Software Product Management: Preliminary Results of a Pilot Survey

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A Quiz About the Software Industry

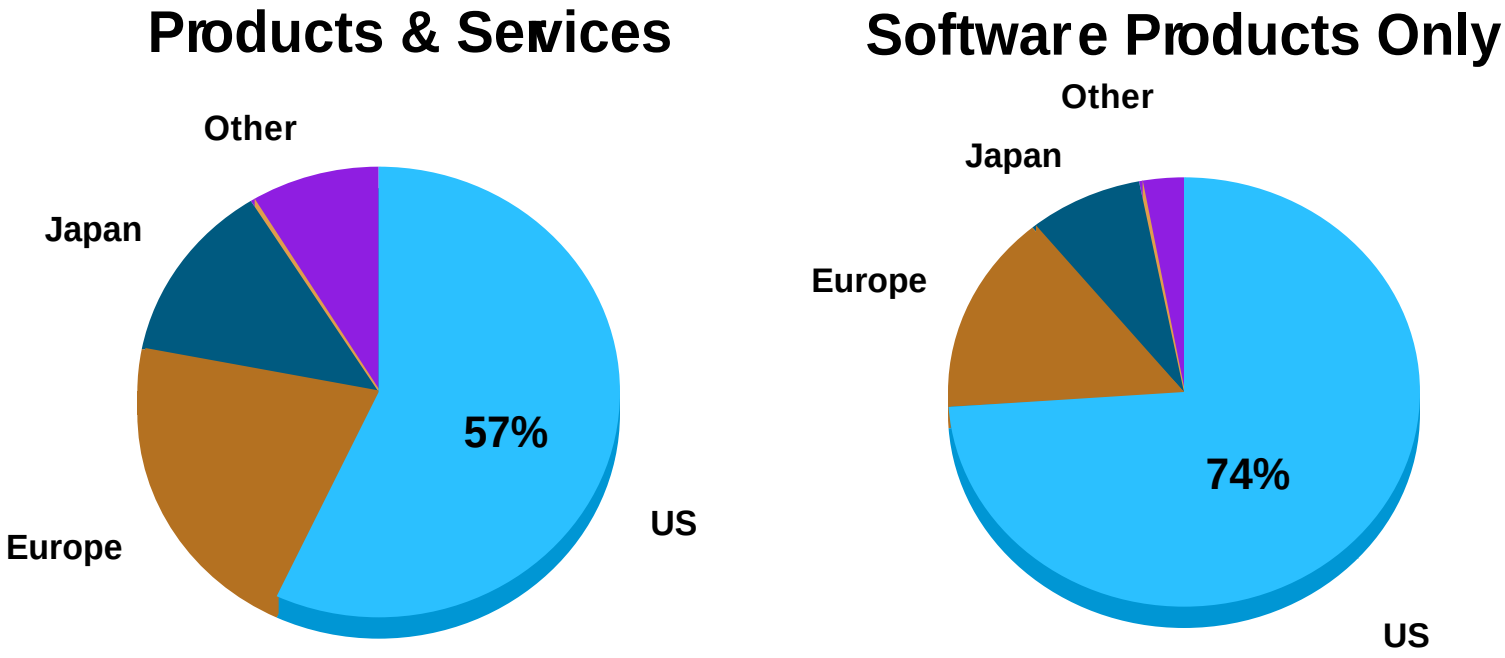
- What costs $50M to build and $5 to copy?
- Name a product that uses electricity, costs more than $100, and doesn't have a microprocessor.
- Name the top five software companies (in terms of revenues from software).

SCIP Software Industry Study

- **Phase 1: Spring - Winter 1993**
  Study of the Japanese Software Industry
  Prof. Edward A. Feigenbaum
  Subsequent interviews with US firms
  Focus on the software products segment

Why Does the US Dominate the Global Software Products Industry?

Worldwide Market Share



US Industrial Outlook for 1993, 1994

The Reasons for US Dominance Are Neither Superficial Nor Transient

- Long-term funding of basic computer research
  - > Faculty, graduates at the cutting edge
- Software is “real”
  - > Unbundling, piracy, high-prestige profession
- Regulatory & cultural support of entrepreneurs
  - > Status of self-employed vs. employee of big firm
  - > Venture capital: Profits from high-risk
  - > Strategic diversity and acceptance of failure
- Youth accepted in business management
- Tolerance of “good enough” quality

Phase 1: Conclusions

- The US software products industry is a model of adaptation to extremely rapid change in the underlying technology, which constantly creates new markets for computers (applications).
- The rate of change is speeding up.

SCIP Software Industry Study

- **Phase 1: Spring - Winter 1993**
  Study of the Japanese Software Industry
- **Phase 2: Winter 1993 - Spring 1995**
  Interviews with 50 US Industry "Insiders"
  Determine industry structure and trends
  Identify issues that will shape its future
  CS290 / IE210: The Software Industry

The Software Products Segment is Changing: Recent M&A Activity

- 1994
  - > Adobe acquires Aldus ($.2B)
  - > Novell acquires WordPerfect ($.7B)
- 1995
  - > Sybase acquires PowerSoft ($.9B)
  - > Computer Associates acquires Legent ($1.8B)
  - > Microsoft acquires Intuit ($2.1B, denied by US)
  - > IBM acquires Lotus ($3.5B)
- Over 200 transactions in the first half of 1995, up 54%

The "Form" of the Software Products Segment Will Change

- No software products industry before 1960's
  - > Created when IBM "opened" its architecture
  - > Started as services, "solutions providers"
  - > Remained direct sales, high-touch, high-price
- Went retail with PC platform — a new "form"
  - > PC software is maturing and consolidating
  - > Open platforms, ISV support wins
- Expect another form with the next "platform"
  - > Pay-per-use applications and "components"
  - > "Mediated" access to distributed resources

Results of the Interviews

- Some concerns we expected to hear were not considered serious issues:
  - > Piracy
  - > Foreign competition
  - > Consolidation of vendors, channel access
  - > Lack of talented, educated labor force
  - > Lack of capital
  - > Quality (for now)

