Requirement Management, Agile RE

Lecture 9, DAT230, Requirements Engineering
Robert Feldt, 2010-09-28

Notes about course

- Student course evaluators: We need 5 of you!
- Group assignment:
  - Doodle's on home page
  - FAQ will collect some common questions on home page
  - Don't miss deadlines late next week
  - Rubric for PostMortem will be uploaded this week

Recap from last lecture

Recap

- Req traceability to follow links to and from reqs
  - to = sources, reasons, versions, releases
  - from = design, implementation, tests, use, refinement
- Need traceability for: Certification, Testing, Tracking, Changes
- Links: Satisfies, Dependency, Rationale, Evolves-to
- Prioritization = which into next release
- Common techniques: 100 dollar, yes-no, 5-way, cost-value
  - Triage (MDRE)

Triage (in MDRE)

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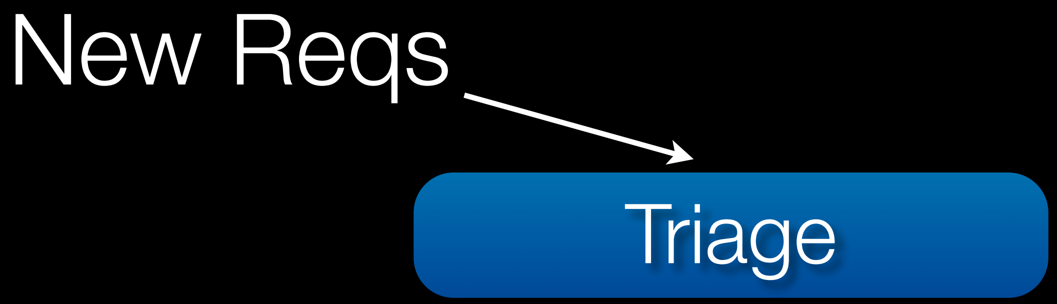
New Reqs

Triage (in MDRE)



New Reqs

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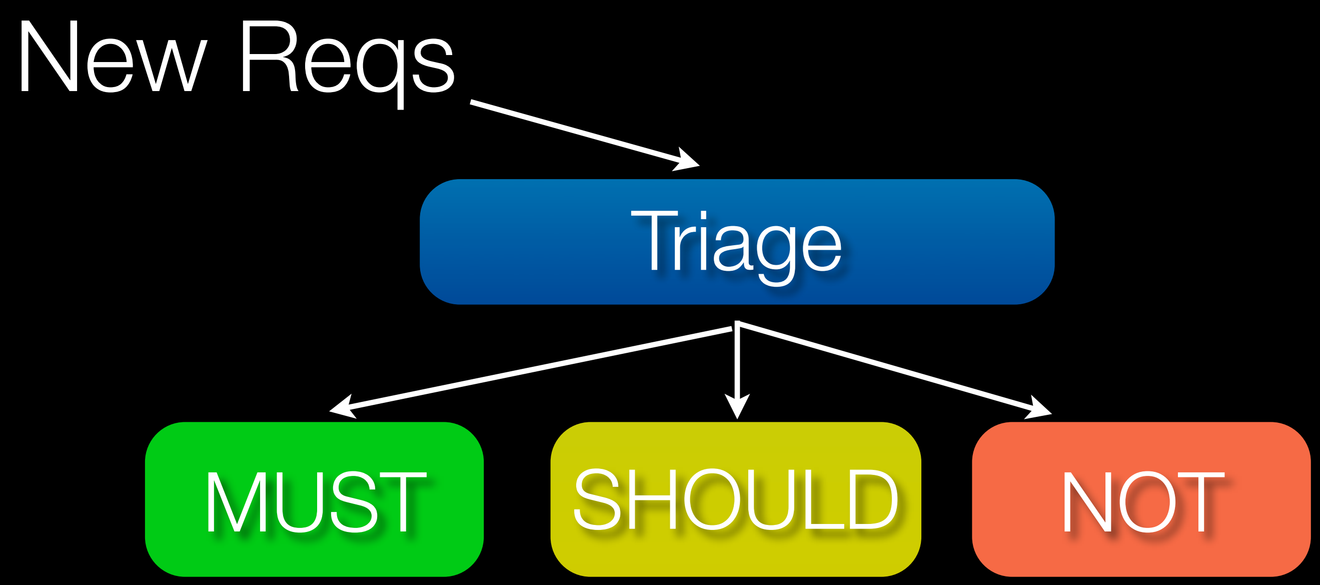
Triage (in MDRE)



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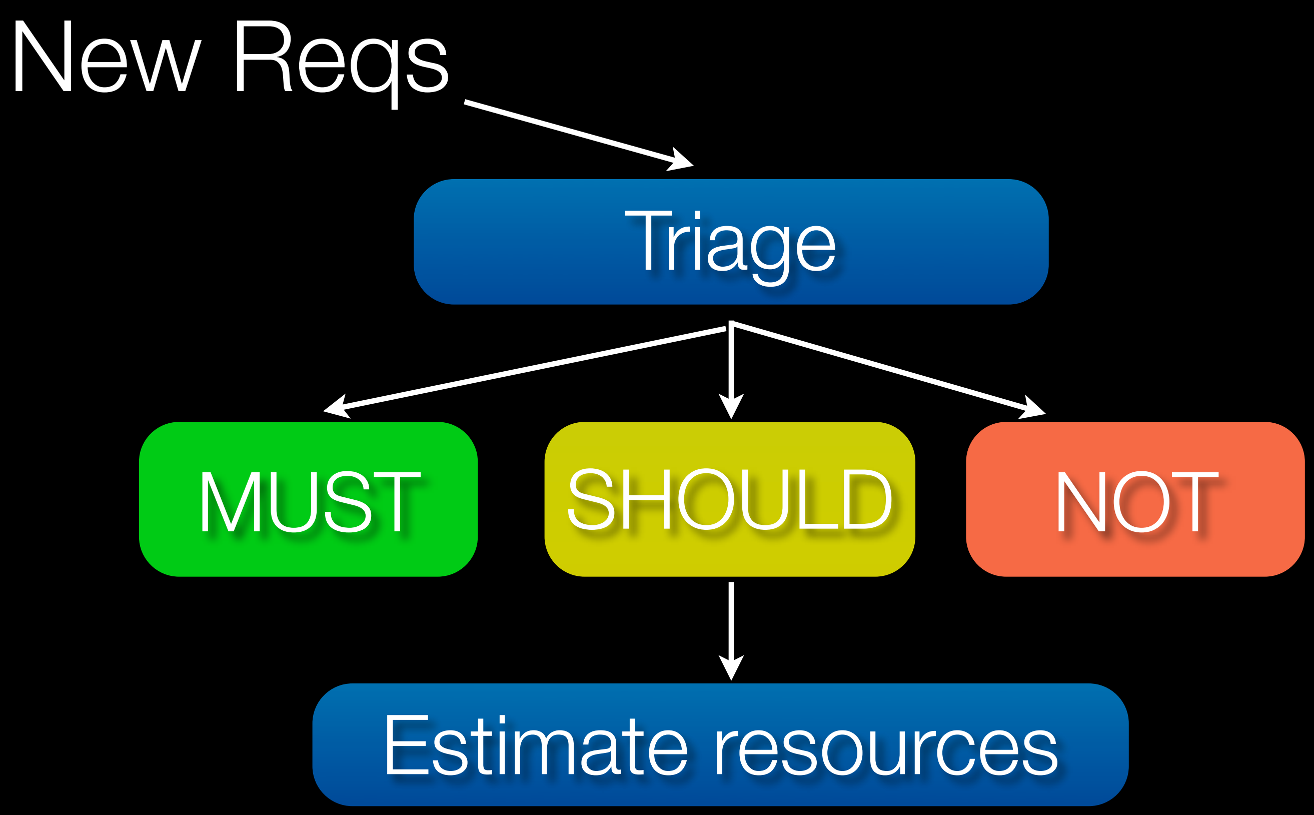

