined (useful for replacement products)

Examples:

- expenditure on digital cameras will at least equal the one on conventional cameras.
- expenditure on MP3 music files will at least equal the one on CDs.

Indirect deduction

Average **quantity** purchased is determined and multiplied by a price:

- 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).
- for many durable good, 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.

EXAMPLE: USING EXISTING DATA

Chain-ratio method

Involves multiplying a base number by several adjusting percentages.

Example:
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.

Calculation for Germany (2004)

- Official data:
  Population: 82.5 million
  Private per capita consumption: €15,451
  Share of food, drink & tobacco expenditure in private consumption: 14.5%
- Estimation & calculation:
  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) = €369 million.
- Comparison: actual beer industry sales: €8.4 billion

STATISTICAL ESTIMATION OF NO. OF BUYERS

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 MARKET/SALES POTENTIALS

Combined estimation of no. of buyers and average quantity bought

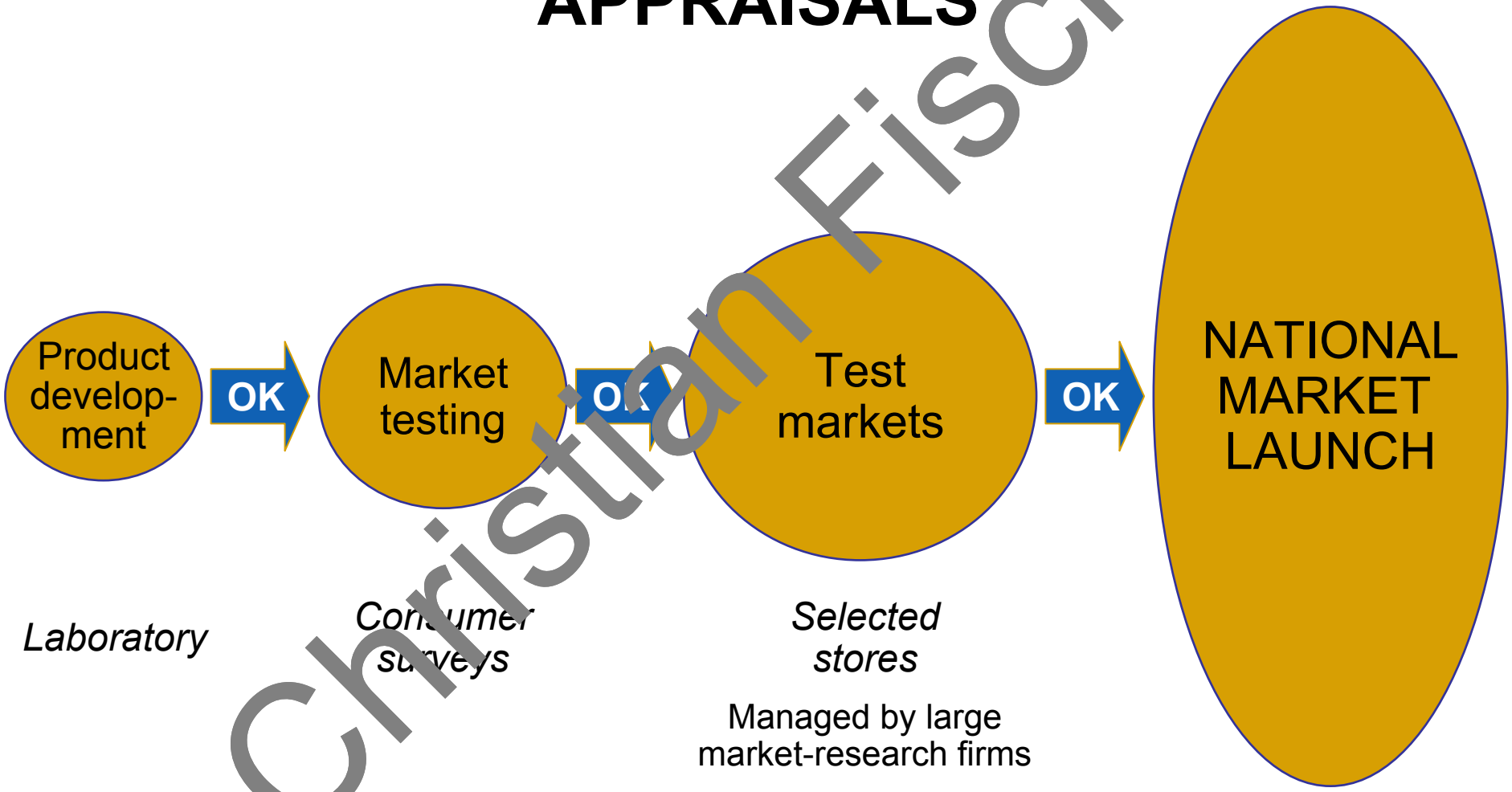
- Sample data can be collected separately or in a combined survey of potential buyers.
- Combined survey:
  Question 1: "Would you buy?" If yes –>
  Question 2: "How much would you buy in a certain period?"
- Advantage: estimation of no. of buyers (*P*) becomes more precise, since the minimum sample 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



TEST MARKETS

Definition

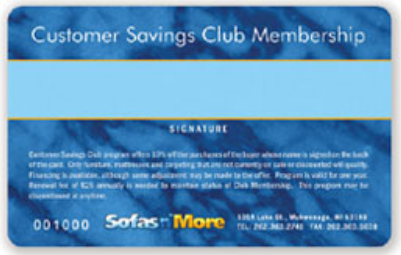
- A local or regional area, which can serve as a test market.
- Needs to be representative for the overall market in terms of population, distribution structure, competitors, infrastructure and consumer behaviour.
- In addition to the actual test market there is often a control market, which closely 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.

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.



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%).

NEW DISTRIBUTION OUTLETS: GENERAL COMMENTS

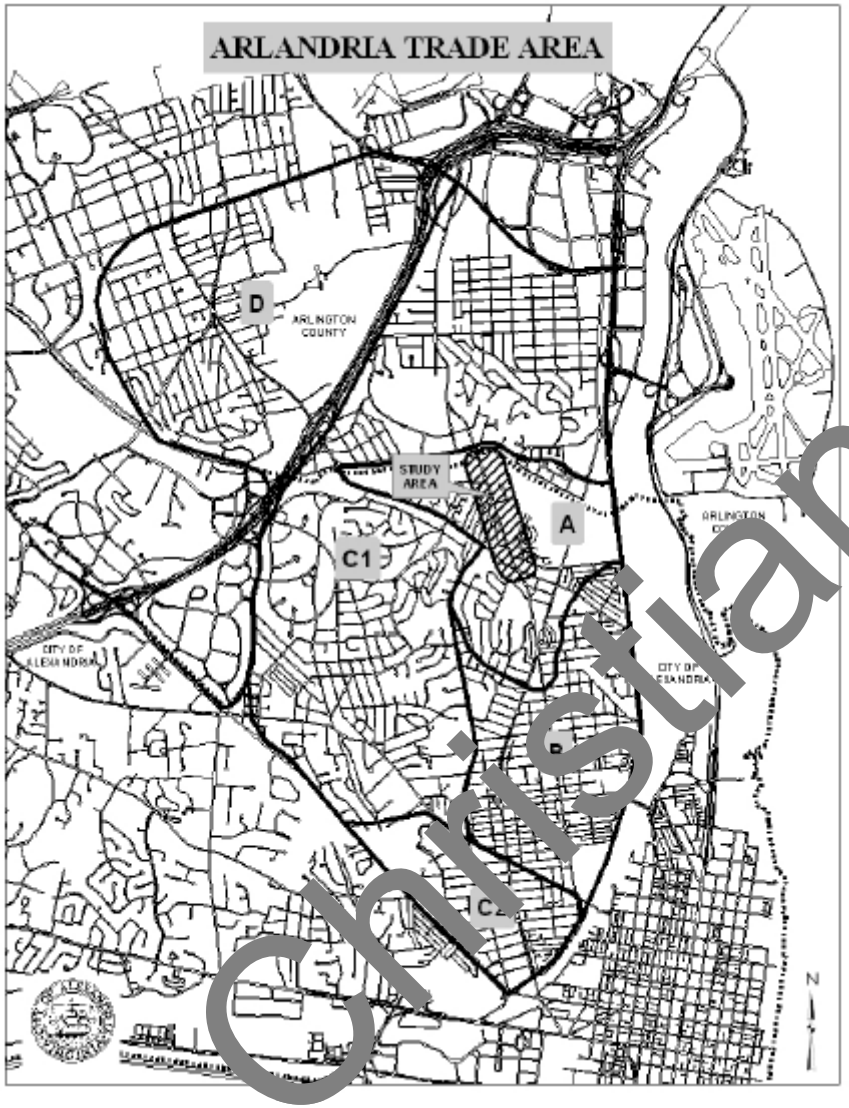
Justification

- 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 mostly a geographic analysis.

GEOGRAPHICAL APPRAISAL



Procedure

1) Determination of a relevant trading area for a new distribution outlet -> no. of potential customers.
2) Determination of the purch-asing power in the trading area and the expected average expenditure per buyer.
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.

EXECUTION

Resources

- Detailed maps can usually be bought for most geographical areas.
- Information on inhabitant numbers are generally available from local/ regional public administrations. Large market-research companies sell detailed local purchasing power information.
- These companies usually also sell purchasing power-dependent average expenditures for various products or product categories.

Problems

- 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

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

Calculated using California data

Basis	San Francisco suburb	New shop
Shop sales	21 * $214,536 = $4,505,256	/ 21 = $214,536
Per capita	147,250 * $20 = $2,945,000	/ 21 = $140,238

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 x
   average quantity purchased per buyer x
   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.

Massey University

Te Kunenga ki Pūrehuroa

OSCE

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

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

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

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.

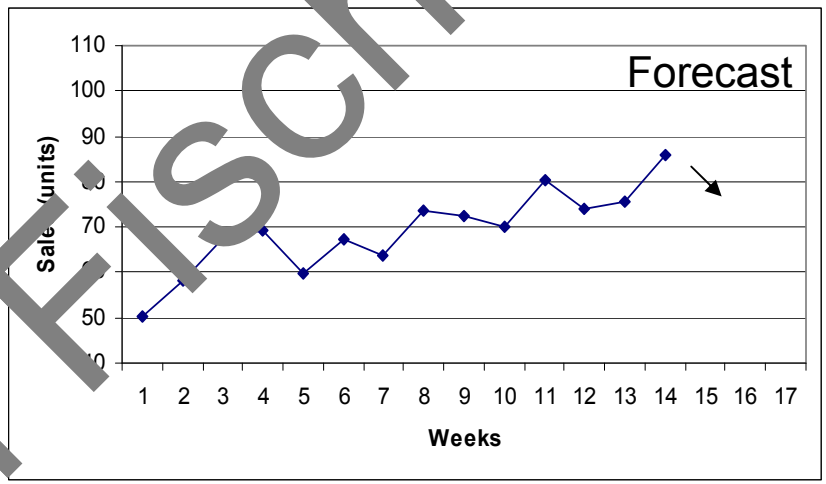
*Niels Bohr, Danish physicist, 1885-1962

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.

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.

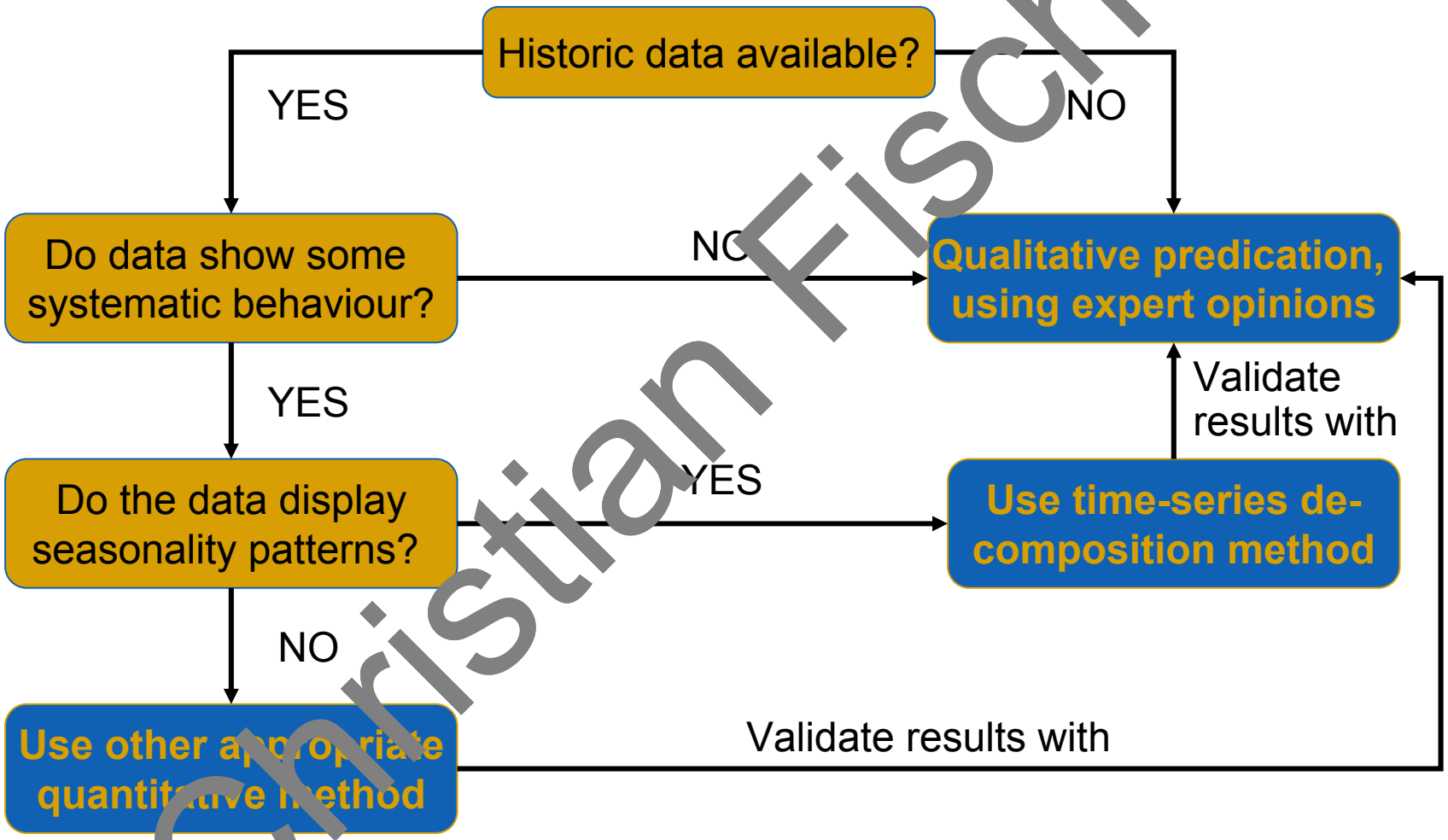
EVIDENCE ON FREQUENCY OF JUDGEMENTAL ADJUSTMENTS FROM 4 COMPANIES

A significant % of forecasts are judgementally adjusted

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

Source: Robert Fildes Lancaster University Centre for Forecasting

FORECASTING DECISION FLOWCHART

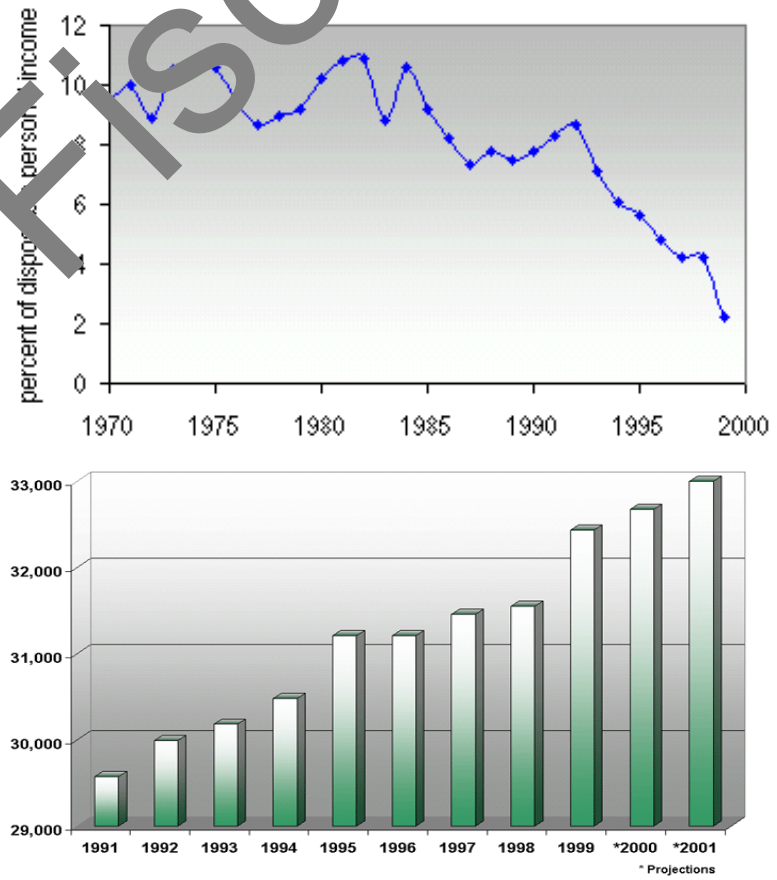


TIME-SERIES ANALYSIS

Context

- 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.)

Illustration



COMPONENTS OF AN ECONOMIC TIME SERIES

- **Trend**, long-run tendency, und **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.

RELATIONSHIP BETWEEN COMPONENTS

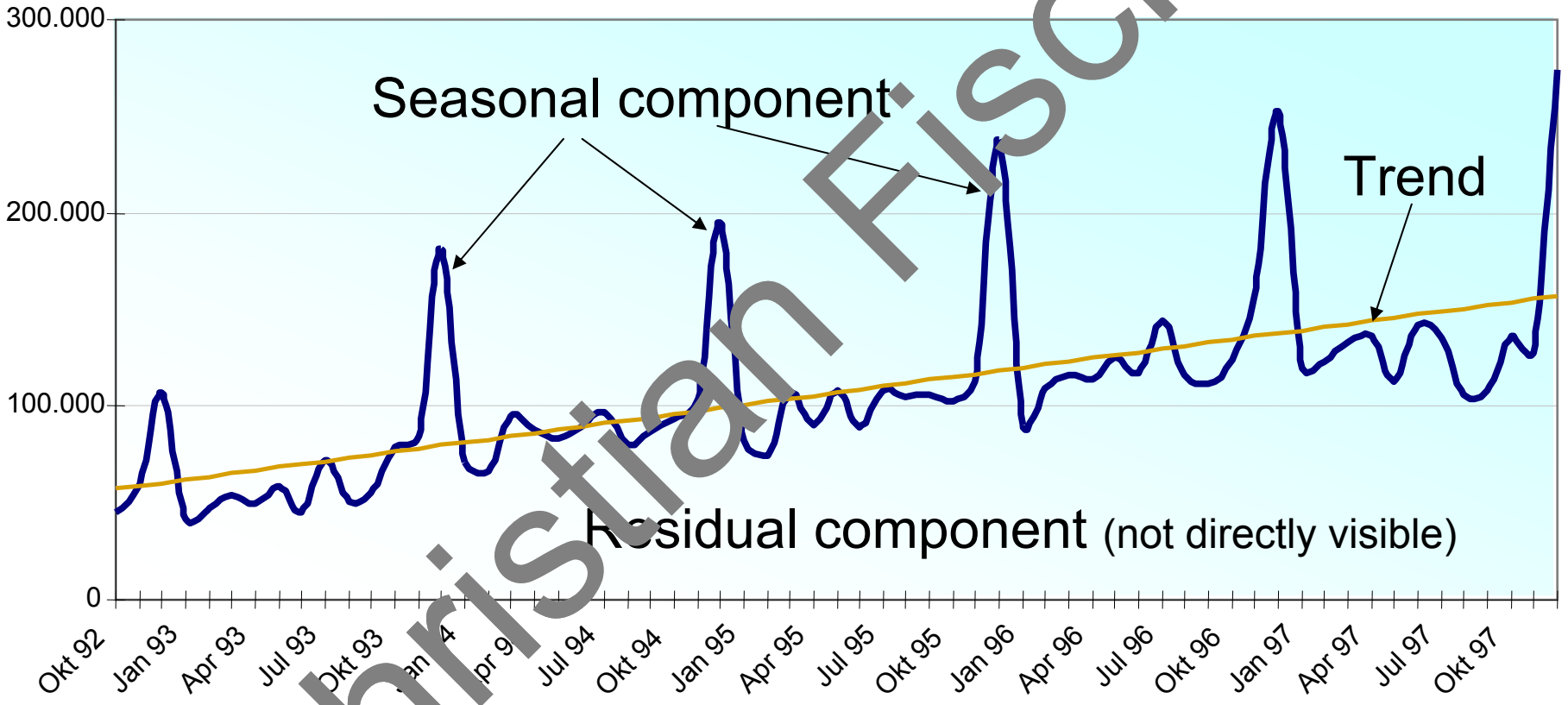
Additive model

- General relationship: $Y = Y(T, S, R)$.
- A series is the sum of its components: $Y = T + S + R$.
- Is used in all cases where the absolute magnitude of individual components remains more or less constant over time.
- Example: the seasonal influence of January is always 50,000 €.

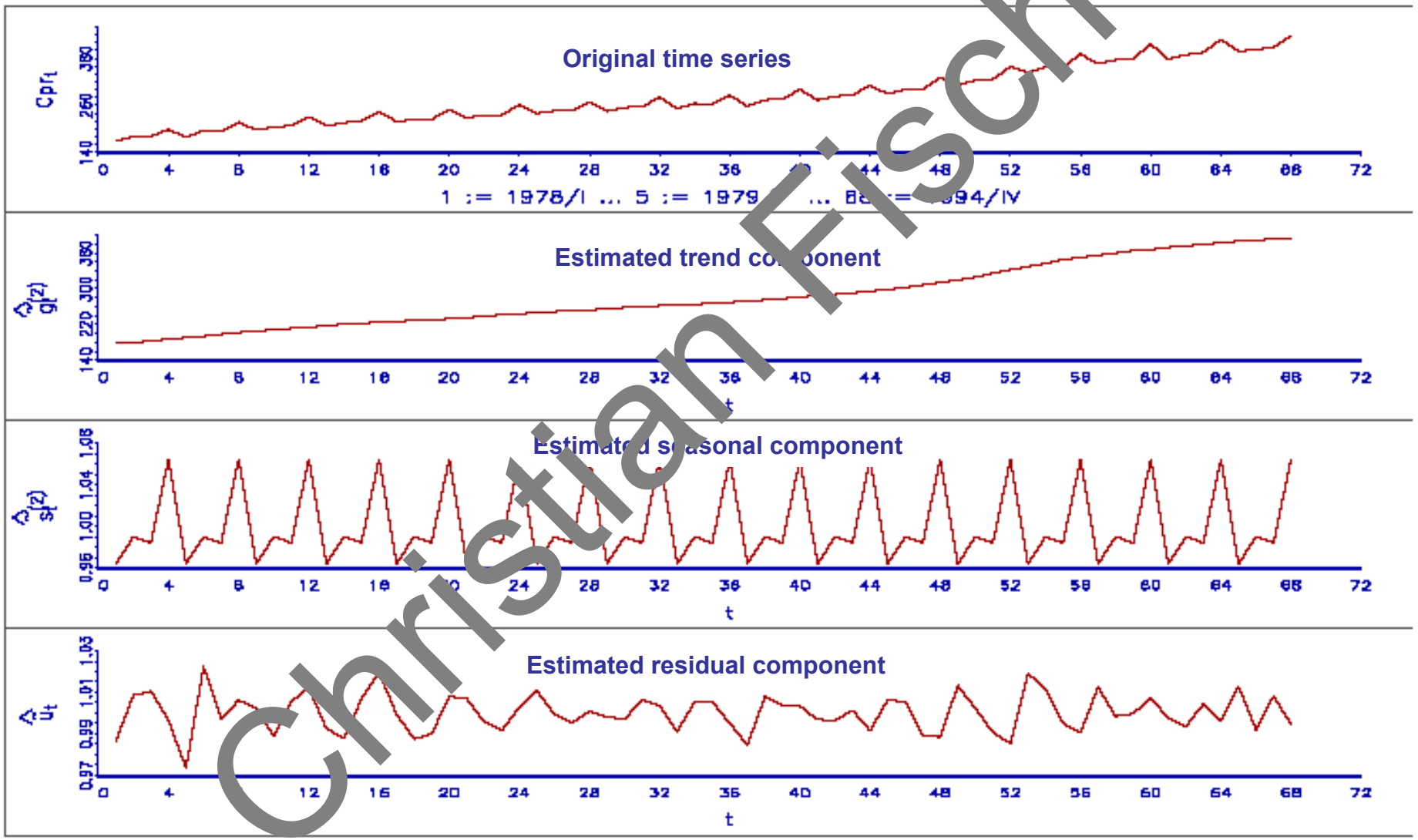
Multiplicative model

- A series is the product of its components: $Y = T \times S \times R$.
- 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.
- Using logarithms, a multiplicative model can always be transformed into an additive one: log (T x S x R) = log (T) + log (S) + log (R). That is, the log (additive components) = multiplicative components.

EXAMPLE 1: MONTHLY SALES OF A FOOD RETAILER IN MUNICH



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



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.

METHOD OF LEAST SQUARES

Application issues

- Used if ***no*** identifiable cyclical or seasonal components are present in the data.
- 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.
- Calculation method is also used in regression analysis.

Pros and cons

Advantages:

- The parameter of a (linear) function are estimated, which can be used directly for extrapolation purposes.
- Global approach – the information contained in *all* data are used for the estimation of the trend line.

Disadvantage: computational more intensive.

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.