Results of the Interviews

- But some serious concerns about the future of the software industry were expressed:
  - > The patent system is broken
  - > Fundamental research must continue
  - > No “Charlie Chaplin” of the new medium, yet
  - > SW production is still a “craft” and we do not know how to manage it effectively to balance innovation, time, quality, and cost

SCIP Software Industry Study

- **Phase 1: Spring - Winter 1993**
  Study of the Japanese Software Industry
- **Phase 2: Winter 1993 - Spring 1995**
  Interviews with 50 US Industry "Insiders"
- **Phase 3: Spring 1995 -**
  Survey on Software Product Management
  Establish benchmarks
  Identify "best practices"

Software Product Management

- Difficult products to manage
  - > It's all R&D, no manufacturing
  - > Total plasticity of product
  - > Very small literature on products segment
- Very obviously, a source of pain
  - > Time-to-market pressure
  - > Friction on product teams
  - > Planning & budgeting are largely imaginary

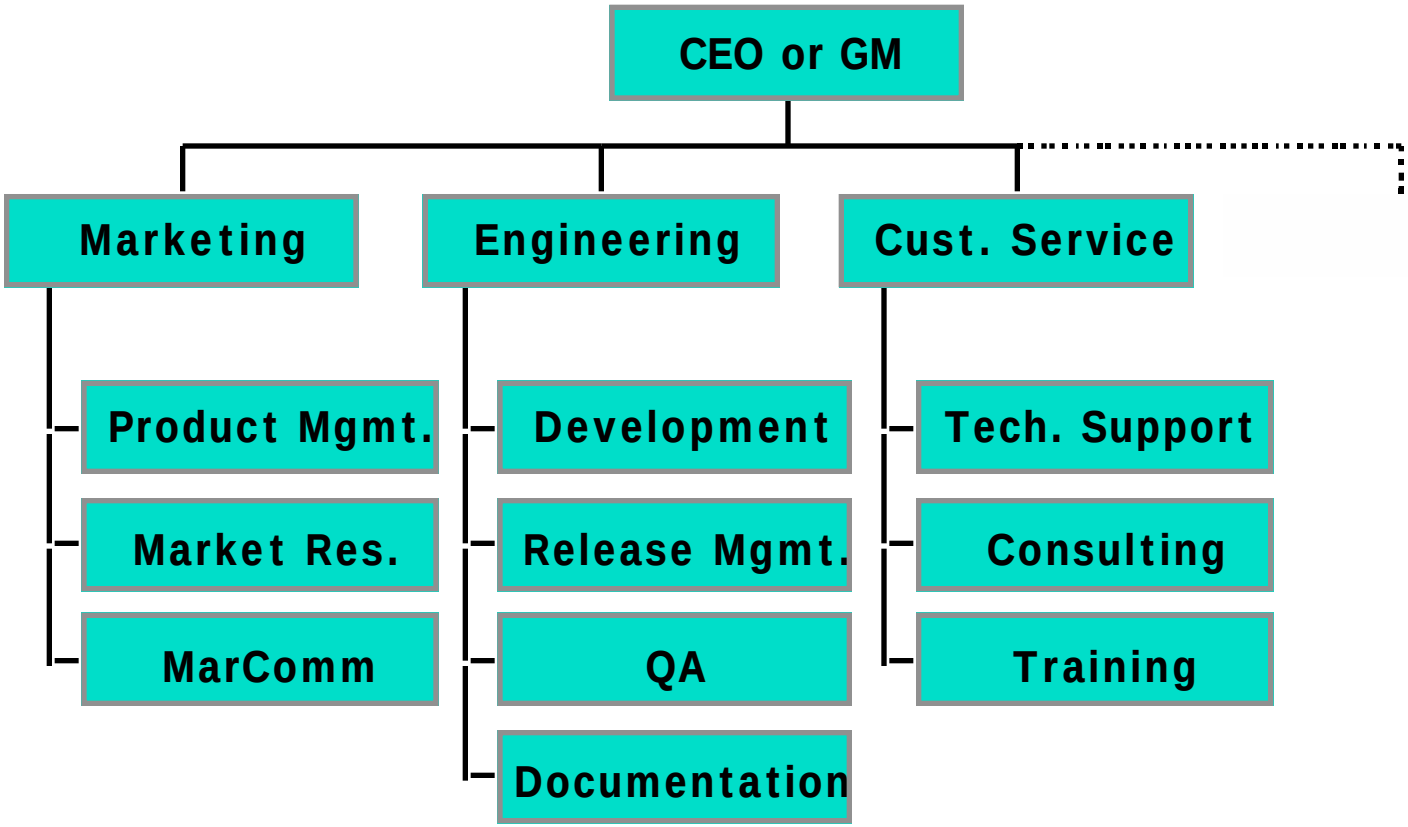
Companies Surveyed

	RDBMS	Call Center	Firms
Very Small < $10M	1	1	2
Small $10-50M	2	4	6
Large > $100M	3		3
Total	6	5	11