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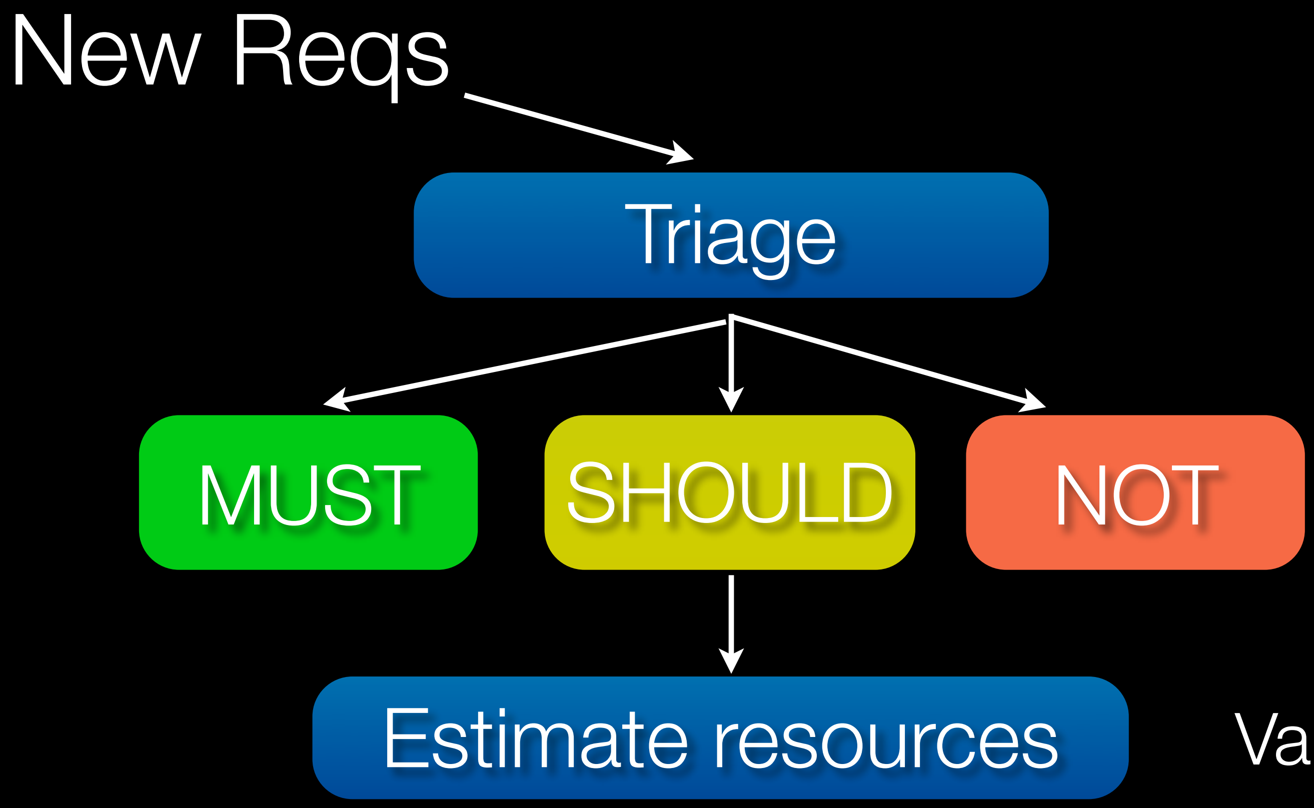
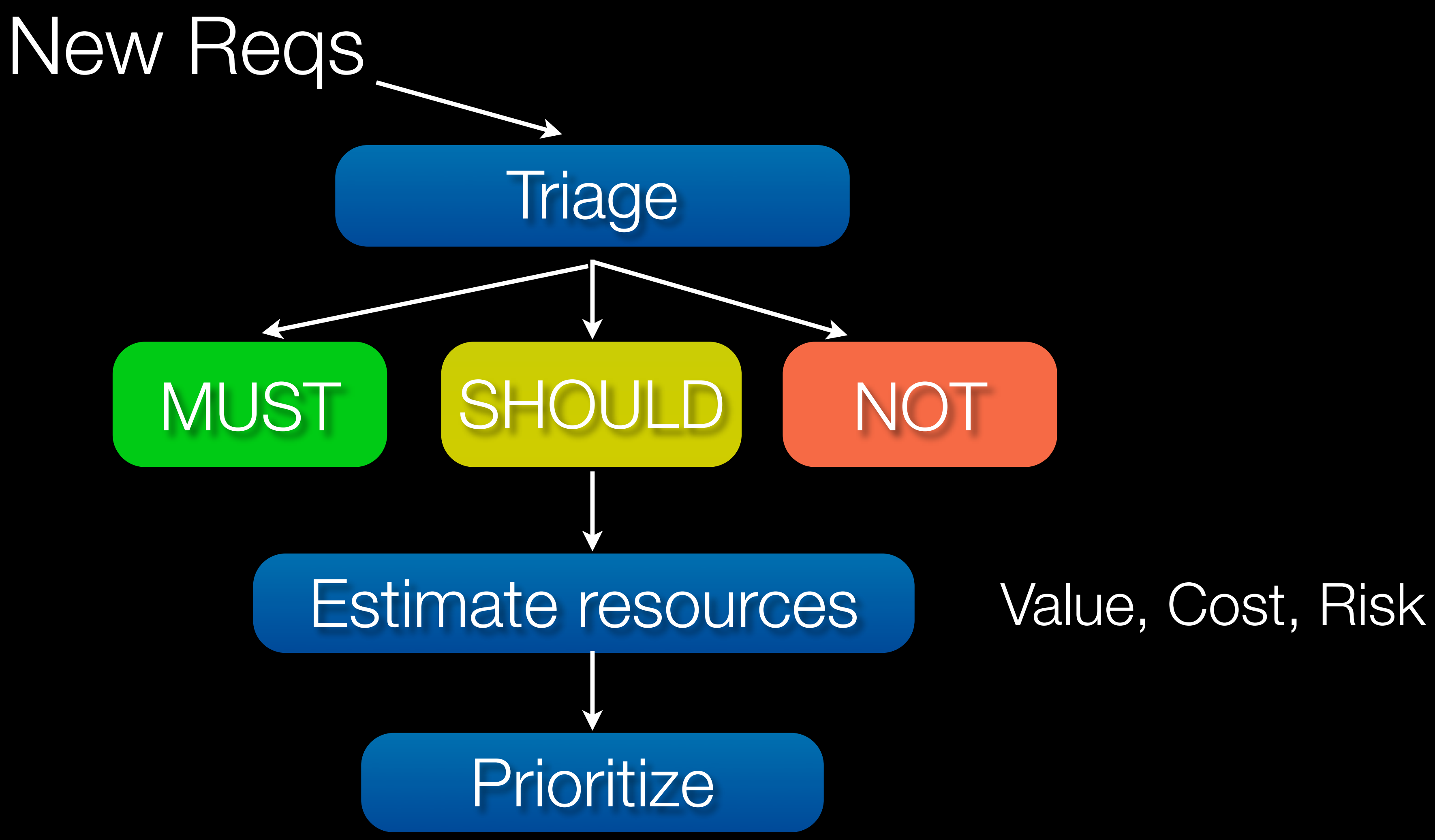