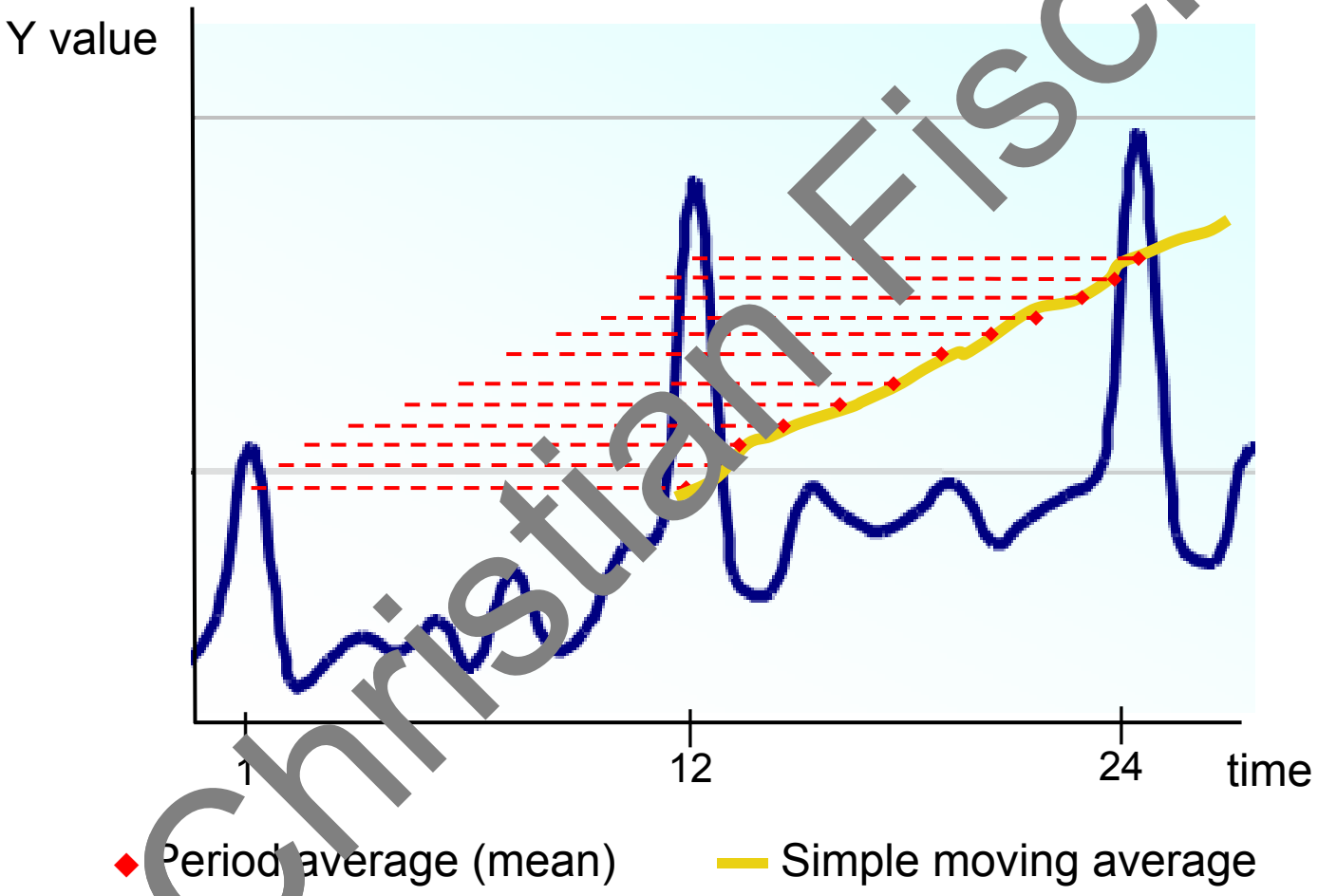
Pros and cons

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.

ILLUSTRATION OF SIMPLE MOVING AVERAGES



SIMPLE MOVING AVERAGES

Principle

- A moving average is the arithmetic mean of a data series of a chosen length n^*, with $n^* << n$, 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

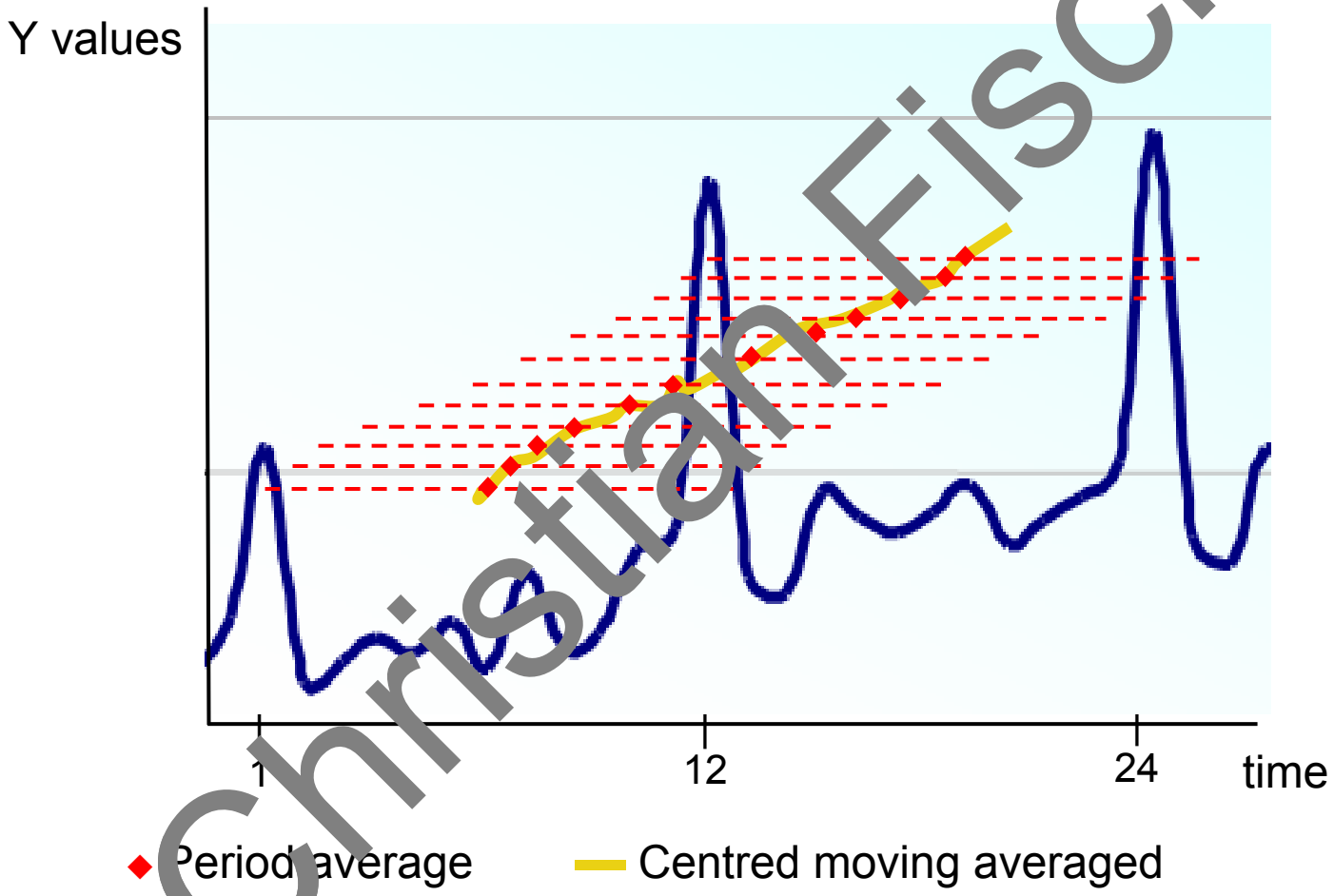
1) Determine length of period, n^*.
2) Calculate the arithmetic mean for the values y_t of the first period ($t = 1$ to $t = n^*$):

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

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

$$T_{t=n^*+1} = \frac{1}{n^*} \sum_{t=2}^{t=n^*+1} y_t \qquad T_{t=n^*+2} = \frac{1}{n^*} \sum_{t=3}^{t=n^*+2} y_t$$

ILLUSTRATION OF CENTRED MOVING AVERAGES



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:
$k = n^*/2 + 1$ for even, $k = (n^*+1)/2$ for odd n^*.

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

$$T^c_{t=k} = \frac{1}{n^*} \sum_{t=k-((n^*/2)-0.5)}^{t=k+((n^*/2)-0.5)} y_t$$

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:

$$T^c_{t=3} = \frac{0.5 \cdot y_1 + y_2 + y_3 + y_4 + 0.5 \cdot y_5}{4}$$

4) Repeat for $k+1$, $k+2$, ...

SIMPLE VERSUS CENTRED MOVING AVERAGES (1)

Even *n** (here = 4)

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

Odd *n** (here = 5)

Time (*t*)	Y_t	Simple moving average	Centred moving average
1	115	–	–
2	100	–	–
3	98	–	101.0
4	95	–	102.0
5	97	101.0	103.0
6	120	102.0	103.2
7	105	103.0	103.6
8	99	103.2	103.8
9	97	103.6	104.2
10	98	103.8	104.4
11	122	104.2	104.6
12	106	104.4	105.0
13	100	104.6	105.4
14	99	105.0	106.0
15	100	105.4	106.2
16	125	106.0	106.4
17	107	106.2	106.6
18	101	106.4	106.8
19	100	106.6	–
20	101	106.8	–

SIMPLE VERSUS CENTRED MOVING AVERAGES (2)

- 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

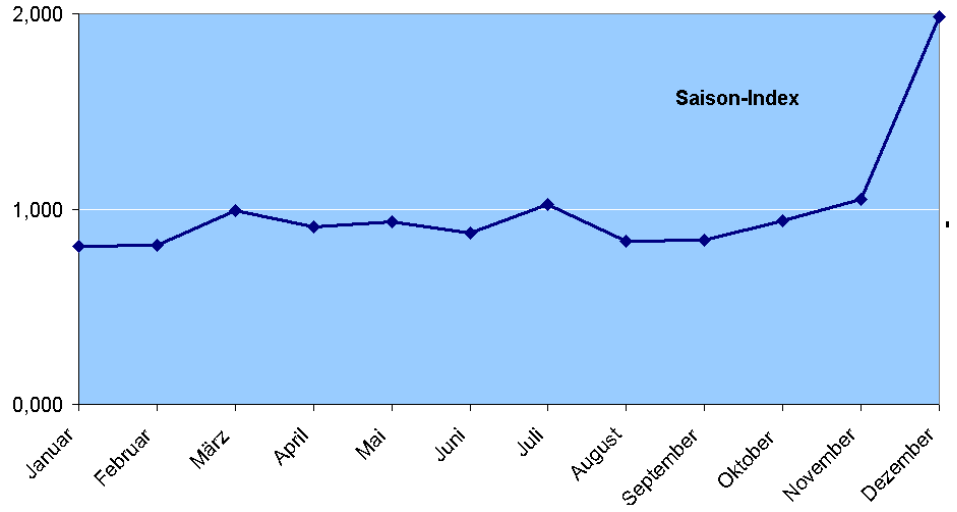
1) Extraction of the trend component.
2) Calculation of the ratio: original value divided by the trend component.
3) Calculation of the arithmetic mean of all related period relations (= index formation).
4) Normalisation of this index if it is derived from uneven period numbers.

Forecasting: extraction of the seasonal component

ILLUSTRATION

Month	Sales in '000 €	Centr. mov. avg. (12 months)	Sales devided by mov. avg.
Oct-92	45.0	–	–
Nov-92	59.8	–	–
Dec-92	106.9	–	–
Jan-93	42.2	–	–
Feb-93	47.3	–	–
Mar-93	54.1	–	–
Apr-93	49.5	58.7	0.843
May-93	58.5	61.2	0.957
Jun-93	45.4	65.3	0.696
Jul-93	72.6	69.6	1.043
Aug-93	50.9	71.6	0.711
Sep-93	55.0	74.1	0.742
Oct-93	79.0	77.4	1.021
Nov-93	85.1	80.1	1.063
Dec-93	181.5	83.0	2.187
Jan-94	70.6	85.8	0.823
Feb-94	67.0	88.0	0.761
Mar-94	94.3	90.6	1.042
Apr-94	88.2	92.5	0.954
May-94	83.9	93.9	0.894
Jun-94	89.4	95.2	0.939
Jul-94	96.4	96.2	1.002
Aug-94	80.3	97.0	0.828
…	…	…	…

Month	1993	1994	1995	1996	1997	Avg 1993-97	Index
January	–	0.823	0.812	0.738	0.862	0.809	0.807
February	–	0.761	0.722	0.884	0.892	0.815	0.813
March	–	1.042	1.026	0.930	0.969	0.992	0.990
April	0.843	0.954	0.856	0.906	0.987	0.909	0.908
May	0.957	0.894	1.023	0.978	0.818	0.934	0.932
June	0.696	0.939	0.820	0.899	1.035	0.878	0.876
July	1.043	1.002	0.973	1.087	–	1.026	1.025
August	0.711	0.828	0.935	0.866	–	0.835	0.834
September	0.742	0.884	0.930	0.822	–	0.845	0.843
October	1.021	0.954	0.891	0.898	–	0.941	0.940
November	1.063	1.040	0.960	1.137	–	1.050	1.048
December	2.187	1.936	1.994	1.828	–	1.986	1.983
					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).

CALCULATION OF DETRENDED/DESEASON-ALISED AND EXTRAPOLATED TIME SERIES

Multiplicative model

$$Y_t^{\text{detrended}} = Y_t / T_t$$

$$Y_t^{\text{deseasonalised}} = Y_t / S_t$$

$$Y_t^{\text{forecasted}} = T_t^{\text{forec.}} \cdot S_t$$

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.

RESIDUAL COMPONENT: DESCRIPTION & CALCULATION

- 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 a follows:

$$R_t = Y_t / (T_t \cdot S_t) \qquad R_t = Y_t - T_t - S_t$$

- However, these residual values have no real practical importance.

TODAY'S AGENDA

Analysing prices and company-level demand

1) Introduction

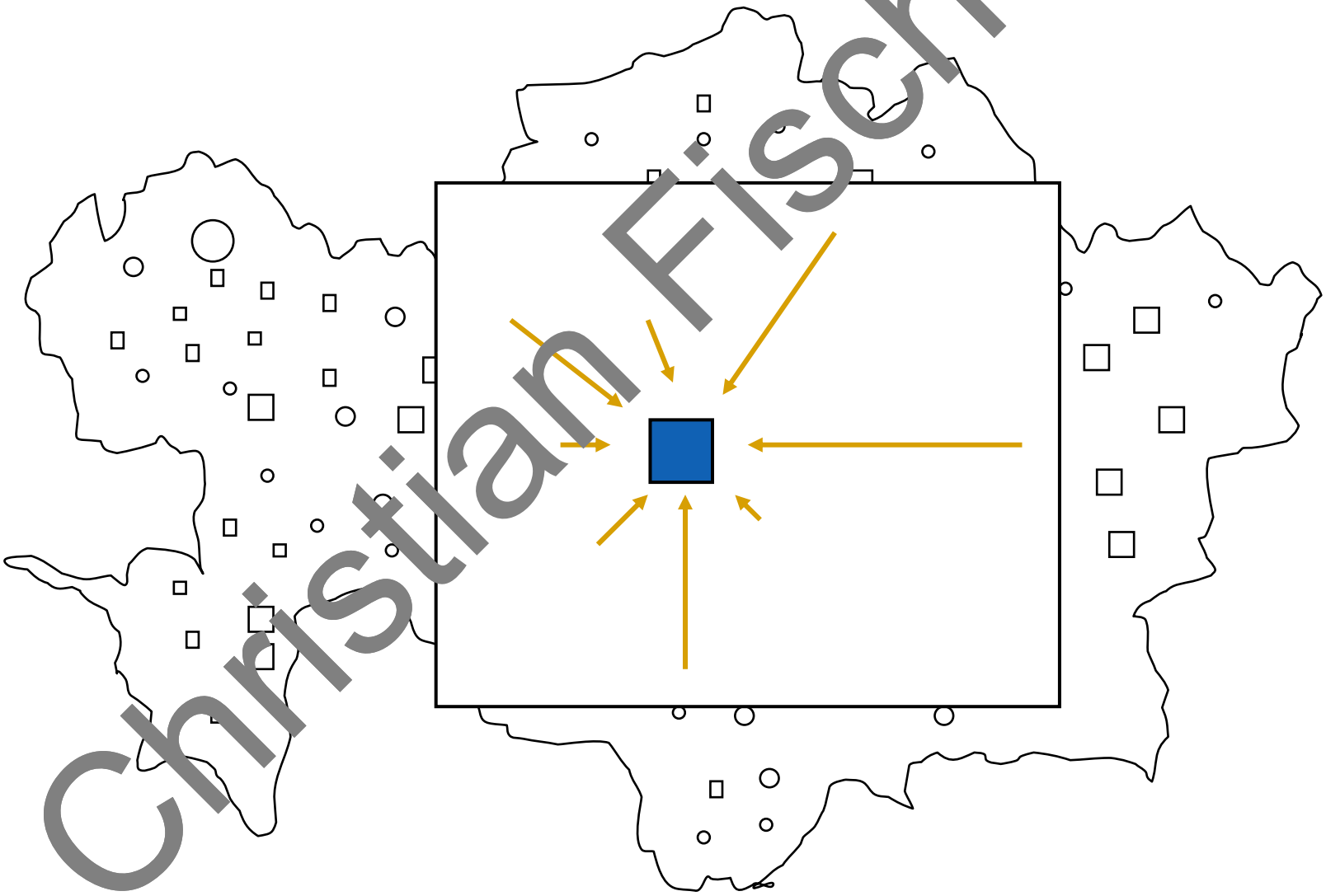
2) Price analysis

3) Introduction to forecasting

4) Demand analysis

5) Summary

WHAT DETERMINES AGRIBUSINESS DEMAND?



SALES ANALYSES

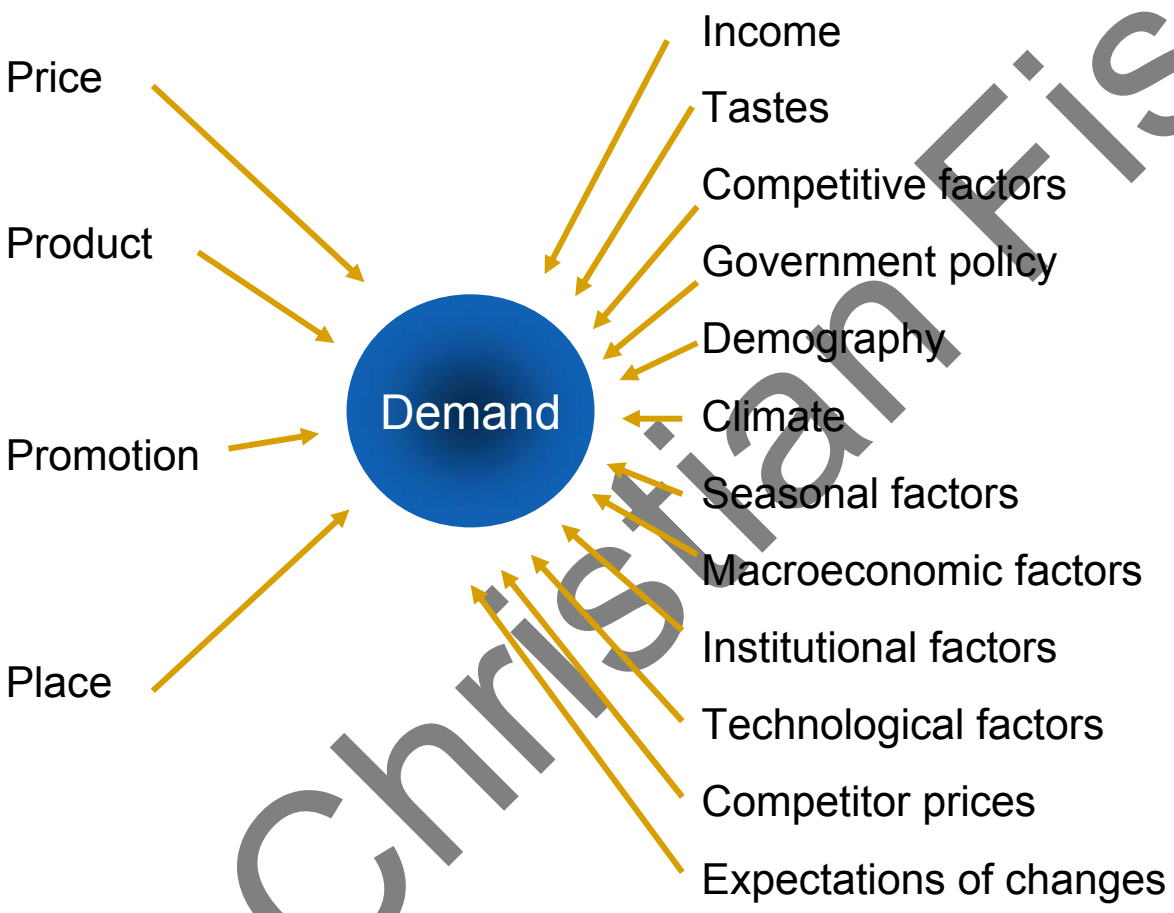
Market-potential appraisal

- Estimation of sales volumes (quantity or value) of new products, services or distribution outlets.
- No recorded market data available about the new product, service, area.
- Ex ante (anticipatory) evaluation, i.e., before sales start.
- *Moment*-in-time analysis.

Demand analysis

- Investigation of determinants of sales volume or value (demand).
- Data on sales and influencing factors are available.
- Ex post (back-looking) analysis, i.e., after sales have taken place.
- Time *period* analysis (often).

FACTORS INFLUENCING DEMAND



Use of elasticities

- Pricing.
- Managing cash flows.
- Impact of changes in competitors' prices.
- Impact of economic booms and recessions.
- Impact of advertising campaigns.
- Others.

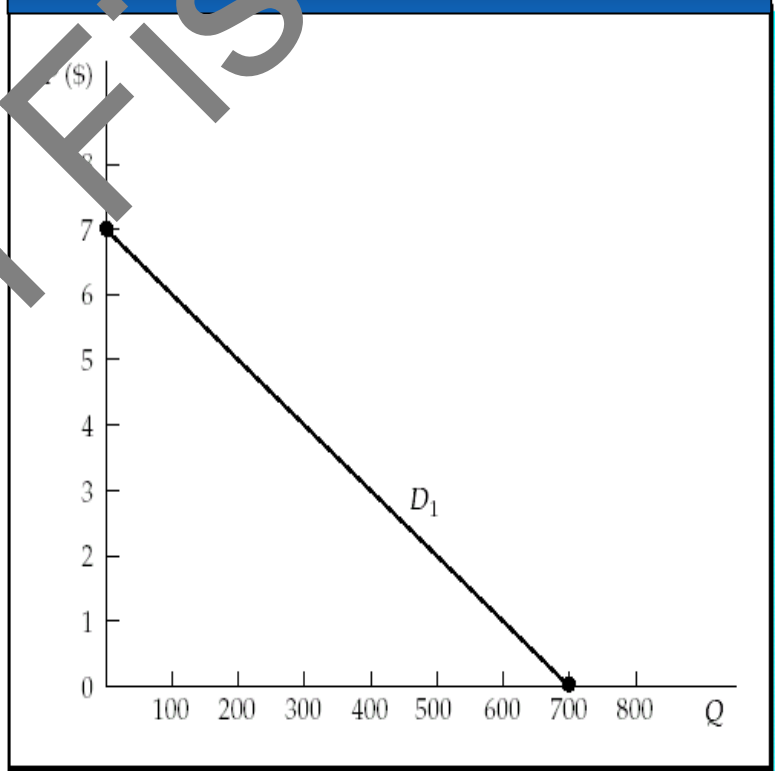
MARKET DEMAND

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.

$$Q_D = Q_D(P)$$

Illustration



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.

$$\text{Coefficient of elasticity} = \frac{\text{percent change in A}}{\text{percent change in B}}$$

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.

$$\varepsilon_p = \frac{Q_2 - Q_1}{(Q_1 + Q_2)/2} \div \frac{P_2 - P_1}{(P_1 + P_2)/2}$$

PRICE ELASTICITY OF DEMAND

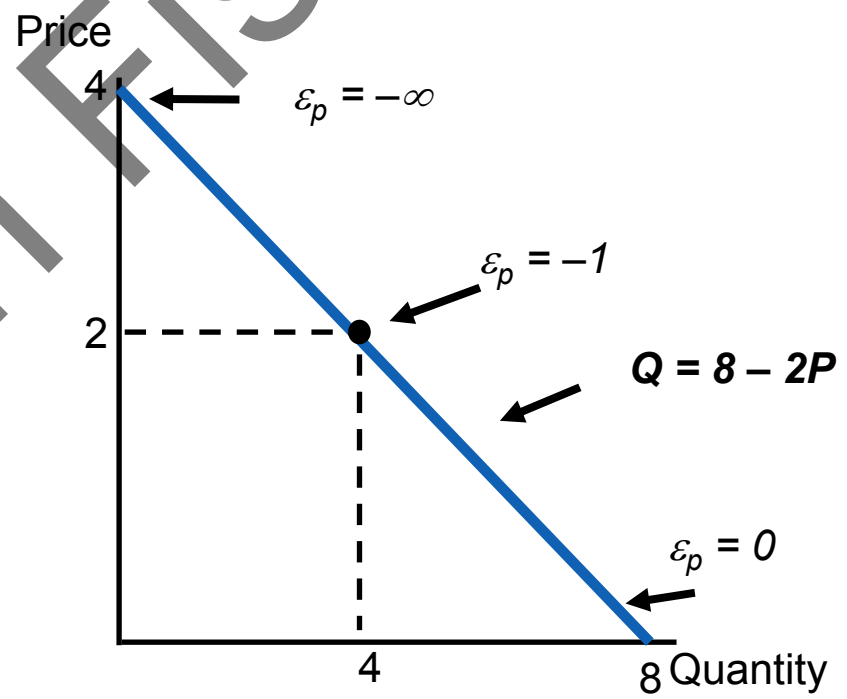
Definition & Interpretation

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

$$\varepsilon_p = \frac{\Delta Q/Q}{\Delta P/P} = \frac{P}{Q}\frac{\Delta Q}{\Delta P}$$

- Because of the negative relationship between P and Q, ε_p is negative.
- If $|\varepsilon_p|>1$, demand is price elastic, if $|\varepsilon_p|<1$, demand is price inelastic.

Illustration



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%.

$$\varepsilon_p = \frac{dQ\ (\%)}{dP\ (\%)} \qquad -8.6 = \frac{dQ\ (\%)}{-3\ (\%)}$$

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.

$$\varepsilon_{p_c} = \frac{\Delta Q/Q}{\Delta P_c/P_c} = \frac{P_c}{Q}\frac{\Delta Q}{\Delta P_c}$$

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

Impact of a change in competitor's prices

- 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 it's product?

Answer

- All other things being equal, the company's demand would be reduced by 36%

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

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

CUSTOMER INCOME

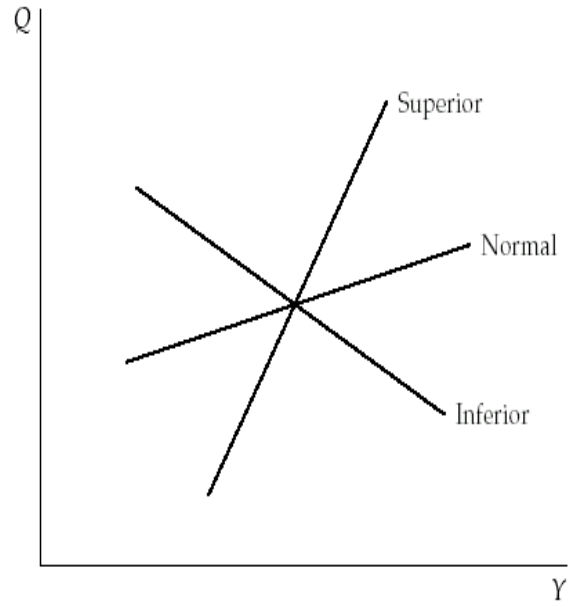
Definition

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

$$\varepsilon_I = \frac{\Delta Q/Q}{\Delta I/I} = \frac{I}{Q}\frac{\Delta Q}{\Delta I}$$

- Superior goods: $\varepsilon_I > 1$
- Normal goods: $0 < \varepsilon_I < 1$
- Inferior goods: $\varepsilon_I < 0$.