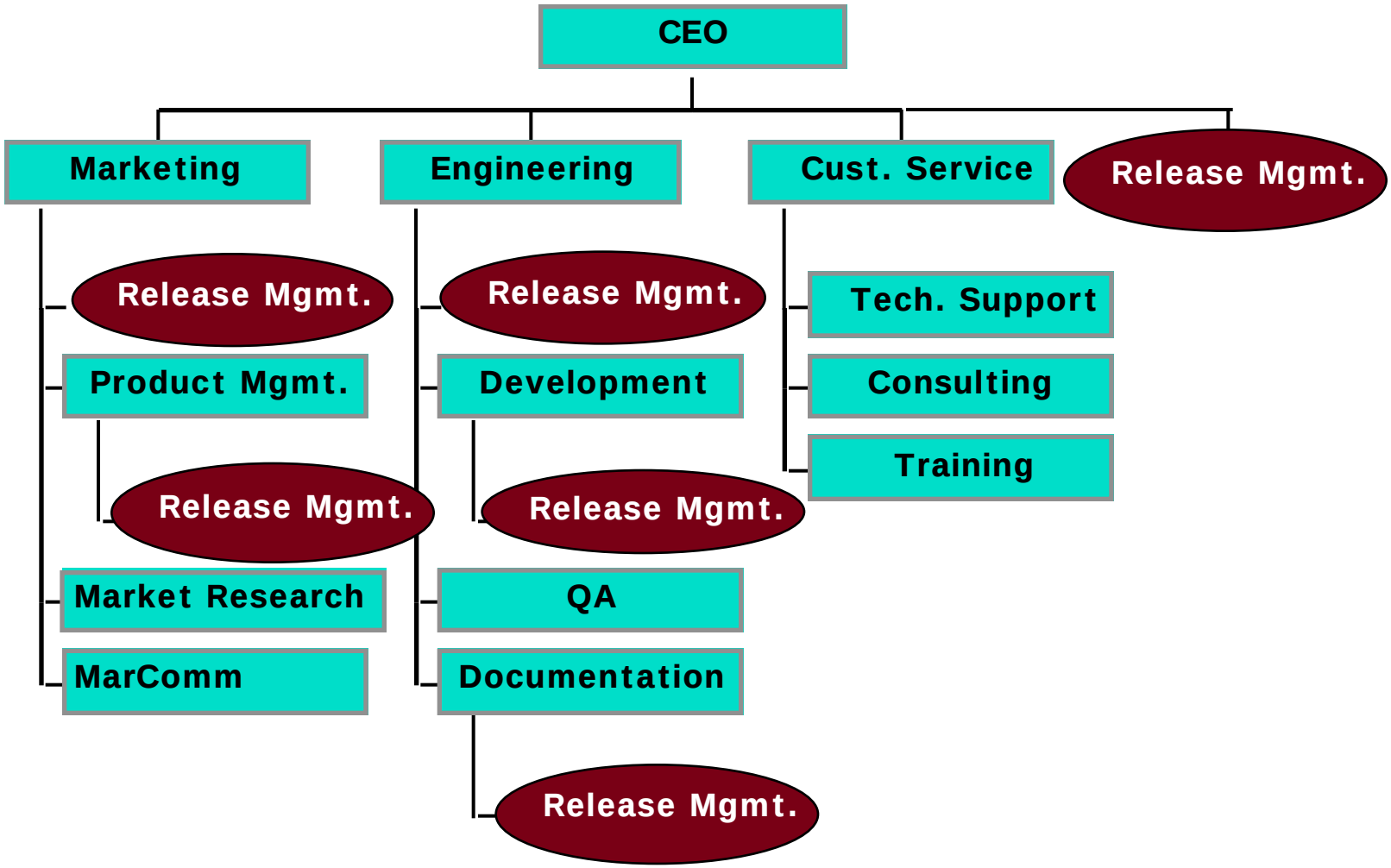
Software Product Management Survey: Issues Investigated

- Software Development Practices
  - > Engineering effort, technologies, quality
- Product Management Practices
  - > Release / project management
  - > Planning: formality, participants, horizon
  - > Time-to-market tradeoffs
- Corporate Style
  - > Decision-making, communication, outsourcing
  - > Balance between engineering and marketing

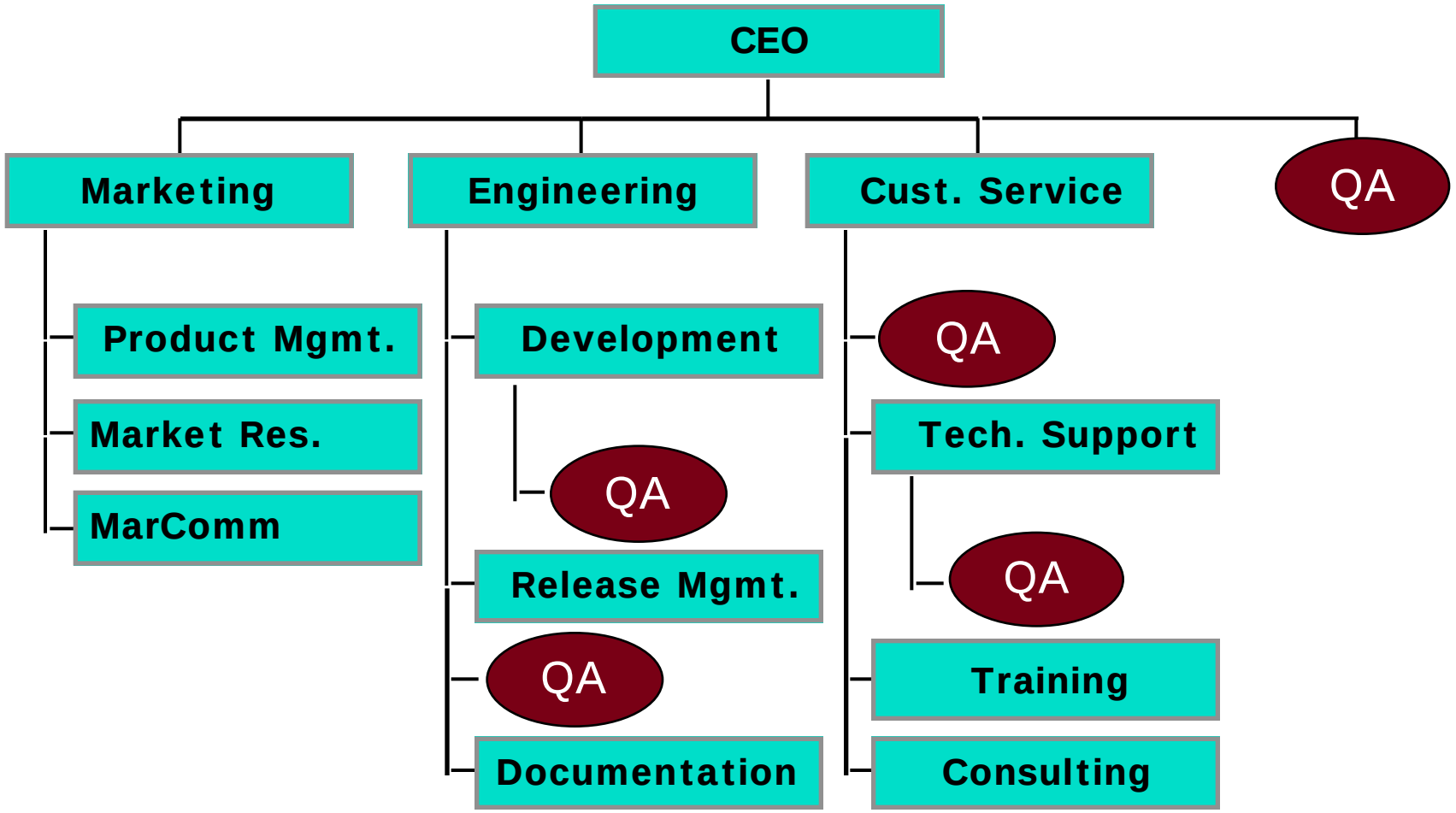
Generic Organization Chart



Who Does Release Management?