Value, Cost, Risk

Triage (in MDRE)



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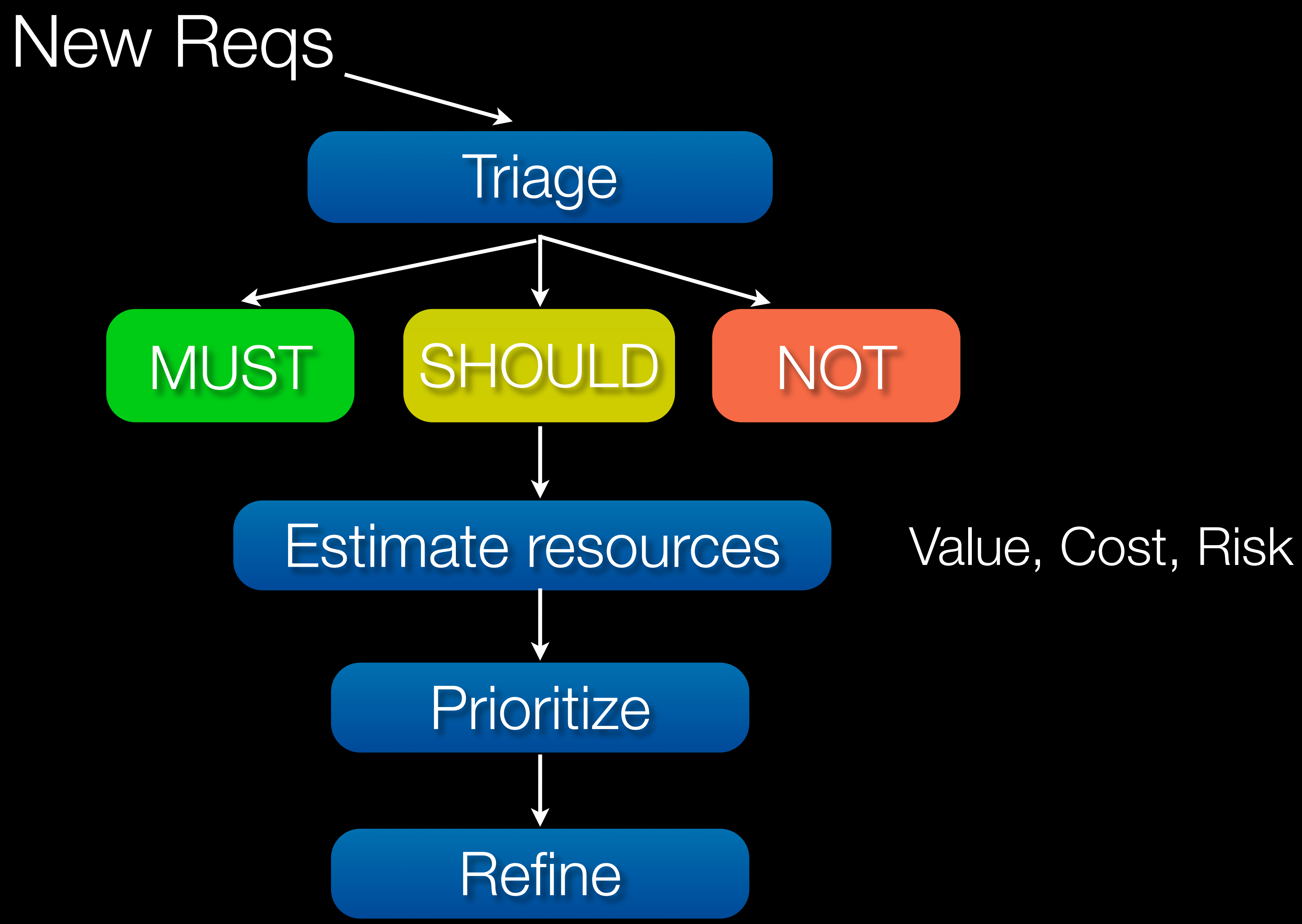