Illustration



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.

$$\varepsilon_X^Y = \frac{(Y_2 - Y_1)}{\left[\frac{(Y_2 + Y_1)}{2}\right]} \Big/ \frac{(X_2 - X_1)}{\left[\frac{(X_2 + X_1)}{2}\right]}$$

$$= \frac{(Y_2 - Y_1)}{(X_2 - X_1)} \times \frac{(X_2 + X_1)}{(Y_2 + Y_1)}$$

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).

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.

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 $\Delta X \to 0$, Δ can be replaced by ∂ (i.e., very small changes).
- Thus, the situation in single point is measured, hence "point elasticity".

In double-log reg models

$$\beta = \frac{\Delta \ln Y}{\Delta \ln X}! = \frac{\Delta Y}{\Delta X}\frac{X}{Y} = \varepsilon_X^Y\ ?$$

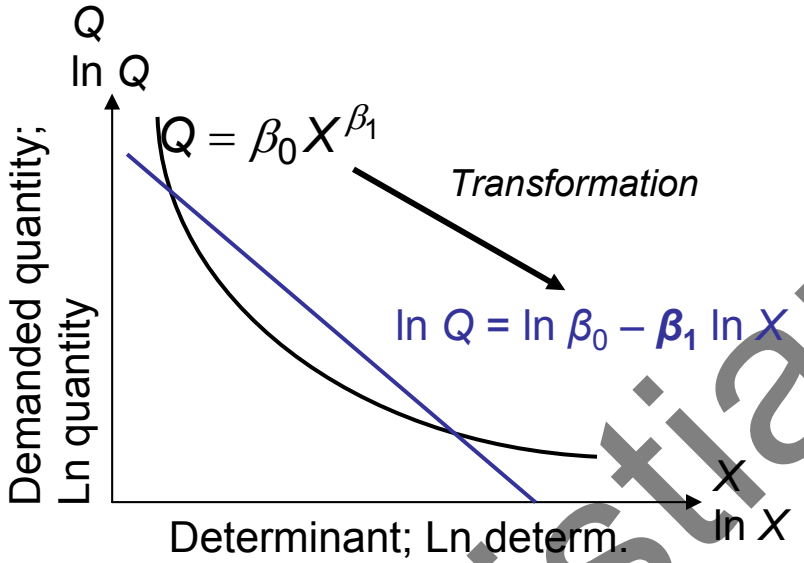
$$\frac{\frac{\Delta \ln Y}{\Delta Y}}{\frac{\Delta \ln X}{\Delta X}} = \frac{X}{Y}\ ? \quad \Rightarrow \frac{\frac{1}{Y}}{\frac{1}{X}} = \frac{X}{Y}!$$

With f = ln X follows $\partial f / \partial X = f'(X) = 1/X$.

=> β_i are constant point elasticities.

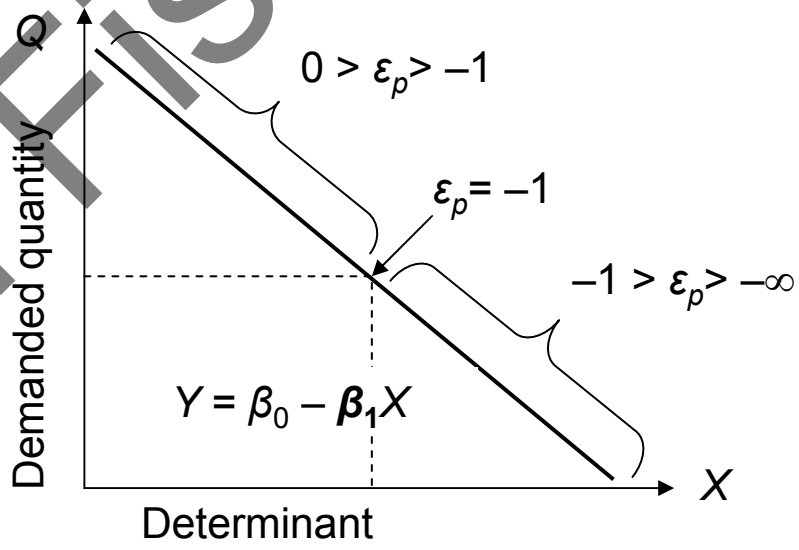
CHOSE THE FUNCTIONAL FORM WHICH IS MOST USEFUL

Constant elasticity of non-linear demand



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

Variable elasticity of linear demand



For linear demand functions, only the slopes (ΔQ / ΔX) 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

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.

Massey University

Te Kunenga ki Pūrehuroa

OSCE

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

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

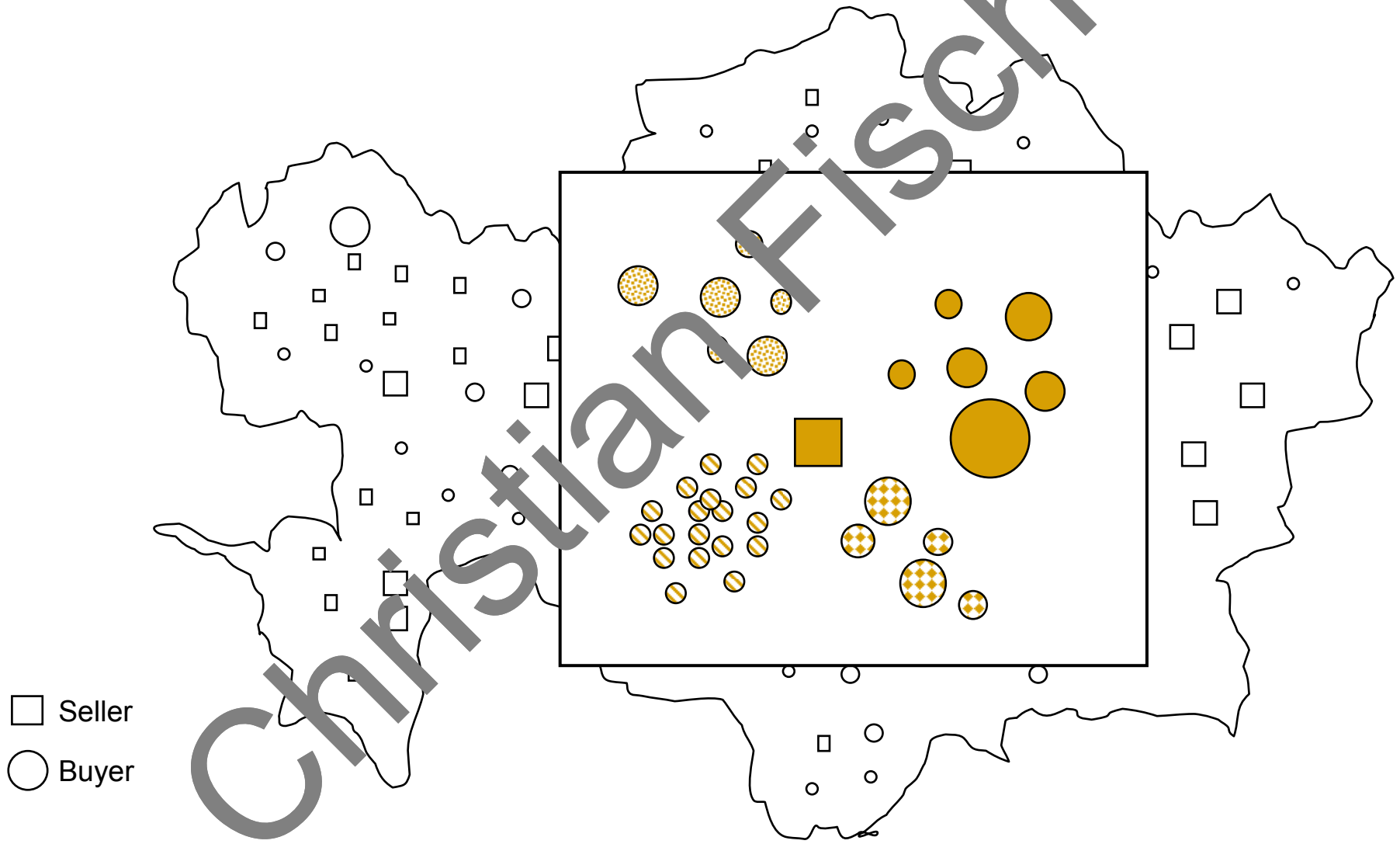
2) Customer segmentation

3) Consumer-preference measurement for concept development/ testing

4) Summary

Customer segmentation

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

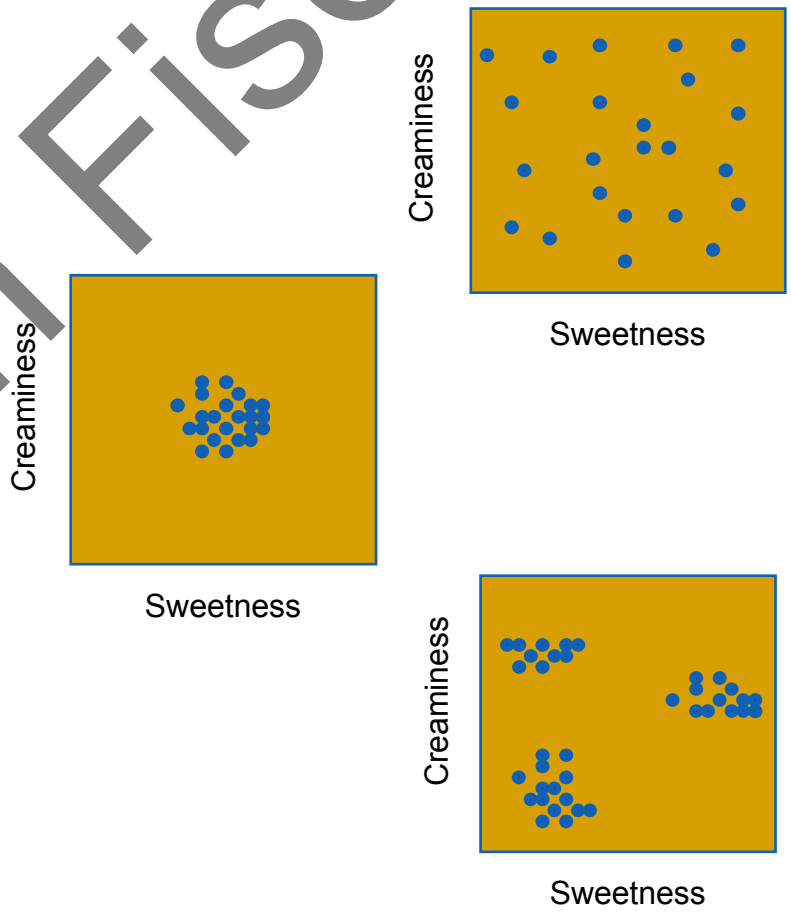


MARKETING STRATEGIES

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.

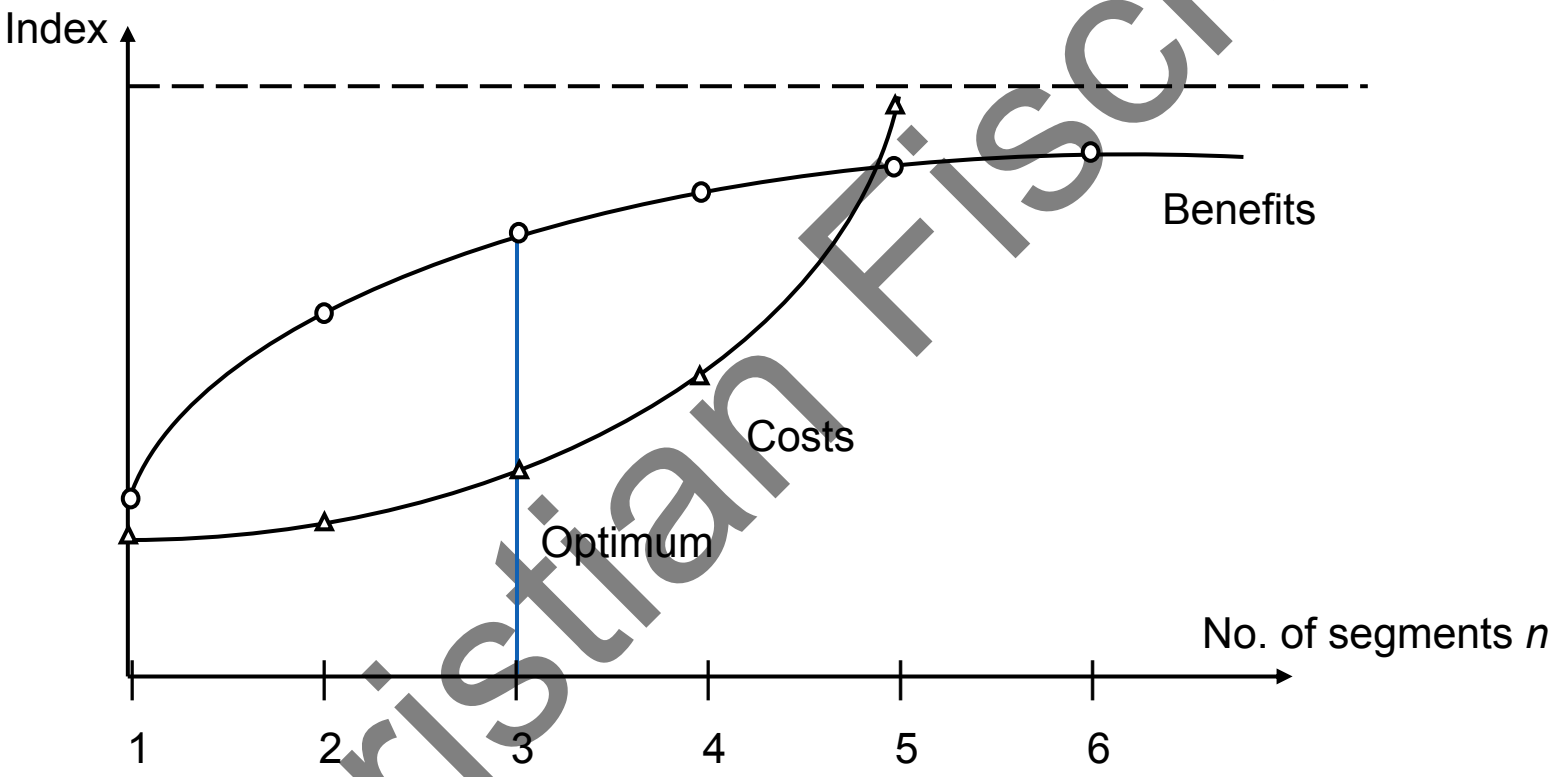
Example: market for ice-cream



COST/BENEFIT ASSESSMENT OF DIFFERENTIATED MARKETING (1)

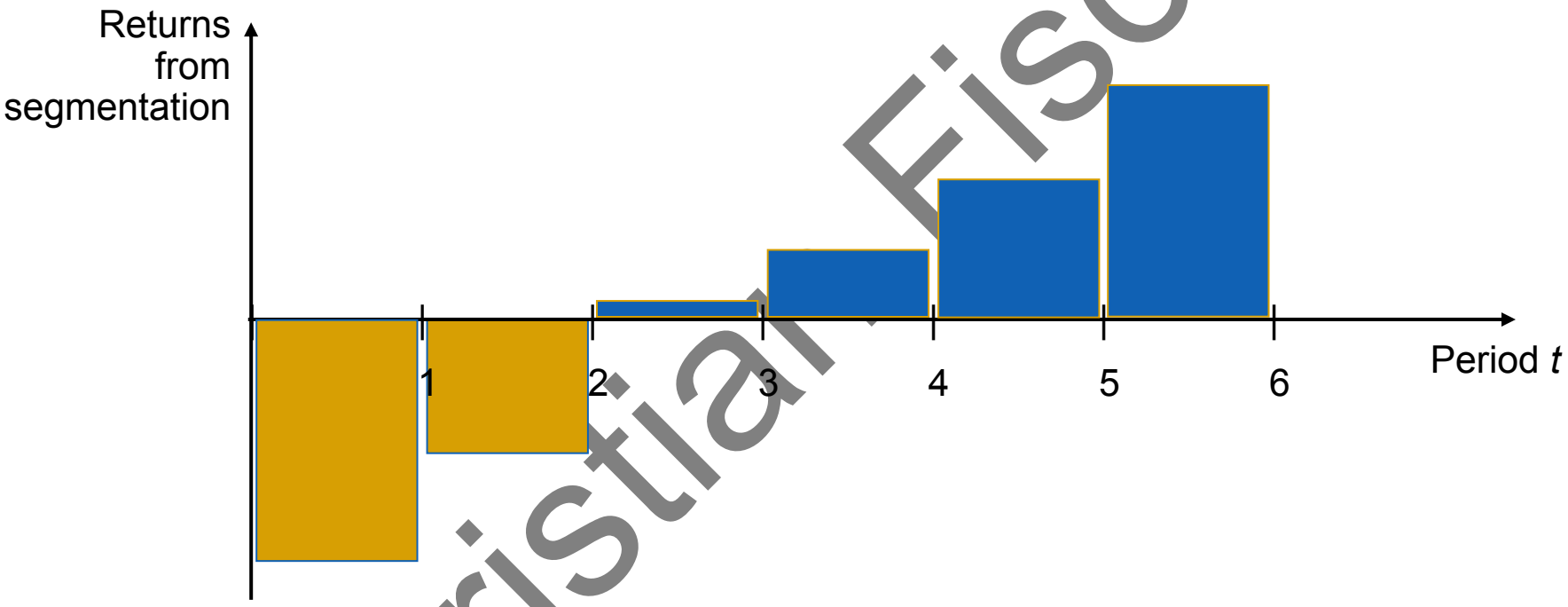
Additional benefits	Additional costs
Relative to undifferentiated marketing there are: - potentially higher sales (revenues) due to more targeted communication to customers. - potentially lower marketing costs due to not serving non-interested customer groups.	Relative to undifferentiated marketing there 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.

COST/BENEFIT ASSESSMENT OF DIFFERENTIATED MARKETING (2)



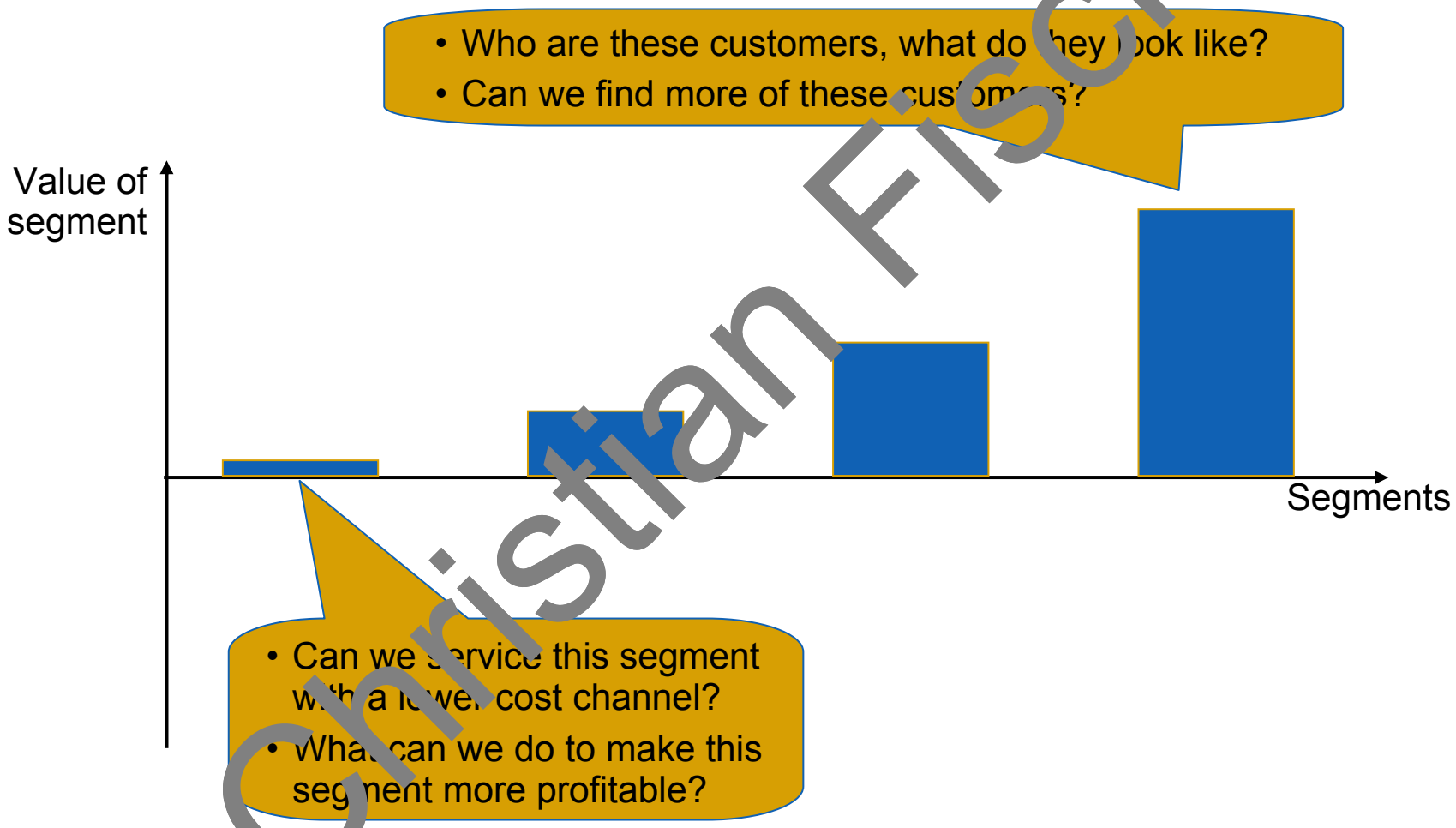
In practice, the optimal number of segments is difficult to determine ex ante. However, in general, empirical studies have shown that *n* is rather small.

COST/BENEFIT ASSESSMENT OF DIFFERENTIATED MARKETING (3)



In the long run, the benefits of segmentation are likely to outweigh intial implementation costs.

SEGMENTATION BY CUSTOMER VALUE AND ARRISING KEY QUESTIONS



CUSTOMER PROFILES WHICH CAN BE GENERATED FROM COMPANY DATABASES

Identity	Behaviour	Other characteristics
Who is the customer? ▸ Name ▸ Address ▸ Contact details	How does the customer behave? ▸ Product preferences (type, specification, packaging, etc.) ▸ Purchasing frequency and quantity ▸ Payment preferences (cash, card, credit etc.) ▸ Others	What attributes does the customer have? ▸ *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. ▸ *From external information sources*: income, age, household size, good reputation, etc.

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.

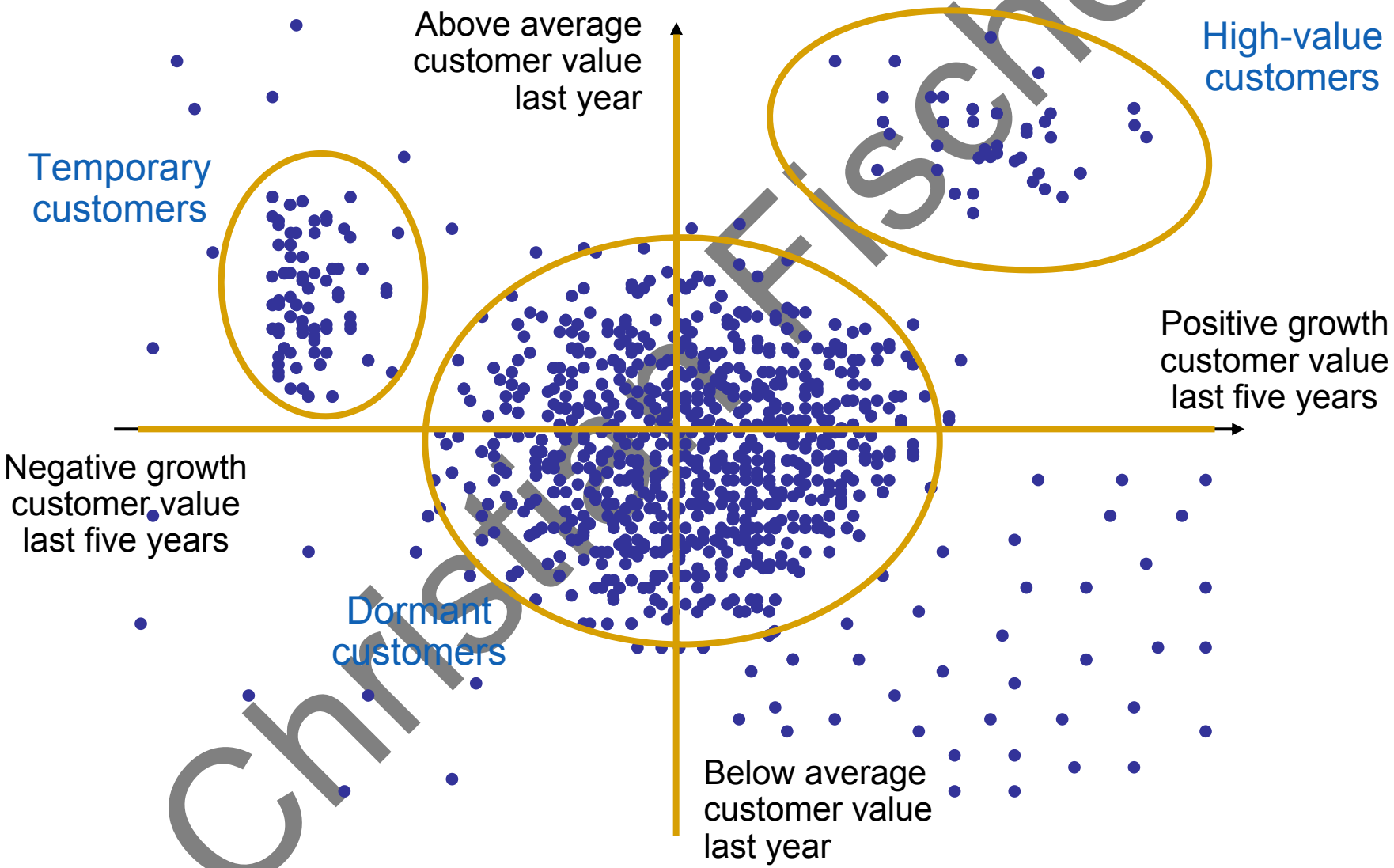
Complex approach

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.