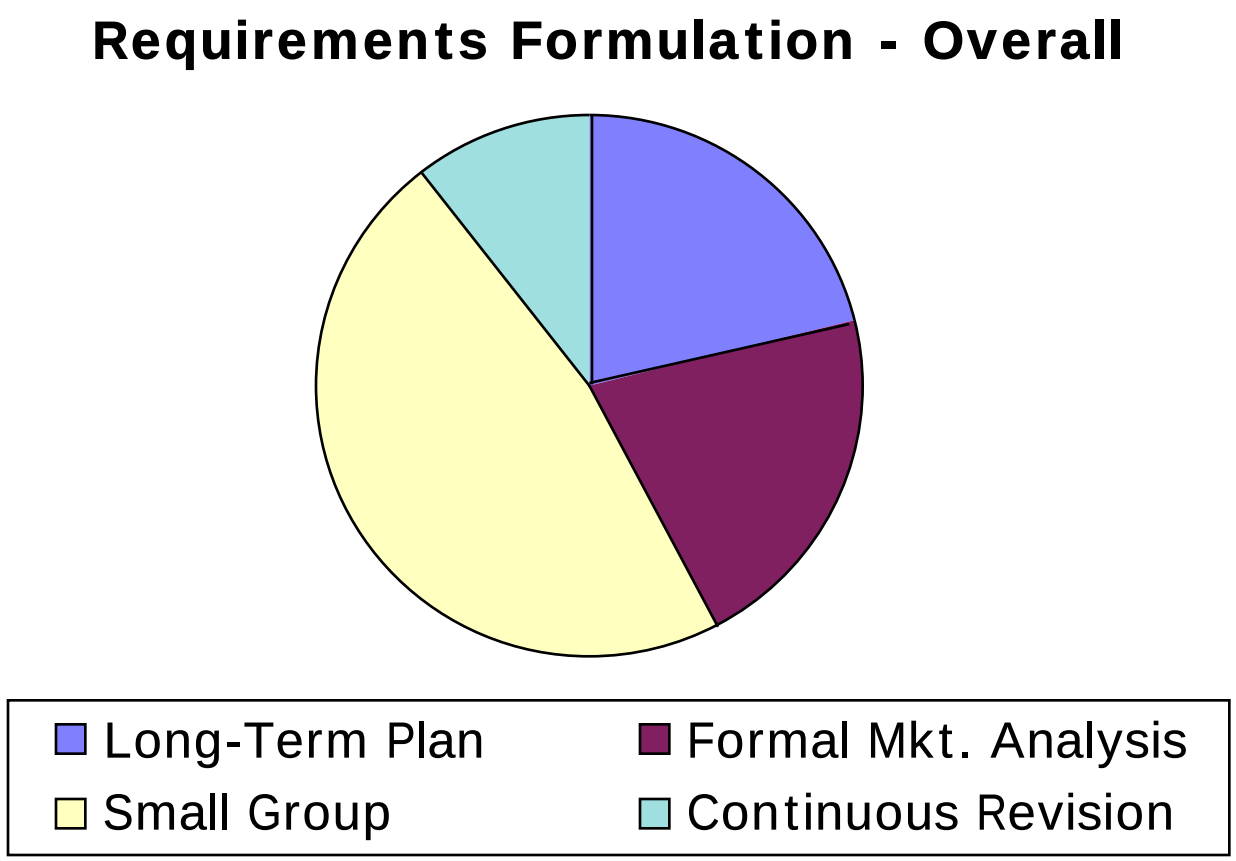
Where to Put QA?



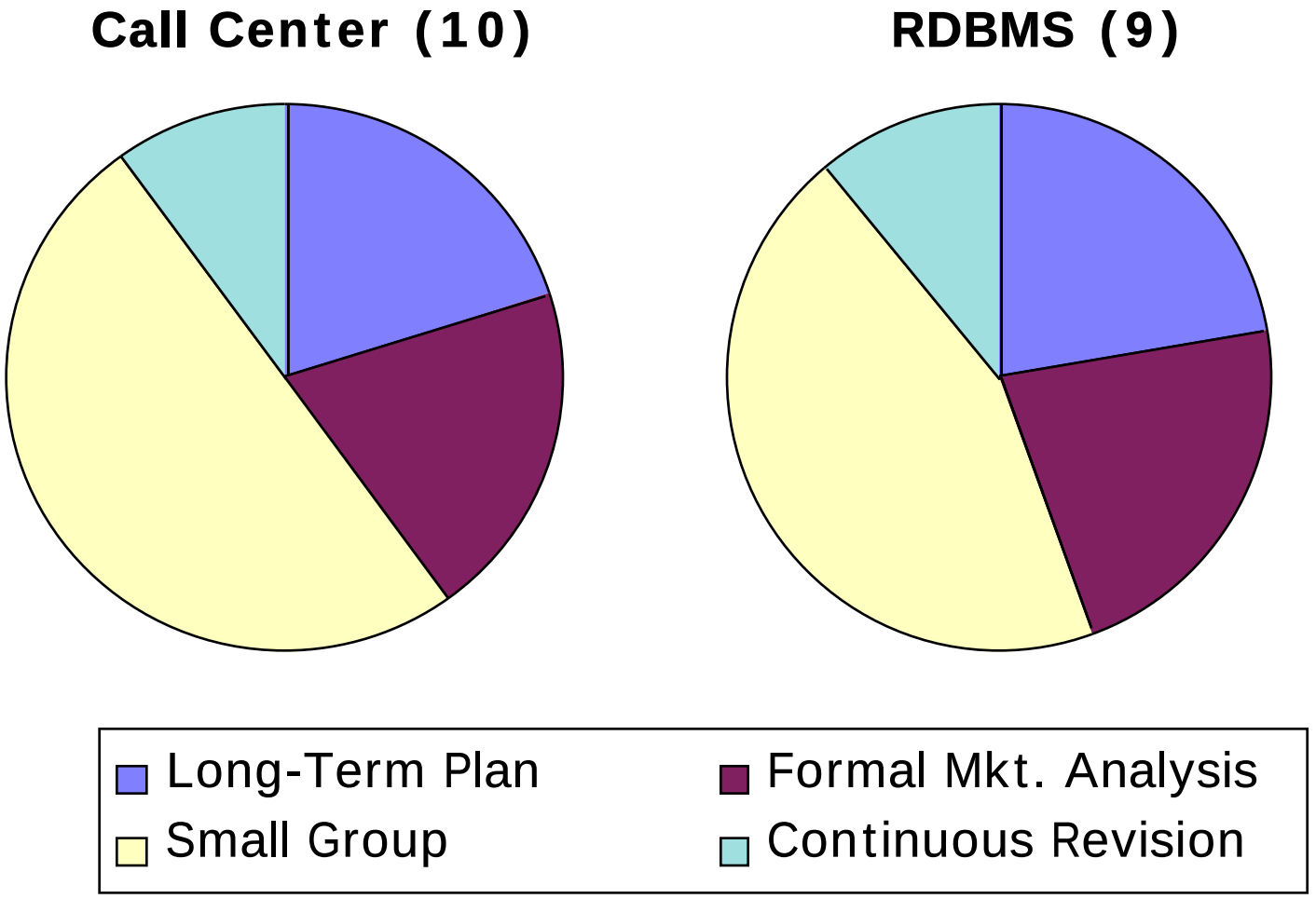
Product Requirements Formulation?