New Reqs

Triage

MUST

SHOULD

NOT

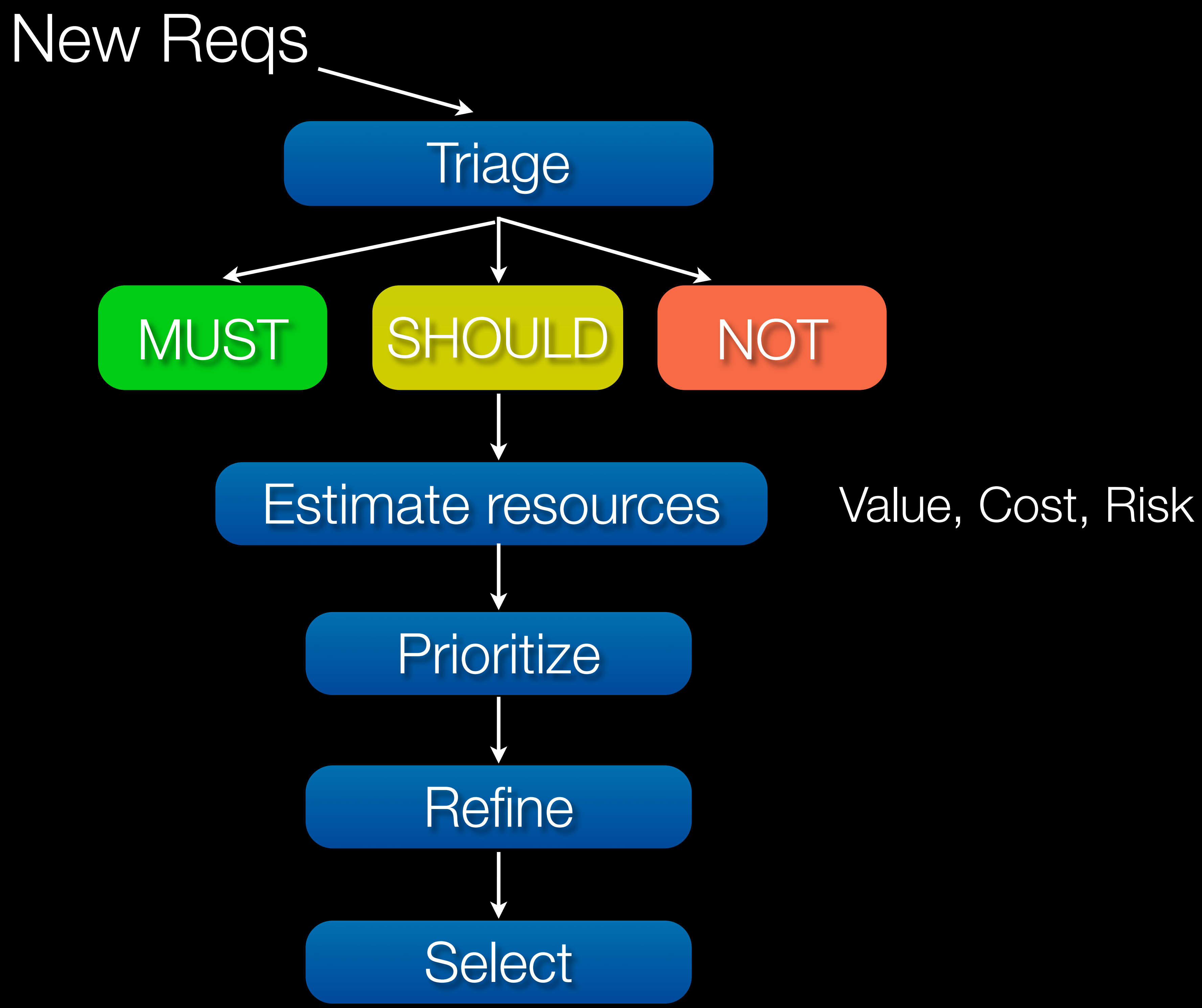
Estimate resources

Value, Cost, Risk

Prioritize

Refine

Triage (in MDRE)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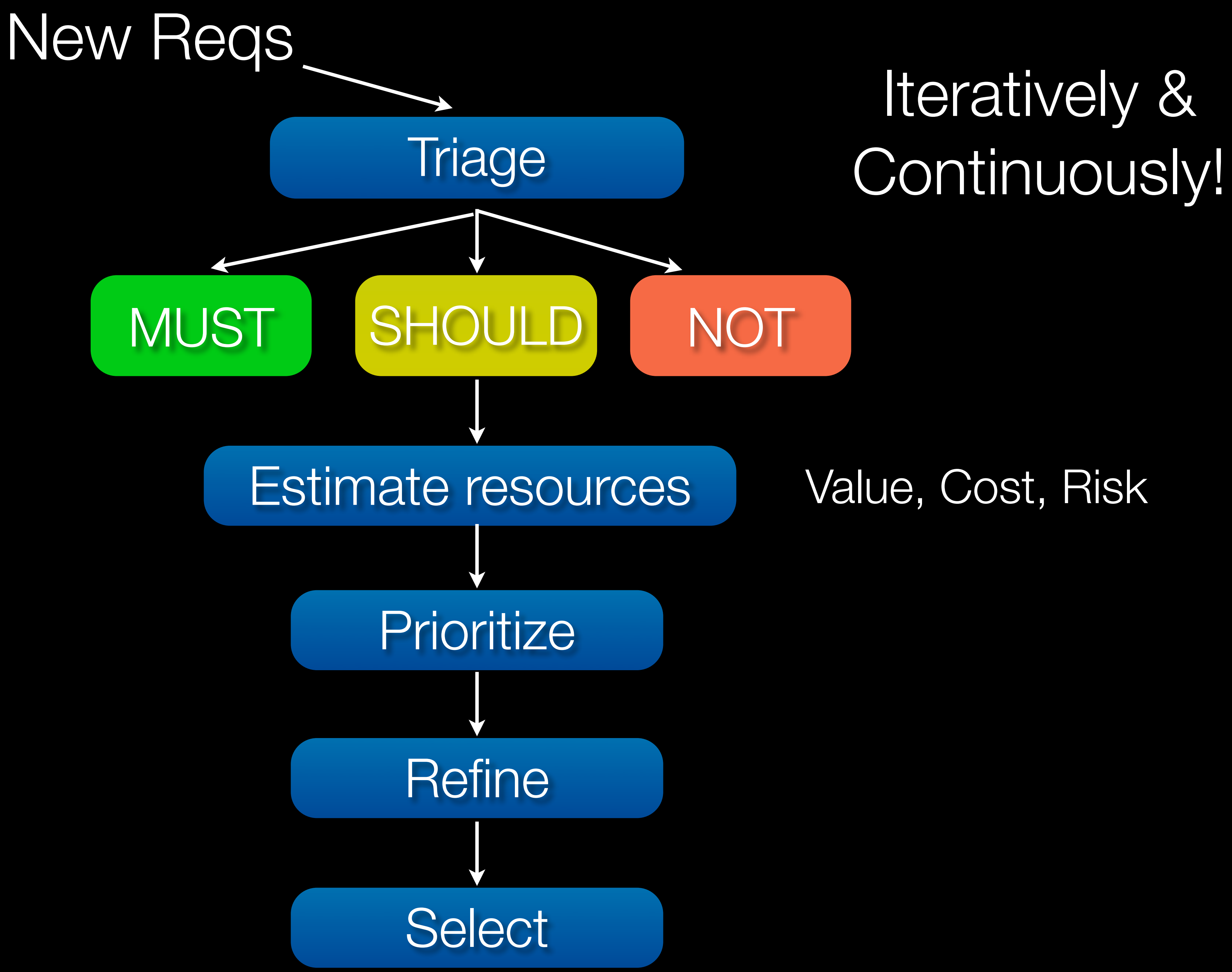
New Reqs

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MUST

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Estimate resources

Value, Cost, Risk

Prioritize

Refine

Select

Iteratively & Continuously!

Change Management

- Requirements baselining
- Procedures for new and changed requirements
    - How to propose
    - How to process
    - How to negotiate
    - How to communicate
- Impact analysis procedures
- How changes are reflected in project plans & commitments

Three main reasons for change

- Changing market demands
- Developers increased understanding
- Organizational reasons - strategy change, scope reduction

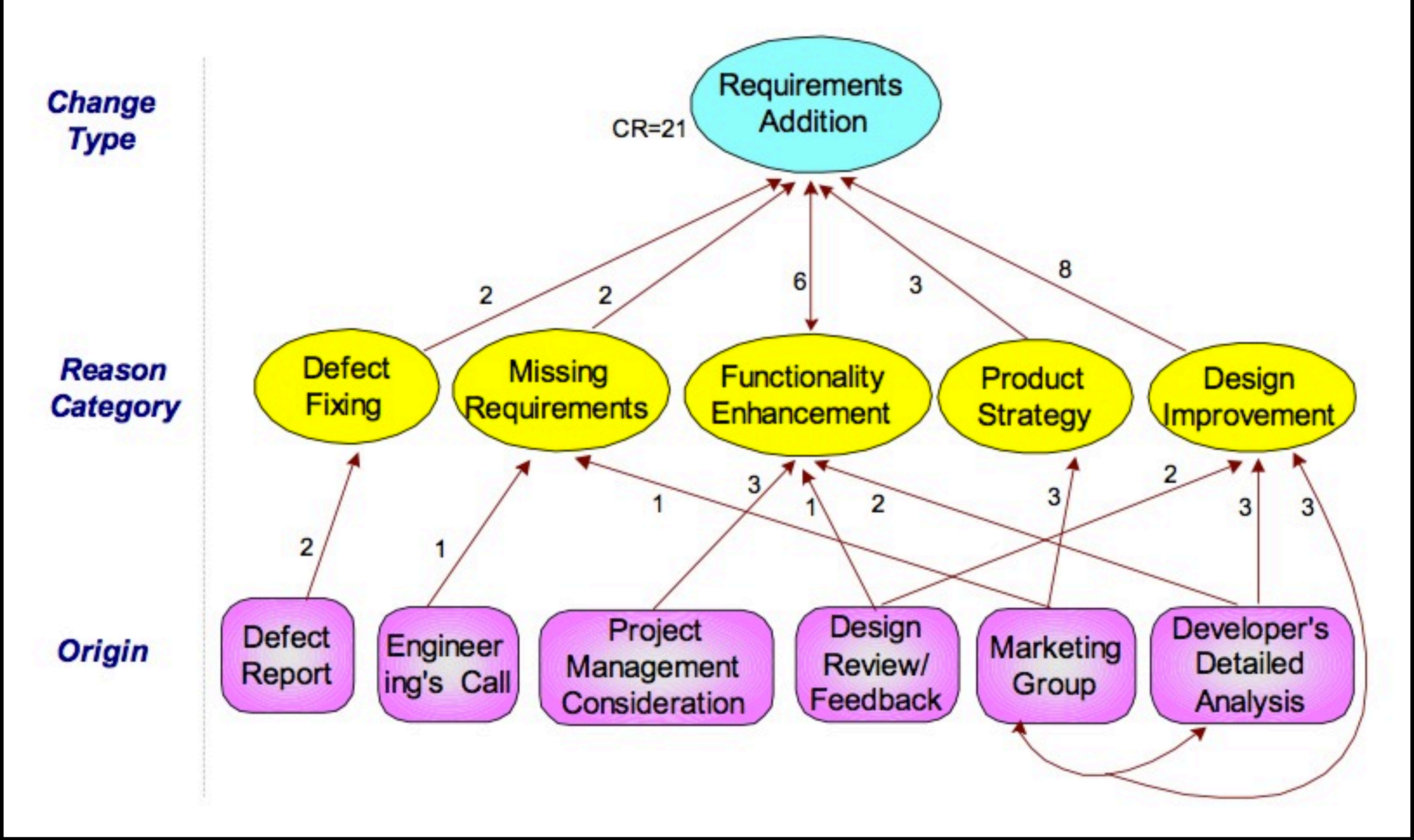
[Nurmuliani2004]