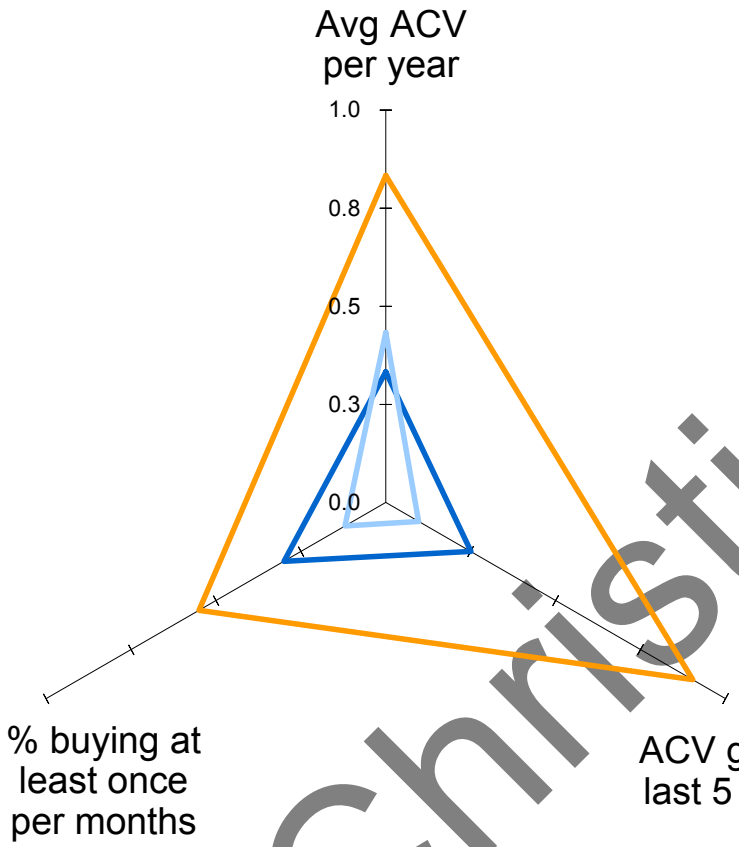
Given these multiple value criteria, different value types may be identified (e.g., by index calculation or cluster analysis).

CUSTOMER-VALUE SEGMENTS

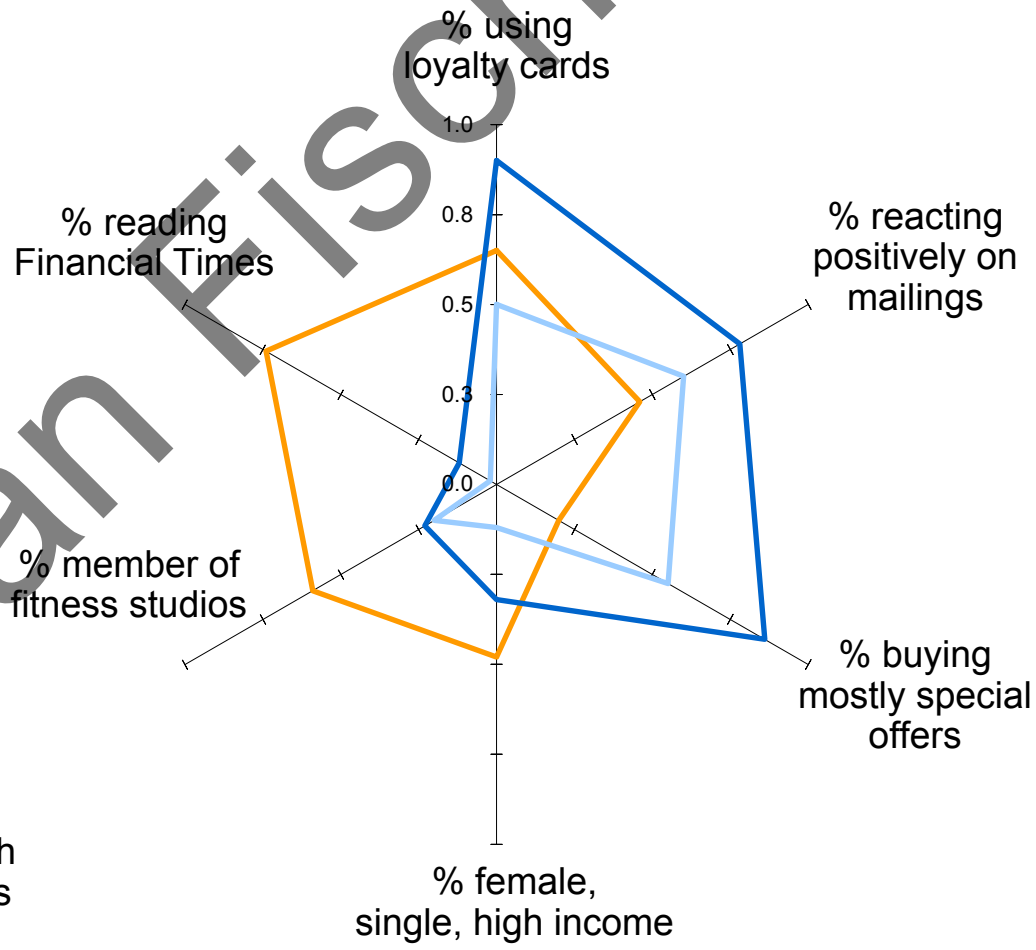


SEGMENT PROFILING

Customer value
(using 3 variables)



Customer behaviour/characteristics



High-value customers (18%) Dormant customers (55%) Temporary customers (27%)

SEGMENT PROFILING WITH SAMPLE DATA

Problem

- 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.

Classification methods

- 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)

Likelihood Ratio Tests

Effect	Model Fitting Criteria: -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests: Chi-Square	df	Sig.
Intercept	78.511[a]	.000	0	.
Age	79.615	1.104	2	.5[illegible]
Gender	85.921	7.410	2	.025
Annual_income	92.195	13.684	4	.[illegible]
No_of_children	86.347	7.836	6	.250
Member_of_fitness_studio	78.985	.474	2	.[illegible]
Financial_Times_reader	81.625	3.114	2	.211
Pay_TV_subscriber	79.460	.94[illegible]	2	.622
Buys_on_eBay	78.562	.05[illegible]	2	.975
Buys_our_special_offers	82.302	3.[illegible]92	2	.150
Reacts_positively_to_mailings	80.765	2.254	2	.324
Uses_loyalty_card	87.0[illegible]	8.580	2	.014
Buys_at_least_once_a_month	87.[illegible]9	8.588	2	.014
Called_about_new_products	79.[illegible]54	.643	2	.725

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

Likelihood Ratio Tests

Effect	Model Fitting Criteria: -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests: Chi-Square	df	Sig.
Intercept	53.920[a]	.000	0	.
Gender	80.796	26.876	2	.000
Annual_income	92.112	38.192	4	.000
Uses_loyalty_card	62.771	8.851	2	.012
Buys_at_least_once_a_month	85.114	31.195	2	.000

Segment classification

Observed	Predicted: High value	Temporary	Others (dormant)	Percent Correct
High value	16	0	5	76.2%
Temporary	0	6	9	40.0%
Others (dormant)	10	2	67	84.8%
Overall Percentage	22.6%	7.0%	70.4%	77.4%

FROM ANALYSIS TO ACTION

- 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

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1) Introduction

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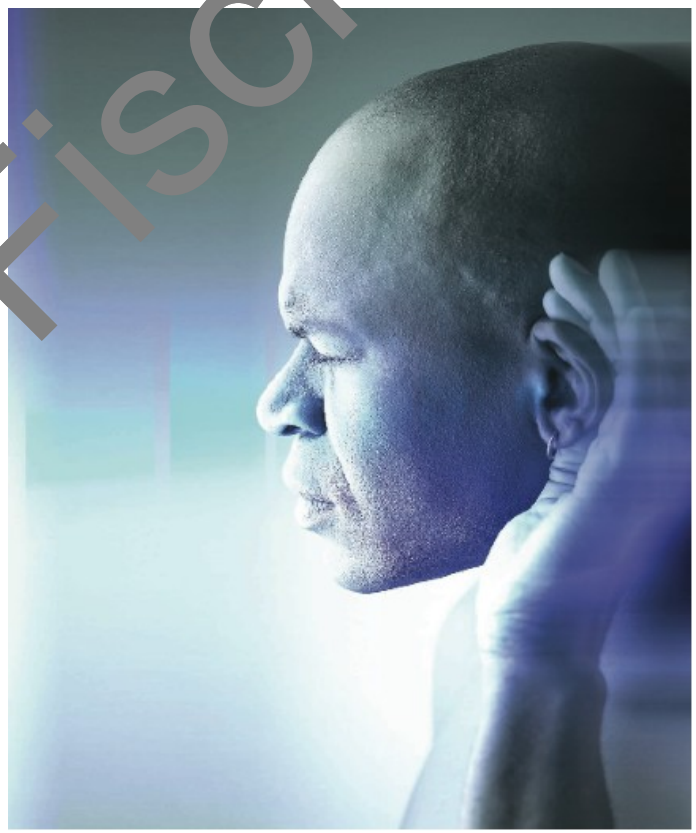
4) Summary

CORPORATE PARADIGMS OVER TIME

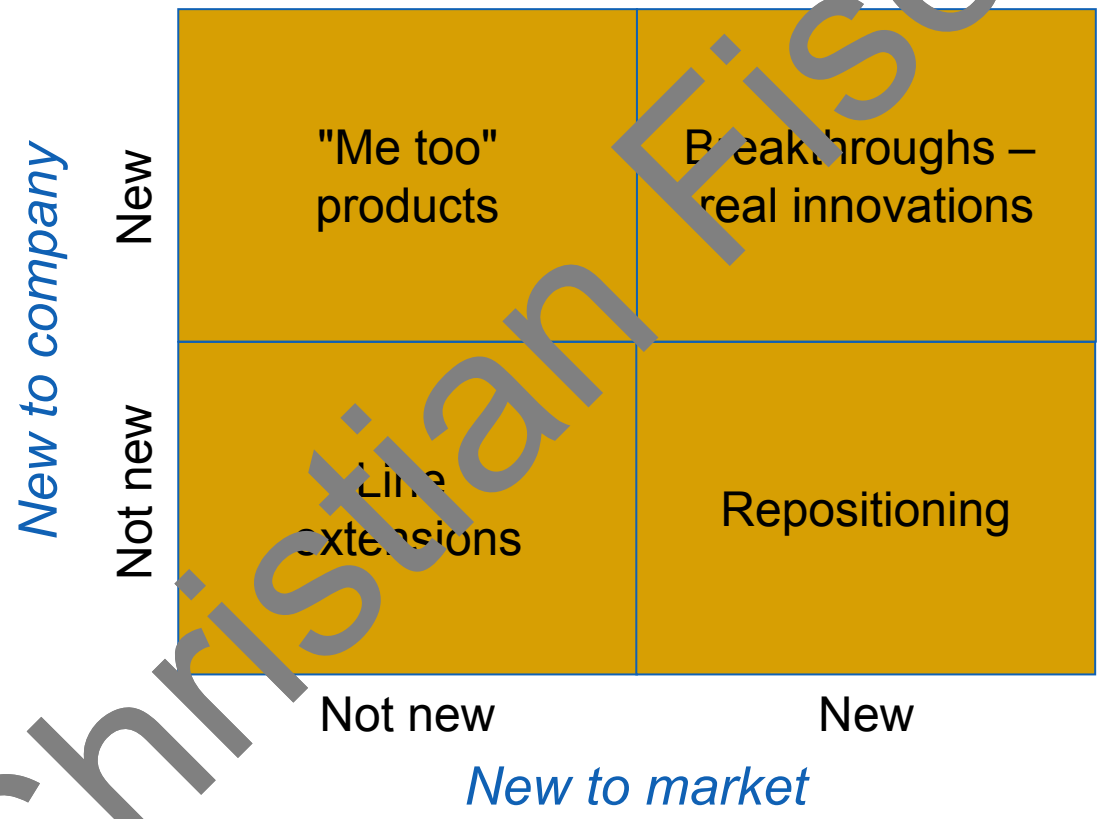
Production orientation	Sales orientation	Market/ing orientation	Environment orientation?
Technology focused. Developing "world-class" products. Cost focused. Build cheapest possible products.	Trying to get the customer to want what the company has. Use of aggressive sales methods to obtain volume sales.	Understanding and producing what consumers want and need. The consumer (customer)-led company!	Producing and distributing goods and services with the lowest possible environmental impact. Sustainable business.
1950s-60s	*1970s*	*1980s-today*	*Future*

MARKET/ING ORIENTATION

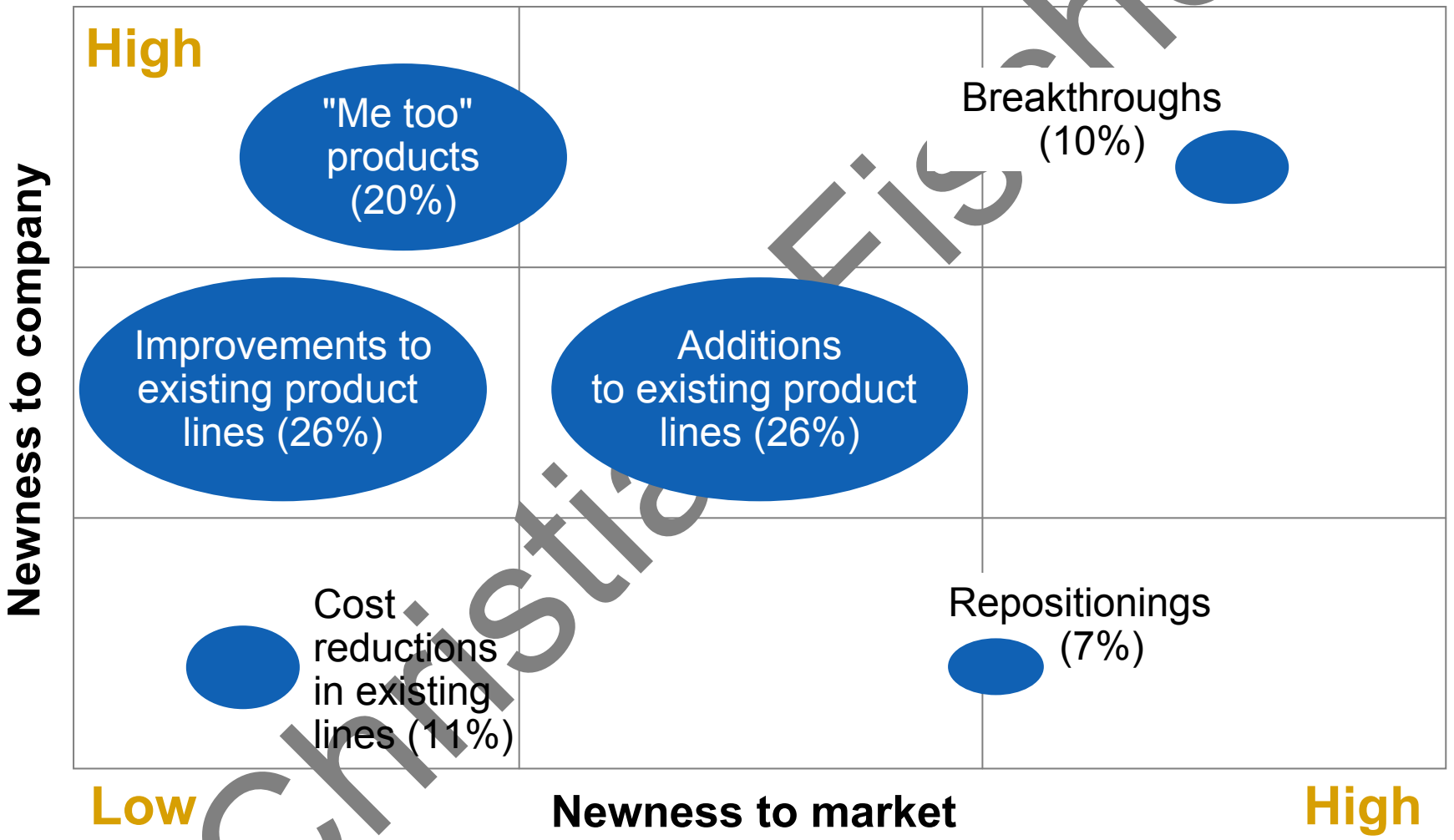
- Market orientation normally refers to the process of decision-making within an organisation and means that the business will focus on the needs of the consumer (customer) before making decisions regarding the product, pricing strategy and promotion.
- Marketing orientation is an organisational orientation that believes success is most effectively achieved by satisfying consumer demands.



"NEWNESS" OF PRODUCTS



TYPES OF NEW-PRODUCT INTRODUCTIONS

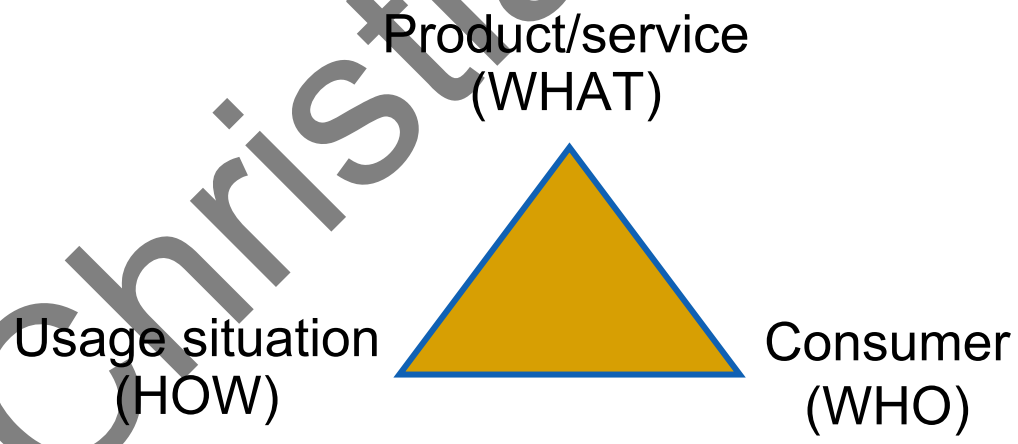


Hooley G., Saunders J., Piercy N. and Nicoulaud B. (2007): Marketing Strategy and Competitive Positioning, 4th edition. Pearson.

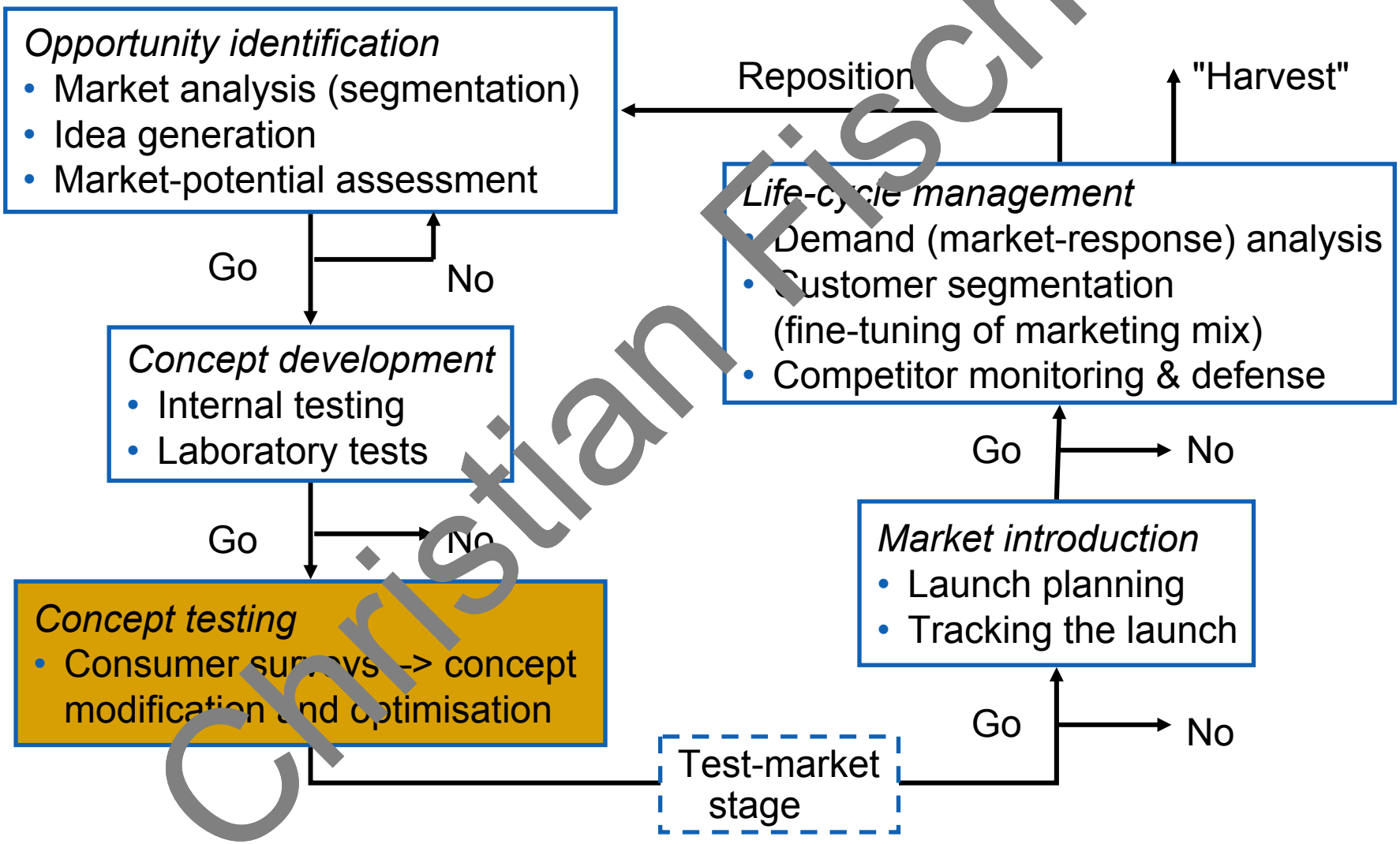
THE CONCEPT (= NEW PRODUCT/SERVICE) STATEMENT

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)



FROM IDEA TO MARKET



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: …

CONCEPT DESIGN

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

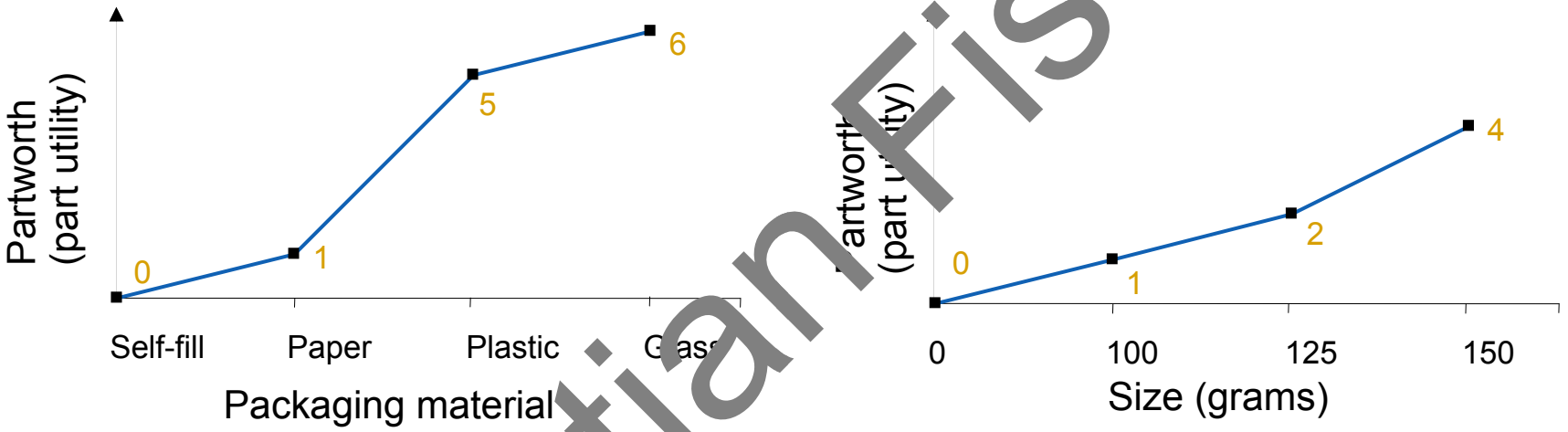
2) The utility value of an offering (i.e., a concept) is some function of the utilities of the concept's attribute levels.

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

$$U = u(a_1) + u(a_2) + \ldots = \sum_{\text{attribute levels}} \text{part utilities}$$

3) Consumers prefer the offering with the highest overall utility value.

EXAMPLE CALCULATION OF UTILITY (PART UTILITY = 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.

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 may 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".

SOME APPLICATIONS OF CONJOINT ANALYSIS

Commercial

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.

Policy making

Optimal design and pricing of public regulations:

- Fishing permits.
- National-park usage.
- Public transportation options.

Medical

Integrating patients' preferences in treatments based on the trade-offs between various outcomes and side effects.

- Prostate cancer.

TRADITIONAL CONJOINT ANALYSIS (TRADE-OFF APPROACH)

Which yogurt would you prefer ?

Paper packaging	or	Glass packaging
150g		100g

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.