- Which of the following best characterizes the formulation of the product requirements **for this release**?
  - > Most of the requirements were part of a long-term plan for the product.
  - > A formal Marketing Requirements Analysis document was written.
  - > A small group developed the requirements before the programming started.
  - > Product requirements were continuously revised during the project.

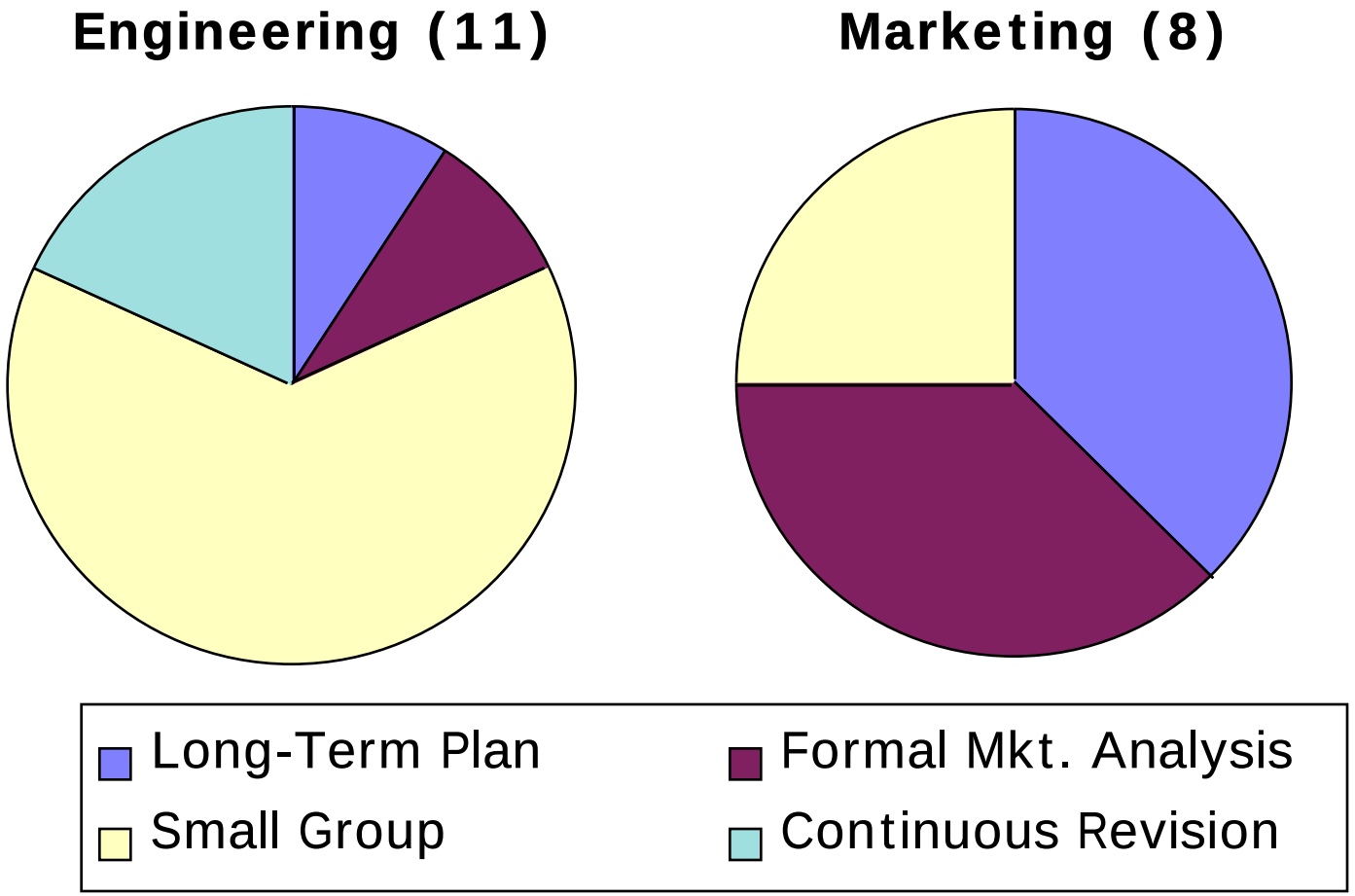
Product Requirements Formulation



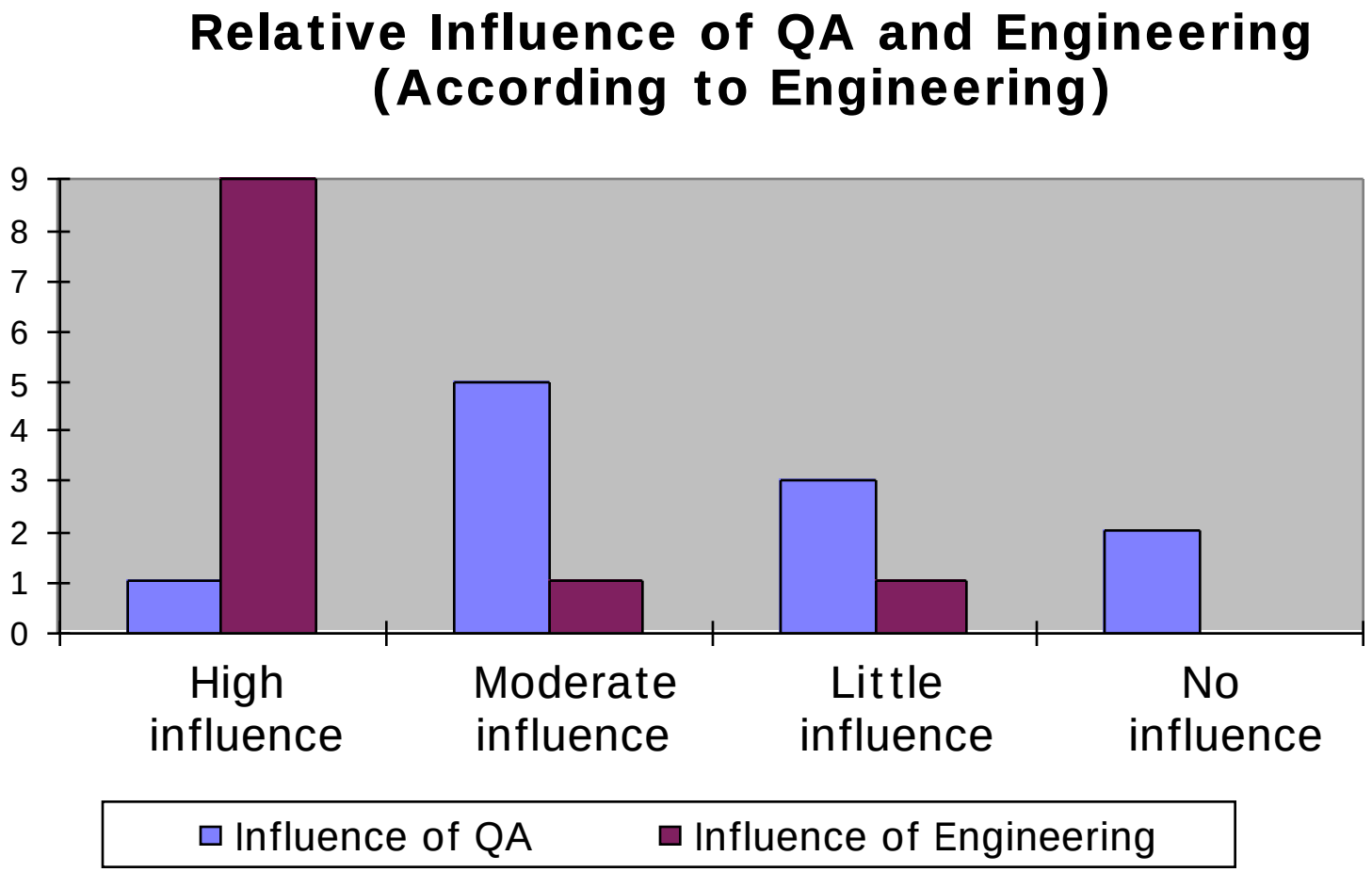
Product Requirements Formulation: Similar Across Market Segments



