

Analytical Hierarchy Process in Supplier Evaluation

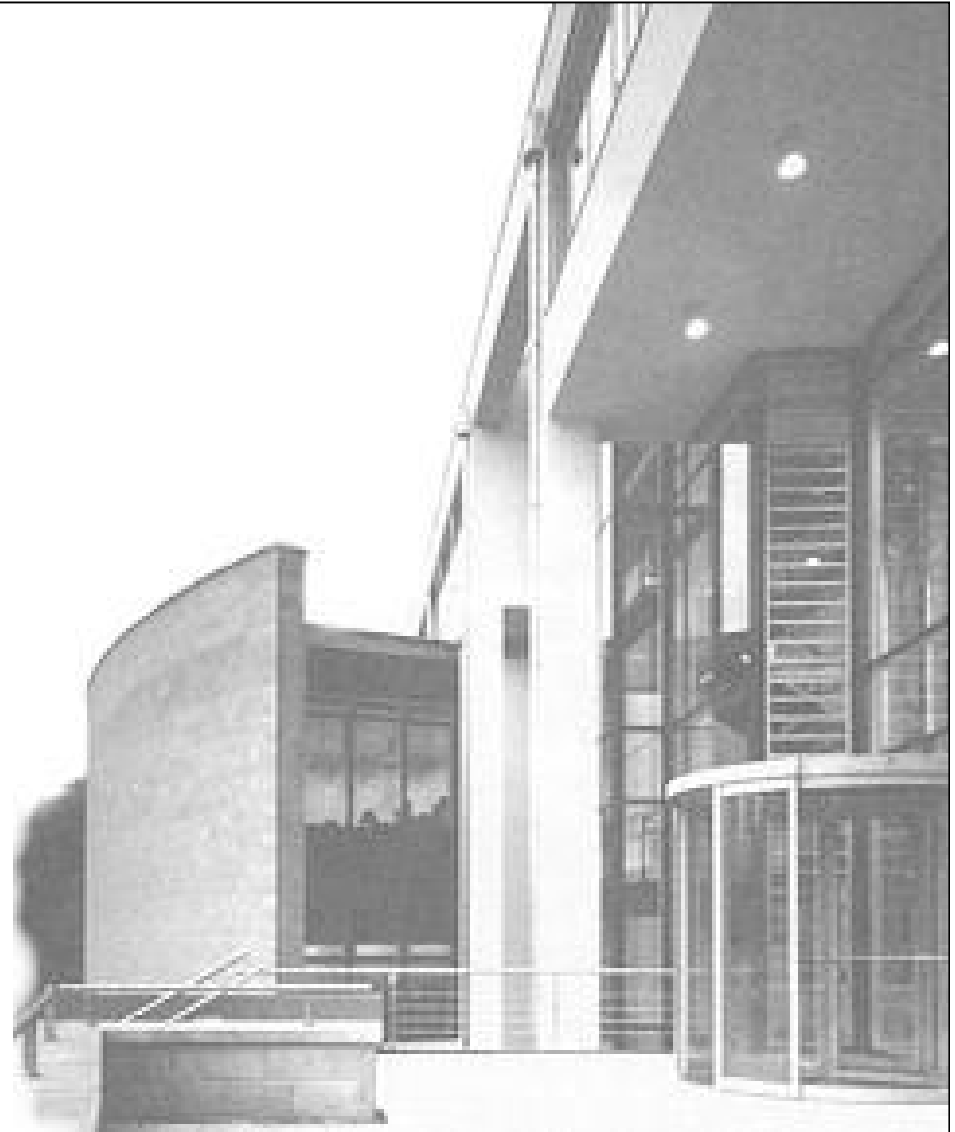
Sotiris Politis

Matthias Klumpp

Dilay Celebi

16th International Working Seminar
on Production Economics

Innsbruck, March, 4th 2010



1. Introduction
2. Literature Review
3. Industry Review
4. AHP in Supplier Evaluation
5. Conclusion and Outlook

1. Introduction

- Increasingly complex world
- Outsourcing, concentration on core competencies
- Difficult economic situations



- Success critical positioning of suppliers
- Importance of supplier management and supplier evaluation



- Analytical Hierarchy Process (AHP) reflects structured workflow
- AHP is flexible and adjustable to the respective problem
- Team decisions are streamlined and focused
- **HOW TO IDENTIFY BEST-IN-CLASS SUPPLIER**

2. Literature Review

- Supplier evaluation: Integral part of SRM
 - Objective analysis about supplier performance
 - Basis for supplier selection or supplier development
 - Identification of supplier's strengths/weaknesses
- Doing supplier evaluation is vital to ...
 - Ensure a well-functioning supply chain network
 - Identify best-performing suppliers
 - Reduce cost
 - Lower risk
 - Improve business