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, 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…

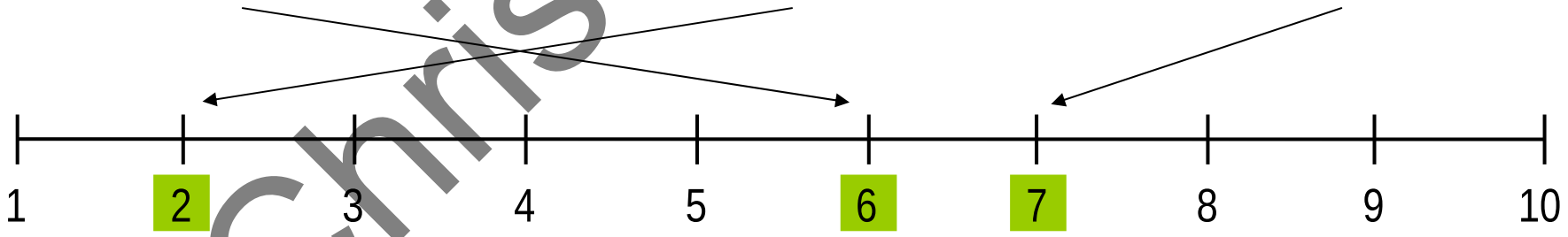
Strawberry flavour
Glass packaging
Pot size:150g
Milk-fat contents: 3.5%
Contains artificial colouring
35cents per pot

Your answer:_____

FULL-PROFILE CONJOINT (2)

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

		
One piece leather	Leather pieces and nylon	Leather pieces
GORE-TEX® membrane	No GORE-TEX® membrane	GORE-TEX® membrane
Heavy	Lightweight	Heavy
Price of 159€	Price of 149€	Price of 139€



ADAPTIVE CONJOINT ANALYSIS (1)

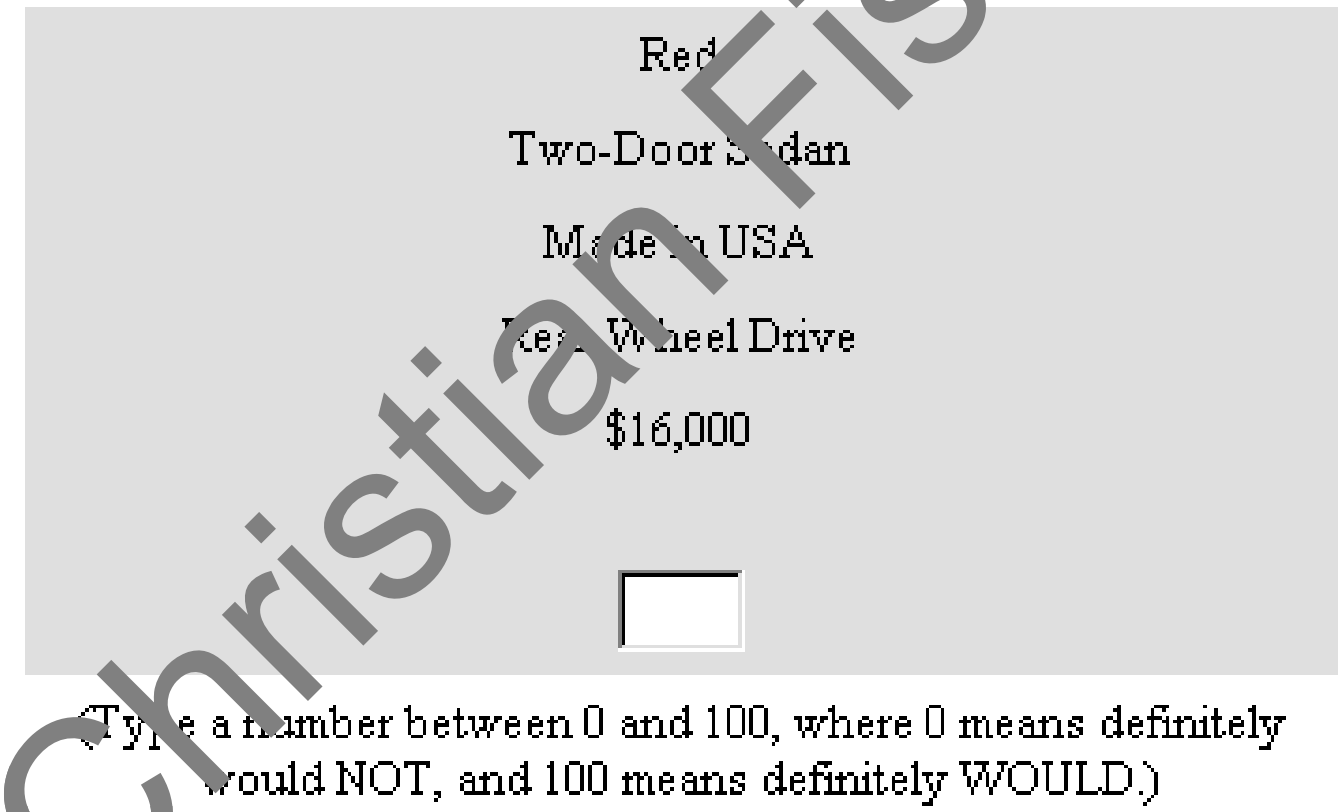
- It is also called ACA.
- It is a "hybrid approach". That is, partial profiles are constructed for each respondent in accordance to self-reported attribute importance.
- This method is best in situations where the number of attributes is quite large and the information burden on respondents is felt 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.

ADAPTIVE CONJOINT ANALYSIS (2)

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

	Not At All Desirable		Somewhat Desirable		Very Desirable		Extremely Desirable
Red	○	○	○	○	○	○	○
Blue	○	○	○	○	○	○	○
Green	○	○	○	○	○	○	○
Yellow	○	○	○	○	○	○	○
White	○	○	○	○	○	○	○
Black	○	○	○	○	○	○	○

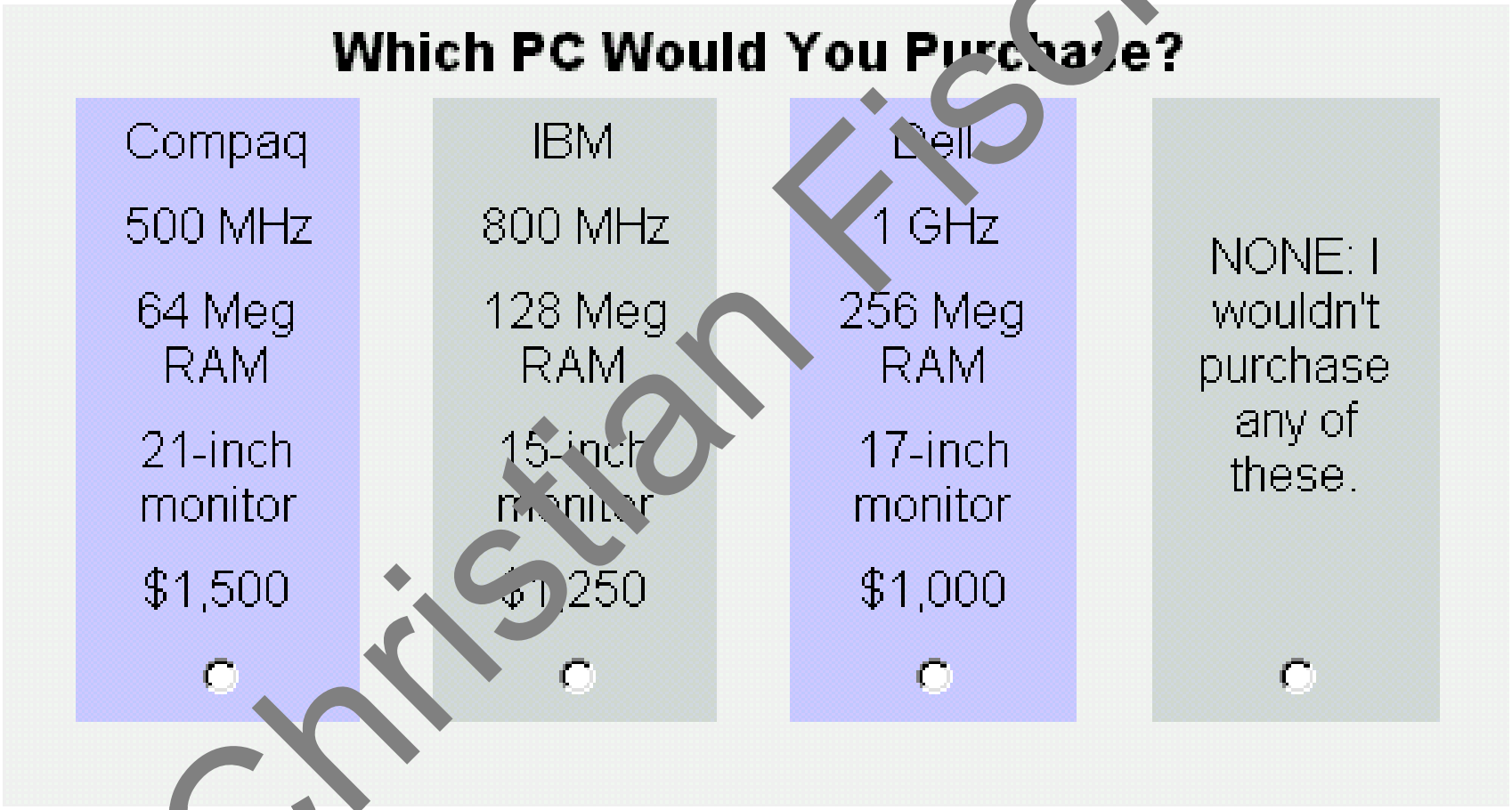
ADAPTIVE CONJOINT ANALYSIS (3)



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)



CHOICE-BASED CONJOINT ANALYSIS (3)

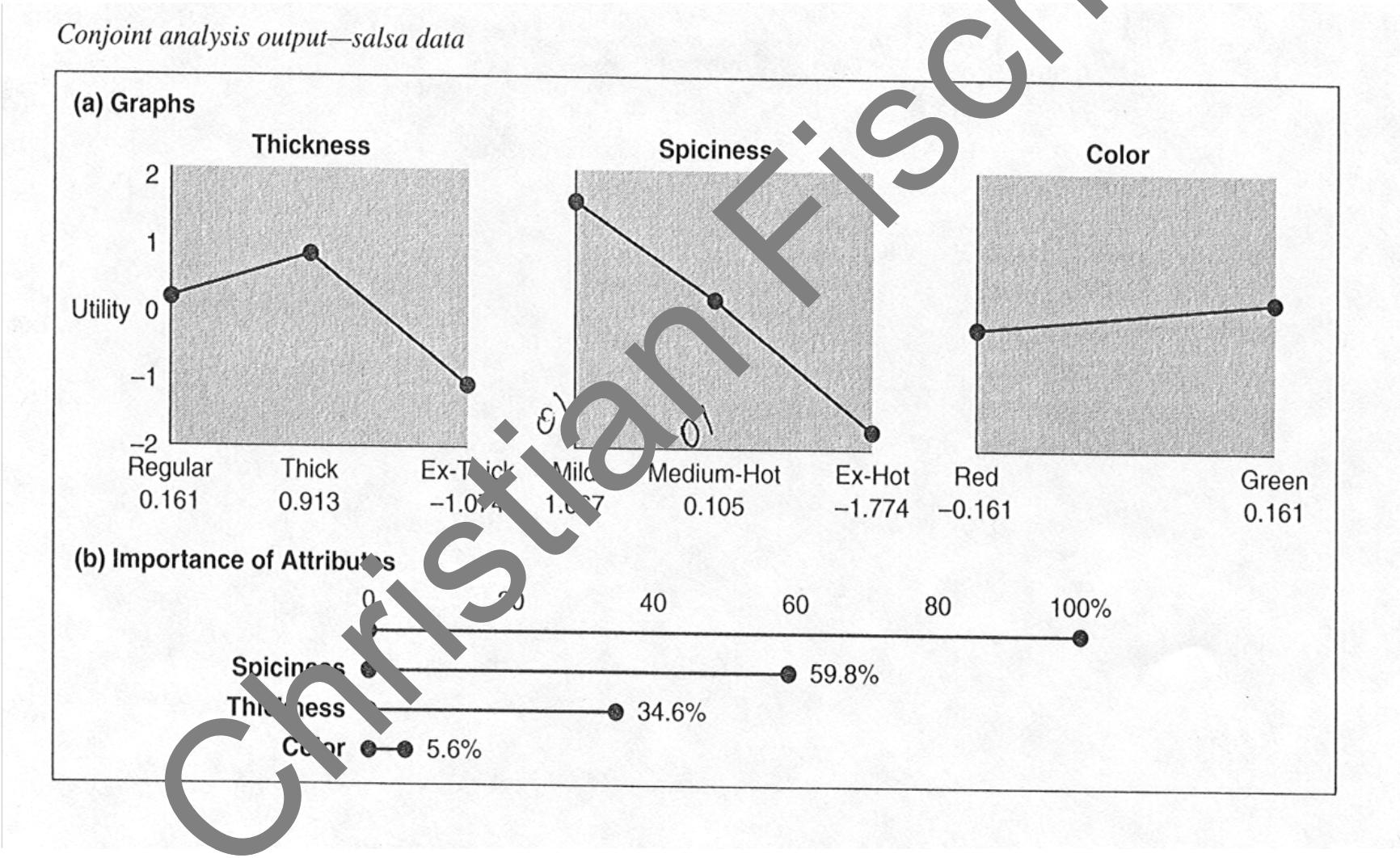
Which of the two hiking boots would you prefer if the options are described by the attributes shown?	
	
One piece leather	Leather pieces
No GORE-TEX® membrane	GORE-TEX® membrane
Air-cushioned mid-sole	No air-cushioned mid-sole
Midweight	Heavy
Price of 159€	Price of 149€

EXAMPLE RESULTS FROM CONJOINT ANALYSIS (1)

Yogurt

Attribute	Level No.	Description	Utility	Importance
Packaging material	3	Plastic	0.778	
	2	Paper	–0.556	
	1	Glass	–0.222	0.286
Flavour	3	Strawberry	0.445	
	2	Blueberry	0.111	
	1	Peach	–0.556	0.214
Price	3	25c	1.111	
	2	29c	0.111	
	1	33c	–1.222	0.500

EXAMPLE RESULTS FROM CONJOINT ANALYSIS (2)



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,

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

- 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 NEW CONCEPTS FAIL AND HOW THEY SUCCEED

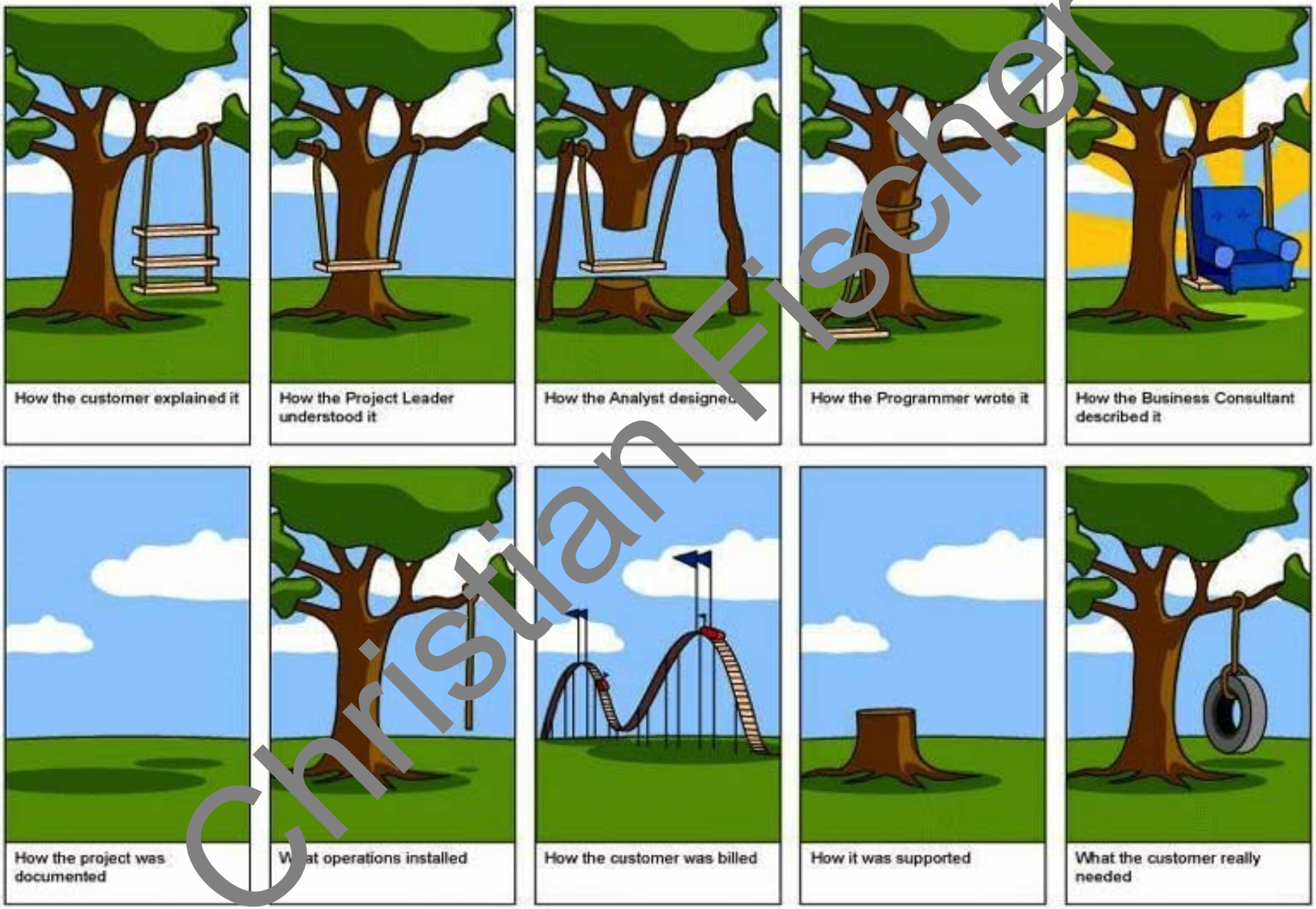
Why they fail

- 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.

Massey University

Te Kunenga ki Pūrehuroa

OSCE

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

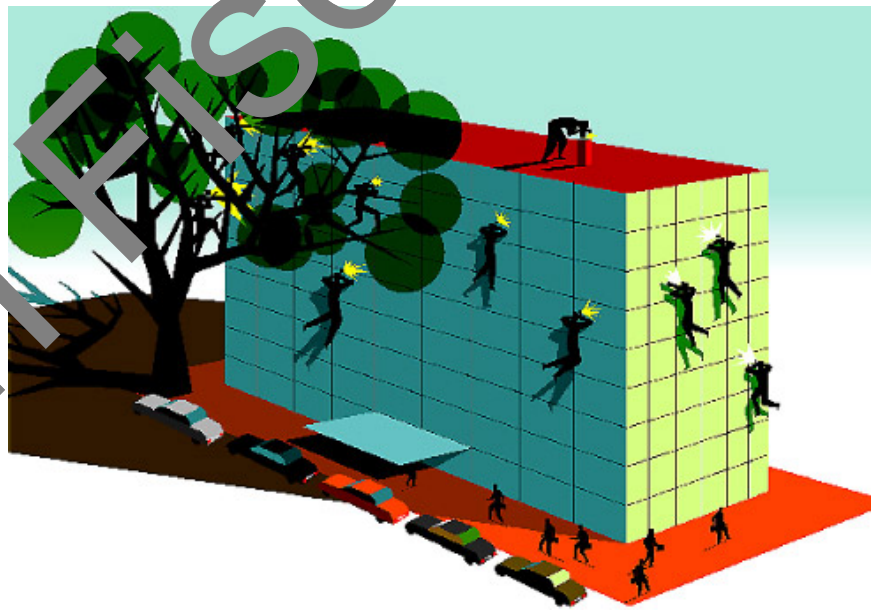
2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary



COMPETITVE 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.

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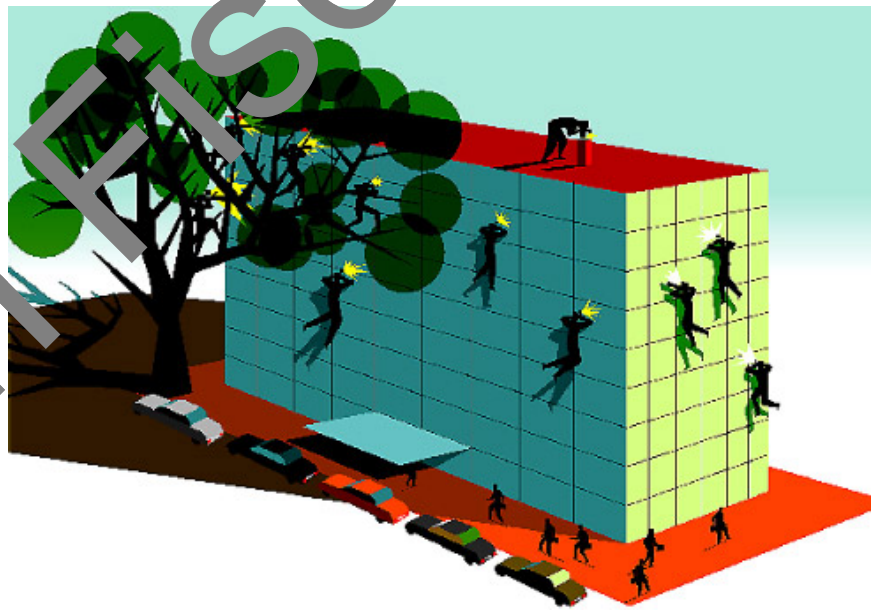


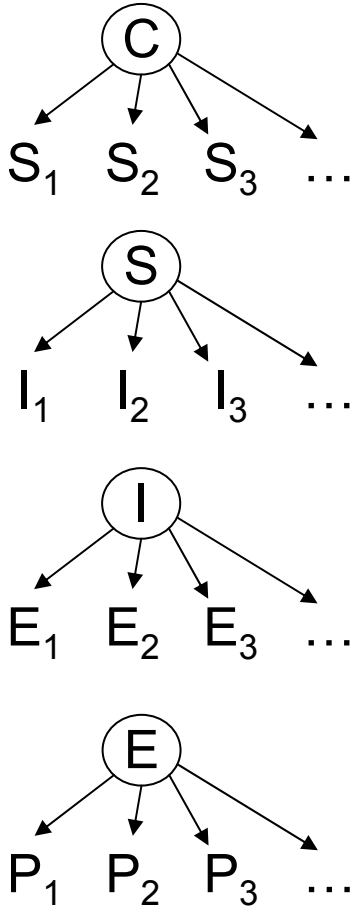
COMPETITIVENESS IN CONTEXT

OECD definition	Lall, 2001
"The ability of companies, industries, regions, nations, and supranational regions to generate, while being and remaining exposed to international competition, relatively high factor **income** and factor employment levels on a sustainable basis."	"Competitiveness in industrial activities means developing relative **efficiency** along with sustainable **growth.**"

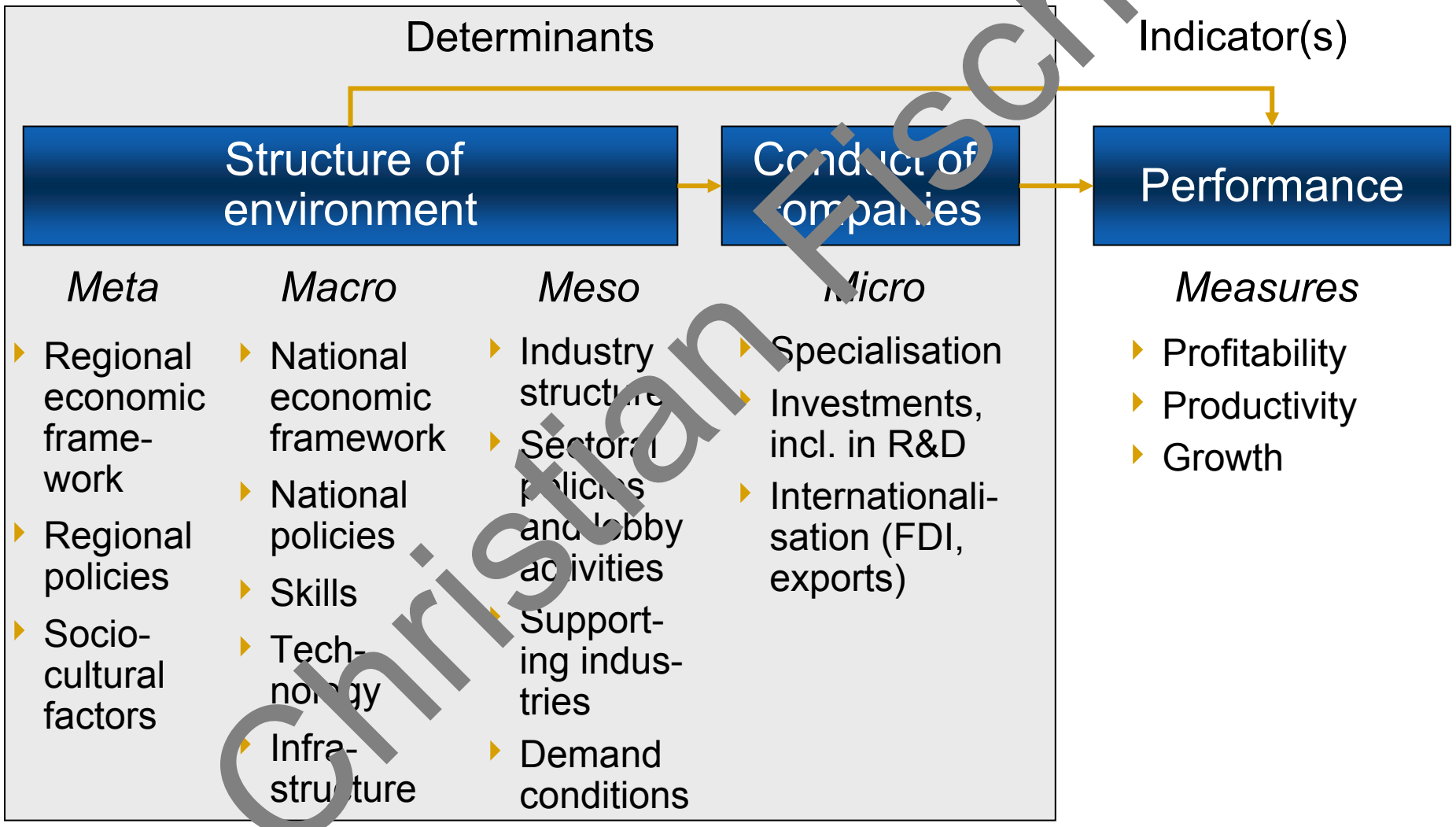
Construct (i.e., composite concept) competitiveness = multidimensional economic performance

DEFINING THE LEVEL OF COMPETITIVENESS

Economic entity	Activities (which define the entity's performance)	
Country (C) or territory (T)	→	Industrial sectors (S)
Industrial sector (S)	→	Sub-industries (I)
Sub-industry (I)	→	Enterprises (E) or corporate divisions (D)
Enterprise (E) or corporate division (D)	→	Products (P)



DISTINGHISING BETWEEN COMPETITIVE-NESS DETERMINANTS AND INDICATORS



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.

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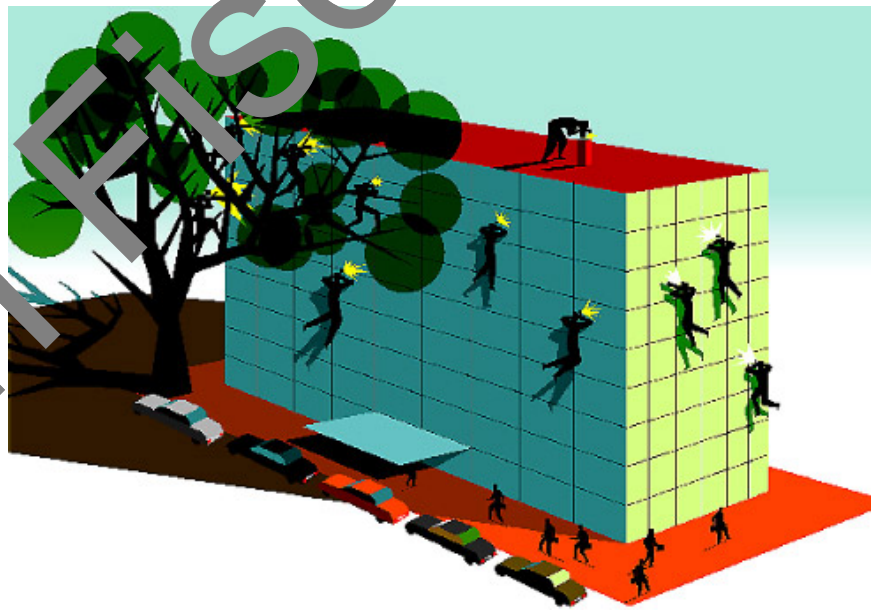
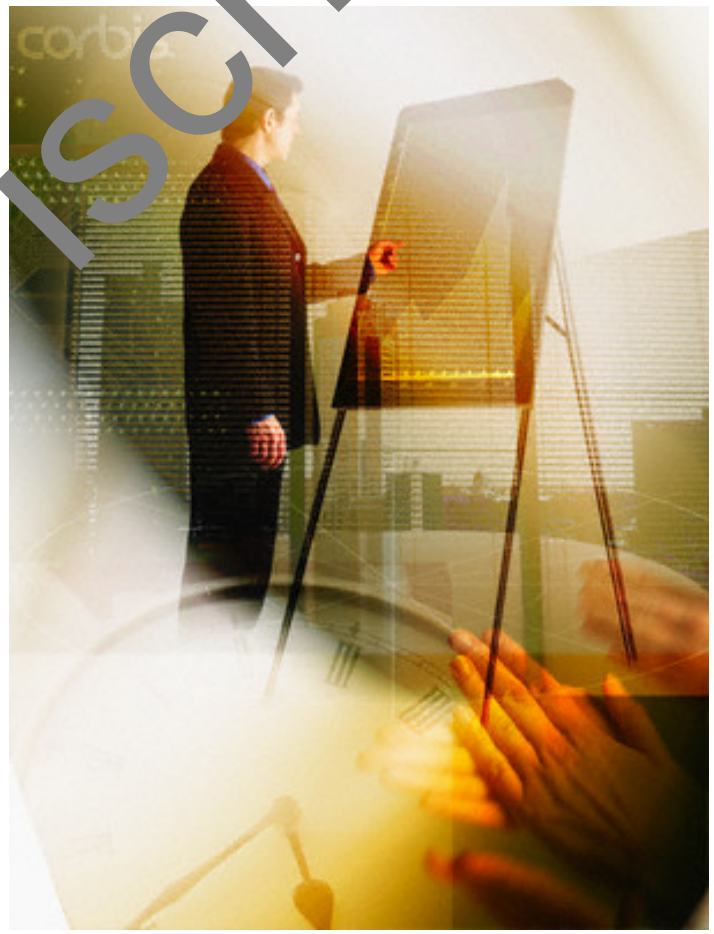


FUNDAMENTALS

- 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.