Product Requirements Formulation: Different Perceptions



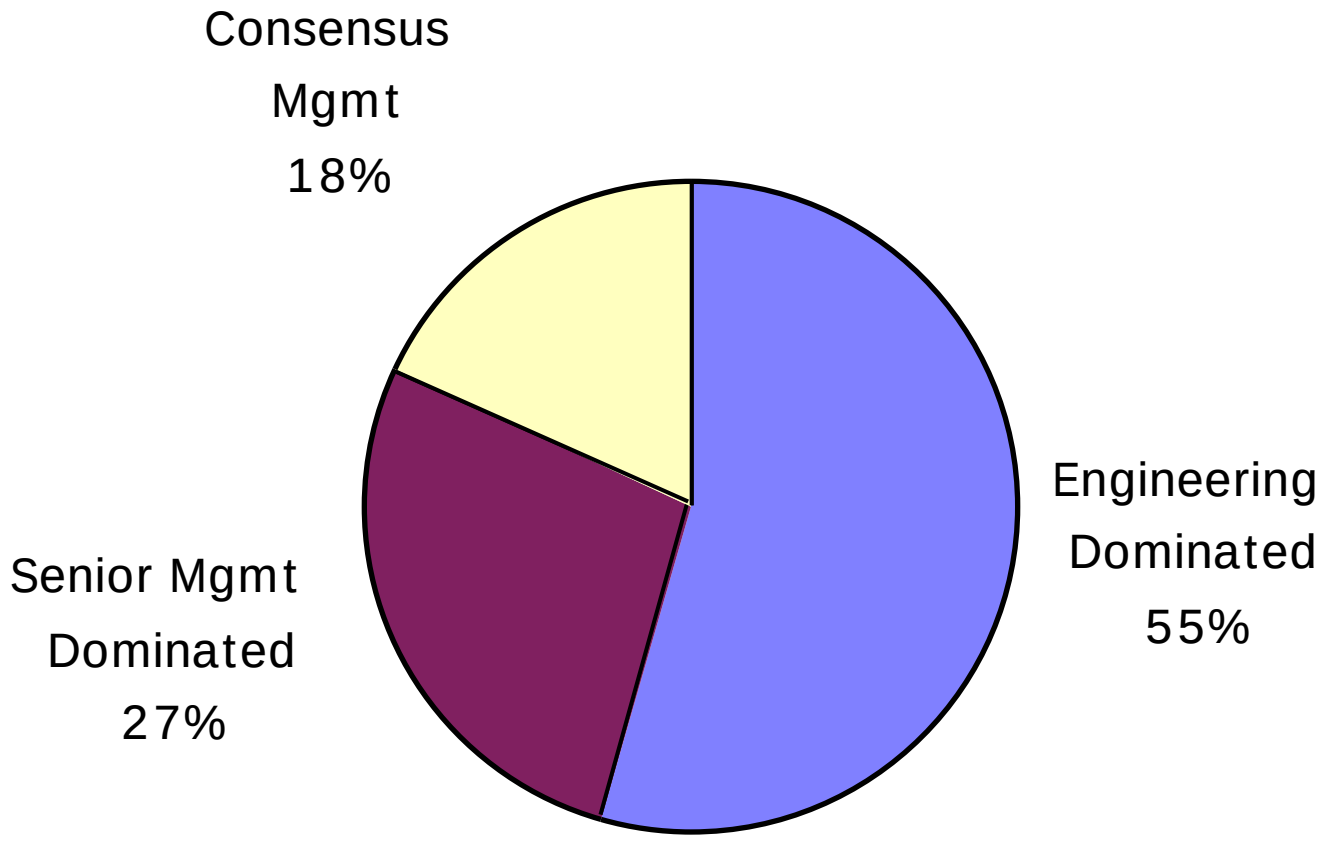
Influence on Decision Making



What department made the final decisions on the following items?

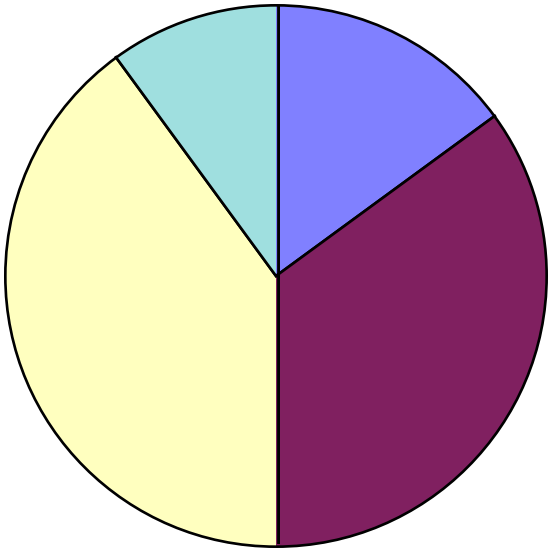
Decision	Senior Management	Marketing	Engineering	Release/Proj. Management	Other (Please Specify)
Project organization					
Timetable / milestones					
Team composition					
Budget					
Features included					
Design					
Phase transition (e.g., to test)					
Production release					
Resource allocation					
Project priority					