Taxonomy of Req Change

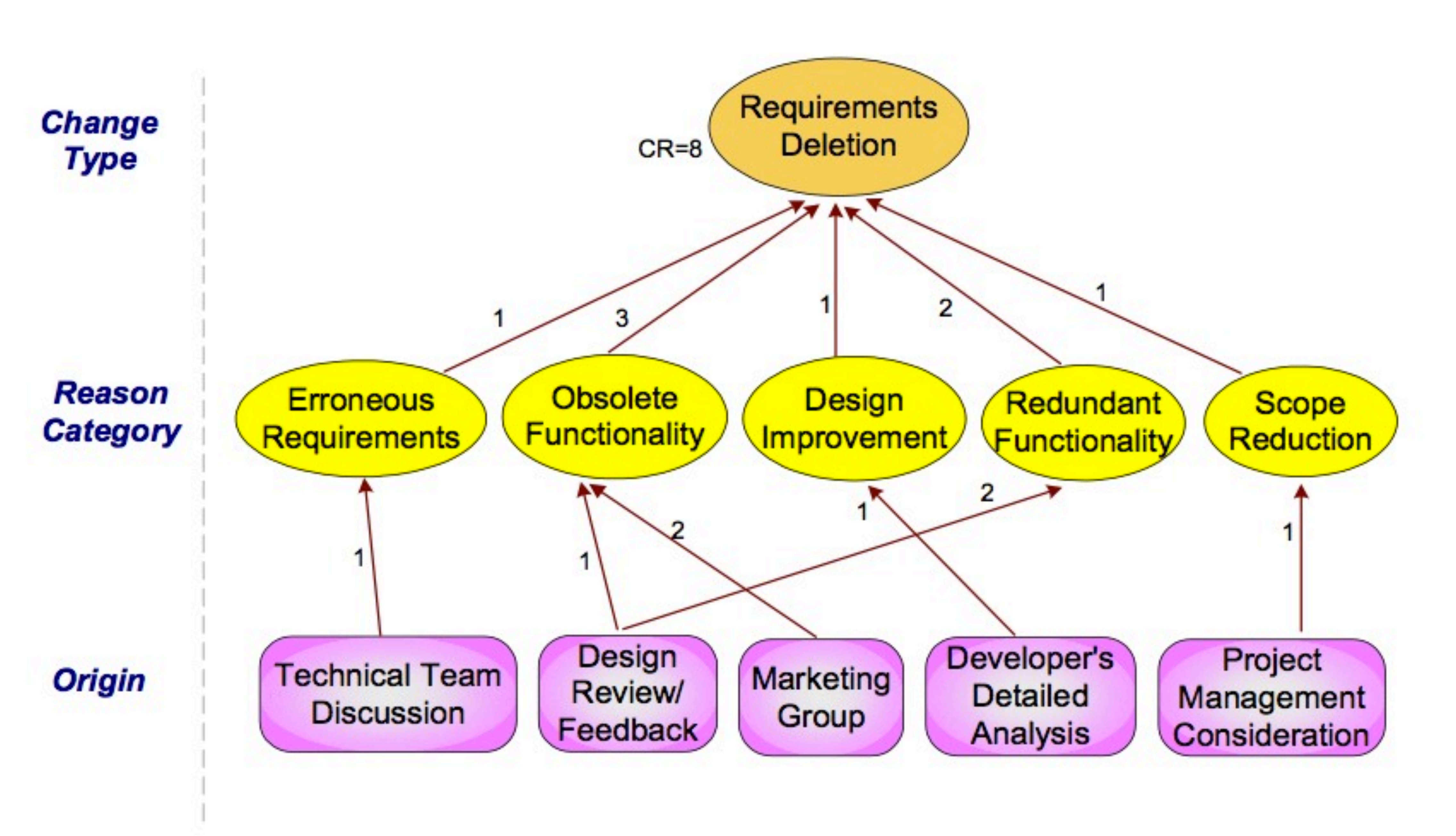
- Type: Add, Delete, Modify
- Reason: Defect fix, Func. Enhancement, Design improvement, ...
- Origin: Defect report, Marketing group, Review, ...

[Nurmuliani2004]