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').

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

Consistency

A strategy should not present mutually inconsistent goals and policies.

Consonance (external fit)

A strategy should represent an adaptive response to the external environment and to the critical changes occuring within it.

Advantage

A strategy should provide for the creation and/or maintenance of competitive advantage in a selected area.

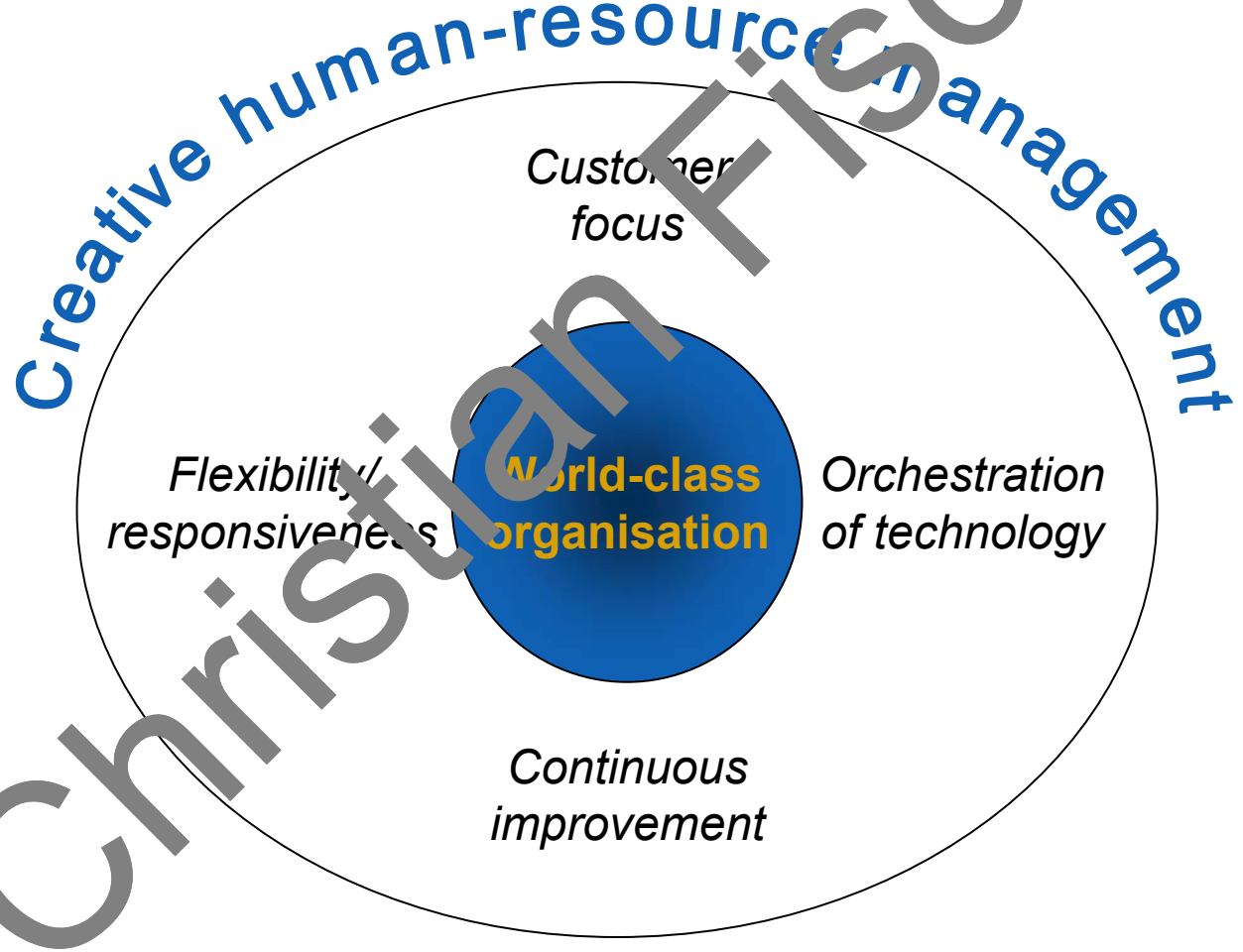
Feasibility

A strategy must neither overtax available resources nor create unsolvable sub-problems.

MARKETING STRATEGY, ETC.

Strategy	Tactical steps	Operational actions
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 campain 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?

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



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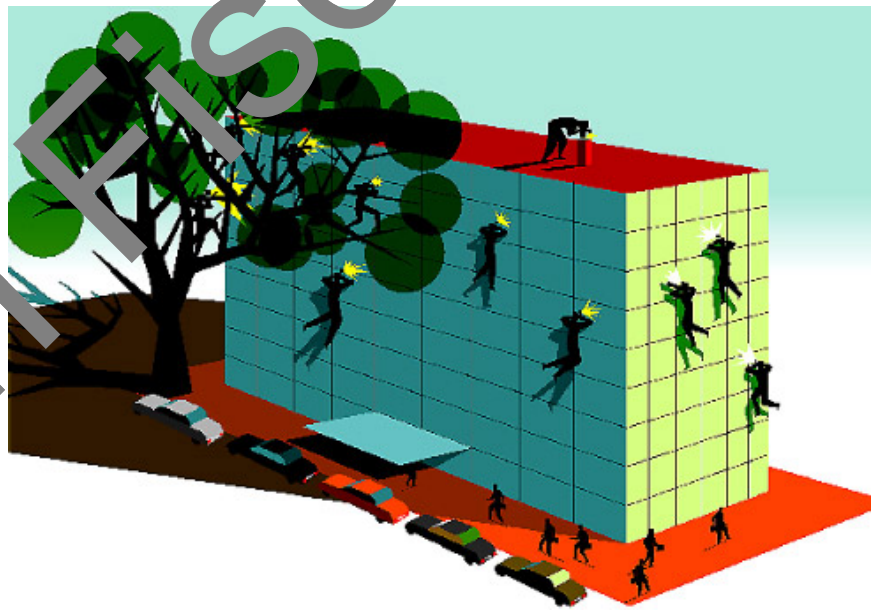


COMPETITOR ANALYSIS

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

	Product 1	Product 2	Product 3
Competitor 1	$7.35	$13.15	$3.50
Competitor 2	$7.99	$10.20	$4.20
Competitor 3	$8.10	$12.35	$2.90
Own company	$7.30	$11.70	$3.70

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

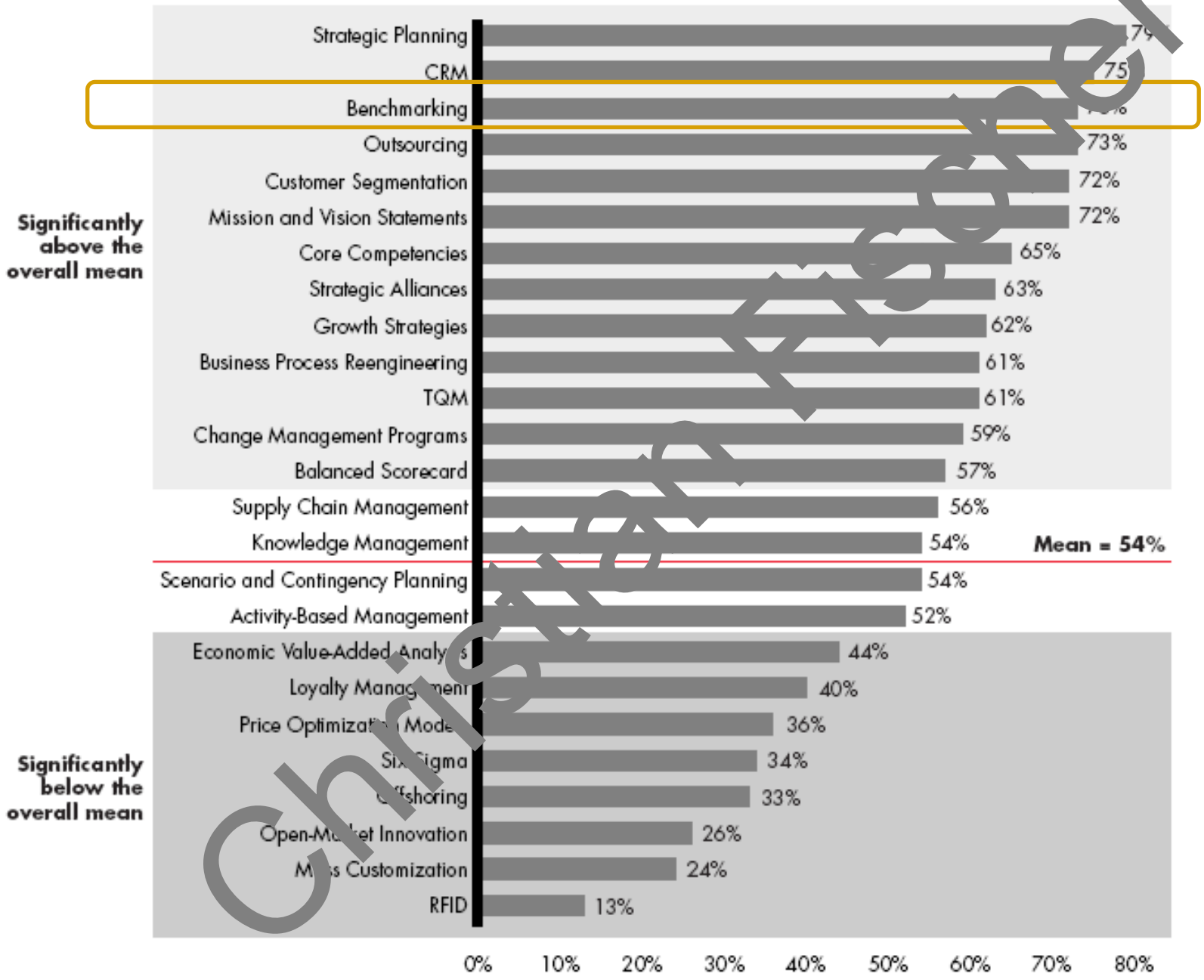
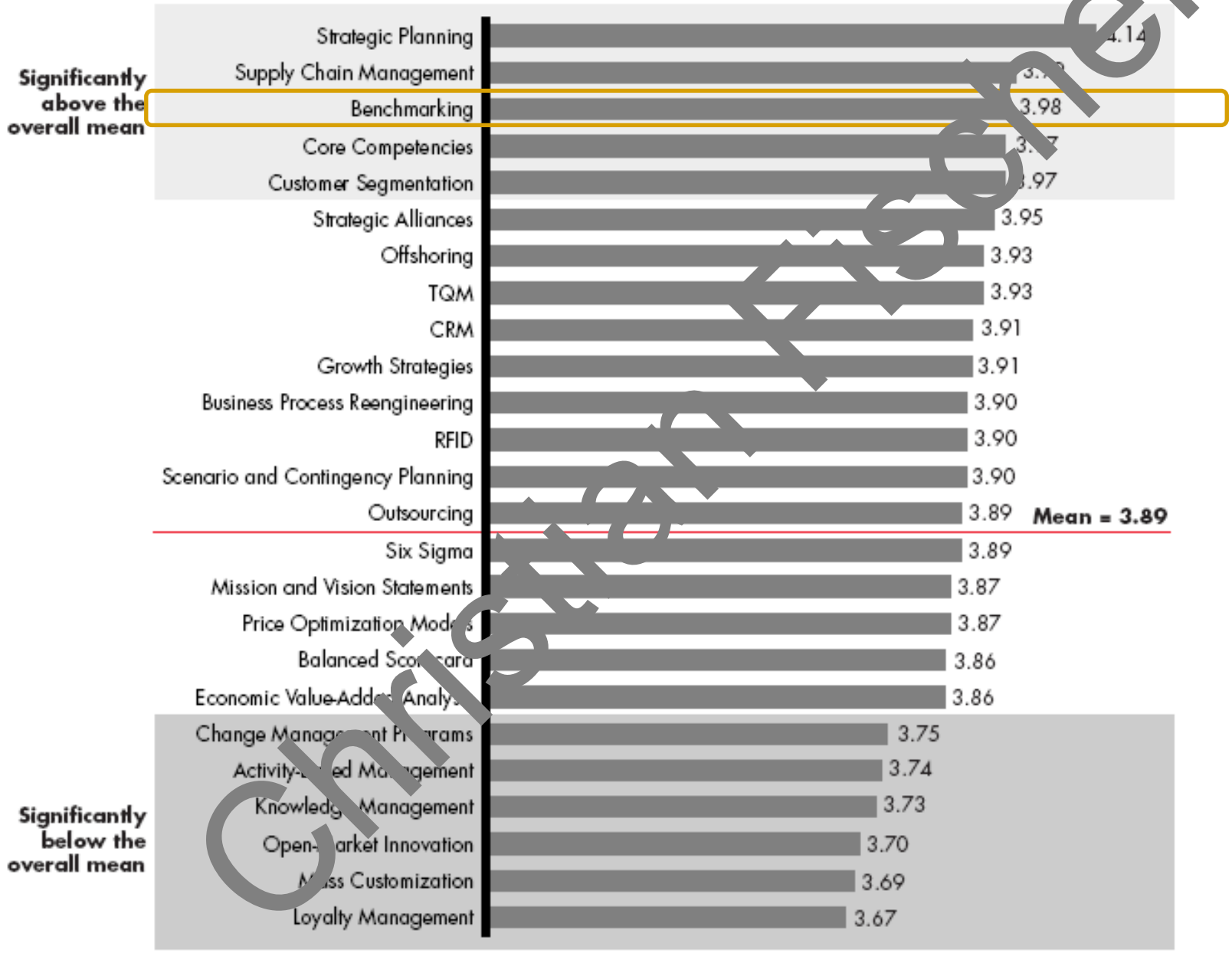


Figure 2: Satisfaction with most tools is relatively high (scale of 1 to 5)



DIFFERENT TYPES OF BENCHMARKING (UNITS OF ANALYSIS)

THE ROLE OF CRITICAL SUCCESS FACTORS (CSFs)

Definition

- 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.
- They can be specific to a company, to an industry or to a business environment.
- They should primarily be considered in the benchmarking procedure.

Examples

- Automotive industry;
  - styling
  - strong dealer network
  - manufacturing cost control.
- Semi-conductor industry:
  - manufacturing process
  - capital availability
  - technological competence.
- Food processing industry:
  - new-product development
  - good distribution
  - effective advertising.

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 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.

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

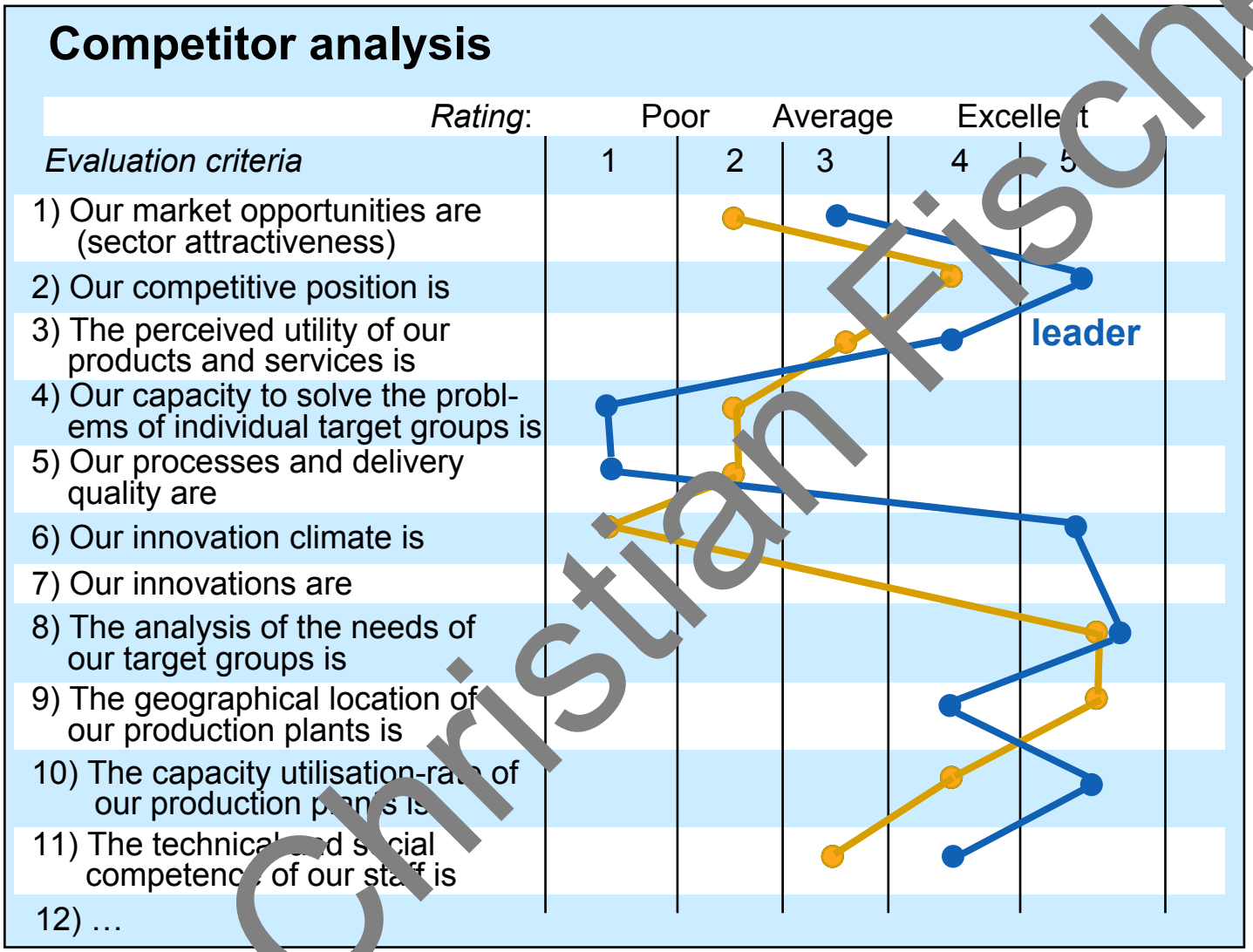
Competitor analysis

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

- *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.*

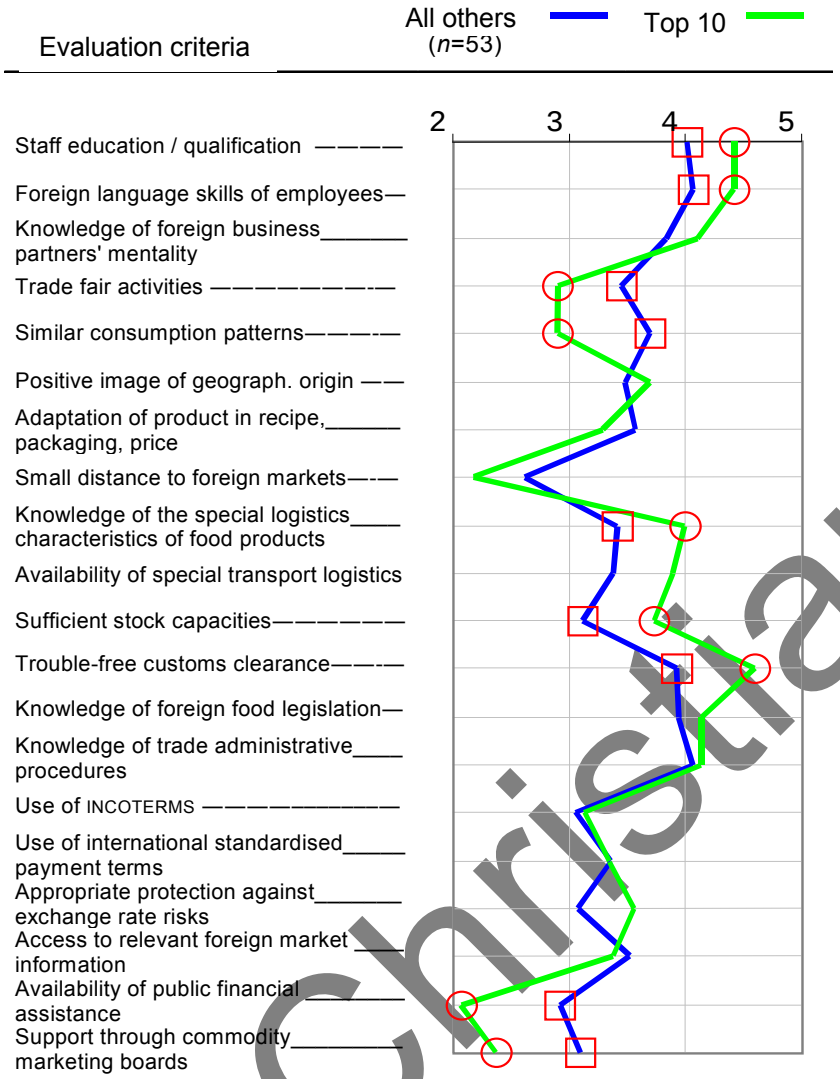
Benchmarking competitors

PROFILING



- *The graphical representation increases the comprehen-sibility.*
- *Benchmarking in the proper sense is always done relative to the industry leader.*

RATINGS & PROFILES: EXTENSIONS



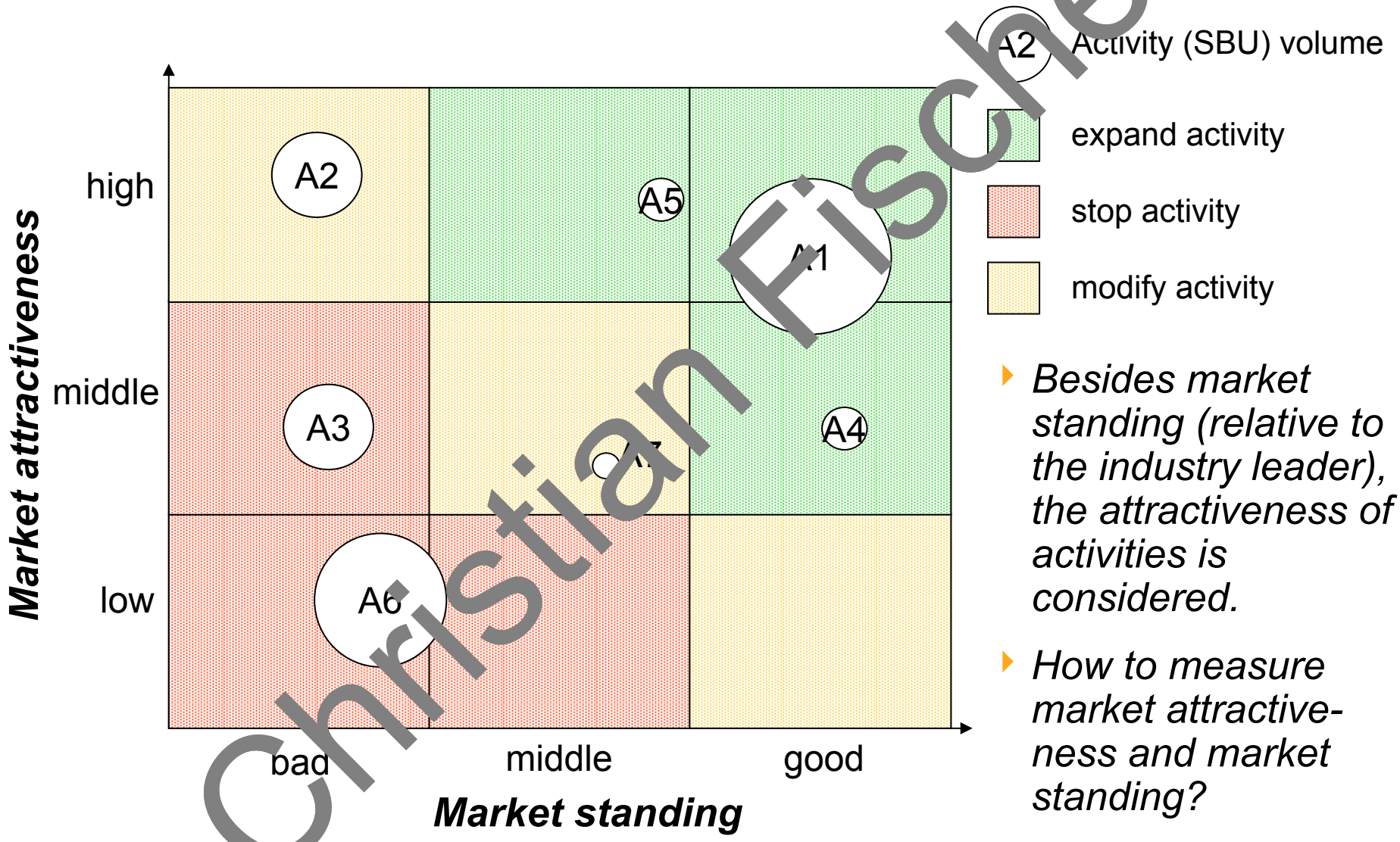
○□ *indicate statistically significant differences of the group means at the 95% confidence level (exact Mann-Whitney* U *test results)*

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.