Decision-Making Style

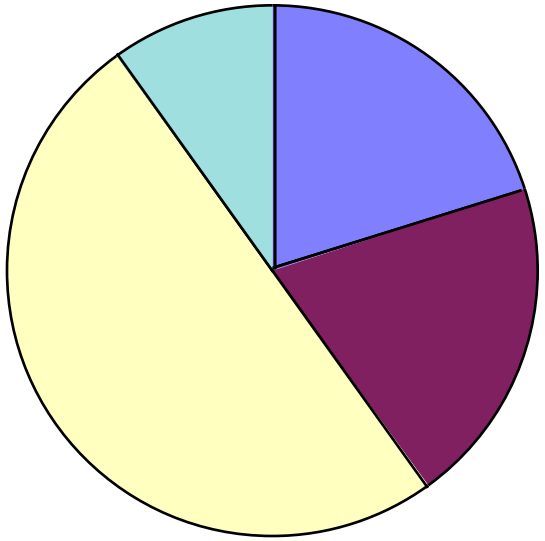


Last Minute Changes

Last Stage When a Feature Can Be Added

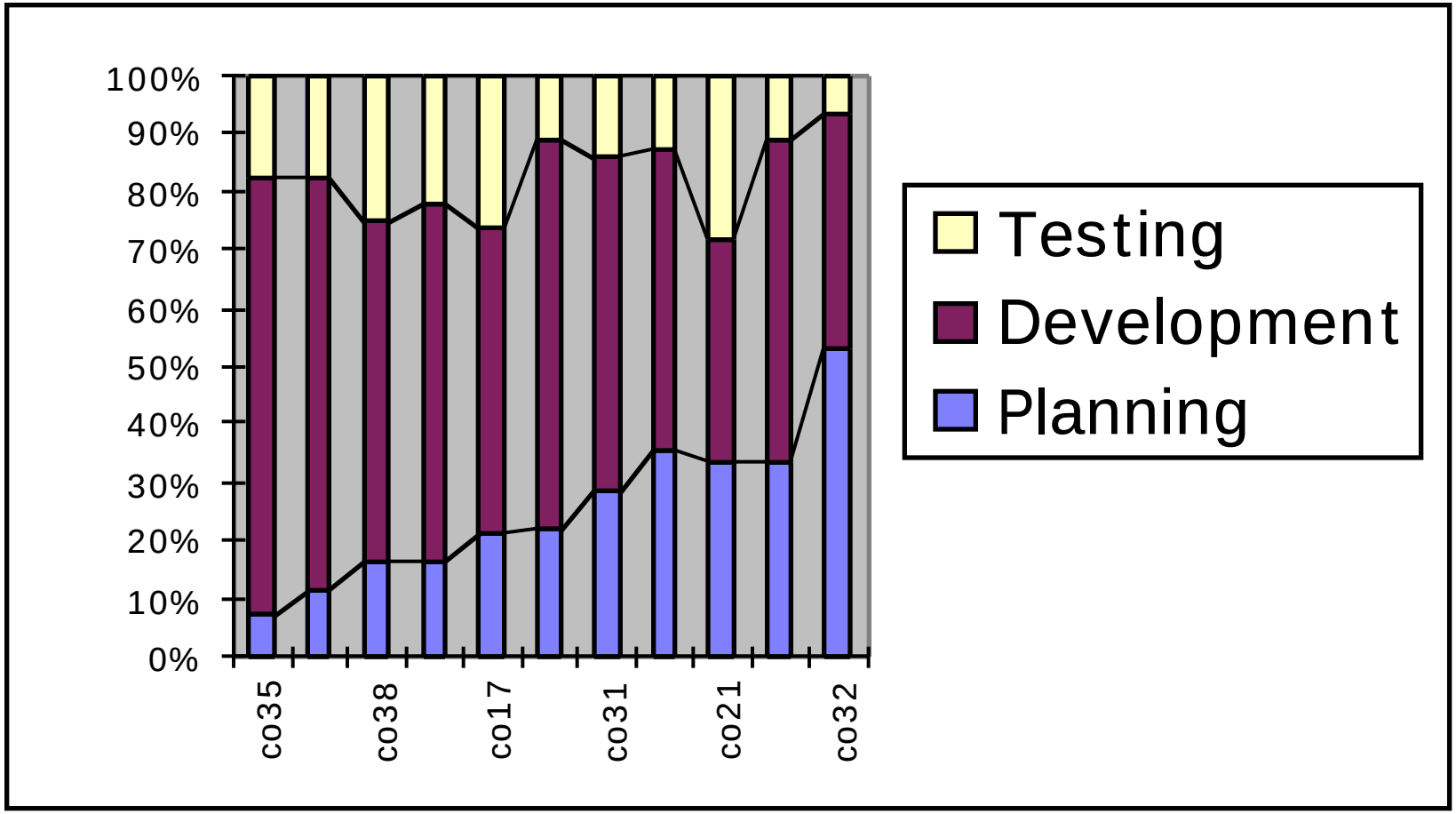


Last Stage When Feature Can Be Dropped

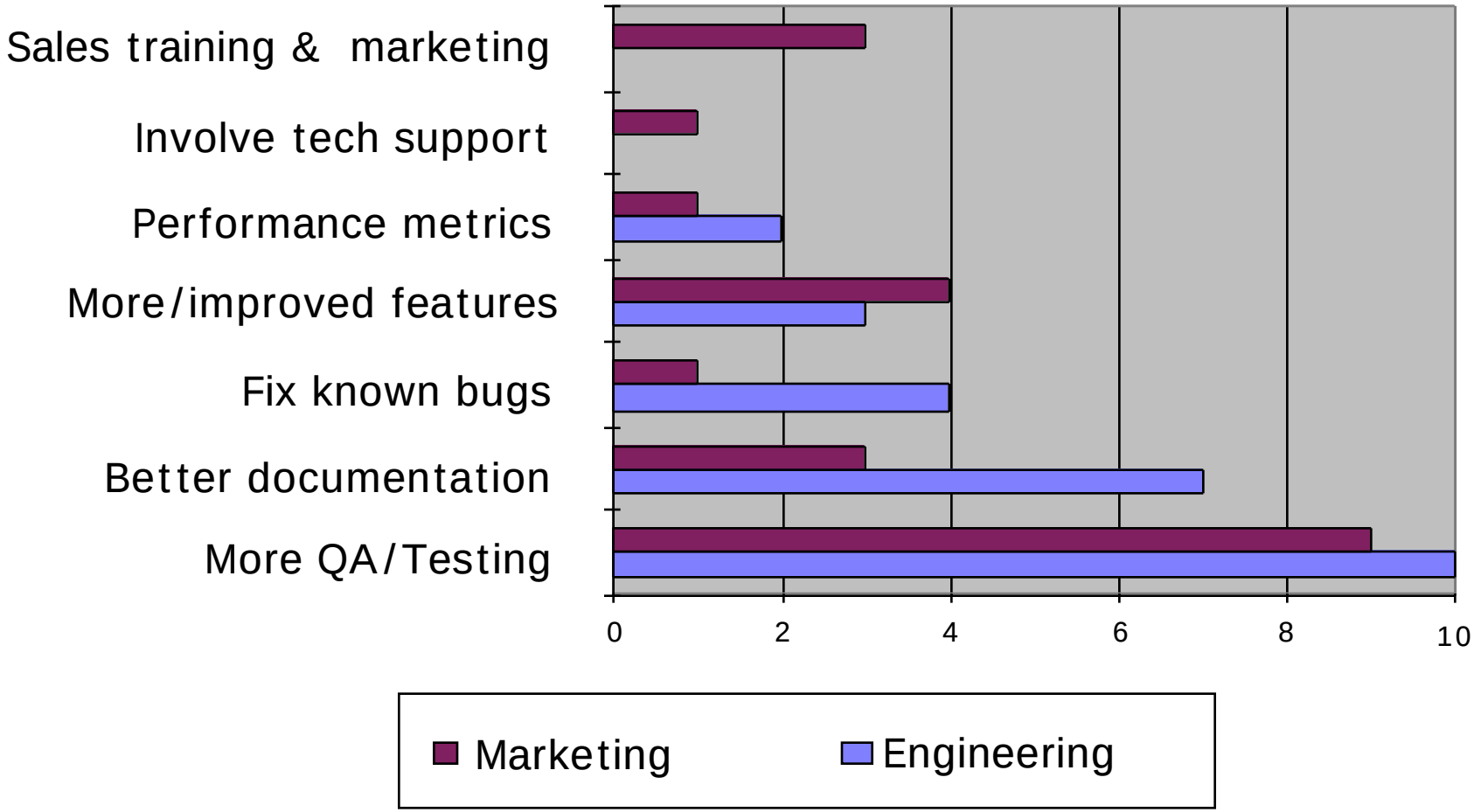


Before Alpha
Before Beta
Before GM
Other

Percentage of Time Spent in Planning, Development & Testing



What would you do with 3 more weeks? A Tradeoffs Indicator



Hypothetical Question #1

- You are the CEO. You announced a ship date of 12/95 on a major new operating system. A design flaw is suddenly found that inhibits performance when over 25 files are in the same directory.
  What would you do?
  - > Fix the problem & let schedule slip to 3/96.
  - > Revert to existing file system & fix bug in later "dot release."
  - > Document bug and ship as is. Fix bug in next upgrade scheduled for 6/96.
  - > Restrict number of files per directory. Fix bug in next upgrade (which is not yet scheduled).

Hypothetical Question #1