3. Industry Review

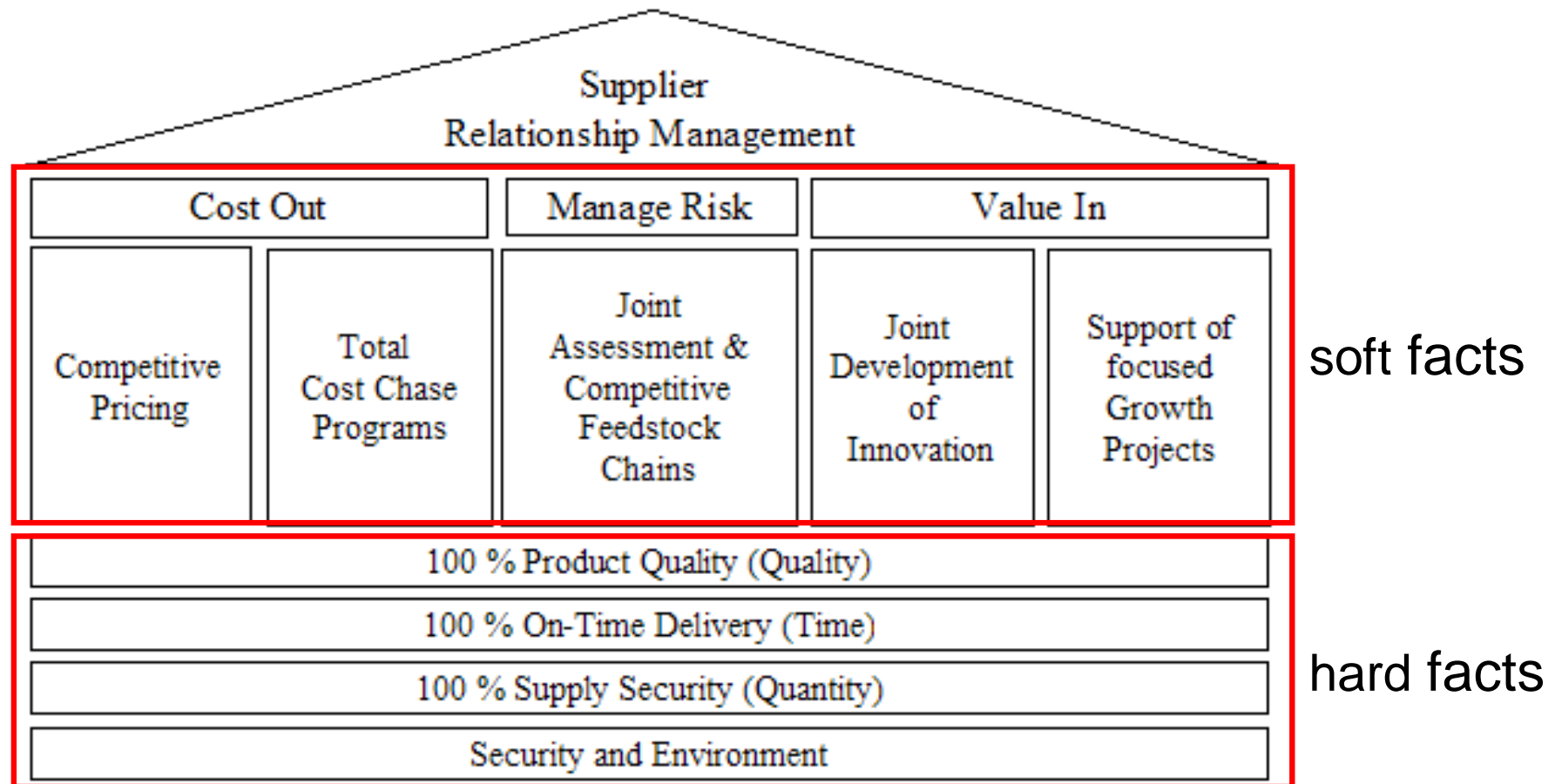
- Henkel AG & Co. KGaA
 - Turnover: 14 billion € (2008)
 - Purchasing spend: 9 billion € (2008)
- “We best leverage the global supply base and link high performing suppliers to the business need.”



- Identification of high performing suppliers which ...:
 - are motivated
 - act sustainable
 - are willing to create win-win situations

3. Industry Review

- 3 dimensional process in regard to supplier's economical relevance for Henkel.