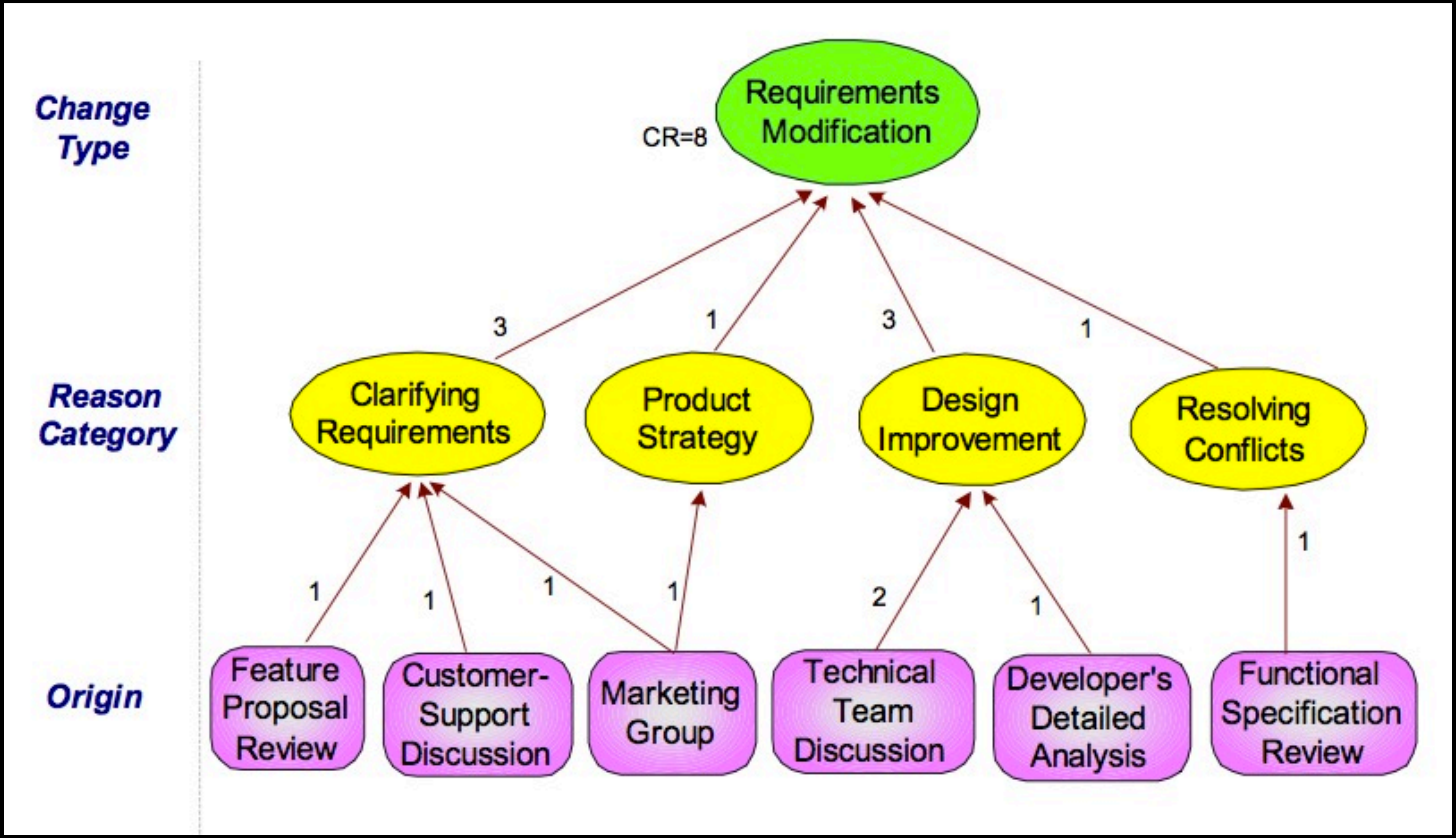
Requirement Additions



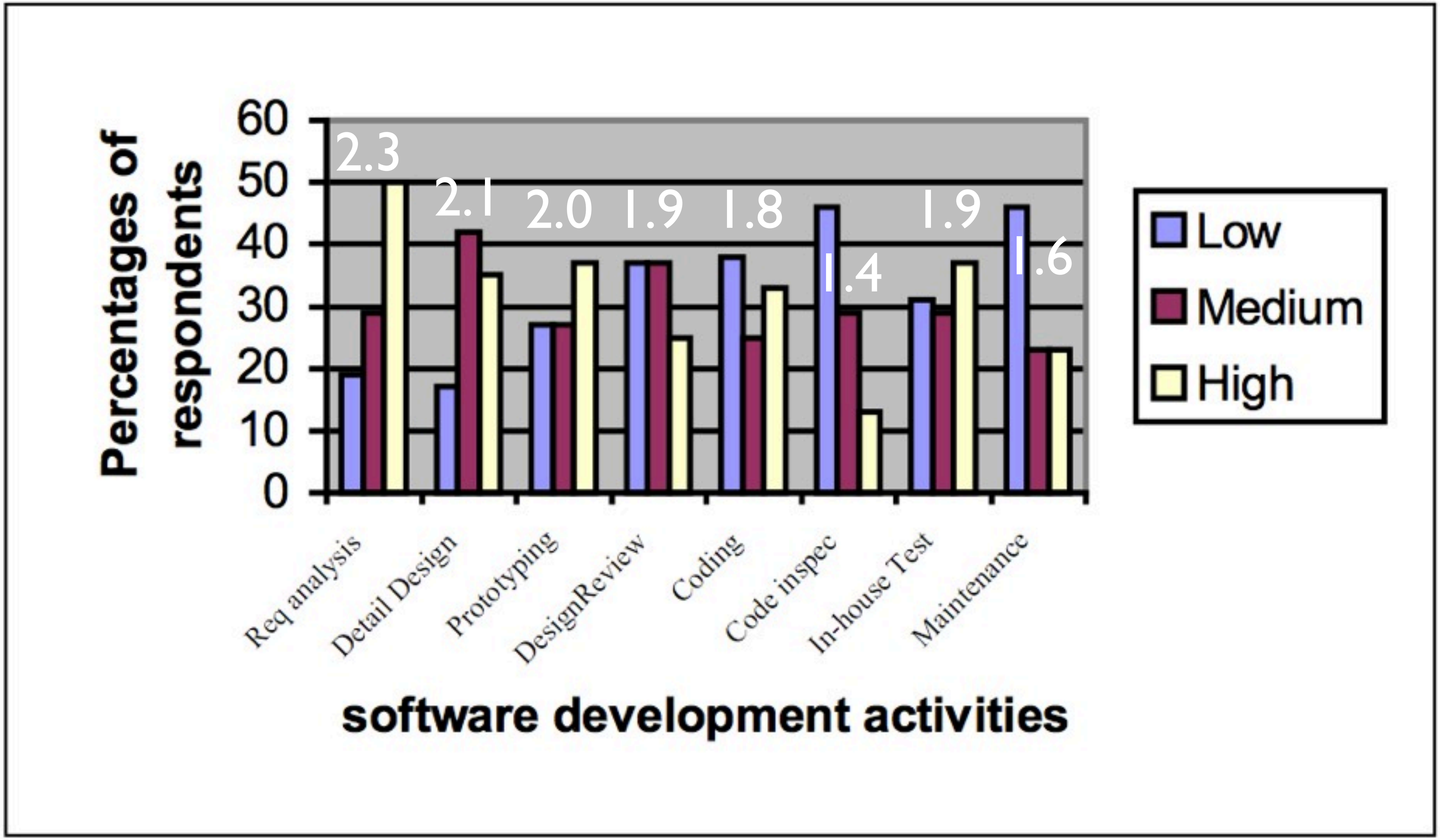
Requirement Deletions



Requirement Modifications



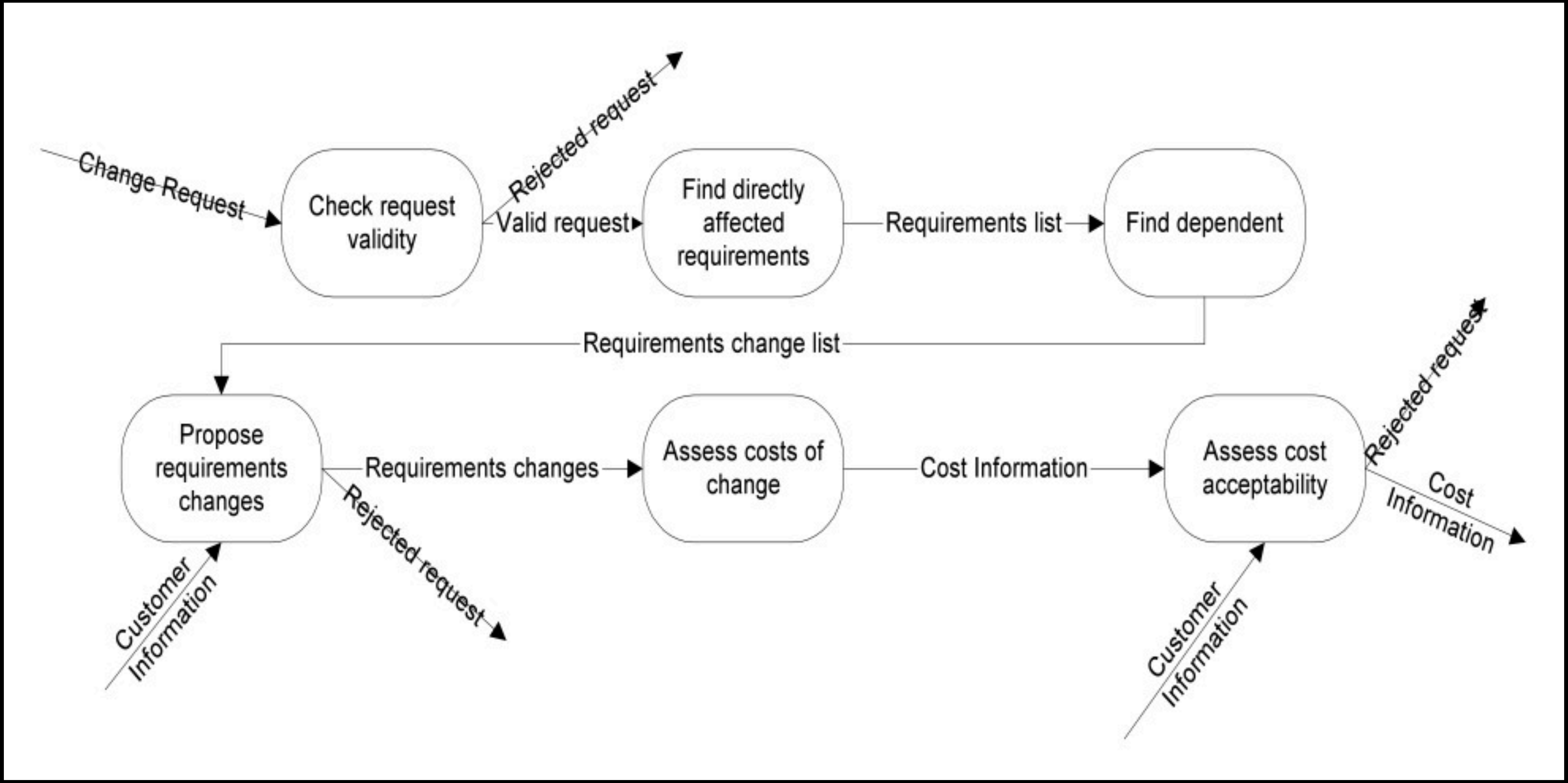
When are the changes?



