

REQUIREMENTS PRIORITIZATION FOR SOFTWARE RELEASE DEVELOPMENT

Techniques, visualization and role of business view

Why prioritization?

"When developing software systems, [...] trade-offs must be made. [...] We need to develop the functionality that is most desired by the customers, as well as least risky, least costly, and so forth. Prioritization helps to cope with these complex decision problems."

[Berander and Andrews, 2005]

Agenda

- § Prioritization techniques
- § Visualization
- § Role of business view
- § Conclusion



Prioritization techniques

AHP, 100\$-Test, Ranking, Numerical Assignment, Top-Ten Requirements

How to do prioritization?

Technique	Scale	Granularity	Sophistication
Analytical Hierarchy Process	Ratio	Fine	Very Complex
Hundred-dollar test	Ratio	Fine	Complex
Ranking	Ordinal	Medium	Easy
Numerical Assignment	Ordinal	Coarse	Very Easy
Top-ten	-	Extremely Coarse	Extremely Easy

- § "As simple as possible, as complex as needed"
- § Quality of decisions must not suffer
- § Tool support (commercial tools available)

Challenges

§ Different levels of abstraction

- ú Form groups à Inheritance

§ Reprioritization

- ú No problem with numerical values
- ú Normalization for ratios

§ Non-functional Requirements

- ú Not to prioritize together with functional requirements
- ú Conjoint analysis (different alternatives)

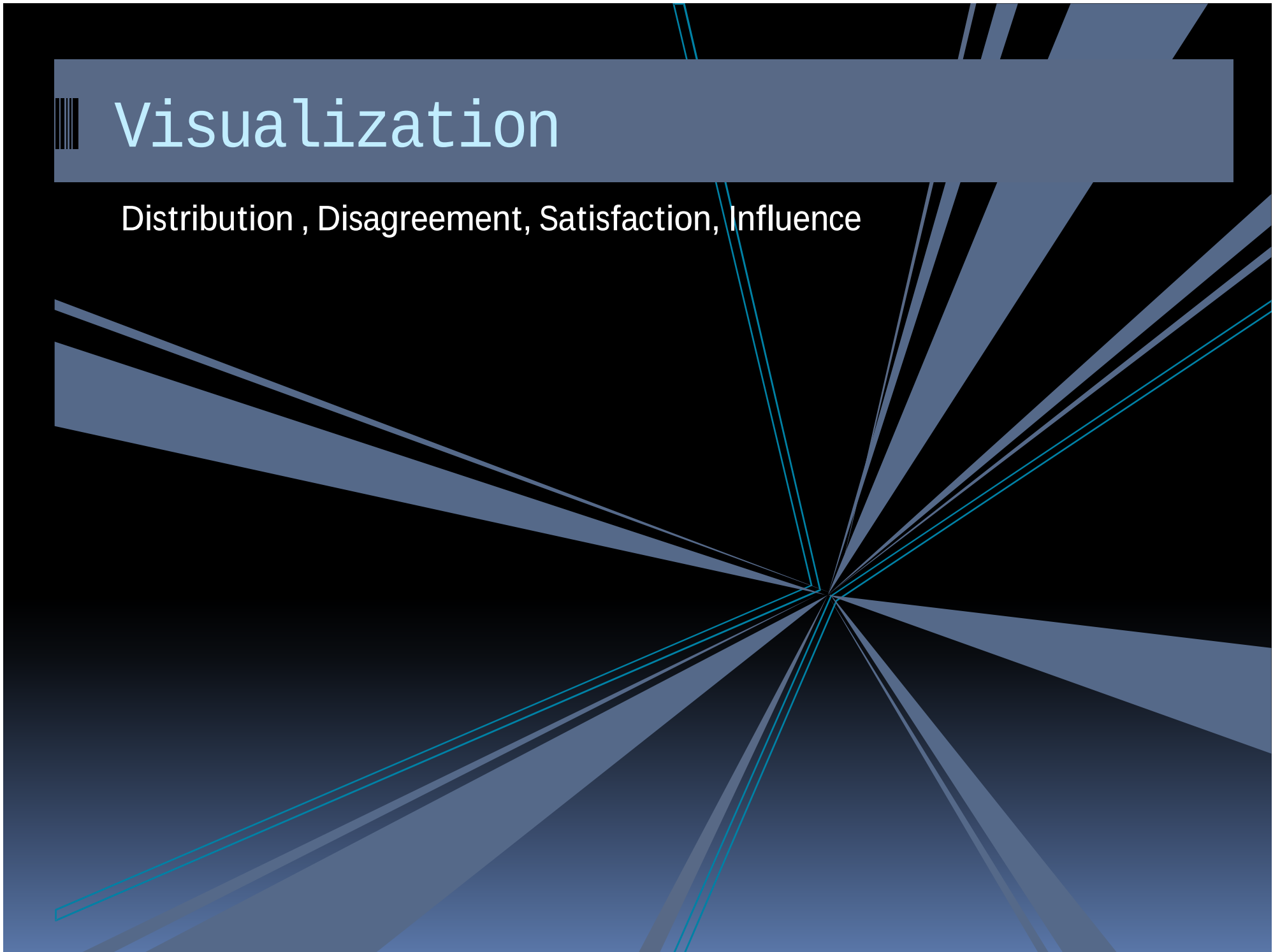
Prioritization application

- § "Do not just follow the list!"
- § Monitor future extensions
- § Evaluation
 - ú Integrate acceptance and rejection decisions