4. AHP in Supplier Evaluation

- **Criteria Selection:**

- Involvement of all influenced internal stakeholders/departments
- Integration of risk criteria



- **Purchasing:** Next to cost and cost structure the value of goods is important to consider
- **Quality Management:** Certificated production process available to assure high product quality
- **Logistics:** Delivery time/quantity as well as flexibility are important to consider
- **R&D:** Up-to-date product quality
- **Risk Management:** Consideration of various risk factors like liquidity, site risks, customer portfolio, ...

4. AHP in Supplier Evaluation

- **AHP:**
 - Analytical: Methodical/systematic approach
 - Hierarchy: Represents the way to identify a decision namely to create a hierarchy
 - Process: Decision-making is created in a structural way to assure objective decision

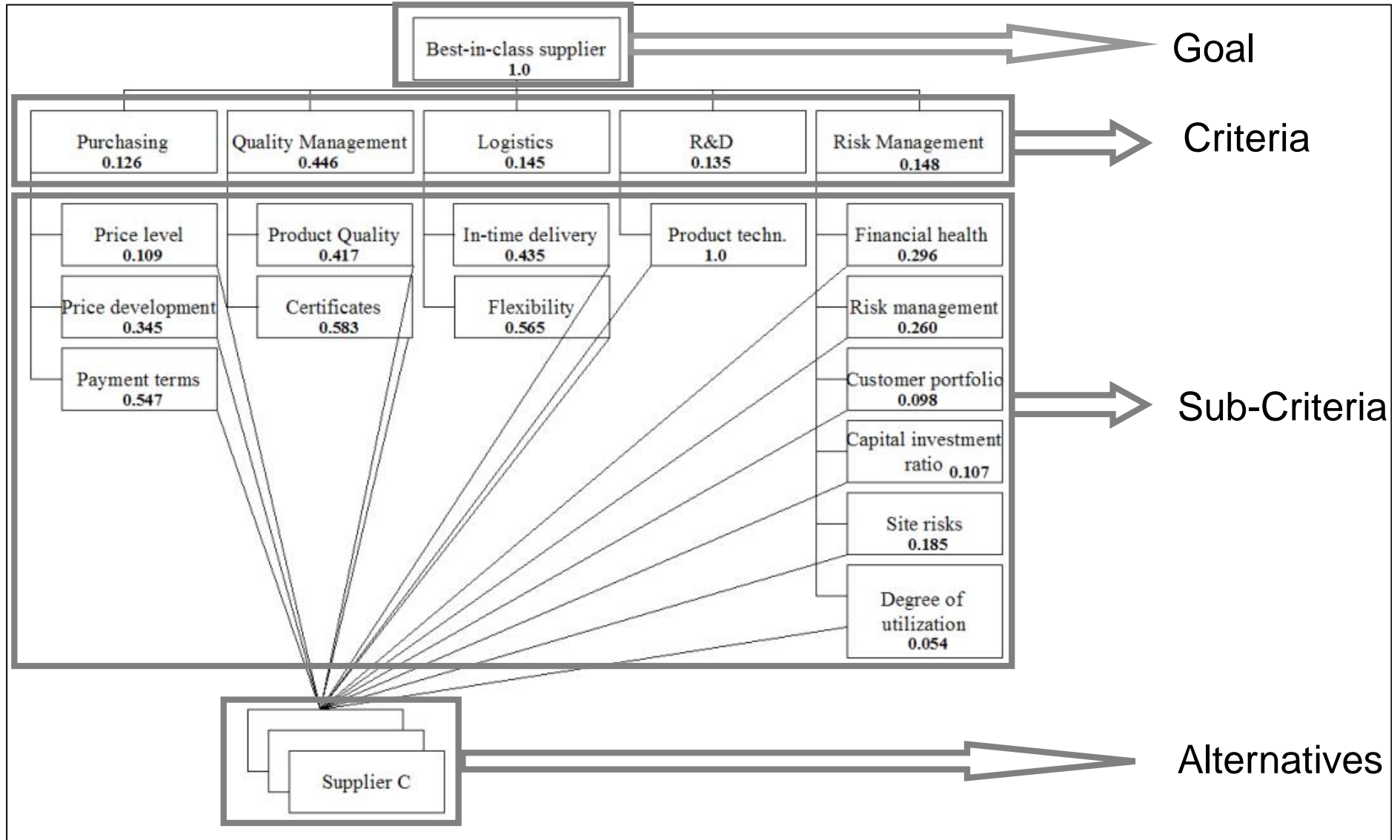
Definition of problem & target hierarchy