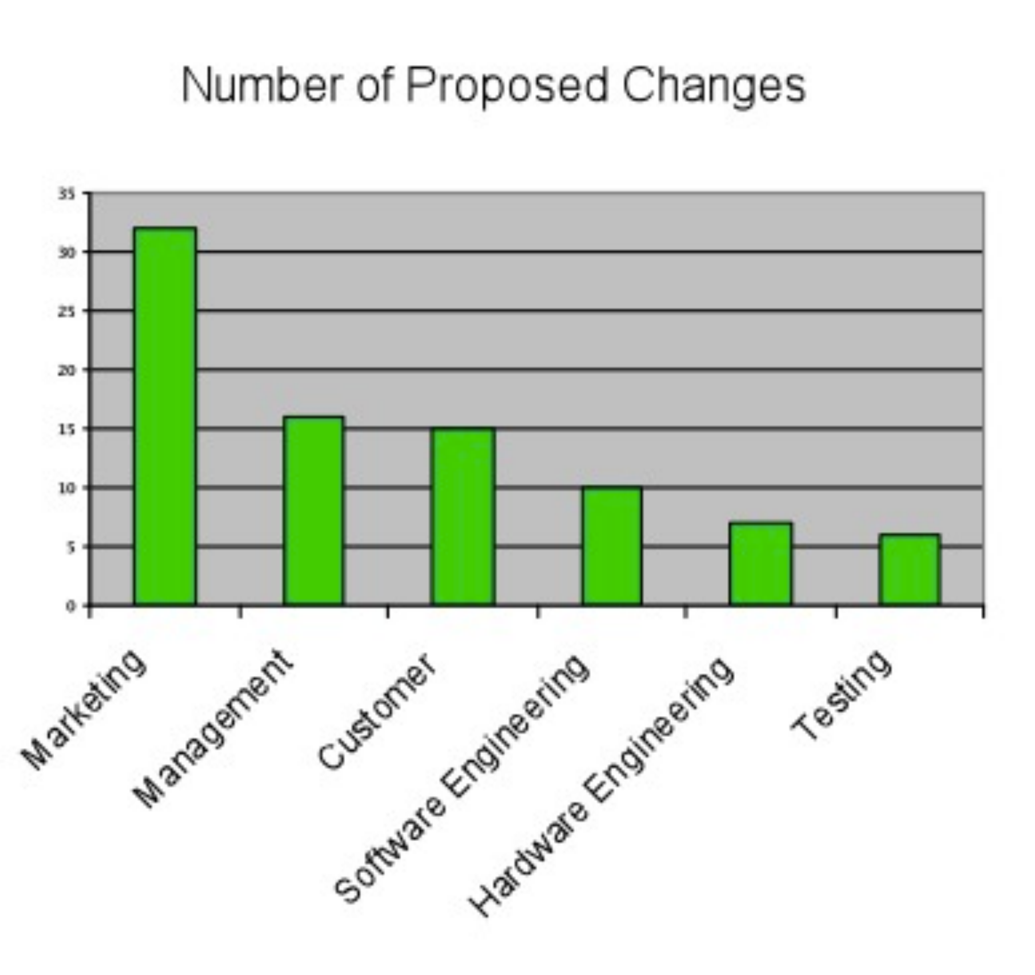
Preparing for change

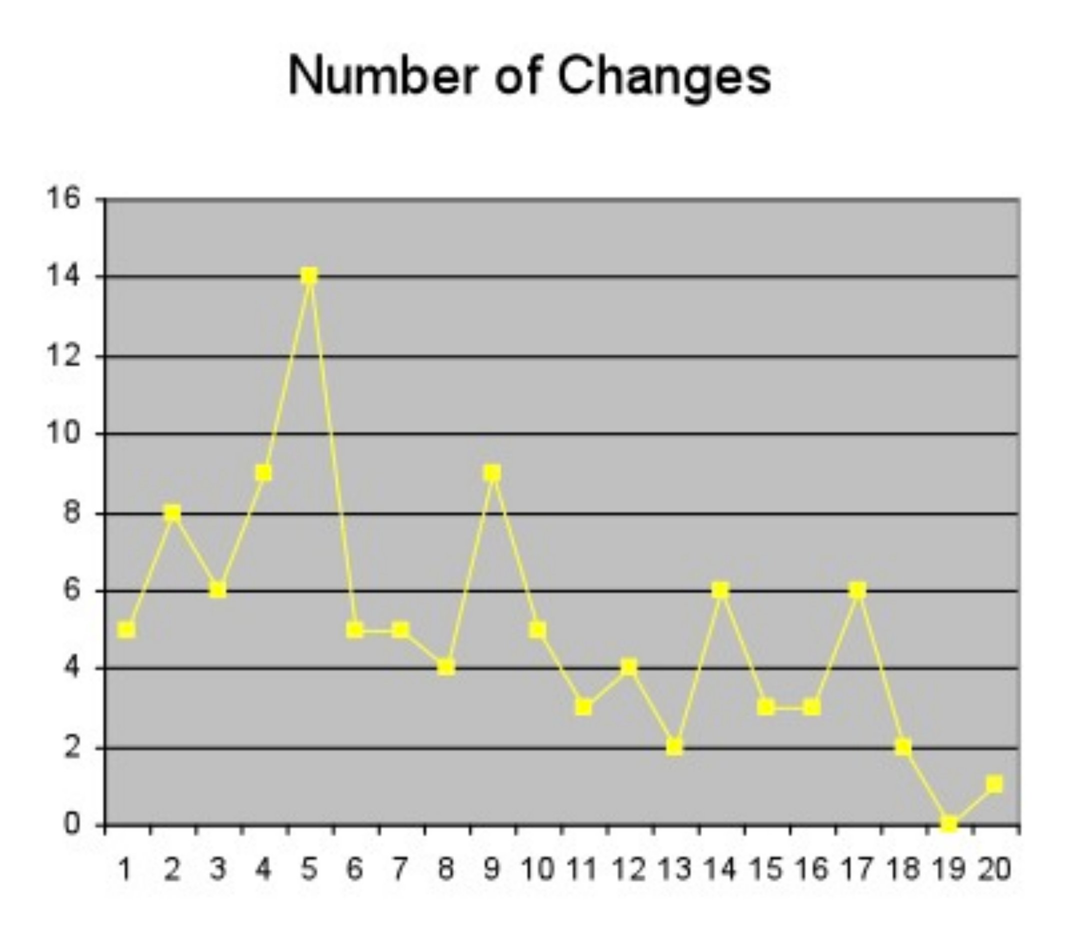
- Accept that changes are inevitable
- Identify Volatile Requirements
- Establish single channel for change requests
- Manage change hierarchically