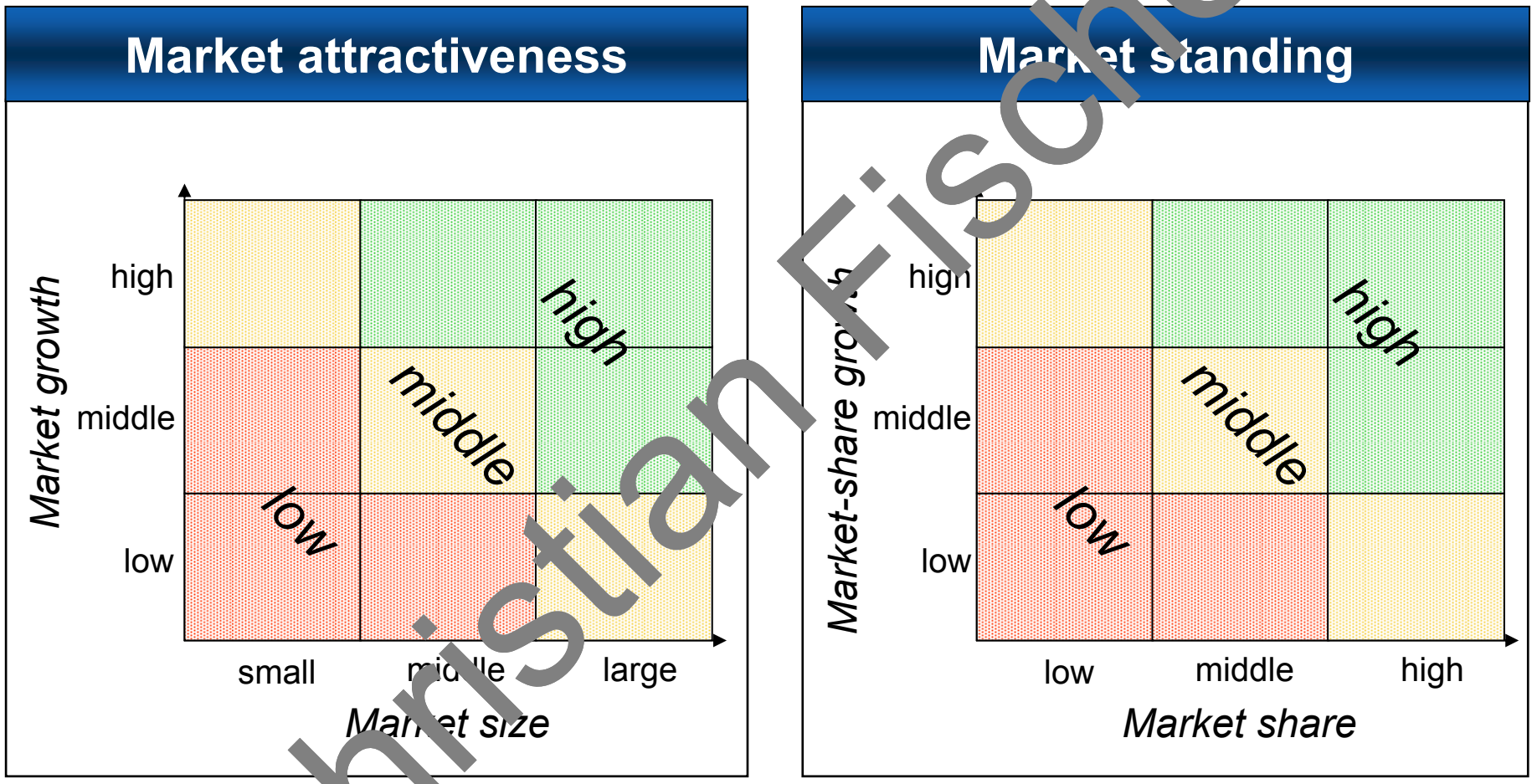
Benchmarking competitors

PORTFOLIO MATRICES (1)



- *Besides market standing (relative to the industry leader), the attractiveness of activities is considered.*
- *How to measure market attractive-ness and market standing?*

PORTFOLIO MATRICES (2)



- *The numerical definition of the individual measures is context-specific.*
- *Applying benchmarking, evaluation is relative to the industry leader.*

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:

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

- n = number of years covered (e.g., 1997-2007 = 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 standardisied to lie between zero and one:

$$X_i = \frac{x_i - x_{min}}{x_{max} - x_{min}}$$

- 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

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

2) Evaluation

Market attractiveness

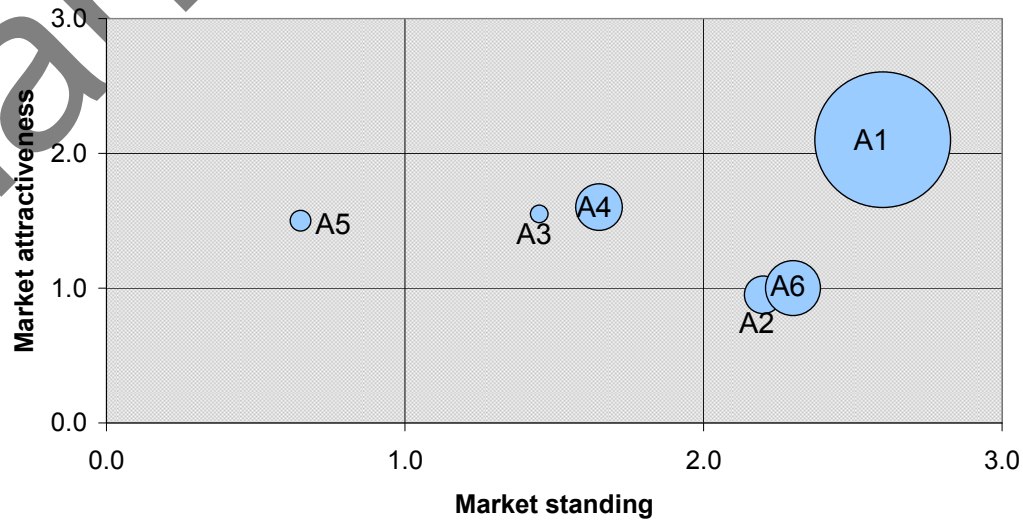
Activity	*Market size*	*Market growth*	*Total*
A1	2.1	2.1	2.1
A2	1.2	0.7	1.0
A3	0.2	2.9	1.6
A4	2.7	0.5	1.6
A5	1.1	1.9	1.5
A6	1.2	0.8	1.0

Market standing

Activity	*Market share*	*Market-share growth*	*Total*
A1	3	2.2	2.6
A2	2.5	1.9	2.2
A3	2.3	0.6	1.5
A4	1.5	1.8	1.7
A5	1.1	0.2	0.7
A6	1.8	2.8	2.3

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

3) Bubble chart



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

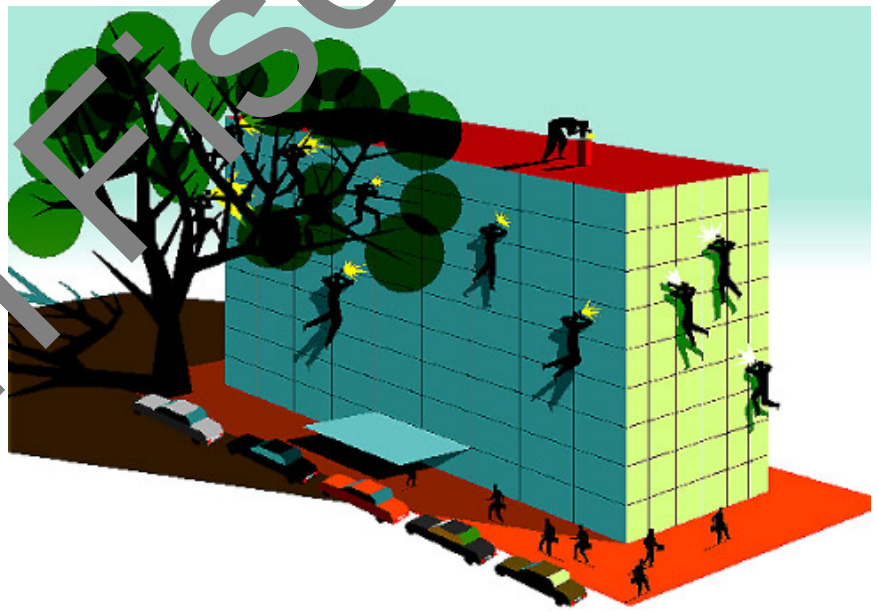
2) The concept of competitiveness

3) Strategic positioning

4) Benchmarking competitors

5) Analysing suppliers

6) Summary



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.

NEW BUSINESS PARADIGM: COMPETING AS A COLLABORATIVE SUPPLY CHAIN

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.

Source: adapted from Rookel van, J., Willems, S. & Boselie, D. (2002): Agri-supply chain management to stimulate cross-border trade in developing countries and emerging economies. World Bank Paper.

RELATIONAL RISKS

- 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.**

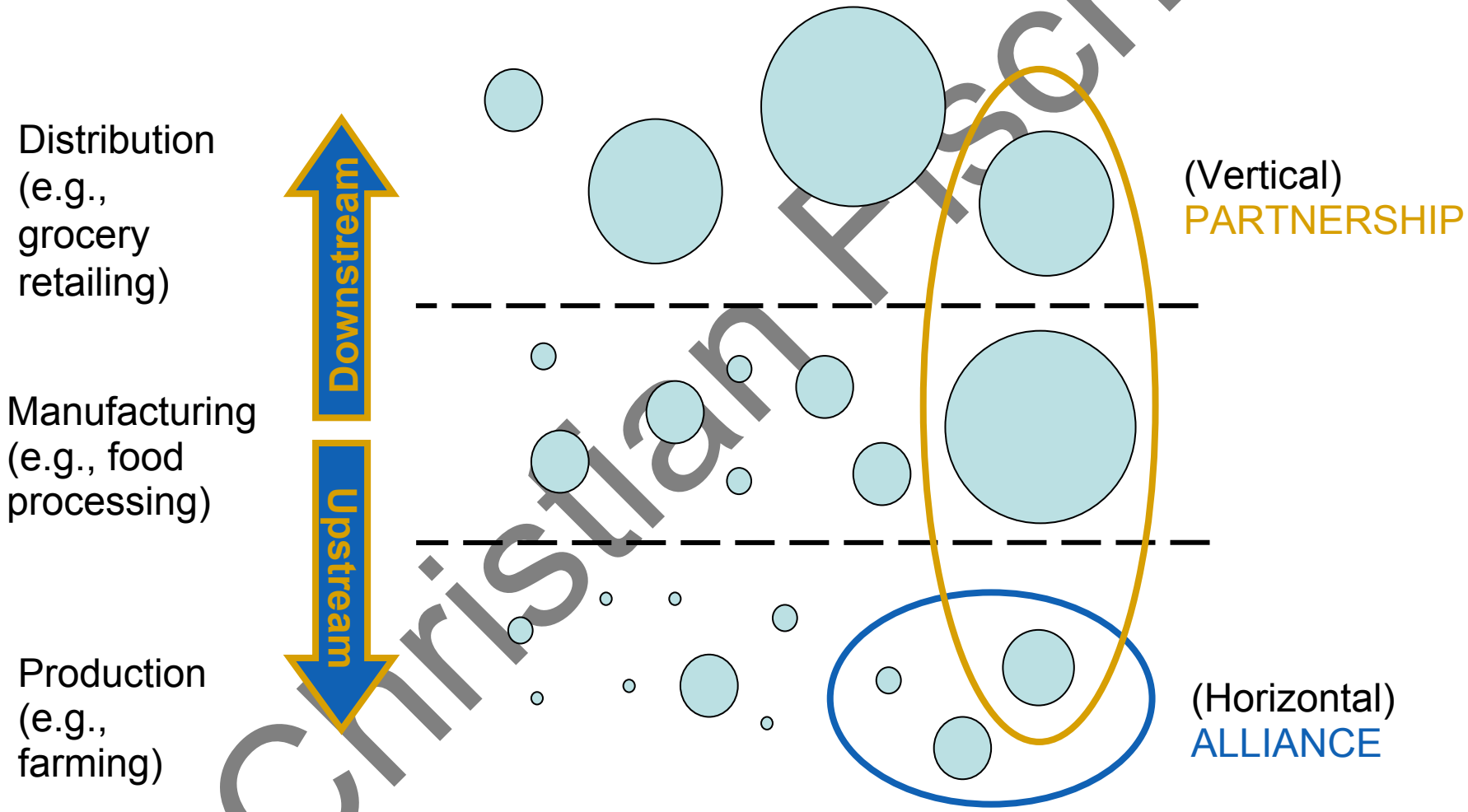
=> A business partnership is an organisational structure like others. If it is not managed well, it can result in bureaucracy, inflexibility and free-rider problems.

Sources:

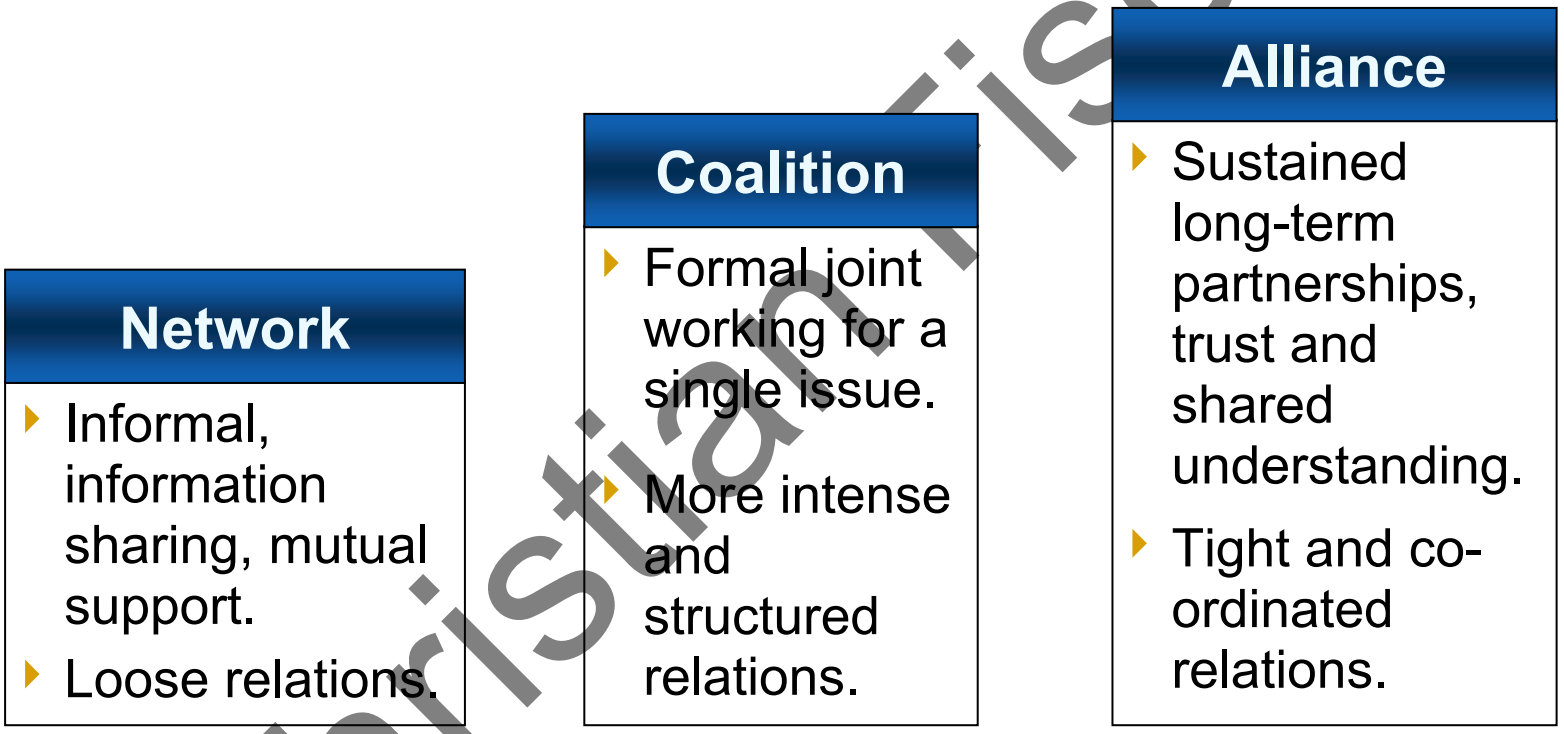
* Hobbs, J., Cooney, A. & Fulton, M. (2000). Value chains in the agri-food sector. What are they? How do they work? Are they for me? University of Saskatoon working paper.

**Roekel van, J., Williams, S. & Boselie, D. (2002a). Agri-supply chain management to stimulate cross-border trade in developing countries and emerging economies. World Bank Paper.

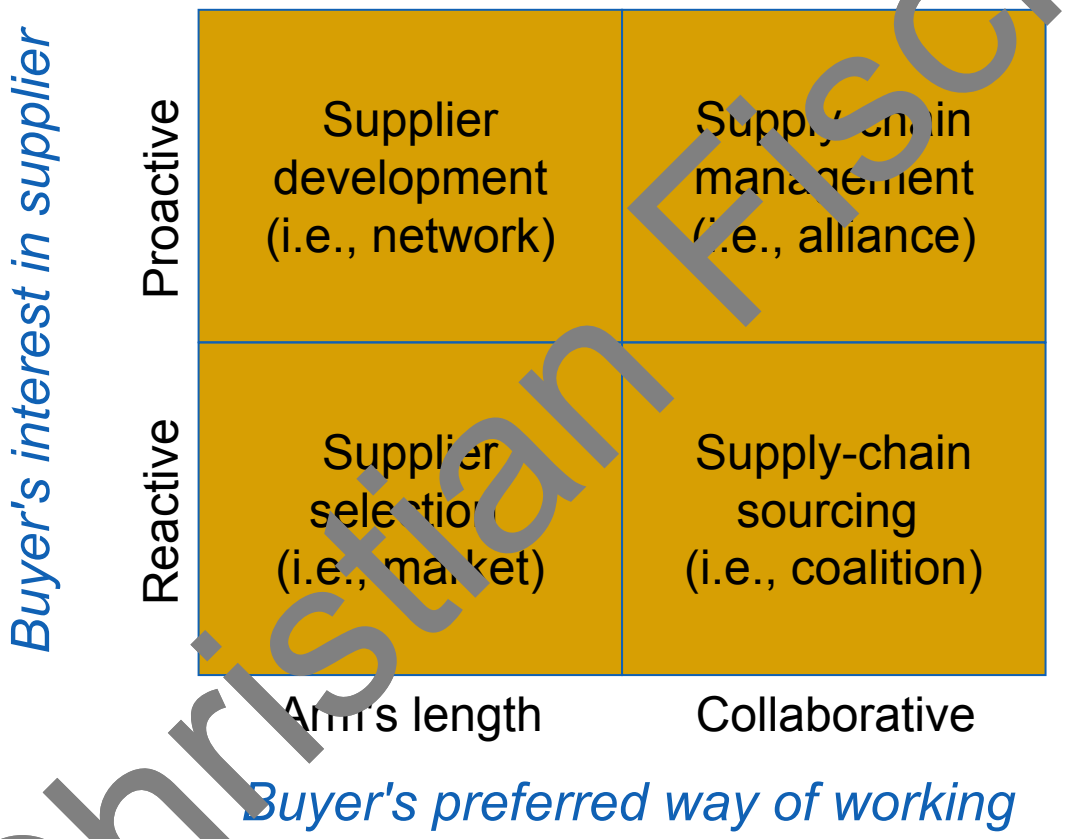
VIEW #1: HORIZONTAL ALLIANCES VS VERTICAL PARTNERSHIPS



VIEW #2: TYPES OF PARTNERSHIPS

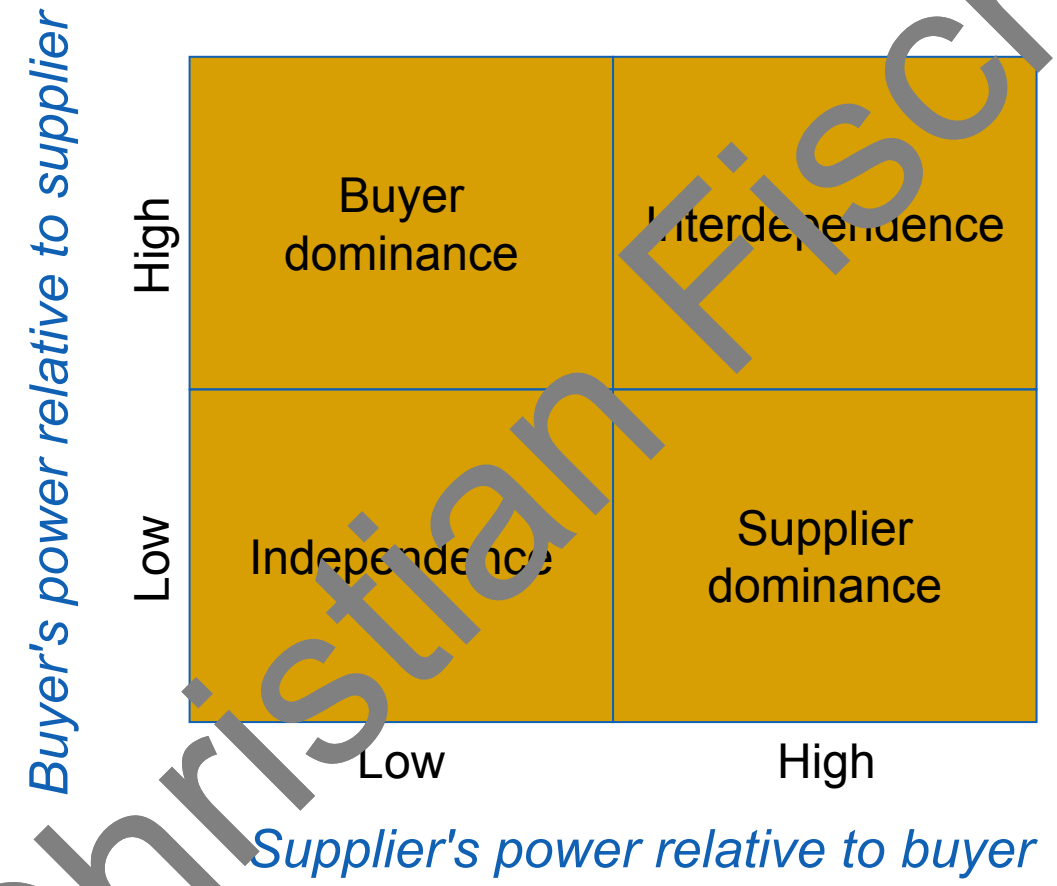


TYPOLOGY OF BUYER-SUPPLIER RELATIONS



Source: adapted from Cox, A. (2004): The art of the possible: relationship management in power regimes and supply chains. *Supply Chain Management: An International Journal*, 9 (5), 346-356.

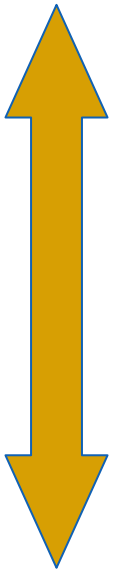
THE BUYER-SUPPLIER POWER MATRIX: EVERYTHING IS POSSIBLE



Source: adapted from Cox, A. (2004): The art of the possible: relationship management in power regimes and supply chains. *Supply Chain Management: An International Journal*, 9 (5), 346-356.

HOW MANY SUPPLIERS ARE REALLY NEEDED?

Few suppliers



Many suppliers

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

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.

Source: Aberdeen Group (2002): *The Spending Analysis Benchmark Report.*

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

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.