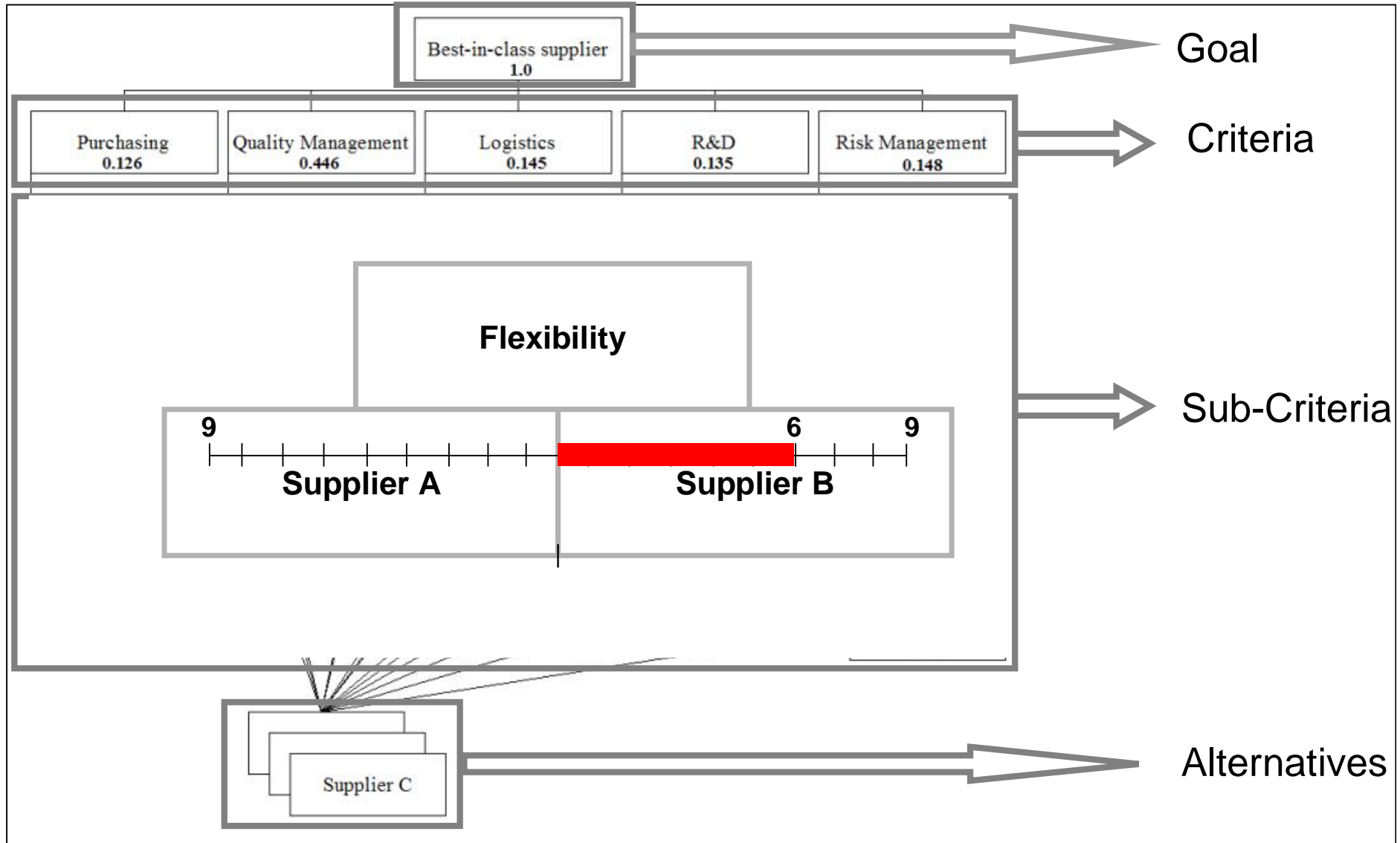
Systematic comparison of criteria
by paired comparisons

Calculation of priorities for each alternative

4. AHP in Supplier Evaluation



4. AHP in Supplier Evaluation



4. AHP in Supplier Evaluation

- Structured approach
- Creation of sub criteria (weighted)
- “Objective” results of team-decisions
- Alternatives are evaluated in relation to competitors (ranking)
- Flexibility to change criterion’s weight
- Software provides charts, analysis, consistency check, sensitivity graph



- Software is needed to calculate results
- New calculation if an alternative is added/removed
- No classification of results



5. Conclusion and Outlook

- Pitfalls in team-decisions can be avoided due to transparent results if:
 - Clear description of the goal is available
 - Hierarchy & alternatives are complete
 - Responsibilities are defined clearly
- Increasing importance of supplier performance' transparency will spotlight AHP
- Companies can rank their suppliers according to their internal structure (e.g. by material group, category, basket, ...)
- Transparent results increase credibility of supplier evaluation

Analytical Hierarchy Process in Supplier Evaluation

Sotiris Politis

Matthias Klumpp

Dilay Celebi

**Thank you for your
kind attention!**

Innsbruck, March, 4th 2010