Change Management Process



Measuring Change Activity



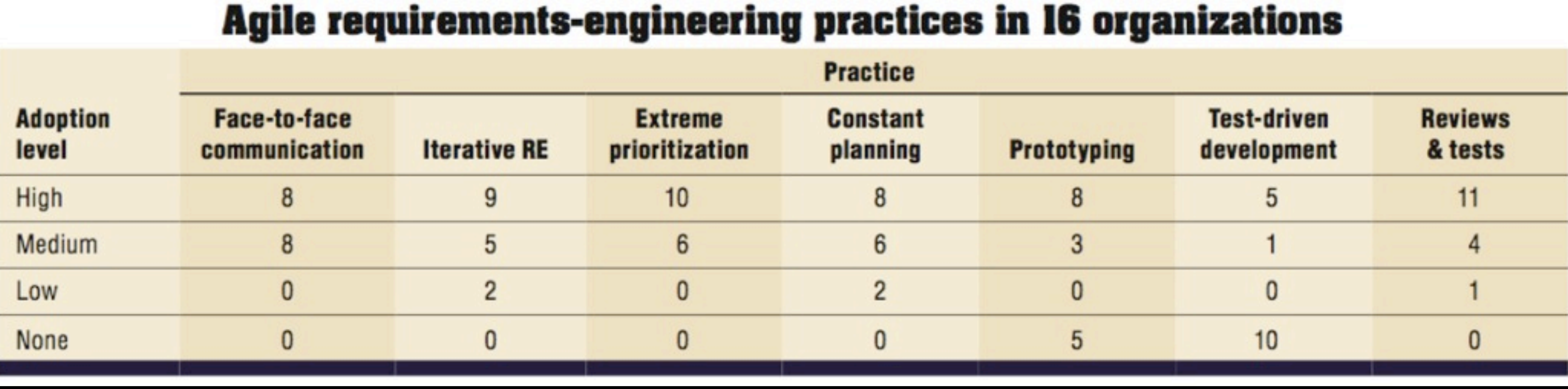


- Assess stability of requirements
- Identify improvement opportunities
- Alerts to project planning

“Agile” RE in practice

- [Cao2008]
- Interviews with 54 personer in 16 companies
  - All used XP or SCRUM, fully or partially
- Questions:
  - How does “agile” developers work with RE?
  - Which advantages and disadvantages?

What do they do?



Agile requirements-engineering practices in 16 organizations

Adoption level	Practice						
	Face-to-face communication	Iterative RE	Extreme prioritization	Constant planning	Prototyping	Test-driven development	Reviews & tests
High	8	9	10	8	8	5	11
Medium	8	5	6	6	3	1	4
Low	0	2	0	2	0	0	1
None	0	0	0	0	5	10	0

Agile RE Practices - Pro / Con

Face2Face communication & User stories

Iterative req engineering

Agile RE Practices - Pro / Con

Face2Face communication & User stories

Saves time

Iterative req engineering

Agile RE Practices - Pro / Con

Face2Face communication & User stories

- Saves time
- Customer drives

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Agile RE Practices - Pro / Con

Face2Face communication & User stories

Saves time	Requires trust
Customer drives	Not all user groups represented

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Iterative req engineering

Clearer reqs

Agile RE Practices - Pro / Con

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- Saves time
- Customer drives
- Requires trust
- Customer on site
- Not all user groups represented

Iterative req engineering

- Clearer reqs
- Customer relation

Agile RE Practices - Pro / Con

Face2Face communication & User stories

- 🟩 Saves time
- 🟩 Customer drives
- 🟥 Requires trust
- 🟥 Customer on site
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Iterative req engineering

- 🟩 Clearer reqs
- 🟩 Customer relation
- 🟥 Minimal docs when problems

Agile RE Practices - Pro / Con

Face2Face communication & User stories

Saves time

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Iterative req engineering

Clearer reqs

Minimal docs when problems

Customer relation

Cost & schedule estimation

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Face2Face communication & User stories

- Saves time
- Customer drives

- Requires trust
- Customer on site
- Not all user groups represented

Iterative req engineering

- Clearer reqs
- Customer relation

- Minimal docs when problems
- Cost & schedule estimation
- Non-functional requirements

Agile RE Practices - Pro / Con

“Extreme” Prioritization

Managing Change through Constant replanning

Agile RE Practices - Pro / Con

“Extreme” Prioritization

Clearer reasons

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“Extreme” Prioritization

Clearer reasons

Re-prio is easier

Managing Change through Constant replanning

Agile RE Practices - Pro / Con

“Extreme” Prioritization

- Clearer reasons
- “Business Value” to narrow
- Re-prio is easier

Managing Change through Constant replanning

Agile RE Practices - Pro / Con

“Extreme” Prioritization

Clearer reasons	“Business Value” to narrow
Re-prio is easier	Instable with re-prio

Managing Change through Constant replanning

Agile RE Practices - Pro / Con

“Extreme” Prioritization

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Managing Change through Constant replanning

🟩 Fewer changes

Agile RE Practices - Pro / Con

“Extreme” Prioritization

Clearer reasons	“Business Value” to narrow
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Managing Change through Constant replanning

Fewer changes
Smaller changes

Agile RE Practices - Pro / Con

“Extreme” Prioritization

Pro	Con
Clearer reasons	“Business Value” to narrow
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Managing Change through Constant replanning

Pro	Con
Fewer changes	Architecture suffers
Smaller changes	

Agile RE Practices - Pro / Con

"Extreme" Prioritization

Clearer reasons	"Business Value" to narrow
Re-prio is easier	Instable with re-prio

Managing Change through Constant replanning

Fewer changes	Architecture suffers
Smaller changes	"Refactoring" not enough

Agile RE Practices - Pro / Con

Prototypes

Test-driven Development

Reviews & Acceptance tests

Agile RE Practices - Pro / Con

Prototypes

Quicker feedback

Test-driven Development

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Unrealistic dev speed expectations

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🟩 Tests capture reqs

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Test-driven Development

Tests capture reqs

Freedom to experiment

Reviews & Acceptance tests

Agile RE Practices - Pro / Con

Prototypes

- Quicker feedback
- Unrealistic dev speed expectations

Test-driven Development

- Tests capture reqs
- Requires close customer collab
- Freedom to experiment

Reviews & Acceptance tests

Agile RE Practices - Pro / Con

Prototypes

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Test-driven Development

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Freedom to experiment

Developers resist

Reviews & Acceptance tests

Agile RE Practices - Pro / Con

Prototypes

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Test-driven Development

Tests capture reqs	Requires close customer collab
Freedom to experiment	Developers resist

Reviews & Acceptance tests

Status report to customers	

Agile RE Practices - Pro / Con

Prototypes

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Test-driven Development

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Reviews & Acceptance tests

Status report to customers	Hard to create acc.tests