FACTORS/ ATTRIBUTES		RATING SCALE			
	Importance Weights	Poor (1)	Fair (2)	Good (3)	Excellent (4)
Price	.30				x
Supplier reputation	.20			x	
Product reliability	.30				x
Service reliability	.10		x		
Supplier flexibility	.10			x	

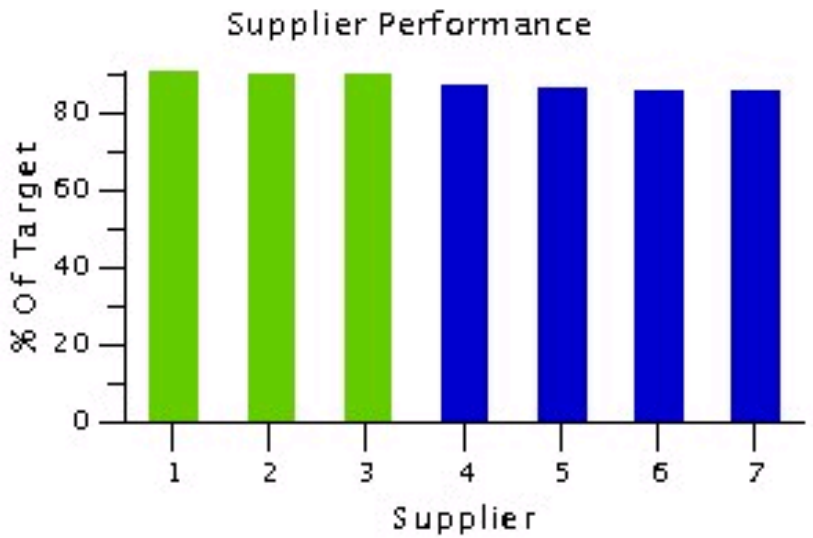
Total score: .30*(4) + .20*(3) + .30*(4) + .10*(2) + .10*3) = 3.5

PC-BASED SUPPLIER RATING SYSTEM – EXAMPLE PEOPLESOFT

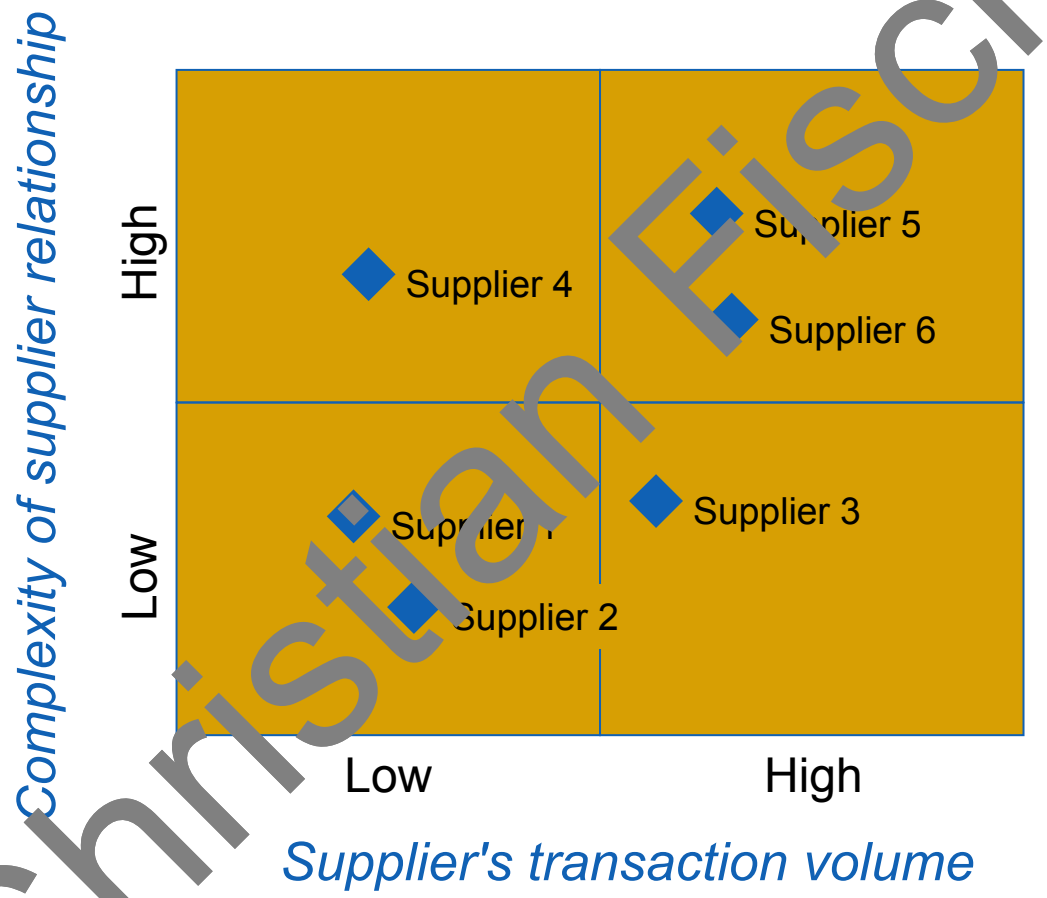
KPI Rating — Find | View All | First 1-4 of 14 Last

KPIs | More KPIs

	Supplier	Supplier Performance		Shipping Performance		Quality Performance		PO Performance	
1	Midtown Computer Supplies	91.12%	5	93.47%	5	77.78%	3	95.65%	5
2	Office Concepts	90.84%	5	87.5%	4	96.67%	5	97.46%	5
3	C and J Office Equipment	90.52%	5	93.21%	5	9			
4	Charles Goodman and Sons	87.75%	4	84.64%	4	9			

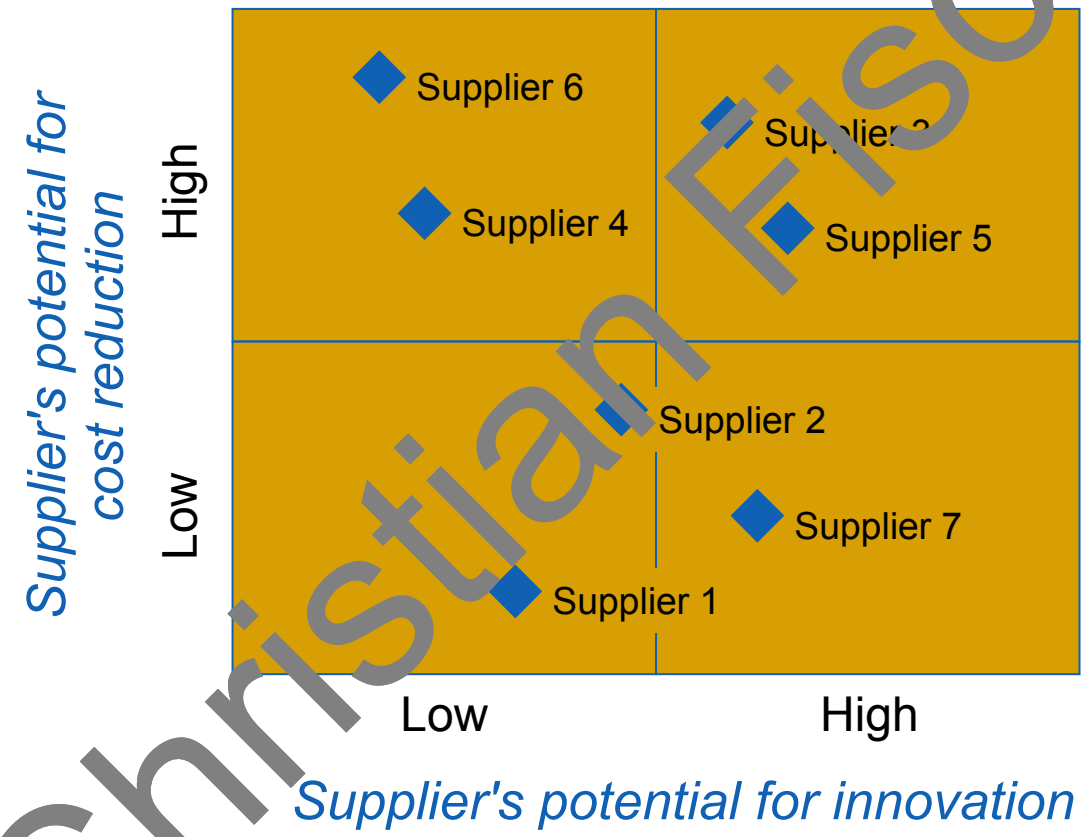


SUPPLIER-ASSESSMENT MATRICES (1)



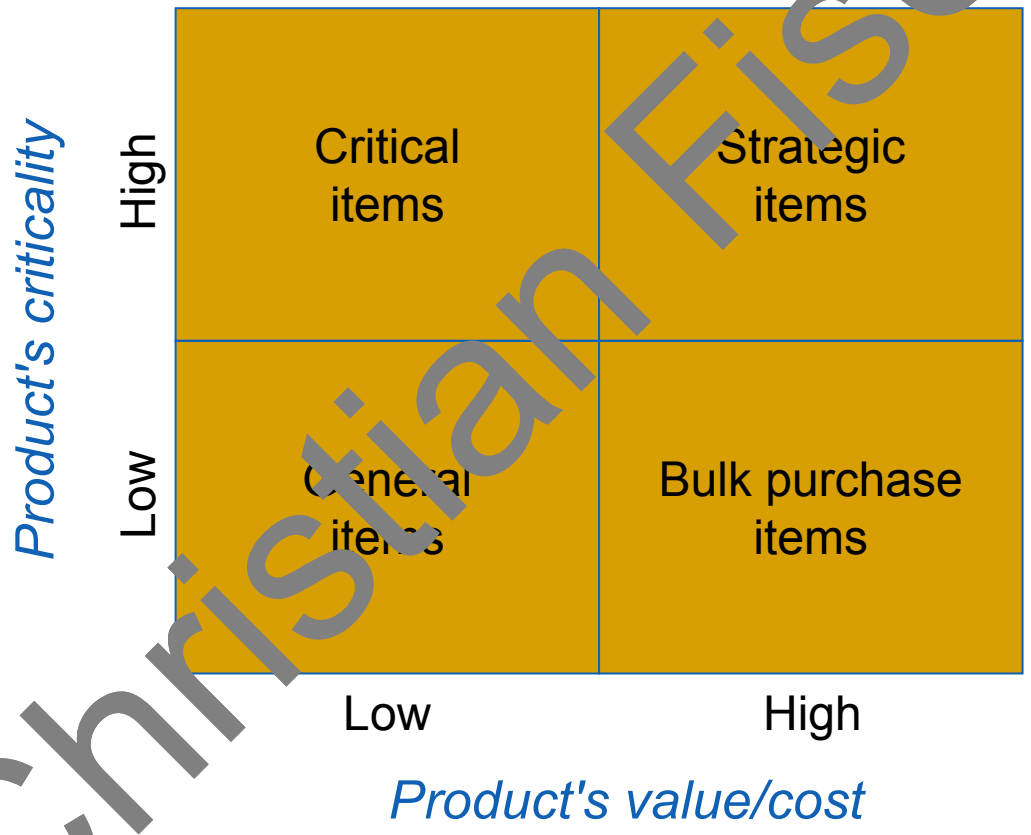
Source: Wendy's restaurants

SUPPLIER-ASSESSMENT MATRICES (2)



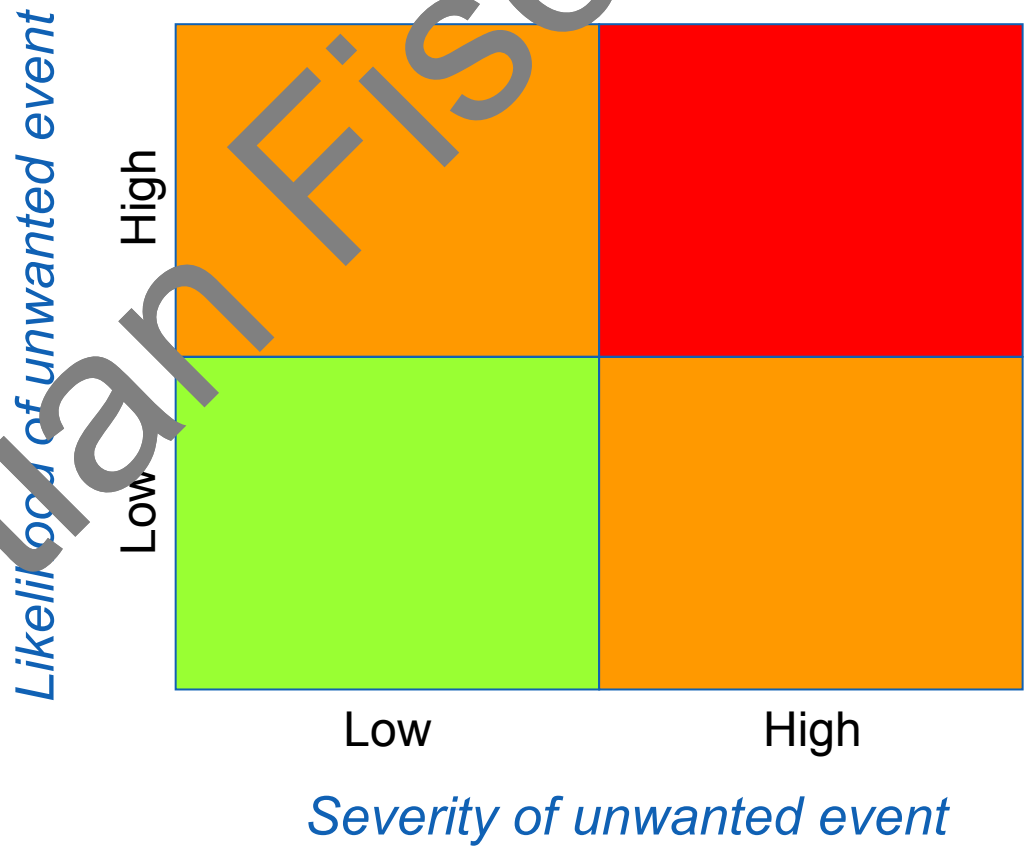
Source: Colgate-Palmolive

CLASSIFYING PRODUCTS RATHER THAN SUPPLIERS



SUPPLIER RISKS

- 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).



RISK ASSESSMENT

Likelihood of Occurrence

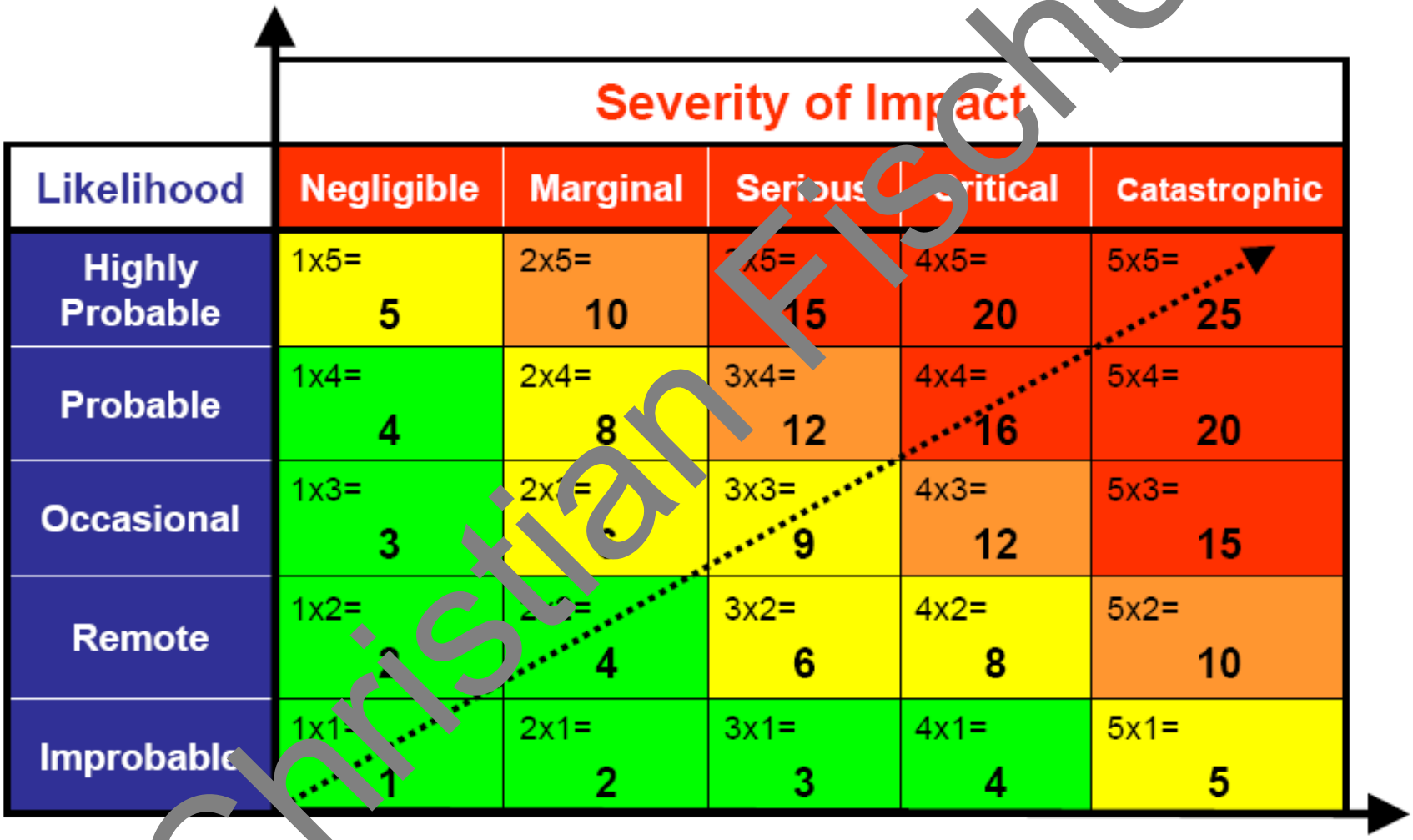
Descriptor	Probability	Rank	Value
Highly Probable	>75%	High	5
Probable	>50%<75%	Medium High	
Occasional	>25%<50%	Medium	
Remote	>10%<25%	Medium Low	2
Improbable	<10%	Low	1

Severity of Impact

Descriptor	Rank	Value
Catastrophic	High	5
Critical	Medium High	4
Serious	Medium	3
Marginal	Medium Low	2
Negligible	Low	1

Source: Smith, S. (2005)

QUANTIFICATION OF RISK



Analysing suppliers

EXAMPLE

Likelihood	Severity of Impact: Negligible	Marginal	Serious	Critical	Catastrophic
Highly Probable			Pending legislation adds 2 days to dock- dock time		
Probable			Non-ISO verified vendors	Non-ISO certified vendors	Sole source vendor in tornado alley
Occasional	Nationalization of MRO suppliers		Key component delivery late 26%	Critical component lost shipments	
Remote					
Improbable					

Source: Smith, S. (2005)

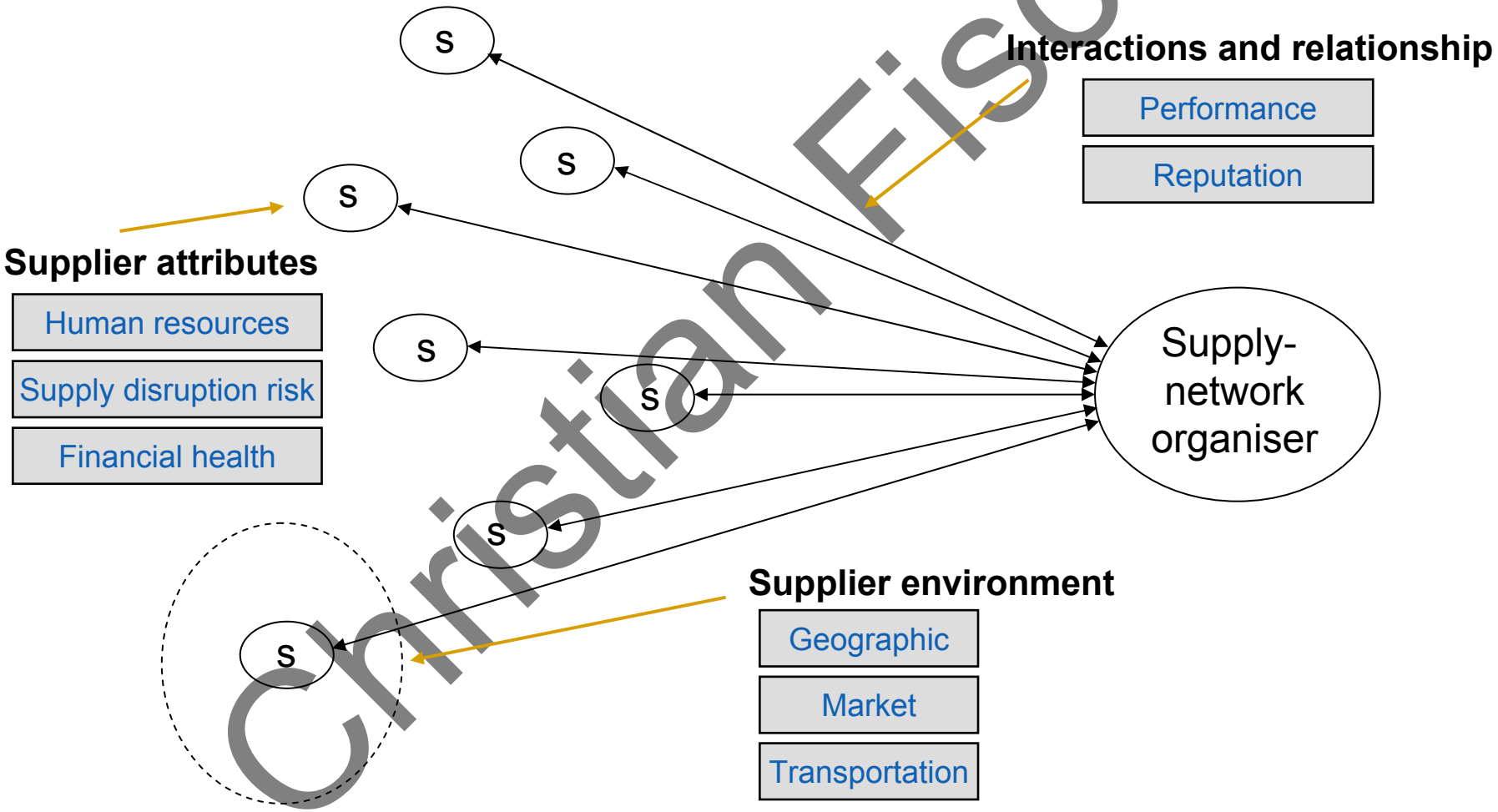
Analysing suppliers

MANAGING RISK

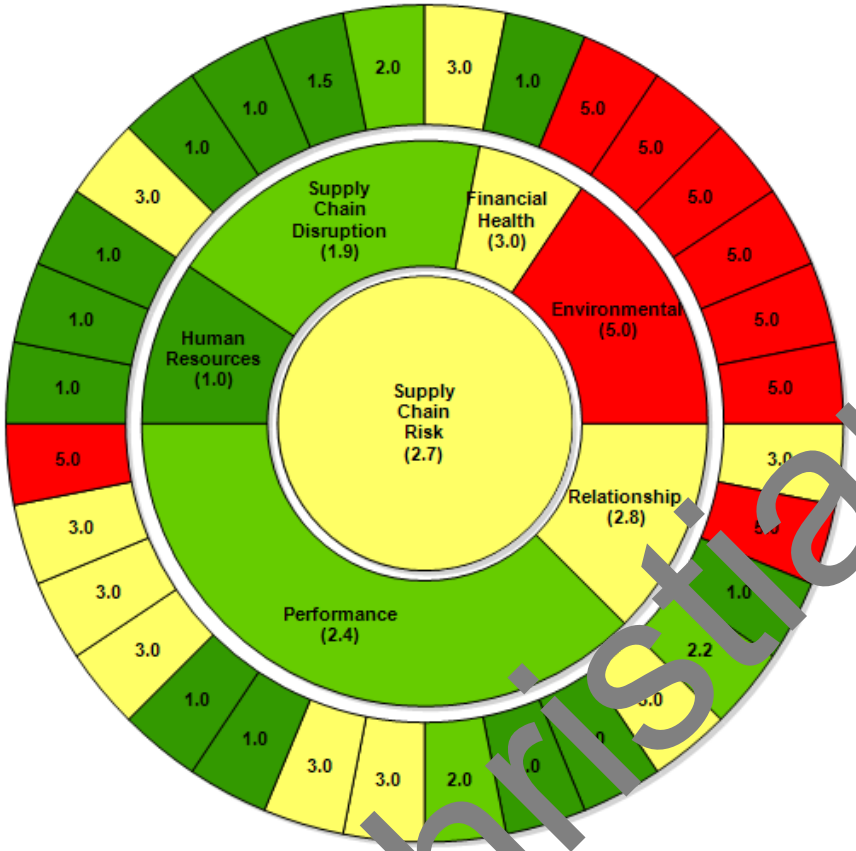
RP	Risk	Actions	Controls
20	R1 - Sole source vendor in tornado alley	A1 – Determine vendor recoverability A2 – Find second source	C1 – Independent validation of recovery capability. Reevaluate
16	R2 - Non-ISO certified vendors	A1 – Renegotiate contracts requiring ISO certification	C1 – Require proof of certification by 3rd party bi-annually.
15	R3 - Pending legislation adds 2 days to on-dock time for key components	A1 – Require vendor/shipper to meet earlier shipping schedule	C1 – Monitor delivery times and on-dock wait
12	R4 - Critical component lost shipment	A1 - Increase insurance to offset lost revenue. A2 – Work with vendor/ shipper processes to improve tracking	C1 – Monitor insurance payout vs lost revenue C2 – Implement vendor controls to monitor processes and data

Source: Smith, S. (2005)

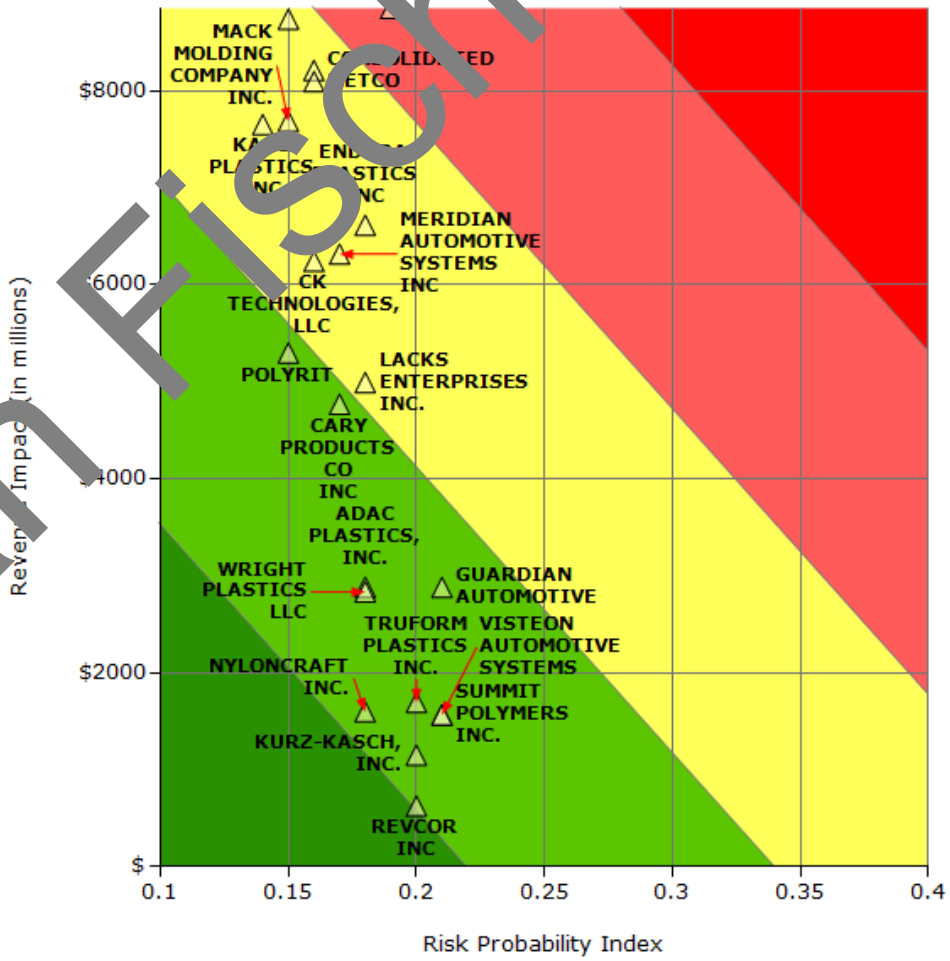
SUPPLY-NETWORK RISK ASSESSMENT – UNITS OF ANALYSIS



NETWORK RISK-ASSESSMENT EXAMPLES



'Risk wheel' for individual supplier



Revenue impact/risk probability matrix

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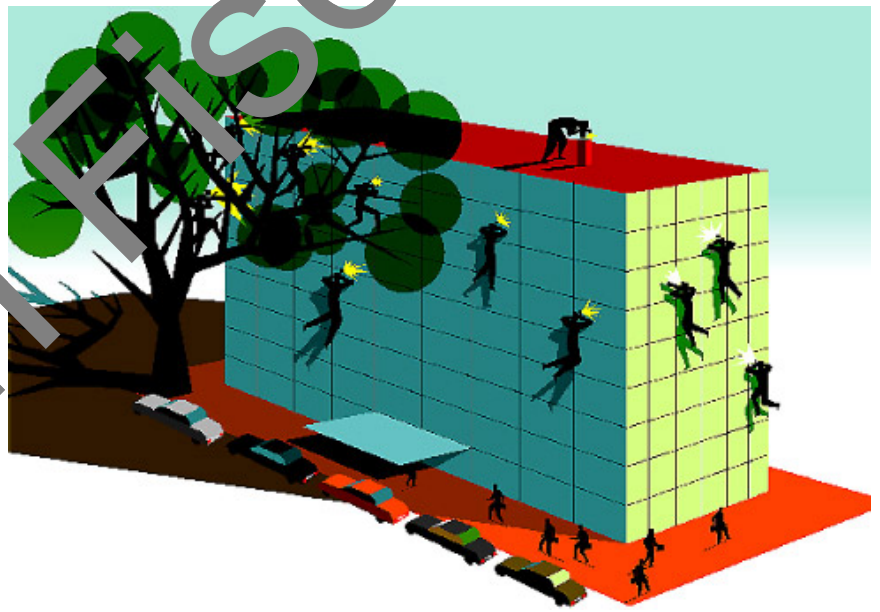

THE MOST IMPORTANT POINTS TO REMEMBER

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.

Massey University

Te Kunenga ki Pūrehuroa

OSCE

Seminar on

MARKET AND MARKETING RESEARCH IN AGRIBUSINESS

Agricultural University
Ashgabat, September 15-19 2008

That's it! ☺