Visualization

Distribution , Disagreement, Satisfaction, Influence



Visualizing prioritization

Distribution chart

- § Voting results / priority ranking
- § Priorities of individual stakeholders
- § Stakeholders distinguished by different colors

Disagreement chart

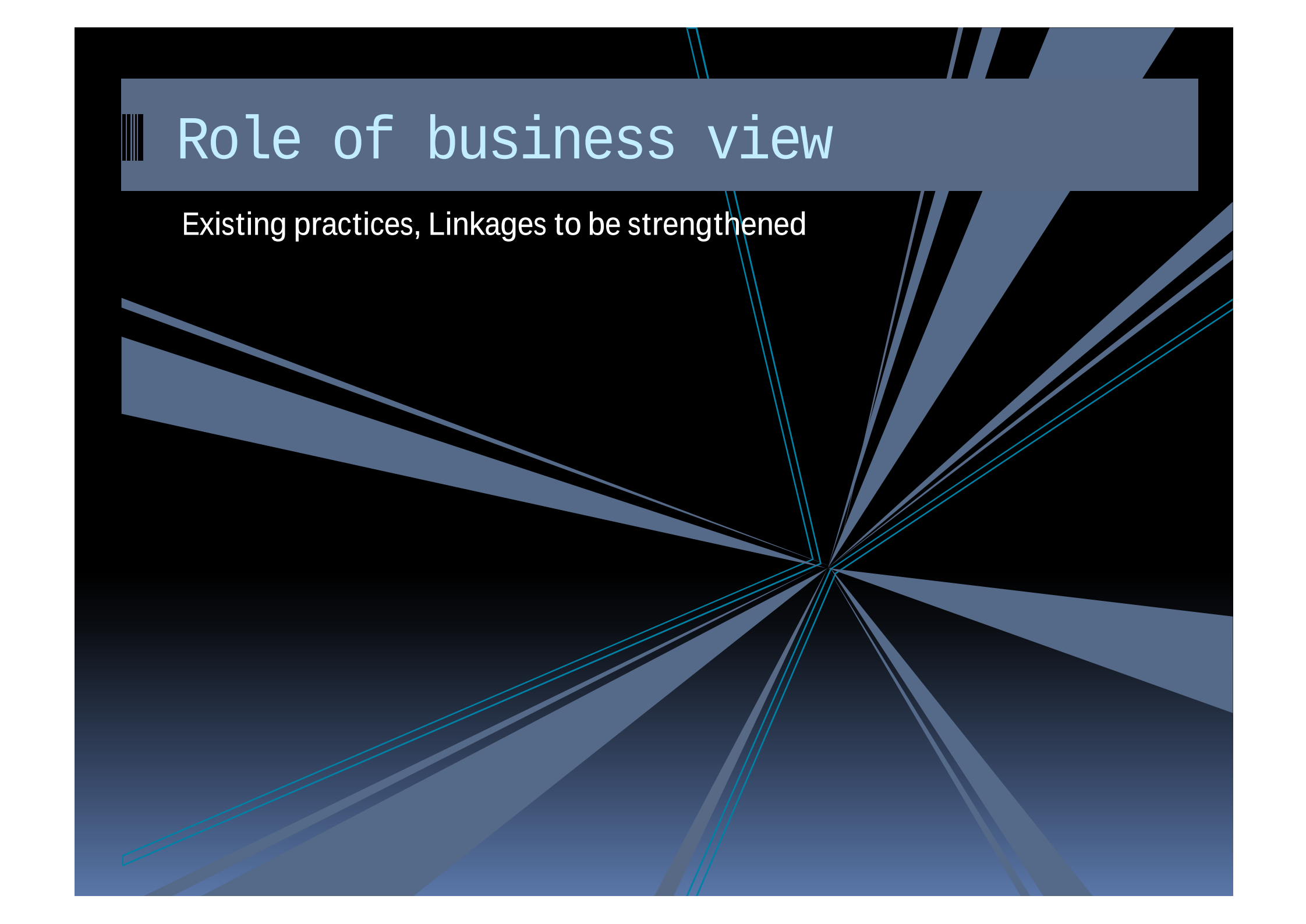
- § variation between stakeholders
- § Standard deviation divided by average of the priorities
- § Low value, high consensus (vice versa)

Satisfaction chart

- § Correspondance of results to priorities of individual stakeholders
- § Correlating ranks with individual priorities (Spearman rank-order correlation coefficient)

Influence chart

- § Influence of each stakeholder representing a market
- § Can be combined with distribution results à weighted distribution



■ Role of business view

Existing practices, Linkages to be strengthened

Existing practices

- § Focus is usually on features of one product
- § Link from business decisions to requirement engineering decisions not explicit
- § Typical planning horizon is a few releases ahead
- § Preparation of roadmaps is mostly the product managers' responsibility

Linkages to be strengthened

- § Explicate needed product planning levels and time horizons
- § Separate planning of product's business goals from R&D resource allocation
- § Plan open-endedly by pre-defined rhythm
- § Emphasize whole-product thinking

Conclusion

- § Prioritization should serve as basis for decisions
- § Long term product planning is important
- § Different techniques to prioritize requirements
- § Priorities can be visualized